A. GENERAL REQUIREMENTS

1. THE AIA DOCUMENT A201 'GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION' IS HEREBY MADE A PART OF THESE NOTES. A COPY OF WHICH MAY BE OBTAINED FROM THE ARCHITECT BY REQUEST, OR FROM THE AIA OFFICE (LONGWORTH HALL: 100 WEST PETE ROSE WAY: CINCINNATI, OH).

2. ALL WORK SHALL COMPLY WITH OBBC AND CABO CODES WHERE APPLICABLE. WORK SHALL FOLLOW SHAPE OR ARRANGEMENT AND DIMENSION OF DRAWINGS AND MANUFACTURERS INSTALLATION INSTRUCTIONS.

3. ALL CHANGES SHALL BE APPROVED IN WRITING BY THE ARCHITECT AND THE OWNER PRIOR TO BEGINNING AFFECTED WORK.

B. PERMITS & TESTS

1. THE OWNER SHALL SECURE AND PAY FOR THE COST OF THE BUILDING PERMIT AND TESTS AS APPLICABLE.
   a.) GENERAL CONTRACTOR IS TO OBTAIN INSPECTIONS, AND APPROVALS PER LOCAL AND STATE REQUIREMENTS. THE COST OF THIS WORK SHALL BE INCLUDED IN THE BID TO THE OWNER.
   b.) ELECTRICAL, PLUMBING, AND HVAC SUB-CONTRACTORS SHALL OBTAIN AND PAY FOR THEIR RESPECTIVE PERMITS AND INSPECTIONS AND SHALL BE RESPONSIBLE FOR THE DESIGN AND DRAWINGS REQUIRED TO GET SUCH PERMITS. THE COST OF THIS WORK SHALL BE INCLUDED IN THE BID TO THE OWNER

C. STATE & LOCAL TAXES

1. THE GENERAL CONTRACTOR AND EACH SUB-CONTRACTOR SHALL PAY ANY APPLICABLE FEDERAL, STATE, AND LOCAL TAXES.

D. CONTRACT DOCUMENTS

1. THE CONTRACT DRAWINGS AND SPECIFICATIONS ARE INTENDED TO DESCRIBE AND PROVIDE FOR A FINISHED PIECE OF WORK. THEY ARE INTENDED TO BE COOPERATIVE, AND WHAT IS CALLED FOR BY EITHER SHALL BE AS BINDING UPON THE CONTRACTOR AS IF CALLED FOR BY BOTH.

2. IF ANY PERSON CONTEMPLATING SUBMITTING A BID FOR CONSTRUCTION OF THE WORK IS IN DOUBT AS TO THE TRUE MEANING OF ANY PART OF THE PROPOSED CONTRACT DOCUMENTS, OR FINDS DISCREPANCIES IN OR OMISSIONS FROM ANY PART OF THE PROPOSED CONTRACT DOCUMENTS, HE MAY ASK THE ARCHITECT FOR INTERPRETATION THEREOF.

3. IT IS UNDERSTOOD AND AGREED BY THE CONTRACTOR THAT HIS WORK SHALL BE COMPLETE IN EVERY DETAIL, EVEN THOUGH EVERY ITEM NECESSARILY INVOLVED IS NOT PARTICULARLY MENTIONED IN THE CONTRACT DRAWINGS OR THE SPECIFICATIONS. THE CONTRACTOR SHALL PROVIDE ALL LABOR AND MATERIALS NECESSARY FOR THE COMPLETION OF THE WORK INTENDED TO BE DESCRIBED, AND SHALL NOT AVAIL HIMSELF OF ANY MANIFEST ERROR OR OMISSION, SHOULD SUCH EXIST.

E. EXISTING CONDITIONS

1. BEFORE SUBMITTING A BID, EACH BIDDER SHALL CAREFULLY EXAMINE THE DRAWINGS, READ THE SPECIFICATIONS AND ALL OTHER PROPOSED CONTRACT DOCUMENTS, AND VISIT THE SITE OF THE WORK. EACH BIDDER SHALL FULLY INFORM HIMSELF PRIOR TO BIDDING AS TO ALL EXISTING CONDITIONS AND LIMITATIONS UNDER WHICH THE WORK IS TO BE PERFORMED, AND HE SHALL INCLUDE IN HIS BID A SUM TO COVER ALL COSTS OF ALL ITEMS NECESSARY TO PERFORM THE WORK AS SET FORTH IN THE PROPOSED CONTRACT DOCUMENTS. NO ALLOWANCE WILL BE MADE TO ANY BIDDER BECAUSE OF LACK OF SUCH EXAMINATION OR KNOWLEDGE. THE SUBMISSION OF A BID WILL BE CONSTRUED AS CONCLUSIVE EVIDENCE THAT THE BIDDER HAS MADE SUCH EXAMINATION.

F. LOCATE UNDERGROUND UTILITIES

1. PRIOR TO BEGINNING OF ANY WORK ON THE SITE, THE GENERAL CONTRACTOR IS TO LOCATE ANY AND ALL UNDERGROUND UTILITIES INCLUDING GAS LINES, WATER LINES, SEWERS, UNDERGROUND ELECTRIC, TELEPHONE, CABLE TV. OR ANY OTHER PRIVATE OR PUBLIC SERVICE.

G. INSURANCE

1. PRIOR TO COMMENCING ANY WORK ON THE SITE, THE GENERAL CONTRACTOR SHALL PURCHASE AND MAINTAIN IN FORCE THROUGHOUT THE ENTIRE PROJECT UNTIL FINAL ACCEPTANCE BY THE OWNER SUCH INSURANCE AS TO PROTECT HIM/HERSELF FROM CLAIMS WHICH MAY ARISE OUT OF OR RESULT FROM THE CONTRACTOR'S OPERATION UNDER THIS CONTRACT.

2. ALL CONTRACTORS SHALL FURNISH TO THE OWNER PROOF OF HAVING IN EFFECT LIABILITY INSURANCE, INCLUDING:
   a.) WORKMENS COMPENSATION
   b.) EMPLOYER LIABILITY
   c.) PUBLIC LIABILITY, PROPERTY LIABILITY, AND PERSONAL INJURY
   d.) AUTO LIABILITY, PROPERTY DAMAGE, AND PERSONAL INJURY

3. CERTIFICATE OF INSURANCE FORM: AIA DOCUMENT G705 'CERTIFICATE OF INSURANCE,' LATEST EDITION, SHALL BE USED FOR THE PROJECT.

H. WORK OF THE CONTRACT

1. PROCEDURES AND METHODS OF CONSTRUCTION SHALL BE THE SOLE RESPONSIBILITY OF THE GENERAL CONTRACTOR.

2. IT SHALL BE UNDERSTOOD THAT THE ARCHITECT'S ON-SITE OBSERVATION OF THE WORK IS NOT INTENDED TO INCLUDE REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES IN OR NEAR THE CONSTRUCTION SITE.

3. COMPLIANCE WITH ALL REGULATIONS PERTAINING TO SAFETY AND HEALTH IS THE SOLE AND COMPLETE RESPONSIBILITY OF EACH CONTRACTOR.

4. THE GENERAL CONTRACTOR SHALL SCHEDULE AND COORDINATE WORK OF ALL TRADES INCLUDING PLUMBING, HVAC, ELECTRICAL CONTRACTORS. HE SHALL DIRECT ARRANGEMENTS FOR STORAGE OF MATERIALS. HE SHALL COORDINATE AND EXPEDITE THE WORK OF ALL TRADES SO THAT PROGRESS OF THE PROJECT SHALL BE KEPT ON SCHEDULE.

5. EACH CONTRACTOR AND SUBCONTRACTOR SHALL COORDINATE THEIR WORK WITH ADJACENT WORK, COOPERATE WITH ONE ANOTHER AND WITH OTHER TRADES TO FACILITATE GENERAL PROGRESS OF WORK. EACH TRADE SHALL AFFORD OTHER TRADES EVERY REASONABLE OPPORTUNITY FOR INSTALLATION OF THEIR WORK OR STORAGE OF THEIR MATERIALS.

6. MANUFACTURED ARTICLES, MATERIALS AND EQUIPMENT SHALL BE APPLIED, INSTALLED, CONNECTED, ERECTED, USED, CLEANED AND CONDITIONED AS PER MANUFACTURER'S PRINTED SPECIFICATIONS AND DIRECTIONS, UNLESS SPECIFIED TO CONTRARY.

7. BEFORE ORDERING MATERIALS OR DOING WORK WHICH IS DEPENDENT FOR PROPER SIZE OR INSTALLATION ON COORDINATION WITH BUILDING CONDITIONS, TAKE MEASUREMENTS AT BUILDING AND BE RESPONSIBLE FOR SAME. NO CLAIM BASED ON DIFFERENCES BETWEEN ACTUAL DIMENSIONS AND THOSE SHOWN ON DRAWINGS WILL BE CONSIDERED. ANY DISCREPANCIES BETWEEN DRAWINGS AND/OR SPECIFICATIONS AND EXISTING CONDITIONS SHALL BE REFERRED TO ARCHITECT FOR ADJUSTMENT BEFORE ANY AFFECTED WORK IS STARTED.

8. SUBSTITUTIONS OF SPECIFIED MATERIALS MUST BE APPROVED BY THE ARCHITECT BEFORE INCLUDING IN ANY WORK.

9. WHEN NEW SITE WORK BECOMES INTRICATE AND CLOSELY ADJOINS EXISTING CONDITIONS, FIELD VERIFY LOCATIONS AND CONDITIONS. SHOULD ANY DISCREPANCIES OCCUR IMMEDIATELY REPORT TO THE ARCHITECT FOR CLARIFICATION.

10. EACH CONTRACTOR SHALL DO ALL CUTTING, FITTING, OR PATCHING OF HIS WORK THAT MAY BE REQUIRED TO MAKE ITS SEVERAL PARTS COME TOGETHER PROPERLY AND FIT IT TO RECEIVE OR BE RECEIVED BY THE WORK OF OTHER CONTRACTORS SHOWN OR REASONABLY IMPLIED BY THE DRAWINGS AND SPECIFICATIONS FOR THE COMPLETION OF ALL WORK CLASSIFICATION CONTRACTS AND SHALL BE MADE GOOD AFTER THEM AS THE ARCHITECT MAY DIRECT.

11. GENERAL CONTRACTOR SHALL CONSTRUCT AND MAINTAIN THROUGH THE COURSE OF CONSTRUCTION ALL TEMPORARY CLOSURES REQUIRED TO PROJECT THE BUILDING FROM WEATHER, INFILTRATION, VANDALISM, UNAUTHORIZED INTRUSION, DUST AND DIRT INFILTRATION AND LOSS OF HEAT.

12. CONTRACTOR IS RESPONSIBLE FOR THE COMPLETE AND SAFE SHORING AND BRACING OF THE STRUCTURE DURING THE REMOVAL AND REPLACEMENT OF ANY STRUCTURAL ELEMENTS. ANY DAMAGE DONE TO THE STRUCTURE CAUSED BY IMPROPER BRACING OR SHORING SHALL BE REPAIRED TO THE OWNERS SATISFACTION BY THE CONTRACTOR AND AT NO ADDITIONAL COST TO THE OWNER.

I. TEMPORARY UTILITIES

1. WATER
   a.) PLUMBING CONTRACTOR SHALL PROVIDE NECESSARY TEMPORARY PIPING AND WATER SUPPLY AS SOON AS PRACTICAL AND UPON INSTALLATION OF FINAL SERVICE OR FIXTURES, REMOVE ANY SUCH TEMPORARY FACILITY.
   b.) OWNER SHALL PROVIDE AND PAY FOR WATER USED DURING CONSTRUCTION.

2. ELECTRICITY
   a.) ELECTRICAL CONTRACTOR SHALL PROVIDE NECESSARY, TEMPORARY POWER SUPPLY TO THE SITE AS SOON AS PRACTICAL IN ACCORDANCE WITH POWER PROVIDER GUIDELINES AND UPON INSTALLATION OF FINAL SERVICE OR FIXTURES, REMOVE SUCH TEMPORARY FACILITY.
   b.) OWNER SHALL PAY FOR ELECTRICITY USED DURING CONSTRUCTION.

J. CONSTRUCTION CLEANING

1. AS NECESSARY AND AS DIRECTED BY ARCHITECT, EACH CONTRACTOR SHALL REMOVE FROM THE PREMISES AND RECYCLE WHERE PRACTICAL, OR OTHERWISE LEGALLY DISPOSE OF, ALL ACCUMULATION OF DEBRIS, WASTE MATERIALS AND RUBBISH CAUSED BY HIS/HER EMPLOYEES.

K. PROJECT CLOSEOUT

1. REPAIR, PATCH AND TOUCH-UP MARRED SURFACES TO NEW, UNUSED QUALITY AND MATCH ADJACENT SURFACES.

2. REPLACE FILTERS IN ALL HVAC EQUIPMENT OPERATING DURING CONSTRUCTION.

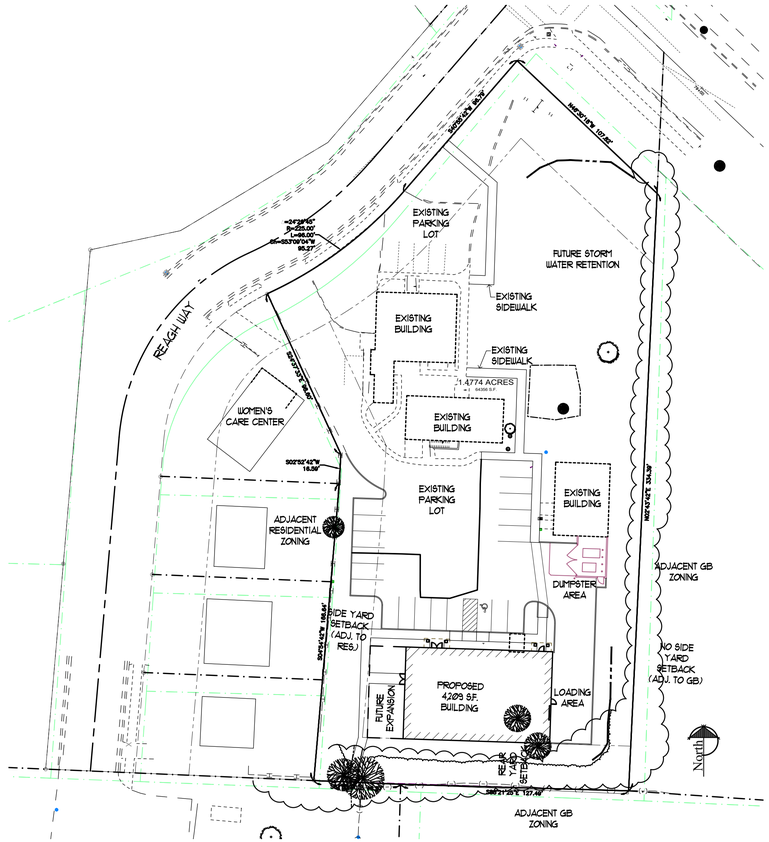
3. FINAL ACCEPTANCE OF THE WORK WILL OCCUR WHEN THE WORK, AFTER BEING SUBMITTED TO THE OWNER, IS DETERMINED BY THE ARCHITECT TO BE IN ACCORDANCE WITH THE SPECIFICATIONS AND THE CONTRACT. FINAL ACCEPTANCE WILL BE EVIDENCED BY A DULY AUTHORIZED REPRESENTATIVE OF THE OWNER AND ARCHITECT, AND IF THERE ARE ITEMS OF WORK REMAINING TO BE COMPLETED, FINAL ACCEPTANCE WILL BE SUBJECT TO A DETAILED PUNCH LIST OF ITEMS OF WORK REMAINING TO BE COMPLETED ACCOMPANIED BY A SIGN-OFF LETTER DULY EXECUTED BY THE CONTRACTOR AND THE OWNER.

4. THE CONTRACTOR SHALL PROVIDE TO THE OWNER:
   a.) FINAL CERTIFICATE OF INSPECTIONS REQUIRED FOR OCCUPANCY. "CERTIFICATE OF OCCUPANCY" FROM GOVERNING AUTHORITY.
   b.) PLUMBING, HVAC, AND ELECTRICAL EQUIPMENT OPERATING MANUALS, MANUFACTURER'S PRODUCT INFORMATION, SHOP DRAWINGS, AND WARRANTY INFORMATION.

5. A FINAL AFFIDAVIT AND LIEN RELEASE WILL BE REQUIRED BEFORE FINAL PAYMENT IS MADE.

L. GUARANTEES

1. ALL WORK SHALL BE GUARANTEED FOR A PERIOD OF ONE FULL YEAR FROM THE DATE OF COMPLETION OF THE JOB, AND THE CONTRACTOR SHALL FIX ANY DEFICIENCIES WITHOUT COST TO THE OWNER FOR THAT FULL PERIOD.



SITE PLAN

1" = 40'-0"

BUILDING CODE REVIEW

(2024 OHIO BUILDING CODE)

SCOPE OF WORK

PROPOSAL CONTAINED HEREIN DESCRIBES THE CONSTRUCTION OF A NEW PRE-FABRICATED METAL BUILDING TO HOUSE A NEW FOOD PANTRY AND SOCIAL SERVICE CENTER.

A. OVERALL BUILDING AREA: 4,209 S.F. PER FLOOR

B. USE GROUP CLASSIFICATION: FIRST FLOOR: 'B' BUSINESS

C. TYPE OF CONSTRUCTION: 2B - NON-COMBUSTIBLE

D. HEIGHT & AREA LIMITATIONS: BASED ON USE GROUP 'B' BUSINESS

'B' - BUSINESS (NS)
ALLOWABLE HEIGHT: 3-STORY, 55'-0" ACTUAL HEIGHT: 1-STORY, 14'-4"
ALLOWABLE AREA: 23,000 S.F. ACTUAL AREA: 4,209 S.F.

E. PHYSICALLY HANDICAPPED ACCESSIBILITY: PROVIDED

F. FIRE PROTECTION SYSTEM: NONE

G. OCCUPANT LOAD: GROUND FLOOR RESTAURANT:

'B', TABLE 1004.5 (BUSINESS) - 4,209 SF @ 150 SF GROSS / OCCUPANT = 28 OCCUPANTS

TOTAL OCCUPANTS = 28 OCCUPANTS

INDEX OF DRAWINGS:

NEW FOOD PANTRY & SOCIAL SERVICE CENTER

TOPSS

8 REAGH'S WAY
OXFORD, OHIO 45056

SCOTT WEBB
ARCHITECT
103 West Walnut Street
Oxford, Ohio 45056
(513) 523-3838
www.scottwebbarchitect.com

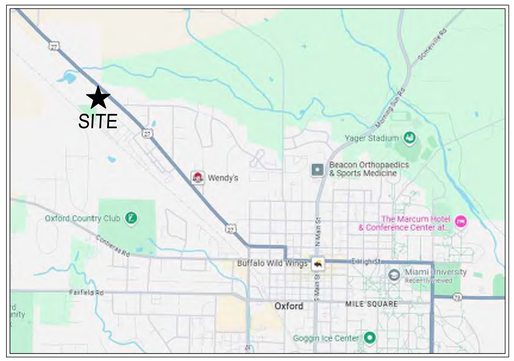
KLH ENGINEERS
KOHRS LONNEMANN HEIL ENGINEERS, INC.
WWW.KLHENGRS.COM
1536 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783 859-442-8050
859-442-8058 FAX
MECHANICAL/ ELECTRICAL ENGINEERS

bayer becker
www.bayerbecker.com
110 S. College Avenue, Suite 101
Oxford, OH 45056 - 513.523.4270

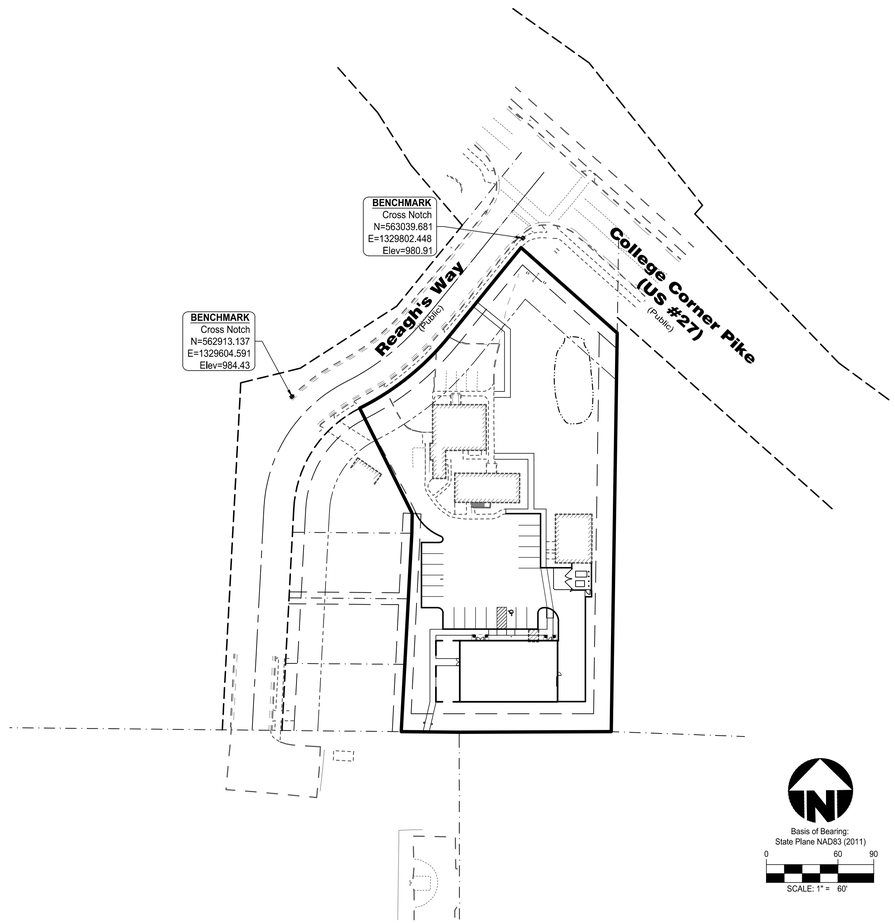
STATE OF OHIO
L. SCOTT WEBB
11193
REGISTERED ARCHITECT

L. SCOTT WEBB, LICENSE #11193
EXPIRATION DATE 12/31/2025

TOPSS: TALAWANDA OXFORD
PANTRY & SOCIAL SERVICES
SECTION 16, TOWN 5, RANGE 1, CONGRESS LANDS W. OF THE MIAMI
LOT 3285 OXFORD
BUTLER COUNTY, OHIO
5445 COLLEGE CORNER PIKE



VICINITY MAP
NO SCALE



AREA MAP
1"=60 FT

811
Know what's **below.**
Call before you dig.

LOCATION OF ALL EXISTING UTILITIES TO BE DETERMINED IN THE FIELD PRIOR TO CONSTRUCTION

OWNER
TOPPSS
5445 COLLEGE CORNER PIKE
OXFORD, OHIO 45056

ENGINEER/SURVEYOR
LANDSCAPE ARCHITECT
BAYER BECKER, INC.
6900 TYLERSVILLE ROAD, SUITE A
MASON, OHIO 45040
PH: (513) 336-6600

BENCHMARK #1
CROSS NOTCH
LOCATED NORTH OF REAGH'S WAY
N:562913.137
E:1329604.591
ELEV:984.43

BENCHMARK #2
CROSS NOTCH
LOCATED IN SOUTH CORNER OF THE
INTERSECTION AT COLLEGE CORNER PIKE AND REAGH'S WAY
N:563039.681
E:1329802.448
ELEV: 980.91

INDEX OF SHEETS

STATE OF OHIO
GREGORY J. KOCH
E-69324
PROFESSIONAL ENGINEER
2/28/25

Item	Revision Description	Date	Drawn	Chk
1	REVISED PER OWNER REVIEW	02-28-25	GJK	

TOPSS: TALAWANDA OXFORD
PANTRY & SOCIAL SERVICES
SEC. 16, TOWN 5, RANGE 1, CONGRESS LANDS W. OF THE MIAMI
LOT 3285 OXFORD
BUTLER COUNTY, OHIO
5445 COLLEGE CORNER PIKE

TITLE SHEET

bayer becker
www.bayerbecker.com
110 S. Cherry Street, Suite 101
Oxford, OH 45056 - 513.523.4270

Drawing: 24-0042 CD
Drawn by: SJW
Checked By: GJK
Issue Date: 02-14-25
Sheet: C1.0

Plot time: Feb 27, 2025 - 4:25pm
Drawing name: J:\2024\24-0042\CV\DWG\24-0042 CD.dwg - Layout Tab: Layout1

GENERAL

1. ITEM NUMBERS REFER TO THE OHIO DEPARTMENT OF TRANSPORTATION (ODOT) CONSTRUCTION AND MATERIAL SPECIFICATIONS (2023) AND ALL CONSTRUCTION WORK SHALL BE DONE ACCORDING TO SAID SPECIFICATIONS AND IN ACCORDANCE WITH APPLICABLE STANDARDS OF THE GOVERNING AGENCIES. WHEN IN CONFLICT, THE MORE STRINGENT REQUIREMENTS SHALL GOVERN.
2. THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION AND ELEVATIONS OF ALL EXISTING UTILITIES PRIOR TO THE BEGINNING OF CONSTRUCTION OR EARTH MOVING OPERATIONS.
3. FORTY-EIGHT (48) HOURS BEFORE DIGGING IS TO COMMENCE, THE CONTRACTOR SHALL NOTIFY THE OHIO UTILITY PROTECTION SERVICE (OUPS) AND ALL OTHER AGENCIES WHICH MAY HAVE UNDERGROUND UTILITIES INVOLVED IN THIS PROJECT AND ARE NOT MEMBERS OF OHIO UNDERGROUND PROTECTION, INC.
4. CONTRACTOR AND OWNER SHALL VERIFY AND ACCEPT ALL QUANTITIES PRIOR TO BEGINNING CONSTRUCTION.
5. CONTRACTOR SHALL VERIFY THAT COORDINATES, IF USED, MATCH PLAN DIMENSIONS. WHEN IN CONFLICT, THE PLAN DIMENSIONS SHALL GOVERN OVER COORDINATES, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
6. UNLESS OTHERWISE NOTED, ALL CONSTRUCTION DETAILS SHALL CONFORM WITH THE "STANDARD CONSTRUCTION DRAWINGS OF THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION".
7. EXISTING SITE SURVEY, TOPOGRAPHY, AND SUBSURFACE CONDITIONS: EXISTING CONDITIONS PRESENTED IN DRAWING, REPORT OR SPECIFICATION FORM ARE BELIEVED ACCURATE WITHIN NORMAL INDUSTRY TOLERANCES BUT ARE NOT GUARANTEED. INVESTIGATE, SURVEY, CONFIRM AND VERIFY ALL CONDITIONS BEARING ON THE WORK BY ANY MEANS NECESSARY BEFORE STARTING ANY WORK THAT CHANGES EXISTING CONDITIONS. REPORT ANY UNACCEPTABLE DISCREPANCIES TO THE ENGINEER IN WRITING BEFORE BEGINNING OPERATIONS
   - 7.1. WRITTEN CLAIMS OF DIFFERENCE SHALL BE ACCOMPANIED BY SUBSTANTIATING EVIDENCE. CLAIMS OF DIFFERENCE SHALL BE RESOLVED, INCLUDING DETERMINATION OF QUANTITIES AND COSTS AND METHODS OF CONTRACT MODIFICATION, BEFORE WORK THAT ALTERS SUCH EXISTING CONDITIONS IS STARTED.
   - 7.2. INITIATION OF SITE-CLEARING, SOIL-MOVING OPERATIONS, DEMOLITION OR OTHER ACTIVITY THAT ALTERS EXISTING CONDITIONS SHALL BE EVIDENCE THAT CONTRACTOR HAS MADE ALL INVESTIGATIONS AND EVALUATIONS IT DEEMS NECESSARY AND HAS ACCEPTED ALL EXISTING CONDITIONS PRESENT WHETHER OR NOT THEY CONFORM EXACTLY TO THE DOCUMENTS.
   - 7.3. WITHOUT ADVANCE WRITTEN NOTIFICATION OF UNACCEPTABLE DISCREPANCY, NO CLAIM FOR EXTRA WILL BE CONSIDERED FOR A CLAIM OF DIFFERENCE BETWEEN DOCUMENTS AND ACTUAL CONDITIONS AFTER THE CONTRACTOR HAS ALTERED EXISTING CONDITIONS.
8. WHERE CONNECTING TO EXISTING ASPHALT PAVEMENT, THE CONTRACTOR SHALL SAW CUT THE EXISTING EDGE OF PAVEMENT TO PROVIDE A CLEAN AND SOUND EDGE. ITEM 407 TACK COAT SHALL BE APPLIED TO THE ENTIRE CUT FACE OF THE EXISTING PAVEMENT PRIOR TO THE PLACEMENT OF THE PROPOSED PAVEMENT.
9. PARKING LOT PAVEMENT MARKINGS SHALL CONFORM TO ITEM 641 PAVEMENT MARKINGS AND THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. PAVEMENT MARKING MATERIAL SHALL BE PER ITEM 642 TRAFFIC PAINT UNLESS OTHERWISE NOTED.
10. PARKING LOT STRIPING SHALL BE FOUR (4) INCHES WIDE WHITE HIGHWAY-TYPE STRIPING APPLIED IN ACCORDANCE WITH THE PLAN.
11. ALL DIMENSIONS AND PROPOSED ELEVATIONS ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
12. ALL RADII ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
13. PARKING STALLS ARE 9'x18' UNLESS OTHERWISE NOTED.
14. ALL SITE CONCRETE SHALL BE PER ODOT ITEM 499 CLASS C UNLESS OTHER WISE NOTED ON THE PLANS.

DEMOLITION NOTES

1. THE TOPOGRAPHIC AND UTILITY INFORMATION SHOWN IS BASED ON A TOPOGRAPHIC SURVEY PREPARED BY BAYER BECKER, AND VARIOUS UTILITY PLANS PROVIDED BY THOSE GOVERNING AGENCIES.
2. THE LOCATION OF THE UNDERGROUND UTILITIES SHOWN ON THE PLAN HAVE BEEN OBTAINED BY FIELD CHECKS AND SEARCHES OF AVAILABLE RECORDS AND DO NOT NECESSARILY REPRESENT ALL UNDERGROUND UTILITIES ADJACENT TO OR UPON THE PREMISES. THE ENGINEER DOES NOT GUARANTEE THEIR ACCURACY OR COMPLETENESS. THE CONTRACTOR SHALL VERIFY LOCATIONS WITH UTILITY COMPANIES BEFORE MAKING EXCAVATIONS. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR VERIFYING ALL EXISTING UTILITY LOCATIONS WHETHER SHOWN ON THESE PLANS OR NOT.
3. APPROPRIATE UTILITY COMPANIES AND OHIO UTILITIES PROTECTION SERVICE (811) SHALL BE NOTIFIED AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO BREAKING GROUND FOR THE PURPOSE OF VERIFYING BY FIELD INSPECTION THE EXACT LOCATION OF THE UNDERGROUND UTILITY. UTILITIES ARE SHOWN IN THEIR APPROXIMATE LOCATIONS ACCORDING TO AVAILABLE INFORMATION.
4. THESE PLANS, AS PREPARED BY BAYER BECKER, DO NOT EXTEND TO OR INCLUDE SYSTEMS PERTAINING TO THE SAFETY OF THE DEMOLITION/CONSTRUCTION CONTRACTOR OR ITS EMPLOYEES, AGENTS OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK. THE SEAL OF BAYER BECKER'S REGISTERED PROFESSIONAL ENGINEER HEREON DOES NOT EXTEND TO ANY SUCH SAFETY SYSTEMS THAT MAY NOW OR HEREAFTER BE INCORPORATED INTO THESE PLANS. THE CONTRACTOR SHALL PREPARE OR OBTAIN THE APPROPRIATE SAFETY SYSTEMS WHICH MAY BE REQUIRED BY U.S. OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) AND/OR LOCAL REGULATIONS..
5. ALL CONTRACTORS INCLUDING BUT NOT LIMITED TO THE DEMOLITION, EXCAVATION, PAVING, PLUMBING, ELECTRICAL, SIGN, FIRE PROTECTION, HVAC CONTRACTORS SHALL BE UNDER THE DIRECTION OF THE GENERAL CONTRACTOR OR OWNER WHO WILL BE HELD RESPONSIBLE FOR THE COORDINATION OF ALL WORK ON THIS PROJECT AND THE PROPER EXECUTION OF THE SAME.
6. THE CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.
7. REMOVAL AND/OR RELOCATION OF ANY UTILITIES SHALL BE COORDINATED WITH THE APPROPRIATE UTILITY COMPANY AND SHALL BE DISCONNECTED PER THE ASSOCIATED UTILITY AGENCY'S REQUIREMENTS.
8. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES, FACILITIES, AND STRUCTURES THAT ARE INTENDED TO CONTINUE TO PROVIDE SERVICE WHETHER SHOWN ON THE PLANS OR NOT.
9. WHERE CONNECTING TO EXISTING PAVEMENT, THE CONTRACTOR SHALL SAWCUT THE EXISTING EDGE OF PAVEMENT TO PROVIDE A SOUND & CLEAN EDGE. THE CONTRACTOR SHALL APPLY ITEM 407 TACK COAT TO THE ENTIRE CUT FACE OF THE EXISTING PAVEMENT PRIOR TO THE PLACEMENT OF THE PROPOSED PAVEMENT.
10. THE CONTRACTOR SHALL INSTALL EROSION CONTROL MEASURES PRIOR TO DEMOLITION AND CONSTRUCTION.
11. AS SOON AS DEMOLITION WORK HAS BEEN OTHERWISE COMPLETED AND APPROVED BY THE OWNER, EARTHWORK MAY BEGIN. THE FINAL GRADE IN AREAS OUTSIDE THE CONSTRUCTION SITE SHALL BE SUCH AS TO PRESENT A NEAT, WELL-DRAINED APPEARANCE, AND TO PREVENT WATER FROM DRAINING UNNECESSARILY ONTO ADJACENT PROPERTIES.

GENERAL UTILITY

1. BACKFILL OF ALL UTILITY EXCAVATIONS IN STRUCTURAL AREAS INCLUDING UNDER PAVEMENTS OR WITHIN TEN (10) FEET OF ANY BUILDING AREAS SHOULD BE CONTINUALLY MONITORED BY A REPRESENTATIVE OF THE PROJECT GEOTECHNICAL ENGINEER TO VERIFY THAT PROPER LIFT THICKNESS, MOISTURE CONDITION, AND COMPACTIVE EFFORT ARE MAINTAINED.
2. CONTRACTOR SHALL VERIFY ALL UTILITY AND CONDUIT SIZES AND LOCATIONS WITH THE ARCHITECTURAL, MECHANICAL, AND STRUCTURAL DRAWINGS PRIOR TO BEGINNING CONSTRUCTION ACTIVITIES.
3. ALL BUILDING UTILITY SERVICES ARE TO BE STUBBED 5 FT. FROM THE BUILDING FOR CONNECTION BY INTERIOR CONTRACTOR.
4. ALL UTILITY TRENCHES PROPOSED WITHIN THE LIMITS OF EXISTING PAVEMENT AND WITHIN THE PUBLIC RIGHT-OF-WAY SHALL BE BACKFILLED TO SUBGRADE WITH GRANULAR BACKFILL TO A DISTANCE OF 5 FT BEYOND THE BACK OF CURB.
5. THE CITY OF OXFORD DOES NOT ACCEPT ANY RESPONSIBILITY FOR THE RELOCATION, REPAIR, OR REPLACEMENT OF ANY OTHER UTILITY INSTALLED WITHIN 5 FT OF THE CENTERLINE OF ANY SANITARY SEWER MAIN OR WATER MAIN.
6. CONTRACTOR SHALL OBTAIN RIGHT OF WAY PERMIT FROM CITY OF OXFORD FOR ALL WORK PROPOSED WITHIN THE PUBLIC RIGHT OF WAY.

STORM SEWERS

1. ALL WORK AND MATERIALS ARE TO CONFORM TO THE 2019 EDITION OF ODOT CONSTRUCTION AND MATERIALS SPECIFICATIONS AND CITY OF OXFORD SPECIFICATIONS. WHEN IN CONFLICT, THE MORE STRINGENT REQUIREMENTS SHALL PREVAIL.
2. STORM SEWER PIPES DESIGNATED AS "STM" SHALL MEET THE MATERIAL & INSTALLATION REQUIREMENTS OF ODOT ITEM 603, TYPE B CONDUITS AND AS FOLLOWS:
   - 2.1. NON-REINFORCED CONCRETE PIPE PER ODOT SPECIFICATION 706.01
   - 2.2. REINFORCED CONCRETE CIRCULAR PIPE PER ODOT SPECIFICATION 706.02
   - 2.3. PRECAST REINFORCED CONCRETE BOX SECTIONS PER ODOT SPECIFICATION 706.05
   - 2.4. REINFORCED CONCRETE ELLIPTICAL CULVERT, STORM DRAIN, AND SEWER PIPE PER ODOT SPECIFICATION 706.04
   - 2.5. ALUMINIZED TYPE 2 CORRUGATED STEEL PIPE AND PIPE ARCHES WITH PAVED INVERT PER ODOT SPECIFICATIONS 707.01 OR 707.02
   - 2.6. CORRUGATED STEEL SPIRAL RIB CONDUITS PER ODOT SPECIFICATIONS 707.12
   - 2.7. CORRUGATED POLYETHYLENE SMOOTH LINED PIPE PER ODOT SPECIFICATION 707.33
   - 2.8. POLYVINYL CHLORIDE PROFILE WALL PIPE PER ODOT SPECIFICATION 707.42
   - 2.9. PIPE BEDDING AND TRENCH BACKFILL SHALL BE PER ODOT 603 AND STANDARD DRAWING DM-1.4 CONDUIT INSTALLATION. CONTRACTOR SHALL PROVIDE AN ALTERNATE BID ITEM TO PROVIDE STRUCTURAL BACKFILL FOR ALL TRENCHES TO PAVEMENT SUBGRADE.
3. ALL STORM STRUCTURES ARE ODOT TYPES UNLESS OTHERWISE INDICATED.
4. ALL CATCH BASINS SHALL BE EQUIPPED WITH HEAVY DUTY, BICYCLE SAFE GRATES CAPABLE OF CARRYING AN HS-25 LOADING, UNLESS OTHERWISE NOTED.
5. ANY EXISTING STORM SEWER CUT IN EXCAVATION WHICH DRAINS AN OFFSITE AREA MUST BE TIED INTO THE STORM SEWER SYSTEM.
6. ALL CATCH BASINS IN THE PAVEMENT OR CURB ARE TO HAVE A MINIMUM OF TWO FOUR (4) INCH PERFORATED UNDERDRAINS EXTENDING TWENTY (20) LINEAR FEET FROM THE CATCH BASIN. UNDERDRAINS SHALL BE PLACED ONE ON EACH SIDE OF THE STORM SEWER AND AS NEAR TO PERPENDICULAR TO THE STORM SEWER AS IS PRACTICAL WITHOUT INTERFERING WITH STORM PIPES SHOWN ON THE PLANS. SEE PAVEMENT UNDERDRAIN DETAIL C4.0.
7. AS THE INSTALLATION OF THE STORM SEWER PROGRESSES, EROSION CONTROL MEASURES SHALL BE PLACED AT INLET AND OUTLET OF SEWERS TO CONTROL THE SILT
8. SUMP LINE CONDUITS ARE TO BE SDR 35, ARMCO 2000, OR EQUIVALENT.
9. ALL JOINTS SHALL BE SOIL SEAL JOINTS UNLESS SPECIFICALLY NOTED ON THE PLANS.
10. DEFLECTION TESTING FOR STORM SEWERS AND CULVERTS SHALL BE AS PER THE REQUIREMENTS OF THE CITY OF OXFORD.
11. STORM WATER AND EXTRANEOUS FLOWS ARE PROHIBITED FROM ENTERING THE EXISTING SYSTEM DURING CONSTRUCTION. NO OPEN CUT TRENCHES WILL BE ALLOWED TO REMAIN OPEN OVERNIGHT. STORM DRAINS, DIVERSION DITCHES, PUMPS ETC., SHALL BE USED AS REQUIRED TO MAINTAIN THE INTEGRITY OF THE SYSTEM AT ALL TIMES.
12. ALL CATCH BASINS WITH A DEPTH GREATER THAN 4.0 FT SHALL BE PROVIDED WITH STEPS. STEPS SHALL MEET THE REQUIREMENTS OF ODOT STANDARD 604.
13. ALL STORM SEWER SHALL HAVE A MAXIMUM MANNING'S ROUGHNESS COEFFICIENT OF 0.013.
14. ROOF DRAINS ARE TO BE PER ODOT 707.33, 707.42, OR 707.45.

SANITARY SEWERS

1. ALL WORK AND MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF THE CITY OF OXFORD'S WATER AND SANITARY SEWER IMPROVEMENT SPECIFICATIONS AND BACKFLOW CROSS CONNECTION MANUAL.
2. ROOF DRAINS, FOUNDATION DRAINS, AND ALL OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SEWER SYSTEM ARE PROHIBITED.
3. NO BUILDING SHALL BE CONNECTED TO A SEWER LATERAL UNTIL THE BUILDING IS UNDER ROOF.
4. SANITARY LATERAL SHALL BE SDR 35 OR SCHEDULE 40.
5. ALL SANITARY SEWER MANHOLES, CASTINGS, PIPE, ETC., SHALL CONFORM WITH CURRENT SPECIFICATIONS OF THE CITY OF OXFORD'S WATER AND SANITARY SEWER IMPROVEMENT SPECIFICATIONS AND BACKFLOW CROSS CONNECTION MANUAL.
6. SANITARY SEWER MATERIALS AND INSTALLATION TO BE AS PER THE CITY OF OXFORD'S WATER AND SANITARY SEWER IMPROVEMENT SPECIFICATIONS AND BACKFLOW CROSS CONNECTION MANUAL
7. CROSSINGS:
   WHENEVER A SANITARY SEWER AND WATER MAIN MUST CROSS, THE SEWER SHALL BE AT SUCH AN ELEVATION THAT THE CROWN OF THE SEWER IS AT LEAST 18 INCHES MEASURED BETWEEN THE OUTSIDE PIPE WALLS, BELOW THE BOTTOM OF THE WATER MAIN. IF IT IS ABSOLUTELY IMPOSSIBLE TO MAINTAIN THE 18 INCH VERTICAL SEPARATION, THE WATER MAIN SHALL BE RELOCATED OR THE SEWER SHALL BE CONSTRUCTED AS FOLLOWS:
   - 7.1. A SEWER PASSING OVER OR UNDER THE WATER MAIN SHALL BE ENCASED OR CONSTRUCTED OF MATERIALS THAT ARE EQUIVALENT TO WATER MAIN STANDARDS OF CONSTRUCTION FOR A MINIMUM DISTANCE OF 10 FEET ON EACH SIDE OF THE WATER MAIN.
   - 7.2. THE SEWER CROSSING SHALL BE CONSTRUCTED SO THAT THE SEWER JOINTS WILL BE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE WATER MAIN JOINTS.
   - 7.3. WHERE A WATER MAIN PASSES UNDER A SEWER, ADEQUATE STRUCTURAL SUPPORT SHALL BE PROVIDED FOR THE SEWER TO PREVENT DAMAGE TO THE WATER MAIN.
8. ALL BUILDINGS TO BE SERVED BY THE PUBLIC SEWER SYSTEM SHALL BE CONSTRUCTED SO AS TO PROVIDE A MINIMUM OF 4 FT OF VERTICAL SEPARATION BETWEEN THE PUBLIC SANITARY SEWER AT THE POINT OF CONNECTION AND THE LOWEST BUILDING LEVEL SERVED BY A GRAVITY SEWER CONNECTION. IN ADDITION, SAID BUILDING LEVEL SHALL BE AT LEAST 1 FT ABOVE THE LOWEST POINT OF FREE-OVERFLOW (NON-SEALED MANHOLE COVER) UPSTREAM OF ANY TREATMENT FACILITY OF WASTEWATER PUMPING FACILITY THAT RECEIVES THE DISCHARGE FROM SAID BUILDING. SAID MINIMUM SERVICE LEVELS SHALL BE RECORDED ON THE "AS-BUILT" PLANS FOR THE DEVELOPMENT WHICH WILL BE KEPT ON FILE IN THE OFFICE OF THE THE CITY OF OXFORD.
9. PROVIDE THE CITY OF OXFORD WITH A FORTY-EIGHT (48) HOUR NOTICE PRIOR TO THE START OF ANY CONSTRUCTION, INCLUDING SANITARY INSTALLATION BY CALLING (513) 524-5206.
10. SANITARY SEWER LATERALS, WHICH SHALL INCLUDE ALL PIPE AND APPURTENANCES FROM THE BUILDING TO THE PUBLIC SEWER MAIN, AND THE CONNECTION TO THE PUBLIC SEWER MAIN SHALL BE CONSIDERED PRIVATE AND THE RESPONSIBILITY OF THE PROPERTY OWNER TO MAINTAIN. THE CONNECTION TO THE SEWER MAIN WOULD BE ANY PIPING THAT EXTENDS OUT FROM THE MAIN BARREL OF THE SEWER MAIN.

WATER MAINS

1. ALL WATER WORK AND WATER MAIN MATERIALS INCLUDING PIPE, FITTINGS, VALVES, HYDRANTS, AND INSTALLATION SHALL CONFORM TO THE REQUIREMENTS OF CITY OF OXFORD'S WATER AND SANITARY SEWER IMPROVEMENT SPECIFICATIONS AND BACKFLOW CROSS CONNECTIONS MANUAL.
2. ALL PUBLIC WATER MAIN MATERIALS, VALVES, FIRE HYDRANTS, FITTINGS, AND APPURTENANCES SHALL BE CLASS 53 DUCTILE IRON PER AWWA C-151.
3. PRIVATE MAINS AND APPURTENANCES SHALL MEET OR EXCEED THE REQUIREMENTS OF THE THE CITY OF OXFORD.
4. FIRE DEPARTMENT CONNECTION (STORTZ CONNECTION) SHALL BE WITHIN 75 FT. OF A PUBLIC FIRE HYDRANT OR A FIRE HYDRANT OFF OF THE MAIN BETWEEN THE PUBLIC MAIN AND THE METER PIT.
5. FIRE DEPARTMENT CONNECTION LINE SHALL TIE INTO THE FIRE SUPPRESSION SYSTEM ON THE BUILDING SIDE OF THE PUMP IF A PUMP IS INSTALLED.
6. NO PART OF ANY FIRE HYDRANT SETTING SHALL BE CLOSER THAN FIVE (5) FEET FROM ANY INLET, DRIVEWAY, PARKING LOT, UTILITY POLE, OR GUY WIRE ANCHOR.
7. WATER MAINS SHALL MAINTAIN A MINIMUM COVER OF FOUR (4) FEET.
8. BUILDING WATER SERVICES SHALL MAINTAIN 3.5 FT TO 4.0 FT OF COVER.
9. ALL WATER MAIN VALVES SHALL HAVE A MINIMUM DEPTH OF 2.5 FT. AND MAXIMUM DEPTH OF 4.0 FT. FROM PROPOSED GRADE TO THE TOP OF THE VALVE OPERATING NUT.
10. A MINIMUM CLEAR DISTANCE OF TEN (10) FEET HORIZONTAL OR EIGHTEEN (18) INCHES VERTICAL SHALL BE MAINTAINED BETWEEN SANITARY AND/OR STORM SEWERS AND WATER MAINS.
11. SANITARY AND STORM SEWERS THAT CROSS WATER MAINS SHALL BE LOCATED SUCH THAT THE SEWER JOINTS WILL BE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE WATER MAIN JOINTS.
12. ALL WATER MAINS SHALL BE PROVIDED WITH JOINT RESTRAINT AT ALL TEES, HORIZONTAL AND VERTICAL BENDS, ETC...WHETHER SHOWN ON THE PLAN VIEW OR NOT. JOINT RESTRAINT SHALL MEET THE REQUIREMENTS OF THE CITY OF OXFORD'S WATER AND SANITARY SEWER IMPROVEMENT SPECIFICATIONS AND BACKFLOW CROSS CONNECTION MANUAL. (SEE WATER MAIN RESTRAINED JOINT LOCATION CHART ON SHEET C4.1)
13. SERVICE PIPING SMALLER THAN THREE (3) INCHES SHALL BE SEAMLESS COPPER FLEXIBLE WATER TUBING, ASTM B 88, TYPE K, PRESSURE CLASS 250.
    - 13.1. FITTINGS SHALL BE COMPRESSION STYLE FOR CTS TUBING, CONSULT GOVERNING AGENCY FOR A LISTING OF ACCEPTABLE MANUFACTURERS AND PRODUCTS.
    - 13.2. COUPLINGS WITH SET SCREWS OR GRIP RINGS WILL NOT BE ACCEPTABLE.
    - 13.3. WATER SERVICE TUBING SHALL BE BEDDED SIX (6) INCHES ABOVE AND BELOW WITH SAND OR OTHER NON-COMPACTIBLE MATERIAL APPROVED BY THE GOVERNING AGENCY.
14. CITY OF OXFORD WATER DEPARTMENT SHALL ESTABLISH PROCEDURES FOR REPAIRS TO WATER MAIN OR WATER SERVICES DAMAGED.
15. ALL WATER METER PITS SHALL CONFORM TO THE MATERIALS AND SPECIFICATIONS OF THE GOVERNING AGENCY.

GRADING NOTES

A. ITEM NUMBERS REFER TO THE OHIO DEPARTMENT OF TRANSPORTATION (ODOT) CONSTRUCTION AND MATERIAL SPECIFICATIONS (2023) AND ALL CONSTRUCTION WORK SHALL BE DONE ACCORDING TO SAID SPECIFICATIONS AND IN ACCORDANCE WITH APPLICABLE STANDARDS OF THE GOVERNING AGENCIES. WHEN IN CONFLICT, THE MORE STRINGENT REQUIREMENTS SHALL GOVERN.

B. THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION AND ELEVATIONS OF ALL EXISTING UTILITIES PRIOR TO THE BEGINNING OF CONSTRUCTION OR EARTH MOVING OPERATIONS.

C. FORTY-EIGHT (48) HOURS BEFORE DIGGING IS TO COMMENCE, THE CONTRACTOR SHALL NOTIFY THE OHIO UTILITY PROTECTION SERVICE (OUPS) AND ALL OTHER AGENCIES WHICH MAY HAVE UNDERGROUND UTILITIES INVOLVED IN THIS PROJECT AND ARE NOT MEMBERS OF OHIO UNDERGROUND PROTECTION, INC.

D. CONTRACTOR AND OWNER SHALL VERIFY AND ACCEPT ALL QUANTITIES PRIOR TO BEGINNING CONSTRUCTION.

E. CONTRACTOR SHALL VERIFY THAT COORDINATES, IF USED, MATCH PLAN DIMENSIONS. WHEN IN CONFLICT, THE PLAN DIMENSIONS SHALL GOVERN OVER COORDINATES, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

F. UNLESS OTHERWISE NOTED, ALL CONSTRUCTION DETAILS SHALL CONFORM WITH THE "STANDARD CONSTRUCTION DRAWINGS OF THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION".

G. EXISTING SITE SURVEY, TOPOGRAPHY, AND SUBSURFACE CONDITIONS: EXISTING CONDITIONS PRESENTED IN DRAWING, REPORT OR SPECIFICATION FORM ARE BELIEVED ACCURATE WITHIN NORMAL INDUSTRY TOLERANCES BUT ARE NOT GUARANTEED. INVESTIGATE, SURVEY, CONFIRM AND VERIFY ALL CONDITIONS BEARING ON THE WORK BY ANY MEANS NECESSARY BEFORE STARTING ANY WORK THAT CHANGES EXISTING CONDITIONS. REPORT ANY UNACCEPTABLE DISCREPANCIES TO THE ENGINEER IN WRITING BEFORE BEGINNING OPERATIONS
- G.A. WRITTEN CLAIMS OF DIFFERENCE SHALL BE ACCOMPANIED BY SUBSTANTIATING EVIDENCE. CLAIMS OF DIFFERENCE SHALL BE RESOLVED, INCLUDING DETERMINATION OF QUANTITIES AND COSTS AND METHODS OF CONTRACT MODIFICATION, BEFORE WORK THAT ALTERS SUCH EXISTING CONDITIONS IS STARTED.
- G.B. INITIATION OF SITE-CLEARING, SOIL-MOVING OPERATIONS, DEMOLITION OR OTHER ACTIVITY THAT ALTERS EXISTING CONDITIONS SHALL BE EVIDENCE THAT CONTRACTOR HAS MADE ALL INVESTIGATIONS AND EVALUATIONS IT DEEMS NECESSARY AND HAS ACCEPTED ALL EXISTING CONDITIONS PRESENT WHETHER OR NOT THEY CONFORM EXACTLY TO THE DOCUMENTS.
- G.C. WITHOUT ADVANCE WRITTEN NOTIFICATION OF UNACCEPTABLE DISCREPANCY, NO CLAIM FOR EXTRA WILL BE CONSIDERED FOR A CLAIM OF DIFFERENCE BETWEEN DOCUMENTS AND ACTUAL CONDITIONS AFTER THE CONTRACTOR HAS ALTERED EXISTING CONDITIONS.

H. BACKFILL OF ALL UTILITY EXCAVATIONS IN STRUCTURAL AREAS INCLUDING UNDER PAVEMENTS OR WITHIN TEN (10) FEET OF ANY BUILDING AREAS SHOULD BE CONTINUALLY MONITORED BY A REPRESENTATIVE OF THE PROJECT GEOTECHNICAL ENGINEER TO VERIFY AND DOCUMENT THAT PROPER LIFT THICKNESS, MOISTURE CONDITION, AND COMPACTIVE EFFORT ARE MAINTAINED. THE GRADING PLAN IS TO BE USED FOR GRADING PURPOSES ONLY.

I. SPOT ELEVATIONS REPRESENT FINISH PAVEMENT GRADE. CONTRACTOR SHALL REVIEW THE FOUNDATION PLAN TO DETERMINE BUILDING SUBGRADE ELEVATIONS.

J. CONTRACTOR AND OWNER SHALL AGREE TO ALL EXCAVATION AND EMBANKMENT QUANTITIES PRIOR TO CONSTRUCTION.

K. CONTRACTOR SHALL REMOVE ALL TREES AND CLEAN ALL AREAS AS DETERMINED BY THE ENGINEER OR ARCHITECT TO PERFORM ALL GRADING AND UTILITY WORK IN ACCORDANCE WITH THE DRAWINGS, GENERAL NOTES, AND PROJECT SPECIFICATIONS. RESERVE MULCH FOR SOIL EROSION MULCHING AS NECESSARY.

L. THE PROJECT HAS BEEN DESIGNED TO CONTROL EROSION AND PREVENT DAMAGE TO OTHER PROPERTY. ALL STRIPPING, EARTHWORK, AND REGRADING SHALL BE PERFORMED TO MINIMIZE EROSION. NATURAL VEGETATION SHALL BE RETAINED WHEREVER POSSIBLE. THE PROPOSED PLAN WILL ALLOW MOST ERODED MATERIALS TO BE RETAINED ON SITE.

M. CONTRACTOR SHALL SETUP AN ONSITE PRE-CONSTRUCTION MEETING WITH OWNER, PROJECT GEOTECHNICAL ENGINEER, EARTHWORK CONTRACTOR, AND SITE CIVIL ENGINEER PRIOR TO BEGINNING CONSTRUCTION.

N. THE CONTRACTOR SHALL ENGAGE THE SERVICES OF A QUALIFIED GEOTECHNICAL ENGINEERING FIRM TO OBSERVE, GUIDE AND INSPECT ALL EARTHWORK OPERATIONS. ALL EMBANKMENT CONSTRUCTION SHALL BE TESTED TO VERIFY PROPER COMPACTION DENSITY. COMPACTION REPORTS SHALL BE PROVIDED TO THE OWNER.

O. CONTRACTOR SHALL SETUP AN ONSITE PRE-CONSTRUCTION MEETING WITH DEVELOPER, PROJECT GEOTECHNICAL ENGINEER, EARTHWORK CONTRACTOR, BUTLER COUNTY ENGINEER'S OFFICE AND SITE CIVIL ENGINEER PRIOR TO BEGINNING CONSTRUCTION.

P. EXCESSIVELY ORGANIC TOPSOIL AND LOOSE MATERIALS SHALL BE STRIPPED FROM THE CONSTRUCTION AREAS AND WASTED OR STOCKPILED. TOPSOIL THICKNESS MAY VARY ACROSS THE SITE AND THE EXACT DEPTH OF STRIPPING SHOULD BE DETERMINED BY A REPRESENTATIVE OF THE GEOTECHNICAL ENGINEER IN THE FIELD AT THE TIME OF THE STRIPPING OPERATIONS.

Q. AFTER STRIPPING OF THE TOPSOIL HAS BEEN PERFORMED, THE EXPOSED SUBGRADE SHALL BEPROOFROLLED WITH APPROVED EQUIPMENT TO IDENTIFY POCKETS OF SOFT UNSUITABLE MATERIALS. UNDER THE DIRECTION OF THE GEOTECHNICAL ENGINEER, UNSUITABLE MATERIALS SHOULD BE REMOVED AND REPLACED WITH A WELL-COMPACTED MATERIAL.

E. SPECIFICATIONS FOR COMPACTED FILLS AND BACKFILLS: ALL FILLS SHALL BE FORMED FROM MATERIAL FREE OF VEGETABLE MATTER, RUBBISH, LARGE ROCK, AND OTHER DELETERIOUS MATERIAL. PRIOR TO PLACEMENT OF FILL, A SAMPLE OF THE PROPOSED FILL MATERIAL SHOULD BE SUBMITTED TO THE SOIL ENGINEER FOR HIS APPROVAL. THE FILL MATERIAL SHOULD BE PLACED IN LAYERS NOT TO EXCEED EIGHT (8) INCHES IN LOOSE THICKNESS AND SHOULD BE SPRINKLED WITH WATER AS REQUIRED TO SECURE SPECIFIED COMPACTIONS. EACH LAYER SHOULD BE UNIFORMLY COMPACTED BY MEANS OF SUITABLE EQUIPMENT OF THE TYPE REQUIRED BY THE MATERIALS COMPOSING THE FILL. UNDER NO CIRCUMSTANCES SHOULD A BULLDOZER OR SIMILAR TRACKED VEHICLES BE USED AS COMPACTING EQUIPMENT. MATERIAL CONTAINING AN EXCESS OF WATER SO THE SPECIFIED COMPACTION LIMITS CANNOT BE ATTAINED SHOULD BE SPREAD AND DRIED TO A MOISTURE CONTENT THAT WILL PERMIT PROPER COMPACTION. ALL FILL INSIDE THE BUILDING SHALL BE COMPACTED TO 100% OF MAXIMUM DENS DENSITY. ALL FILL OUTSIDE OF THE BUILDING SHOULD BE COMPACTED TO 98% OF THE MAXIMUM DENSITY OBTAINED IN ACCORDANCE WITH ASTM DENSITY TEST D 698. FOR PROPER COMPACTION OF THE SOILS, MOISTURE CONDITIONING TO WITHIN APPROXIMATELY –2% TO +2% OF OPTIMUM MOISTURE CONTENT SHOULD BE ACHIEVED WITH SOILS. SHOULD THE RESULTS OF THE IN-PLACE DENSITY TESTS INDICATE THAT THE SPECIFIED COMPACTION LIMITS ARE NOT OBTAINED, THE AREAS REPRESENTED BY SUCH TESTS SHOULD BE REWORKED AND RETESTED AS REQUIRED UNTIL THE SPECIFIED LIMITS ARE REACHED.

F. A PROOFROLL OF ALL PAVEMENT SUBGRADES SHALL BE PERFORMED AND WITNESSED BY THE GEOTECHNICAL ENGINEER.

G. A MINIMUM OF 6" OF TOPSOIL SHALL BE PLACED ON ALL GRASS AREAS UNLESS SPECIFIED OTHERWISE IN THE LANDSCAPE DRAWINGS. THE LAST 1' OF ALL FILLS OUTSIDE OF PAVEMENT AND BUILDING AREAS MAY BE TOPSOIL UNLESS OTHERWISE NOTED. ALL TOPSOIL FILLS SHALL BE BENCHED OR KNIT INTO FILL SLOPES AS DIRECTED BY THE GEOTECHNICAL ENGINEER.

H. THE CITY OF OXFORD REQUIRES AN AS-BUILT VOLUME CERTIFICATION OF ALL DETENTION/RETENTION BASINS. CONTRACTOR SHOULD CONTACT THE SITE CIVIL ENGINEER TO PERFORM AS-BUILT VOLUME CERTIFICATION PRIOR TO FINAL GRADING AND SEEDING OF BASINS..

GREGORY J. KOCH
E-69324
2/28/25

Item	Revision Description	Date	Drwn:	Chk:
1	REVISED PER OWNER REVIEW	02-28-25	GJK	

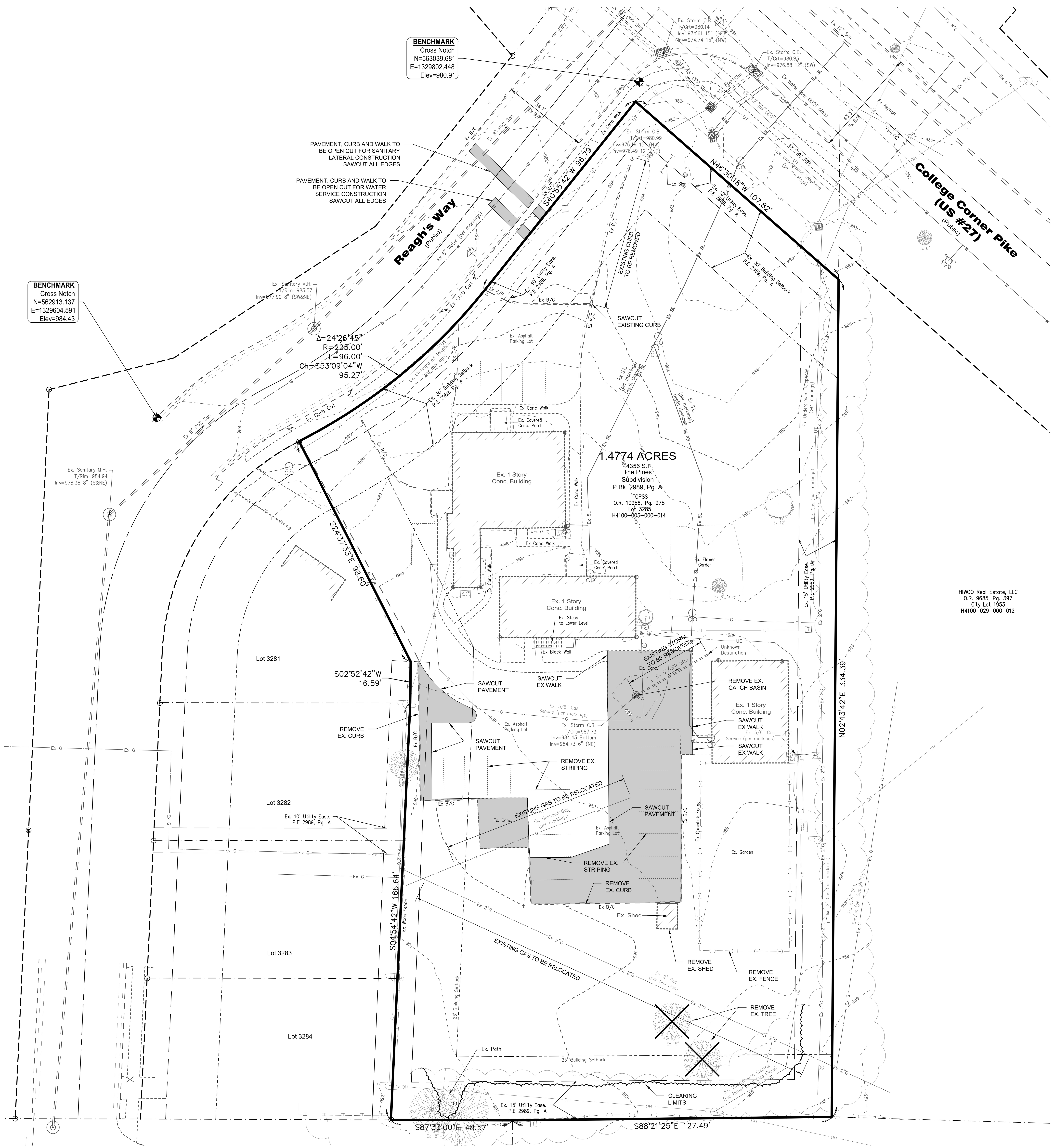
TOPSS: TALAWANDA OXFORD PANTRY & SOCIAL SERVICES

SEC. 16, TOWN 5, RANGE 1, CONGRESS LANDS W. OF THE MIAMI
LOT 3285 OXFORD
BUTLER COUNTY, OHIO
5445 COLLEGE CORNER PIKE

GENERAL NOTES

bayer becker
www.bayerbecker.com
110 S. College Avenue, Suite 101
Oxford, OH 45056 - 513.523.4270

Drawing: 24-0042 CD
Drawn by: SJW
Checked By: GJK
Issue Date: 02-14-25
Sheet: C1.1



BENCHMARK
Cross Notch
N=563039.681
E=1329802.448
Elev=980.91
BENCHMARK
Cross Notch
N=562913.137
E=1329604.591
Elev=984.43
PAVEMENT, CURB AND WALK TO BE OPEN CUT FOR SANITARY LATERAL CONSTRUCTION SAWCUT ALL EDGES
PAVEMENT, CURB AND WALK TO BE OPEN CUT FOR WATER SERVICE CONSTRUCTION SAWCUT ALL EDGES
Reagh's Way
(Public)
College Corner Pike
(US #27)
(Public)
S40°53'42"W 96.79'
N46°30'18"W 107.82'
Δ=24°26'45"
R=225.00'
L=96.00'
Ch=S53°09'04"W
95.27'
S24°37'33"E 98.60'
S02°52'42"W
16.59'
S04°54'42"W 166.64'
N02°43'42"E 334.39'
S87°33'00"E 48.57'
S88°21'25"E 127.49'
1.4774 ACRES
4356 S.F.
The Pines Subdivision
P.Bk. 2989, Pg. A
TOPSS
O.R. 10086, Pg. 978
Lot 3285
H4100-003-000-014
HIWOO Real Estate, LLC
O.R. 9685, Pg. 397
City Lot 1953
H4100-029-000-012
Ex. 1 Story Conc. Building
Lot 3281
Lot 3282
Lot 3283
Lot 3284
EXISTING CURB TO BE REMOVED
SAWCUT EXISTING CURB
EXISTING STORM TO BE REMOVED
SAWCUT PAVEMENT
SAWCUT EX WALK
REMOVE EX. CATCH BASIN
REMOVE EX. CURB
REMOVE EX. STRIPING
EXISTING GAS TO BE RELOCATED
REMOVE EX. SHED
REMOVE EX. FENCE
REMOVE EX. TREE
CLEARING LIMITS
Ex. Storm C.B.
T/Grt=987.73
Inv=984.43 Bottom
Inv=984.73 6" (NE)

DEMOLITION LEGEND

EXISTING CONCRETE CURB, CONCRETE WALK, CONCRETE PAVEMENT, AND ASPHALT PAVEMENT TO BE REMOVED

EXISTING TREE TO BE REMOVED

Basis of Bearing:
State Plane NAD83 (2011)

SCALE: 1" = 20'

Know what's **below.**
Call before you dig.

LOCATION OF ALL EXISTING UTILITIES TO BE DETERMINED IN THE FIELD PRIOR TO CONSTRUCTION

STATE OF OHIO
GREGORY J. KOCH
E-69324
PROFESSIONAL ENGINEER
2/28/25

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SEC. 16, TOWN 5, RANGE 1, CONGRESS LANDS W. OF THE MIAMI
LOT 3285 OXFORD
BUTLER COUNTY, OHIO
5445 COLLEGE CORNER PIKE

EXISTING CONDITION AND DEMOLITION PLAN

bayer becker
www.bayerbecker.com
110 S. College Avenue, Suite 101
Oxford, OH 45056 - 513.523.4270

Drawing: 24-0042 CD
Drawn by: SJW
Checked By: GJK
Issue Date: 02-14-25
Sheet: C2.0

Plot time: Feb 27, 2025 - 11:21am
Drawing name: J:\2024\24-0042\CIVIL\DWG\24-0042 CD.dwg - Layout Tab: Layout1

BENCHMARK
Cross Notch
N=563039.681
E=1329802.448
Elev=980.91

BENCHMARK
Cross Notch
N=562913.137
E=1329604.591
Elev=984.43

CURB AND PAVEMENT RESTORATION FOR SANITARY LATERAL CONSTRUCTION

CURB AND PAVEMENT RESTORATION FOR WATER SERVICE CONSTRUCTION

Reagh's Way (Public)

College Corner Pike (US #27) (Public)

S40°55'22"W 96.79'

N46°30'18"W 107.82'

Ex. 10' Utility Ease. P.E. 2989, Pg. A

Ex. 30' Building Setback P.E. 2989, Pg. A

MATCH EXISTING WALK

Δ=24°26'45"
R=225.00'
L=96.00'
Ch=S53°09'04"W
95.27'

5.00'

DETENTION BASIN

DETNTION BASIN
T/DIKE=984.00
SPILLWAY=983.00
100 YR ELEV=982.90

1.4774 ACRES
64356 S.F.

25.51' EXISTING

S24°37'33"E 98.60'

15.98' EXISTING

BEGIN ODOT TYPE 6 CURB

S02°52'42"W 16.59'

R3.00

8.30'

18.00'

9.00'

ODOT TYPE 6 CURB

Ex. 10' Utility Ease. P.E. 2989, Pg. A

S04°54'42"W 166.64'

R5.00

ODOT TYPE 6 CURB

Ex. 15' Utility Ease. P.E. 2989, Pg. A

PROPOSED CONCRETE WALK

CURB TO BE FLUSH WITH PAVEMENT AND WALK TO MATCH EXISTING CONDITIONS

MATCH EXISTING WALK

3.75' FROM B/C MATCH EX. WALK WIDTH

4.50' FROM B/C

9.00'

18.00'

MATCH EXISTING PAVEMENT

N02°43'42"E 334.39'

6" CURB TO BE FLUSH WITH PAVEMENT FOR DRAINAGE AWAY FROM BUILDING

TRASH ENCLOSURE SEE ARCHITECTURAL PLANS FOR WALL AND FENCE DETAILS

6" BOLLARDS

6" BOLLARD

ODOT TYPE 6 CURB

ADA RAMP

R12.00

R3.00

32.79'

18.00'

6.00'

22.00'

5.00'

9.00' 8.00' 8.00'

7.00' 7.00'

5.50'

10.00'

8.00'

VAN ACCESSIBLE PARKING SIGN

20.00'

82.00'

23.00'

5.00'

6.00'

ADA RAMP

PROPOSED
4,000 S.F. BUILDING
FFE=990.10

51.33'

FUTURE EXPANSION

LOADING AREA

25' Building Setback

Ex. 15' Utility Ease. P.E. 2989, Pg. A

ODOT TYPE 6 CURB

S87°33'00"E 48.57'

S88°21'25"E 127.49'

LEGEND

- CONCRETE WALK
- ASPHALT PAVEMENT
- CONCRETE PAVEMENT
- XX — PARKING COUNT

Basis of Bearing:
State Plane NAD83 (2011)

0 20 30
SCALE: 1" = 20'

811 Know what's below. Call before you dig.

LOCATION OF ALL EXISTING UTILITIES TO BE DETERMINED IN THE FIELD PRIOR TO CONSTRUCTION

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SITE LAYOUT PLAN

bayer becker
www.bayerbecker.com
110 S. College Avenue, Suite 101
Oxford, OH 45056 - 513.523.4270

Drawing: 24-0042 CD
Drawn by: SJW
Checked By: GJK
Issue Date: 02-14-25
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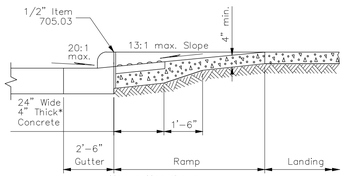
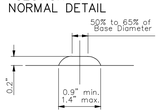
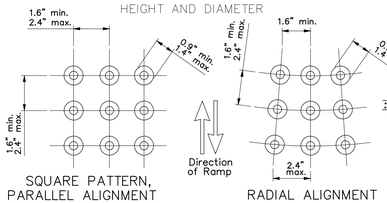
Plot time: Feb 27, 2025 - 4:06pm
Drawing name: J:\2024\24-0042\CV\DWG\24-0042 CD.dwg - Layout Tab: Layout1



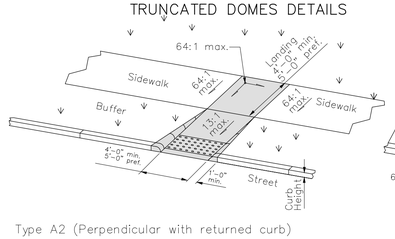
SECTION A-A
NORMAL DETAIL



HEIGHT AND DIAMETER



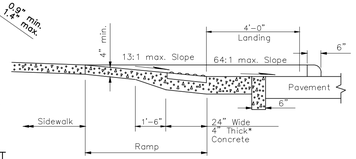
TRUNCATED DOMES DETAILS



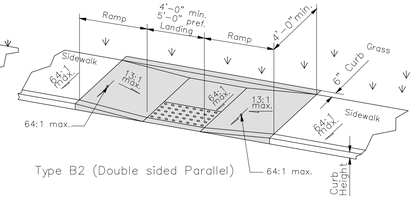
Type A2 (Perpendicular with returned curb)

PERPENDICULAR CURB RAMP DETAILS
NOT TO SCALE

DOME ALIGNMENT ON RADIUSED CURB



SECTION D-D
*Where possible, pour ramp area integral with the curb, otherwise use 6" thick walk.



Type B2 (Double sided Parallel)

PARALLEL CURB RAMP DETAILS
NOT TO SCALE

CURB RAMP NOTES

DRAINAGE: Contractor is to ensure the base of each constructed curb ramp allows for proper drainage, without exceeding allowable cross slope or ramp slopes. Vertical change in level exceeding ¼" between the 1) pavement and gutter, and 2) gutter and ramp, are not allowed.

SURFACE TEXTURE: Texture concrete surfaces by coarse brooming transverse to the ramp slopes to be rougher than the adjacent walk.

The edge of the curb shall be flush with the edge of the adjacent pavement and gutter and surface slopes that meet grade breaks shall also be flush.

DETECTABLE WARNINGS NOTES

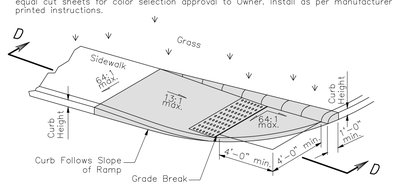
GENERAL: Detectable Warnings are a distinctive surface pattern of truncated domes which are detectable by cane or underfoot to alert people with vision impairments of their approach to streets and hazardous drop-offs.

PLACEMENT: Detectable warnings are to be installed at any location where pedestrians might cross paths with vehicular traffic lanes, such as the base of curb ramps or at blended curbs. A 24" strip of domes is to be installed for the full width of the ramp or walk. See plan locations of curb ramps.

The depth of concrete underneath detectable warning products shall be a minimum of 4". See SECTION A.

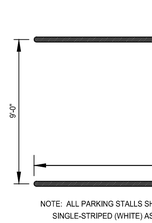
ALIGNMENT: Truncated domes should be aligned with the primary direction of the ramp as shown on the DETECTABLE WARNING ALIGNMENT Detail. Normally the detectable warnings should be flush with the back of the curb, but in skewed conditions at least one corner of the 24" strip should be adjacent to the back of curb. For non-standard layouts, detectable warning materials may have to be mitered and placed segmentally.

PRODUCTS & COLORS: Color of the detectable warnings should contrast with surrounding concrete walk and ramp. Black is not an acceptable color. Contractor to submit Armor-Tile Detectable/Tactile Warning Surface Cast In Place Tile or approved equal cut sheets for color selection approval to Owner. Install as per manufacturer's printed instructions.



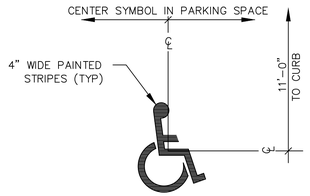
Type B3 (Single sided Parallel)

PARALLEL CURB RAMP DETAILS
NOT TO SCALE

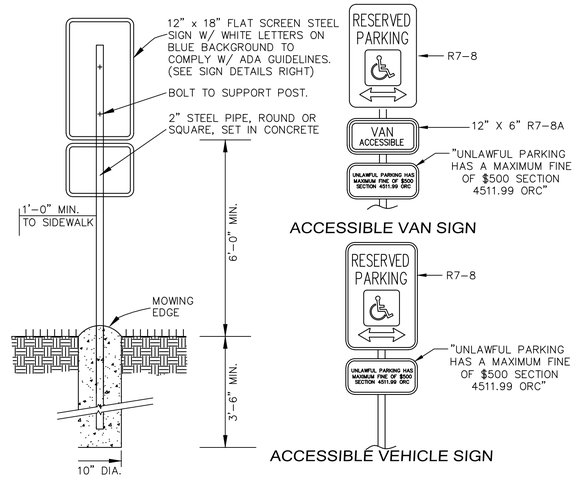


NOTE: ALL PARKING STALLS SHALL BE SINGLE-STRIPED (WHITE) AS SHOWN IN TWO COATS.

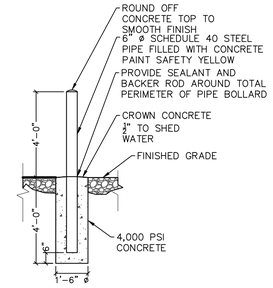
STANDARD STRIPING DETAIL
NOT TO SCALE



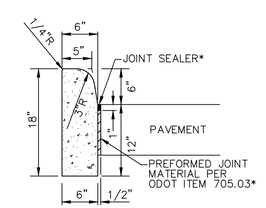
ADA SYMBOL DETAIL
NOT TO SCALE



ADA ACCESSIBLE SIGN DETAILS
NOT TO SCALE

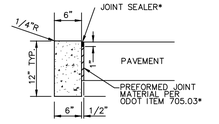


BOLLARD DETAIL
NOT TO SCALE



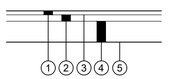
O.D.O.T. TYPE 6 CURB DETAIL
NOT TO SCALE

*NOTE: EXPANSION JOINT MATERIAL & JOINT SEALER ARE NOT REQUIRED FOR THAT PORTION OF THE CURB WHICH IS ADJACENT TO A FLEXIBLE TYPE PAVEMENT. BOTH MATERIALS ARE REQUIRED FOR THE FULL HEIGHT OF RIGID PAVEMENT AND CONCRETE BASES.



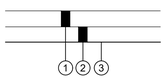
FLUSH CURB DETAIL
NOT TO SCALE

*NOTE: EXPANSION JOINT MATERIAL & JOINT SEALER ARE NOT REQUIRED FOR THAT PORTION OF THE CURB WHICH IS ADJACENT TO A FLEXIBLE TYPE PAVEMENT. BOTH MATERIALS ARE REQUIRED FOR THE FULL HEIGHT OF RIGID PAVEMENT AND CONCRETE BASES.



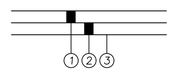
ASPHALT PAVEMENT
NOT TO SCALE

1. ITEM 448 - 1-1/2" SURFACE COURSE
2. ITEM 448 - 2-1/2" INTERMEDIATE COURSE
3. ITEM 407 - TACK COAT
4. ITEM 304 - 8" AGGREGATE BASE
5. ITEM 203 - SUBGRADE COMPACTION



CONCRETE PAVEMENT
NOT TO SCALE

1. ITEM 452 - 5" P.C.C. PAVEMENT
2. ITEM 304 - 6" AGGREGATE BASE
3. ITEM 203 - SUBGRADE COMPACTION



CONCRETE WALK
NOT TO SCALE

1. ITEM 608 - 4" CONCRETE WALK
2. ITEM 304 - 4" AGGREGATE BASE
3. ITEM 203 - SUBGRADE COMPACTION

STATE OF OHIO
GREGORY J. KOCH
E-69324
PROFESSIONAL ENGINEER
2/27/25

Item	Revision Description	Date	Drwn.	Chk.

TOPSS: TALAWANDA OXFORD PANTRY & SOCIAL SERVICES

SEC. 16, TOWN 5, RANGE 1, CONGRESS LANDS W. OF THE MIAMI
LOT 3285 OXFORD
BUTLER COUNTY, OHIO
5445 COLLEGE CORNER PIKE

SITE DETAILS

bayer becker
www.bayerbecker.com
110 South Poplar Suite 101
Oxford, OH 45056 - 513.523.4270

Drawing:	24-0042 CD
Drawn by:	SJW
Checked By:	GJK
Issue Date:	02-14-25
Sheet:	C3.1

Plot time: Feb 27, 2025 - 11:22am
Drawing name: J:\2024\24-0042\CV\DWG\24-0042 CD.dwg - Layout Tab: Layout1

STORM NOTES:
1. THE LOCATION OF THE EXISTING ROOF DRAIN COLLECTION LINES ARE UNKNOWN.
2. CONTRACTOR MAY NEED TO ADJUST THE EXISTING COLLECTION LINES BY TYING THEM INTO THE PROPOSED STORM SEWER OR ROUTE THEM TO THE DETENTION BASIN.

PAVEMENT UNDERDRAIN DETAIL

NOT TO SCALE

OUTLET STRUCTURE DETAILS

NOT TO SCALE

Basis of Bearing:
State Plane NAD83 (2011)

SCALE: 1" = 20'

811®
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LOCATION OF ALL EXISTING UTILITIES TO BE DETERMINED IN THE FIELD PRIOR TO CONSTRUCTION

Plot time: Feb 27, 2025 - 4:06pm
Drawing name: J:\2024\24-0042\CIV\DWG\24-0042 CD.dwg - Layout Tab: Layout1

GREGORY J. KOCH E-69324
2/28/25

Item	Revision Description	Date	Drwn:	Chk:
1	REVISED PER OWNER REVIEW	02-28-25	GJK	

TOPSS: TALAWANDA OXFORD PANTRY & SOCIAL SERVICES

SEC. 16, TOWN 5, RANGE 1, CONGRESS LANDS W. OF THE MIAMI
LOT 3285 OXFORD
BUTLER COUNTY, OHIO
5445 COLLEGE CORNER PIKE

UTILITY PLAN

bayer becker
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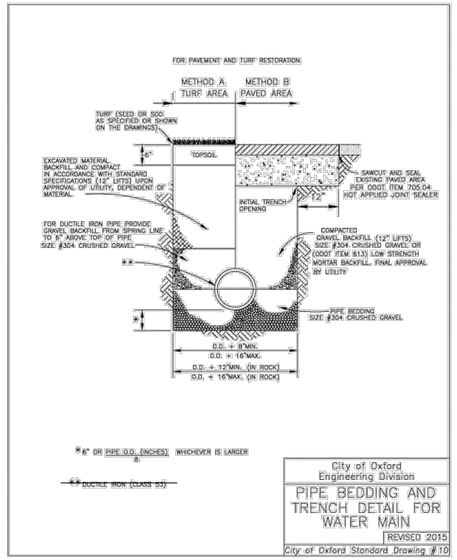
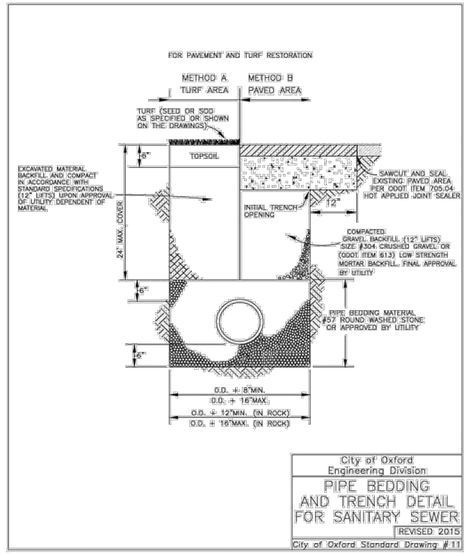
110 S. College Avenue, Suite 101
Oxford, OH 45056 - 513.523.4270

Drawing: 24-0042 CD
Drawn by: SJW
Checked By: GJK
Issue Date: 02-14-25
Sheet: C4.0



120

Revised 2005/2010/2016/2022



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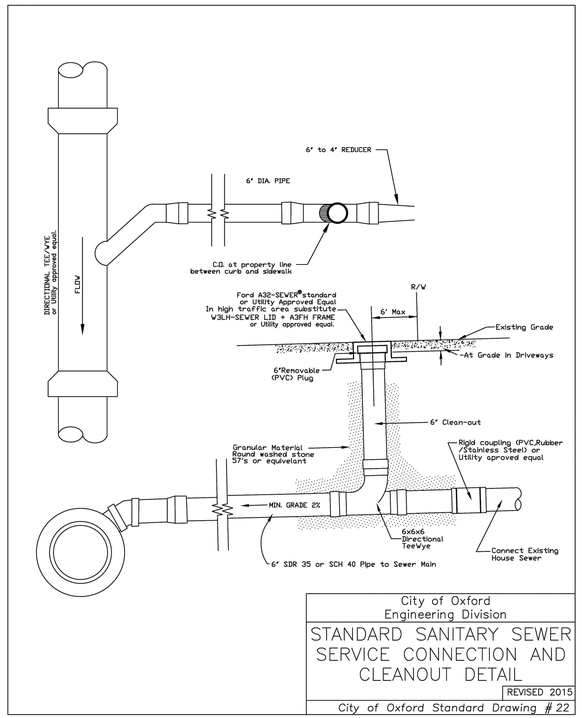
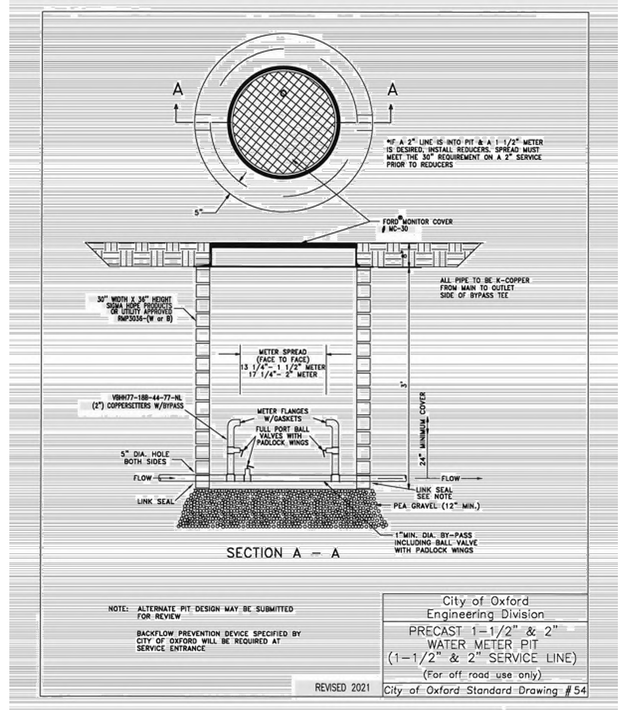
Revised 2005/2010/2016/2022





Item	Revision Description	Date	Drwn	Chk
1	REVISED PER OWNER REVIEW	02-26-25	GJK	

TOPSS: TALAWANDA OXFORD PANTRY & SOCIAL SERVICES

SEC. 16, TOWN 5, RANGE 1, CONGRESS LANDS W. OF THE MIAMI
LOT 3285 OXFORD
BUTLER COUNTY, OHIO
5445 COLLEGE CORNER PIKE

UTILITY DETAILS

bayer becker
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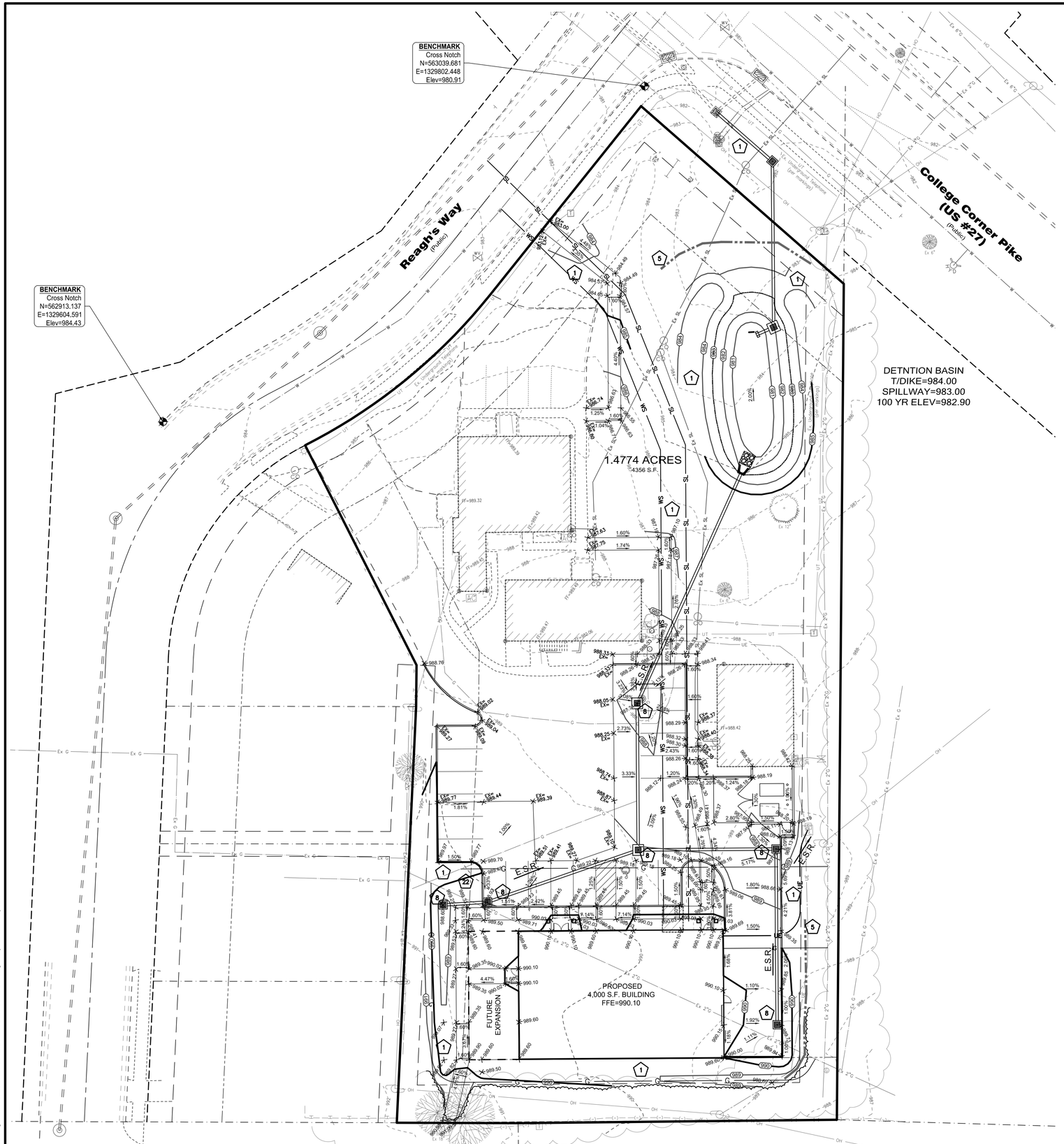
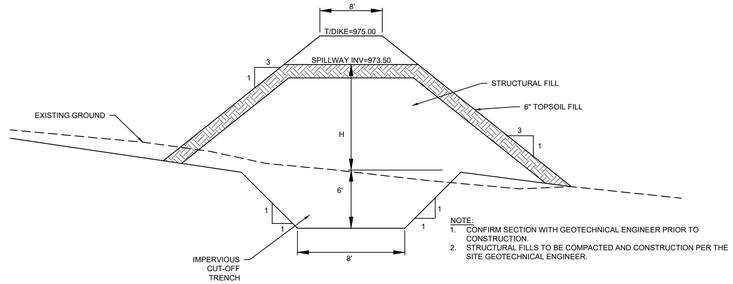
110 S. College Avenue, Suite 101
Oxford, OH 45056 - 513.523.4270

Drawing: 24-0042 CD
Drawn by: SJW
Checked By: GJK
Issue Date: 02-14-25
Sheet: C4.1

Plot time: Feb 27, 2025 - 2:44pm
Drawing name: J:\2024\24-0042\CIVIL\DWG\24-0042 CD.dwg - Layout Tab: Layout1





TYPICAL DAM SECTION

NOT TO SCALE

BASIN SPILLWAY DETAIL

NOT TO SCALE

EROSION CONTROL NOTES

1. CONTRACTOR TO PROVIDE SILT FENCE AT STORM SEWER OUTLETS TO PREVENT EROSION. STRAW WATTLES AT LEAST 12" IN DIAMETER MAY BE USED AS AN ALTERNATIVE TO SILT FENCE.
2. CONTRACTOR SHALL INSTALL AND MAINTAIN A CONCRETE WASHOUT FACILITY PER CITY OF OXFORD STANDARDS.
3. EROSION CONTROL MEASURES SHALL BE IMPLEMENTED PRIOR TO CONSTRUCTION AND MAINTAINED DURING CONSTRUCTION.
4. BEST MANAGEMENT PRACTICES (BMPs) SHOWN ON PLANS SHALL BE REVISED OR IMPLEMENTED AS REQUIRED. CONTRACTOR SHALL MONITOR CONSTRUCTION BMPs AND PROVIDE ADDITIONAL BMPs AS REQUIRED TO PREVENT SEDIMENT RUNOFF FROM CONSTRUCTION SITE ONTO PAVEMENT AND NON-WORK AREAS.
5. AT A MINIMUM, ALL EROSION AND SEDIMENT CONTROLS ON THE SITE SHALL BE INSPECTED AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN ONE-HALF INCH OF RAIN PER 24 HOUR PERIOD. QUALIFIED INSPECTION PERSONNEL (THOSE WITH KNOWLEDGE AND EXPERIENCE IN THE INSTALLATION AND MAINTENANCE OF SEDIMENT AND EROSION CONTROLS) SHALL CONDUCT THESE INSPECTIONS TO ENSURE THAT THE CONTROL PRACTICES ARE FUNCTIONAL AND TO EVALUATE WHETHER THE EROSION CONTROL IS ADEQUATE AND PROPERLY IMPLEMENTED OR WHETHER ADDITIONAL CONTROL MEASURES ARE REQUIRED. INSPECTION FREQUENCY MAY BE REDUCED TO MONTHLY IF THE ENTIRE SITE IS TEMPORARILY STABILIZED OR RUNOFF IS UNLIKELY DUE TO WEATHER CONDITIONS FOR EXTENDED PERIODS OF TIME. DISTURBED AREAS AND AREAS USED FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION SHALL BE INSPECTED FOR EVIDENCE OF OR THE POTENTIAL FOR, POLLUTANTS ENTERING THE DRAINAGE SYSTEM. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE OBSERVED TO ENSURE THAT THEY ARE OPERATING CORRECTLY. DISCHARGE LOCATIONS SHALL BE INSPECTED TO ASCERTAIN WHETHER EROSION AND SEDIMENT CONTROL MEASURES ARE EFFECTIVE IN PREVENTING SIGNIFICANT IMPACTS TO THE RECEIVING WATERS. LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE SHALL BE INSPECTED FOR EVIDENCE OF OFF-SITE VEHICLE TRACKING.
12. SITE STABILIZATION SHALL BEGIN WITHIN 7 DAYS ON AREAS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE PERMANENTLY OR TEMPORARILY CEASED FOR 14 DAYS.
13. ALL MUD OR DEBRIS TRACKED ON EXISTING STREETS SHALL BE CLEANED AT THE END OF EACH DAY OR AS DIRECTED BY THE CITY OF OXFORD OR THE OWNER. PERIODIC STREET SWEEPING MAY BE REQUIRED.
14. IN ADDITION TO ANY TEMPORARY EROSION, MUD, AND DEBRIS CONTROL DETAILS AND NOTES SHOWN ON THE PLANS, THE CONTRACTOR SHOULD PLACE TEMPORARY OR PERMANENT SEEDING, MULCHING AND/OR MULCH NETTING OR ANY OTHER GENERALLY ACCEPTED METHODS TO PREVENT EROSION, MUD, AND DEBRIS FROM BEING DEPOSITED ON OTHER PROPERTY, ON NEWLY CONSTRUCTED OR EXISTING ROADS, OR INTO EXISTING SEWERS OR NEW SEWERS WITHIN THE DEVELOPMENT. THE CONTRACTOR SHOULD CONTINUALLY MONITOR THE CONSTRUCTION PROGRESS AND MAKE ANY NECESSARY TEMPORARY ADJUSTMENTS TO MAINTAIN THIS CONTROL.
15. AFTER THE VEGETATION HAS BECOME WELL ESTABLISHED, TEMPORARY EROSION AND SEDIMENT CONTROLS CAN BE REMOVED.
16. FOR ANY DIESEL FUEL, OIL, HYDRAULIC FLUIDS, PETROLEUM PRODUCTS, OR OTHER CHEMICALS, INSTALL DIKED AREAS AROUND STORAGE TANKS AND INSTALL NEAR A STABILIZED SURFACE AWAY FROM DRAINAGE WAYS. DISPOSAL OF HAZARDOUS WASTE SHALL BE DONE PER LOCAL AND/OR STATE REGULATIONS.
17. CONTRACTOR TO DESIGNATE LOCATIONS OF ON-SITE FUELING, EQUIPMENT, AND MATERIAL STORAGE.

SWPPP NOTES

1. THE CONSTRUCTION ACTIVITY WILL CONSIST OF MASS EARTHWORK, UTILITY INSTALLATION, CURB AND PAVEMENT CONSTRUCTION, AND BUILDING FOR A PROPOSED BUILDING AND PARKING.
2. ACREAGE:
   DISTURBED AREA 0.69 ACRES
   (GRADING LIMITS AS SHOWN ON SHEET C5.0)
3. PRIOR LAND USE: FOOD PANTRY
4. IMPERVIOUS CALCULATIONS:
   IMPERVIOUS AREA
   PRE-DEVELOPED 0.46 ACRES
   POST-DEVELOPED 0.69 ACRES

   IMPERVIOUS PERCENTAGE
   PRE-DEVELOPED 31.1 %
   POST-DEVELOPED 46.6 %
5. EXISTING SOIL DATA:

SYMBOL	SOIL NAME	HSG
RxB	RUSSELL-URBAN LAND COMPLEX, GENTLY SLOPING	C

6. THE DEVELOPMENT DRAINS TO THE NORTH TO AN UNNAMED TRIBUTARY TO FOUR MILE CREEK.
7. WEIGHTED "C"
   PRE-DEVELOPED 0.50
   POST-DEVELOPED 0.60

LEGEND

- 1 — SEEDING & MULCHING
- 5 — SILT FENCE OR MULCH BERM
- 8 — DANDY BAG (OR APPROVED EQUAL)
- 21 — CONSTRUCTION ENTRANCE
- 22 — CONCRETE WASHOUT
- F.F.E. — FINISHED FLOOR ELEVATION
- EX=xxx.xx — EXISTING SPOT GRADE
- xxx.xx — PROPOSED TOP OF PAVEMENT
- PROPOSED CONTOURS
- EXISTING CONTOURS
- E.S.R. — EMERGENCY STORM ROUTE
- PROPOSED TREE LINE

Basis of Bearing:
State Plane NAD83 (2011)

0 20 30
SCALE: 1" = 20'

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LOCATION OF ALL EXISTING UTILITIES TO BE DETERMINED IN THE FIELD PRIOR TO CONSTRUCTION

Item	Revision Description	Date	Drawn	Chk
1	REVISED PER OWNER REVIEW	02-28-25	GJK	

STATE OF OHIO
GREGORY J. KOCH
E-69324
REGISTERED
PROFESSIONAL ENGINEER
2/28/25

TOPSS: TALAWANDA OXFORD PANTRY & SOCIAL SERVICES

SEC. 16, TOWN 5, RANGE 1, CONGRESS LANDS W. OF THE MIAMI
LOT 3285 OXFORD
BUTLER COUNTY, OHIO
5445 COLLEGE CORNER PIKE

GRADING PLAN

bayer becker
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110 S. College Avenue, Suite 101
Oxford, OH 45056 - 513.523.4270

Drawing:	24-0042 CD
Drawn by:	SJW
Checked By:	GJK
Issue Date:	02-14-25
Sheet:	C5.0

Plot time: Feb 27, 2025 - 4:20pm
Drawing name: J:\2024\24-0042\CV\DWG\24-0042 CD.dwg - Layout Tab: Layout1

PERMANENT SEEDING (1)

Permanent seeding includes the seedbed preparation, seeding, and the establishment of perennial vegetation used to permanently stabilize soil, prevent sediment pollution, reduce runoff by promoting infiltration, and provide storm water quality benefits offered by dense vegetation.

CONDITIONS WHERE PRACTICE APPLIES

Permanent seeding should be applied to:

* Areas or portions of construction-sites which can be brought to final grade. Applications of permanent seeding should not be delayed while construction on limited portions of the site being completed.
* Areas on that will be regraded, but will be dormant for a year or more.

PLANNING CONSIDERATIONS

Healthy dense turf will have a dramatic long lasting effect on stormwater quality as well as promoting infiltration and reducing the amount of runoff. To establish quality vegetation, careful preparation of the seedbed, soil, even subsoil is highly encouraged.

Soil Compaction--Stormwater quality and the amount of runoff both vary significantly with soil compaction. Non-compacted soils improve stormwater by promoting:

* dense vegetation.
* high infiltration & lower runoff rates.
* pollutant filtration, deposition & absorption, and
* beneficial biologic activity in the soil.

Construction activity can cause highly compacted soils but also offers the opportunity to improve soil condition. The best time for improving soil condition is during the establishment of permanent vegetation. It is highly recommended that subsoilers, plows or others implements be specified as part of final seedbed preparation. Use discretion in slip-prone areas.

Minimum Soil Conditions--Vegetation cannot be expected to stabilize soil that is unstable due to its texture, structure, water movement or excessively steep slope. The following minimum soil conditions are needed for the establishment and maintenance of a long-lived vegetation cover. If these conditions cannot be met, see the Standards and Specifications for Reseiling.

* Soils must include enough fine-grained material to hold at least a moderate amount of available moisture.
* The soil must be free from material that is toxic or otherwise harmful to plant growth.

Permanent Seeding			
Seed Mix	Seeding Rate lb./ac.	lb./1,000 ft.^{2}	Notes:
General Use			
Creeping Red Fescue Ryegrass Kentucky Bluegrass	20-40 10-20 10-20	1/2-1 1/4-1/2 1/4-1/2	
Tall Fescue	40	1	
Dwarf Fescue	40	1	
Steep Banks or Cut Slopes			
Tall Fescue	40	1	
Crown Vetch Tall Fescue	10 20	1/4 1/2	Do not seed later than August
Flat Pea Tall Fescue	20 20	1/2 1/2	Do not seed later than August
Road Ditches and Swales			
Tall Fescue	40	1	
Dwarf Fescue Kentucky Bluegrass	90 5	2 1/4	
Lawns			
Perennial Ryegrass Kentucky Bluegrass	60 60	1 1/2 1 1/2	
Creeping Red Fescue Kentucky Bluegrass	60 60	1 1/2 1 1/2	For shaded areas

Note: Other approved seed species may be substituted.

Maintenance for Permanent Seedings Fertilization and Mowing					
Mixture	Formula	lb./ac.	lb./1,000 sq. ft.	Time	Mowing
Creeping Red Fescue Ryegrass Kentucky Bluegrass	10-10-10	500	12	Fall, yearly or as needed	Not closer than 3"
Tall Fescue	10-10-10	500	12		Not closer than 4"
Dwarf Fescue	10-10-10	500	12		Not closer than 2"
Crown Vetch Fescue	0-20-20	400	10	Spring, yearly following establishment and every 4-7 yrs. thereafter	Do not mow
Flat Pea Fescue	0-20-20	400	10		Do not mow

Note: Following soil test recommendations is preferred to fertilizer rates shown above.

SITE PREPARATION

1. A subsoiler, plow or other implement shall be used to reduce soil compaction and allow maximum infiltration. (Maximizing infiltration will help control both runoff rate and water quality.) Subsoiling should be done when the soil moisture is low enough to allow the soil to crack or fracture. Subsoiling shall not be done on slip-prone areas where soil preparation should be limited to what is necessary for establishing vegetation.
2. The site shall be graded as needed to permit the use of conventional equipment for seedbed preparation and seeding.
3. Resoil shall be applied where needed to establish vegetation.

SEEDBED PREPARATION

1. Lime--Agricultural group limestone shall be applied to acid soil as recommended by a soil test. In lieu of a soil test, lime shall be applied at the rate of 100 lb./1,000 sq. ft. or 2 tons/ac.
2. Fertilizer--Fertilizer shall be applied as recommended by a soil test. In lieu of a soil test, fertilizer shall be applied at a rate of 12 lb./1,000 sq. ft. or 500 lb./ac. of 10-10-10- or 12-12-12 analysis.
3. The lime and fertilizer shall be worked into the soil with a disk harrow, spring-tooth harrow, or other suitable field implement to a depth of 3 in. On sloping land the soil shall be worked on the contour.

SEEDING DATES AND SOIL CONDITIONS

Seeding should be done March 1 to May 31 or August 1 to September 30. These seeding dates are ideal but, with the use of additional mulch and irrigation, seedings may be made any time throughout the growing season. Tillage/seedbed preparation should be done when the soil is dry enough to crumble and not form ribbons when compressed by hand. For winter seeding, see the following section on dormant seeding.

MULCHING

1. Mulch material shall be applied immediately after seeding. Seedings made during optimum seeding dates and with favorable soil conditions and on very flat areas may not need mulch to achieve adequate stabilization. Dormant seeding shall be mulched.
2. Materials

* Straw--If straw is used it shall be unrotted small-grain straw applied at the rate of 2 tons/ac. or 90 lb./1,000 sq. ft. (two to three bales). The mulch shall be spread uniformly by hand or mechanically so the soil surface is covered. For uniform distribution of hand-spread mulch, divide area into approximately 1,000 sq. ft. sections and spread two 45-lb. bales of straw in each section.

* Hydroseeders--If wood cellulose fiber is used, it shall be used at 2,000 lb./ac. or 46 lb./1,000 sq. ft.

* Other--Other acceptance mulches include mulch mattings applied according to manufacturer's recommendations or wood chips applied at 6 tons/ac.

3. Straw Mulch Anchoring Methods

Straw mulch shall be anchored immediately to minimize loss by wind or water.

* Mechanical--A disk, crimper, or similar type tool shall be set straight to punch or anchor the mulch material into the soil. Straw mechanically anchored shall not be finely chopped by, generally, be left longer than 6 in.

PERMANENT SEEDING (1)

MAINTENANCE

1. Permanent seeding shall not be considered established for at least 1 full yr. from the time of planting. Seeded areas shall be inspected for failure and vegetation conditions, it may be necessary to irrigate, fertilize, overseed, or reestablish plantings in order to provider permanent vegetation for adequate erosion control.
2. Maintenance fertilization rates shall be established by soil test recommendations or by using the rates shown in the following table.

DORMANT SEEDINGS.

1. Seeding shall not be planted from October 1 through November 20. During this period the seeds are likely to germinate but probably will not be able to survive the winter.
2. The following methods may be used for "Dormant Seeding":

* From October 1 through November 20, prepare the seedbed, add the required amounts of lime and fertilizer, then mulch and anchor. After November 20, and before March 15, broadcast the selected seed mixture. Increase the seeding rates by 50% for this type of seeding.
* From November 20 through March 15, when soil conditions permit, prepare the seedbed, lime and fertilize, apply the selected seed mixture, mulch and anchor. Increase the seeding rates by 50% for this type of seeding.
* Apply seed uniformly with a cyclone seeder, drill, cultipacker seeder, or hydro-seeder (slurry may include seed and fertilizer) on a firm, moist seedbed.
* Where feasible, except when a cultipacker type seeder is used, the seedbed should be firmed following seeding operations with a cultipacker, roller, or light drag. On sloping land, seeding operations should be on the contour where feasible.
* Mulch Nettings--Nettings shall be used according to the manufacturer's recommendations. Netting may be necessary to hold mulch in place in areas of concentrated runoff and on critical slopes.
* Asphalt Emulsion--Asphalt shall be applied as recommended by the manufacturer or at the rate of 160 gal./ac.
* Synthetic Binders--Synthetic binders such as Acrylic DLR (Agri-Tac), DAC-70, Petroset, Terra Tack or equal may be used at rates recommended by the manufacturer.
* Wood Cellulose Fiber--Wood cellulose fiber binder shall be applied at a net dry weight of 750 lb./ac. The wood cellulose fiber shall be mixed with water and the mixture shall contain a maximum of 50 lb./100 gal. of wood cellulose fiber.

IRRIGATION

1. Permanent seeding shall include irrigation to establish vegetation during dry or hot weather or on adverse site conditions as needed for adequate moisture for seed germination and plant growth.
2. Excessive irrigation rates shall be avoided and irrigation monitored to prevent erosion and damage from runoff.

TEMPORARY SEEDING (1)

Temporary seeding provides erosion control on areas in between construction operations. Grasses which are quick growing are seeded and usually mulched to provide prompt, temporary soil stabilization. It effectively minimizes the area of a construction-site prone to erosion and should be used everywhere the sequence of construction operations allows vegetation to be established.

CONDITIONS WHERE PRACTICE APPLIES

Temporary seeding should be applied on exposed soil where additional work (grading,etc.) is not scheduled for more than 21 days. Permanent seeding should be applied if the areas will be idle for more than a year.

PLANNING CONSIDERATIONS

This practice has the potential to drastically reduce the amount of sediment eroded from a construction-site. Control efficiencies greater than 90% will be achieved with proper applications of temporary seeding. Because practices used to trap sediment are usually much less effective, temporary seeding is to be used even on areas where runoff is treated by sediment trapping practices. Because temporary seeding is highly effective and practical on construction-sites, its liberal use is highly recommended.

Temporary Seeding Species Selection			
Seeding Dates	Species	Lb./1,000 ft.^{2}	Per Acre
March 1 to August 15	Oats Tall Fescue Annual Ryegrass	3 1 1	4 bushel 40 lb. 40 lb.
	Perennial Ryegrass Tall Fescue Annual Ryegrass	1 1 1	40 lb. 40 lb. 40 lb.
August 16 to November 1	Rye Tall Fescue Annual Ryegrass	3 1 1	2 bushel 40 lb. 40 lb.
	Wheat Tall Fescue Annual Ryegrass	3 1 1	2 bushel 40 lb. 40 lb.
	Perennial Ryegrass Tall Fescue Annual Ryegrass	1 1 1	40 lb. 40 lb. 40 lb.
November 1 to Spring Seeding	Use mulch only, sodding practices or dormant seeding.		

Note: Other approved seed species may be substituted.

1. Structural erosion- and sediment-control practices such as diversions and sediment traps shall be installed and stabilized with temporary seeding prior to grading the rest of the construction-site.
2. Temporary seed shall be applied between construction operations on soil that will not be graded or reworked for 21 days or more. These idle areas should be seeded as soon as possible after grading or shall be seeded within 7 days. Several applications of temporary seeing are necessary on typical construction projects.
3. The seedbed should be pulverized and loose to ensure the success of establishing vegetation. However, temporary seeding shall not be postponed if ideal seedbed preparation is not possible.
4. Soil Amendments--Applications of temporary vegetation shall establish adequate stands of vegetation which may require the use of soil amendments. Soil tests should be taken on the site to predict the need for lime and fertilizer.
5. Seeding Method--Seed shall be applied uniformly with a cyclone seeder, drill cultipacker seeder, or hydroseeder. When feasible, seed that has been broadcast shall be covered by raking or dragging and then lightly tamped into place using a roller or cultipacker. If hydroseeding is used, the seed and fertilizer will be mixed on-site and the seeding shall be done immediately and without interruption.

MULCHING TEMPORARY SEEDING

1. Applications of temporary seeding shall include mulch which shall be applied during or immediately after seeding. Seedings made during optimum seeding dates and with favorable soil conditions and on very flat areas may not need mulch to achieve adequate stabilization.
2. Materials:

* Straw--If straw is used, it shall be unrotted small-grain straw applied at the rate of 2 tons/ac. or 90 lb./1,000 sq. ft. (two to three bales). The mulch shall be spread uniformly by hand or mechanically so the soil surface is covered. For uniform distribution of hand-spread mulch, divide area into approximately 1,000-sq.-ft. sections and spread two 45-lb. bales of straw in each section.

* Hydroseeders--If wood cellulose fiber is used, it shall be used at 2,000 lb/ac. or 46 lb./1,000 sq. ft.

* Other--Other acceptance mulches include mulch mattings applied according to manufacturer's recommendations or wood chips applied at 6 tons/ac.

3. Straw mulch shall be anchored immediately to minimize loss by wind or water.
Anchoring Methods:

* Mechanical--A disk, crimper, or similar type tool shall be set straight to punch or anchor the mulch material into the soil. Straw mechanically anchored shall not be finely chopped but, generally, be left longer than 6 in.

* Mulch Nettings--Nettings shall be used according to the manufacturer's recommendations. Netting may be necessary to hold mulch in place in areas of concentration runoff and on critical slopes.

* Asphalt Emulsion--Asphalt shall be applied as recommended by the manufacturer or at the rate of 160 gal./ac.

* Synthetic Binders--Synthetic binders such as Acrylic DLR (Agri-Tac), DCA-70, Petroset, Terra Tack or equal may be used at rates recommended by the manufacturer.

* Wood-Cellulose Fiber--Wood-cellulose fiber binder shall be applied at a net dry weight of 750 lb./ac. The wood-cellulose fiber shall be mixed with water and the mixture shall contain a maximum of 50 lb./100 gal.

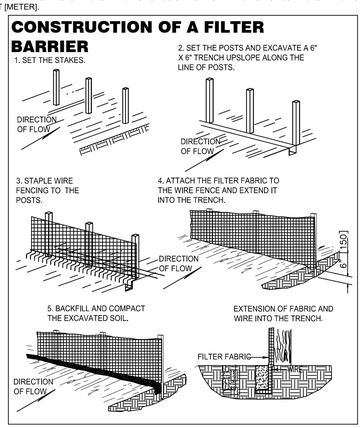
INSTALLATION (5) SILT FENCE

1. PUT UP BEFORE ANY OTHER WORK IS DONE.
2. INSTALL ON DOWNSLOPE SIDE(S) OF SITE WITH ENDS EXTENDED UP SIDESLOPES A SHORT DISTANCE.
3. PLACE PARALLEL TO THE CONTOUR OF THE LAND AND AT THE FLATTEST AREA AVAILABLE TO ALLOW WATER TO POND BEHIND FENCE.
4. STAKE TO BE A MINIMUM OF 32 INCHES LONG
5. MINIMUM HEIGHT SILT FENCE 16 INCHES ABOVE ORIGINAL GROUND SURFACE
6. LEAVE NO GAPS BETWEEN SECTIONS OF SILT FENCE INSPECT AND REPAIR ONCE A WEEK AND AFTER EVERY 1/2 INCH RAIN. REMOVE SEDIMENT IF DEPOSITS REACH HALF THE FENCE HEIGHT.
7. MAXIMUM DISTANCE FROM TOE OF THE SLOPE, LEAVING AT LEAST 5' DISTANCE.
8. STAKE ON DOWNHILL SIDE OF GEOTEXTILE WITH 8" OF CLOTH CLOTH BELOW THE GROUND SURFACE; EXCESS MATERIAL TO LAY ON THE BOTTOM OF 6" TRENCH
9. ODOT TYPE "C" GEOTEXTILE FABRIC OR EQUAL
10. MAINTAIN UNTIL A LAWN IS ESTABLISHED.

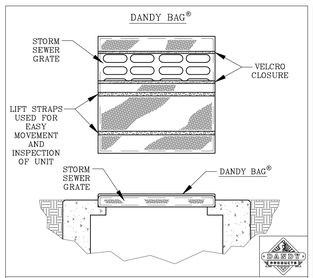
MATERIALS: FILTER FABRIC SHALL MEET THE REQUIREMENTS OF CMS 712.09, TYPE C. SUPPORT STAKES SHALL BE A MINIMUM OF 1.5"X1.5" [38X38], NOMINAL, AND SHALL BE HARDWOOD OF SOUND QUALITY. THE STAKES SHALL BE DRIVEN A MINIMUM OF 8" [150] BELOW THE BOTTOM OF THE FILTER FABRIC. THE MAXIMUM SPACING BETWEEN SUPPORT STAKES SHALL BE 10' [3 M].

CONSTRUCTION: THE BOTTOM OF THE FABRIC SHALL BE BURIED 6" [150] BELOW THE GROUND. THE ENDS OF ADJACENT SECTIONS OF FENCE SHALL BE OVERLAPPED WITH THE END STAKE OF EACH SECTION WRAPPED TOGETHER PRIOR TO INSTALLATION. THE GROUND ELEVATION OF THE FENCE SHALL BE HELD CONSTANT EXCEPT THAT THE END ELEVATIONS SHALL BE RAISED UPSLOPE TO PREVENT FLOW AROUND THE END OF THE FENCE. MAINTENANCE: THE FILTER FABRIC FENCE SHALL BE MAINTAINED TO BE FUNCTIONAL. THIS SHALL INCLUDE REMOVAL OF TRAPPED SEDIMENT AND REQUIRED CLEANING, REPAIR, AND REPLACEMENT OF THE FILTER FABRIC. THE MAINTENANCE OR REPLACEMENT COST WILL BE PAID FOR BY THE DEPARTMENT UNDER UNIT BID PRICES, AGREED UNIT PRICES, OR CMS 109.04.

PAYMENT: THE COST OF ALL MATERIALS, CONSTRUCTION AND REMOVAL SHALL BE PAID FOR UNDER ITEM 207 - TEMPORARY PERIMETER FILTER FABRIC FENCE OR TEMPORARY DITCH CHECK FILTER FABRIC FENCE, LINEAR FOOT [METER].



DANDY BAG & DANDY CURB BAG DETAILS (8) (9)



DETAIL OF INLET SEDIMENT CONTROL DEVICE

PROJECT: DR. BY:
CITY/STATE: DATE: DR. NO:

DANDY BAG®
SPECIFICATIONS

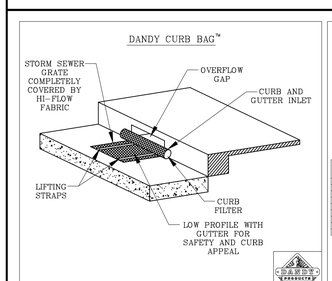
NOTE: THE DANDY BAG® WILL BE **MANUFACTURED IN THE U.S.A.** FROM A WOVEN MONOFILAMENT FABRIC THAT MEETS OR EXCEEDS THE FOLLOWING SPECIFICATIONS:

HI-FLOW DANDY BAG® (SAFETY ORANGE)

Mechanical Properties	Test Method	Units	MARV
Grab Tensile Strength	ASTM D 4632	kN (lbs)	1.62 (365) X 0.89 (200)
Grab Tensile Elongation	ASTM D 4632	%	24 X 10
Puncture Strength	ASTM D 4833	kN (lbs)	0.40 (90)
Mullen Burst Strength	ASTM D 3786	kPa (psi)	3097 (450)
Trapezoid Tear Strength	ASTM D 4533	kN (lbs)	0.51 (115) X 0.33 (75)
UV Resistance	ASTM D 4355	%	90
Apparent Opening Size	ASTM D 4751	Mm. (US Std Sieve)	0.425 (40)
Flow Rate	ASTM D 4491	l/min/m²(gal/min/ft²)	5907 (145)
Permittivity	ASTM D 4491	Sec $^{-1}$	2.1

*Note: All Dandy Bags® can be ordered with our optional oil absorbent pillows

Detail Provided By:
Site Supply Inc.
33 Glendale-Milford Road
Loveland, OH 45140
Phone: (513) 248-1498
Fax: (513) 248-4584
cbrowning@sitefabric.com
http://www.sitefabric.com



DETAIL OF CURB INLET SEDIMENT CONTROL DEVICE WITH CURB FILTER

PROJECT: DR. BY:
CITY/STATE: DATE: DR. NO:

DANDY CURB BAG™
SPECIFICATIONS

NOTE: THE DANDY CURB BAG™ WILL BE **MANUFACTURED IN THE U.S.A** FROM A WOVEN MONOFILAMENT FABRIC THAT MEETS OR EXCEEDS THE FOLLOWING SPECIFICATIONS:

DANDY CURB BAG™ (SAFETY ORANGE)

Mechanical Properties	Test Method	Units	MARV
Grab Tensile Strength	ASTM D 4632	kN (lbs)	1.62 (365) X 0.89 (200)
Grab Tensile Elongation	ASTM D 4632	%	24 X 10
Puncture Strength	ASTM D 4833	kN (lbs)	0.40 (90)
Mullen Burst Strength	ASTM D 3786	kPa (psi)	3097 (450)
Trapezoid Tear Strength	ASTM D 4533	kN (lbs)	0.51 (115) X 0.33 (75)
UV Resistance	ASTM D 4355	%	90
Apparent Opening Size	ASTM D 4751	Mm. (US Std Sieve)	0.425 (40)
Flow Rate	ASTM D 4491	l/min/m²(gal/min/ft²)	5907 (145)
Permittivity	ASTM D 4491	Sec $^{-1}$	2.1

*Note: All Dandy Curb Bags™ can be ordered with our optional oil absorbents

Erosion Prevention and Sediment Control Site Inspection Form

Introduction: By using some simple Best Management Practices (BMP's) developers and contractors can do their share to protect water resources from the harmful effects of sediment. The topography of the site and the extent of the construction activities will determine which of these practices are applicable to any given site, but the BMP's listed here are applicable to most construction sites. For details on the installation and maintenance of these BMP's, please refer to the approved plans and or the Rainwater **and Land Development, Ohio's Standards for Storm Water Management, Land** *Development and Urban Stream Protection (ODNR, 1996)*.

Temporary Stabilization is the most effective BMP. All disturbed areas that will lie dormant for 14 days or more must be stabilized within 7 days of the date the area becomes inactive. The goal of temporary stabilization is to provide cover quickly. Areas within 50 feet of a stream must be stabilized within 2 days of reaching final grade. This is accomplished by seeding with fast-growing grasses, then covering with straw mulch. See the Rainwater and Land Development Manual for seasonally adjusted seeding specifications. To minimize your costs of temporary stabilization, leave natural cover in place for as long as possible by only disturbing areas worked within the next 14 days.

Construction Entrances are installed to minimize off-site tracking of sediments. A rough stone access drive underlain with woven geotextile shall be installed at every point where vehicles enter or exit the site. Every individual lot should also have its own drive once construction on the lot begins. Maintenance is performed by top dressing with stone and/or street sweeping.

Sediment Basins/Traps are the sediment control of choice for areas, which exceed the design capacity of silt fence (see page 119 of the Rainwater manual) or to control concentrated flows or runoff. There are two types: sediment basins and sediment traps. A trap is appropriate where the contributing drainage area is 10 acres or less. The outlet is an earthen embankment with a simple stone spillway underlain with woven geotextile. A sediment basin is appropriate for drainage areas larger than 10 acres. The outlet is an engineered riser pipe. Often a permanent storm water management pond, such as a retention or detention basin, can be retrofitted to act as a sediment basin during construction. All sediment ponds, regardless of whether they are a trap or a basin, or whether they will become a permanent storm water pond, must provide a minimum storage of 67 cubic yards per acre of total contributing drainage area. Sediment ponds must be installed prior to mass clearing and grading. Maintenance must be performed once the basin loses 40% of capacity, and 30% for storm water basins retrofitted as sediment basins.

Silt Fence or Mulch Berms are typically used at the perimeter of a disturbed area. They are only for small drainage areas on relatively flat slopes or around small soil storage piles; not suitable where runoff is concentrated in a ditch, pipes or though streams. For large drainage areas where flow is concentrated, collect runoff in diversion berms or channels and pass it through a sediment pond prior to discharging it from the site. Combination barriers constructed of silt fence supported by welded wire fencing, mulch berms supported by rock check dams, or silt fence embedded within rock check dams may be effective within small channels. As with all sediment controls, silt fence or mulch berms must be capable of ponding runoff so that sediment can settle out of suspension. These must be installed within 7 days of first grubbing the area it controls. Whenever practical they should be installed before clearing or grubbing the area it controls.

Inlet Protection must be installed on all yard drains and curb drains when these inlets do not drain to a sediment trap or basin. Even if there is a sediment trap or basin, inlet protection is still recommended, as it will reduce the amount of sediment entering the basin and increase the overall sediment removal efficiency. Best used on roads with little or no traffic. If working properly, inlet protection will cause water to pond. If used on curb inlets, streets will flood temporarily during heavy storms, (overflow should be built-in.) Check with the authority that has jurisdiction over the roads before installing. They may prefer an alternate BMP. Care should be taken when placing inlet protection so that the runoff is not diverted to public roads or other areas where it could cause a hazard.

Permanent Stabilization must occur on areas at final grade within 7 days of reaching final grade. This is usually accomplished by using seed and mulch, but special measures are sometimes required. This is particularly true in drainage ditches or on steep slopes. These measures include the addition of topsoil, erosion control matting, rock riprap or retaining walls. See the Rainwater and Land Development Manual for seasonally adjusted seeding specifications. At all times of the year, the area should be temporarily stabilized until a permanent seeding can be applied.

Inspections shall be performed at least once a week and within 24 hours after a storm event greater than 1/2 inch of rainfall within a 24-hour duration using the enclosed Inspection Form. Inspections can be tracked using the enclosed Inspection Log. These shall be maintained throughout the development process and kept on file for three years per OEPA requirements. Erosion prevention and sediment control (EP&SC) measures shall be observed to ensure correct operation. Discharge locations shall be inspected to determine effectiveness of EP&SC measures in preventing significant impacts to the receiving waters. Where practices require repair or maintenance, it must be accomplished within three days of the inspection or as soon as site conditions allow. Repairs to sediment ponds shall be completed within 10 days or as soon as site conditions allow. Most of these BMP's are easy to implement with a little bit of planning and go a long way toward keeping your site clean and organized if they are properly installed and maintained. Please be sure to inform all parties on site how these BMPs affect their operations on the site, particularly those that will be working near a stream.

Erosion Prevention and Sediment Control Site Inspection Form

Inspector: _____ Date: _____

General:
Amount of rainfall since last inspection: _____inches
Overall site conditions: _____

Construction Entrances:
Is the entrance installed correctly according to the approved plan? YES NO N/A
(Check for mud in stones/street, runoff diverted from street, etc..)
Action Needed: _____

Sediment Basins/Traps:
Are all Basins installed correctly according to the approved plan? YES NO N/A
(Check for runoff directed to basin, down slope areas stabilized, riser pipe wrapped with wire fence/filter fabric, emergency overflow, accumulated sediment more than 40% of volume, etc..)
Action Needed: _____

Silt Fence/Mulch Berms:
Are all Silt Fence/Mulch Berm (SF/MB) installed correctly according to the approved plan?
YES NO N/A (Check for fabric trenched in, follow contour, turned upslope at ends, silt accumulated, broken stakes, tight fabric, installed in all areas where sediment could leave the site)
Action Needed: _____

Inlet Protection:
Are all Inlet Protections installed correctly according to the approved plan? YES NO N/A
Check for runoff ponding, in good shape, silt accumulated, etc..)
Action Needed: _____

Temporary Stabilization:
Are all disturbed areas that will lie dormant for 14 days or more stabilized with seed/straw or mulch? (stockpiles, hillsides, etc..) YES NO N/A

Are all areas stabilized still in good condition and not eroding? YES NO N/A

Permanent Stabilization:
Have areas that achieved final grade within the last 7 days been stabilized? YES NO N/A

Do all storm water outflow areas have riprap or concrete to prevent scouring? YES NO N/A

Stream Crossing:
Are the Stream Crossings installed correctly according to the approved plan? YES NO N/A
(Check for stabilized edges, runoff diverted from stream, mud over stones, end of useful life, etc..)
Action Needed: _____

Erosion Prevention and Sediment Control Site Inspection Form

If you answered "no" to any of the above questions, note any corrective action needed above, and note on the Inspection Log when the action was completed.

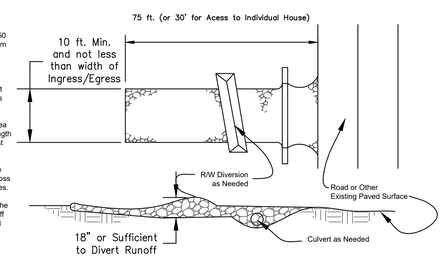
Inspection Log

The site shall be inspected before and after storm events with 0.5 inches or greater predicted or actual precipitation, and documented on the Construction Site Inspection Form. Incidents of noncompliance must be reported to the Engineer. A log of all inspections, as shown below, shall be kept current.

Date:	Inspector:	Actions Performed/Date:

CONSTRUCTION ENTRANCE (21)

1. Stone Size--Two-inch stone shall be used, or recycled concrete equivalent.
2. Length--The construction entrance shall be as long as required to stabilize high traffic areas but not less than 50 ft. (except on single residence lot where a 30-ft. minimum length applies).
3. Thickness--The stone layer shall be at least 6 in. thick.
4. Width--The entrance shall be at least 10 ft. wide, but not less than the full width at points where ingress or egress occurs.
5. Bedding--A geotextile shall be placed over the entire area prior to placing stone. It shall have a Grab Tensile Strength of at least 200 lb. and a Mullen Burst Strength of at least 190 lb.
6. Culvert--A pipe or culvert shall be constructed under the entrance if needed to prevent surface water flowing across the entrance from being directed out onto paved surfaces.
7. Water Bar--A water bar shall be constructed as part of the construction entrance if needed to prevent surface runoff from flowing the length of the construction entrance and out onto paved surfaces.
8. Maintenance--Top dressing of additional stone shall be applied as conditions demand. Mud spilled, dropped, washed or tracked onto public roads, or any surfaces where runoff is not checked by sediment controls, shall be removed immediately. Removal shall be accomplished by scraping or sweeping.
9. Construction entrances shall not be relied upon to remove mud fro vehicles and prevent off-site tracking. Vehicles that enter and leave the construction-site shall be restricted from muddy areas.



Item	Revision Description	Date	Drawn	Chk

STATE OF OHIO
GREGORY J. KOCH
E-69324
PROFESSIONAL ENGINEER
2/28/25

TOPSS: TALAWANDA OXFORD PANTRY & SOCIAL SERVICES
SEC. 16, TOWN 5, RANGE 1, CONGRESS LANDS W. OF THE MIAMI
LOT 3285 OXFORD
BUTLER COUNTY, OHIO
5445 COLLEGE CORNER PIKE

EROSION CONTROL NOTES AND DETAILS

bayer becker
www.bayerbecker.com
110 S. Poplar Street, Suite 101
Oxford, OH 45056 - 513.523.4270

Drawing: 24-0042 CD
Drawn by: SJW
Checked By: GJK
Issue Date: 02-14-25
Sheet: C5.1

Plot time: Feb 14, 2025 - 5:31pm
Drawing name: J:\2024\24-0042\CIVIL\DWG\24-0042 CD.dwg - Layout Tab: Layout1

LANDSCAPE ZONING REQUIREMENTS

CURRENT ZONING:

GB (GENERAL BUSINESS DISTRICT)

ADJACENT ZONING:

NORTH: REAGH'S WAY & COLLEGE CORNER PIKE
EAST: GB (GENERAL BUSINESS DISTRICT)
SOUTH: GB (GENERAL BUSINESS DISTRICT)
WEST: R-3 (MULTI-FAMILY RESIDENTIAL DISTRICT)

SECTION 1148.03 STREET TREE REQUIREMENTS:

TREES SHALL BE PLANTED IN THE TREE LAWN OR OTHER APPROPRIATE AREAS IN THE STREET RIGHTS-OF-WAY AS REQUIRED IN CHAPTER 935.

CHAPTER 935.05 STREET TREE SPECIES TO BE PLANTED

- THE TREE PLAN CONTAINS A LIST OF OFFICIAL STREET TREE SPECIES FOR THE CITY OF OXFORD
- PLANTED AT 2" DBH

CHAPTER 935.06 SPACING

- MIN. SPACING: SMALL TREES: 30FT (3' WIDTH MIN), MEDIUM TREES: 40FT (5' WIDTH MINIMUM), LARGE TREES (8' WIDTH MINIMUM): 50FT

ALL NEWLY PLANTED STREET TREES SHALL BE PLANTED EQUAL DISTANCE BETWEEN THE SIDEWALK AND THE CURB.

COLLEGE CORNER PIKE (WIDTH 6'+) = 49 LF / 40 LF = **1 MEDIUM STREET TREE PROVIDED**

REAGH'S WAY (WIDTH < 3') = 153 LF = NO STREET TREES DUE TO TREE LAWN WIDTH AND NO EXISTING STREET TREES ALONG REAGH'S WAY

SECTION 1148.04 TREE PLANTING REQUIREMENTS:

(C) NON RESIDENTIAL STANDARDS:

(1) OVERALL SITE TREES MINIMUM (1) TREE PER (10) LINEAR FEET OF PUBLIC STREET RIGHT OF WAY. IN THE CASE OF CORNER LOTS WITH FRONTAGES ON TWO PUBLIC STREETS THE CALCULATION SHALL BE BASED ON THE STREET WITH THE LONGEST FRONTAGE

REAGH'S WAY = 191 LF/ 10 LF = **19 SITE TREES**

PROVIDED: 1 STREET + 8 FRONT YARD + 3 SITE + 3 EXISTING + 4 PARKING

(2) FRONT YARD TREES MINIMUM (1) TREE PER (25) LINEAR FEET OF PUBLIC STREET RIGHT OF WAY SHALL BE PROVIDED WITHIN THE REQUIRED FRONT YARD AREA; SUCH TREES MAY CONTRIBUTE TOWARD FULFILLING THE OVERALL SITE TREE PLANTING REQUIREMENT.

REAGH'S WAY = 191 LF/ 25 LF = **8 FRONT YARD TREES PROVIDED**

(3) PARKING AREA TREES SEE SECTION BELOW FOR PARKING LOT CALCULATIONS. PARKING LOT TREES CAN COUNT TOWARD OVERALL SITE TREES.

1149.07 (E) (6) LANDSCAPING

A. PARKING AREA SHALL HAVE TWO (2) TREES PER PARKING FACILITY PLUS ONE (1) TREE FOR EVERY FIVE (5) PARKING SPACES OR FRACTION THEREOF GENERALLY DISTRIBUTED THROUGHOUT THE PARKING AREA.

19 SPACES/ 5 = **4 PARKING LOT TREES PROVIDED**

SECTION 1101.4 (410) LANDSCAPE PLAN:

A. BUFFERING

- BUFFERS SHALL PROVIDE YEAR-ROUND VISUAL SCREEN IN ORDER TO MINIMIZE ADVERSE IMPACTS. THEY MAY CONSIST OF FENCING, EVERGREENS, BERMS, ROCKS, BOULDERS, MOUNDS, OR COMBINATIONS.
- BUFFER REQUIRED TO SHIELD:

(1) NEIGHBORING PROPERTIES FROM ADVERSE EXTERNAL EFFECTS OF DEVELOPMENT

(2) DEVELOPMENT FROM NEGATIVE IMPACTS OF ADJACENT USES SUCH AS STREETS OR RAILROADS

EVERGREEN BUFFER PROVIDED ALONG WESTERN RESIDENTIAL PROPERTIES - MATURE HEIGHT LIMITED TO 15' AND UNDER.

CONCEPT GRAPHICS SCHEDULE

PARKING SPACE
(1) TREE REQUIRED PER (5) PARKING SPACES

Takeoff: 19

STREET TREES (WIDTH 5 FT)
MEDIUM STREET TREES
SPACING: 40' O.C.

Takeoff: 49 lf

STREET TREES (WIDTH <3 FT)
NO STREET TREES ARE ALLOWED TO BE PLANTED IN TREE LAWNS SMALLER THAN 3' WIDTH
NO STREET TREES PROVIDED

Takeoff: 153 lf

CONCEPT PLANT SCHEDULE

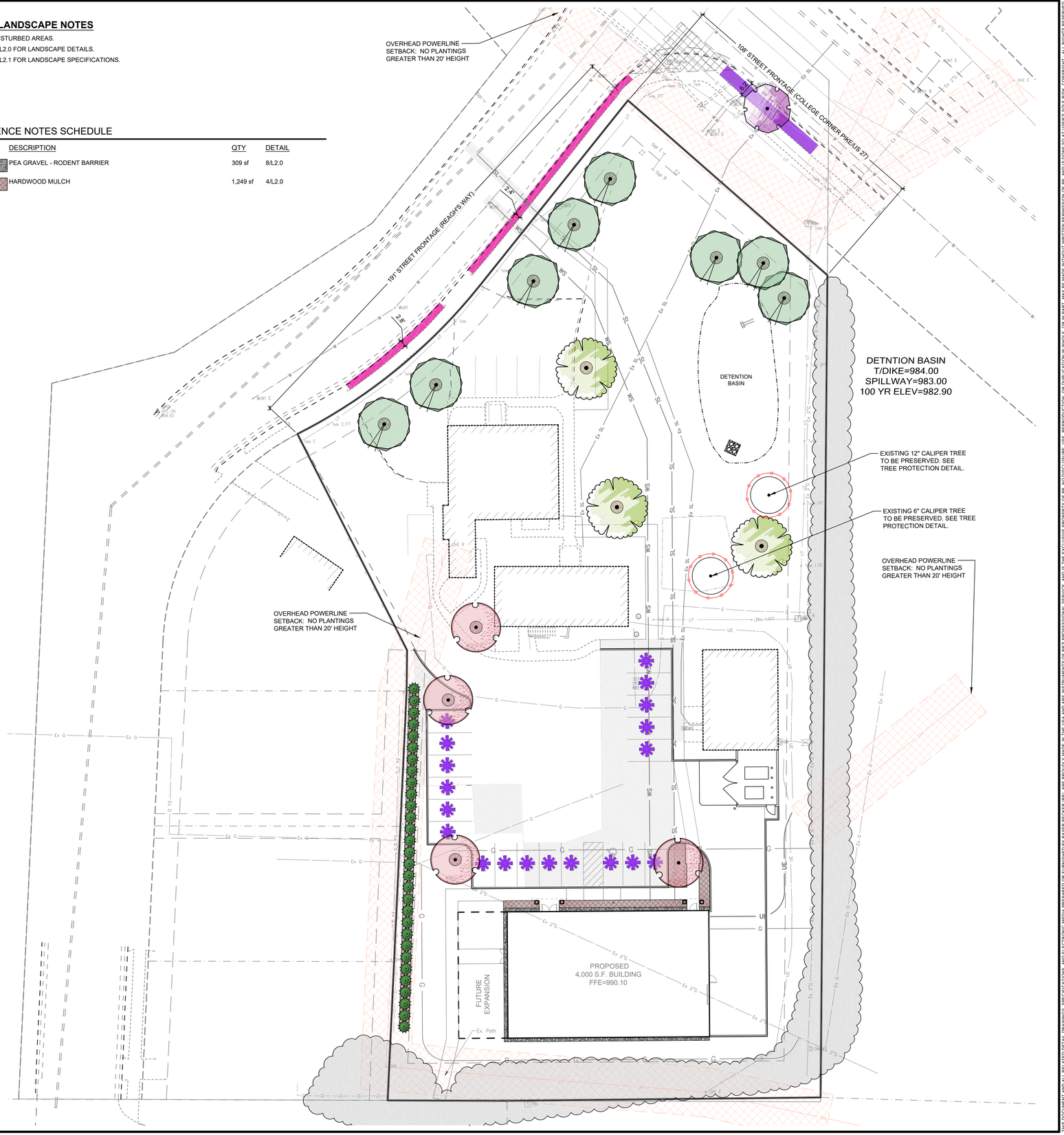
STREET TREE	Acer rubrum `Red Sunset` / Red Sunset Maple	1
FRONT YARD TREE	Ginkgo biloba 'Presidential Gold' / Presidential Gold Ginkgo Gymnocladus dioica `Espresso` / Kentucky Coffeetree Liriodendron tulipifera 'Fastigiata' / Columnar Tulip Poplar Quercus rubra / Red Oak Taxodium distichum `Autumn Gold` / Autumn Gold Bald Cypress	8
SITE TREE	Liriodendron tulipifera 'Fastigiata' / Columnar Tulip Poplar Quercus rubra / Red Oak Taxodium distichum `Autumn Gold` / Autumn Gold Bald Cypress Tilia tomentosa `Sterling` / Sterling Silver Linden	3
PARKING LOT TREE	Acer rubrum `Autumn Blaze` / Autumn Blaze Red Maple Ginkgo biloba 'Presidential Gold' / Presidential Gold Ginkgo Gleditsia triacanthos f. inermis `Shademaster` TM / Shademaster Honeylocust Tilia tomentosa `Sterling` / Sterling Silver Linden	4
EXISTING TREE	TREES WITH DBH OF 10 INCHES OR GREATER MAY BE COUNTED AS (2) REQUIRED TREES	2
DENSE EVERGREEN SHRUB	HEIGHT AT PLATING: 6' MAXIMUM HEIGHT: 15' DUE TO OVERHEAD POWERLINES Juniperus scopulorum 'Wichita Blue' / Wichita Blue Juniper Thuja occidentalis 'Sunkist' / Sunkist Arborvitae Thuja occidentalis 'Techny' / Techny Arborvitae	30

GENERAL LANDSCAPE NOTES

A. SEED ALL DISTURBED AREAS.
B. SEE SHEET L2.0 FOR LANDSCAPE DETAILS.
C. SEE SHEET L2.1 FOR LANDSCAPE SPECIFICATIONS.

REFERENCE NOTES SCHEDULE

SYMBOL	DESCRIPTION	QTY	DETAIL
	PEA GRAVEL - RODENT BARRIER	309 sf	8/L2.0
	HARDWOOD MULCH	1,249 sf	4/L2.0



Basis of Bearing:
State Plane NAD83 (2011)

0 10 20 30
SCALE: 1" = 20'

Item	Revision Description	Date	Drwn	Chk
1	REVISED PER OWNER REVIEW	02-28-25	LEM	LEM

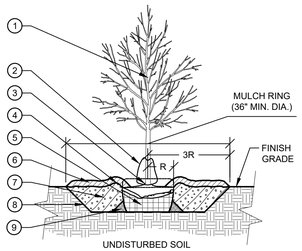
TOPSS: TALAWANDA OXFORD PANTRY & SOCIAL SERVICES
SEC. 16, TOWN 5, RANGE 1, CONGRESS LANDS W. OF THE MIAMI
LOT 3285 OXFORD
BUTLER COUNTY, OHIO
5445 COLLEGE CORNER PIKE

LANDSCAPE PLAN: ZONING MINIMUM

bayer becker
www.bayerbecker.com
110 S. Cedar Street, Suite 101
Oxford, OH 45056 - 513.523.4270

Drawing: 24-0042 LA
Drawn by: LEM
Checked By:
Issue Date: 02-14-25
Sheet: L1.0

Plot time: Feb 28, 2025 - 8:23am
Drawing name: J:\2024\24-0042\LA\DWG\24-0042 LA.dwg - Layout Tab: L1.0 Planting



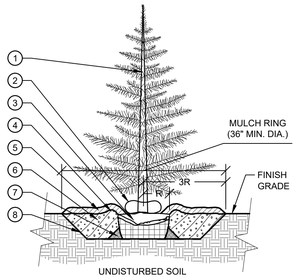
1. CENTRAL LEADER
2. 15 GAL. GATOR BAG (SEE NOTES)
3. ROOT FLARE (IF NEEDED SEE ROOT FLARE CORRECTION DETAIL)
4. SOIL BERM (SEE NOTES)
5. ROOTBALL
6. MULCH (SEE NOTES)
7. AMENDED PLANTING SOIL
8. ROOTBALL PIT
9. FOOT COMPACTED PLANTING SOIL AT BASE OF ROOTBALL TO STABILIZE TREE

NOTES:

A. REMOVE ALL TWINE, ROPE, WIRE, AND BURLAP FROM TOP ⅓ OF ROOTBALL.TOP OF ROOTBALL TO BE FLUSH WITH FINISH GRADE AFTER SETTLEMENT. ROOT FLARE 1" ABOVE FINISH GRADE.
B. BOTTOM OF ROOT BALL TO REST ON EXISTING OR RE-COMPACTED SOIL.
C. TREE PIT TO BE THREE TIMES THE WIDTH OF THE ROOTBALL.
D. SCARIFY BOTTOM AND SIDES OF TREE PIT TO 4" MIN. DEPTH.
E. SUBSOIL AND TOPSOIL REMOVED FROM EXCAVATIONS MAY BE USED AS PLANTING SOIL PROVIDED IT IS FREE OF ROCKS & DELETERIOUS MATERIALS. TOPSOIL AMENDED PER SOIL TESTING REPORT.
F. SOIL BERM 4" HIGH X 8" WIDE ABOVE ROOT BALL SURFACE SHALL BE CONSTRUCTED AROUND THE ROOT BALL. BERM SHALL BEGIN AT ROOT BALL PERIPHERY.
G. MULCH RING (SEE SPECIFICATIONS FOR DEPTH) AROUND TRUNK. MINIMUM 36" RADIUS DO NOT PLACE MULCH WITHIN 3" OF TRUNK.
H. GATOR BAG TO BE INSTALLED & FILLED PER MANUFACTURER'S SPECIFICATIONS ON ALL TREES WHEN INSTALLED BETWEEN JUNE - AUG. 1"-4" CALIPER (1 BAG). 5"-8" (2 BAGS).
I. TREES UNDER 5" CALIPER ARE NOT REQUIRED TO BE GUYED UNLESS LOCATED ON SLOPES GREATER THAN 3:1 OR IN A WINDY LOCATION OR OTHER WISE DETERMINED NECESSARY.

1 TYP. TREE PLANTING DETAIL

NOT TO SCALE — P-24-TOP-01



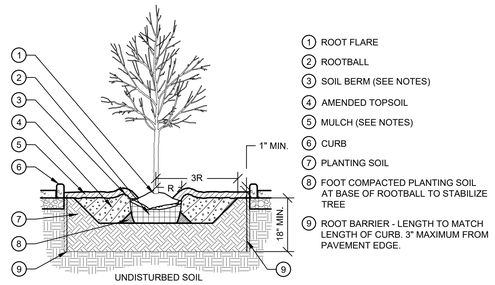
1. CENTRAL LEADER
2. 15 GAL. TREEGATOR JR. PRO (SEE NOTES)
3. ROOTBALL
4. SOIL BERM (SEE NOTES)
5. MULCH (SEE NOTES)
6. AMENDED PLANTING SOIL
7. FOOT COMPACTED PLANTING SOIL AT BASE OF ROOTBALL TO STABILIZE TREE
8. ROOTBALL PIT

NOTES:

A. REMOVE ALL TWINE, ROPE, WIRE, AND BURLAP FROM TOP ⅓ OF ROOTBALL.TOP OF ROOTBALL TO BE FLUSH WITH FINISH GRADE AFTER SETTLEMENT. ROOT FLARE 1" ABOVE FINISH GRADE.
B. BOTTOM OF ROOT BALL TO REST ON EXISTING OR RE-COMPACTED SOIL.
C. TREE PIT TO BE THREE TIMES THE WIDTH OF THE ROOTBALL.
D. SCARIFY BOTTOM AND SIDES OF TREE PIT TO 4" MIN. DEPTH.
E. SUBSOIL AND TOPSOIL REMOVED FROM EXCAVATIONS MAY BE USED AS PLANTING SOIL PROVIDED IT IS FREE OF ROCKS & DELETERIOUS MATERIALS. TOPSOIL AMENDED PER SOIL TESTING REPORT.
F. SOIL BERM 4" HIGH X 8" WIDE ABOVE ROOT BALL SURFACE SHALL BE CONSTRUCTED AROUND THE ROOT BALL. BERM SHALL BEGIN AT ROOT BALL PERIPHERY.
G. MULCH RING (SEE SPECIFICATIONS FOR DEPTH) AROUND TRUNK. MINIMUM 36" RADIUS DO NOT PLACE MULCH WITHIN 3" OF TRUNK.
H. GATOR BAG TO BE INSTALLED & FILLED PER MANUFACTURER'S SPECIFICATIONS ON ALL TREES WHEN INSTALLED BETWEEN JUNE - AUG.

2 TYP. EVERGREEN PLANTING DETAIL

NOT TO SCALE — P-24-TOP-02



1. ROOT FLARE
2. ROOTBALL
3. SOIL BERM (SEE NOTES)
4. AMENDED TOPSOIL
5. MULCH (SEE NOTES)
6. CURB
7. PLANTING SOIL
8. FOOT COMPACTED PLANTING SOIL AT BASE OF ROOTBALL TO STABILIZE TREE
9. ROOT BARRIER - LENGTH TO MATCH LENGTH OF CURB. 3" MAXIMUM FROM PAVEMENT EDGE.

NOTES:

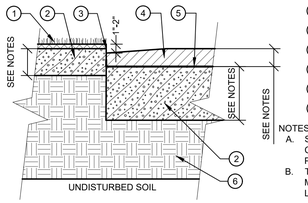
A. SOIL SHALL BE EXCAVATED A MINIMUM OF 18" IN TREE ISLAND. SUBSOIL AND TOPSOIL REMOVED FROM EXCAVATIONS MAY BE USED AS PLANTING SOIL PROVIDED IT IS FREE OF ROCKS & DELETERIOUS MATERIALS. TOPSOIL AMENDED PER SOIL TESTING REPORT.
B. BACKFILL TREE PIT WITH SPECIFIED SOIL MIX. COMPACT IN 6 INCH LIFTS.
C. ROOT BARRIERS SHALL BE INSTALLED WHEN ROOT BALL IS LOCATED WITHIN 8' OF PAVEMENT. TOP OF ROOT BARRIER 1" ABOVE FINISHED GRADE.ROOT BARRIERS TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
D. MULCH (SEE SPECIFICATIONS FOR DEPTH). DO NOT PLACE MULCH WITHIN 3" OF TRUNK. TOP OF MULCH SHALL BE A MINIMUM OF 1" BELOW ADJACENT CURB/WALK FOR MULCH CONTAINMENT.
E. SEE TYP. TREE PLANTING DETAIL FOR ADDITIONAL PLANTING NOTES AND DETAILS.

3 TREE ISLAND PLANTING

NOT TO SCALE — P-24-TOP-03

GENERAL LANDSCAPE NOTES

A. REFER TO LANDSCAPE SPECIFICATIONS FOR ADDITIONAL INSTALLATION REQUIREMENTS.
B. THE CONTRACTOR SHALL VISIT THE SITE AND COMPLETELY REVIEW THESE DOCUMENTS AND FULLY UNDERSTAND THE NATURE AND SCOPE OF WORK NEEDED TO ACHIEVE THE FINISHED PRODUCT INTENDED BY THE OWNER. IN ADDITION, THE CONTRACTOR SHALL AT ONCE REPORT TO THE LANDSCAPE ARCHITECT, INACCURACIES OR INCONSISTENCIES DISCOVERED. FAILURE TO REASONABLY RECOGNIZE OR NOTIFY THE LANDSCAPE ARCHITECT OF SUCH ITEMS SHALL RELEASE THE LANDSCAPE ARCHITECT AND OWNER OF ALL LIABILITY. ANY DEVIATIONS FROM THESE DOCUMENTS WITHOUT WRITTEN APPROVAL FROM THE LANDSCAPE ARCHITECT SHALL BE CORRECTED AT THE CONTRACTORS EXPENSE.
C. PRIOR TO CONSTRUCTION, THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS NECESSARY TO COMPLETE THE WORK, LOCATING ALL UNDERGROUND UTILITIES, AND SHALL AVOID DAMAGE TO ALL UTILITIES DURING INSTALLATION. THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ALL DAMAGE TO UTILITIES, STRUCTURES, SITE APPURTENANCES, ETC., WHICH MAY OCCUR AS A RESULT OF LANDSCAPE CONSTRUCTION.
D. CONTRACTOR MUST CERTIFY THAT ITS SAFETY PROGRAM MEETS REGULATORY REQUIREMENTS AT A MINIMUM. CONTRACTOR TO PROVIDE DOCUMENTATION OF THE OSHA RECORD KEEPING SUMMARY.
E. REFER TO BID DOCUMENTS AND COMPLY WITH ALL STATE & LOCAL TRAFFIC AND SAFETY REQUIREMENTS REGARDING APPROVED WORK TIMES, SCHEDULING OF INSTALLATION, AND ALL OTHER REQUIREMENTS.
F. LANDSCAPE CONTRACT IS RESPONSIBLE FOR COORDINATING WITH OTHER CONTRACTORS AND/OR LOCATING PROPOSED SITE UTILITIES, STORM STRUCTURES, EASEMENTS, ETC.
G. ALL PLANT MATERIAL MUST BE INSTALLED ACCORDING TO THE APPROVED LANDSCAPING PLAN BY NO LATER THAN THE NEXT PLANTING SEASON OR WITHIN 6 MONTHS FROM THE COMPLETION OF ALL SITE CONSTRUCTION.
H. CONTRACTOR TO VERIFY ALL PLANT QUANTITIES. ANY DISCREPANCY BETWEEN THE PLANTING LIST AND THE PLAN SHALL BE VERIFIED BY THE LANDSCAPE ARCHITECT. ALL SUBSTITUTIONS AND/OR CHANGES SHALL BE REQUESTED IN WRITING TO THE OWNER OR OWNER'S REPRESENTATIVE AND BE APPROVED BY THE LANDSCAPE ARCHITECT AND THE LOCAL MUNICIPALITY (IF REQUIRED) PRIOR TO INSTALLATION.
I. INSTALL PLANTS - REFER TO TYPICAL PLANTING DETAILS FOR PLANT INSTALLATION.
J. IT IS THE CONTRACTOR'S OPTION WHETHER OR NOT TO STAKE A TREE UNDER 5" CALIPER, BUT IT IS ALSO THE CONTRACTOR'S RESPONSIBILITY TO ASSURE THAT PLANTS REMAIN IN AN UPRIGHT POSITION UNTIL THE END OF THE WARRANTY PERIOD, AT WHICH POINT ANY STAKES & WIRE ARE TO BE REMOVED BY THE CONTRACTOR.
K. LANDSCAPE CONTRACTOR SHALL INSTALL GATOR BAGS, PER MANUFACTURER'S RECOMMENDATION FOR ALL TREES THAT ARE NOT OTHERWISE IRRIGATED. GATOR BAGS TO BE INSTALLED AND FILLED BETWEEN JUNE AND AUGUST. (1) BAG REQUIRED FOR 1" - 4" CALIPER TREES AND (2) BAGS REQUIRED FOR 5"-8" CALIPER TREES.
L. LANDSCAPE CONTRACTOR SHALL ASSURE POSITIVE DRAINAGE FROM ALL PLANT BEDS WITHOUT ADVERSELY AFFECTING SITE DRAINAGE. GRADES BEHIND CURBS FOR AREAS TO RECEIVE MULCH SHALL BE HELD 4 INCHES BELOW TOP OF CURB AND 2 INCHES BELOW TOP OF CURB FOR SOD.
M. CONTRACTOR TO RUN PERCOLATION TESTS TO ASSURE PROPER DRAINAGE IN PLANTING AREAS.
N. ADDITIONAL ROCK EXCAVATION AND TOPSOIL MAY BE REQUIRED TO OBTAIN SPECIFIED PLANTING DEPTHS FOR ROOT COVERAGE BASED ON SITE CONDITIONS.



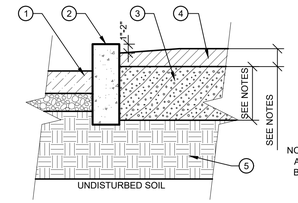
1. ADJACENT LAWN
2. AMENDED TOPSOIL
3. VERTICAL EDGE
4. MULCH
5. WEED CONTROL FABRIC
6. UNDISTURBED SOIL

NOTES:

A. SHOVEL CUT BED EDGE SHALL CREATE A CLEAN SEPARATION BETWEEN LAWN AND PLANTING AREA TO CONTAIN MULCH.
B. TAPER MULCH ALONG PLANTING BED EDGE. MULCH TO BE HELD 1"-2" BELOW ADJACENT LAWN.

4 MULCH BED ADJACENT TO LAWN

NOT TO SCALE — P-24-TOP-19



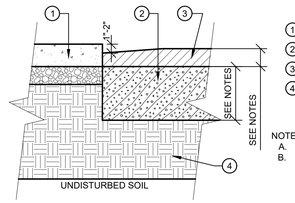
1. ADJACENT PAVEMENT (SEE PAVEMENT DETAIL)
2. ADJACENT CURB
3. AMENDED TOPSOIL
4. MULCH
5. UNDISTURBED SOIL

NOTES:

A. TAPER MULCH ALONG PLANTING BED EDGE.
B. MULCH TO BE HELD 1"-2" BELOW ADJACENT WALK. NO VOLCANO MULCH.

5 MULCH BED ADJACENT TO CURB

NOT TO SCALE — P-24-TOP-21



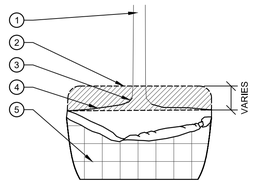
1. ADJACENT PAVEMENT
2. AMENDED TOPSOIL
3. MULCH
4. UNDISTURBED SOIL

NOTES:

A. TAPER MULCH ALONG PLANTING BED EDGE.
B. MULCH TO BE HELD 1"-2" BELOW ADJACENT WALK. NO VOLCANO MULCH.

6 MULCH BED ADJACENT TO PAVED SURFACE

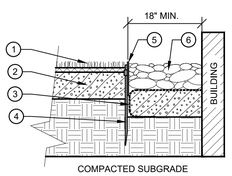
NOT TO SCALE — P-24-TOP-18



1. TREE TRUNK
2. IF ROOT FLARE IS NOT VISIBLE, REMOVE EXCESS SOIL TO FULLY EXPOSE ROOT FLARE. REMOVE STEM GURDLING, ASCENDING, ENCIRCLING OR KINKED ROOTS AND SUCKERS.
3. ROOT FLARE
4. CORRECTED TOP OF ROOT BALL
5. ROOTBALL

7 ROOT FLARE CORRECTION

NOT TO SCALE — P-24-TOP-06



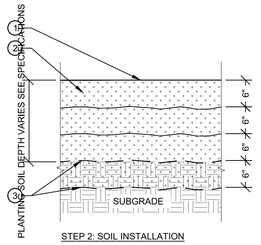
1. LAWN/PLANTING BED
2. AMENDED PLANTING SOIL
3. WEED CONTROL FABRIC
4. ALUMINUM STAKE TO BE 1" BELOW TOP OF EDGING - STAKE PER MANUFACTURER'S RECOMMENDATION
5. EDGING (1/2" ABOVE GRAVEL BED/FINISH GRADE)
6. PEA GRAVEL BED (4" DEPTH)

NOTES:

A. SEE PLANS FOR DISTANCE FROM BUILDING EDGE.
B. POSITIVE DRAINAGE AWAY FROM BUILDING.
C. CORNER INSTALLATION: CUT AT 90 DEGREES AND USE CORNER BRACES WITH METAL STAKES.

8 GRAVEL STRIP ADJACENT TO BUILDING

NOT TO SCALE — P-24-TOP-22



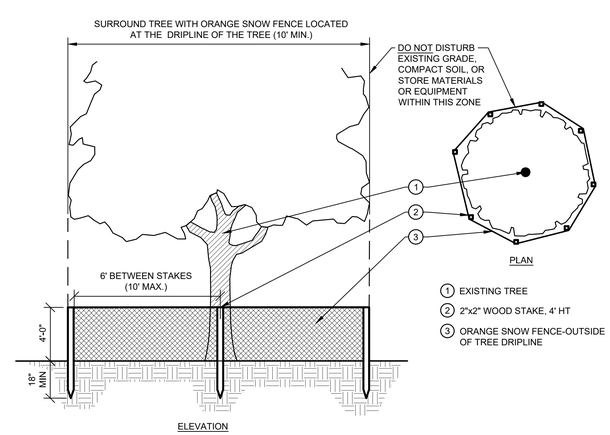
1. FINISH GRADE AFTER SETTLEMENT
2. PLANTING SOIL MIX LAYERS: MAX. 6 INCH LIFTS.
3. TRANSITION LAYER: REFER TO STEP 1 - AMEND SUBGRADE
4. 3" SPECIFIED SOIL MIX LAYER
5. EXISTING GRADE
6. TRANISTION LAYER: TILL AMENDMENT MATERIAL A MINIMUM 3" DEPTH INTO EXISTING SOIL
7. EXISING SOIL RIPPED TO DPETH AS SPECIFIED

NOTES:

1. PLACE AMENDED MATERIAL AFTER RIPPING EXISTING SUBGRADE.
2. AMENDMENT MATERIAL MAY VARY, REFER TO SOIL PLANS.
3. DO NOT PERFORM STEP 2 WITHOUT PERFORMING STEP 1 FIRST.
4. SEE SOIL SPECIFICATIONS FOR MORE INFORMATION.

9 PLANTING SOIL MIX INSTALLATION

3/4" = 1'-0" — P-24-TOP-26



1. EXISTING TREE
2. 2"x2" WOOD STAKE, 4' HT
3. ORANGE SNOW FENCE-OUTSIDE OF TREE DRIPLINE

NOTES:

A. FENCE TO REMAIN IN PLACE THROUGH ENTIRETY OF CONSTRUCTION.
B. DO NOT STAGE CONSTRUCTION MATERIALS, DEBRIS, EXCAVATED MATERIAL OR VEHICLES INSIDE TREE PROTECTION ZONES; PREVENT SOIL COMPACTION OVER ROOT SYSTEMS.
C. DO NOT EXCAVATE WITHIN TREE PROTECTION ZONES UNLESS OTHERWISE INDICATED.
D. WHERE EXCAVATION FOR NEW CONSTRUCTION IS REQUIRED WITHIN THE DRIP LINE OF TREES, HAND CLEAR TO MINIMIZE DAMAGE TO ROOT SYSTEMS.
E. ROOT PRUNING SHALL TAKE PLACE ONLY WHERE THE ROOTS OF EXISTING TREES HAVE BEEN DAMAGED BY THE CONTRACTOR DURING CONSTRUCTION, AS DIRECTED BY A CERTIFIED ARBORIST. CUT ROOTS WITH SHARP PRUNING INSTRUMENTS - BREAKING OR CHOPPING IS PROHIBITED.
F. DO NOT FILL WITHIN TREE PROTECTION ZONES, UNLESS OTHERWISE INDICATED.
G. WHEN FILLING FOR NEW CONSTRUCTION IS REQUIRED WITHIN THE DRIP LINE, PERFORM WORK BY HAND TO MINIMIZE DAMAGE TO ROOT SYSTEM.
H. WHERE EXISTING GRADE IS BELOW THE ELEVATION OF FINISH GRADE, FILL WITH TOPSOIL. PLACE TOPSOIL BY HAND IN A SINGLE UNCOMPACTED LAYER AND HAND GRADE TO REDUCED FINISHED ELEVATIONS.
I. AERATE SURFACE SOIL, COMPACTED DURING CONSTRUCTION, 10 FT BEYOND DRIP LINE. DRILL 2 IN DIAMETER HOLES A MINIMUM OF 12 IN DEEP AT 24 IN ON CENTER. BACKFILL HOLES WITH AN EQUAL MIX OF AUGURED SOIL AND SAND.

10 EXISTING TREE PROTECTION FENCING

3/16" = 1'-0" — P-24-TOP-12

Item	Revision Description	Date	Drwn	Chk
1	REVISED PER OWNER REVIEW	02-28-25	LEM	LEM

TOPSS: TALAWANDA OXFORD PANTRY & SOCIAL SERVICES
SEC. 16, TOWN 5, RANGE 1, CONGRESS LANDS W. OF THE MIAMI
LOT 3285 OXFORD
BUTLER COUNTY, OHIO
5445 COLLEGE CORNER PIKE

LANDSCAPE DETAILS

Drawing: 24-0042 LA
Drawn by: LEM
Checked By:
Issue Date: 02-14-25
Sheet: L2.0

SECTION 32 93 00 - PLANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION 01 SPECIFICATION SECTIONS, APPLY TO THIS SECTION.

1.2 SUMMARY

A. SECTION INCLUDES:

1. PLANTS.
2. PLANTING SOILS.
3. MISCELLANEOUS PRODUCTS.

1.3 SUBMITTALS

A. PRODUCT DATA: FOR EACH TYPE OF PRODUCT INDICATED, INCLUDING SOILS.

1. PLANT MATERIALS: INCLUDE QUANTITIES, SIZES, QUALITY, AND SOURCES FOR PLANT MATERIALS.
2. PESTICIDES AND HERBICIDES: INCLUDE PRODUCT LABEL AND MANUFACTURER'S APPLICATION INSTRUCTIONS SPECIFIC TO THE PROJECT.

B. SAMPLES FOR VERIFICATION: SUBMIT EACH PRODUCT AND MATERIAL WHERE REQUIRED BY THE SPECIFICATIONS TO THE OWNER'S REPRESENTATIVE FOR APPROVAL.

C. PRODUCT CERTIFICATES: FOR EACH TYPE OF MANUFACTURED PRODUCT, FROM MANUFACTURER, AND COMPLYING WITH THE FOLLOWING:

1. MANUFACTURER'S CERTIFIED ANALYSIS OF STANDARD PRODUCTS.

D. MATERIAL TEST REPORTS: FOR STANDARDIZED ASTM D 5268 TOPSOIL, EXISTING NATIVE SURFACE TOPSOIL, AND IMPORTED OR MANUFACTURED TOPSOIL.

E. WARRANTY: SAMPLE OF SPECIAL WARRANTY.

1.4 QUALITY ASSURANCE

A. INSTALLER QUALIFICATIONS: A QUALIFIED LANDSCAPE INSTALLER WHOSE WORK HAS RESULTED IN SUCCESSFUL ESTABLISHMENT OF PLANTS.

1. EXPERIENCE: FIVE YEARS' EXPERIENCE IN LANDSCAPE INSTALLATION IN ADDITION TO REQUIREMENTS IN DIVISION 01 SECTION "QUALITY REQUIREMENTS."
2. INSTALLER'S FIELD SUPERVISION: REQUIRE INSTALLER TO MAINTAIN AN EXPERIENCED FULL-TIME SUPERVISOR ON PROJECT SITE WHEN WORK IS IN PROGRESS.
3. PESTICIDE APPLICATOR: STATE LICENSED, COMMERCIAL.

B. SOIL ANALYSIS: FOR EACH UNAMENDED SOIL TYPE, FURNISH SOIL ANALYSIS AND A WRITTEN REPORT BY A QUALIFIED SOIL-TESTING LABORATORY STATING PERCENTAGES OF ORGANIC MATTER; GRADATION OF SAND, SILT, AND CLAY CONTENT; CATION EXCHANGE CAPACITY; SODIUM ABSORPTION RATIO; DELETERIOUS MATERIAL; PH; AND MINERAL AND PLANT-NUTRIENT CONTENT OF THE SOIL.

1. TESTING METHODS AND WRITTEN RECOMMENDATIONS SHALL COMPLY WITH USDA'S HANDBOOK NO. 60.
2. THE SOIL-TESTING LABORATORY SHALL OVERSEE SOIL SAMPLING; WITH DEPTH, LOCATION, AND NUMBER OF SAMPLES TO BE TAKEN PER INSTRUCTIONS FROM LANDSCAPE LANDSCAPE ARCHITECT. A MINIMUM OF THREE REPRESENTATIVE SAMPLES SHALL BE TAKEN FROM VARIED LOCATIONS FOR EACH SOIL TO BE USED OR AMENDED FOR PLANTING PURPOSES.
3. REPORT SUITABILITY OF TESTED SOIL FOR PLANT GROWTH.
   a. BASED UPON THE TEST RESULTS, STATE RECOMMENDATIONS FOR SOIL TREATMENTS AND SOIL AMENDMENTS TO BE INCORPORATED. STATE RECOMMENDATIONS IN WEIGHT PER 1000 SQ. FT. (92.9 SQ. M) OR VOLUME PER CU. YD. (0.76 CU. M) FOR NITROGEN, PHOSPHORUS, AND POTASH NUTRIENTS AND SOIL AMENDMENTS TO BE ADDED TO PRODUCE SATISFACTORY PLANTING SOIL SUITABLE FOR HEALTHY, VIABLE PLANTS.
   b. REPORT PRESENCE OF PROBLEM SALTS, MINERALS, OR HEAVY METALS, INCLUDING ALUMINUM, ARSENIC, BARIUM, CADMIUM, CHROMIUM, COBALT, LEAD, LITHIUM, AND VANADIUM. IF SUCH PROBLEM MATERIALS ARE PRESENT, PROVIDE ADDITIONAL RECOMMENDATIONS FOR CORRECTIVE ACTION.

C. PROVIDE QUALITY, SIZE, GENUS, SPECIES, AND VARIETY OF PLANTS INDICATED, COMPLYING WITH APPLICABLE REQUIREMENTS IN ANSI Z60.1. PLANTS WITH HEALTHY ROOT SYSTEMS DEVELOPED BY TRANSPLANTING OR ROOT PRUNING. PROVIDE WELL-SHAPED, FULLY BRANCHED, HEALTHY, VIGOROUS STOCK, FREE OF DISEASE, INSECTS, EGGS, LARVAE, AND DEFECTS SUCH AS KNOTS, SUN SCALD, INJURIES, ABRASIONS, AND DISFIGUREMENT.

a. IF FORMAL ARRANGEMENTS OR CONSECUTIVE ORDER OF TREES OR SHRUBS IS SHOWN, SELECT STOCK FOR UNIFORM HEIGHT AND SPREAD, AND NUMBER LABEL TO ASSURE SYMMETRY IN PLANTING.

D. MEASUREMENTS: MEASURE ACCORDING TO ANSI Z60.1. DO NOT PRUNE TO OBTAIN REQUIRED SIZES.

1. TREES AND SHRUBS: MEASURE WITH BRANCHES AND TRUNKS OR CANES IN THEIR NORMAL POSITION. TAKE HEIGHT MEASUREMENTS FROM OR NEAR THE TOP OF THE ROOT FLARE FOR FIELD-GROWN STOCK AND CONTAINER GROWN STOCK. MEASURE MAIN BODY OF TREE OR SHRUB FOR HEIGHT AND SPREAD; DO NOT MEASURE BRANCHES OR ROOTS TIP TO TIP. TAKE CALIPER MEASUREMENTS 6 INCHES (150 MM) ABOVE THE ROOT FLARE FOR TREES UP TO 4-INCH (100-MM) CALIPER SIZE, AND 12 INCHES (300 MM) ABOVE THE ROOT FLARE FOR LARGER SIZES.
2. OTHER PLANTS: MEASURE WITH STEMS, PETIOLES, AND FOLIAGE IN THEIR NORMAL POSITION.

E. PLANT MATERIAL OBSERVATION: LANDSCAPE ARCHITECT MAY OBSERVE PLANT MATERIAL EITHER AT PLACE OF GROWTH OR AT SITE BEFORE PLANTING FOR COMPLIANCE WITH REQUIREMENTS FOR GENUS, SPECIES, VARIETY, CULTIVAR, SIZE, AND QUALITY. LANDSCAPE ARCHITECT RETAINS RIGHT TO OBSERVE TREES AND SHRUBS FURTHER FOR SIZE AND CONDITION OF BALLS AND ROOT SYSTEMS, PESTS, DISEASE SYMPTOMS, INJURIES, AND LATENT DEFECTS AND TO REJECT UNSATISFACTORY OR DEFECTIVE MATERIAL AT ANY TIME DURING PROGRESS OF WORK. REMOVE REJECTED TREES OR SHRUBS IMMEDIATELY FROM PROJECT SITE.

1.5 DELIVERY, STORAGE, AND HANDLING

A. PACKAGED MATERIALS: DELIVER PACKAGED MATERIALS IN ORIGINAL, UNOPENED CONTAINERS SHOWING WEIGHT, CERTIFIED ANALYSIS, NAME AND ADDRESS OF MANUFACTURER, AND INDICATION OF CONFORMANCE WITH STATE AND FEDERAL LAWS IF APPLICABLE.

B. BULK MATERIALS:

1. DO NOT DUMP OR STORE BULK MATERIALS NEAR STRUCTURES, UTILITIES, WALKWAYS AND PAVEMENTS, OR ON EXISTING TURF AREAS OR PLANTS.
2. PROVIDE EROSION-CONTROL MEASURES TO PREVENT EROSION OR DISPLACEMENT OF BULK MATERIALS, DISCHARGE OF SOIL-BEARING WATER RUNOFF, AND AIRBORNE DUST REACHING ADJACENT PROPERTIES, WATER CONVEYANCE SYSTEMS, OR WALKWAYS.
3. ACCOMPANY EACH DELIVERY OF BULK FERTILIZERS, LIME, AND SOIL AMENDMENTS WITH APPROPRIATE CERTIFICATES.

C. DO NOT PRUNE TREES AND SHRUBS BEFORE DELIVERY. PROTECT BARK, BRANCHES, AND ROOT SYSTEMS FROM SUN SCALD, DRYING, WIND BURN, SWEATING, WHIPPING, AND OTHER HANDLING AND TYING DAMAGE. DO NOT BEND OR BIND-TIE TREES OR SHRUBS IN SUCH A MANNER AS TO DESTROY THEIR NATURAL SHAPE. PROVIDE PROTECTIVE COVERING OF PLANTS DURING SHIPPING AND DELIVERY. DO NOT DROP PLANTS DURING DELIVERY AND HANDLING.

D. HANDLE PLANTING STOCK BY ROOT BALL.

E. STORE BULBS, CORMS, AND TUBERS IN A DRY PLACE AT 60 TO 65 DEG F (16 TO 18 DEG C) UNTIL PLANTING.

F. DELIVER PLANTS AFTER PREPARATIONS FOR PLANTING HAVE BEEN COMPLETED, AND INSTALL IMMEDIATELY. IF PLANTING IS DELAYED MORE THAN SIX HOURS AFTER DELIVERY, SET PLANTS AND TREES IN THEIR APPROPRIATE ASPECT (SUN, FILTERED SUN, OR SHADE), PROTECT FROM WEATHER AND MECHANICAL DAMAGE, AND KEEP ROOTS MOIST.

1. SET BALLED STOCK ON GROUND AND COVER BALL WITH SOIL, PEAT MOSS, SAWDUST, OR OTHER ACCEPTABLE MATERIAL.
2. DO NOT REMOVE CONTAINER-GROWN STOCK FROM CONTAINERS BEFORE TIME OF PLANTING.
3. WATER ROOT SYSTEMS OF PLANTS STORED ON-SITE DEEPLY AND THOROUGHLY WITH A FINE-MIST SPRAY. WATER AS OFTEN AS NECESSARY TO MAINTAIN ROOT SYSTEMS IN A MOIST, BUT NOT OVERLY-WET CONDITION.

1.6 PROJECT CONDITIONS

A. FIELD MEASUREMENTS: VERIFY ACTUAL GRADE ELEVATIONS, SERVICE AND UTILITY LOCATIONS, IRRIGATION SYSTEM COMPONENTS, AND DIMENSIONS OF PLANTINGS AND CONSTRUCTION CONTIGUOUS WITH NEW PLANTINGS BY FIELD MEASUREMENTS BEFORE PROCEEDING WITH PLANTING WORK.

B. WEATHER LIMITATIONS: PROCEED WITH PLANTING ONLY WHEN EXISTING AND FORECASTED WEATHER CONDITIONS PERMIT PLANTING TO BE PERFORMED WHEN BENEFICIAL AND OPTIMUM RESULTS MAY BE OBTAINED. APPLY PRODUCTS DURING FAVORABLE WEATHER CONDITIONS ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS AND WARRANTY REQUIREMENTS.

C. COORDINATION WITH TURF AREAS (LAWNS): PLANT TREES, SHRUBS, AND OTHER PLANTS AFTER FINISH GRADES ARE ESTABLISHED AND BEFORE PLANTING TURF AREAS UNLESS OTHERWISE INDICATED.

1. WHEN PLANTING TREES, SHRUBS, AND OTHER PLANTS AFTER PLANTING TURF AREAS, PROTECT TURF AREAS, AND PROMPTLY REPAIR DAMAGE CAUSED BY PLANTING OPERATIONS.

1.7 WARRANTY

A. SPECIAL WARRANTY: INSTALLER AGREES TO REPAIR OR REPLACE PLANTINGS AND ACCESSORIES THAT FAIL IN MATERIALS, WORKMANSHIP, OR GROWTH WITHIN SPECIFIED WARRANTY PERIOD.

1. FAILURES INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:
   a. DEATH & UNSATISFACTORY GROWTH, EXCEPT FOR DEFECTS RESULTING FROM ABUSE, LACK OF ADEQUATE MAINTENANCE, OR NEGLECT BY OWNER, OR INCIDENTS THAT ARE BEYOND CONTRACTOR'S CONTROL.
   b. STRUCTURAL FAILURES INCLUDING PLANTINGS FALLING OR BLOWING OVER.
   c. FAULTY PERFORMANCE OF TREE STABILIZATION, EDGINGS.
   d. DETERIORATION OF METALS, METAL FINISHES, AND OTHER MATERIALS BEYOND NORMAL WEATHERING.
2. WARRANTY PERIODS FROM DATE OF PLANTING COMPLETION:
   a. TREES, SHRUBS, VINES, AND ORNAMENTAL GRASSES: 12 MONTHS.
   b. GROUND COVERS, BIENNIALS, PERENNIALS, AND OTHER PLANTS: 12 MONTHS.
3. INCLUDE THE FOLLOWING REMEDIAL ACTIONS AS A MINIMUM:
   a. IMMEDIATELY REMOVE DEAD PLANTS AND REPLACE UNLESS REQUIRED TO PLANT IN THE SUCCEEDING PLANTING SEASON.
   b. REPLACE PLANTS THAT ARE MORE THAN 25 PERCENT DEAD OR IN AN UNHEALTHY CONDITION AT END OF WARRANTY PERIOD.
   c. A LIMIT OF ONE REPLACEMENT OF EACH PLANT WILL BE REQUIRED EXCEPT FOR LOSSES OR REPLACEMENTS DUE TO FAILURE TO COMPLY WITH REQUIREMENTS.
   d. PROVIDE EXTENDED WARRANTY FOR PERIOD EQUAL TO ORIGINAL WARRANTY PERIOD, FOR REPLACED PLANT MATERIAL.

PART 2 - PRODUCTS

2.1 PLANT MATERIAL

A. GENERAL: FURNISH NURSERY-GROWN PLANTS TRUE TO GENUS, SPECIES, VARIETY, CULTIVAR, STEM FORM, SHEARING, AND OTHER FEATURES INDICATED IN PLANT SCHEDULE OR PLANT LEGEND SHOWN ON DRAWINGS AND COMPLYING WITH ANSI Z60.1; AND WITH HEALTHY ROOT SYSTEMS DEVELOPED BY TRANSPLANTING OR ROOT PRUNING. PROVIDE WELL-SHAPED, FULLY BRANCHED, HEALTHY, VIGOROUS STOCK, DENSELY FOLIATED WHEN IN LEAF AND FREE OF DISEASE, PESTS, EGGS, LARVAE, AND DEFECTS SUCH AS KNOTS, SUN SCALD, INJURIES, ABRASIONS, AND DISFIGUREMENT.

1. TREES WITH DAMAGED, CROOKED, OR MULTIPLE LEADERS; TIGHT VERTICAL BRANCHES WHERE BARK IS SQUEEZED BETWEEN TWO BRANCHES OR BETWEEN BRANCH AND TRUNK ("INCLUDED BARK"); CROSSING TRUNKS; CUT-OFF LIMBS MORE THAN 3/4 INCH (19 MM) IN DIAMETER; OR WITH STEM GIRDLING ROOTS WILL BE REJECTED.
2. COLLECTED STOCK: DO NOT USE PLANTS HARVESTED FROM THE WILD, FROM NATIVE STANDS, FROM AN ESTABLISHED LANDSCAPE PLANTING, OR NOT GROWN IN A NURSERY UNLESS OTHERWISE INDICATED.

B. PROVIDE PLANTS OF SIZES, GRADES, AND BALL OR CONTAINER SIZES COMPLYING WITH ANSI Z60.1 FOR TYPES AND FORM OF PLANTS REQUIRED. PLANTS OF A LARGER SIZE MAY BE USED IF ACCEPTABLE TO LANDSCAPE ARCHITECT, WITH A PROPORTIONATE INCREASE IN SIZE OF ROOTS OR BALLS.

C. ROOT-BALL DEPTH: FURNISH TREES AND SHRUBS WITH ROOT BALLS MEASURED FROM TOP OF ROOT BALL, WHICH SHALL BEGIN AT ROOT FLARE ACCORDING TO ANSI Z60.1. ROOT FLARE SHALL BE VISIBLE BEFORE PLANTING.

D. LABELING: LABEL AT LEAST ONE PLANT OF EACH VARIETY, SIZE, AND CALIPER WITH A SECURELY ATTACHED, WATERPROOF TAG BEARING LEGIBLE DESIGNATION OF COMMON NAME AND FULL SCIENTIFIC NAME, INCLUDING GENUS AND SPECIES. INCLUDE NOMENCLATURE FOR HYBRID, VARIETY, OR CULTIVAR, IF APPLICABLE FOR THE PLANT AS SHOWN ON DRAWINGS. PLANT TAGS SHALL REMAIN ON INSTALLED PLANT MATERIAL UNTIL THE WORK HAS BEEN APPROVED BY LOCAL INSPECTOR AND/OR THE OWNER OR OWNER'S REPRESENTATIVE.

2.2 INORGANIC SOIL AMENDMENTS

A. LIME: ASTM C 602, AGRICULTURAL LIMING MATERIAL CONTAINING A MINIMUM OF 80 PERCENT CALCIUM CARBONATE EQUIVALENT AND AS FOLLOWS:

1. PROVIDE LIME IN FORM OF GROUND DOLOMITIC LIMESTONE PER ASTM 605, CONTAINING NOT LESS THAN 85% OF TOTAL CARBONATES AND SHALL BE GROUND TO SUCH A FINENESS THAT 50% WILL PASS THROUGH A 100 MESH SIEVE AND 90% WILL PASS THROUGH A 20 MESH SIEVE. COARSER MATERIAL WILL BE ACCEPTABLE, PROVIDED THE SPECIFIED RATES OF APPLICATION ARE INCREASED PROPORTIONALLY ON THE BASIS OF QUANTITIES PASSING THE 100 MESH SIEVE.

B. SULFUR: GRANULAR, BIODEGRADABLE, AND CONTAINING A MINIMUM OF 90 PERCENT SULFUR, WITH A MINIMUM OF 99 PERCENT PASSING THROUGH NO. 6 (3.35-MM) SIEVE AND A MAXIMUM OF 10 PERCENT PASSING THROUGH NO. 40 (0.425-MM) SIEVE.

2.3 MULCHES

A. ORGANIC MULCH: FREE FROM DELETERIOUS MATERIALS AND SUITABLE AS A TOP DRESSING OF TREES AND SHRUBS, CONSISTING OF ONE OF THE FOLLOWING:

1. TYPE: DOUBLE SHREDDED HARDWOOD BARK.

2.4 MISCELLANEOUS PRODUCTS

A. ANTIDESICCANT: WATER-INSOLUBLE EMULSION, PERMEABLE MOISTURE RETARDER, FILM FORMING, FOR TREES AND SHRUBS. DELIVER IN ORIGINAL, SEALED, AND FULLY LABELED CONTAINERS AND MIX ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS.

B. TREE-WRAP TAPE: TWO LAYERS OF CRINKLED PAPER CEMENTED TOGETHER WITH BITUMINOUS MATERIAL, 4” WIDE MINIMUM, WITH STRETCH FACTOR 33 PERCENT.

C. PRE-EMERGENT HERBICIDE: TO KILL GENERATING WEED SEEDLINGS, APPLY ONE OF THE FOLLOWING PRE-EMERGENT HERBICIDES AS MANUFACTURER'S RECOMMENDED RATE:

1. ORYZALIN (SURFLAN).
2. SIMAZIN (PRINCEP).
3. TRIFLURALIN (TREFLAN).

D. POST-EMERGENT HERMICIDE: TO KILL EMERGENT WEEDS DURING MAINTENANCE PERIOD, APPLY ONE OF THE FOLLOWING POST-EMERGENT HERBICIDES AT MANUFACTURER'S RECOMMENDED RATE;

1. SETHOXYDIM (POAST)
2. FLUAZIFOP (FUSILADE)

PART 3 - EXECUTION

3.1 EXAMINATION

A. EXAMINE AREAS TO RECEIVE PLANTS FOR COMPLIANCE WITH REQUIREMENTS AND CONDITIONS AFFECTING INSTALLATION AND PERFORMANCE.

1. VERIFY THAT NO FOREIGN OR DELETERIOUS MATERIAL OR LIQUID SUCH AS PAINT, PAINT WASHOUT, CONCRETE SLURRY, CONCRETE LAYERS OR CHUNKS, CEMENT, PLASTER, OILS, GASOLINE, DIESEL FUEL, PAINT THINNER, TURPENTINE, TAR, ROOFING COMPOUND, OR ACID HAS BEEN DEPOSITED IN SOIL WITHIN A PLANTING AREA.
2. DO NOT MIX OR PLACE SOILS AND SOIL AMENDMENTS IN FROZEN, WET, OR MUDDY CONDITIONS.
3. SUSPEND SOIL SPREADING, GRADING, AND TILLING OPERATIONS DURING PERIODS OF EXCESSIVE SOIL MOISTURE UNTIL THE MOISTURE CONTENT REACHES ACCEPTABLE LEVELS TO ATTAIN THE REQUIRED RESULTS.
4. UNIFORMLY MOISTEN EXCESSIVELY DRY SOIL THAT IS NOT WORKABLE AND WHICH IS TOO DUSTY.

B. PROCEED WITH INSTALLATION ONLY AFTER UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.

C. IF CONTAMINATION BY FOREIGN OR DELETERIOUS MATERIAL OR LIQUID IS PRESENT IN SOIL WITHIN A PLANTING AREA, REMOVE THE SOIL AND CONTAMINATION AS DIRECTED BY LANDSCAPE ARCHITECT AND REPLACE WITH NEW PLANTING SOIL.

3.2 PREPARATION

A. PROTECT STRUCTURES, UTILITIES, SIDEWALKS, PAVEMENTS, AND OTHER FACILITIES AND TURF AREAS AND EXISTING PLANTS FROM DAMAGE CAUSED BY PLANTING OPERATIONS.

B. INSTALL EROSION-CONTROL MEASURES TO PREVENT EROSION OR DISPLACEMENT OF SOILS AND DISCHARGE OF SOIL-BEARING WATER RUNOFF OR AIRBORNE DUST TO ADJACENT PROPERTIES AND WALKWAYS.

C. LAY OUT INDIVIDUAL TREE AND SHRUB LOCATIONS AND AREAS FOR MULTIPLE PLANTINGS. STAKE LOCATIONS, OUTLINE AREAS, ADJUST LOCATIONS WHEN REQUESTED, AND OBTAIN LANDSCAPE ARCHITECT'S ACCEPTANCE OF LAYOUT BEFORE EXCAVATING OR PLANTING. MAKE MINOR ADJUSTMENTS AS REQUIRED.

D. LAY OUT PLANTS AT LOCATIONS DIRECTED BY LANDSCAPE ARCHITECT. STAKE LOCATIONS OF INDIVIDUAL TREES AND SHRUBS AND OUTLINE AREAS FOR MULTIPLE PLANTINGS.

E. IF EXISTING ECOLOGY CAUSES ADJUSTMENTS OF LANDSCAPE PLANS TO FIT THE SITE CONDITIONS, A STAKE OUT BY LANDSCAPE CONTRACTOR AND ADJUSTMENTS BY LANDSCAPE ARCHITECT SHALL BE REQUIRED PRIOR TO INSTALLATION.

F. APPLY ANTIDESICCANT TO TREES AND SHRUBS USING POWER SPRAY TO PROVIDE AN ADEQUATE FILM OVER TRUNKS (BEFORE WRAPPING), BRANCHES, STEMS, TWIGS, AND FOLIAGE TO PROTECT DURING DIGGING, HANDLING, AND TRANSPORTATION.

1. IF DECIDUOUS TREES OR SHRUBS ARE MOVED IN FULL LEAF, SPRAY WITH ANTIDESICCANT AT NURSERY BEFORE MOVING AND AGAIN TWO WEEKS AFTER PLANTING.

G. WRAP TREES AND SHRUBS WITH BURLAP FABRIC OVER TRUNKS, BRANCHES, STEMS, TWIGS, AND FOLIAGE TO PROTECT FROM WIND AND OTHER DAMAGE DURING DIGGING, HANDLING, AND TRANSPORTATION.

3.3 PLANTING AREA ESTABLISHMENT

A. LOOSEN SUBGRADE OF PLANTING AREAS TO A MINIMUM DEPTH OF 18 INCHES (450 MM). REMOVE STONES LARGER THAN 1 INCH (25 MM) IN ANY DIMENSION AND STICKS, ROOTS, RUBBISH, AND OTHER EXTRANEOUS MATTER AND LEGALLY DISPOSE OF THEM OFF OWNER'S PROPERTY.

1. APPLY FERTILIZER DIRECTLY TO SUBGRADE BEFORE LOOSENING.
2. SPREAD TOPSOIL, APPLY SOIL AMENDMENTS AND FERTILIZER ON SURFACE, AND THOROUGHLY BLEND PLANTING SOIL.
   a. DELAY MIXING FERTILIZER WITH PLANTING SOIL IF PLANTING WILL NOT PROCEED WITHIN A FEW DAYS.
   b. MIX LIME WITH DRY SOIL BEFORE MIXING FERTILIZER.
3. SPREAD PLANTING SOIL TO A DEPTH OF 18 INCHES (450 MM) BUT NOT LESS THAN REQUIRED TO MEET FINISH GRADES AFTER NATURAL SETTLEMENT. DO NOT SPREAD IF PLANTING SOIL OR SUBGRADE IS FROZEN, MUDDY, OR EXCESSIVELY WET.

B. FINISH GRADING: GRADE PLANTING AREAS TO A SMOOTH, UNIFORM SURFACE PLANE WITH LOOSE, UNIFORMLY FINE TEXTURE. ROLL AND RAKE, REMOVE RIDGES, AND FILL DEPRESSIONS TO MEET FINISH GRADES.

C. RESTORE PLANTING AREAS IF ERODED OR OTHERWISE DISTURBED AFTER FINISH GRADING.

D. ALL PLANTING AREAS SHOWN ON PLANS SHALL BE WITHIN 2" OF FINAL GRADE BEFORE LANDSCAPE CONTRACTOR COMMENCES INSTALLATION.

3.4 EXCAVATION FOR TREES AND SHRUBS

A. PLANTING PITS AND TRENCHES: EXCAVATE CIRCULAR PLANTING PITS WITH SIDES SLOPING INWARD AT A 45-DEGREE ANGLE. EXCAVATIONS WITH VERTICAL SIDES ARE NOT ACCEPTABLE. TRIM PERIMETER OF BOTTOM LEAVING CENTER AREA OF BOTTOM RAISED 8 INCHES TO SUPPORT ROOT BALL AND ASSIST IN DRAINAGE AWAY FROM CENTER. DO NOT FURTHER DISTURB BASE. ENSURE THAT ROOT BALL WILL SIT ON UNDISTURBED BASE SOIL TO PREVENT SETTLING. SCARIFY SIDES OF PLANTING PIT SMEARED OR SMOOTHED DURING EXCAVATION.

1. EXCAVATE APPROXIMATELY THREE TIMES AS WIDE AS BALL DIAMETER FOR BALLED AND BURLAPPED STOCK.
2. EXCAVATE AT LEAST 12 INCHES (300 MM) WIDER THAN ROOT SPREAD AND DEEP ENOUGH TO ACCOMMODATE VERTICAL ROOTS FOR BARE-ROOT STOCK.
3. IF DRAIN TILE IS SHOWN ON DRAWINGS OR REQUIRED UNDER PLANTING AREAS, EXCAVATE TO TOP OF POROUS BACKFILL OVER TILE.

B. SUBSOIL AND TOPSOIL REMOVED FROM EXCAVATIONS MAY BE USED AS PLANTING SOIL PROVIDED IT IS FREE OF ROCKS OR OTHER DELETERIOUS MATERIALS.

C. OBSTRUCTIONS: NOTIFY LANDSCAPE ARCHITECT IF UNEXPECTED ROCK OR OBSTRUCTIONS DETRIMENTAL TO TREES OR SHRUBS ARE ENCOUNTERED IN EXCAVATIONS.

D. DRAINAGE: NOTIFY LANDSCAPE ARCHITECT IF SUBSOIL CONDITIONS EVIDENCE UNEXPECTED WATER SEEPAGE OR RETENTION IN TREE OR SHRUB PLANTING PITS.

E. FILL EXCAVATIONS WITH WATER AND ALLOW TO PERCOLATE AWAY BEFORE POSITIONING TREES AND SHRUBS.

3.5 TREE, SHRUB, AND VINE PLANTING

A. BEFORE PLANTING, VERIFY THAT ROOT FLARE IS VISIBLE AT TOP OF ROOT BALL ACCORDING TO ANSI Z60.1. IF ROOT FLARE IS NOT VISIBLE, REMOVE SOIL IN A LEVEL MANNER FROM THE ROOT BALL TO WHERE THE TOP-MOST ROOT EMERGES FROM THE TRUNK. AFTER SOIL REMOVAL TO EXPOSE THE ROOT FLARE, VERIFY THAT ROOT BALL STILL MEETS SIZE REQUIREMENTS.

B. REMOVE STEM GIRDLING ROOTS AND KINKED ROOTS. REMOVE INJURED ROOTS BY CUTTING CLEANLY; DO NOT BREAK.

C. SET BALLED AND BURLAPPED STOCK PLUMB AND IN CENTER OF PLANTING PIT OR TRENCH WITH ROOT FLARE 1 INCH (25 MM) ABOVE ADJACENT FINISH GRADES.

D. SET CONTAINER-GROWN STOCK PLUMB AND IN CENTER OF PLANTING PIT OR TRENCH WITH ROOT FLARE 1 INCH (25 MM) ABOVE ADJACENT FINISH GRADES.

1. CAREFULLY REMOVE ROOT BALL FROM CONTAINER WITHOUT DAMAGING ROOT BALL OR PLANT.
2. PLACE PLANTING SOIL MIX AROUND ROOT BALL IN LAYERS, TAMPING TO SETTLE MIX AND ELIMINATE VOICE AND AIR POCKETS. WHEN PIT IS APPROXIMATELY ONE-HALF BACKFILLED, WATER THOROUGHLY BEFORE PLACING REMAINDER OF BACKFILL. REPEAT WATERING UNTIL NO MORE WATER IS ABSORBED. WATER AGAIN AFTER PLACING AND TAMPING FINAL LAYER OF PLANTING SOIL MIX.

E. AFTER THE LANDSCAPE ARCHITECT HAS EXAMINED THE TRUNKS OF NEW INSTALLED TREES, WRAP TREES OF 2-INCH CALIPER AND LARGER WITH TREE-WRAP TAPE. START AT THE BASE OF THE TRUNK AND SPIRAL COVER THE TRUNK TO THE HEIGHT OF THE FIRST BRANCHES. OVERLAP THE WRAP, EXPOSING HALF THE WIDTH, AND SECURELY ATTACH WITHOUT CAUSING GIRDLING. INSPECT TREE TRUNKS FOR INJURY, IMPROPER PRUNING, AND INSECT INFESTATION; TAKE CORRECTIVE MEASURES REQUIRED BEFORE TREE WRAPPING.

3.6 TREE, SHRUB, AND VINE PRUNING

A. REMOVE ONLY DEAD, DYING, OR BROKEN BRANCHES. DO NOT PRUNE FOR SHAPE.

B. PRUNE, THIN, AND SHAPE TREES, SHRUBS, AND VINES AS DIRECTED BY LANDSCAPE ARCHITECT.

C. PRUNE, THIN, AND SHAPE TREES, SHRUBS, AND VINES ACCORDING TO STANDARD PROFESSIONAL HORTICULTURAL AND ARBORICULTURAL PRACTICES. UNLESS OTHERWISE INDICATED BY LANDSCAPE ARCHITECT, DO NOT CUT TREE LEADERS; REMOVE ONLY INJURED, DYING, OR DEAD BRANCHES FROM TREES AND SHRUBS; AND PRUNE TO RETAIN NATURAL CHARACTER.

D. DO NOT APPLY PRUNING PAINT TO WOUNDS.

3.7 GROUND COVER AND PLANT PLANTING

A. SET OUT AND SPACE GROUND COVER AND PLANTS OTHER THAN TREES, SHRUBS, AND VINES AS INDICATED IN EVEN ROWS WITH TRIANGULAR SPACING.

B. DIG HOLES LARGE ENOUGH TO ALLOW SPREADING OF ROOTS.

C. WORK SOIL AROUND ROOTS TO ELIMINATE AIR POCKETS AND LEAVE A SLIGHT SAUCER INDENTATION AROUND PLANTS TO HOLD WATER.

D. WATER THOROUGHLY AFTER PLANTING, TAKING CARE NOT TO COVER PLANT CROWNS WITH WET SOIL.

E. PROTECT PLANTS FROM HOT SUN AND WIND; REMOVE PROTECTION IF PLANTS SHOW EVIDENCE OF RECOVERY FROM TRANSPLANTING SHOCK.

3.8 PLANTING AREA MULCHING

A. INSTALL WEED-CONTROL BARRIERS BEFORE MULCHING ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS. COMPLETELY COVER AREA TO BE MULCHED, OVERLAPPING EDGES A MINIMUM OF 6 INCHES (150 MM) AND SECURE SEAMS WITH GALVANIZED PINS. PINS TO BE 8"-10" APART ALONG EDGES AND 12" MINIMUM IN CENTER.

B. MULCH BACKFILLED SURFACES OF PLANTING AREAS AND OTHER AREAS INDICATED.

1. TREES AND TREE-LIKE SHRUBS IN TURF AREAS: APPLY ORGANIC MULCH RING OF 4-INCH (75-MM)] AVERAGE THICKNESS, WITH 36-INCH (900-MM) RADIUS AROUND TRUNKS OR STEMS. DO NOT PLACE MULCH WITHIN 3 INCHES (75 MM) OF TRUNKS OR STEMS OR VOLCANO MULCH.
2. ORGANIC MULCH IN PLANTING AREAS: APPLY 2-INCH (50-MM) AVERAGE THICKNESS OF ORGANIC MULCH EXTENDING 12 INCHES (300 MM) BEYOND EDGE OF INDIVIDUAL PLANTING PIT OR TRENCH AND OVER WHOLE SURFACE OF PLANTING AREA, AND FINISH LEVEL WITH ADJACENT FINISH GRADES. DO NOT PLACE MULCH WITHIN 3 INCHES (75 MM) OF TRUNKS OR STEMS.

3.9 PLANT MAINTENANCE

A. MAINTAIN PLANTINGS BY PRUNING, CULTIVATING, WATERING, WEEDING, FERTILIZING, MULCHING, RESTORING PLANTING SAUCERS, ADJUSTING AND REPAIRING TREE-STABILIZATION DEVICES, RESETTING TO PROPER GRADES OR VERTICAL POSITION, AND PERFORMING OTHER OPERATIONS AS REQUIRED TO ESTABLISH HEALTHY, VIABLE PLANTINGS. SPRAY OR TREAT AS REQUIRED TO KEEP TREES AND SHRUBS FREE OF INSECTS AND DISEASE.

a. WATER EXISTING PROTECTED TREES AND VEGETATION WITH ONE INCH OF RAIN (RAIN GAUGE OR NOAH LOCAL WEATHER VERIFIED) PER WEEK FOR DURATION OF CONSTRUCTION PROJECT.

B. FILL IN AS NECESSARY SOIL SUBSIDENCE THAT MAY OCCUR BECAUSE OF SETTLING OR OTHER PROCESSES. REPLACE MULCH MATERIALS DAMAGED OR LOST IN AREAS OF SUBSIDENCE.

C. APPLY TREATMENTS AS REQUIRED TO KEEP PLANT MATERIALS, PLANTED AREAS, AND SOILS FREE OF PESTS AND PATHOGENS OR DISEASE. USE INTEGRATED PAST MANAGEMENT PRACTICES WHENEVER POSSIBLE TO MINIMIZE THE USE OF PESTICIDES AND REDUCE HAZARDS. TREATMENTS INCLUDE PHYSICAL CONTROLS SUCH AS HOSING OFF FOLIAGE, MECHANICAL CONTROLS SUCH AS TRAPS, AND BIOLOGICAL CONTROL AGENTS.

3.10 PESTICIDE APPLICATION

A. APPLY PESTICIDES AND OTHER CHEMICAL PRODUCTS AND BIOLOGICAL CONTROL AGENTS IN ACCORDANCE WITH AUTHORITIES HAVING JURISDICTION AND MANUFACTURER'S WRITTEN RECOMMENDATIONS. COORDINATE APPLICATIONS WITH OWNER'S OPERATIONS AND OTHERS IN PROXIMITY TO THE WORK. NOTIFY OWNER BEFORE EACH APPLICATION IS PERFORMED.

B. PRE-EMERGENT HERBICIDES (SELECTIVE AND NON-SELECTIVE): APPLY TO TREE, SHRUB, AND GROUND-COVER AREAS IN ACCORDANCE WITH MANUFACTURER'S WRITTEN RECOMMENDATIONS. DO NOT APPLY TO SEEDED AREAS.

C. POST-EMERGENT HERBICIDES (SELECTIVE AND NON-SELECTIVE): APPLY ONLY AS NECESSARY TO TREAT ALREADY-GERMINATED WEEDS AND IN ACCORDANCE WITH MANUFACTURER'S WRITTEN RECOMMENDATIONS.

3.11 CLEANUP AND PROTECTION

A. DURING PLANTING, KEEP ADJACENT PAVING AND CONSTRUCTION CLEAN AND WORK AREA IN AN ORDERLY CONDITION.

B. PROTECT PLANTS FROM DAMAGE DUE TO LANDSCAPE OPERATIONS AND OPERATIONS OF OTHER CONTRACTORS AND TRADES WITHIN 20' OF CONSTRUCTION DISTURBANCE. MAINTAIN PROTECTION DURING INSTALLATION AND MAINTENANCE PERIODS. TREAT, REPAIR, OR REPLACE DAMAGED PLANTINGS.

C. INSTALL MINIMUM 4' TALL FENCE 5' OUTSIDE THE DRIP LINE OF TREES TO REMAIN.

D. AFTER INSTALLATION AND AFTER WORK HAS BEEN APPROVED BY LOCAL INSPECTOR AND/OR OWNER OR OWNER'S REPRESENTATIVE, REMOVE NURSERY TAGS, NURSERY STAKES, TIE TAPE, LABELS, WIRE, BURLAP, AND OTHER DEBRIS FROM PLANT MATERIAL, PLANTING AREAS, AND PROJECT SITE.

3.12 DISPOSAL

A. REMOVE SURPLUS SOIL AND WASTE MATERIAL INCLUDING EXCESS SUBSOIL, UNSUITABLE SOIL, TRASH, AND DEBRIS AND LEGALLY DISPOSE OF THEM OFF OWNER'S PROPERTY.

END OF SECTION 32 93 00

SECTION 31 14 00 - SITE RESTORATION OF LANDSCAPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

G. DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION 01 SPECIFICATION SECTIONS, APPLY TO THIS SECTION.

1.2 SUMMARY

A. SECTION INCLUDES:

1. SPREAD AND CONDITION EXISTING STOCKPILED TOPSOIL
2. PROVIDE NEW, IF REQUIRED; LIME
3. TILL, DISTRIBUTE AND GRADE TOPSOIL
4. CLEAN UP

1.3 SUBMITTALS (SUBMIT ALL THE FOLLOWING REPORTS, IN TRIPLICATE, TO OWNER FOR REVIEW)

A. LABORATORY TESTS: SUBMIT COPIES OF TOPSOIL LABORATORY TESTS TO THE OWNER.

B. FERTILIZER: SUBMIT COPIES ATTESTING TO THE FERTILIZER COMPOSITION TO THE OWNER.

C. SEED MIX: SUBMIT COPIES ATTESTING TO THE SEED MIX COMPOSITION TO THE OWNER.

D. SOD: SUBMIT COPIES FROM THE SOD SOURCE ATTESTING TO THE SEED MIX COMPOSITION TO THE OWNER.

1.4 SITE PROTECTION

A. PROTECT EXISTING GROUNDS, PLANTS, LAWNS AND VEGETATION TO REMAIN.

1. PROTECT EXISTING TREES TO REMAIN IN PLACE AGAINST UNNECESSARY CUTTING, BREAKING, SKINNING, OR BRUISING OF ROOTS AND BARK, SMOTHERING OF TREES BY COMPACTION OR STOCKPILING CONSTRUCTION MATERIALS OR EXCAVATED MATERIALS WITHIN FIVE FEET OF OUTER EDGE OF DRIP LINE.
   a. ERECT MINIMUM OF FOUR (4) FOOT HIGH FENCE FIVE (5) FEET OUTSIDE DRIP LINE OF TREES TO REMAIN.
   b. ERECT TREE PROTECTION BEFORE STARTING SITE WORK OF ANY KIND. MAINTAIN FENCING DURING CONSTRUCTION PERIOD.
   c. INTERFERING BRANCHES MAY ONLY BE REMOVED WITH PRIOR CONSENT FROM LANDSCAPE ARCHITECT.
   d. IDENTIFY ANY TREES LANDSCAPE ARCHITECT WOULD LIKE VERTICALLY MULCHED, TRIMMED OR REPAIRED AS RESULT OF CONSTRUCTION IMPACT AT END OF PROJECT. ALL WORK TO BE DONE BY A CERTIFIED ARBORIST TO BE APPROVED BY LANDSCAPE ARCHITECT.
2. WATER TREES AND VEGETATION TO REMAIN WITH ONE INCH OF RAIN (RAIN GAUGE OR NOAH LOCAL WEATHER VERIFIED) PER WEEK FOR DURATION OF CONSTRUCTION PROJECT.
3. CONTRACTOR IS RESPONSIBLE FOR ALL DAMAGE TO PLANTS TO REMAIN. COST FOR TREE REPLACEMENT SHALL BE DETERMINED IN ACCORDANCE WITH THE “GUIDE FOR PLANT APPRAISAL” BY THE COUNCIL OF TREE AND LANDSCAPE APPRAISERS (INTERNATIONAL SOCIETY OF AGRICULTURE, PUBLICATION #P1209).

B. TEMPORARY CONSTRUCTION ACCESS: PROJECT SITE ACCESS AND EQUIPMENT ACCESS ROUTES WITHIN THE PROJECT SITE MUST BE APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO COMMENCEMENT OF WORK. ANY TEMPORARY GRAVEL PATH OR ACCESS WAY MUST INCLUDE A GEOFABRIC LINER TO ENSURE FULL REMOVAL OF GRAVEL/ STONE FROM PROJECT SITE AT PROJECT COMPLETION.

1.5 STRIPPING AND STORAGE OF EXISTING TOPSOIL

A. STRIP TOPSOIL TO FULL DEPTH AT AREAS IMPACTED & AT ALL AREAS TO BE RE-GRADED OR RESURFACED.

B. STOP TOPSOIL STRIPPING OUTSIDE DRIP LINE OF TREES TO REMAIN / DO NOT STRIP AS TO IMPACT ROOT LINE OF TREES TO REMAIN.

C. DISPOSE OF ROOTS, STONE AND OTHER DEBRIS; STORE TOPSOIL IN PILES WITHIN THE WORK LIMITS.

1. OBTAIN APPROVAL OF LANDSCAPE ARCHITECT PRIOR TO ESTABLISHING TOPSOIL STORAGE AREAS.
2. GRADE AND SLOPE STOCKPILES FOR PROPER DRAINAGE AND TO PREVENT EROSION

D. THE REUSE OF STOCKPILED TOPSOIL WITHIN THE PROJECT SITE MUST BE APPROVED FOR PLACEMENT BY THE LANDSCAPE ARCHITECT.

PART 2 - PRODUCTS AND MATERIALS

2.1 TOPSOIL

A. ALL TOPSOIL SHALL BE SHREDDED, CLEAN, AND OF UNIFORM QUALITY FREE FROM HARD CLODS, STIFF CLAY, PARTIALLY DISINTEGRATED STONE, LIME, CEMENT, SLAG, OR OTHER UNDESIRABLE MATERIAL. TOPSOIL SHALL CONFORM TO THE FOLLOWING:

1. ORGANIC CONTENT: TOPSOIL SHALL CONTAIN BETWEEN 3% AND 10% ORGANIC MATTER AS DETERMINED BY LOSS OF IGNITION.
2. PH: TOPSOIL PH SHALL RANGE BETWEEN 6.0 AND 7.5
3. SOIL TEXTURE: TOPSOIL SHALL CONSIST OF THE FOLLOWING PERCENTAGES OF SAND, SILT, AND CLAY PASSING THROUGH A 2.00MM (#10) SIEVE:
   a. SAND: 30% TO 75%
   b. SILT: 15% TO 70%
   c. CLAY: 10% TO 30%

B. TOPSOIL MUST BE APPROVED BY GROUNDS MANGER PRIOR TO PLACEMENT. TOPSOIL TEST RESULTS SHALL SHOW RECOMMENDATION FOR SOIL ADDITIVES OR FERTILIZERS TO CORRECT NUTRIENT DEFICIENCIES AS NECESSARY. ALL SOIL AMENDMENTS MUST BE APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO USE.

2.2 GRASS SEED

A. GRASS SEED SHALL BE A TURF-TYPE TALL FESCUE BLEND SUCH AS TROPHY XRE TURF-TYPE TALL FESCUE BLEND OR APPROVED EQUAL BLEND WITH FRESH, CLEAN, NEW CROP SEED MIXTURES.

B. SEED MIXTURE SHALL BE POA-FREE MEETING OREGON STATE STANDARDS FOR NOXIOUS WEED EXAMS.

C. SEED MIXTURE FOR RECREATION FIELDS SHALL BE AS DIRECTED BY THE LANDSCAPE ARCHITECT.

2.3 SOD

A. LANDSCAPE ARCHITECT APPROVED NURSERY GROWN TURF-TYPE TALL FESCUE BLEND SUITABLE FOR JOB SPECIFIC EXPOSURE, WEARABILITY, AND DISEASE RESISTANCE CONFORMING TO THE FOLLOWING PERCENTAGES OF GRASS TYPE:

1. 100% - TURF TYPE TALL FESCUE

B. PROVIDE WELL-ROOTED, HEALTHY SOD, FREE OF DISEASES, NEMATODES, AND SOIL BORNE INSECTS. PROVIDE SOD IN UNIFORM COLOR, LEAF, TEXTURE, DENSITY, AND FREE OF WEEDS, UNDESIRABLE GRASSES, CAPABLE OF GROWTH AND DEVELOPMENT WHEN PLANTED. SOD IS CONSIDERED FREE OF WEEDS IF LESS THAN 5 WEEDS ARE FOUND PER 100 SQ. FT.

C. FURNISH SOD MACHINE STRIPPED AND OF SUPPLIER'S STANDARD WIDTH AND LENGTH; UNIFORMLY 1” TO 1-1/2” THICK WITH CLEAN CUT EDGES. SOD SHALL BE RELATIVELY FREE OF THATCH, UP TO ½” PERMISSIBLE. SOD SHALL BE MOWED UNIFORMLY BEFORE HARVESTING

D. DELIVERY, STORAGE, AND HANDLING: SOD SHALL BE HARVESTED, DELIVERED, AND TRANSPORTED WITHIN A PERIOD OF TWENTY-FOUR (24) HOURS.

1. DO NOT HARVEST OR TRANSPORT SOD WHEN MOISTURE CONTENT MAY ADVERSELY AFFECT SOD SURVIVAL.
2. PROTECT SOD FROM SUN, WIND, AND DEHYDRATION PRIOR TO INSTALLATION.
3. DO NOT TEAR, STRETCH, OR DROP SOD DURING HANDLING AND INSTALLATION.

2.4 FERTILIZER

A. GRANULAR, NON-BURNING PRODUCE COMPOSED OF NOT LESS THAN 50% ORGANIC SLOW ACTING, GUARANTEED ANALYSIS PROFESSIONAL FERTILIZER CONFORMING TO THE FOLLOWING:

1. TYPE A: STARTER FERTILIZER CONTAINING 20% NITROGEN, 26% PHOSPHORIC ACID, AND 6% POTASH BY WEIGHT, OR SIMILAR APPROVED COMPOSITION.
2. TYPE B: SECONDARY FERTILIZER CONTAINING 31% NITROGEN, 3% PHOSPHORIC ACID, AND 10% POTASH BY WEIGHT, OR SIMILAR APPROVED COMPOSITION.

2.5 GRASS SEED MULCH

A. GREEN DYED CELLULOSE OR WOOD FIBER MULCH SUCH AS CONWED HYDROMULCH, WEYERHAUSER SILVA-FIBER OR CLEAN FRESH STRAW.

2.6 WATER

A. CLEAN, POTABLE AND FREE OF SUBSTANCE HARMFUL TO LAWN GROWTH. LAWN WATERING EQUIPMENT, HOSES OR OTHER METHODS OF WATER TRANSPORTATION FURNISHED BY CONTRACTOR.

PART 3 - EXECUTION

3.1 PREPARATION OF SEED BED/ SODDED AREAS

A. DE-COMPACTION: DE-COMPACT AREAS HEAVILY TRAFFICKED BY CONSTRUCTION ACTIVITIES WITH HOE OR OTHER LANDSCAPE ARCHITECT APPROVED METHOD PRIOR TO ROUGH GRADING.

B. ROUGH GRADING: GRADE SURFACES TO ASSURE DRAINAGE AWAY FROM STRUCTURES AND TO PREVENT PONDING AND POCKETS OF SURFACE DRAINAGE. PROVIDE SUBGRADE FREE FROM IRREGULAR SURFACE CHANGES AND AS FOLLOWS:

1. ROUGH GRADE SHALL EQUAL PLUS/ MINUS 0.20 FT., SUB GRADE TOLERANCE SHALL BE FREE OF EXPOSED BOULDERS OR STONES EXCEEDING 1” IN GREATEST DIMENSION.
2. FILL IN ALL AREAS OF SETTLEMENT TO PROPER GRADE BEFORE SUBSEQUENT PLACEMENT OF TOPSOIL.

C. TOPSOIL DEPTHS:

1. LAWN: AREAS TO RECEIVE SOD OR SEED MUST HAVE MINIMUM SIX (6) INCHES AVERAGE DEPTH OF TOPSOIL PLACED.
2. PLANTED BEDS: AREAS IDENTIFIED AS PLANTING BEDS SHALL HAVE MINIMUM TWELVE (12) INCHES AVERAGE DEPTH OF TOPSOIL PLACED.

D. FINE GRADING: GRADE AREA TO A SMOOTH, FREE DRAINING EVEN SURFACE WITH A LOOSE, MODERATELY COURSE TEXTURE. ROLL, SCARIFY, RAKE AND LEVEL AS NECESSARY TO OBTAIN A TRUE, EVEN LAWN SURFACE AND FILL DEPRESSIONS AS REQUIRED TO DRAIN. SEED BED TO BE APPROXIMATELY ½” - 1” BELOW ALL SIDEWALKS AND CURBS. DO NOT MOVE HEAVY OBJECTS EXCEPT NECESSARY LAWN MAKING EQUIPMENT OVER THE LAWN AREAS AFTER THE SOIL IS PREPARED UNLESS IT IS LOOSENED AND RE-GRADED. RESTORE PREPARED AREAS TO SPECIFIED CONDITION IF ERODED, SETTLED, OR OTHERWISE DISTURBED AFTER FINE GRADING.

E. FERTILIZING: APPLY TYPE A / STARTER FERTILIZER TO INDICATED TURF AREAS AT A RATE EQUAL TO 1.0 LB. OF ACTUAL NITROGEN PER 1,000 S.F. OR AS DIRECTED BY LANDSCAPE ARCHITECT. APPLY FERTILIZERS BY MECHANICAL DROP OR ROTARY DISTRIBUTOR, THOROUGHLY AND EVENLY INCORPORATED WITH SOIL TO A DEPTH OF 3” BY DICING OR OTHER APPROVED METHOD. FERTILIZE AREAS INACCESSIBLE TO POWER EQUIPMENT WITH HAND TOOLS AND INCORPORATE INTO SOIL.

3.2 INSTALLATION OF GRASS SEED

A. LANDSCAPE CONTRACTOR SHALL SEED ALL DISTURBED AREAS. THE FINAL GRADE AND TOPSOIL WITHIN +/- .10 FEET WILL BE IN PLACE FOR SEEDING CONTRACTOR.

B. GRASS SEED SHALL ONLY BE SOWN AT THE FOLLOWING TIMES:

a. SPRING SEED PLANTING: APRIL 1 TO JUNE 1
b. FALL SEED PLANTING: AUGUST 15 TO OCTOBER 1
c. OR AS APPROVED BY THE LANDSCAPE ARCHITECT

C. PERFORM SEEDING WORK ONLY AFTER PLANTING AND OTHER WORK AFFECTING THE GROUND SURFACE HAVE BEEN COMPLETED. LIMIT PREPARATION OF SEED AREAS TO THOSE READY FOR IMMEDIATE SEEDING.

D. SEED IMMEDIATELY AFTER PREPARATION OF BED.

E. PERFORM SEEDING OPERATIONS WHEN SOIL IS DRY AND WHEN WINDS DO NOT EXCEED FIVE MILES PER HOUR.

F. SEEDING

a. TO BE APPLIED AT APPROVED MANUFACTURED RATES IN CROSS DIRECTIONS WITH APPROVED SEED DRILLING OR SLICE SEEDING EQUIPMENT. APPLY 50% OF THE SEED IN EACH DIRECTION.
b. APPLY HYDRO-MULCH WITH APPROVED HYDRO-MULCH EQUIPMENT IMMEDIATELY AFTER SEEDING. SLURRY TO BE COMPOSED OF CLEAN WATER AND MULCH. APPLY MULCH SLURRY AT MINIMUM RATE OF 1,500 POUNDS PER ACRE ON SLOPES STEEPER THAN 4:1. DIRECT SLURRY TO EVENLY COVER DESIGNATED SEED AREAS. REPAIR RUTS, DEPRESSIONS AND ALL DAMAGE CAUSED BY HYDRO-MULCHING EQUIPMENT.
c. IMMEDIATELY RESEED AND REAPPLY HYDRO-MULCH TO AREAS THAT SHOW POOR GERMINATION.

G. HYDROMULCHING

a. CONTRACTOR SHALL APPLY CELLULOSE FIBER MULCH AT A MINIMUM RATE OF 1500 POUNDS PER ACRE AND FERTILIZERS: BEST 6-20-20 OR BEST 15-15-15 OR APPROVED EQUAL APPLIED AT RATE APPROPRIATE FOR PRODUCT. ORGANIC TACKIFIER SHALL BE APPLIED AT RATE OF 70 POUNDS PER ACRE. HYDROSEED SEED MIX SHALL BE APPLIED AT THE 2,000 POUNDS PER ACRE.
b. CONTRACTOR SHALL WATER ALL PLANT AREAS THOROUGHLY TO SATURATE UPPER LAYERS OF SOIL PRIOR TO THE HYDROSEEDING OPERATION. ALLOW THE PLANTING AREA SOIL SURFACE TO DRY OUT FOR ONE DAY ONLY PRIOR TO THE HYDROSEEDING APPLICATION.
c. CONTRACTOR SHALL APPLY THE HYDROSEEDING IN THE FORM OF A SLURRY CONSISTING OF ORGANIC SOIL AMENDMENTS, COMMERCIAL FERTILIZER, AND ANY OTHER CHEMICALS THAT ARE CALLED OUT. WHEN HYDRAULICALLY SPRAYED ONTO THE SOIL, THE MULCH SHALL FORM A BLOTTER-LIKE MATERIAL. SPRAY THE AREA WITH A UNIFORM VISIBLE COAT, USING THE DARK COLOR OF THE CELLULOSE FIBER AS A VISUAL GUIDE. THE SLURRY SHALL BE APPLIED IN A DOWNWARD DRILLING MOTION VIA A FAN STREAM NOZZLE. CONTRACTOR SHALL INSURE THAT ALL OF THE SLURRY COMPONENTS ENTER AND MIX WITH THE SOIL.
d. IF SLURRY COMPONENTS ARE LEFT FOR MORE THAN TWO HOURS IN THE MACHINE, ADD 50% MORE OF THE ORIGINALLY SPECIFIED SEED MIX TO ANY SLURRY MIXTURE WHICH HAS NOT BEEN APPLIED WITHIN THE TWO HOURS AFTER MIXING. ADD 75% MORE OF THE ORIGINAL SEED MIX TO ANY SLURRY MIXTURE WHICH HAS NOT BEEN APPLIED EIGHT (8) HOURS AFTER MIXING. ALL MIXTURES MORE THAN EIGHT (8) HOURS OLD, SHALL BE DISPOSED, OFFSITE, AT THE CONTRACTOR'S EXPENSE.
e. CONTRACTOR SHALL REMOVE ALL SLURRY SPRAYED ONTO HARDSCAPE AREAS INCLUDING CONCRETE WALKS, FENCES, WALLS, BUILDINGS, ETC. AT THE CONTRACTOR'S EXPENSE.
f. CONTRACTOR SHALL SAVE ALL SEED AND FERTILIZER TAGS AND FIBER MULCH BAGS FOR THE LANDSCAPE ARCHITECT TO VERIFY COMPLIANCE WITH THE DRAWINGS AND SPECIFICATIONS.

3.3 INSTALLATION OF SOD (IF APPLICABLE)

A. PERFORM SODDING WORK ONLY AFTER PLANTING AND OTHER WORK AFFECTING THE GROUND SURFACE HAVE BEEN COMPLETED. LIMIT PREPARATION OF SODDED AREAS TO THOSE READY FOR IMMEDIATE SODDING.

B. SOD IMMEDIATELY AFTER PREPARATION OF BED.

C. INSTALL INITIAL ROW OF SOD IN A STRAIGHT LINE, BEGINNING AT BOTTOM OF SLOPES, PERPENDICULAR TO DIRECTION OF THE SLOPED AREA. PLACE SUBSEQUENT ROWS PARALLEL TO AND TIGHTLY AGAINST PREVIOUSLY INSTALLED ROW.

D. LAY SOD TO FORM A SOLID MASS WITH TIGHTLY FITTED JOINTS. SOD STRIPS SHALL BUTT CLOSE TOGETHER WITH NO VOIDS BETWEEN THE PIECES. CARE SHALL BE EXERCISED TO ENSURE THAT THE SOD IS NOT STRETCHED OR OVERLAPPED. LATERAL JOINTS SHALL BE STAGGERED. REMOVE EXCESS SOD TO AVOID SMOTHERING OF ADJACENT GRASS. PROVIDE SOD PAD TOP FLUSH WITH ADJACENT CURBS, SIDEWALKS, DRAINS, AND SEEDED AREAS.

E. TO ENHANCE ROOTING, MOISTEN THE SOIL TO A DEPTH OF FOUR (4) TO SIX (6) INCHES TWENTY-FOUR (24) HOURS BEFORE LAYING SOD. DO NOT LAY SOD ON A HOT DRY SOIL SURFACE.

F. DO NOT LAY, PLACE OR INSTALL DORMANT SOD PADS ON SATURATED OR FROZEN SOIL.

G. PEG SOD ON SLOPES GREATER THAN 3:1 TO PREVENT SLIPPAGE AT A RATE OF TWO STAKES PER YD. OF SOD.

H. WATER SOD THOROUGHLY WITH A FINE SPRAY IMMEDIATELY AFTER LAYING/INSTALLATION.

I. ROLL WITH LIGHT LAWN ROLLER TO ENSURE CONTACT WITH SUB-GRADE.

3.4 MAINTENANCE

A. WATERING AND MAINTENANCE ACTIVITIES MUST BE REVIEWED AND APPROVED WITH THE LANDSCAPE ARCHITECT. UNLESS OTHERWISE APPROVED, THE FOLLOWING REQUIREMENTS ARE TO BE COMPLETED AT A MINIMUM:

1. MAINTAIN NEW INSTALLED SEEDED/ SODDED LAWN AREAS IN AN ACCEPTABLE MANNER UNTIL FINAL ACCEPTANCE OF PROJECT, INCLUDING WATERING, SPOT WEEDING, MOWING, TRIMMING, REMOVAL OF CLIPPINGS, LEAF REMOVAL, APPLICATION OF HERBICIDES, FUNGICIDES, INSECTICIDES, AND RE-SEEDING UNTIL A FULL, UNIFORM STAND OF GRASS FREE OF WEED, UNDESIRABLE GRASS SPECIES, DISEASE, AND INSECTS IS ACHIEVED AND ACCEPTED BY THE LANDSCAPE ARCHITECT.
2. WATER DAILY TO MAINTAIN ADEQUATE SURFACE SOIL MOISTURE FOR PROPER SEED GERMINATION. CONTINUE DAILY WATERING FOR NOT LESS THAN THIRTY (30) DAYS. THEREAFTER APPLY ONE-HALF (1/2) INCH WATER EVERY TWO OR THREE DAYS UNTIL ACCEPTED.
3. REPAIR, RE-WORK, RE-SEED, AND OR SOD ALL RESPECTIVE AREAS THAT HAVE WASHED OUT, ARE ERODED, OR DID NOT CATCH.
4. SET MOWER BLADES AT A MINIMUM HEIGHT OF TWO AND ONE-HALF (2-1/2) INCHES. NOT MORE THAN THIRTY (30) PERCENT OF THE GRASS LEAF/BLADE SHALL BE REMOVED AT THE INITIAL OR SUBSEQUENT MOWING. MOW ALL LAWNS BEFORE TURF REACHES A HEIGHT OF FOUR (4) INCHES.
5. IF INFESTATION OF WEEDS OR CRABGRASS DEVELOPS, TREAT INFESTATION BY HAND WEEDING OR HERBICIDAL CONTROL. FURNISH AND INSTALL WEED CHEMICAL CONTROL AS RECOMMENDED BY MANUFACTURER. HERBICIDAL CONTROLS, INCLUDING RENOVATION BEFORE SEEDING OPERATIONS, SHALL BE ACCEPTABLE TO THE LANDSCAPE ARCHITECT.
6. APPLY TYPE B FERTILIZER TO LAWNS APPROXIMATELY THIRTY (30) DAYS AFTER INSTALLATION AT A RATE EQUAL TO 1.0 LB. OF ACTUAL NITROGEN PER 1,000 SQ. FT. APPLY WITH MECHANICAL DROP OR ROTARY TYPE DISTRIBUTOR. WATER THE FERTILIZER THOROUGHLY INTO THE SOIL.

B. PROVIDE EROSION CONTROL MEASURES TO ADEQUATELY SLOW WATER AND IMPEDE SOIL LOSS AS REQUIRED AND DIRECTED BY THE LANDSCAPE ARCHITECT.

1. EROSION CONTROL BLANKETS TO BE USED ON SEEDED SLOPES GREATER THAN 3:1.
2. FIBER ROLLS TO BE USED ON SEEDED SLOPES GREATER THAN 2:1.
3. STRAW BALE CHECKING OR OTHER APPROVED DEVICE IN DITCHES OR ERODED SWALES AS REQUIRED.

3.5 ACCEPTANCE

A. INSPECTION TO DETERMINE ACCEPTANCE OF INSTALLED LAWNS WILL BE MADE BY THE LANDSCAPE ARCHITECT, UPON CONTRACTOR'S REQUEST. PROVIDE NOTIFICATION AT LEAST THREE (3) WORKING DAYS BEFORE REQUESTED INSPECTION DATE.

1. NEW LAWN AREAS WILL BE ACCEPTABLE PROVIDED ALL REQUIREMENTS, INCLUDING MAINTENANCE, HAVE BEEN COMPLIED WITH, AND A HEALTHY UNIFORM, CLOSE STAND OF GRASS IS ESTABLISHED FREE OF WEEDS, UNDESIRABLE GRASS SPECIES, DISEASE AND INSECTS.
2. NO INDIVIDUAL LAWN AREAS SHALL HAVE BARE SPOTS OR UNACCEPTABLE COVER TOTALING MORE THAN TWO (2) PERCENT OF THE INDIVIDUAL AREAS, IN THOSE AREAS REQUESTED FOR INSPECTION.
3. UPON ACCEPTANCE, THE CONTRACTOR WILL ASSUME LAWN MAINTENANCE.

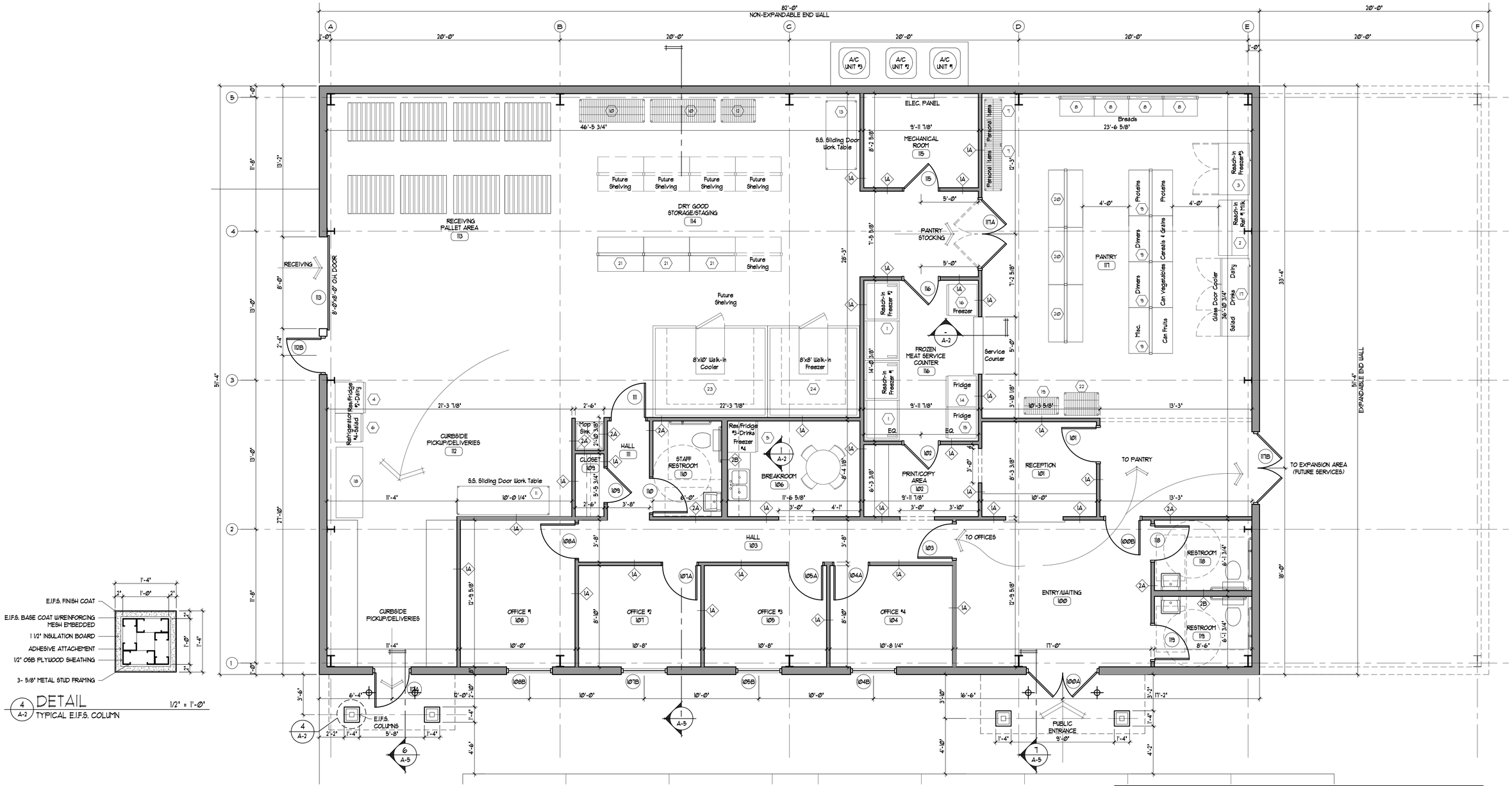
END OF SECTION 31 14 00

Item	Revision Description	Date	Drwn:	Chk:
1	REVISED PER OWNER REVIEW	02-28-25	LEM	LEM

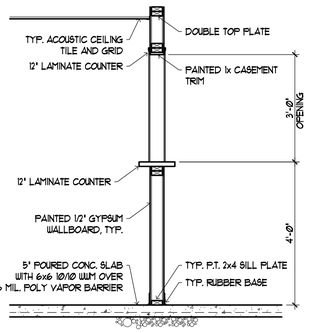
TOPSS: TALAWANDA OXFORD PANTRY & SOCIAL SERVICES
SEC. 16, TOWN 5, RANGE 1, CONGRESS LANDS W. OF THE MIAMI
LOT 3285 OXFORD
BUTLER COUNTY, OHIO
5445 COLLEGE CORNER PIKE

LANDSCAPE SPECIFICATIONS

Drawing: 24-0042 LA
Drawn by: LEM
Checked By:
Issue Date: 02-14-25
Sheet: L2.1



4 / A-2 DETAIL 1/2" = 1'-0"
TYPICAL E.I.F.S. COLUMN



3 / A-2 WALL SECTION 1/2" = 1'-0"
THROUGH FROZEN MEAT SERVICE COUNTER

PRE-ENGINEERED BUILDING NOTES

FOR BIDDING PURPOSES ONLY

1. PRE-ENGINEERED METAL BUILDING MANUFACTURER TO PROVIDE ALL NECESSARY TRIM AND ENCLOSURE PIECES AT EAVE, RAKE, BASE OF PANELS, AND DOOR ENCLOSURE.
2. PRE-ENGINEERED METAL BUILDING MANUFACTURER TO PROVIDE REACTIONS TO VERIFY FOOTING & FOUNDATION DETAILS.
3. BASE PLATE AND ANCHOR BOLT LAYOUT BY PRE-ENGINEERED METAL BUILDING MANUFACTURER.

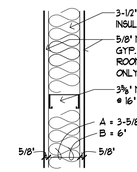
FIRST FLOOR PLAN

1/4" = 1'-0"

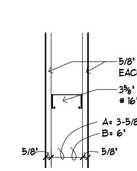
1. UNLESS NOTED DIFFERENTLY, ALL INTERIOR WALLS TO BE 3⅝" METAL STUDS @ 16" O.C. WITH 1/2" GYP. BOARD EACH SIDE. ALL EXTERIOR WALLS IN TO BE FRAMED WITH 6" METAL STUDS METAL STUDS @ 16" O.C. BETWEEN EXISTING METAL BUILDING GIRTS WITH GYPSUM WALL TO 10'-0" AFF AS NOTED IN ROOM FINISH SCHEDULE, SHEET A-2
2. ALL WOOD USED IN CONTACT WITH THE GROUND OR WITH CONCRETE SHALL BE PRESSURE TREATED FOR PROTECTION AGAINST WATER ABSORPTION.
3. ALL INTERIOR WALLS SURROUNDING BATHROOMS TO BE PROVIDED WITH BATT INSULATION FOR REDUCTION OF SOUND TRANSMISSION

101 SEE ROOM FINISH SCHEDULE SHEET A-1.1

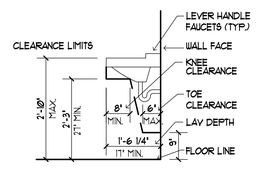
101 DOOR # - SEE SHEET AC-1.1



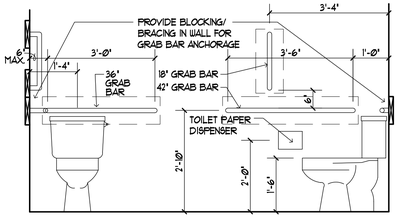
WALL TYPE 2
TYPICAL PARTITION WALL
A = 3⅝" METAL STUDS @16" O.C.
B = 6" METAL STUDS @16" O.C.



WALL TYPE 1
TYPICAL PARTITION WALL
A - 3 5/8" METAL STUDS @ 16" O.C.
B - 6" METAL STUDS @ 16" O.C.



2 / A-2 DETAIL 1/2"=1'-0"
LAVATORY CLEARANCES
NOTE: HOT WATER AND DRAIN PIPES UNDER LAVATORIES SHALL BE INSULATED OR OTHERWISE CONFIGURED TO PROTECT AGAINST CONTACT



1 / A-2 DETAIL 1/2" = 1'-0"
GRAB BAR LOCATIONS

EQUIPMENT SCHEDULE

Item	TES	Qty	Equipment Category	Manufacturer	Model Number	Amps	Volts	Phase	Cold Water Size (in.)	Hot Water Size (in.)	Gas Size (in.)
1		4	Reach-In Glass Top Deep Freezer 83"x36"x345"	AHT	Paris 2ID	8.0	115	1	-	-	-
2		1	Single Access Milk Cooler 58"x31"x40"	Beverage Air	SMI58N	7.5	115	1	-	-	-
3		1	Double Door Reach-In Freezer 54"x33"x82"	Maxx Cold	MX5F-49FDHC	8.2	115	1	-	-	-
4		1	Single Door Residential Refrigerator	Frigidaire	FRUI7G4JUI7	5.0	115	1	-	-	-
5		1	Single Door Residential Refrigerator	Frigidaire	MRT18DNSGI	4.8	115	1	-	-	-
6		1	Commercial Refrigerator 30"x29"x77"	Arctic Air	AWR29Z	3.0	115	1	-	-	-
7		2	Wire Shelving Unit (5 Tier) 48"x18"x72"	Regency	46@EC1848K75	-	-	-	-	-	-
8		4	Modular Shelving (Single Sided) 36"x21"x72"	-	-	-	-	-	-	-	-
9		3	Modular Shelving (Double Sided) 48"x21"x72"	-	-	-	-	-	-	-	-
10		2	Shelving Unit 77"x24"x72"	Kobalt	52238	-	-	-	-	-	-
11		1	S.S. Enclosed Base Sliding Door Table 96"x30"x36"	Regency	6@@EBTB3096D	-	-	1	-	-	-
12		1	Mobile Wire Shelving Unit (4 Tier) 36"x24"x60"	Regency	46@C2436K7165	-	-	1	-	-	-
13		1	S.S. Enclosed Base Sliding Door Table 72"x32"x36"	American Delphi Inc.	-	-	-	1	-	-	-
14		1	Single Door Residential Refrigerator	Frigidaire	FGHU2F8QFB	5.0	115	1	-	-	-
15		1	Single Door Residential Refrigerator	Frigidaire	LFFH21F1HUG	5.0	115	1	-	-	-
16		1	Single Door Laboratory Freezer	VWR	SCBMF-2@1@	5.0	115	1	-	-	-
17		1	Three Section Door Merchandise Refrigerator	True	GDM-72-HC	8.0	115	1	-	-	-
18		1	19.8 Cu.Ft. Deep Freezer 74"x28"x36"	Kenmore	-	8.0	115	1	-	-	-
19		1	Wire Shelving Unit (3 Tier) 36"x18"x6@"	Regency	46@EC2436K54	-	-	1	-	-	-
20		3	Modular Shelving (Double Sided) 6@"x36"x54"	-	-	-	-	1	-	-	-
21		3	Modular Shelving (Double Sided) 48"x36"x6@"	-	-	-	-	1	-	-	-
22		1	Mobile Wire Shelving Unit (5 Tier) 36"x24"x72"	Regency	46@C2436K7165	-	-	1	-	-	-
23		1	8'x10' Walk-In Cooler	Amerikooler	-	14.3	12@	1	-	-	-
24		1	8'x8' Walk-In Freezer	Amerikooler	-	11.5	12@	1	-	-	-
25		-	-	-	-	-	-	-	-	-	-
26		-	-	-	-	-	-	-	-	-	-

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REVISIONS

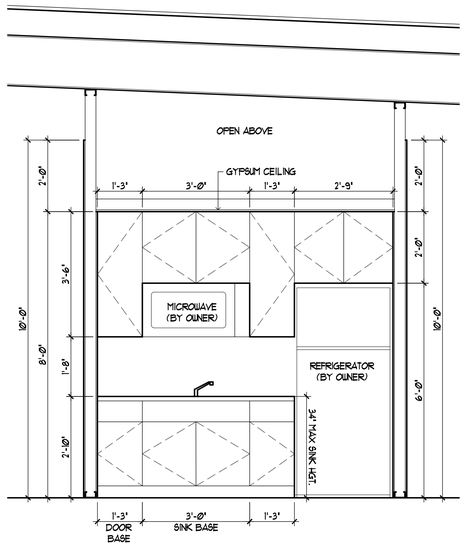
NEW FOOD PANTRY & SOCIAL SERVICE CENTER

TOPSS

8 REAGH'S WAY
OXFORD, OHIO 45056

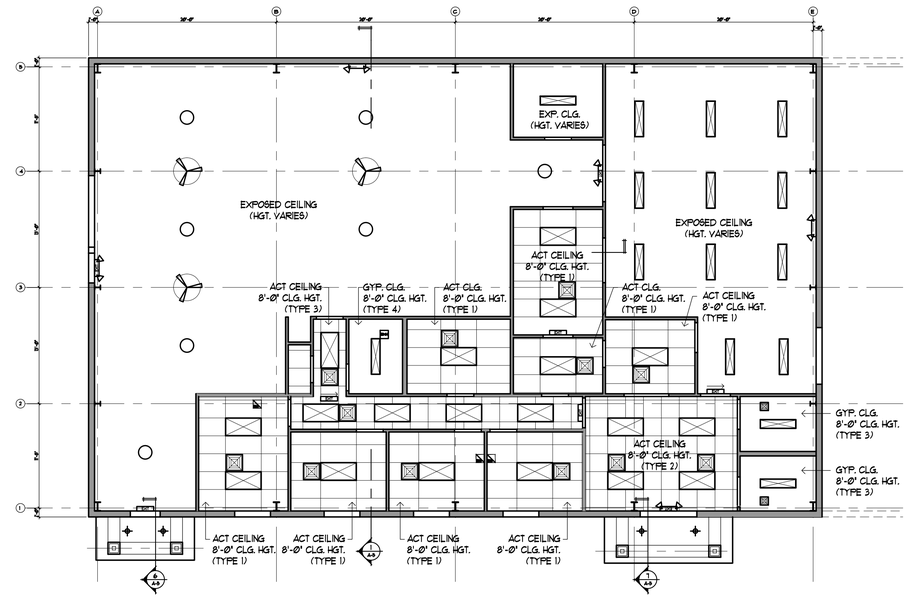
March 18, 2025

A-1



1 / A-2 CABINET ELEVATIONS 1/2" = 1'-0"

BREAKROOM CABINETRY



ELECTRIC LEGEND

- $ SWITCH
- EXIT EXIT SIGN
- EXIT EXIT SIGN W/ EGRESS LIGHTS
- EGRESS LIGHTS
- 2x4 FLUORESCENT LIGHT FIXTURE WITH LENS AND COVER
- 1x4 FLUORESCENT LIGHT FIXTURE WITH LENS AND COVER
- INCANDESCANT DOWNLIGHT
- LED HI-BAY LIGHT FIXTURE
- EXH EXHAUST FAN
- CEILING FAN

REFLECTED CEILING NOTES

TYPE 1 SHALL BE 24" x 48" x 3/4" FINE FISSURED FINE LOOK LAY-IN TILE #1840 BY ARMSTRONG WORLD INDUSTRIES INC. INSTALL IN 2' x 4' DOUBLE WEB EXPOSED TEE GRID NO. DX24 BY DONN PRODUCTS WITH DX424 CROSS TEES AND DOUBLE WEIGHT EDGE ANGLE. FINISH TO BE MIN. CLASS III FLAME SPREAD RATING

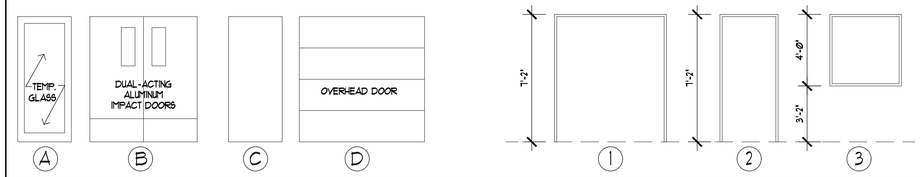
TYPE 2 SHALL BE 24" x 24" x 3/4" FINE FISSURED FINE LOOK LAY-IN TILE #729 BY ARMSTRONG WORLD INDUSTRIES INC. INSTALL IN 2' x 4' DOUBLE WEB EXPOSED TEE GRID NO. DX33 BY DONN PRODUCTS WITH DX25 CROSS TEES AND DOUBLE WEIGHT EDGE ANGLE. FINISH TO BE MIN. CLASS III FLAME SPREAD RATING

TYPE 3 DRYWALL CEILINGS TO BE 5/8" THICK GYPSUM BOARD FINISHED SMOOTH AND INSTALLED ON 6" METAL STUD FRAMING.ALL GYP CEILINGS TO BE PAINTED - COLOR BY ARCHITECT

DOOR AND FRAME SCHEDULE

	DOOR			FRAME					
NO.	SIZE	TYPE	MATERIAL	TYPE	MATERIAL	RATING	CLOSER	HARDWARE	REMARKS
100A	(2) 3'-0" x 7'-0" x 1-3/4"	A	ALUM	1	ALUM		YES	ENTRANCE	-
100B	3'-0" x 7'-0" x 1-3/4"	C	HM	2	HM	-	-	PASSAGE	-
101	3'-0" x 7'-0" x 1-3/4"	C	HM	2	HM	-	-	PASSAGE	-
102	3'-0" x 7'-0" x 1-3/4"	C	HM	2	HM	-	-	PASSAGE	-
103	3'-0" x 7'-0" x 1-3/4"	C	HM	2	HM	-	-	PASSAGE	-
104A	3'-0" x 7'-0" x 1-3/4"	C	HM	2	HM	-	-	PRIVACY	-
104B	N/A	-	-	3	ALUM	-	-	-	-
105A	3'-0" x 7'-0" x 1-3/4"	C	HM	2	HM	-	-	PRIVACY	-
105B	N/A	-	-	3	ALUM	-	-	-	-
107A	3'-0" x 7'-0" x 1-3/4"	C	HM	2	HM	-	-	PRIVACY	-
107B	N/A	-	-	3	ALUM	-	-	-	-
108A	3'-0" x 7'-0" x 1-3/4"	C	HM	2	HM	-	-	PRIVACY	-
108B	N/A	-	-	3	ALUM	-	-	-	-
109	3'-0" x 7'-0" x 1-3/4"	C	HM	2	HM	-	-	PASSAGE	-
110	3'-0" x 7'-0" x 1-3/4"	C	HM	2	HM	-	-	PRIVACY	-
111	3'-0" x 7'-0" x 1-3/4"	C	HM	2	HM	-	-	PASSAGE	-
112A	(2) 3'-0" x 7'-0" x 1-3/4"	A	ALUM	1	ALUM		YES	ENTRANCE	-
112B	3'-0" x 7'-0" x 1-3/4"	C	HM	2	HM		YES	ENTRANCE	-
113	8'-0" x 8'-0" OVERHEAD DOOR	D	HM	N/A	HM			BY MFR.	DOOR & FRAME BY OVERHEAD DOOR MFR. (WITH SHAFT DRIVE OPENER)
115	3'-0" x 7'-0" x 1-3/4"	C	HM	2	HM	-	-	STOREROOM	-
116	3'-0" x 7'-0" x 1-3/4"	C	HM	2	HM	-	-	PASSAGE	-
117A	(2) 3'-0" x 7'-0" x 1-3/4"	B	ALUM	1	ALUM		YES	-	COORDINATING CLOSERS
117B	(2) 3'-0" x 7'-0" x 1-3/4"	C	HM	1	HM	-	YES	ENTRANCE	-
118	3'-0" x 7'-0" x 1-3/4"	C	HM	2	HM		YES	PRIVACY	-
119	3'-0" x 7'-0" x 1-3/4"	C	HM	2	HM		YES	PRIVACY	-

DOOR AND FRAME TYPES



DOOR AND FRAME NOTES

1. WHEN LOCKED ALL EGRESS DOORS SHALL BE READILY OPENABLE FROM THE SIDE FROM WHICH EGRESS IS TO BE MADE WITHOUT THE USE OF A KEY OR SPECIAL KNOWLEDGE OR EFFORT.
2. IF A DOOR HAS A CLOSER, THEN THE SWEEP PERIOD OF THE CLOSER SHALL BE ADJUSTED SO THAT FROM AN OPEN POSITION OF 70 DEGREES, THE DOOR WILL TAKE AT LEAST 3 SECONDS TO MOVE TO A POINT 3" FROM THE LATCH, MEASURED TO THE LEADING EDGE OF THE DOOR.
3. THRESHOLD HGT. OF ALL EXTERIOR DOORS SHALL BE NO GREATER THAN 1/2" HIGH IN ACCORDANCE WITH ADA.
4. ALL HARDWARE LISTED IN SCHEDULE OF HARDWARE SETS ARE EQUIPPED WITH LEVER HANDLES OR PUSH/PULL HARDWARE TO COMPLY WITH ADA GUIDELINES OF THE OBC.
5. ALL AUTOMATIC SLIDING ENTRY DOORS SHALL MEET ALL REQUIREMENTS OF OBC SECTION 1008.1.3.3.
6. AUTOMATIC ENTRANCES: HORTON SERIES 2000 BI-PARTING LINEAR DRIVE SLIDING DOORS. CONFIGURATION 0-5X-5X-0. PROVIDE BREAKOUT EMERGENCY EGRESS FUNCTION ON CENTER PANELS ONLY (61" CLEAR EXITWAY.). PROVIDE NIGHT TIME SECURITY LOCKING ONLY - AUTOMATIC LOCKS ARE NOT REQUIRED. MOTION DETECTORS PER MANUFACTURER'S STANDARDS. ADJUST BEAMS PER OWNER'S REQUIREMENTS. MATERIAL AND FINISH TO BE ANODIZED ALUMINUM.
7. HOLLOW METAL DOORS: EXTERIOR = 16 Ga. INTERIOR = 18 Ga.
8. HOLLOW METAL FRAMES: EXTERIOR = 14 Ga. INTERIOR = 16 Ga.
9. GLAZING IN ALL DOORS, SIDELIGHTS, TRANSOMS SHALL BE TEMPERED. GLAZING IN ALL EXTERIOR DOORS TO BE INSULATED.
10. EACH DOOR LEAF TO PROVIDE (3) HINGES, (3) SILENCERS AND A DOOR STOP. ALL EXTERIOR DOORS TO INCLUDE WEATHER STRIPPING AND THRESHOLDS.
11. PROVIDE MORTISE TYPE LOCKSETS AT ALL EXTERIOR DOORS CAPABLE OF ACCEPTING PEAK'S CORES. COORDINATE ALL KEYING WITH OWNER'S REPRESENTATIVE
12. PROVIDE CYLINDER TYPE LOCKSETS AT ALL INTERIOR DOORS CAPABLE OF ACCEPTING SCHLAGE FIG CORES. COORDINATE ALL KEYING WITH OWNER'S REPRESENTATIVE
13. MOTORIZED SECTIONAL OVERHEAD DOORS BY OVERHEAD DOOR OR EQUAL WITH REVERSING SAFETY EDGE, NO VISION PANELS, AND NO SIDE LOCK. MIN R-13 THERMAL RESISTANCE

ROOM FINISH SCHEDULE

NO.	ROOM NAME	WALLS	FLOOR	BASE	CEILING	HGT	REMARKS
100	ENTRY / WAITING	GYP. BD. - PAINTED	SEALED CONCRETE	4" VINYL	ACT	9'-8"	
101	RECEPTION	GYP. BD. - PAINTED	SEALED CONCRETE	4" VINYL	ACT	9'-8"	
102	PRINT / COPY AREA	GYP. BD. - PAINTED	SEALED CONCRETE	4" VINYL	ACT	8'-0"	
103	HALL	GYP. BD. - PAINTED	SEALED CONCRETE	4" VINYL	ACT	8'-0"	GYP. BOARD ON WALLS TO 100" AFF.
104	OFFICE #4	GYP. BD. - PAINTED	SEALED CONCRETE	4" VINYL	ACT	8'-0"	GYP. BOARD ON WALLS TO 100" AFF.
105	OFFICE #3	GYP. BD. - PAINTED	SEALED CONCRETE	4" VINYL	ACT	8'-0"	GYP. BOARD ON WALLS TO 100" AFF.
106	BREAKROOM	GYP. BD. - PAINTED	SEALED CONCRETE	4" VINYL	ACT	8'-0"	GYP. BOARD ON WALLS TO 100" AFF.
107	OFFICE #2	GYP. BD. - PAINTED	SEALED CONCRETE	4" VINYL	ACT	8'-0"	GYP. BOARD ON WALLS TO 100" AFF.
108	OFFICE #1	GYP. BD. - PAINTED	SEALED CONCRETE	4" VINYL	ACT	8'-0"	GYP. BOARD ON WALLS TO 100" AFF.
109	CLOSET	GYP. BD. - PAINTED	SEALED CONCRETE	4" VINYL	ACT	8'-0"	GYP. BOARD ON WALLS TO 100" AFF.
110	STAFF RESTROOM	GYP. BD. - PAINTED	SEALED CONCRETE	4" VINYL	ACT	8'-0"	GYP. BOARD ON WALLS TO 100" AFF.
111	HALL	GYP. BD. - PAINTED	SEALED CONCRETE	4" VINYL	ACT	8'-0"	GYP. BOARD ON WALLS TO 100" AFF.
112	CURBSIDE PICK-UPS / DELIVERIES	GYP. BD. - PAINTED	SEALED CONCRETE	4" VINYL	EXPOSED	VARIES	"PURPLE" HIGH PERFORMANCE DRYWALL THROUGHOUT TO 10'-0" AFF.
113	RECEIVING PALLET AREA	GYP. BD. - PAINTED	SEALED CONCRETE	4" VINYL	EXPOSED	VARIES	"PURPLE" HIGH PERFORMANCE DRYWALL THROUGHOUT TO 10'-0" AFF.
114	DRY GOOD STORAGE / STAGING	GYP. BD. - PAINTED	SEALED CONCRETE	4" VINYL	EXPOSED	VARIES	"PURPLE" HIGH PERFORMANCE DRYWALL THROUGHOUT TO 10'-0" AFF.
115	MECHANICAL ROOM	GYP. BD. - PAINTED	SEALED CONCRETE	4" VINYL	EXPOSED	VARIES	"PURPLE" HIGH PERFORMANCE DRYWALL THROUGHOUT TO 10'-0" AFF.
116	FROZEN MEAT SERVICE COUNTER	GYP. BD. - PAINTED	SEALED CONCRETE	4" VINYL	ACT	8'-0"	GYP. BOARD ON WALLS TO 100" AFF.
117	PANTRY	GYP. BD. - PAINTED	SEALED CONCRETE	4" VINYL	EXPOSED	8'-0"	GYP. BOARD ON WALLS TO 100" AFF.
118	RESTROOM	GYP. BD. - PAINTED	SEALED CONCRETE	4" VINYL	GYP. BD. - PAINTED	8'-0"	GYP. BOARD ON WALLS TO 100" AFF.
119	RESTROOM	GYP. BD. - PAINTED	SEALED CONCRETE	4" VINYL	GYP. BD. - PAINTED	8'-0"	GYP. BOARD ON WALLS TO 100" AFF.

FINISH NOTES (FINISH CLASSIFICATIONS ARE BASED ON A NON-SPRINKLERED BUILDING)

1. INTERIOR FINISHES FOR ROOMS AND ENCLOSED SPACES IN ALL USE GROUP M AREAS SHALL COMPLY WITH CLASS C, FLAME SPREAD RATINGS OF 76-200.
2. INTERIOR FINISHES FOR CORRIDORS PROVIDING EXIT ACCESS IN ALL USE GROUP M AREAS SHALL COMPLY WITH CLASS B, FLAME SPREAD RATINGS OF 76-200.
3. INTERIOR FINISHES FOR EXIT ENCLOSURES AND EXIT PASSAGEWAYS IN ALL USE GROUP M AREAS SHALL COMPLY WITH CLASS A, FLAME SPREAD RATINGS OF 76-200.
4. FLOOR FINISHES FOR ROOMS AND ENCLOSED SPACES IN ALL USE GROUP M AREAS SHALL COMPLY WITH THE DOC FF-1 "PILL TEST".
5. FLOORING FOR ALL MEANS OF EGRESS SHALL BE PROVIDED WITH A SLIP RESISTANT SURFACE.
6. FLOORING FOR ALL MEANS OF EGRESS SHALL BE PROVIDED WITH A SLIP RESISTANT SURFACE.
7. CONCRETE FINISHING OF ALL FLOOR AREAS TO BE BY "QUESTMARK" COMMERCIAL FLOORING.
8. VINYL FLOORING FOR RAISED OFFICE AREA TO BE "KARNDEAN" COMMERCIAL FLOORING, 16"x16" VINYL TILES. COLOR AND PATTERN TO BE SELECTED BY OWNER.
9. "PURPLE" HIGH IMPACT PERFOMANCE DRYWALL BY NATIONAL GYPSUM.
10. PROVIDE MOISTURE RESISTANT DRYWALL IN RESTROOM AND LOADING DOCK AREA.

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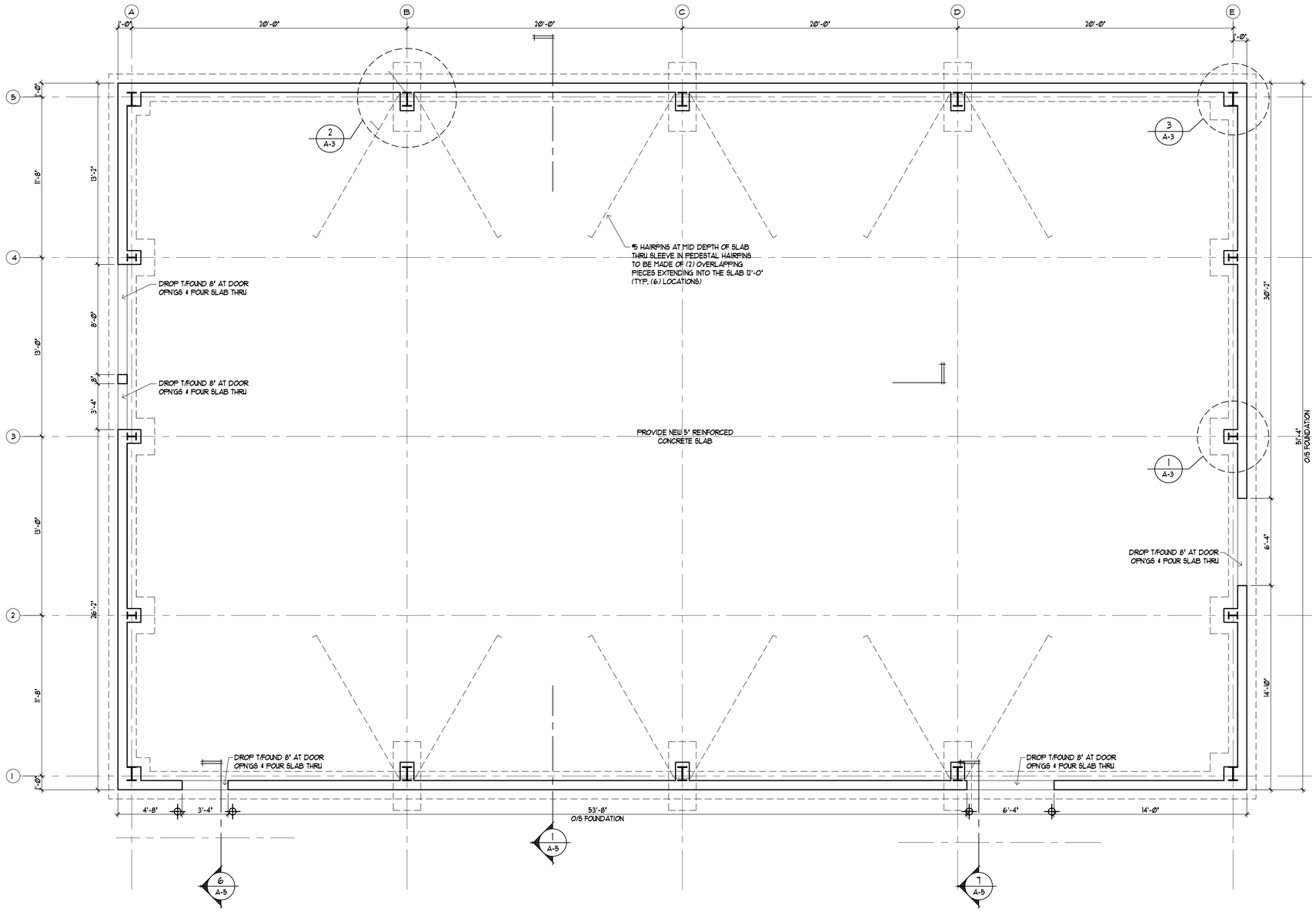
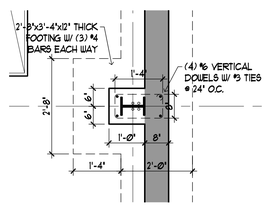
A-2



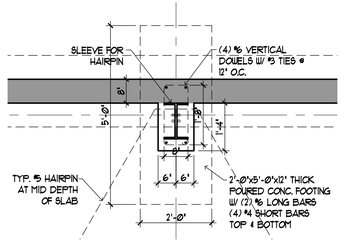
PRE-ENGINEERED BUILDING NOTES

FOR BIDDING PURPOSES ONLY

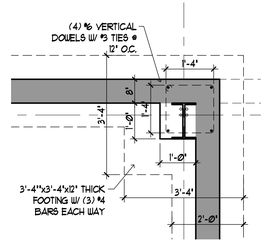
1. PRE-ENGINEERED METAL BUILDING MANUFACTURER TO PROVIDE ALL NECESSARY TRIM AND ENCLOSURE PIECES AT EAVE, RAKE, BASE OF PANELS, AND DOOR ENCLOSURE.
2. PRE-ENGINEERED METAL BUILDING MANUFACTURER TO PROVIDE REACTIONS TO VERIFY FOOTING & FOUNDATION DETAILS.
3. BASE PLATE AND ANCHOR BOLT LAYOUT BY PRE-ENGINEERED METAL BUILDING MANUFACTURER.



1 A-3 DETAIL 1/2" = 1'-0"
TYPICAL END WALL PEDESTAL



2 A-3 DETAIL 1/2" = 1'-0"
TYPICAL SIDE WALL PEDESTAL



3 A-3 DETAIL 1/2" = 1'-0"
TYPICAL CORNER PEDESTAL

FOUNDATION PLAN

1/4" = 1'-0"

1. EXCAVATE TO GRADES INDICATED ON SITE PLAN. AVOID OVER EXCAVATION AS ALL FOOTINGS TO BE PLACED ON UNDISTURBED SOIL. IF DEFECTIVE OR SOFT SOIL EXISTS AT THE DESIGNATED BEARING ELEVATION, REMOVE SUCH SOIL TO INSURE BEARING CAPACITY FOR FOOTINGS.
2. DESIGN SOIL BEARING PRESSURE IS 1500 PSF. FOOTINGS SHALL BEAR ON STIFF, UNDISTURBED SOIL OR ENGINEERED FILL.
3. CONCRETE WORK SHALL CONFORM TO THE RECOMMENDATIONS OF ACI-301, LATEST EDITION.
4. REINFORCING STEEL SHALL BE DETAILED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE ACI MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES AND AS FURTHER ELABORATED:
5. ALL CONCRETE SHALL BE 4,000 PSI AT 28 DAYS, EXCEPT FOOTINGS, WHICH MAY BE 3,000 PSI AT 28 DAYS. EXTERIOR PAVING SLABS AND SIDEWALKS SHALL CONTAIN 4% TO 6% AIR ENTRAINMENT.
6. REINFORCING STEEL SHALL BE ASTM A615 OR A616, GRADE 60. WELDED WIRE REINFORCEMENT SHALL BE ASTM A185. ANCHOR BOLTS SHALL BE ASTM A307.
7. PROVIDE CONT. 6 MIL POLY VAPOR BARRIER UNDER ALL CONCRETE SLABS WITH SEAMS LAPPED A MIN. OF 12"
8. PROVIDE CONT. PERFORATED FOOTING DRAIN AROUND ENTIRE PERIMETER OF FOUNDATION AND EXTEND TO DAYLIGHT.
9. ALL WOOD USED IN CONTACT WITH THE GROUND OR CONCRETE SHALL BE PRESSURE TREATED FOR PROTECTION AGAINST WATER ABSORBTION. ALL BOLTS OR NAILS IN CONTACT WITH TREATED LUMBER SHALL BE GALVANIZED.

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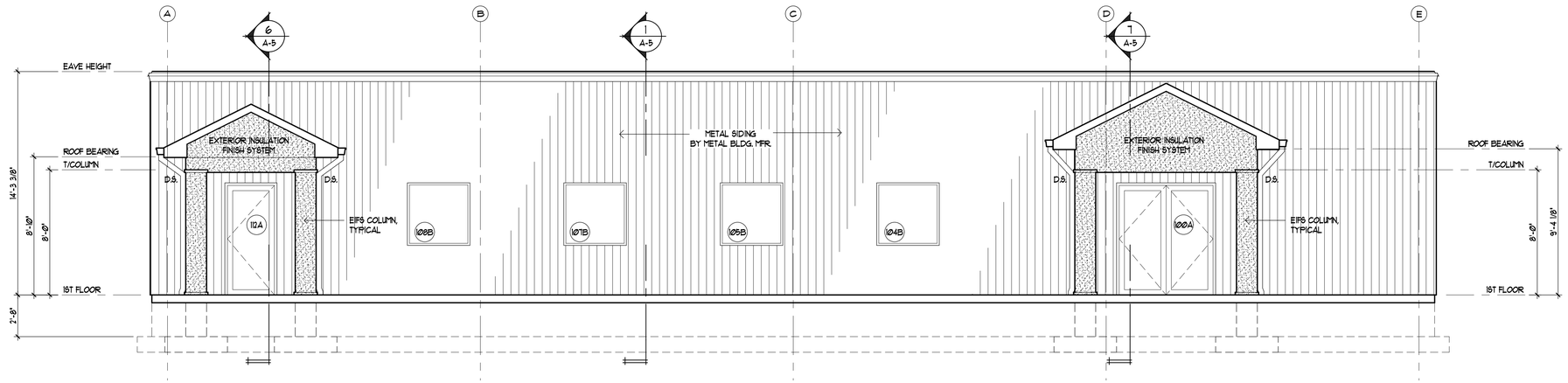
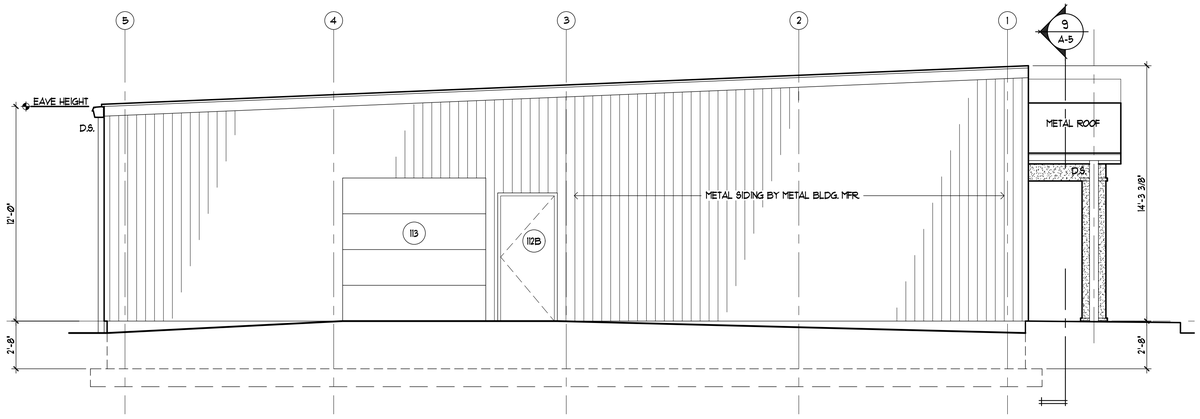


NORTH ELEVATION

1/4" = 1'-0"

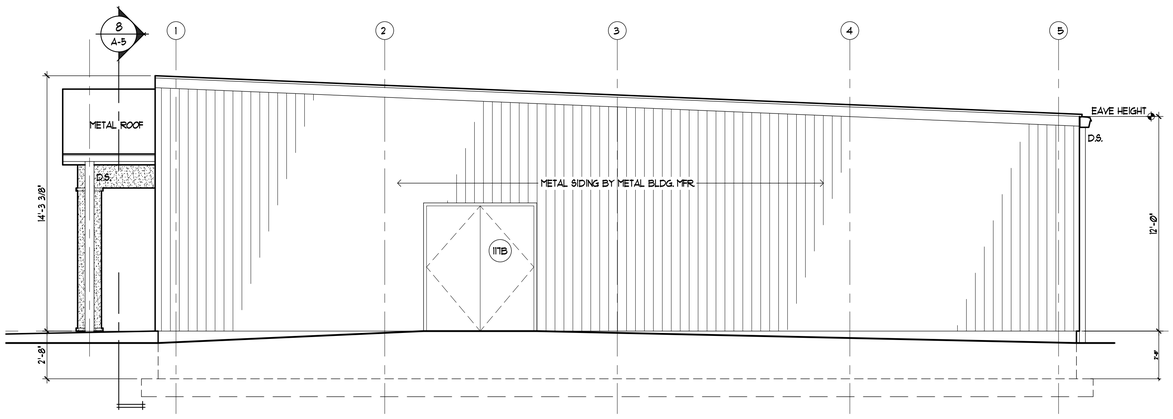
FRONT ELEVATION



RIGHT SIDE ELEVATION

1/4" = 1'-0"

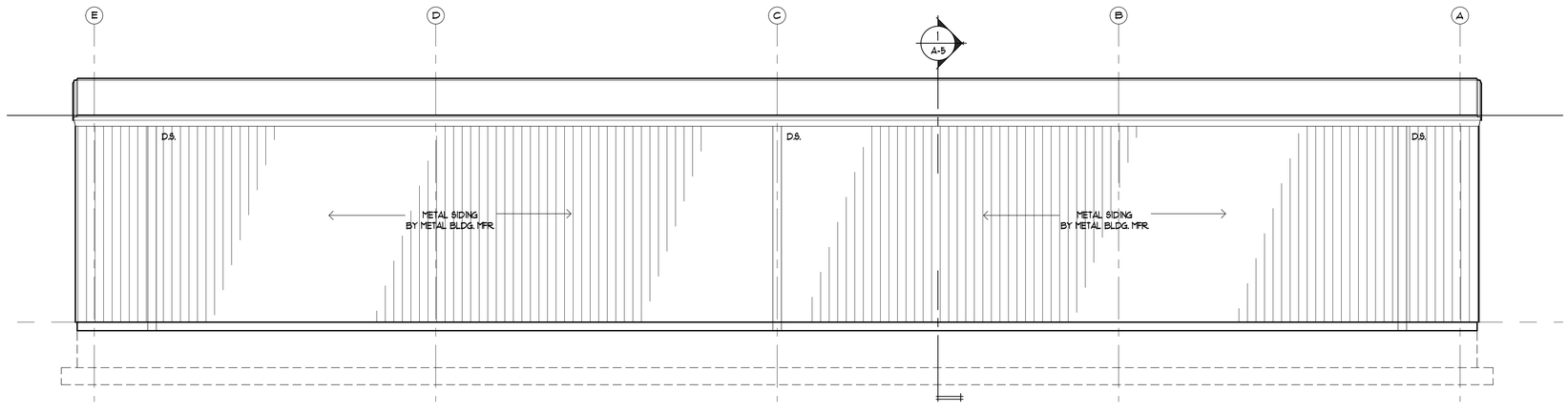
WEST ELEVATION



LEFT SIDE ELEVATION

1/4" = 1'-0"

EAST ELEVATION



SOUTH ELEVATION

1/8" = 1'-0"

REAR ELEVATION

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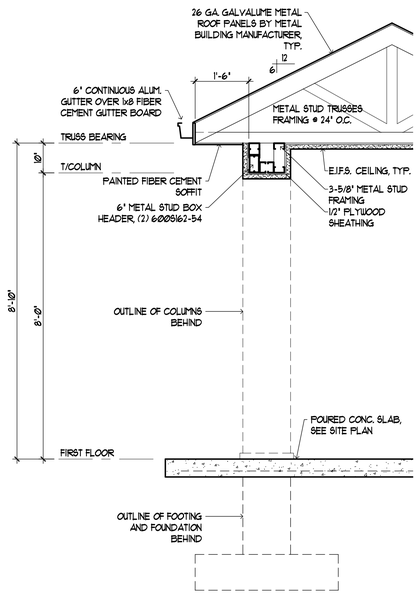
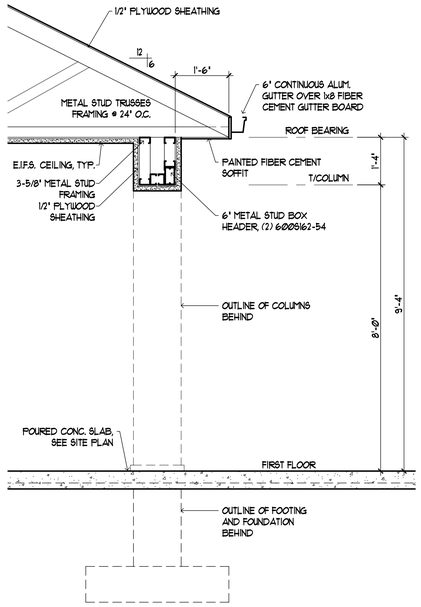
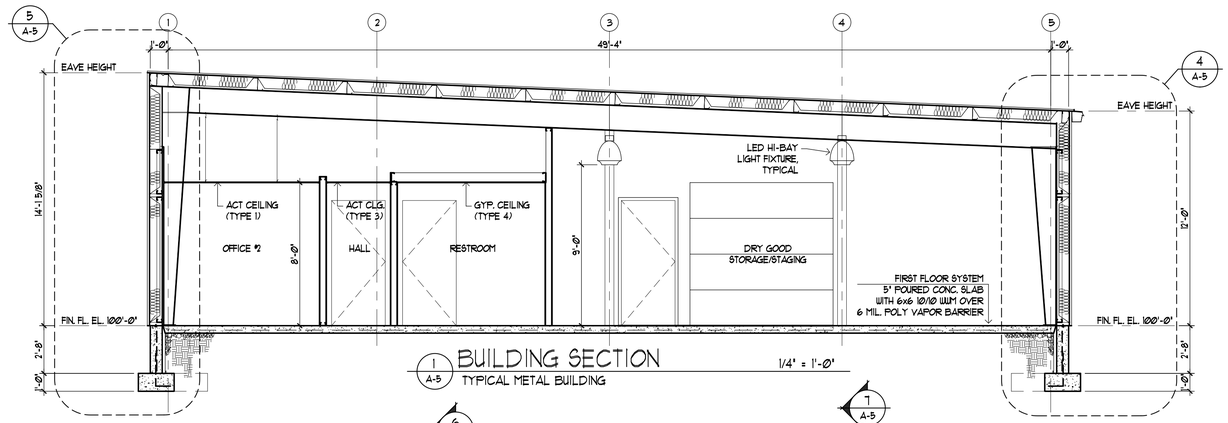


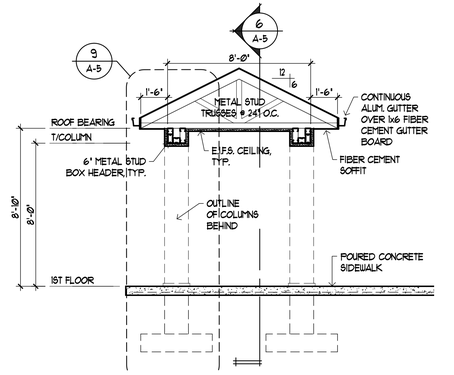
9 A-5 **WALL SECTION** 1/4" = 1'-0"
PICKUP/DELIVERIES COVERED ENTRY



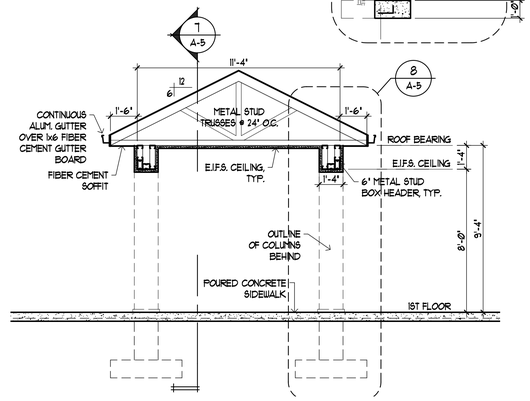
8 A-5 **WALL SECTION** 1/4" = 1'-0"
ENTRY/WAITING COVERED ENTRY



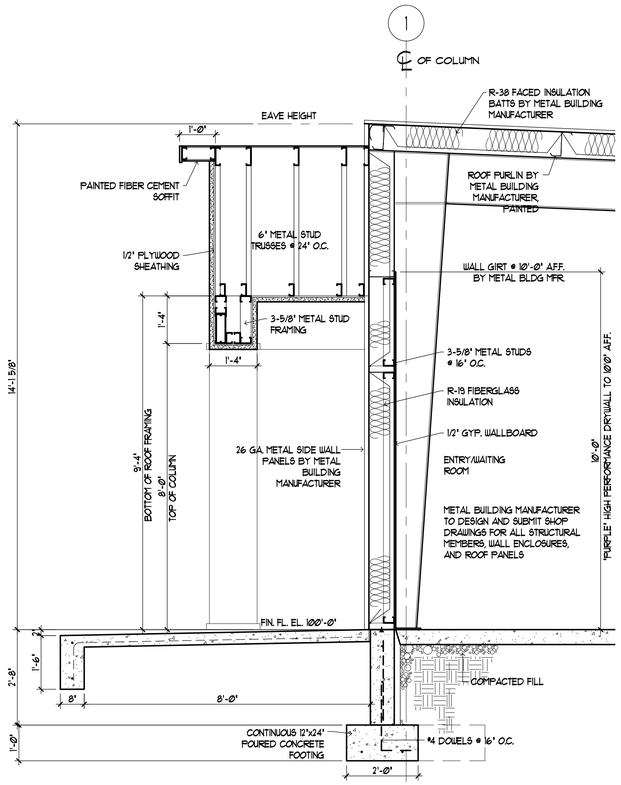
1 A-5 **BUILDING SECTION** 1/4" = 1'-0"
TYPICAL METAL BUILDING



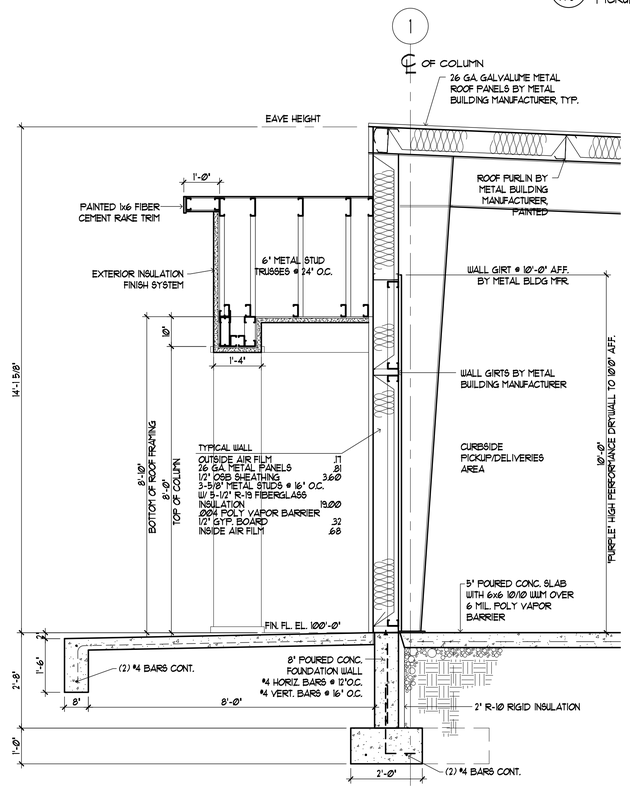
3 A-5 **BUILDING SECTION** 1/4" = 1'-0"
PICKUP/DELIVERIES COVERED ENTRY



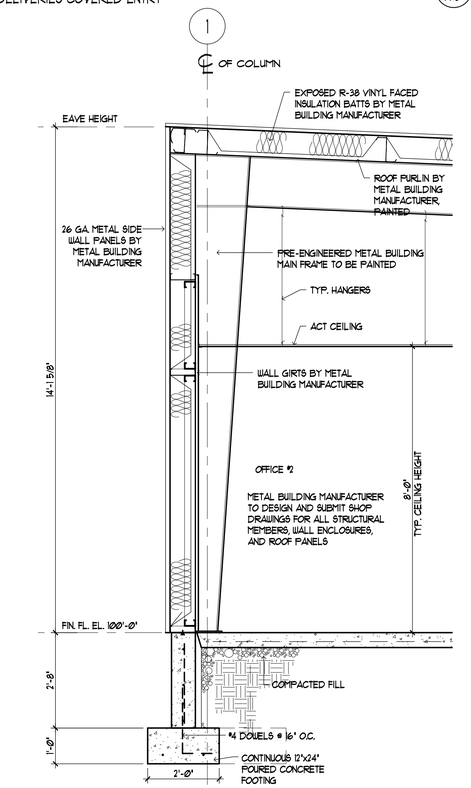
2 A-5 **BUILDING SECTION** 1/4" = 1'-0"
ENTRY/WAITING COVERED ENTRY



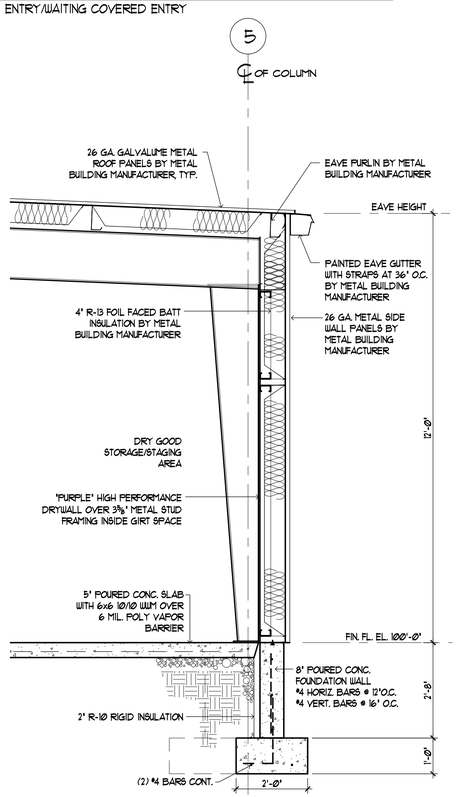
7 A-5 **WALL SECTION** 1/2" = 1'-0"
THROUGH ENTRY / WAITING ENTRANCE



6 A-5 **WALL SECTION** 1/2" = 1'-0"
THROUGH CURBSIDE PICKUP/DELIVERIES ENTRANCE



5 A-5 **WALL SECTION** 1/2" = 1'-0"
THROUGH TYPICAL FRONT WALL



4 A-5 **WALL SECTION** 1/2" = 1'-0"
THROUGH TYPICAL REAR WALL

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REVISIONS

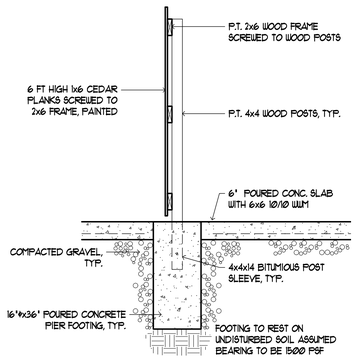
NEW FOOD PANTRY & SOCIAL SERVICE CENTER

TOPSS

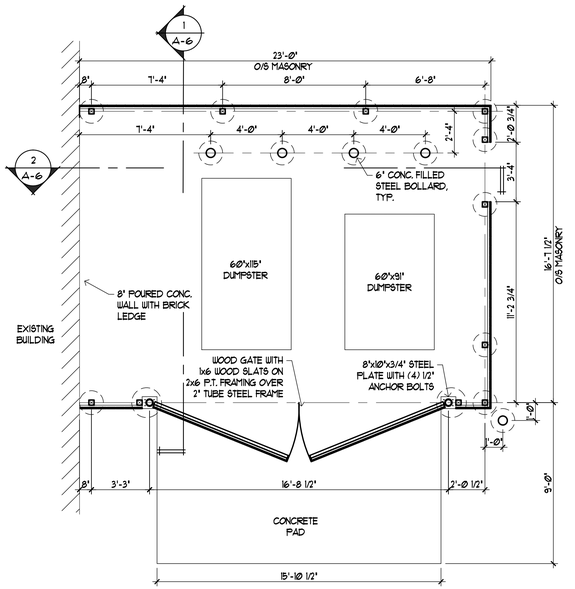
8 REAGH'S WAY
OXFORD, OHIO 45056

March 18, 2025

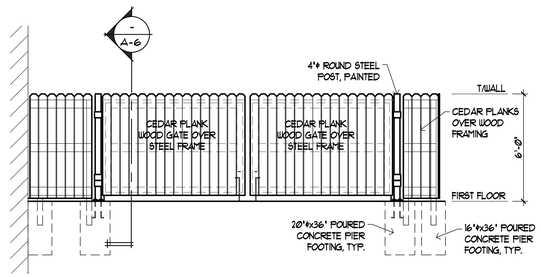
A-5



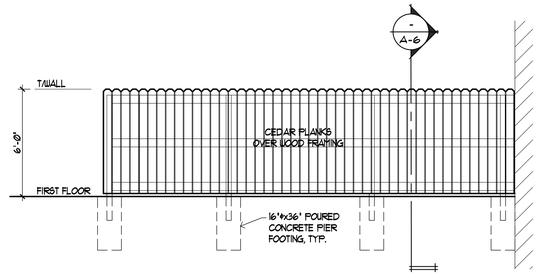
4 A-6 **WALL SECTION** 1/2" = 1'-Ø"
THROUGH TYPICAL ENCLOSURE WALL



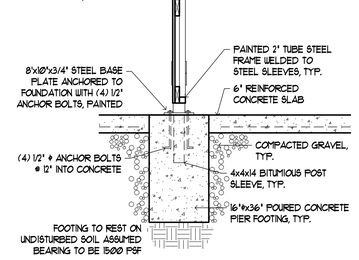
FLOOR PLAN 1/4" = 1'-Ø"
TYPICAL DUMPSTER ENCLOSURE (TYPE 1)



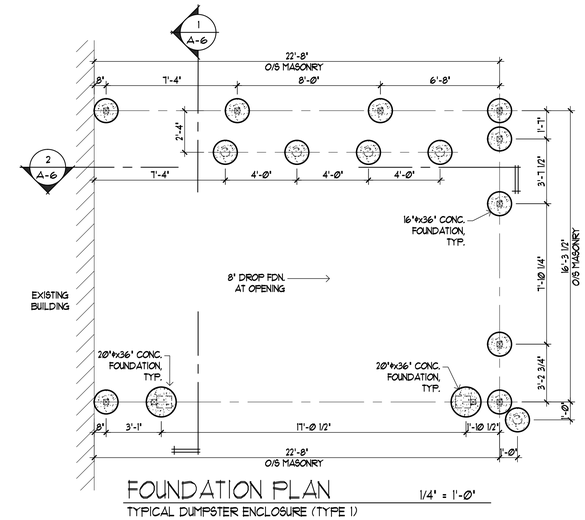
FRONT ELEVATION 1/4" = 1'-Ø"
TYPICAL DUMPSTER ENCLOSURE



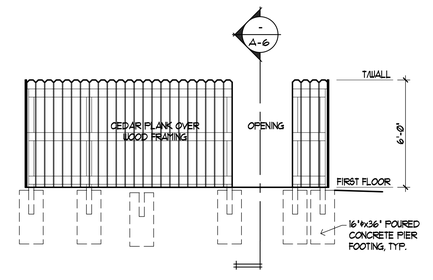
REAR ELEVATION 1/4" = 1'-Ø"
TYPICAL DUMPSTER ENCLOSURE



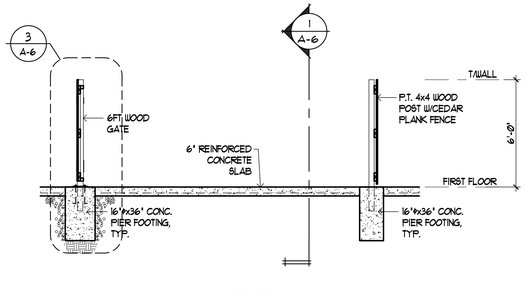
3 A-6 **WALL SECTION** 1/2" = 1'-Ø"
THROUGH TYPICAL WOOD GATE



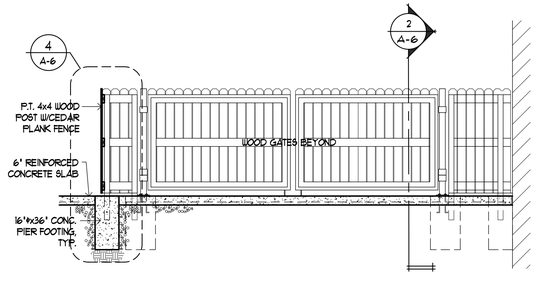
FOUNDATION PLAN 1/4" = 1'-Ø"
TYPICAL DUMPSTER ENCLOSURE (TYPE 1)



RIGHT SIDE ELEVATION 1/4" = 1'-Ø"
TYPICAL DUMPSTER ENCLOSURE



2 A-6 **BUILDING SECTION** 1/4" = 1'-Ø"
THROUGH TYPICAL DUMPSTER ENCLOSURE



1 A-6 **BUILDING SECTION** 1/4" = 1'-Ø"
THROUGH TYPICAL DUMPSTER ENCLOSURE

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SPECIFICATIONS

GENERAL NOTES:

1.1. CONTRACTOR SHALL OBTAIN PERMITS FOR ALL WORK AND APPROVALS/INSPECTIONS PER CITY OF OXFORD, BUTLER COUNTY, OHIO REQUIREMENTS.

1.2. ADDITIONAL INSTRUCTIONS & DETAIL DRAWINGS; THE CONTRACTOR MAY BE FURNISHED ADDITIONAL INSTRUCTIONS AND DETAIL DRAWINGS, BY THE ARCHITECT, AS NECESSARY TO CARRY OUT THE WORK REQUIRED BY THE CONTRACT DOCUMENTS. THE ADDITIONAL DRAWINGS AND INSTRUCTIONS THUS SUPPLEMENTED WILL BECOME A PART OF CONTRACT DOCUMENTS. THE CONTRACTOR SHALL CARRY OUT THE WORK IN ACCORDANCE WITH THE ADDITIONAL DETAIL DRAWINGS AND INSTRUCTIONS.

1.3. THE CONTRACTOR SHALL SUBMIT TO THE OWNER SUCH SCHEDULE OF QUANTITIES AND COSTS, PROGRESS SCHEDULES, PAYROLLS, REPORTS, ESTIMATES, RECORDS, AND OTHER DATA WHERE APPLICABLE AS ARE REQUIRED BY THE CONTRACT DOCUMENTS FOR THE WORK TO BE PERFORMED.

1.4. WITHIN TEN (10) DAYS OF THE ACCEPTANCE DATE OF NOTICE TO PROCEED, THE CONTRACTOR SHALL SUBMIT CONSTRUCTION PROGRESS SCHEDULES SHOWING THE ORDER IN WHICH HE PROPOSES TO CARRY ON THE WORK, INCLUDING DATES AT WHICH HE WILL START VARIOUS PARTS OF THE WORK, ESTIMATED DATE OF COMPLETION OF EACH PART. THE CONTRACTOR SHALL ALSO SUBMIT A SCHEDULE OF PAYMENTS THAT HE ANTICIPATES HE WILL EARN DURING THE COURSE OF THE WORK.

1.5. THE INTENT OF THE DRAWINGS AND SPECIFICATIONS IS THAT THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, AND TRANSPORTATION NECESSARY FOR THE PROPER EXECUTION OF THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND ALL INCIDENTAL WORK NECESSARY TO COMPLETE THE PROJECT IN AN ACCEPTABLE MANNER, READY FOR USE, OCCUPANCY, OR OCCUPATION BY THE OWNER.

1.6. IN CASE OF CONFLICT BETWEEN THE DRAWINGS AND SPECIFICATIONS, THE SPECIFICATIONS SHALL GOVERN. FIGURE DIMENSIONS ON DRAWINGS SHALL GOVERN OVER SCALE DIMENSIONS, AND DETAILED DRAWINGS SHALL GOVERN OVER GENERAL DRAWINGS.

1.7. ANY DISCREPANCIES FOUND BETWEEN THE DRAWINGS AND SPECIFICATIONS AND SITE CONDITIONS OR ANY INCONSISTENCIES OR AMBIGUITIES IN THE DRAWINGS, SHALL BE IMMEDIATELY REPORTED TO THE ARCHITECT, IN WRITING WITHIN TEN (10) DAYS FROM DISCOVERY OF DISCREPANCIES, WHO SHALL PROMPTLY CORRECT SUCH INCONSISTENCIES OR AMBIGUITIES IN WRITING. WORK DONE BY THE CONTRACTOR AFTER HIS DISCOVERY OF SUCH DISCREPANCIES, INCONSISTENCIES, OR AMBIGUITIES SHALL BE DONE AT THE CONTRACTOR'S RISK.

1.8. THE CONTRACTOR WILL BE RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK. HE WILL TAKE ALL NECESSARY PRECAUTIONS FOR THE SAFETY OF, AND WILL PROVIDE THE NECESSARY PROTECTION TO PREVENT DAMAGE, INJURY, OR LOSS TO ALL EMPLOYEES ON THE WORK AND OTHER PERSONS WHO MAY BE AFFECTED THEREBY, ALL THE WORK AND ALL MATERIALS OR EQUIPMENT TO BE INCORPORATED THEREIN, WHETHER IN STORAGE ON OR OFF THE SITE, AND OTHER PROPERTY AT THE SITE OR ADJACENT THERETO, INCLUDING TREES, STRUCTURES, AND UTILITIES NOT DESIGNATED FOR REMOVAL, RELOCATION, OR REPLACEMENT IN THE COURSE OF CONSTRUCTION.

1.9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF PUBLIC AND PRIVATE PROPERTY ADJACENT TO THE WORK AND SHALL EXERCISE DUE CAUTION TO AVOID DAMAGE TO SUCH PROPERTY

1.10. THE CONTRACTOR WILL SUPERVISE AND DIRECT THE WORK. HE WILL BE SOLELY RESPONSIBLE FOR THE MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES OF CONSTRUCTION. THE CONTRACTOR WILL EMPLOY AND MAINTAIN ON THE WORK, A QUALIFIED SUPERVISOR OR SUPERINTENDENT WHO SHALL HAVE BEEN DESIGNATED IN WRITING, BEFORE STARTING WORK, BY THE CONTRACTOR AS THE CONTRACTOR'S REPRESENTATIVE AT THE SITE. THE SUPERVISOR SHALL HAVE FULL AUTHORITY TO ACT ON BEHALF OF THE CONTRACTOR AND ALL COMMUNICATIONS GIVEN TO THE SUPERVISOR SHALL BE AS BINDING AS IF GIVEN TO THE CONTRACTOR. THE SUPERVISOR SHALL BE PRESENT ON THE SITE AT ALL TIMES AS REQUIRED TO PERFORM ADEQUATE SUPERVISION AND COORDINATION OF THE WORK.

1.11. THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS AS MAY BE NECESSARY FOR THE PROSECUTION OF THE WORK AS REQUIRED BY THE CONTRACT DOCUMENTS. THE ARCHITECT SHALL PROMPTLY REVIEW ALL SHOP DRAWINGS. THE ARCHITECT'S APPROVAL OF ANY SHOP DRAWINGS SHALL NOT RELEASE THE CONTRACTOR FROM RESPONSIBILITY FOR DEVIATIONS FROM THE CONTRACT DOCUMENTS. THE APPROVAL OF ANY SHOP DRAWING WHICH SUBSTANTIALLY DEVIATES FROM THE REQUIREMENTS OF THE CONTRACT DOCUMENTS SHALL BE EVIDENCED BY A CHANGE ORDER.

1.12. WHEN SUBMITTED FOR THE ARCHITECT'S REVIEW, SHOP DRAWINGS SHALL BEAR THE CONTRACTOR'S CERTIFICATION THAT HE HAS REVIEWED, CHECKED, AND APPROVED THE SHOP DRAWING AND THAT THEY ARE IN CONFORMANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

1.13. PORTIONS OF THE WORK REQUIRING A SHOP DRAWING OR SAMPLE SUBMISSION SHALL NOT BEGIN UNTIL THE SHOP DRAWING OR SUBMISSION HAS BEEN APPROVED BY THE ARCHITECT. A COPY OF EACH APPROVED SAMPLE SHALL BE KEPT IN GOOD ORDER BY THE CONTRACTOR AT THE SITE AND SHALL BE AVAILABLE TO THE ARCHITECT.

1.14. SHOP DRAWINGS: SUBMIT (5) COPIES OF ALL SHOP DRAWINGS FOR ARCHITECT'S APPROVAL AS FOLLOWS:

- CONCRETE MIX DESIGN (PER ACI-301 FIELD-EXPERIENCE OR TRIAL-BATCH METHODS)
- REINFORCING STEEL IN CONCRETE AND MASONRY.
- STRUCTURAL AND MISCELLANEOUS STEEL.
- PRE-ENGINEERED METAL BUILDING DRAWINGS. THIS SUBMITTAL SHALL INCLUDE CALCULATIONS, AND ERECTION SHEETS, HARDWARE/CONNECTOR INFORMATION AND BRACING INFORMATION. THIS SUBMITTAL SHALL ALSO BEAR THE SEAL OF THE OHIO P.E. RESPONSIBLE FOR THE PRODUCTION OF THIS INFORMATION
- PRE-ENGINEERED COLD FORMED METAL FRAMING – THIS SUBMITTAL SHALL INCLUDE CALCULATIONS, DESIGN AND ERECTION SHEETS, HARDWARE/CONNECTOR INFORMATION AND BRACING INFORMATION. THIS SUBMITTAL SHALL ALSO BEAR THE SEAL OF THE OHIO P.E. RESPONSIBLE FOR THE PRODUCTION OF THIS INFORMATION.
- BUILT-IN CABINETRY – THIS SUBMITTAL SHALL INCLUDE ALL DRAWINGS, DETAILS, ETC. AND SHALL BE BASED ON VERIFIED FIELD MEASUREMENTS TAKEN ON SITE.

1.15. CHANGES IN THE WORK: THE OWNER MAY AT ANY TIME AS THE NEED ARISES, ORDER CHANGES WITHIN THE SCOPE OF THE WORK WITHOUT INVALIDATING THE AGREEMENT. IF SUCH CHANGES INCREASE OR DECREASE THE AMOUNT DUE UNDER THE CONTRACT DOCUMENTS, OR IN THE TIME REQUIRED FOR PERFORMANCE OF THE WORK, AN EQUITABLE ADJUSTMENT SHALL BE MADE.

1.16. CORRECTION OF THE WORK: THE CONTRACTOR SHALL PROMPTLY REMOVE FROM THE PREMISES ALL WORK REJECTED BY THE ARCHITECT FOR FAILURE TO COMPLY WITH THE CONTRACT DOCUMENTS, WHETHER INCORPORATED IN THE CONSTRUCTION OR NOT, AND THE CONTRACTOR SHALL PROMPTLY REPLACE AND RE-–EXECUTE THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND WITHOUT EXPENSE TO THE OWNER AND SHALL BEAR THE EXPENSE OF MAKING GOOD ALL WORK OF OTHER CONTRACTORS DESTROYED OR DAMAGED BY SUCH REMOVAL OR REPLACEMENT.

1.17. THE CONTRACTOR SHALL GUARANTEE ALL MATERIALS AND EQUIPMENT FURNISHED AND WORK PERFORMED FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION. THE CONTRACTOR WARRANTS AND GUARANTEES FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION OF THE SYSTEM THAT THE COMPLETED SYSTEM IS FREE FROM ALL DEFECTS DUE TO FAULTY MATERIALS OR WORKMANSHIP AND THE CONTRACTOR SHALL PROMPTLY MAKE SUCH CORRECTIONS AS MAY BE NECESSARY BY REASON OF SUCH DEFECTS INCLUDING THE REPAIRS OF ANY DAMAGE TO OTHER PARTS OF THE SYSTEM RESULTING FROM SUCH DEFECTS. THE OWNER WILL GIVE NOTICE OF OBSERVED DEFECTS WITH REASONABLE PROMPTNESS. IN THE EVENT THAT THE CONTRACTOR SHOULD FAIL TO MAKE SUCH REPAIRS, ADJUSTMENTS, OR OTHER WORK THAT MAY BE MADE NECESSARY BY SUCH DEFECTS WITHIN TWO (2) WORKING DAYS AFTER RECEIVING NOTICE FROM THE CITY OR WITHIN THAT TIME AS MAY BE ALLOWED BY THE CITY, THE OWNER MAY DO SO AND CHARGE THE CONTRACTOR THE COST THEREBY INCURRED. NOTICE MAY BE BY PHONE OR LETTER TO THE CONTRACTOR. THE CONTRACTOR WILL BE RESPONSIBLE FOR DEFECTIVE MATERIALS AND MUST REPLACE DEFECTIVE MATERIALS AT THE CONTRACTOR'S COST. THE PERFORMANCE BOND SHALL REMAIN IN FULL FORCE AND EFFECT THROUGH THE GUARANTEE PERIOD.

1.18. ALL REMOVAL AND REPLACEMENT WORK SHALL BE DONE AT THE CONTRACTOR'S EXPENSE. IF THE CONTRACTOR DOES NOT TAKE ACTION TO REMOVE SUCH REJECTED WORK WITHIN TEN (10) DAYS AFTER RECEIPT OF WRITTEN NOTICE, THE OWNER MAY REMOVE SUCH WORK AND STORE THE MATERIALS AT THE EXPENSE OF THE CONTRACTOR.

1.19. TAXES: THIS IS A NON-TAXABLE PROJECT. A TAX EXEMPT CERTIFICATE WILL BE GIVEN TO THE SUCCESSFUL BIDDER.

SITE WORK:

2.1. SURVEY INFORMATION AND SPECIFICATIONS FOR SITE WORK, GRADING, UTILITIES, STORM WATER ETC. ARE PROVIDED ON THE CIVIL SHEETS INCLUDED IN THE DRAWING PACKAGE.

CONCRETE WORK:

3.1. CONCRETE WORK SHALL CONFORM TO THE RECOMMENDATIONS OF ACI-301, LATEST EDITION

3.2. FOUNDATIONS AND FOOTINGS ARE DESIGNED FOR UNDISTURBED 1500 PSF SOIL BEARING, AND CONDITIONS THAT VARY FROM THIS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT FOR REVIEW AND INSTRUCTIONS BEFORE PROCEEDING.

3.3. UNLESS NOTED DIFFERENTLY, ALL CONCRETE FOR FOOTINGS SHALL BE MINIMUM 3,000 PSI @ 28 DAYS. ALL CONCRETE FOR FOUNDATION WALLS AND SLABS SHALL BE MINIMUM 4000 PSI @ 28 DAYS. ALL CONCRETE SHALL BE PLACED AND REINFORCED IN ACCORDANCE WITH THE LATEST RECOMMENDATIONS OF THE AMERICAN CONCRETE INSTITUTE.

3.4. AT CORNERS AND INTERSECTIONS OF FOOTINGS, WALLS AND GRADE BEAMS, PROVIDE BENT BARS OF EQUAL SIZE AND AT SAME SPACING AS TYPICAL REINFORCING AROUND CORNER AND/OR ABUTTING WALL OR GRADE BEAM. BARS SHALL HAVE A MIN. EMBEDMENT OF 12".

3.5. UNLESS INDICATED DIFFERENTLY, ALL SLABS SHALL BE REINFORCED WITH 6X6 10/10 WELDED WIRE MESH, CONFORMING TO ASTM A185.

3.6. PROVIDE CONTINUOUS 6 MIL. POLY VAPOR UNDER ALL CONCRETE SLABS IN BASEMENT AND SLAB ON GRADE AREAS WITH SEAMS LAPPED A MINIMUM OF 12".

3.7. POURED CONCRETE FOR CAST-IN-PLACE WALLS TO BE MIN 4000 PSI, MAXIMUM SLUMP OF 5.5 INCHES, WITH STEEL REINFORCING AS NOTED ON DRAWINGS.

MASONRY WORK:

4.1. CONCRETE MASONRY UNITS SHALL BE ASTM C90 OR C145, TYPE I, GRADE N.

4.2. MORTAR SHALL BE TYPE 'N', AND GROUT SHALL BE 3,000 PSI 'PEA GRAVEL' MIX CONCRETE. CONTRACTOR SHALL MATCH MORTAR COLOR AND PROVIDE THAT IN THE BRICK VENEER SAMPLE

4.3. PRECAST CONCRETE FOR DUMPSTER ENCLOSURE WALL CAPS TO BE WHITE CONCRETE ANCHORED TO TOPS OF WALL PER MANUFACTURER'S PROVIDED ANCHORS.

4.4. BEFORE LEAVING JOB, CLEAN ALL MASONRY WORK WITH WATER AND A STIFF BRISTLED BRUSH TO REMOVE EXCESSIVE MORTAR AND MORTAR STAINS.

METALS:

5.1. ALL REINFORCING STEEL TO BE ASTM A615 GRADE 60.

5.2. ALL STRUCTURAL STEEL BEAMS OR LINTELS TO BE ASTM A36 ALL STEEL COLUMNS TO BE ASTM A501 OR A53. ALL LOOSE LINTELS USED IN EXTERIOR MASONRY WORK SHALL BE GALVANIZED STEEL.

5.3. STRUCTURAL STEEL WORK SHALL CONFORM TO THE LATEST RECOMMENDATIONS OF THE AISC

5.4. STRUCTURAL STEEL SHALL BE ASTM A992, PIPES ASTM A53, AND TUBING ASTM A500, GRADE 'B ', FY = 46 KSI

5.5. WELDS SHALL USE E70XX ELECTRODES. BOLTS SHALL BE 3/4" DIAMETER ASTM A325, 'N' BEARING CONDITION

5.6. ALL ANCHOR BOLTS TO BE ASTM A307 OR A36.

5.7. EXPANSION BOLTS SHALL BE HILTI 'KWIK BOLT II', OR EQUAL, INSTALLED PER MANUFACTURER'S RECOMMENDATIONS

5.8. EPOXY ANCHORS SHALL BE HILTI 'RE-500', OR EQUAL, INSTALLED PER MANUFACTURER'S RECOMMENDATION

5.9. ALL STRUCTURAL STEEL FRAMES ARE NON-SELF-SUPPORTING. PROVIDE TEMPORARY BRACING UNTIL ROOF DIAPHRAGM IS IN PLACE, BRACING INSTALLED, AND ALL CONNECTIONS TO MASONRY WALLS ARE COMPLETE. EXPANSION BOLTS SHALL BE KWIK BOLT II, INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

5.10. ALL DIMENSIONS PERTAINING TO THE METAL BUILDING ARE FOR BIDDING PURPOSES ONLY AND SHALL BE COORDINATED AND VERIFIED WITH FINAL METAL BUILDING SHOP DRAWINGS PRIOR TO CONSTRUCTION.

5.11. PREFINISHED METAL SIDING & ROOFING SHALL BE ALUMINUM-ZINC ALLOY COATED (AZ-50 GALVALUME®) STEEL SHEET, 24-GAUGE OR 22-GAUGE*, ASTM 792-08, GRADE 40, YIELD STRENGTH OF 40 KSI MIN. GALVUME METAL TO BE PROVIDED BY THE PRE-ENGINEERED METAL BUILDING CONTRACTOR AND SHALL BE ATTACHED PER MANUFACTURES WRITTEN INSTRUCTION. FINISH SHALL BE FULL STRENGTH KYNAR 500 FLUOROPOLYMER – COLOR BY ARCHITECT

5.12. PROVIDE METAL STUD FRAMING AND ACCESSORIES AS INDICATED IN THE DRAWINGS, AS SPECIFIED HEREIN AND AS NEEDED FOR A COMPLETE AND PROPER INSTALLATION.

5.13. METAL STUDS SHALL CONFORM TO ASTM C 645 - STANDARD SPECIFICATION FOR NON-STRUCTURAL (AXIAL) STEEL STUDS, RUNNERS (TRACKS), AND RIGID FURRING CHANNELS FOR SCREW APPLICATION OF GYPSUM BOARD

5.14. METAL STUD SIZES ARE SHOWN AS DESIGN CRITERIA – STUD DESIGN SHALL BE PERFORMED BY THE METAL STUD SUPPLIER AND SUBMITTED FOR REVIEW, SHOWING ELEVATIONS OF ALL WALLS WITH THEIR CONNECTIONS AND ALL OPENING FRAMING

5.15. INSTALL STEEL FRAMING AND ACCESSORIES PLUMB, SQUARE, TRUE TO LINE, AND WITH CONNECTIONS SECURELY FASTENED, ACCORDING TO THE DESIGN REQUIREMENTS AND THE REQUIREMENTS OF THIS SECTION

5.16. INSTALL CONTINUOUS TOP AND BOTTOM TRACK OF SIZE TO ACCOMMODATE STUDS. ALIGN TRACKS ACCURATELY AND SECURELY ANCHOR AT CORNERS AND ENDS, AT MAX 24" O.C. INSTALL STUDS VERTICALLY, OPEN SIDE FACING IN THE SAME DIRECTION, PLUMBED AND ALIGNED. SECURELY ATTACH FLANGES OF BOTH TOP AND BOTTOM TRACKS AT CORNERS, OPENINGS AND PARTITION INTERSECTIONS

5.17. FRAMING OF WALL OPENINGS SHALL INCLUDE HEADERS AND SUPPORTING STUDS. KING STUDS, JACK STUDS AND CRIPPLE STUDS SHALL BE INSTALLED BELOW WINDOW SILLS, ABOVE WINDOW AND DOOR HEADS, AND ELSEWHERE TO FURNISH SUPPORTS, AND SHALL BE SECURELY ATTACHED TO ADJACENT SUPPORTING MEMBERS

WOOD AND PLASTIC:

6.1. ALL EXTERIOR TRIM TO BE PRIMED FIBER CEMENT BOARD COMPOSITE MATERIAL BY JAMES HARDIE INC. OR EQUAL IN SIZES AND PROFILES SHOWN ON THE DRAWINGS. INSTALLATION, NAILING, EXPANSION JOINTS, SAW CUTS & ENDS PER MANUFACTURER'S INSTRUCTIONS

6.2. PROVIDE AND INSTALL ALL REQUIRED FIRESTOPPING AND DRAFTSTOPPING IN WALLS, ATTIC AND OTHER CONCEALED SPACES AS PER BUILDING CODE REQUIREMENTS.

6.3. METAL CONNECTORS AND/OR SUPPORTS SHALL BE AS MANUFACTURED BY TECO PRODUCTS OR SIMPSON "STRONG TIE", SIZES AS PER DRAWINGS OR PER MANUFACTURERS INSTRUCTIONS.

THERMAL & MOISTURE PROTECTION:

7.1. DAMPPROOFING: PROVIDE TWO COATS SPRAY-ON BITUMINOUS DAMPPROOFING ON ALL FOUNDATIONS WALLS BELOW GRADE.

7.2. PRE-ENGINEERED METAL BUILDING INSULATION TO BE FIBERGLASS BATTS MEETING THE STANDARDS OF ASTM C991. INSULATION BATTS TO BE INSTALLED IN LAYERS IN ACCORDANCE WITH THE PRESCRIBED VALUES OF THE IECC METAL BUILDING REQUIREMENTS AS FOLLOWS:

EXTERIOR WALLS: INSULATION	R-19 FACED
ROOF:	R-19 BASE LAYER WITH R-11 FACED INSULATION

7.1. FACED METAL BUILDING INSULATION TO BE LAMINATED WITH WHITE FLAME RESISTANT METALLIZED POLYPROPYLENE FACING WITH TRI-DIRECTIONAL FIBERGLASS/POLYESTER REINFORCING.

7.2. PROVIDE AND INSTALL SOUND ATTENUATION INSULATION BATTS IN ALL INTERIOR WALLS AROUND BATHROOMS AND SEPARATING THE RETAIL AREA FROM THE DROP-OFF AREA

7.3. EXTERIOR INSULATION AND FINISH SYSTEM (EIFS) TO INCLUDE INSULATION BOARD, BASE COAT, MESH & FINISH COAT INSTALLED PER MANUFACTURES INSTRUCTIONS OVER APPROVED SUBSTRATE. COLOR AND FINISH BY ARCHITECT. COORDINATE CREATION OF LOGO IN BUILT-UP EIFS AS SHOWN ON THE DRAWINGS WITH OWNER OR ARCHITECT. COLOR BY ARCHITECT, CHOSEN FROM MANUFACTURER'S STANDARD COLORS.

7.4. NEW GUTTERS AND DOWNSPOUTS SHALL BE PREFINISHED ALUMINUM PROVIDED BY THE PRE-ENGINEERED METAL BUILDING CONTRACTOR. COLOR OF FINISH SHALL BE SELECTED BY ARCHITECT.

7.3. SOFFITS SHALL BE PREFINISHED VINYL VENTED SOFFIT PANELS BY ALCOA, WOLVERINE OR EQUAL AND INSTALLED WITH ALL MANUFACTURERS RECOMMENDED TRIMS. COLOR BY ARCHITECT.

DOORS AND WINDOWS:

8.1. HOLLOW METAL DOORS AND FRAMES: FRAMES SHALL BE 16 GAUGE COLD-ROLLED COMMERCIAL QUALITY PRIME STEEL W/ ENAMEL ACRYLIC FACTORY FINISH

8.2. EXTERIOR DOORS SHALL BE 18 GAUGE SKIN SHEETS, FULL FLUSH AS NOTED W/ 14 GAUGE PERIMETER CHANNELS WITH REINFORCING FOR CLOSER ATTACHMENT

8.3. GARAGE DOORS TO BE STEEL INSULATED OVERHEAD SECTIONAL COMMERCIAL DOOR WITH CHAIN DRIVEN OPENERS BY OVERHEAD DOOR OR EQUAL. DOORS TO BE PREFINISHED, COLOR BY ARCHITECT. PROVIDE MULTIFUNCTION REMOTE OPENERS AND MULTIFUNCTION CONTROL PANELS AT EACH MAN DOOR.

8.4. ALL NEW FINISH HARDWARE SHALL BE CORBIN RUSSWIN CYLINDRICAL LOCK & LATCHSETS, ADA APPROVED LEVER HANDLE DESIGN. BRUSHED NICKEL FINISH. ALL DOORS TO BE KEYED TO OWNER'S INSTRUCTION

8.5. STORE FRONT SYSTEM TO BE 1-3/4" x 4-1/2" THERMAL BREAK ALUMINUM FRAME, BRONZE FINISH, WITH 1" INSULATED GLAZING, TEMPERED WHERE NOTED.

8.6. TEMPERED GLAZING TO BE PROVIDED IN ALL WINDOWS AS PRESCRIBED BY THE BUILDING CODE IN LOCATIONS INCLUDING, BUT NOT LIMITED TO:

- ANY PANEL IN EXCESS OF 9 S.F.
- ANY GLAZING WITHIN 18" OF A FLOOR OR WALKING SURFACE
- WITHIN 24" OF ANY OPERABLE DOOR
- ADJACENT TO STAIRWAYS, LANDINGS OR RAMPS WITHIN 36" OF THE WALKING SURFACE

8.7. STORE FRONT SYSTEM TO BE 1-3/4" x 4-1/2" THERMAL BREAK ALUMINUM FRAME, BRONZE FINISH, WITH 1" INSULATED GLAZING, TEMPERED WHERE NOTED.

8.8. FIXED EXTERIOR WINDOWS TO BE 1-3/4" x 4-1/2" THERMAL BREAK ALUMINUM FRAME, BRONZE FINISH, WITH 1" INSULATED GLAZING TO MATCH STOREFRONT SYSTEM

8.9. SAFETY GLASS TO BE ¼" LAMINATED CLEAR FLOAT

8.10. WIRED GLASS TO BE ¼" WIRED, CLEAR

FINISHES:

9.1. ALL EXTERIOR WALLS TO PROVIDE INFILL FRAMING BETWEEN METAL BUILDING COMPONENTS TO SUPPORT THE INTERIOR FINISH AS DESCRIBED ON THE DRAWINGS.

9.2. PROVIDE "PURPLE" HIGH IMPACT XP DRYWALL BY NATIONAL GYPSUM CORPORATION OR EQUAL IN LOCATIONS AS NOTED.

9.3. ALL CEILINGS TO BE AS NOTED ON ROOM FINISH SCHEDULE.

9.4. VINYL FLOORING TO 12x12, 1/8" THICK RESILIENT FLOORING TILES OR SHEET FLOORING AS CHOSEN BY ARCHITECT. INSTALL PER MANUFACTURER'S INSTRUCTIONS. VINYL BASE SHALL BE 4" HIGH 1/8" THICK COVED BASE WITH PRE-MOLDED CORNERS. COLOR BY ARCHITECT.

9.5. VINYL FLOORING SHALL MEET FED. SPEC. CCC-C-408A, TYPE 1, CLASS A.

9.6. CARPET SHALL BE DIRECT GLUE DOWN AS SELECTED BY TENANT. INSTALLATION SHALL INCLUDE ALL ADHESIVES, TRIM AND EDGE STRIPS AS RECOMMENDED BY CARPET MANUFACTURER.

9.7. ALL FINISH FLOORING TO BE BY OWNER AND COMPLY WITH OBC FOR CLASS II MATERIALS (26-75 FLAME SPREAD).

9.8. ALL WALL FINISHES OTHER THAN PAINT SHALL BE BY OWNER AND SHALL COMPLY WITH OBBC CLASS II FOR EXITWAYS AND CORRIDORS AND CLASS III IN ALL OTHER AREAS.

9.9. PAINTING: ALL PAINT AND PAINT PRODUCTS SHALL BE AS RECOMMENDED AND MANUFACTURED BY PORTER PAINT CO., SHERWIN-WILLIAMS, PRATT & LAMBERT, OLYMPIC STAIN, DEVOE OR WILSON PAINT CO. FINAL COLORS AND FINISHES SHALL BE SELECTED BY OWNER FROM SAMPLES PROVIDED BY PAINTING CONTRACTOR.

EXTERIOR WOODWORK (PAINTED)
(1) COAT SEALER/PRIMER
(2) COATS EXTERIOR HOUSE PAINT
EXTERIOR GALVANIZED METAL
(1) COAT GALVANIZED PRIMER
(2) COATS EXTERIOR ENAMEL
INTERIOR WALLS AND CEILINGS
(1) COAT SEALER
(2) COATS FLAT WALL PAINT
INTERIOR TRIM (PAINTED)
(1)COAT ENAMEL UNDERCOAT
(2)COATS SATIN ENAMEL

9.10. ACOUSTIC CEILINGS SHALL BE ARMSTRONG "SECOND LOOK II" 24x48" PANELS WITH AN ADDITIONAL RECESS TO MIMIC 2x2 PANELS. INSTALL IN ARMSTRONG "PRELUDE XL 15/16" EXPOSED TEE GRID.

SPECIALTIES:

10.1. ALL BATHROOM ACCESSORIES ARE TO BE AS LISTED ON DRAWINGS AND INSTALLED BY CONTRACTOR. COORDINATE INSTALLATION LOCATIONS WITH OWNER AND ARCHITECT BEFORE BEGINNING INSTALLATION.

10.2. INSTALL NEW BRUSHED STAINLESS STEEL GRAB BARS IN RESTROOMS AS INDICATED ON DRAWINGS.

10.3. ALL PLATE GLASS MIRRORS ON BATHROOMS ARE TO BE 1/4" DOUBLE COATED TYPE. UNLESS NOTED DIFFERENTLY MIRRORS ARE TO EXTEND FULL WIDTH OF VANITY CABINET AND FROM TOP OF CABINET TO 6'-6" ABOVE FINISHED FLOOR

10.4. SYMBOL SIGNS BY LETTERING SPECIALTIES SHALL BE PROVIDED FOR ADA RESTROOM. FURNISH AND INSTALL (4) #6118 SIGNS AS DIRECTED BY OWNER.

EQUIPMENT:

11.1. ALL REFRIGERATION EQUIPMENT, ETC. ARE SHOWN FOR ILLUSTRATION PURPOSES ONLY AND ARE NOT INCLUDED IN THE CONTRACT. CONTRACTOR TO PROVIDE UTILITY SERVICE, CIRCUITRY ETC. FOR EQUIPMENT AS SHOWN. KITCHEN EQUIPMENT TO BE PROVIDED BY OWNER UNDER A SEPARATE CONTRACT.

11.2. ALL SHELVING AND DISPLAY UNITS ARE SHOWN FOR ILLUSTRATION PURPOSES ONLY AND ARE NOT INCLUDED IN THE CONTRACT

FURNISHINGS:

12.1. NEW KITCHEN CABINETRY TO BE OAK FINISH CABINETRY WITH KRAFTMAID, KEMPER OR EQUAL. CONTRACTOR SHALL INCLUDE MATERIAL AND INSTALLATION IN THE BASE BID INCLUDING COORDINATION WITH PLUMBING & ELECTRICAL CONTRACTORS FOR APPLIANCES.

12.2. ALL KITCHEN AND VANITY TOPS ARE TO BE FORMICA WITH DROP-IN SINKS AND BOWLS. STYLES AND COLOR TO BE SELECTED BY OWNER.

SPECIAL CONSTRUCTION:

CONVEYING SYSTEMS:

MECHANICAL (HVAC & PLUMBING):

15.1. SPECIFICATIONS FOR MECHANICAL SYSTEMS ARE PROVIDED ON THE HVAC, PLUMBING, & FIRE PROTECTION SHEETS INCLUDED IN THE DRAWING PACKAGE,

ELECTRICAL WORK:

16.1. ELECTRICAL & FIRE ALARM SPECIFICATIONS ARE PROVIDED ON THE ELECTRICAL SHEETS INCLUDED IN THE DRAWING PACKAGE

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L. SCOTT WEBB
11193
REGISTERED ARCHITECT

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TOPSS

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March 18, 2025

MECHANICAL LEGEND

SYMBOL	DESCRIPTION
PIPING LINE TYPES	
RL	REFRIGERANT LIQUID
RS	REFRIGERANT SUCTION
CD	CONDENSATE DRAIN
MECHANICAL AIR DEVICES	
SR	SUPPLY REGISTER
RR	RETURN REGISTER
ER	EXHAUST REGISTER
RG	RETURN GRILLE
CD	CEILING DIFFUSER
MECHANICAL DUCTWORK	
UP	SUPPLY DUCT WITH ELBOW TURNED UP
DN	SUPPLY DUCT WITH ELBOW TURNED DOWN
UP	RETURN DUCT WITH ELBOW TURNED UP
DN	RETURN DUCT WITH ELBOW TURNED DOWN
UP	EXHAUST DUCT WITH ELBOW TURNED UP
DN	EXHAUST DUCT WITH ELBOW TURNED DOWN
24X12 SA	SUPPLY DUCT
24X12 RA	RETURN DUCT
24X12 EA	EXHAUST DUCT
24X12 OA	OUTSIDE AIR DUCT
	DUCT FLEX CONNECTOR
	BRANCH TAKEOFF
	REDUCER, CONCENTRIC
MECHANICAL DUCTWORK ACCESSORIES	
	DUCT WITH MANUAL VOLUME DAMPER
M	MOTOR OPERATED DAMPER - LOW VOLTAGE
S	DUCT MOUNTED SMOKE DETECTOR (HARD WIRE INTERLOCK TO FAN MOTOR BY E.C.) FURNISHED BY E.C., INSTALLED BY M.C.
MECHANICAL STATS & SENSORS	
TS	TEMPERATURE SENSOR
T	LOW VOLTAGE THERMOSTAT
MECHANICAL MISCELLANOUS	
	CONNECT TO EXISTING (FIELD VERIFY EXISTING UTILITY SERVICE TYPE, PRIOR TO MAKING CONNECTION)

FIELD VERIFY ALL CONDITIONS

DESIGN DRAWINGS ARE SCHEMATIC. THIS CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING OR AWARD OF CONTRACT TO INSPECT EXISTING FIELD CONDITIONS. THIS CONTRACT SHALL INCLUDE ALL LABOR AND MATERIALS NECESSARY FOR FIELD MODIFICATIONS DUE TO EXISTING CONDITIONS.

THE CONTRACTOR SHALL CONTACT THE ARCHITECT, ENGINEER OR OWNER PRIOR TO BIDDING FOR INTERPRETATIONS AND CLARIFICATIONS OF THE DESIGN AND INCLUDE IN HIS BID ALL COSTS TO MEET THE DESIGN INTENT. CLARIFICATIONS MADE BY THE ARCHITECT, ENGINEER OR OWNER AFTER BIDDING WILL BE FINAL AND SHALL BE IMPLEMENTED AT CONTRACTORS COST.

BIDDING CONTRACTORS SHALL HAVE A WORKING KNOWLEDGE OF LOCAL CODES AND ORDINANCES AND SHALL INCLUDE IN THEIR BIDS THE COSTS FOR ALL WORK INSTALLED IN STRICT ACCORDANCE WITH GOVERNING CODES, THE PLANS AND SPECIFICATIONS NOT WITHSTANDING. THE CONTRACTOR SHALL ALERT ARCHITECT, ENGINEER OR OWNER OF ANY APPARENT DISCREPANCIES BETWEEN GOVERNING CODES AND DESIGN INTENT.

STANDARD HVAC ABBREVIATIONS

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

2" REFERENCE LINE

KLH #: 26959

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E-80769
REGISTERED
PROFESSIONAL ENGINEER

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MECHANICAL COVER SHEET

M-001

03/12/25

1 HVAC ZONES
1/4" = 1'-0"

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MECHANICAL ZONING PLAN
M-002
03/12/25

2" REFERENCE LINE
KLH #: 26959

Pipe Type Legend		
Mark	System Name	Pipe Material
CD.19	CD - Condensate	19 - PVC - Schedule 40 - ASTM D1785/D2665
RL.6	RL - Refrigerant Liquid	6 - Copper - Type L - ASTM B88
RS.6	RS - Refrigerant Suction	6 - Copper - Type L - ASTM B88

KEYED NOTES

M01	PROVIDE THERMOSTAT AND EXTEND CONTROL WIRING FROM HVAC UNIT AND SPACE SENSOR TO THIS LOCATION.
M02	EXTEND OUTDOOR AIR DUCT TO ROOF. PROVIDE ROOF CAP OR GOOSENECK WITH WIRE MESH SCREEN. MAINTAIN A MINIMUM OF 10'-0" BETWEEN INTAKE AIR AND ANY EXHAUST AIR / VENT TERMINATIONS / GAS FLUE PIPING.
M03	PROVIDE AIR HANDLING UNIT AS SCHEDULED. BALANCE TO THE SCHEDULED AIR FLOW. MAINTAIN ALL CODE AND MANUFACTURER REQUIRED CLEARANCES.
M04	PROVIDE 1" AIR SPACE BETWEEN BOTTOM OF DOOR AND FINISHED FLOOR FOR AIR FLOW.
M05	ROUTE CONDENSATE ABOVE CEILING. MAINTAIN 1/8" PER 1' SLOPE.
M06	ROUTE AND DISCHARGE INSULATED CONDENSATE PIPING 1' ABOVE MOP SINK.
M07	PROVIDE NEW CEILING MOUNTED EXHAUST FAN WITH INTEGRAL BACKDRAFT DAMPER AS SCHEDULED. BALANCE TO THE SCHEDULED AIRFLOW. EXTEND EXHAUST DUCTWORK THROUGH ROOF AND TERMINATE WITH VENT CAP. MAINTAIN A MINIMUM OF 10'-0" FROM ANY BUILDING INTAKE. LANDLORD APPROVED ROOFING CONTRACTOR TO PERFORM ALL ROOF WORK AT THE GENERAL CONTRACTOR'S EXPENSE.
M08	ROUTE CONDENSATE PIPING AND INDIRECTLY DISCHARGE TO MECHANICAL ROOM FLOOR DRAIN. PROVIDE REQUIRED FLOAT SWITCHES AND MAINTAIN PIPE SLOPE THROUGHOUT.
M09	PROVIDE NEW ROOF MOUNTED EXHAUST FAN WITH INTEGRAL BACKDRAFT DAMPER AS SCHEDULED. BALANCE TO THE SCHEDULED AIRFLOW. EXTEND EXHAUST DUCTWORK THROUGH ROOF AND TERMINATE WITH VENT CAP. MAINTAIN A MINIMUM OF 10'-0" FROM ANY BUILDING INTAKE. LANDLORD APPROVED ROOFING CONTRACTOR TO PERFORM ALL ROOF WORK AT THE GENERAL CONTRACTOR'S EXPENSE.

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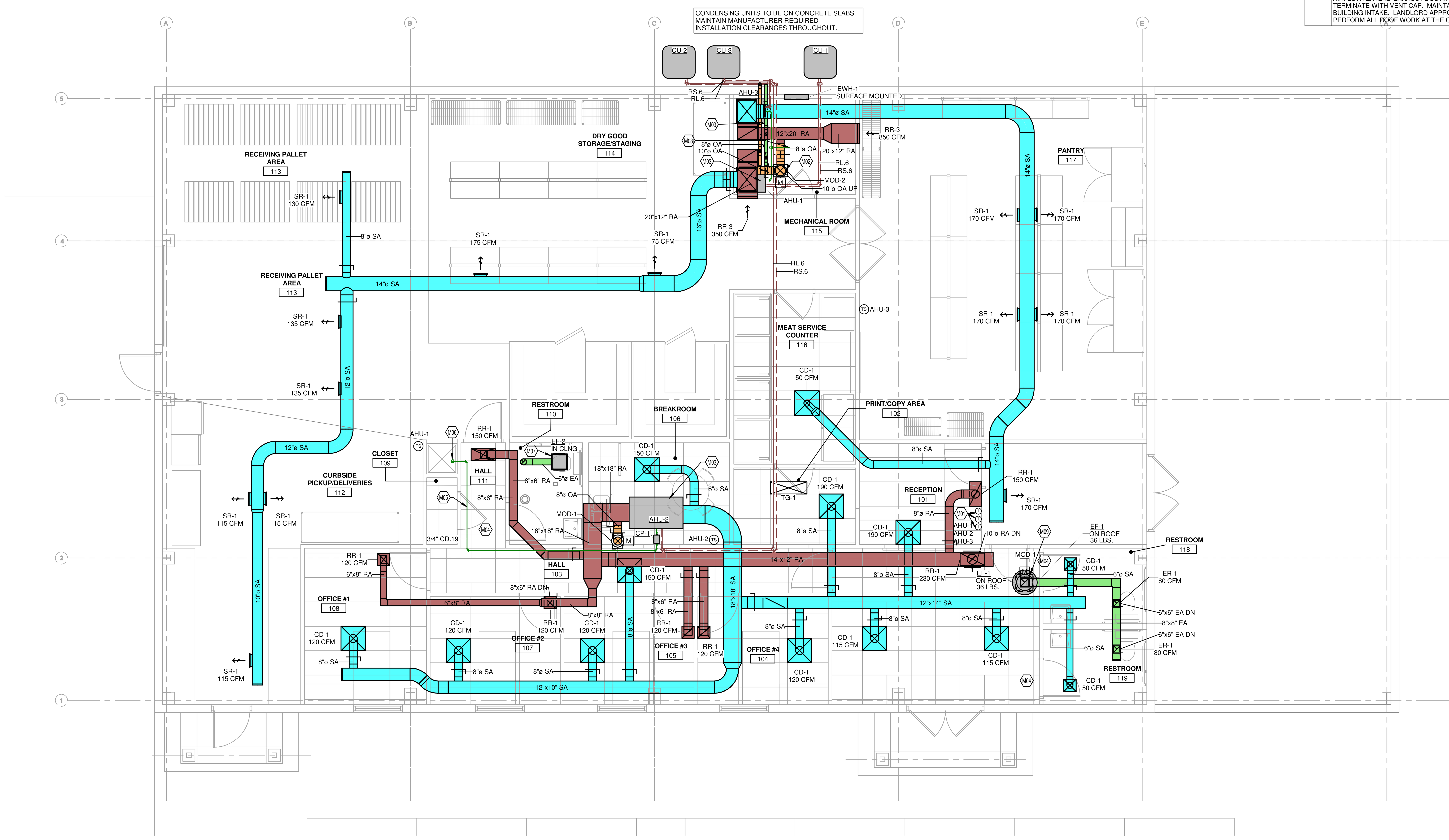

1 MECHANICAL PLAN
1/4" = 1'-0"

N

2" REFERENCE LINE
KLH #: 26959

NEW FOOD PANTRY & SOCIAL SERVICE CENTER
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OXFORD, OH 45056

MECHANICAL DUCTWORK PLAN
M-101
03/12/25

SECTION 23 05 01.00 – COMMON REQUIREMENTS FOR HVAC

General

General Provisions of the Contract including General and Supplementary Conditions and General Requirements apply to work of this section.

Scope

The base bid includes furnishing all materials, labor, tools, and equipment and the performance of all work required to install a complete heating and air conditioning system as outlined herein.

Guarantee

The contractor shall provide a guarantee in written form stating that all work under this section shall be free of defective work, materials, or parts for a period of one year from the date of owner's final acceptance and shall repair, revise or replace at no cost to the owner any such defects occurring within the guarantee period. Contractor shall also state in written form that any items or occurrences arising during the guarantee period will be attended to in a timely manner and will in no case exceed four (4) working days from date of notification by owner.

Quality Assurance

Provide a complete installation in conformance with the following standards.

AGA: American Gas Association

ASHRAE: American Society of Heating, Refrigerating and Air Conditioning Engineers

NFPA: National Fire Protection Association

SMACNA: Sheet Metal and Air Conditioning Contractors National Association.

Statewide Building Code

IMC: International Mechanical Code

Permits, Fees, Inspections, Laws and Regulations

Permits and fees of every nature required in connection with this work shall be obtained and paid for by this contractor who shall also pay for all the installation fees and similar charges. Laws and regulations, which bear upon or affect the various branches of this work shall be complied with by this contractor and are hereby made a part of this contract. All work, which such laws require to be inspected, shall be submitted to the proper public official for inspection and a certificate of final approval must be furnished.

Tests and Adjustments

No ducts, piping, fixtures or equipment shall be concealed or covered until they have been inspected and approved by the Architect and the inspector who shall be notified by the contractor when the work is ready for inspection. Work shall be completely installed, tested and leak tight before inspection is required. All tests shall be repeated to the satisfaction of those making the inspection.

Architectural coordination items

Cutting and Patching: Cut and drill all openings in walls and floors required for the installation. Secure approval of Engineer before cutting and drilling. Neatly patch all openings cut.

Fire Caulking: Patching through fire rated walls and enclosures shall not diminish the rating of that wall or enclosure. Patch shall be equal to rockwool, firestop, caulk or approved "rated" patch.

Access Panels and Pathways: Furnish all access panels required for proper servicing of equipment. Provide access panels for all concealed valves, vents, controls, cleanout doors, and sprinkler devices required by NFPA. Provide access panels for all fire and/or fire & smoke dampers. Provide frame as required for finish. Furnish panels to General Contractor. Exact locations to be approved by the Architect. Minimum size to be 12" x 12", units to be 16 gauge steel, locking device shall be screwdriver cam locks.

project conditions

Where new HVAC systems are required to be connected to existing HVAC systems, it is the contractor's responsibility to verify the location, size, pressure, condition, and they shall verify that the existing HVAC system is indeed the correct and appropriate HVAC system before any work is done. Provide all necessary camera scoping and dye testing as necessary. If there is any need for concern, if it is determined that the existing HVAC system is not a correct or appropriate HVAC system or not connected to a correct or appropriate HVAC system, if the condition of the existing HVAC system is not viable for re-use, or any other condition that would not allow the proper functioning of the new HVAC system, the contractor shall notify the engineer in writing immediately via RFI and wait for direction before proceeding.

DELEGATED DESIGN

For equipment supports, this contractor shall retain a qualified professional engineer to provide support calculations of static and dynamic loading due to operating equipment weight. The signed and sealed calculations and details shall be submitted by the retained professional engineer.

MECHANICAL EQUIPMENT COMMON REQUIREMENTS

INSPECTION

Examine areas and conditions under which mechanical equipment is to be installed. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer.

Uncrate equipment and inspect for damage. Verify that nameplate data corresponds with unit designation.

INSTALLATION

General: Install mechanical equipment as indicated, and in accordance with manufacturer's installation instructions.

Location: Install each unit level/plum and accurately in position indicated in relation to other work; and maintain sufficient clearance for normal service and maintenance, but in no case less than that recommended by manufacturer.

Coordinate with other trades to assure correct recess size for recessed units.

Protect interior mechanical equipment with protective covers during balance of construction.

For ducted equipment, connect ductwork to units with flexible duct connections. Provide transitions to exactly match unit duct connection size. Provide 1" acoustic duct lining on return air side a minimum of 10' from fan.

Provide trap at drain piping connection to unit sized per manufacturer's recommendations.

Access: Provide access space around and over mechanical equipment for service as indicated, but in no case less than that recommended by manufacturer or required by code in effect.

Access Panels: Furnish all access panels required for proper servicing of equipment. Provide access panels for all concealed valves, vents, controls and cleanout doors, and sprinkler devices required by NFPA. Provide frame as required for finish. Furnish panels to General Contractor. Exact locations to be approved by the Architect. Minimum size to be 12" x 12", units to be 16 gauge steel, locking device shall be screwdriver cam locks.

Rooftop mechanical equipment shall be installed a minimum of 10'-0" from any roof edge regardless of location indicated on plans, unless a screen wall or railing is installed per the local building code. See the architectural plans for coordination.

Roof Curbs: Furnish roof curbs to roofing Installer for installation. Install and secure roof curb to roof structure, in accordance with National Roofing Contractor's Association (NRCA) installation recommendations and shop drawings. Install and secure units on curbs and coordinate roof penetrations and flashing. Install according to roofing manufacturer's recommendation and specifications.

Indoor Suspended Equipment: Install suspended from structure with all threaded rod and vibration isolators.

Indoor Grade Mounted Equipment: Install on 4" high reinforced concrete housekeeping pad 4" larger than equipment base on all sides.

ELECTRICAL COORDINATION ITEMS

Electrical Wiring: Install electrical devices furnished by manufacturer but not specified to be factory-mounted.

Furnish copy of manufacturer's wiring diagram submittal to Electrical Installer.

Verify that electrical wiring installation is in accordance with manufacturer's submittal and installation requirements of Division 26 sections. Do not proceed with equipment start-up until wiring installation is acceptable to equipment installer.

Install electric heating terminal units including components in accordance with equipment manufacturer's written instructions, and with recognized industry practices; complying with applicable installation requirements of NEC and NECA's "Standard of Installation".

Tighten connectors and terminals, including screws and bolts, in accordance with equipment manufacturer's published torque tightening values for equipment connectors. Where manufacturer's torquing requirements are not indicated, tighten connectors and terminals to comply with tightening torques specified in UL Std 486A.

Grounding: Provide equipment grounding connections for electric heating terminals as indicated. Tighten connections to comply with tightening torque values specified in UL Std 486A to assure permanent and effective grounding.

FIELD QUALITY CONTROL

Testing: After installation has been completed, test to demonstrate proper operation of mechanical equipment at performance requirements specified. When possible, field correct malfunctioning units, then retest to demonstrate compliance. Replace units, which cannot be satisfactorily corrected. Test controls and demonstrate compliance with requirements.

Pump Alignment: Check alignment, and where necessary, realign shafts of motors and pumps within recommended tolerances by manufacturer, and in presence of manufacturer's service representative.

Cleaning: After construction is completed, including painting, clean unit exposed surfaces, vacuum clean coils and inside of cabinets. Clean factory-finished surfaces. Repair any marred or scratched surfaces with manufacturer's touch-up paint.

START-UP

Provide the services of a factory-authorized service representative to start-up rooftop units, in accordance with manufacturer's written start-up instructions. Test controls and demonstrate compliance with requirements. Replace damaged or malfunctioning controls and equipment.

TRAINING OF OWNER'S PERSONNEL

Provide services of manufacturer's technical representative for 1-half day to instruct Owner's personnel in operation and maintenance of units. Schedule training with Owner, provide at least 7-day notice to Contractor and Engineer of training date.

SPARE PARTS

Provide one complete extra set of filters for each unit. Install new filters at completion of system work, and prior to testing, adjusting, and balancing work. Obtain receipt from Owner that new filters have been installed.

SECTION 23 05 03.00 – SUBMITTALS FOR HVAC

General

Where submittals are required by the Contract Documents, they shall be prepared and supplied in accordance with the Contract Documents. In addition to Division 01, the Contractor is advised to review and comply with the requirements articulated within each Division and within each section of that Division.

Some Divisions may include a division-specific "Submittal Requirements for …." section. Where this section exists, it articulates additional requirements for submittals that apply to the work of that Division.

The following requirements help to identify, track and keep the project organized for all parties involved. They are necessary to ensure a timely turnaround and an appropriate technical review. Submittals that do not conform to the administrative requirements are rejected and returned, without technical review.

Requirements

Supply submittals for each section: Submittals shall be supplied on a section-by-section and type-by-type basis. For example, independent product data submittals shall be furnished for each section that requires product data submittals. Independent shop drawing submittals shall be furnished for each section that requires shop drawings. Refer to the specifications for identification of which submittals are required for the project. Separate PDF file packages shall be supplied for each section, for each submittal type, where electronic submittals are required. Each PDF shall represent a single standalone submittal. Separately bound and identified submittals shall be provided where hardcopies are required.

Include a transmittal: Transmittals shall enumerate each submittal for each section of each type and iteration.

Include cover sheet / title page: The cover sheet shall include the information identified in the contract documents. It shall be included as the first page of each electronic and/or hardcopy document-based submittal. An editable and printable PDF form created with editable fields and specification compliant appearance is available from KLH upon request. It is also downloadable from the KLH website at www.klhengrs.com.

Include an index: The index shall enumerate the contents of the submittal.

Include checklists: Where checklists are included with the specifications, complete and include them within the appropriate submittal. Supply complete submittals:

Complete submittals of each type are required. Partial submittals will be rejected. Where a section requires a product data submittal, all product data for that section shall be supplied together, at one time, as one complete submittal. Do not send half the product data as one submittal and the other half as a separate one. When resubmittal is required (e.g. Revise and Resubmit) the revised submittal shall be more complete, more accurate and more contract-compliant than its rejected predecessor. The submittal number (for each section and type) shall increment for each subsequent submittal (00 – Original submission, 01 – First Resubmission, 02 – Second Resubmission, etc…). Resubmittals shall include a copy of the reviewer's comments supplied with the prior submittal rejection and shall be amended with a description of the specific action taken to comply with the reviewer's comments. The absence of this on resubmittal is cause for rejection.

Name electronic files to match the submittal ID and cover sheet: The electronic file name of submittals shall match the submittal ID included on the submittals cover page. For example: The original/first product data submittal for Section 234116 would be labeled as "234116.00-PD-00"; the first resubmittal of same shall be labeled "234116.00-PD-01". The original/first shop drawings submittal file for the same section would be labeled "234116.00-SD-00"; the first resubmittal of same shall be labeled "234116.00-SD-01".

Use of Electronic Drawings from the Owner's Design Team

Plan drawings for the Project were created with AutoCAD and Revit.

If expressly permitted by the Owner and the terms of the Contract, editable electronic versions of standard-scale, AutoCAD-based plan drawings may be made available for the creation of shop and as-built drawings.

Upon request when available, electronic versions of standard-scale, Navisworks (.dwf) and (.nwc) or AutoCAD 36 (.dwg) files may be made available for coordination purposes.

Due to the proprietary nature of internal design systems, editable native-software versions of some drawings, including but not limited to system diagrams and details will not be made available in an editable form. In these cases, electronic versions of the drawings may be made available only in PDF, JPG or similar non-editable electronic form, at the sole discretion of the Design Professional.

The Request Drawings form can be accessed, filled out and submitted at the following internet address (scroll down to bottom of home page): http://www.klhengrs.com.

SECTION 23 05 29.00 – HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT

Submittal Requirements

Product Data: For each type of product indicated.

Shop Drawings: Fabrication and installation details.

General

Support all piping, ductwork and equipment by hangers or brackets properly from the building structure. Support from decking above is prohibited. Furnish structural steel members where required to support piping and equipment. No portion of piping or valves shall be supported by equipment.

Ductwork - Support by means of hangers as follows:

Duct Width	Hanger Size and Type	Max. Spacing
30 or less	(#16 gage)	8

A pair of hangers shall be located at every transverse joint and elsewhere according to the table.

Piping

Install hangers, supports, clamps and attachments to support piping properly from building structure. Arrange for grouping of parallel runs of horizontal piping supported together on field-fabricated, heavy-duty trapeze hangers where possible. Where piping of various sizes is supported together by trapeze hangers, space hangers for smallest pipe size or install intermediate supports for smaller diameter pipe as specified above for individual pipe hangers.

Individual pipe hangers to be Anvil International Clevis Hanger Fig. 260, Elcen, or approved equal.

Rod sizes to conform to the following: 3/8" rods for 3/4"-2" pipe; 1/2" rods for 2-1/2"-3" pipe; 5/8" for 4"-5" pipe and 3/4" for 6" pipe.

Hangers shall be sized to allow insulation to pass through unobstructed, provide saddle support for insulation at all hanger.

Hanger spacing for steel piping unless otherwise noted is to be as follows: 1-1/4" or smaller to be 8' on center; 1-1/2"-2" to be 10' on center; 2-1/2" and larger to be 12' on center and at each change of direction. Hanger spacing for copper pipe to be as follows: 1" or smaller 6' on center; 1-1/4" or larger 8' on center.

Piping shall be also supported at each change in direction, at valves, and at equipment.

SECTION 23 05 93.00 – TESTING, ADJUSTING AND BALANCING FOR HVAC

Submittal Requirements

Shop Drawings: Certified Reports: Submit testing, adjusting, and balancing reports bearing the seal and signature of the Test and Balance Engineer. The reports shall be certified proof that the systems have been tested, adjusted, and balanced in accordance with the referenced standards; are an accurate representation of how the systems have been installed; are a true representation of how the systems are operating at the completion of the testing, adjusting, and balancing procedures; and are an accurate record of all final quantities measured, to establish normal operating values of the systems. Final Report: Upon verification and approval prepare final reports, type written, and organized and formatted as specified below. Submit 2 complete sets of final report to the owner.

General

Test, adjust, and balance the following mechanical systems:

Supply air systems, all pressure ranges

Return air systems.

Exhaust air systems.

Test systems for proper sound and vibration levels.

Quality Assurance

Codes and Standards:

AABC: "National Standards for Total System Balance".

ASHRAE: ASHRAE Handbook, 2011 Applications, Chapter 38, Testing, Adjusting, and Balancing.

Qualifications

The contractor shall procure the services of an independent Balance and Testing Agency, approved by the Engineer, and a member of Associated Air Balance Council (AABC) or NEBB, which specializes in the balancing and testing of heating, ventilating and air conditioning systems, to balance, adjust and test all air and water systems and equipment as herein specified. All work by this agency shall be done under direct supervision of a qualified heating and ventilating Engineer employed by this agency. All instruments used by this agency shall be accurately calibrated and maintained in good working order.

Sequencing and Scheduling

Test, adjust, and balance the air systems before hydronic, steam, and refrigerant systems.

Test, adjust and balance air conditioning systems during summer season and heating systems during winter season, including at least a period of operation at outside conditions within 5 deg F wet bulb temperature of maximum summer design condition, and within 10 deg F dry bulb temperature of minimum winter design condition. Take final temperature readings during seasonal operation.

Check all filters for cleanliness, provide new as required. Check dampers (volume and fire) for correct and locked position, and temperature control for completeness of installation before starting fans. Place outlet dampers in full open position. Lubricate all motors and bearings. Check fan belt tension. Check fan rotation.

Air balance and testing shall not begin until the system has been completed and is in full working order. The Contractor shall put all heating, ventilating and air conditioning systems and equipment into full operation and shall continue the operation of same during each working day of testing and balancing. The contractor shall submit within 30 days after receipt of contract, 8 copies of submittal data for the testing and balancing of the air conditioning, heating, and ventilating systems. The Air Balance and Testing Agency shall provide proof of having successfully completed at least five projects of similar size and scope.

The air balancing contractor shall include the additional cost to change every fan factory installed sheave, pulley and/or belt of in order to obtain the design air flows.

Performing Testing, Adjusting and Balancing

Perform testing and balancing procedures on each system identified, in accordance with the detailed procedures outlined in the referenced standards.

Cut insulation, ductwork, and piping for installation of test probes to the minimum extent necessary to allow adequate performance of procedures.

Patch insulation, ductwork, and housings, using materials identical to those removed.

Seal ducts and piping, and test for and repair leaks.

Seal insulation to re-establish integrity of the vapor barrier.

Mark equipment settings, including damper control positions; valve indicators, fan speed control levers, and similar controls and devices, to show final settings. Mark with paint or other suitable, permanent identification materials.

Retest, adjust, and balance systems subsequent to significant system modifications, and resubmit test results.

SECTION 23 07 13.00 – DUCT INSULATION

Submittal Requirements

Product Data: For each product indicated.

Shop Drawings: Include plans, elevations, sections, details and attachments to other work.

All liners, insulation and adhesives shall have a flame spread index not more than 25 and a smoke developed index of not more than 50. Insulation shall have a minimum installed thermal resistance value of R6 or code minimum, whichever higher.

Rigid Fiberglass Ductwork Insulation: Glass fibers bonded with a thermosetting resin. Comply with ASTM C 612, Type IB, without facing and with vapor barrier all-service jacket manufactured from kraft paper, reinforcing scrim, aluminum foil, and vinyl film.

Flexible Fiberglass Ductwork Insulation: Glass fibers bonded with a thermosetting resin. Comply with ASTM C 553, Type II, without facing and with vapor barrier all-service jacket manufactured from kraft paper, reinforcing scrim, aluminum foil, and vinyl film.

Vapor Barrier Material for Ductwork: Paper-backed aluminum-foil, except as otherwise indicated; strength and permeability rating equivalent to factory-applied vapor barriers on adjoining ductwork insulation, where available; with following additional construction characteristics:

High Puncture Resistance: Low vapor transmission (for ducts in exposed areas: Mech. Rooms, etc.)

Moderate Puncture Resistance: Medium vapor transmission (for ducts in concealed areas).

All ductwork shall be insulated except:

Double wall ductwork

Fabric ductwork

Metal ducts with duct liner of sufficient thickness to comply with energy code.

Factory insulated flexible ductwork

Factory insulated plenums and casings

Flexible connectors

Vibration control devices

Factory insulated access panels and doors

Supply ductwork exposed in conditioned spaces excluding mechanical rooms, server rooms and electric equipment rooms

Toilet exhaust, general exhaust and return ductwork in an insulated joist or attic space.

SECTION 23 07 19.00 – HVAC PIPING INSULATION

Submittal Requirements

Product Data: For each type of product indicated.

Provide 3/4" Armaflex on refrigerant piping.

Provide 1" fiberglass insulation on concealed condensate drain piping.

Insulation shall have a minimum thickness as required by Code.

All insulation and adhesives shall have a flame spread index not more than 25 and a smoke developed index of not more than 50.

SECTION 23 09 93.00 – SEQUENCE OF OPERATIONS FOR HVAC CONTROLS

Submittal Requirements

Product Data: Provide written sequences of operation for each controlled system and piece of equipment.

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

1. Startup

The unit shall operate on a 7 day/night programmable thermostat.

2. Supply Fan Control

The supply fan speed shall be constant, run continuously during occupied mode and set to the required CFM.

3. Space Temperature Control

Provide 7-day programmable thermostat with digital display of space temperature and setpoint (+/- deg. F. adjustable), with override feature and remote space temperature sensor.

Minimum Outside Air Control

During occupied mode the minimum outside air damper shall be open. Provide motorized outdoor air damper.

4. Cooling Control

Cooling shall be controlled to maintain space temperature setpoint. On a call for cooling the heating shall be off. On a further call for cooling the mechanical cooling shall be staged on.

5. Heating Control

Heating shall be controlled to maintain space temperature setpoint. On a call for heating, the mechanical cooling shall be off. On a further call for heating the gas heating shall be staged on.

6. Smoke Detector

When the smoke detector is alarmed, the system shall be alarmed and the air handler shall fail safe with manual reset.

7. Unoccupied Mode

During the unoccupied mode of operation, the ACU shall go into night setback mode.

8. Night Setback/Shutdown

At night setback/shutdown the ACU shall go to fail safe position. Fail safe position is defined by the following: The supply fan is off, the outdoor air intake damper is closed, the heating is off and the mechanical cooling is off. The supply fan shall cycle in conjunction with either the heating or cooling system to maintain a minimum/maximum space temperature depending on the season.

Condensing Units

All safeties interlocks associated with the condensing unit shall be hard wired. Software interlocks are acceptable as secondary additional safeties.

Unit shall have self-contained controls by unit manufacturer.

On a call for cooling, with all safety devices satisfied, the first stage compressor contactor and condenser fan contactor energize causing the compressor and condenser fan motor to operate (the indoor fan contactor shall be wired to start at the same time as the compressor). A liquid line solenoid valve will open when the first stage compressor starts.

On a further call for cooling, the second stage compressor contactor and condenser fan contactor energize causing the second stage compressor and condenser fan motor to operate. A liquid line solenoid valve will open when the second stage compressor starts.

As cooling demand decreases, the second stage compressor contactor and condenser fan contactor de-energize causing the second stage compressor and condenser fan motor to shut down. A corresponding liquid line solenoid valve will close when the second stage compressor is off preventing refrigerant migration back to the compressor during the off cycle.

Exhaust Fans (Timeclock)

Exhaust fans shall be tied to timeclock, which shall be furnished, installed and wired by electrical contractor. When activated, exhaust fan motor damper shall open and fan shall start.

(Indicated by EC on HECS schedule)

Controls

Electrical contractor will provide power wiring. HVAC contractor shall provide all the low voltage wiring of HVAC units and controls, thermostats and controllers. Thermostat shall be by the manufacturer of the HVAC unit (heat/cool/auto/off) with night setback. Provide plastic protective cover for all thermostats.

Low Voltage Thermostats

Low voltage thermostats shall be furnished, installed and wired by the HVAC contractor. The electrical contractor shall provide 4" square x 1- 1/2" deep wall outlet boxes (with single-gang rings) for all thermostats/sensors. The electrical contractor shall provide one 3/4" empty conduit from each thermostat/sensor location, turned out above accessible ceilings (in joist space or against overhead slab/deck). The HVAC/Temperature Control Contractor shall provide all other necessary conduit, raceway and wiring related work. Conduit shall be identified in ceiling cavity and shall be provided with sweep bends, bushings and dragline.

The HVAC/Temperature Control Contractor shall coordinate with the General Contractor to ensure thermal envelope is maintained at these locations.

General Control Wiring Requirements and Installation Methods

Except where specifically indicated otherwise above, the HVAC/Temperature Control Contractor shall provide all electrical work as required for all temperature control related wiring (i.e. conduit, raceway, outlet boxes, junction boxes, wiring, etc.) in accordance with Electrical Specifications requirements. All conduit shall be 3/4" minimum.

Coordinate all thermostat/sensor locations in field (case by case) with Architect, Owner and Electrical Contractor to ensure that they are placed in locations that will not interfere with furniture, equipment, artwork, wall-hung specialties, room finishes, etc. All thermostat/sensor wall locations indicated on HVAC drawings are schematic only and must be verified case-by-case prior to rough-in.

All electrical work as described in this specification shall be per the latest edition of the National Electrical Code (NEC) and per applicable state and local codes.

Where "free-air" installation methods (either exposed above the ceilings, in bridle rings or in cable trays) are permitted under Electrical Specifications above ceilings, provide plenum-rated cables wherever plenum ceilings (if any) exist and install as defined under Electrical Specifications. Install low voltage circuits, located in concrete slabs and masonry walls, in inaccessible locations, or exposed in occupied areas, in electrical conduit regardless of what wiring methods are permitted under Electrical Specifications.

Where cable trays or bridle rings are provided by the electrical contractor for low voltage cables, these raceways may be utilized for control wiring by this contractor (provide special color coded jackets, label cable jackets per Electrical Specifications and group control wiring cables together). Provide conduit drops from cable tray/bridle ring paths to wall outlet boxes and equipment unless directed otherwise under Electrical Specifications.

Regardless of permitted methods in Electrical Specifications, all cables/wiring installed concealed by gypsum board, masonry or other inaccessible materials in walls or above ceilings shall be installed in conduit, 3/4" minimum.

All conduit, bridle rings, raceway, outlet boxes, etc. necessary for complete operational installation of control wiring shall be provided (furnished and installed) by the temperature control contractor in strict compliance with Electrical Specifications documents. Coordinate all work with all other applicable trades including the electrical contractor.

Provide all required conduit work to and between equipment in a manner compliant with that described above (i.e. between VAV boxes, to boilers, starters, condensing units, etc. as applicable).

Install control wiring without splices between terminal points, color-coded. Install in neat workmanlike manner, securely fastened. Install in accordance with National Electrical Code and per Electrical Specifications.

Install circuits over 25 volt with color-coded No. 12 wire in electrical metallic tubing, per Electrical Specifications.

Install circuits under 25 volt with color-coded No. 18 wire with 0.031" high temperature (105 degs. F) plastic insulation on each conductor and plastic sheath over all.

Install electronic circuits with color-coded No. 22 wire with 0.023" polyethylene insulation on each conductor with plastic-jacketed copper shield over all.

Smoke Detector

All duct smoke detectors will be furnished by electrical contractor, installed by the HVAC contractor, and wired by the electrical contractor per local codes. HVAC contractor will interlock fan with smoke detector.

Motor Operated Dampers

All fresh air intakes and exhaust louvers shall have motor operated dampers. Dampers shall be low leak with blade and edge seals. All motor operated dampers shall be provided and wired by the mechanical contractor unless otherwise noted. Provide all necessary transformers, contactors, controls and wiring for interlocking equipment to motor operated dampers.

SECTION 23 31 13.00 – METAL DUCTS

Submittal Requirements

Product Data: For liners, adhesives, sealants and gaskets.

Shop Drawings: Sheet metal thickness, reinforcing details, duct layouts indicating sizes, configuration, liner material, elevation and static pressure class.

Ductwork Materials

Exposed Ductwork Materials: Where ductwork is indicated to be exposed to view in occupied spaces, provide materials which are free from visual imperfections including pitting, seam marks, roller marks, stains and discolorations, and other imperfections, including those which would impair painting. Mechanical contractor shall confirm ductwork paint scope and color with architect.

Exposed ductwork which is to be painted shall have paint grip applied and be oil free.

Sheet Metal: Except as otherwise indicated, fabricate ductwork from galvanized sheet steel, lock forming quality; with G 90 zinc coating and mill phosphatized for exposed locations. Minimum gauge shall be 24.

Miscellaneous Ductwork Materials

Volume Dampers: Provide volume dampers in all branch ducts or as required for balancing to required air flows.

Fittings: Provide radius type fittings fabricated of multiple sections with maximum 15 deg. change of direction per section. Unless specifically detailed otherwise, use 45 deg. laterals and 45 deg. elbows for branch takeoff connections. Where 90 deg. branches are indicated, provide conical type tees.

Duct Sealant: Non-hardening, non-migrating mastic or liquid elastic sealant, type applicable for fabrication/installation detail, as compounded and recommended by manufacturer specifically for sealing joints and seams in ductwork.

Duct Cement: Non-hardening migrating mastic or liquid neoprene based cement, type applicable for fabrication/installation detail, as compounded and recommended by manufacturer specifically for cementing fitting components, or longitudinal seams in ductwork.

Ductwork Support Materials: Except as otherwise indicated, provide hot-dipped galvanized steel fasteners, anchors, rods, straps, trim and angles for support of ductwork.

Flexible Ducts

Either spiral-wound spring steel with flameproof vinyl sheathing, or corrugated aluminum. Unless specifically mentioned, the maximum length of flex duct on the supply equals 5 feet. Flex is not allowed for return, relief or exhaust applications. The flexible ducts indicated for use in the H.V.A.C. system shall conform to the requirements of UL 181 for Class 0 or Class 1 flexible air ducts and shall be so identified.

Where installed in unconditioned spaces other than return air plenums, provide 1" thick 1-1/2 lb. continuous flexible fiberglass sheath with vinyl vapor barrier jacket.

Installation is not permitted above drywall ceilings and inaccessible ceilings.

Fabrication

Shop fabricate ductwork in 4, 8, 10 or 12-ft lengths, unless otherwise indicated or required to complete runs. All ductwork shall be Pittsburgh Construction with a minimum of thickness of 24 gauge. In addition, ductwork used in systems over 3" W.G. shall have cold sealant applied.

Shop fabricate ductwork of gauges and reinforcement complying with SMACNA "HVAC Duct Construction Standards".

Lined Duct

Fabricate ductwork with duct liner in each section of duct where indicated. Laminate liner to internal surfaces of duct in accordance with instructions by manufacturers of lining and adhesive, and fasten with mechanical fasteners.

Duct liner to be 3-lb density for acoustic requirements 1" thick or as noted. Size of ductwork shown on the drawings is free net area, outside dimension of ducts will need to be increased if lined duct is used.

Size of ductwork shown on the drawings is free net area, outside dimension of ducts will need to be increased if lined duct is used.

Duct Liner: Fibrous glass of thickness indicated. 3-lb density. All liners, insulation and adhesives shall have a flame spread index not more than 25 and a smoke developed index of not more than 50.

Duct Liner Adhesive: As recommended by insulation manufacturer and complying with NFPA 90A or NFPA 90B.

Duct Liner Fasteners: Comply with SMACNA HVAC Duct Construction Standards.

Installation of Metal Ductwork

General: Assemble and install ductwork in accordance with recognized industry practices which will achieve air-tight (5% leakage for systems rated 3" and under; 1% for systems rated over 3") and noiseless (no objectionable noise) systems, capable of performing each indicated service. Install each run with minimum number of joints.

Align ductwork accurately at connections, within 1/8" misalignment tolerance and with internal surfaces smooth.

Support ducts rigidly with suitable ties, braces, hangers and anchors of type which will hold ducts true-to-shape and to prevent buckling. Support vertical ducts at every floor.

Sealing: Seal all longitudinal seams, S's and drives and all joints with mastic or cement. Install according to SMACNA standards.

Balancing Dampers: The sheet metal contractor shall be fully responsible for installing balancing dampers in the ductwork, (whether shown on the drawing or not) in order to arrive at the intended air flow. The balancing sub-contractor shall provide direction and assistance in determining locations where dampers are required. Additional dampers, if required shall be installed at no additional cost to the owner.

Wall Penetrations: Seal and pack around all ducts and piping sleeves which pass through walls that extend to bottom side of structure and rated walls.

Field Fabrication: Complete fabrication of work at project as necessary to match shop-fabricated work and accommodate installation requirements.

Routing: Locate ductwork runs, except as otherwise indicated, vertically and horizontally and avoid diagonal runs wherever possible. Run ductwork in shortest route which does not obstruct useable space or block access for servicing building and its equipment. Hold ducts close to walls, overhead construction, columns, and other structural and permanent enclosure elements of building.

Limit clearance to 1/2" where furring is shown for enclosure or concealment of ducts, but allow for insulation thickness, if any. Where possible, locate insulated ductwork for 1" clearance outside of insulation. Wherever possible in finished and occupied spaces, conceal ductwork from view, by locating in mechanical shafts, hollow wall construction or above suspended ceilings. Do not encase horizontal runs in solid partitions, except as specifically shown.

Coordinate layout with suspended ceiling and lighting layouts and similar finished work.

Electrical Equipment Spaces: Do not route ductwork through transformer vaults and their electrical equipment spaces and enclosures.

Penetrations: Where ducts pass through interior partitions and exterior walls, and are exposed to view, conceal space between construction opening and duct or duct insulation with sheet metal flanges of same gage as duct. Overlap opening on 4 sides by at least 1-1/2". Fasten to duct and substrate.

All dampers shall be low leakage with edge and blade seals. Damper manufacturers are subject to specification compliance. Provide products by one of the following:

Greenheck Fan Corporation

Nailor Industries

Pottorff

Ruskin Company

Young Regulator Company

Coordination: Coordinate duct installations with installation of accessories, dampers, coil frames, equipment, controls and other associated work of ductwork system.

Installation of Duct Liner

General: Install duct liner in accordance with SMACNA HVAC Duct Construction Standards. Size of ductwork shown on the drawings is free net area, outside dimension of ducts will need to be increased if lined duct is used.

Store internally lined ductwork up off of the floor. Protect internally lined ductwork from water and dust.

The following ductwork shall be lined in addition to that shown per plans:

Return from open ceiling plenum return to HVAC unit.

Supply and return ductwork 10 feet downstream of HVAC unit.

Transfer air ducts.

Butter the leading edge of all internal duct lining with the manufacturer's recommended adhesive.

Inspect and repair all damaged lining prior to installation of ductwork.

Installation of Flexible Ducts

Maximum Length: For any duct run using flexible ductwork, do not exceed 5' - 0" extended length.

Installation shall have smooth full radius turns down to diffuser.

Installation not permitted above inaccessible ceilings.

23 34 23.00 – HVAC POWER VENTILATORS

Submittal Requirements

Product Data: For each type of product indicated.

Centrifugal Roof Ventilators

Provide centrifugal roof type, curb mounted, power ventilators of type, size, and capacity as scheduled, and as specified herein.

Type: Centrifugal fan, direct or belt driven as scheduled. Provide aluminum, galvanized steel, or fiberglass weatherproof housings as scheduled. Provide square base to suit roof curb. Provide permanent split-capacitor type motor for direct driven fans; capacitor-start, induction-run type motor for belt driven fans.

Provide the Following Types of Housing Design:

Hooded dome type.

Electrical: Provide factory-wired non-fusible type disconnect switch at motor in fan housing. Provide thermal overload protection in fan motor. Provide conduit chase within unit for electrical connection.

Provide NEMA 1 disconnect factory mounted. For single phase fractional HP fans use a toggle type disconnect switch. On three phase integral HP fans use a NEMA 1 safety switch.

Bird Screens: Provide removable bird screens, 1/2" mesh, 16-ga aluminum or brass wire.

Roof Curb: Provide factory fabricated roof curb by the same manufacturer as the equipment. Roof curb to be insulated.

Manufacturer: Subject to compliance with requirements, provide centrifugal roof ventilators of one of the following:

Acme

CaptiveAire

Cook (Loren) Co.

Greenheck.

Twin City Fan & Blower

Ceiling Ventilators

Centrifugal Ceiling Exhausters: Provide centrifugal ceiling exhausters, designed for ceiling or wall mounting, of type, size and capacity as scheduled.

Provide AMCA Certified Ratings Seal.

Type: Provide galvanized steel housing lined with acoustical insulation, adaptable for ceiling or wall installation. Provide centrifugal fan wheels mounted on motor shaft with fan shrouds, all removable for service.

Provide integral backdraft damper fan discharge.

Grille: Provide steel louvered grille with flange on intake with thumbscrew attachment to fan housing.

Motor: Provide permanent split-capacitor motor, permanently lubricated.

Accessories: Provide manufacturer's standard roof jack, wall cap, and transition fittings as indicated on drawings or schedules.

Duct Lining: Provide 1" thick, 3-lb density duct liner a minimum of 5' (five feet) up and down stream of fan.

Manufacturer: Subject to compliance with requirements, provide centrifugal ceiling exhausters of one of the following:

Acme

Cook (Loren) Co.

Greenheck.

Twin City Fan & Blower

INSTALLATION

Coordinate ventilator work with work of roofing, walls, and ceilings, as necessary for proper interfacing.

Provide access door in duct below ventilator to service damper.

Solder bottom joints and up 2" of side joints of duct under roof ventilator to retain any moisture entering ventilator.

23 37 13.00 – DIFFUSERS, REGISTERS AND LOUVERS

Submittal Requirements

Product Data: For each type of product indicated.

DIFFUSERS, GRILLES AND REGISTERS

Manufacturer: Subject to compliance with requirements, provide diffusers of one of the following:

Anemostat Products Div., Dynamics Corp. of America.

Metal-Aire

Titus Products Div., Philips Industries, Inc.

Tuttle and Bailey.

Price

23 54 00.00 – FURNACES

Submittal Requirements

Product Data: For each type of product indicated.

Vertical Gas Fired Furnace

General: Provide factory-assembled and tested units as indicated, consisting of insulated casing, filter and rack, fan, motor and drive, fan and limit controls, heat exchanger, mono-port burner and control transformer.

Provide evaporator coil.

Refrigeration Circuit: Provide refrigerant thermal expansion valve for refrigerant control. Provide access valves in suction and liquid lines.

Compressors: Provide welded shell, hermetic compressors, or serviceable hermetic compressors, 1750 RPM. Provide crankcase heaters. Provide 5 year extended warranty on compressor.

Evaporator Coil: Construct of copper tubing and aluminum fins, pressure and leak tested at 1.5 times working pressure.

Fans: Provide direct double-inlet, forward curved, centrifugal fans with drive. Provide permanently lubricated fan and motor bearings, and thermal overloads in motor.

Electronic Ignition:

Filters: Provide 1" thick throwaway filters.

Integral Air-Cooled Condensing Units: Provide condenser coil constructed of copper tubes and aluminum fins.

Factory leak-test at 1.5 times working pressure, dehydrate and provide full charge of refrigerant.

Provide subcooler and accumulator.

Low Ambient Control: Provide head pressure control, designed to operate at temperatures down to 0 deg. F (-18 deg. C).

Controls: Provide factory-installed and wired controls, with terminal strip. Provide connections for remote thermostat.

Provide the Following:

Motor with individual overload protection.

High and low refrigerant cutouts.

Fan-auto and heat-off-cool switches.

2" REFERENCE LINE

KLH #: 26959

STATE OF OHIO
CHRISTOPHER A. MEHAFFIE
E-80769
REGISTERED PROFESSIONAL ENGINEER
3/12/2025

KLH ENGINEERS
KOHRS LONNEMANN HEIL ENGINEERS, INC.
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MECHANICAL - SPECIFICATIONS

M-400

03/12/25

Time delay relay to prevent short cycling compressor.
Manual indoor change-over thermostat.
Two stage heat/cool for dual circuit units.
Outdoor thermostat.
Crankcase heater.
Low ambient control.
Moisture indicator.
Filter drier.
Refrigerant service valves.
B-vent with accessories
Manufacturer: Subject to compliance with requirements, provide AC units of one of the following:
Bryant.
Trane Co.
Carrier.
Horizontal Gas Fired Furnace
General: Provide factory-assembled and tested units as indicated, consisting of insulated casing, filter and rack, fan, motor and drive, fan and limit controls, heat exchanger, mono-port burner and control transformer. Provide evaporator coil.
Safe Operation: The Electronic Ignition System shall be a solid state device, which continuously monitors for presence of pilot flame when the system is in heating operation.
Quick Heating: Steel heat exchanger shall quickly transfer heat to provide warm conditioned air.
Fan-Limit Control: Automatic temperature "on"; temperature "off" with provisions to adjust, for desired outlet air temperature.
Air Delivery: The multi-speed, direct drive blower motors shall have sufficient airflow range for most heating and cooling requirements and will switch from heating to cooling speeds on demand from room thermostat (fan relay and control transformer is standard).
Sturdy Steel Framework Jacket: Shall protect and enclose major components. There shall be no required floor space for suspended crawl-space or attic installation.
Manifold and Burner Assembly: Can be installed on either side of furnace. All models shall be field convertible for controls and flue to be on either side of the furnace.
Horizontal Outlet Draft Hood: Can be mounted on either side of furnace.
Features and General Operation: The horizontal gas furnaces shall employ an intermittent Electronic Ignition System, which eliminates the constant burning pilot. These units shall utilize a single stage main gas valve. This solid state ignition control shall light a pilot burner by spark ignition upon a demand for heat from the room thermostat.
Pilot gas shall ignite and burn during each running cycle (intermittent pilot). Main burners and pilot gas shall be extinguished during the "off" cycle.
This system permits the main gas valve to open only when the pilot burner is proven to be lit. At this time both the pilot flame and main burners shall be operative. When the room thermostat is satisfied, the main burner valve and pilot valve shall be de-energized terminating that heating cycle.
Refrigeration Circuit: Provide refrigerant thermal expansion valve for refrigerant control. Provide access valves in suction and liquid lines.
Compressors: Provide welded shell, hermetic compressors, or serviceable hermetic compressors, 1750 RPM. Provide crankcase heaters. Provide 5 year extended warranty on compressor.
Evaporator Coil: Construct of copper tubing and aluminum fins, pressure and leak tested at 1.5 times working pressure.
Fans: Provide direct double-inlet, forward curved, centrifugal fans with drive. Provide permanently lubricated fan and motor bearings, and thermal overloads in motor.
Filters: Provide 1" thick throwaway filters.
Integral Air-Cooled Condensing Units: Provide condenser coil constructed of copper tubes and aluminum fins.
Factory leak-test at 1.5 times working pressure, dehydrate and provide full charge of refrigerant.
Provide subcooler and accumulator.
Controls: Provide factory-installed and wired controls, with terminal strip. Provide connections for remote thermostat.
Provide the Following:
Motor with individual overload protection.
High and low refrigerant cutouts.
Fan-auto and heat-off-cool switches.
Time delay relay to prevent short cycling compressor.
Manual indoor change-over thermostat.
Crankcase heater.
Low ambient control.
Moisture indicator.
Filter drier.
Refrigerant service valves.
B-vent with accessories
Manufacturer: Subject to compliance with requirements, provide AC units of one of the following:
Bryant.
Trane Co.
Carrier.

Spare Parts
General: Furnish to Owner, with receipt, the following spare parts for AC unit:
1 set of matched fan belts for each belt driven fan.
1 set filters for each unit.
Installation
Support:
Install interior units on 2" thick concrete pad.
Combustion Intake & Exhaust Piping: Provide long radius elbows on all combustion intake and exhaust piping.
Provide 1/2" flexible unicellular insulation on all combustion intake and exhaust piping routed through uninsulated areas. Refer to section 15250 Mechanical Insulation.
Contractor shall provide pressure drop reading across the intake and combustion exhaust piping.
Attic & Ceiling Spaces: Provide auxiliary drain pan below unit with a minimum depth of 1-1/2" and minimum 3" larger than unit or coil dimensions. Drain pan shall be galvanized steel not less than .0276 inches, with a separate drain line to a conspicuous point.

23 62 13.00 – AIR COOLED CONDENSING UNITS

Submittal Requirements
Product Data: For each type of product indicated.

Warranty on Motor/Compressor: Provide written warranty, signed by manufacturer, agreeing to replace/repair, within warranty period, motors/compressors with inadequate or defective materials and workmanship, including leakage, breakage, improper assembly, or failure to perform as required; provided manufacturer's instructions for handling, installing, protecting, and maintaining units have been adhered to during warranty period. Replacement is limited to component replacement only, and does not include labor for removal and reinstallation.
Warranty Period: 5 years from date of owner acceptance].
Residential Air-Cooled Condensing Units
Manufacturers: Subject to compliance with requirements, provide residential air-cooled condensing units of one of the following:
BDP Co; Div Carrier Corp.
Carrier Air Conditioning; Div Carrier Corp.
Lennox Industries Inc.
Trane (The) Co; Div American Standard Inc.
General: Factory-assembled and tested air-cooled condensing units, consisting of compressor, condenser coil, fan, motor, refrigerant reservoir, and operating controls. Capacity and electrical characteristics are scheduled.
Casing: Galvanized steel finished with baked enamel, complete with removable panels for access to controls, weep holes for water drainage, and mounting holes in base. Unit shall be complete with brass service valves, fittings, and gage ports on exterior of casing.
Compressor: Hermetically sealed, with built-in overloads and vibration isolation. Compressor motor, shall have thermal and current sensitive overload devices, internal high-pressure protection, high and low pressure cutout switches, (All associated wiring and switches shall be internal to the unit), start capacitor and relay, 2-pole contactor, crankcase heater, and temperature actuated switch and timer to prevent compressor rapid cycle.
Condenser: Coil shall have copper tubes and aluminum fins, or aluminum tubes and aluminum fins; complete with liquid accumulator and liquid subcooler. Aluminum propeller fan shall be direct driven, with permanently lubricated fan motor having thermal overload protection.
Accessories:
Low-voltage thermostat and subbase to control condensing unit and evaporator fan.
Precharged and insulated suction and liquid tubing of length indicated.
Head pressure control to modulate condenser fan motor speed.
Thermostatic expansion valve.
Evaporator freeze stat.
Compressor start assist kit
Low ambient control down to –20 degrees F.
Low-voltage control transformer.
Provide subcooler and accumulator.

Installation
Ground Support: Install ground-mounted units on 4" thick reinforced concrete pad, 4" larger on each side than condensing unit. Unit shall be anchored to the concrete pad. Concrete is specified in Division 3. Coordinate installation of anchoring devices.
Ground Support: Where units and refrigerant piping are located a distance of 10 feet or more from the building exit, provide 4" pvc sleeve with full radius elbows for refrigerant piping.
Commercial Air-Cooled Condensing Units Installation
Connect refrigerant piping to unit; maintain required access to unit.
Install furnished field-mounted accessories.
Filter Dryer (replaceable cartridge) with isolation valves on each side of Filter Dryer.
Sight Glass
King Valve at Evap. and Cond.
Field Quality Control
Testing: Charge systems with refrigerant and oil, and test for leaks. Repair leaks and replace lost refrigerant and oil.

23 82 39.00 – UNIT HEATERS

Submittal Requirements
Product Data: For each type of product indicated.

General: Provide unit heaters in locations as indicated, and of capacities, style, and having accessories as scheduled. Provide temperature control valves for modulation during a call for heat and closed during cooling.
Wall and ceiling unit heaters
General: Provide a heavy duty fan forced wall heater. Heating grid shall be made up of rugged steel fins, copper brazed to non glowing, steel sheathed elements.
Unit to have built in, tamper proof thermostat or remote thermostat, built in disconnect switch.
Front cover shall be decorative 16 gauge welded bar grille.
Fan delay and thermal cutout are standard.
Provide all required control transformers.
Accessories:
2" semi recessed mounting sleeve.
Provide wall heaters with the following devices:
Thermally activated fan switch to keep fan motor operating until residual heat is dissipated.
Disconnect switch.
Automatic reset, high limit cut-out switch located in discharge air stream.
Manual "Summer-OFF-Winter" switch.
Control Power Transformer
Magnetic Contactor (Relay Kit)
Manufacturers: Subject to compliance with requirements, provide wall heaters of one of the following:
Berko
Qmark
Trane Co.
Markel
Raywall
Installation
Coordinate with other electrical work, including wiring/cabling, as necessary to properly interface installation of heating terminal units with other work.
Clean dust and debris from each heating terminal as it is installed to ensure cleanliness.
Comb out damaged fins where bent or crushed before covering elements with enclosures.
Touch-up scratched or marred heating terminal enclosure surfaces to match original finishes.
Tighten connectors and terminals, including screws and bolts, in accordance with equipment manufacturer's published torque tightening values for equipment connectors. Where manufacturer's torquing requirements are not indicated, tighten connectors and terminals to comply with tightening torques specified in UL Std 486A.
Grounding
Provide equipment grounding connections for electric heating terminals as indicated. Tighten connections to comply with tightening torque values specified in UL Std 486A to assure permanent and effective grounding.

2" REFERENCE LINE
KLH #: 26959

STATE OF OHIO
CHRISTOPHER A. MEHAFFIE
E-80769
REGISTERED
PROFESSIONAL ENGINEER
3/12/2025

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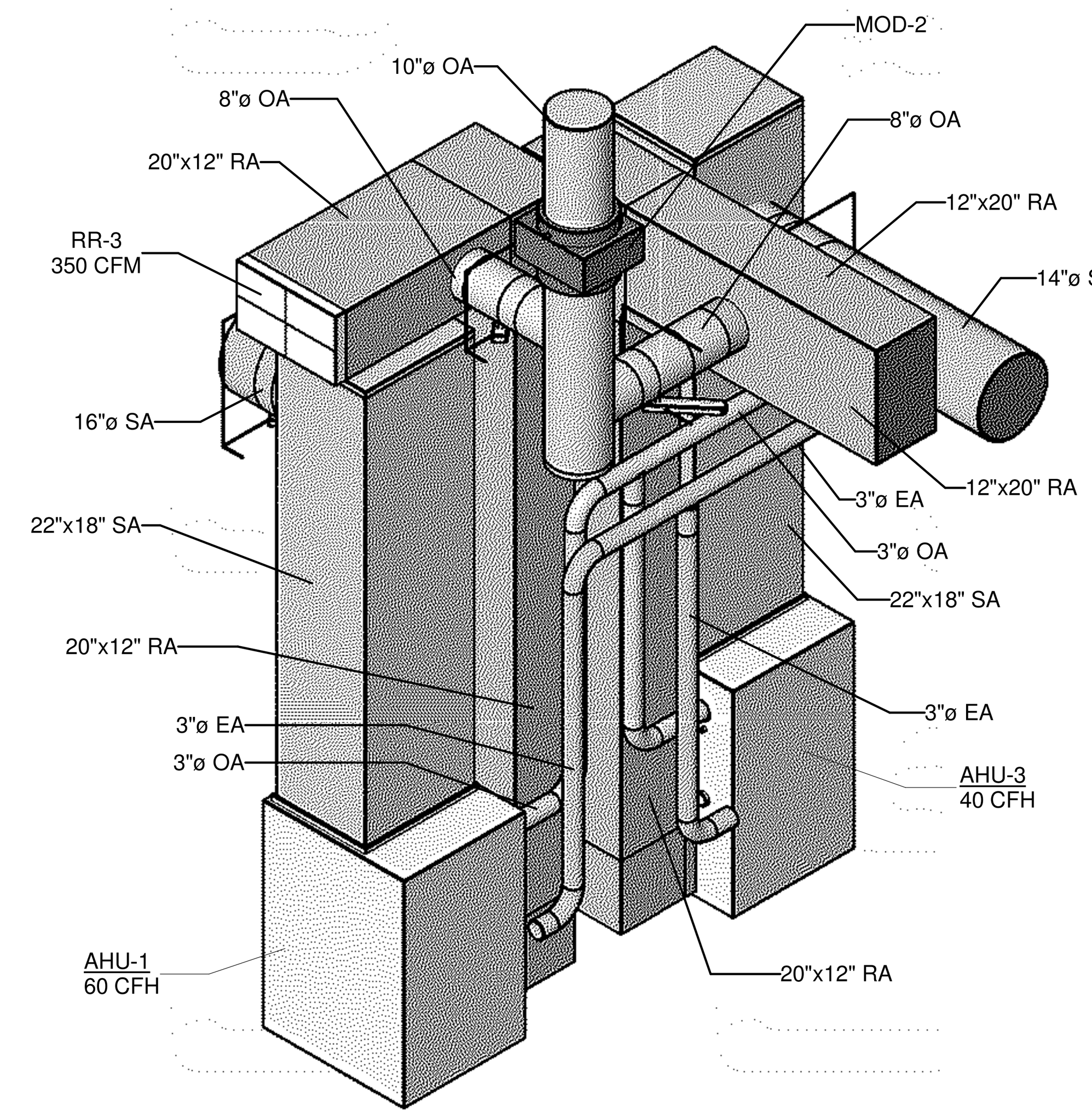
ELECTRICAL
ENGINEERS

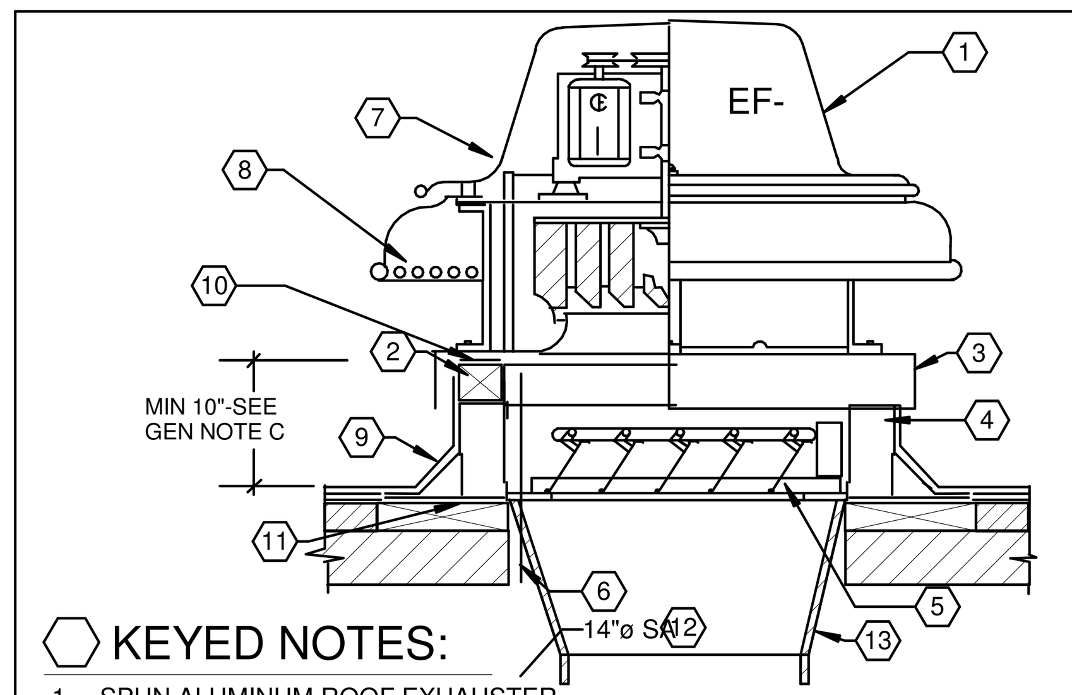
REVISIONS

NEW FOOD PANTRY & SOCIAL SERVICE CENTER
TOPSS
REAGH'S WAY
OXFORD, OH 45056

MECHANICAL - SPECIFICATIONS
M-401
03/12/25



1 MECHANICAL ROOM DUCTWORK ISOMETRIC



KEYED NOTES:

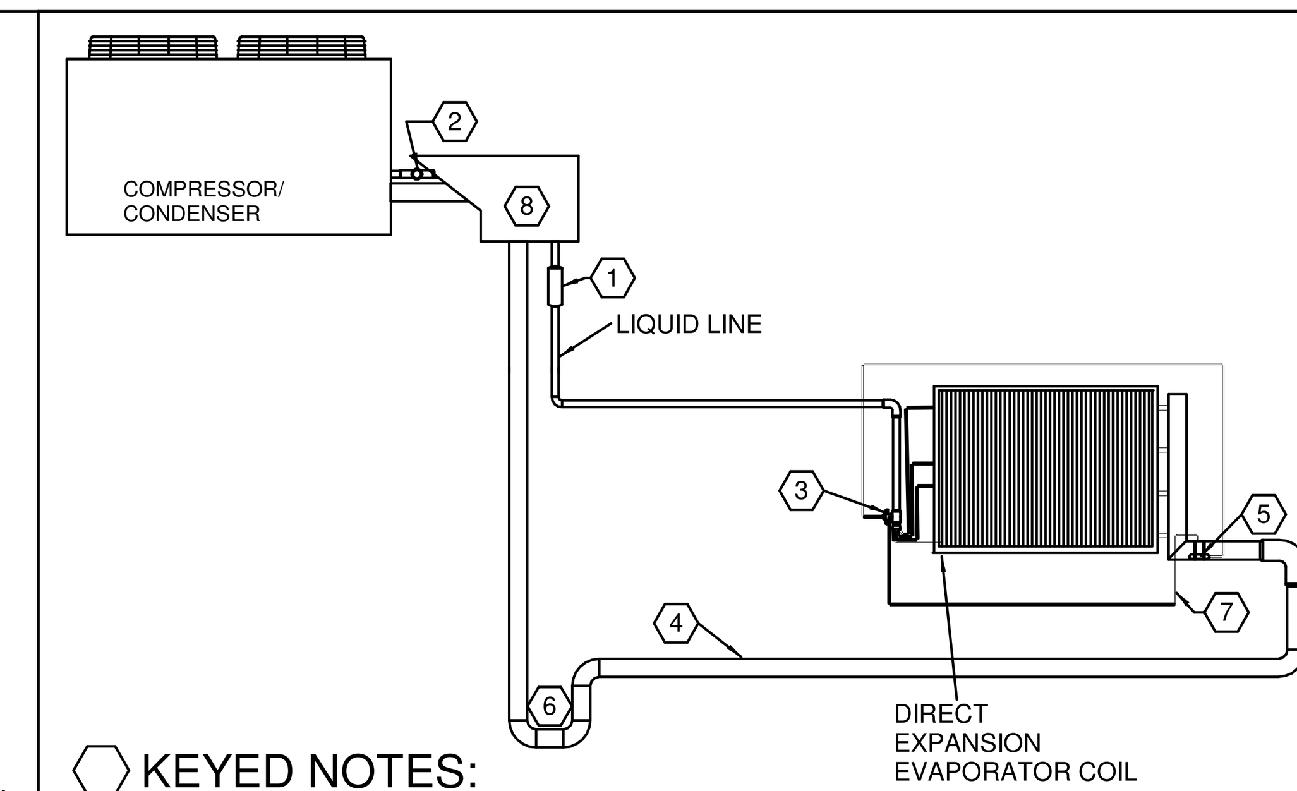
1. SPUN ALUMINUM ROOF EXHAUSTER
2. WOOD NAILER
3. ANCHOR ALL FOUR SIDES OF CURB CAP INTO NAILER SCREWS AT 12" O.C.
4. PREFABRICATED, INSULATED ALUMINUM CURB
5. MOTOR OPERATED DAMPER WIRED TO INTERFACE WITH EXHAUST FAN START/STOP
6. CONDUIT THROUGH HOLE IN DAMPER SHELF
7. POWER DISCONNECT
8. ALUMINUM BIRD SCREEN
9. CURB TYPE AND FLASHING PER ROOFING MANUFACTURER'S REQUIREMENTS
10. RUBBER GASKET APPLIED TO TOP OF CURB
11. ANCHOR TO ROOF DECK AS REQUIRED
12. CENTER TRANSITION TO DUCTWORK FROM DAMPER OR CURB. PROVIDE 3x DIAMETER STRAIGHT RUN MINIMUM.
13. INSULATED DUCTWORK

GENERAL NOTES:

A. DELETE CANT FOR SINGLE MEMBRANE ROOFS.
B. TOP OF CURB MUST BE LEVEL. FABRICATE PITCH IN CURB OR SHIM AS NECESSARY.
C. TOP OF CURB SHALL BE A MINIMUM OF 10" ABOVE FINISHED ROOF SURFACE. CONTRACTOR HAS THE OPTION TO EITHER FURNISH A CURB WITH SUFFICIENT HEIGHT TO ACCOMMODATE ROOF INSULATION THICKNESS OR TO ADD PRESSURE TREATED WOOD BLOCKING, SECURED TO THE ROOF DECK, BELOW THE CURB
D. LOCATE FAN A MINIMUM OF 10'-0" FROM EDGE OF ROOF, INTAKES, AND ROOF HATCH.
E. INSTALL ROOF MEMBRANE UP UNDER FLASHING, FLASH PER ROOFING MFGR. RQMTS.

233423.00-10 - ROOF EXHAUSTER A

SCALE: NONE



KEYED NOTES:

1. FIELD SUPPLIED FILTER DRIER, UNLESS PROVIDED INTERNALLY BY THE EQUIPMENT MANUFACTURER.
2. SIGHT GLASS
3. EXPANSION VALVE
4. SUCTION LINE W/FLEXIBLE CLOSED CELL ELASTOMER INSULATION
5. EXPANSION VALVE THERMAL BULB
6. TRAP FOR LONG VERTICAL RUNS (PER MFG. RECOMMENDATIONS)
7. EXPANSION VALVE EQUALIZER LINE
8. PROVIDE APPROPRIATELY SIZED DOG HOUSE CONSTRUCTION FOR ROOF PENETRATIONS.

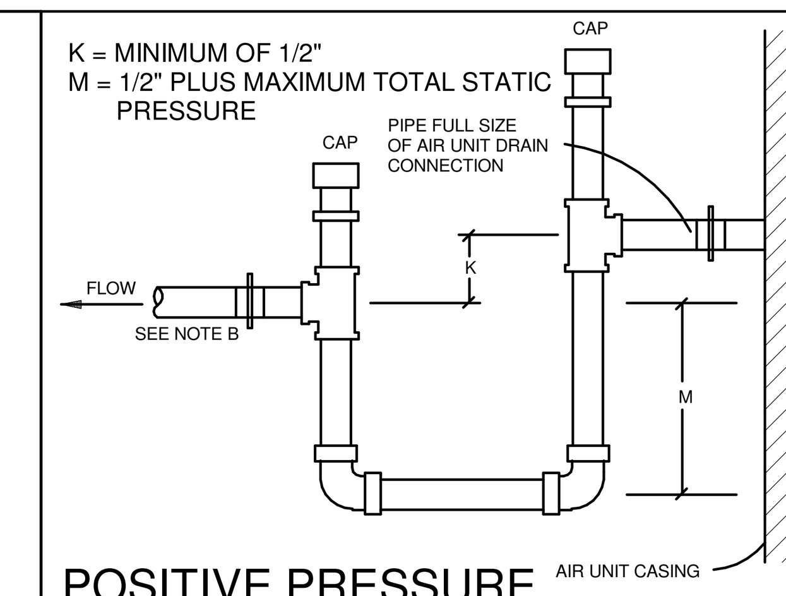
GENERAL NOTES:

A. PIPE SIZES SHALL BE PER MFGR'S RECOMMENDATIONS.
B. PROVIDE 4" CONCRETE PAD ALL EXTERIOR UNITS ON GRADE.
C. PIPING LAYOUT AND CONFIGURATION SHALL BE INSTALLED PER MFGR'S RECOMMENDATIONS.
D. REFRIGERANT SPECIALTIES ARE SHOWN FOR SCHEMATIC PURPOSES ONLY AND SHALL BE COORDINATED PER MFGR'S INSTALLATION INSTRUCTIONS.
E. PROVIDE LOCKING-TYPE TAMPER RESISTANT CAPS ON ALL OUTDOOR REFRIGERANT CIRCUIT ACCESS PORTS.

232313.00-03 - REFRIGERANT PIPING A

SCALE: NONE

K = MINIMUM OF 1/2"
M = 1/2" PLUS MAXIMUM TOTAL STATIC PRESSURE

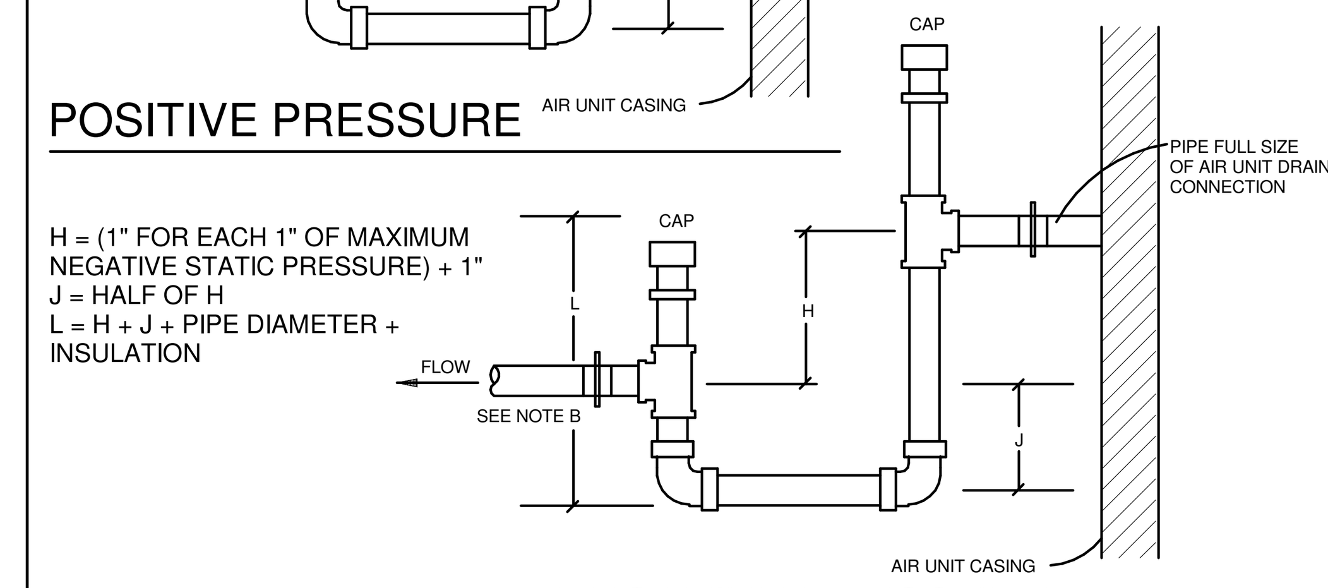


POSITIVE PRESSURE

GENERAL NOTES:

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

H = (1" FOR EACH 1" OF MAXIMUM NEGATIVE STATIC PRESSURE) + 1"
J = HALF OF H
L = H + J + PIPE DIAMETER + INSULATION

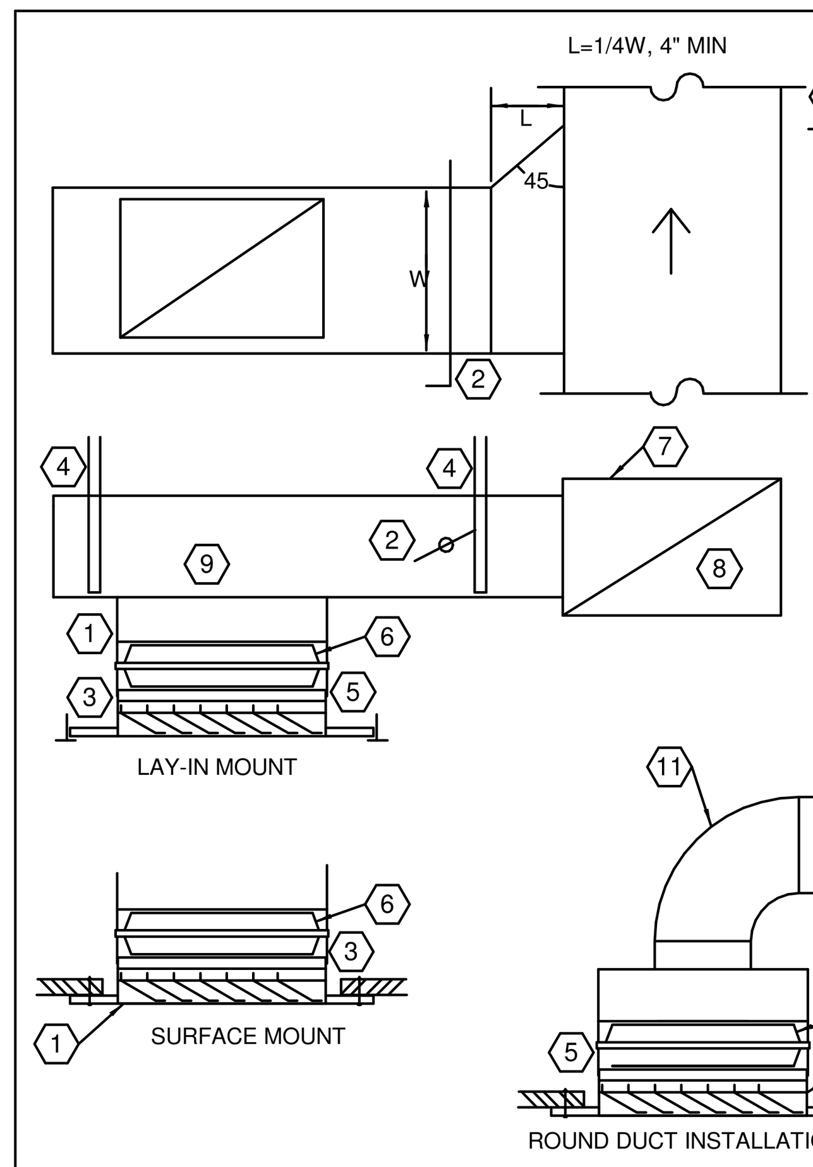


NEGATIVE PRESSURE

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

232113.23-05 - CONDENSATE DRAIN TRAP POSITIVE & NEGATIVE

SCALE: NONE

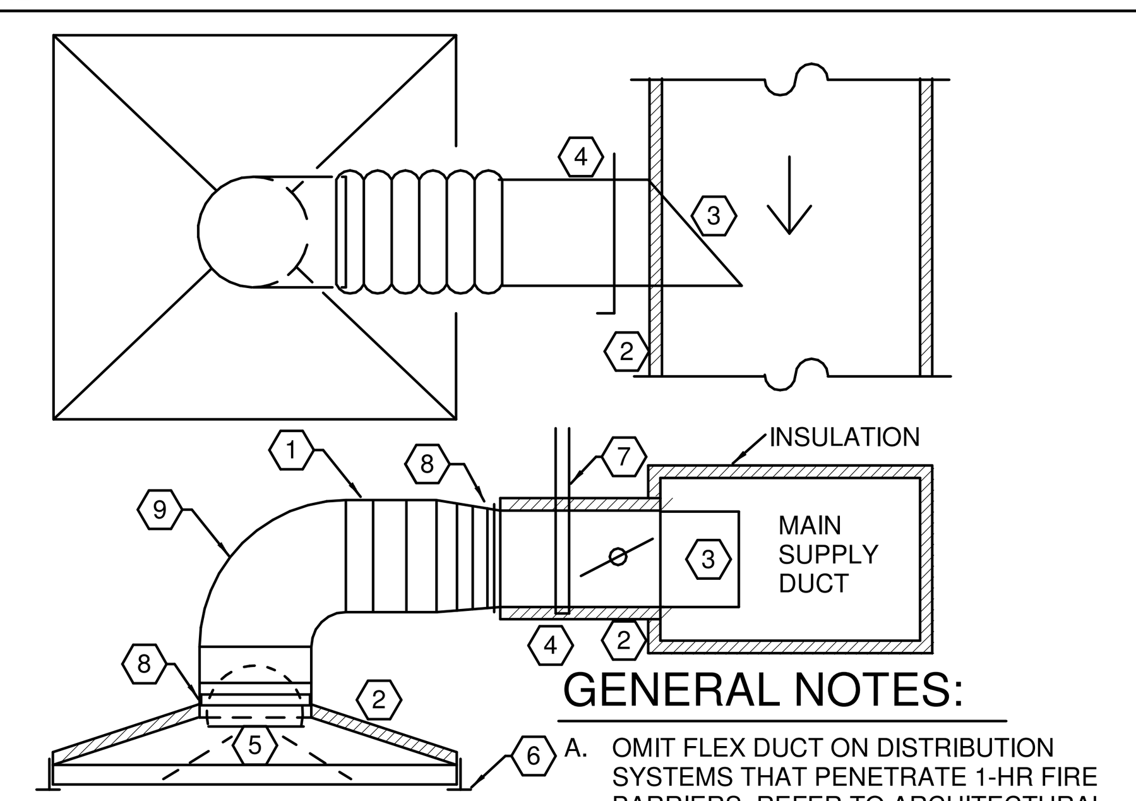


KEYED NOTES:

1. DUCT, COLLAR AND RETURN/EXHAUST REGISTER
2. MANUAL VOLUME DAMPER
3. SECURE TO CEILING PER MANUFACTURER'S RECOMMENDATIONS AND PER CEILING FINISH. PROVIDE GRID CLIPS PER MFG'R REQUIREMENTS
4. HANGER, SECURE TO STRUCTURE AND DUCTWORK
5. ATTACH DUCT TO REGISTER
6. BALANCING DAMPER FOR FINAL BALANCING
7. SHEET METAL DUCTWORK
8. MAIN RETURN/EXHAUST DUCT
9. TAP DROP TO RETURN/EXHAUST REGISTER INTO BOTTOM OF BRANCH
10. SPIN IN FITTING
11. HARD SHEET METAL ELBOW AT CONNECTION TO AIR DEVICE

233713.00-21 - RETURN/EXHAUST REGISTER INSTALLATION

SCALE: NONE



GENERAL NOTES:

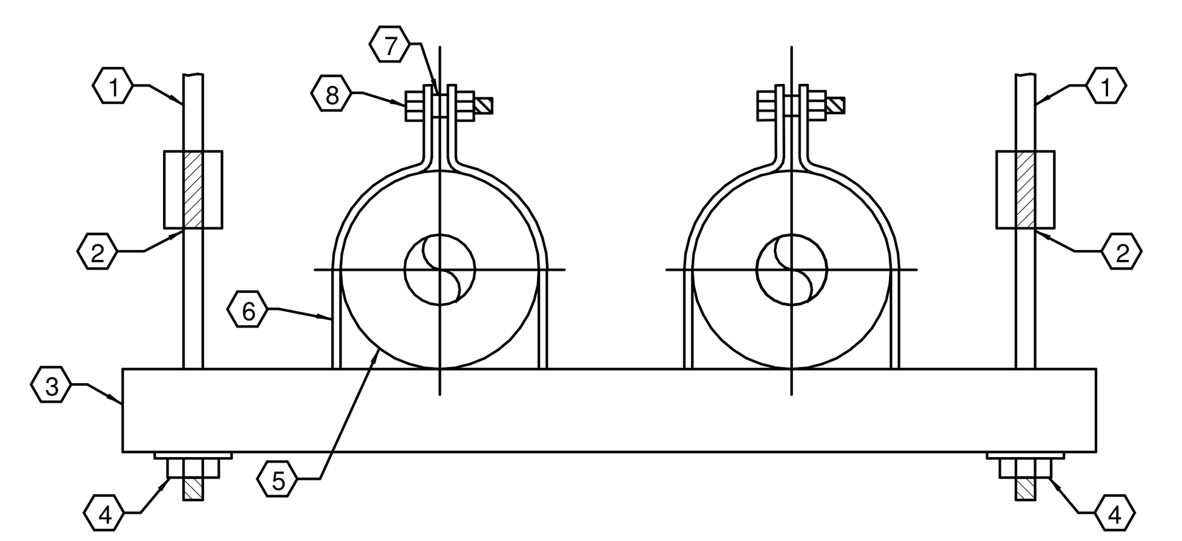
A. OMIT FLEX DUCT ON DISTRIBUTION SYSTEMS THAT PENETRATE 1-HR FIRE BARRIERS. REFER TO ARCHITECTURAL PLANS FOR LOCATIONS OF FIRE BARRIERS.

KEYED NOTES:

1. MAXIMUM LENGTH OF INSUL. FLEX DUCT EQUALS 5 FEET. FLEX NOT PERMITTED IN INACCESSIBLE CEILINGS
2. INSULATED DUCT, COLLAR AND DIFFUSER BY HVAC CONTRACTOR
3. SCOOP
4. SPIN IN FITTING WITH MANUAL VOLUME DAMPER
5. INTERNAL BUTTERFLY DAMPER FOR DRYWALL APPLICATIONS ONLY. (PROVIDE KEY FOR ADJUSTMENT)
6. SECURE TO CEILING PER MANUFACTURER'S RECOMMENDATIONS AND PER CEILING FINISH. PROVIDE GRID CLIPS PER MFG'R REQUIREMENTS. PROVIDE FRAMING FOR DRYWALL INSTALLATION.
7. HANGER, SECURE TO STRUCTURE AND DUCTWORK
8. PEEL BACK INSULATION AND PROVIDE STRAPPING AND SHEET METAL SCREWS AT FLEX CONNECTION TO DUCT. THEN PROVIDE STRAPPING AROUND INSULATION
9. HARD SHEET METAL ELBOW ON CONNECTION TO AIR DEVICE

233713.00-03 - DIFFUSER INSTALLATION SHORT RADIUS

SCALE: NONE

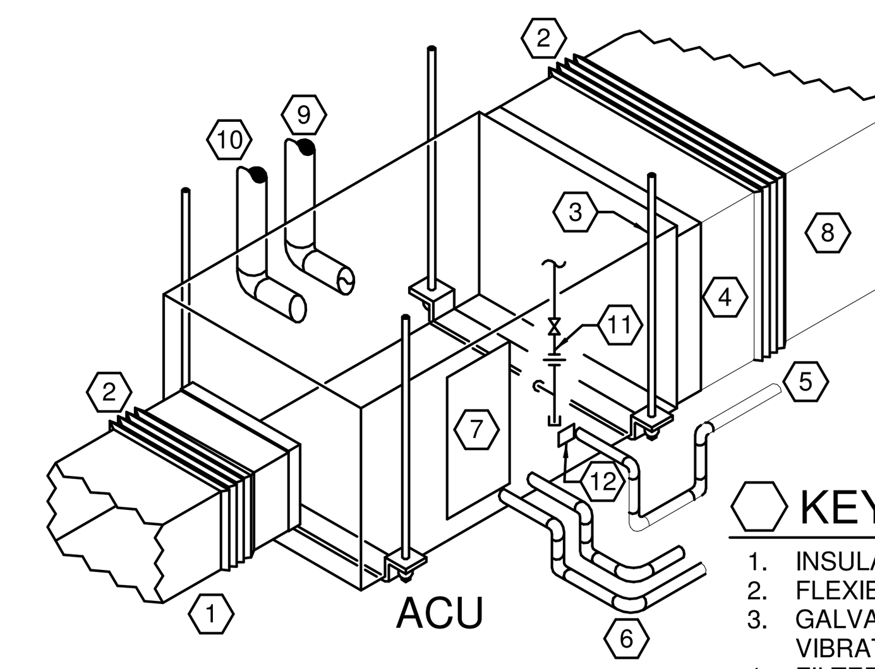


KEYED NOTES:

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

230529.00-02 - REFRIGERANT PIPING SUPPORT

SCALE: NONE

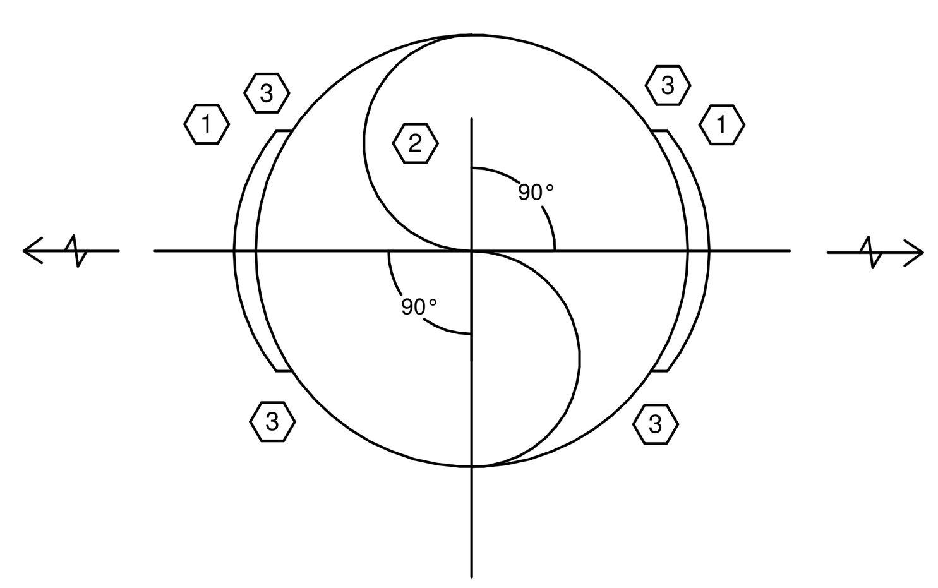


KEYED NOTES:

1. INSULATED SUPPLY DUCT
2. FLEXIBLE CONNECTION
3. GALVANIZED ALL-THREAD ROD WITH VIBRATION ISOLATOR (TYPICAL)
4. FILTER RACK AND ACCESS DOOR (2" 30% EFF., SIZE AT 300 FPM
5. CONDENSATE LINE WITH TRAP SEE CONDENSATE DRAIN TRAP DETAIL
6. REFRIGERANT LINES, SUCTION LINE INSULATED WITH 3/4" ARMAFLEX
7. SERVICE ACCESS PANEL
8. RETURN DUCT 1/2" ACOUSTIC LINING (MIN OF 10')
9. VENT PER MANUFACTURER'S RECOMMENDATIONS.
10. COMBUSTION AIR INTAKE
11. GAS TRAIN, PLUG VALVE, UNION AND DIRT LEG
12. HIGH WATER ALARM IN OCNDENSATE DRAIN PAN. WIRE TO BREAK 24 VOLT CONTROL POWER IN THE CASE OF A HIGH WATER EVENT.

235416.00-03 - GAS FIRED FURNACE UNIT DX

SCALE: NONE

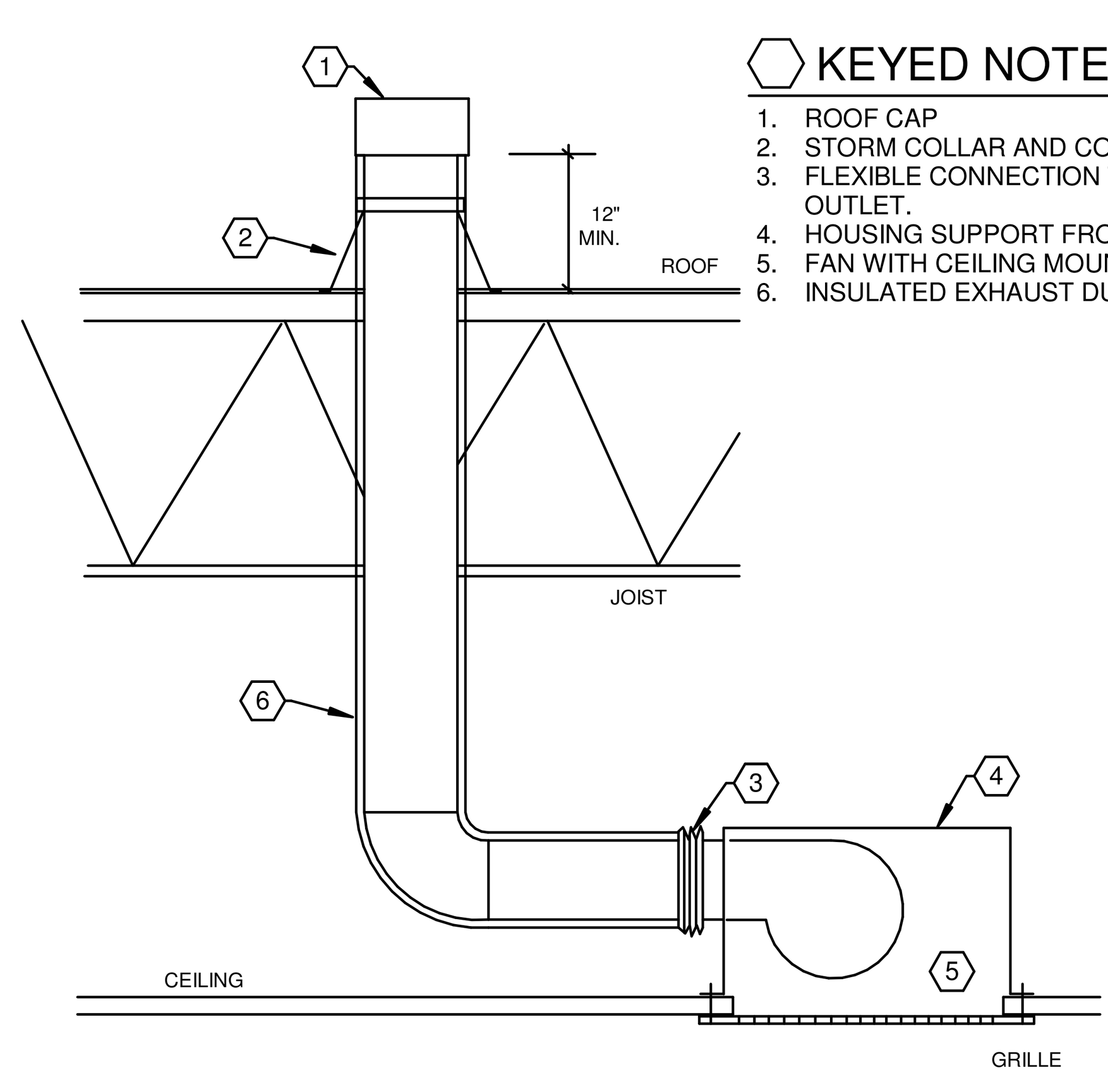


KEYED NOTES:

1. SPIRAL SUPPLY DUCT MOUNTED GRILLE WITH ADJUSTABLE, DOUBLE DEFLECTION LOUVER AND SCOOP DAMPER. (TO BE SIZED AS SCHEDULED)
2. SUPPLY DUCT
3. SEAL JOINTS BETWEEN COLLAR AND MAIN DUCT

233713.00-24 - ANGLED REGISTER INSTALLATION 0 DEGREES

SCALE: NONE



KEYED NOTES:

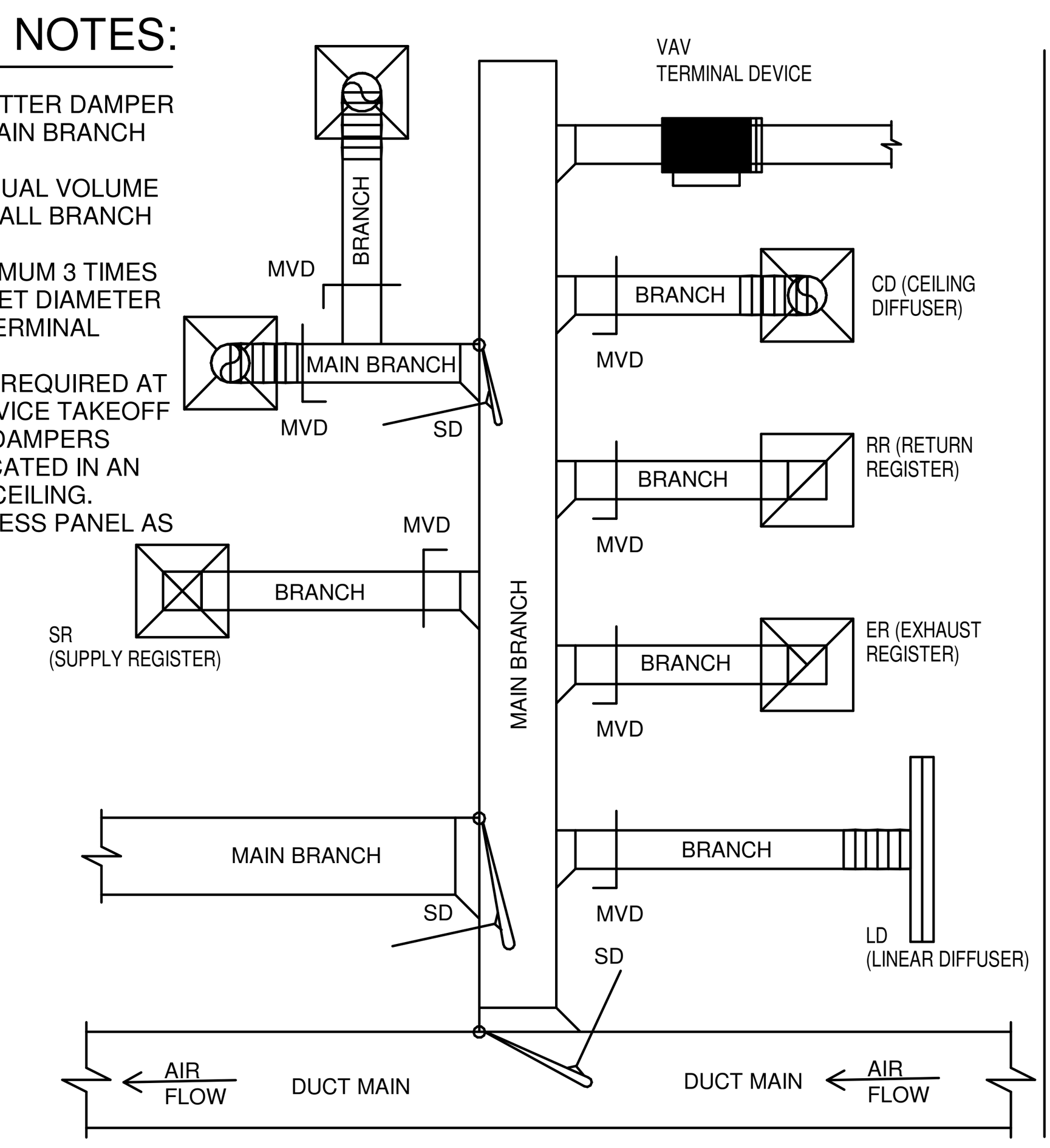
1. ROOF CAP
2. STORM COLLAR AND CONE FLASHING
3. FLEXIBLE CONNECTION TO FAN OUTLET.
4. HOUSING SUPPORT FROM JOIST.
5. FAN WITH CEILING MOUNTED GRILLE.
6. INSULATED EXHAUST DUCTWORK.

233423.00-15 - CEILING EXHAUST FAN

SCALE: NONE

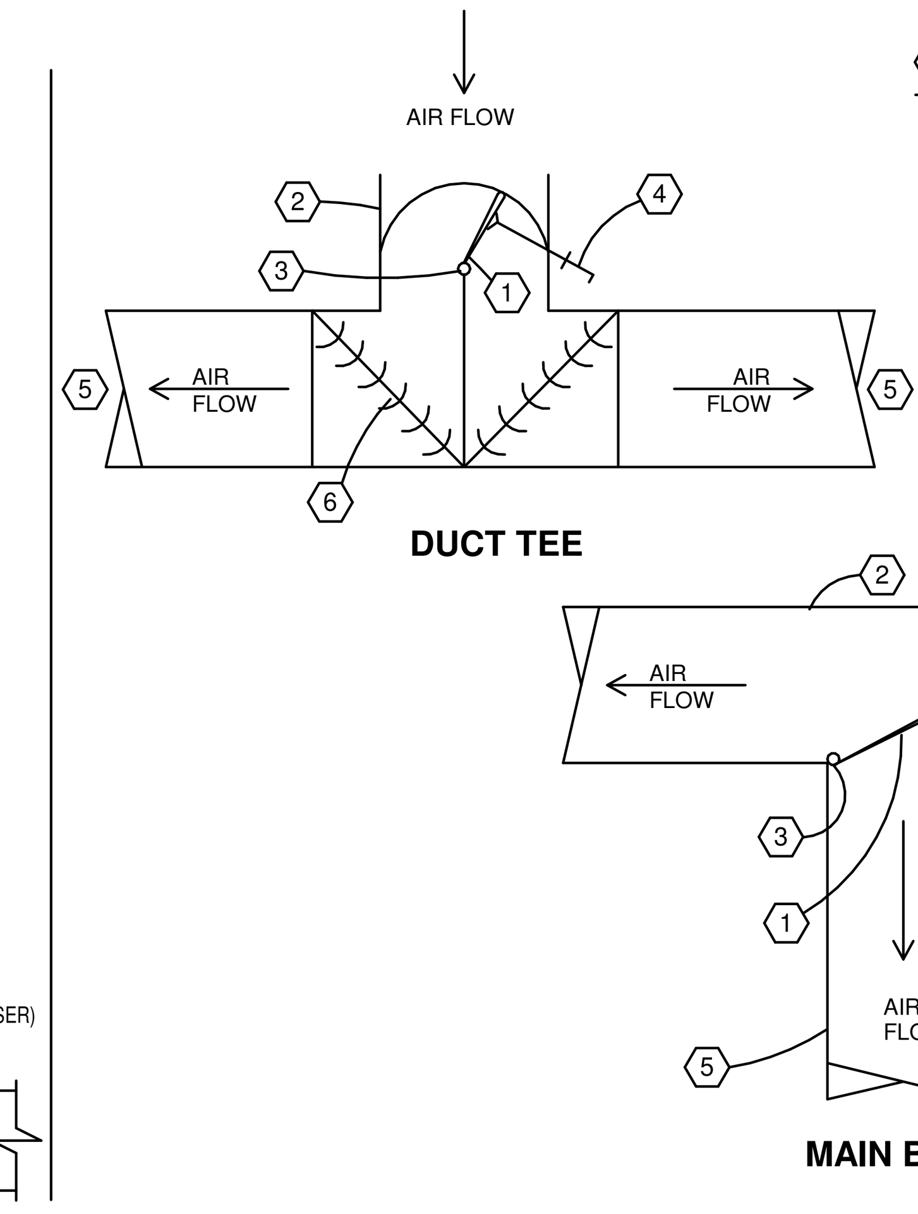
GENERAL NOTES:

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



233300.00-01 - MANUAL DAMPER DETAIL

SCALE: NONE



KEYED NOTES:

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

2" REFERENCE LINE
KLH #: 26959

STATE OF OHIO
CHRISTOPHER A. MEHAFFIE
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REGISTERED PROFESSIONAL ENGINEER
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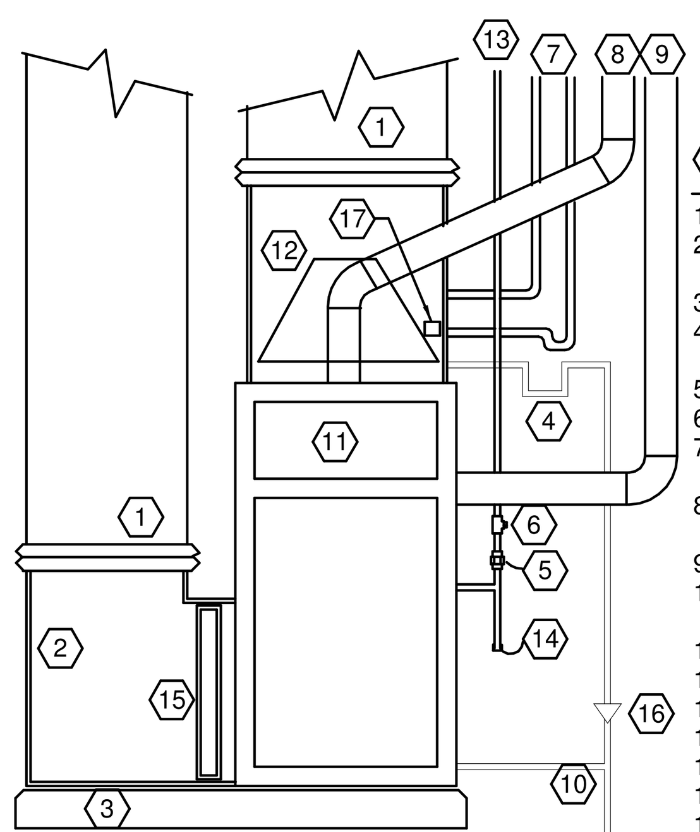
MECHANICAL - DETAILS
M-501
03/12/25

HVAC ELECTRICAL COORDINATION SCHEDULE

ABBREVIATIONS		CONTRACTOR TYPE		MOTOR CONTROL TYPE		CONTROL TYPE		SHORT CIRCUIT RATING
DC	LOCAL DISCONNECT	EC	ELECTRICAL CONTRACTOR	CS	COMBINATION STARTER	TC	TIMECLOCK	WHERE SHORT CIRCUIT RATING CODE REQUIRED VALUE INDICATES "YES" APPLICABLE EQUIPMENT'S SHORT CIRCUIT RATING SHALL EXCEED THE AVAILABLE FAULT CURRENT VALUE INDICATED.
MC	MOTOR CONTROL (POWER)	EX	EXISTING	MCC	MOTOR CONTROL STARTER	CPT	CONTROL POWER TRANSFORMER	
SD	DUCT SMOKE DETECTOR	FC	FIRE PROTECTION CONTRACTOR	MG	MAGNETIC STARTER OR CONTACT	BAS	BUILDING AUTOMATION SYSTEM	
CN	CONTROLS	GC	GENERAL CONTRACTOR	MS	MANUAL STARTER	LOW	LOW VOLTAGE CONTROLS	
TS	TOGGLE SWITCH	HC	HVAC CONTRACTOR	VFD	VARIABLE FREQUENCY DRIVE	LINE	LINE VOLTAGE CONTROLS	
C/B	H.A.C.R. CIRCUIT BREAKER AT SOURCE PANELBOARD	MFR	MANUFACTURER	MSR	MANUAL STARTER W/ CONTROL RELAY	RLINE	REVERSE ACTING LINE VOLTAGE	
FUSE	FUSE AT LOCAL DISCONNECT (VERIFY FIELD RATING)	PC	PLUMBING CONTRACTOR	OV	OVERCURRENT PROTECTION	MAN	THERMOSTAT	
FLA	OPERATING FULL LOAD AMPS	OR	OWNER OR OTHERS			FA	MANUAL	
MCA	MINIMUM CIRCUIT AMPACITY					CO	FIRE ALARM	
CP	CORD AND PLUG CONNECTION					INT	CARBON MONOXIDE SENSOR	
[BLANK]	HARD WIRED (WHEN INDICATED FOR DC TYPE)					ASD	INTEGRAL TO EQUIPMENT	
						DSD	AREA SMOKE DETECTOR	
							DUCT SMOKE DETECTOR	

CONNECTION MARK	DESCRIPTION	VOLTAGE	PHASE	EMERGENCY	HP	WATTS	HTG KW	FLA	MCA	OCP	FED FROM	DC TYPE	DC FURN	DC INST	DC WIRE	MC TYPE	MC FURN	MC INST	MC WIRE	CN TYPE	CN FURN	CN INST	CN WIRE	SHORT CIRCUIT RATING CODE REQUIRED?	AVAILABLE FAULT CURRENT
AHU-1	SPLIT SYSTEM GAS FIRED FURNACE	120 V	1	NO					10.1	15			EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	3778
AHU-2	SPLIT SYSTEM GAS FIRED FURNACE	120 V	1	NO					10.1	15			EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	1341
AHU-3	SPLIT SYSTEM GAS FIRED FURNACE	120 V	1	NO					7.4	15			EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	3472
CP-1	AIR CONDITIONING CONDENSATE PUMP	120 V	1	NO	0.033						REFER TO PLANS		EC	EC	EC	MG	MFR	MFR	MFR	INT	MFR	MFR	MFR	Yes	1283
CU-1	AIR SOURCE OUTDOOR CONDENSING UNIT	240 V	1	NO					17.6	30			EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	3800
CU-2	AIR SOURCE OUTDOOR CONDENSING UNIT	240 V	1	NO					22.7	40			EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	4266
CU-3	AIR SOURCE OUTDOOR CONDENSING UNIT	240 V	1	NO					16.5	25			EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	4782
EF-1	HVAC EXHAUST FAN	120 V	1	NO				1.3	1.6	15			EC	EC	EC	ECM	MFR	MFR	MFR	LINE	EC	EC	EC	No	1275
EF-2	HVAC EXHAUST FAN	120 V	1	NO				0.29		15			EC	EC	EC	ECM	MFR	MFR	MFR	LINE	EC	EC	EC	No	1229
EWH-1	ELECTRIC UNIT HEATER	120 V	1	NO		750		6.25					EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	No	3800

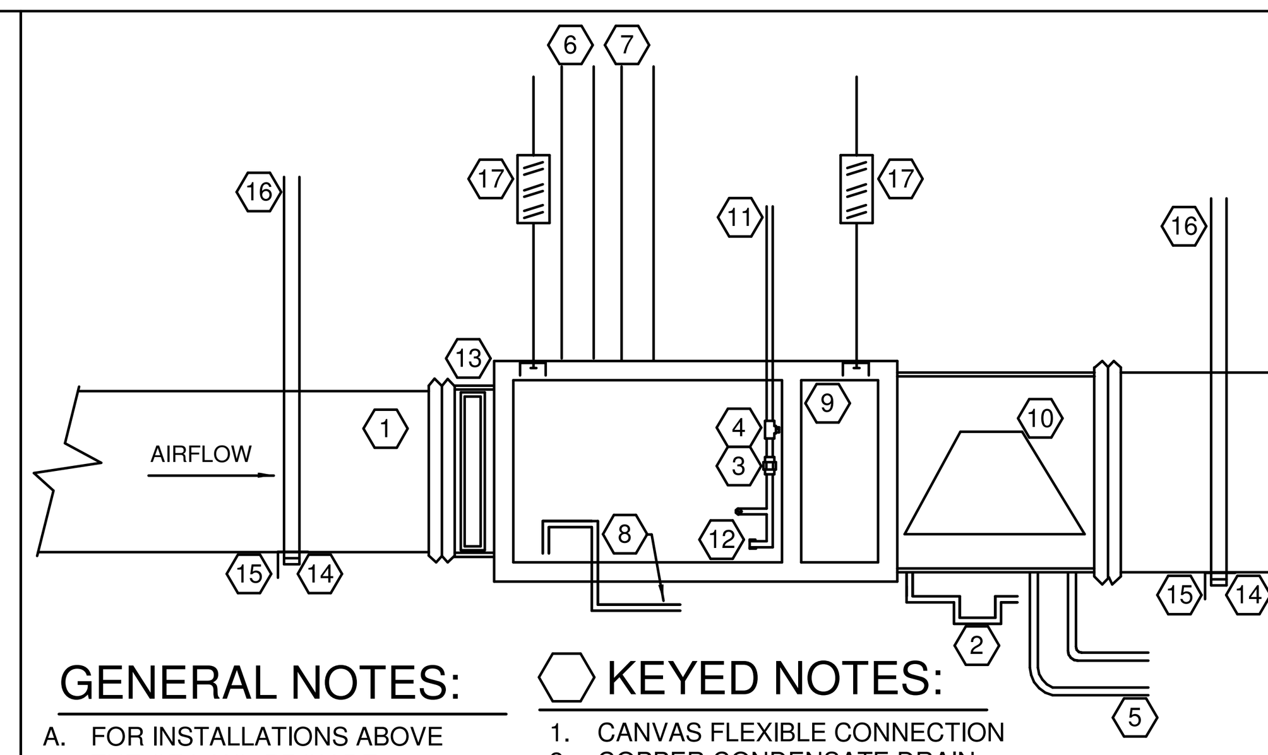


KEYED NOTES:

1. CANVAS FLEXIBLE CONNECTION
2. RETURN PLENUM, PROVIDE 1/2" ACOUSTIC LINING.
3. 4" CONCRETE PAD
4. COPPER CONDENSATE DRAIN, PIPE TO FLOOR DRAIN
5. UNION
6. GAS COCK (PLUG VALVES)
7. REFRIGERANT LINES, PROVIDE 3/4" ARMAFLEX ON SUCTION LINE
8. VENT-PER MANUFACTURER'S REQUIREMENTS
9. COMBUSTION INTAKE (IF REQUIRED)
10. CONDENSING FURNACE CONDENSATE DRAIN, CPVC PIPING, PIPE TO FLOOR DRAIN
11. GAS FIRED FURNACE
12. EVAPORATOR COIL & INSULATED PLENUM
13. GAS PIPING, BLACK IRON
14. CAP
15. FILTER AND RACK
16. FUNNEL DRAIN
17. HIGH WATER ALARM IN CONDENSATE DRAIN PAN. WIRE TO BREAK 24 VOLT CONTROL POWER IN THE CASE OF A HIGH WATER EVENT

235416.00-01 - GAS FIRED FURNACE DX COOLING

SCALE: NONE



GENERAL NOTES:

A. FOR INSTALLATIONS ABOVE THE CEILING, PROVIDE AUXILLARY DRAIN PAN UNDER COOLING COIL, COMPLETE WITH HIGH LEVEL WATER DETECTOR SHALL SHUT OFF UNIT PRIOR TO OVERFLOW OF THE PAN.

KEYED NOTES:

1. CANVAS FLEXIBLE CONNECTION
2. COPPER CONDENSATE DRAIN
3. UNION
4. GAS COCK (PLUG VALVE)
5. REFRIGERANT LINES
6. VENT-PER MANUFACTURER'S REQUIREMENTS
7. COMBUSTION DRAIN
8. CONDENSATE DRAIN, CPVC PIPING, PIPE TO DRAIN
9. GAS FIRED FURNACE
10. EVAPORATOR COIL & INSULATED PLENUM
11. GAS PIPE, BLACK IRON
12. CAP
13. FILTER AND RACK
14. DOUBLE NUT
15. ANGLE SUPPORT (PRIME PAINT)
16. GALVANIZED HANGER ROD
17. VIBRATION ISOLATORS

235416.00-05 - HORIZONTAL GAS FIRED FURNACE

SCALE: NONE

HVAC VENTILATION SCHEDULE

NUMBER	NAME	AREA	PEOPLE	OA PER PERSON	OA PER SQ FT.	REQ SUP	ACT SUP	REQ OA	ACT OA	ACT RET	ACT EXH	CRIT OA	PRESSURE
100	ENTRY/WAITING	216 SF	3	5	0.06	145	230	27	27	230	0	15.2	Neutral
101	RECEPTION	83 SF	3	5	0.06	95	150	17	17	150	0	16.6	Neutral
102	PRINT/COPY AREA	63 SF	1	5	0.06	165	190	22	22	190	0	5.8	Neutral
103	HALL	120 SF	0	0	0.06	40	50	6	6	50	0	17.9	Neutral
104	OFFICE #4	94 SF	1	5	0.06	65	120	14	14	120	0	11.1	Neutral
105	OFFICE #3	93 SF	1	5	0.06	65	120	14	14	120	0	11	Neutral
106	BREAKROOM	96 SF	1	5	0.06	145	150	17	17	150	0	9	Neutral
107	OFFICE #2	94 SF	1	5	0.06	90	120	14	14	120	0	11.1	Neutral
108	OFFICE #1	126 SF	1	5	0.06	100	120	14	14	120	0	13.1	Neutral
109	CLOSET	14 SF	0	0	0	5	5	1	1	5	0	0	Neutral
110	RESTROOM	50 SF	0	0	0	20	0	0	0	0	80	0	Negative
111	HALL	32 SF	0	0	0.06	10	50	6	6	50	0	4.8	Neutral
112	CURBSIDE PICKUP/DELIVERIES	367 SF	0	0	0.06	335	345	42	42	345	0	8	Neutral
113	RECEIVING PALLET AREA	633 SF	0	0	0.06	225	400	49	49	400	0	11.9	Neutral
114	DRY GOOD STORAGE/STAGING	721 SF	0	0	0.06	235	350	43	43	350	0	15.5	Neutral
115	MECHANICAL ROOM	82 SF	0	0	0	35	0	0	0	0	0	0	Neutral
116	MEAT SERVICE COUNTER	140 SF	0	0	0	45	50	7	7	50	100	0	Negative
117	PANTRY	776 SF	7	7.5	0.06	360	850	118	118	850	0	14.6	Neutral
118	RESTROOM	51 SF	0	0	0	20	50	6	6	0	80	0	Negative
119	RESTROOM	51 SF	0	0	0	25	50	6	6	0	80	0	Negative
120	Space	Not Placed	0										
TOTAL		3901 SF											

ELECTRIC UNIT HEATER SCHEDULE

PRODUCT						GENERAL		HEATING	ELECTRICAL	MISC	ELECTRICAL																	PRODUCT
MARK	DESCRIPTION	MANUFACTURER	MODEL	OPERATING WEIGHT (LBS)	SECTION NUMBER	AREA SERVED	STATUS	CALC HTG MBH	EMERGENCY	ACCESSORIES	CONNECTION MARK	ELECTRIC CONNECTION SUMMARY	CN TYPE	CN FURNISHED BY	CN INSTALLED BY	CN WIRED BY	MC TYPE	MC FURNISHED BY	MC INSTALLED BY	MC WIRED BY	DC TYPE	DC FURNISHED	DC INSTALLED BY	DC WIRED BY	FA SHUTDOWN	FAULT CURRENT		MARK
EWH-1	ELECTRIC UNIT HEATER	MARLEY	CWH1151DSAF	--	23 82 39.00	MECHANICAL ROOM	NEW	5.12	NO	--	EWH-1	EWH-1 - 120V/1PH, 750W, 6.25A FLA	LOW	HC	HC	HC	MG	MFR	MFR	MFR	--	EC	EC	EC	NONE	--		EWH-1

HVAC EXHAUST FAN SCHEDULE

PRODUCT						GENERAL		AIRFLOW				ELECTRICAL	MISC	ELECTRICAL																PRODUCT
MARK	DESCRIPTION	MANUFACTURER	MODEL	OPERATING WEIGHT (LBS)	SECTION NUMBER	AREA SERVED	STATUS	EA (CFM)	ESP (IN. W.C.)	FAN BHP	FAN MTR SPEED (RPM)	EMERGENCY	ACCESSORIES	CONNECTION MARK	ELECTRIC CONNECTION SUMMARY	CN TYPE	CN FURNISHED BY	CN INSTALLED BY	CN WIRED BY	MC TYPE	MC FURNISHED BY	MC INSTALLED BY	MC WIRED BY	DC TYPE	DC FURNISHED	DC INSTALLED BY	DC WIRED BY	FA SHUTDOWN	FAULT CURRENT	MARK
EF-1	HVAC EXHAUST FAN	GREENHECK	G-070-VG	36	23 34 00.00	--	NEW	160	0.3	0.02	1391	NO	--	EF-1	EF-1 - 120V/1PH, 1.3A FLA, 1.6 MCA, 15A OCP	LINE	EC	EC	EC	ECM	MFR	MFR	MFR	--	EC	EC	EC	NONE	EF-1: 1274	EF-1
EF-2	HVAC EXHAUST FAN	GREENHECK	SP-LP0511-1	8	23 34 00.00	--	NEW	80	0.3	0.01	773	NO	--	EF-2	EF-2 - 120V/1PH, 0.29A FLA, 15A OCP	LINE	EC	EC	EC	ECM	MFR	MFR	MFR	--	EC	EC	EC	NONE	EF-2: 1228	EF-2

AIR SOURCE OUTDOOR CONDENSING UNIT SCHEDULE

PRODUCT						GENERAL		COOLING						DESIGN CONDITIONS	ELECTRICAL	MISC	ELECTRICAL																PRODUCT
MARK	DESCRIPTION	MANUFACTURER	MODEL	OPERATING WEIGHT (LBS)	SECTION NUMBER	AREA SERVED	STATUS	NOM CLG CAP (TON)	TOTAL CALC CLG MBH	CALC SENS CLG MBH	MIN SEER	MIN EER	MIN IEER	SUM OAT DB	EMERGENCY	ACCESSORIES	CONNECTION MARK	ELECTRIC CONNECTION SUMMARY	CN TYPE	CN FURNISHED BY	CN INSTALLED BY	CN WIRED BY	MC TYPE	MC FURNISHED BY	MC INSTALLED BY	MC WIRED BY	DC TYPE	DC FURNISHED	DC INSTALLED BY	DC WIRED BY	FA SHUTDOWN	FAULT CURRENT	MARK
CU-1	AIR SOURCE OUTDOOR CONDENSING UNIT	CARRIER	26SCA536W003	177	23 62 13.00	--	NEW	3	29.18	25.7	15.2	12.5	--	91	NO	--	CU-1	CU-1 - 240V/1PH, 17.6 MCA, 30A OCP	LOW	HC	HC	HC	MG	MFR	MFR	MFR	--	EC	EC	EC	NONE	CU-1: 3791	CU-1
CU-2	AIR SOURCE OUTDOOR CONDENSING UNIT	CARRIER	26SCA542W003	216	23 62 13.00	--	NEW	3.5	38.31	31.69	15.2	12.5	--	91	NO	--	CU-2	CU-2 - 240V/1PH, 22.7 MCA, 40A OCP	LOW	HC	HC	HC	MG	MFR	MFR	MFR	--	EC	EC	EC	NONE	CU-2: 4911	CU-2
CU-3	AIR SOURCE OUTDOOR CONDENSING UNIT	CARRIER	26SCA530W003	169	23 62 13.00	--	NEW	2.5	25.35	20.71	14.5	12.0	--	91	NO	--	CU-3	CU-3 - 240V/1PH, 16.5 MCA, 25A OCP	LOW	HC	HC	HC	MG	MFR	MFR	MFR	--	EC	EC	EC	NONE	CU-3: 4432	CU-3

AIR CONDITIONING CONDENSATE PUMP SCHEDULE

PRODUCT									GENERAL				RETURN AIR	HYDRONICS			ELECTRICAL	MISC	ELECTRICAL																PRODUCT
MARK	DESCRIPTION	MANUFACTURER	MODEL	LENGTH (IN)	WIDTH (IN)	HEIGHT (IN)	OPERATING WEIGHT (LBS)	SECTION NUMBER	AREA SERVED	NOTES	FED FROM	STATUS	RA (CFM)	FLUID FLOW (GPM)	PUMP HEAD (FT)	NOM STRG SIZE (GAL)	EMERGENCY	ACCESSORIES	CONNECTION MARK	ELECTRIC CONNECTION SUMMARY	CN TYPE	CN FURNISHED BY	CN INSTALLED BY	CN WIRED BY	MC TYPE	MC FURNISHED BY	MC INSTALLED BY	MC WIRED BY	DC TYPE	DC FURNISHED	DC INSTALLED BY	DC WIRED BY	FA SHUTDOWN	FAULT CURRENT	MARK
CP-1	AIR CONDITIONING CONDENSATE PUMP	LITTLE GIANT	VCCA-20-P	--	--	--	--	23 21 23.13	--	--	REFER TO PLANS	NEW	--	2	5	--	NO	--	CP-1	CP-1 - 120V/1PH, 0.033 HP	INT	MFR	MFR	MFR	MG	MFR	MFR	MFR	--	EC	EC	EC	NONE	CP-1: 1269	CP-1

HVAC ACCESSORIES

ACCESSORIES:

1. MOTOR DAMPER
2. ECONOMIZER
3. ROOF CURB
4. HAIL GUARDS
5. INTAKE HOOD
6. VIBRATION ISOLATION
7. FLAT FILTER
8. FILTER/MIXING BOX
9. ACCESS DOOR
10. FLEX CONNECTIONS
11. MOUNTING COLLAR
12. HOT GAS BYPASS
13. FACE/BYPASS DAMPER
14. CONDENSATE PUMP
15. MOTOR GUARD
16. GREASE TRAP
17. DUCT FLANGES
18. BASE RAIL
19. HUMIDIFIER
20. CO2 SENSORS
21. ECON POWERED EXHAUST
22. ECON BAROMETRIC RELIEF
23. HOT GAS REHEAT COIL
24. SHAFT GROUNDING BRUSHES

SPLIT SYSTEM GAS FIRED FURNACE SCHEDULE

PRODUCT									GENERAL			AIRFLOW							COOLING							HEATING										ELECTRICAL	MISC		ELECTRICAL																PRODUCT
MARK	DESCRIPTION	MANUFACTURER	MODEL	LENGTH (IN)	WIDTH (IN)	HEIGHT (IN)	OPERATING WEIGHT (LBS)	SECTION NUMBER	AREA SERVED	FED FROM	STATUS	SA (CFM)	OA (CFM)	DCV MIN AIRFLOW (CFM)	ESP (IN. W.C.)	SF MTR BHP	SF SPEED (RPM)	DESIGN ESP (IN. W.C.)	NOM CLG CAP (TON)	TOTAL CALC CLG MBH	CALC SENS CLG MBH	EAT DB CLG	EAT WB CLG	LAT DB CLG	LAT WB CLG	CALC HTG MBH	EAT HTG	LAT HTG	FUEL TYPE	GAS INPUT	GAS OUT	MIN GAS PRESS	MAX GAS PRESS	MIN AFUE	CALC EAT WB HTG	EMERGENCY	ACCESSORIES	COMB TYPE	CONNECTION MARK	ELECTRIC CONNECTION SUMMARY	CN TYPE	CN FURNISHED BY	CN INSTALLED BY	CN WIRED BY	MC TYPE	MC FURNISHED BY	MC INSTALLED BY	MC WIRED BY	DC TYPE	DC FURNISHED	DC INSTALLED BY	DC WIRED BY	FA SHUTDOWN	FAULT CURRENT	MARK
AHU-1	SPLIT SYSTEM GAS FIRED FURNACE	CARRIER	59SC6A060M17--16	--	--	--	180	23 54 00.00	--	--	NEW	1095	134	103.26	1	--	--	0.75	3	29.18	25.7	78	65	55	54	27.8	63	90	NATURAL GAS	60	58	4.5	13	96	--	NO	CVAVA3617XMA COIL	ATMOSPHERIC	AHU-1	AHU-1 - 120V/1PH, 10.1 MCA, 15A OCP	LOW	HC	HC	HC	MG	MFR	MFR	MFR	--	EC	EC	EC	NONE	AHU-1: 3769	AHU-1
AHU-2	SPLIT SYSTEM GAS FIRED FURNACE	CARRIER	59SC6A060M17--16	--	--	--	240	23 54 00.00	--	--	NEW	1400	163	60.9	1	--	--	0.75	3	38.31	31.69	78	65	55	54	26.25	63	90	NATURAL GAS	60	58	4.5	13	96	--	NO	CVAMA4221XMA COIL	ATMOSPHERIC	AHU-2	AHU-2 - 120V/1PH, 10.1 MCA, 15A OCP	LOW	HC	HC	HC	MG	MFR	MFR	MFR	--	EC	EC	EC	NONE	AHU-2: 1340	AHU-2
AHU-3	SPLIT SYSTEM GAS FIRED FURNACE	CARRIER	59SC6A040M17--12	--	--	--	170	23 54 00.00	--	--	NEW	900	125	46.56	1	--	--	0.75	2.5	25.35	20.71	78	65	55	54	23.79	62	90	NATURAL GAS	40	39	4.5	13	96	--	NO	CVAVA3017XMA COIL	ATMOSPHERIC	AHU-3	AHU-3 - 120V/1PH, 7.4 MCA, 15A OCP	LOW	HC	HC	HC	MG	MFR	MFR	MFR	--	EC	EC	EC	NONE	AHU-3: 3465	AHU-3

2" REFERENCE LINE

KLH #: 26959

STATE OF OHIO
CHRISTOPHER A. MEHAFFIE
E-80769
REGISTERED PROFESSIONAL ENGINEER
3/12/2025

KLH ENGINEERS
KOHRS LONNEMANN HEIL ENGINEERS, INC.
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REVISIONS

NEW FOOD PANTRY & SOCIAL SERVICE CENTER

TOPSS

REAGH'S WAY
OXFORD, OH 45056

MECHANICAL - SCHEDULES

M-601

03/12/25

COMcheck Software Version COMcheckWeb
Mechanical Compliance Certificate

Project Information

Energy Code:	2021 IECC
Project Title:	TOPPS - Oxford, OH
Location:	Oxford, Ohio
Climate Zone:	4a
Project Type:	New Construction

Construction Site: Owner/Agent: Designer/Contractor:

Additional Efficiency Package(s)
Credits: 10.0 Required 0.0 Proposed

Mechanical Systems List

Quantity System Type & Description

1 CU-1/AHU-1 (Single Zone):
Heating: 1 each - Central Furnace, Gas, Capacity = 58 kBtu/h
Proposed Efficiency = 97.00% Et, Required Efficiency: 80.00 % Et or 80% AFUE
Cooling: 1 each - Split System, Capacity = 35 kBtu/h, Air-Cooled Condenser, Unknown Economizer
Proposed Efficiency = 15.00 SEER2, Required Efficiency = 13.40 SEER2
Proposed Part Load Efficiency = 0.00 , Required Part Load Efficiency = 0.00
Fan System: FAN SYSTEM 1 -- Compliance (Brake HP and fan efficiency method) : Passes

Fans:
FAN 1 Supply, Constant Volume, 1095 CFM, 1.0 motor nameplate hp, 0.8 design brake hp (0.8 max. BHP), 1.00 fan energy index , fan exception: Single fan < 1 HP or < 0.89 kW

1 CU-2/AHU-2 (Single Zone):
Heating: 1 each - Central Furnace, Gas, Capacity = 58 kBtu/h
Proposed Efficiency = 97.00% Et, Required Efficiency: 80.00 % Et or 80% AFUE
Cooling: 1 each - Split System, Capacity = 44 kBtu/h, Air-Cooled Condenser, Unknown Economizer
Proposed Efficiency = 15.00 SEER2, Required Efficiency = 13.40 SEER2
Proposed Part Load Efficiency = 0.00 , Required Part Load Efficiency = 0.00
Fan System: FAN SYSTEM 2 -- Compliance (Brake HP and fan efficiency method) : Passes

Fans:
FAN 2 Supply, Constant Volume, 1400 CFM, 1.0 motor nameplate hp, 0.8 design brake hp (0.8 max. BHP), 0.90 fan energy index , fan exception: Single fan < 1 HP or < 0.89 kW

1 CU-3/AHU-3 (Single Zone):
Heating: 1 each - Central Furnace, Gas, Capacity = 39 kBtu/h
Proposed Efficiency = 97.00% Et, Required Efficiency: 80.00 % Et or 80% AFUE
Cooling: 1 each - Split System, Capacity = 31 kBtu/h, Air-Cooled Condenser, Unknown Economizer
Proposed Efficiency = 15.00 SEER2, Required Efficiency = 13.40 SEER2
Proposed Part Load Efficiency = 0.00 , Required Part Load Efficiency = 0.00
Fan System: FAN SYSTEM 3 -- Compliance (Brake HP and fan efficiency method) : Passes

Fans:
FAN 3 Supply, Constant Volume, 900 CFM, 0.8 motor nameplate hp, 0.5 design brake hp (0.5 max. BHP), 0.00 fan energy index , fan exception: Single fan < 1 HP or < 0.89 kW

1 EWH1:
Electric Storage Water Heater, Capacity: 30 gallons
No minimum efficiency requirement applies

1 IWH1:
Electric Instantaneous Water Heater, Capacity: 0 gallons
No minimum efficiency requirement applies

Quantity System Type & Description

1 IWH2:
Electric Instantaneous Water Heater, Capacity: 0 gallons
No minimum efficiency requirement applies

Mechanical Compliance Statement

Compliance Statement: The proposed mechanical design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 2021 IECC requirements in COM*check* Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Name - Title ____________ Signature ____________ Date ____________

COMcheck Software Version COMcheckWeb
Inspection Checklist
Energy Code: 2021 IECC

Requirements: 100.0% were addressed directly in the COM*check* software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Plan Review	Complies?	Comments/Assumptions
C103.2 [PR2][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the mechanical and service water heating systems and document where exceptions to the standard are claimed. Load calculations per acceptable engineering standards and handbooks. Hot water system sized per manufacturer's sizing guide.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C406 [PR9][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the additional energy efficiency package options.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

Section # & Req.ID	Plumbing Rough-In Inspection	Complies?	Comments/Assumptions
C404.5, C404.5.1, C404.5.2 [PL6][3]	Heated water supply piping conforms to pipe length and volume requirements. Refer to section details.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

Section # & Req.ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
C402.2.6 [ME41][3]	Thermally ineffective panel surfaces of sensible heating panels have insulation >= R-3.5.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.12.3 [ME61][2]	HVAC piping insulation insulated in accordance with Table C403.11.3. Insulation exposed to weather is protected from damage and is provided with shielding from solar radiation.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.8.4 [ME142][2]	Motors for fans that are not less than 1/12 hp and less than 1 hp are electronically commutated motors or have a minimum motor efficiency of 70 percent. These motors have the means to adjust motor speed.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.8.6 [ME143][2]	Each DX cooling system > 65 kBtu and chiller water/evaporative cooling system with fans > 1/4 hp are designed to vary the indoor fan airflow as a function of load and comply with detailed requirements of this section.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.9 [ME144][2]	Large diameter fans where installed shall be tested and labeled in accordance with AMCA 230.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.13.1 [ME71][2]	Systems that heat outside the building envelope are radiant heat systems controlled by an occupancy sensing device or timer switch.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.3 [ME55][2]	HVAC equipment efficiency verified.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Mechanical Systems list for values.*
C403.2.2 [ME59][1]	Natural or mechanical ventilation is provided in accordance with International Mechanical Code Chapter 4. Mechanical ventilation has capability to reduce outdoor air supply to minimum per IMC Chapter 4.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.7.1 [ME59][1]	Demand control ventilation provided for spaces >500 ft2 and >15 people/1000 ft2 occupant density and served by systems with air side economizer, auto modulating outside air damper control, or design airflow >3,000 cfm.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.7.2 [ME115][3]	Enclosed parking garage ventilation has automatic contaminant detection and capacity to stage or modulate fans to 50% or less of design capacity.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.7.6 [ME141][3]	HVAC systems serving guestrooms in Group R-1 buildings with > 50 guestrooms: Each guestroom is provided with controls that automatically manage temperature setpoint and ventilation (see sections C403.7.6.1 and C403.7.6.2).	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

Section # & Req.ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
C403.7.4 [ME57][1]	Exhaust air energy recovery on systems meeting Table C403.7.4(1) and C403.7.4(2).	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.7.5 [ME116][3]	Kitchen exhaust systems comply with replacement air and conditioned supply air limitations, and satisfy hood rating requirements and maximum exhaust rate criteria.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.12.1, C403.12.2 [ME60][2]	HVAC ducts and plenums insulated in accordance with C403.11.1 and constructed in accordance with C403.11.2, verification may need to occur during Foundation Inspection.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.4.1.4 [ME63][2]	Heating for vestibules and air curtains with integral heating include automatic controls that shut off the heating system when outdoor air temperatures > 45F. Vestibule heating and cooling systems controlled by a thermostat in the vestibule with heating setpoint <= 60F and cooling setpoint >= 80F.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.3.3 [ME35][1]	Hot gas bypass limited to: <=240 kBtu/h - 50% >240 kBtu/h - 25%	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.2.2.1 [ME53][3]	Air outlets and zone terminal devices have means for air balancing.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.11.3, C403.11.3.1, C403.11.3.2 [ME123][3]	Refrigerated display cases, walk-in coolers or walk-in freezers served by remote compressors and remote condensers not located in a condensing unit, have fan-powered condensers that comply with Sections C403.11.3.1 and refrigeration compressor systems that comply with C403.11.3.2..	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

Section # & Req.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.7 [EL26][2]	Low-voltage dry-type distribution electric transformers meet the minimum efficiency requirements of Table C405.6.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C405.8 [EL27][2]	Electric motors meet the minimum efficiency requirements of Tables C405.7(1) through C405.7(4). Efficiency verified through certification under an approved certification program or the equipment efficiency ratings shall be provided by motor manufacturer (where certification programs do not exist).	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C405.9.1, C405.9.2 [EL28][2]	Escalators and moving walks comply with ASME A17.1/CSA B44 and have automatic controls configured to reduce speed to the minimum permitted speed in accordance with ASME A17.1/CSA B44 or applicable local code when not conveying passengers.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C405.10 [EL29][2]	Total voltage drop across the combination of feeders and branch circuits <= 5%.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C405.1.1 [EL30][2]	At least 90% of dwelling unit permanently installed lighting shall have lamp efficacy >= 65 lm/W or luminaires with efficacy >= 45 lm/W or comply with C405.2.4 or C405.3.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C405.11, C405.11.1 [EL31][2]	50% of 15/20 amp receptacles installed in enclosed offices, conference rooms, copy rooms, break rooms, classrooms and workstations and > 25% of branch circuit feeders for modular furniture will have automatic receptacle control in accordance with C405.11.1.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C303.3, C408.2.5.3 [FI8][3]	Furnished O&M manuals for HVAC systems within 90 days of system acceptance.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.1.1 [FI50][3]	HVAC systems and equipment design loads calculated in accordance with ANSI/ASHRAE/ACCA Standard 183 or by an approved equivalent computational procedure	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.3.1 [FI27][3]	HVAC systems and equipment capacity does not exceed calculated loads.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.4.1 [FI47][3]	Heating and cooling to each zone is controlled by a thermostat control. Minimum one humidity control device per installed humidification/dehumidification system.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.4.1.2 [FI38][3]	Thermostatic controls have a 5 °F deadband.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.4.1.3 [FI20][3]	Temperature controls have setpoint overlap restrictions.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.4.2 [FI39][3]	Each zone equipped with setback controls using automatic time clock or programmable control system.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.4.2.1, C403.4.2.2 [FI40][3]	Automatic Controls: Setback to 55°F (heat) and 85°F (cool); 7-day clock, 2-hour occupant override, 10-hour backup	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.4.2.3 [FI41][3]	Systems include optimum start controls.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C404.3 [FI11][3]	Heat traps installed on supply and discharge piping of non-circulating systems.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C408.1.1 [FI57][1]	Building operations and maintenance documents will be provided to the owner. Documents will cover manufacturers' information, specifications, programming procedures and means of illustrating to owner how building, equipment and systems are intended to be installed, maintained, and operated.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

STATE OF OHIO
CHRISTOPHER A. MEHAFFIE
E-80769
REGISTERED PROFESSIONAL ENGINEER
3/12/2025

KLH ENGINEERS
KOHRS LONNEMANN HEIL ENGINEERS, INC.
WWW.KLHENGRS.COM
1538 ALEXANDRIA PIKE, SUITE 11
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MECHANICAL/ ELECTRICAL ENGINEERS

REVISIONS

NEW FOOD PANTRY & SOCIAL SERVICE CENTER
TOPSS
REAGH'S WAY
OXFORD, OH 45056

MECHANICAL - ENERGY COMPLIANCE
M-701
03/12/25

2" REFERENCE LINE
KLH #: 26959

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C408.2.1 [FI28][3]	Commissioning plan developed by registered design professional or approved agency.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.2.3.1 [FI31][3]	HVAC equipment, systems and system-to-system relationships have been tested to ensure proper operation.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.2.3.2 [FI10][3]	HVAC and service water heating control systems have been tested to ensure proper operation, calibration and adjustment of controls.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.2.4 [FI29][3]	Preliminary commissioning report completed and certified by registered design professional or approved agency.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.2.5 [FI7][3]	Furnished HVAC as-built drawings submitted within 90 days of system acceptance.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.2.5.1 [FI43][3]	An air and/or hydronic system balancing report is provided for HVAC systems.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.2.5.2 [FI30][3]	Final commissioning report due to building owner within 90 days of receipt of certificate of occupancy.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)

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ELECTRIC DESIGN CRITERIA

APPLICABLE BUILDING CODES

OBC (2024) OHIO BUILDING CODE
IECC (2021) INTERNATIONAL ENERGY CONSERVATION CODE
NFPA 70 (2023) NATIONAL ELECTRIC CODE

TESTING/COMMISSIONING FOR LIGHTING CONTROLS

LIGHTING CONTROL DEVICES AND SYSTEMS SHALL BE TESTED TO ENSURE THE HARDWARE AND SOFTWARE IS CALIBRATED, PROGRAMMED, AND IN PROPER WORKING ORDER. INSTALLING CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REQUIRED INSTALLATION REPORTS AND CERTIFICATES (UNLESS COMMISSIONING IS BEING PERFORMED IN WHICH CASE THE COMMISSIONING PROVIDER SHALL BE RESPONSIBLE FOR ALL REPORTS, CERTIFICATES, ETC.) AND SHALL PROVIDE MANUALS FOR LIGHTING CONTROL DEVICES TO OWNER PRIOR TO PROJECT CLOSE-OUT AND ALSO INCLUDE THE NAME AND ADDRESS OF AT LEAST ONE SERVICING AGENCY FOR THE LIGHTING CONTROL EQUIPMENT. INSTALLING CONTRACTOR SHALL BE RESPONSIBLE FOR CONTRACTING WITH APPROPRIATE PARTIES TO ARRANGE FOR TESTING OF THE LIGHTING CONTROL SYSTEMS AND SHALL BE RESPONSIBLE FOR ENSURING ALL REQUIRED FUNCTIONAL PERFORMANCE TESTING FORMS/REPORTS ARE COMPLETED AND SUBMITTED TO THE OWNER AND LOCAL AHJ PRIOR TO PROJECT CLOSE-OUT (NO LATER THAN WITHIN 90 DAYS OF PROJECT CLOSEOUT). FUNCTIONAL PERFORMANCE TESTING OF LIGHTING CONTROLS SHALL FOLLOW THE REQUIREMENTS LISTED IN THE APPLICABLE ENERGY CODE INCLUDING (BUT NOT LIMITED TO) VERIFICATION OF THE PERFORMANCE OF OCCUPANCY SENSORS, AUTOMATIC TIME SWITCHES, AND DAYLIGHT HARVESTING CONTROLS.

ELECTRIC LEGEND

SYMBOL	DESCRIPTION
LIGHTING AND LIGHTING CONTROLS	
	LUMINAIRE (REFER TO THE LUMINAIRE SCHEDULE) NOTE THAT OTHER SHAPES MAY ALSO BE USED TO REPRESENT LUMINAIRES
	SHADED LUMINAIRES DENOTE THOSE CONNECTED TO EMERGENCY OR STANDBY POWER AS APPLICABLE (UNSWITCHED LUMINAIRES ARE EGRESS LIGHTS AND/OR NIGHT-LIGHTS THAT OPERATE 24/7)
	CEILING FAN
WALL MOUNT	SINGLE / DOUBLE SIDED EXIT SIGN CONNECT AHEAD OF SWITCHING & CONFIGURE ARROWS TO INDICATE DIRECTION OF EGRESS TRAVEL
	EMERGENCY LIGHTING UNIT WITH 90-MINUTE BATTERY BACKUP AND ASSOCIATED REMOTE HEADS WHERE APPLICABLE. CONNECT TO LOCAL LIGHTING CIRCUIT AHEAD OF SWITCHING
A NL a EL	A = LUMINAIRE TYPE, NL = NIGHT-LIGHT (UNSWITCHED), a = SWITCHING DESIGNATION, EL = EGRESS LUMINAIRE (ILLUMINATES PATH OF EGRESS, UNSWITCHED UNLESS OTHERWISE NOTED)
$	LIGHTING SWITCH (KEYS: 2 = 2-POLE, 3 = 3-WAY, 4 = 4-WAY, D=DIMMER, K=KEYED, T = TIMER SWITCH, M = MOMENTARY-CONTACT, P = SWITCH W/PILOT LIGHT)
TYPE	CEILING-MOUNTED OCCUPANCY SENSOR. DUAL TECHNOLOGY UNLESS OTHERWISE NOTED BY TYPE. TYPE "IR" = INFRARED, TYPE "US" = ULTRASONIC
TYPE#	WALL-MOUNTED OCCUPANCY SENSOR SWITCH. DUAL TECHNOLOGY UNLESS OTHERWISE NOTED BY TYPE. TYPE "IR"=INFRARED, TYPE "US"=ULTRASONIC, "V"=VACANCY SENSOR, "D" = DIMMED.
RECEPTACLES AND MISCELLANEOUS OUTLETS	
	SINGLE ("SIMPLEX"), DUPLEX, AND DOUBLE DUPLEX ("QUAD") RECEPTACLE RESPECTIVELY
	GFI / GFCI RECEPTACLES
	GFI/GFCI RECEPTACLES WITH USB OUTLETS
H C T 42" W SW L	RECEPTACLE ATTRIBUTES 42" = MOUNT RECEPTACLE AT THIS HEIGHT ABOVE GRADE / FINISHED FLOOR C = INSTALL ABOVE COUNTER AND BACKSPLASH H = INSTALL RECEPTACLE HORIZONTALLY L = LIT (PROVIDE ILLUMINATED FACE OR INDICATOR LIGHT TO INDICATE THERE IS POWER TO RECEPTACLE) SW = SPLIT WIRED T = TAMPER-RESISTANT W = WEATHER PROOF WHILE IN USE COVER AND WEATHER RESISTANT RECEPTACLE
MISCELLANEOUS	
T TS	LOW VOLTAGE THERMOSTAT (LEFT) AND TEMPERATURE SENSOR (RIGHT)
	INDICATES DIRECT CONNECTION TO EQUIPMENT
$ $MS $MSR	MOTOR RATED TOGGLE SWITCH, MANUAL STARTER WITH PILOT LIGHT, AND MANUAL STARTER WITH PILOT LIGHT WITH EXTERNAL RELAY FOR CONTROL OR MONITORING RESPECTIVELY - ALL MAY BE KEYED "K"
	HEAVY DUTY DISCONNECT SWITCH (NON-FUSED) (LEFT) HEAVY DUTY DISCONNECT SWITCH (FUSED) (RIGHT)
M	LINE VOLTAGE MOTOR OPERATED DAMPER
	ELECTRICAL PANELBOARD OR DISTRIBUTION BOARD (DIMENSIONS MAY VARY / FLUSH OR SURFACE MOUNTED AS INDICATED)
PAD POLE	OIL FILLED TRANSFORMER

TECHNOLOGY LEGEND

SYMBOL	DESCRIPTION
TECHNOLOGY (ROUGH-IN ONLY)	
COORDINATE WITH SYSTEM INSTALLERS PRIOR TO INSTALLATION FOR LOCATIONS, HEIGHTS, CONDUIT TERMINATIONS, ETC. ALL OUTLET BOXES FOR ROUGH-IN SHALL BE MINIMUM 2-1/4" DEEP.	
	COMMUNICATION OUTLET - VOICE, DATA, DATA/VOICE RESPECTIVELY LEFT TO RIGHT - PROVIDE 4"X4" BOX WITH 1-GANG RING AND (1) 1" CONDUIT TO ABOVE ACCESSIBLE CEILING UNLESS NOTED OTHERWISE.

ELECTRIC LEGEND

SYMBOL	DESCRIPTION
SINGLE LINE DIAGRAM	
M	ELECTRIC UTILITY COMPANY METER AND ASSOCIATED CURRENT TRANSFORMERS
HD M	CUSTOMER ELECTRIC METER AND ASSOCIATED CURRENT TRANSFORMERS HD = HIGH DENSITY METERING CABINET/BANK MOUNTED TO TIGHTLY GROUP ALL METERS TOGETHER
400 / 400 300	HEAVY DUTY DISCONNECT SWITCH (NON-FUSED)(LEFT) (FUSED)(RIGHT) SIZES MAY BE SHOWN ONLY IN SCHEDULE
PANEL NAME	ELECTRICAL PANELBOARD OR DISTRIBUTION BOARD
	SURGE PROTECTIVE DEVICE
WIRE / CABLE / RACEWAY	
LPA-1,3	BRANCH CIRCUIT HOME RUN WITH PANEL NAME AND CIRCUIT NUMBER(S)
	CABLING / RACEWAY INSTALLED CONCEALED IN WALLS OR ABOVE CEILING
	CABLING / RACEWAY INSTALLED BELOW FLOOR OR GRADE
	CABLE TRAY
	FEEDER DUCT / BUS DUCT
J	JUNCTION BOX ABOVE ACCESSIBLE CEILING JUNCTION BOX AT OVERHEAD STRUCTURE IN AREAS WITH NO CEILING
UP DN	CONDUIT UP OR DOWN

ABBREVIATIONS

42"	DISTANCE ABOVE FINISHED FLOOR / GRADE / PAVEMENT	LR	LEGALLY REQUIRED STANDBY
AF	AMP FRAME OF FUSED SWITCH OR CIRCUIT BREAKER	LI	LONG - INSTANTANEOUS
AFCI	ARC-FAULT CIRCUIT INTERRUPTER	LSI	LONG - SHORT - INSTANTANEOUS
AT	AMP TRIP OF FUSED SWITCH OR CIRCUIT BREAKER	LSIG	LONG - SHORT - INSTANTANEOUS - GROUND FAULT
ATS	AUTOMATIC TRANSFER SWITCH	MCB	MAIN CIRCUIT BREAKER
BAS	BUILDING AUTOMATION SYSTEM	MFR	MANUFACTURER
C.T.C.	WORK UNDER DIVISION 27 OR 28 AS APPLICABLE	MLO	MAIN LUGS ONLY
C/B	CIRCUIT BREAKER	MTS	MANUAL TRANSFER SWITCH
C / CH	COUNTER HEIGHT OR SPECIAL HEIGHT DEVICE	MW	MICROWAVE OVEN
DW	DISHWASHER	NIC	NOT IN CONTRACT (SHOWN FOR REFERENCE ONLY)
E	EMERGENCY	NTS	NOT TO SCALE
E.C.	WORK UNDER DIVISION 26	OFE	OWNER-FURNISHED EQUIPMENT - INSTALLED AND WIRED BY E.C.
EMS	ENERGY MANAGEMENT SYSTEM	OS	OPTIONAL STANDBY
EPO	EMERGENCY POWER OFF	P.C.	WORK UNDER DIVISION 22
ER	EQUIPMENT ROOM	(R)	RELOCATE
ERM	ENERGY REDUCTION MAINTENANCE SWITCH	S.C.	WORK UNDER DIVISION 21
ESP	EMERGENCY STANDBY RATING	SCCR	SHORT CIRCUIT CURRENT RATING
ETR	EXISTING TO REMAIN	SPD	SURGE PROTECTIVE DEVICE
EWC	ELECTRIC WATER COOLER	ST	SHUNT TRIP
EX.	EXISTING	TAAC	TO ABOVE ACCESSIBLE CEILING
FBO	FURNISHED BY OTHERS - INSTALLED AND WIRED BY E.C.	T	TAMPER RESISTANT
FIBO	FURNISHED AND INSTALLED BY OTHERS - WIRED BY E.C.	TTB	TELEPHONE TERMINAL BOARD
FP	RECEPTACLE TO BE USED FOR A FLAT PANEL DISPLAY.	TYP	TYPICAL
FWE	FURNISHED WITH EQUIPMENT BY OTHERS - INSTALLED AND WIRED BY E.C.	UCR	UNDER COUNTER REFRIGERATOR
GD	GARBAGE DISPOSAL	UL	UNDERWRITER'S LABORATORY
GFEP	GROUND FAULT EQUIPMENT PROTECTION	U.L.S.E.	LISTED FOR SERVICE ENTRANCE
GFI / GFCI	GROUND FAULT CIRCUIT INTERRUPTER DEVICE	UNO	UNLESS NOTED OR INDICATED OTHERWISE ON DRAWINGS OR IN SPECIFICATIONS
GND	GROUND	VFD / VSD	VARIABLE FREQUENCY / SPEED DRIVE
H.C.	WORK UNDER DIVISION 23	VIF	VERIFY IN FIELD
H.O.A.	"HAND - OFF - AUTO" SWITCH	VM	VENDING MACHINE
IG	ISOLATED GROUND	VP	VANDAL PROOF
Isc	SHORT CIRCUIT CURRENT	W / WP	WEATHERPROOF
		WG	WIRE GUARD
		WR	WEATHER RESISTANT
		X	RATED FOR CLASSIFIED LOCATION

PLAN-VIEW AND GRAPHIC LINE TYPES

WORK SHOWN BOLD-CONTINUOUS INDICATES NEW WORK (UNLESS OTHERWISE INDICATED)

WORK SHOWN FADED INDICATES EXISTING WORK TO REMAIN OR NEW WORK BY OTHERS AS APPLICABLE (UNLESS OTHERWISE INDICATED)

WORK SHOWN BOLD-DASHED INDICATES SELECTIVE DEMOLITION WORK (UNLESS OTHERWISE INDICATED)

ELECTRIC CONDUIT AND WIRE MATERIAL SCHEDULE

MC - METAL CLAD CABLE
MI - MINERAL INSULATED CABLE
HMC - HEALTHCARE METAL CLAD CABLE
USE - UNDERGROUND SERVICE ENTRANCE CABLE
SE - SERVICE ENTRANCE CABLE
UF - UNDERGROUND FEEDER
NM - NON-METALLIC SHEATHED CABLE
RMC - RIGID METAL CONDUIT
RNC - RIGID NON-METALLIC CONDUIT
RTRC - REINFORCED THERMOSETTING RESIN CONDUIT
LIM - LINE ISOLATION MONITOR

ARC - ALUMINUM RIGID CONDUIT
EMT - ELECTRIC METALLIC TUBING
ENT - ELECTRIC NON-METALLIC TUBING
FMC - FLEXIBLE METALLIC CONDUIT
GRC - GALVANIZED RIGID STEEL CONDUIT
HDPE - HIGH DENSITY POLYETHYLENE CONDUIT
IMC - INTERMEDIATE METAL CONDUIT
LFMC - LIQUID-TIGHT FLEXIBILE METALLIC CONDUIT
LFNC - LIQUID-TIGHT FLEXIBLE NON-METALLIC CONDUIT
SCH 40 PVC - SCHEDULE 40 POLYVINYL CHLORIDE CONDUIT
SCH 80 PVC - SCHEDULE 80 POLYVINYL CHLORIDE CONDUIT

CONDUIT APPLICATION	CONDUCTOR TYPE	RACEWAY TYPE	RACEWAY AND CONDUCTOR NOTES
---POWER - INDOOR---			
CONCEALED, IN STUD WALLS	THHN	MC	
CONCEALED, DAMP LOCATIONS	XHHW-2	EMT	
CONCEALED, MASONRY	THHN	RNC (SCH 40 PVC)	
VERTICAL RISERS FROM BELOW GRADE INCLUDING ELBOW	XHHW-2	RMC (GRC)	
CONNECTION TO SYSTEMS FURNITURE	THHN	LFMC	
EMBEDDED IN CONCRETE SLAB	THHN	RNC (SCH 40 PVC)	
LUMINAIRE WHIPS IN ACCESSIBLE CEILING, 72" MAX	THHN	MC	
CONNECTION TO VIBRATING EQUIPMENT, 72" MAX	THHN	LFMC	
EXPOSED	THHN	EMT	
EMBEDDED IN CONCRETE WALL	THHN	RNC (SCH 40 PVC)	
HOMERUNS, CONCEALED IN CEILINGS AND STUD WALLS	THHN	EMT	
CONCEALED, IN CEILINGS	THHN	EMT	
---POWER - OUTDOOR---			
EXPOSED	XHHW-2	RMC (GRC)	
CONCEALED	XHHW-2	EMT	
CONCEALED, DAMP LOCATIONS	XHHW-2	IMC	
UNDERGROUND	XHHW-2	RNC (SCH 40 PVC)	
CONNECTION TO VIBRATING EQUIPMENT, 72" MAX	XHHW-2	LFMC	
EXPOSED TO DIRECT SUNLIGHT, ROOF	XHHW-2	RMC (GRC)	
---TECHNOLOGY---			
CONCEALED, ABOVE INACCESSIBLE CEILINGS	NON-PLENUM RATED	EMT	
CONCEALED, ABOVE ACCESSIBLE CEILINGS	PLENUM RATED	J-HOOKS	

GENERAL ELECTRICAL INSTALLATION NOTES

A. CODE COMPLIANCE: PROVIDE ALL ELECTRICAL WORK COMPLIANT WITH ALL PREVAILING CODES.

B. LISTINGS: PROVIDE MATERIALS, COMPONENTS AND ASSEMBLED COMPONENTS WITH LISTINGS AND LABELS FROM A NATIONALLY RECOGNIZED TESTING LABORATORY (NRTL), MANUFACTURED, LISTED AND LABELED FOR THEIR INTENDED USE.

C. RATED BUILDING SURFACES: SEPARATE DEVICE BOXES BY A MINIMUM OF 6 INCHES WHERE INSTALLED BACK-TO-BACK WITHIN DEMISING WALLS TO MAINTAIN REQUIRED FIRE AND SOUND RATING (TYPICAL OF ALL DEVICE BOXES INSTALLED ON DEMISING WALLS). PROVIDE LISTED FIRE-RATED WRAPS AROUND ALL RECESSED OUTLET, DEVICE AND EQUIPMENT BOXES IN FIRE/SMOKE RATED WALLS, CEILINGS AND FLOORS TO MEET OR EXCEED THE RESPECTIVE FIRE/SMOKE RATING OF THE SURFACE.

D. RATED PENETRATIONS: SEAL ALL PENETRATIONS THROUGH FIRE-RATED AND/OR SMOKE-RATED MEMBRANES (FLOORS, WALLS, CEILINGS, ETC.) USING SEALANT PRODUCTS THAT MEET OR EXCEED THE RATING OF THE RESPECTIVE MEMBRANE.

E. GANGED DEVICES: INSTALL WIRING DEVICES GANGED WHEREVER POSSIBLE FOR INSTANCES WHERE THEY ARE SHOWN TOGETHER. THIS INCLUDES LOCATIONS ABOVE COUNTERS AND WORK SURFACES WHERE APPLICABLE.

F. OUTLET BOXES NEAR CORNERS: INSTALL WALL-MOUNTED SWITCHES, CONTROLS, RECEPTACLES, OUTLETS, ETC. AT LEAST 6 INCHES FROM WALL CORNERS.

G. CONCEALMENTS: CONCEAL ALL CONDUIT DROPS AND RISES WITHIN WALLS, AND PROVIDE FLUSH-MOUNTED WALL OUTLET BOXES UNLESS OTHERWISE INDICATED.

H. DOCUMENTS OF OTHER TRADES: REVIEW DOCUMENTS OF OTHER TRADES, INCLUDING ARCHITECTURAL, PRIOR TO SUBMITTING A BID. PROVIDE ELECTRICAL WORK FOR EQUIPMENT, DEVICES, ETC. OF OTHER TRADES AS REQUIRED TO RENDER THEM FULLY OPERATIONAL. REFER TO ARCHITECTURAL ELEVATIONS FOR INTENDED LOCATIONS AND MOUNTING HEIGHTS FOR EQUIPMENT AND OUTLETS, ETC. PRIOR TO COMMENCING WITH ANY RELATED ROUGH-IN WORK.

I. SCHEMATIC REPRESENTATIONS: CIRCUITING WORK SHOWN ON DRAWINGS IS FOR SCHEMATIC GENERAL GRAPHIC REPRESENTATION ONLY. DETERMINE SPECIFICS IN FIELD (POINT-TO-POINT ROUTING, HOME-RUN LOCATIONS, METHODS OF CONCEALMENT, ETC.). LOCATIONS AND ROUTING INDICATED ON PLANS ARE SCHEMATIC AND DIAGRAMMATIC IN NATURE. LAYOUT AND INSTALL ALL ELECTRICAL WORK IN STRICT COMPLIANCE WITH CHAPTER 1, PART II, ARTICLE 110.26 OF THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE (NFPA 70).

J. HOME-RUN DESIGNATIONS: HOME-RUN DESIGNATIONS INDICATED ON PLANS ARE SCHEMATIC DESIGNATIONS ONLY. DETERMINE EXACT CIRCUIT ASSIGNMENTS IN FIELD BASED ON FIELD CONDITIONS. PROVIDE COLOR-CODED CONDUCTOR INSULATION ACCORDINGLY, CODED PROPERLY DEPENDING ON SYSTEM, PHASE, NEUTRAL, ETC. PROVIDE EQUIPMENT AND PANELBOARD SCHEDULES THAT ACCURATELY INDICATE INSTALLED CONDITIONS.

K. LOCAL DISCONNECTS AND CONTROLS AT EQUIPMENT: LOCAL DISCONNECTS AND LOCAL CONTROLS SHOWN AT OR ON EQUIPMENT IN PLAN-VIEW ARE SHOWN FOR SCHEMATIC ASSOCIATIONS ONLY. AVOID INSTALLING DISCONNECTS OR CONTROLS ON EQUIPMENT ENCLOSURES. INSTALL ON ADJACENT WALLS OR BUILDING STRUCTURE, OR PROVIDE FIELD-FABRICATED UNISTRUT OR EQUIVALENT ASSEMBLIES AS NEEDED. PROVIDE FIELD COORDINATION WITH SITE CONDITIONS AND OTHER TRADES, AND PROVIDE ALL RELATED WORK IN STRICT COMPLIANCE WITH NFPA 70, INCLUDING ARTICLE 110.26. PROVIDE A PERMANENT LABEL ON LOCAL DISCONNECTS NOTING THE EQUIPMENT IT SERVES AND THE PANEL AND CIRCUIT NUMBER FEEDING THE EQUIPMENT PER NFPA 70, ARTICLE 110.22(A).

L. EQUIPMENT & LOAD COORDINATION: REFER TO AND COORDINATE WITH POWER FLOOR PLANS, EQUIPMENT SCHEDULES (INCLUDING EQUIPMENT COORDINATION SCHEDULES), DRAWINGS OF ALL TRADES, ALL DIVISIONS AND SECTIONS OF SPECIFICATIONS AND INSTALLERS OF ALL TRADES. BASED ON ACTUAL EQUIPMENT BEING PROVIDED, DETERMINE AND PROVIDE APPROPRIATE BREAKERS, FUSES, CONDUCTORS, CONTROLS, POWER DISTRIBUTION EQUIPMENT, ETC. PERFORM THESE SERVICES PRIOR TO FURNISHING POWER DISTRIBUTION EQUIPMENT SUBMITTALS.

M. EXTERIOR ELECTRICAL WORK AND WORK SUBJECT TO MOISTURE: EXTERIOR ELECTRICAL WORK SHALL BE WEATHERPROOF AND WATER-TIGHT, AND SHALL BE RUST-RESISTANT. PROVIDE XHHW-2 CONDUCTORS FOR ALL APPLICATIONS THAT ARE BELOW GRADE OR SUBJECT TO MOISTURE. PROVIDE MINIMUM NEMA 3R ENCLOSURES FOR ALL OUTDOOR EQUIPMENT AND ALL INDOOR EQUIPMENT THAT IS SUBJECT TO MOISTURE. PROVIDE NEMA 1 ENCLOSURES FOR ALL OTHER INDOOR EQUIPMENT.

N. EQUIPMENT GROUNDING CONDUCTORS: PROVIDE EQUIPMENT GROUNDING CONDUCTORS IN STRICT COMPLIANCE WITH THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE (NFPA 70), INCLUDING ARTICLE 250 AND TABLE 250.122. THESE CONDUCTORS MAY OR MAY NOT BE INDICATED ON SINGLE-LINE DIAGRAMS OR ELSEWHERE, BUT SHALL BE PROVIDED UNDER BASE BID NEVERTHELESS.

O. OVERHEAD WORK: HOLD ALL NEW OVERHEAD ELECTRICAL WORK AS TIGHTLY AS POSSIBLE TO THE BOTTOM OF THE OVERHEAD STRUCTURE. DO NOT INSTALL ANY ELECTRICAL WORK WITHIN SIX INCHES OF ROOF DECKING.

P. COORDINATION DRAWINGS: LAYOUT ALL PROPOSED RACEWAY ROUTING, ELEVATIONS, INSTALLATION METHODS, ETC. ON COORDINATION DRAWINGS AND COORDINATE ALL PROPOSED RACEWAY ROUTING WITH ALL AFFECTED TRADES PRIOR TO COMMENCING WITH WORK. IN ADDITION, REVIEW THE INFORMATION WITH ARCHITECT, ENGINEER AND OWNER FOR ALL AREAS WHERE THE RACEWAYS WILL BE VISIBLE AFTER COMPLETION OF CONSTRUCTION.

Q. JUNCTION AND PULL BOXES: LOCATE JUNCTION AND PULL BOXES SO THAT THEY REMAIN ACCESSIBLE AFTER ALL CONSTRUCTION WORK IS COMPLETE. COORDINATE ALL WORK WITH ALL OTHER TRADES PRIOR TO COMMENCEMENT OF THE WORK. LOCATE BOXES IN A MANNER THAT AVOIDS HAVING TO USE ACCESS PANELS. IF ACCESS PANELS ARE INEVITABLE, PROVIDE THEM RATED TO MEET OR EXCEED THE FIRE AND/OR SMOKE RATINGS OF THE RESPECTIVE CEILING OR WALL, AND OBTAIN APPROVAL OF DESIGN PROFESSIONALS FOR EACH LOCATION..

R. CONDUCTOR TERMINATIONS: IN CASES WHERE CONDUCTOR SIZES ARE TOO LARGE TO FIT INTO LUGS/TERMINALS, PROVIDE APPROPRIATE FACTORY LUG KITS FOR AFFECTED EQUIPMENT IF AVAILABLE. ELSEWHERE, PROVIDE INSULATED BUTT-SPLICES OR EQUIVALENT METHOD, WITH TAILS SIZED TO FIT LUGS/TERMINALS. PROVIDE SPLICES IN SEPARATE BOXES IF REQUIRED BASED ON FIELD CONDITIONS, BOX SIZE LIMITATIONS, ETC. CONCEAL BOXES IN ACCESSIBLE OVERHEAD JOIST SPACES IN FINISHED REGULARLY OCCUPIED AREAS.

S. TYPE MC CABLE: WHERE MORE THAN TWO TYPE MC CABLES CONTAINING TWO OR MORE CURRENT CARRYING CONDUCTORS IN EACH CABLE ARE INSTALLED IN CONTACT WITH THERMAL INSULATION, CAULK, OR SEALING FOAM MAINTAIN SPACING BETWEEN CABLES.

UTILITY COORDINATION

COORDINATE UTILITY SERVICE WORK CONTAINED WITHIN THIS DRAWING SET WITH RESPECTIVE LOCAL UTILITY COMPANY. KLH HAS STARTED THIS COORDINATION PROCESS WITH UTILITY COMPANY REPRESENTATIVE LISTED BELOW AS PART OF THE DESIGN PHASE. CONTINUE THIS COORDINATION PROCESS PRIOR TO STARTING ANY WORK AND CONTINUE THROUGHOUT CONSTRUCTION PHASE.

OBTAIN AND COMPLY WITH UTILITY INSTALLATION DETAILS AND STANDARDS.

CONTACT 811 "CALL BEFORE YOU DIG" SERVICE PRIOR TO COMMENCING ANY UNDERGROUND WORK.

ELECTRIC SERVICE	
UTILITY COMPANY	RURAL ELECTRIC
UTILITY CONTACT	KEVIN
PHONE NUMBER	(513)867-4400
EMAIL ADDRESS	N/A
DATE(S) CONTACTED	2/3/25
KLH CONTACT	DYLAN RUSEK

ELECTRICAL PRIMARY SERVICE (OWNER-PURCHASED PRIMARY)		
PRIMARY METERING MEANS	PAD-MOUNT	
PRIMARY DISCONNECTING MEANS	PAD-MOUNT	
TRANSFORMER		
OWNERSHIP	OWNER	
NEW OR EXISTING	NEW	
SIZE (kVA)	150KVA	
PRIMARY VOLTAGE (kV)	N/A	
SECONDARY VOLTAGE (V)	240V	
RESPONSIBILITY MATRIX (X = FURNISH AND INSTALL)	**UTILITY**	**DIVISION 26**
FURNISH PRIMARY METERING POLES/FOUNDATIONS	X	
INSTALL PRIMARY METERING POLES/FOUNDATIONS		X
PRIMARY DISCONNECTING MEANS		X
PRIMARY FUSES		X
TRANSFORMER		X
TRANSFORMER PAD		X
PRIMARY CONDUIT		X
PRIMARY CABLE	X	
TERMINATE PRIMARY CABLE	X	
SECONDARY CONDUIT		X
SECONDARY CONDUCTORS		X
TERMINATE SECONDARY CONDUCTORS		X

ELECTRICAL SECONDARY SERVICE (OWNER-PURCHASED SECONDARY)		
TRANSFORMER		
OWNERSHIP	UTILITY	
NEW OR EXISTING	NEW	
SECONDARY VOLTAGE (V)	240/120V	
MAX NUMBER OF CONDUITS IN SECONDARY COMPARTMENT	8	
TRANSFORMER CLEARANCES		
MINIMUM DISTANCE FROM BUILDING	3FT.	
MINIMUM DISTANCE FROM EMERGENCY GENERATOR	N/A	
MAXIMUM DISTANCE FROM DRIVABLE SURFACE	3FT.	
WORKING CLEARANCE		
FRONT	10 FT.	
SIDE	3 FT.	
REAR	3 FT.	
METERING		
CURRENT TRANSFORMER (CT) LOCATION	TRANSFORMER CT CABINET (PICK ONE)	
RESPONSIBILITY MATRIX (X = FURNISH AND INSTALL)	**UTILITY**	**DIVISION 26 CONTRACTOR**
TRANSFORMER	X	
TRANSFORMER PAD		X
PRIMARY CONDUIT		X
PRIMARY CABLE	X	
TERMINATE PRIMARY CABLE	X	
SECONDARY CONDUIT		X
SECONDARY CONDUCTORS		X
TERMINATE SECONDARY CONDUCTORS		X
METER SOCKET		X
CT CABINET		X

ELECTRIC DRAWING INDEX

2" REFERENCE LINE
KLH #: 26959

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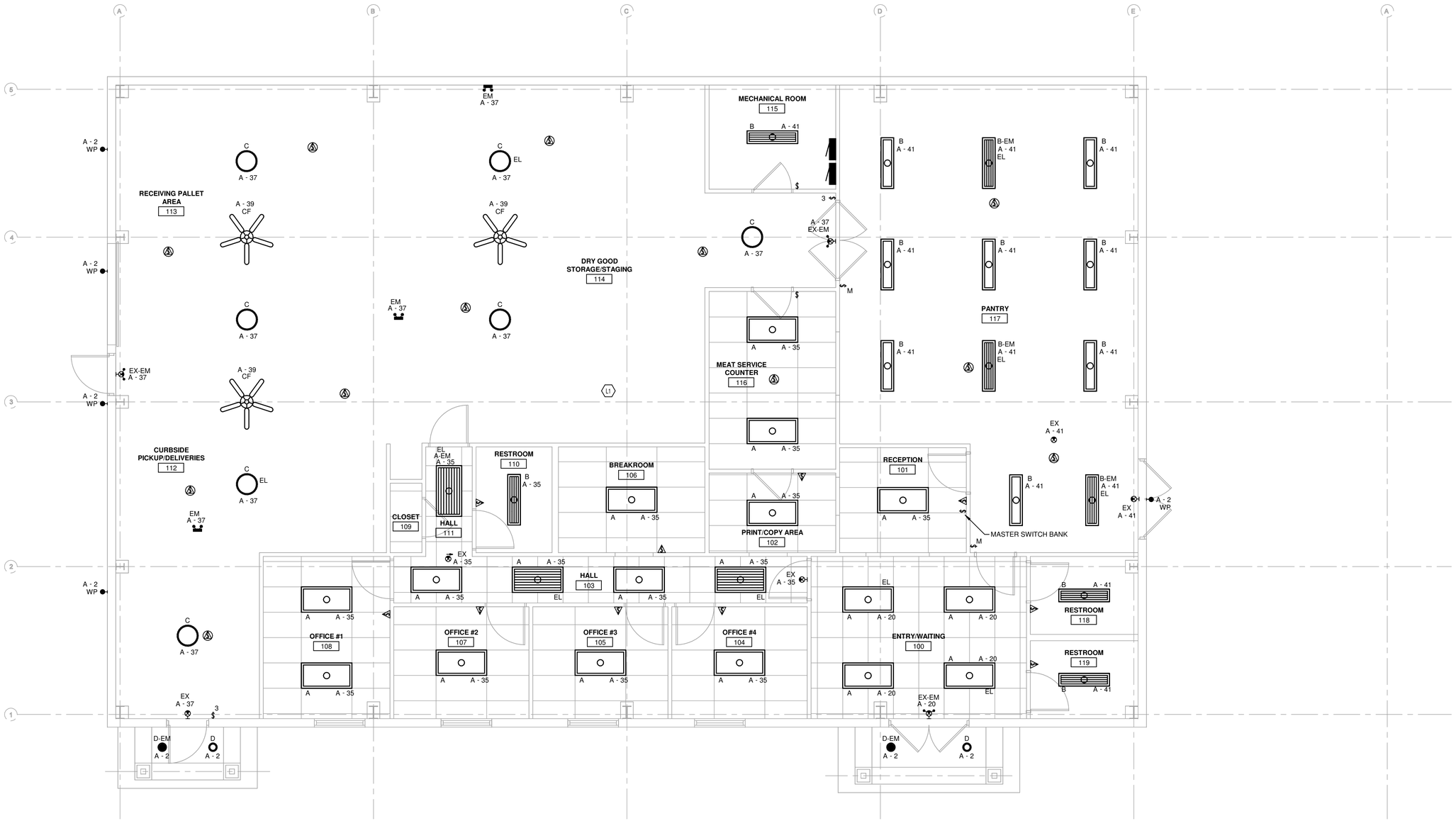
ELECTRIC COVER SHEET
E001
03/12/25

GENERAL LIGHTING PLAN NOTES

A. EXIT SIGN CONNECTIONS: CONNECT ALL EXIT SIGNAGE AHEAD OF ANY SWITCHING.
B. INDOOR EGRESS LIGHTING: CONNECT ALL INDOOR EGRESS LIGHTING, DESIGNATED "EL", AHEAD OF ANY SWITCHING, UNLESS CONTROL METHODS ARE INDICATED OTHERWISE FOR A GIVEN AREA.
C. BATTERY BACKUP DEVICES: WHERE INDICATED IN DOCUMENTS, PROVIDE UL 924 LISTED BATTERY DEVICES, WHICH AUTOMATICALLY REVERT TO FULL ILLUMINATION FOR THE AFFECTED LUMINAIRES IN THE EVENT OF LOSS OF POWER FROM THE NORMAL POWER SUPPLY CIRCUIT. PROVIDE UNSWITCHED "HOT" TO SUCH COMPONENTS TO PROVIDE CONTINUOUS POWER EVEN IF LUMINAIRE IS TURNED OFF USING NORMAL LIGHTING CONTROLS.

KEYED NOTES

L1	COORDINATE WALK-IN COOLER AND FREEZER LIGHTING REQUIREMENTS WITH MANUFACTURER.



1 ELECTRIC LIGHTING PLAN
1/4" = 1'-0"

N

2" REFERENCE LINE

KLH #: 26959

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ELECTRIC LIGHTING PLAN

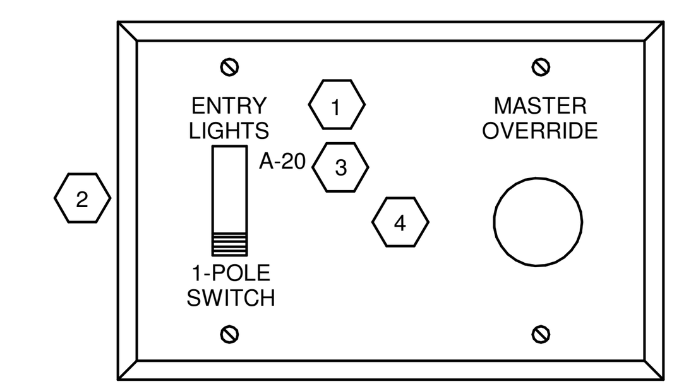
E100

03/12/25

ELECTRIC LUMINAIRE SCHEDULE

GENERAL NOTES:
A. REFER TO DRAWINGS FOR MOUNTING TYPE, NUMBER OF FACES AND ARROWS OF EXIT SIGNS. VERIFY IN FIELD PRIOR TO INSTALLATION.
B. VERIFY COMPATIBILITY WITH VOLTAGE, CONTROLS, ETC. FOR ALL LUMINAIRE COMPONENTS
C. COORDINATE EACH LUMINAIRE LOCATION WITH THE ARCHITECTURAL REFLECTED CEILING PLANS, CEILING INSTALLERS, ETC. AND PROVIDE APPROPRIATE MOUNTING SYSTEM REQUIRED FOR EACH LUMINAIRE. ALSO, PROVIDE PLASTER FRAMES, WALL BRACKETS, SUPPORTS, OR OTHER APPURTENANCES AS REQUIRED FOR PROPER AND COMPLETE INSTALLATIONS.
D. WEAR CLEAN WHITE COTTON GLOVES WHEN HANDLING EXPOSED REFLECTIVE LUMINAIRE SURFACES. REMOVE PLASTIC SHIPPING BAGS ONLY AFTER INTERIOR WORK IS COMPLETE, AND CLEAN ALL SURFACES WITH CLEAN DRY CHEESECLOTH.
E. MOUNTING HEIGHTS INDICATED ARE TO THE BOTTOM OF THE LUMINAIRE, UNLESS OTHERWISE NOTED.
F. PRODUCTS: PROVIDE PRODUCTS INDICATED ON DRAWINGS AND SCHEDULES. WHERE MULTIPLE MANUFACTURER SERIES/MODEL NUMBERS ARE LISTED FOR A SINGLE LUMINAIRE, PROVIDE ONE OF THOSE LISTED. WHERE A SPECIFIC MANUFACTURER SERIES/MODEL NUMBER IS LISTED AS BASIS-OF-DESIGN, AND WHERE IT IS STATED THAT EQUIVALENTS WILL BE CONSIDERED, ANY PROPOSED NON-LISTED LUMINAIRES ARE SUBJECT TO REVIEW BY DESIGN PROFESSIONAL(S), SUBMITTALS FOR WHICH SHALL BE FURNISHED AT LEAST (10) DAYS PRIOR TO BID DUE DATE OR THEY WILL NOT BE CONSIDERED. THESE PRE-BID SUBMITTALS SHALL CLEARLY STATE EXACTLY WHAT IS BEING PROPOSED AND SHALL DEMONSTRATE COMPLIANT EQUIVALENCY. SIMILAR REQUESTS FOR PROPOSED SUBSTITUTIONS MAY BE MADE ONLY AFTER BIDS ARE RECEIVED, AND ONLY IF OWNER CHOOSES TO CONSIDER SUBSTITUTION REQUESTS. DESIGN PROFESSIONAL(S) AND OWNER RESERVE THE RIGHT TO REJECT ALL PRODUCTS THAT ARE NOT DEEMED TO BE FULLY EQUIVALENT TO THE BASIS-OF-DESIGN LISTING(S). SUBMIT ALL REQUESTS AND QUESTIONS THROUGH THE FORMALLY-ESTABLISHED BIDDING PROCESS, NOT DIRECTLY TO ENGINEER.

TYPE	DESCRIPTION	MANUFACTURER	MODEL	LIGHT SOURCE	BATTERY	BATTERY TYPE	LOAD (VA)	UNIVERSAL VOLTAGE (MVOLT)	VOLTAGE	PHASE	COMMENTS
A	2X4 LED TROFFER	LITHONIA	2VTL4-30L-ADP-LP840	LED	No	NONE	23 VA	Yes	120 V	1	
A-EM	2X4 LED TROFFER	LITHONIA	2VTL4-30L-ADP-LP840-EL7L	LED	Yes	INTEGRAL-90 MINUTE	23 VA	Yes	120 V	1	
B	1X4 LED TROFFER	LITHONIA	VTL4-30L-ADP-LP840	LED	No	NONE	23 VA	Yes	120 V	1	
B-EM	1X4 LED TROFFER	LITHONIA	VTL4-30L-ADP-LP840-EL7L	LED	Yes	INTEGRAL-90 MINUTE	23 VA	Yes	120 V	1	
C	DOWNLIGHT - ROUND	COMMERCIAL LED LIGHTING	CLLHB08100W-27V-40K	LED	No	NONE	100 VA	Yes	120 V	1	
D	DOWNLIGHT - ROUND	LITHONIA	LDN6-40K-15-L06MVOLT	LED	No	NONE	18 VA	Yes	120 V	1	
D-EM	DOWNLIGHT - ROUND	LITHONIA	LDN6-40K-15-L06MVOLT-E10WCP	LED	Yes	INTEGRAL-90 MINUTE	18 VA	Yes	120 V	1	
EM	EMERGENCY LIGHTING UNIT	LITHONIA	ELM4L	LED	Yes	INTEGRAL-90 MINUTE	3 VA	Yes	120 V	1	
EX	EXIT SIGN	LITHONIA	LQM-S-W-3-R-120/277-EL-N-M6	LED	Yes	INTEGRAL-90 MINUTE	1 VA	Yes	120 V	1	
EX-EM	EXIT SIGN COMBO	LITHONIA	ECC-R	LED	Yes	INTEGRAL-90 MINUTE	2 VA		120 V	1	
WP	WALL PACK	LITHONIA	WDGE1-P1-30K-80CRI-VW-MVOLT-SRM-E4WH	LED	Yes	INTEGRAL-90 MINUTE	10 VA	Yes	120 V	1	



KEYED NOTES:

1. PROVIDE ENGRAVED DESCRIPTION WITH BLACK REVEAL & +/- 3/16" HIGH LETTERING (TYPICAL).
2. SEE SPECIFICATIONS FOR WALL PLATE MATERIAL, STYLE AND TYPE (TYPICAL).
3. SWITCHING DESIGNATION (TYPICAL - SHOWN FOR REFERENCE ONLY, NOT TO BE ENGRAVED).
4. TYPE OF SWITCH (TYPICAL - SHOWN FOR REFERENCE ONLY, NOT TO BE ENGRAVED).
5. PROVIDE STEEL BARRIER WITHIN OUTLET BOX TO SEPARATE DIFFERENT BRANCH CIRCUITS.

MASTER SWITCH BANK

SCALE: NONE

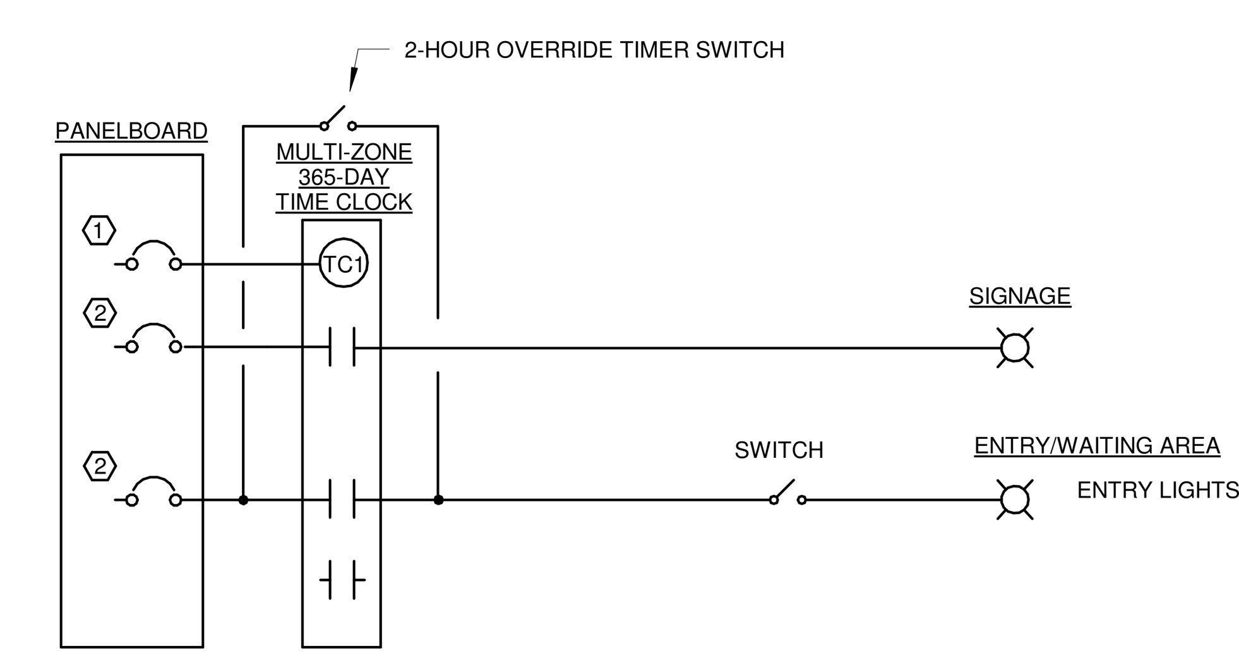
LIGHTING CONTROL DESIGN INTENT

EXTERIOR LIGHTING AND SIGNAGE:
HARDWARE: LIGHTING CONTACTOR(S) AND TIMECLOCK.
CONTROL INTENT: STOREFRONT LIGHTING, RECEPTACLES AND SIGNAGE SHALL TURN "ON" AND "OFF" BASED ON THE TIME SCHEDULE(S) PROGRAMMED INTO THE TIMECLOCK.

ENTRY LIGHTS:
HARDWARE: WALL MOUNTED TOGGLE SWITCH AND TIMECLOCK.
CONTROL INTENT: DURING BUSINESS HOURS (HOURS PROGRAMMED INTO TIMECLOCK) THE ENTRY AREA LIGHTS SHALL TURN "ON" AND "OFF" BASED ON THE TIME SCHEDULE(S) PROGRAMMED INTO THE TIMECLOCK.
THE TIMER SWITCH SHALL OVERRIDE THE TIMECLOCK SCHEDULING (FOR A MAXIMUM OF 2-HOURS) AND ALLOW FOR AFTER HOURS CONTROL OF THE LIGHTING.

KEYED NOTES:

1. PROVIDE TIME-BASED CONTROL FOR APPLICABLE CIRCUITS AS DEFINED ON TIMECLOCK SCHEDULE.
2. PROVIDE CONTACTOR CONTROL FOR APPLICABLE CIRCUITS AS DEFINED ON LIGHTING CONTACTOR SCHEDULE.



LIGHTING CONTROL DESIGN INTENT

SCALE: NONE

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2" REFERENCE LINE
KLH #: 26959

ELECTRIC LIGHTING - DETAILS
E101
03/12/25

ELECTRIC FIXTURE SCHEDULE

FIXTURE ID	Description	ELECTRICAL DATA	POLES	PANEL	Comments
1	REACH-IN FREEZER	120 V/1-960 VA	1	A	
2	MILK COOLER	120 V/1-900 VA	1	B	
3	2-DOOR REACH-IN FREEZER	120 V/1-984 VA	1	A	
4	SINGLE DOOR REF.	120 V/1-600 VA	1	B	
5	SINGLE DOOR REF.	120 V/1-576 VA	1	A	
6	COMMERCIAL REF.	120 V/1-360 VA	1	B	
14	SINGLE DOOR REF.	120 V/1-600 VA	1	A	
15	SINGLE DOOR REF.	120 V/1-600 VA	1	A	
16	SINGLE DOOR LAB FREEZER	120 V/1-600 VA	1	A	
17	3-DOOR REF.	120 V/1-960 VA	1	A	
18	DEEP FREEZER	120 V/1-960 VA	1	B	

GENERAL POWER PLAN NOTES

A. EQUIPMENT COORDINATION SCHEDULES: REFER TO EQUIPMENT COORDINATION SCHEDULES FOR REQUIREMENTS ASSOCIATED WITH EQUIPMENT CIRCUITING, CONNECTIONS, ANCILLARY DEVICES AND EQUIPMENT, ETC. COORDINATE LOCATIONS AND REQUIREMENTS FOR ALL EQUIPMENT WITH RESPECTIVE EQUIPMENT SUPPLIERS AND INSTALLERS PRIOR TO ORDERING ANY RELATED MATERIALS OR COMMENCING WITH ANY RELATED ROUGH-IN WORK.

B. TECHNOLOGY SYSTEMS: PROVIDE RACEWAY AND PATHWAY SYSTEMS FOR ALL TECHNOLOGY WORK. INCLUDE OUTLET BOXES, CONDUITS, RACEWAYS, J-HOOKS, CABLE TRAY, ETC. AS REQUIRED FOR COMPLETE OPERATIONAL SYSTEMS. COORDINATE ALL RELATED WORK (INCLUDING ASSOCIATED POWER) WITH OWNER (INCLUDING OWNER'S PROJECT MANAGER), FIELD CONDITIONS, FURNITURE INSTALLER(S), TECHNOLOGY INSTALLER(S) AND WORK OF OTHER TRADES AND SUPPLIERS/INSTALLERS AS APPLICABLE. TERMINATE ALL CONDUITS FROM OUTLET BOXES TO NEAREST ACCESSIBLE CEILING CAVITY, OR TO OVERHEAD STRUCTURAL SPACE FOR AREAS WITH NO CEILINGS. PROVIDE CONDUITS WITH SWEEP BENDS, PULL STRINGS, PLASTIC BUSHINGS AND IDENTIFICATION AT OVERHEAD ENDS. PROVIDE BLANK WALL PLATES TO MATCH WIRING DEVICE WALL PLATES.

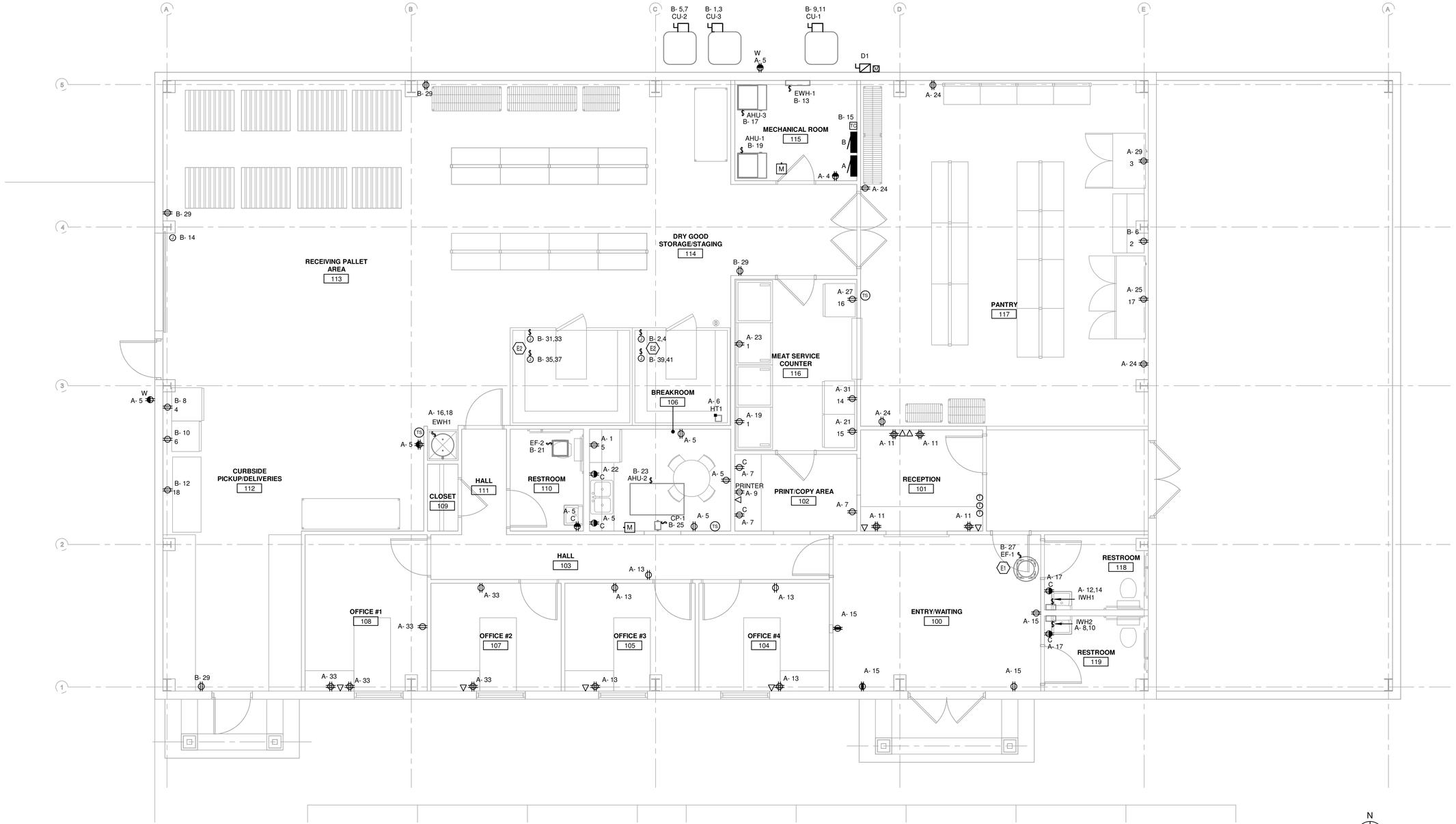
C. STOREFRONT WINDOWS: INSTALL RECEPTACLE(S) INDICATED ABOVE STOREFRONT WINDOWS WITHIN 18 INCHES OF THE TOP OF STOREFRONT WINDOWS, AND INSTALL COMPLIANT WITH NEC, INCLUDING ARTICLE 210.62.

D. TRIM AND DOOR FINISHES: PROVIDE FACTORY-PAINTED OR FIELD-PAINTED TRIMS AND DOORS TO MATCH WALL FINISH COLOR FOR ALL PANELBOARDS AND SIMILAR EQUIPMENT THAT ARE INSTALLED RECESSED IN FINISHED WALLS. IF FIELD-PAINTED, PAINT ALL SIDES AND EDGES WITH TWO COATS OF PAINT BEFORE INSTALLATION, AND LET DRY BEFORE INSTALLING THEM. ENSURE THAT NO COMPONENTS ARE (DOORS, LATCHES, SCREWS, ETC.) ARE "PAINTED SHUT".

E. SIGNAGE: COORDINATE ALL SIGNAGE REQUIREMENTS WITH OWNER (INCLUDING OWNER'S PROJECT MANAGER), SIGNAGE SUPPLIERS AND INSTALLERS, AND ARCHITECT TO DETERMINE SPECIFICS REGARDING LOCATIONS, POWER, CONTROL, AND OTHER PERTINENT INFORMATION. PROVIDE POWER (ON DEDICATED CIRCUIT(S)) FOR SIGNAGE REQUIRING POWER CONNECTIONS. PROVIDE PHOTOCELL AND TIME-BASED CONTROL, CONFIGURED AS DIRECTED BY OWNER. PROVIDE ALL ELECTRICAL WORK, INCLUDING DISCONNECTING MEANS, COMPLIANT WITH ARTICLE 600 OF NFPA 70. COMPLY WITH LANDLORD REQUIREMENTS WHERE APPLICABLE.

KEYED NOTES

E1	INTERLOCK EXHAUST FAN WITH RESTROOM LIGHTING CONTROLS.
E2	ELECTRICAL CONNECTION AND LOAD REQUIREMENTS ARE ESTIMATED. VERIFY BREAKER SIZES AND LOAD REQUIREMENTS AND NOTIFY ENGINEER OF ANY DISCREPANCIES.



1 ELECTRIC POWER PLAN
1/4" = 1'-0"

N

2" REFERENCE LINE
KLH #: 26959

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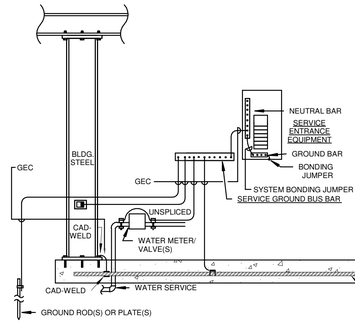
ELECTRIC POWER PLAN
E200
03/12/25



SERVICE ENTRANCE GROUNDING DETAIL

REMOVE THIS MAGENTA GROUP IF CONCRETE FLOOR SLAB ON GRADE IS EXISTING. RETAIN IT FOR PROJECTS WITH NEW SLAB ON GRADE.

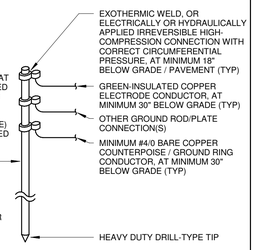
GENERAL NOTES:

A. PROVIDE ALL GROUNDING ELECTRODE CONDUCTORS PER NEC TABLE 250.66 UNLESS NOTED OTHERWISE.
B. ALL GROUNDING ELECTRODE CONDUCTORS (GEC) SHALL BE SIZED THE SAME AS THE SERVICE ENTRANCE GEC SHOWN ON THE SINGLE LINE DIAGRAM UNLESS NOTED OTHERWISE SUCH AS FOR STEP-DOWN TRANSFORMERS.
C. SIZE ALL EQUIPMENT GROUNDING/BONDING JUMPERS PER NEC TABLE 250.122 UNLESS NOTED OTHERWISE.
D. IN ADDITION TO WORK SHOWN IN DETAIL, PROVIDE BONDING JUMPERS FROM SERVICE GROUND BAR TO NATURAL GAS PIPING, WATER PIPING, DUCTWORK, AIR-DUCT EQT., WATER HEATERS, MISC. PIPING, ETC. AS APPLICABLE TO THE PROJECT AND COMPLIANT WITH NFPA 70 (INCLUDING ARTICLE 250).
E. PROVIDE GROUNDING SYSTEM WITH RESISTANCE OF 3 OHMS OR LESS. PROVIDE ADDITIONAL GROUND RODS, GROUND PLATES, CHEMICAL TREATMENT OF ADJACENT SOIL, AND/OR CHEMICAL GROUND RODS AS REQUIRED TO ACHIEVE SPECIFIED MAXIMUM RESISTANCE.
F. PROVIDE A CONCRETE-ENCASED ELECTRODE PER NEC 250.52. ELECTRODE SHALL CONSIST OF 20'-0" OF CONTINUOUS BARE OR ZINC GALVANIZED 1/2" DIAMETER STEEL REINFORCING BARS OR RODS (OR MULTIPLE PIECES CONNECTED BY STEEL TIE WIRES, WELDING OR EXOTHERMIC WELDING TO EFFECTIVELY CREATE 20'-0" OR GREATER LENGTH) OR 20' OF A BARE COPPER CONDUCTOR NO SMALLER THAN #4 AWG. ENCASE ELECTRODE IN AT LEAST 2" OF CONCRETE. ONE OR MORE METAL IN-GROUND SUPPORT STRUCTURES MAY BE USED AS GROUNDING ELECTRODE CONDUCTORS IF EXTENDED VERTICALLY AT LEAST 10 FEET BELOW GRADE WITH OR WITHOUT CONCRETE ENCASEMENT, AND IF UTILIZED COMPLIANT WITH NFPA 70 250.52(A)(2).
G. INSTALL ALL GROUND ROD CONNECTIONS SO THEY CAN BE PROPERLY INSPECTED AND TESTED WITHOUT DISCONNECTION OR DISRUPTION OF THE GROUND SYSTEM INSTALLATION.
H. INSTALL GROUND CONDUCTORS UNSPLICED AND UNBROKEN,USING MOST DIRECT ROUTE POSSIBLE.
I. A = PHASE A CONDUCTOR
B = PHASE B CONDUCTOR
C = PHASE C CONDUCTOR
N = "NEUTRAL" (GROUNDED CONDUCTOR)
GEC = GROUNDING ELECTRODE CONDUCTOR
EGC = EQUIPMENT GROUNDING CONDUCTOR / BONDING JUMPER
MCB = MAIN CIRCUIT BREAKER (SERVICE DISCONNECT)
ATS = AUTOMATIC TRANSFER SWITCH

260526.00-01 - GROUNDING SYSTEM DETAIL

SCALE: NONE

PROVIDE 3/4 " X 10'-0" MINIMUM COPPER OR COPPER-CLAD/BONDED STEEL GROUND ROD. PROVIDE AT LEAST 3 RODS FOR GROUNDING ELECTRODE SYSTEM, INSTALLED AT LEAST ONE ROD-LENGTH FROM EACH OTHER AND LOCATED AT LEAST THE SAME DISTANCE FROM OTHER GROUNDING ELECTRODES, AND CONNECT TO SERVICE GROUNDING ELECTRODE CONDUCTOR. PROVIDE HIGH-CONDUCTIVITY SHEET COPPER PLATES (MINIMUM 20 GAUGE X 36" SQUARE), WITH AT LEAST 2 CABLE/CONDUCTOR ATTACHMENTS, SIZED FOR CABLES AS NECESSARY TO FULFILL PROJECT GROUNDING REQUIREMENTS WHERE GROUND RODS CANNOT OR SHOULD NOT BE USED.



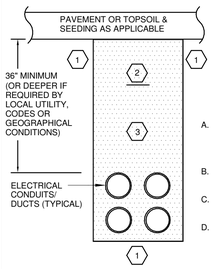
GENERAL NOTES:

A. PROVIDE GREEN-INSULATED TYPE XHHW-2 CONDUCTORS, IN CONDUIT, FROM BUILDING INTERIOR TO GROUNDING ELECTRODE IN INSPECTION WELLS.

GROUND ROD DETAIL

KEYED NOTES:

1. PROVIDE TRENCH IN UNDISTURBED OR ENGINEERED COMPACTED SOIL AS APPLICABLE.
2. PROVIDE 3" WIDE DETECTABLE CAUTION TAPE 8" BELOW FINISHED SURFACE.
3. PROVIDE FLOWABLE BACKFILL.
   BACKFILL USING BANKRUN GRAVEL OR ANGULAR CRUSHED STONE, FREE OF ROCKS 1" DIAMETER & LARGER. COMPACT TO 90% IN MAXIMUM 8" LIFTS OF LOOSE MATERIAL.
   BACKFILL USING EXCAVATED OR BORROWED MATERIAL, FREE OF ROCKS 1" DIAMETER & LARGER. COMPACT TO 90% IN MAXIMUM 8" LIFTS OF LOOSE SOIL.



GENERAL NOTES:

A. THIS DETAIL APPLIES FOR ALL SERVICE ENTRANCE, FEEDER, TECHNOLOGY SERVICE AND SIMILAR APPLICATIONS WHERE ELECTRICAL CONDUITS ARE REQUIRED TO BE INSTALLED BELOW GRADE, PAVEMENT OR SLABS.
B. THIS DETAIL IS TYPICAL FOR ALL CONDUITS/DUCTS, REGARDLESS OF QUANTITY.
C. SEE PLANS AND SPECIFICATIONS FOR SIZES AND QUANTITIES OF CONDUITS/DUCTS.
D. PROVIDE AT LEAST 3" OF SEPARATION BETWEEN CONDUITS AND AT LEAST 4" OF SEPARATION BETWEEN ANY CONDUIT & ADJACENT TRENCH BOTTOM OR WALL. ALIGN CONDUITS ON CHAIRS AND ENSURE ALL BACKFILL ENCASES CONDUITS WITH EVEN BEARING AND WITHOUT DAMAGING CONDUITS OR CHAIRS.
E. COORDINATE TRENCH LOCATION IN REFERENCE TO OTHER UNDERGROUND UTILITIES. ENSURE NO OTHER UTILITIES ARE PLACED DIRECTLY ABOVE OR BELOW, WHEN PARALLEL TO CONDUITS.

260543.00-05 - U.G. SERVICE CONDUIT DETAIL (ONE LAYER BACKFILL)

SCALE: NONE

2" REFERENCE LINE

KLH #: 26959

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ELECTRIC POWER DETAILS

E201

03/12/25

ELECTRIC PANELBOARD AND SWITCHBOARD SCHEDULE

TYPICAL EQUIPMENT NAME NOMENCLATURE:
1 - POWER DISTRIBUTION SYSTEM (BLANK - NORMAL, E - EMERGENCY, S - STANDBY, L - LIFE SAFETY)
2 - DESCRIPTION (H - 480Y/277V, L - 208Y/120V)
3 - FLOOR / LEVEL
4 - SEQUENCE

ALL ALUMINUM BUSSING SHALL BE TIN-PLATED. ALL COPPER BUSSING SHALL BE EITHER TIN-PLATED OR SILVER-PLATED

EQUIPMENT	PHASE	SPACE NUMBER	SPACE NAME	SUPPLY FROM	POWER BRANCH	TYPE	VOLTAGE	PHASE	WIRES	DEMAND (kVA)	DEMAND (A)	MAINS RATING (A)	MAINS FRAME RATING (A)	MAINS TYPE	BUSSING (PLATED)	MOUNTING	FEEDER	LUGS TYPE	SPD	ULSE	GEC	ENCLOSURE TYPE	FAULT CURRENT (A)	SHORT CIRCUIT RATING (A)	NOTES
A	New Construction	115	MECHANICAL ROOM	D1	NORMAL	Branch Panelboard	240	1	3	64115 VA	267 A	400	400	THERMAL MAGNETIC	COPPER OR ALUMINUM	SURFACE	(2) SETS OF (3) #3/0 AWG CU IN 2" CONDUIT EACH 75C RATED	FEED-THROUGH				NEMA 1	14828	22000	
B	New Construction	115	MECHANICAL ROOM	A		Branch Panelboard	240	1	3	28009 VA	117 A	400	400	THERMAL MAGNETIC	COPPER OR ALUMINUM	SURFACE	(2) SETS OF (3) #3/0 AWG CU, (1) #3 AWG CU GND. IN 2" CONDUIT EACH 75C RATED					NEMA 1	14760	22000	

ELECTRIC EQUIPMENT SUPPLY SCHEDULE

EQUIPMENT MARK	SUPPLY FROM	CKT	EMERG.	LOAD (kVA)	AVAILABLE FAULT CURRENT	VOLTS	POLE	HTG KW	WATT	HP	FLA (A)	MCA (A)	RQD OCP (A)	BREAKER RATING (A)
AHU-1	B	19	NO	1.09	3778	120 V	1					10.1	15	15
AHU-2	B	23	NO	1.09	1341	120 V	1					10.1	15	15
AHU-3	B	17	NO	0.80	3472	120 V	1					7.4	15	15
CP-1	B	25	NO	0.09	1283	120 V	1			0.033				15
CU-1	B	9,11	NO	3.80	3800	240 V	2					17.6	30	30
CU-2	B	5,7	NO	4.90	4266	240 V	2					22.7	40	40
CU-3	B	1,3	NO	3.56	4782	240 V	2					16.5	25	25
EF-1	B	27	NO	0.16	1275	120 V	1				1.3	1.6	15	15
EF-2	B	21	NO	0.04	1229	120 V	1				0.29		15	15
EWH1	A	16,18		4.50	3104	240 V	2	4.5						25
EWH-1	B	13	NO	0.75	3800	120 V	1		750		6.25			20
HT1	A	6		0.05	1755	120 V	1		50				20	20
IWH1	A	12,14		4.80	3306	240 V	2	4.8			20			25
IWH2	A	8,10		4.80	3246	240 V	2	4.8			20			25

HVAC ELECTRICAL COORDINATION SCHEDULE

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

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

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

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

SHORT CIRCUIT RATING
WHERE SHORT CIRCUIT RATING CODE REQUIRED VALUE INDICATES "YES" APPLICABLE EQUIPMENT'S SHORT CIRCUIT RATING SHALL EXCEED THE AVAILABLE FAULT CURRENT VALUE INDICATED.

CONNECTION MARK	DESCRIPTION	VOLTAGE	PHASE	EMERGENCY	HP	WATTS	HTG KW	FLA	MCA	OCP	FED FROM	DC TYPE	DC FURN	DC INST	DC WIRE	MC TYPE	MC FURN	MC INST	MC WIRE	CN TYPE	CN FURN	CN INST	CN WIRE	SHORT CIRCUIT RATING CODE REQUIRED?	AVAILABLE FAULT CURRENT
AHU-1	SPLIT SYSTEM GAS FIRED FURNACE	120 V	1	NO					10.1	15			EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	3778
AHU-2	SPLIT SYSTEM GAS FIRED FURNACE	120 V	1	NO					10.1	15			EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	1341
AHU-3	SPLIT SYSTEM GAS FIRED FURNACE	120 V	1	NO					7.4	15			EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	3472
CP-1	AIR CONDITIONING CONDENSATE PUMP	120 V	1	NO	0.033						REFER TO PLANS		EC	EC	EC	MG	MFR	MFR	MFR	INT	MFR	MFR	MFR	Yes	1283
CU-1	AIR SOURCE OUTDOOR CONDENSING UNIT	240 V	1	NO					17.6	30			EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	3800
CU-2	AIR SOURCE OUTDOOR CONDENSING UNIT	240 V	1	NO					22.7	40			EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	4266
CU-3	AIR SOURCE OUTDOOR CONDENSING UNIT	240 V	1	NO					16.5	25			EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	4782
EF-1	HVAC EXHAUST FAN	120 V	1	NO				1.3	1.6	15			EC	EC	EC	ECM	MFR	MFR	MFR	LINE	EC	EC	EC	No	1275
EF-2	HVAC EXHAUST FAN	120 V	1	NO				0.29		15			EC	EC	EC	ECM	MFR	MFR	MFR	LINE	EC	EC	EC	No	1229
EWH-1	ELECTRIC UNIT HEATER	120 V	1	NO		750		6.25					EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	No	3800

PLUMBING ELECTRICAL COORDINATION SCHEDULE

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

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

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

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

SHORT CIRCUIT RATING
WHERE SHORT CIRCUIT RATING CODE REQUIRED VALUE INDICATES "YES" APPLICABLE EQUIPMENT'S SHORT CIRCUIT RATING SHALL EXCEED THE AVAILABLE FAULT CURRENT VALUE INDICATED.

EQUIPMENT MARK	DESCRIPTION	VOLTAGE	PHASE	EMERGENCY	HP	WATTS	HTG KW	FLA	MCA	OCP	FED FROM	DC FURN	DC INST	DC WIRE	MC TYPE	MC FURN	MC INST	MC WIRE	CN TYPE	CN FURN	CN INST	CN WIRE	FA SHUTDOWN	SHORT CIRCUIT RATING CODE REQUIRED?	AVAILABLE FAULT CURRENT
IWH2	INSTANTANEOUS ELECTRIC WATER HEATER	240 V	1				4.8	20				EC	EC	EC	--	--	--	--	INT	MFR	MFR	MFR	NONE	No	3246
IWH1	INSTANTANEOUS ELECTRIC WATER HEATER	240 V	1				4.8	20				EC	EC	EC	--	--	--	--	INT	MFR	MFR	MFR	NONE	No	3306
EWH1	TANK TYPE ELECTRIC WATER HEATER	240 V	1				4.5					EC	EC	EC	--	--	--	--	INT	MFR	MFR	MFR	NONE	No	3104
HT1	PLUMBING HEAT TRACE PANEL	120 V	1			50				20		EC	EC	EC	--	--	--	--	LINE	PC	PC	PC	NONE	No	1755

ELECTRIC FEEDER SCHEDULE

NOTES:
ALL CONDUIT SIZES INDICATED ARE MINIMUM SIZES. INCREASE SIZES AS REQUIRED TO ACCOMMODATE CONDUCTOR PULLING EASE, FIELD CONDITIONS, ETC.

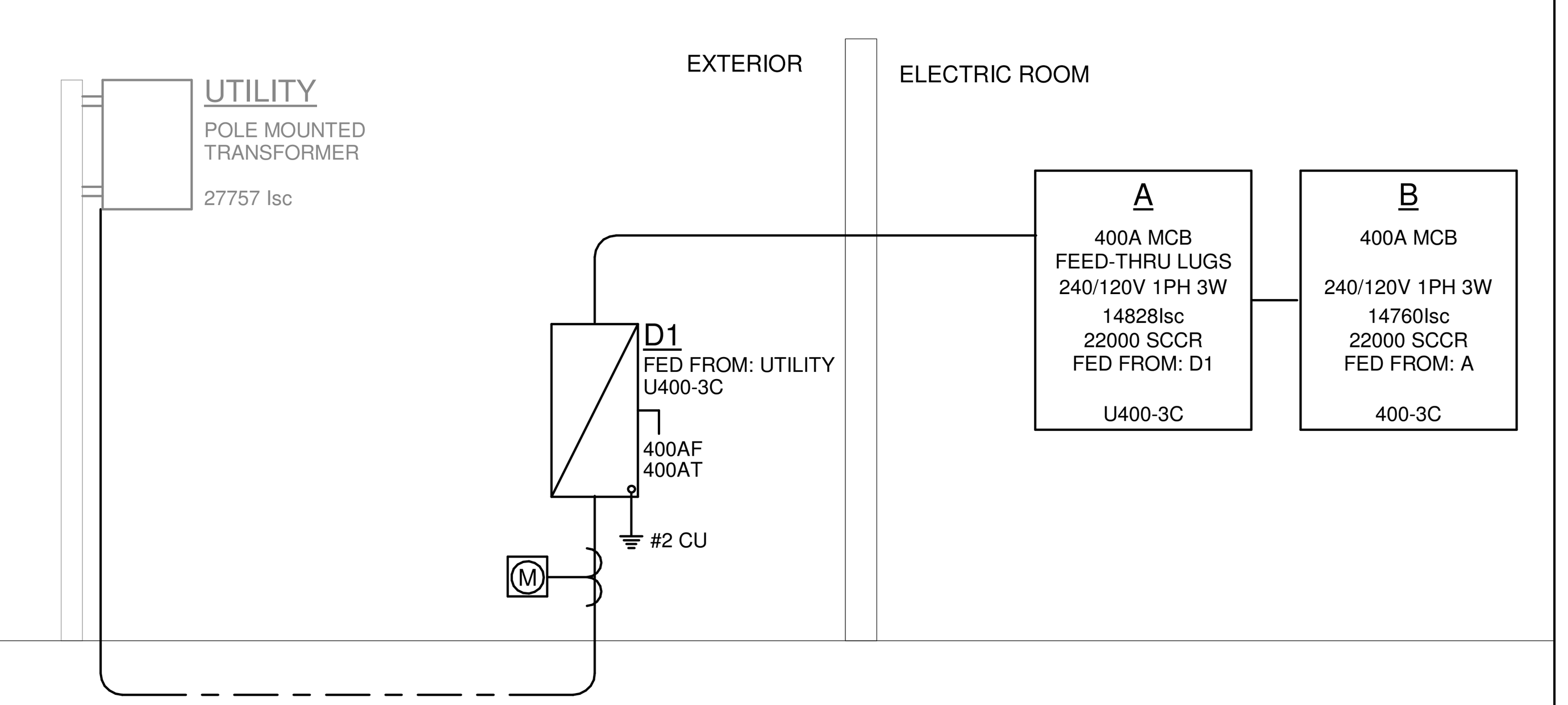
"CU" = COPPER CONDUCTOR,
"AL" = ALUMINUM CONDUCTOR

** WHERE THESE FIELDS ARE BLANK, PROVIDE INSULATION & CONDUIT MATERIAL PER THE CONDUIT & WIRE MATERIAL SCHEDULE.

FEEDER ID NOMENCLATURE:
* - INDICATES FEEDER SIZED TO COMPENSATE FOR VOLTAGE DROP
1 - GROUND TYPE (MAY BE BLANK)
U = EQUIPMENT GROUND CONDUCTOR REMOVED FOR SERVICE ENTRANCE FROM UTILITY
P = PARITY-SIZED EQUIPMENT GROUND CONDUCTOR
X = EXISTING FEEDER TO REMAIN UNLESS OTHERWISE NOTED
T = UPSIZED GROUND CONDUCTORS FOR TRANSFORMER SECONDARY
2 - CONDUCTOR AMPACITY
3 - TOTAL NUMBER OF PHASE AND GROUNDED ("NEUTRAL") CONDUCTORS
4 - CONDUCTOR MATERIAL: C = COPPER, A = ALUMINUM
5 - SPECIAL (MAY BE BLANK)
I = ISOLATED GROUND (PROVIDE CONTINUOUS INSULATED ISOLATED EQUIPMENT GROUNDING CONDUCTOR(S) FROM INSULATED ISOLATED GROUND BAR(S) TO RESPECTIVE UPSTREAM SERVICE ENTRANCE OR DERIVED SYSTEM GROUNDING ELECTRODE CONDUCTOR AS APPLICABLE.

SUPPLY TO	SUPPLY FROM	FEEDER ID	FEEDER	INSULATION **	CONDUIT**	DEMAND (A)	VD %	NOTES
UTILITY								
-- D1	UTILITY	U400-3C	(2) SETS OF (3) #3/0 AWG CU IN 2" CONDUIT EACH 75C RATED			267 A	1.971	
---- A	D1	U400-3C	(2) SETS OF (3) #3/0 AWG CU IN 2" CONDUIT EACH 75C RATED			267 A	2.054	
------ B	A	400-3C	(2) SETS OF (3) #3/0 AWG CU, (1) #3 AWG CU GND. IN 2" CONDUIT EACH 75C RATED			117 A	2.063	
-------- CU-1	B	!C-20-3C	(3) #12 AWG CU, (1) #10 AWG CU GND. IN 3/4" CONDUIT 60C RATED			16 A	2.682	
-------- CU-2	B	!C-30-3C	(3) #10 AWG CU, (1) #10 AWG CU GND. IN 3/4" CONDUIT 60C RATED			20 A	2.744	

FAULT CURRENT CALCULATIONS: BASED ON A 150KVA POLE MOUNTED TRANSFORMER AT 1.7% IMPEDANCE. FIELD VERIFY AND NOTIFY ENGINEER OF ANY DISCREPANCIES.



SINGLE LINE - LAYOUT

SCALE: NONE

2" REFERENCE LINE
KLH #: 26959

KLH ENGINEERS
KOHRS LONNEMANN HEIL ENGINEERS, INC.
WWW.KLHENGRS.COM
1538 ALEXANDRIA PIKE, SUITE 11
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800-354-9783 859-442-8050
859-442-8058 FAX
MECHANICAL/ ELECTRICAL ENGINEERS

REVISIONS

NEW FOOD PANTRY & SOCIAL SERVICE CENTER
TOPSS
REAGH'S WAY
OXFORD, OH 45056

ELECTRIC POWER - SINGLE LINE DIAGRAM

E300

03/12/25

PANEL NAME: B

SUPPLY FROM: A
LOCATION: MECHANICAL ROOM 115
DISTRIBUTION SYSTEM: 240/120V 1PH 3W
FEEDER: (2) SETS OF (3) #3/0 AWG CU, (1) #3 AWG CU GND. IN 2" CONDUIT EACH 75C RATED

BUSSING: COPPER OR ALUMINUM
MAINS RATING (A): 400
MAINS TYPE: THERMAL MAGNETIC
FEEDER ID: 400-3C

MOUNTING: SURFACE
FAULT CURRENT (A): 14760
SHORT CIRCUIT RATING (A): 22000
LUGS TYPE:
ENCLOSURE TYPE: NEMA 1

PHASE: New Construction
SURGE SUPRESSION:
ULSE:
200% NEUTRAL:
ISOLATED GROUND:

CKT	CIRCUIT DESCRIPTION	VD%	AWG	GND	TRIP	FRAME	POLE	A	B	POLE	FRAME	TRIP	GND	AWG	VD%	CIRCUIT DESCRIPTION	CKT
1	CU-3	2.531	#10	#10	25 A	25 A	2	1.78 1.09		2	20 A	20 A	#12	#12	2.649	WALK-IN FREEZER EVAPORATOR | REFRIGERATION DRY GOOD STORAGE/STAGING 114	2
3									1.78 1.09								4
5	CU-2	SL	SL	SL	40 A	40 A	2	2.45 0.90		1	20 A	20 A	#12	#12	2.947	MILK COOLER | REFRIGERATION PANTRY 117	6
7									2.45 0.60	1	20 A	20 A	#12	#12	3.445	SINGLE DOOR REF. | REFRIGERATION CURBSIDE...	8
9	CU-1	SL	SL	SL	30 A	30 A	2	1.90 0.36		1	20 A	20 A	#12	#12	2.919	COMMERCIAL REF. | REFRIGERATION CURBSIDE...	10
11									1.90 0.96	1	20 A	20 A	#12	#12	4.46	DEEP FREEZER | REFRIGERATION CURBSIDE...	12
13	EWH-1 | MECHANICAL ROOM 115	2.362	#12	#12	20 A	20 A	1	0.75 0.50		1	20 A	20 A	#12	#12	3.027	MOTORIZED DOOR | NON-CONT. RECEIVING PALLE...	14
15	NON-CONT. MECHANICAL ROOM 115	2.065	#12	#12	20 A	20 A	1		0.05 0.00	1	20 A	20 A	--	--	--	SPARE	16
17	AHU-3 | MECHANICAL ROOM 115	2.422	#12	#12	15 A	15 A	1	0.80 0.00		1	20 A	20 A	--	--	--	SPARE	18
19	AHU-1 | MECHANICAL ROOM 105	2.5	#12	#12	15 A	15 A	1		1.09 0.00	1	20 A	20 A	--	--	--	SPARE	20
21	EF-2 | RESTROOM 110	2.116	#12	#12	15 A	15 A	1	0.04 0.00		1	20 A	20 A	--	--	--	SPARE	22
23	AHU-2 | BREAKROOM 106	3.572	#12	#12	15 A	15 A	1		1.09 0.00	1	20 A	20 A	--	--	--	SPARE	24
25	CP-1 | BREAKROOM 106	2.192	#12	#12	15 A	15 A	1	0.09 0.00		1	20 A	20 A	--	--	--	SPARE	26
27	EF-1 | ENTRY/WAITING 100	2.29	#12	#12	15 A	15 A	1		0.16 0.00	1	20 A	20 A	--	--	--	SPARE	28
29	RCPT 113, 114, 112	2.534	#12	#12	20 A	20 A	1	0.72 0.00		1	20 A	20 A	--	--	--	SPARE	30
31	WALK-IN COOLER EVAPORATOR | REFRIGERATION DRY GOOD STORAGE/STAGING 114	2.116	#12	#12	20 A	20 A	2		0.08 0.00	1	20 A	20 A	--	--	--	SPARE	32
33								0.08 0.00		1	20 A	20 A	--	--	--	SPARE	34
35	WALK-IN COOLER CONDENSER | REFRIGERATION DRY GOOD STORAGE/STAGING 114	2.974	#12	#12	20 A	20 A	2		1.32 0.00	1	20 A	20 A	--	--	--	SPARE	36
37								1.32 0.00		1	20 A	20 A	--	--	--	SPARE	38
39	WALK-IN COOLER CONDENSER | REFRIGERATION DRY GOOD STORAGE/STAGING 114	2.796	#12	#12	20 A	20 A	2		1.31 0.00	1	20 A	20 A	--	--	--	SPARE	40
41								1.31 0.00		1	20 A	20 A	--	--	--	SPARE	42
	TOTAL CONNECTED LOAD:				14.1 kVA	13.9 kVA											

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND
Heating	16000 VA	100.00%	16000 VA
Motor	280 VA	113.93%	319 VA
Non-Continuous	550 VA	100.00%	550 VA
Receptacle	720 VA	100.00%	720 VA
Refrigeration	10420 VA	100.00%	10420 VA

NOTES:

BREAKER QUANTITIES (NEW ONLY)
(6) 15A / 1P, (22) 20A / 1P, (4) 20A / 2P, (1) 25A / 2P, (1) 30A / 2P, (1) 40A / 2P

PANEL TOTALS	
TOTAL CONNECTED LOAD:	28.0 kVA
DEMAND CALCULATION NOTES:	
TOTAL DEMAND:	28.0 kVA
TOTAL DEMAND AMPS:	**117 A**

PANEL NAME: A

SUPPLY FROM: D1
LOCATION: MECHANICAL ROOM 115
DISTRIBUTION SYSTEM: 240/120V 1PH 3W
FEEDER: (2) SETS OF (3) #3/0 AWG CU IN 2" CONDUIT EACH 75C RATED

BUSSING: COPPER OR ALUMINUM
MAINS RATING (A): 400
MAINS TYPE: THERMAL MAGNETIC
FEEDER ID: U400-3C

MOUNTING: SURFACE
FAULT CURRENT (A): 14828
SHORT CIRCUIT RATING (A): 22000
LUGS TYPE: FEED-THROUGH
ENCLOSURE TYPE: NEMA 1

PHASE: New Construction
SURGE SUPRESSION:
ULSE:
200% NEUTRAL:
ISOLATED GROUND:

CKT	CIRCUIT DESCRIPTION	VD%	AWG	GND	TRIP	FRAME	POLE	A	B	POLE	FRAME	TRIP	GND	AWG	VD%	CIRCUIT DESCRIPTION	CKT
1	SINGLE DOOR REF. | REFRIGERATION BREAKROO...	2.827	#12	#12	20 A	20 A	1	0.58 0.12		1	20 A	20 A	#12	#12	2.241	LTG	2
3									0.18	1	20 A	20 A	#12	#12	2.082	RCPT MECHANICAL ROOM 115	4
5	RCPT 110,106	!	!	!	20 A	20 A	1	1.62 0.05		1	20 A	20 A	#12	#12	2.105	HT1 | DRY GOOD STORAGE/STAGING 114	6
7	RCPT PRINT/COPY AREA 102	2.625	#12	#12	20 A	20 A	1		0.54 2.40	2	25 A	25 A	#10	#10	3.23	IWH2 | RESTROOM 119	8
9	PRINTER | NON-CONT. PRINT/COPY AREA 102	2.58	#12	#12	20 A	20 A	1	0.50 2.40									10
11	RCPT RECEPTION 101	3.167	#12	#12	20 A	20 A	1		1.44 2.40	2	25 A	25 A	#10	#10	3.204	IWH1 | RESTROOM 118	12
13	RCPT 105,104	3.604	#12	#12	20 A	20 A	1	1.26 2.40									14
15	RCPT ENTRY/WAITING 100	2.919	#12	#12	20 A	20 A	1		0.72 2.25	2	25 A	25 A	#10	#10	3.22	EWH1 | RECEIVING PALLET AREA 113	16
17	RCPT 119,118	2.571	#12	#12	20 A	20 A	1	0.36 2.25									18
19	REACH-IN FREEZER | REFRIGERATION MEAT...	2.965	#12	#12	20 A	20 A	1		0.96 0.09	1	20 A	20 A	#12	#12	2.165	LTG ENTRY/WAITING 100	20
21	SINGLE DOOR REF. | REFRIGERATION MEAT...	2.467	#12	#12	20 A	20 A	1	0.60 1.00		1	20 A	20 A	#12	#12	3.401	MICROWAVE | RCPT BREAKROOM 106	22
23	REACH-IN FREEZER | RCPT MEAT SERVICE...	2.794	#12	#12	20 A	20 A	1		0.96 0.72	1	20 A	20 A	#12	#12	2.149	RCPT PANTRY 117	24
25	3-DOOR REF. | REFRIGERATION PANTRY 117	3.071	#12	#12	20 A	20 A	1	0.96 0.00		1	20 A	20 A	--	--	--	SPARE	26
27	SINGLE DOOR LAB FREEZER | RCPT MEAT SERVIC...	2.282	#12	#12	20 A	20 A	1		0.60 0.00	1	20 A	20 A	--	--	--	SPARE	28
29	2-DOOR REACH-IN FREEZER | REFRIGERATION...	2.804	#12	#12	20 A	20 A	1	0.98 0.00		1	20 A	20 A	--	--	--	SPARE	30
31	SINGLE DOOR REF. | RCPT MEAT SERVICE COUNT...	2.42	#12	#12	20 A	20 A	1		0.60 0.00	1	20 A	20 A	--	--	--	SPARE	32
33	RCPT 108,107	3.719	*#10	*#10	20 A	20 A	1	1.44 0.00		1	20 A	20 A	--	--	--	SPARE	34
35	LTG ENTRY/WAITING 100	2.248	#12	#12	20 A	20 A	1		0.37 0.00	1	20 A	20 A	--	--	--	SPARE	36
37	LTG CURBSIDE PICKUP/DELIVERIES 112	2.244	#12	#12	20 A	20 A	1	0.71 0.00		1	20 A	20 A	--	--	--	SPARE	38
39	LTG RECEIVING PALLET AREA 113	2.356	#12	#12	20 A	20 A	1		0.30 0.00	1	20 A	20 A	--	--	--	SPARE	40
41	LTG MECHANICAL ROOM 115	2.15	#12	#12	20 A	20 A	1	0.33 0.00		1	20 A	20 A	--	--	--	SPARE	42
	TOTAL CONNECTED LOAD:				31.4 kVA	28.6 kVA											

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND
Continuous	14100 VA	125.00%	17625 VA
Heating	16050 VA	100.00%	16050 VA
Lighting	1929 VA	125.00%	2411 VA
Motor	280 VA	113.93%	319 VA
Non-Continuous	1050 VA	100.00%	1050 VA
Receptacle	10000 VA	100.00%	10000 VA
Refrigeration	16660 VA	100.00%	16660 VA

NOTES:

BREAKER QUANTITIES (NEW ONLY)
(35) 20A / 1P, (3) 25A / 2P

PANEL TOTALS	
TOTAL CONNECTED LOAD:	60.1 kVA
DEMAND CALCULATION NOTES:	
TOTAL DEMAND:	64.1 kVA
TOTAL DEMAND AMPS:	**267 A**

PANEL SCHEDULE LEGEND

*	=	WIRE SIZED TO COMPENSATE FOR VOLTAGE DROP
**	=	REFER TO DRAWINGS FOR SPECIFICATIONS
(#)	=	NEW CIRCUIT TO EXISTING CIRCUIT BREAKER
(->)	=	CONNECT BRANCH CIRCUIT, WHICH WAS DISCONNECTED FROM ANOTHER SOURCE AS PART OF SELECTIVE DEMOLITION, TO POLE SPACE(S) INDICATED, DETERMINE EXACT POLE ASSIGNMENT(S) BASED ON EXISTING COLOR-CODING OF THE BRANCH CIRCUIT CONDUCTOR INSULATION. PROVIDE NEW BREAKER IF REQUIRED.
(A)	=	PROVIDE ARC FAULT CIRCUIT INTERRUPTER (AFCI) CIRCUIT BREAKER
(AG)	=	PROVIDE COMBINATION ARC FAULT (AFCI) / GROUND FAULT (GFCI) CIRCUIT INTERRUPTER CIRCUIT BREAKER
(AT)	=	EXISTING FUSIBLE SWITCH/CIRCUIT BREAKER WITH NEW FUSES/TRIP RATING
(DO)	=	PROVIDE DRAW-OUT CIRCUIT BREAKER
(ERM)	=	PROVIDE ENERGY REDUCTION MAINTENANCE (REDUCED ENERGY) CIRCUIT BREAKER
(EX)	=	EXISTING CIRCUIT TO REMAIN
(F)	=	CIRCUIT FOR FUTURE USE. PROVIDE BREAKER INDICATED. LOAD SHOWN FOR REFERENCE ONLY.
(G)	=	PROVIDE GROUND-FAULT CIRCUIT INTERRUPTER (GFCI) CIRCUIT BREAKER
(GE)	=	PROVIDE GROUND-FAULT EQUIPMENT PROTECTION (GFEP) CIRCUIT BREAKER
(GS)	=	PROVIDE SPECIAL PURPOSE GROUND-FAULT CIRCUIT INTERRUPTER (SPGFCI) CIRCUIT BREAKER
(H)	=	PROVIDE HANDLE TIE
(L)	=	PROVIDE LOCK-ON DEVICE
(LI)	=	PROVIDE ELECTRONIC LONG AND INSTANTANEOUS ADJUSTABILITY
(LSI)	=	PROVIDE ELECTRONIC LONG, SHORT, AND INSTANTANEOUS ADJUSTABILITY
(LSIA)	=	PROVIDE ELECTRONIC LONG, SHORT, INSTANTANEOUS, AND GROUND-FAULT ALARM ADJUSTABILITY
(LSIG)	=	PROVIDE ELECTRONIC LONG, SHORT, INSTANTANEOUS, AND GROUND-FAULT ADJUSTABILITY
(LT)	=	PROVIDE LOCK-OUT/TAG-OUT DEVICE
SL	=	SEE THE SINGLE LINE DIAGRAM / SCHEDULE FOR WIRE SIZE AND VOLTAGE DROP
(ST)	=	PROVIDE SHUNT TRIP CIRCUIT BREAKER

PANEL SCHEDULE GENERAL NOTES

A. PROVIDE HACR RATED BREAKERS ON ALL MOTOR LOADS.
B. ALL CONDUCTORS SHOWN ARE COPPER.
C. ALL VOLTAGE DROP CALCULATIONS AND COMPENSATED WIRE SIZES ARE BASED ON RIGHT ANGLE CIRCUIT LENGTHS. ACTUAL VOLTAGE DROP MAY VARY BASED ON INSTALLED WIRE LENGTH.
D. VOLTAGE DROP CALCULATIONS AND WIRE SIZES SHOWN IN THE PANEL SCHEDULES ARE FOR HOMERUN CONDUCTORS ONLY. FOR CIRCUITS WITH MORE THAN 1 DEVICE, THESE SIZES ASSUME THE CONDUCTORS DOWNSTREAM OF THE HOMERUN DEVICE ARE THE MINIMUM SIZE REQUIRED BY THE NEC BASED ON THE RATING OF THE CIRCUIT. WHERE THIS IS NOT THE CASE, IT HAS BEEN INDICATED ON THE DRAWINGS. VOLTAGE DROP TO THE FARTHEST DEVICE HAS BEEN CALCULATED TO NEVER EXCEED 5%.
E. RECEPTACLE LOADS CALCULATED AT 100% OF FIRST 10kVA, 50% OF REMAINDER. MOTOR LOADS CALCULATED AT 125% OF THE LARGEST MOTOR, 100% OF ALL OTHER MOTORS.

2" REFERENCE LINE
KLH #: 26959

STATE OF OHIO
STEPHEN C. REECE
E-76339
REGISTERED PROFESSIONAL ENGINEER
3/12/2025

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REAGH'S WAY
OXFORD, OH 45056

ELECTRIC POWER - PANEL SCHEDULES
E301
03/12/25

26 05 01.00 - COMMON WORK RESULTS FOR ELECTRIC

The General Provisions of the Contract including the General and Supplemental Conditions and General Requirements apply to the work in this section. Before submitting a bid, examine documents of all other trades, visit the site and get acquainted with all conditions that may in any way affect the execution of this contract. Take measurements and be responsible for exact size and locations of all openings required for the installation of work. Noted dimensions convey desired locations for devices. Coordinate with owner representative on site prior to deviating from noted dimensions for any reason. Where detailed method of installation is not indicated or where variations exist between described work and approved practice, direction of the Owners representative on job site shall be followed.

Whenever the words "contractor", "this contractor", etc. appear on drawings or in these specifications for the Electrical Work, it shall refer to the Electrical Sub-Contractor. Whenever the word "Provide" appears in these documents, it shall be interpreted to mean "Furnish and Install". Whenever the word "Relocate" appears in these documents, it shall be interpreted to disconnect electrical feed, make safe including lock out, store and protect device, reinstall, rework and extend conduit and wire to new location, re-energize and test.

The exact mounting height of devices shall be determined in the field with relation to architectural details and equipment being served. It shall be the responsibility of this contractor to coordinate outlet location with equipment. The Owners representative shall be permitted to relocate any outlet prior to installation within a 15 foot limit at no additional charge in contract price. All fasteners, hangers and methods of hanging exposed work in finished areas shall be submitted to the Owners representative for approval before installation.

The contract includes all items of material and labor required for the complete installation and full operation of the electrical work as shown on the drawings and hereinafter specified. All materials and methods shall be in accordance with applicable codes, regulations and/or ordinances and meet the approval of local inspection authority having jurisdiction. The latest edition of NFPA 70 (NEC/National Electrical Code) shall be the minimum requirement for all work. Examine the drawings and specifications for compliance with the above codes, regulations and ordinances and base bid and work accordingly. Obtain and pay for all permits and inspections related to this work. A certificate of approval for work from inspection authority shall be given to the Owner before final acceptance will be given by Owners representative.

All work, materials, and equipment shall have a one-year warranty after acceptance of the work by the Owner. Any defective items shall be removed and replaced at the electrical sub-contractor's expense and to the satisfaction of the engineer and owner's representative.

Perform work under this contract in close harmony with other contractors so completed work shall present a neat and workmanlike installation. Exposed finished materials and equipment shall be carefully cleaned and wiped to remove grease, smudges, fingerprints, dust and other spots and left smooth and clean. During the progress of the work, the electrical sub-contractor shall carefully clean the job site and shall leave the premises and all portions of the building in which he is working free of debris and in a clean and safe condition.

This contractor shall be responsible for the training of owner's representatives of each system to the satisfaction of the Owners representative.

The Electrical Contractor shall consult the Plumbing, HVAC and Structural plans (where applicable) in all instances before installing his work so that his work will not interfere with those branches. In the event of a conflict, this contractor shall report to the Owner's representative at once and do no further work to be installed until a satisfactory arrangement is decided upon. Any work done, or equipment placed in position by this contractor, creating a conflict in violation hereof, shall be readjusted to the satisfaction of the Owner's representative at the expense of the contractor. The decision of the Owners representative shall be final in regard to changes due to conflicting conditions. Contractor shall complete his work or any part thereof at such time as may be designated by the Owner, so that it can be used for temporary or permanent use and such use of the system shall not be construed as an acceptance of same by Owner.

Two sets of electrical drawings shall be provided as record drawings which shall be separate, clean, copies reserved for the purpose of showing a complete picture of the work as actually installed. These drawings shall also serve as work progress report sheets and the electrical contractor shall make any notations, neat and legible thereon daily as work proceeds. The drawings shall be available for inspection at all times and shall be kept at the job at a location designated by the Owners representative. At the completion of the work, these record drawings shall be signed by the electrical contractor, dated and returned to the Owners representative. Final payment of contract will not be made until receipt and review of said drawings.

Provide two neatly bound (with tabbed sections) copies of maintenance books, instruction books and parts list pertaining to all equipment furnished. Submit to the Owners representative for approval. Final payment will not be made until drawings for record, maintenance and instruction manuals are delivered to the Owners representative.

26 05 02.00 - COMMON ELECTRICAL MATERIALS AND METHODS

All materials and equipment shall be new. All materials, apparatus and equipment shall bear the seal of Underwriters Laboratories Inc. (UL), or a similar credible testing agency, label where regularly supplied. Certain manufacturers of material and equipment are specified and plans are detailed according to this material. This contractor shall base his bid on furnishing and installing this make of material and equipment.

Where more than one make of material or equipment is specified, the contractor shall state in his bid which make he proposes to furnish. Shop drawings shall be submitted on material and equipment to be furnished by the contractor for Engineers approval. This approval to be obtained prior to shipment of equipment.

Hold routing of new raceways in new and existing buildings as tightly as possible to the structure above. Obtain approval of owner's representative prior to installation. Do not install any electrical work within 6 inches of roof decking.

Neatly dress all work. Install all work parallel and perpendicular to surfaces or exposed structural members, and follow surface contours, where possible. Install splice and tap connectors which possess equivalent or better mechanical strength and insulation rating than conductors being spliced. Use splice and tap connectors which are compatible with conductor material. All wires shall be run continuous from outlet to outlet/luminaire to luminaire. Insulation value of joints shall be 100% in excess of wire. Provide adequate length of conductors within electrical enclosures and train the conductors to terminal points with no excess. Bundle multiple conductors, with conductors no larger than 10 AWG cabled in individual circuits. Make terminations so there is no bare conductor at the terminal.

Maintain a uniform elevation for all cable runs wherever possible. All cables shall be supported/anchored at maximum 4 foot intervals and within 12" of box or outlet and shall not sag. Install cables in a manner that prevents overheating. Cables shall be fastened directly to the structure using factory clamps/clips specifically designed for the respective cable (Caddy or equal).

Keep conductor splices to minimum. Pull conductors simultaneously where more than one is being installed in same raceway. Use UL listed pulling compound or lubricant, where necessary. Increase wire sizes to offset voltage drop as/if required.

Branch subfeeder circuits shall be installed as shown on the floor plans. Where outlets are indicated by letters on plans, they shall be controlled by corresponding switches.

Outlets shall be located approximately as shown on the plans and shall be wired to provide control of outlets indicated. All wires of any one circuit shall be run in the same conduit.

Mechanical wire splicers shall be Scotchlock insulated type, TandB Stakon or approved equal. The conductors terminating at each wired outlet shall be left not less than 8" long at their outlet fittings to facilitate installment of devices or luminaires. Friction and rubber tape conform to Federal Specifications HH-T-11 and HH-T-111. Plastic electrical tape shall be Scotch #33+ or approved equal.

Do not share neutrals when amongst multiple branch circuits or with multi-wire branch circuits.

Provide grounding electrode conductors for service entrances and derived systems.

Provide all feeders and branch circuits with insulated (green covering) equipment grounding.

Only install conduit exposed on rooftops when it is impossible to do otherwise, or only if specifically indicated for such installation case-by-case elsewhere in documents. Installation convenience, financial considerations, lack of coordination with other trades and similar rationale are not sufficient reasons for doing so. In cases where conduits must be installed on rooftops, de-rate conductors and modify conduit sizes as needed to accommodate this condition. Provide expansion fittings, which are UL listed and labeled for the respective applications, at all building expansion joints and at maximum distances of 100 feet. Paint all such conduits with at least two coats of UV-resistant weatherproof paint. Provide white paint on flat rooftops that have finishes white in color, and for otherwise-colored roof finishes that are not visible from the building interior or from the ground outdoors. Elsewhere select colors to match surrounding surfaces; submit colors to Architect for review in advance of procuring paint.

Provide all cutting and patching required for the admission of work. Any damage done by this contractor to the building during the progress of work shall be made good at contractor's own expense. All patching shall be done by a skilled craftsman in that respective trade. It shall be the responsibility of this contractor to supervise the installation of, and pay for all additional members, wood or metal and labor which may be required to support any type of permanent or temporary electrical apparatus employed in the execution of this contractor's work.

Access Doors: Do not use access doors unless special prior written permission is granted from the Owner's Representative. Install pull boxes, junction boxes, etc. in areas which are accessible after completion of construction. Do not install pull boxes or junction boxes above gypsum board or similar inaccessible ceiling systems. Where there is no other recourse but to provide an access door/panel, and where approval of Owner's Representative has been obtained, provide required access doors/panels as required for a complete code-compliant electrical installation as defined below. Provide access doors in fire/smoke ratings that meet or exceed the surrounding surface that is being penetrated.

Seal all new floor, ceiling, wall, slab, etc. penetrations to match or exceed existing assembly fire ratings. Provide sleeve seals for all sleeves, provide sleeves for all penetrations. All penetrations of fire-rated or smoke-rated wall, floors ceilings, etc. shall be sealed immediately after raceways are installed. All new electrically related work shall be supported directly from building structural members. New electrically related work shall not be supported from ductwork, ductwork hanger, ceiling supports, existing conduit support, etc.

26 05 03.00 - SUBMITTALS FOR ELECTRICAL SYSTEMS

Provide submittals in accordance with the Contract Documents. In addition to Division 01, the Contractor is advised to review and comply with the requirements articulated within each Division and within each section of that Division.

Some Divisions may include a division-specific "Submittal Requirements for ..." section. Where this section exists, it articulates additional requirements for submittals that apply to the work of that Division.
The following requirements help to identify, track and keep the project organized for all parties involved. They are necessary to ensure a timely turnaround and an appropriate technical review. Submittals that do not conform to the administrative requirements are rejected and returned, without technical review.

Supply submittals for each section: Submittals shall be supplied on a section-by-section and type-by-type basis. For example, independent product data submittals shall be furnished for each section that requires product data submittals. Independent shop drawing submittals shall be furnished for each section that requires shop drawings. Separate PDF file packages shall be supplied for each section, for each submittal type. Each PDF shall represent a single standalone submittal.

Include a transmittal: Transmittals shall enumerate each submittal for each section of each type and iteration.

Include cover sheet / title page: The cover sheet shall include the information identified in the contract documents. It shall be included as the first page of each electronic and/or hardcopy document-based submittal. An editable and printable PDF form created with editable fields and specification compliant appearance is available from KLH upon request. It is also downloadable from the KLH website at www.klhengrs.com.

Include an index: The index shall enumerate the contents of the submittal.

Include checklists: Where checklists are included with the specifications, complete and include them within the appropriate submittal. Supply complete submittals: Complete submittals of each type are required. Partial submittals will be rejected. Where a section requires a product data submittal, all product data for that section shall be supplied together, at one time, as one complete submittal. When resubmittal is required (e.g. Revise and Resubmit) the revised submittal shall be more complete, more accurate and more contract-compliant than its rejected predecessor. The submittal number (for each section and type) shall increment for each subsequent submittal (00 – Original submission, 01 – First Resubmission, 02 – Second Resubmission, etc…). Resubmittals shall include a copy of the reviewers comments supplied with the prior submittal rejection and shall be amended with a description of the specific action taken to comply with the reviewer's comments. The absence of this on resubmittal is cause for rejection.

Name electronic files to match the submittal ID and cover sheet: The electronic file name of submittals shall match the submittal ID included on the submittals cover page. For example: The original/first product data submittal for Section 260519 would be labeled as "260519.00-PD-00"; the first resubmittal of same shall be labeled "260519.00-PD-01". The original/first shop drawings submittal file for the same section would be labeled "260519.00-SD-00"; the first resubmittal of same shall be labeled "260519.00-SD-01".

If expressly permitted by the Owner and the terms of the Contract, editable electronic drawings may be made available for the creation of shop and as-built drawings upon request. Drawings will be made available at the discretion of the Engineer.

"Request Drawings" form can be accessed, filled out and submitted at http://www.klhengrs.com (right hand side of page - Contractor Resources). Direct access to this form can be found here:
http://files.klhengrs.com/requestdrawings.html

26 05 19.00 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

Submittal Requirements
Product Data
For each type of conductor and cable.

Furnish and install all necessary cable of the size and type indicated on the drawings or specified hereinafter. All wire shall be copper. All wiring shall be new. No wire smaller than #12 AWG shall be installed unless specifically designated. Use of #14 color coded wire will be allowed for control circuits only. Provide stranded conductors for all sizes unless indicated otherwise.

Provide THHN/THWN-2 insulation for all conductors as appropriate for the locations where installed. Provide color coded insulation/jacket for phase identification. All wires shall be rated at 600 volts. Provide type XHHW-2 insulation for all wiring below grade or subject to moisture.

Unless specifically indicated otherwise on drawings, provide grounded ("neutral") conductors that are at least parity-sized with corresponding phase/line conductors for all applications.

All conductors shall be rated for 90 deg. C. minimum. Provide with green insulated equipment ground conductor. Provide compatible steel fittings with integral red plastic insulated throat bushings. Cables shall be 90 deg. C. rated with all components and fittings listed for grounding and compliant with the following: UL Std.4 and UL Std. 83; ANSI E119 and E814; NFPA 70.

Aluminum Conductors: Where applicable for electrical equipment connections for aluminum wiring, provide the following supplemental requirements and work regardless of who furnishes the equipment or what type of equipment is affected. Review equipment submittals, installation documents and nameplates to determine if there are any warranty or UL limitations regarding copper versus aluminum wiring connections at equipment. If there are any limitations, provide local non-fused disconnect at or near equipment (external to the equipment) and terminate aluminum conductors to the line side terminals of the disconnect switch. Provide copper conductors from load side terminals of the disconnect switch to the respective equipment factory disconnect or terminals as applicable. Provide UL-Listed AA-8000 series compact-stranded conductors compliant with specifications, prevailing codes and end-use equipment manufacturer requirements. Provide appropriately UL-Listed connectors as recommended by conductor manufacturer.

Cables: Route cables perpendicular and parallel to the building architectural lines, surfaces, and structural members, keeping offsets to a minimum and following surface contours where possible. Maintain a uniform elevation for cable runs wherever possible. Support and anchor cables at maximum 4 foot intervals and within 12" of box or outlet in a manner that prevents sagging. Install cables in a manner that prevents overheating. Fasten cables directly to the structure using factory clamps and clips (zip ties and like products are not permitted) specifically designed for the respective cable (Caddy or equal). Cables may be utilized only if code-approved for the intended use and in the limited applications defined below.

Type MC (Metal-Clad) Cable: Form from continuous length of spirally wound, interlocked zinc-coated or galvanized (inside and outside) strip steel or aluminum jacket, with stranded copper conductors with 90 deg. C THHN insulation system. Provide only where permitted in the Conduit/Wire Material Schedule shown on the drawings For exposed runs of cables down walls to surface mounted panelboards, provide partition chase walls (constructed in a manner approved by architect), or within appropriately sized steel wireway(s), or within a custom fabricated heavy-gage painted sheetmetal chase approved in advance by the engineer. Install in a manner that fully conceals cables, prevents overheating of cables, and is approved by the local authority having jurisdiction

26 05 26.00 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

All metallic conduit, surface raceways, wireways, supports, cabinet and equipment shall be grounded.

26 05 29.00 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

It shall be the responsibility of the electrical contractor to supervise the installation of and pay for all additional members, wood or metal and labor which may be required to support any type of permanent or temporary electrical apparatus employed in the execution of the electrical contractor's work. Provide supports, anchors, sleeves and seals furnished as part of factory-fabricated equipment as required. Locations and routing that may be shown on plans are schematic and diagrammatic in nature. Metallic products shall be galvanized steel.

Conduit shall be supported by approved straps, fasteners and hangers. Hangers shall be suspended from rods. Perforated straps will not be acceptable. Fasteners shall be lead expansion shields in block or concrete, toggle bolts in hollow walls, machine screws on metal surfaces and wood screws on wood construction. At building expansion joints and where deflection is expected, conduits shall be provided with expansion fittings with bonding jumpers. Conduits passing through structural members shall be provided with stub and coupling or sleeve in the member. Where moisture conditions are encountered, a hole shall be drilled at the lowest point in the conduit run. Also provide sleeves for all fire wall and smoke partition penetrations (sealed accordingly).

All conduit shall be supported independently from all other building systems and shall be supported directly from structural components. Electrically related work shall not be supported from ductwork, ductwork hangers, ceiling supports, existing conduit supports, etc.

Use of synthetic or plastic "tie-wraps", "zip ties", "wire ties" and similar products are not permitted as a permanent means of anchoring, securing, supporting or otherwise installing any cables, conductors, conduits, raceways, devices, equipment or other electrical work.

All conduits, raceways and cables (where applicable) shall be routed parallel and perpendicular to building structural members. Any and all noncompliant work installed by the electrical contractor shall be removed and reinstalled by the electrical contractor to the satisfaction of the Owner's representative and the Engineer, at the expense of the electrical contractor. At building expansion joints and where deflection is expected, provide conduits with expansion fittings with bonding jumpers. Conduits passing through structural members shall be provided with stub and coupling or sleeve in the member. Where moisture conditions are encountered, a hole shall be drilled at the lowest point in the conduit run. Provide sleeves for all fire wall and smoke partition penetrations (sealed accordingly).

Stem lengths of all pendant fixtures shall be as directed by the owner's representative. All fasteners, hangers and method of hanging exposed work in finished areas shall be submitted to the owner's representative for review before installation. Fasteners shall be zinc-coated, type, grade, and class as required for a neat finished installation.

Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded. Install anchor bolts to elevations required for proper attachment to supported equipment. Provide female expansion anchors, and install studs and nuts after equipment is positioned. Provide bushings for floor/wall-mounted equipment anchors to allow for resilient media between anchor bolts/studs and mounting hole in concrete.

Touchup Painting: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting.

Provide supports for multiple raceways capable of supporting combined weight of supported systems, equipment, connected systems and associated components/contents. Provide supports adequate in tension, shear, and pullout force to resist maximum loads calculated or imposed for this project, with a minimum structural safety factor of five times the applied force.

Coordinate installation of roof curbs, equipment supports, and roof penetrations.

Steel Slotted Support Systems: Comply with MFMA-4, factory-fabricated components for field assembly. Construct with all necessary fittings which mate and match with U-channel. Provide metallic coatings that are hot-dip galvanized after fabrication and applied according to MFMA-4, Provide channel dimensions that are selected for applicable load criteria. Comply with NECA 1 and NECA 101 unless requirements in this or other specification sections are stricter.

Multiple Raceways or Cables: Install trapeze-type supports fabricated with steel slotted, sized so capacity can be increased by at least 50 percent in future without exceeding specified design load limits. Secure raceways and cables to these supports with two-bolt conduit clamps, single-bolt conduit clamps, or single-bolt conduit clamps using spring friction action for retention in support channel as applicable.

Overhead Electric Work: Install work so that no raceway or cable is within six inches below roof deck(s). Suspend and support overhead electrical work from roof trusses and joists/joist girders only at panel points, at top cord only, unless otherwise indicated.

Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb.

Roof Decks: Do not suspend overhead hangers, or support any other overhead electrical work, from roof decks.

Plywood Equipment Boards: Lumber shall be preservative treated in accordance with AWPB LP-2, and kiln dried to a moisture content of not more than 19 percent. Provide plywood panels; APA C-D PLUGGED INT, with exterior glue; thickness as indicated, or if not indicated, not less than 3/4 inches deep. Provide marine grade plywood where subject to moisture conditions. Unless otherwise noted, boards shall be painted with two coats of good grade weatherproof flat gray non-conductive fire-retardant paint on all sides and edges (prior to mounting) and plumbed in a true vertical position. Provide nominal 1/2" rustproof spacers between back of plywood and wall. Maintain at least 4 inches from bottom of plywood equipment boards and the finished floor surface. Unless directed otherwise in field, plywood equipment boards shall be 8 feet high by 3/4 inches deep by length shown on drawings (as dimensioned or as scaled) or length as required to accommodate equipment if not indicated on drawings. Provide plywood equipment boards at locations as shown on drawings. Unless directed otherwise in field, plywood equipment boards shall be provided for all surface mounted panelboards and systems "head-end" equipment for all applications where located in mechanical or electrical rooms and only where specifically shown on drawings for all other applications.

26 05 33.00 - RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

Normal system power feeders and branch circuits shall be installed in separate raceways from emergency system power. All wiring for different power voltages shall be installed in raceway systems separate from each other. All wiring for the various electrical systems shall be installed in raceway systems separate from each other.

All fittings shall be set-screw or compression type steel, with insulated throats. Unless indicated otherwise on drawings or in other parts of the electrical specifications, all wiring of all systems shall be installed in conduit.

Conduit shall be cleaned inside before any wires are pulled. Conduit ends shall be capped and plugged with standard accessories as soon as conduit has been permanently installed. Conduit installed without conductors shall be provided with sweep bends and baling wire for pulling.

All joints shall be made tight with watertight couplings matching conduit and all corners shall be made with long radius elbows. The ends of all conduits shall be cut square and reamed and all joints brought to a shoulder. Conduit shall be continuous between outlets to make a complete installation and to provide a continuous ground. Suitable supports and fastening shall be provided for conduit.

All raceways shall be entirely free of plaster, mortar, water and other foreign matter before installing conductors or cables.

In general, gang type outlet boxes shall not be used. The outlet box locations indicated on drawings shall be considered approximate, and therefore, it shall be incumbent upon this contractor to study the general construction with relation to spaces and equipment surrounding each outlet. All outlet, switch and junction boxes shall be made of code galvanized steel complete with rings and screw cover plates and located where shown and noted on drawings. Where conduit is concealed, boxes shall not be less than 4" square x 1-1/2" deep. All boxes shall be equipped with proper covers to bring flush with finished wall surface.

Where outlet boxes occur in block, cinder, or concrete block, facing tile or other material where such materials form the finished wall surface, the opening for the box shall be cut neatly and of the size that the cover plate will cover all parts of the opening. Conduits shall be used on exposed raceways. In general, junction boxes shall be constructed of #12 gauge steel with removable front fastened on with counter sunk head screws or other approved means. For special application, junction boxes shall be noted, detailed and/or sized on the drawings or in the field as required.

Prior to rough-in, verify all box/device mounting heights and locations in field with Owners representative. In general, where not located at counter areas, the height of boxes from finished floor to center of boxes shall be as follows, unless otherwise noted on plans. In cases where using center of box for measurement would result in a switch-height device having an operable component higher than 48 inches above finished floor, install boxes lower as needed so that uppermost part of operable component is no higher than 48 inches.
Switches: 3'10"
Receptacles: 1'6" (unless counter height)
Telephone Outlets (desk phone): 1'6"
Telephone Outlets (Wall phone): 3'10"
Data Cable Outlets: 1'6"
Other devices: As directed in field.

26 05 53.00 - IDENTIFICATION FOR ELECTRICAL SYSTEMS

Provide manufacturers standard self-adhesive vinyl tape not less than 3 mils thick by 1-1/2" wide. Where applicable, install on all concealed raceways at connection to all junction boxes, pull boxes, equipment, wall/floor/roof penetrations, etc. Unless otherwise indicated or required by governing regulations, provide orange tape with black letters. Provide circuit identification bands for all cables and conductors. Provide manufacturers standard color coding for cable/conductor jacket and/or insulation for all cables and conductors of all systems. Match identification with marking system used in existing systems (where applicable), shop drawings, contract documents, and similar previously established identification for projects electrical work. Provide on all conductors of all systems.

The following insulation color code shall be used for system and voltage identification. This shall apply to both feeder and branch circuit wiring. Interchange of colors shall not be permitted.

240/120V System:	Black, Red and
White (neutral)	
Equipment Grounding:	Green
Systems:	To match existing

where applicable - verify in field.

Provide engraved plastic-laminate sign on major units of electrical equipment, including panelboards, disconnects, starters, control panels, etc. Except as otherwise indicated, provide single line of text, 1/2" high lettering, on 1-1/2" high sign (2" high where 2 lines are required), white lettering in black field. Unless determined otherwise in field, provide text matching terminology and numbering of the contract documents and shop drawings. Secure to substrate with fasteners, except use adhesive where fasteners should not or cannot penetrate substrate.

All equipment and system identification nomenclature shown on drawings or listed herein is shown for general design and installation reference only. The actual nameplate, etc. nomenclature for this project shall be verified by electrical contractor in field prior to fabrication and where applicable, shall be an extension of existing nomenclature used on the site as determined in field by electrical contractor.

Equipment to Be Labeled: All enclosures for all electrical equipment furnished or installed under Divisions 26 and 28; Remote-controlled switches, dimmer modules, and control devices, via engraved wall plates; Miscellaneous Control Stations; Access doors and panels for concealed electrical items; Other similar equipment designated by owner's representative, architect or engineer in field.

26 05 84.00 - MECHANICAL EQUIPMENT

Provide all necessary electrically related work as required to render all mechanical equipment (including plumbing, heating, ventilating and air conditioning equipment) fully operational and fully compliant with all local and national codes. This includes, prior to ordering materials or commencing with rough-in, reviewing equipment submittal data and coordinating with installing contractors to ensure the correct size, rating and quantity of conductors are provided.

Provide raceway, wiring, connections, and terminations for power and interlocks for electrically operated equipment.

Provide disconnect switch ahead of all equipment, including controls, unless shown otherwise on the drawings. Provide NEMA 3R enclosures where installed outdoors and where installed indoors in areas subject to moisture. Ground metal frames of equipment by connecting frames to the grounded metal raceway and to a full-size green ground conductor. Provide the necessary electrical connections to the specified equipment. Where mechanical equipment lugs cannot accommodate conductor sizes, provide ILSCO ClearTap Insulated Multi-Tap Connectors.

Sizes, electrical ratings, etc. of equipment and wiring shown on drawings are based on the respective equipment basis of design. If different manufacturer(s) or model(s) are supplied, provide necessary coordination in field (prior to ordering materials and prior to rough-in) and provide the necessary size of related electrical equipment, wiring, conduit, etc.

Prior to furnishing submittals and prior to rough-in, determine exact electrically related characteristics, loads, voltages, disconnect and starter requirements, locations, mounting heights, connection points, etc. of mechanical equipment.

Disconnect and Controller Locations: Locations shown on drawings are indicated for schematic purposes only. Determine exact locations in field. Refer to Electrical Coordination Schedules on drawings. Provide disconnects, starters, accessories, wiring, connections, services, etc. where defined as "EC" in the schedule. Information in this section supplements the information in the schedules. Provide power wiring and connections for all equipment (including motor dampers and accessories where applicable) as required to render equipment fully operational. Install disconnects and starters at 48 inches to top of outlet box or enclosure where applicable above finished floor/slab/grade. Provide flush mounted units in finished areas. Provide key operated manual starters where accessible to unauthorized personnel, including general public.

Maintenance Receptacles: Provide duplex GFCI receptacle within 25 feet of all electrically operated equipment of any nature that requires periodic testing or maintenance. This applies for all indoor and outdoor equipment. Provide Type WR duplex GFCI weatherproof receptacle for outdoor applications (including rooftops) and for applications subject to high humidity or moisture.

Air Handling Units: Provide separate power feeds or single power feed as directed in field by the HVAC installer (field verify prior to rough-in). Modify starter and disconnect requirements accordingly, if required. Provide additional dedicated 120V, 20A branch circuit for each unit from nearest panelboard (whether or not indicated clearly on the electrical drawings) for internal factory-installed lighting and receptacles. Provide conduit, wiring, and overcurrent protection for this work, and terminations to connections within the units for this lighting and convenience power.

Split System Air Conditioning Systems: Provide (1) 3/4 inch empty conduit (with drag line) from each air handling segment to each condensing unit. Provide control conduit between pair to follow refrigerant piping routing wherever practical.

Domestic Water Heaters (Electric): Provide local disconnect switch, and power wiring and connections. Provide interlock wiring with circulating pumps, flow switches and aquastat controls where applicable.

Domestic Hot Water Circulating Pumps (Return Line): Provide manual starter with pilot light, and wire pump to operate through the aquastat. Refer to wiring diagrams on drawings for further definition.

Electric Water Coolers: Provide 120V duplex receptacle or direct 120V connection with lock-out/tag-out provisions at source circuit breaker (verify required method in field with electric water cooler installer). Provide GFCI circuit breaker to feed the circuit that serves electric water coolers, even if not indicated on panelboard schedule. Install outlets at height and location as directed by water cooler installer. Conceal outlets within water cooler enclosure if enclosure is designed for such an installation. Assemble and connect cord if applicable and needed. Coordinate all specifics with water cooler installing contractor prior to rough-in of related work.

General Control Wiring Requirements: Unless specifically indicated as empty conduit on drawings or herein, provide electrical control and interlock work as shown on drawings. Provide additional control work as specifically indicated herein. Coordinate HVAC thermostat and sensor locations in field (case by case) with Architect, Owner's Representative and equipment installer to ensure that they are placed in locations that will not interfere with furniture, equipment, artwork, wall-hung specialties, room finishes, etc. Field-verify these wall locations case by case, prior to rough-in, since locations shown on drawings are schematic only.

Schematic Thermostat and Sensor Locations: Refer to applicable drawings and documents.

Low Voltage Thermostats and Sensors: Provide 4-inch square by 2-1/8 inch deep wall outlet boxes at 46 inches above finished floor to center of outlet box (with single-gang rings) for each unit. Provide one 3/4 inch empty conduit from each location, turned out above accessible ceilings (in joist space or against overhead slab/deck). Identify conduit in ceiling cavity; provide sweep bends, bushings and drag line.

26 09 23.00 – LOCAL LIGHTING CONTROLS

Submittal Requirements
Product Data
For equipment, materials and systems specified in this section. Include product data, descriptive information, technical data, wiring diagrams, load restrictions, etc.

General Requirements
Finishes & Wall Plates: Refer to specification 262726.00 – Wiring Devices and match all requirements.

Toggle Switches:
Refer to specification 262726.00 – Wiring Devices.

Momentary-Contact Toggle Switches: Provide Standard of Quality equal to Legrand LVS-1, 3 Amp, 24 VAC/VDC, single-pole, double-throw with center rest, designed to fit conventional toggle switch openings.

Time Clocks
365-Day Multi-Purpose Time Clocks: Provide time clock that is programmable 365-day/24-hour with override controls and holiday option. Provide number of channels indicated on the drawings. Provide required external contactors, relays, etc. to render the control systems fully operational. Verify zone control requirements in field prior to rough-in. Provide 100-hour carryover.

Occupancy Sensors, Dual Technology Wall Switches: Provide Wattstopper DW-100 wall switch (or equivalent) and configure as manual on, auto off (vacancy sensor) unless otherwise specified on drawings. Provide with time delay as specified on drawings. If no time delay is specified, program to 10 minutes.

Occupancy Sensors, Dual Technology Ceiling Sensors: Provide Wattstopper DT-300 ceiling mounted occupancy sensor (or equivalent). Provide with time delay as specified on drawings. If no time delay is specified, program to 20 minutes. Adjust sensitivity based on field conditions and occupancy of room to provide 100% coverage without nuisance tripping. Provide Wattstopper BZ-150 universal voltage pack(s) as required to properly power all occupancy sensors and provide switching per the design intent. In areas where multiple occupancy sensors control a single zone together, interlock occupancy sensors/power packs per manufacturer instructions to meet control intent.

26 24 16.00 – PANELBOARDS

Submittal Requirements
Product Data
For each provide bus configuration, current ratings, voltage ratings, SCCR Ratings, overcurrent protective device(s), surge suppression device(s), accessory, and components indicated. Include dimensions and manufacturers' technical data on features, performance, electrical characteristics, ratings, accessories, and finishes.

Subject to compliance with requirements, provide panelboard products of one of the following (for each type and rating of panelboard and enclosure): Square D Company, GE/ABB, Siemens, Eaton/Cutler-Hammer.

Panelboards shall bear UL labels for their specific applications. Panelboards shall be suitable for service voltage with number of branch circuits of capacity scheduled. Refer to the drawings for bussing material. Where copper is specified provide silver or tin plating. Unless otherwise indicated, panelboards and sections thereof, if any, shall have main-lugs-only of capacity equal to, or greater than, the rating or setting of the over the current protective device next back on the line. All circuit breaker panelboard bus assemblies shall be of the distributed (sequence) bussing type throughout, so that any 2 adjacent single pole breakers and/or spaces shall be replaceable by a 2-pole internal common trip breaker, and any 3 adjacent single pole breakers and/or spaces shall be replaceable by a 3 pole internal common trip breaker, 15 amp through 70 amp inclusive, without disturbing any other breaker. All panelboards shall be UL listed and labeled for use as service entrance equipment where being used as such.

240/120V single-phase load centers shall be equal to Square D NQ with plug-on branch breakers

All branch circuit breakers shall be full ambient compensated thermal magnetic molded case with quick-make and quick-break action and positive handle trip indication, both on manual and on automatic operation. Breakers shall be of the over-the-center toggle operating type with the handle going to a position between "on" and "off" to indicate automatic tripping. All breakers shall be bolt-on type.

All circuit breakers shall be full size. "Tandem" or "split" breakers shall not be permitted. All multi-pole breakers shall have internal common trip with all load side box lugs of one breaker in the same gutter. All circuit breakers shall have sealed cases to prevent tampering. All 15 and 20 ampere branch circuit breakers shall be UL Listed as SWD (switching duty). All 15-70 ampere branch circuit breakers shall be HACR Type. All GFCI circuit breakers shall be UL Class A with maximum threshold of 5 mA. All branch circuit breakers serving all ballasted (fluorescent/HID) lighting loads shall be HID rated.

Provide all electrical distribution related equipment with appropriately braced bussing and properly rated breakers, fuses, etc. for the available fault currents.

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ELECTRIC SPECIFICATIONS
E400
03/12/25

2" REFERENCE LINE
KLH #: 26959

Provide barriers around any energized phase busbar or terminal supplied from a feeder tap, transformer, or service entrance conductors.

Fill out panelboard's circuit directory card upon completion of installation work. Directories shall be neatly typewritten. All panelboard directories shall include the actual room names/numbers that are selected for interior signage/designation.

All recessed panelboards shall be provided with a minimum of three 1-1/4" empty conduits terminated to a single 12" X 12" X 6" deep junction box above accessible ceiling.

26 27 26.00 - WIRING DEVICES

Submittal Requirements
Product Data
For each type include electrical characteristics, configurations, ratings, markings, colors, etc.

Unless specifically indicated otherwise, or directed otherwise in field, coordinate finishes for wiring devices with architect and owner prior to ordering. Where applicable, devices on different branches of power shall be a different color.

Provide grounded ("neutral") conductors in all wall switch, dimmer and other lighting control outlet boxes, even if not immediately utilized.

Provide wall plates with engraved legends where indicated on drawings and/or where required per 26 05 53.00 - IDENTIFICATION FOR ELECTRICAL SYSTEMS Section. All device wall plates shall be standard size; "midway", "oversized" ("jumbo") or "extra deep" wall plates shall not be acceptable. Construct with metal screws for securing plates to devices; screw heads colored to match finish of plates. Except where/if indicated otherwise on drawings, wall plates in finished areas shall be commercial specification grade, satin finish stainless steel, with beveled edges, equal to Leviton Type 430 series. Wall plates in unfinished areas shall be galvanized steel unless otherwise noted. Refer to architectural finish schedules and owner representative for additional information.

Wall-Box Type Lighting Controls:
Refer to specification 260923.00 -- Local Lighting Controls for types not listed here.

Toggle Switches:
Provide toggle switches equal to Leviton #122x-2 series in configurations shown on the drawings. Provide switches that are flush, self-grounding with green ground screw, back and side wired, and specification grade. 120/277V, 20A, AC quiet type.

Receptacles:

Special purpose receptacles shall be of the size, type and manufacturer as indicated on the plans or as determined in field.

Weather Resistant (WR) GFCI Receptacles: Provide for all receptacles installed in damp or wet locations. Any receptacle shown on the drawings with "WP/GFCI" next to it denoting exterior cover shall be installed with a WR GFCI receptacle. Provide duplex weather resistant receptacles equal to Leviton # W7899 series. Provide Weather-Resistant Receptacles with UL "WR" marking. For receptacle circuits protected with 15A breakers, provide NEMA 5-15R equivalents.

Self-Grounding Commercial Specification grade, Duplex Receptacles, Ground-Fault Circuit Interrupters: Feed-thru type, capable of protecting connected downstream receptacles on single circuit, grounding type UL-rated 943, Class A, Group 1, specification grade, 20-amperes rating (device and feed-thru), 125-volts, 60 Hz; with solid-state ground-fault sensing and signaling (maximum threshold of 5mA at 0.025 seconds maximum); equip with 20-ampere plug configuration, NEMA 5-20R. Provide ground fault circuit interrupter duplex receptacles equal to Leviton #8898 series. For receptacle circuits protected with 15A breakers, provide NEMA 5-15R equivalents. Where GFCI protected receptacles are shown on drawings, provide a separate GFCI receptacle for each one shown. Do not feed downstream receptacles from load-side (GFCI-protected) terminals of upstream receptacles.

26 51 00.00 - LIGHTING

Submittal Requirements
Product Data
For each type include detailed product information, light source, color temperature, color rendering index, lumen outputs, life, driver manufacturer, model and type, ceiling connection details, integral controls as applicable, drawings of custom fixtures or components, wiring diagrams, warranty, etc. Arrange luminaire submittals in booklet form with separate sheets for each luminaire, assembled by luminaire "type" in alphabetical order.

All recessed luminaires shall be equipped with necessary plaster frames and surface trim.

All junction boxes and serviceable components for recessed luminaires shall be readily accessible for service or replacement from below the ceiling, without removing any ceiling components (other than tiles).

All luminaires utilized for emergency and/or egress lighting shall be connected ahead of switching. All drivers of the same type shall be of the same manufacturer and catalog number. All LED modules of the same type shall be of the same manufacturer and catalog number.

Light Emitting Diode (LED) Systems: Provide factory installed LED modules that are specifically designed for, and matched and mated to, the respective luminaire in which they are used. Provide LED modules that can easily be replaced in the field and are readily accessible for replacement. Provide color temperature as indicated in Luminaire Schedule. Provide factory installed driver(s) for the LED source utilized that are specifically coordinated to the LED source and luminaire in which they are used. Provide driver(s) having specific operating characteristics defined in the Luminaire Schedule. Provide driver(s) that can easily be replaced in the field and are readily accessible for replacement. Provide specification sheet for the specific driver as part of the Luminaire Submittal. Provide Total Harmonic Distortion (THD) rating of less than 20 percent. Provide factory-installed integral filtering system to ensure THD does not exceed 20 percent regardless of quantities and/or mixes with other manufactured LED systems.

All surface and recessed ceiling luminaires installed on grid or tile ceilings shall be installed to agree with module of ceiling either displacing a tile, or unit on center of tile, or centered on grid lines.

Provide luminaires and/or luminaire outlet boxes with hangers to properly support luminaire weight. All luminaires installed in or on suspended ceiling systems shall be anchored directly to the building structural system above. Such anchoring shall be independent of the ceiling support system. All luminaires shall be installed plumb and level. Support surface mounted luminaires greater than 2 feet in length at a point in addition to the outlet box luminaire stud.

Occupancy Adjustments: When requested within 12 months of date of Substantial Completion, provide on-site assistance in adjusting aimable luminaires to suit actual occupied conditions. Provide up to two visits to Project during other-than-normal occupancy hours for this purpose. Some of this work may be required after dark. Adjust aimable luminaires in the presence of Owner's Representative and Design Professionals.

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2" REFERENCE LINE
KLH #: 26959

COMcheck Software Version COMcheckWeb

Interior Lighting Compliance Certificate

Project Information

Energy Code: 2021 IECC
Project Title: 26959.00 - TOPPS Food Pantry and Social Services Center - Reagh's Way, Oxford, OH
Project Type: Alteration

Construction Site:

Owner/Agent:

Designer/Contractor:
KLH Engineers
1538 Alexandria Pike
Fort Thomas, KY 41075

Allowed Interior Lighting Power

A Area Category	B Floor Area (ft2)	C Allowed Watts / ft2	D Allowed Watts
1-CURBSIDE PICKUP/DELIVERIES (Common Space Types:Storage >=50 - <=1000 sq.ft.)	367	0.38	139
2-RECEIVING PALLET AREA (Common Space Types:Storage >=50 - <=1000 sq.ft.)	633	0.38	241
3-HALL (Common Space Types:Corridor/Transition <8 ft wide)	32	0.41	13
4-RESTROOM (Common Space Types:Restrooms)	50	0.63	32
5-DRY GOOD STORAGE/STAGING (Common Space Types:Storage >=50 - <=1000 sq.ft.)	721	0.38	274
6-RESTROOM (Common Space Types:Restrooms)	51	0.63	32
7-RESTROOM (Common Space Types:Restrooms)	51	0.63	32
8-PANTRY (Common Space Types:Storage >=50 - <=1000 sq.ft.)	776	0.38	295
9-MECHANICAL ROOM (Common Space Types:Electrical/Mechanical)	82	0.43	35
10-MEAT SERVICE COUNTER (Common Space Types:Storage >=50 - <=1000 sq.ft.)	140	0.38	53
11-PRINT/COPY AREA (Common Space Types:Copy/Print Room)	63	0.31	20
12-HALL (Common Space Types:Corridor/Transition <8 ft wide)	120	0.41	49
13-ENTRY/WAITING (Common Space Types:Lobby - General)	216	0.84	181
14-RECEPTION (Common Space Types:Office - Enclosed)	83	0.74	61
15-OFFICE #4 (Common Space Types:Office - Enclosed)	94	0.74	70
16-OFFICE #2 (Common Space Types:Office - Enclosed)	94	0.74	70
17-OFFICE #1 (Common Space Types:Office - Enclosed)	126	0.74	93
18-OFFICE #3 (Common Space Types:Office - Enclosed)	93	0.74	69
19-BREAKROOM (Common Space Types:Lounge/Breakroom)	96	0.59	57
		Total Allowed Watts =	1816

Proposed Interior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixture	D Fixture Watt.	E (C X D)
CURBSIDE PICKUP/DELIVERIES (Common Space Types: Storage >=50 - <=1000 sq.ft., 367 sq.ft.)				
C: C: DOWNLIGHT ROUND: Other:	1	2	100	200
RECEIVING PALLET AREA (Common Space Types: Storage >=50 - <=1000 sq.ft., 633 sq.ft.)				
C: C: DOWNLIGHT ROUND: Other:	1	2	100	200
HALL (Common Space Types: Corridor/Transition <8 ft wide, 32 sq.ft.)				
A-EM: A-EM: 2X4 LED TROFFER: Other:	1	1	23	23
RESTROOM (Common Space Types: Restrooms, 50 sq.ft.)				
B: B: 1X4 LED TROFFER: Other:	1	1	23	23
DRY GOOD STORAGE/STAGING (Common Space Types: Storage >=50 - <=1000 sq.ft., 721 sq.ft.)				
C: C: DOWNLIGHT ROUND: Other:	1	3	100	300
RESTROOM (Common Space Types: Restrooms, 51 sq.ft.)				
B: B: 1X4 LED TROFFER: Other:	1	1	23	23
B: B: 1X4 LED TROFFER: Other:	1	1	23	23
PANTRY (Common Space Types: Storage >=50 - <=1000 sq.ft., 776 sq.ft.)				
B: B: 1X4 LED TROFFER: Other:	1	11	23	253
MECHANICAL ROOM (Common Space Types: Electrical/Mechanical, 82 sq.ft.)				
B: B: 1X4 LED TROFFER: Other:	1	1	23	23
MEAT SERVICE COUNTER (Common Space Types: Storage >=50 - <=1000 sq.ft., 140 sq.ft.)				
A: A: 2X4 LED TROFFER: Other:	1	2	23	46
PRINT/COPY AREA (Common Space Types: Copy/Print Room, 63 sq.ft.)				
A: A: 2X4 LED TROFFER: Other:	1	1	23	23
HALL (Common Space Types: Corridor/Transition <8 ft wide, 120 sq.ft.)				
A: A: 2X4 LED TROFFER: Other:	1	4	23	92
ENTRY/WAITING (Common Space Types: Lobby - General, 216 sq.ft.)				
A: A: 2X4 LED TROFFER: Other:	1	4	23	92
RECEPTION (Common Space Types: Office - Enclosed, 83 sq.ft.)				
A: A: 2X4 LED TROFFER: Other:	1	1	23	23
OFFICE #4 (Common Space Types: Office - Enclosed, 94 sq.ft.)				
A: A: 2X4 LED TROFFER: Other:	1	1	23	23
OFFICE #2 (Common Space Types: Office - Enclosed, 94 sq.ft.)				
A: A: 2X4 LED TROFFER: Other:	1	1	23	23
OFFICE #1 (Common Space Types: Office - Enclosed, 126 sq.ft.)				
A: A: 2X4 LED TROFFER: Other:	1	2	23	46
OFFICE #3 (Common Space Types: Office - Enclosed, 93 sq.ft.)				
A: A: 2X4 LED TROFFER: Other:	1	1	23	23
BREAKROOM (Common Space Types: Lounge/Breakroom, 96 sq.ft.)				
A: A: 2X4 LED TROFFER: Other:	1	1	23	23
			Total Proposed Watts =	1482

Interior Lighting PASSES

Interior Lighting Compliance Statement

Compliance Statement: The proposed interior lighting alteration project represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 2021 IECC requirements in COM*check* Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Name - Title ____________ Signature ____________ Date ____________

COMcheck Software Version COMcheckWeb

Inspection Checklist

Energy Code: 2021 IECC

Requirements: 100.0% were addressed directly in the COM*check* software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Plan Review	Complies?	Comments/Assumptions
C103.2 [PR4][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the interior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include interior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.2.3.1 [EL22][1]	Spaces required to have light-reduction controls have a manual control that allows the occupant to reduce the connected lighting load in a reasonably uniform illumination pattern >= 50 percent.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C405.2.1, C405.2.1.1 [EL18][1]	Occupancy sensors installed in classrooms/lecture/training rooms, conference/meeting/multipurpose rooms, copy/print rooms, lounges/breakrooms, enclosed offices, open plan office areas, restrooms, storage rooms, locker rooms, corridors, warehouse storage areas, and other spaces <= 300 sqft that are enclosed by floor-to-ceiling height partitions. Reference section language C405.2.1.2 for control function in warehouses and section C405.2.1.3 for open plan office spaces.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C405.2.1.2 [EL19][1]	Occupancy sensors control function in warehouses: In warehouses, the lighting in aisleways and open areas is controlled with occupant sensors that automatically reduce lighting power by 50% or more within 20 minutes of when the areas are unoccupied. The occupant sensors control lighting in each aisleway independently and do not control lighting beyond the aisleway being controlled by the sensor. Lights not turned off by occupant sensors is done so by time-switch.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C405.2.1.3 [EL20][1]	Occupant sensor control function in open plan office areas: Occupant sensor controls in open office spaces >= 300 sq.ft. have controls 1) configured so that general lighting can be controlled separately in control zones with floor areas <= 600 sq.ft. within the space, 2) general lighting in each zone permitted to turn on upon occupancy in control zone, 3) automatically turn off general lighting in all control zones within 20 minutes after all occupants have left the space, 4) are configured so that general lighting power in each control zone is reduced by >= 80% of the full zone general lighting power within 20 minutes of all occupants leaving that control zone.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C405.2.2, C405.2.2.1 [EL21][2]	Each area not served by occupancy sensors (per C405.2.1.1) have time-switch controls and functions detailed in sections C405.2.2.1.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.2.4, C405.2.4.1, C405.2.4.2 [EL23][2]	Daylight zones provided with individual controls that control the lights independent of general area lighting. See code section C405.2.3 Daylight-responsive controls for applicable spaces, C405.2.3.1 Daylight responsive control function and section C405.2.3.2 Sidelit zone.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C405.2.5 [EL27][1]	Additional interior lighting power allowed for special functions per the approved lighting plans and is automatically controlled and separated from general lighting.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C405.7 [EL26][2]	Low-voltage dry-type distribution electric transformers meet the minimum efficiency requirements of Table C405.6.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C405.8 [EL27][2]	Electric motors meet the minimum efficiency requirements of Tables C405.7(1) through C405.7(4). Efficiency verified through certification under an approved certification program or the equipment efficiency ratings shall be provided by motor manufacturer (where certification programs do not exist).	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C405.9.1, C405.9.2 [EL28][2]	Escalators and moving walks comply with ASME A17.1/CSA B44 and have automatic controls configured to reduce speed to the minimum permitted speed in accordance with ASME A17.1/CSA B44 or applicable local code when not conveying passengers.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C405.10 [EL29][2]	Total voltage drop across the combination of feeders and branch circuits <= 5%.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C405.1.1 [EL30][2]	At least 90% of dwelling unit permanently installed lighting shall have lamp efficacy >= 65 lm/W or luminaires with efficacy >= 45 lm/W or comply with C405.2.4 or C405.3.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C405.11, C405.11.1 [EL31][2]	50% of 15/20 amp receptacles installed in enclosed offices, conference rooms, copy rooms, break rooms, classrooms and workstations and > 25% of branch circuit feeders for modular furniture will have automatic receptacle control in accordance with C405.11.1.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C303.3, C408.2.5.2 [FI17][3]	Furnished O&M instructions for systems and equipment to the building owner or designated representative.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.1.1 [FI57][1]	Building operations and maintenance documents will be provided to the owner. Documents will cover manufacturers' information, specifications, programming procedures and means of illustrating to owner how building, equipment and systems are intended to be installed, maintained, and operated.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.2.5 [FI16][3]	Furnished as-built drawings for electric power systems within 90 days of system acceptance.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.3 [FI33][1]	Lighting systems have been tested to ensure proper calibration, adjustment, programming, and operation.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

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ELECTRIC LIGHTING COMPLIANCE
E500
03/12/25

2" REFERENCE LINE
KLH #: 26959

FIELD VERIFY ALL CONDITIONS

DESIGN DRAWINGS ARE SCHEMATIC. THIS CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING OR AWARD OF CONTRACT TO INSPECT EXISTING FIELD CONDITIONS. THIS CONTRACT SHALL INCLUDE ALL LABOR AND MATERIALS NECESSARY FOR FIELD MODIFICATIONS DUE TO EXISTING CONDITIONS.

THE CONTRACTOR SHALL CONTACT THE ARCHITECT, ENGINEER OR OWNER PRIOR TO BIDDING FOR INTERPRETATIONS AND CLARIFICATIONS OF THE DESIGN AND INCLUDE IN HIS BID ALL COSTS TO MEET THE DESIGN INTENT. CLARIFICATIONS MADE BY THE ARCHITECT, ENGINEER OR OWNER AFTER BIDDING WILL BE FINAL AND SHALL BE IMPLEMENTED AT CONTRACTORS COST.

BIDDING CONTRACTORS SHALL HAVE A WORKING KNOWLEDGE OF LOCAL CODES AND ORDINANCES AND SHALL INCLUDE IN THEIR BIDS THE COSTS FOR ALL WORK INSTALLED IN STRICT ACCORDANCE WITH GOVERNING CODES, THE PLANS AND SPECIFICATIONS NOT WITHSTANDING. THE CONTRACTOR SHALL ALERT ARCHITECT, ENGINEER OR OWNER OF ANY APPARENT DISCREPANCIES BETWEEN GOVERNING CODES AND DESIGN INTENT.

STANDARD PLUMBING ABBREVIATIONS

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

CODE INFORMATION

PLUMBING CODE	2021 INTERNATIONAL PLUMBING CODE WITH STATE AMENDMENTS
ENERGY CODE	2021 INTERNATIONAL ENERGY CONSERVATION CODE WITH STATE AMENDMENTS
FUEL GAS CODE	2021 INTERNATIONAL FUEL GAS CODE

PLUMBING LEGEND

SYMBOL	DESCRIPTION
PLAN-VIEW LINE TYPES	
	WORK SHOWN BOLD-CONTINUOUS INDICATES NEW WORK
	DIRECTION OF FLOW
PLUMBING ACCESSORIES	
	UNION
	PIPE CAP
	STRAINER
	PRESSURE GAUGE
	THERMOMETER
	FCO - FLOOR CLEANOUT, GCO - GRADE CLEANOUT
	CO - CLEANOUT, WCO - WALL CLEANOUT
	HUB DRAIN
	EXPANSION TANK
PIPE VALVES	
	SHUT-OFF VALVE
	CHECK VALVE
	BACKFLOW PREVENTER
	FROST PROOF WALL HYDRANT (EXTERIOR)
	HOSE BIBB (INTERIOR)
	TRAP PRIMER VALVE
PLUMBING SYMBOLS	
	PIPE UP
	PIPE DOWN
	PIPE TEE DOWN
	PIPE TEE UP
	VENT THROUGH ROOF

2" REFERENCE LINE

KLH #: 26959

STATE OF OHIO
CHRISTOPHER A. MEHAFFIE
E-80769
REGISTERED
PROFESSIONAL ENGINEER

3/12/2025

KLH ENGINEERS
KOHRS LONNEMANN HEIL ENGINEERS, INC.
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NEW FOOD PANTRY & SOCIAL SERVICE CENTER

TOPSS

REAGH'S WAY
OXFORD, OH 45056

PLUMBING COVER SHEET

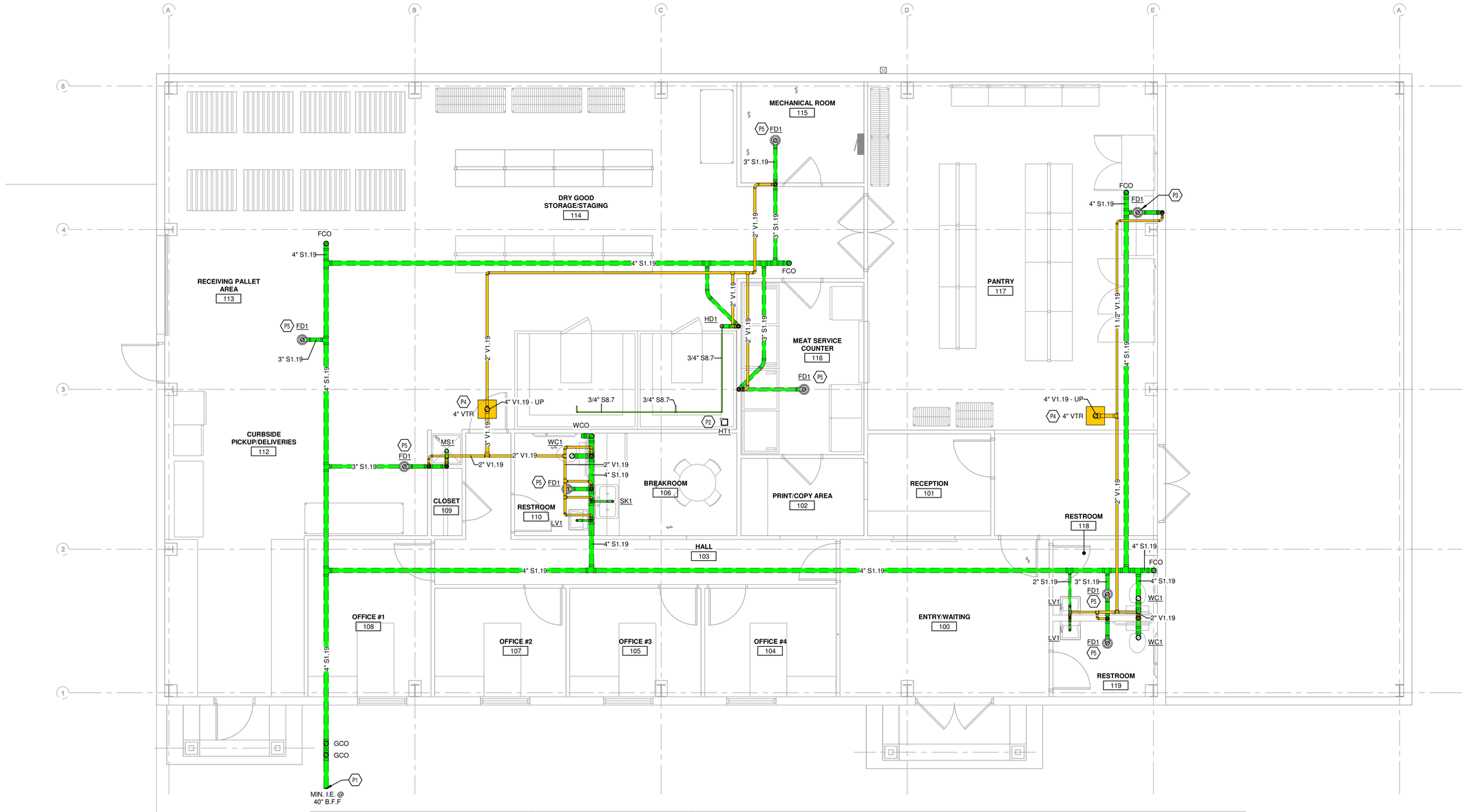
P-001

03/12/25

Pipe Type Legend			
Mark	Color	System Name	Pipe Material
S1.19		S1 - Sanitary	19 - PVC - Schedule 40 - ASTM D1785/D2665
S8.7		S8 - Condensate Drainage	7 - CPVC - DWV - ASTM F2618
V1.19		V1 - Vent	19 - PVC - Schedule 40 - ASTM D1785/D2665

KEYED NOTES

P1	REFER TO CIVIL PLANS FOR CONTINUATION.
P2	PROVIDE HEAT TRACE AS SCHEDULED FOR FREEZER PIPING. ALL FREEZER AND COOLER PIPING TO BE INSULATED PER SPECIFICATIONS. INDIRECT CONDENSATE WASTE TO HUB DRAIN VIA APPROVED AIR GAP.
P3	INDIRECT CASE DRAIN TO FLOOR DRAIN VIA APPROVED AIR GAP.
P4	PROVIDE VENT THROUGH ROOF. MAINTAIN A MINIMUM 10'-0" FROM ANY BUILDING INTAKES.
P5	PROVIDE TRAP SEAL FOR EMERGENCY FLOOR DRAIN PER SPECIFICATIONS.



1 PLUMBING WASTE AND VENT PLAN
1/4" = 1'-0"

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N

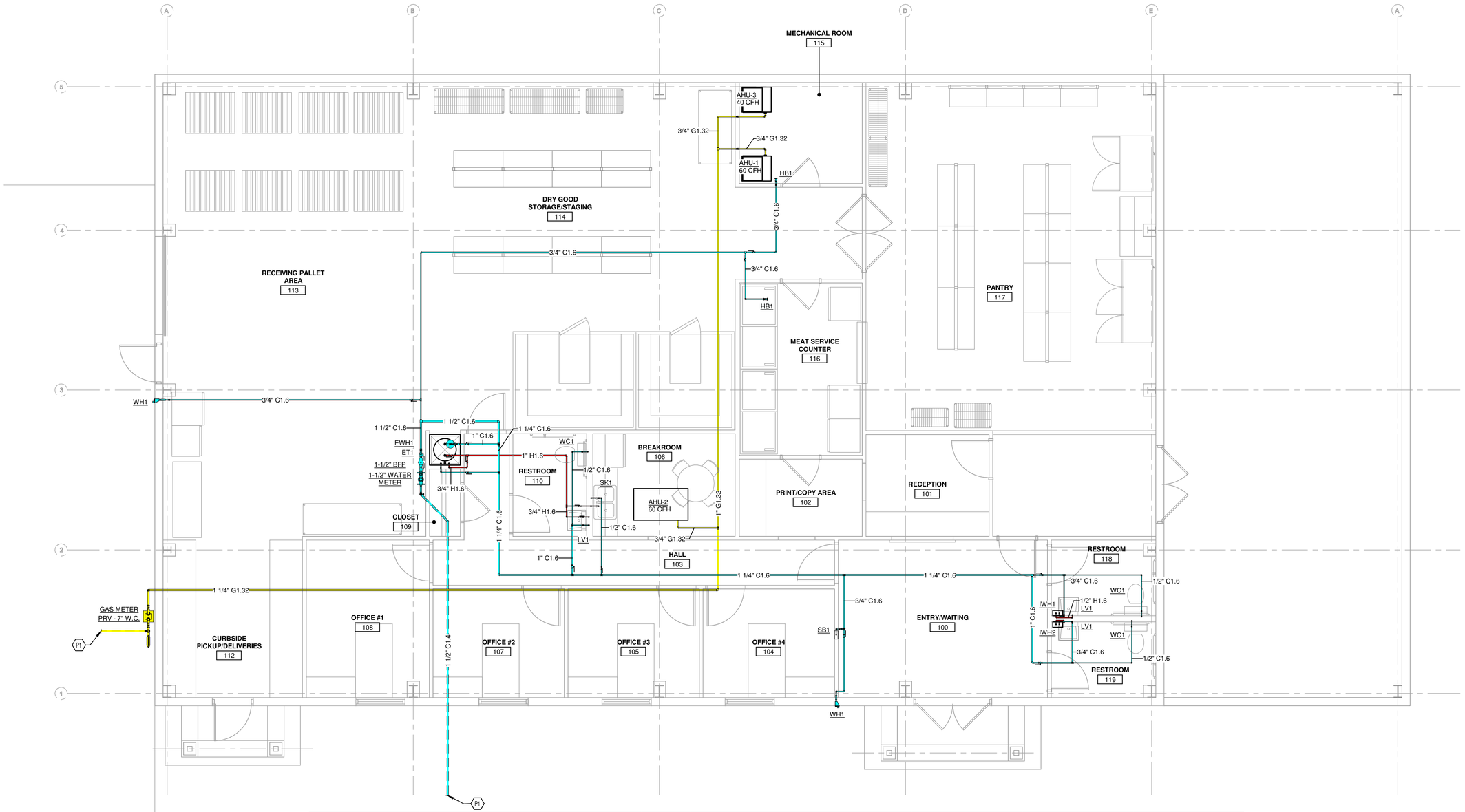
2" REFERENCE LINE
KLH #: 26959

PLUMBING WASTE AND VENT PLAN
P-101
03/12/25

Pipe Type Legend			
Mark	Color	System Name	Pipe Material
C1.4		C1 - Domestic Cold Water	4 - Copper - Type K - ASTM B88
C1.6		C1 - Domestic Cold Water	6 - Copper - Type L - ASTM B88
G1.32		G1 - Natural Gas	32 - Black Steel - Schedule 40 - ASTM A53/A53M
H1.6		H1 - Domestic Hot Water	6 - Copper - Type L - ASTM B88

KEYED NOTES

P1	REFER TO CIVIL PLANS FOR CONTINUATION.



1 PLUMBING WATER & GAS PLAN
1/4" = 1'-0"

N

2" REFERENCE LINE
KLH #: 26959

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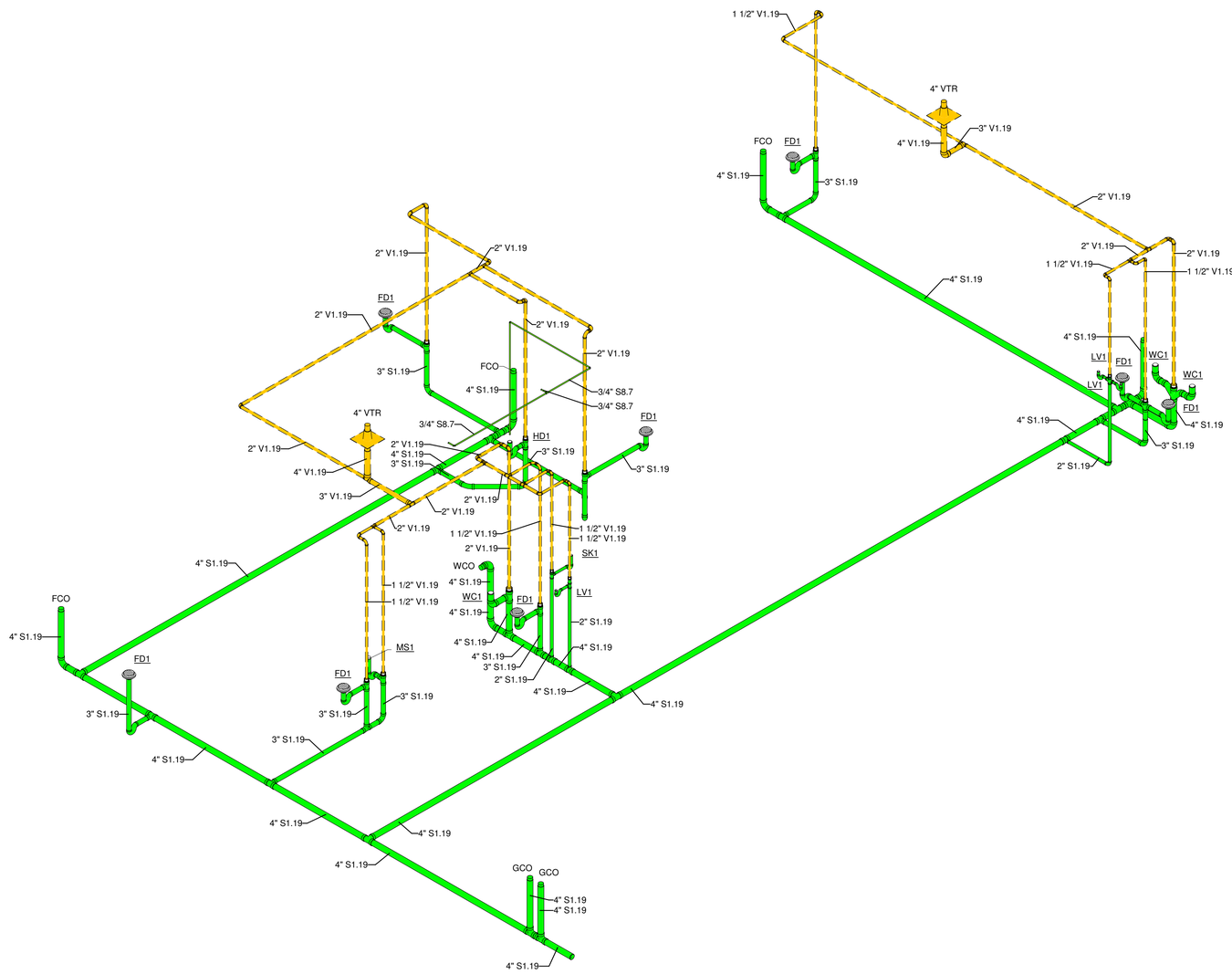
PLUMBING WATER & GAS PLAN

P-102

03/12/25

Pipe Type Legend			
Mark	Color	System Name	Pipe Material
S1.19		S1 - Sanitary	19 - PVC - Schedule 40 - ASTM D1785/D2665
S8.7		S8 - Condensate Drainage	7 - CPVC - DWV - ASTM F2618
V1.19		V1 - Vent	19 - PVC - Schedule 40 - ASTM D1785/D2665



1 PLUMBING WASTE AND VENT ISOMETRIC

2" REFERENCE LINE
KLH #: 26959

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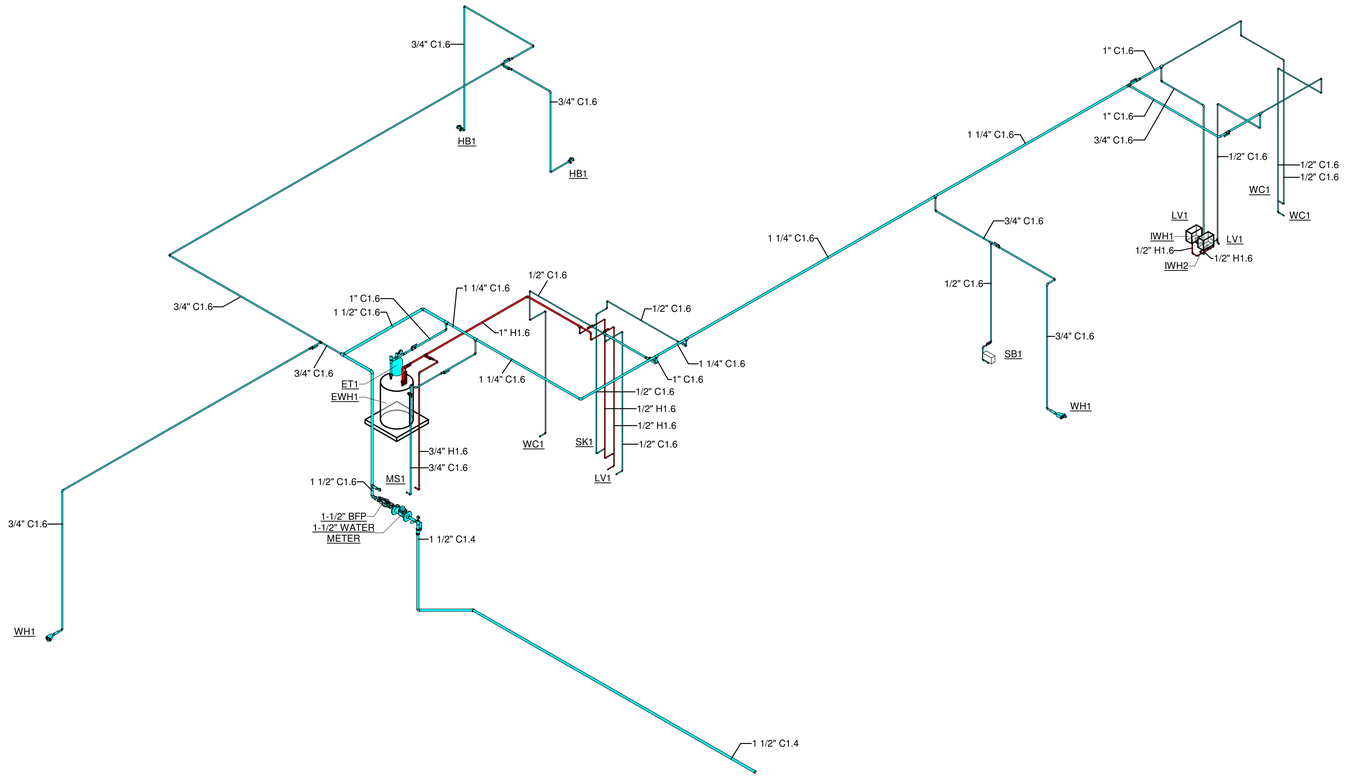
PLUMBING WASTE AND VENT ISOMETRIC

P-201

03/12/25

Pipe Type Legend			
Mark	Color	System Name	Pipe Material
C1.4		C1 - Domestic Cold Water	4 - Copper - Type K - ASTM B88
C1.6		C1 - Domestic Cold Water	6 - Copper - Type L - ASTM B88
H1.6		H1 - Domestic Hot Water	6 - Copper - Type L - ASTM B88



1 PLUMBING WATER ISOMETRIC

2" REFERENCE LINE

KLH #: 26959

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PLUMBING WATER ISOMETRIC

P-202

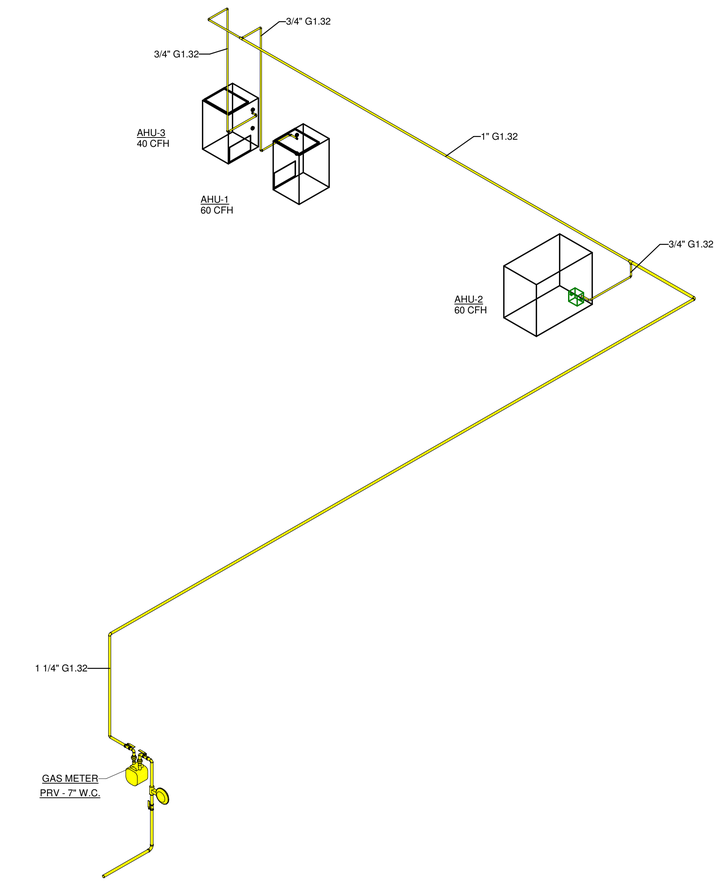
03/12/25

PLUMBING GAS LOAD SCHEDULE

Total Measured Length of Pipe: 115 Ft.	Pressure Drop: 0.5 In. W.C.	Delivery Pressure After Meter & PRV: 7 In. W.C.	Gas Type: Natural Gas

EQUIPMENT MARK	DESCRIPTION	STATUS	GAS LOAD	MINIMUM GAS PRESSURE	MAXIMUM GAS PRESSURE
AHU-1	FURNACE	NEW	60	4.5	13
AHU-2	GENERIC MECHANICAL EQUIPMENT	NEW	60	4.5	13
AHU-3	FURNACE	NEW	40	4.5	13
TOTAL GAS LOAD: 160 CFH					

Pipe Type Legend			
Mark	Color	System Name	Pipe Material
G1.32		G1 - Natural Gas	32 - Black Steel - Schedule 40 - ASTM A53/A53M



1 PLUMBING GAS ISOMETRIC

2" REFERENCE LINE
KLH #: 26959

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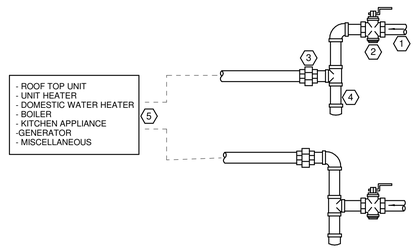
PLUMBING GAS
ISOMETRIC
P-203
03/12/25

GENERAL NOTES:

A. PIPING ARRANGEMENTS SHOWN ARE SCHEMATIC. ADJUST TO SUIT ACTUAL CONDITIONS. MAKE FINAL CONNECTION TO EQUIPMENT AS RECOMMENDED BY MANUFACTURER

KEYED NOTES:

1. GAS SUPPLY.
2. APPROVED GAS SHUT OFF VALVE.
3. APPROVED UNION WITHIN 6'-0" OF APPLIANCE OR EQUIPMENT SERVED.
4. MINIMUM 6" LONG SEDIMENT TRAP WITH THREADED CAP. INSTALL CAP WITH PROPER CLEARANCE TO PROVIDE SERVICABILITY.
5. TO UNIT INLET CONNECTION.

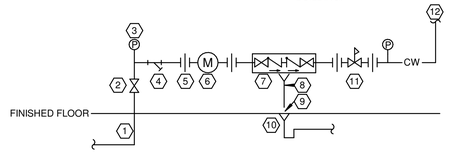


221613.00-11 - TYPICAL GAS CONNECTIONS TO EQUIPMENT

SCALE: NONE

KEYED NOTES:

1. INCOMING WATER SERVICE UP THROUGH FINISHED FLOOR.
2. MAIN BUILDING SHUT-OFF
3. PRESSURE GAUGE AND SNUBBER(TYPICAL). **CRITICAL TO INSTALLATION.**
4. STRAINER.
5. UNION (TYPICAL)
6. WATER METER AND METER SPREAD TO CONFORM TO WATER PURVEYOR REQUIREMENTS.
7. REDUCED PRESSURE ZONE BACKFLOW PREVENTER. ASSE 1013 APPROVED (TYPICAL).
8. FUNNEL WITH AIR GAP. ROUTE PIPING TO FLOOR DRAIN.
9. PROVIDE AIR GAP.
10. FLOOR DRAIN.
11. PRESSURE REGULATING VALVE. AS REQUIRED IF UPSTREAM PRESSURE IS ABOVE 80 PSI.
12. DOMESTIC COLD WATER SUPPLY TO BUILDING.

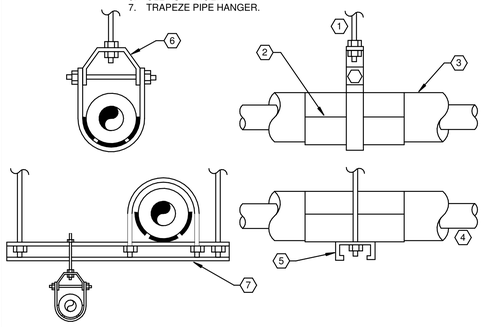


221113.00-02 - SINGLE BACKFLOW PREVENTER WITH METER DETAIL

SCALE: NONE

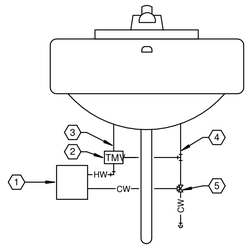
KEYED NOTES:

1. HANGER ROD.
2. GALVANIZED STEEL PIPE SHIELD AND 360° CALCIUM SILICATE INSULATION HANGER SUPPORT.
3. PIPE INSULATION.
4. PIPE.
5. UNISTRUT CHANNEL.
6. CLEVIS HANGER.
7. TRAPEZE PIPE HANGER.



220529.00-01 - PLUMBING PIPE HANGER INSTALLATION

SCALE: NONE



KEYED NOTES:

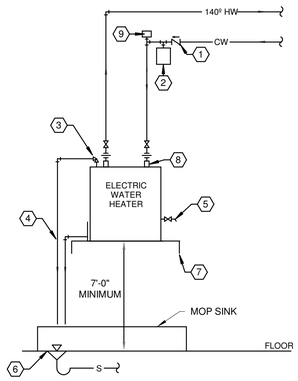
1. INSTANTANEOUS WATER HEATER
2. ASSE 1070 APPROVED THERMOSTATIC MIXING VALVE.
3. 1/2" TEMPERED HW.
4. 1/2" CW.
5. 1/2" 3-WAY ANGLE STOP VALVE.

GENERAL NOTES:

A. MOUNTS DIRECTLY BENEATH THE BASIN USING ONLY ONE PIPE

223300.00-06 - INSTANTANEOUS ELECTRIC WATER HEATER

SCALE: NONE



KEYED NOTES:

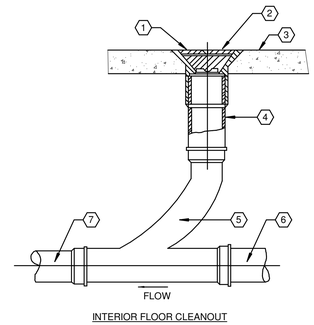
1. CHECK VALVE.
2. 4 GALLON EXPANSION TANK.
3. ASME APPROVED TEMPERATURE AND PRESSURE RELIEF VALVE, 210°F, 125 PSI.
4. RELIEF PIPE, FULL SIZE OF OPENING.
5. DRAIN VALVE.
6. MOP SINK.
7. MOUNT ON BRACKETS OR SUSPEND FROM JOISTS ABOVE.
8. HEAT TRAP NIPPLE.
9. VACUUM RELIEF VALVE.

223300.00-00 - SHELF MOUNTED ELECTRIC WATER HEATER

SCALE: NONE

KEYED NOTES:

1. CLEANOUT WITH COVER RATED FOR EXPECTED WHEEL LOADING REFER TO SPECIFICATIONS AND PLANS FOR TYPE AND LOCATIONS.
2. TOP FLUSH WITH FINISHED FLOOR.
3. FINISHED FLOOR LEVEL.
4. FULL PIPE SIZE EXTENSION. PROVIDE SAME SIZE AS LINE SERVED UP TO 4".
5. COMBINATION WYE AND 1/8" BEND OR AS CODE REQUIRED.
6. BUILDING WASTE DRAIN MATERIAL AND SIZE AS SPECIFIED.



INTERIOR FLOOR CLEANOUT

221316.00-04 - INTERIOR FLOOR CLEANOUT

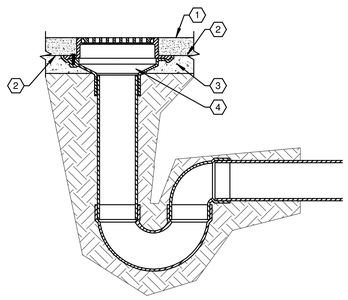
SCALE: NONE

GENERAL NOTES:

A. SLOPE FLOOR TO DRAIN TO FLOOR DRAIN.

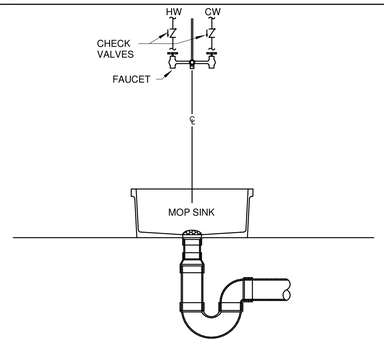
KEYED NOTES:

1. FINISH FLOOR SLAB - SLOPE TO DRAIN.
2. WATER PROOFING MEMBRANE. FLASHING FLANGE (IF APPLICABLE).
3. STRUCTURAL SLAB
4. FLOOR DRAIN BODY.



221316.00-01 - FLOOR DRAIN DETAIL

SCALE: NONE



NOTES:

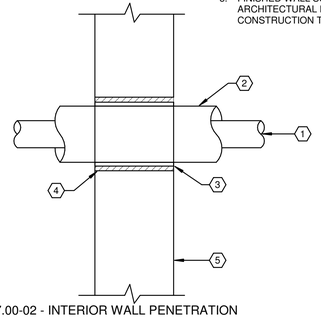
1. SEAL TOP OF SINK TO WALL USING A CONTINUOUS BEAD OF SILICONE CAULKING, WHEREVER SINK ABUTS WALL.
2. FOR EXTERIOR MASONRY AND SOLID WALLS APPLICATION PROVIDE SURFACE MOUNT WATER SUPPLY LINES. WHEN POSSIBLE ROUTE WATER SUPPLY LINES INSIDE INTERIOR STUD WALLS.
3. INCLUDE MOP HANGER, HOSE & HOSE BRACKET, WALL AND BUMPER GUARDS.

224000.00-02 - MOP SINK DETAIL

SCALE: NONE

KEYED NOTES:

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

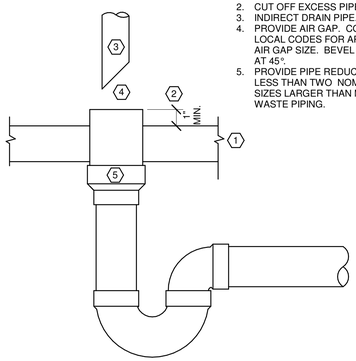


220517.00-02 - INTERIOR WALL PENETRATION

SCALE: NONE

KEYED NOTES:

1. FINISHED FLOOR.
2. CUT OFF EXCESS PIPE 1" A.F.F.
3. INDIRECT DRAIN PIPE.
4. PROVIDE AIR GAP. CONSULT LOCAL CODES FOR APPROVED AIR GAP SIZE. BEVEL PIPE END AT 45°.
5. PROVIDE PIPE REDUCER NO LESS THAN TWO NOMINAL PIPE SIZES LARGER THAN MAIN WASTE PIPING.



221316.00-03 - HUB DRAIN DETAIL

SCALE: NONE

2" REFERENCE LINE
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PLUMBING DETAILS

P-501

03/12/25

WALL HYDRANT SCHEDULE

PRODUCT					GENERAL		MISC
MARK	DESCRIPTION	MANUFACTURER	MODEL	SECTION NUMBER	LOCATION	STATUS	ACCESSORIES
WH1	WALL HYDRANT	WATTS	HY-420	22 40 00.00	REFER TO PLAN	NEW	INSTALL PER MANUFACTURER GUIDELINES. ASSE 1019 RATED.

DOMESTIC WATER EXPANSION TANK SCHEDULE

PRODUCT					MISC		GENERAL	
MARK	DESCRIPTION	MANUFACTURER	MODEL	SECTION NUMBER	STORAGE VOLUME	ACCESSORIES	LOCATION	STATUS
ET1	DOMESTIC WATER EXPANSION TANK	AMTROL	ST-12	22 00 00.00	4.4	INSTALL PER MANUFACTURER GUIDELINES.	EWH1	NEW

FLOOR DRAIN SCHEDULE

PRODUCT					GENERAL		MISC	FIXTURE UNITS	TRAP INFORMATION
MARK	DESCRIPTION	MANUFACTURER	MODEL	SECTION NUMBER	LOCATION	STATUS	ACCESSORIES	DFU	TRAP PRIMER
FD1	FLOOR DRAIN	WATTS	FD-100-A	22 13 19.00	REFER TO PLAN	NEW	INSTALL PER MANUFACTURER GUIDELINES. PROVIDE TRAP SEAL PER SPECIFICATIONS.	6	YES

MOP SINK SCHEDULE

PRODUCT					GENERAL		MISC	VALVE/FAUCET INFORMATION		FIXTURE UNITS				FLOW INFORMATION	TRAP INFORMATION
MARK	DESCRIPTION	MANUFACTURER	MODEL	SECTION NUMBER	LOCATION	STATUS	ACCESSORIES	FIXTURE MFG	FIXTURE MODEL	DFU	WSFU	CW SFU	HW SFU	FLUID FLOW	INTEGRAL TRAP
MS1	MOP SINK	FIAT	MS82424	22 40 00.00	RECEIVING	NEW	COORDINATE WITH OWNER	FIAT	830AA	2	3	2.25	2.25	3	NO

SINK SCHEDULE

PRODUCT					GENERAL		MISC	VALVE/FAUCET INFORMATION		FIXTURE UNITS				FLOW INFORMATION	TRAP INFORMATION
MARK	DESCRIPTION	MANUFACTURER	MODEL	SECTION NUMBER	LOCATION	STATUS	ACCESSORIES	FIXTURE MFG	FIXTURE MODEL	DFU	WSFU	CW SFU	HW SFU	FLUID FLOW	INTEGRAL TRAP
SK1	SINK	ELKAY	ELUH3118	22 40 00.00	BREAK ROOM	NEW	COORDINATE FINAL SELECTION WITH OWNER.	AMERICAN STANDARD	7500.170	2	4	3	3	1.5	NO

LAVATORY SCHEDULE

PRODUCT					GENERAL		MISC	VALVE/FAUCET INFORMATION		FIXTURE UNITS				FLOW INFORMATION	TRAP INFORMATION
MARK	DESCRIPTION	MANUFACTURER	MODEL	SECTION NUMBER	LOCATION	STATUS	ACCESSORIES	FIXTURE MFG	FIXTURE MODEL	DFU	WSFU	CW SFU	HW SFU	FLUID FLOW	INTEGRAL TRAP
LV1	LAVATORY	AMERICAN STANDARD	LUCERNE 0356.421	22 40 00.00	RESTROOM	NEW	COORDINATE WITH OWNER.	AMERICAN STANDARD	RELIANT 7385.050	1	2	1.5	1.5	0.5	NO

TANK TYPE WATER CLOSET SCHEDULE

PRODUCT					FLOW INFORMATION	GENERAL		MISC	VALVE/FAUCET INFORMATION		FIXTURE UNITS				TRAP INFORMATION
MARK	DESCRIPTION	MANUFACTURER	MODEL	SECTION NUMBER	GALLONS PER FLUSH (GAL(US))	LOCATION	STATUS	ACCESSORIES	FIXTURE MFG	FIXTURE MODEL	DFU	WSFU	CW SFU	HW SFU	INTEGRAL TRAP
WC1	TANK TYPE WATER CLOSET	AMERICAN STANDARD	CADET 215AA.104	22 40 00.00	1.28	RESTROOM	NEW	COORDINATE WITH OWNER.	--	--	4	5	5	--	YES

PLUMBING HEAT TRACE PANEL SCHEDULE

PRODUCT					GENERAL		MISC	ELECTRICAL														PRODUCT
MARK	DESCRIPTION	MANUFACTURER	MODEL	SECTION NUMBER	LOCATION	STATUS	ACCESSORIES	CONNECTION MARK	ELECTRIC CONNECTION SUMMARY	CN TYPE	CN FURNISHED BY	CN INSTALLED BY	CN WIRED BY	MC TYPE	MC FURNISHED BY	MC INSTALLED BY	MC WIRED BY	DC TYPE	DC FURNISHED	DC INSTALLED BY	DC WIRED BY	FAULT CURRENT	MARK
HT1	PLUMBING HEAT TRACE PANEL	CHROMALOX	SRF 3	22 00 00.00	FREEZER	NEW	INSTALL PER MANUFACTURERS RECOMMENDATION.	HT1	HT1 - 120V/1PH, 50W, 20A OCP	LINE	PC	PC	PC	--	--	--	--	--	EC	EC	EC	HT1: 1774	HT1

INSTANTANEOUS ELECTRIC WATER HEATER SCHEDULE

PRODUCT						GENERAL		MISC	ELECTRICAL	DESIGN CONDITIONS		ELECTRICAL															PRODUCT
MARK	DESCRIPTION	MANUFACTURER	MODEL	OPERATING WEIGHT	SECTION NUMBER	LOCATION	STATUS	ACCESSORIES	EFFICIENCY	EWT	LWT	CONNECTION MARK	ELECTRIC CONNECTION SUMMARY	CN TYPE	CN FURNISHED BY	CN INSTALLED BY	CN WIRED BY	MC TYPE	MC FURNISHED BY	MC INSTALLED BY	MC WIRED BY	DC TYPE	DC FURNISHED	DC INSTALLED BY	DC WIRED BY	FAULT CURRENT	MARK
IWH1	INSTANTANEOUS ELECTRIC WATER HEATER	EEMAX	AM0052407	6	22 33 00.00	RESTROOM	NEW	INSTALL PER MANUFACTURER GUIDELINES. ASSE 1070 RATED.	0.9	40	105	IWH1	IWH1 - 240V/1PH, 4.8KW HTG, 20A FLA	INT	MFR	MFR	MFR	--	--	--	--	--	EC	EC	EC	IWH1: 3377	IWH1
IWH2	INSTANTANEOUS ELECTRIC WATER HEATER	EEMAX	AM0052407	6	22 33 00.00	RESTROOM	NEW	INSTALL PER MANUFACTURER GUIDELINES. ASSE 1070 RATED.	0.9	40	105	IWH2	IWH2 - 240V/1PH, 4.8KW HTG, 20A FLA	INT	MFR	MFR	MFR	--	--	--	--	--	EC	EC	EC	IWH2: 3314	IWH2

TANK TYPE ELECTRIC WATER HEATER SCHEDULE

PRODUCT						MISC		GENERAL		ELECTRICAL	DESIGN CONDITIONS		ELECTRICAL														PRODUCT
MARK	DESCRIPTION	MANUFACTURER	MODEL	OPERATING WEIGHT	SECTION NUMBER	STORAGE VOLUME	ACCESSORIES	LOCATION	STATUS	EFFICIENCY	EWT	LWT	CONNECTION MARK	ELECTRIC CONNECTION SUMMARY	CN TYPE	CN FURNISHED BY	CN INSTALLED BY	CN WIRED BY	MC TYPE	MC FURNISHED BY	MC INSTALLED BY	MC WIRED BY	DC TYPE	DC FURNISHED	DC INSTALLED BY	DC WIRED BY	FAULT CURRENT	MARK
EWH1	TANK TYPE ELECTRIC WATER HEATER	AO SMITH	DEL 30	419	22 33 00.00	30	INSTALL PER MANUFACTURER GUIDELINES AND DETAIL.	RECEIVING PALLET AREA	NEW	0.9	40	140	EWH1	EWH1 - 240V/1PH, 4.5KW HTG	INT	MFR	MFR	MFR	--	--	--	--	--	EC	EC	EC	EWH1: 3167	EWH1

2" REFERENCE LINE

KLH #: 26959

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3/12/2025

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