GREENWOOD MAINTENANCE BUILDING ADDITION FOR:
MONROE HOUSING COMMISSION:
GREENWOOD TOWNHOUSES

900 GREENWOOD AVENUE • MONROE, MICHIGAN • 48162

DRAWING LEGEND

- DETAIL NUMBER / SHEET DETAIL IS LOCATED
- DIRECTION OF SECTION CUT
- INTERIOR ELEVATION MARKER (NUMBER) / SHEET ELEVATION IS LOCATED
- ROOM IDENTIFICATION (NUMBER)
- DOOR IDENTIFICATION (NUMBER)
- WALL TYPE (NUMBER)
- ADDENDUM REVISION (NUMBER)
- BULLETIN REVISION / KEYNOTE (NUMBER)
- LINE OF 2 HOUR FIRE RATED WALL ASSEMBLY
- REVISION CLOUD
- DETAIL NUMBER / SHEET DETAIL IS LOCATED / SIM. / DETAIL REFERENCE TYPE (IF APPLICABLE)
- INDICATES AREA OF DETAIL

ABBREVIATIONS

AFF	ABOVE FINISH FLOOR	DWG	DRAWING	H	HEIGHT	O.C.	ON CENTER
ALT	ALTERNATE	EA	EACH	INSUL	INSULATION (INS) (ED)	REQD	REQUIRED
ALUM	ALUMINUM	ELEC	ELECTRICAL	LF	PER LINEAL FOOT	SHT	SHEET
ANOD	ANODIZED	ELEV	ELEVATION	MAX	MAXIMUM	SIM	SIMILAR
ARCH	ARCHITECT	EQ	EQUAL	MECH	MECHANICAL	STL	STEEL
CF	CUBIC FOOT	EQUIP	EQUIPMENT	MFR	MANUFACTURER	TEMP	TEMPERED
CLG	CEILING	EXIST	EXISTING	MIN	MINIMUM	TYP	TYPICAL
D	DEPTH	FIN	FINISH (ED)	MISC	MISCELLANEOUS	W	WIDTH
DET	DETAIL	FT	FEET / FOOT	MTL	METAL		
DIM	DIMENSION	GA	GAUSE	NO.	NUMBER		
DN	DOWN	GALV	GALVANIZED	NTS	NOT TO SCALE		

GENERAL NOTES:

1. DRAWINGS ARE SCHEMATIC. ACTUAL CONDITIONS AFFECTING THIS WORK ARE TO BE VERIFIED IN THE FIELD. DO NOT SCALE DRAWINGS.
2. THE WORK SHALL BE AS SHOWN OR NOTED ON THE DRAWINGS. CONTRACTOR IS RESPONSIBLE FOR THE FULL SCOPE OF THE WORK INDICATED UNLESS NOTED OTHERWISE.
3. THE ARCHITECT IS NOT RESPONSIBLE FOR MEANS AND METHODS UTILIZED IN THE EXECUTION OF THE WORK.
4. SECURE AND PAY FOR ALL PERMITS, INSPECTIONS, TESTS, ETC., AS REQUIRED FOR THE WORK UNDER THIS CONTRACT.
5. CONTACT PUBLIC UTILITIES AND COORDINATE WORK WITH PUBLIC REQUIREMENTS AND INSTALLATIONS. CONTACT "MISS DIG" (811) PRIOR TO START OF OPERATIONS.
6. WORK RELATING TO DISTURBANCE OF EXISTING HAZARDOUS MATERIALS, SUCH AS ASBESTOS, PCB, ETC., IS NOT WITHIN THE SCOPE OF THIS WORK. IF CONTRACTOR ENCOUNTERS MATERIALS KNOWN OR SUSPECTED TO CONTAIN A HAZARDOUS PRODUCT, HE/SHE SHALL ADVISE THE OWNER OF THE FINDINGS FOR DETERMINATION OF PROPER DISPOSITION. ANY SUCH HAZARDOUS MATERIALS SHALL NOT BE INCORPORATED IN THIS WORK.
7. PROVIDE ANY MEANS NECESSARY TO ENSURE SAFETY TO OWNER'S EMPLOYEES, VISITORS TO THE SITE, AND THE GENERAL PUBLIC.
8. UNLESS OTHERWISE APPROVED BY OWNER, FURNISH ONLY NEW MATERIALS OF GOOD QUALITY FOR INCORPORATION INTO THIS WORK.
9. VERIFY FINAL LAYOUT WITH OWNER AND ARCHITECT.
10. VERIFY ALL DIMENSIONS AND CONDITIONS IN FIELD PRIOR TO DOING ANY WORK OR FABRICATION. REVIEW DIMENSIONS SHOWN ON CONTRACT DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT AND RECEIVE CLARIFICATION PRIOR TO PROCEEDING.
11. GENERAL CONTRACTOR SHALL BE RESPONSIBLE TO REPAIR ALL SURFACES AND COMPONENTS DAMAGED DURING CONSTRUCTION.
12. THE GENERAL CONTRACTOR SHALL COORDINATE ALL TRADES WORK, EACH SUBCONTRACTOR SHALL BE RESPONSIBLE FOR PERMIT AND FEES, RELATED TO THEIR TRADE.
13. MECHANICAL INSTALLATIONS SHALL BE PROVIDED BY A CONTRACTOR LICENSED TO PERFORM SUCH MECHANICAL WORK. AIR BALANCING TESTS AND REPORTS SHALL BE PROVIDED IF WORK INCLUDES SUPPLY AIR, RETURN AIR OR EXHAUST AIR SYSTEMS.
14. ELECTRICAL INSTALLATIONS SHALL BE PROVIDED BY A CONTRACTOR LICENSED TO PERFORM SUCH ELECTRICAL WORK. CIRCUITS IN ELECTRICAL PANELS SHALL BE ACCURATELY IDENTIFIED.
15. PLUMBING INSTALLATIONS SHALL BE PROVIDED BY A CONTRACTOR LICENSED TO PERFORM SUCH PLUMBING WORK.

FLOOD ZONE INFORMATION

INFORMATION FROM:
FLOOD INSURANCE RATE MAP
MAP NUMBER: 26115C0242F
DATED: JUNE 19, 2020
ZONE: X - AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.

WETLAND NOTE

NO WETLANDS HAVE BEEN IDENTIFIED ON THIS SITE OR WITHIN 50.0' OF THIS SITE.

BUSINESS INFORMATION

MAX. NUMBER OF EMPLOYEES ON ONE SHIFT =
- MAINTENANCE: 3 EMPLOYEES
- COMMUNITY CENTER / LIBRARY: 3 EMPLOYEES / VOLUNTEERS
- SUBSTATION: 4 PUBLIC SERVICE OFFICERS

BUSINESS HOURS:
- MAINTENANCE: NOT OPEN TO PUBLIC
- SUBSTATION: TO BE DETERMINED
- COMMUNITY CENTER & LIBRARY: TO BE DETERMINED. WILL BE BASED OFF PROGRAMS THAT WILL BE ESTABLISHED.

HAZARDOUS MATERIAL NOTE

THE ARCHITECT'S SCOPE OF SERVICES DOES NOT INCLUDE ANY SERVICES RELATED TO ASBESTOS, LEAD, HAZARDOUS, OR TOXIC MATERIALS. IN THE EVENT THE CONTRACTOR OR ANY OTHER PARTY ENCOUNTERS ASBESTOS, HAZARDOUS, OR TOXIC MATERIALS AT THE JOB SITE, OR SHOULD IT BECOME KNOWN IN ANY SUCH WAY THAT MATERIALS MAY BE PRESENT AT THE JOB SITE OR ANY ADJACENT AREAS THAT MAY AFFECT THE PERFORMANCE OF THE CONTRACTOR'S SERVICES, THE CONTRACTOR SHALL NOTIFY THE OWNER WHO SHALL RETAIN APPROPRIATE SPECIALIST CONSULTANTS OR CONTRACTORS TO IDENTIFY, ABATE AND/OR REMOVE THE ASBESTOS, HAZARDOUS, OR TOXIC MATERIALS AND WARRANT THAT THE JOB SITE IS IN FULL COMPLIANCE WITH APPLICABLE LAWS AND REGULATIONS.

ALL NEW MATERIAL PROVIDED SHALL BE FREE OF ASBESTOS, LEAD, HAZARDOUS, OR TOXIC MATERIALS. UPON COMPLETION OF THE PROJECT THE CONTRACTOR SHALL PROVIDE THE OWNER WITH A WRITTEN AFFIDAVIT AS PROOF OF COMPLIANCE.

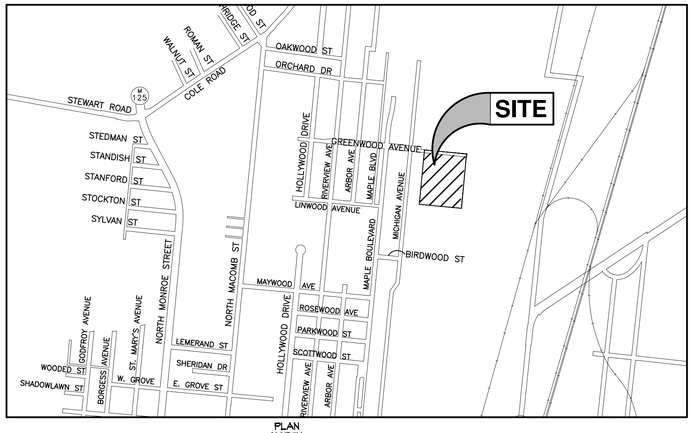
UTILITY NOTE

ALL EXISTING UTILITIES (SANITARY SEWER, MUNICIPAL WATER, ELECTRIC, CABLE, PHONE, ETC.) SHALL REMAIN AS IS AND UTILIZED FOR THE NEW ADDITION ON THE EXISTING BUILDING. NEW GAS SERVICE TO ADDITION FROM GAS LINE BEHIND EXISTING BUILDING ON-SITE (912 GREENWOOD).

THE EXISTING STORM SEWER SYSTEM SHALL REMAIN IN PLACE AND UTILIZED AS IS WITH THE ADDITION OF A NEW FRENCH DRAIN DIRECTED TO EXISTING CATCH BASIN TO CATCH RUNOFF FROM NEW PARKING LOT BEHIND ADDITION / EXISTING MAINTENANCE GARAGE.

SIGNAGE NOTE

PROPOSED SHALL BE A NEW WALL MOUNTED SIGNS LOCATED AT MAIN ENTRANCE OF COMMUNITY BUILDING AND EXTERIOR ENTRANCE OF LIBRARY SUBMITTED SEPARATELY.



PLAN NORTH

LOCATION MAP

SCALE: 1" = 1000'-0"

PROJECT NARRATIVE

THE MONROE HOUSING COMMISSION IS UNDERTAKING A MAINTENANCE BUILDING ADDITION FOR THE GREENWOOD TOWNHOUSES COMPLEX LOCATED AT 900 GREENWOOD AVENUE, MONROE, MI 48162. INITIAL FUNDING WILL BE THROUGH THE IMPLEMENTATION OF THE 2022 CAPITAL FUND PROGRAM FOR THE GREENWOOD MAINTENANCE BUILDING ADDITION. IN GENERAL, THE DRAWINGS PROPOSE THE ADDITION TO THE MAINTENANCE GARAGE, NEW ASSOCIATED PARKING, AND SITE IMPROVEMENTS LOCATED WITHIN THE GREENWOOD TOWNHOUSE COMPLEX. THE ADDITION CONSISTS OF AN EXPANSION OF THE MAINTENANCE BUILDING, NEW COMMUNITY CENTER SPACE, LIBRARY, AND PUBLIC SAFETY SUBSTATION ADDING APPROXIMATELY 3,202 SQUARE FEET TO THE EXISTING 3,330 SQUARE FOOT SINGLE-STORY, SLAB-ON-GRADE, WOOD FRAMED STRUCTURE WITH VINYL SIDING, AND SHINGLED ROOF USED FOR THE CURRENT MAINTENANCE BUILDING. THE INTENTION OF THE ADDITION IS TO SERVE THE TENANTS OF THE GREENWOOD TOWNHOUSES.

THE ONLY PROPOSED INTERIOR IMPROVEMENTS BEING UNDERTAKEN WITHIN THE EXISTING STRUCTURE WILL BE TO INTEGRATE THE NEW MECHANICAL SYSTEM LOCATED WITHIN THE ADDITION INTO THE EXISTING NORTHEAST SIDE OF THE EXISTING MAINTENANCE BUILDING. EXTERIOR IMPROVEMENTS INCLUDE ROOF REPLACEMENT, NEW SIDING, AND EXTERIOR BUILDING LIGHTING.

ALTERNATE #1 - ADD TO THE PROPOSAL THE COST TO: PROVIDE AND INSTALL BUILDING GENERATOR AND CONCRETE PAD.
BASE BID: PREPARATION FOR BUILDING GENERATOR INCLUDING EXTERIOR GAS CONNECTION AS WELL AS ELECTRICAL PANEL, SWITCH, AND CONDUIT INSTALLATION FOR FUTURE CONNECTION OR ALTERNATE IF ACCEPTED AS DETAILED IN ENGINEER'S DRAWINGS. PROVIDE LABOR AND MATERIAL FOR THE INSTALLATION AND FINAL CONNECTION OF NEW BUILDING GENERATOR AND CONCRETE PAD AS SHOWN IN ENGINEER'S DRAWINGS.

ALTERNATE #2 - ADD TO THE PROPOSAL THE COST TO: PROVIDE AND INSTALL EPOXY FINISH IN THE TABLE & CHAIR STORAGE AND MAINTENANCE STORE ROOMS.
BASE BID: NOTED ROOMS FLOOR FINISHES ARE TO BE SEALED CONCRETE.
PROVIDE LABOR AND MATERIAL FOR THE INSTALLATION OF EPOXY FLOORING AS SPECIFIED ON THE MATERIAL SPECIFICATIONS WITHIN DRAWING SET. DELETE FLOOR FINISH AS CALLED FOR SEALED CONCRETE IN NOTED ROOMS.

ALTERNATE #3 - ADD TO THE PROPOSAL THE COST TO: PROVIDE AND INSTALL MOTORIZED CEILING MOUNTED PROJECTOR SCREEN WITH LOCKABLE COVER AT WALL SWITCH.
BASE BID: PREPARATION FOR SCREEN WHICH INCLUDES ALL ASSOCIATED ELECTRICAL WORK.
PROVIDE LABOR MATERIAL FOR THE INSTALLATION OF PROJECTOR SCREEN AS SPECIFIED IN THE ENGINEER'S DRAWINGS.

LANDSCAPE REQUIREMENTS:

(SECTION 2.06F)
ROAD FRONTAGE:

MULTIPLE-FAMILY AND NON-RESIDENTIAL USES: ONE (1) TREE PER 40 FEET.

BUILDING IS LOCATED AT REAR OF PROPERTY THEREFORE THIS IS NOT APPLICABLE.

PARKING LOT - INTERIOR:

MULTIPLE-FAMILY AND NON-RESIDENTIAL USES: ONE (1) TREE AND EIGHT (8) SHRUBS PER EIGHT (8) PARKING SPACES. ONE (1) LANDSCAPE ISLAND PER 16 PARKING SPACES. LANDSCAPE ISLANDS SHALL BE AT LEAST 50 S.F. IN AREA.

NOT APPLICABLE

PARKING LOT - PERIMETER:

MULTIPLE-FAMILY AND NON-RESIDENTIAL USES: SHALL BE SCREENED FROM ALL ADJACENT RESIDENTIAL USES. PARKING LOT ABUTTING A ROADWAY SHALL BE SEPARATED FROM SIDEWALK BY A THREE (3) FOOT HIGH DECORATIVE SCREENING WALL OR CONTINUOUS ROW OF SHRUBS AT LEAST 24 INCHES TALL AT THE TIME OF PLANTING.

NOT APPLICABLE

SCREENING FROM RESIDENTIAL USES:

MULTIPLE-FAMILY USES: NO REQUIREMENT

EXISTING: 6' HT. PRIVACY FENCING AT WEST SIDE OF BUILDING.

REMOVAL OF 8 TREES ARE REQUIRED FOR THE CONSTRUCTION OF THE NEW ADDITION. NO PROPOSED LANDSCAPING AT TIME OF THE SUBMITTAL.

DRAWING INDEX

72 Hours Before 811
Know what's below. Call before you dig.
Non Members must call directly.

PROPOSED PERMITTED / SPECIAL LAND USES

SECTION 2.06 RM, MULTIPLE-FAMILY RESIDENTIAL DISTRICT

TABLE 2.06B - PERMITTED AND SPECIAL USES:

EXISTING MAINTENANCE GARAGE AND EXPANSION:
NON-COMMERCIAL ACCESSORY USES IN CONJUNCTION WITH MULTIPLE-FAMILY COMPLEXES - PERMITTED

COMMUNITY CENTER AREA:
INDOOR RECREATIONAL FACILITIES / COMMUNITY CENTER - SPECIAL USE

LIBRARY:
LIBRARIES - SPECIAL USE

PUBLIC SAFETY SUBSTATION:
POLICE / FIRE - SPECIAL USE

APPROVED AT CPC MEETING ON JANUARY 25, 2023
(CASE #SU-23-001: 900 GREENWOOD AVE, PARCEL 58-01885-003)

ZONING INFORMATION

ZONED: RM MULTIPLE-FAMILY RESIDENTIAL DISTRICT

RM ZONING REQUIREMENTS
MIN. LOT AREA = 6,000 S.F.
ACTUAL = 435,603 S.F. OR 10.0 ACRES (GROSS)
MIN. LOT WIDTH = 80.0'
ACTUAL = 570.90'
MAX. BUILDING HEIGHT = 40.0'
ACTUAL = ONE STORY, 20.92' TO RIDGE
MAX. BUILDING STORIES = 3
ACTUAL = 2 STORIES (EXISTING TOWNHOUSES), 1 STORY ADDITION
MIN. FRONT YARD SETBACK = 25.0'
ACTUAL = 517.5'± EXISTING / ADDITION
MIN. SIDE YARD SETBACK = 5.0' FOR ONE, 16.0' TOTAL FOR TWO
ACTUAL = 26.2'± WEST SIDE OF BUILDING (ONE SIDE)
MIN. REAR YARD SETBACK = 25.0'
ACTUAL = 119.1'± ADDITION
MIN. FLOOR AREA = NONE
ACTUAL = 1,207 S.F. EX. MAINTENANCE BUILDING, 4,925 S.F. ADDITION
62,867 S.F. TOTAL BUILDINGS
MAX. LOT COVERAGE = 50%
ACTUAL = 13.3% EX., 14.4% PROPOSED

LEGAL DESCRIPTION

PROPERTY ID #58-01885-003

ADDRESS: 900 GREENWOOD AVE.
MONROE, MI 48162

PART OF PRIVATE CLAIM 154 COMMENCING AT A POINT S66°00'00"E 12.00' FROM THE SOUTHEAST CORNER OF LOT 50 MICHIGAN HEIGHTS SUBDIVISION; THENCE S66°00'00"E 510.90' TO THE INTERSECTION OF THE EAST LINE OF PRIVATE CLAIM 154; THENCE S24°00'00"W 163.01'; THENCE N66°00'00"W 510.90'; THENCE N24°00'00"E 163.01' TO THE POINT OF BEGINNING.

PARCEL CONTAINING 10.00 ACRES MORE OR LESS

PARKING REQUIREMENTS

NON-COMMERCIAL ACCESSORY USES IN CONJUNCTION WITH MULTI-FAMILY COMPLEXES (MAINTENANCE BUILDING)
- PER ORDINANCE THE CPC SHALL DETERMINE THE APPROPRIATE NUMBER OF PARKING SPACES ON A CASE BY CASE BASIS.

PROPOSED MAINTENANCE PARKING: 3 SPACES (RELOCATED FROM FRONT OF EX. MAINTENANCE BUILDING)

INDOOR RECREATIONAL FACILITIES / COMMUNITY CENTERS
- PER ORDINANCE THE CPC SHALL DETERMINE THE APPROPRIATE NUMBER OF PARKING SPACES ON A CASE BY CASE BASIS.

COMMUNITY CENTER TO BE UTILIZED BY TENANTS OF COMPLEX THEREFORE NO ADDITIONAL SPACES ARE PROPOSED.

5 SPACES SHOWN AT FRONT OF BUILDING - 3 ARE RELOCATED DUE TO NEW PAVING IN FRONT OF BUILDING WHICH INCLUDE 2 ADA SPACES.

LIBRARIES
- REQUIRED ONE (1) SPACE PER 300 S.F.

LIBRARY S.F. = 600 S.F. / 300 S.F. = 2 SPACES REQUIRED

LIBRARY TO BE UTILIZED BY TENANTS OF COMPLEX

5 SPACES SHOWN AT FRONT OF BUILDING - 2 SPACES ARE PROVIDED FOR LIBRARY.

POLICE/FIRE
- REQUIRED ONE (1) SPACE PER 300 S.F.

PUBLIC SERVICE SUBSTATION S.F. = 502 S.F. (EXCLUDING GARAGE)
502 / 300 = 1.67 ~ 2 SPACES REQUIRED

2 SPACES PROVIDED AT REAR OF BUILDING.

JAMES S. JACOBS ARCHITECTS, PLLC
25 WASHINGTON STREET
MONROE, MICHIGAN 48161
TEL: (734) 241-7933
FAX: (734) 241-1181
EMAIL: jim@jsjacobsarch.com

GREENWOOD MAINTENANCE BUILDING ADDITION FOR:

MONROE HOUSING COMMISSION: GREENWOOD TOWNHOUSES
900 GREENWOOD AVENUE
MONROE, MICHIGAN 48162

PROPERTY CONTACT:
NANCY WAIN, EXEC. DIRECTOR
MONROE HOUSING COMMISSION
20 NORTH ROESSLER STREET
MONROE, MICHIGAN 48162
TELEPHONE: (734) 242-5880

TITLE SHEET, GENERAL NOTES, & LOCATION MAP

NOT FOR CONSTRUCTION

DATE:	ISSUED FOR:
06-21-2023	BIDS
DRAWN	JLM
REVIEW'D	JSJ

20222

T-1

1 OF 2

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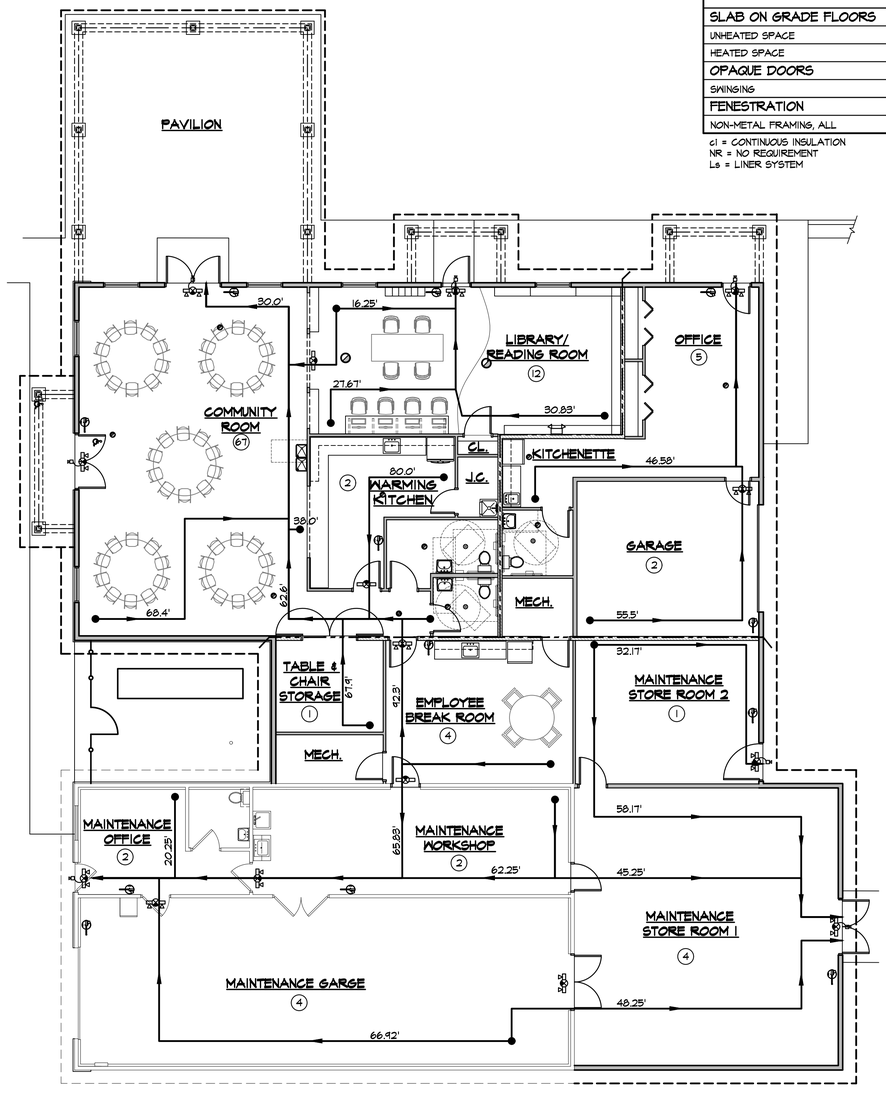
BUILDING ENVELOPE REQUIREMENTS FOR CLIMATE ZONE 5 (A,B,C) MICHIGAN ENERGY CODE 2015 CHAPTER 4, SECTION C401, C401.2 ASHRAE STANDARD 90.1 - 2013 TABLE 5.5-5: NONRESIDENTIAL		
ZONE 5A	MIN. VALUE BY CODE	PROVIDED
ROOFS		
ATTIC & OTHER	R-49	
WALLS ABOVE GRADE		
WOOD FRAMED & OTHER	R-13 + R-7.5 ci OR R-19 + R-5 ci	
SLAB ON GRADE FLOORS		
UNHEATED SPACE	R-15 FOR 24" HORZ.	
HEATED SPACE	R-20 FOR 48" HORZ.	
OPAQUE DOORS		
SWINGING	U-0.50	
FENESTRATION		
NON-METAL FRAMING, ALL	U-0.32	

ci = CONTINUOUS INSULATION
NR = NO REQUIREMENT
Ls = LINER SYSTEM



PLAN NORTH

LIFE SAFETY PLAN
SCALE: 1/8" = 1'-0"

LIFE SAFETY PLAN LEGEND

- EM — EMERGENCY LIGHTING
- EM/EL — EMERGENCY LIGHT & EXIT SIGN COMBINATION FIXTURE
- EXL — EMERGENCY EXTERIOR LIGHTING
- ES — EXIT LIGHT
- EMERGENCY ACCESS ROUTE TOTAL TRAVEL DISTANCE AS NOTED
- MOST REMOTE POINT
- F.E. — MIN. 2.5 GAL. CLASS "A" DRY CHEMICAL PORTABLE FIRE EXTINGUISHER - TYP.
- (5) MAX. OCCUPANT LOAD
- FIRE RATED SEPARATION BETWEEN FIRE AREAS (FIRE BARRIER)

CODE INFORMATION

CODES:
MICHIGAN BUILDING CODE 2015 (MBC)
MICHIGAN REHABILITATION CODE 2015 (MRCEB)
MICHIGAN MECHANICAL CODE 2015 (MMC)
MICHIGAN PLUMBING CODE 2015 (MPC)
NATIONAL ELECTRICAL CODE 2014 (NEC)
MICHIGAN ENERGY CODE 2015 (MEC)
ANSI/ASHRAE/IES STANDARD 90.1-2013 (ENERGY CODE)
INTERNATIONAL FIRE CODE 2015 (IFC)
NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)
ANSI A117.1 2009 (ACCESSIBLE BUILDINGS)

CLASSIFICATION OF WORK:
EXISTING BUILDING
ALTERATION LEVEL 2 (SECTION 504 MRCEB 2015)

PROPOSED ADDITION
(SECTION 507 MREDC 2015 & MBC 2015)

USE GROUP:
EXISTING OCCUPANCY:
BUSINESS GROUP B - PROPERTY MAINTENANCE GARAGE (MBC SECTION 304)

PROPOSED ADDITION:
BUSINESS GROUP B - ADDITION MAINTENANCE GARAGE (MBC SECTION 304)
BUSINESS GROUP B - POLICE / SATELLITE OFFICE (MBC SECTION 304)
ASSEMBLY GROUP A-3 - COMMUNITY HALL (MBC SECTION 303)
ASSEMBLY GROUP A-3 - LIBRARY / READING ROOM (MBC SECTION 303)

CONSTRUCTION TYPE:
EXISTING BUILDING & PROPOSED ADDITION
TYPE VB - EXTERIOR WOOD STUDS W/ INSULATED VINYL SIDING, WOOD ROOF, CONCRETE FLOOR, INTERIOR FRAMING WOOD STUD W/ GYPSUM BOARD
(MBC SECTION 602.3)

ALLOWABLE HEIGHT & BUILDING AREA:
USE GROUP A-3 / B - TYPE VB
OVERALL HEIGHT: 40 FEET (MBC TABLE 504.3)
PROPOSED: 20.83 FEET
ALLOWABLE STORIES: A-3 = 1 STORY / B = 2 STORY (MBC TABLE 504.4)
PROPOSED: 1 STORY
ALLOWABLE AREA: A-3 = 6,000 S.F. / B = 9,000 S.F. PER FLOOR
(MBC TABLE 506.2)
PROPOSED: A-3 = 2,325 S.F. / B = 4,407 S.F.
TOTAL BUILDING = 6,732 S.F.

FOR USE GROUP B USE AREA INCREASE (MBC 506.3.3)
I = (F/P - 0.25) X W/30
I = AREA FACTOR INCREASE ALLOWED
F = 262 FEET BUILDING PERIMETER W/ OPEN SPACE
P = 341.83 FEET BUILDING PERIMETER
W = (L X W) / P = (262 X 30) + (88.42 X 26.17) / 262 = 38.88

(262 / 341.83 - 0.25) X 38.88/30 = (0.67 - 0.25) X 1.296 = .42 X 1.296 = 0.544

6,732 (0.544) = 3,662.2 S.F.

6,732 + 3,662.2 = 10,394.2 S.F.

SQUARE FOOTAGE:
EXISTING ONE STORY BUILDING = 1,807 S.F.
PROPOSED ADDITION = 4,925 S.F.
TOTAL BUILDING = 6,732 S.F.

OCCUPANT LOAD:
MBC SECTION 1004, TABLE 1004.1.2

ASSEMBLY
LIBRARY = 571 SF / 50 = 11.42 ~ 12
COMMUNITY ROOM = 995 SF / 15 = 66.3 ~ 67
COMMUNITY KITCHEN = 213 SF / 200 = 1.07 ~ 2
TABLE & CHAIR STORAGE = 125 SF / 300 = 0.42 ~ 1
OCCUPANT LOAD = 82 OCCUPANTS

BUSINESS (MAINTENANCE)
WORKSHOP = 447 SF / 300 = 1.49 ~2
BREAK ROOM = 334 SF / 100 = 3.34 ~ 4
GARAGE = 1100 SF / 300 = 3.67 ~ 4
STORE ROOMS = 1301.65 SF / 300 = 4.34 ~ 5
OFFICE = 191 SF / 100 = 1.91 ~ 2
MECHANICAL = 1215.5 SF / 300 = .42 ~ 1
OCCUPANT LOAD = 18 OCCUPANTS
(ACTUAL 4 OCCUPANTS MAX.)

PUBLIC SERVICE SUBSTATION
OFFICE = 447 SF / 100 = 4.47 ~ 5
GARAGE = 380 / 300 = 1.26 ~ 2
OCCUPANT LOAD = 7 OCCUPANTS

TOTAL OCC. LOAD = 82 + 18 + 7 = 107 OCCUPANTS

EXITS REQUIRED:
OCCUPANT LOAD 1 - 500
(MBC SECTION 1006, TABLE 1006.3)
REQUIRED = (2) EXITS

ASSEMBLY: 3 EXITS PROVIDED
BUSINESS (MAINTENANCE): 3 EXITS PROVIDED
PUBLIC SERVICE SUBSTATION: 1 EXIT PROVIDED
(SPACES WITH ONE EXIT OLD30 = 75' MAX, TABLE 1006.2.1)

EXIT ACCESS TRAVEL DISTANCE:
USE GROUP B
200 FEET W/O SPRINKLER SYSTEM
(MBC SECTION 1017, TABLE 1017.2)

USE GROUP A-3
200 FEET W/O SPRINKLER SYSTEM
(MBC SECTION 1017, TABLE 1017.2)
COMMON PATH OF EGRESS TRAVEL
NOT TO EXCEED 30 FEET
(MBC SECTION 1029.8)

EGRESS WIDTH:
BUSINESS USE
0.2" PER OCCUPANT (OTHER)
(MBC SECTION 1005.3.2)

163 OCC. X 0.2" = 32.6" (EXITS)

EXIT PASSAGEWAYS = 44" (MBC SECTION 1024, 1024.2)

AISLE WIDTH:
USE GROUP B
44" MINIMUM CLEAR
(MBC SECTION 1018.3, 1005.1 & TABLE 1020.2

USE GROUP A-3
AISLE ACCESSWAYS
SEATING AT TABLES = 19 INCHES
SEATING IN ROWS (14 OR FEWER SEATS) = 12 INCHES FROM BACK OF THE RON AHEAD AND THE NEAREST PROJECTION BEHIND.
(MBC SECTION 1028)

PLUMBING FIXTURES:
USE GROUP A-3 = ASSEMBLY: 82 OCC.
MALE & FEMALE - 41 OCCUPANTS EACH

WATER CLOSETS: 1 PER 125 OCC.
41 OCC. / 125 = 0.328 = 1 W.C. REQUIRED
PROVIDED: 1 W.C. WOMEN'S
1 W.C. MEN'S

LAVATORY: 1 PER 200 OCC.
41 OCC. / 200 = 0.205 = 1 LAV. REQUIRED
PROVIDED: 1 LAV. WOMEN'S
1 LAV. MEN'S

DRINKING FOUNTAIN: 1 PER 500 OCC. REQUIRED
1 PROVIDED

SERVICE SINK: 1 REQUIRED
1 PROVIDED

USE GROUP B = BUSINESS (MAINTENANCE): 18 OCC.
MALE & FEMALE - 9 OCCUPANTS EACH

WATER CLOSETS: 1 PER 25 OCC.
9 OCC. / 25 = 0.36 = 1 W.C. REQUIRED

LAVATORY: 1 PER 40 OCC.
9 OCC. / 40 = 0.225 = 1 LAV. REQUIRED

ACTUAL OCCUPANT COUNT: 4 MAXIMUM
- 1 WATER CLOSET AND 1 LAVATORY PROVIDED
- UNDER 15 OCCUPANTS SINGLE RESTROOM ALLOWED (SECTION 403.2 EXCEPTION NO.2 MPC 2015)

DRINKING FOUNTAIN: 1 PER 500 OCC. REQUIRED
- DRINKING FOUNTAINS ARE NOT REQUIRED OCCUPANT LOAD OF 15 OR FEWER (FOOTNOTE F, TABLE 403.1 MPC 2015)

SERVICE SINK: 1 REQUIRED
1 PROVIDED

USE GROUP B = BUSINESS (PUBLIC SERVICE SUBSTATION): 7 OCC.
MALE & FEMALE - 4 OCCUPANTS EACH

WATER CLOSETS: 1 PER 25 OCC.
4 OCC. / 25 = 0.16 = 1 W.C. REQUIRED

LAVATORY: 1 PER 40 OCC.
4 OCC. / 40 = 0.1 = 1 LAV. REQUIRED

1 WATER CLOSET AND 1 LAVATORY PROVIDED
- UNDER 15 OCCUPANTS SINGLE RESTROOM ALLOWED (SECTION 403.2 EXCEPTION NO.2 MPC 2015)

DRINKING FOUNTAIN: 1 PER 500 OCC. REQUIRED
- DRINKING FOUNTAINS ARE NOT REQUIRED OCCUPANT LOAD OF 15 OR FEWER (FOOTNOTE F, TABLE 403.1 MPC 2015)

SERVICE SINK: 1 REQUIRED
- SERVICE SINK NOT REQUIRED IN BUSINESS OCCUPANCIES W/ OCCUPANT LOAD OF 15 OR FEWER (FOOTNOTE G, TABLE 403.1 MPC 2015)

(MBC SECTIONS 403.1 - 403.2, TABLE 403.1 MPC 2015)

FIRE SEPARATION:
BUSINESS TO ASSEMBLY OCCUPANCY
2 HOURS (NON SPRINKLERED)
(MBC TABLE 508.4)

FIRE RESISTANCE RATINGS:
(MBC SECTION 602, TABLE 601 & TABLE 602)

CONSTRUCTION TYPE VB
PRIMARY STRUCTURAL FRAME: 0 HOUR
BEARING WALL EXTERIOR: 0 HOUR
BEARING WALL INTERIOR: 0 HOUR
NON BEARING EXTERIOR WALLS: X > 30.0': 0 HOUR
NON BEARING WALLS INTERIOR: 0 HOUR
FLOOR CONSTRUCTION: 0 HOUR
ROOF CONSTRUCTION: 0 HOUR

FIRE PROTECTION SYSTEMS:
FIRE ALARM SYSTEM: NOT REQUIRED
GROUP A: IS LESS THAN 300 OCC.
GROUP B: NO CONDITION MET
(MBC SECTION 907.2.1 GROUP A, 907.2.2 GROUP B)

PORTABLE FIRE EXTINGUISHERS
(MBC SECTION 906 & NFPA 10)
USE GROUPS B & A-3
LOW HAZARD OCCUPANCY

75' MAX. TRAVEL DISTANCE TO EXTINGUISHER

VERIFY LOCATIONS WITH FIRE INSPECTOR

FIRE BLOCKING:
REQUIRED ON CONCEALED WALL SPACES
(MBC SECTION 718.2.2)
- BLOCKING REQUIRED HORIZONTALLY AT INTERVALS NOT EXCEEDING 10'-0" VERTICAL IN HEIGHT.

AUTOMATIC SPRINKLERS:
USE GROUP B - NOT REQUIRED
CONDITION NOT MET

USE GROUP A-3 - NOT REQUIRED
CONDITION NOT MET
(MBC SECTION 903.2.1.3 #1)
SPRINKLERS ARE REQUIRED WHERE FIRE AREA EXCEEDS 12,000 S.F.

PROPOSED BUILDING = 6,732 S.F.

DRAFT-STOPPING
(SECTION 718, 718.4.3)
MAX. ALLOWED CONCEALED ATTIC SPACE = 3,000 S.F.
PROPOSED MAX. SPACE =

NOTE:
THE CODE DATA LISTED IS FOR REFERENCE ONLY AND NOT INTENDED TO BE ALL INCLUSIVE. THE CONTRACTOR AND ALL SUB-CONTRACTORS SHALL BE RESPONSIBLE FOR MEETING ALL ASPECTS OF THE MICHIGAN BUILDING CODE 2015 (MBC 2015) AND ALL APPLICABLE REFERENCED CODES AND/OR STANDARDS.

JAMES S. JACOBS ARCHITECTS, PLLC
25 WASHINGTON STREET
MONROE, MICHIGAN 48161
TEL: (734) 241-7933
FAX: (734) 241-1181
EMAIL: jim@jsjacobsarch.com

GREENWOOD MAINTENANCE BUILDING ADDITION FOR:

MONROE HOUSING COMMISSION: GREENWOOD TOWNHOUSES
900 GREENWOOD AVENUE
MONROE, MICHIGAN 48162

PROPERTY CONTACT:
NANCY WAIN, EXEC. DIRECTOR
MONROE HOUSING COMMISSION
20 NORTH ROESSLER STREET
MONROE, MICHIGAN 48162
TELEPHONE: (734) 242-5880

LIFE SAFETY PLAN , CODE INFORMATION, & GENERAL NOTES

NOT FOR CONSTRUCTION

DATE:	ISSUED FOR:
06-21-2022	BIDS
DRAWN	JLM
REVIEW'D	JSJ

20222

T-2

2 OF 2

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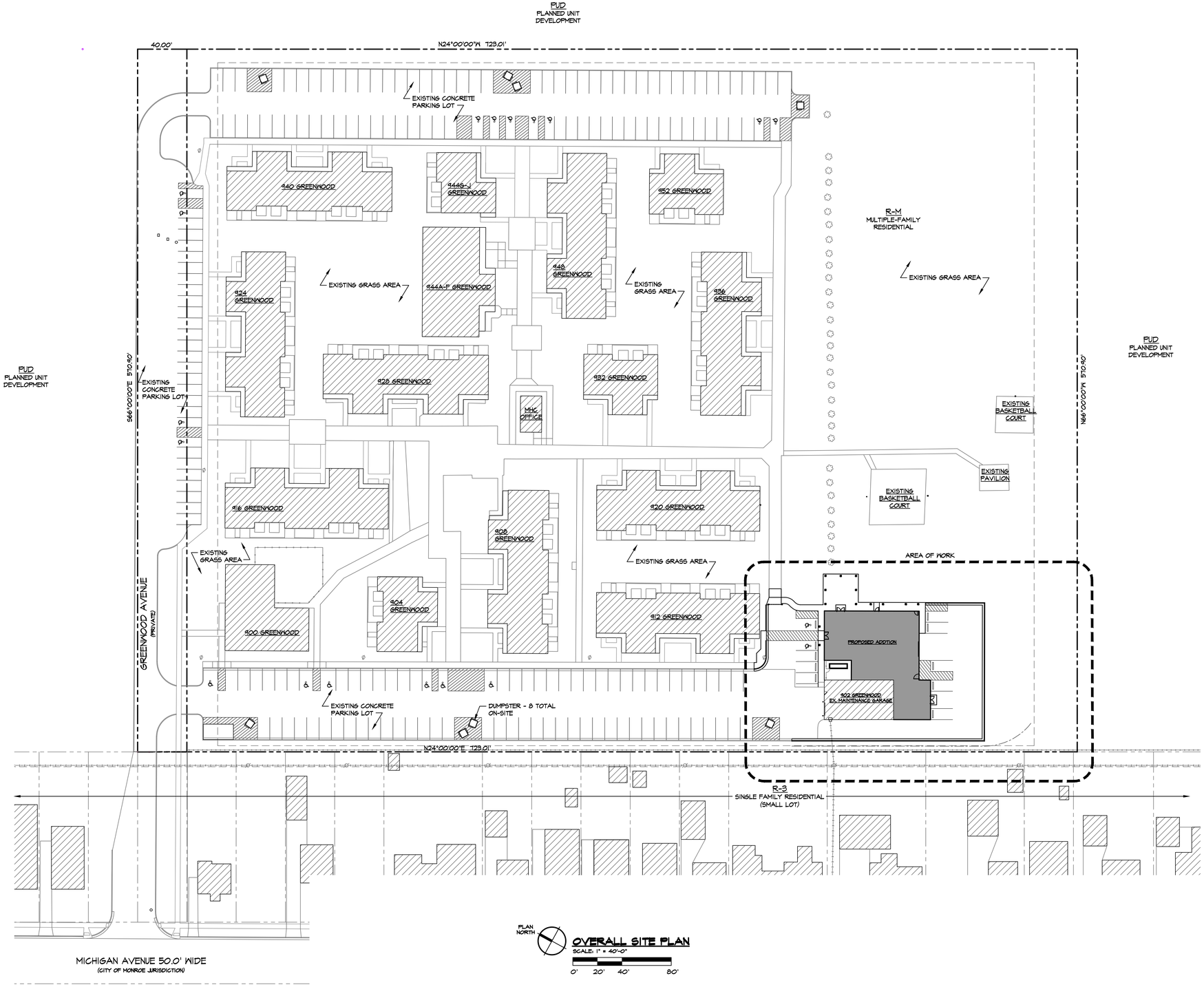

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COMMISSION
GREENWOOD
TOWNHOUSES

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MONROE, MICHIGAN 48162
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OVERALL SITE PLAN

NOT FOR CONSTRUCTION

06-21-2023	BIDS
04-25-2023	CITY REVISION NO.1 (2)
04-12-2023	REVISION NO.1 (1)
03-27-2023	SITE PLAN APPROVAL
DATE:	ISSUED FOR:
DRAWN	JLM
REVIEW'D	JSJ

20222

C-1

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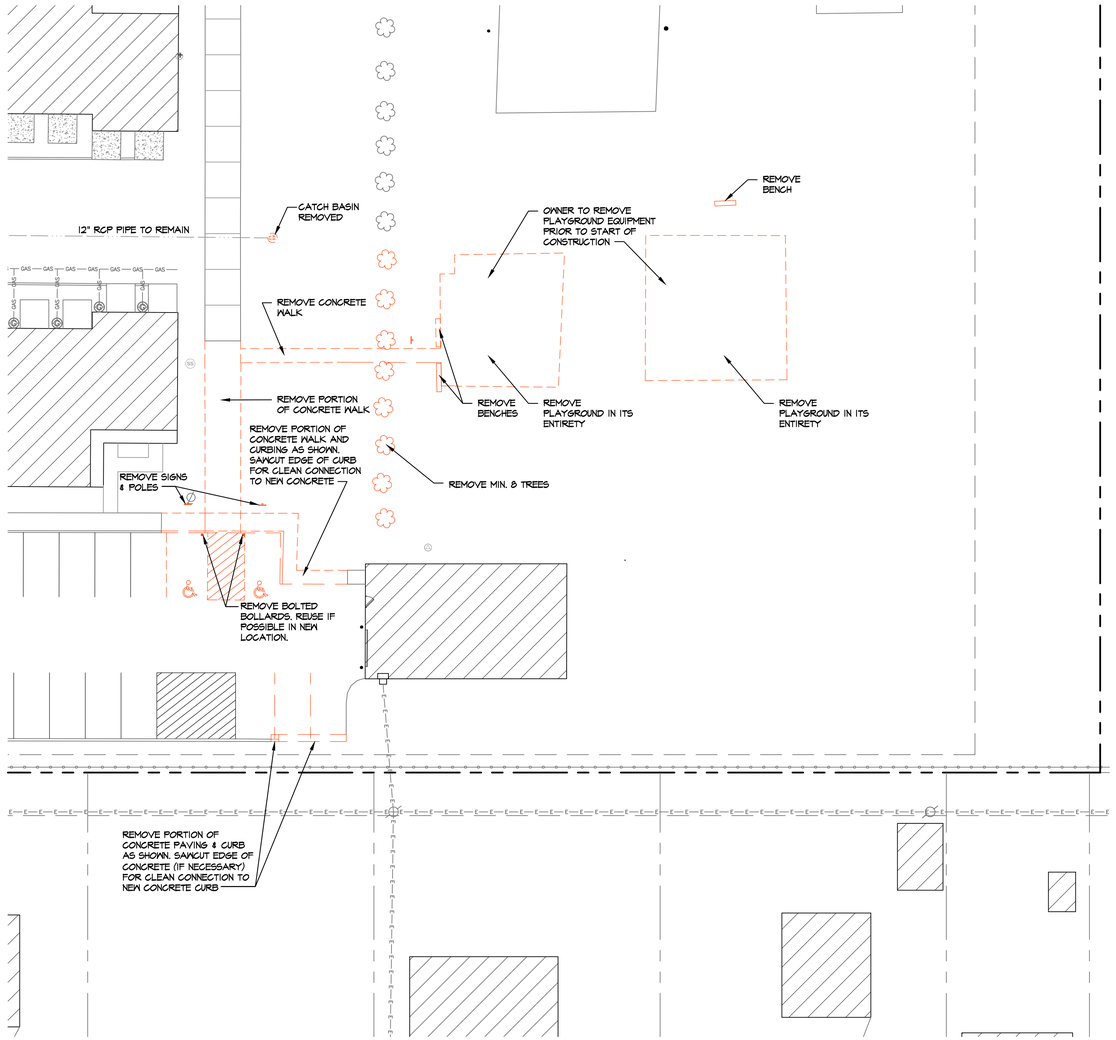
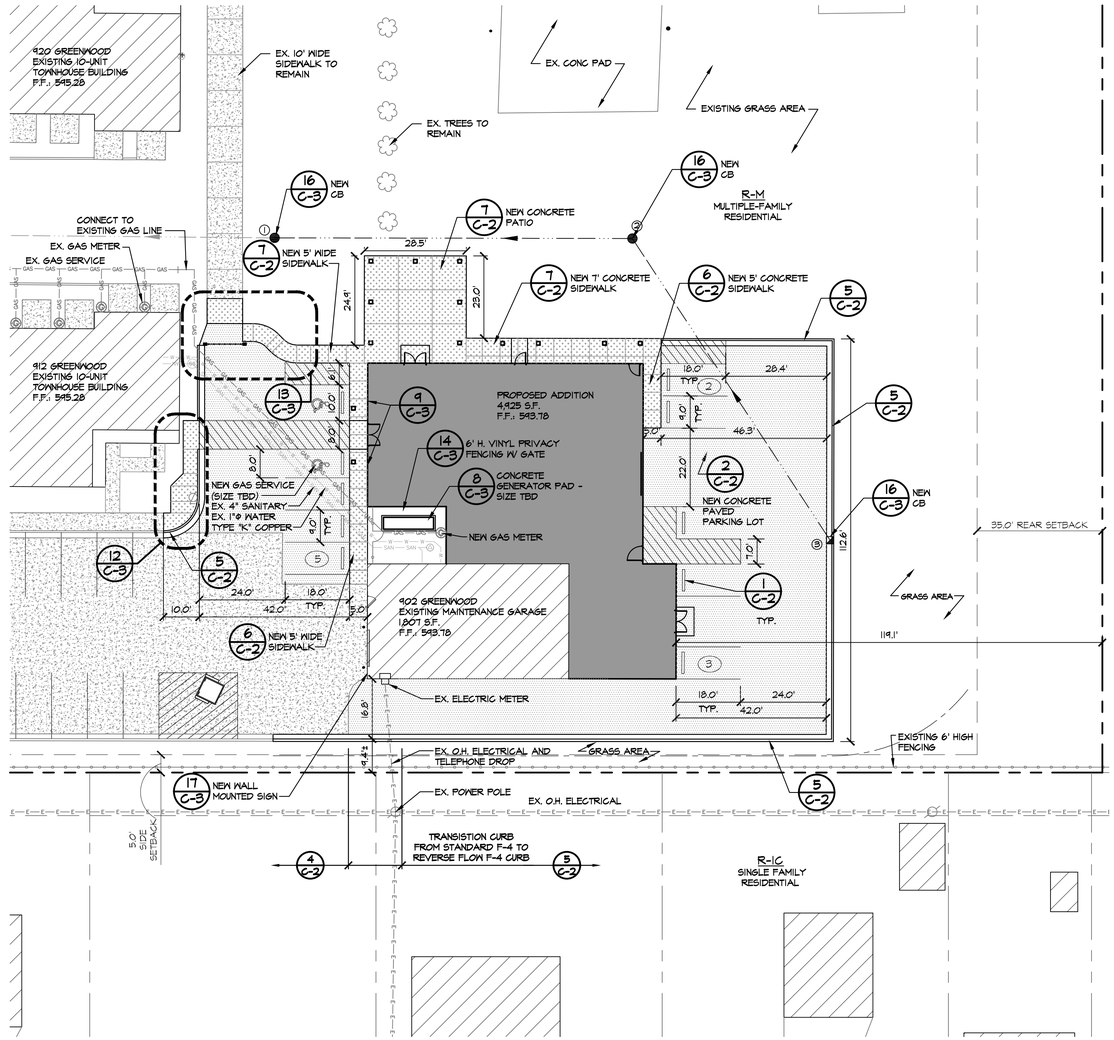


PLAN NORTH

DEMOLITION SITE PLAN

SCALE: 1" = 20'-0"

0' 10' 20' 40'



PLAN NORTH

PROPOSED SITE PLAN

SCALE: 1" = 20'-0"

0' 10' 20' 40'

PARKING LOT STRIPING NOTE

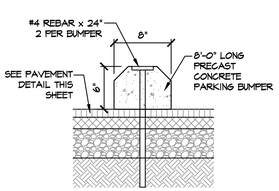
ALL PARKING SPACES TO BE RE-STRIPED (PAINTED) PER NEW LAYOUT AS SHOWN ON ENLARGED SITE PLAN.

ALL STRIPING TO BE YELLOW PAINT AT NEW PARKING SPACES AND HATCHED AREAS.

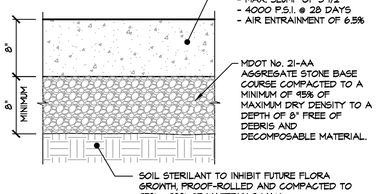
ALL ADA PARKING SPACES BOUNDARY LINES, ADA SYMBOL & ACCESSIBLE AISLE HATCHING TO BE PAINTED ADA BLUE.

SURFACE LEGEND

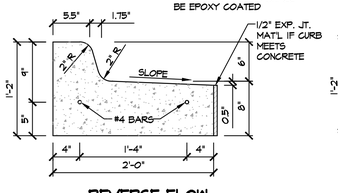
- EX. CONC. AREAS (NO WORK)
- NEW CONCRETE PAVEMENT
- NEW CONCRETE SIDEWALKS



1 / C-2 CURB STOP DETAIL — NO SCALE

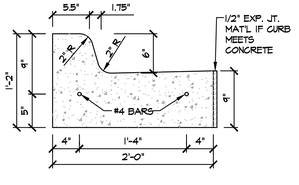


2 / C-2 CONCRETE DRIVE SECTION — NO SCALE

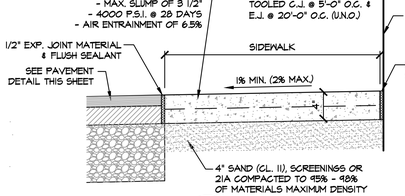


REVERSE FLOW

4 / C-2 F-4 CURB DETAIL — NO SCALE



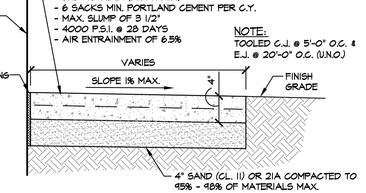
5 / C-2 F-4 CURB DETAIL — NO SCALE



6 / C-2 SIDEWALK DETAIL — NO SCALE

SIDEWALK NOTE

SAW CUT EX. SIDEWALK AT NEAREST CONTROL OR EXPANSION JOINT



7 / C-2 SIDEWALK / PATIO DETAIL — NO SCALE

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ENLARGED DEMO & PROPOSED SITE PLANS

NOT FOR CONSTRUCTION

DATE:	ISSUED FOR:
06-21-2023	BIDS
04-12-2023	REVISION NO.1 ⚠1
03-27-2023	SITE PLAN APPROVAL
DRAWN	JLM
REVIEW'D	JSJ

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C-2

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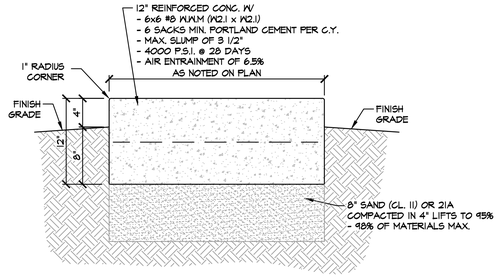
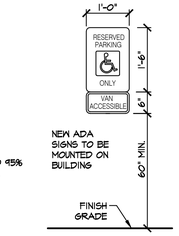
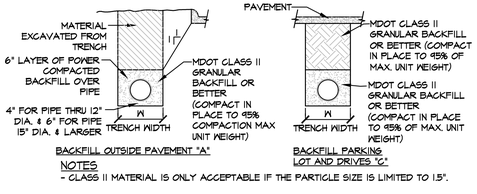


8 C-2 GENERATOR OR TRANSFORMER CONCRETE PAD DETAIL
NO SCALE



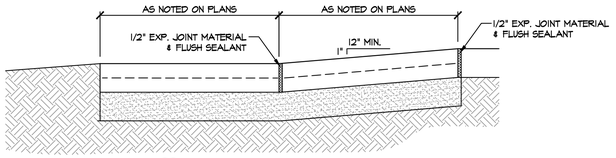
9 C-2 SIGN DETAILS
NO SCALE

I.D. PIPE (INCHES)	18" & LESS
"W" TRENCH WIDTH (FEET)	3.0'

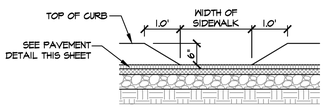


NOTES
- CLASS II MATERIAL IS ONLY ACCEPTABLE IF THE PARTICLE SIZE IS LIMITED TO 1.5".

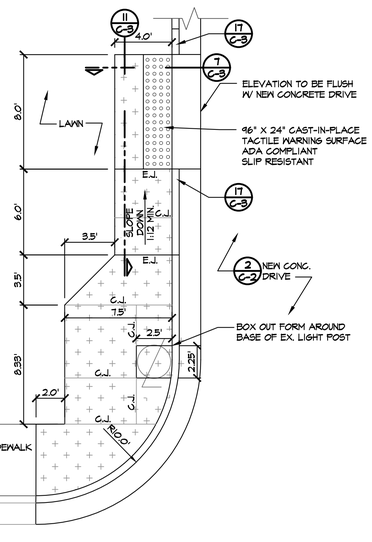
10 C-3 TRENCH BEDDING & BACKFILL DETAIL
NO SCALE



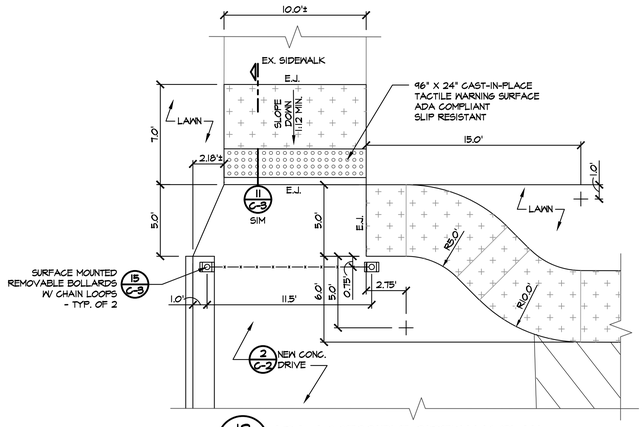
11 C-3 ADA SIDEWALK SECTION
NO SCALE



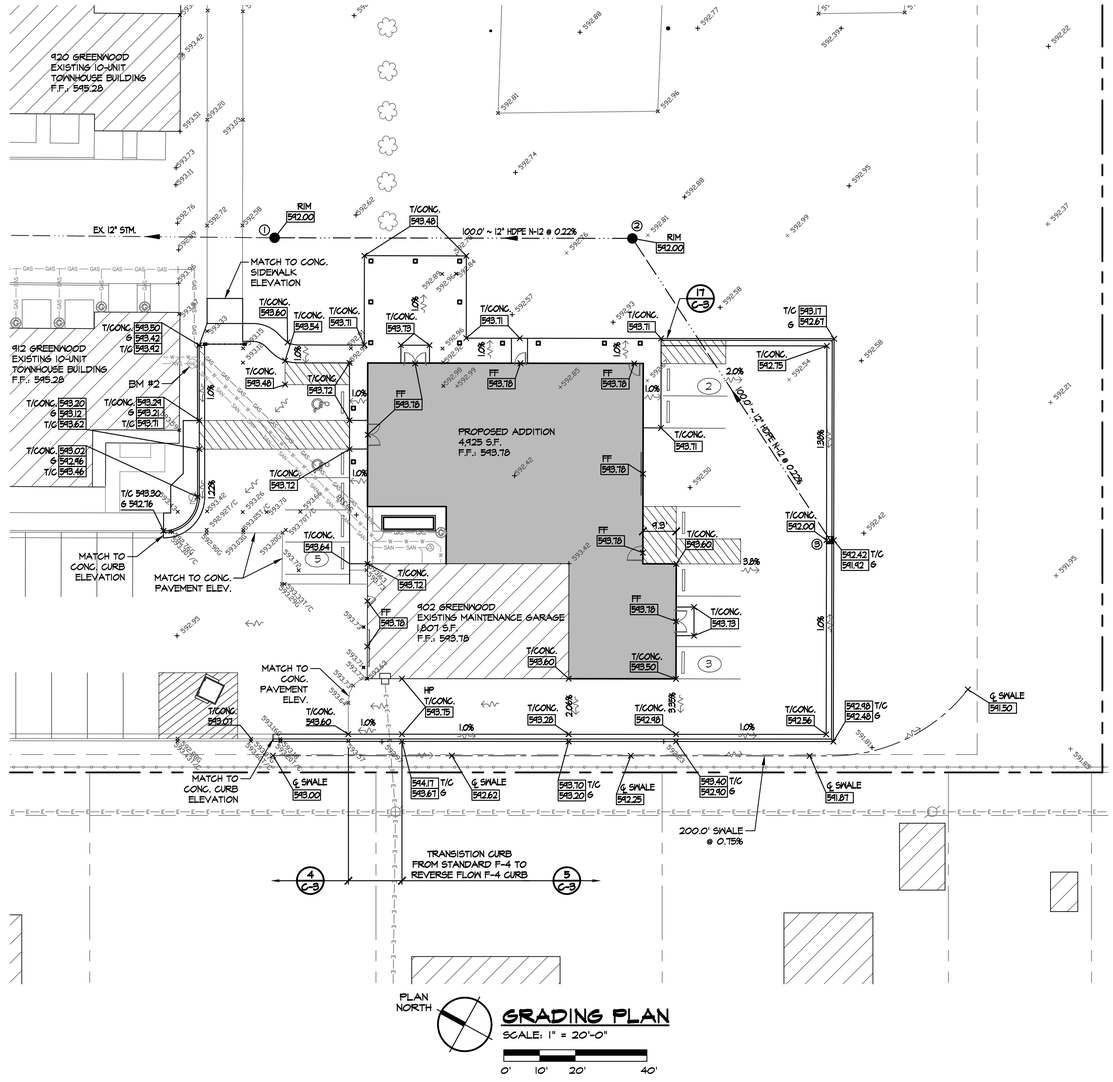
17 C-3 CURB DROP @ SIDEWALK DETAIL
NO SCALE



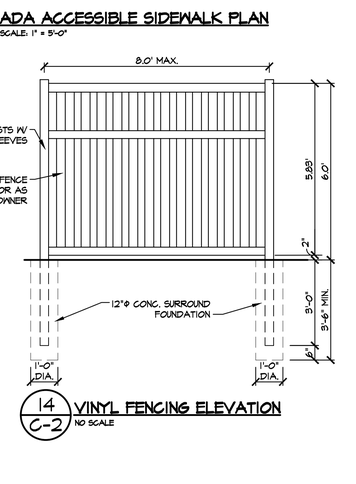
12 C-2 ADA ACCESSIBLE SIDEWALK PLAN
SCALE: 1" = 5'-0"



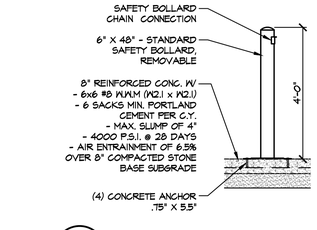
13 C-2 ADA ACCESSIBLE SIDEWALK PLAN
SCALE: 1" = 5'-0"



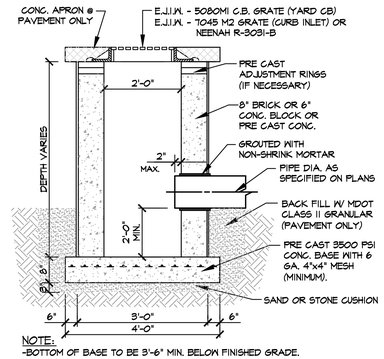
GRADING PLAN
SCALE: 1" = 20'-0"



14 C-2 VINYL FENCING ELEVATION
NO SCALE



15 C-3 REMOVABLE BOLLARD DETAIL
NO SCALE



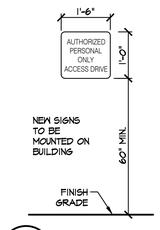
NOTE:
-BOTTOM OF BASE TO BE 3'-6" MIN. BELOW FINISHED GRADE.

-PLASTER COAT ENTIRE STRUCTURE OUTSIDE AND INSIDE WITH 1/2" CEMENT MORTAR, IF CONSTRUCTED WITH BRICK OR BLOCK.

16 C-2 2'-0" DIA. C.B. DETAIL
NO SCALE

STORM SEWER C.B. TABLE - PROPOSED

STRUCTURE	1 - 2.0' DIA	2 - 2.0' DIA	3 - 2.0' DIA
RIM ELEV.	592.00	592.00	592.00
RIM TYPE	EJIW - 5080	EJIW - 5080	EJIW - 5080 OR NEENAH 3081-B
SUMP ELEV.	587.48	587.70	587.92
PIPE ELEV.	12" NW - 589.48	12" SW - 589.70	12" NE - 589.92
PIPE ELEV.	12" SE - 589.48	12" NW - 589.70	-



17 C-2 SIGN DETAILS
NO SCALE

BENCHMARK #1
VERTICAL CONTROL DISK SET IN AN ABUTMENT AT THE NORTHEAST SIDE OF THE PEDESTRIAN BRIDGE ACROSS THE RAISIN RIVER WEST OF MONROE STREET AND SOUTH OF DIXIE HWY. AT THE SOUTHEAST CORNER OF THE CITY MUNICIPAL PARK

ELEVATION: 592.20 NAVD 88

BENCHMARK #2
NORTH RIM OF SANITARY MANHOLE LOCATED EAST OF MICHIGAN AVENUE, NORTH OF THE PLAYGROUND AREA.

ELEVATION: 593.55 NAVD 88

72 Hours Before 811
Know what's **below.** **Call** before you dig.
Non Members must call directly.

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SITE DETAILS & PROPOSED GRADING PLAN

NOT FOR CONSTRUCTION

06-21-2023	BIDS
06-21-2023	CITY REVISION NO.1 (2)
04-12-2023	REVISION NO.1 (1)
03-27-2023	SITE PLAN APPROVAL
DATE:	ISSUED FOR:
DRAWN	JLM
REVIEW'D	JSJ

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C-3

3 OF 5

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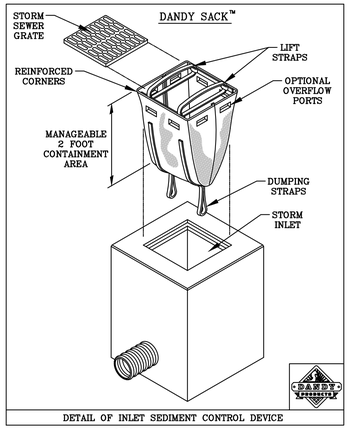


DETAIL OF INLET SEDIMENT CONTROL DEVICE

1/C-4 DANDY SACK DETAIL

NO SCALE

DANDY SACK™
SPECIFICATIONS

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

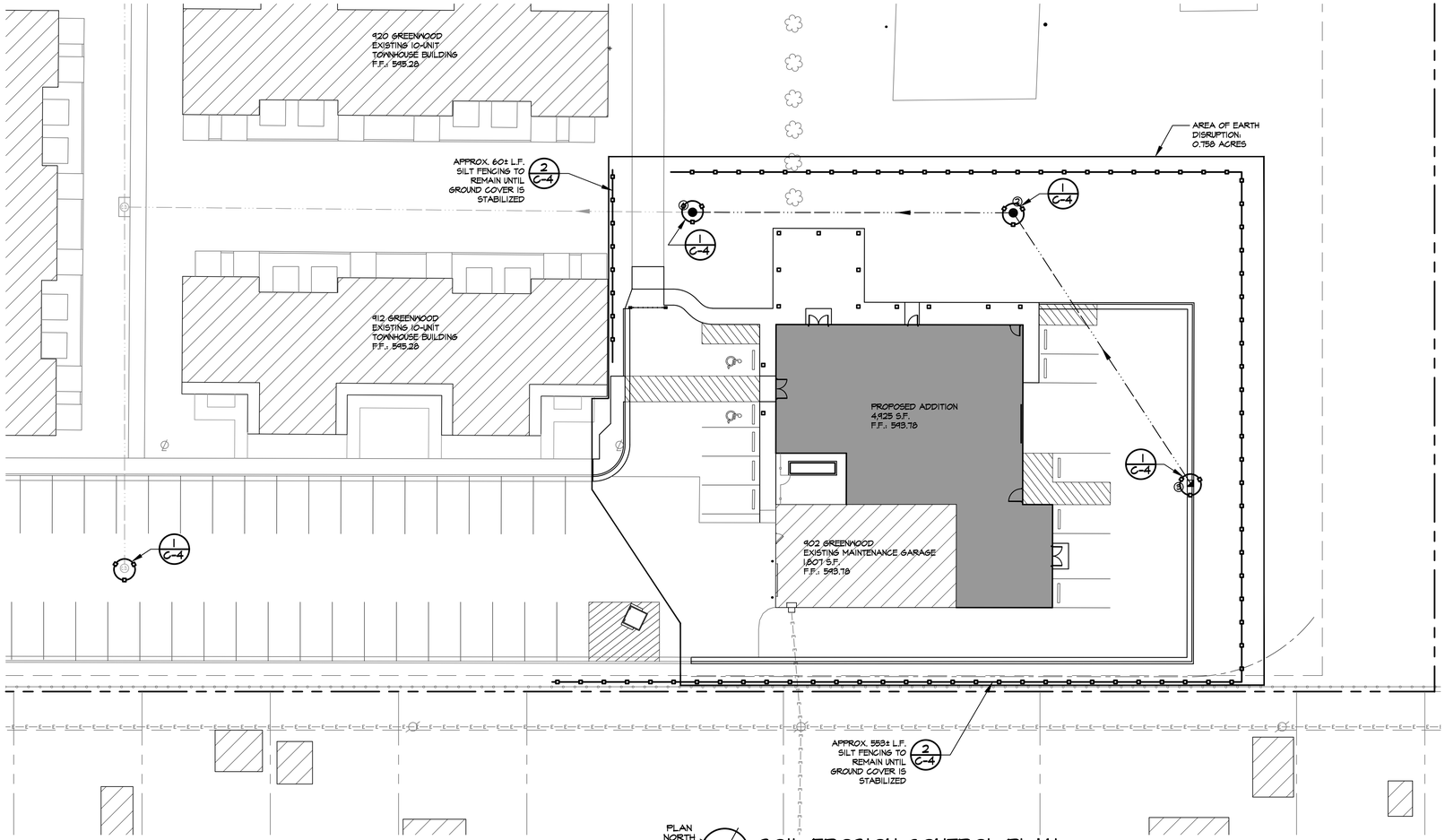
REGULAR FLOW DANDY SACK™ (BLACK)

Mechanical Properties	Test Method	Units	MARV
Grab Tensile Strength	ASTM D 4632	kN (lbs)	1.78 (400) x 1.40 (315)
Grab Tensile Elongation	ASTM D 4632	%	15 x 15
Puncture Strength	ASTM D 4833	kN (lbs)	0.67 (150)
Mullen Burst Strength	ASTM D 3786	kPa (psi)	5506 (800)
Trapezoid Tear Strength	ASTM D 4533	kN (lbs)	0.67 (150) x 0.73 (165)
UV Resistence	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)	2852 (70)
Permittivity	ASTM D 4491	Sec⁻¹	0.90

HI-FLOW DANDY SACK™ (SAFETY ORANGE)

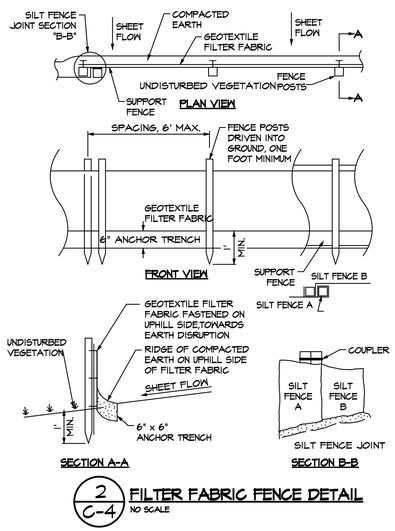
Mechanical Properties	Test Method	Units	MARV
Grab Tensile Strength	ASTM D 4632	kN (lbs)	1.62 (365) X 0.89 (200)
Grab Tensile Elongation	ASTM D 4632	%	24 X 10
Puncture Strength	ASTM D 4833	kN (lbs)	0.40 (90)
Mullen Burst Strength	ASTM D 3786	kPa (psi)	3097 (450)
Trapezoid Tear Strength	ASTM D 4533	kN (lbs)	0.51 (115) X 0.33 (75)
UV Resistence	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 Socks™ can be ordered with our optional oil absorbent pillows



SOIL EROSION CONTROL PLAN

SCALE: 1" = 20'-0"



2/C-4 FILTER FABRIC FENCE DETAIL

NO SCALE

SOIL EROSION & SEDIMENTATION CONTROL NOTES:

1. A SOIL EROSION AND SEDIMENT CONTROL PERMIT SHALL BE OBTAINED FROM THE OFFICE OF THE MONROE COUNTY DRAIN COMMISSIONER PRIOR TO CONSTRUCTION. SOIL EROSION PROTECTION PRACTICES ARE TO BE IMPLEMENTED DURING CONSTRUCTION AS STIPULATED IN PART 91, ACT 451, 1994, AS AMENDED BY 2000 P.A. 504.
2. THE CONTRACTOR SHALL CONDUCT HIS OPERATION IN SUCH MANNER AS TO MINIMIZE EROSION AND SEDIMENTATION OF DISTURBED SOIL. EROSION AND SEDIMENT CONTROL ACTIVITIES SHALL BE PERFORMED IN CONFORMANCE WITH THE SESC PERMIT, CITY OF MONROE AND THE MONROE COUNTY DRAIN COMMISSIONER STANDARDS AND SPECIFICATIONS.
3. AS REQUIRED EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO, OR AS THE FIRST STEP IN CONSTRUCTION. SEDIMENT CONTROL PRACTICE AND CONSTRUCTION BARRIERS WILL BE APPLIED AS A PERIMETER DEFENSE AGAINST ANY TRANSPORTING OF SILT OFF THE SITE.
4. EROSION AND SEDIMENTATION RESULTING FROM WORK ON THIS SITE SHALL BE CONTAINED ON THE SITE AND NOT ALLOWED TO COLLECT IN ANY OFF-SITE AREAS OR IN WATERWAYS INCLUDING BOTH NATURAL AND MAN-MADE OPEN DITCHES, STREAMS, STORM DRAINS, LAKES AND PONDS. SEDIMENTATION SHALL BE REMOVED AND SPREAD ON SITE UPON COMPLETION OF CONSTRUCTION.
5. IF REQUIRED CONTRACTOR SHALL APPLY TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES AS REQUIRED AND AS DIRECTED ON THE PLANS. HE SHALL REMOVE THE TEMPORARY MEASURES AS SOON AS PERMANENT STABILIZATION OF SLOPES, DITCHES, AND OTHER EARTH CHANGES HAVE BEEN ACCOMPLISHED, UNLESS ORDERED BY THE ENGINEER TO BE LEFT IN PLACE. CARE SHALL BE TAKEN DURING REMOVAL TO MINIMIZE SILTATION IN NEARBY DRAINAGE COURSES.
6. ALL EXCAVATED MATERIAL AND IMPORTED FILL MATERIAL SHALL BE KEPT WITHIN THE DESIGNATED WORK AREA.
7. PROMPTLY REMOVE ALL SOIL, MISCELLANEOUS DEBRIS AND OTHER MATERIAL SPILLED, DUMPED OR OTHERWISE DEPOSITED ON PUBLIC STREETS DURING TRANSIT TO AND FROM THE CONSTRUCTION SITE. ALL CONSTRUCTION TRAFFIC SHALL USE THE DEDICATED CONSTRUCTION ENTRANCE AS NOTED ON THE PLAN.
8. DIRECT RUNOFF WATER FROM THE CONSTRUCTION AREA TO TEMPORARY SILT TRAPS.
9. SHOULD IT BE NECESSARY FOR THE CONTRACTOR TO DEWATER THE SITE, THE CONTRACTOR SHALL CONSTRUCT A TEMPORARY STRAW BALE BERM IN A MANNER THAT WILL FILTER ALL DISCHARGED WATER FROM THE DEWATERING OPERATION IN AN ESTABLISHED VEGETATIVE AREA.
10. FINAL STABILIZATION SHALL IMMEDIATELY FOLLOW COMPLETION OF SITE GRADING.
11. ALL MUD/DIRT TRACKED ONTO EXISTING STREETS FROM THIS SITE, DUE TO CONSTRUCTION, SHALL BE PROMPTLY SWEPT BY THE CONTRACTOR.
12. DUST CONTROL SHALL BE CONTROLLED BY CONTRACTOR FOR THE DURATION OF THE PROJECT. THE USE OF WATER AND APPROVED CHEMICALS SHALL BE UTILIZED.
13. PERMANENT SOIL EROSION CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES, OR ANY DISTURBED LAND AREAS SHALL BE COMPLETED WITHIN 5 CALENDAR DAYS AFTER FINAL GRADING HAS BEEN COMPLETED. WHEN IT IS NOT POSSIBLE TO PERMANENTLY STABILIZE A DISTURBED AREA AFTER AN EARTH CHANGE HAS BEEN COMPLETED OR WHERE SIGNIFICANT EARTH CHANGE ACTIVITY CEASES. TEMPORARY SOIL EROSION CONTROL MEASURES WILL BE IMPLEMENTED AND ESTABLISHED BEFORE A CERTIFICATE OF COMPLIANCE IS ISSUED.
14. SHOULD THE SOIL EROSION CONTROL REQUIREMENTS BE NEGLECTED OR NOT ADEQUATELY FOLLOWED, THE OWNER SHALL REQUIRE THE CONTRACTOR TO CEASE CONSTRUCTION OPERATION AND THE CONTRACTOR TO APPLY HIS/HER ENTIRE FORCE TO MEET THE REQUIREMENT BEFORE PROCEEDING FURTHER WITH THE PROJECT.
15. ALL DISTURBED AREAS NOT RECEIVING MULCH BEDS AND/OR PLANTINGS, SHALL BE HYDROSEEDED WITH TACTIFIER & PLANTED WITH GRASS SEED. GRASS SEED SHALL BE CERTIFIED WEED - FREE AND CONSIST OF A BLEND OF 20% - 50% KENTUCKY BLUEGRASS, RED FESCUE & PERENNIAL RYE APPLIED AT THE RATE OF 10 LBS. PER 1000 S.F. ALL SEEDED AREAS TO BE COVERED WITH STRAW BLANKETS (STAKED) NOT LOOSE STRAW.

EARTHS DISRUPTION AREA NOTE

THE SCOPE OF WORK IS TO REMOVE & REPLACE SOME CONCRETE SECTIONS OF SIDEWALK AREAS, NEW CONCRETE DRIVE WITH PARKING, AND BUILDING ADDITION. THIS WILL BE CONTAINED IN THE SOUTHWEST CORNER OF THE PROPERTY,

EROSION CONTROL SCHEDULE

DAY 0 - 5: TEMPORARY SOIL EROSION CONTROL MEASURES INSTALLED
DAY 6 - 180: ADDITION CONSTRUCTION
DAY 181 - 271: SITE WORK CONSTRUCTION
DAY 272 - 332: CONCRETE PAVEMENT / SIDEWALK INSTALLATION
DAY 333 - 343: LANDSCAPING & PERMANENT SOIL EROSION CONTROL MEASURES COMPLETED
DAY 344: - TEMPORARY SOIL EROSION CONTROL MEASURES REMOVED IF STABILIZATION HAS OCCURRED.

NOTE: SCHEDULE MAY VARY DUE TO WEATHER CONDITIONS AND FINAL PERMIT APPROVAL.

EROSION CONTROL MAINTENANCE NOTE

ALL SOIL EROSION CONTROL MEASURES SHALL BE INSPECTED WEEKLY AND AFTER ANY RAIN EVENT. IF ANY SOIL EROSION CONTROL MEASURE IS FOUND TO BE IN NEED OF REPAIR OR REPLACEMENT THE CONTRACTOR SHALL DO SO IMMEDIATELY

SOIL CHARACTERISTICS

57 URBAN LAND LENEWEE COMPLEX

19A SELFRIDGE LOAMY SAND, 0 TO 3% SLOPES

21 LENEWEE SILTY CLAY LOAM 0.1% SLOPES

72 Hours Before

811

Know what's **below.**
Call before you dig.
Non Members must call directly.

JAMES S. JACOBS ARCHITECTS, PLLC
25 WASHINGTON STREET
MONROE, MICHIGAN 48161
TEL: (734) 241-7933
FAX: (734) 241-1181
EMAIL: jim@jsjacobsarch.com

GREENWOOD MAINTENANCE BUILDING ADDITION FOR:

MONROE HOUSING COMMISSION
GREENWOOD TOWNHOUSES
900 GREENWOOD AVENUE
MONROE, MICHIGAN 48162

PROPERTY OWNER CONTACT:
NANCY WAIN, EXEC. DIRECTOR
MONROE HOUSING COMMISSION
20 NORTH ROESSLER STREET
MONROE, MICHIGAN 48162
TELEPHONE: (734) 242-5880

SOIL EROSION PLAN

NOT FOR CONSTRUCTION

06-21-2023	BIDS
04-12-2023	REVISION NO.1 ⚠1
03-27-2023	SITE PLAN APPROVAL
DATE:	ISSUED FOR:
DRAWN	JLM
REVIEW'D	JSJ

20222

C-4

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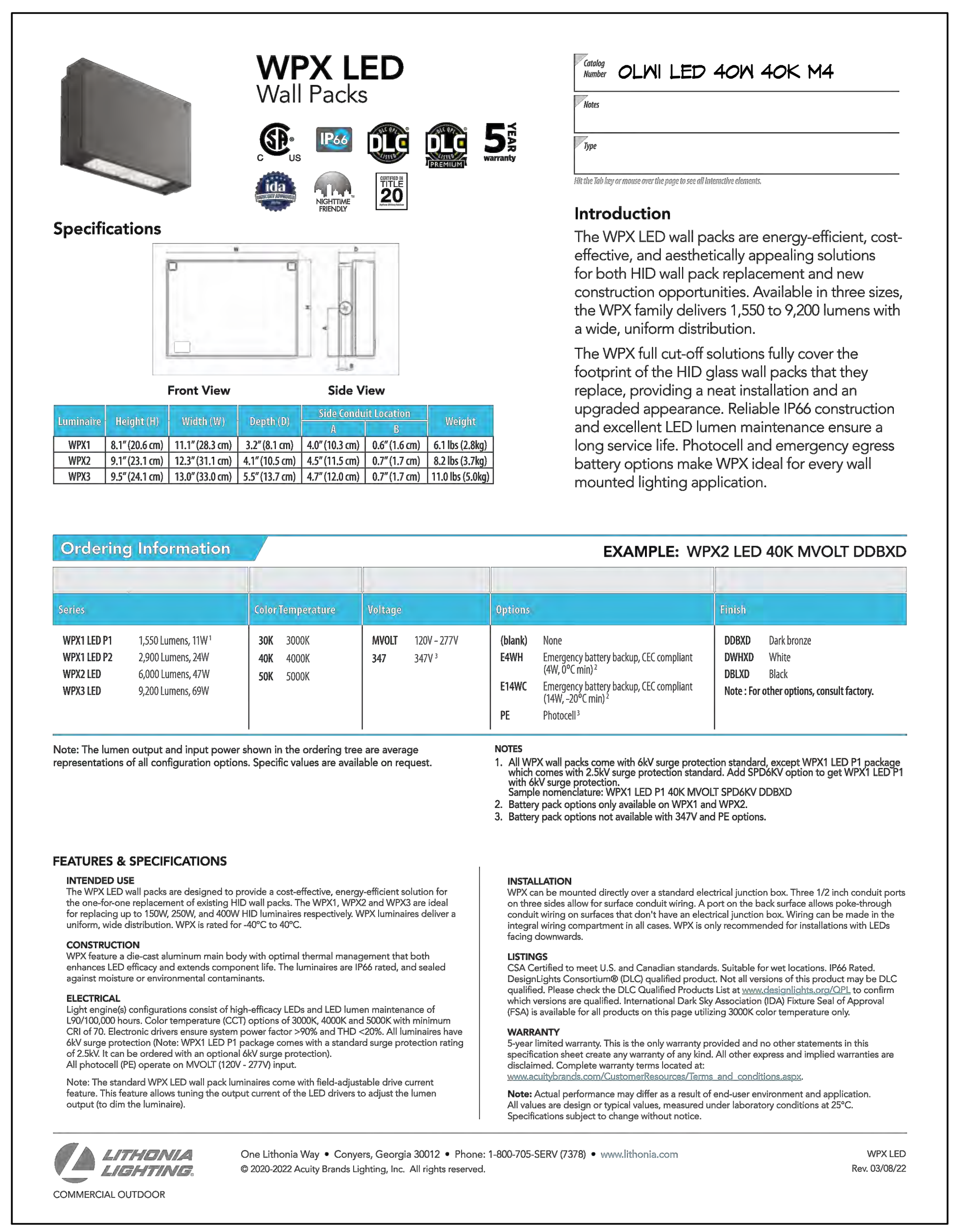
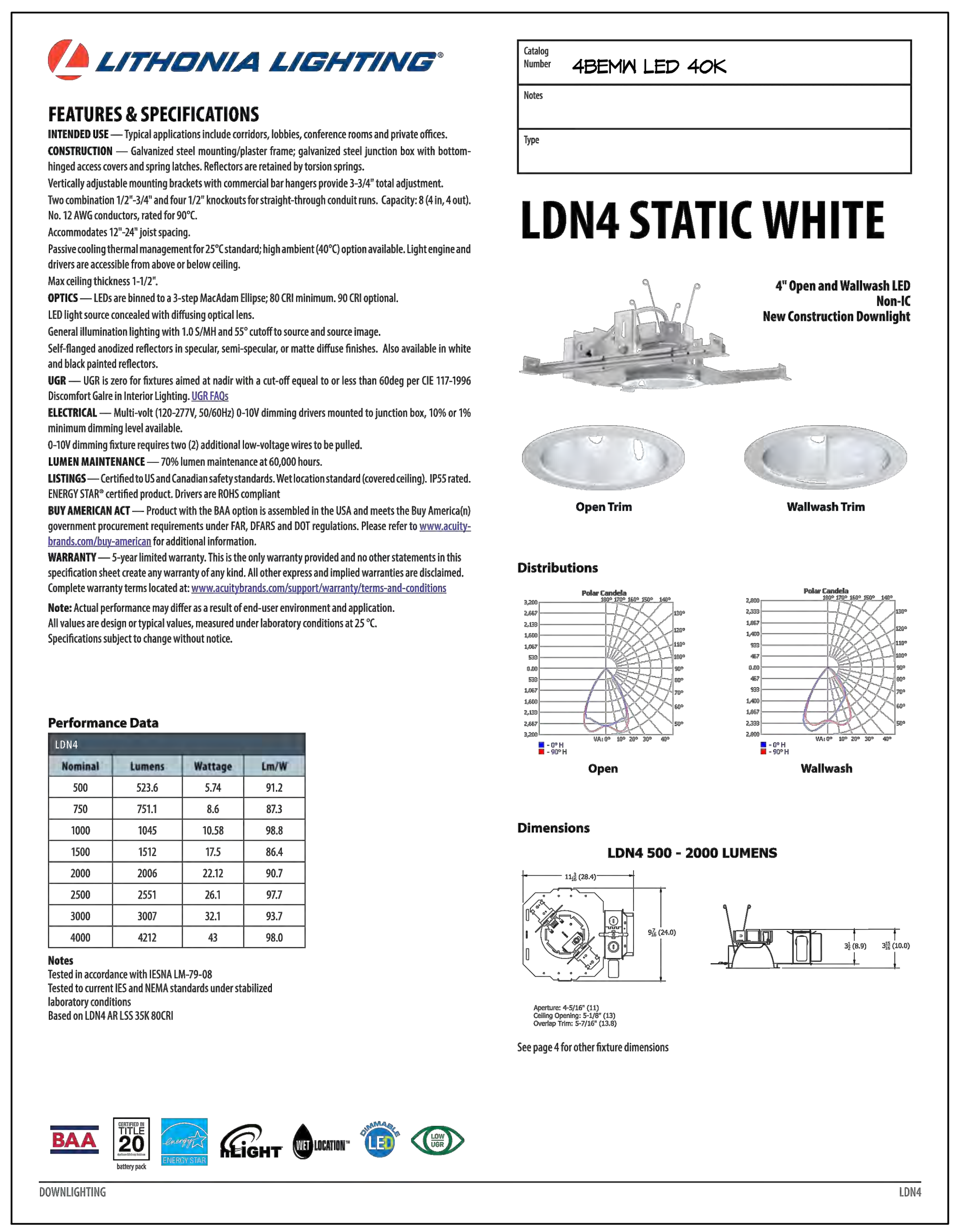
1 / L-1 **EXISTING LIGHT POLE**
N.T.S.

2 / L-1 **EXISTING WALL PACK**
N.T.S.
MOUNTING HEIGHT: 14.7'± ABOVE GRADE

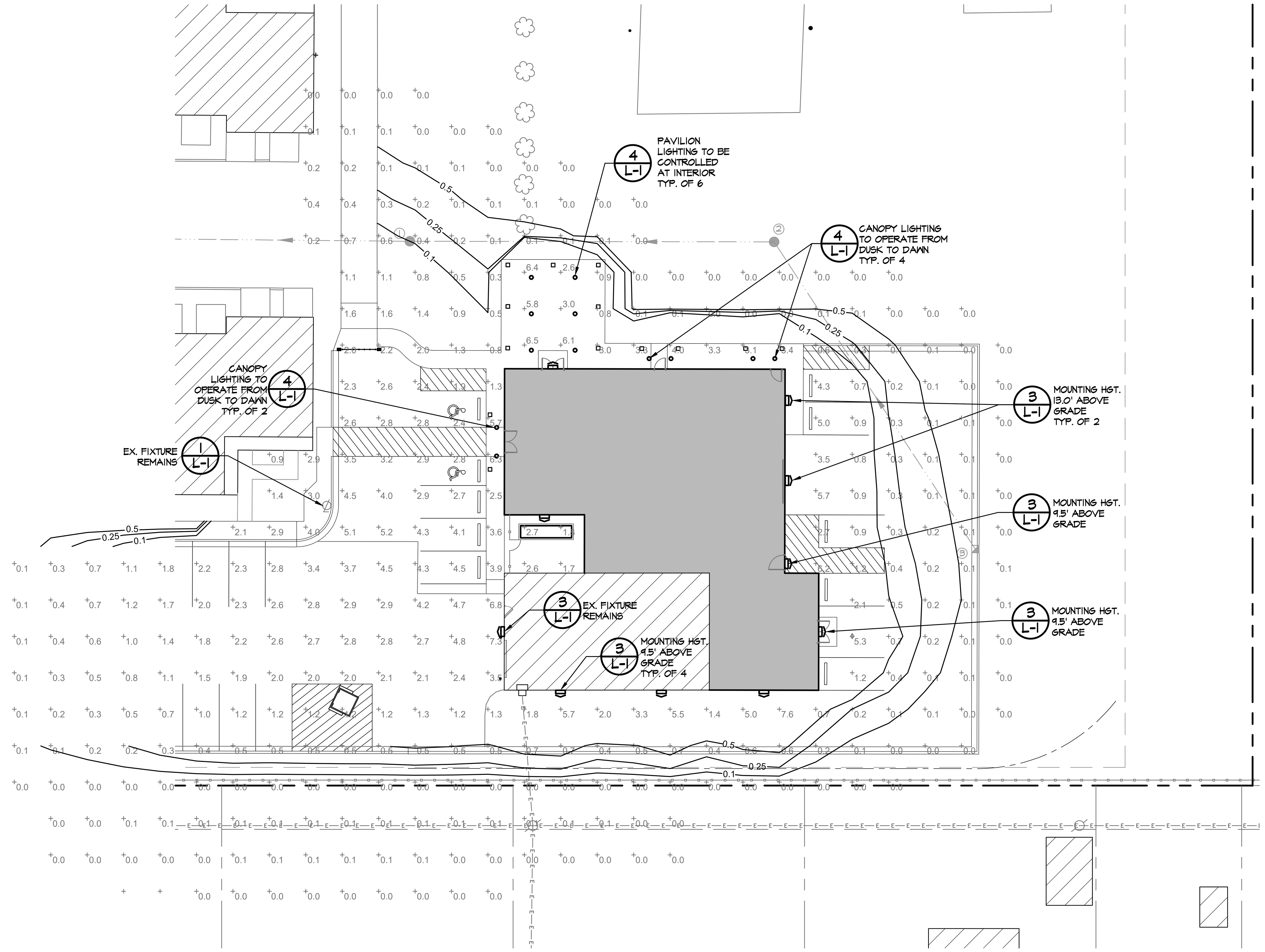


3 / L-1 **WALL PACK**
N.T.S.
MOUNTING HEIGHT: SEE PLAN



4 / L-1 **CANOPY LIGHTING**
N.T.S.
MOUNTING HEIGHT: 10.0' ABOVE GRADE

LED - 18W, 2000 LUMENS, 4000 K COLOR TEMPERATURE, RECESSED DOWNLIGHT, 4" DIA. X 12" X 10" X 6" D.



PLAN NORTH

LIGHTING PLAN
SCALE: 1" = 20'-0"
0' 10' 20' 40'

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LIGHTING PLAN

NOT FOR CONSTRUCTION

DATE:	ISSUED FOR:
06-21-2023	BIDS
04-12-2023	REVISON NO.1 ⚠

DRAWN	JLM
REVIEW'D	JSJ

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72 Hours Before
811
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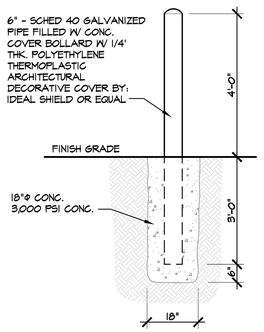
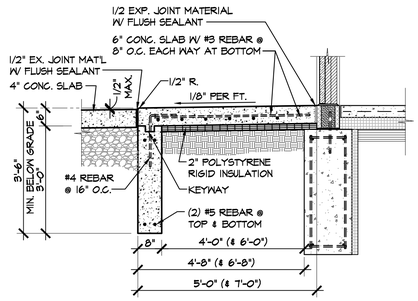
FOUNDATIONS AND EARTHWORK:

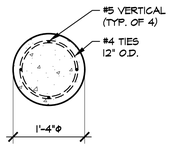
1. FOOTINGS & FOUNDATIONS ARE DESIGNED TO BEAR ON UNDISTURBED SOIL, COMPACTED FILL MATERIAL, OR CONTROLLED LOW STRENGTH MATERIAL (CLSM) WITH A NET BEARING CAPACITY OF 1,500 PSF. VERIFY BEARING CAPACITY OF SOIL AT BOTTOM OF EXCAVATIONS BEFORE CONSTRUCTING FOOTINGS. IF ACTUAL BEARING CAPACITY IS LESS THAN THE DESIGN CAPACITY IMMEDIATELY NOTIFY ARCHITECT. INCREASE DEPTH OF FOOTINGS OR OVER EXCAVATE UNSUITABLE SOILS AND REPLACE WITH COMPACTED FILL OR CLSM MAYBE REQUIRED AS DIRECTED BY THE ARCHITECT.
2. DESIGN AND INSTALL TEMPORARY SYSTEMS FOR EXCAVATION DEWATERING AND EXCAVATION BRACING AS REQUIRED FOR PROPER EXECUTION OF THE WORK. REMOVE TEMPORARY SYSTEMS AFTER CONSTRUCTION IS COMPLETED UNLESS INDICATED OR APPROVED.
3. PREPARE SUBGRADE AND CONSTRUCT BUILDING PAD IN ACCORDANCE WITH PROJECT SPECIFICATIONS AND / OR GEOTECHNICAL REPORT IF AVAILABLE. PROOF ROLL SUBGRADE TO DISCOVER WEAK OR UNSUITABLE SOILS. PLACE FILL IN MAXIMUM 8 INCH LIFTS AND COMPACT TO 95% OF THE MAXIMUM DRY DENSITY DETERMINED IN ACCORDANCE WITH ASTM D1557-02 (MODIFIED PROCTOR TEST). FILL UNDER FOUNDATIONS AND BACKFILL IN EXCAVATIONS SHALL BE COARSE SAND, GRAVEL, OR CRUSHED STONE. SUBGRADE UNDER SLABS-ON-GRADE SHALL BE MINIMUM 4 INCH DEEP, CRUSHED STONE PLACED TO A TOLERANCE OF +0 TO 3/4 INCH.
4. DO NOT CONSTRUCT FOOTINGS OR SLABS ON FROZEN SOILS, ON FROST, OR IN EXCAVATIONS CONTAINING STANDING WATER. KEEP EXCAVATIONS DRY AND PROTECT SUBGRADES, FOOTINGS, AND SLABS FROM FROST HEAVE.
5. CENTER FOOTINGS UNDER COLUMNS AND WALLS UNLESS DETAILED OTHERWISE. TOP AND BOTTOM OF FOOTINGS SHALL BE LEVEL. STEP FOOTINGS WHERE IT IS NECESSARY TO CHANGE BEARING ELEVATIONS.
6. BEAR EXTERIOR FOOTINGS, FOOTINGS ADJACENT TO THE BUILDING PERIMETER AND FOOTINGS IN AREAS WHICH WILL REMAIN UNHEATED DURING NORMAL OCCUPANCY, AT A MINIMUM FROST DEPTH OF 3'-6" BELOW GRADE. BEAR INTERIOR FOOTINGS AT ELEVATIONS INDICATED.
7. REFERENCE ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS AND SPECIFICATIONS FOR SLEEVES, INSERTS, ANCHORS, AND OTHER MATERIALS TO BE EMBEDDED IN FOUNDATIONS.



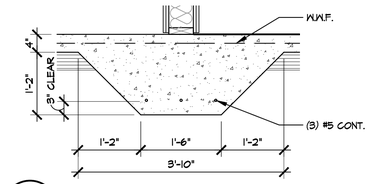
3 S-1 **BOLLARD DETAIL**
SCALE: 1/2" = 1'-0"



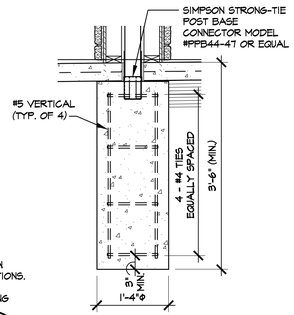
4 S-1 **FROST SLAB SECTION**
SCALE: 1/2" = 1'-0"



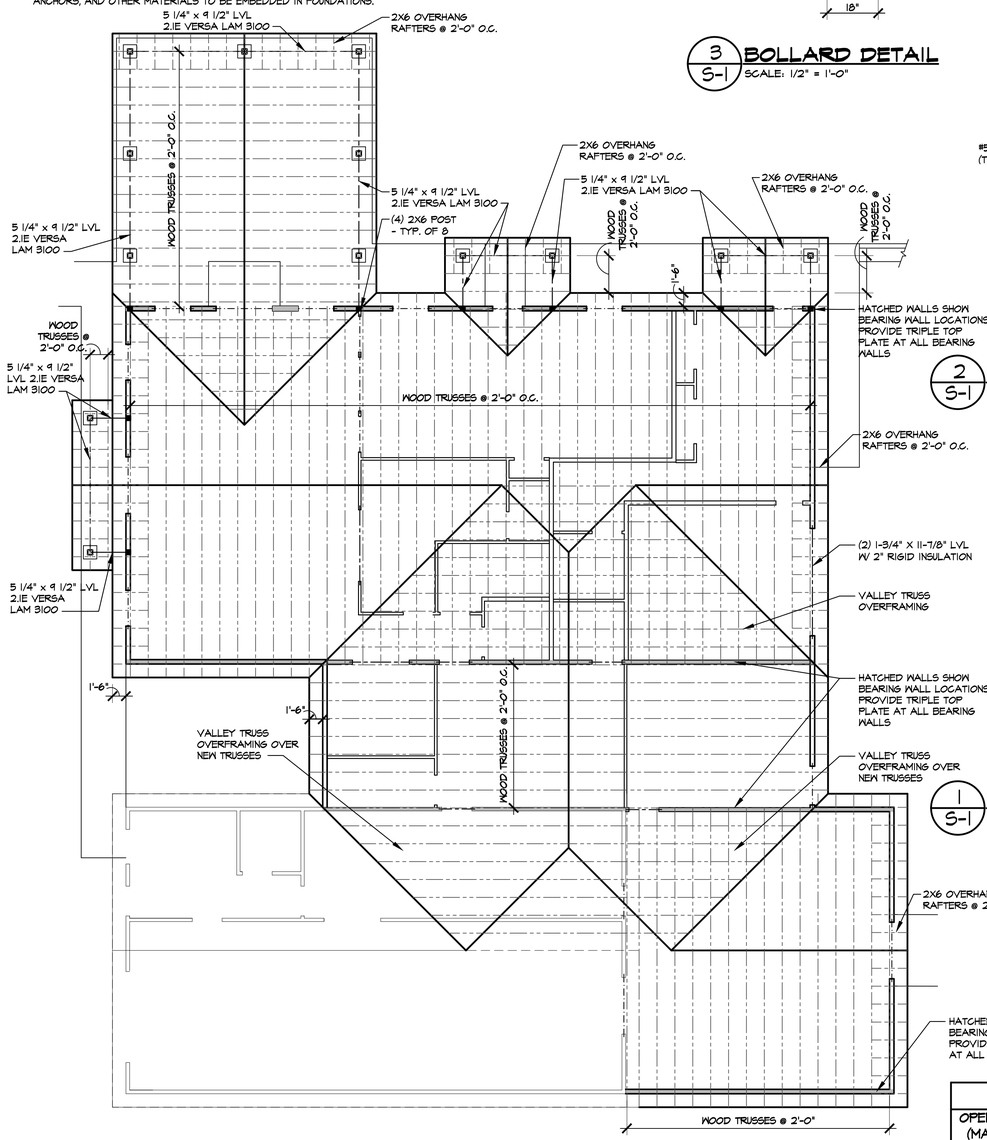
5 S-1 **POST FOOTING SECTION**
SCALE: 3/4" = 1'-0"



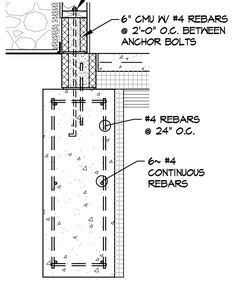
6 S-1 **THICKENED SLAB DETAIL**
SCALE: 3/4" = 1'-0"



2 S-1 **POST FOOTING DETAIL**
SCALE: 3/4" = 1'-0"



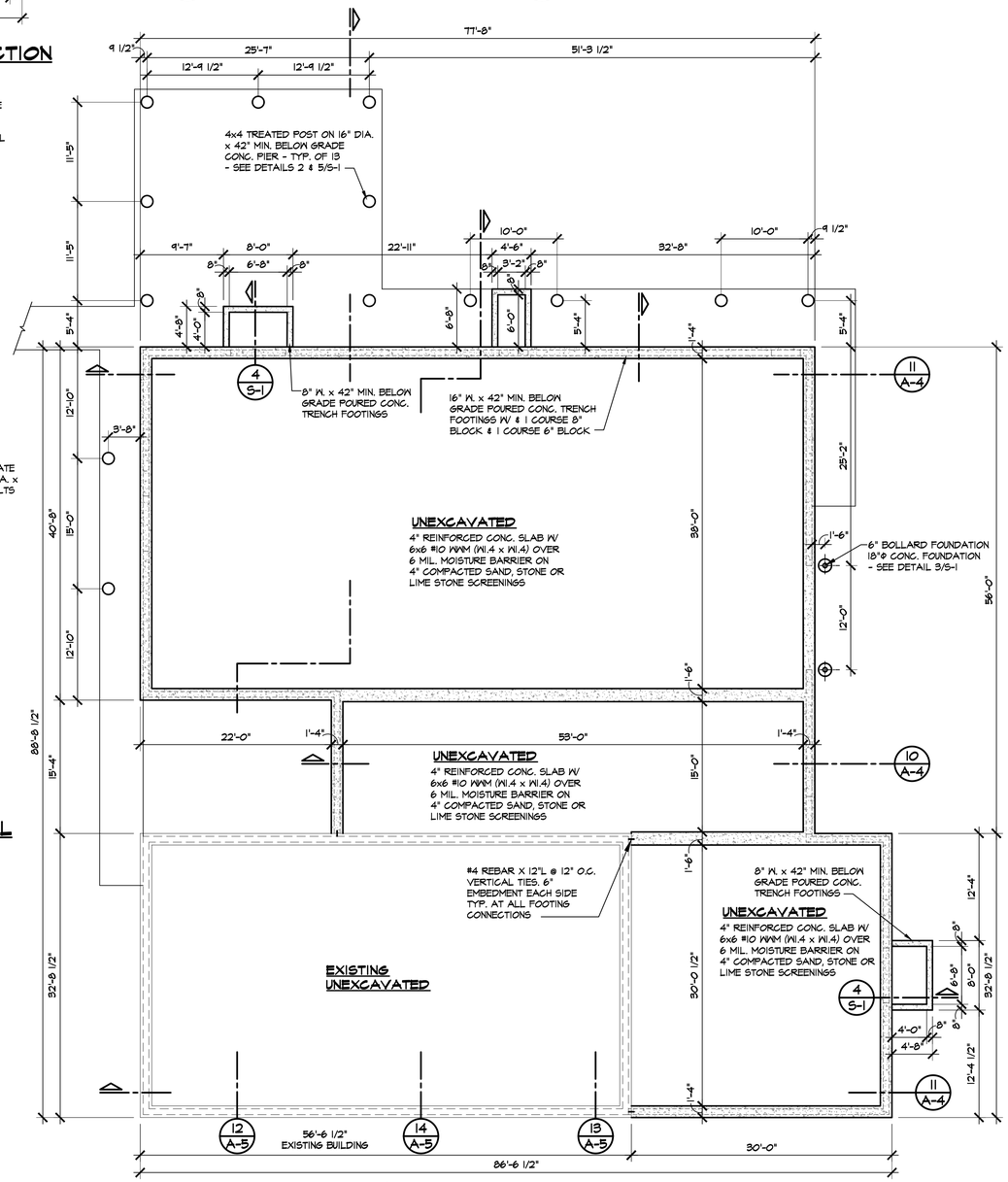
1 S-1 **TRENCH FOOTING DETAIL**
SCALE: 3/4" = 1'-0"



HEADER SCHEDULE		
OPENING (MAX.)	MEMBER SIZE	BEARING
3'-4"	(2) 2X8 SPF #1/#2	1-1/2"
4'-0"	(2) 2X10 SPF #1/#2	3"
5'-4"	(2) 2X12 SPF #1/#2	3"
6'-8"	(2) 2X12 SPF #1/#2	3"
9'-4"	(2) 1-3/4" X 11-1/4" LVL	3"
11'-4"	(2) 1-3/4" X 11-1/4" LVL	3"

PLAN NORTH

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



PLAN NORTH

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

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25 WASHINGTON STREET
MONROE, MICHIGAN 48161
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FOUNDATION & ROOF FRAMING PLANS & DETAILS

NOT FOR CONSTRUCTION

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1 OF 1

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CONCRETE:

1. CONCRETE, CONCRETE PLACEMENT, AND REINFORCING SHALL COMPLY WITH THE LATEST EDITION OF APPLICABLE STANDARDS OF THE AMERICAN CONCRETE INSTITUTE (ACI) AND THE CONCRETE REINFORCING INSTITUTE (CRSI).
2. STRUCTURAL CONCRETE BELOW GRADE SHALL BE 3500 psi COMPRESSIVE STRENGTH MINIMUM @ 28 DAYS. CURBS AND SLABS ON GRADE SHALL BE 4000 psi COMPRESSIVE STRENGTH MINIMUM @ 28 DAYS WITH 4 TO 6 PERCENT AIR ENTRAINMENT. REFER TO DRAWINGS FOR SIZES AND THICKNESSES.
3. PROVIDE EXPANSION JOINTS WITH 1/2 INCH EXPANSION MATERIAL AT LOCATIONS AS NOTED ON DRAWINGS. TOOL CONTROL JOINTS IN SURFACE AT 1/4 THE DEPTH OF THE TOTAL SLAB THICKNESS AT LOCATIONS AS NOTED SHOWN ON DRAWINGS.
4. ALL CONCRETE NOT OTHERWISE SPECIFIED SHALL BE CONTROLLED STONE, GRAVEL OR SLAG CONCRETE TO TEST AT LEAST 3000 PSI IN STANDARD 6" X 12" CYLINDERS AT 28 DAYS AND HAVE NOT LESS THAN 5 1/2 SACKS OF CEMENT PER CUBIC YARD OF CONCRETE AND NOT OVER 6 1/2 GALLONS OF WATER PER SACK OF CEMENT. MAXIMUM SLUMP SHALL BE 4".
5. REINFORCING BARS, UNLESS OTHERWISE SPECIFIED, SHALL MEET ASTM A615, GRADE 60.
6. ALL CONCRETE WORK SHALL CONFORM TO ALL REQUIREMENTS OF THE LATEST ACI-318-08 CODE. ALL BARS SHALL BE DETAILED, FABRICATED, SUPPORTED IN FORMS AND SPACED WITH ACCESSORIES FOLLOWING THE REQUIREMENTS OF THE "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT (ACI 318-08)". PLACING OF BARS SHALL CONFORM TO THE LATEST CRSI RECOMMENDED PRACTICES FOR PLACING REINFORCING BARS.
7. REBARS THAT COME INTO CONTACT WITH FORM OIL WILL PREVENT THEM FROM PROPERLY BONDING WITH POURED CONCRETE. ALL REBARS THAT HAVE BEEN COMPROMISED AS A RESULT OF IMPROPER OR POOR APPLICATION OF FORM OIL MUST BE SAND BLASTED OR REPLACED TO MAINTAIN STRUCTURAL INTEGRITY OF THE POUR.
8. ALL CONCRETE SLABS ON THE GROUND THAT ARE NOT OTHERWISE PROVIDED FOR SHALL HAVE TEMPERATURE REINFORCEMENT CONSISTING OF ONE LAYER OF 6" X 6" W1.4 X W1.4 WELDED WIRE FABRIC.
9. WIRE FABRIC MUST LAP ONE FULL MESH AT SIDE AND END LAPS AND BE WIRED TOGETHER. MESH SHALL EXTEND WELL INTO SUPPORTING BEAMS AND WALLS FOR ANCHORAGE (UNLESS AN EXPANSION JOINT IS CALLED FOR).
10. LAP ALL BAR SPLICES 36 BAR DIAMETERS (UNLESS OTHERWISE CALLED FOR) BUT NOT LESS THAN 15". BEND ALL WALL FOOTING BARS 15" AROUND ALL CORNERS.
11. MINIMUM CONCRETE COVER ON REINFORCING BARS SHALL BE AS FOLLOWS UNLESS OTHERWISE NOTED:

CONCRETE DEPOSITED AGAINST GROUND:	3"
FORMED SURFACES EXPOSED TO WEATHER: OR EARTH:	1 1/2" FOR #5 & SMALLER 2" FOR #6 BARS & LARGER

ALL OTHER SURFACES:
SLABS, WALLS, AND JOISTS: 3/4"
BEAMS, GIRDER, AND COLUMNS: 1 1/2"

WOOD FRAMING ATTACHMENT NOTES:

1. ALL FASTENERS FOR THE FRAMING OF THE FLOOR DECK TO BE "SIMPSON STRONG TIE" FASTENERS OR APPROVED EQUAL.
2. ALL METAL FASTENERS OR CONNECTORS INTO OR IN CONTACT WITH MOISTURE TREATED LUMBER SHALL BE STAINLESS STEEL. THIS INCLUDES NAILS, SCREWS, ANCHOR BOLTS, LAG BOLTS, METAL HANGERS, CONNECTORS, ETC.
3. WHERE SUPPORTED BY ATTACHMENT TO AN EXTERIOR WALL, DECK SHALL BE POSITIVELY ANCHORED TO THE PRIMARY STRUCTURE AND DESIGNED FOR BOTH VERTICAL AND LATERAL LOADS AS APPLICABLE. SUCH ATTACHMENT SHALL NOT BE ACCOMPLISHED BY THE USE OF TOENAILS OR NAILS SUBJECT TO WITHDRAWAL.
4. COLUMN AND POST-END CONNECTIONS SHALL BE FASTENED TO RESIST LATERAL AND NET INDUCED UPLIFT FORCES.
5. COLUMNS SHALL BE RESTRAINED TO PREVENT LATERAL DISPLACEMENT AT THE BOTTOM END.
6. WHERE POSTS AND BEAM CONSTRUCTION IS USED TO SUPPORT FLOOR FRAMING, POSITIVE CONNECTIONS SHALL BE PROVIDED TO ENSURE AGAINST UPLIFT AND LATERAL.
7. THE ENDS OF EACH JOIST OR BEAM SHALL HAVE AT LEAST 1 1/2" OF BEARING ON WOOD OR METAL.
8. JOISTS FRAMING INTO THE SIDE OF A WOOD BEAM SHALL BE SUPPORTED BY APPROVED FRAMING ANCHORS.
9. HANDRAIL ASSEMBLIES AND GUARDS SHALL BE ABLE TO RESIST A SINGLE CONCENTRATED LOAD OF 200 POUNDS APPLIED IN ANY DIRECTION AT ANY POINT ALONG THE TOP.
10. INDIVIDUAL STAIR TREADS SHALL BE ABLE TO RESIST (1) 300 POUND CONCENTRATED LOAD ACTING OVER AN AREA OF 4 SQUARE INCHES.
11. STAIRCASES MUST BE ABLE TO RESIST 40 POUNDS PER SQUARE FOOT OF TREAD AREA 3'-0" x 5'-0".

MASONRY:

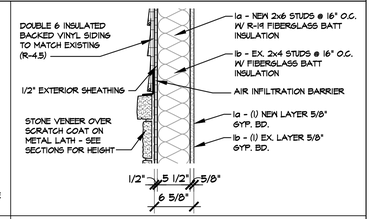
1. CONFORM TO THE LATEST EDITION OF SPECIFICATIONS FOR MASONRY STRUCTURES, ACI 530.1.
2. COMPRESSIVE STRENGTH OF MASONRY, FM': 1500psi
3. REINFORCEMENT: ASTM A615, GRADE 60.
4. MORTAR: ASTM C270 TYPE M OR S MADE FROM PORTLAND CEMENT AND HYDRATED LIME.
5. PROVIDE LINTELS OVER OPENINGS IN MASONRY WALLS IN ACCORDANCE WITH LINTEL SCHEDULE (IF & WHERE APPLICABLE).
6. INSTALL REINFORCEMENT WHERE SHOWN AND GROUT CORES SOLID. PROVIDE WIRE BAR SUPPORTS AND SPACERS TO MAINTAIN PROPER POSITION OF REINFORCEMENT. LAP REINFORCEMENT 48 BAR DIAMETERS.
7. PROVIDE 3 COURSES OF SOLID OR GROUTED MASONRY IMMEDIATELY BELOW BEAM AND LINTEL BEARINGS.
8. DO NOT CONSTRUCT CHASES OR RISERS WITHIN 2 FEET OF CENTERLINE OF BEAM BEARING OR OTHER CONCENTRATED LOAD.
9. CONSTRUCT CORNERS AND WALL INTERSECTIONS IN RUNNING BOND.

WATER & MOISTURE PROTECTION

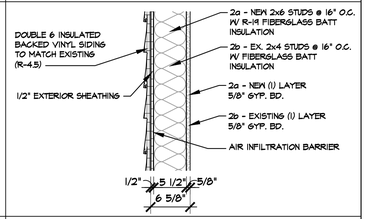
1. PROVIDE FOUNDATION WATERPROOFING WHERE CRAWL & / OR BASEMENT WALLS ARE BELOW BELOW GRADE AND INSTALL 4" PERFORATED PLASTIC FOUNDATION DRAINS ONE EACH SIDE OF FOOTINGS WITH CROSS OVERS AT A MINIMUM OF ONE PER WALL. SLOPE DRAINS TO ON-SITE DRY WELL W/ SUMP PUMP OR NATURAL DRAINAGE COURSES.
2. ALL EXTERIOR WALLS SHALL HAVE WATER-RESISTIVE BARRIER OF NOT FEWER THAN ONE LAYER OF NO. 15 ASPHALT FELT, COMPLYING WITH ASTM D226 FOR TYPE I FELT OR OTHER APPROVED MATERIALS, (I.E. TYVEK BUILDING WRAP) ATTACHED TO SHEATHING W/ MANUFACTURER'S APPROVED CAP NAILS, OVERLAP ALL SEAMS (HORIZONTAL & VERTICAL) A MIN. OF 6" AND SEAL W/ MANUFACTURER'S APPROVED TAPE. WRAP ALL WINDOWS, DOORS, VENTS, ETC. OPENINGS WITH APPROVED BUILDING AIR INFILTRATION BARRIER PRIOR TO INSTALLATION.
3. MOISTURE VAPOR RETARDERS SHALL BE INSTALLED IN ALL FRAMED WALLS, FLOORS, AND ROOF / CEILINGS, COMPRISING ELEMENTS OF THE BUILDINGS THERMAL ENVELOPE, INSTALLED ON THE WARM-IN-WINTER SIDE OF THE INSULATION. SEALED AT ALL OUTLETS AND PENETRATIONS. CLASS AS SPECIFIED ON PLANS.
   CLASS I = SHEET POLYETHYLENE, NON-PERFORATED ALUMINUM FOIL WITH A PERM RATING OF LESS THAN OR EQUAL TO 0.1
   CLASS II = KRAFT-FACED FIBERGLASS BATTS OR PAINT WITH A PERM RATING GREATER THAN 0.1 AND LESS THAN OR EQUAL TO 1.0.
   CLASS III = LATEX OR ENAMEL PAINT WITH A PERM RATING OF GREATER THAN 1.0 AND LESS THAN OR EQUAL TO 10.0.
4. ALL BUILDING EXTERIOR ROOF SURFACE PENETRATIONS WITH POTENTIAL EXPOSURE TO WEATHER SHALL BE FLASHED AND/OR CAULKED AS PER CODE AND/OR INDUSTRY-RECOGNIZIED PROPER CONSTRUCTION TECHNIQUES.
5. ALL FLASHING SHALL BE TURNED OUT AT LOWER EDGE TO DIRECT WATER OUT & AWAY FROM STRUCTURE.
6. INSULATING MATERIALS, WHERE EXPOSED, SHALL HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE-DEVELOPED INDEX OF NOT MORE THAN 450.

WALL LEGEND

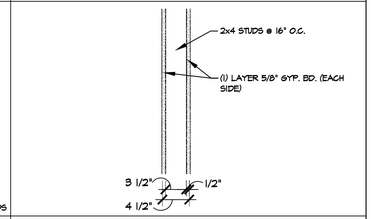
WALL TYPE 1: (1a) AND (1b)
TYP. EXTERIOR WALL ASSEMBLY
1a - NEW WALL CONSTRUCTION
1b - EXISTING WALL CONSTRUCTION
NOTE: EXTERIOR WALLS DRAWN INTERIOR FACE OF STUD TO EXTERIOR STONE FACE



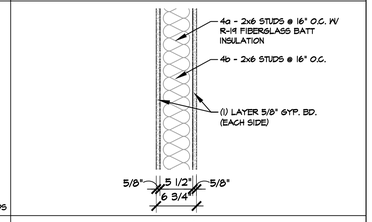
WALL TYPE 2: (2a) AND (2b)
TYP. EXTERIOR WALL ASSEMBLY
2a - NEW WALL CONSTRUCTION
2b - EXISTING WALL CONSTRUCTION - REMOVE SIDING FROM EX. MAINTENANCE BUILDING AND PREP FOR NEW SIDING.
NOTE: EXTERIOR WALLS DRAWN INTERIOR FACE OF STUD TO EXTERIOR SHEATHING



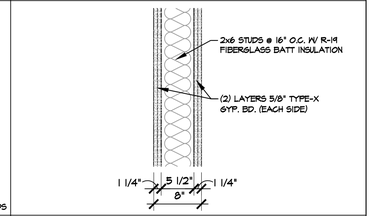
WALL TYPE 3: (3)
TYP. INTERIOR WALL ASSEMBLY
NOTE: INTERIOR WALLS FACE TO FACE OF STUDS



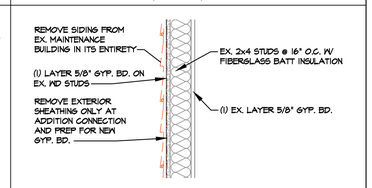
WALL TYPE 4: (4a) AND (4b)
INTERIOR WALL ASSEMBLY
NOTE: INTERIOR WALLS FACE TO FACE OF STUDS



WALL TYPE 5: (5)
2-HOUR FIRE RATED WALL ASSEMBLY - U.L. DESIGN U801
NOTE: INTERIOR WALLS FACE TO FACE OF STUDS



WALL TYPE 6: (6)
EXISTING WALL @ ADDITION CONNECTION

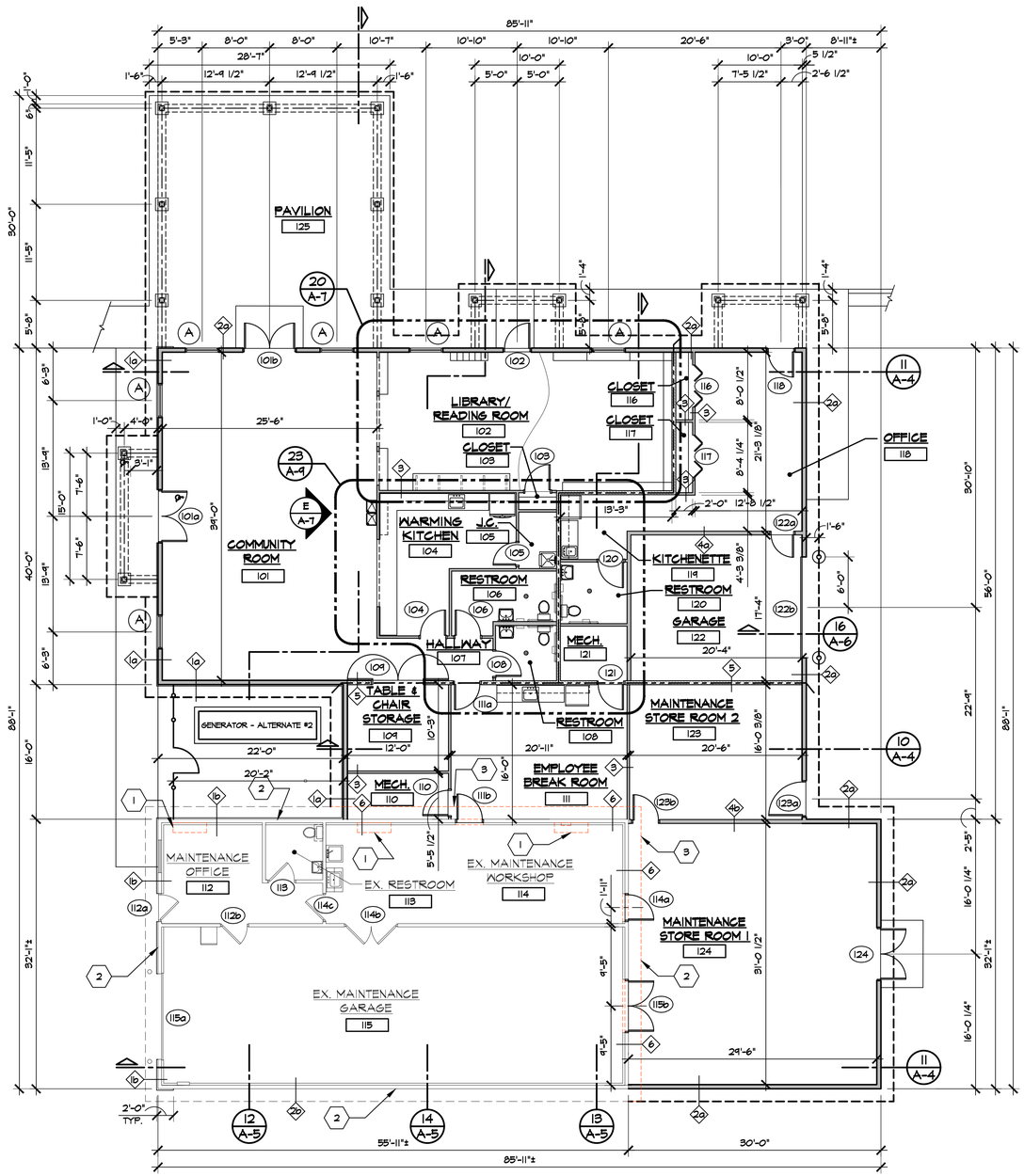


WOOD FRAMING NOTES:

1. ALL MAIN FRAMING MEMBERS, JOISTS, RAFTERS, BEAMS, HEADERS, ETC., SHALL BE NO. 2 AND BETTER HEM-FIR, OR EQUAL.
2. ALL WALL STUDS SHALL BE STUD GRADE SPRUCE-PINE-FIR. SILL PLATES, ETC., SHALL BE NO. 2 AND BETTER SPRUCE-PINE-FIR (SPF) OR EQUAL.
3. NON-STRUCTURAL NAILERS, BLOCKING, BRIDGING, ETC., SHALL BE CONSTRUCTION GRADE SPRUCE-PINE-FIR (SPF) OR WHITE WOODS.
4. WOODS FOR GLUED LAMINATED BEAM CONSTRUCTION MUST BE OF GRADE 24F WESTERN SPECIES OR BETTER (FB = 2400 PSI, FV = 140 PSI, E = 1,700,000 PSI.)

TREATED LUMBER & CONNECTOR NOTES:

1. FOR ALL AWPA PRESSURE TREATED WOOD:
   TREATMENT DENSITY, MOISTURE CONTENT IN GRADE BASE VALUES, SOUTHERN YELLOW PINE (SYP) GRADE NO. 2 OR BETTER
   MOISTURE TREATED LUMBER TIMBERS & PLYWOOD
   FOR ABOVE GROUND USE - 0.25 CCA (pct)
   GROUND / FRESH WATER CONTACT - 0.40 CCA (pct)
   STRUCTURAL POLES - 0.60 CCA (pct)
2. ALL METAL FASTENERS, CONNECTORS INTO OR IN CONTACT WITH PRESSURE TREATED WOOD SHALL BE STAINLESS STEEL (NAILS, SCREWS, ANCHOR BOLTS, LAG BOLTS, METAL HANGERS, ETC.)



PLAN NORTH

FLOOR PLAN

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

SQUARE FOOTAGES

MAINTENANCE:	3,330 S.F. (1,807 EX. + 1,723 PROPOSED)
COMMUNITY CENTER:	1,725 S.F.
LIBRARY:	600 S.F.
SUBSTATION W/ GARAGE:	877 S.F.
TOTAL SQUARE FOOTAGE	6,732 S.F.

DEMOLITION NOTES:

1. REMOVE MECHANICAL UNITS IN THEIR ENTIRETY. INFILL OPENING WITH 2X4 WD. STUDS, BATT INSULATION, AND PATCH EXTERIOR SHEATHING PRIOR TO INSTALLATION OF NEW EXTERIOR FINISHES. PATCH GYP. BD. AND PREP TO BE PAINTED.
2. REMOVE VINYL SIDING IN ITS ENTIRETY AND PREP FOR NEW EXTERIOR FINISHES.
3. CUT BACK OVERHANGS OF EXISTING MAINTENANCE BUILDING AT THE LOCATION OF CONNECTION OF ADDITION.

JAMES S. JACOBS ARCHITECTS, PLLC
25 WASHINGTON STREET
MONROE, MICHIGAN 48161
TEL: (734) 241-7933
FAX: (734) 241-1181
EMAIL: jim@jsjacobsarch.com

GREENWOOD MAINTENANCE BUILDING ADDITION FOR:

MONROE HOUSING COMMISSION: GREENWOOD TOWNHOUSES
900 GREENWOOD AVENUE
MONROE, MICHIGAN 48162

PROPERTY CONTACT:
NANCY WAIN, EXEC. DIRECTOR
MONROE HOUSING COMMISSION
20 NORTH ROESSLER STREET
MONROE, MICHIGAN 48162
TELEPHONE: (734) 242-5880

FLOOR PLAN & NOTES

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A-1

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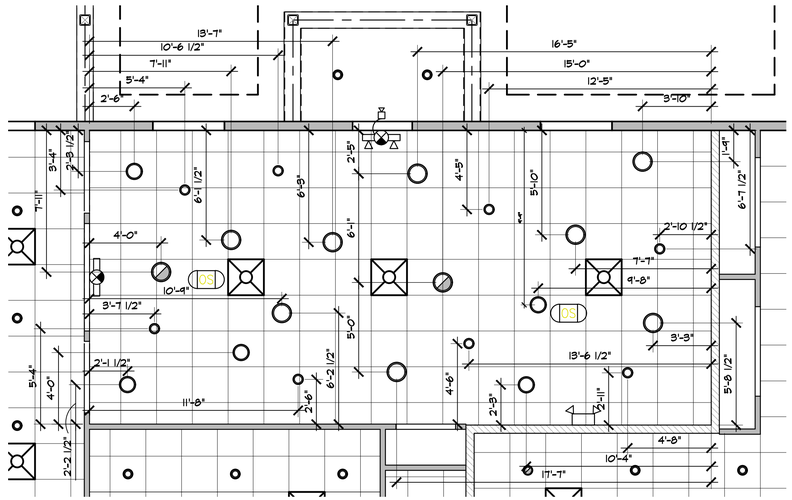


PLAN NORTH

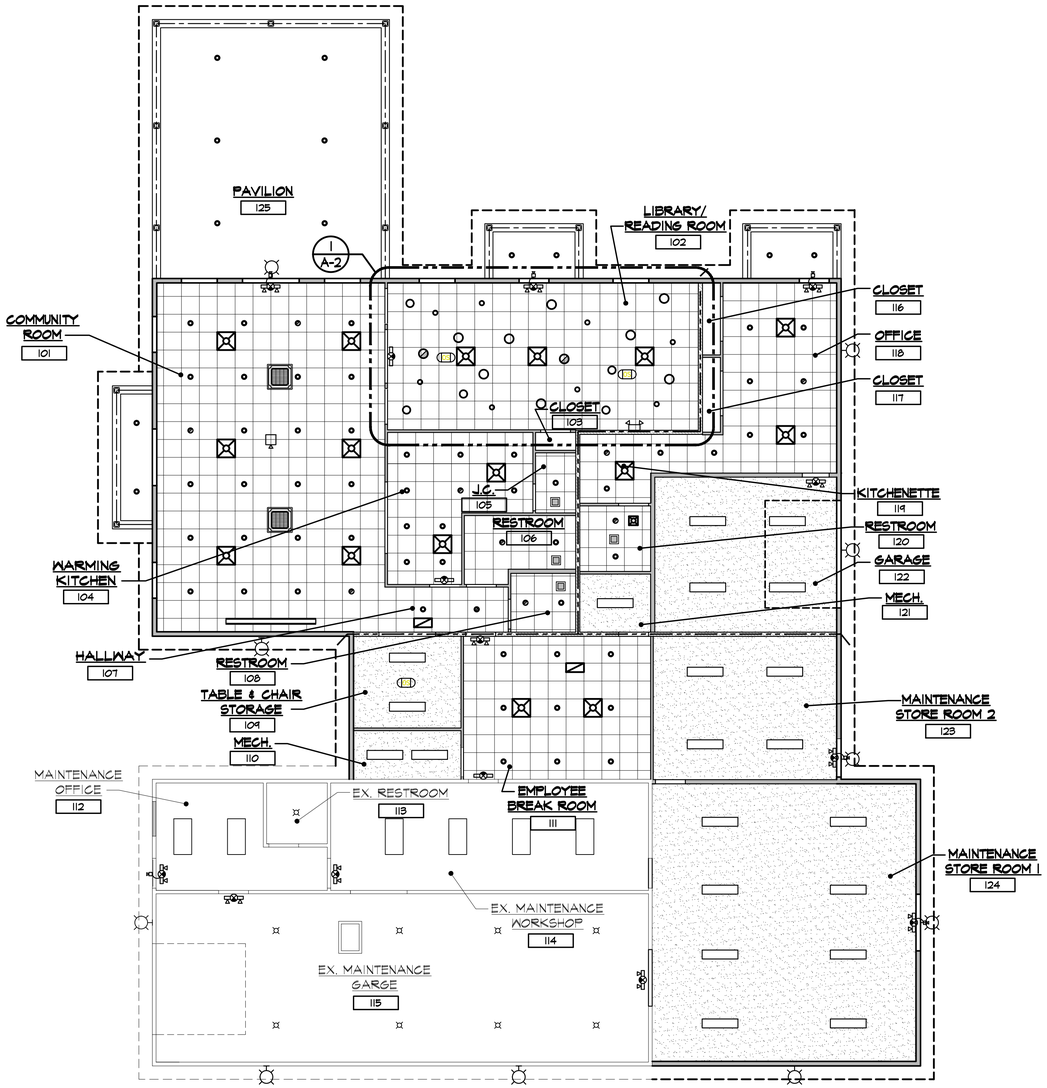
1 / A-2 **ENLARGED CEILING PLAN - LIBRARY / READING ROOM**

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

REFLECTED CEILING PLAN LEGEND

NOTE: SEE MECHANICAL AND ELECTRICAL PLANS FOR MORE INFORMATION

- EMERGENCY LIGHTING
- EXIT SIGN LED EDGE LIT RECESS OR WALL MOUNT, CLEAR PANEL, RED LETTERING
- EMERGENCY LIGHT FIXTURES
- 2' X 4' SURFACE MOUNTED LED FIXTURE
- LED SURFACE MOUNTED FIXTURES - SIZE VARIES
- 4" DIA. LED DOWN LIGHT
- CEILING MOUNTED PROJECTOR OPTOMA ZH507
- EXTERIOR WALL MOUNTED LED FIXTURE
- CEILING MOUNTED OCCUPANCY FIXTURE
- HVAC SUPPLY GRILL
- HVAC RETURN AIR GRILL
- EXHAUST FAN
- CEILING MOUNTED SCREEN MANUAL (BASE BID): DA-LITE ADVANTAGE W/ CSRT43 78X139 MOTORIZED (ALTERNATE #3): DRAPER 142017Q 78X104
- CEILING MOUNTED DUCTLESS SPLIT SYSTEM
- 2' x2' ACOUSTICAL LAY-IN CEILING TILES & METAL GRID
- GYPSUM BOARD FINISH (PAINTED)



PLAN NORTH

REFLECTED CEILING PLAN

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

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25 WASHINGTON STREET
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MONROE HOUSING COMMISSION
20 NORTH ROESSLER STREET
MONROE, MICHIGAN 48162
TELEPHONE: (734) 242-5880

REFLECTED CEILING PLAN & DETAILS

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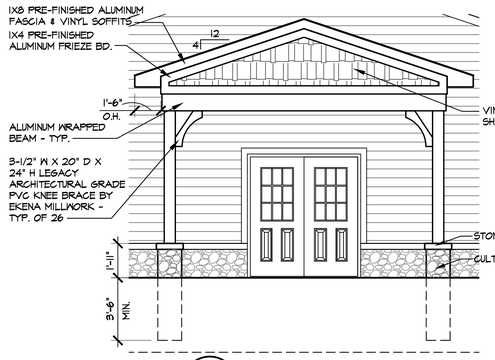
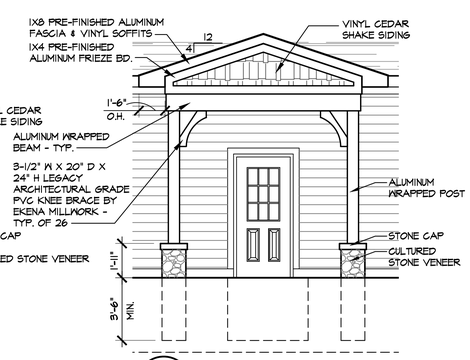
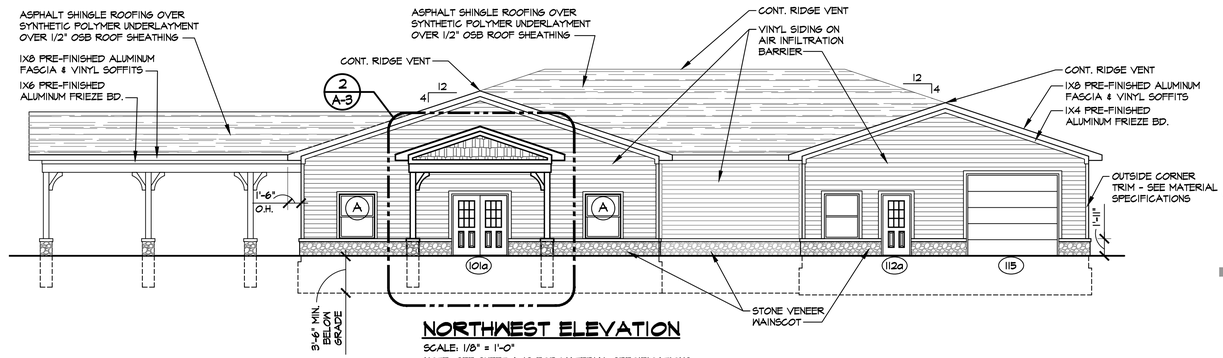


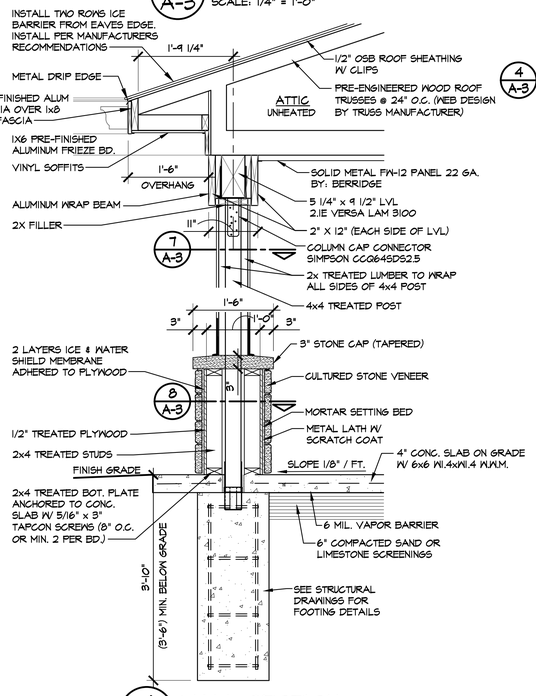
2 A-3 **ENTRY CANOPY**
SCALE: 1/4" = 1'-0"



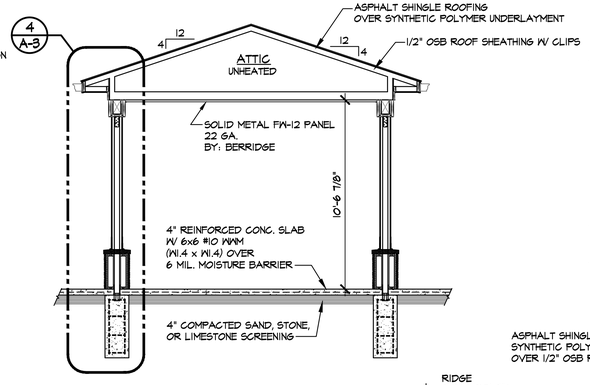
3 A-3 **ENTRY CANOPY**
SCALE: 1/4" = 1'-0"



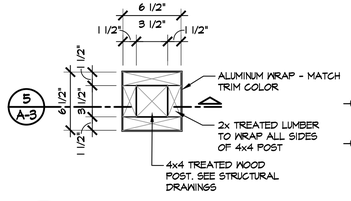
NORTHWEST ELEVATION
SCALE: 1/8" = 1'-0"
NOTE: SEE SHEET A-12 FOR MATERIAL SPECIFICATIONS



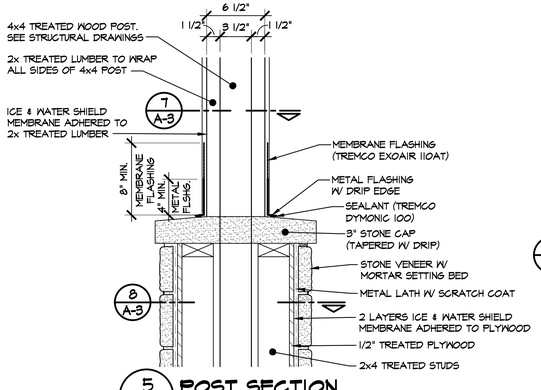
4 A-3 **WALL SECTION**
SCALE: 1 1/2" = 1'-0"



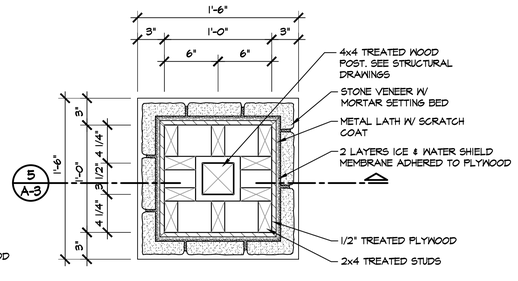
6 A-3 **ENTRY CANOPY SECTION**
SCALE: 1 1/2" = 1'-0"



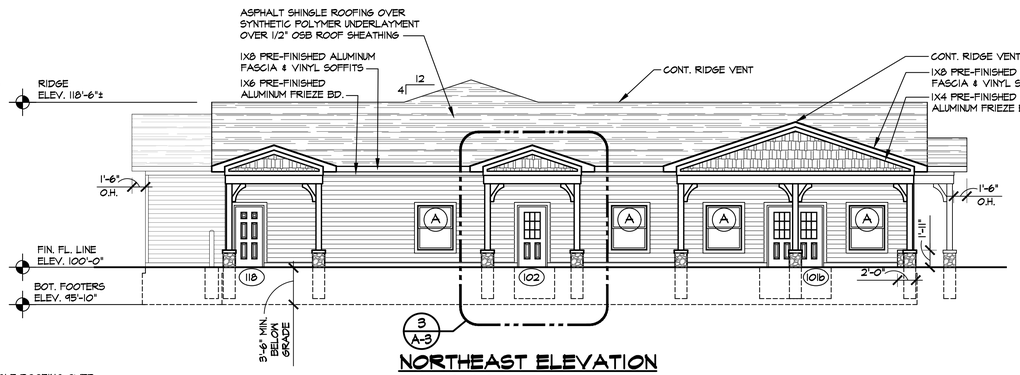
5 A-3 **POST WRAP DETAIL**
SCALE: 1 1/2" = 1'-0"



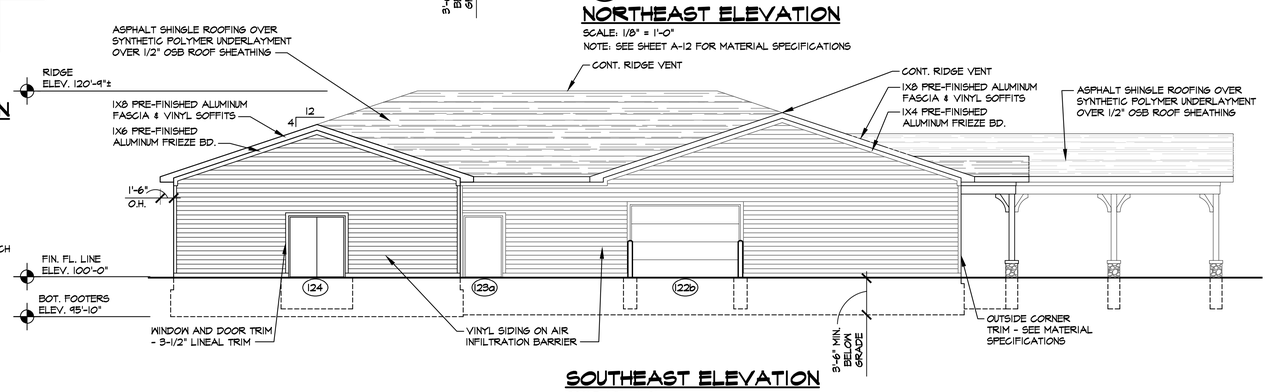
5 A-3 **POST SECTION**
SCALE: 1 1/2" = 1'-0"



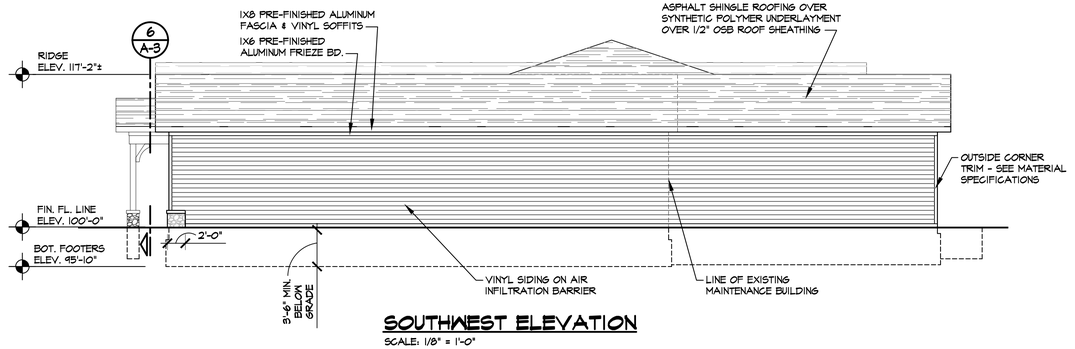
8 A-3 **STONE COLUMN PLAN**
SCALE: 1 1/2" = 1'-0"



3 A-3 **NORTHEAST ELEVATION**
SCALE: 1/8" = 1'-0"
NOTE: SEE SHEET A-12 FOR MATERIAL SPECIFICATIONS



SOUTHEAST ELEVATION
SCALE: 1/8" = 1'-0"
NOTE: SEE SHEET A-12 FOR MATERIAL SPECIFICATIONS



SOUTHWEST ELEVATION
SCALE: 1/8" = 1'-0"
NOTE: SEE SHEET A-12 FOR MATERIAL SPECIFICATIONS

JAMES S. JACOBS ARCHITECTS, PLLC
25 WASHINGTON STREET
MONROE, MICHIGAN 48161
TEL: (734) 241-7933
FAX: (734) 241-1181
EMAIL: jim@jsjacobsarch.com

GREENWOOD MAINTENANCE BUILDING ADDITION FOR:

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900 GREENWOOD AVENUE
MONROE, MICHIGAN 48162

PROPERTY CONTACT:
NANCY WAIN, EXEC. DIRECTOR
MONROE HOUSING COMMISSION
20 NORTH ROESSLER STREET
MONROE, MICHIGAN 48162
TELEPHONE: (734) 242-5880

EXTERIOR ELEVATIONS & DETAILS

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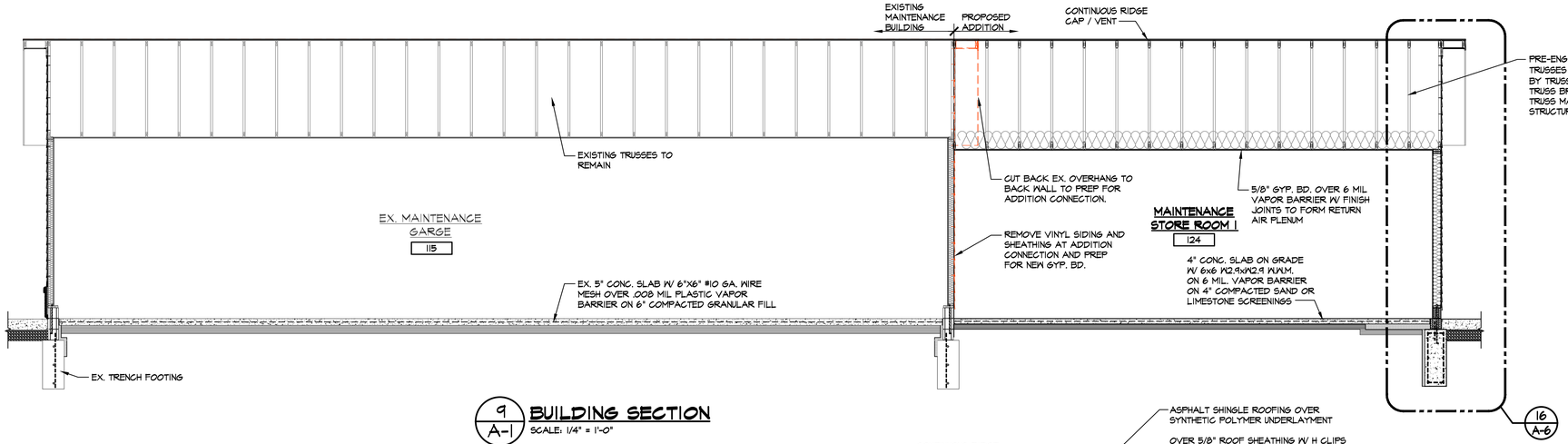
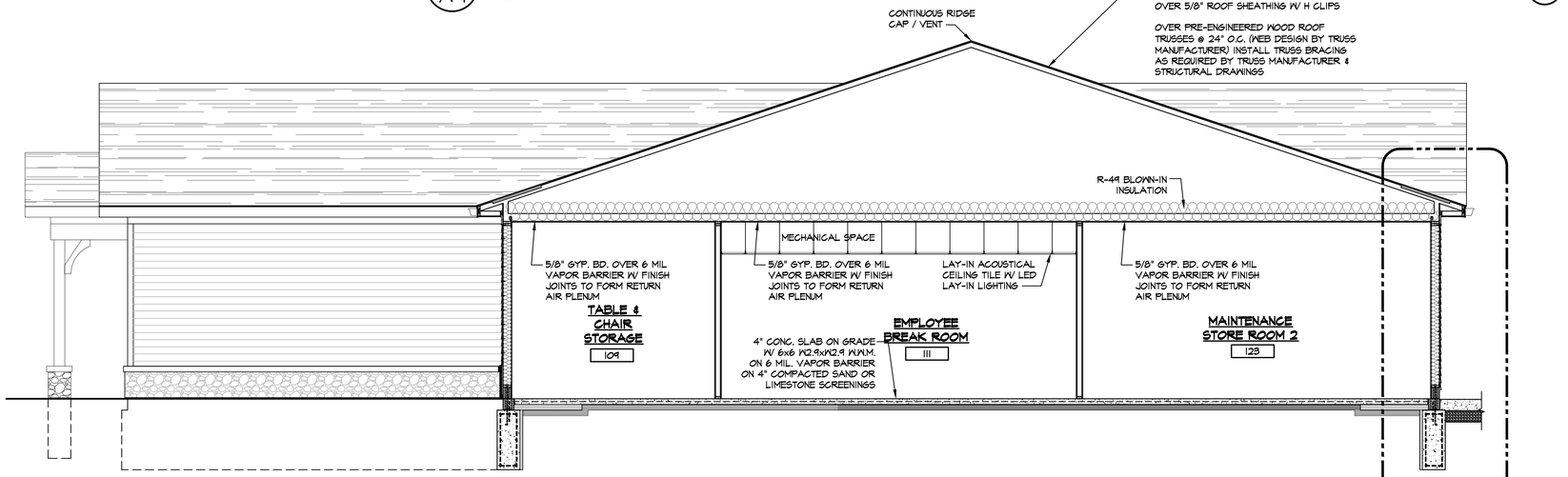
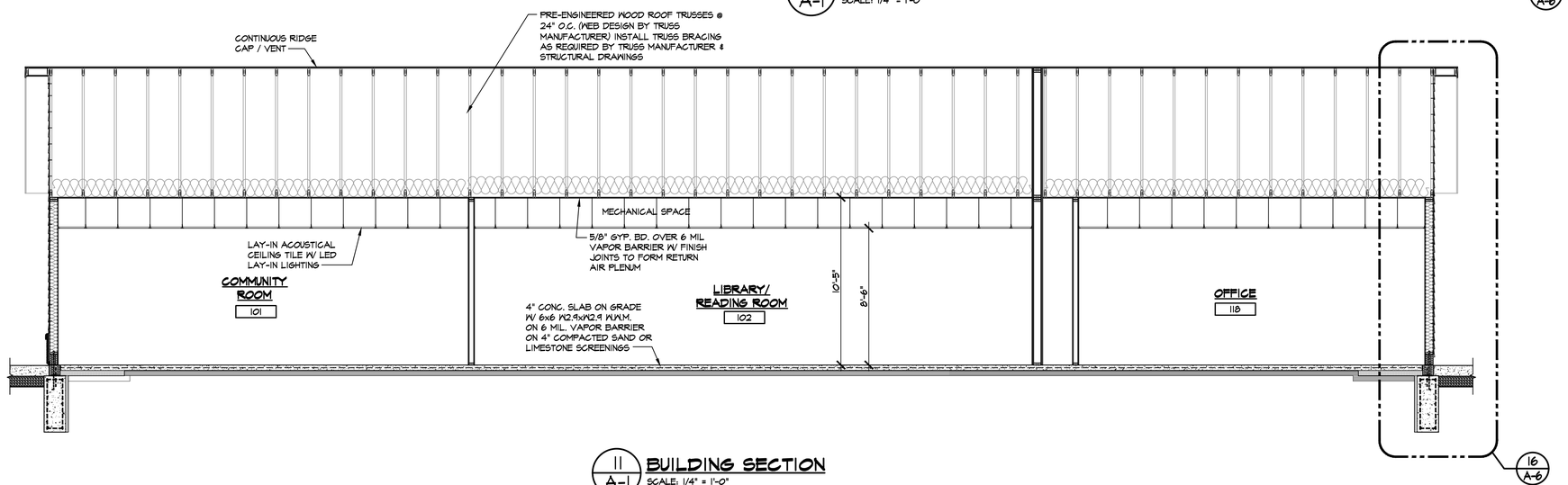


9 / A-1 **BUILDING SECTION**
SCALE: 1/4" = 1'-0"



10 / A-1 **BUILDING SECTION**
SCALE: 1/4" = 1'-0"



11 / A-1 **BUILDING SECTION**
SCALE: 1/4" = 1'-0"

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25 WASHINGTON STREET
MONROE, MICHIGAN 48161
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MONROE HOUSING COMMISSION
20 NORTH ROESSLER STREET
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BUILDING SECTIONS

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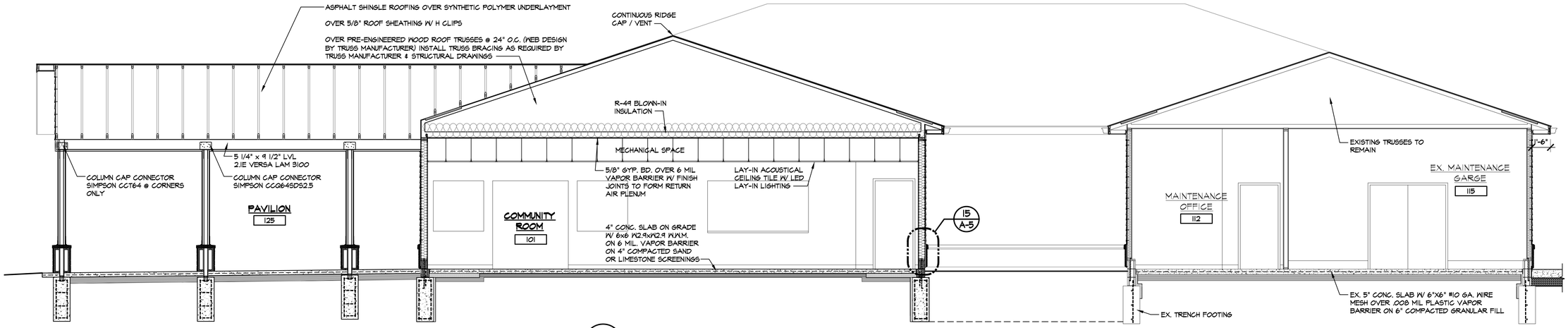
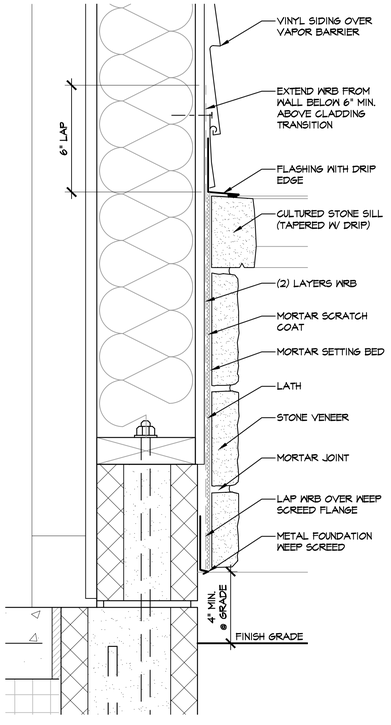
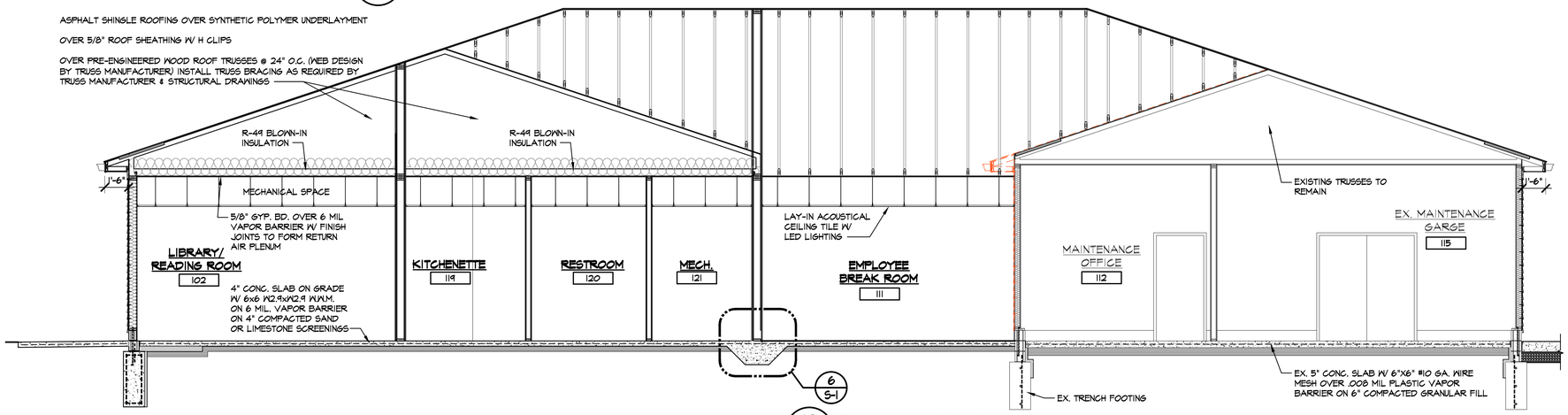


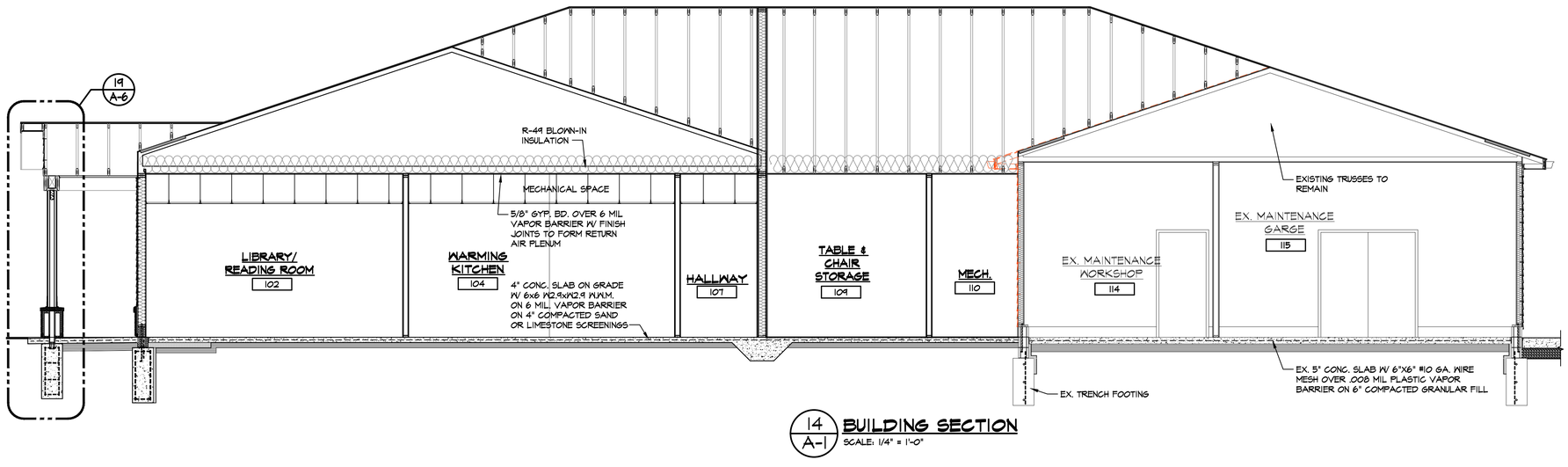
12 A-1 **BUILDING SECTION**
SCALE: 1/4" = 1'-0"



15 A-5 **STONE BASE DETAIL**
SCALE: 1/4" = 1'-0"



13 A-1 **BUILDING SECTION**
SCALE: 1/4" = 1'-0"



14 A-1 **BUILDING SECTION**
SCALE: 1/4" = 1'-0"

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25 WASHINGTON STREET
MONROE, MICHIGAN 48161
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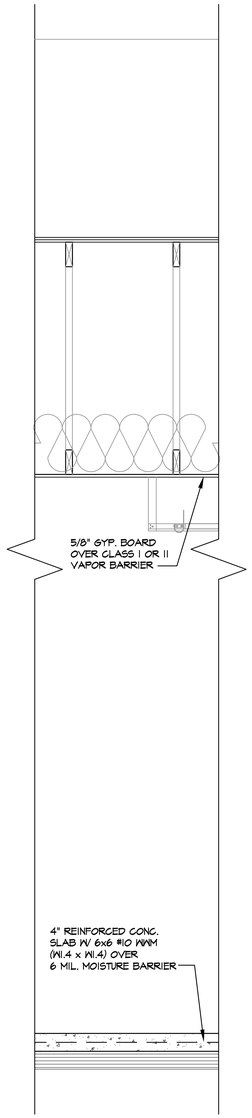
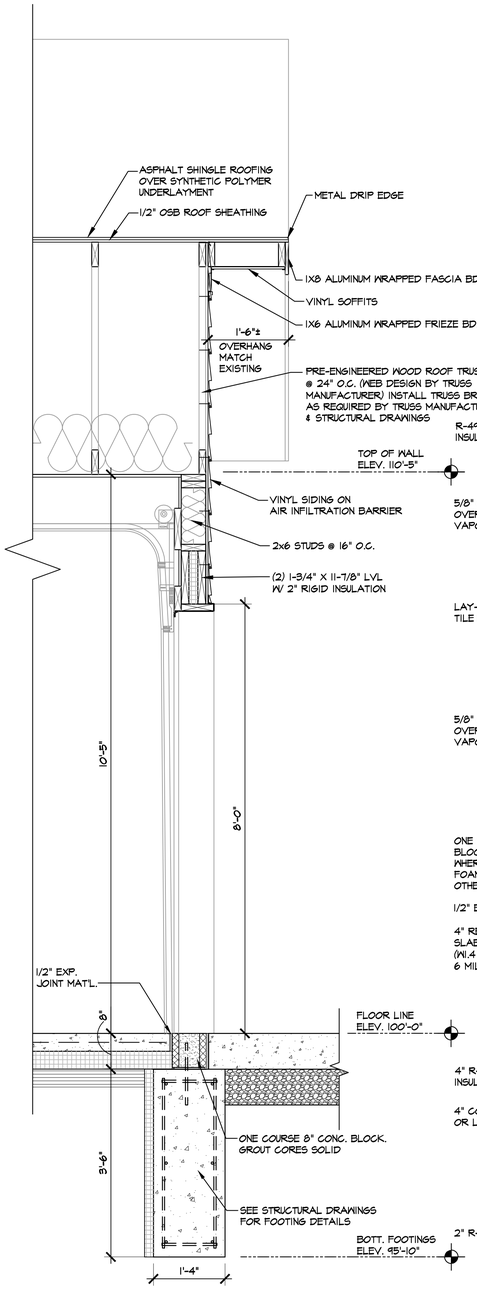
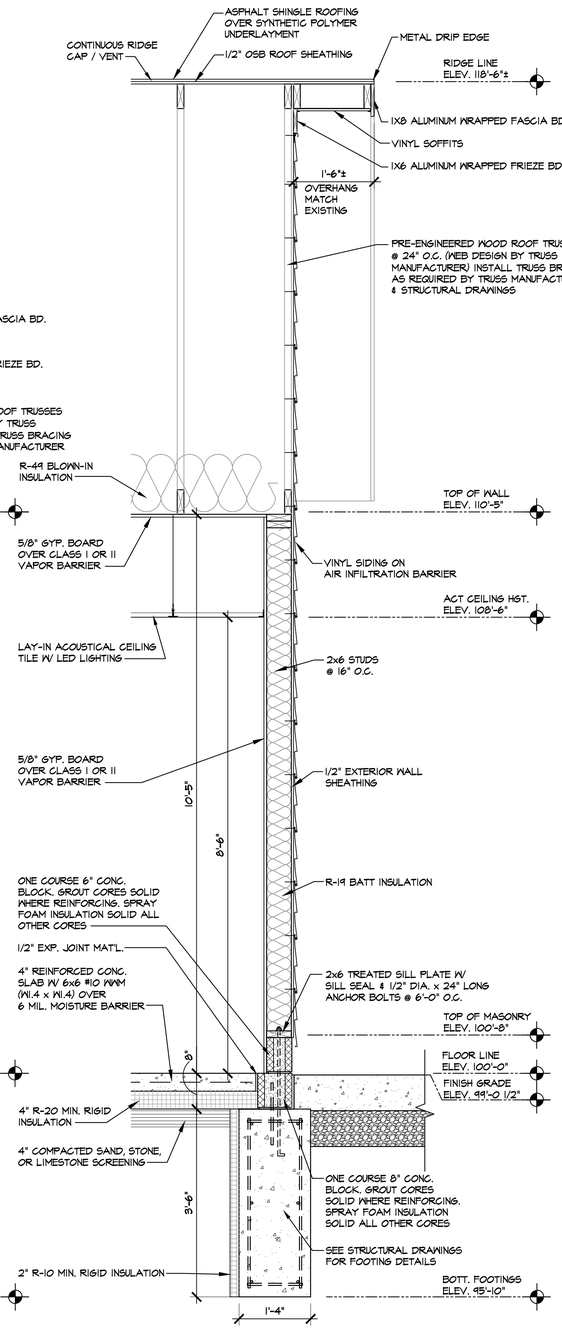
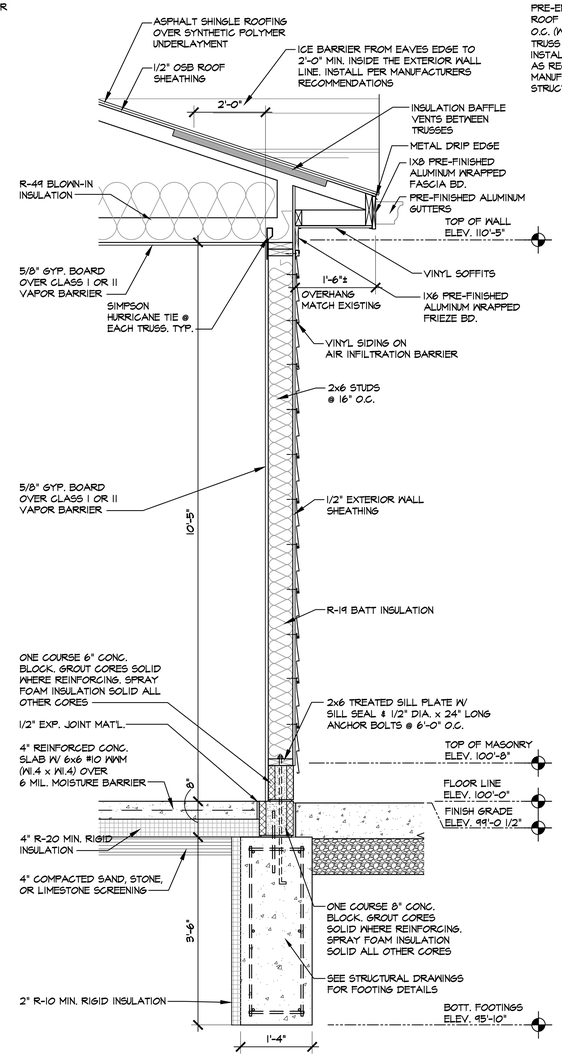




16 / A-1 **WALL SECTION**
SCALE: 3/4" = 1'-0"



17 / A-4 **WALL SECTION**
SCALE: 3/4" = 1'-0"



18 / A-4 **WALL SECTION**
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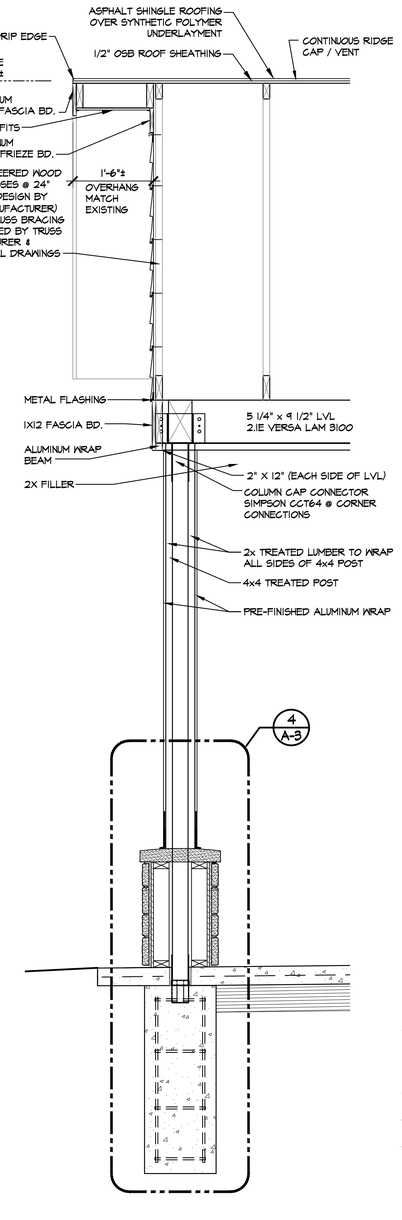

19 / A-5 **WALL SECTION**
SCALE: 3/4" = 1'-0"

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25 WASHINGTON STREET
MONROE, MICHIGAN 48161
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WALL SECTIONS

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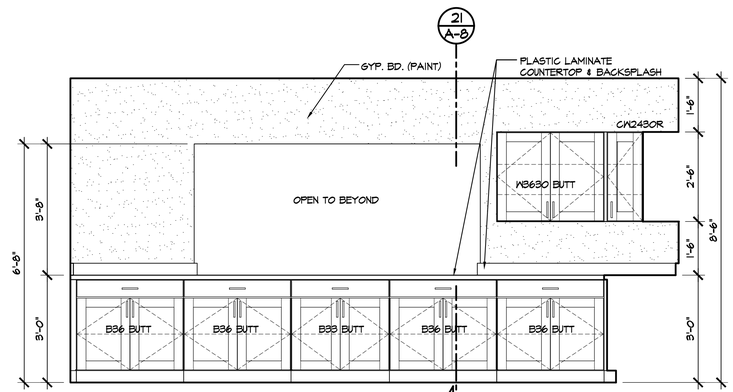
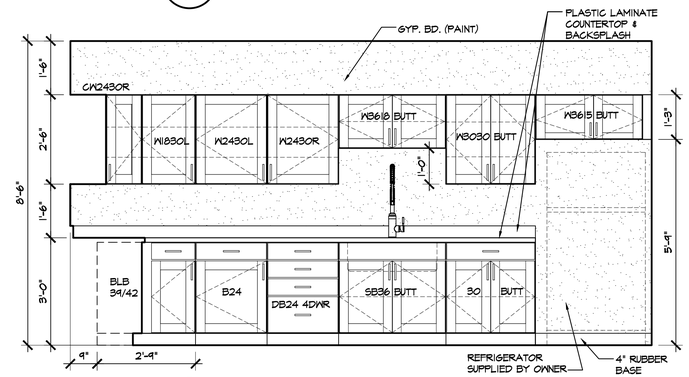
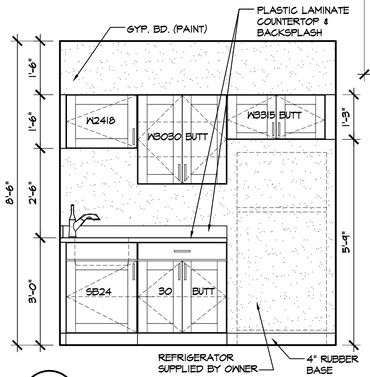


A A-7 **INTERIOR ELEVATIONS**
SCALE: 1/2" = 1'-0"



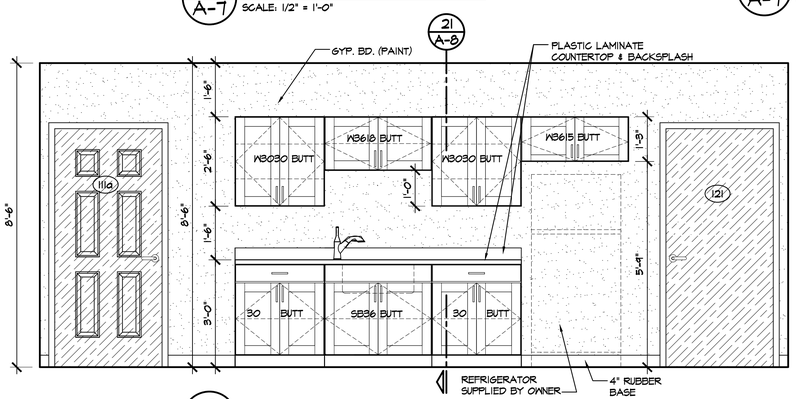
B A-7 **INTERIOR ELEVATIONS**
SCALE: 1/2" = 1'-0"



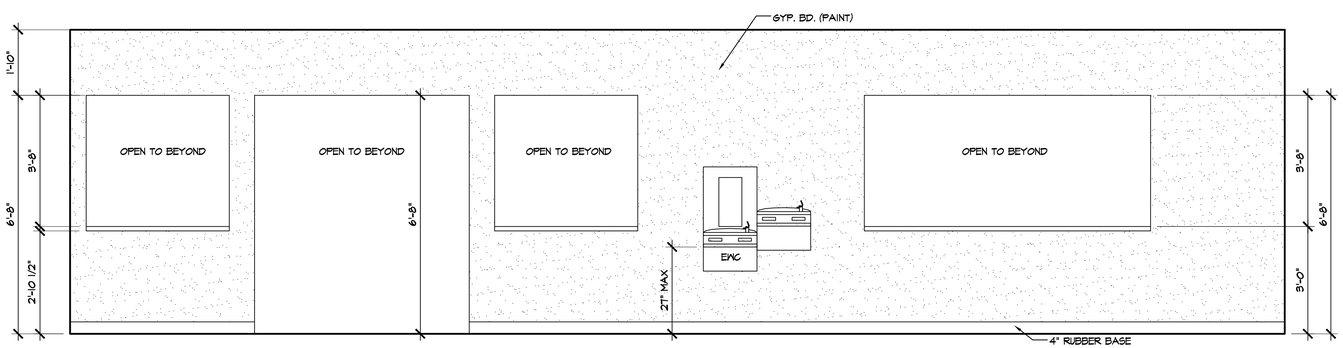
C A-7 **INTERIOR ELEVATIONS**
SCALE: 1/2" = 1'-0"

PLAN NORTH

20 A-1 **ENLARGED FLOOR PLAN - LIBRARY / READING ROOM**
SCALE: 1/2" = 1'-0"



D A-7 **INTERIOR ELEVATIONS**
SCALE: 1/2" = 1'-0"



E A-1 **INTERIOR ELEVATIONS**
SCALE: 1/2" = 1'-0"

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ENLARGED FLOOR PLAN: KITCHENS & RESTROOMS & INTERIOR ELEVATIONS

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REVIEW'D	JSJ

20222

A-7

7 OF 12

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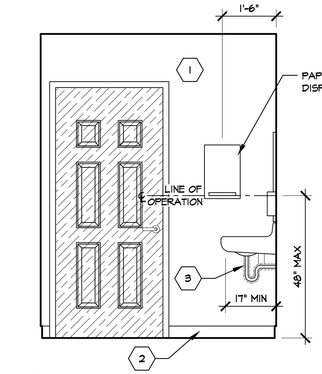
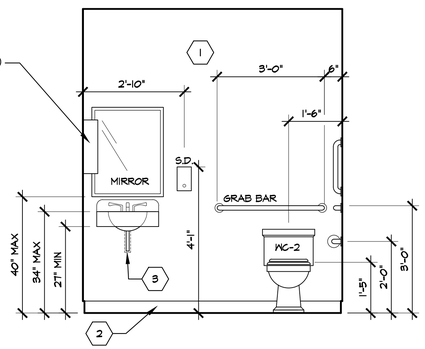


F / A-7 **INTERIOR ELEVATION**
SCALE: 1/2" = 1'-0"



G / A-7 **INTERIOR ELEVATION**
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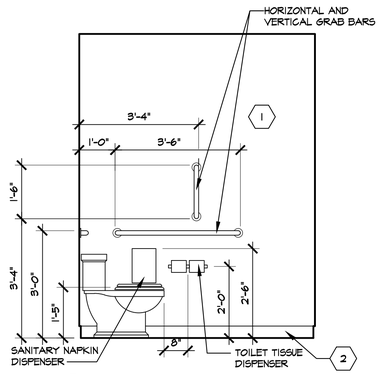
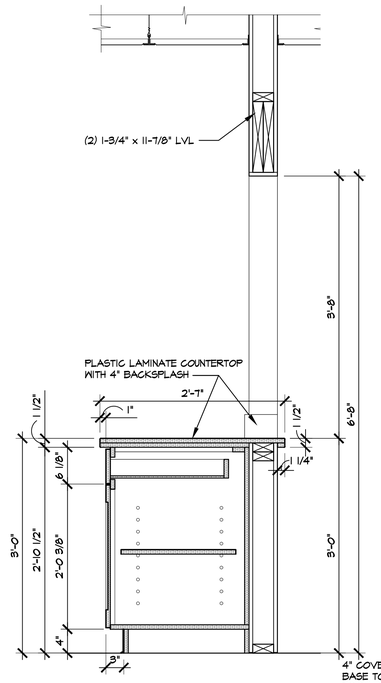
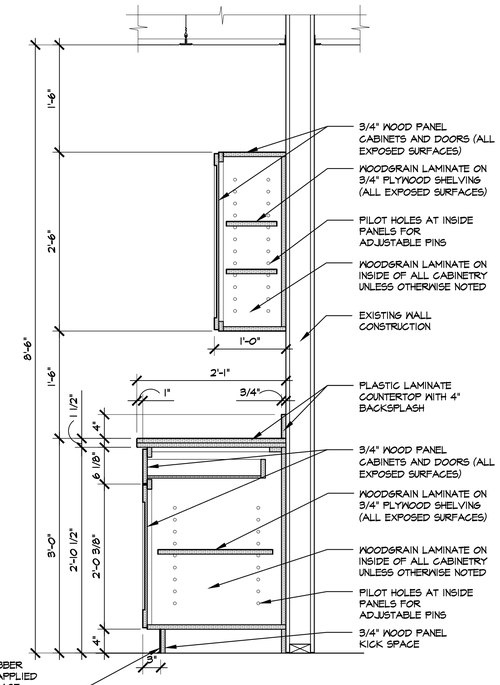


H / A-7 **INTERIOR ELEVATION**
SCALE: 1/2" = 1'-0"



21 / A-7 **KITCHEN CABINETRY SECTION @ PASS THRU**
SCALE: 1" = 1'-0"



22 / A-7 **KITCHEN CABINETRY SECTION**
SCALE: 1" = 1'-0"

KEYNOTE LEGEND

1. LATEX EPOXY PAINT TWO (2) COATS OVER ONE (1) COAT PRIMER.
2. 4" HT. RUBBER BASE
3. PIPE WRAP

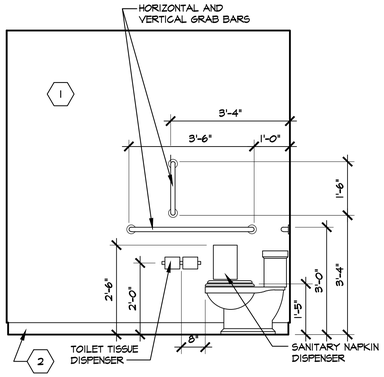
TOILET ROOM ACCESSORIES

CONTRACTOR TO SUPPLY AND MOUNT ALL ACCESSORIES PER ADA REQUIREMENTS

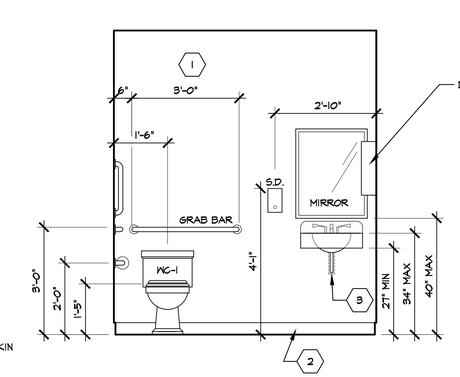
P.T.D.	SURFACE MOUNTED PAPER TOWEL DISPENSER BOBRICK MODEL NO. B-262 OR APPROVED EQUAL
S.N.D.	SURFACE MOUNTED SANITARY NAPKIN DISPOSAL BOBRICK MODEL NO. B-254 OR APPROVED EQUAL
S.D.	SURFACE MOUNTED SOAP DISPENSER BOBRICK MODEL NO. B-2111 OR APPROVED EQUAL
MIRROR	BRADLEY MODEL 781-3642, 24"x30" CHANNEL FRAME MIRROR, 1/4" TEMPERED GLASS MIRROR, 20 GAUGE STAINLESS STEEL
T.T.D.	SURFACE MOUNTED MULT-ROLL TOILET TISSUE DISPENSER BOBRICK MODEL NO. B-2888 OR APPROVED EQUAL
GRAB BARS	18" LONG, 36" LONG, 42" LONG, AND SHOWER GRAB BARS WITH SAFETY GRIP FINISH (CONCEALED MOUNTING) BRADLEY MODEL NOS. 8120-00118-2, 8120-00136-2, 8120-00142-2, AND 8120-036303026-2 OR APPROVED EQUAL - REFER TO PLAN AND ELEVATIONS FOR LOCATIONS OF EACH

PLUMBING FIXTURES

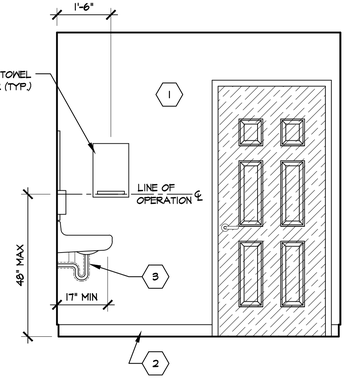
LAV:	MANSFIELD, 2018HBNS, GRAND ISLE, WALL MOUNTED, VITREOUS CHINA FAUCET: DELTA 520, SINGLE HANDLE, DECK MOUNTED, THREE HOLE INSTALLATION, 4" CENTERSET SUPPLIES: BRASS CRAFT SCR-1912-AC RAP: DEARBORN BRASS 707-1 (OR EQUAL) STRAINER: DEARBORN BRASS 760-1, CAST GRID DRAIN AND SUPPLIES INSULATION KIT: TRUE BRO, MODEL #102 E-Z TEMPERATURE CONTROL VALVE (ASSE 1070): WATTS, USG-B-M2
WC-1:	MANSFIELD, 137-160 ALTO SMART HEIGHT, FLOOR MOUNTED, ELONGATED FRONT, VITREOUS CHINA, TWO-PIECE (HANDLE ON RIGHT) SUPPLY: BRASS CRAFT SCR-1912-DL-C (OR EQUAL) SEAT: BEMIS COMMERCIAL, #1055SSC, ELONGATED, OPEN FRONT LESS COVER
WC-2:	MANSFIELD, 137-160 ALTO SMART HEIGHT, FLOOR MOUNTED, ELONGATED FRONT, VITREOUS CHINA, TWO-PIECE (HANDLE ON LEFT) SUPPLY: BRASS CRAFT SCR-1912-DL-C (OR EQUAL) SEAT: BEMIS COMMERCIAL, #1055SSC, ELONGATED, OPEN FRONT LESS COVER
EWC:	ELKAY, LZSTL8WSLK EXH20 BOTTLE FILLING STATION & VERSATILE BI-LEVEL ADA COOLER, FILTERED REFRIGERATED LIGHT GRAY



I / A-7 **INTERIOR ELEVATION**
SCALE: 1/2" = 1'-0"



J / A-7 **INTERIOR ELEVATION**
SCALE: 1/2" = 1'-0"



K / A-7 **INTERIOR ELEVATION**
SCALE: 1/2" = 1'-0"

L / A-7 **INTERIOR ELEVATION**
SCALE: 1/2" = 1'-0"

M / A-7 **INTERIOR ELEVATION**
SCALE: 1/2" = 1'-0"

N / A-7 **INTERIOR ELEVATION**
SCALE: 1/2" = 1'-0"

JAMES S. JACOBS ARCHITECTS, PLLC
25 WASHINGTON STREET
MONROE, MICHIGAN 48161
TEL: (734) 241-7933
FAX: (734) 241-1181
EMAIL: jim@jsjacobsarch.com

GREENWOOD MAINTENANCE BUILDING ADDITION FOR:

MONROE HOUSING COMMISSION: GREENWOOD TOWNHOUSES
900 GREENWOOD AVENUE
MONROE, MICHIGAN 48162

PROPERTY CONTACT:
NANCY WAIN, EXEC. DIRECTOR
MONROE HOUSING COMMISSION
20 NORTH ROESSLER STREET
MONROE, MICHIGAN 48162
TELEPHONE: (734) 242-5880

RESTROOM INTERIOR ELEVATIONS, DETAILS, & NOTES

NOT FOR CONSTRUCTION

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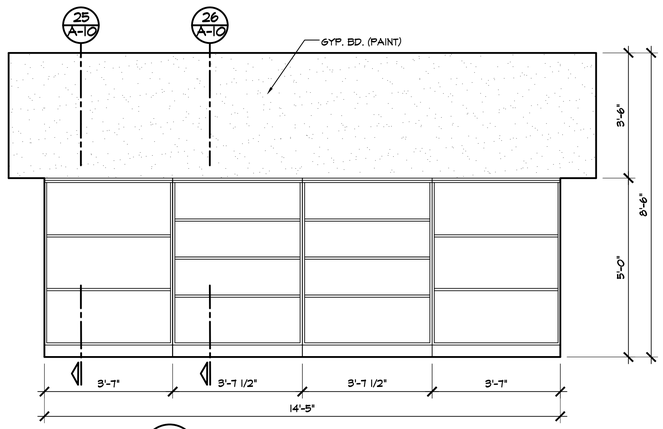
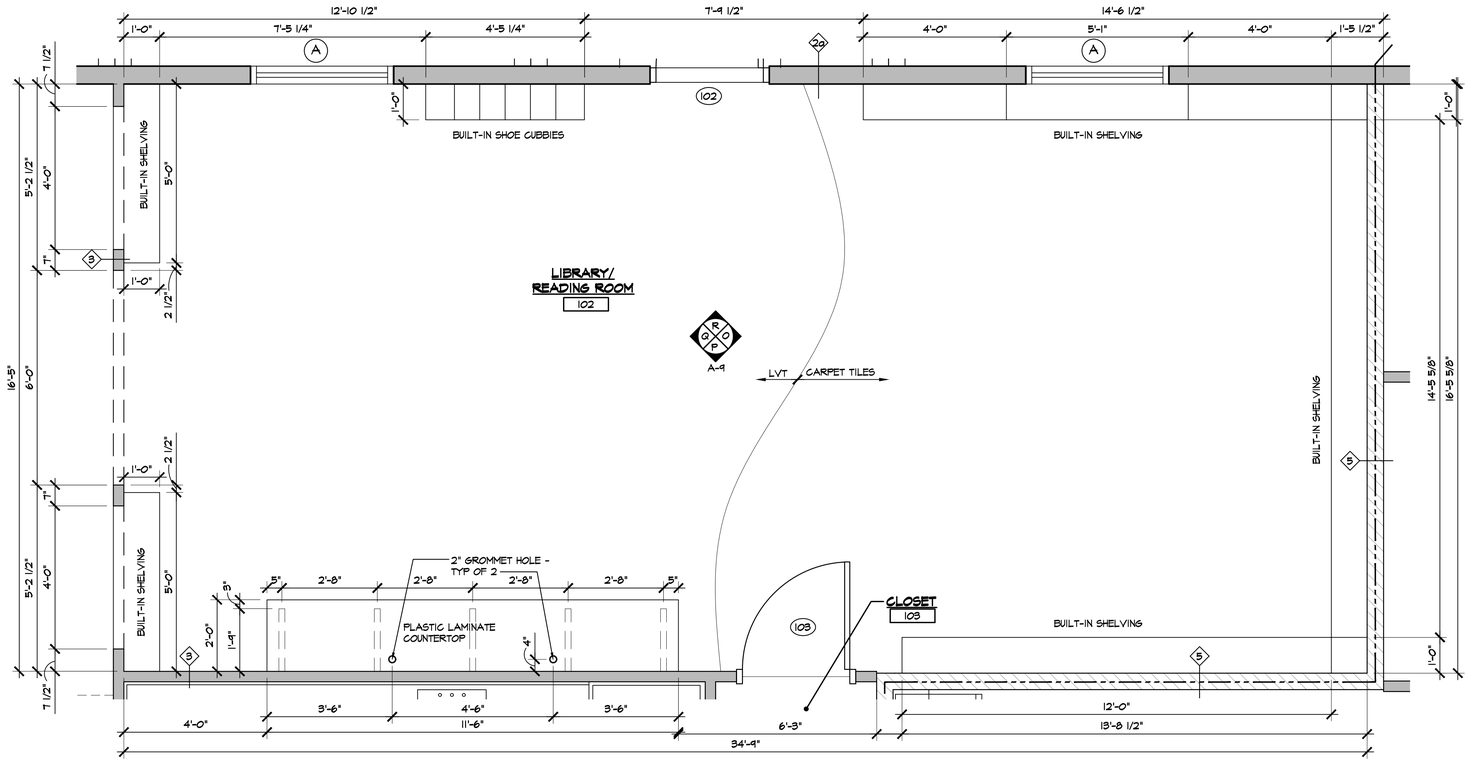
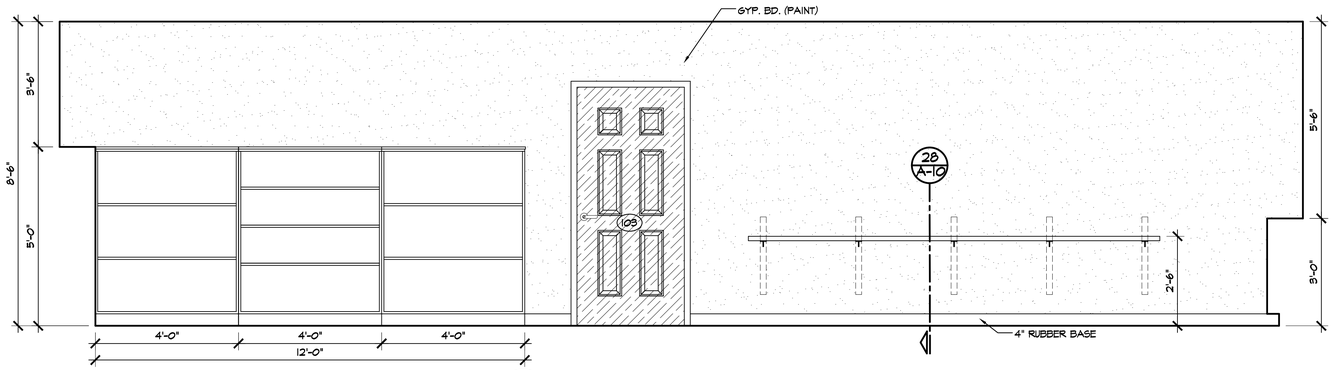


0 / A-9 **INTERIOR ELEVATIONS**
SCALE: 1/2" = 1'-0"

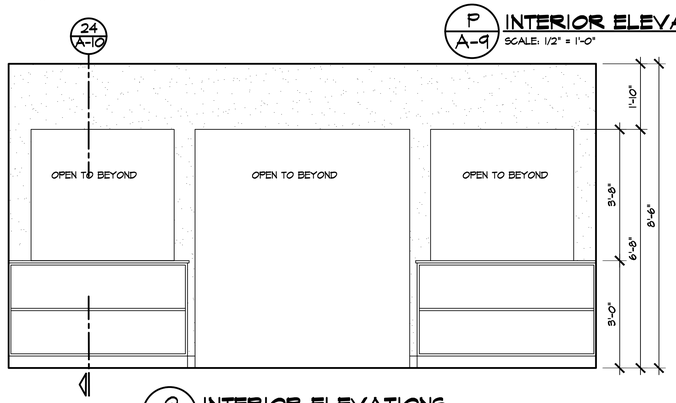


PLAN NORTH

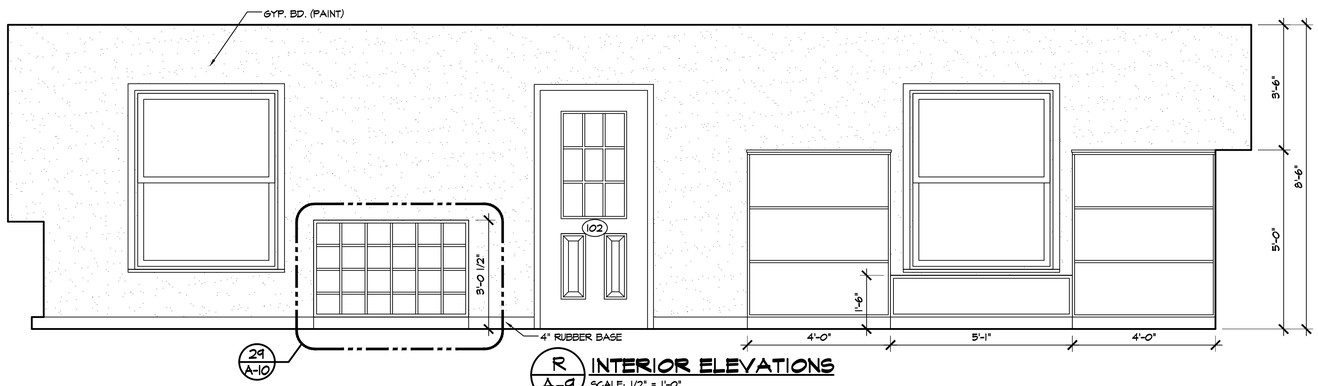
23 / A-1 **ENLARGED FLOOR PLAN - LIBRARY / READING ROOM**
SCALE: 1/2" = 1'-0"



P / A-9 **INTERIOR ELEVATIONS**
SCALE: 1/2" = 1'-0"



Q / A-9 **INTERIOR ELEVATIONS**
SCALE: 1/2" = 1'-0"



R / A-9 **INTERIOR ELEVATIONS**
SCALE: 1/2" = 1'-0"

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25 WASHINGTON STREET
MONROE, MICHIGAN 48161
TEL: (734) 241-7933
FAX: (734) 241-1181
EMAIL: jim@jsjacobsarch.com

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NANCY WAIN, EXEC. DIRECTOR
MONROE HOUSING COMMISSION
20 NORTH ROESSLER STREET
MONROE, MICHIGAN 48162
TELEPHONE: (734) 242-5880

ENLARGED FLOOR PLAN: LIBRARY/READING ROOM & INTERIOR ELEVATIONS

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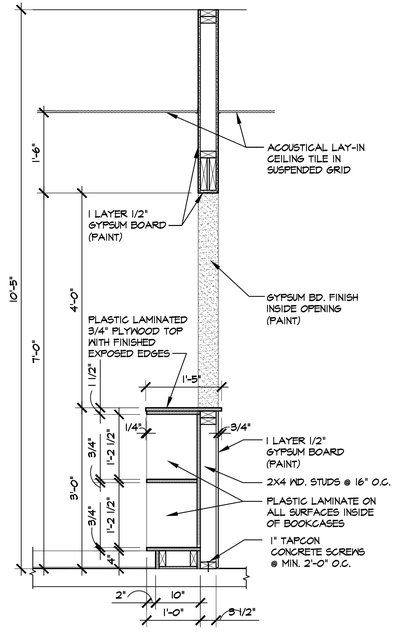
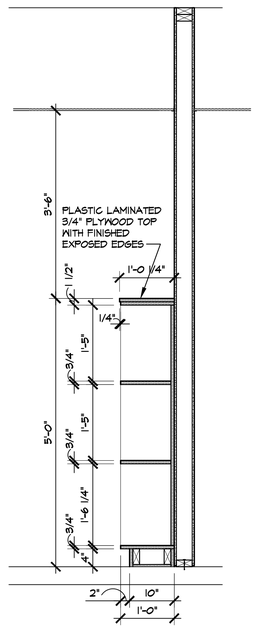
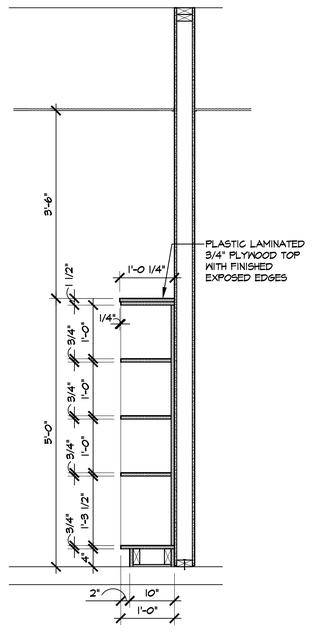


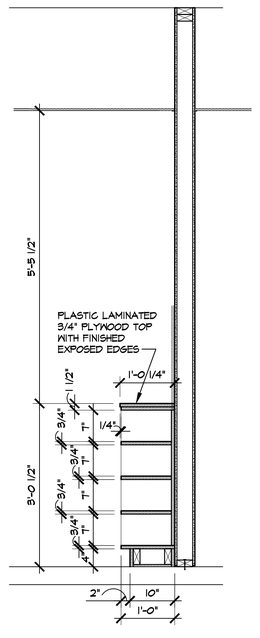
24 A-10 **WALL SECTION THROUGH BOOKCASE**
SCALE: 3/4" = 1'-0"



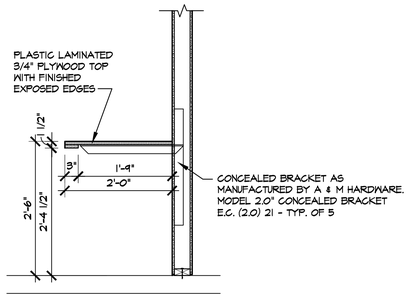
25 A-10 **SECTION THROUGH BOOKCASE**
SCALE: 3/4" = 1'-0"



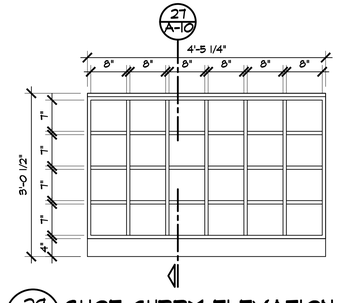
26 A-10 **SECTION THROUGH BOOKCASE**
SCALE: 3/4" = 1'-0"



27 A-10 **SECTION THROUGH SHOE CUBBY**
SCALE: 3/4" = 1'-0"



28 A-10 **WALL SECTION THROUGH COUNTER**
SCALE: 3/4" = 1'-0"



29 A-10 **SHOE CUBBY ELEVATION**
SCALE: 3/4" = 1'-0"

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TELEPHONE: (734) 242-5880

MILLWORK DETAILS

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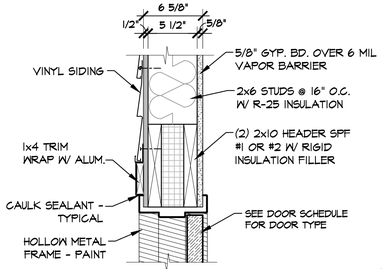
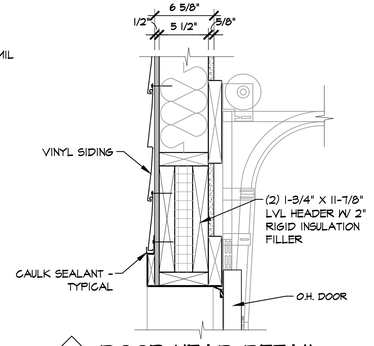


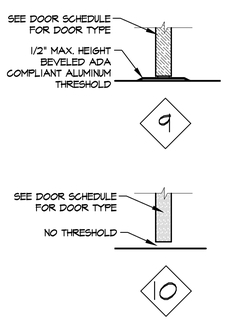
1 DOOR HEAD DETAIL

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



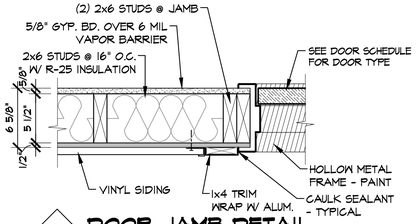
5 DOOR HEAD DETAIL

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



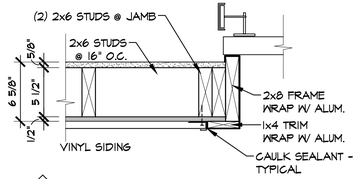
DOOR SILL DETAILS

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



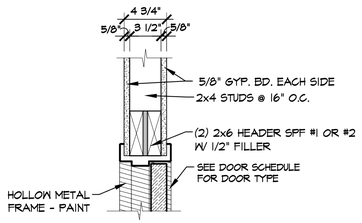
2 DOOR JAMB DETAIL

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



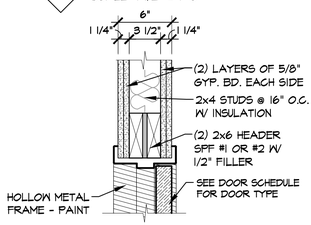
6 DOOR JAMB DETAIL

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



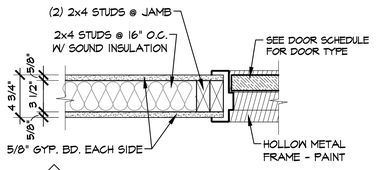
3 DOOR HEAD DETAIL

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



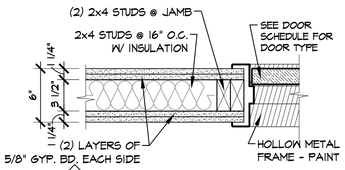
7 DOOR HEAD DETAIL

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



4 DOOR JAMB DETAIL

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



8 DOOR JAMB DETAIL

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

DOOR GENERAL NOTES:

1. CONTRACTOR SHALL VERIFY ALL EXISTING FIELD CONDITIONS AND NOTIFY ARCHITECT IMMEDIATELY IF THAT WHICH EXISTS DIFFERS FROM THAT WHICH IS SHOWN ON DRAWINGS.
2. ALL WORK TO COMPLY WITH CURRENT FEDERAL, STATE AND LOCAL CODES, LAWS AND ORDINANCES. THE REQUIREMENTS OF ICC/ANSI A117.1 AND THE AMERICANS WITH DISABILITIES ACT (ADA) ARE TO BE FULLY SATISFIED. ALL WORK SHALL MEET THE MOST STRINGENT REQUIREMENTS OF BOTH INCLUDING, BUT NOT LIMITED TO CLEARANCES, LIMITATIONS, ACCESSORIES, ETC.
3. THESE DRAWINGS ARE PREPARED IN ACCORDANCE WITH THE LIMITED SERVICES FOR WHICH THE ARCHITECT WAS CONTRACTED. THE ARCHITECT MAKES NO REPRESENTATION THAT THE INTERPRETATION OF THESE DOCUMENTS WILL RESULT IN COMPLETE COMPLIANCE WITH THE ADA.
4. ALL DOORS REQUIRED TO BE LABELED SHALL BE SET IN LABELED FRAMES AND IDENTIFIED WITH UL LABEL AND BE PROVIDED WITH APPROVED SELF-CLOSING DEVICES AND POSITIVE LATCHING HARDWARE.
5. ALL DESIGNATED EXIT DOORS SHALL BE EQUIPPED WITH THE REQUIRED EGRESS HARDWARE.
6. FURNISH HARDWARE AS SCHEDULED WITHOUT SUBSTITUTION, NO ALTERNATES WILL BE APPROVED.
7. PROVIDE COMBINATED CYLINDERS AND CUT KEYS; KEYED TO OWNERS' MASTER SYSTEM. INCLUDE KEY CONFERENCE AND KEY SYSTEM SCHEDULE. FURNISH A KEYED CYLINDER AND TWO CUT KEYS FOR EACH LOCKING DEVICE SPECIFIED, PROVIDE TWO MASTER KEYS.
8. FURNISH AND PROVIDE ALL NECESSARY REINFORCEMENTS, BRACKETS, FASTENERS, SPACERS AND FILLERS TO PROVIDE A COMPLETE FUNCTIONING OPENING.

DOOR SCHEDULE

NO.	DOOR SIZE	DOOR			FRAME			DETAILS			FIRE RATING	HARDWARE SET	REMARKS
		MATERIAL	FINISH	TYPE	MATERIAL	FINISH	TYPE	HEAD	JAMB	SILL			
101a	(2) 3'-0" x 6'-8" x 1 3/4"	INSUL. STEEL / GL.	PAINT	B	H.M.	PAINT	2	1	2	9	---		
101b	(2) 3'-0" x 6'-8" x 1 3/4"	INSUL. STEEL / GL.	PAINT	B	H.M.	PAINT	2	1	2	9	---		
102	3'-0" x 6'-8" x 1 3/4"	INSUL. STEEL / GL.	PAINT	A	H.M.	PAINT	1	1	2	9	---		
103	3'-0" x 6'-8" x 1 3/4"	STEEL	PAINT	C	H.M.	PAINT	1	3	4	10	---		
104	3'-0" x 6'-8" x 1 3/4"	STEEL	PAINT	C	H.M.	PAINT	1	3	4	10	---		
105	3'-0" x 6'-8" x 1 3/4"	STEEL	PAINT	C	H.M.	PAINT	1	3	4	10	---		
106	3'-0" x 6'-8" x 1 3/4"	STEEL	PAINT	C	H.M.	PAINT	1	3	4	10	---		
108	3'-0" x 6'-8" x 1 3/4"	STEEL	PAINT	C	H.M.	PAINT	1	3	4	10	---		
109	(2) 3'-0" x 6'-8" x 1 3/4"	STEEL	PAINT	D	H.M.	PAINT	2	7	8	9	90 MIN.		
110	3'-0" x 6'-8" x 1 3/4"	STEEL	PAINT	E	H.M.	PAINT	1	3	4	10	---		
111a	3'-0" x 6'-8" x 1 3/4"	STEEL	PAINT	C	H.M.	PAINT	1	7	8	9	90 MIN.		
111b	3'-0" x 6'-8" x 1 3/4"	STEEL	PAINT	F	H.M.	PAINT	1	3	4	10	---		
112a	3'-0" x 6'-8" x 1 3/4"	---										→	EXISTING TO REMAIN
112b	3'-0" x 6'-8" x 1 3/4"	---										→	EXISTING TO REMAIN
113	3'-0" x 6'-8" x 1 3/4"	---										→	EXISTING TO REMAIN
114a	(2) 3'-0" x 6'-8" x 1 3/4"	STEEL	PAINT	F	H.M.	PAINT	1	3	4	10	---		
114b	3'-0" x 6'-8" x 1 3/4"	---										→	EXISTING TO REMAIN
114c	3'-0" x 6'-8" x 1 3/4"	---										→	EXISTING TO REMAIN
115a	10'-0" WIDE X 10'-0" HIGH O.H.	---										→	EXISTING TO REMAIN
115b	(2) 3'-0" x 6'-8" x 1 3/4"	INSUL. STEEL	PAINT	G	H.M.	PAINT	2	1	2	9	---		
116	(2) 2'-6" x 6'-8" x 1 3/4"	STEEL	PAINT	E	H.M.	PAINT	---	---	---	10	---		
117	(2) 2'-6" x 6'-8" x 1 3/4"	STEEL	PAINT	E	H.M.	PAINT	---	---	---	10	---		
118	3'-0" x 6'-8" x 1 3/4"	INUSL. STEEL	PAINT	C	H.M.	PAINT	1	1	2	9	---		
120	3'-0" x 6'-8" x 1 3/4"	STEEL	PAINT	C	H.M.	PAINT	1	3	4	10	---		
121	3'-0" x 6'-8" x 1 3/4"	STEEL	PAINT	F	H.M.	PAINT	1	7	8	9	90 MIN.		
122a	3'-0" x 6'-8" x 1 3/4"	STEEL	PAINT	C	H.M.	PAINT	1	3	4	10	---		
122b	12'-0" WIDE X 8'-0" HIGH O.H.	STEEL	PAINT	I	---	---	---	5	6	---	---		HARDWARE SUPPLIED BY OVERHEAD DOOR MANUFACTURER
123a	4'-0" x 6'-8" x 1 3/4"	INSUL. STEEL	PAINT	H	H.M.	PAINT	3	1	2	9	---		
123b	3'-0" x 6'-8" x 1 3/4"	STEEL	PAINT	F	H.M.	PAINT	1	---	---	---	---		
124	(2) 3'-0" x 6'-8" x 1 3/4"	INSUL. STEEL	PAINT	G	H.M.	PAINT	2	1	2	9	---		

OVERHEAD DOOR SPECS

HAAS, MODEL 2010 OR EQUAL
HEAVY DUTY STEEL INSULATED
NO GLAZING
COLOR: POLAR WHITE
R= 17.66 (U=0.883)

OVERHEAD DOOR OPENER:
LIFTMASTER #LJ50IL5, 3/4 HP
WALL CONTROL & TWO REMOTES

DOOR HARDWARE SETS

MANUFACTURER LISTINGS

PRODUCTS	ACCEPTABLE MANUFACTURERS
LOCKS	YALE 5400 / BEST 93K
EXIT DEVICES	YALE / SARGENT
HINGES	BOMMER / HAGER
CLOSER	NORTON 7500 / SARGENT 351 / LCN
TRIM	ROCKWOOD / BALDWIN
THRESHOLDS	NATIONAL GUARD / ZERO / REESE
WEATHERSTRIP	NATIONAL GUARD

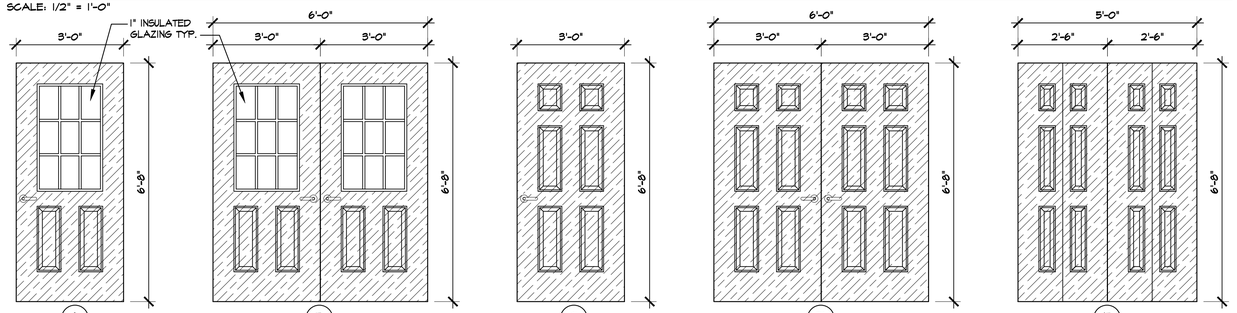
CONTRACTOR TO COORDINATE HARDWARE OPERATIONS WITH OWNER

ABBREVIATIONS

ALUM.	ALUMINUM
ANOD.	ANODIZED
A.T.	ALUMINUM THRESHOLD
GL.	GLASS
M.T.	MARBLE THRESHOLD
MTL.	METAL
R.S.	REDUCER STRIP
S.C.	SOLID CORE

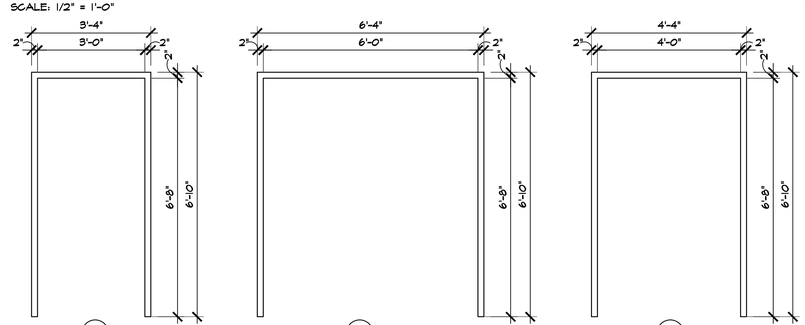
DOOR TYPES

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



FRAME TYPES

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



JAMES S. JACOBS ARCHITECTS, PLLC
25 WASHINGTON STREET
MONROE, MICHIGAN 48161
TEL: (734) 241-7933
FAX: (734) 241-1181
EMAIL: jim@jsjacobsarch.com

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NANCY WAIN, EXEC. DIRECTOR
MONROE HOUSING COMMISSION
20 NORTH ROESSLER STREET
MONROE, MICHIGAN 48162
TELEPHONE: (734) 242-5880

DOOR SCHEDULE & NOTES

NOT FOR CONSTRUCTION

06-21-2023	BIDS
DATE:	ISSUED FOR:
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MATERIAL SPECIFICATIONS - EXTERIOR

ITEM	BRAND / MANUFACTURER	MODEL / TYPE	COLOR	REMARKS
VINYL SIDING	CERTAINTEED	CEDARBOARDS INSULATED SIDING - DOUBLE 6" CLAPBOARD	SAVANNAH WICKER (54)	- AVAILABLE AT MONROE ALUMINUM
SHAKE VINYL SIDING	CERTAINTEED	CEDAR IMPRESSIONS - TRIPLE 5" STRAIGHT EDGE SAWMILL SHINGLES	BUCKSKIN	- AVAILABLE AT MONROE ALUMINUM
VINYL TRIM	CERTAINTEED	CEDARBOARDS ACCESSORIES - 1-1/4" CORNERPOST (51412) - 1-1/4" INSIDE CORNERPOST (51446) - 3-1/2" LINEAL W/ FOAM INSERT (54707)	SNOW (31)	- AVAILABLE AT MONROE ALUMINUM
STONE VENEER	STONECRAFT INDUSTRIES		HERITAGE BUCKTOWN	- AVAILABLE AT MONROE ALUMINUM
ROOF SHINGLES	GAF	TIMBERLINE HDZ SHINGLES	WEATHERED WOOD	- AVAILABLE AT MONROE ALUMINUM

MATERIAL SPECIFICATIONS

PAINT: SHERWIN WILLIAMS - USE MANUFACTURER'S RECOMMENDED PAINT FOR INTERIOR AND EXTERIOR APPLICATIONS. COLOR AS SELECTED BY OWNER. PROVIDE (3) COAT SYSTEM - (1) PRIMER COAT AND (2) FINISH COATS.

CARPET TILE : MANUFACTURER: SHAW CONTRACT
STYLE: DIFFUSE ECOLOGIX - 24"X24" OR EQUAL
STYLE NUMBER: 5T223 OR EQUAL
COLOR: AS SELECTED BY OWNER

LUXURY VINYL TILE (LVT): MANUFACTURER: SHAW CONTRACT
STYLE: TERRAIN II 20 MIL - 6"x48"
COLOR: AS SELECTED BY OWNER/ARCHITECT
20 MIL. DIRECT GLUE

CABINETRY: SHENANDOAH CABINETRY CABINETRY OR EQUAL
- ALL PLYWOOD CONSTRUCTION
- CUSHION / SOFTCLOSE DOORS AND DRAWERS
- KNOB HANDLES - COLOR AND STYLE AS SELECTED BY OWNER

COUNTERTOP: PLASTIC LAMINATE

CEILING TILE AND GRID: SCHOOL ZONE FINE FISSURED #1713, SQUARE LAY-IN BY ARMSTRONG
CEILING GRID - WHITE, "PRELUDE XL" AS MANUFACTURED BY ARMSTRONG OR EQUAL

INTERIOR FINISH CLASSIFICATIONS

INTERIOR WALL AND CEILING FINISHES SHALL BE CLASSIFIED IN ACCORDANCE WITH ASTM E 84, AND SHALL BE GROUPED IN THE FOLLOWING CLASSES IN ACCORDANCE WITH THEIR FLAME SPREAD AND SMOKE-DEVELOPED INDEXES:

CLASS A: FLAME SPREAD 0-25, SMOKE-DEVELOPED 0-450
CLASS B: FLAME SPREAD 26-75, SMOKE-DEVELOPED 0-450
CLASS C: FLAME SPREAD 76-200; SMOKE-DEVELOPED 0-450

USE GROUP B (BUSINESS) - SECTION 803, TABLE 803.11

CLASS A FINISH: EXIT ENCLOSURES/PASSAGEWAYS (NON-SPRINKLED)

CLASS B FINISH: EXIT ENCLOSURES/PASSAGEWAYS (SPRINKLED)
CORRIDORS (NON-SPRINKLED)

CLASS C FINISH: ROOMS/ENCLOSED SPACES (SPRINKLED)
ROOMS/ENCLOSED SPACES (NON-SPRINKLED)
CORRIDORS (SPRINKLED)

INTERIOR FLOOR FINISH REQUIREMENTS: MINIMUM CRITICAL RADIANT FLUX NOT LESS THAN CLASS II, AND SHOULD COMPLY WITH THE DOC FF-1 "PILL TEST" (CPSC 16 CFR, PART 1630).

BUILDINGS EQUIPPED WITH AUTOMATIC SPRINKLER SYSTEM: CLASS II MATERIALS ARE PERMITTED IN ANY AREA WHERE CLASS I MATERIALS ARE REQUIRED AND MATERIALS COMPLYING WITH THE DOC FF-1 "PILL TEST" (CPSC 16 CFR, PART 1630) ARE PERMITTED IN ANY AREA WHERE CLASS II MATERIALS ARE REQUIRED.

NOTE: BUILDING IS NOT EQUIPPED WITH AUTOMATIC SPRINKLER SYSTEM.

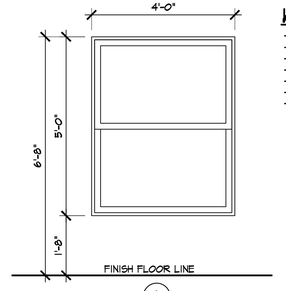
ROOM FINISH SCHEDULE

NO.	ROOM NAME	FLOOR				FLR. BASE			WALLS				CEILING				REMARKS
		SEALED CONCRETE	LUXURY VINYL TILE	CARPET TILES	WOOD	VINYL BASE			GYPSUM BOARD - PAINT				GYPSUM BOARD - PAINT	ACT AND GRID		HEIGHT IN FEET AND INCHES (VERIFY HEIGHT)	
101	COMMUNITY ROOM		●			●			●					●		8'-6"	
102	LIBRARY / READING ROOM		●	●		●			●					●		8'-6"	
103	CLOSET		●			●			●				●			10'-5"	
104	WARMING KITCHEN		●			●			●					●		8'-6"	
105	JANITOR'S CLOSET (J.C.)	●				●			●					●		8'-6"	
106	RESTROOM		●			●			●					●		8'-6"	
107	HALLWAY		●			●			●					●		8'-6"	
108	RESTROOM		●			●			●					●		8'-6"	
109	TABLE & CHAIR STORAGE	●				●			●					●		8'-6"	ALTERNATE #2 - EPOXY FLOORING
110	MECHANICAL	●							●				●			10'-5"	
111	EMPLOYEE BREAK ROOM		●			●			●					●		8'-6"	
112	EX. MAINTENANCE OFFICE		X			X			X				X			11'-1"±	
113	EX. RESTROOM		X			X			X				X			11'-1"±	
114	EX. MAINTENANCE WORKSHOP	X							X				X			11'-1"±	
115	EX. MAINTENANCE GARAGE	X							X				X			11'-1"±	
116	CLOSET		●			●			●				●			10'-5"	
117	CLOSET		●			●			●				●			10'-5"	
118	OFFICE		●			●			●					●		8'-6"	
119	KITCHENETTE		●			●			●					●		8'-6"	
120	RESTROOM		●			●			●					●		8'-6"	
121	MECHANICAL	●							●				●			10'-5"	
122	GARAGE	●							●				●			10'-5"	
123	MAINTENANCE STORE ROOM 2	●				●			●				●			10'-5"	ALTERNATE #2 - EPOXY FLOORING
124	MAINTENANCE STORE ROOM 1	●				●			●				●			10'-5"	ALTERNATE #2 - EPOXY FLOORING
125	PAVILION																

LEGEND
X - EXISTING FINISH MATERIAL
● - NEW FINISH MATERIAL

GENERAL INTERIOR FINISH NOTES

1. ALL NEW INTERIOR FINISHES ARE TO BE SELECTED BY OWNER AND SHALL COMPLY WITH INTERIOR FINISH CLASSIFICATIONS AS STATED ABOVE. OWNER TO COORDINATE ALL FINISHES AND COLOR SELECTIONS WITH THE CONTRACTOR.
2. CONTRACTOR TO PREP ALL SURFACES AS NECESSARY WHICH WILL BE RECEIVING NEW FINISHES.
3. TOILET ROOM & JANITOR'S CLOSET WALLS SHOULD HAVE A SMOOTH, HARD, NON-ABSORBENT FINISH PER CODE. PROVIDE EPOXY PAINT AS A MINIMUM ON ALL WALLS.



WINDOW SIZE: 48" x 60"
R.O: 48.5" x 60.5"

WINDOW TYPE

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

WINDOW NOTES:

- SOLID VINYL (WHITE)
- FUSION-WELDED FRAME AND SASH
- 3/4" INSULATING DUAL PANE GLAZING
- LOW E ARGON
- U VALUE = 0.30, SHGC = 0.49
- FULL INSECT SCREEN
- SINGLE HUNG

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ROOM FINISH SCHEDULE, MATERIAL SPECIFICATIONS, & NOTES

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DATE:	ISSUED FOR:
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FANS

SCHEDULE BASED ON GREENHECK

MARK	SERVICE	CFM	SP IN. W.C.	HP	RPM	MAX. TIP SPEED FPM	MAX. OUTLET VEL. FPM	MAX. SOUND RATING	DRIVE	MODEL	POWER	REMARKS
F-1	TOILET EXHAUST	75	0.375	80 W	769	--	--	2 SONES	DIRECT	SP-B110	120	WITH SPEED CONTROL
F-2	TOILET EXHAUST	75	0.375	80 W	769	--	--	2 SONES	DIRECT	SP-B110	120	WITH SPEED CONTROL
F-3	TOILET EXHAUST	75	0.375	80 W	769	--	--	2 SONES	DIRECT	SP-B110	120	WITH SPEED CONTROL
F-4	JANITOR EXHAUST	75	0.375	80 W	769	--	--	2 SONES	DIRECT	SP-B110	120	WITH SPEED CONTROL

GRILLES REGISTERS AND DIFFUSERS

SCHEDULE BASED ON PRICE

MARK	USAGE	STYLE	MODEL	SIZE	DESCRIPTION OF BLOW	DAMPER	REMARKS
A	SUPPLY	SURFACE MOUNT CEILING	SCDA	12x12x6"ø NECK	4-WAY	N	
B	SUPPLY	LAY-IN CEILING	SCDA	24x24x8"ø NECK	4-WAY	N	
C	SUPPLY	SIDEWALL	520D	8x4	DOUBLE DEFLECTION	Y	
D	SUPPLY	SIDEWALL	520D	10x6	DOUBLE DEFLECTION	Y	
E	SUPPLY	SPIRAL DUCT GRILLE	SDG GV AS VCS3	12x5	DOUBLE DEFLECTION	Y	WITH AIR SCOOP
F	RETURN	LAY-IN CEILING	80	12x24	--	N	
G	RETURN	SIDEWALL	530	12x6	--	N	
H	RETURN	SIDEWALL	530	22x10	--	N	

DUCTLESS SPLIT SYSTEM AIR CONDITIONING UNIT

SCHEDULE BASED ON TRANE

	INDOOR UNIT									CONDENSING UNIT			
MARK	FAN CFM LOW	FAN CFM MED	FAN CFM HIGH	EAT D.B. ° F	EAT W.B. ° F	HEATING MBH	COOLING TOTAL MBH	AUXILARY HEAT	MODEL	MARK	AMBIENT ° F	MODEL	POWER
AC-1	320	370	425	80	67	N.A.	12	N.A.	TPLA0A012	CU-4	95	TRUZA012	208-230/1/60
AC-2	320	370	425	80	67	N.A.	12	N.A.	TPLA0A012	CU-5	95	TRUZA012	208-230/1/60

NOTES:
1. OUTSIDE AIR CONNECTION, 40 CFM EACH.
2. DISCONNECT SWITCH BY ELECTRICAL CONTRACTOR.
3. INDOOR UNIT SUPPLIED WITH CONDENSATE PUMP.
4. INSTALL REFRIGERANT PIPING FROM OUTDOOR UNIT TO INDOOR UNIT PER MANUFACTURER'S INSTALLATION REQUIREMENTS.
5. INDOOR UNIT IS POWERED FROM THE OUTDOOR UNIT.
6. CONTROL TO BE VIA WIRED THERMOSTAT.

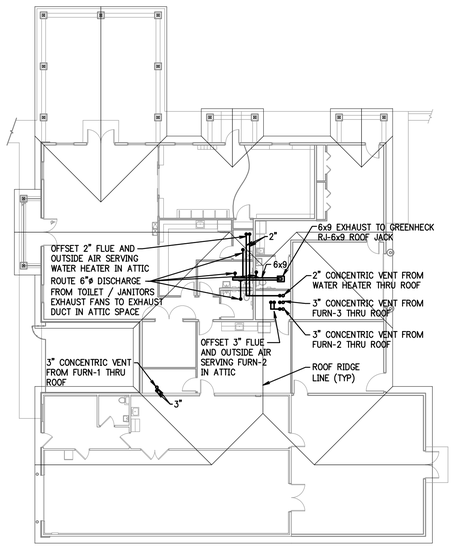
Vent Summary Sheet

Project Name: MHC Greenwood Maintenance Addition **Date:** 4/26/2023
Project Number: JD23039 **Rev.** none

Rm#	Room Name	1	Ventilation Based on People			Ventilation Based on Area			Adjusted O.A. CFM	Total Ventilation CFM	Room Exhaust
		A.C.	No. of People	CFM/Person	Vent. CFM	Floor Area	CFM/Sq. Ft.	Vent. CFM			
112	Maintenance Office	52	1	5	5	175	0.06	10	15	15	0
113	Maint Toilet	8	0	5	0	46	0.06	3	3	3	75
114	Workshop	78	2	5	10	426	0.06	26	36	36	0
124	Maint Store Room 1	108	2	5	10	515	0.06	31	65	65	0
123	Maint Store Room 2	69	1	5	5	328	0.06	20	25	25	0
111	Employee Break	61	4	5	20	332	0.06	20	40	40	0
110	Mech	12	0	5	0	66	0.06	4	4	4	0
	Sub Totals Furnace 1:				**50**			**137**	**188**	**187**	**75**

Rm#	Room Name	1	Ventilation Based on People			Ventilation Based on Area			Adjusted O.A. CFM	Total Ventilation CFM	Room Exhaust
		A.C.	No. of People	CFM/Person	Vent. CFM	Floor Area	CFM/Sq. Ft.	Vent. CFM			
101	Community Room	195	48	5	240	1,062	0.06	64	304	304	0
102	Library / Reading	106	6	5	30	578	0.06	35	65	65	0
104	Warming Kitchen	39	3	5	15	212	0.06	13	28	28	0
105	Jan Closet	6	0	5	0	30	0.06	2	2	2	75
106	ADA Toilet	15	0	5	0	83	0.06	5	5	5	75
108	Toilet	9	0	5	0	47	0.06	3	3	3	75
109	Table & Chair Storage	23	0	5	0	123	0.06	7	7	7	0
	Sub Totals Furnace 2:				**285**			**128**	**414**	**415**	**225**

Rm#	Room Name	1	Ventilation Based on People			Ventilation Based on Area			Adjusted O.A. CFM	Total Ventilation CFM	Room Exhaust
		A.C.	No. of People	CFM/Person	Vent. CFM	Floor Area	CFM/Sq. Ft.	Vent. CFM			
118	Office	58	2	5	10	319	0.06	19	29	29	0
119	Kitchenette	16	0	5	0	90	0.06	5	5	5	0
120	Restroom	11	0	5	0	59	0.06	4	4	4	75
121	Mech	16	0	5	0	52	0.06	3	3	3	0
	Sub Totals Furnace 3:				**10**			**31**	**41**	**41**	**75**



ATTIC PLAN - HVAC

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

FURNACES, COILS AND CONDENSING UNITS

SCHEDULE BASED ON TRANE

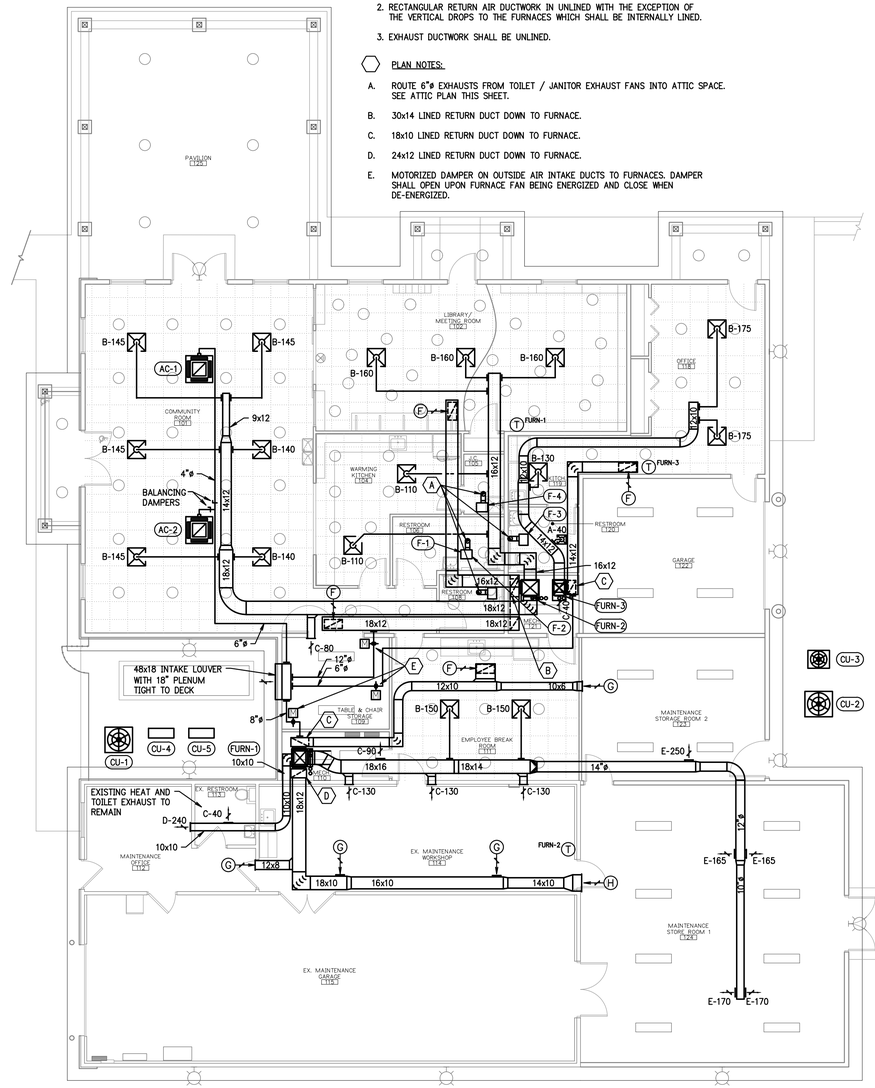
MARK	FURNACE							COOLING COIL				CONDENSING UNIT			REMARKS
	MODEL	CFM	SP IN WC	MBH INPUT	MBH OUTPUT	HP	POWER	MODEL	EAT °F DBT/WBT	MBH SENS.	MBH TOTAL	MODEL	AMBIENT	POWER	
FURN-1	S9X2D120U5	1,980	0.60	120/78	113.4/75.6	1	120/1/60	4TXCD006	80/67	36	48	4TTA4048	95°F	208/230/1/60	190 CFM OA
FURN-2	S9X2D120U5	1,640	0.60	120/78	113.4/75.6	1	120/1/60	4TXCD006	80/67	36	48	4TTA4048	95°F	208/230/1/60	415 CFM OA
FURN-3	S9X2B040U3	560	0.60	40/26	39/25	1/2	120/1/60	4TXCB002	80/67	12	18	4TTA4018	95°F	208/230/1/60	45 CFM OA

GENERAL NOTES:

1. RECTANGULAR SUPPLY AIR DUCTWORK SHALL BE INTERNALLY LINED. DUCT SIZES ARE SHEET METAL SIZE AND INCLUDE INSULATION.
2. RECTANGULAR RETURN AIR DUCTWORK IN UNLINED WITH THE EXCEPTION OF THE VERTICAL DROPS TO THE FURNACES WHICH SHALL BE INTERNALLY LINED.
3. EXHAUST DUCTWORK SHALL BE UNLINED.

PLAN NOTES:

A. ROUTE 6"ø EXHAUSTS FROM TOILET / JANITOR EXHAUST FANS INTO ATTIC SPACE. SEE ATTIC PLAN THIS SHEET.
B. 30x14 LINED RETURN DUCT DOWN TO FURNACE.
C. 18x10 LINED RETURN DUCT DOWN TO FURNACE.
D. 24x12 LINED RETURN DUCT DOWN TO FURNACE.
E. MOTORIZED DAMPER ON OUTSIDE AIR INTAKE DUCTS TO FURNACES. DAMPER SHALL OPEN UPON FURNACE FAN BEING ENERGIZED AND CLOSE WHEN DE-ENERGIZED.



FLOOR PLAN - HVAC

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

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JAMES S. JACOBS ARCHITECTS, PLLC
25 WASHINGTON STREET
MONROE, MICHIGAN 48161
TELE: (734) 241-7933
FAX: (734) 241-1181
EMAIL: jmj@jsjacobsarch.com

JDRM Engineering
Mechanical | Electrical | Plumbing | Technology | Safety
5604 N. Main St. Suite 200
Sylvania, Ohio 43560
PH (419) 824-2400
FAX (419) 824-2409
www.jdrm.com

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FLOOR PLANS HVAC

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M-1

OUTLINE MECHANICAL SPECIFICATIONS

DIVISION 22 & 23 - BASIC MECHANICAL REQUIREMENTS

A. General:

These are Outline Specifications and not intended to cover all necessary items, but are to serve only as a guide. It is intended that complete Mechanical Systems as described herein will be furnished and installed.

Contractor shall visit the job site and examine all existing conditions.

All work shall be installed in accordance with local and state codes and regulations and shall receive the approval of the inspection department having jurisdiction.

All work specified herein shall carry the Contractor's Warranty for workmanship and materials for a period of one year minimum (or as specified) from the date of final acceptance or beneficial use by the Owner, whichever occurs first. The Contractor shall remedy the defects and reimburse the Owner for all damage to other work, whether caused by the defects or the work of correcting same. Provide an extended four (4) year replacement warranty for the refrigeration compressors after the first year full replacement warranty (parts and labor). The four (4) year warranty shall be for compressor replacement only; all labor charges will be the responsibility of the Owner.

All work shall be done by mechanics skilled in the particular trade involved, under responsible supervision and with the best modern practices.

All materials shall be new and of the grade and quality specified. Only the best material of each class specified shall be used.

In new construction, the General Contractor will provide duct openings and pipe shaft openings where shown on the architectural or structural drawings and also where indicated and sized by this Contractor.

In existing construction, this Contractor shall do all cutting, core drilling, and patching as required for complete installation unless openings are indicated on the architectural drawings. This Contractor shall hire the General Contractor to do all patching to match existing conditions.

This Contractor shall provide all miscellaneous steel and hardware as required to support, hang and secure all equipment as furnished, relocated or revised by him, unless such materials are specifically called out to be provided by other Contractors.

Manufacturer's directions shall be followed in all cases where the manufacturers of articles used in this Contract furnish directions covering specific points not shown on the drawings or mentioned in the specifications.

All work installed under this contract shall be tested in the presence of and to the satisfaction of the inspecting authority having jurisdiction and the Owner's Representative.

Mechanical shop drawings, fixture cuts, and schedules shall be submitted for review, in general, before starting the work involved, so as to cause no delay in this work or that of any other Contractor or Subcontractor. Shop drawings may be submitted in electronic format utilizing PDF files. The submittal shall be organized by specification section and contain all required information within a PDF document for each specification section. If hard copies of shop drawings are submitted, a minimum of six copies shall be submitted. All shop drawings whether electronic or hard copies shall bear the stamp of approval of the Contractor as evidence that the submittals have been approved by him.

This Contractor shall cooperate fully with the Owner in scheduling and making connections into existing service lines so as to cause the least possible inconvenience and shortest interruption of service. Contractor shall include any time and materials necessary for draining, venting, purging and refilling the existing system to permit connection of the new or removal of existing equipment, piping, etc.

This Contractor to remove all unused ductwork, piping, etc. from the area and remove it from the premises. The Owner shall be given the option of retaining any removed items. The Contractor shall, in general, keep the site clean and free of all debris generated by his work.

Before running any ducts, piping, etc. within the building, this Contractor shall assure himself that they can be installed as contemplated without trapping or interfering with columns, beams, piping, fixtures, etc. Contractor to verify all measurements and conditions at job site before proceeding with the work.

Of necessity, openings, supporting steel, field-built curbs, electrical data, space requirements, etc. were designed around specific parameters. It shall become the Contractor's responsibility to change as necessary, through the Architect and interested Contractors on the job, all required parameters, so that openings, supporting steel, curbs, electrical data, etc. will fit the equipment supplied. Any additional cost will be the sole responsibility of this Contractor.

Removed material may contain asbestos or lead. Contractor to advise Owner's Representative of any material which he suspects may contain either asbestos or lead. Any costs involved with necessary testing of installed materials will be the Owner's responsibility. Removal of any materials which prove to contain asbestos or lead will be the Owner's responsibility.

Reduction of Lead in Drinking Water Act (PL 111-380): Products intended to dispense water for human consumption through drinking or cooking shall comply with the following:

- A weighted average lead content of not more than 0.25% as determined by NSF/ANSI 372, and
- NSF/ANSI 61.
- Product shall be certified compliant with these requirements by an American National Standards Institute (ANSI) accredited certification organization.
- Acceptable Product Marking: NSF®-61 and NSF®-372 (or NSF®-61-G) or other accepted certifier marks demonstrating third party certification with these requirements.

Clean and disinfect water distribution piping as follows:

- During construction pipe openings shall be plugged to minimize dirt accumulation in the lines.
- Purge new potable water distribution piping systems and parts of existing potable water systems that have been altered, extended or repaired prior to use.
- Use purging and disinfection procedure prescribed by authority having jurisdiction or, if a method is not prescribed by that authority, the procedure described in either AWWA C651 or AWWA C652 or as described below:

- Flush piping system with clean, potable water until dirty water does not appear at outlets.
- Fill system or part thereof with water/chlorine solution containing at least 50 parts per million of chlorine. Isolate (valve off) and allow to stand for 24 hours.
- Drain system or part thereof of previous solution and refill with water/chlorine solution containing at least 200 parts per million of chlorine. Isolate and allow to stand for 3 hours.
- Flush system with clean, potable water until chlorine does not remain in water coming from system following allowed standing time.
- Submit water samples in sterile bottles to authority having jurisdiction. Repeat procedure if biological examination made by the authority shows evidence of contamination.

- Prepare and submit reports for purging and disinfecting activities and deliver to owner.

B. Scope of Work:

Plumbing

HVAC

C. Electrical:

The Electrical Contractor will provide all power wiring, starters and disconnects unless equipment is provided with starters or disconnect switches as part of the assembly. The Mechanical Contractor shall furnish all special control items, control and interlock wiring, and motors required for the operation of all equipment provided under his sections of work.

In general, all motors under 1/2 horsepower will be 120/1/60. For electrical power characteristics of other motors, see the mechanical drawings and schedules.

Motors 1/2 HP and over will be provided with across-the-line starters with overload protection unless otherwise specified. All motors under 1/2 HP shall have integral overload protection. All motors must conform to current NEMA Standards.

Where electrical requirements and/or motor horsepowers for the equipment supplied varies from that shown on the mechanical drawings or as specifically called out in the Mechanical Specifications, the Electrical Drawings and Specifications shall govern and be adhered to as to electrical power characteristics for the supplied equipment.

All open drive motors shall be of the high efficiency type with a minimum power factor of 82%.

D. Contract Closeout:

Testing and Adjustment:

Contractor shall operate all parts of the entire system, make any and all adjustments and repairs, and shall leave the entire work tested and ready for operation by the Owner and/or operation and final testing and balancing by the Testing and Balancing Contractor.

Operating Instructions:

Contractor shall provide four complete manuals in hardbacked binders, each containing all operating, servicing, lubrication, etc. information and parts lists for all equipment installed under his Contract. In addition, each manual shall contain a copy of each approved equipment submittal along with contact information for the supplier. Where diagrams are too large for the binder, arrange manila pockets with reinforced holes to hold folded drawings. Manuals to be submitted for approval at least 30 days before completion of the work.

Contractor shall arrange for technical instruction of the Owner's Maintenance Personnel for such time as is reasonably required to acquaint them with their duties. Instruction period shall be after all systems are in operation, and have been tested, balanced and adjusted.

Record Drawings:

Contractor shall keep an accurate record of all deviations from contract drawings. He shall neatly and correctly enter, in colored pencil, any deviations on drawings affected during the progress of the project and shall keep drawings available for inspection. At completion of job and before final acceptance, make any final corrections to drawings and deliver same to the Owner's Representative.

Balancing:

This Contractor shall provide for approval, prior to final acceptance by the Owner's Representative, balancing reports. These reports shall include individual air flow measurements at all outlets, total air quantity handled, motor amperage, and voltage name plate data, actual operating amperage and voltage, and a statement that the control system has been checked and verified for operation.

A qualified Balancing Contractor shall be used to perform these services. Contractor shall use a Balancing Contractor who is a fully certified member of the National Environmental Balancing Bureau or the Associated Air Balance Council or an independent firm whose principals are registered Professional Engineers.

The above tests and adjustments are made to accomplish the conditions as set forth in the Drawings and Specifications

Mechanical Contractor shall include the cost of balancing in his bid.

E. Hangers and Supports for Piping and Equipment:

All piping materials furnished and all procedures followed in fabrication and erection shall comply with the applicable sections of the Local Building code, applicable Pressure Piping Code, and requirement of applicable sections of "Building Services Piping", ASME B31.9, latest revision and addenda.

Contractor shall furnish and install all adjustable hangers, special pipe supports spring hangers, anchors, guides, clamps, rods, miscellaneous iron supports and appurtenances as required to securely and properly hang or support the piping systems. On insulated piping, hangers to be oversized to fit on the outside of insulation with a heavy gauge protection pipe saddle or shield. Vertical lines shall be supported by pipe clamp type supports designed for this purpose at each floor level. Hangers to be equivalent to Anvil International No. 260 clevis type, or for bare copper pipe, Anvil International Fig. CT-99C.

Steel Pipe Maximum Spacing:

- Thru 1-1/4": 7' Max
- 1-1/2": 9' Max
- 2": 10' Max

Copper Tubing Maximum Spacing:

- Thru 3/4": 5' Max
- 1": 6' Max

Rigid Pvc Pipe (Up to 140°F) Maximum Spacing:

- Thru 1-1/4": 2-1/2' Max
- 1-1/2" & 2": 3' Max
- 2-1/2": 3-1/2' Max
- 3": 3-1/2' Max
- 4": 3-1/2' Max

Pipe:Hanger and Rod Size Shall be as Follows:

- 3/4" to 2" inclusive: 3/8" rod
- 2-1/2" to 3-1/2" inclusive: 1/2" rod
- 4" and 5": 5/8" rod

Contractor shall do all excavating and backfilling in connection with his work. No piping shall be laid in water. Backfill within building or under paving exterior to building shall be clean fine sand, as approved by the Owner's Representative, to proper finished grade. Backfill outside of building lines shall be tamped sand to 24 inches above pipe with remaining backfill being clean earth to proper finished grade.

Sleeves shall be installed by Contractor wherever pipes pass through wood, concrete or masonry slabs, walls, floors or ceilings. Openings around exposed and concealed pipes or in sleeves for pipes passing through floor slabs, fire-rated walls, smoke partitions, or fire rated ceilings must be sealed with a noncombustible fire stop material. Seal at both sides of wall. Insulation shall not extend through sleeve. Pack sleeve opening with STI SpecSeal or equivalent. Depth of fill material shall provide same fire rating as floor or wall penetrated. Fiberglass is not acceptable except as a backing for the above materials.

Where a copper pipe connects to a steel pipe, the connection shall be made with a dielectric union or flanges with dielectric bolt sets. Dielectric couplings shall not be used. When connections are made at coils or similar situations which include such items as steel or cast iron balancing cocks, valves, etc. it is suggested that all piping in these areas to be steel with dielectric unions or flanges when connecting to copper mains, and/or a copper header coil. Where copper pipes cross iron pipes and in all similar conditions where isolation is necessary to eliminate electrolysis, the pipe shall be isolated with a PVC sheathing.

Flashing for vent pipe through membrane roof shall be by Roofing Contractor. Install vent piping penetrating roofed areas to maintain integrity of roof assembly.

Sanitary piping shall be cleaned by flushing with water. Domestic water shall be flushed and chlorinated as required by AWWA C-601.

Solder used for connections in copper tubing shall be 95/5 tin antimony or 94/6 or 96/4 tin-silver solder with recommended flux.

Escutcheon plate for finished areas shall be chrome-plated escutcheon plates and for unfinished areas, black iron escutcheon plates are acceptable.

F. Roof Curbs and Supports:

Provide a roof curb for each flue, air intake and exhaust vent. Curb shall be constructed to conform to the roof pitch and form a level top surface. Curb shall be of box section design, 18 gauge galvanized steel with continuous welded corner seams and factory installed 1-1/2 x 1-1/2 wood nailer. Curb shall be insulated with 1-1/2 inches, three pound density rigid fiberglass board with internal metal liner.

In general, the top of the installed curb shall be approximately 12 inches above finished roof. Coordinate roof insulation thickness with General Contractor. Curbs for outside air intakes, or equipment with outside air intakes, shall be tall enough to maintain bottom of intake a minimum of 36 inches above finished roof.

For roof mount equipment provide equipment support constructed with 2 x 8 wood nailers, galvanized steel counter flashing, etc. Support to finish approximately 12 inches above finished roof, have a minimum width of 8 inches, and extend beyond the full length of the equipment to bear over the next closest structural support. Equipment installed on curb shall be secured to curb.

For piping passing through roof, provide for the curb an acrylic ABS thermoplastic cap, graduated step neoprene sleeves and adjustable stainless steel bands to make a watertight installation.

Acceptable manufacturers are Pate Manufacturing Company, Custom Curb, Inc., Roof Products and Systems Corporation, Thybar, Vent Products or Shipman.

DIVISION 22 - PLUMBING

SECTION 22 0523 - GENERAL DUTY VALVES FOR PLUMBING PIPING

A. Manufacturers:

Check: Caleffi, Crane, Walworth, Nibco, Stockham or Milwaukee

Lubricated Plug: Homestead or Flowserve Nordstrom

Ball: Smith, Crane, Apollo, Watts, Nibco or Milwaukee

B. Domestic Water:

Ball - 600 psi, screwed ends, bronze body, brass/S.S. Trim - Nibco T-585-80-LF, 2" and smaller.

Check - 200 psi, screwed ends, bronze body and trim - Nibco T-413-Y-LF, 2" and smaller.

C. Natural Gas Shutoff:

125 psi, screwed - semi-steel body - Nordstrom 142 or Ball Valve -screwed - bronze body - Teflon trim - Nibco T-585-70-UL and T-280-70-UL - 2" and smaller.

SECTION 22 0700 - PLUMBING INSULATION

A. General:

All work shall be done by experienced insulation applicators in strict accordance with manufacturer's latest recommendations and shall be finished in a neat and workmanlike manner. Thermal conductivity shall not exceed 0.24 BTUH per square foot F° /inch. Insulation shall be equivalent to Owens-Corning Fiberglass 25 ASJ/SSL.

All insulation shall have a composite rating including insulation adhesives, jacket, etc. as follows. The composite assembly shall have a flame spread rating not over 25 and a smoke developed rating not higher than 50.

Pipe fittings shall be covered with preformed insulating fittings such as Zeston 25/50 rated PVC insulated fitting cover (pearl gray finish).

At hangers and supports of insulated pipe, provide high density insulation (maximum deflection 1/8 inches) and 12 inches long, 22 gauge galvanized sheet metal shields covering 50% of the circumference.

B. Piping:

Hot Service:

Domestic Hot Water Piping:
- 1-1/4 Inch and Smaller: 1 inch thick

Domestic hot water storage tanks (must comply with energy conservation requirements of ASHRAE Standard 90 latest edition) minimum 2-1/2 inches.

All lavatories and sinks with exposed P-trap, hot and cold water angle stops and supplies shall be insulated with "TrueBro" Handi-Lab-Guard insulation kit, Model #102W.

Cold Service:

Domestic Cold Water Piping and Valves:
- 1 1/4 Inch and Smaller: 1/2 inch

Condensate Drain Lines: 1/2 inch

SECTION 22 1116 - DOMESTIC WATER PIPING:

A. Domestic Water Inside Building Underground:

Copper type "K" soft annealed tubing 3 inches and smaller, no joints if possible. If necessary, joints to be brazed.

B. Domestic Water Inside Building Aboveground:

Copper type "L" hard tempered 1/2 inch through 3 inches with soldered or press-fit joints and wrought copper fittings.

SECTION 22 1119 - DOMESTIC WATER PIPING SPECIALTIES

A. Wall Hydrant:

WH - Woodford 65 freezeproof with vacuum breaker install approximately 18 inches above grade.

Approved Manufacturers: Woodford, Zurn and Jay R. Smith

B. Thermometer:

Adjustable angle, 9 inches long; H. O. Trerice BX9 1403.

SECTION 22 1316 - SANITARY WASTE & VENT PIPING

A. Sanitary Waste and Vent Inside Building Underground:

Asphalt-coated service weight cast iron, hubless end. Joints, "Clamp-All" Model #125, "Husky" 4000 or "Mission" Heavy Weight.

Plastic PVC, Schedule 40 ASTM D2665, DWV with solvent welded socket joints.

B. Sanitary Waste and Vent Aboveground:

Asphalt-coated service weight cast iron, hubless end. Joints, "Clamp-All" Model #125, "Husky" 4000 or "Mission" Heavy Weight.

Asphalt-coated service weight cast iron, hubless end, 3 inches and smaller. Joints, neoprene rubber gasket with stainless steel clamp.

Plastic PVC, Schedule 40, ASTM D2665, DWV with solvent welded socket joints. (Not allowable in return air plenums.)

C. Condensate Drain and Relief Valve Discharge:

Copper type "L" hard tempered with soldered or press-fit joints and wrought copper fittings.

SECTION 22 1319 - SANITARY WASTE PIPING SPECIALTIES

A. Floor Drains:

FD-1 - Zurn ZN-415-6B with 6 inches diameter strainer. Provide with ASSE 1072 compliant barrier-type trap seal protection device.

FD-2 - Zurn Z-415-6B-HD-Y with 6 inches diameter strainer, sediment bucket and heavy duty grate, 3 inches diameter. Provide with ASSE 1072 compliant barrier-type trap seal protection device.

Approved Manufacturers: Zurn, Josam, Mifab, Jay R. Smith and Wade.

B. Cleanouts:

CO - Cleanout plug for cast iron hub and spigot shall be screwed brass.

CO - Cleanout plug for cast iron no hub shall be a blind plug.

CO - Cleanout plug for PVC shall be a cleanout adapter with cleanout plug.

FCO - Finished floor cleanout, Zurn ZN-1400-T.

FCO - Floor cleanout for carpeted area, Zurn ZN-1400-T-CM.

FCO - Floor cleanout for PVC pipe, Zurn ZN-1404.

COTG - Exterior cleanout, Zurn Z-1406-HD-VP.

WCO - Wall cleanout, Zurn ZS-1469.

Approved Manufacturers: Zurn, Josam, Mifab, Jay R. Smith and Wade.

SECTION 22 1600 - NATURAL GAS PIPING

A. Natural Gas Aboveground Less Than 5 PSI:

Black steel, Schedule 40, ASTM A-53, screwed 1/2 inch through 2 inches with 150# malleable iron joints. Black steel, Schedule 40 ASTM A-53, butt welded, standard weight welded fittings - 2-1/2" and larger with 150# welded neck flange.

B. Natural Gas Underground Service:

Polyethylene ASTM D-2513 with copper tracing strip, approved by gas utility. Heat fusion joints approved by gas utility.

Black steel, Schedule 40, ASTM A-53, butt welded, coated and wrapped X-Tru-Coat with forged steel, Schedule 40, butt welded coated and wrapped joints. Provide Cathodic protection with magnesium anodes.

SECTION 22 4000 - PLUMBING FIXTURES

A. General:

Fixtures shall be acid resisting and white.

Fixtures shall have supplies with stops with removable keys.

Mounting height of fixture shall be as shown on Architectural Drawing.

B. Water Closet, WC-1: - Kohler K-3979 (ADA, floor set, tank type - handle on left)

Supply: Brass Craft SCR-1912-DL-C
Seat: Olsonite 95-SSC

C. Water Closet, WC-2: - Kohler K-3979-RA (ADA, floor set, tank type - handle on right)

Supply: Brass Craft SCR-1912-DL-C
Seat: Olsonite 95-SSC

D. Lavatory, LV-1: - Kohler K-2032 (20 inches x 18 inches wall hung)

Faucet: Kohler K-15199-4NDRA-CP (single lever type) (0.5 gpm)
Supplies: Brass Craft SCR-1912-AC
Trap: Dearborn Brass 707-1
Strainer: Kohler K-7129-A
Carrier: Zurn Z-1231
Drain and Supplies Insulation Kit: True Bro Model #102W
Temperature Control Valve (ASSE 1070): Powers Hydroguard LFe480

E. Electric Water Cooler, EWC-1: - Oasis PGBACSL (ADA, split level)

Carrier: Zurn Z-1225-BL
Trap: Dearborn Brass 707-1
Supply: Brass Craft SCR-1912-AC

F. Janitor (Mop) Sink, MS-1:

Fiat Products MSB-2424 (24 inches x 24 inches) provided with strainer, vinyl bumper guards on all exposed sides, mop hanger, tailpiece, 30 inches long hose and faucet with vacuum breaker.

Faucet: Chicago 540-LD897-SWXF204CP
Check Valves: Provide on CW and HW supply lines to faucet

G. Sink, SK-1: - Elkay LR-2219 (Single compartment)

Faucet: Elkay LKD-2442 (Hi Arc type)
Supplies: Brass Craft OCR-1912-AC
Trap: Dearborn Brass 704A-1, 1-1/2 inches - 17 gauge
Strainer: Elkay LK-35

H. Sink, SK-2: - Elkay LR-3122 (Single compartment)

Faucet: Elkay LKD-2442 (Hi Arc type)
Supplies: Brass Craft OCR-1912-AC
Trap: Dearborn Brass 704A-1, 1-1/2 inches - 17 gauge
Strainer: Elkay LK-35

I. Water Heater:

Water heater shall be of capacity and characteristics as indicated on the drawings. Tank shall be insulated per ASHRAE 90A-latest edition. Relief valve shall be temperature and pressure ASME type. Unit shall be completely factory wired, piped, tested, approved for installation requiring only connections of water and power source for operation.

DIVISION 23 - HVAC

SECTION 23 0700 - HVAC INSULATION

A. General:

All work shall be done by experienced insulation applicators in strict accordance with manufacturer's latest recommendations and shall be finished in a neat and workmanlike manner. Thermal conductivity shall not exceed 0.24 BTUH per square foot F° /inch. Insulation shall be equivalent to Owens-Corning Fiberglass 25 ASJ/SSL.

All insulation shall have a composite rating including insulation adhesives, jacket, etc. as follows. The composite assembly shall have a flame spread rating not over 25 and a smoke developed rating not higher than 50.

Pipe fittings shall be covered with preformed insulating fittings such as Zeston 25/50 rated PVC insulated fitting cover (pearl gray finish).

At hangers and supports of insulated pipe, provide high density insulation (maximum deflection 1/8 inches) and 12 inches long, 22 gauge galvanized sheet metal shields covering 50% of the circumference.

Refrigeration piping insulation material shall be a highly flexible, closed cell EPDM rubber based elastomeric product. Insulation shall be Aeracell SSPT or AC, Armaflex UT/Solaflex or K Flex Solar HT. Thermal conductivity of the insulation shall not exceed 0.245 BTUH square foot F degree/inch at 75° mean temperature. Insulation shall have a maximum 25/50 fire/smoke rating and be applied according to manufacturer's instructions. All joints must be sealed and the piping supported with inserts and galvanized exterior shields. Sizing per schedule.

B. Piping:

Cold Service:

Condensate Drain Lines: 1/2 inch

Refrigerant Piping: 1 inch

Piping insulation exposed to weather shall have insulation thickness increased by 1 inch and be wrapped with a 0.016 inch thick aluminum cover.

C. Ductwork:

Externally insulate all outside air intake ductwork with 1-1/2 inches thick semi-rigid fiberglass insulation with foil reinforced Kraft vapor barrier equivalent to OCF 703-FRK.

Externally insulate all supply ductwork above ceilings and round runouts to diffusers with 1-1/2 inches thick flexible duct wrap with foil reinforced Kraft vapor barrier equivalent to OCF ED-100-FRK-25.

Internally insulated ducts do not require exterior insulation.

SECTION 23 0923 - TEMPERATURE CONTROLS

A. Furnish and install as described a complete system of temperature controls as manufactured by Automated Logic, TAC, Johnson Controls, Trane, Siemens or HVAC equipment supplier. This system shall be installed complete in all respects by competent mechanics, regularly employed by the manufacturer of the temperature control equipment.

B. All electrical wiring to be in accordance with the National Electrical Code. The HVAC Contractor is responsible for all control and interlock wiring required for the complete installation that is not shown on the Electrical Drawings.

C. The Control Contractor is responsible for all power wiring for the complete control system. All 120 volt circuits shall be from the nearest receptacle panel with the maximum load on any single circuit being 1400 watts.

D. All exposed temperature control and interlock wiring and all power wiring regardless of voltage, shall at a minimum be run in EMT. Conduit system in Mechanical and Electrical Rooms below eight feet above floor shall be IMC. Provide Myers Hub fittings as required to connect to temperature control equipment. See Electrical Division for additional conduit requirements. Concealed low voltage wiring, such as communication wire, thermostat wire, etc. shall be plenum grade, fastened securely to building structure. See Electrical Specification for additional low voltage wiring requirements. Low voltage wiring shall not be laid directly on the ceiling or be attached to any other electrical conduits.

E. On completion of the job, the Control Contractor shall completely adjust, ready for use, all thermostats and relays provided under his Contract. The Control Contractor shall provide a complete instruction manual covering the function and operation of all control components on the job. This manual shall be furnished to the Owner's operating personnel and a competent technician shall be provided for instruction purposes after the system is substantially complete and ready for operation.

SECTION 23 2000 - HVAC PIPING

A. Refrigerant Piping:

Type ACR hard copper with streamline fittings and Alco or Sporlan specialties. Bone-dry nitrogen shall be bled into lines while soldering. Extra care shall be taken to insure cleanliness. System shall be pressure and vacuum tested. A good refrigeration solder such as Sil-Fos shall be used in making joints. Install purge, charging and service valves as per manufacturer's recommendations and standards. Refrigeration piping shall in all cases conform to the air conditioning equipment manufacturer's recommendations and standards. Pre-charge refrigerant piping may be used if systems are 5 tons or less and length of piping is 50 feet or less. After start-up, replace liquid line filter driers, if necessary.

B. Condensate Drain and Relief Valve Discharge:

Copper type "L" hard tempered with soldered or press-fit joints and wrought copper fittings.

SECTION 23 3000 - AIR DISTRIBUTION SYSTEM

A. Sheet Metal Ductwork:

Shall be fabricated and installed in accordance with the latest ASHRAE and SMACNA recommendations and in the best practices of good workmanship. All ductwork shall be constructed of prime hot dip galvanized sheet steel. All joints, longitudinal and transverse seams and connections shall be securely fastened and sealed with welds, gaskets, mastics (adhesives), mastic-plus-embedded-fabric systems or tapes.

While the drawings are to be adhered to as closely as possible, the right is reserved to vary the run and sizes of ducts during the progress of the work as may be found necessary or desirable to avoid local interferences.

Openings around exposed or concealed ductwork passing through walls, or partitions, when not protected by fire dampers or doors properly installed, shall be sealed with a sheet metal collar on both sides of the wall.

On all air handling units, fans, air conditioning units, etc. duct connections shall be flexible connections using Ventglas 30 ounce, or Duralon 24 ounce material. Canvas will not be acceptable.

For final connections of ductwork operating at pressures below 2" W.G. to supply air distribution items, UL approved pre-insulated flexible duct with exterior vapor barrier may be used. The length of flexible duct shall not exceed 3-1/2 feet and shall not be used for more than a final elbow connection to the unit. Duct to be Wiremold WK Acoustical Duct, or equal as manufactured by Owens-Corning, Johnson, Johns-Manville or Genflex. Secure with adhesive and metal bands. Installation to be in accordance with the latest SMACNA flexible duct installation standards.

Paint inside of ductwork exposed behind all registers and grilles flat black.

B. Spin-in Fittings:

Shall be equal to Flexmaster U.S.A. Inc., Type FLDE with balancing damper and air scoop.

C. Manual Balancing Damper:

In square or rectangular ductwork at pressures below 2" W.G., dampers less than 1 sq. ft. in area or less than 12 inches high shall be Titus Model AG-35B or equivalent by Grille, Register and Diffuser Manufacturer. Damper in square or rectangular ductwork larger than the above shall be Ruskin Type CD-35 or equivalent by Vent Products, Air Balance, Pottorff, Louver and Damper, Inc., Greenheck, Cesco or Air Control.

D. Motor-Operated Damper:

Damper shall be Ruskin Type CD-36 low leakage, opposed blade operation with heavy galvanized steel frame, 16 gauge galvanized steel blades, and self-lubricating bearings. The damper shall be anti-leak construction with aluminum jamb seals and vinyl blade edge seals. Equivalent dampers by above manufacturers are acceptable.

E. Register, Grille and Diffuser:

Units shall be as shown on the drawings with each register and diffuser containing manual volume control damper. Ceiling unit to have off-white finish, sidewall unit to have prime coat finish. Exhaust register shall be fabricated of all aluminum construction. Unit shall be by Titus, Carnes, Price, Anemostat or Krueger.

F. Flue:

Flue shall be of PVC per furnace manufacture or engineered flue designed for class IV positive pressure, condensing appliances. Provide flue supports, spacers, storm collars, counterflashing cap, etc. to insure a weatherproof and fireproof installation.

G. Internal Duct Insulation:

Internally insulate all rectangular supply ducts operating at pressures less than 2" W.G. Insulation shall be 1 inches thick and shall meet the Erosion Test Method described in UL Publication No. 181. All linings including coatings and adhesives when tested on a composite basis shall have a flame spread rating of 25 or less and a smoke developed rating of 50 or less. External duct dimensions are given and do include an allowance for insulation thickness. Where round ductwork is indicated, dimensions given are internal duct diameter and shall be externally insulated. Insulation shall be a product of Owens-Corning, Johns-Manville, Armstrong, Knauf or Certain-Teed.

H. Louver:

Greenheck Type ESD-403 extruded aluminum with 1/2 inches birdscreen in an extruded aluminum frame and having a 204-R1 etch and anodized aluminum finish with one coat of lacquer. Louver shall bear the AMCA certified rating seal.

Equivalent louvers by Airolite, Greenheck, Louvers & Dampers, Inc., Construction Specialties, American Warming and Ventilating Company, Ruskin, All-Lite or Pottorff will be acceptable. Paint duct behind louver dull black.

JAMES S. JACOBS ARCHITECTS, PLLC
25 WASHINGTON STREET
MONROE, MICHIGAN 48161
TELE: (734) 241-7933
FAX: (734) 241-1181
EMAIL: jmj@jsjacobsarch.com

JDRM Engineering
Mechanical | Electrical | Plumbing | Technology | Safety
5604 N. Main St. Suite 200
Sylvania, Ohio 43560
PH (419) 824-2400
FAX (419) 824-2409
www.jdrm.com

GREENWOOD MAINTENANCE BUILDING ADDITION FOR:

MONROE HOUSING COMMISSION:
GREENWOOD TOWNHOUSES
900 GREENWOOD AVENUE
MONROE, MICHIGAN 48162

PROPERTY CONTACT:
NANCY WAIN, EXEC. DIRECTOR
MONROE HOUSING COMMISSION
20 NORTH ROESSLER STREET
MONROE, MICHIGAN 48162
TELEPHONE: (734) 242-5880

MECHANICAL SPECIFICATIONS

NOT FOR CONSTRUCTION

06-21-2023	BIDS
DATE:	ISSUED FOR:
DRAWN	JDS
REVIEW'D	DCH
202222	

M-2

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SECTION 23 3400 - HVAC FANS

A. General:

All fans shall be AMCA rated for airflow.

The maximum sound level, where given, represents the highest acceptable value for each fan. The sone value represents loudness levels obtained at 5'-0 inches from the fan inlet. In addition, where applicable, the fan schedule lists the maximum tip speed allowable.

All disconnect switches supplied shall be horsepower rated per the National Electrical Code.

Fans shall be as manufactured by PennBarry, Carnes, Jenn-Fan, Acme, Cook, or Greenheck.

B. In-Line and Ceiling Exhauster:

Centrifugal type direct drive designed for in-line installation and/or ceiling installation with internally lined housing, back draft damper, inlet grille, solid state speed controller, disconnect switch and roof jack, wall cap, vent cap or eave elbow with grille.

E. Relief Vents:

Roof mounted - low profile heavy gauge aluminum housing with birdscreen, back draft damper and prefab roof curb.

SECTION 23 5400 - FORCED AIR FURNACES

PART 1 - GENERAL

A. SECTION INCLUDES

- Forced Air Furnaces
- Controls
- Evaporator Coil
- Condensing Unit

B. REFERENCES

NFPA 54 - National Fuel Gas Code; National Fire Protection Association.

NFPA 90A - Standard for the Installation of Air Conditioning and Ventilating Systems; National Fire Protection Association.

NFPA 90A - Standard for the Installation of Warm Air Heating and Air Conditioning Systems; National Fire Protection Association.

C. WARRANTY

See General Requirements for additional warranty requirements.

Unit shall have a full one (1) year warranty. Provide an extended four (4) year replacement warranty for the refrigeration compressors after the first year full replacement warranty (parts and labor). The four (4) year warranty shall be for compressor replacement only; all labor charges will be the responsibility of the Owner.

PART 2 - PRODUCTS

A. Manufacturers:

- The Carrier Corporation
- Lennox
- The Trane Company
- York International Corporation
- American Standard
- Goodman
- Substitutions: See General Requirements

B. Units: Self-contained, packaged, factory assembled, pre-wired high efficiency unit consisting of cabinet, supply fan, heating element, controls, air filter, intake and exhaust air connections, and accessories; wired for single power connection with control transformer.

Air Flow Configuration: Upflow.

Heating: Natural gas fired.

Accessories:

- Humidifier
- Concentric Roof Termination Kit
- Evaporator Coil
- Condensing Unit

C. Cabinet: 22 gauge steel with baked enamel finish, easily removed and secured access doors with safety interlock switches, glass fiber insulation with reflective liner. For counterflow units, provide additive steel base.

D. Supply Fan: Direct drive multi-speed blower and motor.

E. Heat Exchanger: Aluminized and stainless steel tubular type.

F. Gas Burner:

Low energy power venter, vent proving differential.

Gas valve, two-stage provides 100 percent safety gas shut-off; 24 volt combining pressure regulation, safety pilot, manual set (On-Off), pilot filtration, automatic electric valve.

Electronic pilot ignition, with electric spark or hot surface igniter.

Non-corrosive combustion air blower with permanently lubricated motor.

G. Gas Burner Safety Controls:

Thermocouple Sensor: Prevents opening of gas valve until pilot flame is proven and stops gas flow on ignition failure.

Flame Rollout Switch: Installed on burner box and prevents operation.

Limit Control: Fixed stop at maximum permissible setting, de-energizes burner on excessive bonnet temperature, automatic resets.

H. Operating Controls:

Unit shall be provided with a programmable heating/cooling thermostat with "Off-Heat-Cool" system switch and "On-Off" fan switch.

Room Thermostat: Cycles burner to maintain room temperature setting.

Supply Fan Control: Energize from bonnet temperature independent of burner controls, with adjustable timed off delay and fixed timed on delay, with manual switch for continuous fan operation.

I. Air Filters: 1 inch thick urethane, washable or glass fiber disposable type arranged for easy replacement. Provide all necessary sub-bases and filter frames for installation as indicated with throwaway filters

J. THERMOSTATS

Manufacturers:

- White Rodgers
- Emerson
- Honeywell
- The Carrier Corporation
- The Trane Company
- York International Corporation
- Substitutions: See General Requirements

Room Thermostat: Low voltage, electric solid state microcomputer based room thermostat with remote sensor:

- Preferential rate control to minimize overshoot and deviation from setpoint.
- Set-up for four separate temperatures per day.
- Instant override of setpoint for continuous or timed period from one hour to 31 days.
- Short cycle protection.
- Programming based on every day of the week.
- Selection features including degree F or degree C display, 12 or 24 hour clock, keyboard disable, remote sensor, fan on-auto.
- Battery replacement without program loss.
- Thermostat Display

- Time of Day
- Actual Room Temperature
- Programmed Temperature
- Programmed Time
- Duration of Timed Override
- Day of Week
- System Mode Indication: Heating, Cooling, Fan Auto, Off and On, Auto or On, Off

K. CONDENSING UNIT

Provide air cooled condensing unit designed for outdoor installation. Unit shall have finished galvanized steel casing that shall house the following equipment:

- Hermetically Sealed Compressor
- Copper Tube and Aluminum Finned Condenser Coil
- Condenser Fan and Fan Motor
- Unit shall have a Minimum SEER of 13
- Low Ambient Control to 55 degrees F.

Also included shall be all electric safety and operating controls required for operation. Precharged refrigerant tubing will be acceptable.

L. EVAPORATOR COIL

Furnace shall be provided with an evaporator coil that shall deliver the indicated capacity on Schedule. Coil shall be factory leak tested, dehydrated, sealed and shipped with a holding charge.

PART 3 - EXECUTION

A. EXAMINATION

Verify that substrates are ready for installation of units and openings are as indicated on shop drawings.

Verify that proper power supply is available and located correctly.

Verify that proper fuel supply is available for connection.

Verify that water supply is available for humidifier.

B. INSTALLATION

Install in accordance with manufacturer's instructions and requirements of authorities having jurisdiction.

Mount counterflow furnaces installed on combustible floors on additive base.

Pipe drain from furnace and cooling coil to nearest floor drain. If auxiliary drain is not piped to a conspicuous point of disposal an UL 508 rated water level detecting device shall be provided to shut off the equipment in the event the primary drain is blocked.

SECTION 23 8126 - SPLIT SYSTEM AIR CONDITIONERS

PART 1 - GENERAL

A. Ductless Split System

B. Controls

C. References:

NFPA 90A - Standard for the Installation of Air Conditioning and Ventilating Systems; National Fire Protection Association.

UL 207 - Refrigerant-Containing Components and Accessories, Non-Electrical; Underwriters Laboratories Inc.

D. Warranty:

See Closeout Submittals, for additional warranty requirements.

Unit shall have one (1) year warranty. Provide an extended four (4) year replacement warranty for the refrigeration compressors after the first year full replacement warranty (parts and labor). The four (4) year warranty shall be for compressor replacement only; all labor charges will be the responsibility of the Owner.

PART 2 - PRODUCTS

A. Manufacturers:

- Mitsubishi
- Daikin AC, Inc.
- EMI
- Panasonic
- LG

B. System Design:

Furnish and install a complete ductless split air conditioning system with the capacity as scheduled. System shall include an indoor fan coil unit, outdoor condensing unit, refrigerant piping and remote control.

C. Indoor Unit:

Provide indoor, direct-expansion, ceiling mounted fan coil. Unit shall be complete with cooling coil, fan, fan motor, piping connectors, electrical controls, microprocessor control system, condensate pump and integral temperature sensing. Unit shall be furnished with integral wall-mounting bracket, mounting hardware, and thermistor interconnection cable.

Cabinet discharge and inlet grilles shall be attractively styled, high-impact polystyrene. Cabinet shall be fully insulated for improved thermal and acoustic performance.

Fan shall be tangential direct-drive blower type. Automatic, motor-driven horizontal air sweep shall be provided standard. Air sweep operation shall be user selectable. Vertical direction may be manually adjusted and horizontal air sweep may be manually set.

Coil shall be copper tube with aluminum fins and galvanized steel tube sheets. Fins will be bonded to the tubes by mechanical expansion. A drip pan under the coil shall have a drain connection for hose attachment to remove condensate. Condensate pan shall have internal trap and auxiliary drip pan under coil header.

Motors shall be open drip proof, permanently lubricated ball bearing with inherent overload protection. Fan motors shall have 3 speeds.

Provide mounting frames as required for unit installation.

D. Outdoor Units:

- Provide a matching outdoor-mounted, air-cooled split system condensing unit outdoor section suitable for rooftop and grade installation. Unit shall consist of rotary compressors, air-cooled coils, draw-thru propeller-type condenser fans, accumulator, cooling refrigerant capillary tubes, refrigerant charge, and control box. Unit shall discharge air vertically as shown on the contract drawings. Units shall function as the outdoor component of an air-to-air cooling system. Provide low-ambient kit.

- Design is based on refrigerant type HFC-410A. Other HFC refrigerants shall be submitted for Engineer's approval. CFC and HCFC type refrigerants shall not be accepted.

- Controls:

- Controls shall consist of a microprocessor-based control system which shall control space temperature, determine optimum fan speed, and run self-diagnostics. The temperature control range shall be from 64 degrees F to 84 degrees F.

PART 3 - EXECUTION

A. Installation:

Install in accordance with manufacturer's instructions and requirements of local authorities having jurisdiction.

END OF OUTLINE SPECIFICATION

JAMES S. JACOBS ARCHITECTS, PLLC
25 WASHINGTON STREET
MONROE, MICHIGAN 48161
TELE: (734) 241-7933
FAX: (734) 241-1181
EMAIL: jmj@jsjacobsarch.com

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NANCY WAIN, EXEC. DIRECTOR
MONROE HOUSING COMMISSION
20 NORTH ROESSLER STREET
MONROE, MICHIGAN 48162
TELEPHONE: (734) 242-5880

MECHANICAL SPECIFICATIONS

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M-3

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LUMINAIRE SCHEDULE

	EXISTING LUMINAIRES TO REMAIN IN USE	
	LUMINAIRE TO CONTAIN AN EMERGENCY BATTERY INVERTER PACK (1100 LUMENS MINIMUM), CONCEALED IN LUMINAIRE HOUSING, 90-MINUTE BATTERY BACK-UP OPERATION, 120V	BY BODINE OR APPROVED EQUAL
	LED EXIT SIGN, CEILING-MOUNTED, WALL-MOUNTED, ARROWS AS SHOWN, 11"W x 8"H x 2"D, DIFFUSE, THERMOPLASTIC HOUSING, STENCIL FACE, WHITE HOUSING FINISH, WHITE FACE, GREEN LETTERS, SHADED QUADRANT INDICATES FACE, 90-MINUTE BATTERY BACKUP, 120V	DUAL-LITE EVE U G W LITHONIA LQM S W 3 G 277 PHILIPS CHLORIDE CXL 3 G W SURE-LITE LPX6 EMERGI-LITE ELX SERIES
	LED EXIT SIGN, CEILING-MOUNTED, WALL-MOUNTED, WITH TWO EMERGENCY LIGHT HEADS, WITH HIGH OUTPUT BATTERY FOR EXTRA POWER, 11"W x 8"H x 2"D, DIFFUSE, THERMOPLASTIC HOUSING, STENCIL FACE, WHITE HOUSING FINISH, WHITE FACE, GREEN LETTERS, SHADED QUADRANT INDICATES FACE, 90-MINUTE BATTERY BACKUP, 120V	
B	SAME AS ABOVE EXCEPT WITH ADDITIONAL BATTERY CAPACITY FOR REMOTE HEAD	
E	LED - 1.5W/9.6V LAMP, REMOTE EMERGENCY LIGHT, FULLY ADJUSTABLE, THERMOPLASTIC, MOUNTING BASE, WHITE/GREY FINISH, WEATHERPROOF, WIRED TO THE REMOTE CAPACITY EXIT LIGHT	DUAL-LITE OCR S W 0603L EMERGI-LITE EF44 D-LED WP EXITRONIX MLED1-W-WP LITHONIA ELA QWP SURE-LITE SRP12WH
S30	34W LED SURFACE-MOUNTED STRIP LIGHT, 5000 LUMENS, 4000K COLOR TEMPERATURE, 48"L. x 2-1/8"H x 2-3/16"W, STEEL CONSTRUCTION, WHITE FINISH, FROSTED LENS, 120V	LITHONIA ZL1N-L48-5000LM-FST SERIES OR ENGINEER-APPROVED EQUAL
A	20W LED DOWNLIGHT, 1800 LUMENS, 4000'K COLOR TEMPERATURE, 13" DIA. x 2", FLAT PANEL, SURFACE MOUNTED, 120V	JUNO JSF 13IN 18LM 40K 90CRI MVOLT
B	SAME AS TYPE 'A' EXCEPT 11", 15W, 1300 LUMENS	JUNO JSF 11IN 13LM 40K 90CRI 120V
C	SAME AS TYPE 'A' EXCEPT 7", 13W, 1000 LUMENS	JUNO JSF 7IN 10LM 40K 90CRI MVOLT
D	15W LED DOWNLIGHT, 4" DIA. APERTURE, 1500 LUMENS, 4000' K COLOR TEMP., 12" X 10" X 6" D., CLEAR ALZAK TRIM, SEMI-SPECULAR REFLECTOR, 0-10V 10% DIMMING DRIVER, DAMP LOCATION RATED, 120V	LIGHTOLIER P4R SERIES ALPHABET NU4 LITHONIA LBR4 NCH 40/15 L04 AR LSS PRESCOLITE LF4SL SERIES
E	SAME AS TYPE 'D' EXCEPT 9W, 1000 LUMENS	LIGHTOLIER P4R SERIES
	39W LED EXTERIOR WALL-MOUNTED LUMINAIRE, 4000 LUMENS, 4000K COLOR TEMPERATURE, 10"L. x 2.5"H. x 2.25"D., ALUMINUM HOUSING AND FINISH, STAINLESS STEEL HARDWARE, MOUNTING TO A STANDARD BACKBOX, WITH 90-MINUTE EMERGENCY BACKUP BATTERY, WET LOCATION RATING, 120V	LITHONIA WPX SERIES

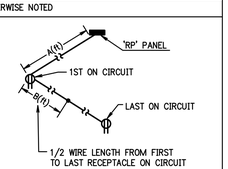
LEGEND & LUMINAIRE SCHEDULE NOTES:

A. IN KITCHENS AND ROOMS WITH COUNTERS, INSTALL ALL GFCI RECEPTACLES (INCLUDING FACELESS DEVICES) AT 6" ABOVE COUNTER TOP (TO BOTTOM OF BACKBOX), UNLESS NOTED OTHERWISE ON PLAN.. IN RESTROOMS, MECH. ROOMS, AND UTILITY ROOMS, INSTALL GFCI RECEPTACLES AT 48" TO BOTTOM OF BACKBOX U.N.O.

WIRE SIZING TABLE

FOR 120V-20A BRANCH CIRCUITS ONLY, UNLESS OTHERWISE NOTED

IF DISTANCE A+B IN FEET IS: (SEE DIAGRAM AT RIGHT)	USE COPPER WIRE IN METALLIC CONDUIT, AWG SIZE AS FOLLOWS ON ENTIRE CIRCUIT AND SIZE CONDUIT ACCORDINGLY:
0' TO 100'	#12 (MIN.)
100' TO 175'	#10
175' TO 300'	#8
300' TO 450'	#6 (MAX.)



THESE TABLES ARE BASED ON AN EVENLY DISTRIBUTED LOAD ALLOWING A 3% VOLTAGE DROP AT LAST OUTLET; APPLY ACCORDINGLY.

LEGEND

S_M	EXISTING DEVICES TO REMAIN IN USE
	EXISTING DEVICES TO BE REMOVED COMPLETELY
S, S_D, S_3, S_4	WALL SWITCHES: SINGLE POLE, DOUBLE POLE, 3-WAY, 4-WAY
S_M	MANUAL MOTOR STARTER WITH PILOT LIGHT
S_K	MANUAL ON-OFF SWITCH
S_V	WALL SWITCH, VACANCY SENSOR, PASSIVE INFRARED/MICROPHONICS DETECTION, 625 DQ. FT. (MINIMUM) COVERAGE, ON/OFF BUTTON, COLOR SELECTED BY ARCHITECT; SENSOR SWITCH WSX-PDT-SA OR ENGINEER APPROVED EQUAL
D	DIMMER, 0-10V, RAISE-LOWER, BUTTONS, ON-OFF BUTTONS, PROVIDE POWER PACKS AS REQUIRED, NOTE-A; SENSOR SWITCH SPODM-SA-D OR ENGINEER APPROVED EQUAL
D_V	DIMMER, 0-10V, VACANCY SENSOR, PASSIVE INFRARED/MICROPHONICS DETECTION, 625 SQ. FT. (MINIMUM) COVERAGE, ON/OFF BUTTON, RAISE LOWER BUTTONS, COLOR SELECTED BY ARCHITECT, NOTE-A; SENSOR SWITCH WSX-PDT-D-VA OR ENGINEER APPROVED EQUAL
(105)	OCCUPANCY SENSOR, DUAL TECHNOLOGY, CEILING MOUNTED, 1100 SQ. FT. 360° COVERAGE WITH POWER PACK (24VDC-150mA) AND AUXILIARY RELAY AS REQUIRED; SENSOR SWITCH CM-PDT SERIES OR ENGINEER APPROVED EQUAL
PC	PHOTOCELL MOUNTED ON ROOF FACING NORTH; PRECISION ST-15
	DUPLEX RECEPTACLE
	DOUBLE DUPLEX RECEPTACLE, 2-GANG, 4-OPENING
	DUPLEX RECEPTACLE WITH GROUND FAULT CIRCUIT INTERRUPTER PROTECTION. (SEE NOTE-A)
EWC	DUPLEX RECEPTACLE WITH GROUND FAULT CIRCUIT INTERRUPTER PROTECTION FOR ELECTRIC WATER COOLER, CORD AND PLUG SHALL NOT BE VISIBLE FROM GENERAL VIEW
	CEILING MOUNTED DUPLEX RECEPTACLE
G	FACELESS GFCI DEVICE
J	JUNCTION BOX, BLANK COVER
	COMMUNICATION OUTLET, 4-11/16" SQ. 2-1/8" DEEP BOX WITH SINGLE GANG PLASTER RING, 1.25"C STUBBED UP ABOVE ACCESSIBLE CEILING
	COMMUNICATION OUTLET, 4-11/16" SQ. 2-1/8" DEEP BOX WITH DOUBLE GANG PLASTER RING, TWO 1.25"Cs STUBBED UP ABOVE ACCESSIBLE CEILING
	MOTOR, HORSEPOWER AS NOTED
	RECEPTACLE PANEL; 120/240V-1PH-3W
	MAIN DISTRIBUTION PANEL; 120/240V-1PH-3W
	HOME RUN TO PANEL; GROUND, PHASE 'A', 'B', AND NEUTRAL
	CONDUIT CONCEALED IN WALL OR ABOVE CEILING, EXPOSED IN UNFINISHED AREAS
	CONDUIT CONCEALED UNDER FLOOR
	HOME RUN TO PANEL; GROUND, PHASE 'A', 'B', AND NEUTRAL
	50A, SINGLE POLE, 2 WIRE GROUNDING RECEPTACLE WEATHERPROOF WITH IN-USE COVER
	OUTLET TO BE DUPLEX OR MATCHING RECEPTACLE IF EQUIPMENT IS FURNISHED WITH CORD AND PLUG, OR JUNCTION BOX AND/OR SAFETY SWITCH WITH SEALTITE CONNECTION IF EQUIPMENT IS TO BE WIRED DIRECT. IT SHALL BE THE ELECTRICAL CONTRACTOR'S RESPONSIBILITY TO VERIFY THE REQUIRED OUTLET AND TO WIRE ALL EQUIPMENT COMPLETE.
	POWER FOR FUTURE CAR CHARGING STATION. PROVIDE JUNCTION BOX WITH BLANK COVERPLATE, AND PULLSTRING IN THE CONDUIT, HOME RUN 3"C AS SHOWN
XXXXX	FEEDER IDENTIFICATION, SEE FEEDER SCHEDULE SHEET E-4
	HEAVY DUTY SAFETY SWITCH, SIZE AS NOTED, FUSED AS NOTED, NEMA 1
	HEAVY DUTY SAFETY SWITCH, SIZE AS NOTED, FUSED AS NOTED, NEMA 3R
	FUSIBLE COMBINATION MAGNETIC MOTOR STARTER, 120V-3P, SIZE '1', WITH FUSED 120V CONTROL XF AND 'HAND-OFF-AUTO' HEAVY DUTY SELECTOR SWITCH AND RED 'PUSH-TO-TEST' PILOT LIGHT MOUNTED IN COVER; SQUARE D 8538 SERIES
SPA	MAIN DISTRIBUTION PANEL SURGE PROTECTION DEVICE; SEE SPECIFICATIONS AND DETAIL ON SHEET E-5
SPB	SUB DISTRIBUTION PANEL SURGE PROTECTION DEVICE; SEE SPECIFICATIONS AND DETAIL ON SHEET E-5
SPC	BRANCH PANEL SURGE PROTECTION DEVICE; SEE SPECIFICATIONS AND DETAIL ON SHEET E-5
C-X	LIGHTING CONTACTOR, 20A-120V-2P, 120V FUSED COIL AND 'H-O-A' SELECTOR SWITCH MOUNTED IN COVER; ELECTRICALLY HELD, 120V PRIMARY, 120V COIL, SQUARE D 8903 SERIES, OPERATION WIRED FOR PHOTOCELL ON/PHOTOCELL OFF
	OVERHEAD DOOR CONTROL STATION, F.B.O.; E.C. SHALL PROVIDE RACEWAYS AS REQUIRED
D.B.B.	SAFETY DOOR BOTTOM BAR, F.B.O.
SLC	STEP-LOAD CONTROLLER, PROGRAMMABLE, 12-LOAD CAPACITY; PSP MODEL LSC-12
	BUILDING STEEL GROUNDING - SEE GROUNDING DETAILS ON SHEET E-5

AC	M.H. 6" ABOVE COUNTER TOP TO BOTTOM OF BACKBOX
F.B.O.	FURNISHED BY OTHERS, INSTALLED AND/OR WIRED BY ELECTRICAL CONTRACTOR
LD	LOCATE AS DIRECTED
MH	MOUNTING HEIGHT, FLOOR TO BOTTOM OF ITEM
NL	NIGHTLIGHT WIRED HOT
U.N.O.	UNLESS NOTED OTHERWISE
WP	ITEM TO BE WEATHERPROOF

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JAMES S. JACOBS ARCHITECTS, PLLC
25 WASHINGTON STREET
MONROE, MICHIGAN 48161
TELE: (734) 241-7933
FAX: (734) 241-1181
EMAIL: jmj@jsjacobsarch.com

JDRM Engineering
Mechanical | Electrical | Plumbing | Technology | Safety
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NANCY WAIN, EXEC. DIRECTOR
MONROE HOUSING COMMISSION
20 NORTH ROESSLER STREET
MONROE, MICHIGAN 48162
TELEPHONE: (734) 242-5880

ELECTRICAL – LEGEND SHEET

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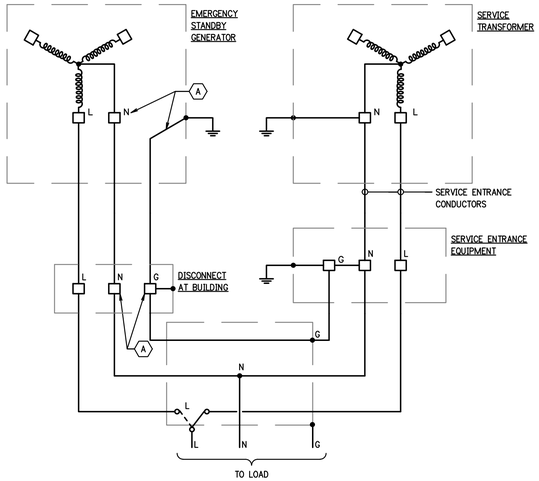
E-1



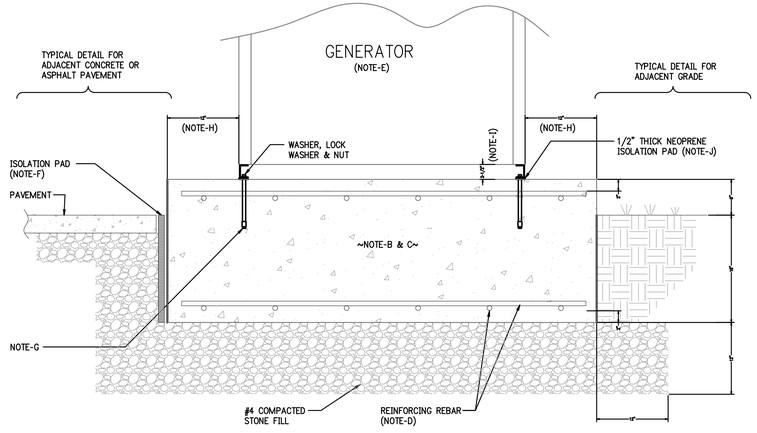
NOTES:

A. GROUND AND NEUTRAL SHALL NOT BE BONDED.

B. REFER TO ONE LINE OR PANEL RISER FOR CONDUCTOR SIZES.

GENERATOR GROUNDING SCHEMATIC (ALTERNATE)

SCALE: NONE



GENERATOR PAD NOTES:

A. PROVIDE OPENINGS FOR CONDUIT STUB-UPS. DO NOT POUR CONCRETE AROUND CONDUITS.

B. CONCRETE TO BE 3000 PSI STRENGTH BY 7 DAYS. USE PORTLAND CEMENT TYPE 3 OR 3A.

C. CONCRETE MUST BE POURED AT LEAST 10 DAYS BEFORE GENERATOR IS SET IN PLACE.

D. REINFORCING RODS ARE TO BE #4 DEFORMED STEEL. INSTALL RODS AT 12" CENTERS IN EACH DIRECTION.

E. VERIFY EXACT DIMENSIONS WITH EQUIPMENT SUPPLIER.

F. WHERE PAD IS LOCATED IN CONCRETE FLOOR AREA IT SHALL BE KEPT ISOLATED FROM ADJACENT CONCRETE.

G. PROVIDE TYPE STAINLESS STEEL HEAVY-DUTY INSPECTABLE WEDGE TYPE EXPANSION ANCHOR BOLTS (RED HEAD TRUBOLT). BOLTS SHALL BE EMBEDDED 6" (MIN.) IN PAD. VERIFY WITH MANUFACTURER EXACT ANCHOR BOLT REQUIREMENTS, 5/8" DIAMETER MINIMUM.

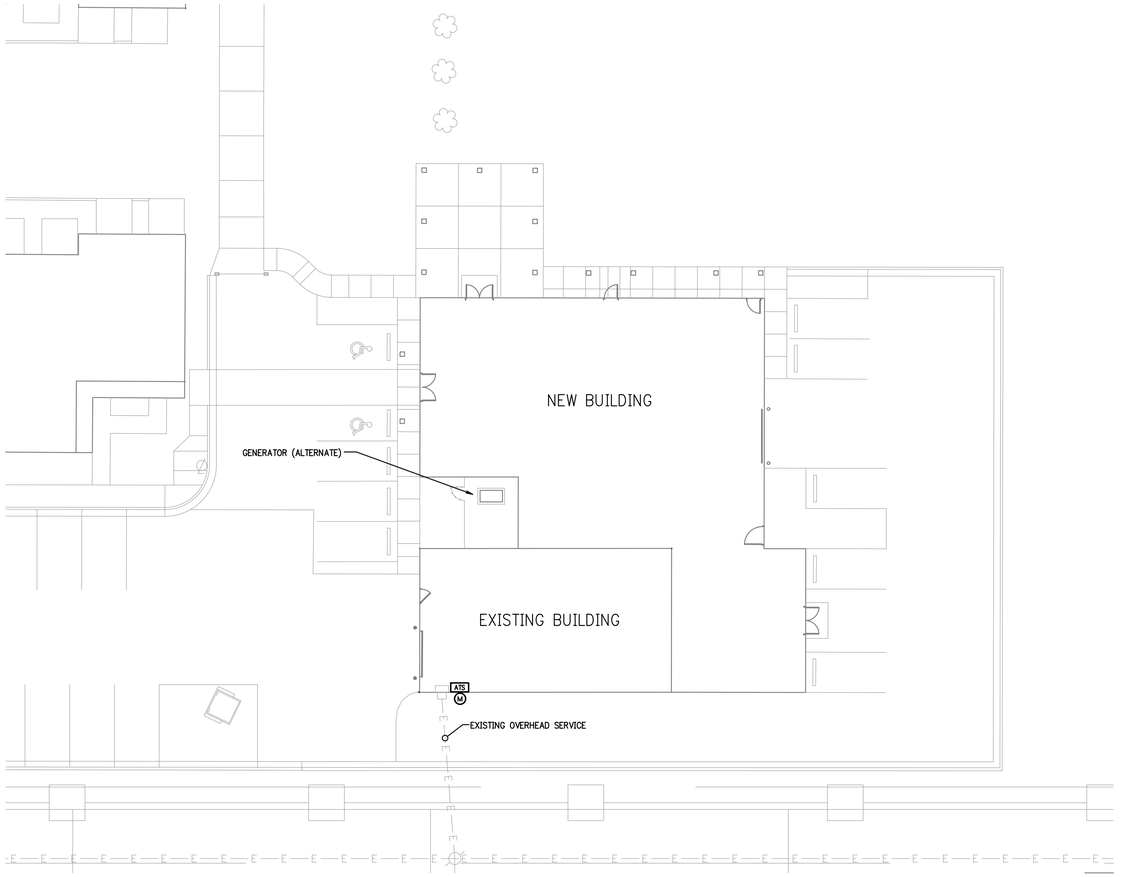
H. CONCRETE PAD SHALL EXCEED GENERATOR BY 12" AROUND ALL SIDES.

I. GENERATOR BOTTOM SHALL BE MAINTAINED AT A MINIMUM OF 2-1/2" ABOVE THE CONCRETE PAD.

J. GENERATOR MOUNTING RAILS SHALL BE ISOLATED FROM THE CONCRETE PAD WITH 1/2" THICK NEOPRENE PADS. INSTALL PADS WITH 2" GAP ON 24" CENTER TO ALLOW DRAINAGE AND AIR FLOW.

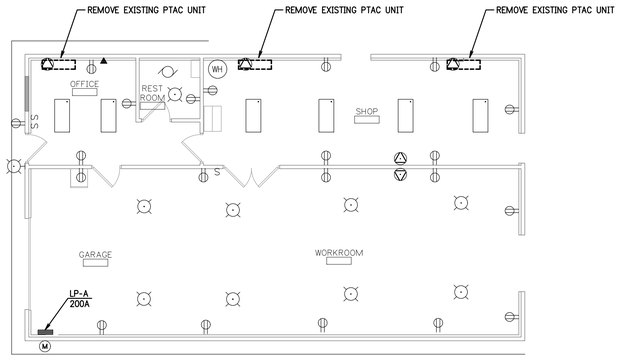
GENERATOR CONCRETE PAD DETAIL (ALTERNATE)

SCALE: NONE



SITE PLAN - ELECTRICAL

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



FLOOR PLAN - DEMOLITION

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

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JAMES S. JACOBS ARCHITECTS, PLLC
25 WASHINGTON STREET
MONROE, MICHIGAN 48161
TELE: (734) 241-7933
FAX: (734) 241-1181
EMAIL: jmj@jsjacobsarch.com

JDRM Engineering
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20 NORTH ROESSLER STREET
MONROE, MICHIGAN 48162
TELEPHONE: (734) 242-5880

SITE PLAN ELECTRICAL

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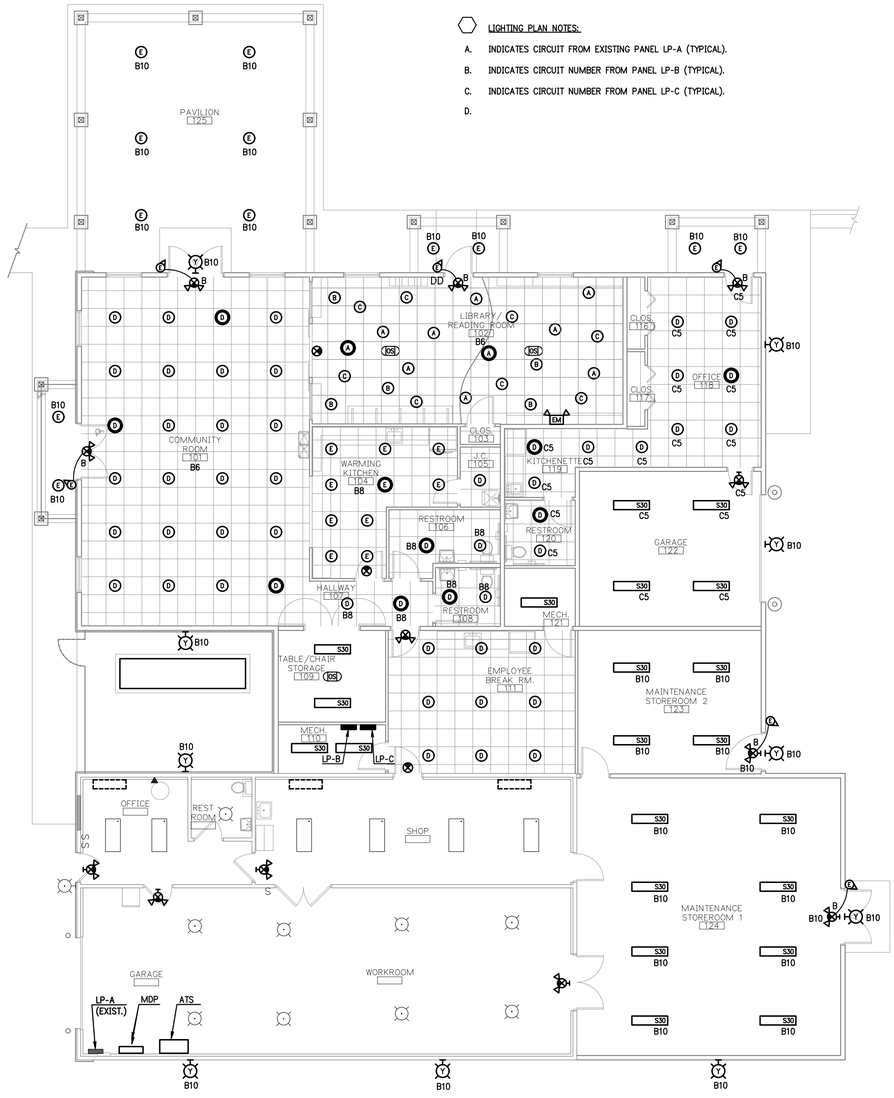


FLOOR PLAN - LIGHTING
SCALE: 1/8"=1'-0"

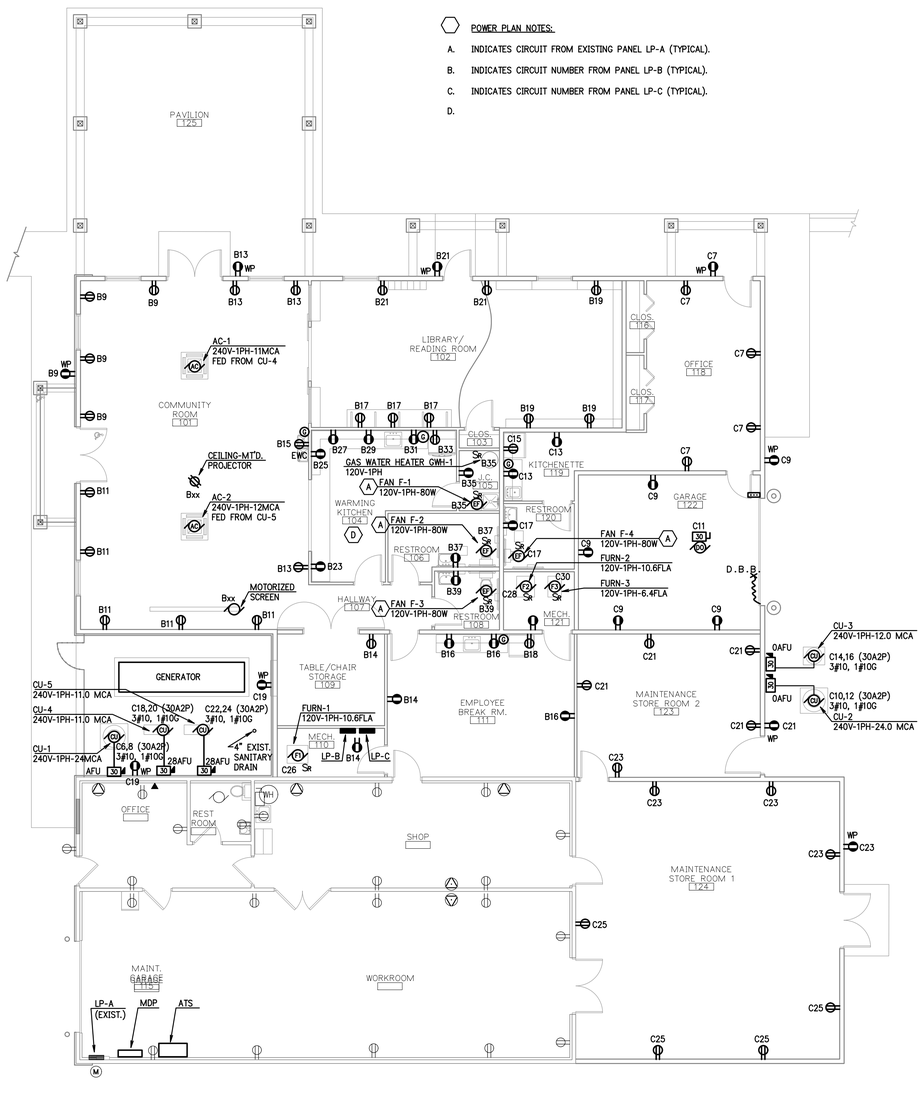
LIGHTING PLAN NOTES:

A. INDICATES CIRCUIT FROM EXISTING PANEL LP-A (TYPICAL).

B. INDICATES CIRCUIT NUMBER FROM PANEL LP-B (TYPICAL).

C. INDICATES CIRCUIT NUMBER FROM PANEL LP-C (TYPICAL).

D.



FLOOR PLAN - POWER
SCALE: 1/8"=1'-0"

POWER PLAN NOTES:

A. INDICATES CIRCUIT FROM EXISTING PANEL LP-A (TYPICAL).

B. INDICATES CIRCUIT NUMBER FROM PANEL LP-B (TYPICAL).

C. INDICATES CIRCUIT NUMBER FROM PANEL LP-C (TYPICAL).

D.

PLAN NOTES:

A. INTERLOCK FAN WITH LIGHTS.

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NANCY WAIN, EXEC. DIRECTOR
MONROE HOUSING COMMISSION
20 NORTH ROESSLER STREET
MONROE, MICHIGAN 48162
TELEPHONE: (734) 242-5880

FLOOR PLANS LIGHTING & POWER

NOT FOR CONSTRUCTION

DATE:	ISSUED FOR:
06-21-2023	BIDS
DRAWN	RKB
REVIEW'D	DTK

202222

E-3

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Electrical Service Load Summary

Load Description	Connected Load	Demand Load
Lighting	5,880 VA	5,880 VA
Receptacle	15,720 VA	12,860 VA
Mechanical	6,784 VA	6,784 VA
Heat	4,500 VA	4,500 VA
Air Conditioning	33,120 VA	33,120 VA
Equipment	9,000 VA	9,000 VA
Kitchen Equipment	3,120 VA	3,120 VA
Grand Total	**78,124 VA**	**75,264 VA**

SERVICE VOLTAGE: 120/240V-1PH-3W
SERVICE AMPACITY: 400A
DEMAND AMPACITY AT SERVICE VOLTAGE: 314 A

2023-06-14

LP-A (EXIST.)

200A — VOLTAGE: 120/240V-1PH-3W — SURFACE

NOTES	USE	LOAD	BKR AMP	BKR No	PH	BKR No	BKR AMP	LOAD	USE	NOTES
	GARAGE - LIGHTS	1,200	20	1	A	2	20	1,120	OFFICE & WORKROOM - LIGHTS	
	GARAGE - RECEPTS.	900	20	3	B	4	20	720	WORKROOM EAST - RECEPTS.	
	GARAGE - RECEPTS.	900	20	5	A	6	20	720	WORKROOM WEST & SOUTH - RECEPTS.	
	OFFICE & RESTROOM - RECEPTS.	1,080	20	7	B	8	20	360	GARAGE WEST - RECEPTS.	
	AIR COMPRESSOR	1,000	20	9	A	10	20		NORTH WORKROOM - HEATER & A/C	
	"	1,000	2P	11	B	12	2P		(DEMO)	
	BATH - HEATER	1,500	20	13	A	14	20		OFFICE - HEATER & A/C	
	WORK ROOM -	1,500	20	15	B	16	2P		(DEMO)	
	? - HEATER & A/C	1,500	2P	17	A	18	30	1,500	WATER HEATER	
	SEWAGE PUMP	1,000	20	19	B	20	2P	1,500	"	
	?	1,500	30	21	A	22	30		HEATER AC	
	"	1,500	2P	23	B	24	2P		(DEMO)	
				25	A	26				
				27	B	28				
				29	A	30				

TOTAL CONNECTED LOAD: 20,500 W — 85 AMPS

2023-06-14

LP-B

200A MLO — VOLTAGE: 120/240V-1PH-3W — SURFACE

NOTES	USE	LOAD	BKR AMP	BKR No	PH	BKR No	BKR AMP	LOAD	USE	NOTES
	A/C-1 - COMMUNITY ROOM 101	1,320	30	1	A	2	20		SPARE	
	"	1,320	2P	3	B	4	20		SPARE	
	A/C-2 - COMMUNITY ROOM 101	1,440	30	5	A	6	20	1,840	LIGHTS - COMMUNITY RM. & LIBRARY	
	"	1,440	2P	7	B	8	20	1,120	LIGHTS - WARMING KIT, RST.RMS,BREAK RM	
	COMMUNITY 101 - RECEPTACLES NE WALL	900	20	9	A	10	20	1,160	LIGHTS - MAINT. STORERMS & EXTERIOR	
	COMMUNITY 101 - RECEPTACLES NW WALL	900	20	11	B	12	20		SPARE	
	COMMUNITY 101 - RECEPTACLES SOUTH WALL	900	20	13	A	14	20	1,000	WARMING KITCHEN 104 - RECEPT. WEST	
	COMMUNITY RM. 101 - EWC	800	20	15	B	16	20	1,000	WARMING KITCHEN 104 - RECEPT. WEST	
	LIBRARY 103 - RECEPTACLES WEST WALL	900	20	17	A	18	20	1,000	WARMING KITCHEN 104 - RECEPT. NORTH	
	LIBRARY 103 - RECEPTACLES WEST WALL	900	20	19	B	20	20	1,000	WARMING KITCHEN 104 - RECEPT. NORTH	
	LIBRARY 103 - RECEPTACLES EAST WALL	540	20	21	A	22	20	1,000	WARMING KITCHEN 104 - RECEPT. NORTH	
	SPARE		20	23	B	24	20	1,000	WARMING KITCHEN 104 - REFRIGERATOR	
	SPARE		20	25	A	26	20	460	JAN. CLOS. 105 - RECEPT, FAN, GWHTR.	
	SPARE		20	27	B	28	20	520	RESTROOMS 106,108 - RECEPT. & FAN	
	SPARE		20	29	A	30	20		SPARE	
	SPARE		20	31	B	32	20		SPARE	
	SPARE		20	33	A	34	20		SPARE	
	SPARE		20	35	B	36	20		SPARE	
	SPARE		20	37	A	38	20		SPARE	
	SPARE		20	39	B	40	20		SPARE	
	SPARE		20	41	A	42	20		SPARE	

TOTAL CONNECTED LOAD: 22,460 W — 94 AMPS

2023-06-14

LP-C

200A MLO — VOLTAGE: 120/240V-1PH-3W — SURFACE

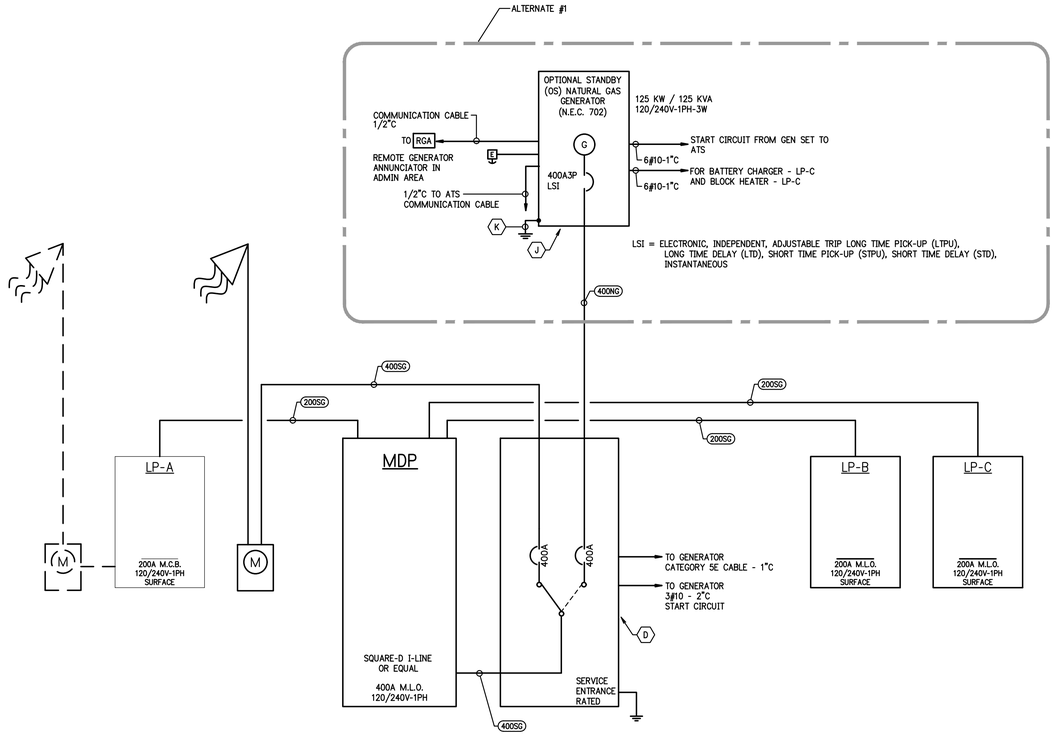
NOTES	USE	LOAD	BKR AMP	BKR No	PH	BKR No	BKR AMP	LOAD	USE	NOTES
	SPARE		20	1	A	2	20		SPARE	
	SPARE		20	3	B	4	20		SPARE	
	PUBLIC SERV - LIGHTS	560	20	5	A	6	30	2,220	CU-1	
	OFFICE 118 - RECEPTACLES	900	20	7	B	8	2P	2,220		
	GARAGE 122 - RECEPTACLES	720	20	9	A	10	30	2,220	CU-2	
	GARAGE 122 - DOOR OPERATOR	1,200	20	11	B	12	2P	2,220		
	KITCHENETTE 119 - RECEPTACLES	360	20	13	A	14	20	1,080	CU-3	
	KITCHENETTE 119 - REFRIGERATOR	1,200	20	15	B	16	2P	1,080		
	RESTROOM 120 - RECEPT. & FAN	260	20	17	A	18	20	1,320	CU-4	
	SPARE		20	19	B	20	2P	1,320		
	MAINTENANCE STOREROOM 2 - RECEPTS.	900	20	21	A	22	20	1,440	CU-5	
	MAINTENANCE STOREROOM 3 - RECEPTS.	900	20	23	B	24	2P	1,440		
	MAINTENANCE STOREROOM 3 - RECEPTS.	720	20	25	A	26	30	1,272	FURN-1	
	SPARE		20	27	B	28	2P	1,272	FURN-2	
	SPARE		20	29	A	30	20	768	FURN-3	
	SPARE		20	31	B	32	20		SPARE	
	SPARE		20	33	A	34	20		SPARE	
	SPARE		20	35	B	36	20		SPARE	
	SPARE		20	37	A	38	20		SPARE	
	SPARE		20	39	B	40	20		SPARE	
	SPARE		20	41	A	42	20		SPARE	

TOTAL CONNECTED LOAD: 27,592 W — 115 AMPS

2023-06-14

FEEDER SCHEDULE

MARK	1 PHASE - 2 WIRE WITH GROUND	MARK	1 PHASE OR 3 PHASE - 3 WIRE WITH GROUND	
	COPPER		COPPER	COMPACT ALUMINUM
20SG	2#12, 1#12G - 1/2"C	20C	3#12, 1#12G - 1/2"C	
30SG	2#10, 1#10G - 1/2"C	30C	3#10, 1#10G - 1/2"C	
50SG	2#8, 1#10G - 1"C	50C	3#8, 1#10G - 1"C	
60SG	2#6, 1#10G - 1"C	60C	3#6, 1#10G - 1"C	
80SG	2#4, 1#8G - 1"C	80C	3#4, 1#8G - 1"C	
100SG	2#2, 1#8G - 1-1/4"C	100C	3#2, 1#8G - 1-1/4"C	3#1, 1#6G - 1-1/4"C
		125C	3#1, 1#6G - 1-1/4"C	3#2/0, 1#4G - 1-1/2"C
		150C	3#1/0, 1#6G - 1-1/2"C	3#3/0, 1#4G - 2"C
		175C	3#2/0, 1#6G - 1-1/2"C	3#4/0, 1#4G - 2"C
		200C	3#3/0, 1#6G - 2"C	3#250kcmil, 1#4G -2-1/2"
		225C	3#4/0, 1#4G - 2"C	3#300kcmil, 1#2G - 2-1/2"C
		250C	3#250kcmil, 1#4G - 2-1/2"C	3#350kcmil, 1#2G - 2-1/2"C
		300C	3#350kcmil, 1#4G - 2-1/2"C	3#500kcmil, 1#2G - 3"C
		400C	3#500kcmil, 1#2G - 3"C	2(3#250kcmil, 1#1G - 2-1/2"C)
		F400C	3#600kcmil, 1#2G - 3-1/2"C	2(3#250kcmil, 1#1G - 2-1/2"C)
		500C	2(3#250kcmil, 1#2G - 2-1/2"C)	2(3#350kcmil, 1#1/0G - 2-1/2"C)
		600C	2(3#350kcmil, 1#1G - 2-1/2"C)	2(3#500kcmil, 1#2/0G - 3"C)
		800C	2(3#500kcmil, 1#1/0G - 3"C)	3(3#400kcmil, 1#3/0G - 3"C)
		F800C	2(3#600kcmil, 1#1/0G - 3-1/2"C)	3(3#400kcmil, 1#3/0G - 3"C)
		1000C	3(3#400kcmil, 1#2/0G - 3"C)	3(3#600kcmil, 1#4/0G - 3"C)
		1200C	4(3#350kcmil, 1#3/0G - 2-1/2"C)	4(3#500kcmil, 1#250kcmilG - 3"C)
		1600C	4(3#600kcmil, 1#4/0G - 3-1/2"C)	6(3#400kcmil, 1#350kcmilG - 3"C)
		2000C	5(3#600kcmil, 1#250kcmilG - 3-1/2"C)	6(3#600kcmil, 1#400kcmilG - 3-1/2"C)



PANEL RISER
SCALE: NONE

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JAMES S. JACOBS ARCHITECTS, PLLC
25 WASHINGTON STREET
MONROE, MICHIGAN 48161
TELE: (734) 241-7933
FAX: (734) 241-1181
EMAIL: jim@jsjacobsarch.com

JDRM Engineering
Mechanical | Electrical | Plumbing | Technology | Safety
5604 N. Main St. Suite 200
Sylvania, Ohio 43560
PH (419) 824-2400
FAX (419) 824-2409
www.jdrm.com

GREENWOOD MAINTENANCE BUILDING ADDITION FOR:

MONROE HOUSING COMMISSION: GREENWOOD TOWNHOUSES
900 GREENWOOD AVENUE
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PROPERTY CONTACT:
NANCY WAIN, EXEC. DIRECTOR
MONROE HOUSING COMMISSION
20 NORTH ROESSLER STREET
MONROE, MICHIGAN 48162
TELEPHONE: (734) 242-5880

PANEL RISER & PANEL SCHEDULES

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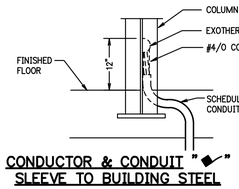
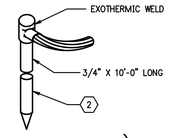
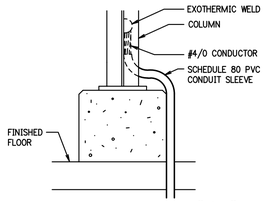
E-4



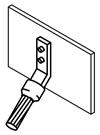
CONDUCTOR & CONDUIT "◆" SLEEVE TO BUILDING STEEL



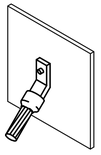
GROUND ROD "⊙"



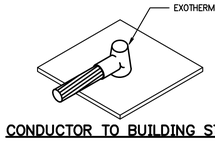
CONDUCTOR & CONDUIT "◆" SLEEVE TO BUILDING STEEL



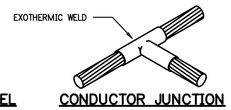
CONDUCTOR TO GROUND BAR



EQUIPMENT GROUND



CONDUCTOR TO BUILDING STEEL



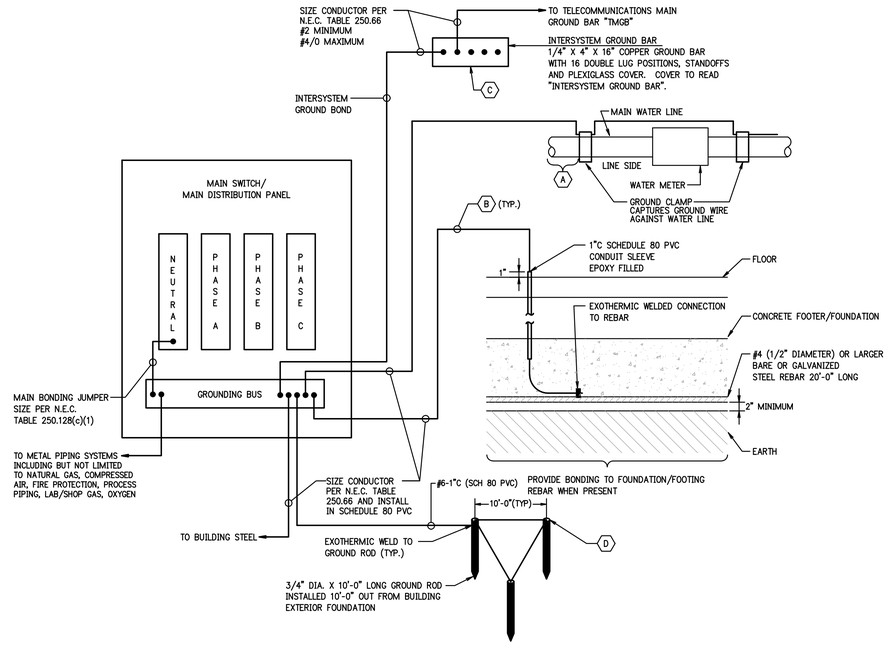
CONDUCTOR JUNCTION

⬡ GROUNDING NOTES:

1. GROUNDING CONDUCTOR SHALL BE LAID SLACK A MINIMUM OF 18" BELOW FINISHED GRADE (30" BELOW FINISHED GRADE WHERE GROUNDING RING EXISTS).
2. GROUND RODS SHALL BE LOCATED A MINIMUM OF 10'-0" AWAY FROM BUILDING. GROUND CONDUCTOR FROM BUILDING THROUGH FOUNDATION SHALL BE INSTALLED IN SCHEDULE 80 PVC CONDUIT.
3. GROUND RESISTANCE SHALL BE 3 OHMS MAXIMUM. ADDITIONAL RODS OR ROD EXTENSIONS SHALL BE DRIVEN TO OBTAIN THIS VALUE BY TEST.
4. ALL GROUND CONDUCTORS SHALL BE A #4/0-7 STRAND SOFT, BARE COPPER CONDUCTOR MINIMUM. UNLESS NOTED OTHERWISE IN THESE DRAWINGS OR SPECIFICATIONS

GROUNDING DETAILS

SCALE: NONE

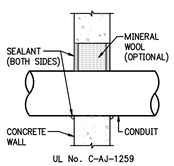


⬡ MAIN SERVICE GROUNDING NOTES:

A. CONDUCTOR TO BE CLAMPED TO LINE SIDE OF MAIN WATER LINE WITHIN 5' OF BUILDING ENTRANCE.
B. ALL CONDUCTORS SHALL BE COPPER.
C. ALL CONNECTIONS TO INTERSYSTEM GROUND BAR SHALL BE DOUBLE LUG STYLE.
D. PROVIDE INSPECTION WELL AT EACH GROUND ROD PER SPECIFICATIONS.

MAIN SERVICE GROUNDING DETAIL

SCALE: NONE



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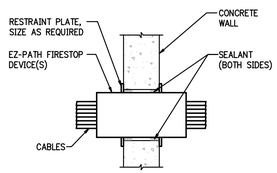
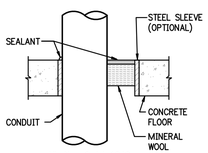


TESTED IN ACCORDANCE WITH ASTM E814 (UL1479)



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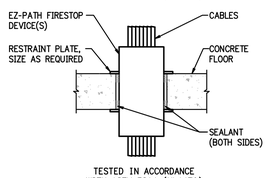

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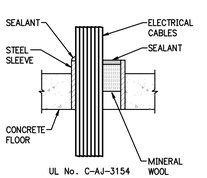
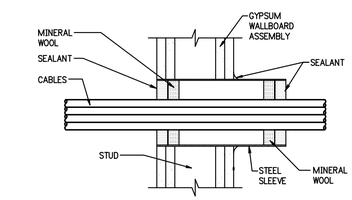


UL No. C-AJ-3154

CONCRETE/MASONRY FLOOR & WALLS



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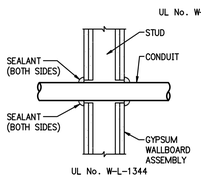

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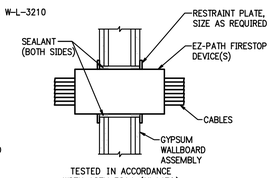


TESTED IN ACCORDANCE WITH ASTM E814 (UL1479)

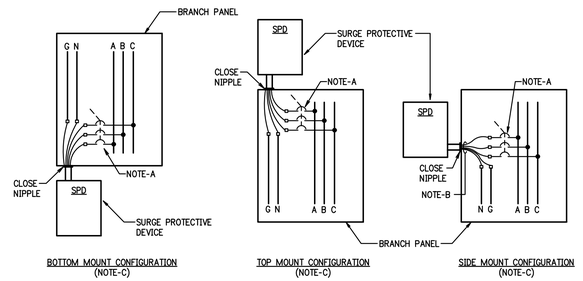
GYPSUM WALLBOARD ASSEMBLIES

NOTES:

1. CABLE AND CONDUIT PENETRATION DETAILS ARE BASED ON A UL LISTED 2 HOUR FIRE RATED ASSEMBLY (MINIMUM) UTILIZING STI FIRESTOP PRODUCTS. MANUFACTURERS SHALL BE STI, HILTI, 3M OR APPROVED EQUAL. REFER TO MANUFACTURER'S SPECIFICATIONS AND INSTALLATION DETAILS FOR EXACT INSTALLATION METHODS.
2. PACKING AND SEALANT DEPTHS SHALL BE PER MANUFACTURER'S SPECIFICATIONS FOR UL ASSEMBLY RATING COMPLIANCE.
3. ALL FIRESTOP LOCATIONS SHALL BE LABELED AT POINT OF PENETRATION LABEL SHALL IDENTIFY FIRE STOPPING MATERIAL, U.L. LISTING NUMBER AND HOUR RATING OF WALL/FLOOR.

CONDUIT/CABLE PENETRATIONS THROUGH RATED ASSEMBLIES

SCALE: NONE



NOTES:

A. CIRCUIT BREAKER FEEDING THE SURGE PROTECTIVE DEVICE SHALL BE INSTALLED DIRECTLY ACROSS FROM THE CONDUIT NIPPLE CONNECTING THE PANEL AND SURGE PROTECTIVE DEVICE. CIRCUIT BREAKERS SHALL BE LOCATED WITHIN PANEL AS REQUIRED TO ACCOMMODATE THIS INSTALLATION.

B. PHASE NEUTRAL AND GROUND CONDUCTORS SHALL BE INSTALLED WITH THE SHORTEST LENGTH POSSIBLE WITH THE NEUTRAL, AND GROUND CONNECTION BEING MADE IN CLOSE PROXIMITY TO THE FEEDER CIRCUIT BREAKER. THE CONDUCTORS SHALL BE INSTALLED TWISTED TOGETHER.

C. SIDE, BOTTOM AND TOP MOUNTING OF THE SURGE PROTECTIVE DEVICE ARE ACCEPTABLE. CONTRACTOR SHALL FIELD VERIFY BEST LOCATION WITH PANEL LAYOUT.

SURGE PROTECTIVE DEVICE INSTALLATION DETAIL

SCALE: NONE

JAMES S. JACOBS ARCHITECTS, PLLC
25 WASHINGTON STREET
MONROE, MICHIGAN 48161
TELE: (734) 241-7933
FAX: (734) 241-1181
EMAIL: jmj@jsjacobsarch.com

JDRM Engineering
Mechanical | Electrical | Plumbing | Technology | Safety
5604 N. Main St. Suite 200
Sylvania, Ohio 43560
PH (419) 824-2400
FAX (419) 824-2409
www.jdrm.com

GREENWOOD MAINTENANCE BUILDING ADDITION FOR:

MONROE HOUSING COMMISSION: GREENWOOD TOWNHOUSES
900 GREENWOOD AVENUE
MONROE, MICHIGAN 48162

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NANCY WAIN, EXEC. DIRECTOR
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20 NORTH ROESSLER STREET
MONROE, MICHIGAN 48162
TELEPHONE: (734) 242-5880

ELECTRICAL DETAILS

NOT FOR CONSTRUCTION

06-21-2023	BIDS
DATE:	ISSUED FOR:
DRAWN	RKB
REVIEW'D	DTK

202222

E-5

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OUTLINE ELECTRICAL SPECIFICATIONS

SECTION 26 0500 – ELECTRICAL GENERAL PROVISIONS

A. DESCRIPTION OF WORK:

THIS DIVISION SHALL INCLUDE ALL LABOR, MATERIALS, EQUIPMENT AND SERVICES NECESSARY FOR ALL ELECTRICAL WORK, CONSISTING OF COMPLETE WIRING FOR LIGHTING, POWER AND OTHER SYSTEMS AS SHOWN.

THIS CONTRACTOR SHALL FURNISH AND INSTALL ALL LUMINAIRES AND EQUIPMENT TO MAKE A COMPLETE AND WORKING SYSTEM AS INDICATED ON ASSOCIATED ELECTRICAL PLANS AND/OR THESE SPECIFICATIONS. THIS WILL INCLUDE ALL WIRING REQUIREMENTS FROM THE SERVICE ENTRANCE TO AND INCLUDING FINAL OUTLETS, LUMINAIRES, ETC. THIS CONTRACTOR SHALL FURNISH ALL NECESSARY OUTLETS AND CONNECTIONS TO EQUIPMENT AND CONTROLS FURNISHED UNDER OTHER DIVISIONS OF THIS CONTRACT.

RACEWAYS ONLY SHALL BE INSTALLED FOR THE COMMUNICATION CABLE SYSTEMS UNLESS SPECIFICALLY STATED OTHERWISE ON THE DRAWINGS OR HEREIN IN THE SPECIFICATIONS.

THIS CONTRACTOR SHALL CAREFULLY READ THE GENERAL AND SPECIFIC CONDITIONS ATTACHED HERETO, WHICH, WITH THE FOLLOWING SPECIFICATIONS AND COMPLETE WORKING DRAWINGS, DETAILS AND ADDENDA, GOVERN ALL WORK UNDER THIS HEADING.

THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR FURNISHING ALL MATERIAL AND LABOR TO INSTALL AND ACCOMPLISH ALL WORK HEREINAFTER DESCRIBED. THIS SHALL INCLUDE ALL EXCAVATION, BACKFILL, TAMPING, COMPACTION, BASES, CONCRETE WORK, SUPPORTS BRACES, STEEL, INSERTS, ANCHORS, CHASES, SLEEVES, HOLES, ETC., REQUIRED TO ACCOMPLISH ALL PHASES OF THE ELECTRICAL CONTRACT, WITHOUT RELYING UPON OTHER TRADES OR INFERRING ANYTHING THAT IS MENTIONED IN OTHER DIVISIONS OF THIS SPECIFICATIONS, UNLESS IT IS SPECIFICALLY STATED IN THE ELECTRICAL SPECIFICATIONS OR NOTED ON THE DRAWINGS THAT IT IS TO BE FURNISHED OR PROVIDED BY ANOTHER TRADE.

SITE VISITATION: EXAMINATION OF THE SITE SHALL BE MADE BY THIS CONTRACTOR, WHO SHALL COMPARE IT WITH THE DRAWINGS AND SPECIFICATIONS AND SHALL SATISFY HIMSELF AS TO ALL THE CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED. CONTRACTOR SHALL ASCERTAIN AND CHECK THE LOCATION OF ANY EXISTING STRUCTURES OR EQUIPMENT WHICH MAY AFFECT THIS WORK.

B. DRAWINGS:

THE DRAWINGS ACCOMPANYING THESE SPECIFICATIONS ARE COMPLEMENTARY TO THEM. WHAT IS CALLED FOR BY ONE SHALL BE CONSIDERED AS THOUGH CALLED FOR BY BOTH, UNLESS SPECIFICALLY STATED OR SHOWN OTHERWISE.

THE WIRING LAYOUT IS SCHEMATIC AND THE EXACT LOCATIONS SHALL BE DETERMINED BY STRUCTURAL AND OTHER CONDITIONS. THIS SHALL NOT BE CONSTRUED TO MEAN THAT THE DESIGN OF THE SYSTEM MAY BE CHANGED. IT REFERS ONLY TO THE EXACT LOCATIONS OF CONDUITS AND EQUIPMENT TO FIT INTO THE BUILDING AS CONSTRUCTED AND THE COORDINATION OF CONDUIT AND OTHER EQUIPMENT WITH PIPING AND EQUIPMENT INCLUDED UNDER OTHER DIVISIONS OF THE SPECIFICATIONS.

THE EXACT LOCATION OF CONDUITS AND EQUIPMENT NOT LOCATED BY DIMENSIONS ON THE DRAWINGS SHALL BE DETERMINED IN THE FIELD CONSIDERING INTERFERENCES AND APPEARANCE. MINOR CHANGES IN THE LOCATION OF EQUIPMENT FROM THAT SHOWN ON THE DRAWINGS SHALL NOT CONSTITUTE A REASON FOR EXTRA CHARGES.

THE DRAWINGS ILLUSTRATE THE WORK SPECIFIED AND ARE INTENDED TO AGREE IN EVERY RESPECT WITH ONE ANOTHER AND WITH THESE SPECIFICATIONS. ALL DISCREPANCIES THAT APPEAR SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER/ARCHITECT FOR CORRECTION. NO OMISSION FROM ANY DRAWINGS SHALL RELEASE THE CONTRACTOR FROM FURNISHING EQUIPMENT OR MATERIALS CALLED FOR BY THE SPECIFICATIONS OR OTHER DRAWINGS.

C. EXISTING INSTALLATIONS:

THE DRAWINGS INDICATE MAJOR ITEMS TO BE REMOVED SUCH AS PANELS, COMMUNICATION SYSTEM TERMINAL BOXES, OR MAJOR FEEDER, ETC. THE DRAWINGS DO NOT DETAIL REMOVALS OF MINOR DEVICES, LIGHTING LUMINAIRES, BRANCH CIRCUITS, ETC. UNLESS SPECIFICALLY INDICATED FOR REUSE ELSEWHERE.

ALL REMOVED SALVAGEABLE MATERIAL, AS DETERMINED BY THE OWNER, SHALL REMAIN THE PROPERTY OF THE OWNER AND SHALL BE STOCKPILED ON THE SITE AS DIRECTED.

ALL CONDUIT, WIRING, SWITCHES, ELECTRICAL EQUIPMENT, PANELS, ETC., NO LONGER REMAINING IN SERVICE SHALL BE REMOVED. EXISTING CONDUITS MAY BE REUSED WHERE PRACTICABLE. NO WIRING, CONDUCTORS, CONDUIT OR EQUIPMENT REMOVED FROM THE PRESENT INSTALLATION SHALL BE REUSED WITHOUT THE EXPRESS CONSENT OF THE OWNER.

ALL NEW RACEWAYS SHALL BE RUN CONCEALED WHEREVER POSSIBLE. SURFACE METAL RACEWAY, WIREMOLD OR EQUAL, MAY BE USED COMPLETE WITH APPROVED ACCESSORIES ONLY WHERE NECESSARY IN THE OPINION OF THE OWNER.

ALL ABANDONED CONDUIT SHALL BE REMOVED WHERE EXPOSED AND SHALL BE PROPERLY CUT OFF WHERE CONCEALED. ALL WIRING SHALL BE REMOVED WHERE NO LONGER IN SERVICE. EXISTING LIGHTING LUMINAIRES NO LONGER REMAINING IN SERVICE SHALL BE REMOVED BY THE ELECTRICAL CONTRACTOR AND STORED ON THE SITE AS DIRECTED.

ELECTRICAL CONTRACTOR SHALL RESUPPORT AS REQUIRED BY CODE ANY EXISTING RACEWAY, CABLE TRAYS, JUNCTION BOXES, ETC. REQUIRING SUPPLEMENTAL SUPPORT AS THE RESULT OF DEMOLITION OF EXISTING WALLS, CEILINGS, SUPPORTS, ETC. BEING REMOVED AS PART OF THIS PROJECT.

D. COORDINATION WITH WORK OF OTHER TRADES:

THIS CONTRACTOR SHALL EXAMINE WORK OF OTHER TRADES WHICH COMES IN CONTACT WITH OR IS COVERED BY HIS. HE SHALL, IN NO CASE, ATTACH TO, COVER UP, OR FINISH AGAINST DEFECTIVE WORK. THIS CONTRACTOR SHALL CONSULT ALL DRAWINGS AND DETAILS, BOTH ARCHITECTURAL AND MECHANICAL.

E. BASIC MATERIALS:

ALL MATERIALS SHALL BE OF BEST QUALITY, NEW AND APPROVED BY UNDERWRITERS LABORATORIES, INC. WHERE SUCH APPROVAL IS APPLICABLE. MATERIALS SPECIFIED BY MANUFACTURER'S CATALOG NUMBER SHALL BE AS SPECIFIED UNLESS "OR EQUAL" SUBSTITUTIONS ARE AUTHORIZED BY THE ENGINEER/ARCHITECT.

APPROVAL OF REQUESTS FOR SUBSTITUTION OF PRODUCTS OR PROCESSES OTHER THAN THOSE SPECIFIED WILL BE CONTINGENT UPON SUBMISSION OF PROOF, SATISFACTORY TO THE ENGINEER/ARCHITECT AND OWNER, THAT:

- THE CONTRACTOR WILL PROVIDE THE SAME WARRANTY FOR THE SUBSTITUTION THAT HE WOULD FOR THE PRODUCT SPECIFIED.
- ALL REQUESTS FOR SUBSTITUTIONS SHALL BE SUBMITTED TO THE ENGINEER/ARCHITECT NO LATER THAN 14 DAYS BEFORE PURCHASING OR INSTALLING PRODUCTS.

F. QUALITY ASSURANCE CODES, STANDARDS, PERMITS AND SYMBOLS:

TESTS: DEMONSTRATE BY TESTS, AT THE REQUEST OF THE ENGINEER/ARCHITECT AND OWNER, THE COMPLIANCE OF THE INSTALLATION WITH THESE SPECIFICATIONS, THE DRAWINGS, THE NATIONAL ELECTRICAL CODE, AND THE ACCEPTED STANDARDS OF GOOD WORKMANSHIP. THESE TESTS SHALL INCLUDE OPERATIONS OF LIGHTS AND EQUIPMENT, CONTINUITY OF THE CONDUIT SYSTEM, GROUNDING RESISTANCE AND INSULATION RESISTANCE MEASUREMENTS ON NOT MORE THAN TEN REPRESENTATIVE CIRCUITS AND ANY OTHER CIRCUITS FOR WHICH A JUSTIFIABLE REASON EXISTS FOR SUCH TESTS. ALL LABOR AND TESTING EQUIPMENT FOR THE PERFORMANCE OF THESE TESTS SHALL BE FURNISHED BY THIS CONTRACTOR.

PERMITS: THIS CONTRACTOR SHALL PAY FOR ALL PERMITS, LICENSES, INSPECTIONS AND FEES REQUIRED FOR THE EXECUTION OF HIS WORK. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR COMPLIANCE WITH APPLICABLE CODES REGARDLESS OF THE METHOD(S) SHOWN OR SPECIFIED.

G. SUBMITTALS:

SHOP DRAWINGS: SUBMIT EIGHT COPIES OF DETAILED SHOP DRAWINGS OF ALL ITEMS OF EQUIPMENT FURNISHED UNDER THIS CONTRACT FOR APPROVAL, BEFORE MANUFACTURE OF THE EQUIPMENT OR ITS INCORPORATION IN THE WORK. DRAWINGS SHALL BE SUBMITTED COVERING PANELBOARDS, DRY TYPE TRANSFORMERS, LIGHTING LUMINAIRES, ELECTRONIC BALLASTS FOR FLUORESCENT LUMINAIRES, WIRING DEVICES, MOTOR CONTROLS, FIRE ALARM SYSTEM, ETC.

IF QUANTITIES APPEAR ON THE DRAWINGS, THEY WILL BE MARKED OUT. THE ENGINEER/ARCHITECT WILL NOT APPROVE QUANTITIES. THIS IS THE CONTRACTOR'S RESPONSIBILITY.

IF STANDARD CATALOG SHEETS CONTAINING NUMEROUS NUMBERS, SUCH AS LUMINAIRE TYPES, ARE SUBMITTED WITHOUT BEING MARKED FOR IDENTIFICATION, THEY WILL BE RETURNED FOR RESUBMISSION.

SHOP DRAWINGS OF DISTRIBUTION SWITCHBOARDS OR PANELBOARDS AND MOTOR CONTROL CENTERS SHALL INCLUDE FULL FRONT ELEVATIONS INDICATING ALL FUSIBLE SWITCHES, BREAKERS, STARTERS, ETC. DIMENSIONED SPACE FOR FUTURE BRANCH SWITCHES, BREAKERS AND/OR STARTERS SHALL BE INCLUDED ON THE ELEVATION.

RECORD DRAWINGS: THE CONTRACTOR SHALL KEEP IN THE FIELD, AND OPEN TO INSPECTION, AN ACCURATE, CURRENT, PROGRESSIVE RECORD OF THE ACTUAL INSTALLATION OF THE ELECTRICAL SYSTEM. ON COMPLETION OF THE WORK, THE CONTRACTOR SHALL DELIVER MARKED PRINTS SHOWING THE ACTUAL ROUTING OF THE CONDUITS AND DUCTS, LOCATIONS AND ELEVATION OF OUTLETS, CIRCUIT NUMBERS OF ALL LIGHTING AND POWER CIRCUITS, INSTALLATION DETAILS OF LIGHTING LUMINAIRES, POWER PANELS, ETC.

H. PRODUCTS:

PRODUCTS, ELECTRICAL WORK:

IT IS TO BE EMPHASIZED THAT THE CONTRACTOR'S BASE BID SHALL BE BASED ON EQUIPMENT NAMED IN THE SPECIFICATIONS. SUBMISSION OF SUBSTITUTE ITEMS OF EQUIPMENT BY ANY BIDDER, CONTRACTOR, OR MANUFACTURER SHALL BE IN NO WAY BINDING ON THE OWNER OR ENGINEER FOR ACCEPTANCE OR REJECTION. FINAL APPROVAL OF ALL EQUIPMENT AND MATERIALS SHALL BE MADE ONLY AFTER FINAL TEST AND ACCEPTANCE OF THE PROJECT.

I. EXECUTION:

GENERAL:

PERFORM ALL WORK IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE, OSHA, STATE AND LOCAL CODES WHICH APPLY.

AT NO TIME SHALL ELECTRICAL WORK BE WITHOUT THE IMMEDIATE ON-THE-JOB SUPERVISION OF A JOURNEYMAN ELECTRICIAN.

BALANCE LOAD ON FEEDERS AND MAIN SWITCH TO WITHIN 10% UNDER MAXIMUM LOAD CONDITIONS.

THIS CONTRACTOR SHALL AT ALL TIMES KEEP HIMSELF FULLY INFORMED OF THE PROGRESS OF THE GENERAL CONSTRUCTION AND SHALL INSTALL ALL OF HIS WORK THAT IS CONCEALED AND BUILT INTO THE BUILDING IN PLACE IN SUFFICIENT TIME TO INSURE PROPER LOCATION WITHOUT DELAYS IN THE WORK OF THE OTHER TRADES. PROPERLY ATTEND THE ELECTRICAL WORK DURING THE PROGRESS OF THE BUILDING-IN TO PREVENT MISALIGNMENTS OR DAMAGE TO THE ELECTRICAL WORK.

UPON COMPLETION OF WORK, THE ENTIRE INSTALLATION WILL BE INSPECTED AND TESTED TO SEE THAT THE REQUIREMENTS OF THESE SPECIFICATIONS HAVE BEEN FULLY COMPLIED WITH BEFORE THE FINAL PAYMENT WILL BE APPROVED.

PENETRATION OF METAL ROOF DECK IS NOT PERMITTED FOR HANGERS, CLAMPS, FASTENERS, ETC.

IN AREAS WITHOUT SUSPENDED CEILINGS, LUMINAIRES AND ELECTRICAL PRODUCTS LOCATED BETWEEN STRUCTURAL MEMBERS SHALL BE SUPPORTED BY AN APPROVED SYSTEM, SUCH AS ƬUNISTRUTΦ AND ALL ADDITIONAL SUPPLEMENTARY SUPPORT AS MAY BE REQUIRED. SUPPORTS COMPOSED OF CHANNEL IRON, CONDUIT, WIRE OR OTHER NON-APPROVED MATERIAL SHALL NOT BE ACCEPTABLE.

EXPOSED CONDUIT INSTALLED AFTER ROOM HAS BEEN PAINTED SHALL BE PAINTED TO MATCH ROOM FINISH BY THIS CONTRACTOR.

NO CONDUITS, CABLES, BOXES, DEVICES, ETC., SHALL BE ATTACHED TO WIRES THAT SUPPORT CEILING SUSPENSION SYSTEM.

ALL INCANDESCENT LUMINAIRES, SPEAKERS, SMOKE DETECTORS, CLOCKS, ETC., ATTACHED TO OR SUSPENDED FROM GRID CEILINGS SHALL BE SUPPORTED FROM THE MAIN T-BARS, NOT THE INTERMEDIATE T'S.

OPENINGS AROUND CONDUITS OR IN SLEEVES FOR CONDUITS PENETRATING FIRE-RATED FLOOR SLABS, WALLS, PARTITIONS, CEILINGS OR SMOKE PARTITIONS, SHALL BE SEALED AT BOTH SIDES OF THE PENETRATION. INSULATION SHALL NOT EXTEND THROUGH SLEEVES. PACK OPENINGS WITH CALCIUM SILICATE BLOCK, DOW CORNING 3-6548 RTV SILICONE FOAM, 3M CP25 CAULK, OR 303 PUTTY FIRE BARRIER SYSTEM, OR MATERIAL HAVING THE SAME FIRE RATING AS THE FLOOR OR WALL PENETRATED. FIBERGLASS IS NOT ACCEPTABLE.

ALL RECESSED FLUORESCENT LUMINAIRES SHALL BE SECURELY FASTENED AT EACH CORNER TO THE CEILING FRAMING MEMBERS BY MECHANICAL MEANS SUCH AS SCREWS OR RIVETS. SURFACE MOUNTED FLUORESCENT LUMINAIRES SHALL BE SECURELY FASTENED AT EACH END TO THE CEILING FRAMING MEMBERS BY MECHANICAL MEANS SUCH AS SCREWS OR RIVETS.

THE CONTRACTOR SHALL USE ALL CARE POSSIBLE TO AVOID SOILING THE FLOORS AND WALLS. NO CUTTING, THREADING, OR BENDING OF CONDUIT WILL BE PERMITTED IN BUILDING AREAS WHERE FINISHED FLOORS HAVE BEEN INSTALLED, UNLESS THE FLOORS ARE COVERED OR PROTECTED. IF FLOORS ARE DAMAGED, THEY SHALL BE REFINISHED TO THE SATISFACTION OF THE ENGINEER/ARCHITECT.

NAMEPLATES: PROVIDE NAMEPLATES ON ALL EQUIPMENT OF THE TYPE LISTED IN THE FOLLOWING SCHEDULES:

- PANELBOARDS
- SWITCHBOARDS
- MOTOR STARTERS
- SAFETY SWITCHES
- BUS PLUG-IN UNITS
- CONTROL PANELS
- CONTROL DEVICES
- TELEPHONE CABINETS
- EMERGENCY SYSTEM EQUIPMENT
- TRANSFORMERS
- *CURRENT TRANSFORMER (CT) CABINET (*NAMEPLATE SHALL READ ƬCT CABINET AND METER ARE NOT A DISCONNECTING MEANSΦ)

NAMEPLATES SHALL BE LAMINATED PHENOLIC WITH A WHITE SURFACE AND BLACK CORE. USE 1/16" THICK MATERIAL FOR PLATES UP TO 2" X 4"; FOR LARGER SIZES USE 1/8" THICK MATERIAL.

LETTERING SHALL BE CONDENSED GOTHIC. THE SPACE BETWEEN LINES SHALL BE EQUAL TO THE WIDTH OF THE LETTERS. USE 1/4" MINIMUM HEIGHT LETTERS WHICH OCCUPY FOUR TO THE INCH. INCREASE LETTER SIZE TO 3/4" ON THE LARGEST PLATES.

WARRANTY: THIS CONTRACTOR SHALL WARRANTY HIS ENTIRE ELECTRICAL INSTALLATION AGAINST DEFECTS IN WORKMANSHIP AND MATERIALS FOR A PERIOD OF ONE YEAR AFTER THE DATE OF ACCEPTANCE BY THE OWNER, ORDINARY WEAR AND TEAR EXCEPTED, OR SUCH LONGER PERIOD AS SPECIFIED IN THE CONTRACT DOCUMENTS. UPON WRITTEN NOTICE FROM THE OWNER, THIS CONTRACTOR SHALL REMEDY ALL SUCH DEFECTS AT HIS OWN EXPENSE AND AT A TIME CONVENIENT TO THE OWNER.

TEMPORARY LIGHTING AND ELECTRIC POWER:

THIS CONTRACTOR SHALL PROVIDE TEMPORARY GENERAL LIGHTING AND POWER IN ACCORDANCE WITH OSHA STANDARDS. TEMPORARY ELECTRICAL POWER SHALL CONSIST OF A MINIMUM OF ONE DOUBLE DUPLEX RECEPTACLE WITH GROUND FAULT PROTECTION, INSTALLED IN THE ELECTRICAL ROOM ON EACH FLOOR. 120 VOLT RECEPTACLES WITH GROUND FAULT PROTECTION SHALL BE INSTALLED SO THAT NO SUBCONTRACTOR WILL BE REQUIRED TO USE EXTENSION CORDS IN EXCESS OF 75'-0". PROVIDE AND MAINTAIN A MINIMUM OF 1/2 WATT PER SQUARE FOOT FOR POWER AND A MINIMUM OF 20 FOOTCANDLES FOR LIGHTING. SPECIAL TEMPORARY WIRING FOR LIGHTING, INCLUDING ALL ADDITIONAL LIGHTING FOR SPECIAL FINISHES, AND ELECTRICAL POWER REQUIREMENTS OVER THOSE SPECIFIED, SHALL BE THE RESPONSIBILITY OF THE INDIVIDUAL CONTRACTOR.

IF SUITABLE POWER IS NOT AVAILABLE ON SITE, THE CONTRACTOR SHALL PROVIDE TEMPORARY POWER FROM THE LOCAL UTILITY INCLUDING ALL POLES, TRANSFORMERS, METERS, ETC., AND INCLUDING ALL POWER COMPANY INSTALLATION CHARGES.

IF THE COST OF POWER IS TO BE BORNE BY THE CONTRACTORS, IT SHALL BE DONE ON A PERCENTAGE BASIS ACCORDING TO CONTRACT AWARD AND DIVIDED AMONG ALL PROJECT CONTRACTORS.

THE CONTRACTOR SHALL REMOVE ALL TEMPORARY WIRING AT CLOSE OF CONTRACT, INCLUDING ALL WIRING, PANELS, ETC., INSTALLED UNDER PREVIOUS CONTRACTS.

CHECK AND TIGHTEN ALL PLATES, COVERS, DOORS, AND TRIMS USED IN CONJUNCTION WITH ELECTRICAL EQUIPMENT. ALL OUTLET OPENINGS NOT RECEIVING A DEVICE SHALL BE PROVIDED WITH A BLANK PLATE. THERE SHALL BE NO "OPEN" BOXES.

UPON COMPLETION OF THE WORK, THIS CONTRACTOR SHALL REMOVE ALL DEBRIS, TOOLS, MACHINES, ETC., PERTAINING TO THIS WORK AND SHALL LEAVE THE AREA BROOM CLEAN. THE WORK, INCLUDING LUMINAIRES, SHALL BE THOROUGHLY CLEANED AND READY FOR USE BY THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING CLEAN AND SAFE CONDITIONS IN THE AREA OF HIS WORK.

DUE TO ARC FLASH HAZARDS, ANY WORK REQUIRED ON ELECTRICAL EQUIPMENT THAT IS ENERGIZED SHALL BE WITH WRITTEN PERMISSION FROM THE OWNER. THE ELECTRICAL CONTRACTOR SHALL REQUIRE EMPLOYEES TO WEAR THE PROPER PERSONAL PROTECTION (PPE) EQUIPMENT REQUIRED IN NFPA-70E, 130.7(C)(9).

SECTION 26 0505 – ELECTRICAL RELATED WORK

A. DESCRIPTION OF WORK:

EXTENT OF ELECTRICAL RELATED WORK REQUIRED BY THIS SECTION IS INDICATED ON DRAWINGS AND/OR SPECIFIED IN OTHER DIVISION-26 SECTIONS.

TYPES OF ELECTRICAL RELATED WORK SPECIFIED IN THIS SECTION INCLUDE THE FOLLOWING:

- ACCESS TO ELECTRICAL WORK
- HAZARDOUS CLASSIFIED AREAS
- CUTTING AND PATCHING FOR ELECTRICAL WORK
- EXCAVATING FOR ELECTRICAL WORK
- CONCRETE FOR ELECTRICAL WORK

B. EXECUTION:

CUTTING AND PATCHING: AVOID CUTTING INTO WORK BY OTHERS BY USING SLEEVES, INSETS, CHASES, ETC. THE CONTRACTOR IN WHOSE WORK IT SHALL BE NECESSARY TO USE ANY OF THESE METHODS SHALL BUILD SAME INTO HIS WORK, BUT THIS CONTRACTOR SHALL BE RESPONSIBLE FOR THE CORRECT SIZES AND LOCATIONS OF SAME AND SHALL FURNISH ALL SLEEVES AND INSERTS. ALL SLEEVES AND INSERTS SHALL BE FURNISHED IN AMPLE TIME SO AS NOT TO CAUSE DELAY OF OTHER TRADES.

NO CUTTING SHALL BE DONE WHICH WILL IN ANY WAY REDUCE THE STRUCTURAL STRENGTH OF THE BUILDING. SHOULD SUCH CUTTING BE FOUND NECESSARY, THE ENGINEER/ARCHITECT MUST FIRST BE FULLY INFORMED OF AND CONSENT TO THE PROPOSED OPERATION.

CUTTING AND PATCHING OF EXISTING WALLS, FLOORS, CEILINGS, ROOF, ETC. FOR NEW CONDUITS, RACEWAY, ETC. SHALL BE ACCOMPLISHED BY THE ELECTRICAL CONTRACTOR UNLESS NOTED OTHERWISE. THIS SHALL INCLUDE THE INSTALLATION OF LINTELS, FRAMING, ETC. WHERE CONDUITS, RACEWAYS, EQUIPMENT, ETC. HAVE BEEN REMOVED BY THE ELECTRICAL CONTRACTOR UNLESS NOTED OTHERWISE. THE ELECTRICAL CONTRACTOR SHALL HIRE A GENERAL TRADES CONTRACTOR TO PERFORM ALL REQUIRED CUTTING AND PATCHING. WHERE EXISTING ROOF MUST BE CUT AND PATCHED, THE ELECTRICAL CONTRACTOR SHALL HIRE A ROOFING CONTRACTOR CERTIFIED TO MAKE REPAIRS AND MAINTAIN THE ROOF WARRANTY OR BOND.

EXCAVATION, BACKFILL AND CONCRETE WORK: ALL EXCAVATION AND BACKFILL REQUIRED FOR THE EXECUTION OF THE ELECTRICAL WORK SHALL BE INCLUDED IN THE ELECTRICAL CONTRACT.

BACKFILL MATERIAL SHALL BE GRANULAR OR APPROVED EXCAVATED MATERIAL. BACKFILL MATERIAL, COMPACTION REQUIREMENTS, ETC. SHALL BE AS SPECIFIED IN THE GENERAL SECTION OF THESE SPECIFICATIONS.

ALL CONCRETE WORK FOR ELECTRICAL EQUIPMENT PADS, BASES, ETC. SHALL BE INCLUDED IN THE ELECTRICAL CONTRACT.

SECTION 26 0519 – CONDUCTORS

A. MATERIAL:

MINIMUM SIZE WIRE FOR LIGHTING AND POWER FEEDERS AND BRANCH CIRCUITS (20 AMPERE) SHALL BE NO. 12 AWG COPPER. MINIMUM SIZE WIRE FOR CONTROL CIRCUITS SHALL BE NO. 14 AWG COPPER. ALL WIRE SHALL BE STRANDED.

ALL CONDUCTORS FOR FEEDERS 100A (NO. 2 CU / NO. 1 AL) AND LARGER SHALL BE TYPE XHHW-2 COPPER, 600 VOLT, UNLESS OTHERWISE NOTED ON THE DRAWINGS. CONDUCTORS SHALL BE INSULATED WITH VIRGIN CROSS-LINKED POLYETHYLENE INSULATION. ALL CONDUCTORS FOR FEEDERS SMALLER THAN 100A (NO. 2 CU / NO. 1 AL) SHALL BE TYPE THHN/THWN COPPER (PER N.E.C.), 600 VOLT, UNLESS OTHERWISE NOTED ON THE DRAWINGS. THE CONDUCTORS SHALL BE INSULATED WITH VIRGIN PVC COMPOUND AND SHALL HAVE AN OVERALL EXTRUDED NYLON JACKET. NYLON "SKIM" OR "DIP" COATING WILL NOT BE ACCEPTABLE.

A GREEN GROUND WIRE, SIZED ACCORDING TO THE NEC TABLE 250-122, SHALL BE INSTALLED IN ALL FLEXIBLE CONDUIT AND KEPT ISOLATED FROM THE WHITE NEUTRAL WIRE.

ALL WIRE AND/OR CABLE SHALL BE DELIVERED TO THE JOB SITE IN FULL FACTORY LENGTHS OF 500'-0" MINIMUM. LONGER REELS MAY BE USED WHERE CONDITIONS DICTATE.

APPROVED MANUFACTURERS ARE AETNA, AMERICAN INSULATED, ENCORE, SUPERIOR ESSEX, PRYSMIAN, AND SOUTHWIRE.

B. EXECUTION:

JOINTS:

JOINTS AND SPLICES SHALL BE MADE ONLY AT ACCESSIBLE BOXES.

JOINTS IN NO. 8 AND SMALLER WIRE SHALL BE MADE WITH MINNESOTA MINING AND MANUFACTURING COMPANY'S PREINSULATED ƬSCOTCHLOKSΦ. JOINTS NO. 6 AND LARGER WIRE SHALL BE MADE BY PRESSURE TYPE MECHANICAL CONNECTORS, INSULATED WITH THREE LAYERS HALF-LAPPED, ƬSCOTCH NO. 33Φ; TERMINAL CONNECTIONS SHALL BE MADE USING SOLDERLESS SCOTCHLOK PRESSURE TYPE LUGS AND CONNECTORS.

JOINTS IN NO. 8 TO NO. 2/0 WIRE IN DAMP LOCATIONS, EXTERIOR JUNCTION BOXES AND POLE BASES SHALL BE MADE WITH WATER RESISTANT SETSCREW, GEL FILLED CONNECTORS; RAYCHEM GELCAP SL

INSULATING SPLICE KIT. JOINTS IN NO. 10 AND SMALLER IN DAMP LOCATIONS, EXTERIOR JUNCTION BOXES AND POLE BASES SHALL BE MADE WITH GEL FILLED WIRE NUTS; IDEAL TWISTER DB PLUS OR BUCHANAN BTS TWIST & SEAL WATER RESISTANT CONNECTORS.

GENERAL:

COLOR CODING OF MULTI-WIRE BRANCH CIRCUIT FOR LIGHTING AND OUTLETS SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE. THE GROUNDED NEUTRAL SHALL BE IDENTIFIED WHITE FOR 120 VOLT CIRCUITS AND GRAY FOR 277 VOLT CIRCUITS THROUGHOUT, WITHOUT EXCEPTION, BEGINNING AT THE SERVICE ENTRANCE EQUIPMENT. THE IDENTIFIED NEUTRAL SHALL BE INSULATED THROUGHOUT AND GROUNDED ONLY AT THE SERVICE ENTRANCE EQUIPMENT (NOT INDIVIDUAL PANELS).

THE GREEN GROUND WIRE SHALL BE INSTALLED AND KEPT ISOLATED FROM THE WHITE NEUTRAL WIRE.

BRANCH CIRCUITS AND CONTROL CIRCUITS SHALL BE CONNECTED AS NUMBERED ON THE DRAWINGS OR ARE TO MATCH SOME NUMBERED OR CODED SYSTEM. TEST AND PERMANENTLY TAG BY CIRCUIT NUMBER EACH CONTROL WIRE AND CIRCUIT WIRE, EXCEPT NEUTRALS, IN PANEL GUTTER BEFORE CONNECTING TO PANELS, USING NUMBERED TAPES. TAPES SHALL BE SCOTCHCODE EPOXY FILM TAPES. EACH 120 VOLT OR 277 VOLT BRANCH CIRCUITS SHALL BE INSTALLED WITH A DEDICATED NEUTRAL WIRE FROM THE CIRCUIT SOURCE TO THE LOAD CONNECTION, UNLESS SPECIFICALLY INDICATED OTHERWISE ON THE DRAWINGS.

SECTION 26 0526 – ELECTRICAL GROUNDING

A. DESCRIPTION OF WORK:

EXTENT OF ELECTRICAL GROUNDING WORK IS INDICATED BY DRAWINGS AND SCHEDULES.

REQUIREMENTS OF THIS SECTION APPLY TO ELECTRICAL GROUNDING WORK SPECIFIED IN N.E.C. ARTICLE 250.

B. EXECUTION:

INSTALLATION: GROUND ALL CONDUITS, CABINETS, METERS, PANELS, LUMINAIRES AND OTHER EXPOSED NON-CURRENT CARRYING METAL PARTS OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ALL PROVISIONS OF THE NATIONAL ELECTRICAL CODE.

FLEXIBLE CONNECTIONS TO MOTORS SHALL BE JUMPERED WITH A NO. 14 GREEN EQUIPMENT GROUNDING CONDUCTOR, OR PER NATIONAL ELECTRICAL CODE TABLE 250-122.

INSTALL A GREEN BONDING JUMPER BETWEEN THE OUTLET BOX AND THE RECEPTACLE GROUNDING TERMINAL ON ALL FLUSH MOUNTED RECEPTACLES.

AN INSULATED GROUND WIRE SHALL BE INSTALLED IN ALL FEEDER, BRANCH CIRCUIT AND LIGHTING CIRCUIT RACEWAYS. GROUND WIRE SHALL BE SIZED IN ACCORDANCE WITH N.E.C. ARTICLE 250, TABLE 250-122.

GROUND ALL STEP-DOWN TRANSFORMERS IN ACCORDANCE WITH N.E.C. ARTICLE 250-30 FOR GROUNDING SEPARATELY DERIVED ALTERNATING CURRENT SYSTEMS. THE GROUNDING ELECTRODE SHALL HAVE AN ISOLATED CONNECTION TO THE TRANSFORMER BUS BAR. THE BONDING JUMPER SHALL BE DIRECTLY CONNECTED TO THE TRANSFORMER BUS BAR. THE TRANSFORMER CASE SHALL BE BONDED DIRECTLY TO THE TRANSFORMER BUS BAR. THE GROUNDING ELECTRODE CONDUCTOR SHALL BE PROTECTED WITHIN RIGID METALLIC CONDUIT.

INSTALL BUILDING GROUNDING ELECTRODE SYSTEM IN ACCORDANCE WITH N.E.C. ARTICLE 250 AND AS REQUIRED BY THE LOCAL INSPECTING AUTHORITY. THE BUILDING FRAMEWORK AND METAL SIDING, UNDERGROUND METAL WATER PIPING, CONCRETE ENCASED ELECTRODE AND OTHER MADE ELECTRODES SHALL BE SUFFICIENTLY BONDED TOGETHER TO FORM THE GROUNDING ELECTRODE SYSTEM. CONNECTIONS TO THE METAL UNDERGROUND WATER PIPING SYSTEM SHALL BE MADE ON THE LINE SIDE OF THE WATER METER. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE A GROUNDING SYSTEM ACCEPTABLE TO THE LOCAL INSPECTING AUTHORITY.

CONTRACTOR SHALL DEMONSTRATE BY TEST THAT THE BUILDING GROUNDING SYSTEM TO EARTH RESISTANCE VALUE IS 10 OHMS OR LESS, UTILIZING A ƬCLAMP-ONΦ OR 3 POINT FALL OF POTENTIAL TESTER.

CONTRACTOR SHALL BE ABLE TO DEMONSTRATE BY TEST THAT THE GROUNDING SYSTEM RESISTANCE FROM ANY GROUNDED NON-CURRENT CARRYING CONDUCTOR TO THE ELECTRICAL SERVICE ENTRANCE NEUTRAL/GROUND BONDING CONDUCTOR IS LESS THAN 0.1 OHMS.

SECTION 26 0533 – RACEWAYS

A. DESCRIPTION OF WORK:

EXTENT OF RACEWAY WORK IS INDICATED BY DRAWINGS AND SCHEDULES.

TYPES OF RACEWAYS SPECIFIED IN THIS SECTION INCLUDE THE FOLLOWING:

- ELECTRICAL METALLIC TUBING (EMT)
- FLEXIBLE METAL CONDUIT
- INTERMEDIATE METAL CONDUIT
- LIQUID-TIGHT FLEXIBLE METAL CONDUIT
- RIGID METAL CONDUIT
- RIGID NON-METALLIC CONDUIT

B. CONDUIT:

ALL EXPOSED CONDUIT SHALL BE FULL WEIGHT RIGID STEEL OR IMC GALVANIZED OR SHERARDIZED INSIDE AND OUT.

CONDUIT IN STUD PARTITIONS OR INTERIOR BLOCK WALLS BRANCH CIRCUITS ONLY, CONCEALED ABOVE CEILING OR ABOVE THE BOTTOM CHORD OF BAR JOISTS MAY BE ELECTRICAL METALLIC TUBING.

CONDUIT IN MECHANICAL EQUIPMENT ROOMS, ELECTRICAL EQUIPMENT ROOMS, CHASES AND AREAS SUBJECT TO PHYSICAL ABUSE SHALL BE EXPOSED RIGID GALVANIZED STEEL OR INTERMEDIATE GRADE CONDUIT UNLESS OTHERWISE NOTED. CONDUIT BURIED IN CONCRETE SLAB POURS SHALL BE FULL WEIGHT RIGID GALVANIZED STEEL OR CARLON SCHEDULE 40 PVC.

FLEXIBLE GALVANIZED STEEL CONDUIT SHALL BE USED FOR "MAKE-UP" CONNECTIONS TO ROTATING MACHINERY (MAXIMUM 24"), EQUIPMENT OR FLUSH LIGHTING LUMINAIRES. FLEXIBLE CONDUIT IN DAMP OR WET LOCATIONS SHALL BE LIQUID TIGHT.

C. EXECUTION:

INSTALLATION:

HOME RUNS FROM PANELS TO FIRST OUTLET BOX ARE SHOWN AS ARROWS. THESE RUNS MAY BE INSTALLED EITHER OVERHEAD OR UNDER THE FLOOR, UNLESS SPECIFICALLY NOTED ON THE DRAWINGS.

CONDUIT SHALL BE SIZED IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE; HOWEVER, A MINIMUM OF 1/2" FOR FLEXIBLE CONDUIT MUST BE MAINTAINED. ALL OTHER CONDUITS SHALL BE 1/2Φ MINIMUM, UNLESS OTHERWISE NOTED.

CONDUITS CONCEALED UNDER FLOOR SLABS SHALL BE 3/4" MINIMUM, EXTERIOR BELOW GRADE CONDUITS SHALL BE 1" MINIMUM.

NO HORIZONTAL RUNS OF CONDUIT MAY BE INSTALLED IN MASONRY WALLS EXCEPT BY SPECIFIC PERMISSION OF THE ENGINEER.

EXPOSED CONDUIT WORK SHALL BE KEPT AS INCONSPICUOUS AS POSSIBLE AND SHALL BE LAID OUT IN A NEAT WORKMANLIKE MANNER, PARALLEL AND PERPENDICULAR TO BUILDING STEEL, WITHOUT RUNS DIAGONAL TO THE BUILDING WALLS.

A 1/8" DIAMETER NYLON PULL ROPE SHALL BE INSTALLED IN ALL EMPTY CONDUITS.

A GREEN GROUND WIRE, SIZED PER NATIONAL ELECTRICAL CODE SHALL BE INCLUDED IN ALL CONDUITS AND RACEWAYS.

INSTALL THREE 3/4" SPARE CONDUITS FROM EACH FLUSH PANEL TO ABOVE LAY-IN CEILING IN FRONT OF PANEL WHERE POSSIBLE.

CONDUIT FEEDERS OR HOME RUNS SHALL BE ROUTED FROM FIRST OUTLET BOX OR JUNCTION BOX DIRECT TO APPROPRIATE PANEL. "TANGLE" BOXES OR WIREWAYS SHALL NOT BE INSTALLED ADJACENT TO PANEL FOR THE CONVENIENCES OF TERMINATING CONDUITS.

CONDUITS SHALL NOT BE INSTALLED ON TOP OF JOISTS OR BEAMS WITHIN THE CONVOLUTIONS OF THE METAL DECK. ALL CONDUITS SHALL BE SUPPORTED AGAINST THE BOTTOM OF THE TOP CORD OF THE JOIST. NO CONDUITS SHALL BE FASTENED TO THE BOTTOM CORD OF JOIST.

SECTION 26 0534 – ELECTRICAL BOXES AND FITTINGS

A. DESCRIPTION OF WORK:

TYPES OF ELECTRICAL BOXES AND FITTINGS SPECIFIED IN THIS SECTION INCLUDE THE FOLLOWING:

- OUTLET BOXES
- JUNCTION BOXES
- PULL BOXES
- BUSHINGS
- LOCKNUTS
- KNOCKOUT CLOSURES

B. PRODUCTS:

MATERIAL:

SECTION SWITCH BOXES SHALL NOT BE USED.

BOXES FOR FLUSH INSTALLATION OF DEVICES SHALL BE 4" SQUARE, DEPTH AS REQUIRED BY CODE FOR THE NUMBER OF CONDUCTORS, COMPLETE WITH 1-1/2" OR 2" RECTANGULAR PLASTER RINGS, UNIVERSAL 52C50 OR RACO 785. ALL BOXES SHALL BE INSTALLED FLUSH IN FINISHED SECTIONS OF BUILDING. FLUSH BOXES SHALL BE SET BACK IN WALL NOT MORE THAN 1/8". WHERE CONDUITS LARGER THAN 3/4" ARE USED, FOUR 11/16" BOXES WITH 1" PLASTER RINGS, RACO 839 SHALL BE INSTALLED.

RIGID CONDUIT FITTINGS SHALL BE THREADED TYPE THREE-PIECE COUPLINGS (ERIKSON). THREADLESS OR SETSCREW COUPLINGS OR CONNECTORS SHALL NOT BE USED.

THINWALL COUPLINGS AND CONNECTORS SHALL BE STEEL SETSCREW TYPE ONLY.

FLEXIBLE METALLIC COUPLINGS AND CONNECTORS SHALL BE MALLEABLE IRON OR STAMPED STEEL FITTINGS.

DIE-CAST FITTINGS SHALL NOT BE USED.

C. EXECUTION:

INSTALLATION:

DO NOT INSTALL ANY BOXES BACK-TO-BACK. DO NOT INSTALL BOXES CLOSER TOGETHER THAN 12" IF OUTLETS ARE IN A COMMON WALL, BUT IN DIFFERENT ROOMS.

CAREFULLY REFER TO ROOM DIMENSIONS AND DOOR SWINGS ON THE ARCHITECTURAL DRAWINGS FOR LOCATION OF OUTLETS. IN THE EVENT OF DISCREPANCY WITH THE ELECTRICAL DRAWINGS, THE ARCHITECTURAL DRAWINGS SHALL GOVERN. THE ENGINEER/ARCHITECT RESERVES THE RIGHT TO MOVE ANY OUTLET 6'-0" FROM SCALED LOCATION ON DRAWING WITHOUT ANY ADDITIONAL COSTS.

ALL KNOCKOUTS OPENED AND UNUSED SHALL BE CLOSED WITH SNAP-IN CLOSERS. OUTLET HEIGHTS GIVEN BELOW, OR AS SHOWN ON THE DRAWINGS ARE TO THE CENTERLINE OF OUTLET BOX. IN UNFINISHED MASONRY WALLS, ADJUST HEIGHT TO TOP OR BOTTOM LOCATION IN BLOCK AND ADJUST LOCATION TO THE NEAREST CORNER OF BLOCK (SWITCH HEIGHT SHALL NEVER EXCEED 48Φ TO THE CENTERLINE AND OUTLET HEIGHT SHALL NEVER BE LOWER THAN 16Φ TO THE BOTTOM OF THE BOX). UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS, DIMENSIONS TO FLOOR SHALL BE AS FOLLOWS:

(THESE MOUNTING HEIGHTS COMPLY WITH ADAAG4.27.3)

SWITCH HEIGHT:
- 48" TO CENTERLINE

CONVENIENCE OUTLETS:
- 1'-6" TO CENTERLINE OF BOX OR 4'-0" TO CENTERLINE IF NOTED

CONVENIENCE OUTLETS:
- 6" TO BOTTOM OF BOX ABOVE COUNTERTOP WORK SURFACE

MOTOR CONTROL STATIONS:
- 48" TO CENTERLINE

FOR OUTLET HEIGHTS OF WALL BRACKET AND OF AUXILIARY SYSTEMS AND SPECIAL OUTLETS:
- REFER TO THE RESPECTIVE PARAGRAPHS AND TO THE DRAWINGS

HORN/STROBE LIGHT:
- 80Φ TO BOTTOM OF BOX OR 6Φ BELOW CEILING TO TOP OF BOX (WHICHEVER IS LOWER)

PULL STATIONS:
- 48Φ TO CENTERLINE

DATA/TELE OUTLETS:
- 1'-6Φ TO CENTERLINE OF BOX

WALL TELEPHONES (NORMAL & HANDICAP):
- SEE SECTION 27 0528 – COMMUNICATIONS RACEWAY SYSTEMS OF THESE SPECIFICATIONS

TELEVISION OUTLET:
- SEE DRAWINGS; 18Φ TO CENTERLINE UNLESS NOTED OTHERWISE

HANDICAP AUTO DOOR OPENER PUSHBUTTONS:
- AS DIRECTED BY MANUFACTURER

SECTION 26 0554 – ARC FLASH HAZARD LABELING

A. PROVIDE AN ARC FLASH HAZARD LABEL FOR ALL ELECTRICAL DISTRIBUTION EQUIPMENT, INCLUDING BUT NOT LIMITED TO SWITCHBOARDS, PANELBOARDS, INDUSTRIAL CONTROL PANELS, METER SOCKETS, ENCLOSURES, DISCONNECTS, AND MOTOR CONTROL CENTERS. LABELING SHALL MEET FLASH PROTECTION REQUIREMENTS OF NFPA AND NEC (110.16). ARC FLASH HAZARD LABELS SHALL BE PERMANENTLY ADHERED. THE LABELS SHALL BE 3.50Φ X 5.00 SELF-ADHESIVE PLASTIC; BRADY CAT #99452. THE HAZARD LABEL SHALL BE LOCATED SO AS TO BE CLEARLY VISIBLE TO QUALIFIED PERSONS BEFORE EXAMINATION, ADJUSTMENT, SERVICING OR MAINTENANCE OF EQUIPMENT. THE ELECTRICAL CONTRACTOR SHALL INSTALL THE LABEL ON A 1/8Φ CLEAR PLASTIC BACK PLATE WHERE PERMANENT ADHESION CAN NOT BE MAINTAINED. THIS PLASTIC BACK PLATE TAG ASSEMBLY SHALL BE SECURED TO THE ELECTRICAL EQUIPMENT WITH POP RIVETS.

B. DUE TO ARC FLASH HAZARDS, ANY WORK REQUIRED ON ELECTRICAL EQUIPMENT THAT IS ENERGIZED SHALL BE WITH WRITTEN PERMISSION FROM THE OWNER. THE ELECTRICAL CONTRACTOR SHALL REQUIRE EMPLOYEES TO WEAR THE PROPER PERSONAL PROTECTION (PPE) EQUIPMENT REQUIRED IN NFPA-70E, 130.7(C)(9).

SECTION 26 0574 – ARC FLASH PROGRAM

A. DESCRIPTION:

PROVIDE A SHORT CIRCUIT STUDY AND ARC FLASH ANALYSIS FOR THE ELECTRICAL DISTRIBUTION SYSTEM SHOWN ON THE ONE LINE DRAWINGS. THE INTENT OF THE ARC FLASH HAZARD ANALYSIS STUDY IS TO DETERMINE HAZARDS THAT EXIST AT ALL 3-PHASE PIECE OF EQUIPMENT IN ORDER TO HELP PROTECT INDIVIDUALS WORKING ON ITS PREMISES FROM ELECTRICAL HAZARDS.

THIS ARC FLASH PROGRAM WILL INCLUDE ALL 3-PHASE SWITCHGEAR, SWITCHBOARDS, PANELBOARDS, MOTOR CONTROL CENTERS, AND TRANSFORMERS INCLUDING THEIR LOADS. THE STUDY WILL INCLUDE THE CREATION OF ARC FLASH HAZARD WARNING LABELS SPECIFIC TO EACH INDIVIDUALLY IDENTIFIED PIECE OF EQUIPMENT. THESE LABELS SERVE AS A GUIDE TO TECHNICIANS AND OTHERS IN THE SELECTION OF PROPER PERSONAL PROTECTIVE EQUIPMENT (PPE) WHEN WORKING NEAR EXPOSED ENERGIZED EQUIPMENT. THE INDEPENDENT ENGINEERING FIRM WILL INSTALL THE LABELS.

THE CONTRACTOR SHALL COLLECT ALL REQUIRED DATA TO PERFORM THE ANALYSIS AND SHALL VERIFY THE ACCURACY OF ANY PROVIDED ONE LINE DRAWINGS.

THE ARC FLASH HAZARD ANALYSIS STUDY SHALL CONSIDER OPERATION DURING NORMAL CONDITIONS, ALTERNATE OPERATIONS, EMERGENCY POWER CONDITIONS, AND ANY OTHER OPERATING CONDITION THAT COULD RESULT IN MAXIMUM ARC FLASH HAZARD CONDITIONS.

QUALIFICATIONS:

THE STUDY SHALL BE PREPARED BY A LICENSED PROFESSIONAL ENGINEER OF THE STATE WHERE THE FACILITY IS LOCATED SPECIALIZED IN ELECTRICAL ENGINEERING. THE DATA COLLECTION PERSONNEL SHALL BE LICENSED JOURNEYMAN ELECTRICIANS AND SHALL HAVE COLLECTED DATA FOR SIMILAR STUDIES AT A MINIMUM OF SIX (6) FACILITIES. THE DATA COLLECTION PERSONNEL SHALL PARTICIPATE IN A COMPANY SPONSORED NFPA 70-E ELECTRICAL SAFE WORK PRACTICE PROGRAM.

SUBMITTALS:

PRIOR TO COMMENCING THE STUDY THE FOLLOWING ITEMS SHALL BE SUBMITTED FOR APPROVAL:

JAMES S. JACOBS ARCHITECTS, PLLC
25 WASHINGTON STREET
MONROE, MICHIGAN 48161
TELE: (734) 241-7933
FAX: (734) 241-1181
EMAIL: jimj@jsjacobsarch.com

JDRM Engineering
Mechanical | Electrical | Plumbing | Technology | Safety
5604 N. Main St. Suite 200
Sylvania, Ohio 43560
PH. (419) 824-2400
FAX (419) 824-2409
www.jdrm.com

GREENWOOD MAINTENANCE BUILDING ADDITION FOR:

MONROE HOUSING COMMISSION: GREENWOOD TOWNHOUSES
900 GREENWOOD AVENUE
MONROE, MICHIGAN 48162

PROPERTY CONTACT:
NANCY WAIN, EXEC. DIRECTOR
MONROE HOUSING COMMISSION
20 NORTH ROESSLER STREET
MONROE, MICHIGAN 48162
TELEPHONE: (734) 242-5880

ELECTRICAL SPECIFICATIONS

NOT FOR CONSTRUCTION

DATE:	ISSUED FOR:
06-21-2023	BIDS
DRAWN	RKB
REVIEW'D	DTK

202222

E-6

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- QUALIFICATIONS STATEMENTS OF CONTRACTOR AND ENGINEER PERFORMING THE STUDY.
- SAMPLE STUDY REPORT.
- SAMPLE OF ARC FLASH HAZARD EQUIPMENT LABEL.
- HOT WORK PERMIT AS REQUIRED FOR IDENTIFIED ELECTRICAL EQUIPMENT DURING DATA COLLECTION.
- PROOF OF PERSONNEL INVOLVEMENT IN A COMPANY SPONSORED NFPA 70-E ELECTRICAL SAFE WORK PRACTICE PROGRAM.

ONE (1) ELECTRONIC COPY OF ALL ITEMS SHALL BE SUBMITTED.

REQUIREMENTS:

EQUIPMENT NAMING:

PRIOR TO START OF DATA COLLECTION, THE CONTRACTOR SHALL ASSIST THE OWNER IN A FACILITY WIDE ELECTRICAL EQUIPMENT NAMING CONVENTION. THIS NAMING CONVENTION SHALL BE USED FOR THE STUDY.

DURING DATA COLLECTION, THE CONTRACTOR SHALL SOLICIT OWNER'S INPUT FOR NAMING EQUIPMENT THAT IS UNMARKED.

DATA COLLECTION:

THE CONTRACTOR SHALL SURVEY THE FACILITY ELECTRICAL POWER DISTRIBUTION SYSTEM FOR THE PURPOSES OF RECORDING AND DOCUMENTING ALL DATA REQUIRED TO COMPLETE ENGINEERING STUDIES AND ONE-LINE DIAGRAMS.

SURVEY SHALL RECORD DATA SUCH AS: UTILITY INFORMATION, EQUIPMENT NAMEPLATE/RATINGS, CABLE SIZES/LENGTHS, OVERCURRENT DEVICE NAMEPLATES, SCCR, SETTINGS, ETC. DATA COLLECTION SHEETS CAN BE MADE AVAILABLE IF REQUIRED.

A DEVICE POINT IS PRIMARILY DESCRIBED BY THE FOLLOWING:

- ALL 3-PHASE OVERCURRENT PROTECTIVE DEVICE 208V AND ABOVE:
  - MCC BUCKET: COUNT EACH BUCKET WITH A LOAD CONNECTED AS A POINT.
  - FUSED SWITCH: COUNT EACH FUSED SWITCH WITH A LOAD CONNECTED AS ONE POINT.
  - PANELBOARD BREAKER: COUNT EACH 3-PHASE BREAKER WITH A LOAD CONNECTED AS A POINT.

- ALL 3-PHASE TRANSFORMER (208V AND ABOVE).
- ALL 3-PHASE MOTORS.
- A FUSED OR NON-FUSED DISCONNECT SWITCH OR TRANSFER SWITCH (ONLY IF DOWNSTREAM LOAD REQUIRES A LABEL).
- A MEDIUM / HIGH VOLTAGE RELAY (ONLY ONE FROM EACH SET IS CONSIDERED A POINT).
- MEDIUM / HIGH VOLTAGE BREAKER.
- MEDIUM / HIGH VOLTAGE RECLOSURES.
- MEDIUM / HIGH VOLTAGE SWITCHES.
- EACH UTILITY SERVICE.

ONE-LINE DIAGRAMS AND BUILDING LAYOUT DRAWINGS TO HELP FACILITATE THE SURVEY WILL BE PROVIDED, IF AVAILABLE. HOWEVER, ONE-LINES ARE NOT GUARANTEED TO BE ACCURATE OR COMPLETE AND ALL INFORMATION MUST BE VERIFIED DURING THE DATA COLLECTION PHASE. THE CONSULTANT MAY MARK-UP THE PROVIDED ONE-LINES WITH THE VERIFIED ELECTRICAL SYSTEM DATA. THIS INFORMATION SHALL INCLUDE NAMEPLATE DATA FOR ELECTRICAL COMPONENTS (E.G. OUTDOOR SUBSTATIONS, TRANSFORMERS, MEDIUM VOLTAGE SWITCHGEAR, LOW VOLTAGE SUBSTATIONS, PANELBOARDS, SWITCHBOARDS, CONTROL CABINETS, MOTOR CONTROL CENTERS, ETC.) FOR ALL PORTIONS OF THE ELECTRICAL SYSTEM FROM THE UTILITY CONNECTION POINT THROUGH THE LOWEST RATED PANEL (EQUIPMENT FED BY PANEL BOARDS AND MCC'S) NOTE: MCC'S REFERS TO BUCKET STYLE ONLY.

THE DATA COLLECTION MAY REQUIRE REMOVAL OF BARRIERS, OPENING OF FRONT PANELS, ETC. WHILE EQUIPMENT IS ENERGIZED; AN ENERGIZED WORK PERMIT IS REQUIRED IN SUCH CASES.

ALL WORK SHALL BE PERFORMED IN COMPLIANCE WITH FACILITY SAFETY POLICIES AND PROCEDURES. IF WORK BEING PERFORMED IS LOCATED OVER PRODUCTION LINES, CONTRACTOR SHALL TAKE PRECAUTIONS TO LIMIT THE EXPOSURE OF PLANT EQUIPMENT AND PRODUCTION PRODUCTS FROM FALLING DIRT, DUST OR OTHER HAZARDS.

WHILE COLLECTING DATA, CONTRACTOR SHALL DOCUMENT ALL BREAKER AND FUSE POSITIONS (SECTION/POSITION) FOR PANELBOARDS, MCC'S, AND BUS DUCTS WHETHER THEY ARE 1-PHASE, 3-PHASE, SPARE OR SPACE.

SYSTEM ANALYSIS:

PERFORM A COMPREHENSIVE ANALYSIS OF FACILITY ELECTRICAL SYSTEMS FOR ALL 3-PHASE EQUIPMENT 208V AND HIGHER. THE STUDIES SHALL CONSIDER OPERATION DURING NORMAL CONDITIONS, ALTERNATE, AND EMERGENCY CONDITIONS WHICH COULD RESULT IN A MAXIMUM ARC FLASH HAZARD. COMPLETE THE FOLLOWING ENGINEERING STUDIES:

- SHORT CIRCUIT STUDY – A SHORT CIRCUIT FAULT CURRENT ANALYSIS (THREE PHASE BOLTED FAULT AND SINGLE LINE-TO-GROUND FAULT) SHALL BE PERFORMED IN ACCORDANCE WITH ANSI STANDARD C37 AND IEEE STANDARD 141 (RED BOOK) FOR EACH BUS LOCATION THAT WILL BE RECEIVING AN ARC FLASH LABEL.

- ARC FLASH STUDY – AN ARC FLASH STUDY SHALL BE DONE FOR EACH BUS LOCATION (CALCULATION NODE) AS IDENTIFIED IN SHORT CIRCUIT STUDY. IT SHALL BE DONE IN ACCORDANCE WITH THE APPLICABLE STANDARDS IEEE 1584 – ΦIEEE GUIDE FOR PERFORMING ARC FLASH HAZARD CALCULATIONSΦ AS REFERENCED IN NFPA 70E, TSTANDARD FOR ELECTRICAL SAFETY IN THE WORKPLACEΦ IN ORDER TO QUANTIFY THE HAZARD FOR SELECTION OF PERSONAL PROTECTIVE EQUIPMENT (PPE). TABLES THAT ASSUME FAULT CURRENT LEVELS AND CLEARING TIME FOR PROPER PPE SELECTION ARE NOT ACCEPTABLE. PERTINENT DATA, RATIONALE EMPLOYED AND ASSUMPTIONS SHALL BE PROVIDED WITH CALCULATIONS.

- ENGINEERING JUDGMENT SHALL BE USED FOR ANY EQUIPMENT DATA THAT WAS UNABLE TO BE COLLECTED OR THAT IS NOT WITHIN THE SOFTWARE COMPONENT LIBRARY. ALL ENGINEERING JUDGMENTS SHALL BE NOTED ON THE ONE-LINES AND SHALL ALSO BE LISTED IN SPREADSHEET FORMAT IN STUDY REPORT.

ANALYSIS REVIEW:

THE CONSULTANT SHALL PROVIDE RECOMMENDATIONS AHEAD OF DELIVERING THE STUDY REPORT THAT WILL GIVE THE FACILITY AN OPPORTUNITY TO ADDRESS PROBLEM AREAS PRIOR TO PRINTING LABELS. THE RECOMMENDATIONS SHALL BE BROKEN DOWN INTO THREE AREAS.

- ARC FLASH ANALYSIS: THESE RECOMMENDATIONS SHALL LIST ALL AREAS WHERE THE EXISTING HAZARDS ARE OVER 8 CAL/CM^2 AND HIGHER WHETHER THEY CAN BE LOWERED OR NOT, WITH THE GOAL OF REDUCING HAZARDS TO BELOW 8 CAL/CM^2. THESE RECOMMENDATIONS SHALL INCLUDE THE FOLLOWING:
  - ADJUSTMENTS TO EXISTING CURRENT LIMITING DEVICES (E.G. RELAY SETTINGS, SUBSTATION BREAKER ELECTRONIC TRIP SETTINGS, MOLDED CASE BREAKER INST. ADJUSTMENT). THE RECOMMENDATION SHOULD INCLUDE EXISTING AND NEW SETTINGS.
- REPLACEMENT OF CURRENT LIMITING DEVICES (E.G. FUSE REPLACEMENT).

STUDY REPORT:

SUPPLY A COMPREHENSIVE REPORT WITH ALL ENGINEERING MATERIALS FOR REVIEW THAT INCLUDES:

- REPORT SUMMARY WITH ANALYSIS METHODOLOGY, FINDINGS AND RECOMMENDATIONS.
- A SUMMARY OF ALL ASSUMED COMPONENTS USED IN THE ANALYSIS IN SPREADSHEET FORMAT. OTHER ASSUMPTIONS MADE IN ANALYSIS THAT ARE SEPARATE FROM COMPONENTS SHALL ALSO BE LISTED.
- A SUMMARY OF ALL INPUT DATA FOR UTILITY SOURCE, EQUIPMENT, PROTECTIVE DEVICES, TRANSFORMERS AND CABLES IN SPREADSHEET FORMAT.
- A SUMMARY OF THE ARC FLASH ANALYSIS IN SPREADSHEET FORMAT WHICH GIVES AT A MINIMUM, THE AVAILABLE FAULT CURRENT, INCIDENT ENERGY LEVEL (CALORIES/CM2), HAZARD CATEGORY AT EACH EQUIPMENT (BUS) LOCATION AND ITS PROTECTIVE DEVICE.
- OVERCURRENT DEVICE COORDINATION CURVES (TCC) INCLUDING RELATED SECTION OF THE SINGLE-LINE DIAGRAM FOR ANY MISCOORDINATION ISSUES OR RECOMMENDATIONS.
- THE ONE-LINE DIAGRAM CREATED FROM THE DATA COLLECTED SHALL BE SEPARATED TO FIT ONTO E-SIZE DRAWINGS AND EXPORTED TO AUTOCAD FORMAT. THESE ONE-LINES WILL BE INCLUDED IN THE FINAL STUDY REPORT ON 11 X 17 SHEETS. (ALL INFORMATION SHALL BE LEGIBLE ON 11 X 17 SHEETS.) THE FOLLOWING INFORMATION INCLUDING THE COMPONENT OR BUS NAME SHALL BE SHOWN ON THE ONE-LINE DIAGRAM.

- DATA VALUES INPUTTED INTO THE SKM PROGRAM WHICH INCLUDE:
  - PROTECTIVE DEVICE (MANUFACTURER, TYPE, SIZE, SETTINGS, CT RATIO)
  - CABLE (# CONDUCTORS/PHASE, SIZE, LENGTH)
  - TRANSFORMER (PRIMARY & SECONDARY VOLTAGE, KVA RATING, % IMPEDANCE)
  - MOTOR (NAME, VOLTAGE, FLA)

- EQUIPMENT (BUS) LOCATIONS:
  - THE AVAILABLE FAULT CURRENT AT EACH BUS LOCATION WHICH WILL RECEIVE AN ARC FLASH LABEL.
  - THE HAZARD CATEGORY AT EACH BUS LOCATION WHICH WILL RECEIVE AN ARC FLASH LABEL.
  - THE VOLTAGE LEVEL.

- THE CONSULTANT SHALL SUPPLY (1) CD WHICH INCLUDES ALL THE SKM POWER TOOLS ELECTRICAL ENGINEERING SOFTWARE FILES OF THE ANALYSIS AND IN ADDITION SUPPLY ALL INFORMATION LISTED (IN 1 THROUGH 6) IN PDF FORMAT .
- PROVIDE A METHOD FOR TRACKING FUTURE CHANGES TO THE POWER DISTRIBUTION SYSTEM AND A COST PER POINT OR HOURLY FEE FOR THE MAINTENANCE OF THE ASSESSMENT AND A DETAILED LISTING OF WHAT IS INCLUDED IN THAT COST. THE OWNER INTENT IS TO MAINTAIN THE ASSESSMENT ON AN ANNUAL BASIS.

B. PRODUCTS:

ANALYSIS OF SOFTWARE:

CONTRACTOR SHALL USE LATEST VERSION OF SKM POWER TOOLS SOFTWARE

ARC FLASH HAZARD LABELS:

BASED ON THE RESULTS OF THE ARC FLASH STUDY, THE CONTRACTOR SHALL PRODUCE AND INSTALL WARNING LABELS WITH ADHESIVE BACKING FOR EACH PIECE OF EQUIPMENT (BUS) IN ACCORDANCE WITH NEC 110.16, NFPA 70E AND ANSI Z535.4. THE LABELS MUST BE AT LEAST 4 X 4 IN SIZE AND READABLE IN BOTH INDOOR AND OUTDOOR ENVIRONMENTS FOR AT LEAST 3 YEARS AND CONTAIN THE FOLLOWING INFORMATION:

- ARC FLASH HAZARD BOUNDARY.
- WORKING DISTANCE.
- ARC FLASH INCIDENT ENERGY (CALORIES/ CM^2) AT THE ASSOCIATED WORKING DISTANCE (TYPICALLY 18 INCHES).
- REFERENCE TO TABLES IN NFPA-70E FOR PPE REQUIREMENTS.
- VOLTAGE RATING OF THE EQUIPMENT.
- EQUIPMENT BUS NAME.
- PROTECTIVE DEVICE NAME.
- AVAILABLE BOLTED FAULT AT EQUIPMENT BUS.
- DATE PREPARED.
- CONSULTANT NAME.

C. EXECUTION:

FINAL DOCUMENTATION:

AT THE LABEL INSTALLATION, CONSULTANT SHALL SUPPLY (1) COPY OF STUDY REPORT.

TWO (2) SETS OF E-SIZE DRAWINGS OF ELECTRICAL ONE-LINES EXPORTED TO AUTOCAD. THESE WILL BE USED BY THE FACILITY TO TRACK FUTURE CHANGES TO THE DISTRIBUTION SYSTEM. THE STUDY REPORT SHALL BE DELIVERED AT THE STUDY REPORT REVIEW MEETING. DURING THIS MEETING ALL SECTIONS OF THE REPORT WILL BE REVIEWED IN DETAIL. THIS REVIEW MEETING WILL BE SCHEDULED WITH THE OWNER AT THE OWNER'S LOCATION.

SECTION 26 2417 – PANELBOARDS

A. DESCRIPTION OF WORK:

EXTENT OF PANELBOARD, LOAD-CENTER AND ENCLOSURE WORK IS INDICATED BY DRAWINGS AND SCHEDULES.

TYPES OF PANELBOARDS AND ENCLOSURES IN THIS SECTION INCLUDE THE FOLLOWING:

- POWER-DISTRIBUTION PANELBOARDS
- LIGHTING AND RECEPTACLE PANELBOARDS

SUBMITTALS:

PRODUCT DATA: SUBMIT MANUFACTURER'S DATA ON PANELBOARDS.

B. PRODUCTS:

LIGHTING AND POWER PANELS:

FURNISH AND INSTALL PANELBOARDS MOUNTED IN ENCLOSING CABINETS ON WHICH SHALL BE MOUNTED EQUIPMENT AS SHOWN ON THE DRAWINGS, SPECIFIED OR REQUIRED.

BREAKERS SHALL BE COMMON TRIP, BOLT-TYPE, RATED 14,000 AMPERES INTERRUPTING CAPACITY. WHERE CIRCUITS ARE CONTROLLED DIRECTLY FROM BREAKERS, THE BREAKERS SHALL BE "SWITCHING DUTY" RATED.
WHERE USED TO SERVICE BRANCH CIRCUITS OR FEEDERS FOR PACKAGED AIR CONDITIONING OR MECHANICAL EQUIPMENT, CIRCUIT BREAKERS SHALL BE HACR RATED FOR THAT USE.

LIGHTING PANELBOARDS SHALL BE SQUARE D TYPE NF, OR ENGINEER APPROVED EQUAL BY SIEMENS, GENERAL ELECTRIC OR .

PANELBOARDS SHALL BE DESIGNED FOR 277/480 VOLTS, THREE-PHASE, FOUR-WIRE SERVICE.

PROVIDE FLUSH DOORS WITH LOCK AND KEYS. PROVIDE TWO KEYS FOR EACH PANEL. ALL LOCKS SHALL BE KEYED ALIKE AND SHALL MATCH EXISTING FACILITY PANELBOARD KEYS.

RECEPTACLE PANELS:

PROVIDE ADEQUATE WIRING AND GUTTER SPACE AND A MEANS FOR CIRCUIT IDENTIFICATION. PROVIDE A TYPEWRITTEN CIRCUIT DIRECTORY.

BREAKERS SHALL BE COMMON TRIP, BOLT-TYPE, RATED 10,000 AMPERES INTERRUPTING CAPACITY. WHERE CIRCUITS ARE CONTROLLED DIRECTLY FROM BREAKERS, THE BREAKERS SHALL BE "SWITCHING DUTY" RATED.

WHERE USED TO SERVICE BRANCH CIRCUITS OR FEEDERS FOR PACKAGED AIR CONDITIONING OR MECHANICAL EQUIPMENT, CIRCUIT BREAKERS SHALL BE HACR RATED FOR THAT USE.

RECEPTACLE PANELBOARDS SHALL BE SQUARE D TYPE NQ, OR ENGINEER APPROVED EQUAL BY SIEMENS, GENERAL ELECTRIC OR .

PANELBOARDS SHALL BE DESIGNED FOR 120/208 VOLTS, THREE-PHASE, FOUR-WIRE SERVICE.

PROVIDE FLUSH DOORS WITH LOCK AND KEYS. PROVIDE TWO KEYS FOR EACH PANEL. ALL LOCKS SHALL BE KEYED ALIKE AND SHALL MATCH EXISTING FACILITY PANELBOARD KEYS.

C. EXECUTION:

INSTALLATION: PANELS SHALL BE MOUNTED 48" TO THE CENTERLINE OR LOWER WITH THE TOP OF THE CABINET A MAXIMUM OF 6'-0" ABOVE FLOOR LEVEL. PANELS IN DWELLING UNITS SHALL BE MOUNTED WITH THE TOP OF THE CABINET 5'-0" ABOVE FLOOR LEVEL.

ALL PANELS SHALL BE IDENTIFIED WITH EMBOSSED PLASTIC NAMEPLATES.

BONDING AND GROUNDING: THE MAIN PANEL SHALL BE THE ONLY PANEL WHERE THE PANEL NEUTRAL BAR IS BONDED TO THE PANEL ENCLOSURE. ALL OTHER NEUTRAL BARS SHALL BE ISOLATED FROM THE PANEL ENCLOSURES.

WHERE CIRCUITS ARE ADDED, REMOVED, OR CHANGED IN EXISTING PANELS, THE CONTRACTOR SHALL UPDATE PANEL SCHEDULE TO REFLECT THESE CHANGES. SCHEDULE SHALL BE TYPED. HANDWRITTEN MODIFICATIONS ARE NOT ACCEPTABLE.

SECTION 26 2726 – WIRING DEVICES

A. DESCRIPTION OF WORK:

TYPES OF ELECTRICAL WIRING DEVICES SPECIFIED IN THIS SECTION INCLUDE THE FOLLOWING:

- SWITCHES
- RECEPTACLES
- GROUND-FAULT CIRCUIT INTERRUPTERS
- WALL PLATES

B. PRODUCTS:

DEVICE FINISH:

THE COLOR FINISH OF ALL DEVICES AND PLATES SHALL BE SELECTED BY THE ARCHITECT. THE SPECIFICATION IS BASED ON GRAY DEVICES. THE CONTRACTOR SHALL VERIFY WITH THE ARCHITECT THE EXACT COLOR DURING SUBMITTAL PROCESS PRIOR TO ORDERING EQUIPMENT.

SWITCHES:

WALL SWITCHES ARE LISTED IN THE SINGLE POLE CONFIGURATION. THREE-WAY, FOUR-WAY, DOUBLE-POLE, ETC. SHALL BE OF THE SAME SERIES. ALL SWITCHES SHALL BE OF THE SAME TYPE THROUGHOUT THE BUILDING AND SHALL BE THE PRODUCT OF ONE MANUFACTURER, UNLESS SPECIFICALLY NOTED OTHERWISE.

SWITCHES SHALL BE INDUSTRIAL HEAVY DUTY SPECIFICATION GRADE, 120/277V RATED, NYLON TOGGLE, COLOR CODED HOUSING (RED = 20A), SIDE AND BACK WIRED, BRASS BINDING SCREWS.

THE 20A SINGLE POLE INDUSTRIAL HEAVY DUTY SPECIFICATION GRADE SWITCHES SHALL BE:

- COOPER 2221GY
- HUBBELL HBL1221GRY
- LEVITON 1221-2GY
- PASS & SEYMOUR PS20AC1-GRY

THE 20A SINGLE POLE INDUSTRIAL HEAVY DUTY SPECIFICATION GRADE PILOT LIGHT SWITCH (ILLUMINATED IN TONΦ POSITION) SHALL BE:

- COOPER 2221PL
- HUBBELL HBL1221PL
- LEVITON 1221-(7)PL*
- PASS & SEYMOUR PS20AC1-RPL(7)*

* (7) INDICATES 277V RATED UNIT

THE 20A SINGLE POLE INDUSTRIAL HEAVY DUTY SPECIFICATION GRADE LIGHTED HANDLE SWITCH (ILLUMINATED IN TOFFΦ POSITION) SHALL BE:

- COOPER 2221 LTW
- HUBBELL HBL1221IL
- LEVITON 1221-(7)L*
- PASS & SEYMOUR PS20AC1-ISL

* (7) INDICATES 277V RATED UNIT

LOCKING SWITCHES SHALL BE PASS & SEYMOUR PS20AC1-L SERIES ONLY. NO OTHER BRANDS WILL BE ACCEPTED.

RECEPTACLES:

ALL RECEPTACLES SHALL BE OF THE PRODUCT OF ONE MANUFACTURER THROUGHOUT THE BUILDING.

DUPLEX RECEPTACLES SHALL BE INDUSTRIAL HEAVY DUTY SPECIFICATION GRADE 20A, SIDE AND BACK WIRED, SOLID BRASS MOUNTING STRAP, FIBERGLASS REINFORCED NYLON BASE, HIGH IMPACT CHEMICAL RESISTANT NYLON FACE.

THE CATALOG NUMBERS FOR 20A DUPLEX RECEPTACLES ARE AS FOLLOWS:

- COOPER 5362GY
- HUBBELL HBL5352GY
- LEVITON 5362GY
- PASS & SEYMOUR 5362-AGY

GFCI DEVICES:

GROUND FAULT CIRCUIT INTERRUPTER DEVICES SHALL HAVE A TRIP LEVEL OF 4 TO 6 MA IN NO GREATER THAN 0.025 SEC. THE DEVICE SHALL BE RATED AT 20A, 120V (+10%, -15%), 60 HZ, AND 2 KAIC. THE DEVICE SHALL HAVE A TRIP INDICATOR.

DUPLEX RECEPTACLE GFI DEVICES SHALL BE HEAVY DUTY INDUSTRIAL GRADE, 20A, BACK AND SIDE WIRED, NYLON BODY, SOLID BRASS MOUNTING STRAP AND CONTACTS, AUTO-GROUND CLIP. THE CATALOG NUMBERS FOR THE 20A RECEPTACLE ARE AS FOLLOWS:

- HUBBELL GF5362GYA
- OR APPROVED EQUAL BY: COOPER, LEVITON OR PASS & SEYMOUR

PLATES:

PLATES FOR FLUSH DEVICES SHALL BE SMOOTH WHITE THERMOPLASTIC, HUBBELL P1 SERIES OR EQUAL BY LISTED MANUFACTURERS. PLATES FOR DEVICES ON SURFACE OUTLETS AND FLUSH OUTLETS IN UNFINISHED AREAS SHALL BE GALVANIZED STEEL WIRING DEVICE COVERS. GANG PLATES SHALL BE INSTALLED ON GANG INSTALLATION DEVICES. BLANK COVERS FOR PULL AND JUNCTION BOXES SHALL BE GALVANIZED, OR SMOOTH SATIN STAINLESS STEEL IN FINISHED AREAS.

WHERE DUPLEX RECEPTACLES ARE PROTECTED BY GFCI RECEPTACLES OR CIRCUIT BREAKER, PLATES SHALL BE ENGRAVED "G.F.C.I. PROTECTED", MATCHING STAINLESS OR GALVANIZED STEEL PER SPECIFICATIONS.

WHERE DUPLEX RECEPTACLES ARE AUTOMATICALLY CONTROLLED OR THAT INCORPORATE FEATURES THAT REMOVE POWER FROM THE OUTLET FOR THE PURPOSE OF ENERGY MANAGEMENT OR BUILDING MANAGEMENT, DEVICE FACEPLATE SHALL BE MARKED WITH SYMBOL DEFINED IN NEC 406.3(E).

WEATHERPROOF SWITCH COVERS SHALL BE GRAY CAST TOGGLE PLATES WITH GASKET ON AN FS BOX:

- APPLETON WCT1
- PASS & SEYMOUR CA1-GL
- STEEL CITY SW1-C

WEATHERPROOF COVERPLATES SHALL BE TIN-USEΦ RATED, MANUFACTURED WITH UV STABILIZED HIGH IMPACT CLEAR POLYCARBONATE. COVERPLATE SHALL BE VERTICAL OR HORIZONTAL MOUNT AND ACCEPT DUPLEX RECEPTACLES, SWITCHES, GFI MOUNTING. COVER SHALL ALLOW PADLOCKING. COVERPLATE SHALL INCLUDE GASKETING. WEATHERPROOF COVERPLATE SHALL BE RED DOT CKNM (SINGLE GANG), 2CKNM (DOUBLE GANG) OR APPROVED EQUAL BY HUBBELL OR TAYMAC.

C. EXECUTION:

INSTALLATION:

WHERE MORE THAN ONE SWITCH/RECEPTACLE ARE SHOWN AT A LOCATION, SWITCHES/RECEPTACLES SHALL BE SET UNDER A GANG PLATE IN AN ORDER APPROPRIATE TO THE LOCATION.

ALL OUTLETS SHOWN NOT RECEIVING A SPECIFIC OUTLET OR CONNECTION SHALL BE SUPPLIED WITH A BLANK PLATE TO MATCH OTHER DEVICE PLATES IN AREA.

DEVICES SHALL BE INSTALLED UTILIZING PIGTAIL CONNECTIONS WITH LEADS OF NO LESS THAN 6Φ.

DEVICE CIRCUIT NUMBER AND SOURCE PANEL SHALL BE INDICATED ON ALL OUTLETS. INDICATION SHALL BE LEGIBLE PRINT AND MADE WITH PERMANENT INK ON THE BACKSIDE OF THE FACEPLATE. INDICATION ON THE FRONT SIDE OF THE FACEPLATE SHALL BE A TYPEWRITTEN OR MACHINE PRINTED CLEAR LABEL WITH BLACK LETTERING, 10 POINT MINIMUM SIZE, HELVETICA STYLE FONT.

EXISTING SWITCHES AND RECEPTACLES IN REMODELED AREAS THAT ARE TO REMAIN SHALL RECEIVE NEW DEVICES AND PLATES PER SPECIFICATIONS.

- TAMPER RESISTANT DEVICES SHALL BE INSTALLED IN ALL LOCATIONS ARE DESCRIBED IN N.E.C. 406.12 OR AS INDICATED ON DRAWINGS.
- GFI TYPE RECEPTACLES SHALL BE INSTALLED INDOORS ONLY.
- GFI WEATHER RESISTANT, TAMPER RESISTANT RECEPTACLES SHALL BE INSTALLED OUTDOORS OR OTHER LOCATIONS CONSIDERED DAMP OR WET LOCATIONS PER N.E.C.

SECTION 26 2813 – OVERCURRENT PROTECTIVE DEVICES

A. DESCRIPTION OF WORK:

EXTENT OF OVERCURRENT PROTECTIVE DEVICE WORK IS INDICATED BY DRAWINGS AND SCHEDULES.

B. PRODUCTS:

MATERIALS:

LOW VOLTAGE FUSES SHALL BE AS MANUFACTURED BY BUSSMAN, MERSEN OR LITTELFUSE. ALL FUSES ZERO TO 600 AMPS SHALL BE TYPE R REJECTION SERIES AND OF THE CURRENT LIMITING TYPE.

FUSE TYPE SHALL BE AS FOLLOWS UNLESS OTHERWISE NOTED ON THE DRAWINGS:

1. CLASS TJΦ

a. ZERO TO 600-AMPS DUAL ELEMENT, TIME DELAY CLASS J; BUSSMANN LPJ-SP, MERSEN AJT OR LITTELFUSE JTD-ID.

2. CLASS TLΦ

a. ABOVE 600-AMPS TIME DELAY, CLASS L; BUSSMANN KRP-C, MERSEN A4BY OR LITTELFUSE KLP-C.

C. EXECUTION:

INSTALLATION:

FURNISH THE OWNER THREE SPARE FUSES OF EACH TYPE AND RATING OF SIZES INSTALLED UPON COMPLETION OF THE PROJECT.

SECTION 26 2816 – DISCONNECT SWITCHES

A. SWITCHES:

SWITCHES SHALL BE HEAVY DUTY AS MANUFACTURED BY SQUARE D COMPANY, TYPE HD, OR ENGINEER APPROVED EQUAL BY GENERAL ELECTRIC, SIEMENS, OR , AND SHALL HAVE THE CAPABILITY TO BE LOCKED IN EITHER THE "ON" OR "OFF" POSITIONS.

SWITCHES SHALL HAVE REJECTION TYPE FUSE CLIPS TO ACCOMMODATE TYPE J FUSES ONLY.

B. EXECUTION:

FURNISH AND INSTALL ALL SWITCHES AND FUSES AS SHOWN ON THE DRAWINGS, SPECIFIED OR REQUIRED.

SECTION 26 2914 – POWER EQUIPMENT

A. DESCRIPTION OF WORK:

FURNISH AND INSTALL ALL CONDUIT, WIRING, CONNECTIONS, STARTERS, SAFETY SWITCHES, FUSES, ETC.

B. PRODUCTS:

MOTORS AND CONTROLS: ALL SINGLE SPEED STARTERS FOR MOTORS SMALLER THAN 1/2 HORSEPOWER SHALL BE MANUAL STARTERS COMPLETE WITH OVERLOAD AND PILOT LIGHT, AND SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. STARTERS SHALL BE SQUARE D CLASS 2510. STARTERS SHALL BE DESIGNED FOR 120 VOLT, SINGLE-PHASE SERVICE AND SHALL BE FLUSH MOUNTED IN FINISHED AREAS.

ALL STARTERS AND FUSIBLE COMBINATION MAGNETIC STARTERS FOR MOTORS 1/2 HORSEPOWER AND LARGER SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR AND SHALL BE MAGNETIC MOTOR STARTERS AS INDICATED ON THE DRAWINGS. STARTERS SHALL BE FULL VOLTAGE, NON-REVERSING SINGLE-SPEED, NEMA 1 ENCLOSED WITH OVERLOAD HEATERS IN EACH LINE. STARTERS SHALL BE COMPLETE WITH 120-VOLT FUSED AND GROUNDED CONTROL TRANSFORMER AND HEAVY DUTY H-O-A SELECTOR SWITCH MOUNTED IN THE COVER UNLESS OTHERWISE NOTED. THE "HAND" POSITION OF THE SELECTOR SWITCH SHALL BE SPRING RETURN TO TOFFΦ, UNLESS NOTED ON DRAWINGS. A RED PILOT LIGHT, INDICATING MOTOR RUNNING, SHALL BE INSTALLED IN THE COVER OF EACH STARTER. IF TWO-SPEED STARTERS ARE SPECIFIED, THEY SHALL HAVE DECELERATING RELAYS. STARTER SHALL BE 208 VOLT, OR 480 VOLT, AS APPLICABLE, THREE-PHASE SERVICE AS NOTED ON THE DRAWINGS AND SHALL BE SQUARE D CLASS 8538 OR ENGINEER APPROVED EQUAL BY GENERAL ELECTRIC, SIEMENS OR . STARTERS SHALL BE MOUNTED IN PANELBOARD TYPE CONSTRUCTION WHERE INDICATED ON THE DRAWINGS.

MOTOR OVERLOAD RELAY HEATER ELEMENTS SHALL BE SIZED AT 100% OF MOTOR FULL LOAD CURRENT FOR MOTOR NAMEPLATE RATING UNLESS SPECIFICALLY NOTED OTHERWISE BY EQUIPMENT MANUFACTURER.

C. EXECUTION:

INSTALLATION: FURNISH AND INSTALL CONDUIT AND WIRING DIRECT TO THE VARIOUS STARTERS AND THROUGH TO THE MOTORS, UNLESS OTHERWISE NOTED. THE MECHANICAL CONTRACTOR WILL SUPPLY ALL MOTORS FOR MOTOR DRIVEN EQUIPMENT AND WILL FURNISH CERTAIN BUILT-IN STARTERS, BUT THE ELECTRICAL CONTRACTOR SHALL MAKE ALL ELECTRICAL CONNECTIONS THERETO. ALL CONTROL DEVICES AND EQUIPMENT, INCLUDING PILOT DEVICES, WILL BE FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACTOR UNLESS SPECIFICALLY NOTED OTHERWISE.

THE CONTRACTOR SHALL REVIEW THE DRAWINGS AND SPECIFICATIONS FOR THE PLUMBING, HEATING AND VENTILATING WORK AND SHALL CONFORM TO ALL CONDITIONS THEREIN AND SHALL COORDINATE HIS WORK ACCORDINGLY.

CONTROL WIRING:

FURNISH AND INSTALL ALL ITEMS OF STANDARD MOTOR CONTROL WHICH ARE NOT PACKAGED AS A PART OF, OR FACTORY INSTALLED ON, EQUIPMENT FURNISHED BY OTHERS.

TEMPERATURE CONTROL WIRING WHERE INDICATED ON THE ELECTRICAL DRAWINGS.

INTERLOCK WIRING BETWEEN VARIOUS EQUIPMENT COMPONENTS AND STARTERS, WHERE INDICATED ON THE ELECTRICAL DRAWINGS.

SECTION 26 4313 – SURGE PROTECTIVE DEVICES

A. DESCRIPTION OF WORK:

EXTENT OF SURGE PROTECTIVE DEVICES IS INDICATED ON THE DRAWINGS.

TYPES OF SURGE PROTECTIVE DEVICES SPECIFIED IN THIS SECTION INCLUDE THE FOLLOWING:

- SERVICE ENTRANCE SURGE PROTECTIVE DEVICES
- DISTRIBUTION PANEL SURGE PROTECTIVE DEVICES
- BRANCH PANEL SURGE PROTECTIVE DEVICES

WARRANTY:

THE MANUFACTURER SHALL WARRANTY THE SURGE PROTECTIVE DEVICE AGAINST FAILURE FOR A PERIOD OF FIVE YEARS FROM DATE OF ACCEPTANCE BY THE OWNER. UPON NOTICE FROM THE OWNER, THE MANUFACTURER SHALL REMEDY ALL SUCH DEFECTS AT HIS OWN EXPENSE AT A TIME CONVENIENT TO THE OWNER.

THE ELECTRICAL CONTRACTOR SHALL WARRANTY THE INSTALLATION OF THE SURGE PROTECTIVE DEVICES FOR A PERIOD OF ONE YEAR FROM DATE OF ACCEPTANCE BY THE OWNER. UPON NOTICE FROM THE OWNER, THE ELECTRICAL CONTRACTOR SHALL REMEDY ALL SUCH DEFECTS AT HIS OWN EXPENSE AT A TIME CONVENIENT TO THE OWNER.

TEST REPORTS:

EACH SPECIFIED SURGE PROTECTIVE DEVICE (SPD) SHALL BE INDEPENDENTLY TESTED FROM AN NVLAP OR NRTL ACCREDITED TEST FACILITY.

TEST SHALL BE PERFORMED IN ACCORDANCE WITH UL 1449, 3^{RD} EDITION.

TEST REPORTS SHALL INCLUDE ALL DOCUMENTATION PRODUCED BY TESTING LABORATORY AND A SUMMARY SHEET INDICATING ALL ITEMS OUTLINED:

- SPD MODEL
- SPD CIRCUIT DESCRIPTION
- NOMINAL LINE VOLTAGE
- MAXIMUM CONTINUOUS OPERATING VOLTAGE
- CONNECTION MEANS
- SPD PROTECTION MODES
- CLAMPING VOLTAGE FOR B3 RINGWAVE, 6 KV 3000A COMBINATION WAVE, B3/C1 COMBINATION WAVE. C3 COMBINATION WAVE AND DURING MAXIMUM SURGE CURRENT FOR LINE-NEUTRAL, LINE-GROUND, NEUTRAL-GROUND AND LINE-LINE.

- MINIMUM REPETITIVE SURGE CURRENT CAPACITY: UNIT SUBJECT TO AN INITIAL TEST CONFORMING TO UL 1449 GUIDE LINES (BENCH MARK TEST) FOLLOWED BY A REPETITIVE NUMBER OF ANSI/IEEE C62.41.2-2002 (CAT C3) SURGES IN ONE MINUTE INTERVALS (MINIMUM OF 3,500 IMPULSES). UPON COMPLETION THE UNIT SHALL BE RETESTED TO THE UL 1449 GUIDELINES TO VERIFY SURVIVABILITY. UNITS SHALL NOT DEVIATE MORE THAN 10% FROM FIRST TO FINAL TEST TO BE CONSIDERED TO HAVE ACHIEVED SURVIVAL.

SPD UNITS SHALL BE TESTED WITH ALL SPECIFIED OPTIONS ASSEMBLED AND FULLY OPERATIONAL. TEST SHALL SIMULATE REAL FIELD CONDITIONS.

SUBMITTALS:

PRODUCT DATA: SUBMIT MANUFACTURER'S DATA ON THE SURGE PROTECTIVE DEVICE INCLUDING, BUT NOT LIMITED TO, LIFE CYCLE RATING, OVERCURRENT PROTECTION, UL 1449 COMPLIANCE, AND SURGE CURRENT CAPACITY. MANUFACTURER'S CURRENT CAPACITY SHALL BE BACKED UP BY AN INDEPENDENT TEST FROM AN NVLAP OR NRTL ACCREDITED TEST LABORATORY. THE INDEPENDENT TEST REPORT AS OUTLINED ABOVE SHALL BE INCLUDED WITH THE SUBMITTAL. FAILURE TO INCLUDE THE INDEPENDENT TEST REPORT WILL RESULT IN PRODUCT DISAPPROVAL.

SHOP DRAWING: SUBMIT LAYOUT DRAWINGS OF THE SURGE PROTECTIVE DEVICES SHOWING ACCURATELY SCALED COMPONENTS, UNIT DIMENSIONS, WEIGHTS, MOUNTING PROVISIONS, CONNECTION DETAILS, AND WIRING DIAGRAMS.

EQUIPMENT MANUALS: SUBMIT A MANUFACTURER'S INSTALLATION MANUAL WITH INSTALLATION, START-UP, SPARE PARTS LIST, AND OPERATING INSTRUCTIONS.

B. PRODUCTS:

SERVICE ENTRANCE SURGE PROTECTIVE DEVICES:

SURGE PROTECTIVE DEVICES (SPD) INSTALLED ON THE SERVICE ENTRANCE SHALL BE DESIGNED FOR A 120/208V-3PH-4W, SIXTY-CYCLE SERVICE. THE SPD SHALL HAVE AN INTEGRAL DISCONNECT MOUNTED IN THE ENTRY DOOR.

THE SPD SHALL USE SINGLE OR MULTIPLE METAL OXIDE VARISTORS (MOVS) AND POLYPROPYLENE CAPACITORS FOR THE SURGE PROTECTION. EACH MOV SHALL BE FUSED FOR REDUNDANT PROTECTION AND ONGOING PERFORMANCE.

THE SPD SHALL BE CONSTRUCTED USING A SOLID COPPER BUS CONSTRUCTION. THE COPPER BUS BARS SHALL CARRY THE CUMULATIVE SURGE CURRENT.

THE SPD SHALL BE RATED FOR A MAXIMUM CONTINUOUS OPERATING VOLTAGE EQUAL TO NO LESS THAN 115% OF THE NOMINAL PHASE VOLTAGE.

THE SPD SHALL PROVIDE ALL MODES OF PROTECTION (L-N, L-G, L-L, N-G). THE SPD SHALL PROTECT TO THE FOLLOWING CLAMPING VOLTAGES:

120/208V RATED:

B3 RINGWAVE6 KV-3 KA
UL VPRC3 COMB
WAVEL-N350900900L-G425900900N-G375900900L-L45013001300

THE SPD SHALL BE CAPABLE OF PROTECTING AGAINST A SINGLE PULSE SURGE CURRENT OF 200KA ON ALL MODES (L-N, L-G, N-G, L-L). THE SPD SHALL BE CAPABLE OF PROTECTING AGAINST REPETITIVE C3 (C HIGH) SURGE CURRENTS OF 3,500 IMPULSES ON ALL MODES (L-N, L-G, N-G, L-L). THE REPETITIVE SURGE CURRENT TEST SHALL BE CONDUCTED ACCORDING TO ANSI/IEEE C62.41 AND C62.45 STANDARDS.

THE SPD SHALL INCLUDE A SYSTEM MONITOR. THERE SHALL BE A DISPLAY EVENT COUNTER, AUDIBLE ALARM, PHASE STATUS INDICATORS AND DUAL FORM TCΦ DRY CONTACTS.

THE SPD SHALL HAVE A FAULT CURRENT PROTECTION RATING OF 100 KAIC.

THE SPD SHALL BE RATED AS A UL-1449 3^{RD} EDITION TYPE 1 OR TYPE 2 DEVICE WITH A NOMINAL DISCHARGE (IN) RATING OF 20 KA.

THE SPD SHALL BE AS MANUFACTURED BY CURRENT TECHNOLOGY TG 200 SERIES, GENERAL ELECTRIC TRY-Y200 SERIES, LEA INTERNATIONAL PV400, SQUARE D EMA24 SERIES OR ENGINEER APPROVED EQUAL BY LIEBERT OR .

DISTRIBUTION PANEL SURGE PROTECTIVE DEVICES:

SURGE PROTECTIVE DEVICES (SPDS) SHALL BE INSTALLED ON ALL DISTRIBUTION PANELS AS NOTED ON THE DRAWINGS. THE SPD SHALL BE DESIGNED FOR 120/208V-3PH-4W, SIXTY-CYCLE ELECTRICAL SYSTEM AS INDICATED ON THE DRAWINGS.

THE SPD SHALL USE SINGLE OR MULTIPLE METAL OXIDE VARISTORS (MOVS) AND POLYPROPYLENE CAPACITORS FOR THE SURGE PROTECTION. EACH MOV SHALL BE FUSED FOR REDUNDANT PROTECTION AND ONGOING PERFORMANCE.

THE SPD SHALL BE CONSTRUCTED USING A SOLID COPPER BUS CONSTRUCTION. THE COPPER BUS BARS SHALL CARRY THE CUMULATIVE SURGE CURRENT.

THE SPD SHALL BE RATED FOR A MAXIMUM CONTINUOUS OPERATING VOLTAGE OF EQUAL TO NO LESS THAN 115% OF NOMINAL PHASE VOLTAGE.

THE SPD SHALL PROVIDE ALL MODES OF PROTECTION (L-N, L-G, L-L, N-G). THE SPD SHALL PROTECT TO THE FOLLOWING CLAMPING VOLTAGES:

120/208V RATED:
B3 RINGWAVE6 KV-3 KA
UL VPRC3 COMB
WAVEL-N350900900L-G425900900N-G375900900L-L45013001300

THE SPD SHALL BE CAPABLE OF PROTECTING AGAINST A SINGLE PULSE SURGE CURRENT OF 100KA ON ALL MODES (L-N, L-G, N-G, L-L). THE SPD SHALL BE CAPABLE OF PROTECTING AGAINST REPETITIVE C3 (C HIGH) SURGE CURRENT OF 3,500 IMPULSES ON ALL MODES (L-N, L-G, N-G, L-L). THE REPETITIVE SURGE CURRENT TEST SHALL BE CONDUCTED ACCORDING TO ANSI/IEEE C62.41 AND C62.45 STANDARDS.

THE SPD SHALL HAVE A FAULT CURRENT PROTECTION RATING OF 100 KAIC.
THE SPD SHALL BE RATED AS A UL-1449 3^{RD} EDITION TYPE 2 DEVICE WITH A NOMINAL DISCHARGE (IN) RATING OF 20 KA MINIMUM.

THE SPD SHALL BE AS MANUFACTURED BY CURRENT TECHNOLOGY TG 100 SERIES, GENERAL ELECTRIC TR7-Y100 SERIES, LEA INTERNATIONAL LS200P, SQUARE D EMA16 SERIES OR ENGINEER APPROVED EQUAL BY LIEBERT OR .

BRANCH PANEL SURGE PROTECTIVE DEVICES:

SURGE PROTECTIVE DEVICES (SPDS) SHALL BE INSTALLED ON ALL BRANCH PANELS AS NOTED ON THE DRAWINGS. THE SPD SHALL BE DESIGNED FOR A 120/208V-3PH-4W, SIXTY-CYCLE ELECTRICAL SYSTEM AS INDICATED ON THE DRAWINGS.

THE SPD SHALL USE SINGLE OR MULTIPLE METAL OXIDE VARISTORS (MOVS) AND POLYPROPYLENE CAPACITORS FOR THE SURGE PROTECTION. EACH MOV SHALL BE FUSED FOR REDUNDANT PROTECTION AND ONGOING PERFORMANCE.

THE SPD SHALL BE CONSTRUCTED USING A SOLID COPPER BUS CONSTRUCTION. THE COPPER BUS BARS SHALL CARRY THE CUMULATIVE SURGE CURRENT.

THE SPD SHALL BE RATED FOR A MAXIMUM CONTINUOUS OPERATING VOLTAGE EQUAL TO NO LESS THAN 115% OF THE NOMINAL PHASE.
THE SPD SHALL PROVIDE ALL MODES OF PROTECTION (L-N, L-G, L-L, N-G). THE

JAMES S. JACOBS ARCHITECTS, PLLC
25 WASHINGTON STREET
MONROE, MICHIGAN 48161
TELE: (734) 241-7933
FAX: (734) 241-1181
EMAIL: jimj@jsjacobsarch.com

JDRM Engineering
Mechanical | Electrical | Plumbing | Technology | Safety
5604 N. Main St. Suite 200
Sylvania, Ohio 43560
PH. (419) 824-2400
FAX (419) 824-2409
www.jdrm.com

GREENWOOD MAINTENANCE BUILDING ADDITION FOR:

MONROE HOUSING COMMISSION: GREENWOOD TOWNHOUSES
900 GREENWOOD AVENUE
MONROE, MICHIGAN 48162

PROPERTY CONTACT:
NANCY WAIN, EXEC. DIRECTOR
MONROE HOUSING COMMISSION
20 NORTH ROESSLER STREET
MONROE, MICHIGAN 48162
TELEPHONE: (734) 242-5880

ELECTRICAL SPECIFICATIONS

NOT FOR CONSTRUCTION

DATE:	ISSUED FOR:
06-21-2023	BIDS
DRAWN	RKB
REVIEW'D	DTK

202222

E-7

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SPD SHALL PROTECT TO THE FOLLOWING CLAMPING VOLTAGES:

120/208V RATED:

B3 RINGWAVE6 KV-3 KA
UL VPRC3 COMB
WAVEL-N350900900L-G425900900N-G375900900L-L450130013OO

THE SPD SHALL BE CAPABLE OF PROTECTING AGAINST A SINGLE PULSE SURGE CURRENT OF 50,000A ON ALL MODES (L-N, L-G, N-G, L-L). THE SPD SHALL BE CAPABLE OF PROTECTING AGAINST REPETITIVE SURGE CURRENT OF 3,500 IMPULSES ON ALL MODES (L-N, L-G, N-G, L-L). THE REPETITIVE SURGE CURRENT TEST SHALL BE CONDUCTED ACCORDING TO ANSI/IEEE C62.41 AND C62.45 STANDARDS.
THE SPD SHALL BE RATED AS A UL-1449 3RD EDITION TYPE 2 DEVICE WITH A NOMINAL DISCHARGE (IN) RATING OF 20 KA MINIMUM.

THE SPD SHALL BE AS MANUFACTURED BY CURRENT TECHNOLOGY TG60 SERIES, GENERAL ELECTRIC TR5-Y065 SERIES, LEA INTERNATIONAL SP100, SQUARE D EMA12 SERIES OR ENGINEER APPROVED EQUAL BY LIEBERT OR .

C. EXECUTION:

INSTALLATION:

THE SERVICE ENTRANCE SPD SHALL BE INSTALLED ON THE LOAD SIDE OF THE MAIN SERVICE DISCONNECT. THE SPD SHALL BE WIRED IN PARALLEL WITH THE MAIN DISTRIBUTION PANEL. THE SPD SHALL BE FED BY A 100A3P SWITCH/BREAKER IN THE MDP WITH #2 AWG COPPER CONDUCTORS. THE SPD SHALL BE CLOSE NIPPLED TO THE MDP AND TERMINATE ON THE NEAREST BREAKER/SWITCH AT PANEL ENTRY POINT.

THE DISTRIBUTION PANEL SPD SHALL BE WIRED IN PARALLEL WITH THE DISTRIBUTION PANEL. THE SPD SHALL BE FED BY A 60A3P SWITCH OR CIRCUIT BREAKER IN THE SDP WITH #6

AWG COPPER CONDUCTORS. THE SPD SHALL BE CLOSE NIPPLED TO THE DISTRIBUTION PANEL AND TERMINATE ON THE NEAREST BREAKER AT PANEL ENTRY POINT.

THE RECEPTACLE PANEL SPD SHALL BE WIRED IN PARALLEL WITH THE RECEPTACLE PANEL. THE SPD SHALL BE FED BY A 30A3P CIRCUIT BREAKER MOUNTED IN THE RECEPTACLE PANEL. THE SPD SHALL BE CONNECTED TO THE RECEPTACLE PANEL USING #10 AWG COPPER CONDUCTORS. THE SPD SHALL BE CLOSE NIPPLED TO THE RECEPTACLE PANEL AND TERMINATE ON THE NEAREST BREAKER AT PANEL ENTRY POINT.

SPD FEED CONDUCTORS SHALL BE KEPT AS SHORT AS POSSIBLE. THE CONTRACTOR SHALL TWIST THE FEED CONDUCTORS TOGETHER TO REDUCE CONDUCTOR IMPEDANCE.

SPD CONDUCTOR LUGS SHALL BE TORQUED TO THE VALUES RECOMMENDED BY THE EQUIPMENT MANUFACTURER.

TESTING:

PRIOR TO TURNOVER TO THE OWNER, SURGE PROTECTIVE DEVICES SHALL BE TESTED FOR OPERATION BY THE CONTRACTOR.

TRAINING:

THE CONTRACTOR SHALL INCLUDE A TRAINING COURSE FOR THE OWNER'S PERSONNEL ON THE OPERATION AND MAINTENANCE OF THE SURGE PROTECTIVE DEVICES.

THE TRAINING COURSE SHALL BE TAUGHT BY A MANUFACTURER'S REPRESENTATIVE AT THE OWNER'S LOCATION.
THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL TRAINING MATERIALS. THE OWNER IS RESPONSIBLE FOR PROVIDING THE TRAINING ROOM FACILITIES AT THE OWNER'S LOCATION.

SECTION 26 5100 - LUMINAIRES

A. DESCRIPTION OF WORK:

THE CONTRACTOR SHALL FURNISH, INSTALL AND CONNECT LUMINAIRES AS SHOWN ON THE DRAWINGS. LUMINAIRES ARE INDICATED ON THE DRAWINGS WITH A TYPE IDENTIFYING LETTER, I.E., A, B, C, ETC. A LUMINAIRE SCHEDULE ON THE DRAWINGS IDENTIFIES THE LUMINAIRE IN ACCORDANCE WITH THE IDENTIFYING LETTERS.

SUBMITTALS:

PRODUCT DATA: SUBMIT MANUFACTURER'S DATA ON BUILDING LUMINAIRES. SUBMIT LUMINAIRE DATA IN BOOKLET FORM AND INCLUDE THE FOLLOWING ITEMS:

- SEPARATE SHEET FOR EACH LUMINAIRE
- BOOKLET SHALL BE ASSEMBLED IN LUMINARY "TYPE" ALPHABETICAL ORDER
- LUMINAIRE CATALOG NUMBER AND ALL ACCESSORIES CLEARLY INDICATED ON EACH SHEET
- EACH LUMINAIRE SHALL INCLUDE LAMP DATA SHEET CLEARLY INDICATING LAMP MANUFACTURER AND MODEL NUMBER.
- EACH LED MODULE SHALL INCLUDE DATA INFORMATION CLEARLY INDICATING LED MODULE MANUFACTURER AND MODEL NUMBER.

SUBMITTALS NOT INCLUDING ALL LISTED ITEMS SHALL BE DISAPPROVED.

WARRANTY:

CONTRACTOR SHALL WARRANTY ALL INSTALLATION AND PRODUCT FREE FROM MECHANICAL AND ELECTRICAL DEFECTS FOR A PERIOD OF ONE YEAR FROM DATE OF INSTALLATION. ALL WARRANTY LABOR SERVICE SHALL BE INCLUDED IN THIS WARRANTY.

LED DRIVERS SHALL BE WARRANTED TO BE FREE FROM DEFECT IN MATERIAL AND WORKMANSHIP FOR A PERIOD OF FIVE (5) YEARS.

LED MODULES SHALL BE WARRANTED FOR FIVE (5) YEARS FROM THE DATE OF BUILDING ACCEPTANCE BY THE OWNER.

EXTRA MATERIALS:

EXIT SIGNS: FURNISH 10% EXTRA (MINIMUM OF 2) EXIT SIGNS, INCLUDING UP TO 50 FEET OF CONDUIT AND WIRING FOR EACH SIGN.

FURNISH 1% (MINIMUM OF 1) ADDITIONAL OF EACH DRIVER TYPE.

EXTRA MATERIALS SHALL BE MATERIALS MATCHING IDENTICALLY INSTALLED PRODUCTS AND SHALL BE FURNISHED IN PACKAGING THAT IDENTIFIES AND PROTECTS THE PRODUCT FOR STORAGE.

B. PRODUCTS:

LUMINAIRES:

SURFACE MOUNTED LUMINAIRES WITH LABELS, STICKERS, EMBLEMS THAT ARE VISIBLE AFTER LUMINAIRE IS INSTALLED SHALL HAVE ALL VISIBLE LABELS EXCEPT "UL" LABEL REMOVED.

SURFACE MOUNTED LUMINAIRES IN FINISHED AREAS SHALL CONTAIN NO VISIBLE KNOCKOUTS.

ALL NON-METALLIC LOUVERS MUST MEET STATE AND LOCAL REGULATIONS REGARDING FLAME SPREAD AND SMOKE DENSITY GENERATION.

EXPOSED FASTENERS SHALL BE FLUSH WITH ADJACENT SURFACE WITH MATCHING FINISH. MOUNTING HARDWARE SHALL BE CONCEALED WHERE FEASIBLE.
RECESSED FLUORESCENT LUMINAIRE HOUSINGS SHALL BE PAINTED AFTER FABRICATION WITH ELECTROSTATICALLY APPLIED BAKED WHITE ENAMEL WITH A MINIMUM REFLECTANCE OF 88%.

ALL DOORS SHALL HAVE MITERED CORNERS WITH WHITE FINISH UNLESS OTHERWISE NOTED.

LUMINAIRES SHALL COMPLY WITH UL-1598 AND BE LISTED AND LABELED FOR INSTALLATION IN WET LOCATIONS BY AN NRTL ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION.

METAL PARTS: FREE OF BURRS AND SHARP CORNERS AND EDGES.

SHEET METAL COMPONENTS: CORROSION-RESISTANT ALUMINUM, UNLESS OTHERWISE INDICATED. FORM AND SUPPORT TO PREVENT WARPING AND SAGGING.

HOUSINGS: RIGIDLY FORMED, WEATHER- AND LIGHT-TIGHT ENCLOSURES THAT WILL NOT WARP, SAG OR DEFORM IN USE. PROVIDE FILTER/BREATHER FOR ENCLOSED LUMINAIRES.

DOORS, FRAMES AND OTHER INTERNAL ACCESS: SMOOTH OPERATING, FREE OF LIGHT LEAKAGE UNDER OPERATING CONDITIONS, AND DESIGNED TO PERMIT RELAMPING WITHOUT USE OF TOOLS. DESIGNED TO PREVENT DOORS, FRAMES, LENSES, DIFFUSERS AND OTHER COMPONENTS FROM FALLING ACCIDENTALLY DURING RELAMPING AND WHEN SECURED IN OPERATING POSITION. DOORS SHALL BE REMOVABLE FOR CLEANING OR REPLACING LENSES. DESIGNED TO DISCONNECT BALLAST WHEN DOOR OPENS.

EXPOSED HARDWARE MATERIAL ON EXTERIOR LUMINAIRES: STAINLESS STEEL

PLASTIC PARTS: HIGH RESISTANCE TO YELLOWING AND OTHER CHANGES DUE TO AGING, EXPOSURE TO HEAT, AND UV RADIATION.

LIGHT SHIELDS: METAL BAFFLES, FACTORY INSTALLED AND FIELD ADJUSTABLE, ARRANGED TO BLOCK LIGHT DISTRIBUTION TO INDICATED PORTION OF NORMALLY ILLUMINATED AREA OF FIELD.

REFLECTING SURFACES SHALL HAVE MINIMUM REFLECTANCE AS FOLLOWS, UNLESS OTHERWISE INDICATED:

- WHITE SURFACES: 85 PERCENT
- SPECULAR SURFACES: 83 PERCENT
- DIFFUSING SPECULAR SURFACES: 75 PERCENT

LENSES AND REFRACTORS GASKETS: USE HEAT- AND AGING RESISTANT GASKETS TO SEAL AND CUSHION LENSES AND REFRACTORS IN LUMINAIRE DOORS.

FACTORY-APPLIED FINISH FOR STEEL LUMINAIRES: COMPLY WITH NAAMM'S "METAL FINISHES MANUAL FOR ARCHITECTURAL AND METAL PRODUCTS" FOR RECOMMENDATIONS FOR APPLYING AND DESIGNATING FINISHES.

LED DRIVERS:

THE LED DRIVERS SHALL BE MATCHED TO THE LED MODULE SYSTEM PROVIDED IN THE LUMINAIRE. THE DRIVER SHALL INCLUDE THE FOLLOWING FEATURES:

- 0-10V DIMMING CONTROL TO PROVIDE LUMINAIRE DIMMING TO 10% LIGHT OUTPUT MINIMUM.
- RATED TO 100,000 HOUR OPERATION.
- MOISTURE AND VIBRATION PROTECTION TO THE ELECTRONICS.
- MODULE TEMPERATURE CONTROL PROTECTION.
- CONSTANT LIGHT OUTPUT TO REGULATE THE LIGHT OUTPUT OVER THE LIFE OF THE LUMINAIRE.
- END OF LIFE SIGNAL.

C. EXECUTION:

INSTALLATION:

PROVIDE STRUCTURAL SUPPORT FOR RECESSED LUMINAIRES AS REQUIRED BY CODE AND/OR LOCAL AUTHORITY HAVING JURISDICTION.

ONLY THE NUMBER OF LAMPS AND TUBES REQUIRED TO PROVIDE ADEQUATE LIGHTING FOR WORK YET TO BE DONE IN EACH AREA, AND ACCEPTABLE LIGHTING ELSEWHERE AS DETERMINED BY THE ENGINEER/ARCHITECT SHALL BE INSTALLED BY THE CONTRACTOR AT THE TIME LUMINAIRES ARE INSTALLED AND TESTED. REMAINING LAMPS AND TUBES ARE TO BE INSTALLED NOT MORE THAN TEN DAYS PRIOR TO ACCEPTANCE OF THE PROJECT BY THE OWNER. ALL INCANDESCENT LAMPS UTILIZED DURING CONSTRUCTION SHALL HAVE NEW LAMPS INSTALLED NOT MORE THAN TEN DAYS PRIOR TO ACCEPTANCE OF THE BUILDING BY THE OWNER.

CONTRACTOR SHALL PROVIDE MANUFACTURER PRODUCT SAFETY DATA SHEETS. THE DATA SHEETS SHALL BE INCLUDED IN THE PROJECT "OPERATIONS AND MAINTENANCE" MANUALS.

CONTRACTOR SHALL INSTALL EXTRA EXIT SIGNS AS DIRECTED. EXTRA SIGNS NOT INSTALLED SHALL BE TURNED OVER TO THE OWNER.

LUMINAIRES THAT ARE AIMABLE SHALL BE ADJUSTED AS DIRECTED.

LUMINAIRES SHALL BE INSTALLED PERPENDICULAR AND PARALLEL TO WALLS AND CEILING. LUMINAIRES SHALL BE SET LEVEL AND PLUMB.

CLEANING:

- REMOVE DIRT, DEBRIS AND BUGS FROM ENCLOSURES.
- CLEAN PHOTOMETRIC CONTROL SURFACES AS RECOMMENDED BY MANUFACTURER.

FIELD QUALITY CONTROL:

EMERGENCY LIGHTING UNITS SHALL BE TESTED FOR ILLUMINATION AND NORMAL POWER/BATTERY POWER TRANSFER.

LUMINAIRES SHALL BE TESTED FOR NORMAL OPERATION AND ILLUMINATION.

INSPECT EACH INSTALLED LUMINAIRE FOR DAMAGE. REPLACE DAMAGED LUMINAIRES AND COMPONENTS.

ILLUMINATION OBSERVATIONS: VERIFY NORMAL OPERATION OF LIGHTING UNITS AFTER INSTALLING LUMINAIRES AND ENERGIZING CIRCUITS WITH NORMAL POWER SOURCE.

- VERIFY OPERATION OF PHOTOELECTRIC CONTROLS.

PREPARE A WRITTEN REPORT OF TESTS, INSPECTIONS, OBSERVATIONS AND VERIFICATIONS INDICATING AND INTERPRETING RESULTS. IF ADJUSTMENTS ARE MADE TO LIGHTING SYSTEM, RETEST TO DEMONSTRATE COMPLIANCE WITH STANDARDS.

END OF SPECIFICATION

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JAMES S. JACOBS ARCHITECTS, PLLC
25 WASHINGTON STREET
MONROE, MICHIGAN 48161
TELE: (734) 241-7933
FAX: (734) 241-1181
EMAIL: jmj@jsjacobsarch.com

JDRM Engineering
Mechanical | Electrical | Plumbing | Technology | Safety
5604 N. Main St. Suite 200
Sylvania, Ohio 43560
PH (419) 824-2400
FAX (419) 824-2409
www.jdrm.com

GREENWOOD MAINTENANCE BUILDING ADDITION FOR:

MONROE HOUSING COMMISSION:
GREENWOOD TOWNHOUSES
900 GREENWOOD AVENUE
MONROE, MICHIGAN 48162

PROPERTY CONTACT:
NANCY WAIN, EXEC. DIRECTOR
MONROE HOUSING COMMISSION
20 NORTH ROESSLER STREET
MONROE, MICHIGAN 48162
TELEPHONE: (734) 242-5880

ELECTRICAL SPECIFICATIONS

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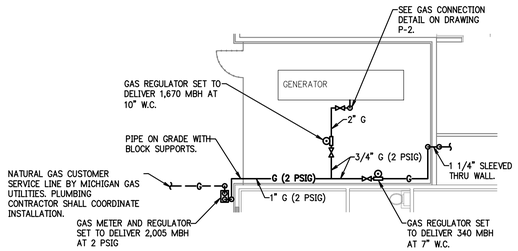
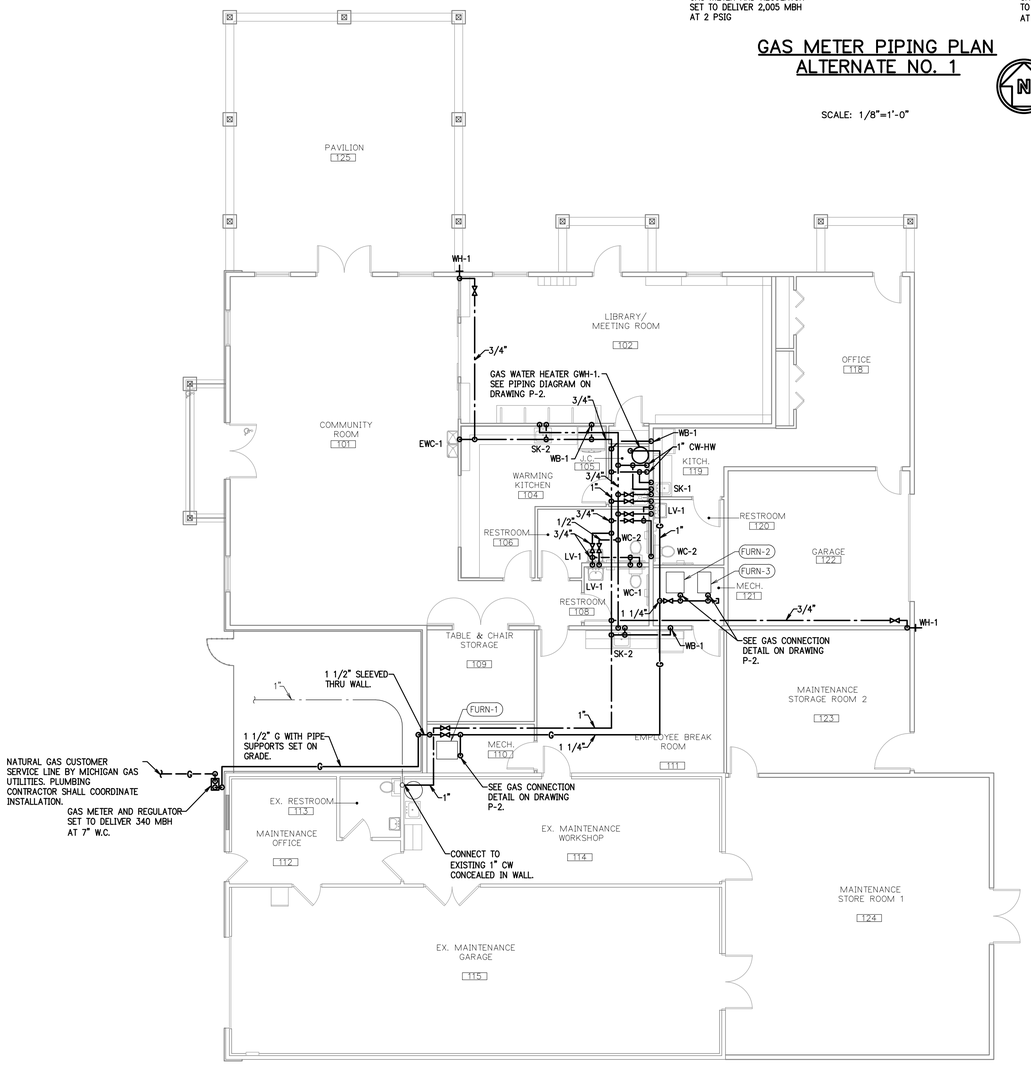


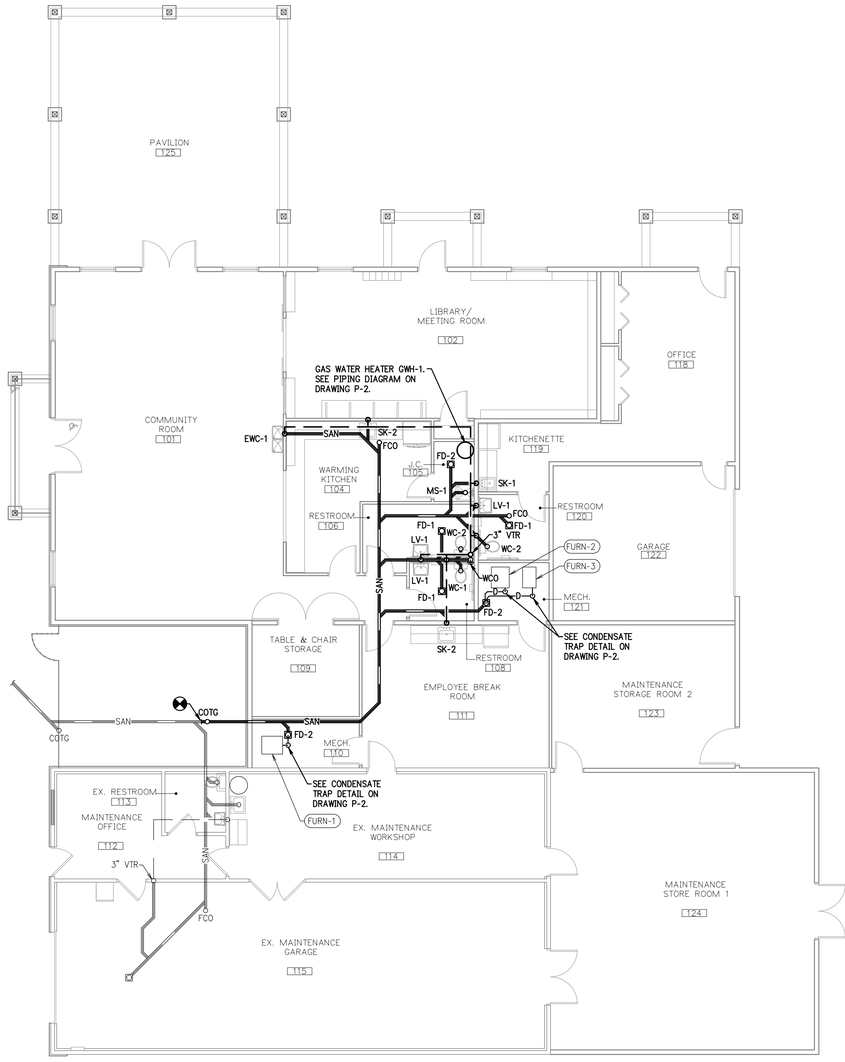
GAS METER PIPING PLAN ALTERNATE NO. 1

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



FLOOR PLAN - DOMESTIC WATER AND NATURAL GAS

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



FLOOR PLAN - SANITARY AND VENT

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

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FLOOR PLANS PLUMBING

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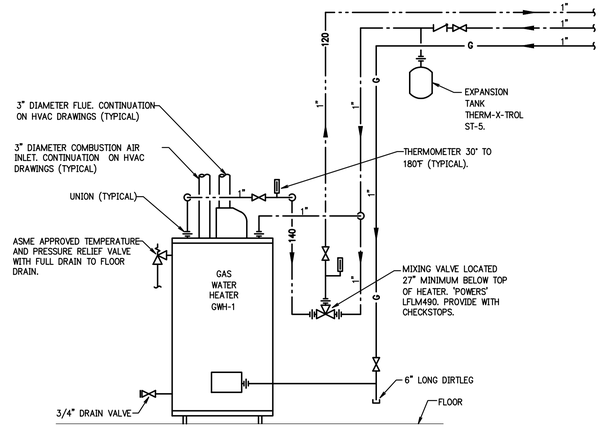
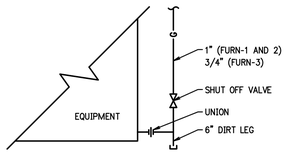


GAS WATER HEATER PIPING DIAGRAM
SCALE: NONE

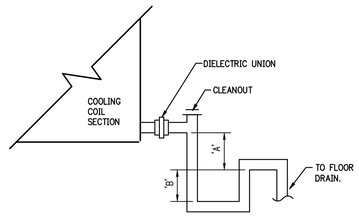
GAS WATER HEATER

SCHEDULE BASED ON 'BRADFORD WHITE'

NO.	DIA.	HEIGHT	STORAGE GALLONS	FLUE SIZE	BTU INPUT	EWT °F	LWT °F	RECOVERY GPH	REMARKS
GWH-1	22"	59"	48	2"	60,000	40°	140°	38	MODEL RG2PDV50H6N (PROVIDE WITH CONCENTRIC VENT TERMINATION KIT)



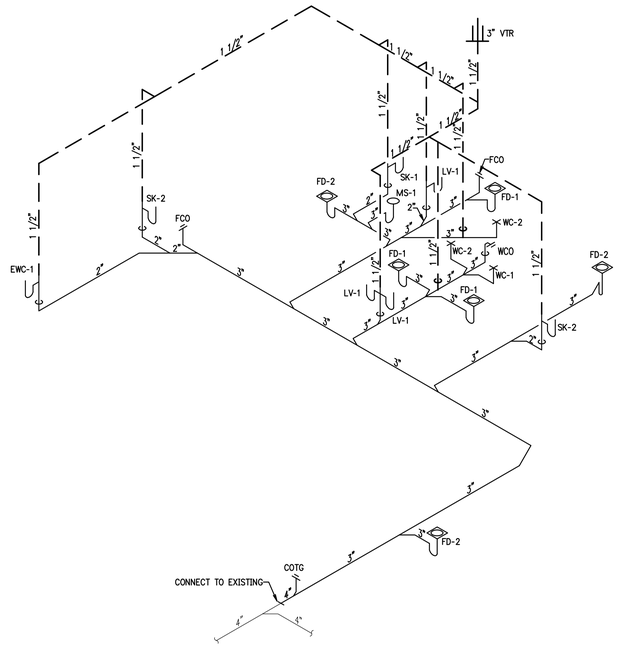
GAS CONNECTION DETAIL
SCALE: NONE



CONDENSATE TRAP DETAIL
SCALE: NONE

CONDENSATE TRAP SCHEDULE

UNIT	TONS	STATIC PRESSURE	DRAIN SIZE	'A'	'B'
FURN-1	3.0	0.6"	1"	1"	1 3/4"
FURN-2	3.0	0.6"	1"	1"	1 3/4"
FURN-3	1.0	0.6"	3/4"	1"	1 3/4"



SANITARY PIPING SCHEMATIC
SCALE: NONE

PLUMBING LEGEND

SOIL , WASTE OR SANITARY SEWER - ABOVE FLOOR	SAN	SAN
SOIL , WASTE OR SANITARY SEWER - BELOW FLOOR	SAN	SAN
VENT	V	
DOMESTIC COLD WATER	CW	
DOMESTIC HOT WATER	HW	
NATURAL GAS - 1/2 PSIG OR LESS	G	G
INDIRECT OR CONDENSATE DRAIN	D	D
VENT THRU ROOF	VTR	
CLEANOUT PLUG	CO	
FLOOR CLEANOUT	FCO	
WALL CLEANOUT	WCO	
CLEANOUT TO GRADE	COTG	
WALL HYDRANT	WH	
NEW PIPING - DARK		
EXISTING PIPING - LIGHT		
MIXING VALVE		
SHUTOFF VALVE		
CHECK VALVE		
RELIEF VALVE		
THERMOMETER		

PLUMBING FIXTURE SCHEDULE

MARK	DESCRIPTION	CW	HW	WASTE	VENT
WC-1	WATER CLOSET - FLOOR SET - TANK TYPE - (ADA) TRIP LEVER ON LEFT SIDE OF TANK	1/2"	---	3"	1 1/2"
WC-2	WATER CLOSET - FLOOR SET - TANK TYPE - (ADA) TRIP LEVER ON RIGHT SIDE OF TANK	1/2"	---	3"	1 1/2"
LV-1	LAVATORY - WALL HUNG WITH ASSE 1070 APPROVED WATER-TEMPERATURE LIMITING DEVICE	1/2"	1/2"	1 1/2"	1 1/2"
EWC-1	ELECTRIC WATER COOLER - WALL HUNG - HI-LO (ADA)	1/2"	---	1 1/2"	1 1/2"
MS-1	FLOOR SINK - FLOOR SET - 24" x 24" (SEE NOTE 1)	1/2"	1/2"	3"	1 1/2"
SK-1	SINK - SINGLE COMPARTMENT - STAINLESS STEEL	1/2"	1/2"	1 1/2"	1 1/2"
SK-2	SINK - SINGLE COMPARTMENT - STAINLESS STEEL	1/2"	1/2"	1 1/2"	1 1/2"
WB-1	WATER OUTLET BOX (SEE NOTE 2)	1/2"	---	---	---
FD-1	FLOOR DRAIN WITH BARRIER-TYPE TRAP SEAL PROTECTION DEVICE	---	---	3"	1 1/2"
FD-2	FLOOR DRAIN WITH FUNNEL AND BARRIER-TYPE TRAP SEAL PROTECTION DEVICE	---	---	3"	1 1/2"

PLUMBING FIXTURE SCHEDULE NOTES:

1. PROVIDE SHUT-OFF VALVES AND CHECK VALVES ON WATER SUPPLY TO FIXTURE. WATTS SERIES LF7.
2. PROVIDE OATEY MODEL 12K WATER SUPPLY BOX APPROXIMATELY 4'-0" A.F.F.

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