PLANNING COMMISSION

September 25, 2018 - 6:30 p.m.
Council Chambers
201 West Ash Street, Mason MI

SPECIAL MEETING

AGENDA

1. **CALL TO ORDER**

2. **ROLL CALL**

3. **PUBLIC COMMENT**

4. **NEW BUSINESS**

   a. Teresa Wren, Kean Properties, LC has submitted an application for Final Site Plan Review proposing the renovation of an existing two-story building that has sustained extensive fire damage. The plan includes a 1st floor restaurant and 2nd floor apartments. The basement previously contained restaurant storage but will be renovated to include a proposed office or bar and storage for the proposed restaurant. The property is located at 402 S. Jefferson Street.

5. **ADJOURN**

City of Mason
Planning Commission
Staff Report

TO: Planning Commission
FROM: Elizabeth A. Hude, AICP - Community Development Director
SUBJECT: Site Plan Review – 402 S. Jefferson Street (old Baja Grill)
DATE: September 19, 2018

Teresa Wren, Kean Properties, LC for a Final Site Plan approval to renovate an existing two-story building that has sustained extensive fire damage to include a 1st floor restaurant, 2nd floor apartments, and to create a new use in the basement for potential office space or a bar along with restaurant storage. No changes to expand the building footprint or site are proposed.

The parcel is zoned C-1 (Central Business District). Section 94-222 states that any use within the C-1 zoning district requires site plan review. The proposed use includes the creation of a new use, potential office space or bar, both of which are allowed by right. The new uses increase the number of required off-street parking spaces by more than two, which in turn triggers the need for Planning Commission review.

LAND USE AND ZONING:
The site is located and fronts on the corners of Ash Street (M36), which is under the jurisdiction of the Michigan Department of Transportation (MDOT), and S. Jefferson St., a local roadway. The surrounding land uses and zoning are as follows:

	Current Land Use	Zoning	Future Land Use
North	Commercial	C-1 (Central Business District)	Commercial
East	Commercial	C-1 (Central Business District)	Commercial
South	Commercial	C-1 (Central Business District)	Commercial
West	Commercial – Public Parking	C-1 (Central Business District)	Commercial

SITE PLAN REVIEW:
The following sections address compliance with site plan requirements. The following comments are provided based upon the plan dated September 6, 2018.

Plan Details:
There are no proposed changes to expand the building footprint. The change of use/creation of a new use in the basement for potential office space or a bar is allowed by right.

Height, Bulk, Density, and Area Requirements:

As no changes to the structure footprint are proposed, the plan appears to the meet the building height, setbacks and lot coverage site development standards listed in Section 94-121(c) and Table 100-1.

Circulation, Loading and Off-Street Parking

Circulation
The proposed building is adequately served by infrastructure that supports the safe and orderly circulation of motorized and non-motorized traffic - it fronts onto a four-lane public right of way supporting two lanes for bi-directional traffic, two lanes of on-street parking and a sidewalk. CATA route #46 is available on Jefferson St.

Loading
There shall be no requirement of loading or unloading space in the C-1 district for property with direct access to an alley. (§94-293(c))

The site currently has direct access to an alley and therefore is exempt from the loading space requirement.

Off-Street Parking
§94-292(h)(1) Uses in the C-1 district states that there shall be no off-street parking space requirements in the C-1 district for those uses which require 20 or less off-street parking spaces. Uses requiring more than 20 off-street parking spaces shall have their parking requirement determined by the planning commission. In making such a decision, the planning commission shall consider the availability of both public and private parking spaces.

Based upon the requirements of Table 100-5 Parking space requirements, either 22 or 33 parking spaces are required to support the uses in the development, one to two of which are to be barrier free. This is detailed in the parking calculation (Table 1) below. The applicant is providing four private parking spaces dedicated to the residence on the third floor. Tenants are yet to be determined for basement use, therefore, parking space requirements are an estimate based upon the intended/known uses.

Staff finds that there appears to be sufficient parking available in the surrounding public lots and on-street spaces to accommodate the proposed uses and recommends that the planning commission modify the number of required spaces to 20 based upon the following facts:

1. The current proposed use for restaurant and apartments is a restoration of the prior use. Parking was previously adequately accommodated in the adjacent public parking lot and on-street parking and will continue as before.

2. There are proposed additional uses of either office or a bar. The additional two or thirteen spaces can be accommodated within the public parking lots and on-street parking in downtown.

3. A parking study was completed as part of a 2009 Downtown Marketing Analysis by McKenna Associates recommending a calculation of 3.23 for 1,000 sq. ft. of useable floor area. The total UFA for this proposal is 1,424 sq. ft. for the office and restaurant would require five spaces, plus residential resulting in a total requirement of nine (9) parking spaces. This is thirteen to 26 parking spaces less than what would be required under the City's current parking requirements. The study states that based upon the total building floor area in downtown, which would take into consideration the existing site, demand is for 380 spaces total. Factoring in the available

private parking lots associated with many of the buildings, this results in a parking surplus of approximately 240% +/- in downtown Mason.

Table 1 – Parking Requirements

Use	UFA (per applicant)	Parking/UFA	Customer Parking Req.	Customer Parking Proposed
First Floor Restaurant	750 +/- sq. ft.	1:50 sq. ft.	15	Adjacent public lot/on-street
Second Floor Residential	2 units	2 per dwelling unit	4	Adjacent public lot/on-street
Basement Option 1: Office	674 sq. ft.	1:200 sq. ft.	3	Adjacent public lot/on-street
Basement Option 2: Bar (tavern)	674 sq. ft.	1:50 sq. ft.	14	Adjacent public lot/on-street
	Total *Option 1* *Option 2*	 *22* *33*		
	Allowance for uses in the C-1 District	20		
	Balance – parking spaces required on-site *Option 1* *Option 2*	 *2* *13*		
	Barrier-free spaces required	*1-2*		
UFA = Useable Floor Area				

Landscaping:
No changes proposed.

Signs:
The site plan does not propose a new or expanded sign located within the property.

If any new signage is to be located on the site it will be subject to the requirements of Chapter 58 of the Zoning Ordinance, including Division 2 of said chapter.

Site Lighting:
No changes proposed.

Construction Schedule:
Construction is expected to begin this fall.

PUBLIC SERVICES AND FACILITIES:

Water and Sanitary Sewer:
No new water or sanitary sewer services are proposed for this project.

Storm Water Management:
No changes proposed.

Agency Comments:
The Historic District Commission approved a Certificate of Appropriateness for the building façade at their meeting on September 17, 2018.

No other comments or concerns have been received.

REVIEW CRITERIA:
It appears that the site and proposed use will comply with the site plan review standards listed in Section 94-227 of the Code.

Site Plan Review Standards Sec. 94-227:
In reviewing an application for site plan review and approval the following standards shall apply:

(1) The site shall be developed so that all elements shall be harmoniously and efficiently organized in relation to the size, shape, type and topography of the site and surrounding property.
(2) The site shall be developed so as not to impede the normal and orderly development, improvement, and use of surrounding property for uses permitted in this chapter.
(3) All buildings or groups of buildings shall be arranged to permit emergency vehicle access by some practical means to all sites.
(4) Every structure or dwelling unit shall have direct access to a public street or indirect access to a public street via an approved dedicated private street.
(5) Appropriate measures shall be taken to ensure that the addition or removal of surface waters will not adversely affect neighboring properties that controls are in place to minimize sedimentation and erosion, and that topographic alterations are minimized to accommodate storm water management.
(6) Provisions shall be made for the construction of storm sewer facilities including grading, gutters, piping, on-site storage, and treatment of turf as required to handle storm water and prevent erosion.
(7) Secondary containment for above ground areas where hazardous substances are stored or used shall be provided as required by the city fire chief.
(8) Exterior lighting shall be designed and located so that the source of illumination is directed away from adjacent properties, the intensity of lighting is the minimum necessary, and the direction of lighting is downward as much as is possible and appropriate for the project.
(9) All loading and unloading areas, outside storage areas, and refuse receptacles shall be screened from casual view from the public rights-of-way and adjoining land uses.
(10) Site plans shall meet the driveway, traffic safety, and parking standards of the city in such manner as necessary to address the following:
    a. Safe and efficient vehicular and non-vehicular circulation, including parking areas, non-motorized linkages to abutting parcels, uses, sidewalks, and trails.
    b. Shared driveways and service drives.
    c. Adequate and properly located utilities.
(11) Provisions shall be made for proposed common areas and public features to be reasonably maintained.
(12) The site plan submittal shall demonstrate compliance with all applicable requirements of this chapter, chapters 58 and 74, the building code, and county, state, and federal law.

STAFF RECOMMENDATION:

With the findings and analysis described above, the following action is recommended for consideration by the Planning Commission:

The Planning Commission approve Resolution No. 2018-13.

Attachments:
1. Resolution
2. Application
3. Site Plan

Introduced:
Second:

CITY OF MASON
PLANNING COMMISSION RESOLUTION No. 2018-13

APPROVAL OF FINAL SITE PLAN TO RENOVATE AN EXISTING TWO-STORY BUILDING THAT HAS SUSTAINED EXTENSIVE FIRE DAMAGE TO INCLUDE A 1ST FLOOR RESTAURANT, 2ND FLOOR APARTMENTS, AND TO CREATE A NEW USE IN THE BASEMENT FOR POTENTIAL OFFICE SPACE OR A BAR ALONG WITH RESTAURANT STORAGE ON PROPERTY LOCATED AT 402 S. JEFFERSON

September 25, 2018

WHEREAS, a request has been received from Teresa Wren, Kean Properties, LC for a Final Site Plan approval to renovate an existing two-story building that has sustained extensive fire damage to include a 1st floor restaurant, 2nd floor apartments, and to create a new use in the basement for potential office space or a bar along with restaurant storage; and

WHEREAS, the proposal was shown on plans dated September 6, 2018; and

WHEREAS, the subject property is further described as 402 S. Jefferson; and

WHEREAS, the parcel is zoned C-1 (Central Business District); and

WHEREAS, Section 94-222 states that any use within the C-1 zoning district requires site plan review; and

WHEREAS with the conditions listed herein, the plans will comply with the Site Plan Review Standards listed in Section 94-227 of the Mason Code; and

WHEREAS, approval is granted with the following conditions:

1. The maximum number of required parking spaces shall be 20 for the proposed uses with either an office or a bar in the basement.

NOW THEREFORE BE IT BE RESOLVED, that the Mason Planning Commission does hereby approve a Final Site Plan to renovate an existing two-story building that has sustained extensive fire damage to include a 1st floor restaurant, 2nd floor apartments, and to create a new use in the basement for potential office space or a bar along with restaurant storage based on plans dated September 6, 2018.

Yes ( )
No ( )
Absent ( )
Vacant ( )

CLERK'S CERTIFICATION: I hereby certify that the foregoing is a true and accurate copy of a resolution adopted by the Planning Commission at its special meeting held Tuesday, September 25, 2018, the original of which is part of the Planning Commission minutes.

_____

Sarah J. Jarvis, Clerk
City of Mason
Ingham County, Michigan

APPLICATION – SITE PLAN REVIEW/SPECIAL USE PERMIT

City of Mason

Planning Department • 201 W. Ash Street • Mason, MI 48854
Phone: 517/676-9155 • Fax: 517/676-1330
www.mason.mi.us

Applicant– Please check one of the following:	
	Preliminary Site Plan Review
X	Final Site Plan Review
	Special Use Permit*
	Administrative Review
* includes Preliminary Site Plan Review	

PLANNING DEPARTMENT USE ONLY

Application Received: _____

Tax ID: _____

Fee: _____

Receipt #: _____

I. APPLICANT INFORMATION

Name Kathleen Waters, RA

Organization MCSA Group, Inc.

Address 529 Greenwood Avenue S.E., East Grand Rapids, MI 49506

Telephone Number 616-451-3346 Facsimile Number 616-451-3295

Interest in Property (owner, tenant, option, etc.) Architect

Note: If applicant is anyone other than owner, request must be accompanied by a signed letter of authorization from the owner.

II. PROPERTY INFORMATION

Owner Teresa Wren, Kean Properties, LC Telephone Number 517-676-5144

Property Address 406 S. Jefferson Street, Mason, MI 48854

Legal Description: If in a Subdivision: Subdivision Name _____ Lot Number _____

If Metes and Bounds (can be provided on separate sheet): _____

APPLICANT CERTIFICATION

By execution of this application, the person signing represents that the information provided and the accompanying documentation is, to the best of his/her knowledge, true and accurate. In addition, the person signing represents that he or she is authorized and does hereby grant a right of entry to City officials for the purpose of inspecting the premises and uses thereon to verify compliance with the terms and conditions of any Special Use Permit and/or Site Plan approval issued as a result of this application.

Signature Kathleen Waters Date 9-6-18

III. REQUEST DESCRIPTION

A. Written Description – Please use this section to describe the use or uses proposed. Attach additional pages, if necessary.

Major interior renovations of an existing two-story building which had extensive fire damage. The original uses are being restored, 1st floor restaurant and 2nd floor apartments. The basement previously contained restaurant storage. The renovations include a proposed bar and storage for the proposed restaurant.

B. Available Services

Public Water	☒ YES	☐ NO	Paved Road (Asphalt or Concrete)	☒ YES	☐ NO
Public Sanitary Sewer	☒ YES	☐ NO	Public Storm Sewer	☒ YES	☐ NO

C. Estimate the Following

Traffic Generated _____

Population Increase _____

Hours of Operation _____AM to _____PM

_____day through _____day

Total Employees _____Shifts_____

Employees in Peak Shift _____

Total Bldg. Area Proposed 1,753 gross sq ft (footprint)

Parking Spaces Provided adjacent to public lot & off street parking

D. Project Phasing

This project will be completed in: ☒ One Phase ☐ Multiple Phases – Total No. of Phases: _____

Note: The phases of construction for multi-phase projects must be shown on the site plan

IV. APPLICATION MATERIALS

The following are checklists of items that generally must be submitted with applications for Preliminary Site Plan Review, Final Site Plan Review, and Special Use Permits. Applicants should review Articles VI and VII of Chapter 94 of the Mason Code for a complete listing of application requirements. All site plan drawings must comply with the requirements of Section 94-226(d) of the Zoning Ordinance. Incomplete applications will not be processed.

- ☐ Completed application form
- ☐ 20 copies of site plan drawings is larger than 11" x 17" **(30 copies for Special Use Permits)**
- ☐ 1 – 11" x 17" copy of the site plan
- ☐ Plans submitted on CD (Commercial only)
- ☐ Legal description
- ☐ Proof of ownership/owner authorization
- ☐ Construction schedule for proposed project
- ☐ Construction calculations for utilities
- ☐ Fee (see below)
- ☐ Any other information deemed necessary

Application Fee – all requests must be accompanied by a fee, as established by the City Council. The fee schedule for Preliminary Site Plan Reviews, Final Site Plan Reviews, and Special Use Permits is as follows (As of October 16, 2006):

Administrative Reviews	$70.00	
Preliminary Site Plan Reviews	$200.00	Fee to be paid directly by owner.
Final Site Plan Review	$100.00	
Special Use Permits (includes preliminary site plan review)	$275.00	
Engineering Review	**$220.00***	

***Two-hour minimum fee for projects increasing demand on public utilities. Actual fees incurred are billed to applicant upon completion of review.**

V. APPLICATION DEADLINES

Preliminary Site Plan/Special Use Permit Review – Applications for Preliminary Site Plan Review may be submitted at any time. Complete applications must be received a minimum four (4) weeks prior to a Planning Commission meeting to be placed on the agenda. Upon receipt of a complete application, a public hearing will be scheduled for the next regularly scheduled meeting (for Special Use Permits only). The Planning Commission has the final authority to approve, approve with conditions or deny an application for Preliminary Site Plan/Special Use Permit Review. The Planning Department staff will issue a letter to the applicant advising of any changes or revisions that may be necessary prior to making application for Final Site Plan Review.

Final Site Plan Review – Complete applications must be received a minimum of four (4) weeks prior to a Planning Commission meeting to be placed on an agenda. The Planning Commission has the final authority to approve, approve with conditions or deny an application for Final Site Plan Review. Planning Commission meetings are held on the second Tuesday after the first Monday of every month, unless the Tuesday is a Township recognized holiday, in which case the meeting is held on the following day (Wednesday).

VI. STAFF REPORT

The Planning Department Staff will prepare a report to the Planning Commission regarding an application for Preliminary Site Plan Review, Final Site Plan Review or Special Use Permit. The report will explain the request and review whether it complies with the zoning standards of the Mason Code. Staff will present the findings of that report during the Planning Commission meeting. An applicant who wishes to obtain one (1) copy of that report, at no cost, prior to the meeting must provide a written request to the Planning Department. The report is generally complete on the Friday before the meeting and can be mailed to the applicant or picked up by the applicant in the Planning Department.

WREN BUILDING APARTMENTS

402 S. JEFFERSON ST., MASON, MI 48854

OWNER: KEAN PROPERTIES, LLC
406 S. JEFFERSON STREET
MASON, MI 48854

ARCHITECT: MCSA GROUP, INC.

Architecture • Park & Recreation Planning • Landscape Architecture
Downtown Planning • Interior Design • Sports Facility Planning
529 Greenwood Avenue S.E. • East Grand Rapids, MI 49506
(616)451-3346 • www.mcsagroup.com

PROJECT DESCRIPTION

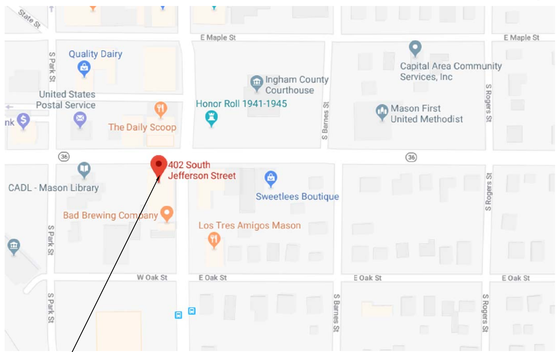
THE COMPLETE RENOVATION OF AN EXISTING TWO STORY MASONRY BUILDING WITH BASEMENT. THE BUILDING IS LOCATED WITHIN THE MASON HISTORIC DISTRICT. THE BUILDING IS MIXED USE WITH BASEMENT STORAGE AND ASSEMBLY (S-2 & A-2); FIRST FLOOR RESTAURANT (A-2); AND TWO SECOND FLOOR APARTMENTS (R-2).

THE BUILDING IS CURRENTLY GUTTED DUE TO FIRE REMEDIATION. THE BASEMENT IS EMPTY AND IS OPEN TO THE BOTTOM OF THE SECOND FLOOR JOISTS. THE FIRST FLOOR JOISTS HAVE BEEN REMOVED. THE SECOND FLOOR APARTMENTS HAVE BEEN STRIPPED TO THE STUDS.

EXTERIOR RENOVATIONS INCLUDE REPLACEMENT OF WINDOWS, DOORS, STOREFRONT, ROOF COVERING, MASONRY REPAIR AND PAINTING. NEW EXTERIOR STAIRS TO BASEMENT AND SECOND FLOOR.

SHEET INDEX

Location Map



402 S. JEFFERSON ST
MASON, MI

SITE PLAN REVIEW

DATE: 9-6-18
ARCHITECT PROJECT NO. A1139

MCSA GROUP, INC.
Architecture • Park & Recreation Planning • Landscape Architecture
Downtown Planning • Interior Design • Sports Facility Planning
529 Greenwood Avenue S.E. • East Grand Rapids, MI 49506
(616)451-3346 • www.mcsagroup.com

WREN BUILDING
402 S. JEFFERSON ST, MASON, MI
TITLE SHEET

DATE
9-6-18

PROJECT NO.
A1139

PROJECT DESCRIPTION

THE COMPLETE RENOVATION OF AN EXISTING TWO STORY MASONRY BUILDING WITH BASEMENT. THE BUILDING IS LOCATED WITHIN THE MASON HISTORIC DISTRICT. THE BUILDING IS MIXED USE WITH BASEMENT STORAGE AND ASSEMBLY (S-2 & A-2); FIRST FLOOR RESTAURANT (A-2); AND TWO SECOND FLOOR APARTMENTS (R-2).

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EXTERIOR RENOVATIONS INCLUDE REPLACEMENT OF WINDOWS, DOORS, STOREFRONT, ROOF COVERING, MASONRY REPAIR AND PAINTING. NEW EXTERIOR STAIRS TO BASEMENT AND SECOND FLOOR.

PROPOSED SCHEDULE
CONSTRUCTION START: JANUARY, 2019
CONSTRUCTION END: FALL, 2019

ZONING ANALYSIS			
	ALLOWED/REQUIRED	EXISTING	PROPOSED
USE PERMITTED BY RIGHT	RESTAURANT	1ST FLOOR RESTAURANT	1ST FLOOR RESTAURANT
	RESIDENTIAL ABOVE BUSINESS	2nd FLOOR APARTMENTS (QTY 2)	2nd FLOOR APARTMENTS (QTY 2)
	ESTABLISHMENT LICENSED FOR ALCOHOL	BASEMENT STORAGE	BASEMENT STORAGE & BAR
APT FLOOR AREA	1-BEDROOM 600 SQ. FT.	1-BEDROOM 510 SQ. FT.	1-BEDROOM 638 SQ. FT.
	2-BEDROOM 800 SQ. FT.	2-BEDROOM 938 SQ. FT.	2-BEDROOM 853 SQ. FT.
LOT DIMENSIONS	20 FT WIDTH	22 FT WIDTH	22 FT WIDTH
MAX. HEIGHT	45 FT	35 FT (APPROXIMATE)	35 FT (APPROXIMATE)
PARKING REQUIREMENT	4 (2 DWELLING UNITS)	OFF SITE	OFF SITE
	15 (1ST FLOOR 750 SQ. FT. UFA)	OFF SITE	OFF SITE
	13 (BASEMENT 674 SQ. FT. UFA)	OFF SITE	OFF SITE

APPLICABLE CODES

2015 MICHIGAN REHABILITATION & BUILDING CODE
2015 MICHIGAN MECHANICAL CODE
2015 MICHIGAN PLUMBING CODE
2014 NATIONAL ELECTRICAL CODE
2015 UNIFORM ENERGY CODE
ACCESSIBILITY: REHABILITATION & BUILDING CODES
W/ 2009 ICC/ANSI A117.1

CODE SUMMARY

Michigan Rehabilitation Code: Chapter 9 Alterations - Level 3

Work Area exceeds 50% of building area (MIRehab Section 505)
801.3 New construction elements to comply with IBC see below.
803.2 Existing vertical openings - n/a all new
803.3 Smoke Barriers I2 - n/a
803.4 Interior finish to comply with IBC see below.
803.5 Guards -n/a all new
804.2.2 Fire Protection required by other sections
804.3 Standpipes - n/a
804.4.1.6 Fire Alarm and detection required in work area for R-2 see below.
804.4.3 Smoke Alarms - required per MBC see below.
805.3.1 Provide minimum number of exits per IBC see below.
805.3.1.1.5 not a single exit building, exceeds 50ft travel distance
805.4 Egress Doorways two required if >50occ & >75ft travel
805.5 Openings in corridor walls n/a
805.6 Corridor Deadends <35 ft n/a
805.7 Means of Egress Lighting per IBC see below
806.4 Type A >20 units see IBC n/a
806.5 Type B >4 units see IBC n/a
902.1 High-rise n/a
902.2 Boiler n/a
903.1 Existing stairways n/a
903.2 Fire partitions R-3 n/a
903.3 Interior finish in exits n/a all new
904.1 Automatic sprinkler system n/a
904.2.1 Manual fire alarm system - provide throughout work area where required by IBC
904.2.2 Automatic fire detection - provide throughout work area where required by IBC
905.2 Means of Egress Lighting per IBC
906.2 Type B >4 units see IBC n/a
907.4 Existing structural elements <5 units n/a

Michigan Building Code

Construction Type Classification: IIIB, Non Separated Occupancy
Provide Fire Suppression throughout
Provide Fire Alarm System throughout
Use Group: Basement S-1 & A-2; 1st floor A-2; 2nd floor R-2 Residential
Allowable Area A-2: 32,750=28,500+(8500x.25)x2 Eqn. 5.2
Actual Area: 5,100 = 3x1700 sq.ft. gross per floor
Occupancy Load:
Basement: 45 occupants (A-2) & 2 (S-1)
1st floor: 83 occupants 1,210 sq ft net, 750 sq ft seating area/15 ocf
2nd floor Apt A: 4 occupants = 853 sq ft / 200 sft/occ
2nd floor Apt B: 3 occupants = 638 sq ft / 200 sft/occ
Building Construction:
Foundations: Existing Masonry
Floors (2 stories plus basement): Wood sheathing on wood frame
Roof: New Membrane Roofing on rigid insul; wood deck sheathing and wood joists
Exterior Walls: Structural Masonry w/ rubble foundation, new wood windows
Interior Walls: Plaster & gypsum board finish on wood studs
Fire Partitions between Dwelling Units & other Occupancies: 1/2 Hour Fire Rated w/ sprinkler MBC Section 708.3.2
Horizontal Assembly: A to R 1 hour w/ sprinkler (420.3 & 711)
Shaft Enclosures: 1 hour fire barrier <4 stories (713.4)
Interior Wall & Ceiling Finishes MBC Table 803.11 Sprinkled (A-2 / R-2)
Interior exit stairways, ramps & passageways: (A-2) B / (R-2) C
Corridors & enclosure for exit access stairways & exit access ramps: (A-2) B / (R-2) C
Rooms & enclosed spaces: (A-2) C / (R-2) C
Fire Sprinkler: Provided.
Manual Fire Alarm Systems: Provide throughout building
Smoke Detection Systems: Multiple stage smoke alarm required in each bedroom and immediately outside bedroom. Alarms connected within unit per MBC 907.2.11.3.
Fire Extinguishers: Required (75' max distance) Per International Fire Code Section 906 Class A
Minimum Egress Width: Egress width (including stairways), 36" MBC sec 1005
Illumination: 1 fc at walking surface (MBC sec 1006.2)
Emergency power must be provided at corridors and interior exit stairs (MBC sec 1006.3)
Doors MBC 1008: Doors that serve as part of a means of egress shall have a minimum clear opening of 32", a maximum width of 48", and minimum height not less than 6'-8"

Separations:
dwelling unit separation- 1 hour UL Des U327 & UL Des U329
1st and 2nd floor (horizontal) 1 hour UL 501
Existing masonry wall 2 hour
Shaft wall 1 hour UL Des U45 System C

Number of Exits & Exit Access Doorways MBC 1006
Basement 2 req'd/ 2 provided
1st floor 2 req'd/ 2 provided
2nd floor 1 req'd/1 provided T1006.3.2(1)

Stairway MBC 1011
1st to Basement not an Exit Stairway, no rated enclosure required (1009.3)
Width: 44 inches typical, exception 36 inches if <50 occupants (1011.2)
Min clear headroom: 80 inches (1011.3)
Treads: max 7 inch rise; min 11 inch run (1011.5.2)
Landings at top and bottom, same width, depth: 48 inches (1011.6)
Vertical rise max: 12 feet between landings (1011.8)

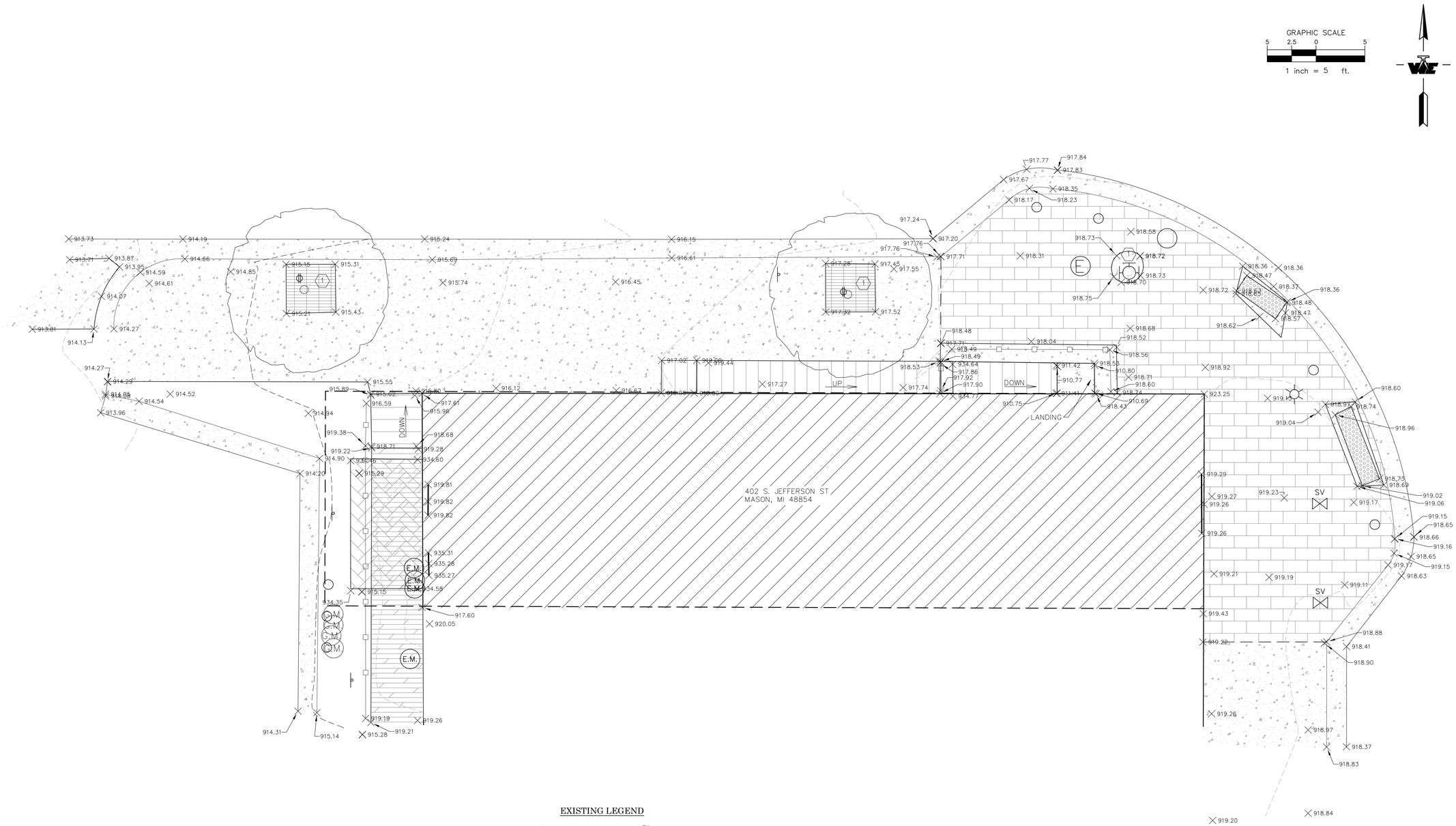
Exterior Exit Stairway MBC 1027
Separation from interior: 1-hr required (1027.6/1023.2)

MCSA GROUP, INC.
Architecture ● Park & Recreation Planning ● Landscape Architecture
Downtown Planning ● Interior Design ● Sports Facility Planning
329 Ottawa Avenue ● Grand Rapids, MI 49503
(616)451-3366 ● www.mcsagroup.com

WREN BUILDING
402 S. JEFFERSON ST, MASON, MI
ZONING ANALYSIS AND CODE REVIEW

DATE
9-6-18

PROJECT NO.
A1139



EXISTING LEGEND

- CONTOUR – MJR (900)
- CONTOUR – MNR (901)
- METAL RAIL
- CURB
- PROPERTY LINE
- STRUCTURE
- STAIRS
- CONCRETE
- DECK
- BALCONY
- METAL GRATE
- DETECTABLE WARNING STRIP
- SERVICE VALVE
- LIGHT POLE
- UTILITY POLE
- TRAFFIC SIGNAL
- ELECTRIC MANHOLE
- ELECTRIC METER
- ELECTRIC OUTLET
- GAS METER
- POST
- STREET SIGN
- DECIDUOUS TREE

NOTES:

1. TREES ARE LOCATED IN THE CENTER OF THE METAL GRATES. TRAFFIC SIGNAL IS CENTERED IN THE CONCRETE BASE. LOCATION DISCREPENCY IS A RESULT OF INABILITY TO CENTER A SURVEY ROD IN A SOLID STRUCTURE AT GROUND LEVEL.

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

!!! CAUTION !!!

THE LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS DRAWING ARE ONLY APPROXIMATE. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL BE EXCLUSIVELY RESPONSIBLE FOR DETERMINING THE EXACT UTILITY LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE VARIOUS UTILITY OWNERS IN ACCORDANCE WITH MICHIGAN P.A. NO. 174 OF 2013.

REVISION	DATE	DRAWN	DESCRIPTION

WOLVERINE
Engineers & Surveyors, Inc.
312 North Street
Mason, Michigan 48854
Ph: 517 676 9200
Fx: 517 676 9396
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PROJECT: WREN/KEAN'S BUILDING
CITY OF MASON
INGHAM COUNTY, MICHIGAN

SHEET TITLE: TOPOGRAPHIC SURVEY

APPROVED	DBH
CHECKED	DBH
DRAWN	DMS
JOB NO.	18–0410
DATE	06/11/2018
SCALE	1" = 5'
SHEET NO.	1

S:\Projects\2018\18-0410_C3D\DWGs\MCSA_TOPO_061118.dwg, Monday, June 11, 2018 8:08:10 AM, Danielle Smith

GENERAL DEMOLITION NOTES

1. DEMOLITION SHALL BE GOVERNED BY THE ANSI SAFETY CODE FOR BUILDING CONSTRUCTION, LATEST EDITION.
2. FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS. NOTIFY ARCHITECT OF ANY DISCREPANCIES BEFORE PROCEEDING WITH SELECTIVE DEMOLITION. PROTECT ALL EXISTING MATERIALS TO REMAIN.
3. VERIFY, PRIOR TO REMOVAL, THAT NO STRUCTURAL COMPONENTS, I.E. BEARING WALLS, BEAMS, HEADERS, ETC. ARE DESIGNATED FOR REMOVAL WITHOUT PROPER REINFORCEMENT AND/OR REPLACEMENT.
4. REMOVE EXISTING CONSTRUCTION COMPLETELY AS INDICATED BY DASHED LINES ON DRAWINGS; INCLUDING FLOORING, WALLS, CASEWORK, CEILINGS, DOORS, FRAMES, PLUMBING, FIXTURES, ACCESSORIES, ETC. PATCH ADJACENT WALLS AS NECESSARY WHERE EXISTING WALLS WERE REMOVED.
5. ALL PIPING, WIRING, FIXTURES, DEVICES, DUCTWORK, CONDUITS, ETC. THAT ARE OBSOLETE OR NO LONGER IN SERVICE SHALL BE REMOVED BACK TO THE SERVICE LINE, PANEL, OR MAIN DUCT AND CAPPED. ANY DUCTS, PANELS, SERVICES, PIPING, ETC. ENCOUNTERED DURING DEMOLITION WHICH ARE NOT INDICATED ON THE DRAWINGS THAT SERVE AREAS OUTSIDE THE CONSTRUCTION AREA THAT MUST BE REWORKED SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT IMMEDIATELY.
6. REMOVE DEBRIS FROM THE SITE PROMPTLY AND IN A MANNER APPROVED BY THE OWNER. THE OWNER'S DUMPSTER SHALL NOT BE USED FOR DEBRIS DISPOSAL ON THIS PROJECT. THE CONTRACTOR SHALL SUPPLY HIS OWN DUMPSTER AND PLACE IT IN A LOCATION APPROVED BY THE OWNER.
7. THE OWNER WILL OCCUPY THE ADJACENT BUILDING DURING ALL WORK. WORK TO BE PERFORMED TO MINIMIZE DISRUPTION. CONTRACTOR TO COORDINATE THEIR WORK WITH THE OWNER REGARDING ANY DISRUPTIONS WHICH CANNOT BE AVOIDED. PROVIDE OWNER WITH MINIMUM ONE DAY NOTICE OF ANY ACTIVITIES WHICH WILL IMPACT NORMAL OPERATIONS.
8. CONDUCT DEMOLITION OPERATION AND WASTE REMOVAL IN A MANNER WHICH MINIMIZES INTERFERENCE WITH ROADS, STREETS, WALKS AND ADJACENT OCCUPIED FACILITIES.
9. MAINTAIN EXISTING UTILITIES TO REMAIN. KEEP IN SERVICE AND PROTECT AGAINST DAMAGE DURING WORK. DO NOT DISRUPT ADJACENT SERVICES WITHOUT FIRST PROVIDING 72 HOUR NOTICE.
10. MAINTAIN AND SAFE AND CLEAN WORK AREA DURING DEMOLITION.

DEMOLITION NOTES

BASEMENT

1. REMOVE ANY LOOSE PLASTER.
2. CUT CONCRETE BASEMENT FLOOR AS REQUIRED PER WORK. COORDINATE WITH PLUMBING.
3. REMOVE MASONRY AND GLASS BLOCK INFILLS AT BASEMENT WINDOWS IN PREPARATION FOR NEW. FIELD VERIFICATION REQUIRED FOR THIS UNIQUE CONDITION. CUTTING AND PATCHING OF CITY SIDEWALK REQUIRED.
4. REMOVE TWO EXTERIOR DOORS AND FRAMES IN PREPARATION FOR NEW. INCLUDE REMOVAL OF GLASSBLOCK SIDELIGHTS AT NORTH DOOR.
5. THE NORTH CONCRETE STAIRS TO THE BASEMENT TO REMAIN. REMOVE ANY LOOSE MATERIALS AS REQUIRED FOR PATCHING.
6. SEE PLANS FOR SELECTIVE DEMOLITION REQUIRED FOR NEW EXTERIOR STAIR AT THE WEST. DEMOLITION INCLUDES REMOVAL OF EXISTING CONCRETE STAIRS, CONCRETE SIDEWALL, 1ST AND 2ND FLOOR DECK, AND ABANDONED CONCRETE STRUCTURES. FIELD VERIFICATION REQUIRED FOR THIS UNIQUE CONDITION. COORDINATE ALL WORK WITH EXISTING UTILITIES. CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF PRIVATE AND PUBLIC UTILITY MARKING PRIOR TO WORK.
7. CUT WALL (THRESHOLD) AT WEST EXTERIOR DOOR SILL. NEW DOOR SILL TO BE FLUSH WITH CONCRETE FLOOR.
8. PLUMBING FIXTURES HAVE BEEN REMOVED. COORDINATE WITH PLUMBING FOR REMOVAL OF ANY REMAINING PIPING.

FIRST FLOOR

1. REMOVE ANY LOOSE PLASTER.
2. REMOVE THE REMAINING FIRST FLOOR FRAMING AT EAST ENTRANCE.
3. REMOVE EXISTING 1ST FLOOR WINDOWS/FRAMES. EXISTING CASING AND APRON TO REMAIN. PREPARE OPENINGS FOR NEW INSTALLATION.
4. REMOVE EXISTING STOREFRONTS IN PREPARATION FOR NEW. EXISTING CLERESTORY WINDOWS TO REMAIN. EXISTING LOAD BEARING STRUCTURAL MEMBERS TO REMAIN.
5. REMOVE REAR EXTERIOR DOOR AND FRAME IN PREPARATION FOR NEW.
6. COORDINATE WITH ELECTRICAL FOR REMOVAL OF METERS, PANELS, CONDUIT, WIRING, AND ELECTRICAL BOXES.

SECOND FLOOR

1. REMOVE LOOSE PLASTER AT EXTERIOR WALLS AND SOUTH DEMISING WALL SCHEDULED TO REMAIN.
2. REMOVE ALL EXISTING WOOD FLOORING. REMOVE ALL ROTTED OR DAMAGED SUB-FLOORING.
3. REMOVE EXISTING WINDOWS/FRAMES. EXISTING CASING AND APRON TO REMAIN. PREPARE OPENINGS FOR NEW INSTALLATION
4. REMOVE ALL INTERIOR FRAMED WALLS INCLUDING ANY REMAINING DOORS AND FRAMES.
5. REMOVE ALL DROP OR SUSPENDED CEILINGS. DESIGN INTENT IS TO HAVE SPACE OPEN TO THE BOTTOM OF THE ATTIC. (11'-10" AFF)
6. REMOVE EXISTING DOOR AND FRAME PER WALL INFILL AT SOUTH DEMISING WALL, TYPICAL OF TWO LOCATIONS.
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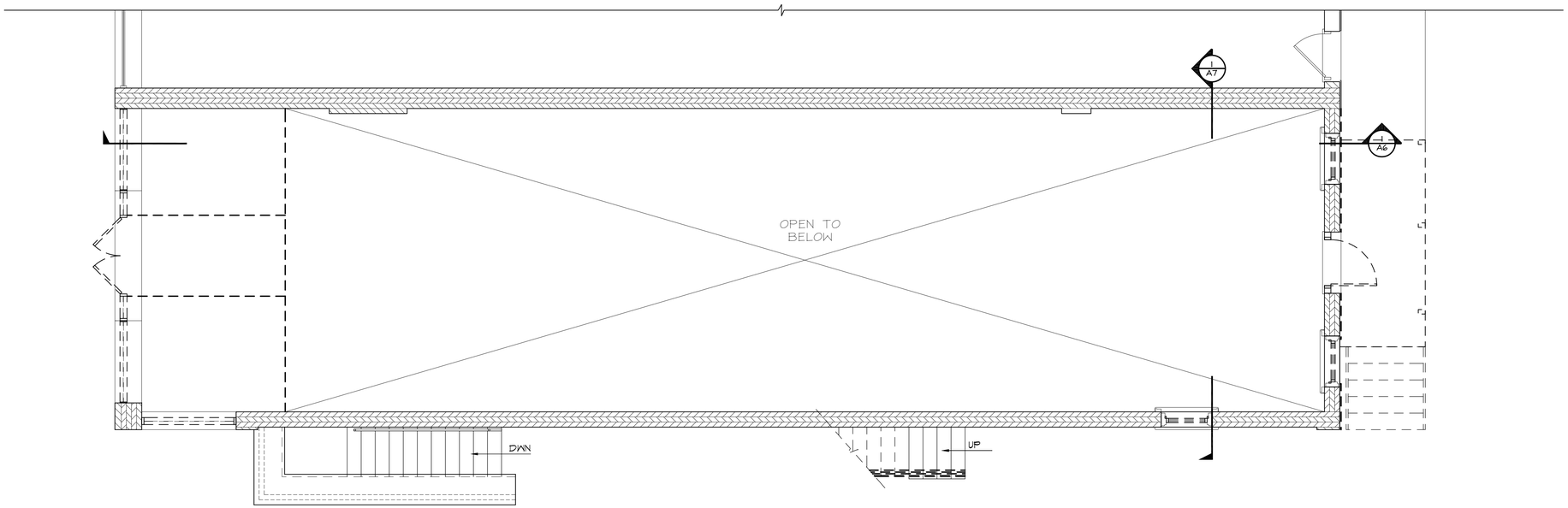
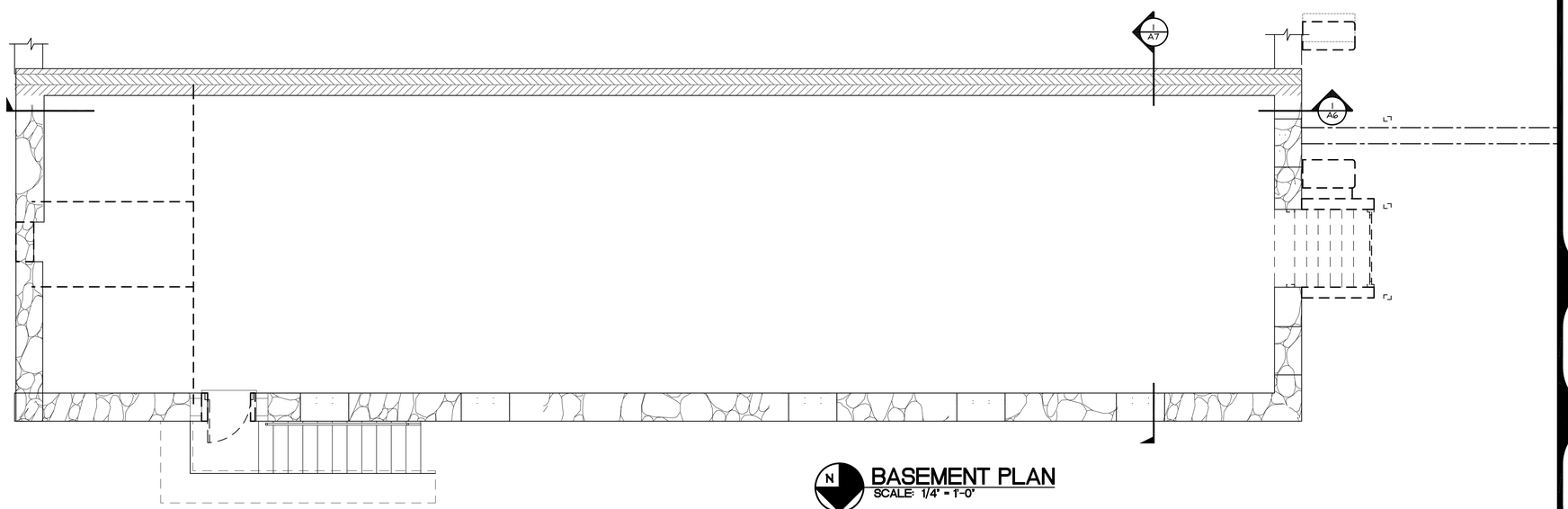
EXTERIOR

1. REMOVE AWNING AND WOOD INFILL AT EAST STOREFRONT.
2. COORDINATE WITH ELEVATIONS FOR DEMOLITION RELATED TO NEW CORNICES.
3. COORDINATE WITH STRUCTURAL FOR DEMOLITION RELATED TO STRUCTURAL REPAIRS AT NORTHEAST CORNER.
4. COORDINATE WITH ELEVATIONS FOR EXTERIOR MASONRY RESTORATION NOTES.
5. REMOVE SIDING FROM WEST ELEVATION AT 'BUILDING' LINE. REMAINING 400 BLOCK SIDING TO REMAIN. PROVIDE TERMINATION FLASHING AT REMOVAL POINT.
6. REMOVE SECOND FLOOR BALCONY AND 1ST FLOOR DECK PER WORK.



N FIRST FLOOR PLAN
SCALE: 1/4" = 1'-0"



N BASEMENT PLAN
SCALE: 1/4" = 1'-0"

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(616)451-3346 • www.mcsagroup.com

WREN BUILDING
402 S. JEFFERSON ST, MASON, MI
DEMOLITION PLAN

DATE
9-6-18

PROJECT NO.
A1139

D1

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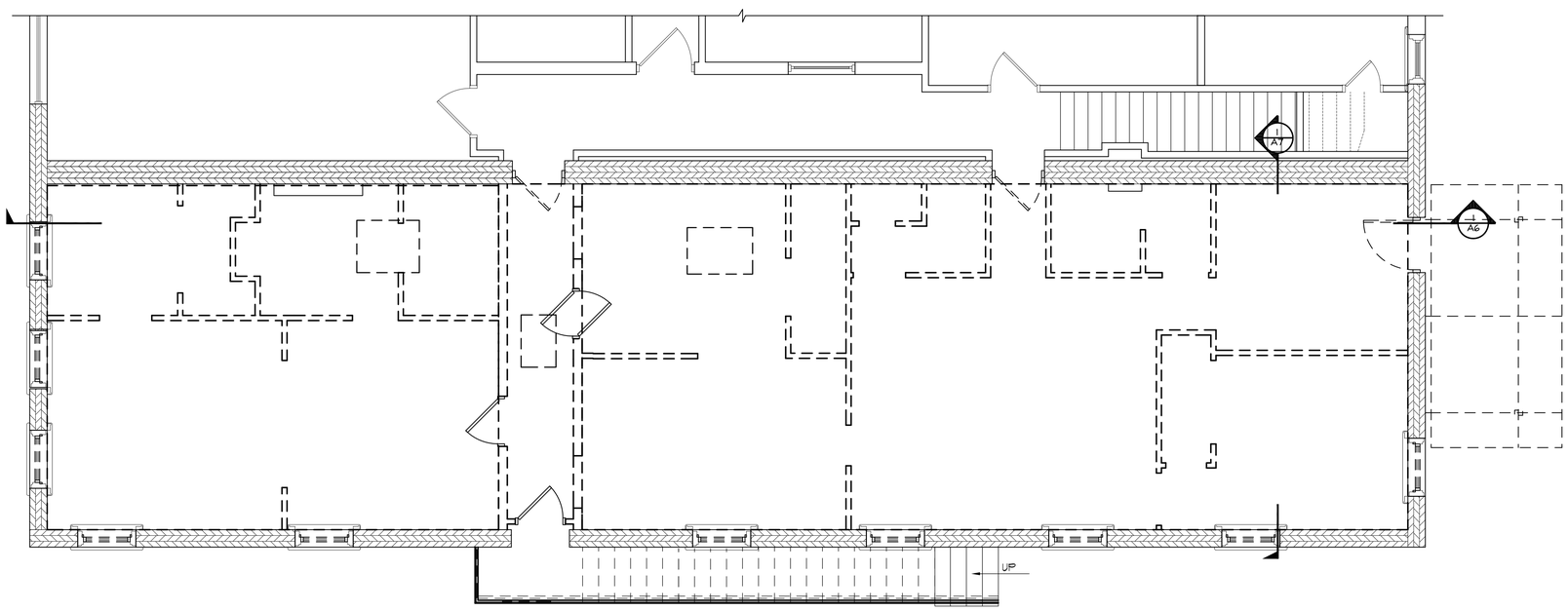

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SECOND FLOOR PLAN
SCALE: 1/4" = 1'-0"

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DEMOLITION PLAN

DATE
9-6-18

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6. REMOVE SECOND FLOOR BALCONY AND 1ST FLOOR DECK PER WORK.

GENERAL PROJECT NOTES

1. FOR PROJECTS THAT EFFECT PRE-1978 HOMES, CHILD CARE FACILITIES AND SCHOOLS, FIRMS PERFORMING RENOVATION, REPAIR, AND PAINTING PROJECTS THAT DISTURB LEAD-BASED PAINT BE CERTIFIED BY EPA AND THAT THEY USE CERTIFIED RENOVATORS WHO ARE TRAINED BY EPA-APPROVED TRAINING PROVIDERS TO FOLLOW LEAD-SAFE WORK PRACTICES. CONTRACTORS MUST USE LEAD-SAFE WORK PRACTICES AND FOLLOW THESE PROCEDURES: a) CONTAIN THE WORK AREA; b) MINIMIZE DUST; c) CLEAN UP THOROUGHLY. COMPLY WIT EPA REGULATIONS ON RESIDENTIAL PROPERTY RENOVATION, 40CFR 745, SUBPART E.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT UTILITY LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE VARIOUS UTILITY OWNERS IN ACCORDANCE WITH MICHIGAN PUBLIC ACT NO. 53 OF 1974. 72 HOURS OR THREE WORKING DAYS (EXCLUDING SATURDAY, SUNDAY OR HOLIDAYS) BEFORE YOU CALL MISS DIG 800-482-7171 OR 811 (TOLL FREE).
3. APPLICABLE FEDERAL, STATE AND LOCAL ACTS, CODES, LAWS, ORDINANCES, AND REGULATIONS, ETC. SHALL BE CONSIDERED AS PART OF THE REQUIREMENTS FOR THIS PROJECT AND SHALL TAKE PRECEDENT OVER THESE DRAWINGS AND SPECIFICATIONS. ADVISE THE ARCHITECT IN WRITING OF POTENTIAL CONFLICTS BETWEEN THEE DRAWINGS AND POSSIBLE INTERPRETATIONS OF CODES, ORDINANCES, AND REGULATIONS.
4. THE APPROXIMATE AREAS AND DIMENSIONS INDICATED ARE TO ASSIST THE CONTRACTOR IN DETERMINING THE RELATIVE MAGNITUDE OF PROJECT SIZE AND SHALL NOT BE USED AS ACTUAL AREAS IN DETERMINING QUANTITIES FOR BIDDING OR ORDERING OF MATERIAL. THE CONTRACTOR IS RESPONSIBLE FOR TAKING THEIR OWN MEASUREMENTS OF THE EXISTING CONDITIONS.
5. ALL CONTRACTORS (GENERAL, SUB, VENDORS AND SUPPLIERS) SHALL:
   - 5.1. PROVIDE ALL LABOR, EQUIPMENT, PARTS AND ACCESSORIES NECESSARY TO INSTALL COMPLETE AND FULLY FUNCTIONAL BUILDING SYSTEMS.
   - 5.2. VISIT THE SITE PRIOR TO EXECUTING A CONTRACT FOR THIS PROJECT TO EXAMINE THE EXISTING CONDITIONS. NO ADDITIONAL PAYMENT WILL BE MADE FOR FAILING TO PERFORM THE PRE-CONTRACT SITE VISIT.
   - 5.3. REVIEW ALL DOCUMENTS AND NOTIFY ARCHITECT IN WRITING OF ANY DISCREPANCIES OR INADEQUACIES PRIOR TO STARTING WORK.
   - 5.4. REVIEW AND VERIFY ALL DIMENSIONS AND NOTIFY ARCHITECT IN WRITING OF ANY DISCREPANCIES PRIOR TO START OF WORK.
   - 5.5. REVIEW AND VERIFY THAT DOCUMENTS ARE COORDINATED.
   - 5.6. PROVIDE HIGHEST QUALITY OF WORK AND GREATEST QUANTITY OF MATERIALS REQUIRED FOR A COMPLETE PROJECT CONFORMING TO ALL CODES.
   - 5.7. COMMENCEMENT OF WORK INDICATES CONTRACTOR'S ACCEPTANCE OF THESE DOCUMENTS.
   - 5.8. ANY OMISSIONS OR CONFLICTS WITHIN THE DOCUMENTS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT BEFORE PROCEEDING WITH ANY WORK.
   - 5.9. DO NOT SCALE DRAWINGS. USE PROVIDED DIMENSIONS AND VERIFY AT THE PROJECT SITE.
6. CONTRACTOR SHALL:
   - 6.1. MAINTAIN A NEAT AND CLEAN CONSTRUCTION SITE; LEGALLY DISPOSE OF ALL UNUSED MATERIAL; CLEAN ALL SURFACES AND LEAVE THE PROJECT CLEAN UPON COMPLETION OF ALL WORK.
   - 6.2. PROVIDE ACCESS OR ACCESS PANELS TO ALL VALVES, DAMPERS AND OTHER ADJUSTMENT ITEMS.
   - 6.3. COORDINATE WITH MPE THE LOCATION OF DUCTS, PIPING, BOXES, CHASES, CONDUITS, ETC.
   - 6.4. PROVIDE ADEQUATE CLEARANCES PER CODE.
   - 6.5. PROVIDE NEW MATERIAL TO PATCH, REPAIR AND REFINISH AS NECESSARY TO MATCH ADJACENT SURFACES.
   - 6.6. REPLACE DAMAGED MATERIALS WITH EQUAL OR BETTER MATERIALS.
7. CONTRACTOR SHALL PAY FOR ALL PERMITS AND/OR FEES.
8. CONTRACTOR SHALL SECURE ANY REQUIRED RIGHT-OF-WAY PERMITS AND REPLACE SIDEWALKS, CURBS AND PAVING AS REQUIRED TO TIE INTO EXISTING UTILITIES.
9. THE ARCHITECT'S SERVICES INCLUDE VERY LIMITED CONSTRUCTION ADMINISTRATION AND WILL SUPPORT THE OWNER AS NEEDED. THE OWNER WILL COMMUNICATE WITH THE ARCHITECT AS NECESSARY.

RENOVATION NOTES

EXTENT OF WORK SHOWN ON PLANS FOR THE FOLLOWING.

GENERAL NOTES:

1. FIELD VERIFY ALL DIMENSIONS.
2. RENOVATION PLANS ARE DIMENSIONED TO WALL FINISH UNLESS NOTED OTHERWISE.
3. PROTECT ALL EXISTING TO REMAIN.
4. CLEAN AREAS OF DUST, DIRT AND DEBRIS CAUSED BY WORK.
5. COORDINATE WITH M/P/E FOR PATCHING INCLUDING NEW OR REMOVED ELECTRICAL BOXES FOR DEVICES AND LIGHT FIXTURES.
6. PATCH, PREP AND PRIME ALL EXISTING WALLS AND CEILINGS TO REMAIN PRIOR TO PAINTING.
7. PAINT ALL DOOR AND WINDOW CASINGS.

PLAN NOTES:

1. PROVIDE 1 HOUR SEPARATION BETWEEN 1ST & 2ND FLOORS PER UL 501. FIRE CAULK ALL PENETRATIONS.
2. MAINTAIN 2 HOUR VERTICAL SEPARATION BETWEEN ADJACENT BUILDINGS. FIRE CAULK ALL PENETRATIONS.
3. PROVIDE 1 HOUR DWELLING UNIT SEPARATION PER UL U327 & U329. FIRE CAULK ALL PENETRATIONS.
4. PROVIDE 1 HOUR RATED SHAFT WALL CONSTRUCTION PER UL U415 SYSTEM C AS SHOWN.
5. PROVIDE CHASES AS SHOWN.
6. PROVIDE NEW WALLS PER PLANS. SEE LEGEND FOR WALL TYPES.
7. PROVIDE ALL FRAMING FOR 1ST FLOOR, 2ND FLOOR REPAIR AND ROOF REINFORCEMENT. SEE STRUCTURAL
8. BASEMENT AND 1ST FLOOR WORK LIMITED TO WHAT IS SHOWN. FINAL EQUIPMENT, MPE, FURNISHINGS AND FINISHES IN SEPARATE CONTRACT.

FLOORING RENOVATION NOTES:

1. WHERE NEW FLOORING IS NOTED PROVIDE UNDERLAYMENT AT LVT & XXX AT CERAMIC TILE
2. CONTINUE FLOORING AND BASE UNDER APPLIANCES AND INTO CLOSETS.
3. WHERE NEW BASE IS NOTED, PROVIDE PAINTED 1X6 PINE BOARDS

BASEMENT NOTES:

1. REMOVE ALL LOOSE PLASTER FROM EXTERIOR WALLS. PATCH PLASTER ONLY WHERE LOOSE PLASTER HAS BEEN REMOVED. PAINT PLASTER.
2. REMOVE ANY LOOSE MORTAR FROM RUBBLE WALL AND REPOINT.
3. CLEAN RUBBLE WALLS W/ WATER AND MILD DETERGENT. DO NOT POWER WASH OR POWER SCRUB. RUBBLE WALLS TO REMAIN EXPOSED.

FIRST FLOOR NOTES:

1. REMOVE ALL LOOSE PLASTER FROM EXTERIOR WALLS. PATCH, PRIME & PAINT PLASTER.

APARTMENT GENERAL NOTES:

1. REMOVE ALL LOOSE PLASTER FROM EXTERIOR WALLS. PATCH, PRIME & PAINT PLASTER.
2. PROVIDE ATTIC ACCESS HATCH AT ENTRY VESTIBULE.
3. PROVIDE ROD & SHELF AT 'CLOSETS'
8. PAINT INTERIOR OF ALL CLOSETS INCLUDING WOOD SHELVES

APARTMENT KITCHEN NOTES:

1. PROVIDE NEW CABINETS AND COUNTERTOPS.
2. PROVIDE NEW KITCHEN LIGHT FIXTURES.
3. PROVIDE NEW REFRIGERATOR AND RANGE.
4. PROVIDE NEW RANGE HOOD.
5. PROVIDE NEW GARBAGE DISPOSAL.

APARTMENT BATHROOM NOTES:

1. PROVIDE MOISTURE RESISTANT GYPSUM BOARD AT ALL TUBS AND SHOWERS.
2. PROVIDE 100% SILICONE SEALANT AT ALL PLUMBING FIXTURE JOINTS.
3. PROVIDE PLUMBING FIXTURES AND TOILET ACCESSORIES PER PLANS AND ELEVATIONS.
4. SEE ACCESSORY SCHEDULE. PROVIDE SOLID BLOCKING FOR ALL ACCESSORIES.

EXTERIOR NOTES:

1. CLEAN EXTERIOR W/ MEDIUM PRESSURE WATER OR HAND BRUSHED TO REMOVE LOOSE PAINT.
2. REMOVE LOOSE MORTAR AND TUCK-POINT W/ TYPE N MORTAR.
3. PROVIDE NEW CORNICES AT SOUTH ELEVATION IN EITHER METAL OR FIBERGLASS.
4. PAINT EXTERIOR.

PRODUCT SPECIFICATIONS

DIVISION 8

- EXTERIOR HM DOORS W/ LITE: CURRIES/ASSA ABLOY, SERIES 707, W/ 6"X30" LITE, POLYURETHANE CORE, PREPPED FOR HARDWARE
- EXTERIOR HM DOORS: CURRIES/ASSA ABLOY HIGH DEFINITION 1-PANEL EMBOSSED DOOR, POLYURETHANE CORE, PREPPED FOR HARDWARE
- EXTERIOR DOORS (STOREFRONT & VESTIBULE): MARVIN COMMERCIAL WOOD 2¾", W/ 25⅝" VISIBLE FLAT PANEL HEIGHT, 6" RAILS AND STILES, TEMPERED INSULATED CLEAR GLAZING.
- INTERIOR DOORS: JEN WELD AUTHENTIC WOOD ALL PANEL INTERIOR DOOR. MODEL 1055 PRIMED, FLAT CASING.
- FIRE RATED APARTMENT DOORS: JEN WELD STEEL ALL PANEL EXTERIOR DOOR, 2 PANEL CRAFTSMAN STICKING, ENERGY STAR OPTION FOR EXTERIOR DOOR.
- DOOR HARDWARE: SCHLAGE, SARGENT, VONDUPRIN
- CLAD WOOD WINDOWS: MARVIN CLAD ULTIMATE DOUBLE HUNG NEXT GENERATION W/ ROUND TOP VARIATION (RADIUS EXTERIOR & RECTANGULAR INTERIOR), THORTON CASING, ⅞" INSULATED GLAZING, LOW E2, CLEAR GLASS. FACTORY PAINTED WHITE INTERIOR.
- STOREFRONT: MARVIN CLAD ULTIMATE CASEMENT PICTURE, THORTON CASING, ⅞" INSULATED GLAZING, LOW E2, CLEAR GLASS. FACTORY PAINTED WHITE INTERIOR.

DIVISION 9

- CT-1 CERAMIC FLOOR TILE (TOILETS): MARAZZI EDGEWOOD GLAZED PORCELAIN STONEWARE, STEEL EW02 6"X24".
- CT-2 KITCHEN CERAMIC WALL TILE: DALTILE RETROSPACE 3X6 SUBWAY TILE, APARTMENT A MODERN WHITE RS30, APARTMENT B MERCURY GRAY RS31
- CT-3 BATHROOM CERAMIC FLOOR & ACCENT TILE: AMERICAN OLEAN IMPRESA LIGHT GRAY 2X2 MOSAIC
- CT-4 BATHROOM CERAMIC WALL TILE: AMERICAN OLEAN IMPRESA LIGHT GRAY 4X12
- LVT: PATCRAFT RESILIENT PLANK, ADESA ENGINEERED LUXURY VINL TILE, 20 MIL WEAR LAYER, .216 OVERALL THICKNESS,, PLANK SIZE 7.2 INCH X 48.03 INCH, FOUR SIDED LOCKING PROFILE, FLOATING INSTALLATION.
  - LVT-1 APARTMENT A & ENTRY VESTIBULE: RUNLET 00560.
  - LVT-2 APARTMENT B: PIKE 00530.
  - PAINT: SHERWIN WILLIAMS PROMAR 200.

DIVISION 12

- RESIDENTIAL CASEWORK: RIVERRUN CABINETRY (THRU WILLIAMS KITCHEN & BATH). DALTON GRAY (APARTMENT A) FULL OVERLAY, SOFT-CLOSE DOORS; ALL WOOD CONSTRUCTION; SOFT-CLOSE, DOVETAIL DRAWERS; AND FIVE PIECE DRAWER HEADS. DESOTO WHITE (APARTMENT B) FULL OVERLAY, SOFT-CLOSE DOORS; ALL WOOD CONSTRUCION WITH PREMIUM MDF PAINTED DOORS; AND FIVE-PIECE DRAWER HEADS.
- COUNTERTOPS: WILSONART QUARTZ 3CM MARRARA

SAMPLES TO BE SUBMITTED FOR FINAL COLOR SELECTION.

INSTALL ALL PRODUCTS PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.

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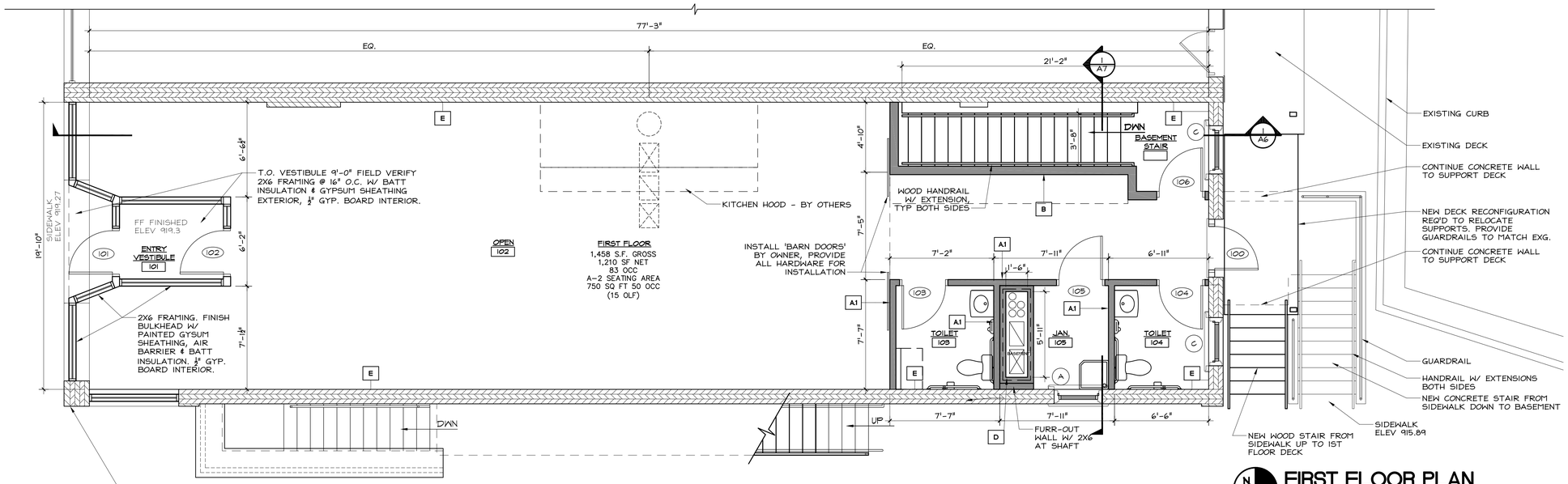
WREN BUILDING
402 S. JEFFERSON ST, MASON, MI
NOTES

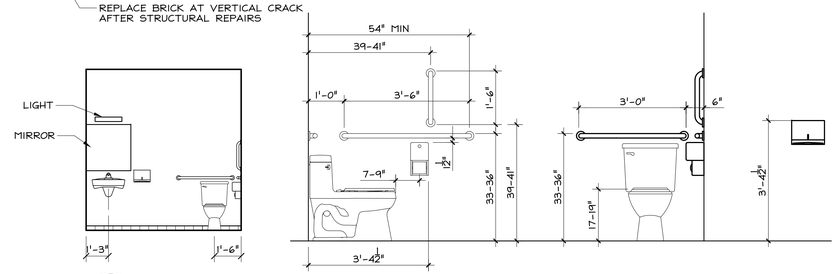
DATE
9-6-18

PROJECT NO.
A1139

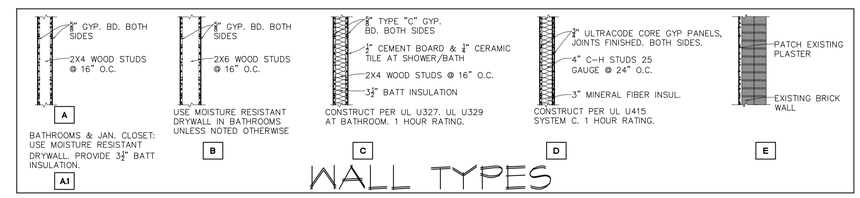
A0



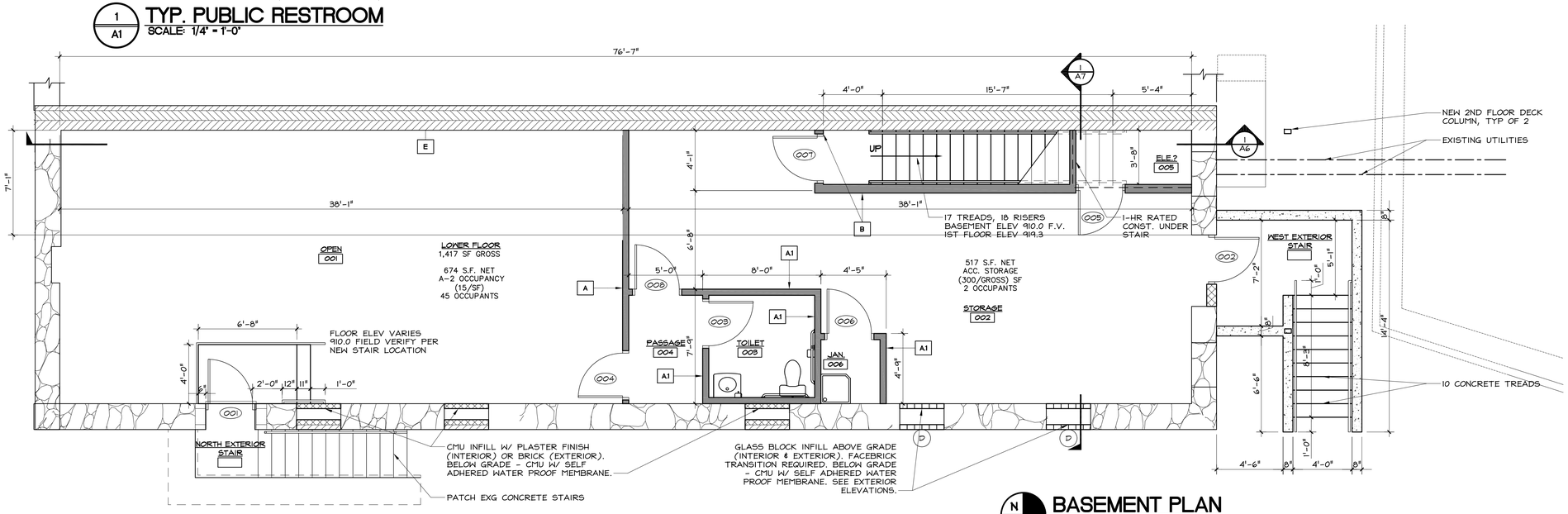
FIRST FLOOR PLAN
SCALE: 1/4" = 1'-0"



1/A1 TYP. PUBLIC RESTROOM
SCALE: 1/4" = 1'-0"



WALL TYPES



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

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FLOOR PLAN

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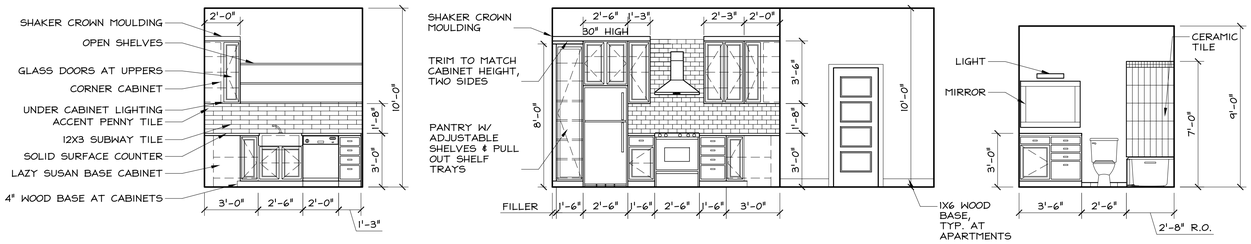
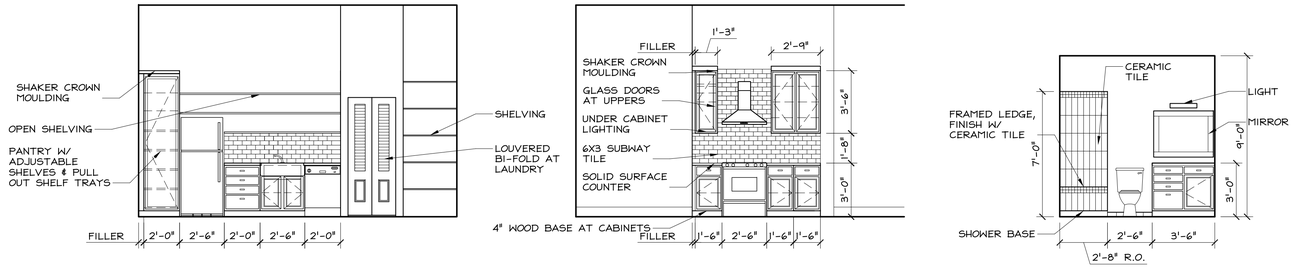
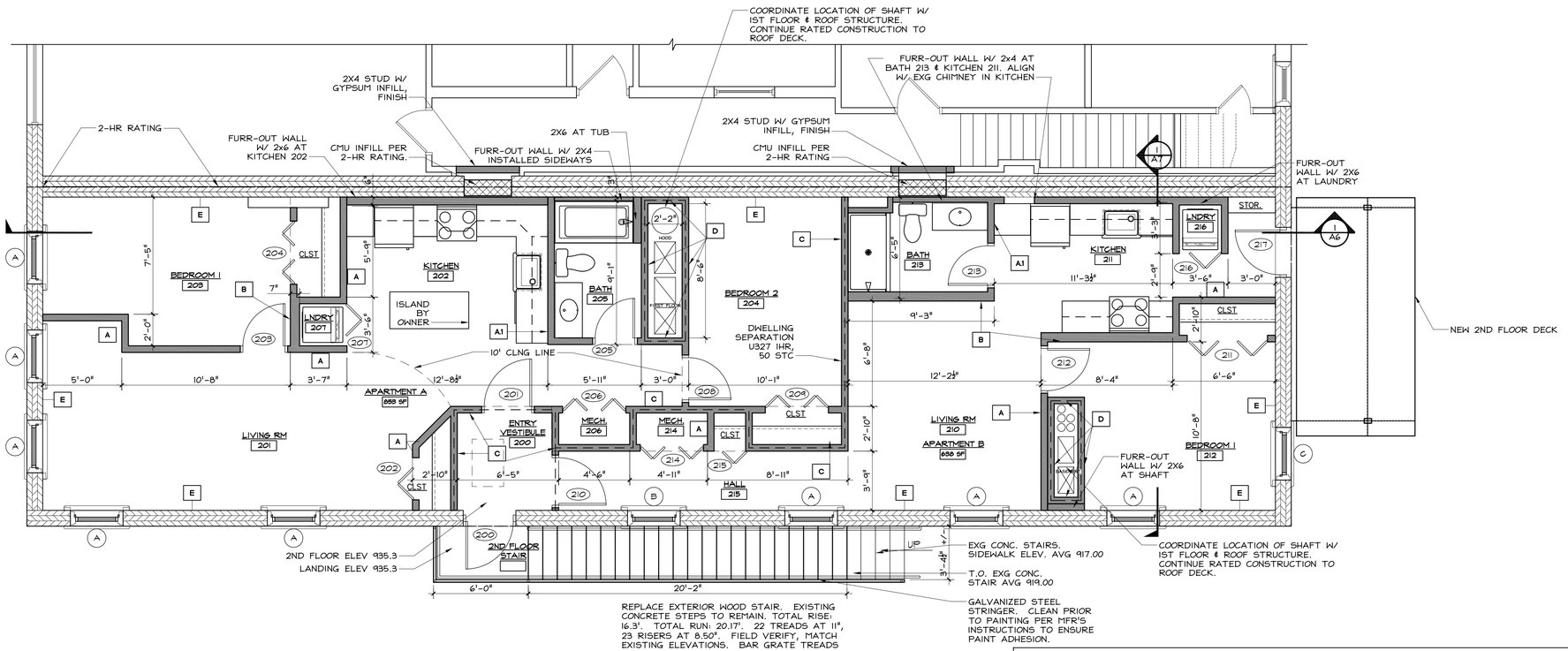
A1



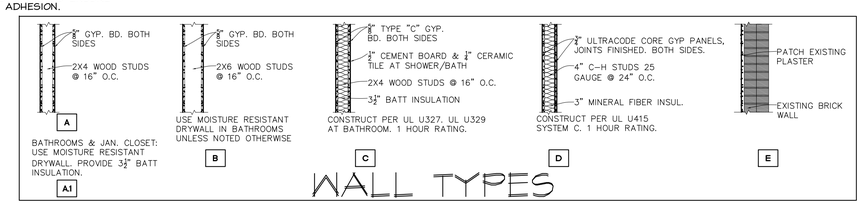
1 / A2 APARTMENT A - 2 BEDROOM
SCALE: 1/4" = 1'-0"



2 / A2 APARTMENT B - 1 BEDROOM
SCALE: 1/4" = 1'-0"



SECOND FLOOR PLAN
SCALE: 1/4" = 1'-0"



WALL TYPES

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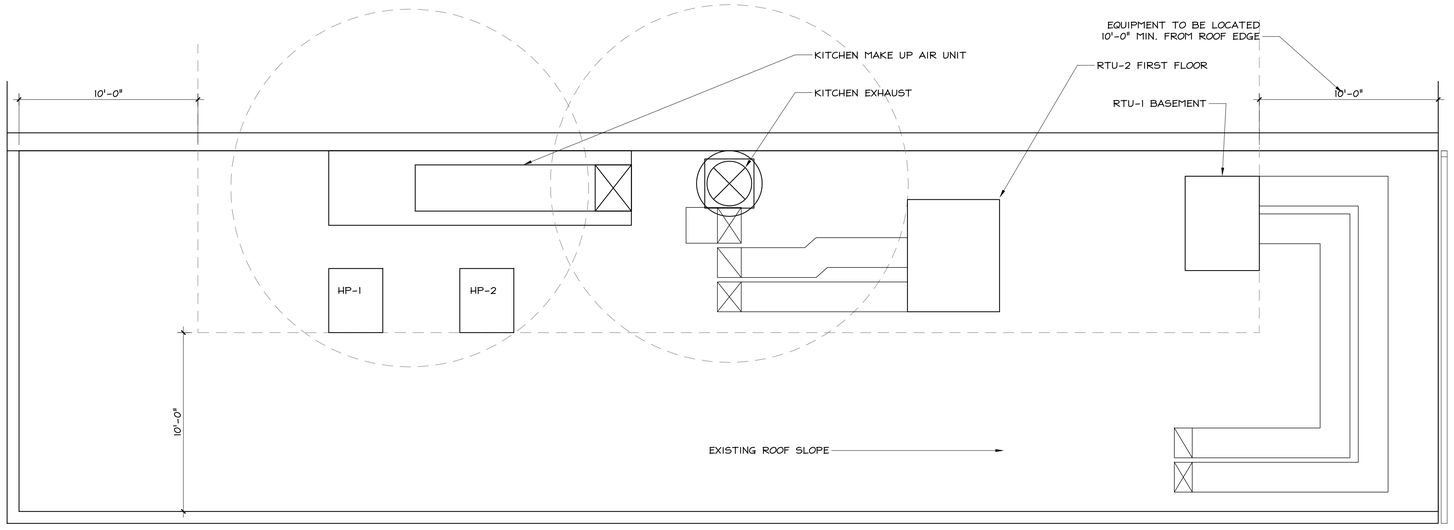
A2



N

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

GENERAL ROOF REPLACEMENT NOTES:

1. INVENTORY AND PHOTOGRAPH EXISTING BUILDING BEFORE CONSTRUCTION. NOTE ANY EXISTING DAMAGE TO BUILDING AND OWNER'S PROPERTY
2. CONTRACTOR IS REQUIRED TO TEST FOR ASBESTOS PRIOR TO PERFORMING THE WORK. IF PRESENT, CONTRACTOR TO DISPOSE AT A LICENSED FACILITY.
3. CONTRACTOR TO PERFORM CORE SAMPLES PRIOR TO DEMOLITION.
4. PROTECT EXISTING BUILDING, FINISHES, AND OWNER'S PROPERTY. REPAIR ANY DAMAGE FROM CONSTRUCTION.
5. DIMENSIONS, EQUIPMENT AND DRAIN LOCATIONS SHOWN ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY. FIELD VERIFICATION IS REQUIRED.
6. INTERFERENCE WITH ANY ENTRY OR EXIT OF THE BUILDING SHALL BE KEPT TO A MINIMUM DURING NORMAL WORKING HOURS AND A SCHEDULE APPROVED IN ADVANCE WITH OWNER. IF AN EXIT MUST BE BLOCKED PROVIDE AN ALTERNATE EXIT.
7. OWNER WILL DESIGNATE OUTDOOR STORAGE, TRAILER, AND PARKING AREAS.
8. CONTRACTOR IS REQUIRED TO REMOVE ALL DEBRIS AND TO RESTORE ALL SITE FEATURES, INCLUDING WALKS, DRIVES AND GRASS AREAS, DISTURBED BY THEIR WORK.
9. REMOVE ALL PACKAGING, DEMOLISHED AND UNUSED MATERIAL FROM SITE AND DISPOSE OF PROPERLY.
10. CONTRACTOR TO ENSURE ALL WORK IS WATER-TIGHT UPON COMPLETION OF THE DAY'S WORK.

ROOF NOTES

1. REMOVE EXISTING ROOF COMPLETELY TO DECK.
2. REPLACE ALL DAMAGED BOARDS
3. REMOVE EXISTING SKYLIGHTS
4. REMOVE ABANDONED PENETRATIONS
5. COORDINATE LOCATION OF EQUIPMENT WITH MECHANICAL, STRUCTURAL AND FLOOR PLANS
6. PROVIDE NEW CLASS A MECHANICALLY ATTACHED EPDM ROOF SYSTEM. CONTRACTOR TO FIELD VERIFY ROOF SLOPE. ADJUST SYSTEM AS REQUIRED BY MANUFACTUER BASED UPON EXISTING CONDITIONS INCLUDING ROOF SLOPE.
   - 6.1. ½" SHEATHING
   - 6.2. R-30 INSULATION
   - 6.3. ½" COVERBOARD
   - 6.4. EPDM 60 MIL MEMBRANE
   - 6.5. NEW METAL COPING
7. NEW ROOF TO BE INSTALLED PER MANUFACTURER'S 20 YEAR DETAILS
8. PROVIDE CURBS FOR ALL NEW EQUIPMENT
9. TIE-INTO ADJACENT ROOF
10. PROVIDE NEW GUTTER AND DOWNSPOUT

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ROOF PLAN

DATE
9-6-18

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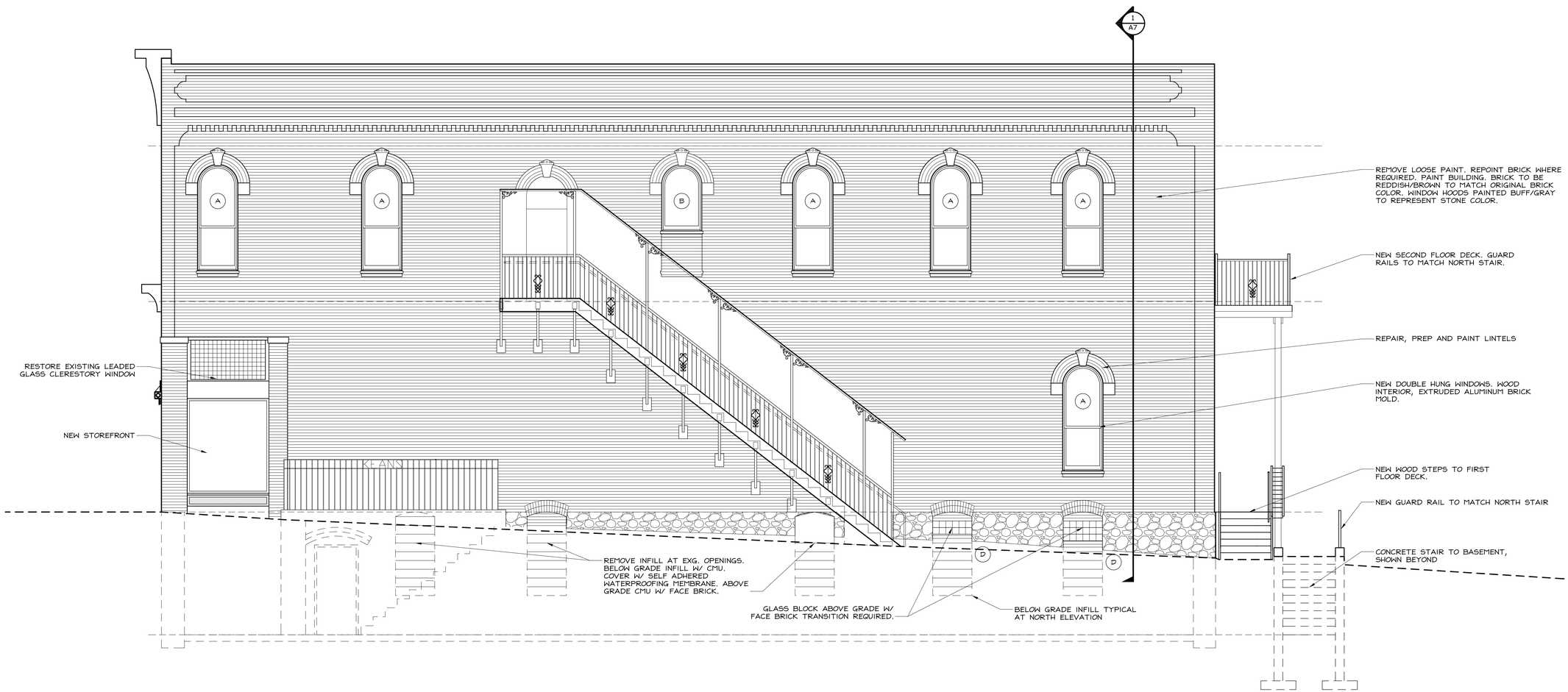
A3



1 / A4 **NORTH ELEVATION**
SCALE: 1/4" = 1'-0"

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402 S. JEFFERSON ST, MASON, MI
EXTERIOR ELEVATIONS

DATE
9-6-18

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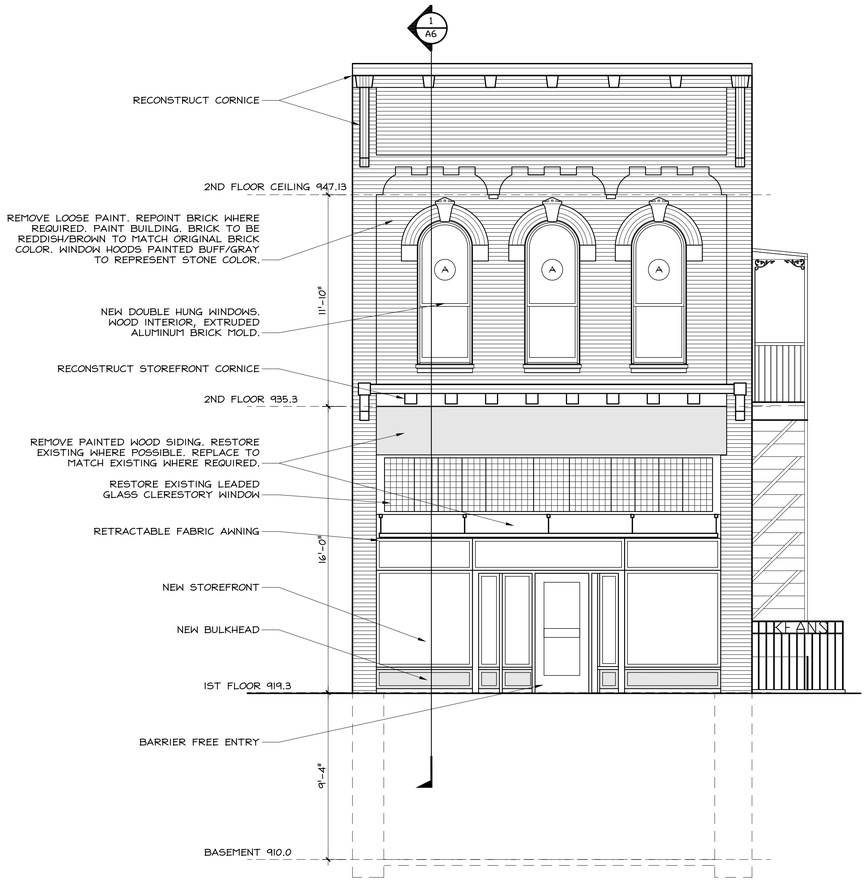
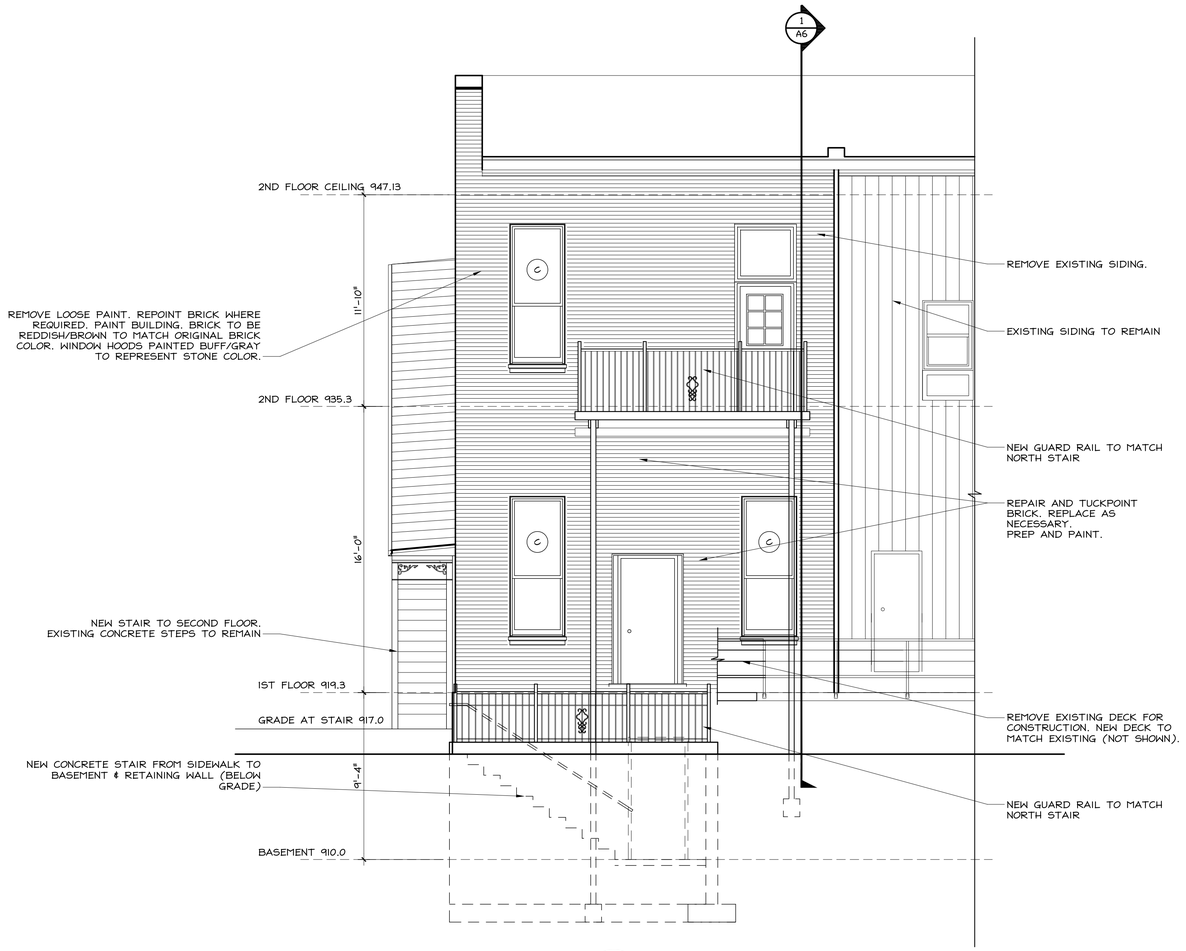
A4



2 A5 **SOUTH ELEVATION**
SCALE: 1/4" = 1'-0"



1 A5 **WEST ELEVATION**
SCALE: 1/4" = 1'-0"

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EXTERIOR ELEVATIONS

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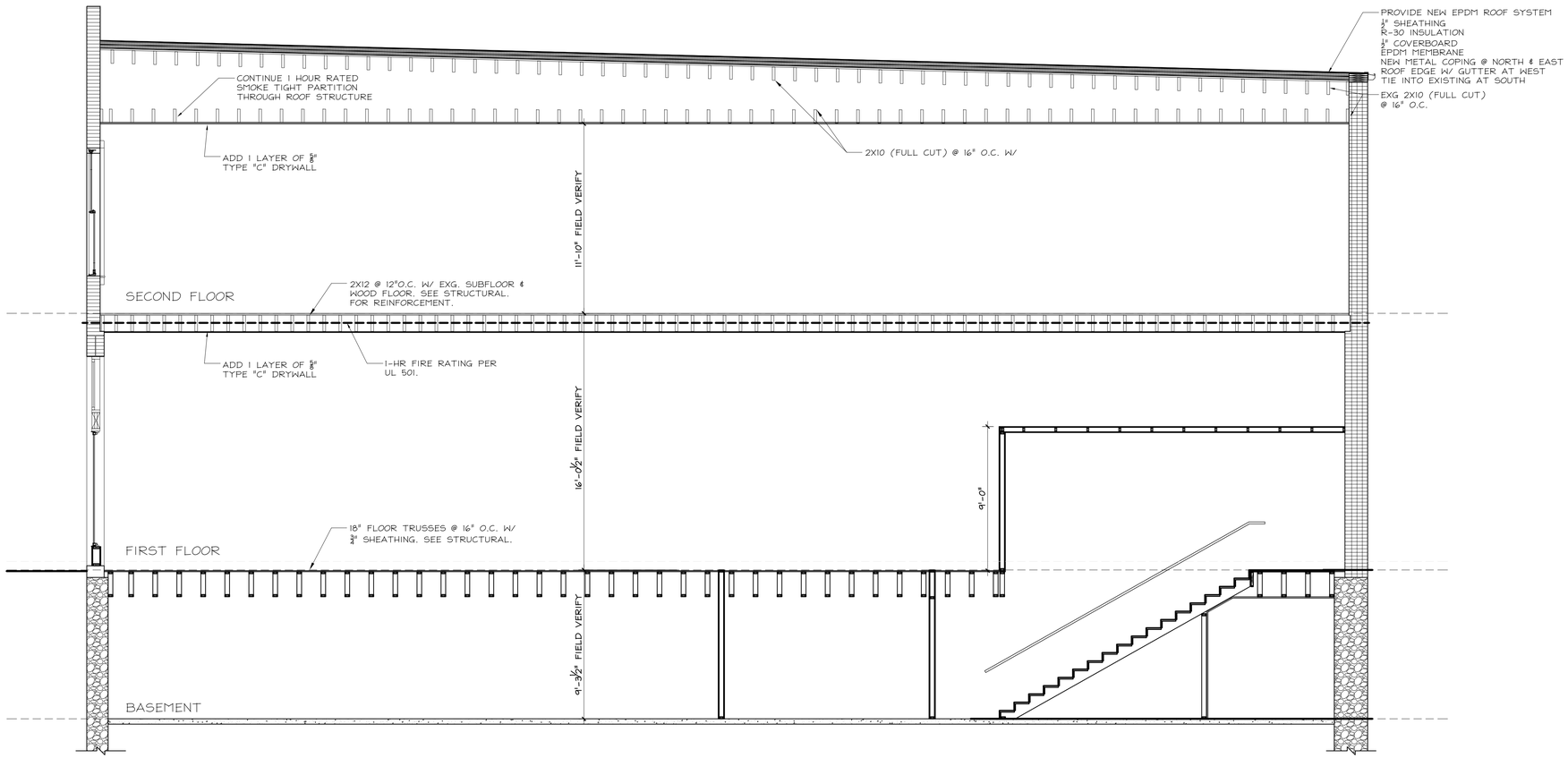
A5



1 / A6 **BUILDING SECTION**
SCALE: 1/4" = 1'-0"

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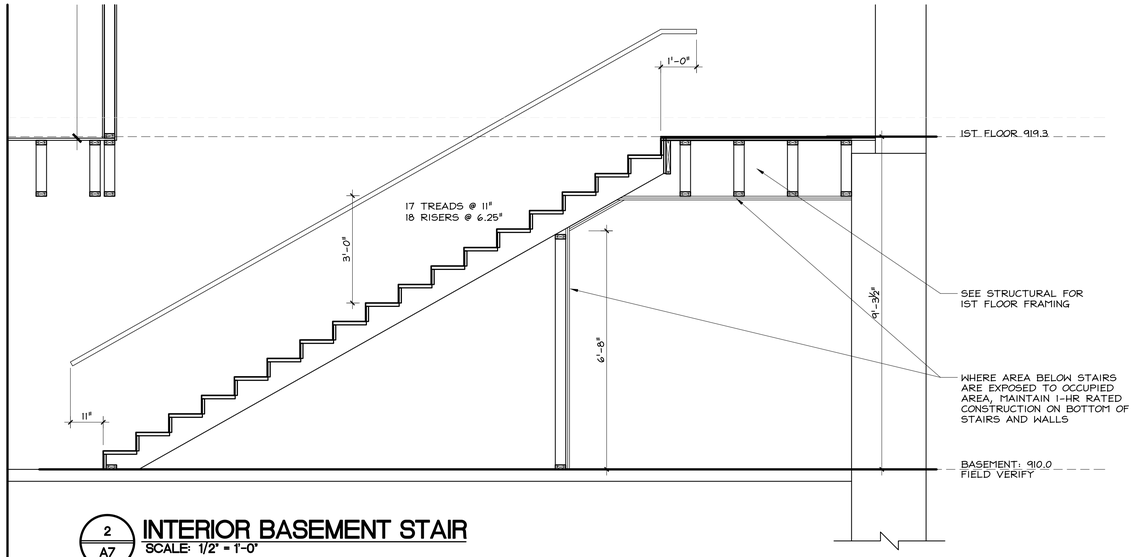
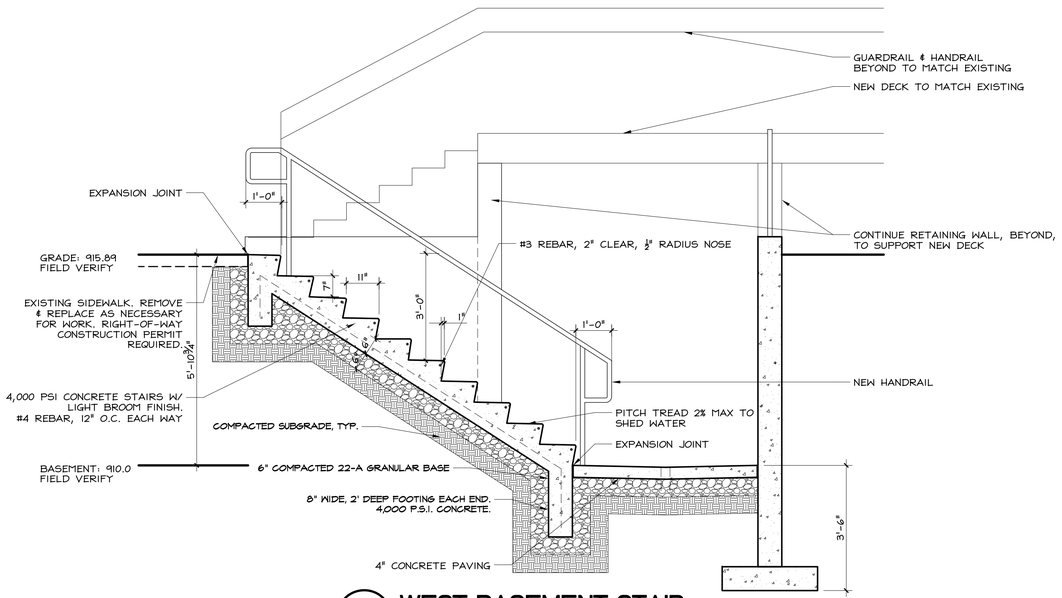
A6



2 / A7 **INTERIOR BASEMENT STAIR**
SCALE: 1/2" = 1'-0"



4 / A7 **WEST BASEMENT STAIR**
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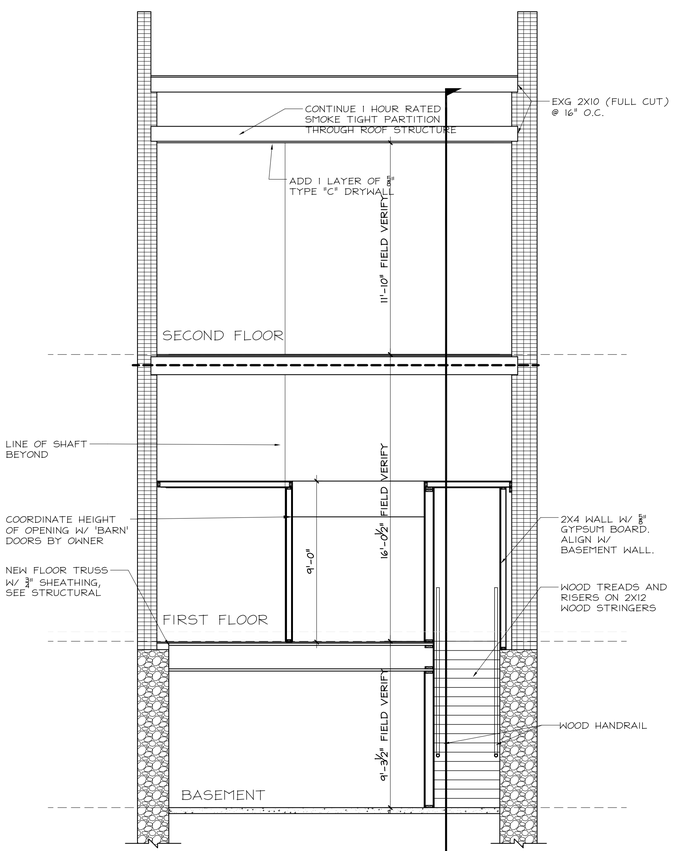
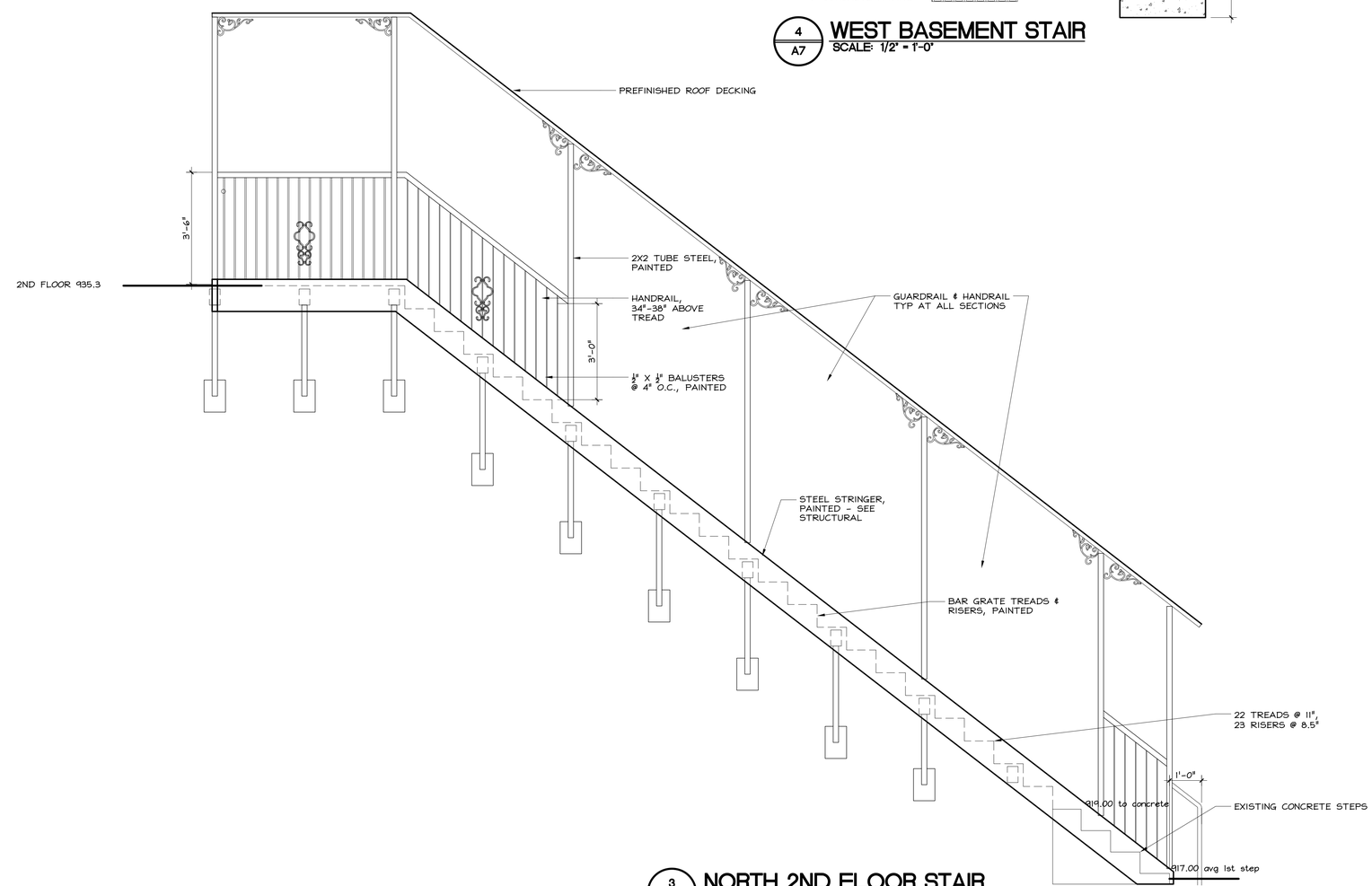


1 / A7 **BUILDING SECTION**
SCALE: 1/4" = 1'-0"



3 / A7 **NORTH 2ND FLOOR STAIR**
SCALE: 1/2" = 1'-0"

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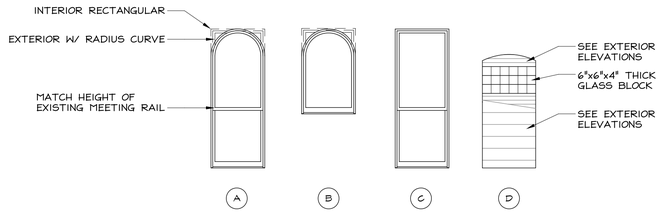

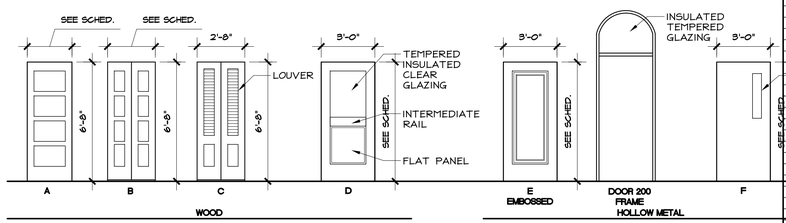

WINDOW SCHEDULE

NO.	SIZE (MASONRY OPENING)	TYPE	MATERIAL	REMARKS
A	3'-1" x 8'-0" FIELD VERIFY	DOUBLE HUNG	WOOD	1, 2
B	3'-1" x 4'-4" FIELD VERIFY	FIXED	WOOD	1
C	3'-1" x 8'-0" FIELD VERIFY	DOUBLE HUNG	WOOD	2
D	3'-1" x VARIES - FIELD VERIFY	FIXED	GLASS BLOCK	

NOTE: 1. EXTERIOR OPENING ARCHED; INTERIOR FRAMED OPENING AND CASING SQUARE.
2. PROVIDE NEW PAINTED WOOD CASING AT FIRST FLOOR WINDOWS. CASING TO MATCH SECOND FLOOR WINDOWS.

DOOR SCHEDULE

DOOR					FRAME		RATING	HDW SET	REMARKS	LOCATION
NO.	SIZE	TYPE	MAT.	FINISH	MAT.	FINISH				
001	3'-0" X 6'-8"	F	HM	PAINT	HM	PAINT		5		EXTERIOR ENTRY
002	3'-0" X 6'-8"	E	HM	PAINT	HM	PAINT		5		EXTERIOR DELIVERY
003	3'-0" X 6'-8"	A	WD	PAINT	HM	PAINT		2		TOILET
004	3'-0" X 6'-8"	A	WD	PAINT	HM	PAINT		3		PASSAGE
005	3'-0" X 6'-8"	A	HM	PAINT	HM	PAINT	45 MIN	3		ELECTRICAL ROOM
006	3'-0" X 6'-8"	A	HM	PAINT	HM	PAINT		3		JANITOR ROOM
007	3'-0" X 6'-8"'	A	HM	PAINT	HM	PAINT	45 MIN	3		STAIR
008	3'-0" X 6'-8"	A	HM	PAINT	HM	PAINT		3		STORAGE
100	3'-0" X 7'-0"	F	HM	PAINT	HM	PAINT		5		EXTERIOR DELIVERY
101	3'-0" X 6'-8"	D	WD	PAINT	HM	PAINT		5		EXTERIOR ENTRY
102	3'-0" X 6'-8"	D	WD	PAINT	HM	PAINT		5		VESTIBULE
103	3'-0" X 6'-8"	A	WD	PAINT	WD	PAINT		2		TOILET
104	3'-0" X 6'-8"'	A	WD	PAINT	WD	PAINT		2		TOILET
105	3'-0" X 6'-8"	A	WD	PAINT	WD	PAINT		3		JANITOR ROOM
106	3'-0" X 6'-8"	A	HM	PAINT	WD	PAINT	45 MIN	3		STAIR
200	3'-0" X 7'-0"	E	HM	PAINT	HM	PAINT	60 MIN	3		EXTERIOR ENTRY
201	3'-0" X 6'-8"	E	HM	PAINT	HM	PAINT	45 MIN	1		APARTMENT ENTRY
202	2'-8" X 6'-8"	B	WD	PAINT	WD	PAINT		4	BI-FOLD	CLOSET
203	2'-8" X 6'-8"	A	WD	PAINT	WD	PAINT		2		BEDROOM
204	(2) 2'-0" X 6'-8"	B	WD	PAINT	WD	PAINT		4	BI-FOLD	CLOSET
205	2'-8" X 6'-8"	A	WD	PAINT	WD	PAINT		2		BATHROOM
206	(2) 2'-0" X 6'-8"	B	WD	PAINT	WD	PAINT		4	BI-FOLD	MECHANICAL
207	2'-8" X 6'-8"	C	WD	PAINT	WD	PAINT		4	BI-FOLD	LAUNDRY
208	2'-8" X 6'-8"	A	WD	PAINT	WD	PAINT		2		BEDROOM
209	(2) 2'-0" X 6'-8"	B	WD	PAINT	WD	PAINT		4	BI-FOLD	CLOSET
210	3'-0" X 6'-8"'	E	HM	PAINT	HM	PAINT	45 MIN	1		APARTMENT ENTRY
211	(2) 2'-6" X 6'-8"	B	WD	PAINT	WD	PAINT		4	BI-FOLD	CLOSET
212	2'-8" X 6'-8"	A	WD	PAINT	WD	PAINT		2		BEDROOM
213	2'-6" X 6'-8"	A	WD	PAINT	WD	PAINT		2		BATHROOM
214	(2) 2'-0" X 6'-8"	B	WD	PAINT	WD	PAINT		4	BI-FOLD	MECHANICAL
215	2'-0" X 6'-8"	B	WD	PAINT	WD	PAINT		4	BI-FOLD	CLOSET
216	2'-8" X 6'-8"	C	WD	PAINT	WD	PAINT		4	BI-FOLD	LAUNDRY
217	2'-10" X 6'-8"	E	HM	PAINT	HM	PAINT		1		EXTERIOR BALCONY

HARDWARE SCHEDULE

PROVIDE LEVER TYPE HARDWARE AT ALL DOORS

1. KEYED W/ PUSH BUTTON, CLOSER, DEADBOLT W/ INTERIOR TURN PIECE, & EYE PEEP
2. PRIVACY
3. PASSAGE
4. NON-TURNING
5. EXTERIOR W/ CLOSER & EXIT DEVICE

NOTES:
1. FIELD VERIFY ALL EXISTING OPENINGS
2. DOOR STOPS AT ALL DOOR/WALL CONFLICTS
3. PROVIDE WEATHER SEALS & SWEEPS AT ALL EXTERIOR DOORS.

ROOM FINISH SCHEDULE

NO.	ROOM	(F) FLOOR	(B) BASE	(W) WALLS	(C) CEILING	HEIGHT
BASEMENT						
001	OPEN	CONC.	-	RUBBLE/P5	EXPOSED	-
002	OPEN	CONC.	-	RUBBLE/P5	EXPOSED	-
003	TOILET	CT-1	WOOD P5	P5	P1	9'
004	PASSAGE	CONC.	-	P5	P1	9'
005	ELE/STORAGE	CONC.	-	P5	P1	VARIES
006	JANITOR	CONC.	-	P5	P1	9'
FIRST FLOOR						
101	ENTRY VESTIBULE	-	-	-	P1	8'-8"
102	OPEN	-	-	P5	EXPOSED	-
103	TOILET	CT-1	WOOD P5	P5	P1	8'-8"
104	TOILET	CT-1	WOOD P5	P5	P1	8'-8"
105	JANITOR	CONC.	-	P5	P1	-
SECOND FLOOR						
200	ENTRY VESTIBULE	LVT-1	WOOD P2	P2	P1	11'-10"
201	LIVING	LVT-1	WOOD P3	P3	P1	11'-10"
202	KITCHEN	LVT-1	WOOD P3	P3/CT-2	P1	10'-0"
203	BEDROOM 1	LVT-1	WOOD P3	P3	P1	11'-10"
204	BEDROOM 2	LVT-1	WOOD P3	P3	P1	11'-10"
205	BATH	CT-3	CT-3/P3	P3/CT-4&3	P1	9'-0"
206	MECH	LVT-1	WOOD P3	P3	P1	10'-0"
207	LAUNDRY	LVT-1	WOOD P3	P3	P1	10'-0"
210	LIVING	LVT-2	WOOD P4	P4	P1	11'-10"
211	KITCHEN	LVT-2	WOOD P4	P4/CT-2	P1	11'-10"
212	BEDROOM 1	LVT-2	WOOD P4	P4	P1	11'-10"
213	BATH	CT-3	CT-4/P4	P4/CT-4&3	P1	9'-0"
214	MECH	LVT-2	WOOD P4	P4	P1	11'-10"
215	HALL	LVT-2	WOOD P4	P4	P1	11'-10"
216	LAUNDRY	LVT-2	WOOD P4	P4	P1	11'-10"
106	BASEMENT STAIR	RUBBER	-	P5	P1	-

NOTE: BASEMENT WALLS - PAINT PLASTER AND DRYWALL ONLY. EXPOSED RUBBLE WALLS TO REMAIN. SEE RENOVATION NOTES.

APPLIANCE SCHEDULE

TYPE	APPLIANCE TYPE	MANUFACTURER	MODEL	REMARKS
W/D	WASHER/DRYER	G.E.	GUD27ESSM	UNITIZED SPACEMAKER WASHER & DRYER
DW-1	DISHWASHER	G.E.	CDT706P2M1S1	ENERGYSTAR
RH-1	RANGEHOOD	G.E.	JVW5301SJSS	WALL-MOUNT PYRAMID CHIMNEY HOOD
RA-1	RANGE	G.E.	JS645SLSS	5.3 CU. FT. WITH SELF-CLEANING SYSTEM
RE-1	REFRIGERATOR	G.E.	GIE18ISHSS	30"W TOP-FREEZER, 18.2 CU. FT., ENERGY STAR QUALIFIED

NOTE: ALL KITCHEN APPLIANCES STAINLESS STEEL

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WREN BUILDING
402 S. JEFFERSON ST, MASON, MI
SCHEDULES

DATE
9-6-18

PROJECT NO.
A1139

A8

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100 Grandville Ave. S.W. Suite 400
Grand Rapids, Michigan 49503
Phone: 616-742-2810 Fax: 616-742-2814
PROJECT# 2018244

STRUCTURAL NOTES

GENERAL:

1– CONSTRUCTION SHALL COMPLY WITH MICHIGAN BUILDING CODE [MBC] 2015 AND ALL OTHER APPLICABLE LOCAL CODES.

2– OSHA, AND OTHER APPLICABLE SAFETY CODE REQUIREMENTS ARE DETERMINED AND PROVIDED BY OTHERS. CLASSIC ENGINEERING IS NOT RESPONSIBLE FOR JOBSITE SAFETY.

3– THE STRUCTURAL DRAWINGS ARE FOR THE PLACEMENT AND SIZE OF STRUCTURAL COMPONENTS ONLY. THE STRUCTURE IS DESIGNED TO BE SELF–SUPPORTING AND STABLE AFTER IT IS FULLY COMPLETED. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURES AND SEQUENCES, AND TO ENSURE THE SAFETY OF THE STRUCTURE AND ITS COMPONENT PARTS DURING ERECTION. THIS INCLUDES THE ADDITION OF TEMPORARY BRACING, GUYS OR TIE DOWNS, AND BRACING EXCAVATIONS TO PREVENT CAVE IN. SUCH MATERIAL SHALL REMAIN THE CONTRACTORS PROPERTY AFTER COMPLETION OF THE PROJECT.

4– DETAILS OF CONSTRUCTION NOT FULLY SHOWN SHALL BE OF THE SAME NATURE AS SHOWN FOR SIMILAR CONDTIONS. ANY UNCLEAR CONDITIONS SHALL BE VERIFIED WITH ENGINEER PRIOR TO CONSTRUCTION OF THAT AREA.

5– IF ANY NOTE CONFLICTS WITH ANY DETAIL OR NOTE ON THE PLANS OR IN THE STRUCTURAL NOTES, THE STRICTEST PROVISION SHALL GOVERN.

6– DRAWINGS ARE NOT TO BE SCALED. ANY UNCLEAR DIMENSIONS OR DIMENSIONAL DISCREPANCIES BETWEEN DISCIPLINES SHALL BE VERIFIED WITH ARCHITECT.

7– ADDITIONS OF OPENINGS, PENETRATIONS OR EMBEDMENTS IN THE FIELD SHALL BE APPROVED BY THE CLASSIC ENGINEERING PRIOR TO FABRICATION.

FOUNDATIONS:

1– FOOTINGS ARE DESIGNED TO BEAR ON SOIL OR ENGINEERED FILL ASSUMING AN ALLOWABLE BEARING CAPACITY OF 2000 PSF. IF MATERIAL OF THIS CAPACITY IS NOT CONFIRMED AT THE ELEVATIONS INDICATED, THE FOOTINGS SHALL BE LOWERED OR ENLARGED. NOTIFY AND CONSULT ENGINEER FOR ADJUSTMENTS. SEE SOILS REPORT FOR ADDITIONAL FOUNDATION CONSIDERATIONS.

2– ALL FILL UNDER SLABS AND ADJACENT TO WALLS SHALL BE CLEAN GRANULAR SOIL COMPACTED TO A MINIMUM OF 95% MODIFIED PROCTOR. SEE SOILS REPORT FOR ADDITIONAL REQUIREMENTS.

3– EXERCISE CARE WHEN BACKFILLING WALLS. EXCEPT FOR WALLS WITH EQUAL FILL ON BOTH SIDES, NO BACKFILLING OF WALLS SHALL BE DONE UNTIL THE WALL HAS ATTAINED ITS FULL STRENGTH AND HAS BEEN PROPERLY SUPPORTED BY BRACING OR BY A COMPLETED FLOOR OR ROOF STRUCTURE. ALTERNATE FILL WHEN BACKFILLING WALLS WITH FILL ON BOTH SIDES.

4– COORDINATE FOUNDATION WORK WITH UNDERGROUND WORK BY MECHANICAL, PLUMBING AND ELECTRICAL CONTRACTORS, IF ANY.

5– CONTRACTOR SHALL PROVIDE FOUNDATION DRAINS WITH APPROPRIATE FILTER MATERIAL IF RECOMMENDED BY SOILS REPORT, OR IF WET SOIL CONDITIONS FROM GROUND WATER ARE ENCOUNTERED.

CONCRETE:

1– CONCRETE SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH AS FOLLOWS:
3000 PSI FOUNDATIONS [WALLS, FOOTINGS]
4000 PSI SLABS ON GRADE

2– ALL REINFORCING STEEL SHALL CONFORM TO ASTM A615. MAIN BARS TO BE GRADE 60. TIES AND STIRRUPS TO BE GRADE 40. WELDED WIRE MESH SHALL CONFORM TO ASTM A1064.

3– ALL ANCHOR RODS SHALL CONFORM TO ASTM F1554, GRADE 36.

4– MATERIAL AND WORKMANSHIP FOR ALL CONCRETE AND REINFORCING SHALL BE IN ACCORDANCE WITH THE ACI MANUAL OF STANDARD PRACTICE AND THE ACI BUILDING CODE REQUIREMENTS.

5– PROVIDE ENTRAINED AIR IN ALL EXPOSED EXTERIOR CONCRETE.

6– OTHER CONCRETE ADMIXTURES MAY BE USED AS NECESSARY, INCLUDING THE USE OF A PLASTICIZER TO IMPROVE WORKABILITY. HOWEVER, EXTRA WATER SHALL NOT BE ADDED BEYOND THAT WHICH IS REQUIRED FOR PROPER HYDRATION OF THE MIX DESIGN BEING USED.

7– FOR REINFORCING SPLICES, UNLESS OTHERWISE INDICATED, MAINTAIN A MINIMUM BAR LAP OF 30 BAR DIAMETERS AND A MINIMUM LAP OF 8" FOR WIRE MESH.

8– PROVIDE CORNER BARS TO MATCH ALL HORIZONTAL REINFORCING IN WALLS AND FOOTINGS. PROVIDE DOWELS AS REQUIRED TO MATCH VERTICAL WALL AND PIER REINFORCING. THIS INCLUDES DOWELS TO MATCH REINFORCED MASONRY WALLS ABOVE.

9– APPROPRIATE CURING MEASURES SHALL BE TAKEN FOR NEW CONCRETE. A MOIST CURE METHOD OR A CURING COMPOUND SHALL BE USED. COMMENCEMENT OF CURING OR APPLICATION OF A COMPOUND SHALL BE DONE IMMEDIATELY AFTER FINISHING OR REMOVING FORM WORK. THE CURING COMPOUND SHALL BE COMPATIBLE WITH FLOOR COVERINGS OR MANUFACTURERS INSTRUCTIONS.

10– APPROPRIATE PROCEDURES FOR COLD OR WARM WEATHER CONCRETE WORK SHALL BE FOLLOWED, AS NECESSARY, IN ACCORDANCE WITH ACI SPECIFICATIONS.

11– VERIFY AND COORDINATE ALL SLEEVES, OPENINGS, EMBEDDED ITEMS, ETC., AS NECESSARY, WITH THE APPLICABLE TRADE THAT MAY REQUIRE THEM.

12– SLABS ON GRADE SHALL HAVE CONSTRUCTION OR CONTRACTION JOINTS AT A MAXIMUM SPACING OF 10'–0" ON CENTER EACH WAY FOR 4" SLABS. MAINTAIN AN ASPECT RATIO OF LENGTH TO WIDTH OF NO MORE THAN 1.5.

STRUCTURAL STEEL:

1– STEEL DESIGN, FABRICATION AND ERECTION TO BE IN ACCORDANCE WITH AISC 360–16, SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS.

2– UNLESS OTHERWISE INDICATED, ALL STRUCTURAL STEEL TO CONFORM TO ASTM A36. TUBE STEEL SHALL CONFORM TO ASTM A500, GRADE C.

3– BOLTED CONNECTIONS TO BE MADE WITH ASTM A325, HIGH STRENGTH BOLTS, SNUG–TIGHT, UNLESS INDICATED OTHERWISE.

4– WELDED CONNECTIONS SHALL BE IN ACCORDANCE WITH THE LATEST AWS SPECIFICATIONS, UTILIZING E70xx ELECTRODES. WELDING SHALL BE PERFORMED BY AWS CERTIFIED WELDERS.

STRUCTURAL WOOD FRAMING:

1– TRUSSES SHALL BE DESIGNED FOR THE DESIGN LOADS INDICATED, APPROVED BY A REGISTERED PROFESSIONAL ENGINEER. SEALED SHOP DRAWINGS SHALL BE SUBMITTED TO CLASSIC ENGINEERING FOR REVIEW. DEFLECTIONS SHALL BE LIMITED TO [L=SPAN]:
L/360 – FLOOR LIVE LOAD
L/240 – FLOOR DEAD + LIVE LOAD

2– TRUSS MANUFACTURER SHALL PROVIDE ERECTION DRAWINGS INDICATING ALL BRIDGING AND BRACING REQUIRED BY DESIGN.

3– WOOD TRUSSES AND/OR OTHER STRUCTURAL FRAMING MEMBERS ARE SHOWN AS A GENERAL LAYOUT ONLY AND EXACT PLACEMENT SHALL BE VERIFIED IN THE FIELD. HOWEVER, FRAMING PLACEMENT SHALL NOT EXCEED THE SPACING SHOWN ON THE DRAWINGS. WOOD TRUSS PLACEMENT SHALL ALSO BE COORDINATED WITH THE TRUSS ERECTION DRAWINGS.

4– DIMENSIONAL SAWN LUMBER SHALL BE AS FOLLOWS, OR EQUAL:
SPRUCE–PINE–FIR [SPF] STUD GRADE, 2–4" THICK
Fb=675 PSI, Fv=135 PSI, Fc(PERP)=425 PSI, Fc(PARALLEL)=725 PSI, E=1,200,000 PSI
SPRUCE–PINE–FIR [SPF] #2, 2–4" THICK
Fb=875 PSI, Fv=135 PSI, Fc(PERP)=425 PSI, Fc(PARALLEL)=1150 PSI, E=1,400,000 PSI
SOUTHERN PINE [S.PINE] #2, 2x4/4x4
Fb=1100 PSI, Fv=175 PSI, Fc(PERP)=565 PSI, Fc(PARALLEL)=1450 PSI, E=1,400,000 PSI
SOUTHERN PINE [S.PINE] #2, 2x6
Fb=1000 PSI, Fv=175 PSI, Fc(PERP)=565 PSI, Fc(PARALLEL)=1400 PSI, E=1,400,000 PSI
SOUTHERN PINE [S.PINE] #2, 6x6
Fb=850 PSI, Fv=165 PSI, Fc(PERP)=375 PSI, Fc(PARALLEL)=525 PSI, E=1,200,000 PSI

5. ENGINEERED LUMBER SHALL BE WEYERHAEUSER, iLEVEL (TRUS–JOIST) OR EQUIVALENT:
MICROLAM, LVL
Fb=2600 PSI, Fv=285 PSI, Fc(PERP)=750 PSI, Fc(PARALLEL)=2510 PSI, E=1,900,000 PSI
PARALLAM PLUS, PSL [SL2 WOLMANIZED BEAM]
Fb=1827 PSI, Fv=197 PSI, Fc(PERP)=368 PSI, Fc(PARALLEL)=2508 PSI, E=1,460,000 PSI

6– ALL ROOF SHEATHING SHALL BE MIN. 15/32" APA RATED 40/20 SHEATHING, EXPOSURE 1.

7– ALL FLOOR SHEATHING SHALL BE MIN. 3/4" APA RATED 40/20, EXPOSURE 1, WITH TONGUE AND GROOVE EDGES.

8– ROOF & FLOOR SHEATHING SHALL BE INSTALLED CONTINUOUS OVER TWO OR MORE SPANS WITH STRENGTH AXIS PERPENDICULAR TO SUPPORTS. SHEATHING SHALL BE NAILED WITH 10d COMMON NAILS AT 6" O.C. AT PANEL EDGES & INTERMEDIATE SUPPORTS UNLESS NOTED OTHERWISE. ALTERNATELY, BLOCK ALL PANEL EDGES AND NAIL AT 6" O.C. AT PANEL EDGES AND 12" O.C. AT INTERMEDIATE SUPPORTS. ALLOW 1/8" GAP AT PANEL EDGES AND ENDS.

9– COORDINATE FRAMING LOCATION FOR OPENINGS REQUIRED BY THE MECHANICAL TRADES. WHEN OPENING SIZES REQUIRE SPACING OF FRAMING GREATER THAN THAT SHOWN ON DRAWINGS, PROVIDE DOUBLE MEMBERS ON EACH SIDE OF THE OPENING AND PROPERLY HEADER THE ENDS OF THE OPENING TO SUPPORT THE INTERMEDIATE MEMBERS. NOTIFY AND CONSULT ENGINEER IF SPECIAL FRAMING REQUIRED.

10– STRUCTURAL FRAMING MEMBERS SHALL BE ADEQUATELY BRIDGED TO ENSURE BEAM STABILITY AS PRESCRIBED IN THE LATEST EDITION OF THE NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION.

11– AT SOLID SAWN MULTI–PLY HEADERS, BEAMS AND STUD ASSEMBLIES, GLUE PLIES WITH CONSTRUCTION ADHESIVE AND NAIL WITH 8d COMMON NAILS AT 6" ON CENTER LOCATED 2" FROM EDGES. STAGGER NAILS ON BOTH SIDES OF THE MEMBER.

12– AT MULTI–PLY ENGINEERED LUMBER MEMBERS, GLUE PLIES WITH CONSTRUCTION ADHESIVE AND FASTEN PER iLEVEL SPECIFICATIONS.

13– AT MULTIPLE PLY FRAMING MEMBERS AND TRUSSES, PROVIDE AT LEAST ONE SUPPORTING STUD PER PLY. PROVIDE BLOCKING THROUGH FLOOR FRAMING TO TRANSFER LOADS TO FOUNDATION. ALL HEADERS AND BEAMS SHALL BEAR ON A MINIMUM OF (2) STUDS.

14– MINIMUM ATTACHMENT SHALL BE PER MBC FASTENING SCHEDULE, TABLE 2304.9.1 UNLESS NOTED OTHERWISE.

SHOP DRAWING SUBMITTAL REQUIREMENTS:

1– CONCRETE MIX

2– PRE–ENGINEERED WOOD TRUSSES

3– STRUCTURAL STEEL

FASTENER LEGEND		
DESIGNATION	TYPE	DIMENSIONS
8d	COMMON NAIL	0.131"ø x 2 1/2" LONG
10d	COMMON NAIL	0.148"ø x 3" LONG
16d	COMMON NAIL	0.162"ø x 3 1/2" LONG

DESIGN CODES:

GENERAL – MICHIGAN BUILDING CODE 2015
WOOD – NATIONAL DESIGN SPECIFICATION 2015
CONCRETE – ACI 318–14
STEEL – AISC 360–16

DESIGN CRITERIA:

RISK CATEGORY II BUILDING

ROOF LOADS:
EXPOSURE B, PARTIAL EXPOSURE
GROUND SNOW LOAD, Pg = 25 PSF
IMPORTANCE FACTOR, Is = 1.0
EXPOSURE FACTOR, Ce = 1.0
THERMAL FACTOR, Ct = 1.0
THERMAL FACTOR, Ct = 1.2 @ UNHEATED ROOFS
SLOPE FACTOR, Cs = 1.0
FLAT ROOF SNOW LOAD = 17.5 PSF
MIN. ROOF SNOW LOAD = 20 PSF [NOT CONCURRENT w/ DRIFT LOAD]
DRIFTING SNOW LOAD = 40 PSF x 10 FT. [TRAPEZOIDAL, ADJACENT TO PARAPET]
UNHEATED ROOF SNOW LOAD = 21 PSF
ROOF DEAD LOAD = 15 PSF

FLOOR LOADS:
LIVE LOAD = 40 PSF [SECOND FLOOR RESIDENTIAL UNITS]
LIVE LOAD = 60 PSF [SECOND FLOOR BALCONIES]
LIVE LOAD = 100 PSF [MAIN FLOOR, STAIRS, BALCONY & SECOND FLOOR CORRIDOR]
DEAD LOAD = 15 PSF

WIND LOADS:
ULTIMATE DESIGN WIND SPEED, V_{ult}= 115 MPH
NOMINAL DESIGN WIND SPEED, V_{asd}= 89 MPH
EXPOSURE CATEGORY B
IMPORTANCE FACTOR, I_w=1.0
INTERNAL PRESSURE COEFFICIENT, GC_{Pi} = +/–0.18

SEISMIC LOADS NOT CONSIDERED = NO CHANGES TO BUILDING SHELL

ABBREVIATIONS:

ARCH. – ARCHITECTURAL
B/ – BOTTOM OF
COL. – COLUMN
CONC. – CONCRETE
CONT. – CONTINUOUS
DIA. – DIAMETER
EL. – ELEVATION
EXT. – EXTERIOR
E.W. – EACH WAY
FDN. – FOUNDATION
JT. – JOINT
L.F. – LINEAL FEET
MIN. – MINIMUM
O.C. – ON CENTER
PSF – POUNDS PER SQUARE FOOT
PSI – POUNDS PER SQUARE INCH
REINF. – REINFORCING
S.F. – STEP FOOTING
SIM. – SIMILAR
T & B – TOP AND BOTTOM
T.O.F. – TOP OF FOOTING
T.O.W. – TOP OF WALL
TYP. – TYPICAL
UNO – UNLESS NOTED OTHERWISE
VERT. – VERTICAL
w/ – WITH
WWF– WELDED WIRE FABRIC

PRELIMINARY
NOT FOR
CONSTRUCTION

REQUIRED VERIFICATION & INSPECTIONS [MBC 2015 CHAPTER 17]

SYSTEM or MATERIAL	INSPECTION: FREQUENCY: CONTINUOUS	INSPECTION: FREQUENCY: PERIODIC	CODE or STANDARD REFERENCE	MBC REFERENCE	REMARKS
SOILS, MBC 1705.6/ TABLE 1705.6					
VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.		X			SEE GEOTECHNICAL REPORT
VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH & HAVE REACHED PROPER MATERIAL.		X			SEE GEOTECHNICAL REPORT
PERFORM CLASSIFICATION & TESTING OF COMPACTED FILL MATERIALS.		X			SEE GEOTECHNICAL REPORT
VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT & COMPACTION OF COMPACTED FILL.	X				SEE GEOTECHNICAL REPORT
PRIOR TO PLACEMENT OF COMPACTED FILL, OVSERVE SUBRADE & VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.		X			SEE GEOTECHNICAL REPORT
CONCRETE, MBC 1705.3/ MBC TABLE 1705.3					
INSPECT REINFORCEMENT AND VERIFY PLACMENT.		X	ACI 318 CHAPTER 10, 25.2, 25.3,26.6.1-26.6.3		
INSPECT ANICHORS CAST IN CONCRETE.		X	ACI 318: 17.8.2		
INSPECT ANICHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS.		X	ACI 318		
A. ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS.	X		ACI 318 : 17.8.2.4	TABLE 1705.3 FOOTNOTE b.	
B.NECHANICAL AND ADHESIVE ANCHORS NOT DEFINED IN 4.A.		X	ACI 318: 17.8.2		
VERIFY USE OF REQUIRED DESIGN MIX.		X	ACI 318: CHAPTER 19, 26.4.3-26.4.4	1904.1,1904.2	
PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGHT TESTS, PERFORM SLUMP AND ARI CONTENT TESTS AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	X		ASTM C172, ASTM C31, ACI 318 : 26.4,26.12		
VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE & TECHNIQUES.		X	ACI 318: 26.5.3-26.5.5		
INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.		X	ACI 318:26.11.1.2b		
STEEL CONSTRUCTION, MBC 1705.2					
STRUCTURAL STEEL		X	AISC 360-N4, N5	1705.2.1	SPECIAL INSEPCTION SHALL COMPLY IWITH THE QUALITY ASURANCE INSPECTION REQUIREMENTS OF AISC 360, SECTIONS N4 & N5, INCLUDING TABLES N5.4-1 - N5.4-3 & N5.6-1 - N5.6-3.

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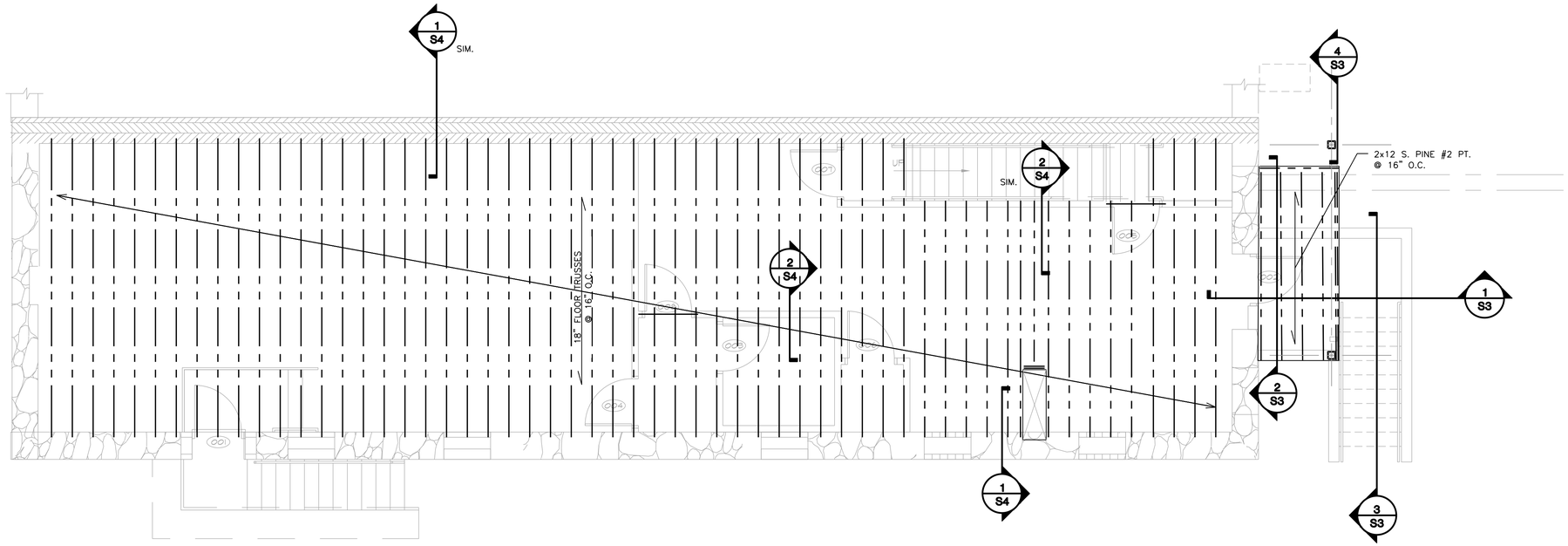
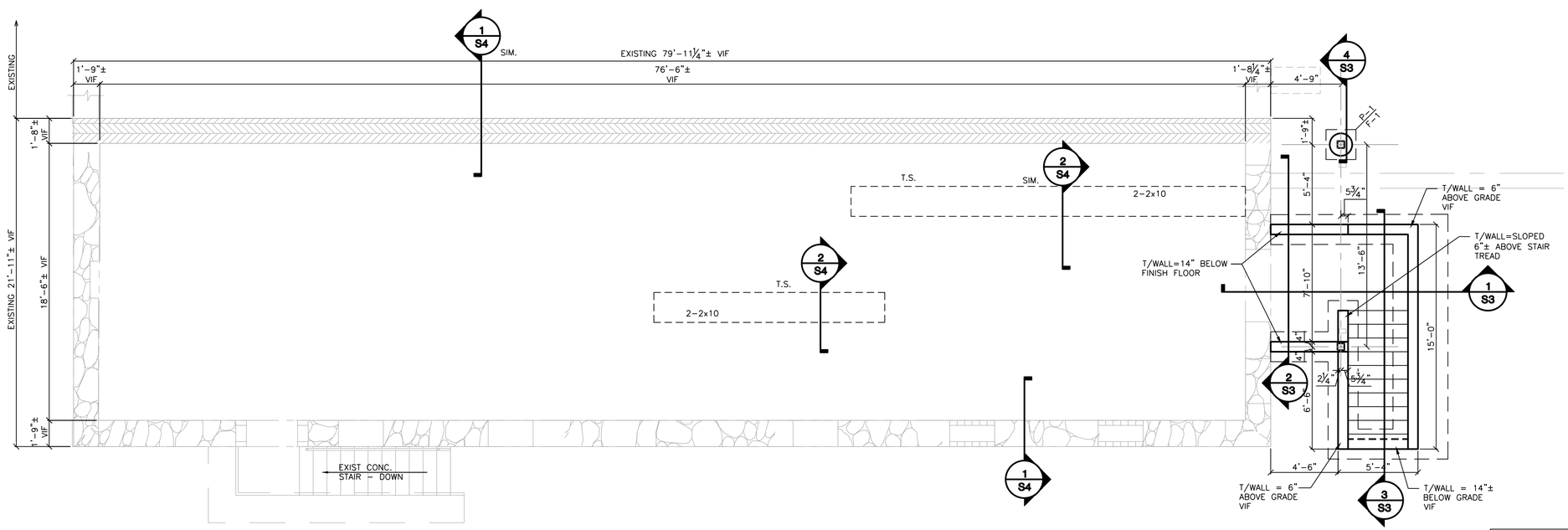
S0



FIRST FLOOR FRAMING PLAN

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



FOUNDATION PLAN

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

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FOUNDATION NOTES:
[SEE STRUCTURAL NOTES, SHEET S0]

1- T.S. DENOTES THICKENED SLAB FOOTING. SEE SECTION X/S4.

7- P-1 DENOTES 18"ø CONCRETE PIER. F-1 DENOTES 2'-0"x2'-0"x1'-0" FOOTING. SEE DETAIL, SHEET 4/S3.

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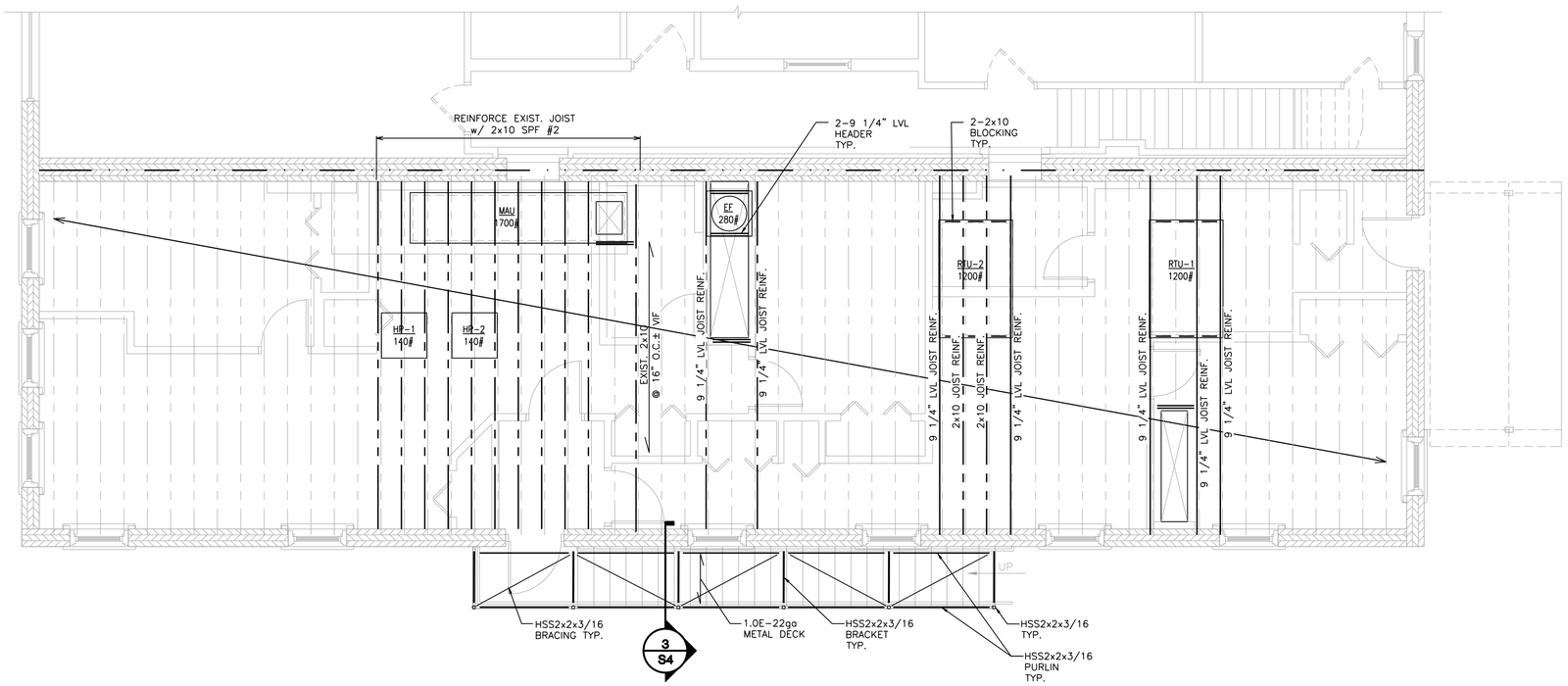
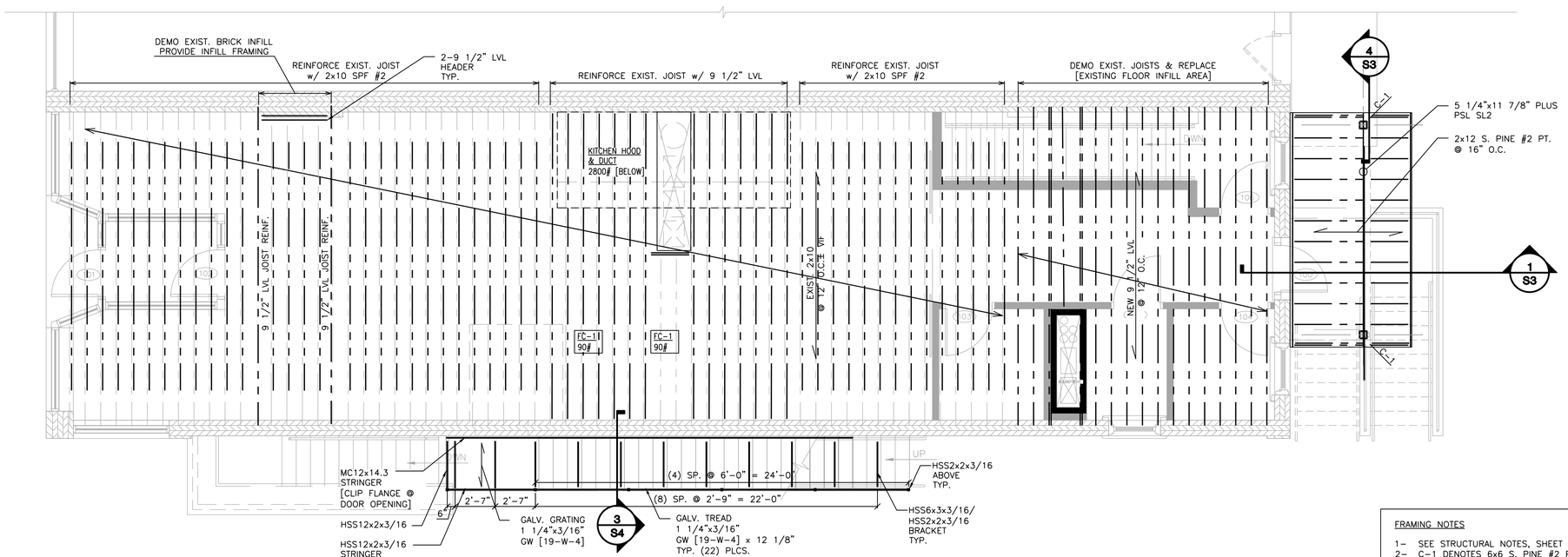
S1



ROOF FRAMING PLAN

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



SECOND FLOOR FRAMING PLAN

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

PRELIMINARY NOT FOR CONSTRUCTION

FRAMING NOTES

1- SEE STRUCTURAL NOTES, SHEET S0.
2- C-1 DENOTES 6x6 S. PINE #2 P.T. POST w/
CAP - SIMPSON CCQ66SDS2.5 w/ 30-1/4"ø x 2 1/2" SDS SCREWS
BASE- SIMPSON MPB66Z w/ 24-1/4"ø x 2 1/2" SDS SCREWS

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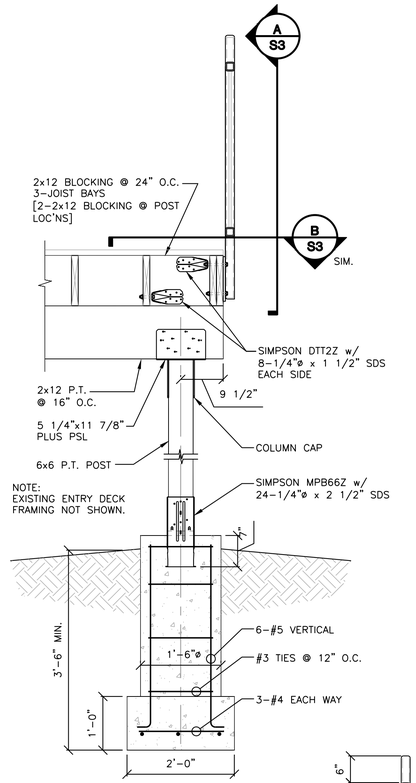
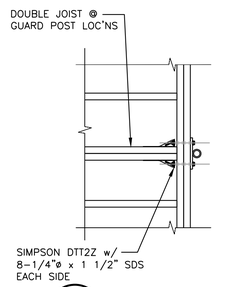
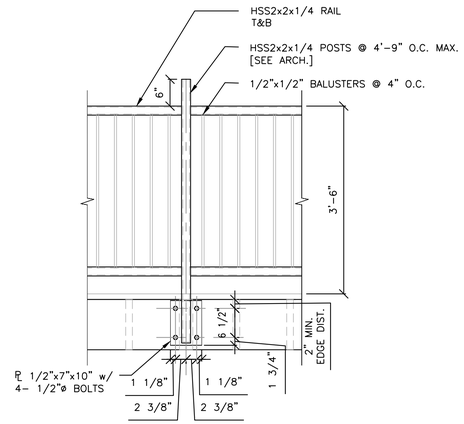
S2



4 SECTION
S1 S2 | S3
SCALE: 3/4" = 1'-0"



B S3 | S3 DETAIL
SCALE: 3/4" = 1'-0"



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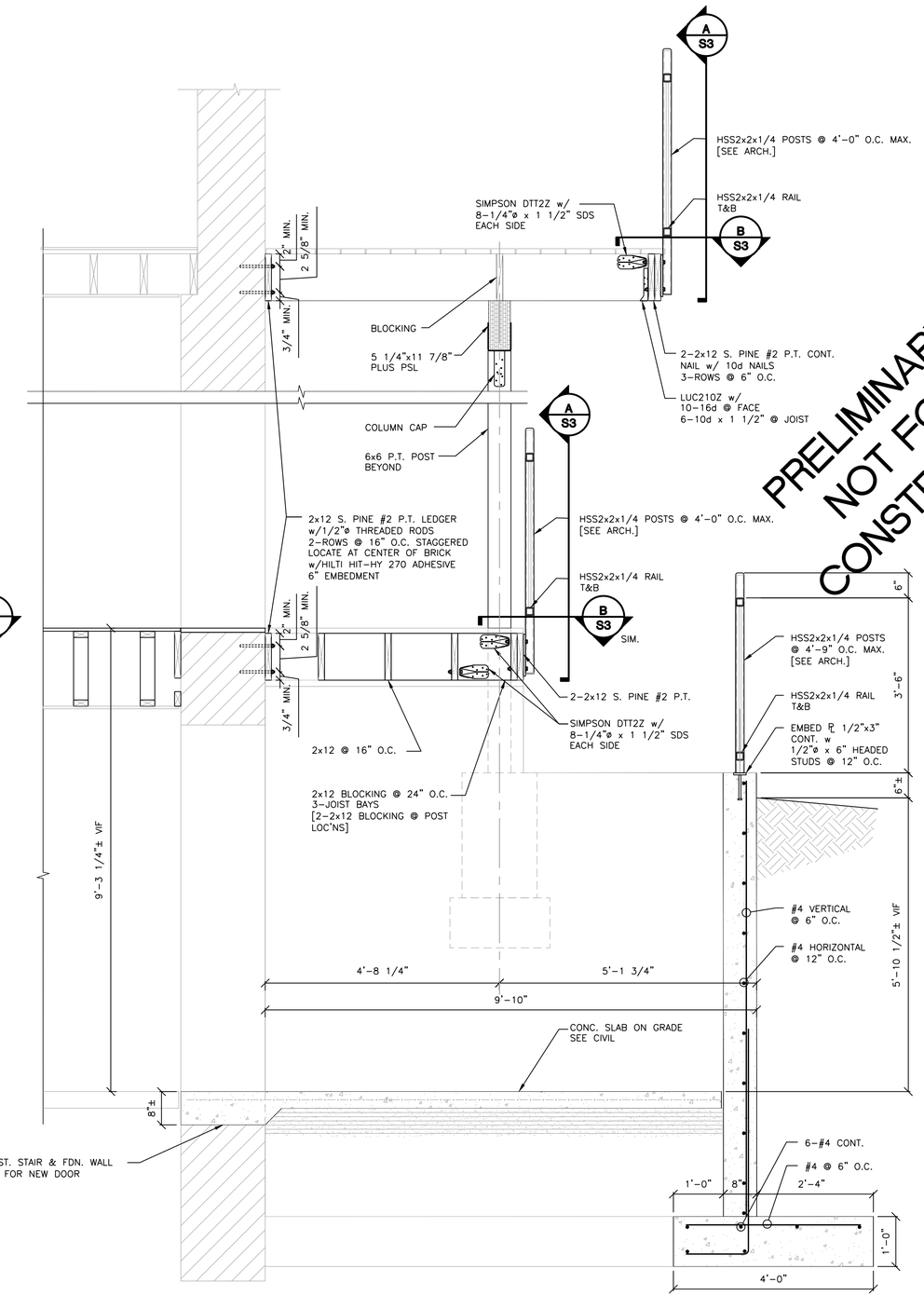

1 SECTION
S1 S2 | S3
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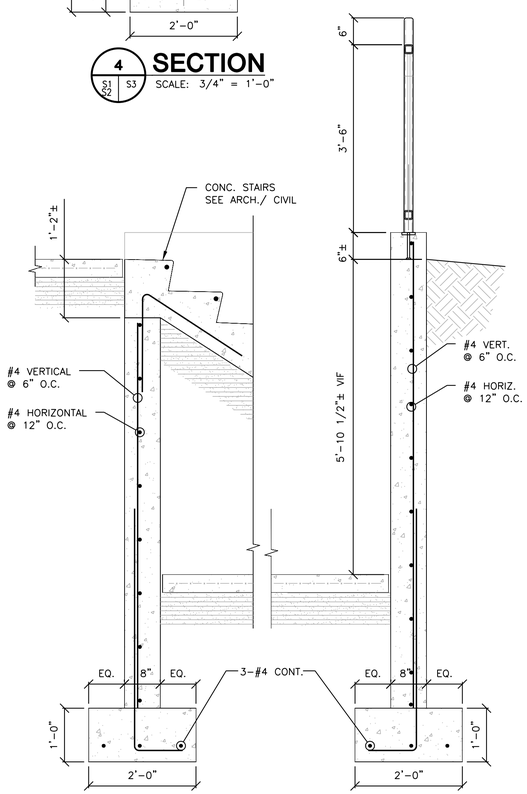

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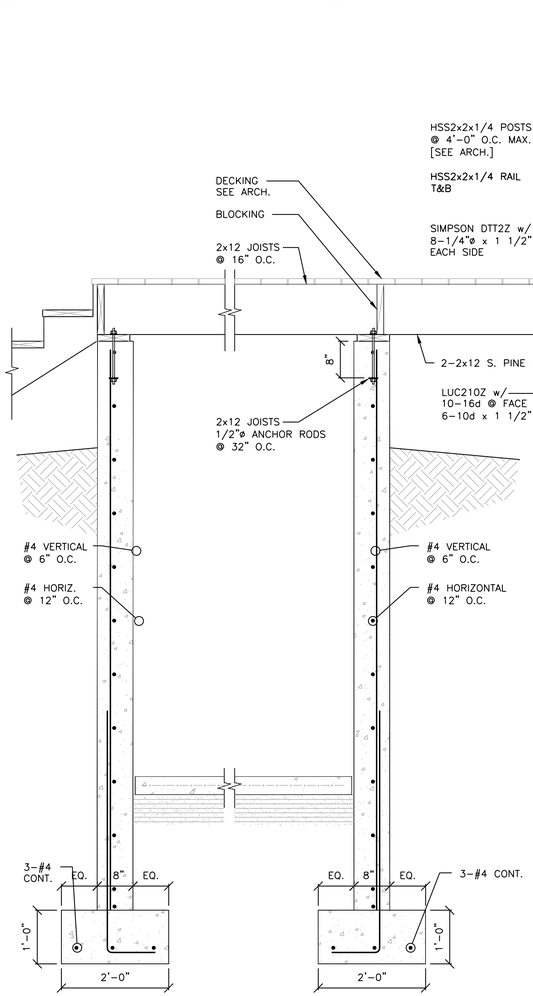

2 SECTION
S1 S3
SCALE: 3/4" = 1'-0"

Classic Engineering, LLC
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Grand Rapids, Michigan 49503
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PROJECT# 2018244

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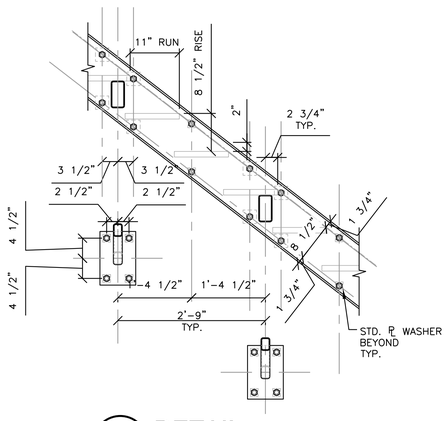

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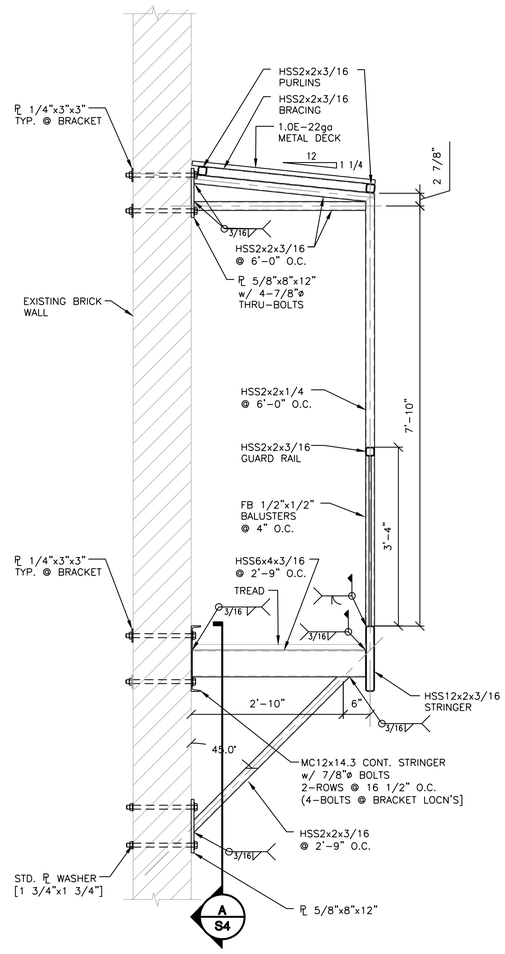

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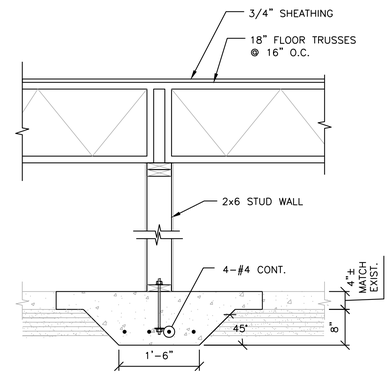

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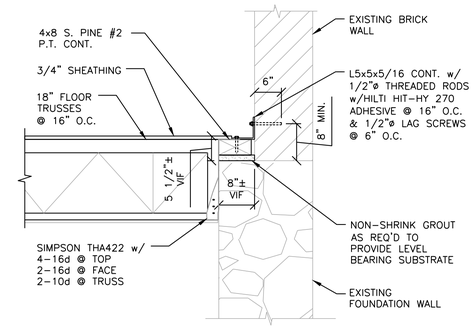

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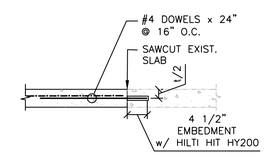

TYP. CONC. SLAB REPAIR DETAIL
S4
SCALE: NOT TO SCALE

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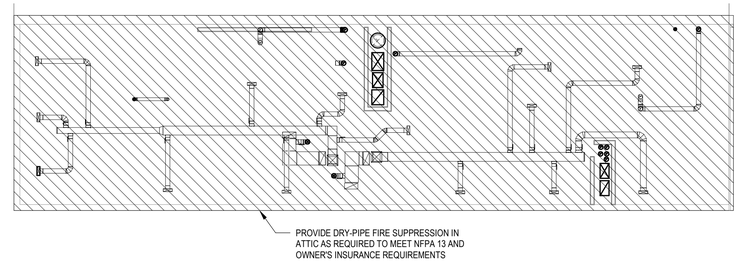
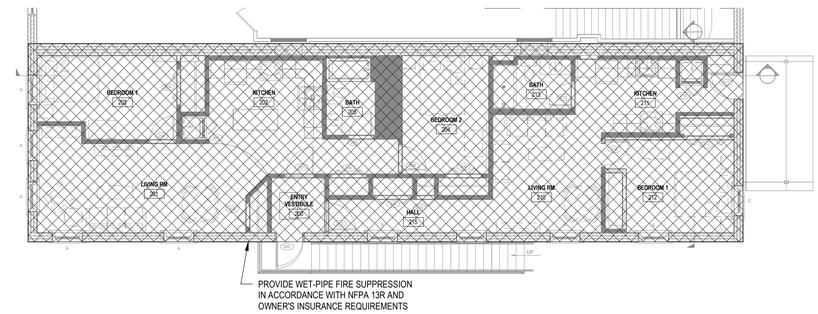


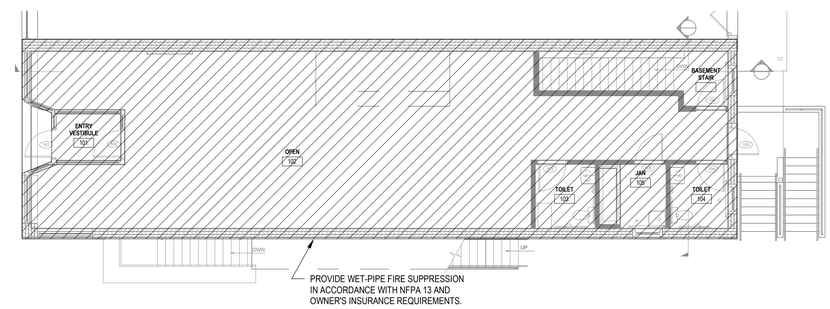
FIRE SUPPRESSION PLAN - ATTIC

1/8" = 1'-0"



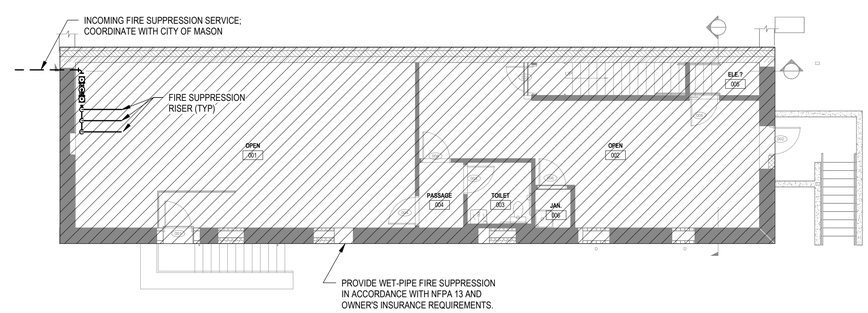
FIRE SUPPRESSION - SECOND FLOOR PLAN

1/8" = 1'-0"



FIRE SUPPRESSION - FIRST FLOOR PLAN

1/8" = 1'-0"



FIRE SUPPRESSION - BASEMENT FLOOR PLAN

1/8" = 1'-0"

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WREN BUILDING

402 S. JEFFERSON ST, MASON, MI
FIRE PROTECTION PLANS

DATE
8-20-18

PROJECT NO.
A1169

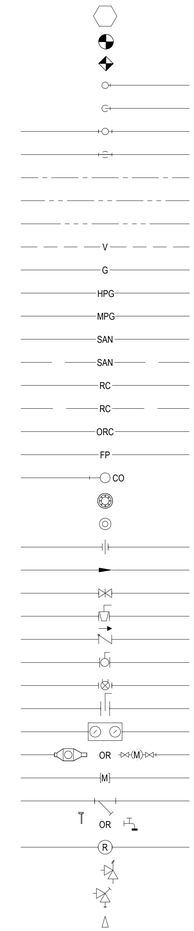
FP1

PLUMBING ABBREVIATIONS

ATC	ARCHITECTURAL TRADES CONTRACTOR
AFF	ABOVE FINISHED FLOOR
BFS	BELOW FLOOR SLAB
BTU	BRITISH THERMAL UNIT
CA	COMPRESSED AIR
CD	CONDENSATE DRAIN
CO	CLEAN OUT
COTG	CLEAN OUT TO GRADE
CW	COLD WATER
DF	DRINKING FOUNTAIN
DIA/ø	DIAMETER
DWH	DOMESTIC WATER HEATER
ETC	ELECTRICAL TRADES CONTRACTOR
EWC	ELECTRIC WATER COOLER
FCO	FLOOR CLEAN OUT
FD	FLOOR DRAIN
G	GAS (NATURAL)
GPM	GALLONS PER MINUTE
HB	HOSE BIBB
HP	HORSE POWER
HVAC	HEATING/VENTILATION/AIR CONDITIONING
HWR	HOT WATER RETURN
HW	HOT WATER
INV OR I.E.	INVERT ELEVATION
LAV	LAVATORY
MTC	MECHANICAL TRADES CONTRACTOR
MBH	BTU PER HOUR (THOUSAND)
MS	MOP SINK
ORC	OVER-FLOW RAIN CONDUCTOR
ORD	OVER-FLOW ROOF DRAIN
PVC	POLYVINYL CHLORIDE
RC	RAIN CONDUCTOR
RD	ROOF DRAIN
SAN	SANITARY
SH	SHOWER
SK	SINK
SS	SOIL STACK
ST	STORM
TP	TRAP PRIMER
TYP	TYPICAL
UR	URINAL
VAC	VACUUM
VB	VACUUM BREAKER
V	VENT
VS	VENT STACK
VTR	VENT THRU ROOF
W	WASTE
WC	WATER CLOSET
WCO	WALL CLEANOUT
WH	WALL HYDRANT
WS	WASTE STACK
X-	EXISTING

NOTE:
ALL ABBREVIATIONS AND SYMBOLS SHOWN ON THIS SHEET MAY NOT BE USED ON THIS PROJECT.

PLUMBING SYMBOLS



KEY NOTE
CONNECTION POINT, NEW TO EXISTING
DEMOLITION END POINT
PIPE TURNED UP
PIPE TURNED DOWN
PIPE OUT OF TOP
PIPE OUT OF BOTTOM
COLD WATER
HOT WATER
HOT WATER RETURN
VENT PIPE
LOW PRESSURE GAS
HIGH PRESSURE GAS
MEDIUM PRESSURE GAS
SANITARY
SANITARY BELOW FLOOR SLAB
RAIN CONDUCTOR
RAIN CONDUCTOR BELOW FLOOR SLAB
OVERFLOW RAIN CONDUCTOR
FIRE PROTECTION
CLEAN OUT
ROOF DRAIN
FLOOR DRAIN
UNION
FLOW DIRECTION
GATE VALVE
GAS COCK
CHECK VALVE
BALL VALVE
CIRCUIT BALANCE VALVE
BUTTERFLY VALVE
REDUCED PRESSURE BACKFLOW PREVENTER
WATER METER
GAS METER
STRAINER
HOSE BIBB/WALL HYDRANT
GAS REGULATOR
RELIEF VALVE
HOSE END DRAIN VALVE
SHOWER HEAD

GENERAL PLUMBING NOTES

A. PIPING LAYOUT IS SCHEMATIC. EXACT LOCATION OF PIPING AND EQUIPMENT SHALL BE COORDINATED WITH BUILDING STRUCTURE, EQUIPMENT FURNISHED, ARCHITECTURAL DRAWINGS AND ALL OTHER TRADES PRIOR TO INSTALLATION. ANY CONTRACTOR INSTALLING WORK WITHOUT PRIOR COORDINATION SHALL RELOCATE HIS WORK AT HIS EXPENSE TO ALLOW PROPER INSTALLATION OF ANY AND ALL TRADES' WORK.

B. ALL WORK SHALL COMPLY WITH THE MICHIGAN PLUMBING CODE AND ALL APPLICABLE LOCAL CODES.

C. ALL INVERTS, STATED OR NOT, NEW OR EXISTING, SHALL BE COORDINATED IN THE FIELD, VERIFY EXISTING INVERTS PRIOR TO STARTING WORK.

D. UNLESS OTHERWISE NOTED, ALL PIPING SHALL BE CONCEALED WHEREVER POSSIBLE. PROVIDE CHROME ESCUTCHEON AT EACH PENETRATION OF A FINISHED SURFACE.

E. PLUMBING UTILITY PIPING SHALL NOT BE RUN ABOVE ELECTRICAL GEAR OR IN THE SERVICE SPACE REQUIRED BY THE NATIONAL ELECTRICAL CODE.

F. PROVIDE SHOCK ABSORBER IN THE DOMESTIC COLD AND HOT WATER PIPING. SHOCK ABSORBERS TO BE LOCATED IN AN ACCESSIBLE LOCATION.

G. ALL WALL AND SLAB PENETRATIONS OF MASONRY OR CONCRETE CONSTRUCTION SHALL BE SLEEVED.

H. PROVIDE ISOLATION SEPARATORS FOR COPPER PIPING RUNNING THROUGH METAL STUDS.

I. ALL FLOOR DRAINS ARE TO HAVE A TRAP PRIMER.

J. ALL FIXTURES SHALL HAVE SHUTOFF STOP VALVES IN AN ACCESSIBLE LOCATION. PIPING BEYOND THE STOP VALVES AND EXPOSED IN OCCUPIED SPACES SHALL BE CHROME-PLATED. ANY NOTED SHUTOFF VALVES ARE IN ADDITION TO THIS REQUIREMENT.

K. PROVIDE FIRE STOPPING AT ALL PENETRATIONS OF FIRE RATED ENCLOSURES.

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402 S. JEFFERSON ST, MASON, MI
PLUMBING COVER SHEET

DATE
8-20-18

PROJECT NO.
A1169

P1

SECTION 22 0000 - PLUMBING

THE REQUIREMENTS OF THE "GENERAL CONDITIONS" AND "DIVISION 1" SECTIONS OF THE SPECIFICATIONS SHALL APPLY TO THIS SECTION OF THE SPECIFICATIONS.

PART 1 - GENERAL

1.01 SUMMARY
- A. THIS SECTION INCLUDES ALL PLUMBING INCLUDING DOMESTIC WATER PIPING, SANITARY WASTE AND VENT PIPING, PLUMBING FIXTURES AND SPECIALTIES INSIDE THE BUILDING.
- B. PLUMBING FIXTURES SHALL BE INSTALLED AS REQUIRED TO COMPLY WITH ALL FEDERAL, STATE, LOCAL AND ALL OTHER APPLICABLE PLUMBING CODES.
- C. FIXTURES SHALL BE PROVIDED BY CONTRACTOR AS SCHEDULED ON THE DRAWINGS. MANUFACTURER'S CATALOG DESIGNATIONS FOR FIXTURES ARE SPECIFIED ON THE DRAWINGS TO ESTABLISH STANDARDS FOR QUALITY, PERFORMANCE AND MATERIALS. ALL FIXTURES SHALL BE STANDARD WHITE IN COLOR.
- D. FIXTURES SHALL BE MOUNTED AT STANDARD HEIGHTS EXCEPT FOR HANDICAPPED FIXTURES WHICH SHALL BE MOUNTED PER APPLICABLE ADA HANDICAPPED ACCESSIBILITY AND BARRIER FREE CODES.
- E. INTERIOR ROOF DRAIN BODIES AND INTERIOR HORIZONTAL ROOF DRAINAGE PIPING SHALL BE INSULATED WITH 1/2-INCH FIBERGLASS INSULATION WITH VAPOR BARRIER.

1.02 PERFORMANCE REQUIREMENTS
- A. PROVIDE COMPONENTS AND INSTALLATION CAPABLE OF PRODUCING PIPING SYSTEMS WITH THE FOLLOWING MINIMUM WORKING-PRESSURE RATINGS, UNLESS OTHERWISE INDICATED:
- B. STORM DRAINAGE PIPING: 10-FOOT HEAD OF WATER.
- C. STORM DRAINAGE, FORCE-MAIN PIPING: 100 PSIG.
- D. DOMESTIC WATER SERVICE PIPING: 160 PSIG.
- E. DOMESTIC WATER DISTRIBUTION PIPING: 125 PSIG.
- F. SOIL, WASTE AND VENT PIPING: 10-FOOT HEAD OF WATER.

1.03 SUBMITTALS
- A. PRODUCT DATA: FOR PIPE, TUBE, FITTINGS AND COUPLINGS.
- B. PRODUCT DATA: INCLUDE SELECTED FIXTURE AND TRIM, FITTINGS, ACCESSORIES, APPLIANCES, APPURTENANCES, EQUIPMENT AND SUPPORTS. INDICATE MATERIALS, FINISHES, DIMENSIONS, CONSTRUCTION DETAILS AND FLOW-CONTROL RATES FOR EACH TYPE OF FIXTURE INDICATED.
- C. PRODUCT DATA: INCLUDE RATED CAPACITIES, SHIPPING, INSTALLED AND OPERATING WEIGHTS. INDICATE MATERIALS, FINISHES, DIMENSIONS, REQUIRED CLEARANCES AND METHODS OF ASSEMBLY OF COMPONENTS, PIPING AND WIRING CONNECTIONS FOR THE FOLLOWING:
- D. BACKFLOW PREVENTERS AND WATER REGULATORS.
- E. SLEEVE PENETRATION SYSTEMS.
- F. WATER SAMPLES: SPECIFIED IN "CLEANING" ARTICLE IN PART 3.
- G. FIELD TEST REPORTS: INDICATE AND INTERPRET TEST RESULTS FOR COMPLIANCE WITH PERFORMANCE REQUIREMENTS.

1.04 QUALITY ASSURANCE
- A. PIPING MATERIALS SHALL BEAR LABEL, STAMP, OR OTHER MARKINGS OF SPECIFIED TESTING AGENCY.
- B. COMPLY WITH THE FOLLOWING APPLICABLE STANDARDS AND OTHER REQUIREMENTS SPECIFIED FOR MISCELLANEOUS COMPONENTS:
- C. FLOOR DRAINS: ASME A112.21.1M.
- D. PIPE THREADS: ASME B1.20.1.

1.05 COORDINATION
- A. COORDINATE ROUGHING-IN AND FINAL PLUMBING FIXTURE LOCATIONS. VERIFY THAT FIXTURES CAN BE INSTALLED TO COMPLY WITH ORIGINAL DESIGN AND REFERENCED STANDARDS.

PART 2 - PRODUCTS

2.01 PLUMBING SPECIALTIES
- A. TRAP PRIMERS SHALL BE INSTALLED. TRAP PRIMERS SHALL BE PRECISION PLUMBING PRODUCTS (PPP) MODEL #P2-500, OR APPROVED EQUAL.
- B. ONE (1) INCH SOLO SIZED WATER HAMMER ARRESTORS SHALL BE PROVIDED IN AN ACCESSIBLE LOCATION. WATER HAMMER ARRESTORS SHALL BE ZURN MODEL #Z1700, OR APPROVED EQUAL.
- C. DOMESTIC WATER SHUT-OFF VALVES SHALL BE BRONZE, FULL-PORT VALVES WITH TEFLON SEATS AND AN INSULATED HANDLE.
- D. GAS COCKS SHALL BE IRON BODY VALVES WITH A BRASS PLUG.
- E. FLOOR DRAINS SHALL BE CAST IRON WITH A TRAP PRIMER AND FLASHING COLLAR. FLOOR DRAINS SHALL BE ZURN Z415B SERIES OR APPROVED EQUAL.
- F. WALL CLEAN-OUTS SHALL BE A FLUSH-MOUNTED TYPE AS MANUFACTURED BY ZURN, MODEL #1446 OR APPROVED EQUAL.
- G. FLOOR CLEAN-OUTS SHALL BE ZURN Z1400, "LEVEL-TROL" ADJUSTABLE FLOOR CLEANOUT AND DURA-COATED CAST IRON BODY WITH A POLISHED NICKEL BRONZE TOP OR APPROVED EQUAL.
- H. NICKEL-BRASS OR CHROME PLATED ESCUTCHEONS SHALL BE PROVIDED ON ALL EXPOSED PIPES WHERE PIPES PASS THROUGH A WALL OR CEILING IN A FINISHED ROOM.
- I. ALL WASTE, VENT AND STORM DRAIN PIPING SHALL BE PVC BELOW GRADE. CAST IRON BELL-AND-SPIGOT OR HUB-LESS SERVICE WEIGHT PIPE WITH NEOPRENE GASKET FITTINGS AND STAINLESS STEEL BANDS SHALL BE PROVIDED ABOVE GRADE.
- J. DOMESTIC WATER PIPING BELOW GRADE SHALL BE TYPE "K" COPPER WITH FITTINGS JOINED BY A NON-LEAD BEARING SOLDER. DOMESTIC WATER PIPING ABOVE GRADE SHALL BE TYPE "L" COPPER WITH FITTINGS JOINED BY A NON-LEAD BEARING SOLDER.
- K. ALL NATURAL GAS PIPING SHALL BE SCHEDULE 40, CONTINUOUS WELD, AND BLACK STEEL PIPE WITH CORRESPONDING FITTINGS. GAS PIPING SHALL BE INSTALLED IN ACCORDANCE WITH LOCAL AND STATE CODES, NFPA REQUIREMENTS, AND ALL OTHER APPLICABLE CODES AND REGULATIONS. ALL GAS PIPING TO ROOF TOP UNITS SHALL BE INSTALLED ON THE EXTERIOR ROOF SURFACE PROPERLY SUPPORTED AND SECURED. EACH PIECE OF EQUIPMENT SHALL HAVE A DIRT/DRIP LEG INSTALLED AT A CHANGE OF DIRECTION IN PIPING.
- L. ALL WATER PIPING ABOVE GRADE SHALL BE INSULATED WITH PREFORMED 1-INCH FIBERGLASS INSULATION WITH VAPOR BARRIER.

PART 3 - EXECUTION

3.01 GENERAL
- A. ALL INTERIOR PIPING SHALL BE SUPPORTED PROPERLY FROM JOISTS OR OTHER STRUCTURAL MEMBERS. IN NO CASES SHALL PIPING BE ATTACHED DIRECTLY TO ROOF DECK. ALL REQUIRED PIPE SLEEVES, HANGERS AND SUPPORTS SHALL BE FURNISHED AND INSTALLED IN PROPER AND PERMANENT LOCATIONS. PIPE SHALL NOT PASS THROUGH BEAMS OR OTHER STRUCTURAL MEMBERS.
- B. PIPE SLEEVES IN OUTSIDE WALLS AND BEARING WALLS SHALL BE WROUGHT IRON PIPE. PIPE SLEEVES IN FLOORS, PARTITIONS AND NON-BEARING WALLS SHALL BE A MINIMUM OF 20 GAUGE GALVANIZED SHEET STEEL. SLEEVES AND PIPES ON OUTSIDE WALLS SHALL BE FILLED AND TIGHTLY CAULKED IN PLACE WITH COAL TAR, ASPHALT COMPOUND, LEAD OR OTHER APPROVED MATERIAL. PIPE SLEEVES SHALL BE OF SUFFICIENT DIAMETER TO PROVIDE APPROXIMATELY 1/4-INCH CLEARANCE AROUND NON-INSULATED PIPE AND 1/4-INCH CLEARANCE TO THE INSULATION AT INSULATED PIPE. PIPE SLEEVES SHALL BE SET FLUSH WITH THE WALL SURFACE ON ALL UNFINISHED WALLS. PIPE SLEEVES SET IN FLOOR SHALL PROTRUDE ABOVE THE FLOOR TO A HEIGHT OF 2 INCHES.
- C. LEAK TESTS SHALL BE PERFORMED IN THE PRESENCE OF THE GENERAL CONTRACTOR'S JOB SUPERINTENDENT FOR THE FOLLOWING:
- D. NEW SOIL, WASTE, AND VENT PIPING IN THE BUILDING SHALL BE TESTED AT A HYDROSTATIC PRESSURE OF 10 FEET OF WATER.
- E. NEW WATER PIPING SHALL BE SUBJECTED TO A HYDROSTATIC PRESSURE OF 130 PSI FOR A PERIOD OF 30 MINUTES.
- F. NEW GAS PIPING SHALL BE TESTED AT 75 PSI FOR A PERIOD OF NO LESS THAN ONE HOUR WITHOUT ANY DROP IN PRESSURE.
- G. WHILE THE ABOVE TEST PRESSURES ARE BEING MAINTAINED, A THOROUGH INSPECTION WILL BE MADE AND LEAKS OR DEFECTS SHALL BE REPAIRED OR REPLACED IMMEDIATELY.
- H. ALL ASSOCIATED EQUIPMENT, PIPE, VALVES AND FITTINGS SHALL BE CLEANED OF GREASE, METAL CUTTINGS, AND SLUDGE WHICH MAY HAVE ACCUMULATED BY OPERATION OF THE SYSTEM FOR TESTING. CLEANING REQUIREMENTS SHALL APPLY TO EXISTING, NEW PIPING, AND SYSTEMS.

3.02 PIPE IDENTIFICATION
- A. STENCIL PIPE IDENTIFICATION MARKINGS SHALL BE PROVIDED ON PIPE INSTALLED UNDER THIS SECTION. IN GENERAL, 2-INCH HIGH LEGENDS SHALL BE USED FOR PIPING 4 INCHES IN DIAMETER AND LARGER. 3/4-INCH HIGH LEGENDS SHALL BE USED FOR PIPING 3 INCHES IN DIAMETER AND SMALLER.
- B. ARROW MARKERS ON EACH PIPE SHALL BE PROVIDED TO INDICATE DIRECTION OF FLOW. MAINS SHALL BE LABELED AT POINTS OF ENTRANCE AND EXIT FROM THE MECHANICAL ROOM, ADJACENT TO EACH VALVE, ON EACH RISER, AT EACH TEE FITTING, AT POINTS OF ENTRANCE AND EXIT FROM THE BUILDING AND AT 20-FOOT MINIMUM INTERVALS.
- C. PIPE MARKERS SHALL BE AS MANUFACTURED BY SETON SETMARK OR EQUAL.

3.03 EQUIPMENT TAGS
- A. UPON COMPLETION OF WORK, ENGRAVED LAMINATED PLASTIC, ALUMINUM, OR BRASS TAGS SHALL BE PROVIDED AT ALL VALVES. TAGS SHALL HAVE BLACK CHARACTERS ON A WHITE BACKGROUND, BE CONSECUTIVELY NUMBERED, AND BE PREFIXED WITH THE LETTER "P". TAGS SHALL BE AT LEAST 1/8-INCH THICK, A MINIMUM OF 1-INCH IN DIAMETER WITH NUMERALS A MINIMUM OF 3/8-INCH HIGH AND BE ATTACHED BY S HOOKS OR CHAINS.
- B. NAME PLATES, CATALOG NUMBERS, AND RATING IDENTIFICATIONS SHALL BE SECURELY ATTACHED TO MECHANICAL AND PLUMBING EQUIPMENT WITH SCREWS OR RIVETS. ADHESIVE OR CEMENT ATTACHMENTS ARE NOT PERMITTED.

3.04 ROUGHING-IN FOR UTILITY METERS
- A. ROUGH-IN DOMESTIC WATER PIPING AND INSTALL WATER METERS ACCORDING TO UTILITY COMPANY'S REQUIREMENTS. CONNECT NEW COLD WATER PIPING TO WATER METER.

3.05 CLEANING
- A. CLEAN AND DISINFECT POTABLE DOMESTIC WATER PIPING AS FOLLOWS:
- B. PURGE NEW PIPING AND PARTS OF EXISTING DOMESTIC WATER PIPING THAT HAVE BEEN ALTERED, EXTENDED, OR REPAIRED BEFORE USING.
- C. USE PURGING AND DISINFECTING PROCEDURES PRESCRIBED BY AUTHORITIES HAVING JURISDICTION. IF METHODS ARE NOT PRESCRIBED USE PROCEDURES DESCRIBED IN EITHER AWWA C651 OR AWWA C652 OR AS DESCRIBED BELOW:
  - 1. FLUSH PIPING SYSTEM WITH CLEAN POTABLE WATER UNTIL DIRTY WATER DOES NOT APPEAR AT OUTLETS.
  - 2. FILL AND ISOLATE SYSTEM ACCORDING TO EITHER OF THE FOLLOWING:
    - 1. FILL SYSTEM OR PART THEREOF WITH WATER/CHLORINE SOLUTION WITH AT LEAST 50 PPM OF CHLORINE. ISOLATE WITH VALVES AND ALLOW TO STAND FOR 24 HOURS.
    - 2. FILL SYSTEM OR PART THEREOF WITH WATER/CHLORINE SOLUTION WITH AT LEAST 200 PPM OF CHLORINE. ISOLATE AND ALLOW TO STAND FOR THREE HOURS.
- D. FLUSH SYSTEM WITH CLEAN POTABLE WATER UNTIL NO CHLORINE IS IN WATER COMING FROM SYSTEM AFTER THE STANDING TIME.
- E. SUBMIT WATER SAMPLES IN STERILE BOTTLES TO AUTHORITIES HAVING JURISDICTION. REPEAT PROCEDURES IF BIOLOGICAL EXAMINATION SHOWS CONTAMINATION.
- F. PREPARE AND SUBMIT REPORTS OF PURGING AND DISINFECTING ACTIVITIES.
- G. CLEAN INTERIOR OF DOMESTIC WATER PIPING SYSTEM. REMOVE DIRT AND DEBRIS AS WORK PROGRESSES.

END OF SECTION 22 0000

PLUMBING FIXTURE AND PIPE CONNECTION SCHEDULE

TAG	BASIS OF DESIGN		DESCRIPTION	FAUCETS AND FITTINGS		PIPE CONNECTION DATA				ELECTRICAL DATA		COMMENTS
	MANUFACTURER	MODEL OR SERIES		MANUFACTURER	MODEL No.	COLD WATER	HOT WATER	VENT	SANITARY	FLA	VOLTAGE	
BT-1	KOHLER	K-20202 "UNDERSCORE"	BATHTUB / SHOWER	DELTA	T17455	1/2"	1/2"	1-1/2"	2"	-	-	
FD-1	ZURN	Z415	FLOOR DRAIN	-	-	-	-	-	3"	-	-	
LAV-1	KOHLER	K-1997 "BRENHAM"	WALL HUNG LAVATORY	DELTA	573-PP	1/2"	1/2"	1-1/2"	2"	-	-	
LAV-2	KOHLER	K-2214 "LADENA"	UNDERMOUNT LAVATORY	DELTA	573-PP	1/2"	1/2"	1-1/2"	2"	-	-	
MS-1	MUSTEE	63M	MOP BASIN	DELTA	28T9	1/2"	1/2"	1-1/2"	3"	-	-	
SK-1	KOHLER	K-6487 "WHITEHAVEN"	UNDERMOUNT SINK W/FRONT APRON	DELTA	9181-DST	1/2"	1/2"	1-1/2"	2"	-	-	
WC-1	KOHLER	K-5481 "HIGHLINE"	ADA FLUSH TANK WATER CLOSET	-	-	1/2"	-	1-1/2"	3"	-	-	
WM-1	GUY GRAY	MWB	WASHING MACHINE BOX	-	-	1/2"	1/2"	-	2"	-	-	

EXPANSION TANK SCHEDULE

MARK	BASIS OF DESIGN		TANK VOLUME (GALLONS)	MAXIMUM ACCEPTANCE VOLUME (GALLONS)	SYSTEM CONNECTION SIZE	COMMENTS
	MANUFACTURER	MODEL				
ET-1	AMTROL	ST-5-C	2.0	0.4	3/4"	
ET-2	AMTROL	ST-5-C	2.0	0.4	3/4"	
ET-3	AMTROL	ST-5-C	2.0	0.4	3/4"	

DOMESTIC WATER HEATER SCHEDULE

MARK	BASIS OF DESIGN		DESCRIPTION	PEAK DEMAND (GPH)	STORAGE CAPACITY (GALLONS)	EWT DEG. F.	LWT DEG. F.	ELECTRICAL DATA		RISE OF RECOVERY DEG. F.	COMMENTS
	MANUFACTURER	MODEL						DWH KW	DWH VOLTAGE		
DWH-1	A. O. Smith	DEN-40	Commercial Electric Water Heater	20	40	50	140	2 @ 4.5	240/1	90	
DWH-2	A. O. Smith	DEN-40	Commercial Electric Water Heater	20	40	50	140	2 @ 4.5	240/1	90	
DWH-3	A. O. Smith	DEN-40	Commercial Electric Water Heater	20	40	50	140	2 @ 4.5	240/1	90	

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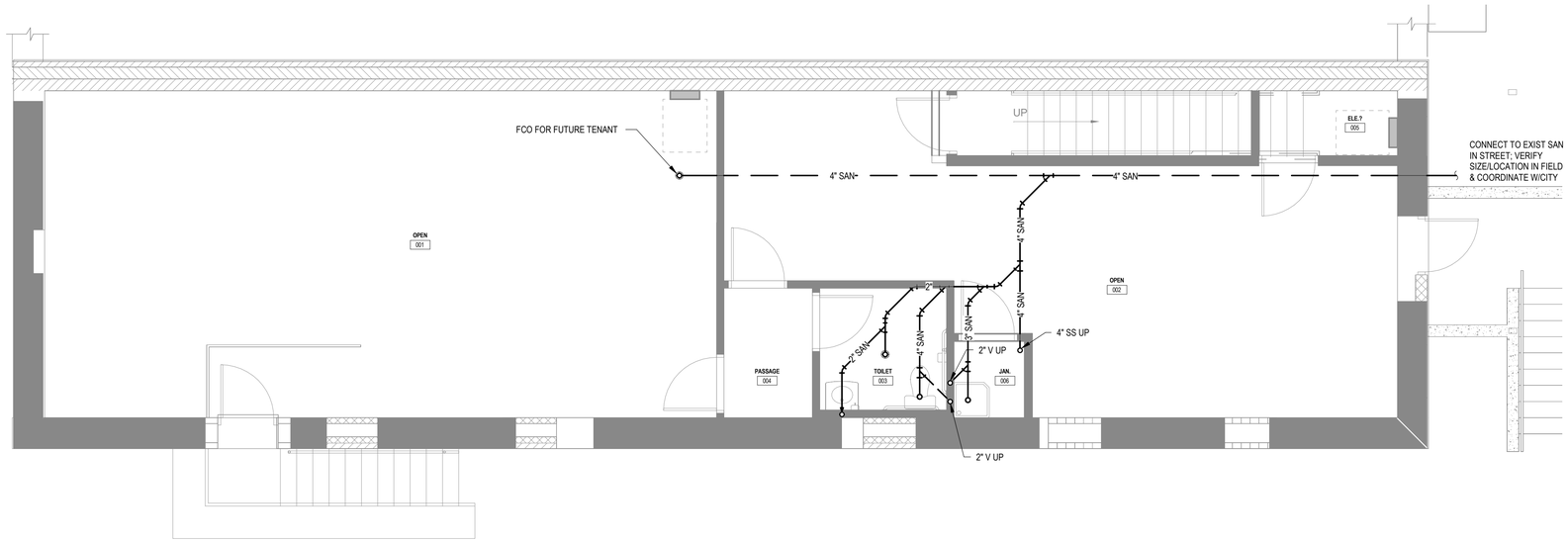
WREN BUILDING
402 S. JEFFERSON ST, MASON, MI
PLUMBING SPECIFICATIONS AND SCHEDULES

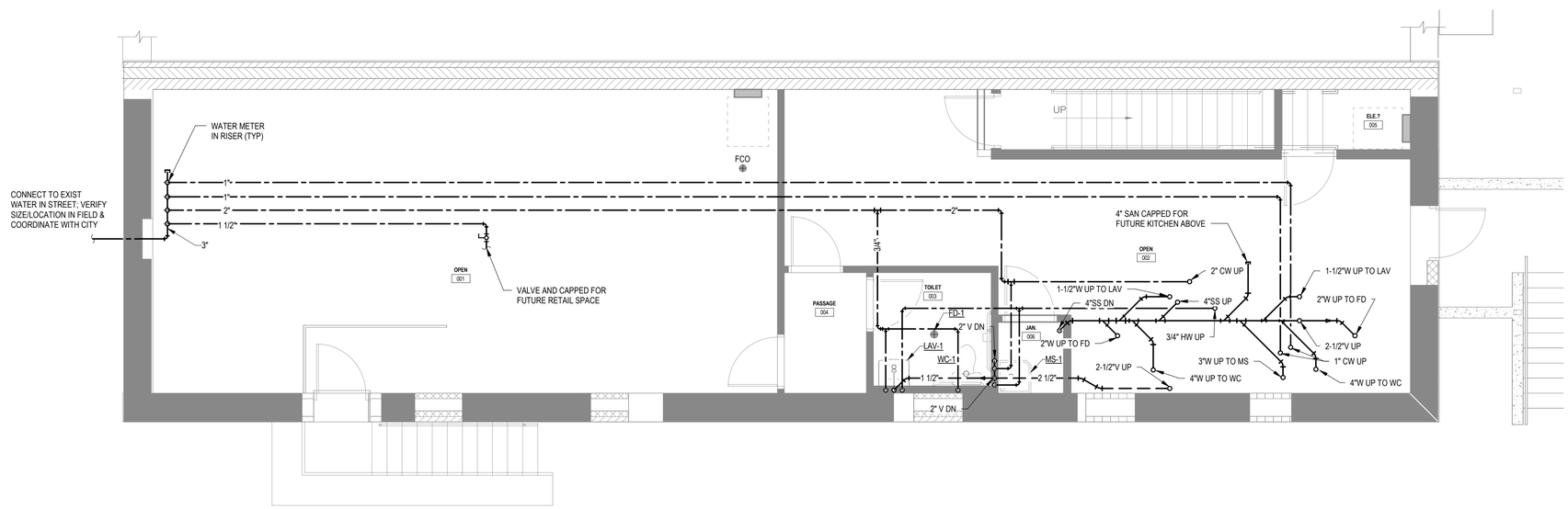
DATE
8-20-18

PROJECT NO.
A1169

P2



PLUMBING - UNDERGROUND PLAN
1/4" = 1'-0"



PLUMBING - BASEMENT FLOOR PLAN
1/4" = 1'-0"

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WREN BUILDING

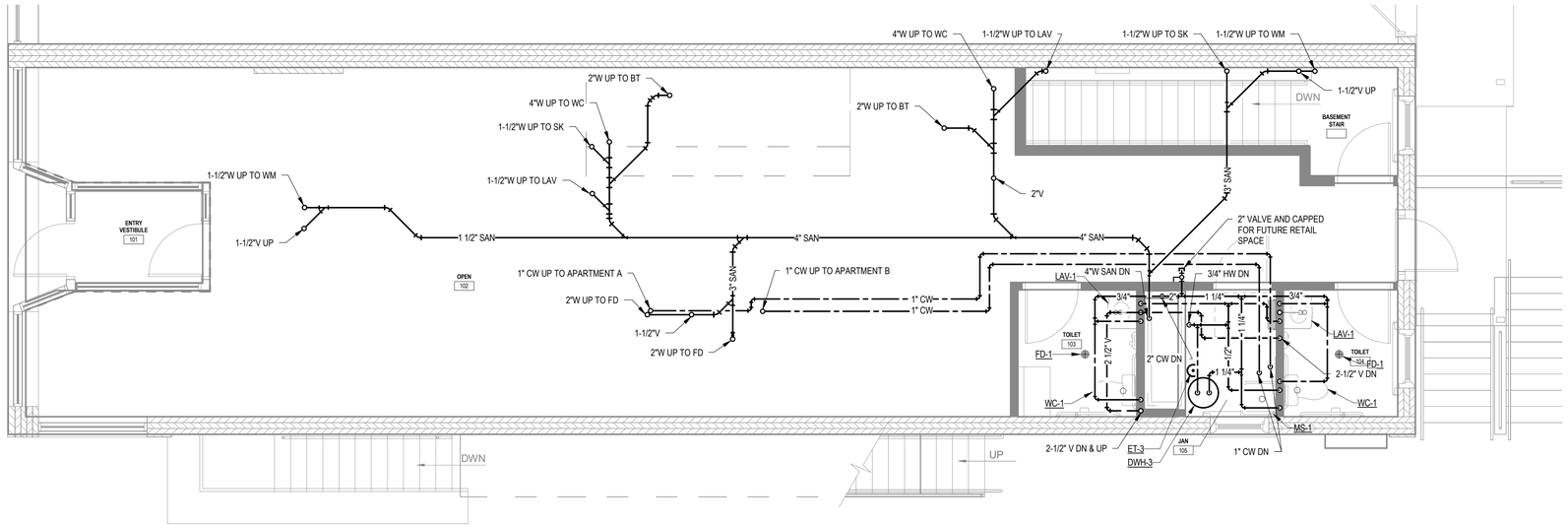
402 S. JEFFERSON ST, MASON, MI

UNDERGROUND AND BASEMENT PLAN - PLUMBING

DATE
8-20-18

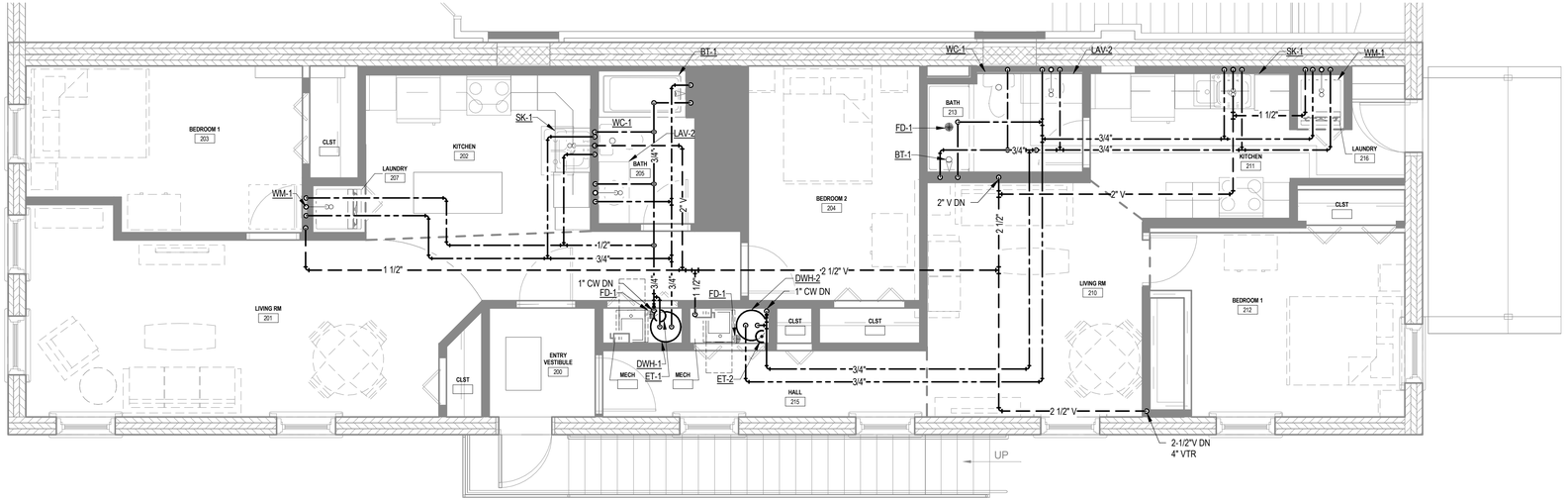
PROJECT NO.
A1169

P3



PLUMBING - FIRST FLOOR PLAN

1/4" = 1'-0"



PLUMBING - SECOND FLOOR PLAN

1/4" = 1'-0"

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WREN BUILDING

402 S. JEFFERSON ST, MASON, MI

1ST AND 2ND FLOOR PLAN - PLUMBING

DATE
8-20-18

PROJECT NO.
A1169

P4

HVAC ABBREVIATIONS

ATC	ARCHITECTURAL TRADES CONTRACTOR
AC	AIR CONDITIONING(ER)
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
AMB	AMBIENT
BDD	BACKDRAFT DAMPER
B.O.D.	BOTTOM OF DUCT
CONV	CONVECTOR
CFM	CUBIC FEET PER MINUTE
CWR	CHILLED WATER RETURN
CWS	CHILLED WATER SUPPLY
CU	CONDENSING UNIT
COR	CONDENSER WATER RETURN
COS	CONDENSER WATER SUPPLY
DB	DRY BULB TEMPERATURE
ETC	ELECTRICAL TRADES CONTRACTOR
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EBB	ELECTRIC BASEBOARD
ECUH	ELECTRIC CABINET UNIT HEATER
EF	EXHAUST FAN
EG	EXHAUST GRILLE
EUH	ELECTRIC UNIT HEATER
EXH	EXHAUST
F/SD	COMBINATION FIRE/SMOKE DAMPER
G	LOW PRESSURE GAS
GPM	GALLONS PER MINUTE
HR	HEATING HOT WATER RETURN
HS	HEATING HOT WATER SUPPLY
HP	HORSEPOWER
HPS	HIGH PRESSURE STEAM SUPPLY
HVAC	HEATING/VENTILATING/AIR CONDITIONING
LAT	LEAVING AIR TEMPERATURE
LPS	LOW PRESSURE STEAM SUPPLY
MTC	MECHANICAL TRADES CONTRACTOR
MAX	MAXIMUM
MBH	BTU PER HOUR (THOUSAND)
MFR	MANUFACTURER
MPS	MEDIUM PRESSURE STEAM SUPPLY
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
OA	OUTSIDE AIR
OD	OUTSIDE DIAMETER
P	PUMP
PRV	PRESSURE REDUCING VALVE
PSC	PUMPED STEAM CONDENSATE
PSI	POUNDS PER SQUARE INCH
RA	RETURN AIR
RG	RETURN GRILLE
RL	REFRIGERANT LIQUID
RP	RADIANT PANEL
RS	REFRIGERANT SUCTION
RTU	ROOF TOP UNIT
SA	SUPPLY AIR
SC	STEAM CONDENSATE
SD	SUPPLY DIFFUSER
SG	SUPPLY GRILLE
SP	STATIC PRESSURE
TG	TRANSFER GRILLE
TU	TERMINAL UNIT
TXV	THERMAL EXPANSION VALVE
TYP	TYPICAL
UH	UNIT HEATER
VFD	VARIABLE FREQUENCY DRIVE
WB	WET BULB TEMPERATURE
X-	EXISTING

SD-1	TAG (DIFFUSERS AND GRILLES)
8"Ø	NECK SIZE
200 CFM	AIR FLOW

NOTE:
ALL ABBREVIATIONS AND SYMBOLS SHOWN ON THIS SHEET MAY NOT BE USED ON THIS PROJECT.

GENERAL SYMBOLS

- KEY NOTE
- CONNECTION POINT, NEW TO EXISTING
- DEMOLITION END POINT

SHEET METAL SYMBOLS

- SUPPLY AIR DUCT
- RETURN AIR DUCT
- EXHAUST AIR DUCT
- BALANCE DAMPER
- CONICAL TEE
- 90° TEE WITH 45° APPROACH
- TRANSITION CONCENTRIC
- TRANSITION ECCENTRIC
- VERTICAL FIRE DAMPER
- HORIZONTAL FIRE DAMPER
- VERTICAL COMBINATION FIRE SMOKE DAMPER
- HORIZONTAL COMBINATION FIRE SMOKE DAMPER
- VERTICAL SMOKE DAMPER
- HORIZONTAL SMOKE DAMPER
- M — MOTORIZED DAMPER
- AIR FLOW DIRECTION

CONTROL SYMBOLS

T	THERMOSTAT
S	TEMPERATURE SENSOR
H	HUMIDISTAT
SD	DUCT SMOKE DETECTOR. INSTALLED BY M.T.C. PROVIDED AND WIRED BY E.T.C.

PIPING SYMBOLS

- PIPE TURNED UP
- PIPE TURNED DOWN
- PIPE OUT OF TOP
- PIPE OUT OF BOTTOM
- PIPE ANCHOR
- PIPE ALIGNMENT GUIDE
- PIPE EXPANSION JOINT
- STRAINER
- UNION
- SHUT-OFF VALVE
- CHECK VALVE
- BALL VALVE
- GLOBE VALVE
- M — MOTOR OPERATED VALVE
- S — SOLENOID OPERATED VALVE
- 2-WAY TEMPERATURE CONTROL VALVE
- 3-WAY TEMPERATURE CONTROL VALVE
- T — STEAM TRAP
- CIRCUIT BALANCE VALVE
- HS — HEATING HOT WATER SUPPLY
- HR — HEATING HOT WATER RETURN
- CWS — CHILLED WATER SUPPLY
- CWR — CHILLED WATER RETURN
- COS — CONDENSER WATER SUPPLY
- COR — CONDENSER WATER RETURN
- RL — REFRIGERANT LIQUID
- RS — REFRIGERANT SUCTION
- CD — CONDENSATE DRAIN
- CA — COMPRESSED AIR
- HPS — HIGH PRESSURE STEAM 76-100 LBS.
- MPS — MEDIUM PRESSURE STEAM 21-75 LBS.
- LPS — LOW PRESSURE STEAM 0-20 LBS.
- SC — STEAM CONDENSATE
- PSC — STEAM CONDENSATE PUMPED
- G — GAS PIPE - LOW PRESSURE
- HPG — GAS - HIGH PRESSURE
- MPG — GAS - MEDIUM PRESSURE
- M — GAS METER

GENERAL HVAC NOTES

A. PERFORM WORK IN ACCORDANCE WITH THE LATEST EDITIONS, REVISIONS, AMENDMENTS, OR SUPPLEMENTS OF APPLICABLE STATUTES, ORDINANCES, CODES OR REGULATIONS OF FEDERAL, STATE, AND LOCAL AUTHORITIES HAVING JURISDICTION IN EFFECT ON THE DATE BIDS ARE RECEIVED.

B. WHERE APPROVED STANDARDS HAVE BEEN ESTABLISHED BY OSHA, UNDERWRITERS LABORATORIES, AMERICAN CODES, ASA, ASHRAE, ARI, NEC, STATE FIRE INSURANCE REGULATION BODY, NFPA OR OTHERS. THESE STANDARDS SHALL BE FOLLOWED WHETHER OR NOT INDICATED ON THE DRAWING AND SPECIFICATIONS.

C. ALL WORK SHALL COMPLY WITH LOCAL MECHANICAL CODE, ALL APPLICABLE LOCAL CODES AND AUTHORITIES HAVING JURISDICTION.

D. ALL DUCT TO BE OF 1" PRESSURE CLASS, UNLESS NOTED OTHERWISE.

E. COORDINATE WITH ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR EXACT LOCATION OF ROOF TOP EQUIPMENT.

F. DUCTWORK SHALL BE ACOUSTICALLY LINED WITHIN 20 FT OF THE INTAKE AND/OR DISCHARGE OF A FAN.

G. INSTALL VOLUME DAMPERS IN ALL BRANCH DUCTS SERVING A SINGLE GRILLE, REGISTER, OR DIFFUSER.

H. INSTALL FLEXIBLE DUCT CONNECTIONS AT THE INLET AND DISCHARGE OF ALL FANS.

I. MAXIMUM LENGTH OF FLEXIBLE DUCT TO AIR TERMINAL DEVICES SHALL NOT EXCEED 5'-0" IN LENGTH WITH A MAXIMUM OF ONE 90° TURN AND SHALL BE INSULATED. ELBOWS SHALL BE MIN. 1.5 RADIUS. CONNECTIONS TO TERMINAL DEVICES SHALL BE BANDED AND TAPED.

J. UNDERGROUND GAS SERVICE BY UTILITY COMPANY, REFER TO CIVIL DRAWINGS. COORDINATE SERVICE, METER, ETC. LOCATIONS WITH UTILITY COMPANY.

K. DUCT/PIPING LAYOUT IS SCHEMATIC. EXACT LOCATION OF DUCT/PIPING AND EQUIPMENT SHALL BE COORDINATED WITH BUILDING STRUCTURE, EQUIPMENT FURNISHED, ARCHITECTURAL DRAWINGS AND ALL OTHER TRADES PRIOR TO INSTALLATION. ANY CONTRACTOR INSTALLING WORK WITHOUT PRIOR COORDINATION SHALL RELOCATE HIS WORK AT HIS EXPENSE TO ALLOW PROPER INSTALLATION OF ANY AND ALL TRADES' WORK.

L. UNLESS OTHERWISE NOTED, ALL DUCT/PIPING SHALL BE CONCEALED WHEREVER POSSIBLE. PROVIDE CHROME ESCUTCHEON OR ALUMINUM DUCT COLLAR AT EACH PENETRATION OF A FINISHED SURFACE.

M. DUCT/PIPING SHALL NOT BE RUN ABOVE ELECTRICAL GEAR OR IN THE SERVICE SPACE REQUIRED BY THE NATIONAL ELECTRICAL CODE.

N. DUCT SIZES SHOWN ARE NET INSIDE CLEAR DIMENSIONS.

O. ANY ADDITIONAL LOW VOLTAGE CONTROL WIRING THAT IS REQUIRED SHALL BE PROVIDED BY THE HVAC CONTRACTOR. CONTROL WIRING SHALL BE RUN IN CONDUIT IF REQUIRED BY LOCAL CODES. FIELD VERIFY PRIOR TO BID. POWER WIRING SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR.

P. PROVIDE TRAP FOR CONDENSATION DRAIN LINES.

Q. PROVIDE VIBRATION ISOLATION AT EACH CONNECTION TO A MOTORIZED PIECE OF EQUIPMENT BY THE HVAC CONTRACTOR.

R. MOUNT THERMOSTAT/SENSORS AT 48" AFF UNLESS NOTED OTHERWISE.

S. THE HVAC CONTRACTOR SHALL CLOSELY COORDINATE AIR DEVICE AND DUCTWORK LOCATIONS WITH REFLECTED CEILING AND STRUCTURAL PLANS.

T. COORDINATE SENSOR AND THERMOSTAT LOCATION WITH ARCHITECT.

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WREN BUILDING
402 S. JEFFERSON ST, MASON, MI
HVAC COVER SHEET

DATE
8-20-18

PROJECT NO.
A1169

M1

SECTION 23 0000 - HVAC

THE REQUIREMENTS OF THE "GENERAL CONDITIONS" AND "DIVISION 1" SECTIONS OF THE SPECIFICATIONS SHALL APPLY TO THIS SECTION OF THE SPECIFICATIONS.

PART 1 - GENERAL

1.01 SUMMARY

A. THE CONTRACTOR SHALL PROVIDE A COMPLETE AND OPERATIONAL HVAC SYSTEM AS SHOWN ON THE DRAWINGS INCLUDING EQUIPMENT, MATERIAL, LABOR, DUCTWORK, PIPING, DIFFUSERS, GRILLES AND REQUIRED ELECTRICAL. THE CONTRACTOR SHALL PROVIDE OPERATING AND MAINTENANCE INSTRUCTIONS TO THE OWNER FOR ALL EQUIPMENT. ALL COMPRESSORS SHALL BE PROVIDED WITH A FIVE (5) YEAR EXTENDED WRITTEN WARRANTY ON PARTS AND, WHERE APPLICABLE, ALL GAS FIRED HEAT EXCHANGERS SHALL BE PROVIDED WITH AN EXTENDED TEN (10) YEAR PARTS WARRANTY. THE CONTRACTOR SHALL PROVIDE AN UNCONDITIONAL WARRANTY OF ONE YEAR FOR ALL OTHER ASSOCIATED EQUIPMENT AND DEVICES.

B. ALL WORK SHALL BE PERFORMED IN COMPLIANCE WITH THE LOCAL BUILDING, MECHANICAL, AND ENERGY CODES ASHRAE, SMACNA, AND ALL OTHER APPLICABLE STATE AND FEDERAL CODES.

C. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS AND INSPECTIONS REQUIRED FOR THE EXECUTION OF THIS WORK.

D. ALL EQUIPMENT AND MATERIALS SHALL BE NEW AND SHALL DISPLAY A UL LABEL WHERE APPLICABLE.

E. ALL INTERIOR INSULATION MATERIALS, JACKETS, COVERINGS, SEALS AND MASTICS SHALL HAVE A FLAME SPREAD INDEX OF 25 OR LESS AND SMOKE DEVELOPED INDEX OF 50 OR LESS PER ASTM E84 (NFPA 255).

1.02 SUBMITTALS

A. PRODUCT DATA: INCLUDE MANUFACTURER'S TECHNICAL DATA FOR EACH MODEL INDICATED, INCLUDING RATED CAPACITIES, DIMENSIONS, REQUIRED CLEARANCES, CHARACTERISTICS, FURNISHED SPECIALTIES AND ACCESSORIES.

B. OPERATION AND MAINTENANCE DATA: FOR ROOFTOP AIR CONDITIONERS, FANS, AND UNIT HEATERS.

C. AT THE END OF THE PROJECT TURNS OVER THE FOLLOWING TO THE OWNER:
   a. ROOFTOP UNITS - PROVIDE MANUFACTURER'S WARRANTY.
   b. UNIT HEATERS - PROVIDE MANUFACTURER'S WARRANTY.
   c. STARTUP - PROVIDE ONE (1) COPY OF THE (EOC) EQUIPMENT OPERATION CERTIFICATE FOR EACH UNIT INSTALLED.

1.03 QUALITY ASSURANCE

A. PRODUCT OPTIONS: DRAWINGS INDICATE SIZE, PROFILES, AND DIMENSIONAL REQUIREMENTS OF ROOFTOP AIR CONDITIONERS AND ARE BASED ON THE SPECIFIC SYSTEM INDICATED.

B. ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70, ARTICLE 100, BY A TESTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION, AND MARKED FOR INTENDED USE.

C. FABRICATE AND LABEL REFRIGERATION SYSTEM TO COMPLY WITH ASHRAE 15, "SAFETY CODE FOR MECHANICAL REFRIGERATION".

D. ENERGY-EFFICIENCY RATIO: EQUAL TO OR GREATER THAN PRESCRIBED BY ASHRAE 90.1, "ENERGY EFFICIENT DESIGN OF NEW BUILDINGS EXCEPT LOW-RISE RESIDENTIAL BUILDINGS".

E. COEFFICIENT OF PERFORMANCE: EQUAL TO OR GREATER THAN PRESCRIBED BY ASHRAE 90.1, "ENERGY EFFICIENT DESIGN OF NEW BUILDINGS EXCEPT LOW-RISE RESIDENTIAL BUILDINGS".

F. COMPLY WITH NFPA 54 FOR GAS-FIRED FURNACE SECTION.

G. ARI CERTIFICATION: UNITS SHALL BE ARI CERTIFIED AND LISTED.

H. ARI COMPLIANCE FOR UNITS WITH CAPACITIES LESS THAN 135,000 BTUH: RATE ROOFTOP AIR-CONDITIONER CAPACITY ACCORDING TO ARI 210/240, "UNITARY AIR-CONDITIONING AND AIR-SOURCE HEAT PUMP EQUIPMENT".
   a. SOUND POWER LEVEL RATINGS: COMPLY WITH ARI 270, "SOUND RATING OF OUTDOOR UNITARY EQUIPMENT".
   b. ARI COMPLIANCE FOR UNITS WITH CAPACITIES 135,000 BTUH AND MORE: RATE ROOFTOP AIR-CONDITIONER CAPACITY ACCORDING TO ARI 340/360, "COMMERCIAL AND INDUSTRIAL UNITARY AIR-CONDITIONING AND HEAT PUMP EQUIPMENT".

PART 2 - PRODUCTS

2.01 ROOFTOP UNITS

A. CONTRACTOR SHALL PROVIDE THE FOLLOWING ADDITIONAL ACCESSORIES REQUIRED AT ALL ROOF TOP UNITS.
   a. SMOKE DETECTORS: SMOKE DETECTORS ARE BEING SUPPLIED BY CONTRACTOR'S ELECTRICAL CONTRACTOR, INSTALLED BY CONTRACTOR'S MECHANICAL CONTRACTOR AND WIRED BY CONTRACTOR'S ELECTRICAL CONTRACTOR. APPLIES FOR UNITS WITH 2000 CFM AND ABOVE.
   b. ELECTRICAL DISCONNECTS: SEE ROOF TOP UNIT SCHEDULE.

2.02 DUCTWORK AND SPECIALTIES

A. ALL DUCTWORK SHALL BE GALVANIZED SHEET METAL OF GAUGES AND JOINT TYPES AS SPECIFIED IN THE SMACNA MANUAL FOR THE APPLICABLE SIZES. VOLUME DAMPERS SHALL BE MANUAL LOCKING, BLADE-TYPE, TWO GAUGES HEAVIER THAN DUCT. DUCTWORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH SMACNA STANDARDS FOR TWO-INCH STATIC PRESSURE. ALL DUCTWORK SHALL BE SEALED WITH MASTIC. ACCESS DOORS SHALL BE PROVIDED IN DUCTWORK AT FIRE DAMPERS OR OTHER CONTROL DEVICES AS REQUIRED FOR MAINTENANCE. DOUBLE-THICKNESS TURNING VANES SHALL BE PROVIDED AT ALL RECTANGULAR ELBOWS. FLEXIBLE CONNECTIONS TO AIR HANDLING UNITS SHALL BE PROVIDED.

2.03 INSULATION

A. SUPPLY AND RETURN DUCTWORK SHALL BE ACOUSTICALLY LINED FOR THE FIRST 20 FEET OF THE ROOF TOP UNIT. INSULATION SHALL BE 1" THICK WITH A MINIMUM R VALUE OF R-3.5. DUCT DIMENSIONS INDICATED ARE NET INSIDE DIMENSIONS REQUIRED FOR AIR FLOW. INCREASE DUCT SIZE TO ALLOW FOR INSULATION THICKNESS.

B. ALL DUCTWORK NOT LINED SHALL BE WRAPPED WITH INSULATION WITH A MINIMUM R VALUE OF R-3.5.

2.04 EXTERIOR DUCTWORK AND INSULATION

A. PRE INSULATED CLOSED CELL PHENOLIC FOAM DUCTWORK SYSTEM WITH INTERIOR ALUMINUM FSK, R-12 INSULATION, EXTERIOR ALUMINUM FSK, 1000 MICRON VINYL CLADDING, SIMILAR TO THERMADUCT.

2.05 EXHAUST FAN

A. EXHAUST FAN TO BE SUPPLIED AS INDICATED ON THE DRAWINGS.

B. FAN SPEED CONTROLLER INSTALLATION LOCATION SHALL BE COORDINATED WITH ELECTRICAL CONTRACTOR AND BE INSTALLED AT OR BY THE FAN FOR ADJUSTMENT BY BALANCE CONTRACTOR.

PART 3 - EXECUTION

3.01 INSTALLATION

A. INSTALL UNITS LEVEL AND PLUMB, MAINTAINING MANUFACTURER'S RECOMMENDED CLEARANCES. INSTALL ACCORDING TO ARI GUIDELINE B.

B. ALL DUCTWORK AND EXHAUST FANS SHALL BE SUPPORTED PROPERLY FROM THE TOP CHORD OF ROOF JOISTS. NO DUCTWORK OR DEVICES SHALL BE ATTACHED DIRECTLY TO ROOF DECK.

C. THE HVAC SYSTEM SHALL OPERATE WITHOUT OBJECTIONABLE VIBRATION, PULSATION, OR RATTLE. MOTORS SHALL BE MOUNTED ON RUBBER VIBRATION ISOLATORS OR THE COMPLETE UNIT SHALL BE ISOLATED FROM THE BUILDING WITH ISOLATION PADS. ALL DAMPERS, GRILLES, AND ACCESSORIES SHALL HAVE NO MOVEMENT UNDER OPERATING CONDITIONS AND SHALL OPERATE WITHOUT NOISE. ALL DUCTWORK INSTALLED EXTERNAL TO THE BUILDING SHALL BE COMPLETELY WEATHERPROOF AND INSULATED.

3.02 EQUIPMENT START-UP

A. THE CONTRACTOR'S HVAC CONTRACTOR SHALL COORDINATE AT LEAST TWO (2) WEEKS PRIOR TO CHECKOUT AND PROVIDE AN EQUIPMENT OPERATION CERTIFICATE (EOC) FOR ALL ROOFTOP UNITS AFTER STARTUP BY THE MANUFACTURER'S FACTORY EMPLOYED FIELD SERVICE REPRESENTATIVE. AT TIME OF STARTUP, A QUALIFIED HVAC TECHNICIAN SHALL BE PRESENT TO RE-TEST, SERVICE AND CORRECT ANY PROBLEMS DISCOVERED DURING THE EQUIPMENT PERFORMANCE CHECKOUT.

B. EQUIPMENT OPERATION CERTIFICATE (EOC), POWER AND GAS SERVICES SHALL BE IN OPERATION FOR A MINIMUM 24-HOUR PERIOD.

3.03 EQUIPMENT IDENTIFICATION

A. FOR ALL EQUIPMENT, CONTRACTOR SHALL PROVIDE AND INSTALL BLACK BAKELITE NAMEPLATE WITH WHITE LETTERING SECURED PERMANENTLY TO THE EQUIPMENT ADJACENT TO MANUFACTURER'S EQUIPMENT TAGS. SIZE OF LETTERING SHALL BE MINIMUM 2" IN HEIGHT. SAMPLE AS FOLLOWS: RTU-1.

3.04 CONNECTIONS

A. INSTALL PIPING EQUIPMENT TO ALLOW SERVICE AND MAINTENANCE.

B. DRAWINGS INDICATE THE GENERAL ARRANGEMENT OF DUCTS. THE FOLLOWING ARE SPECIFIC CONNECTION REQUIREMENTS:
   a. INSTALL DUCTS TO TERMINATION IN ROOF CURB.
   b. REMOVE ROOF DECKING ONLY AS REQUIRED FOR PASSAGE OF DUCTS. DO NOT CUT OUT DECKING UNDER ENTIRE ROOF CURB.

C. ELECTRICAL SYSTEM CONNECTIONS: COMPLY WITH APPLICABLE REQUIREMENTS IN DIVISION 16 SECTIONS FOR POWER WIRING, SWITCHES, AND MOTOR CONTROLS.

D. GROUND EQUIPMENT ACCORDING TO DIVISION 16 SECTIONS "GROUNDING AND BONDING".

E. TIGHTEN ELECTRICAL CONNECTORS AND TERMINALS ACCORDING TO MANUFACTURER'S PUBLISHED TORQUE-TIGHTENING VALUES. IF MANUFACTURER'S TORQUE VALUES ARE NOT INDICATED, USE THOSE SPECIFIED IN UL 486A AND UL 486B.

3.05 TESTING ADJUSTING AND BALANCING

A. TEST, ADJUST, AND BALANCE THE FOLLOWING MECHANICAL SYSTEMS:
   a. SUPPLY AIR SYSTEMS.
   b. RETURN AIR SYSTEMS.
   c. EXHAUST AIR SYSTEMS.

B. MAKE ADJUSTMENTS AND RE-TEST SYSTEM TO ACHIEVE THE REQUIRED FLOW WITHIN 10% OF SPECIFIED FLOW FOR AIR SYSTEMS AND 5% FOR HYDRONIC SYSTEMS.

C. WHEN DEFICIENCIES ARE IDENTIFIED, RE-TEST AND ADJUST FLOWS AFTER CORRECTIVE MEASURES ARE TAKEN.

D. PERMANENTLY IDENTIFY POSITION OF SPEED CONTROLLER AND DAMPERS FOR FUTURE REFERENCE.

E. CERTIFIED REPORTS: SUBMIT TESTING, ADJUSTING, AND BALANCING REPORTS BEARING THE SEAL AND SIGNATURE OF THE TEST AND BALANCE ENGINEER. THE REPORTS SHALL BE CERTIFIED PROOF THAT THE SYSTEMS HAVE BEEN TESTED, ADJUSTED, AND BALANCED IN ACCORDANCE WITH THE REFERENCED STANDARDS; ARE AN ACCURATE REPRESENTATION OF HOW THE SYSTEMS HAVE BEEN INSTALLED; ARE A TRUE REPRESENTATION OF HOW THE SYSTEMS ARE OPERATING AT THE COMPLETION OF THE TESTING, ADJUSTING, AND BALANCING PROCEDURES; AND ARE AN ACCURATE RECORD OF ALL FINAL QUANTITIES MEASURED, TO ESTABLISH NORMAL OPERATING VALUES OF THE SYSTEMS.

F. REPORT FORMAT: REPORT FORMS SHALL BE THOSE STANDARD FORMS PREPARED BY THE REFERENCED STANDARD FOR EACH RESPECTIVE ITEM AND SYSTEM TO BE TESTED, ADJUSTED, AND BALANCED. BIND REPORT FORMS COMPLETE WITH SCHEMATIC SYSTEMS DIAGRAMS AND OTHER DATA IN REINFORCED, VINYL AND THREE-RING BINDERS. PROVIDE BINDING EDGE LABELS WITH THE PROJECT IDENTIFICATION AND A TITLE DESCRIPTIVE OF THE CONTENTS.

G. NEBB: "PROCEDURAL STANDARDS FOR TESTING, ADJUSTING, AND BALANCING OF ENVIRONMENTAL SYSTEMS.

H. ASHRAE: ASHRAE HANDBOOK, 1984 SYSTEMS VOLUME, CHAPTER 37, TESTING, ADJUSTING AND BALANCING.

END OF SECTION 23 0000

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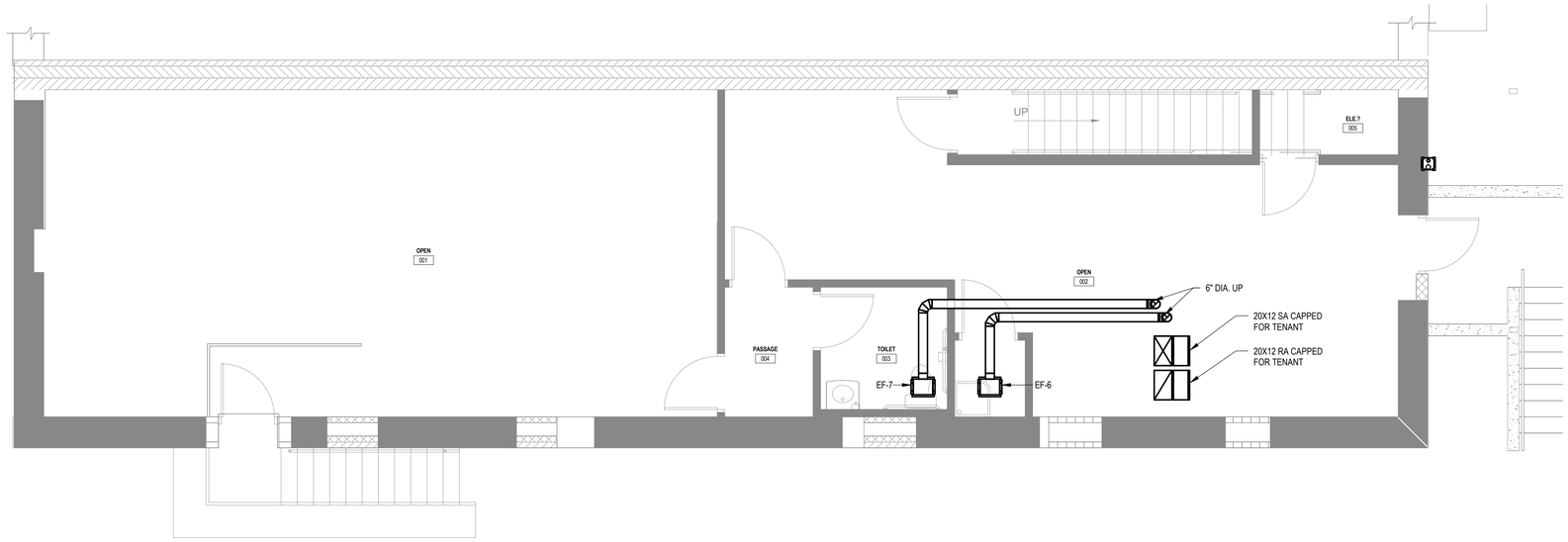
WREN BUILDING
402 S. JEFFERSON ST, MASON, MI
MECHANICAL SPECIFICATIONS

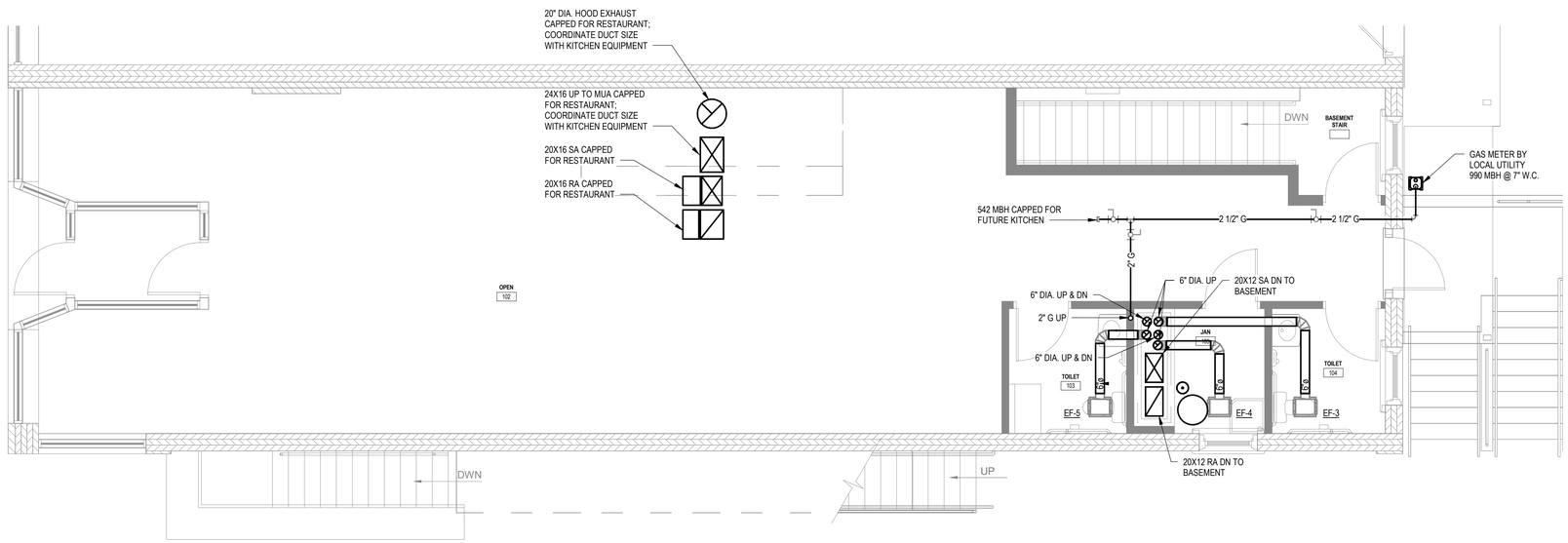
DATE
8-20-18

PROJECT NO.
A1169

M2



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



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

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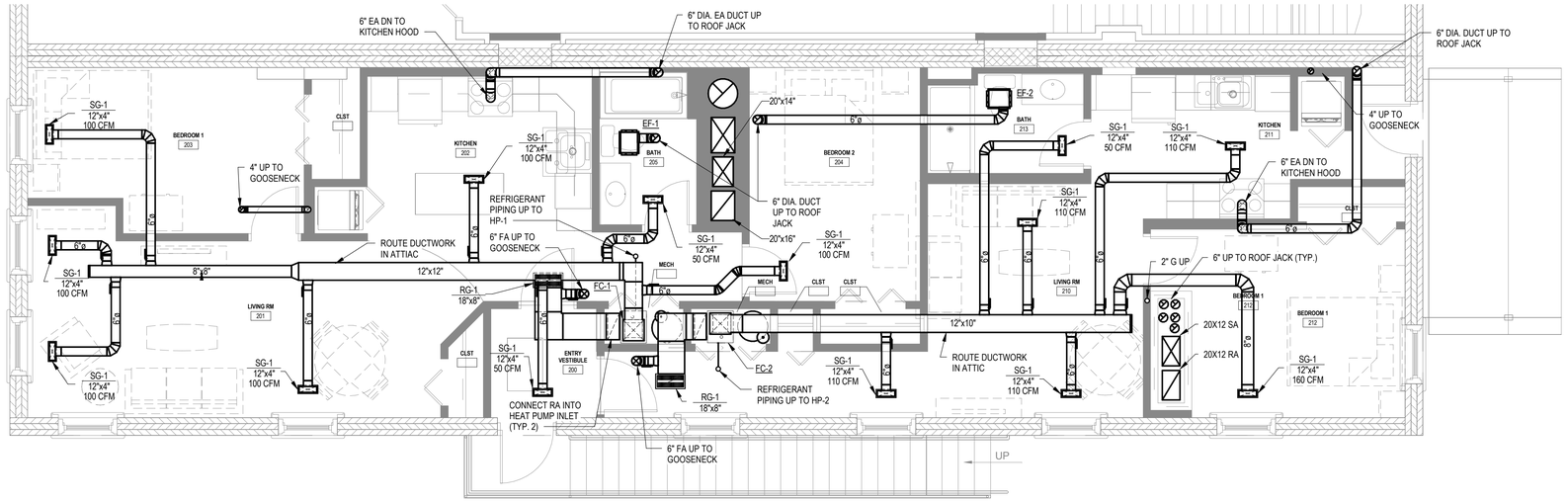
WREN BUILDING
402 S. JEFFERSON ST, MASON, MI
BASEMENT AND 1ST FLOOR PLAN - MECHANICAL

DATE
8-20-18

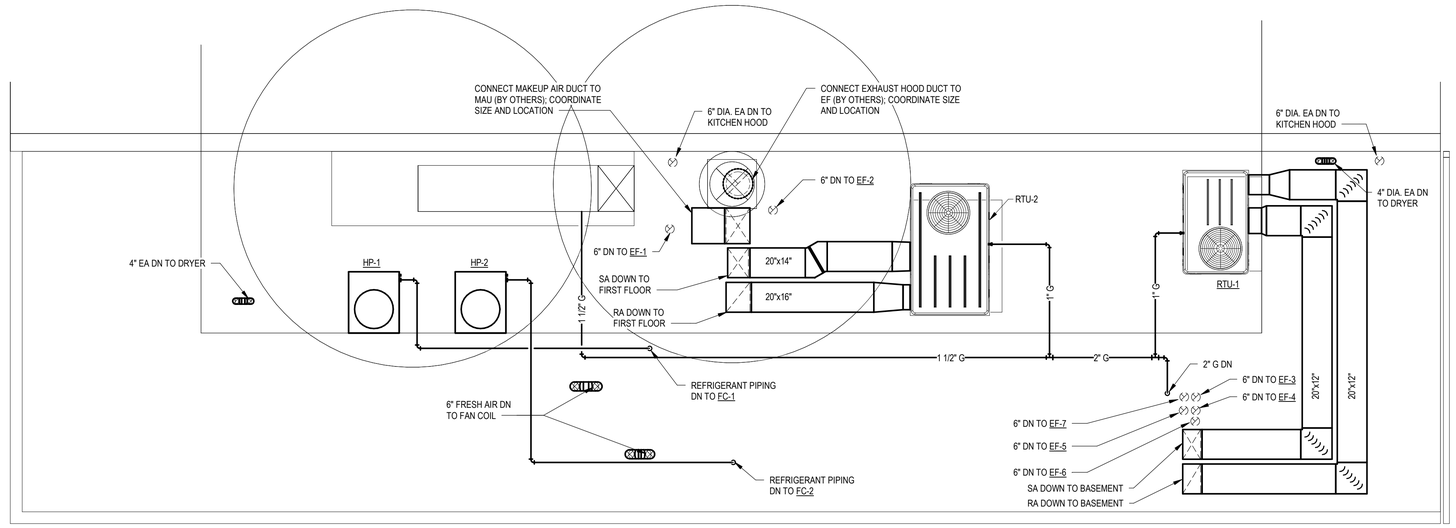
PROJECT NO.
A1169

M3



MECHANICAL - SECOND FLOOR PLAN

1/4" = 1'-0"



MECHANICAL - ROOF PLAN

1/4" = 1'-0"

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WREN BUILDING

402 S. JEFFERSON ST, MASON, MI

2ND AND ROOF PLAN - MECHANICAL

DATE
8-20-18

PROJECT NO.
A1169

M4

ROOF TOP UNIT SCHEDULE

TAG	BASIS OF DESIGN		AIR FLOW DATA			COOLING DATA							HEATING DATA				ELECTRICAL DATA				COMMENTS
	MANUFACTURER	MODEL	E.S.P.	SUPPLY AIR	OUTSIDE AIR	TONS	COOLING E.A.T. DB	COOLING E.A.T. WB	COOLING L.A.T. DB	COOLING L.A.T. WB	COOLING SENSIBLE MBH	COOLING TOTAL MBH	HEATING INPUT MBH	HEATING OUTPUT MBH	HEATING E.A.T.	HEATING L.A.T.	MCA	MOCP	MOTOR HP	VOLTAGE	
RTU-1	TRANE	YSC060	0.750	1700 CFM	600 CFM	5	80 F	67 F	58.14 F	56.91 F	44.74	58.25	80	64.80	70 F	105.60 F	28.30 A	40	3/4	208-203/60/3	
RTU-2	TRANE	YHC074	0.750	2000 CFM	1100 CFM	6	80 F	67 F	56.85 F	55.73 F	52.80	71.73	80	64.80	70 F	100.3 F	38.20 A	50 A	3/4	208-203/60/3	

FAN COIL SCHEDULE

MARK	BASIS OF DESIGN		E.S.P.	AIR FLOW DATA		REFRIGERANT	HEATING MBH @ 17F	TOTAL COOLING MBH	SENSIBLE COOLING MBH	ELECTRICAL DATA					COMMENTS
	MANUFACTURER	MODEL		SUPPLY AIR	OUTSIDE AIR					ELECTRIC HEAT KW	MCA	MOCP	MOTOR HP	VOLTAGE	
FC-1	TRANE	GAM5B0A24	0.6	700	45	R410A	33.0	23.4	17.4	5.8	38	40	1/3	208/1/60	
FC-2	TRANE	GAM5B0A24	0.6	700	30	R410A	14.5	23.4	17.4	5.8	38	40	1/3	208/1/60	

EXHAUST FAN SCHEDULE

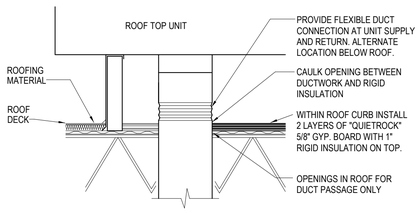
MARK	BASIS OF DESIGN		CFM	E.S.P.	FAN SPEED (RPM)	DRIVE TYPE	BLADE TYPE	SONES	ELECTRICAL DATA				COMMENTS
	MANUFACTURER	MODEL NO							HP	FLA	WATTS	VOLTAGE	
EF-1	GREENHECK	SP-B110	75	0.35	935	DIRECT	FORWARD CURVE	1.2	-	0.1	6	115/60/1	
EF-2	GREENHECK	SP-B110	75	0.35	935	DIRECT	FORWARD CURVE	1.2	-	0.1	6	115/60/1	
EF-3	GREENHECK	SP-A50-90-VG	75	0.60	887	DIRECT	FORWARD CURVE	2.0	-	0.1	12	115/60/1	
EF-4	GREENHECK	SP-A50-90-VG	75	0.60	887	DIRECT	FORWARD CURVE	2.0	-	0.1	12	115/60/1	
EF-5	GREENHECK	SP-A50-90-VG	75	0.60	887	DIRECT	FORWARD CURVE	2.0	-	0.1	12	115/60/1	
EF-6	GREENHECK	SP-A50-90-VG	75	0.75	887	DIRECT	FORWARD CURVE	2.5	-	0.1	12	115/60/1	
EF-7	GREENHECK	SP-A50-90-VG	75	0.75	887	DIRECT	FORWARD CURVE	2.5	-	0.1	12	115/60/1	

HEAT PUMP UNIT SCHEDULE

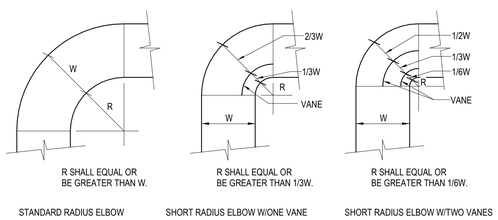
MARK	BASIS OF DESIGN		DESCRIPTION	REFRIGERANT	COOLING - MBH	HEATING - MBH	MCA	MOCP	VOLTAGE	COMMENTS
	MANUFACTURER	MODEL								
HP-1	TRANE	4TWR6	AIR SOURCE HEAT PUMP	R410	24	-	14	25	200/230/1/60	
HP-2	TRANE	4TWR6	AIR SOURCE HEAT PUMP	R410	24	-	14	25	200/230/1/60	

DIFFUSERS, REGISTERS AND GRILLES SCHEDULE

TAG	BASIS OF DESIGN		DESCRIPTION	BORDER TYPE	MATERIAL	SYSTEM TYPE	COMMENTS
	MANUFACTURER	MODEL					
RG-1	PRICE INDUSTRIES	99 SERIES	ALUMINUM GYMNASIUM RETURN GRILLE	FLAT SURFACE MOUNT	ALUMINUM	RETURN AIR	
SG-1	PRICE INDUSTIRES	620 SERIES	LOUVER FACE GRILLE SUPPLY	SURFACE MOUNT	ALUMINUM	SUPPLY AIR	



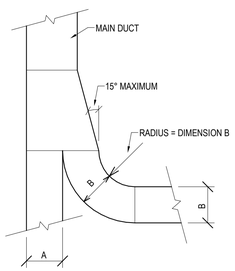
7 / M5 **ROOF TOP UNIT CURB DETAIL**
NOT TO SCALE



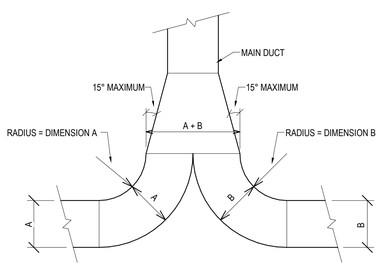
NOTES:

1. THE INTERIOR SURFACE OF ALL RADIUS ELBOWS SHALL BE MADE ROUND.
2. ALL STANDARD RADIUS ELBOWS SHOWN ON PLANS MAY BE MADE SHORT RADIUS ELBOWS.
   ALL SHORT RADIUS ELBOWS SHALL HAVE VANES. VANES SHALL BE CONSTRUCTED,SUPPORTED AND FASTENED AS RECOMMENDED BY SMACNA.

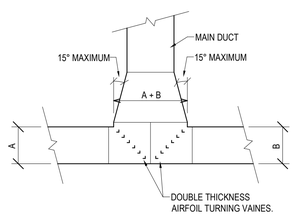
6 / M5 **TYPICAL DUCT RADIUS DETAIL**
NOT TO SCALE



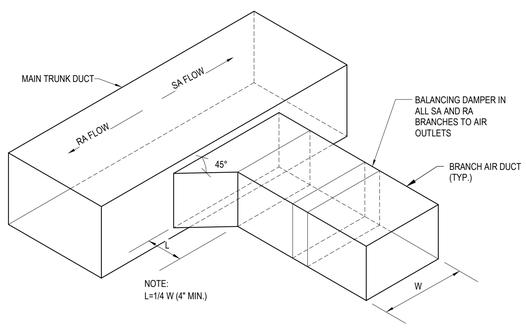
4 / M5 **DUCT FITTING DETAIL**
NOT TO SCALE



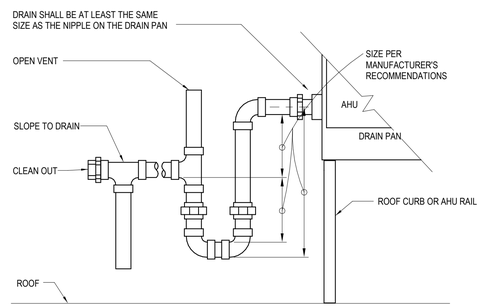
5 / M5 **DUCT FITTING DETAIL**
NOT TO SCALE



3 / M5 **DUCT FITTING DETAIL**
NOT TO SCALE



2 / M5 **SA/RA DUCT CONNECTION DETAIL**
NOT TO SCALE



1 / M5 **CONDENSATE TRAP DETAIL**
NOT TO SCALE

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WREN BUILDING
402 S. JEFFERSON ST, MASON, MI
MECHANICAL DETAILS AND SCHEDULES

DATE
8-20-18

PROJECT NO.
A1169

M5

402 S. JEFFERSON ST, MASON, MI WREN BUILDING
8/22/2018 4:01:15 PM

ABBREVIATIONS

A, AMP	AMPERES
AF	AMP FUSE OR AMP FRAME
AFC	AVAILABLE FAULT CURRENT (SYMMETRICAL)
A.F.F.	ABOVE FINISHED FLOOR
AIC.	AMPERE INTERRUPTING CAPACITY
AM.	AMMETER
ASYM.	ASYMMETRICAL
AT	AMP TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
C	CONDUIT
CAP.	CAPACITY OR CAPACITOR
CATV	COMMUNITY ANTENNA TELEVISION
CB	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CKT. /CCT	CIRCUIT
C.O.	CONDUIT ONLY
CONN.	CONNECT OR CONNECTION
CU	COPPER
DA	DURESS ALARM
DB	DOOR BELL
DISC.	DISCONNECT
DPST	DOUBLE POLE SINGLE THROW
EC	ELECTRICAL CONTRACTOR
EWC	ELECTRIC WATER COOLER (COORDINATE ACCESSIBILITY OF GFCI)
ELEC	ELECTRIC OR ELECTRICAL
ELEV	ELEVATION OR ELEVATOR
EMERG, EM	EMERGENCY
EPO	EMERGENCY POWER OFF
EMT	ELECTRICAL METAL TUBING
FIXT.	FIXTURE
FLA	FULL LOAD AMPERES
FLUOR.	FLUORESCENT
GRC,GCR	GALVANIZED RIGID CONDUIT
GEN	GENERATOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFI	GROUND FAULT INTERRUPTER
GRD,GND,G	GROUND
HID	HIGH INTENSITY DISCHARGE
HOA	HAND-OFF-AUTO
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM
HZ.	HERTZ
IMC	INTERMEDIATE METAL CONDUIT
I.G.	ISOLATED GROUND
INCAND.	INCANDESCENT
JB	JUNCTION BOX
KAIC	THOUSAND AMPERE INTERRUPTING CAPACITY
KVA	KILOVOLT AMPERES
KW	KILOWATT
KWH	KILOWATT HOUR
LTG	LIGHTING
LV	LOW VOLTAGE
MATV	MASTER ANTENNA TELEVISION
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MH	MANHOLE, METAL HALIDE OR MOUNTING HEIGHT
MLO	MAIN LUGS ONLY
N.C.	NORMALLY CLOSED
N.E.C.	NATIONAL ELECTRICAL CODE
N.I.C.	NOT IN CONTRACT
NF	NON FUSIBLE
N.O.	NORMALLY OPEN
NTS	NOT TO SCALE
OL	OVERLOADS
P	POLE
PB	PULLBOX
PH OR Ø	PHASE
PNL	PANEL
PR	PAIR
PVC	POLYVINYL CHLORIDE
PWR.	POWER
REC	RECEPTACLE
RGS	RIGID GALVANIZED STEEL
SOL	SOLENOID
SPDT	SINGLE POLE DOUBLE THROW
SPKR	SPEAKER
SPST	SINGLE POLE SINGLE THROW
SW.	SWITCH
SWBD	SWITCHBOARD
SYM	SYMMETRICAL
TEL	TELEPHONE
XFMR	TRANSFORMER
TTB	TELEPHONE TERMINAL BACKBOARD
TV	TELEVISION
TYP	TYPICAL
UG	UNDERGROUND
UON	UNLESS OTHERWISE NOTED
V	VOLT
VA	VOLT AMPERES
VD	VOLTAGE DROP
VM	VOLT METER
W	WATTS OR WIRE
W/	WITH
W/O	WITHOUT
WP	WEATHERPROOF
XP	EXPLOSION PROOF

GENERAL

MOUNTING HEIGHTS TO BE AS INDICATED, UON. MOUNTING HEIGHTS ARE TO CENTER OF DEVICE FROM FINISHED FLOOR OR GRADE, UON. SEE SPECIFICATION 16010 FOR ADDITIONAL REQUIREMENTS.

KEY NOTE REFERENCE SYMBOL. DENOTES "SEE KEY NOTE NO. 2"

FOOT ON DEVICE INDICATES WALL MOUNTED

DEMOLITION AND REMODEL

EXISTING ELECTRICAL ITEM TO BE REMOVED, UON.

EXISTING ELECTRICAL ITEM TO REMAIN

B — EXISTING ELECTRICAL ITEM TO BE REMOVED AND PROVIDED WITH A BLANK COVERPLATE

EXISTING ELECTRICAL CIRCUIT TO BE REMOVED SHOWN ONLY WHERE CLARIFICATION BETWEEN EXISTING TO REMAIN AND REMOVED ITEMS IS REQUIRED

SEE PLANS AND NOTES FOR DEVICES INTEND FOR REUSE AND / OR REPURPOSING.

CIRCUIT DESIGNATIONS

1LN1-1
PANEL NAME
POLE NUMBERS

BRANCH CIRCUIT HOMERUN. PROVIDE PHASE, NEUTRAL AND GROUND CONDUCTORS FOR EACH INDICATED CIRCUIT OR MULTI WIRE BRANCH AS REQUIRED. PROVIDE SWITCH LEGS FOR SWITCH CIRCUITING AS REQUIRED. PROVIDE EQUIPMENT GROUND WIRE IN ALL BRANCH CIRCUIT RACEWAYS/CIRCUITS. PROVIDE SEPARATE ISOLATED GROUND WIRE TO ALL ISOLATED GROUND DEVICES.

CONDUIT SIZE	MAX QUANTITY OF CONDUCTORS PER CONDUIT		
	CONDUCTOR SIZE		
	12	10	8
1/2 INCH	1 TO 4	1 TO 4	NA
3/4 INCH	5 TO 8	5 TO 6	1 TO 3
1 INCH	9 TO 13	7 TO 11	4 TO 5
SEE SPECIFICATONS FOR LIMITATIONS ON QUANTITY OF CURRENT CARRYING CONDUCTORS PER CONDUIT			

CONDUIT RISER UP

CONDUIT RISER DOWN

INDICATES CIRCUIT CONTINUATION

STUB INTO ACCESSIBLE CORRIDOR CEILING SPACE UNLESS OTHERWISE NOTED

CONDUIT SEAL FITTING FOR HAZARDOUS AREAS

CONDUIT SLEEVE

CAP END OF CONDUIT

CABLE OR CORD CONNECTED

LIGHTING

NOTE A: UPPER CASE ALPHANUMERIC SUBSCRIPT DENOTES FIXTURE TYPE. SEE SCHEDULE(S)

NOTE B: LOWER CASE LETTER SUBSCRIPT PROVIDED ADJACENT TO SWITCHING DEVICE AND ASSOCIATED LIGHT FIXTURE(S) WHERE REQUIRED FOR CLARIFICATION.

CEILING LIGHT OUTLET WITH FIXTURE CONNECTED TO NORMAL SOURCE

DIRECTIONAL AIMED FIXTURE AIM IN DIRECTION OF ARROW

WALL BRACKET LIGHT OUTLET WITH FIXTURE CONNECTED TO NORMAL SOURCE

RECESSED LIGHT OUTLET WITH FIXTURE CONNECTED TO NORMAL SOURCE

WALL BRACKET LIGHT OUTLET WITH FIXTURE CONNECTED TO NORMAL SOURCE

UNDERCABINET/ COUNTER LIGHT OUTLET OR STRIP LIGHT OUTLET WITH FIXTURE CONNECTED TO NORMAL SOURCE

LINEAR PENDANT/SUSPENDED LIGHT FIXTURE CONNECTED TO NORMAL SOURCE

EXIT LIGHT OUTLET WITH FIXTURE - SHADING INDICATES LOCATION OF FACE(S). ARROWS INDICATE DIRECTIONAL ARROWS WHERE REQUIRED. WALL MOUNTED SIGNS AT +90" CENTERED ABOVE DOOR WHERE APPLICABLE

EMERGENCY LIGHT FIXTURE WITH INTEGRAL BATTERY SOURCE AND HEADS

TRACK LIGHT OUTLET WITH FIXTURE. TYPE INDICATED, QUANTITY AND LENGTH AS SHOWN OR SCHEDULED

PENDANT LIGHT FIXTURE CONNECTED TO NORMAL SOURCE

LIGHTING STANDARD POLE FIXTURE, PROVIDE QUANTITY OF HEADS AND ORIENTATION AS INDICATED

LIGHTING STANDARD WITH POST-TOP FIXTURE

BOLLARD FIXTURE

CEILING LIGHT OUTLET WITH FIXTURE CONNECTED TO EMERGENCY SOURCE (LIFE SAFETY BRANCH)

WALL SCONCE LIGHT OUTLET WITH FIXTURE CONNECTED TO EMERGENCY SOURCE (LIFE SAFETY BRANCH)

LIGHT OUTLET WITH FIXTURE CONNECTED TO EMERGENCY SOURCE (LIFE SAFETY BRANCH)

LINEAR WALL LIGHT OUTLET WITH FIXTURE CONNECTED TO EMERGENCY SOURCE (LIFE SAFETY BRANCH)

SURFACE / STRIP LIGHT OUTLET WITH FIXTURE CONNECTED TO EMERGENCY SOURCE (LIFE SAFETY BRANCH)

PENDANT LIGHT FIXTURE CONNECTED TO EMERGENCY SOURCE (LIFE SAFETY BRANCH)

LINEAR PENDANT/SUSPENDED LIGHT FIXTURE CONNECTED TO EMERGENCY SOURCE (LIFE SAFETY BRANCH)

S — SWITCH AT +48" U.O.N.

THE FOLLOWING SUBSCRIPTS ARE USED TO INDICATE VARIOUS TYPES OF SWITCHES.

NO SUBSCRIPT - SINGLE POLE
2 — DOUBLE POLE
3 — THREE WAY
4 — FOUR WAY
D — DIMMER, COMPATIBLE WITH FIXTURE, LUTRON MAESTRO.
f — FUSED
L — PILOT LIGHT
LV — LOW VOLTAGE/DIGITAL SWITCH
OS — WALL SWITCH OCCUPANCY SENSOR, DUAL TECHNOLOGY.
DOS — WALL SWITCH OCCUPANCY SENSOR, DUAL TECHNOLOGY.
TE — MANUAL STARTER WITH THERMAL ELEMENT
XP — EXPLOSION PROOF
M — MOTOR RATED

PC — EXTERIOR PHOTOCELL. ON/OFF WITH ADJUSTABLE SET-POINT.

DH — DAYLIGHT HARVESTING SENSOR. ANALOG 0-10V OUTPUT WITH INTEGRAL MOTION SENSOR.

OS — CEILING / DIRECTIONAL / DIRECTIONAL WALL MOUNTED OCCUPANCY SENSOR DUAL TECHNOLOGY, WITH REQUIRED POWER PACKS.

TC — TIME CLOCK AT +48"

POWER AND DIAGRAMS

NOTE:
A. OUTLETS IN FINISHED OR SHELL SPACES SHALL BE MOUNTED AT +18" UON.
B. OUTLETS IN GARAGE, MECHANICAL, AND ELECTRICAL SPACES SHALL BE MOUNTED AT 48" UON.
C. OUTLETS SHALL BE TAMPER PROOF, WHERE REQUIRED PER CODE.
D. OUTLETS SHALL HAVE AFCI PROTECTION, WHERE REQUIRED PER CODE.
E. OUTLETS SHALL HAVE GFCI PROTECTION, WHERE REQUIRED PER CODE.

THE FOLLOWING SUBSCRIPTS ARE USED TO INDICATE DIFFERENT TYPES OF RECEPTACLES

WP — WEATHERPROOF, EXTRA DUTY, WITH STEEL IN-USE COVER.
CL — CLOCK MOUNTED AT +84", REGRESSED SINGLE RECEPTACLE, WITH CLOCK HANGER.
H — HORIZONTAL MOUNTING
U — DUAL USB INCLUDED WITH RECEPTACLE TYPE SHOWN.

TYPICAL SYMBOLOGY:

20A, 125V, 2 POLE, 3 WIRE GROUNDING DUPLEX RECEPTACLE, NEMA 5-20R

20A, 125V, 2 POLE, 3 WIRE GROUNDING SINGLE RECEPTACLE, NEMA 5-20R

20A, 125V, 2 POLE, 3 WIRE GROUNDING DOUBLE DUPLEX RECEPTACLE, NEMA 5-20R

250V, 2 POLE, 3 WIRE GROUNDING SINGLE RECEPTACLE, SIZE AND TYPE AS NOTED.

RECEPTACLES WITH GROUND FAULT CIRCUIT INTERRUPTOR

RECEPTACLES MOUNTED 4" ABOVE COUNTER OR BACK SPLASH AS APPLICABLE, UON.

RECEPTACLES WITH GFCI AND MOUNTED 4" ABOVE COUNTER OR BACK SPLASH AS APPLICABLE.

CEILING MOUNTED RECEPTACLE. TYPE AS INDICATED ABOVE.

CEILING MOUNTED GFCI RECEPTACLES, TYPE AS INDICATED ABOVE.

FLUSH FLOOR MOUNTED RECEPTACLE, TYPE AS INDICATED ABOVE.

FLUSH FLOOR MOUNTED RECEPTACLE, GFCI, TYPE AS INDICATED ABOVE.

PEDESTAL MOUNTED RECEPTACLE, TYPE AS INDICATED ABOVE.

SPECIAL PURPOSE RECEPTACLE. SUBSCRIPT DENOTES NEMA TYPE.

COMBINATION POWER/ COMMUNICATIONS FLOOR BOX, TYPE AND COMMUNICATIONS DEVICE AS INDICATED.

J — JUNCTION BOX. 4" SQUARE, UON. WALL AND CEILING MOUNTED.

PIGTAIL TO SWITCH DENOTES TOP HALF OF RECEPTACLE SWITCHED.

SURFACE RECEPTACLE STRIP. TYPE AND LENGTH AS INDICATED.

P — JUNCTION BOX. 4" SQUARE, UON. WALL AND CEILING MOUNTED.

208 VOLT PANELBOARD AT +72" TO TOP

480 VOLT PANELBOARD AT +72" TO TOP

CABLE TRAY OR WIREWAY

SAFETY SWITCH AT +54". CHARACTERISTICS AS INDICATED BY FRAME/POLES.

FUSED SAFETY SWITCH AT +54". CHARACTERISTICS AS INDICATED BY FRAME/FUSESIZE/POLES.

MAGNETIC MOTOR STARTER AT +54". CHARACTERISTICS AS INDICATED BY FRAME SIZE/POLES/NEMA SIZE.

COMBINATION MAGNETIC MOTOR STARTER WITH DISCONNECT AT +54". CHARACTERISTICS AS INDICATED BY FRAME/FUSE/POLES/NEMA SIZE

AFD — ADJUSTABLE FREQUENCY DRIVE WITH INTEGRAL CIRCUIT BREAKER DISCONNECT

MAGNETIC CONTACTOR AT +54". AMPS/POLES/CONTACT VOLTS/ COIL VOLTS AS INDICATED.

CB — SEPARATELY MOUNTED, ENCLOSED MOLDED CASE CIRCUIT BREAKER AT +48". FLUSH MOUNTED IN FINISHED AREAS. AMP/POLES AS INDICATED.

CIRCUIT BREAKER. AMP/POLES AS INDICATED

FUSE. SIZE AS INDICATED

FUSIBLE SWITCH. AMP/POLES/FUSE SIZE AS INDICATED

AUTOMATIC TRANSFER SWITCH +72" TO TOP OR FLOOR MOUNTED.

DISCONNECT STABS FOR DRAWOUT TYPE EQUIPMENT

TRANSFORMER

GROUND CONNECTION

MOTOR CONNECTION, HP AS INDICATED

G — GENERATOR

START-STOP PUSHBUTTON STATION AT +48"

GROUND BUS ON STANDOFFS

CONTROL PANEL:

EQUIPMENT OR TERMINAL CABINET AT +72" TO TOP

PS — POWER SUPPLY

PUSHBUTTON STATION AT +48"

FIRE DETECTION AND ALARM

FACP — CONTROL PANEL AT +72" TO TOP

FAA — FIRE ALARM ANNUNCIATOR PANEL AT +72" TO TOP

F — MANUAL STATION AT +48"

FIRE SUPPRESSION SYSTEM ABORT SWITCH STATION AT +48"

CO — COMBINATION CARBON MONOXIDE / SMOKE DETECTOR WITH ANNUNCIATION

SD — SMOKE DETECTOR - PHOTO ELECTRIC AREA BEAM

DD — DUCT SMOKE DETECTOR

FD — FIRE/ SMOKE DAMPER

HD — AUTOMATIC HEAT DETECTOR

THE FOLLOWING SUBSCRIPTS ARE USED TO INDICATE THE VARIOUS TYPE OF HEAT DETECTORS

NO SUBSCRIPT - FIXED TEMPERATURE (155 DEGREE U.O.N.)
R/F — COMBINATION RATE OF RISE FIXED TEMPERATURE (135 DEGREE U.O.N.)
XP — EXPLOSION PROOF, FIXED TEMPERATURE (135 DEGREE U.O.N.) CLASS 1, GROUP C

NOTE: WALL MOUNT VISUAL AND COMBINATION AUDIO/VISUAL NOTIFICATION APPLIANCES AT +80" AFF TO BOTTOM OF FACE PLATE U.O.N.

V — VISUAL NOTIFICATION APPLICANCE

A — WALL MOUNTED AUDIBLE NOTIFICATION APPLIANCE

AV — WALL MOUNTED COMBINATION AUDIBLE/VISUAL NOTIFICATION APPLIANCE

V — CEILING MOUNTED VISUAL NOTIFICATION APPLIANCE

A — CEILING MOUNTED AUDIBLE NOTIFICATION APPLIANCE

AV — CEILING MOUNTED COMBINATION AUDIBLE/VISUAL NOTIFICATION APPLIANCE

DH — MAGNETIC DOOR HOLDER. COORDINATE MOUNTING HEIGHT WITH DOOR MANUFACTURER.

FR — ELECTROMECHANICAL DOOR RELEASE. COORDINATE WITH DOOR MANUFACTURER.

FS — SPRINKLER OR STANDPIPE FLOW ALARM SWITCH CONNECTION

TS — VALVE TAMPER SWITCH

F — AIR PRESSURE MONITOR SWITCH FOR PRE-ACTION OR DRY PIPE SPRINKLER SYSTEM

TELECOMMUNICATION

GENERAL NOTES

NOTE A: OUTLETS IN FINISHED OR SHELL SPACES SHALL BE MOUNTED AT +18" UON.

NOTE B: OUTLETS LOCATED AT COUNTERS SHALL BE LOCATED 18"AFF IN KNEE SPACE IF PROVIDED OR 4" ABOVE COUNTER OR BACK SPLASH AS APPLICABLE IF NO KNEE SPACE IS PROVIDED UON.

NOTE C: WHERE ASTERISK (*) IS INDICATED NEXT TO OUTLET AT WORK COUNTER, OUTLET SHALL BE LOCATED ABOVE COUNTER RATHER THAN IN KNEE SPACE.

STANDARD TELECOMMUNICATIONS OUTLET - PROVIDE EXTRA DEEP DOUBLE GANG BOX WITH SINGLE GANG MUD RING AND (1) 1-1/4" CONDUITS TO ABOVE FINISHED CEILING, MOUNTED AT 18" AFF, UON. PROVIDE PLASTIC BUSHING AT THE ENDS OF THE CONDUITS. DATA DEVICES AND WIRING PROVIDED BY OTHERS, UON.

THE FOLLOWING SUBSCRIPTS ARE USED TO INDICATE THE VARIOUS (NON-STANDARD) TYPES OF OUTLETS

FLOOR MOUNTED.
CEILING MOUNTED.
MOUNTED 48" AFF, UON.
MOUNTED 72" AFF, UON.
TELEPHONE AT 44" AFF, UON.
TV — TELEVISION, MOUNTED AT NOTED HEIGHT.
B — BLANK (ROUGH-IN TO ACCESSABLE CEILING SPACE) WITH BLANK COVERPLATE
F — FIBER
— THE FIRST NUMBER INDICATES THE NUMBER OF CAT6 CABLES. THE SECOND NUMBER INDICATES THE TO QUANTITY OF JACK LOCATIONS.

C — CLOCK - SEE SPECIFICATIONS FOR REQUIREMENTS.

S — SPEAKER FOR PA SYSTEM.

DO — ADA DOOR CONTROL OPENER, COORDINATE WITH DOOR REQUIREMENTS

DC — DOOR CONTROLS, COORDINATE WITH SECURITY, AUTO AND MANUAL CONTROLS

SECURITY

FIXED VIDEO SURVEILANCE CAMERA

DOOR POSITION SWITCH

CONNECTION TO ELECTRIC OR PNEUMATIC DOOR LOCK

CR — CARD READER AT +48"

NOTE:
SYMBOLS SHOWN ARE FOR REFERENCE ONLY AND DO NOT CONSTITUTE A CHECK LIST OF DEVICES REQUIRED BY THE CONTRACT

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402 S. JEFFERSON ST, MASON, MI
ELECTRICAL TITLE SHEET

DATE
8-20-18

PROJECT NO.
A1169

E1

SECTION 26 0000

1. GENERAL ELECTRIC REQUIREMENTS

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. WORK INCLUDES ALL ELECTRICAL ITEMS AND SYSTEMS SHOWN ON THE CONTRACT DRAWINGS AND SPECIFIED HEREIN.

B. UNLESS SPECIFICALLY DIMENSIONED, THE WORK SHOWN ON THE DRAWINGS IS DIAGRAMMATIC AND IS INTENDED ONLY TO SHOW GENERAL ARRANGEMENT. CONTRACTOR IS RESPONSIBLE FOR VERIFICATION OF LOCATION, INCLUDING ELEVATIONS, BY COORDINATION WITH THE CONSTRUCTION MANAGER AND OTHER TRADES AS WELL AS ALL THE DRAWINGS, PARTICULARLY ARCHITECTURAL.

C. INCLUDE IN THE WORK ALL ACCESSORIES AND DEVICES NECESSARY FOR THE INTENDED OPERATION OF ANY SYSTEM, WHETHER OR NOT SPECIFICALLY SHOWN OR SPECIFIED.

1.02 STANDARDS OF QUALITY

A. THE SPECIFICATIONS ESTABLISH THE STANDARD OF QUALITY REQUIRED, EITHER BY DESCRIPTION OR BY REFERENCE TO BRAND NAME, NAME OF MANUFACTURERS OR MANUFACTURER'S MODEL NUMBER.

B. WHERE ONE PRODUCT ONLY IS SPECIFICALLY IDENTIFIED BY NAME OF MANUFACTURER'S MODEL NUMBER, THE CONTRACTOR SHALL BASE HIS BID ON THE USE OF THE NAME PRODUCT. WHERE MULTIPLE NAMES ARE USED THE CONTRACTOR SHALL BASE HIS BID ON THE USE OF ANY OF THOSE PRODUCTS NAMED.

C. WHEN EQUIPMENT AND/OR MATERIALS ARE PROPOSED TO BE PURCHASED FROM A MANUFACTURER OTHER THAN THOSE SPECIFIED, THE CONTRACTOR SHALL PROVIDE COMPLETE DATA ADEQUATE FOR THE ENGINEER'S EVALUATION OF THE PROPOSED SUBSTITUTION.

D. WHEN THE EQUIPMENT OTHER THAN THAT SPECIFIED IS USED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY EXTRA COST OF REQUIRED REVISIONS SUCH AS STRUCTURAL STEEL, CONCRETE, ELECTRICAL, PIPING, ETC. SUCH ADDITIONAL COSTS SHALL BE IDENTIFIED AT THE TIME SUCH SUBSTITUTIONS ARE PROPOSED.

1.03 SUMMARY

A. THIS SECTION INCLUDES GENERAL ADMINISTRATIVE AND PROCEDURAL REQUIREMENTS FOR ELECTRICAL INSTALLATIONS.

1. SUBMITTALS.
2. MAINTENANCE MANUALS.
3. ROUGH-INS.
4. ELECTRICAL INSTALLATIONS.

1.04 SUBMITTALS

A. THE CONTRACTOR SHALL REVIEW, APPROVE AND SUBMIT SHOP DRAWINGS WITH PROMPTNESS SO AS TO CAUSE NO DELAY IN HIS WORK OR IN THAT OF OTHERS. NO SUBMISSIONS WILL BE ACCEPTED BY THE ENGINEER WITHOUT THE SIGNED REVIEW AND APPROVAL OF THE CONTRACTOR.

B. THE CONTRACTOR SHALL CHECK AND VERIFY PERTINENT FIELD MEASUREMENTS, QUANTITIES OF EQUIPMENT AND MATERIALS REQUIRED.

C. SUBMITTALS SHALL BE IDENTIFIED BY REFERENCE TO THE DRAWINGS, SECTIONS OF SPECIFICATIONS OR EQUIPMENT SYMBOLS TO WHICH THEY RELATE.

D. SHOP DRAWINGS, WHEN REQUIRED, SHALL INCLUDE:

1. VERIFICATION OF INFORMATION GIVEN IN CONTRACT DOCUMENTS SUCH AS PERFORMANCE, DIMENSIONS, WEIGHT, MATERIALS, CONSTRUCTION, TYPES, MODELS, MANUFACTURER, ETC.
2. EQUIPMENT LAYOUTS DRAWN TO SCALE AS MAY BE REQUIRED.
3. WIRING DIAGRAMS AND SCHEMATICS FOR EQUIPMENT.
4. ANY SPECIAL CONSTRUCTION CONDITIONS.
5. OTHER INFORMATION/DATA AS MAY BE REQUESTED.

E. ALL SUBMITTALS SHALL IDENTIFY THE SPECIFIC DETAILS OF THE PRODUCT OR ASSEMBLY. ALL OPTIONAL FEATURES BEING PROPOSED SHALL BE SO NOTED OR THE SUBMITTAL WILL BE REJECTED.

F. REVIEW IS ONLY FOR GENERAL CONFORMANCE WITH THE DESIGN CONCEPT OF THE PROJECT AND GENERAL COMPLIANCE WITH THE INFORMATION GIVEN IN THE CONTRACT DOCUMENTS. ANY ACTION SHOWN IS SUBJECT TO THE REQUIREMENTS OF THE PLANS AND SPECIFICATION. CONTRACTOR IS RESPONSIBLE FOR DIMENSIONS WHICH SHALL BE CONFIRMED AND CORRELATED AT THE JOB SITE; FABRICATION PROCESSES AND TECHNIQUES OF CONSTRUCTION; COORDINATION OF HIS WORK WITH THAT OF ALL OTHER TRADES; AND THE SATISFACTORY PERFORMANCE OF HIS WORK.

G. FOR ITEMS BEING RESUBMITTED, CLEARLY IDENTIFY CHANGES MADE FROM THE INITIAL SUBMITTAL REQUESTED BY THE ENGINEER. THE ENGINEER WILL REVIEW ONLY THOSE CHANGES REQUESTED AND IDENTIFIED BY THE CONTRACTOR.

1.05 MAINTENANCE MANUALS

A. PREPARE MAINTENANCE MANUALS INCLUDING THE FOLLOWING INFORMATION FOR EQUIPMENT ITEMS:

1. DESCRIPTION OF FUNCTION, NORMAL OPERATING CHARACTERISTICS AND LIMITATIONS, PERFORMANCE CURVES, ENGINEERING DATA AND TESTS AND COMPLETE NOMENCLATURE AND COMMERCIAL NUMBERS OF REPLACEMENT PARTS.

1.06 DELIVERY, STORAGE AND HANDLING

A. DELIVER PRODUCTS TO THE PROJECT PROPERLY IDENTIFIED WITH NAMES, MODEL NUMBERS, TYPES, GRADES, COMPLIANCE LABELS AND OTHER INFORMATION NEEDED FOR IDENTIFICATION.

B. PERMITS, FEES AND CERTIFICATES OF APPROVAL

C. CONTRACTOR SHALL ACQUIRE ALL PERMITS AND CERTIFICATES.

1.07 COMPLIANCE WITH CODES, STANDARDS AND REGULATIONS

A. IN THE ABSENCE OF SPECIFIC INSTRUCTION IN THE TECHNICAL SPECIFICATIONS, EQUIPMENT AND INSTALLATION SHALL CONFORM TO THE FOLLOWING APPLICABLE CODES, STANDARDS AND REGULATIONS, LATEST EDITIONS:

1. AMERICAN SOCIETY FOR TESTING MATERIALS (ASTM).
2. AMERICAN NATIONAL STANDARD INSTITUTE (ANSI).
3. UNDERWRITER'S LABORATORIES, INC. (UL).
4. AMERICANS WITH DISABILITIES ACT (ADA).
5. LOCAL BUILDING, ELECTRICAL, AND FIRE CODES.
6. NATIONAL ELECTRICAL CODE (NEC).
7. NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION (NEMA).
8. NATIONAL FIRE PROTECTION ASSOCIATION (NFPA).

PART 2 - EXECUTION

2.01 ROUGH-IN

A. VERIFY FINAL LOCATIONS FOR ROUGH-INS WITH FIELD MEASUREMENTS AND WITH REQUIREMENTS OF THE ACTUAL EQUIPMENT TO BE CONNECTED.

2.02 ELECTRICAL INSTALLATIONS

A. GENERAL: SEQUENCE, COORDINATE, AND INTEGRATE THE VARIOUS ELEMENTS OF ELECTRICAL SYSTEMS, MATERIALS, AND EQUIPMENT. COMPLY WITH THE FOLLOWING REQUIREMENTS:

B. IN THE ABSENCE OF SPECIFIC INSTRUCTION IN THE TECHNICAL SPECIFICATIONS, EQUIPMENT AND INSTALLATION SHALL CONFORM TO THE FOLLOWING APPLICABLE CODES, STANDARDS AND REGULATIONS, LATEST EDITIONS:

1. COORDINATE ELECTRICAL SYSTEMS, EQUIPMENT, AND MATERIALS INSTALLATION WITH OTHER BUILDING COMPONENTS.
2. VERIFY ALL DIMENSIONS BY FIELD MEASUREMENTS.
3. INSTALL SYSTEMS, MATERIALS, AND EQUIPMENT TO CONFORM WITH APPROVED SUBMITTAL DATA, INCLUDING COORDINATION DRAWINGS, TO GREATEST EXTENT POSSIBLE. CONFORM TO ARRANGEMENTS INDICATED BY THE CONTRACT DOCUMENTS, RECOGNIZING THAT PORTIONS OF THE WORK ARE SHOWN ONLY IN DIAGRAMMATIC FORM. WHERE COORDINATION REQUIREMENTS CONFLICT WITH INDIVIDUAL SYSTEM REQUIREMENTS, REFER CONFLICT TO THE ENGINEER.

2.03 UTILITY COMPANY ELECTRICITY-METERING EQUIPMENT

A. INSTALL EQUIPMENT ACCORDING TO UTILITY COMPANY'S WRITTEN REQUIREMENTS. PROVIDE GROUNDING AND EMPTY CONDUITS AS REQUIRED BY UTILITY COMPANY. VERIFY PAD AND CLEARANCE REQUIREMENTS FOR ALL EQUIPMENT. LOCATE ESSENTIALLY AS SHOWN ON THE PLANS. NOTIFY ENGINEER AND CONSTRUCTION MANAGER IF LOCATIONS, SIZES AND OR QUANTITY OF EQUIPMENT ARE NOT AS SHOWN, PRIOR TO INSTALLATION.

2.04 FIRESTOPPING

A. APPLY FIRE STOPPING TO CABLE AND RACEWAY PENETRATIONS OF FIRE-RATED FLOOR AND WALL ASSEMBLIES TO ACHIEVE FIRE-RESISTANCE RATING OF THE ASSEMBLY.

2.05 CONCRETE BASES

A. COORDINATE CONCRETE WORK WITH DIVISION 3 SECTION "CAST-IN-PLACE CONCRETE" AND WITH DRAWINGS.

B. CONSTRUCT CONCRETE BASES OF DIMENSIONS INDICATED, BUT NOT LESS THAN 4 INCHES LARGER, IN BOTH DIRECTIONS, THAN SUPPORTED UNIT. FOLLOW SUPPORTED EQUIPMENT MANUFACTURER'S ANCHORAGE RECOMMENDATIONS AND SETTING TEMPLATES FOR ANCHOR-BOLT AND TIE LOCATIONS, UNLESS OTHERWISE INDICATED. USE 3000-PSI, 28-DAY COMPRESSIVE-STRENGTH CONCRETE. CHAMFER OR ROUND EXPOSED EDGES SMOOTH.

2.06 DEMOLITION

A. PROTECT EXISTING ELECTRICAL EQUIPMENT AND INSTALLATIONS INDICATED TO REMAIN. IF DAMAGED OR DISTURBED IN THE COURSE OF THE WORK, REMOVE DAMAGED PORTIONS AND INSTALL NEW PRODUCTS OF EQUAL CAPACITY, QUALITY, AND FUNCTIONALITY.

B. ACCESSIBLE WORK: REMOVE EXPOSED ELECTRICAL EQUIPMENT AND INSTALLATIONS, INDICATED TO BE DEMOLISHED, IN THEIR ENTIRETY.

C. ABANDONED WORK: CUT AND REMOVE BURIED RACEWAY AND WIRING, INDICATED TO BE ABANDONED IN PLACE, 2 INCHES BELOW THE SURFACE OF ADJACENT CONSTRUCTION. CAP RACEWAYS AND PATCH SURFACE TO MATCH EXISTING FINISH.

D. MAKE AVAILABLE TO OWNER ANY SALVAGEABLE ITEMS REMOVED, IF NOT DESIRED BY OWNER, REMOVE DEMOLISHED MATERIAL FROM PROJECT SITE.

E. REMOVE, STORE, CLEAN, REINSTALL, RECONNECT, AND MAKE OPERATIONAL COMPONENTS INDICATED FOR RELOCATION.

F. PROVIDE COVERS FOR ALL OUTLETS, BOXES, FITTINGS, ENCLOSURES OR WIREWAYS. PROVIDE BLANK COVERS FOR RECEPTACLE AND SWITCH BOXES TO MATCH COLOR AND MATERIAL SPECIFIED FOR DEVICE COVERS. PROVIDE MATERIAL AND FINISH TO MATCH BOXES, FITTINGS, ENCLOSURES AND WIREWAYS.

2.07 CUTTING AND PATCHING

A. CUT, CHANNEL, CHASE, AND DRILL FLOORS, WALLS, PARTITIONS, CEILINGS, AND OTHER SURFACES REQUIRED TO PERMIT ELECTRICAL INSTALLATIONS. PERFORM CUTTING BY SKILLED MECHANICS OF TRADES INVOLVED.

B. REPAIR AND REFINISH DISTURBED FINISH MATERIALS AND OTHER SURFACES TO MATCH ADJACENT UNDISTURBED SURFACES. INSTALL NEW FIREPROOFING WHERE EXISTING FIRE-STOPPING HAS BEEN DISTURBED. REPAIR AND REFINISH MATERIALS AND OTHER SURFACES BY SKILLED MECHANICS OF TRADES INVOLVED.

2.08 FIELD QUALITY CONTROL

A. TEST ALL SYSTEMS AND EQUIPMENT FOR PROPER OPERATION, ACCURACY AND SUITABILITY. MAKE CORRECTIONS TO THE SATISFACTION OF THE OWNER AND DESIGN TEAM.

2.09 REFINISHING AND TOUCHUP PAINTING

A. REFINISH AND TOUCH UP PAINT:

1. CLEAN DAMAGED AND DISTURBED AREAS AND APPLY PRIMER, INTERMEDIATE, AND FINISH COATS TO SUIT THE DEGREE OF DAMAGE AT EACH LOCATION.
2. FOLLOW PAINT MANUFACTURER'S WRITTEN INSTRUCTIONS FOR SURFACE PREPARATION AND FOR TIMING AND APPLICATION OF SUCCESSIVE COATS.
3. REPAIR DAMAGE TO GALVANIZED FINISHES WITH ZINC-RICH PAINT RECOMMENDED BY MANUFACTURER.
4. REPAIR DAMAGE TO PVC OR PAINT FINISHES WITH MATCHING TOUCHUP COATING RECOMMENDED BY MANUFACTURER.

2.10 CLEANING AND PROTECTION

A. ON COMPLETION OF INSTALLATION, INCLUDING OUTLETS, FITTINGS, AND DEVICES, INSPECT EXPOSED FINISH. REMOVE BURRS, DIRT, PAINT SPOTS, AND CONSTRUCTION DEBRIS.

B. PROTECT EQUIPMENT AND INSTALLATIONS AND MAINTAIN CONDITIONS TO ENSURE THAT COATINGS, FINISHES, AND CABINETS ARE WITHOUT DAMAGE OR DETERIORATION AT TIME OF SUBSTANTIAL COMPLETION.

2. LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES (600 V AND LESS)

PART 1 - PRODUCTS

1.01 WIRING REQUIREMENTS

A. CONCEALED DRY INTERIOR LOCATIONS: USE ONLY BUILDING WIRE WITH TYPE THHN-THWN INSULATION IN RACEWAY, ARMORED CABLE, OR METAL CLAD CABLE.

B. EXPOSED DRY INTERIOR LOCATIONS: USE ONLY BUILDING WIRE WITH TYPE THHN-THWN INSULATION IN RACEWAY.

C. ABOVE ACCESSIBLE CEILINGS: USE ONLY BUILDING WIRE WITH TYPE THHN-THWN INSULATION IN RACEWAY OR ARMORED CABLE FOR FIXTURE "WHIPS" ONLY, NOT TO EXCEED 6 FOOT EACH.

D. EXTERIOR LOCATIONS: USE ONLY BUILDING WIRE WITH TYPE THHN-THWN INSULATION IN RACEWAY.

E. UNDERGROUND INSTALLATIONS: USE ONLY BUILDING WIRE WITH TYPE THHN-THWN INSULATION IN RACEWAY.

F. USE CONDUCTOR NOT SMALLER THAN 12 AWG FOR POWER AND LIGHTING CIRCUITS.

G. USE 10 AWG CONDUCTORS FOR 20 AMPERE, 120 VOLT BRANCH CIRCUITS LONGER THAN 75 FEET.

H. CONDUCTOR SIZES ARE BASED ON COPPER.

1.02 BUILDING WIRE

A. DESCRIPTION: SINGLE CONDUCTOR INSULATED WIRE.

B. CONDUCTOR: COPPER.

C. INSULATION VOLTAGE RATING: 600 VOLTS.

1.03 ARMORED CABLE

A. INSULATION VOLTAGE RATING: 600 VOLTS.

B. CONDUCTOR: COPPER.

C. DESCRIPTION: NFPA 70, TYPE AC.

PART 2 - EXECUTION

2.01 EXAMINATION

A. VERIFY THAT RACEWAY INSTALLATION IS COMPLETE AND SUPPORTED.

B. VERIFY THAT MECHANICAL WORK LIKELY TO DAMAGE WIRE AND CABLE HAS BEEN COMPLETED.

C. VERIFY THAT INTERIOR OF BUILDING HAS BEEN PROTECTED FROM WEATHER.

2.02 INSTALLATION

A. INSTALL WIRE AND CABLE SECURELY, IN A NEAT AND WORKMANLIKE MANNER, AS SPECIFIED IN NECA 1.

B. IDENTIFY AND COLOR CODE WIRE AND CABLE AS SPECIFIED. IDENTIFY EACH CONDUCTOR WITH ITS CIRCUIT NUMBER OR OTHER DESIGNATION INDICATED.

C. USE WIRING METHODS INDICATED.

D. PULL ALL CONDUCTORS INTO RACEWAY AT SAME TIME.

E. USE SUITABLE WIRE PULLING LUBRICANT FOR BUILDING WIRE 4 AWG AND LARGER.

F. ROUTE WIRE AND CABLE AS REQUIRED TO MEET PROJECT CONDITIONS.

3. GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. PROVIDE ALL COMPONENTS NECESSARY TO COMPLETE THE GROUNDING SYSTEM(S) CONSISTING OF:

1. METAL UNDERGROUND WATER PIPE.
2. METAL FRAME OF THE BUILDING.
3. ROD ELECTRODES.

PART 2 - PRODUCTS

2.01 ELECTRODES

A. ROD ELECTRODES: COPPER-CLAD STEEL.

1. DIAMETER: 5/8 INCH.
2. LENGTH: 8 FEET.

2.02 CONNECTORS AND ACCESSORIES

A. GROUNDING CONDUCTORS.

1. EQUIPMENT GROUNDING CONDUCTORS: INSULATED WITH GREEN-COLORED INSULATION.
2. GROUNDING ELECTRODE CONDUCTOR: STRANDED COPPER CABLE.
3. GROUNDING BUS: BARE, ANNEALED COPPER BARS OF RECTANGULAR CROSS SECTION, MINIMUM 1/4", MOUNTED ON INSULATORS.

PART 3 - EXECUTION

3.01 INSTALLATION

A. PROVIDE GROUNDING ELECTRODE CONDUCTOR AND CONNECT TO REINFORCING STEEL IN FOUNDATION FOOTING. BOND STEEL TOGETHER.

B. INSTALL GROUND ELECTRODES AT LOCATIONS INDICATED.

C. INSTALL GROUNDING TO COMPLY WITH UTILITY COMPANY REQUIREMENTS AND THE NEC. PROVIDE A MINIMUM THREE DRIVEN GROUND RODS SPACED AT LEAST 8' APART.

4. HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.01 REFERENCES

A. NECA 1 - STANDARD PRACTICES FOR GOOD WORKMANSHIP IN ELECTRICAL CONTRACTING; NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION; 2006.

B. NFPA 70 - NATIONAL ELECTRICAL CODE; NATIONAL FIRE PROTECTION ASSOCIATION; 2005.

PART 2 - EXECUTION

2.01 INSTALLATION

A. INSTALL HANGERS AND SUPPORTS AS REQUIRED TO ADEQUATELY AND SECURELY SUPPORT ELECTRICAL SYSTEM COMPONENTS, IN A NEAT AND WORKMANLIKE MANNER, AS SPECIFIED IN NECA 1.

1. DO NOT FASTEN SUPPORTS TO PIPES, DUCTS, MECHANICAL EQUIPMENT, OR CONDUIT.

B. IN WET AND DAMP LOCATIONS USE STEEL CHANNEL SUPPORTS TO STAND CABINETS AND PANELBOARDS 1 INCH OFF WALL.

C. INSTALL SURFACE-MOUNTED CABINETS AND PANELBOARDS WITH MINIMUM OF FOUR ANCHORS.

D. RIGIDLY WELD SUPPORT MEMBERS OR USE HEXAGON-HEAD BOLTS TO PRESENT NEAT APPEARANCE WITH ADEQUATE STRENGTH AND RIGIDITY. USE SPRING LOCK WASHERS UNDER ALL NUTS.

5. CONDUIT

PART 1 - GENERAL

1.03 QUALITY ASSURANCE

A. CONFORM TO REQUIREMENTS OF NFPA 70.

PART 2 - PRODUCTS

2.01 CONDUIT REQUIREMENTS

A. CONDUIT SIZE: COMPLY WITH NFPA 70.

1. MINIMUM SIZE: 3/4 INCH UNLESS OTHERWISE SPECIFIED.

B. UNDERGROUND INSTALLATIONS: USE THICKWALL NON-METALLIC CONDUIT.

C. WET AND DAMP LOCATIONS: USE RIGID STEEL CONDUIT OR INTERMEDIATE METAL CONDUIT.

D. DRY LOCATIONS:

1. CONCEALED: USE ELECTRICAL METALLIC TUBING.
2. EXPOSED: USE ELECTRICAL METALLIC TUBING.

2.02 METAL CONDUIT

A. RIGID STEEL CONDUIT: ANSI C80.1.

B. INTERMEDIATE METAL CONDUIT (IMC): RIGID STEEL.

C. FITTINGS AND CONDUIT BODIES: NEMA FB 1; ALL STEEL FITTINGS.

2.02 FLEXIBLE METAL CONDUIT

A. DESCRIPTION: INTERLOCKED STEEL CONSTRUCTION.

B. FITTINGS: NEMA FB 1.

2.04 LIQUIDTIGHT FLEXIBLE METAL CONDUIT

A. DESCRIPTION: INTERLOCKED STEEL CONSTRUCTION WITH PVC JACKET.

B. FITTINGS: NEMA FB 1.

2.05 ELECTRICAL METALLIC TUBING (EMT)

A. DESCRIPTION: ANSI C80.3; GALVANIZED TUBING.

B. FITTINGS AND CONDUIT BODIES: NEMA FB 1; STEEL SET SCREW TYPE.

2.06 NONMETALLIC CONDUIT

A. DESCRIPTION: NEMA TC 2; SCHEDULE 40 PVC.

B. FITTINGS AND CONDUIT BODIES: NEMA TC 3.

PART 3 - EXECUTION

3.01 EXAMINATION

A. VERIFY ROUTING AND TERMINATION LOCATIONS OF CONDUIT PRIOR TO ROUGH-IN.

3.02 INSTALLATION

A. INSTALL CONDUIT SECURELY, IN A NEAT AND WORKMANLIKE MANNER, AS SPECIFIED IN NECA 1.

B. INSTALL STEEL CONDUIT AS SPECIFIED IN NECA 101.

C. INSTALL NONMETALLIC CONDUIT IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

D. DO NOT ATTACH CONDUIT TO CEILING SUPPORT WIRES.

E. ROUTE EXPOSED CONDUIT PARALLEL AND PERPENDICULAR TO WALLS.

F. ROUTE CONDUIT INSTALLED ABOVE ACCESSIBLE CEILINGS PARALLEL AND PERPENDICULAR TO WALLS.

G. INSTALL NO MORE THAN EQUIVALENT OF THREE 90 DEGREE BENDS BETWEEN BOXES. USE CONDUIT BODIES TO MAKE SHARP CHANGES IN DIRECTION, AS AROUND BEAMS. USE HYDRAULIC ONE SHOT BENDER TO FABRICATE BENDS IN METAL CONDUIT LARGER THAN 2 INCH SIZE.

H. AVOID MOISTURE TRAPS; PROVIDE JUNCTION BOX WITH DRAIN FITTING AT LOW POINTS IN CONDUIT SYSTEM.

I. PROVIDE SUITABLE PULL STRING IN EACH EMPTY CONDUIT EXCEPT SLEEVES AND NIPPLES.

J. GROUND AND BOND CONDUIT PER THE NEC.

3.03 INTERFACE WITH OTHER PRODUCTS

A. ROUTE CONDUIT THROUGH ROOF OPENINGS FOR PIPING AND DUCTWORK WHEREVER POSSIBLE. WHERE SEPARATE ROOFING PENETRATION IS REQUIRED, COORDINATE LOCATION AND INSTALLATION METHOD WITH ROOFING INSTALLATION SPECIFIED IN SECTION FOR ROOFING.

6. BOXES

PART 1 - GENERAL

1.01 QUALITY ASSURANCE

A. CONFORM TO REQUIREMENTS OF NFPA 70.

B. PRODUCTS: PROVIDE PRODUCTS LISTED AND CLASSIFIED BY UNDERWRITERS LABORATORIES INC., AS SUITABLE FOR THE PURPOSE SPECIFIED AND INDICATED.

PART 2 - PRODUCTS

2.01 OUTLET BOXES

A. SHEET METAL OUTLET BOXES: NEMA OS 1, GALVANIZED STEEL.

1. LUMINAIRE AND EQUIPMENT SUPPORTING BOXES: RATED FOR WEIGHT OF EQUIPMENT SUPPORTED; INCLUDE 1/2 INCH MALE FIXTURE STUDS WHERE REQUIRED.

2.02 PULL AND JUNCTION BOXES

A. SHEET METAL BOXES: NEMA OS 1, GALVANISED STEEL.

B. HINGED ENCLOSURES: AS SPECIFIED IN SECTION 26 2716.

PART 3 - EXECUTION

3.01 EXAMINATION

A. VERIFY LOCATIONS OF FLOOR BOXES AND OUTLETS IN OFFICES AND WORK AREAS PRIOR TO ROUGH-IN.

3.02 INSTALLATION

A. INSTALL IN LOCATIONS AS SHOWN ON DRAWINGS, AND AS REQUIRED FOR SPLICES, TAPS, WIRE PULLING, EQUIPMENT CONNECTIONS, AND AS REQUIRED BY NFPA 70.

B. SET WALL MOUNTED BOXES AT ELEVATIONS TO ACCOMMODATE MOUNTING HEIGHTS INDICATED.

C. INSTALL PULL BOXES AND JUNCTION BOXES ABOVE ACCESSIBLE CEILINGS AND IN UNFINISHED AREAS ONLY.

D. COORDINATE MOUNTING HEIGHTS AND LOCATIONS OF OUTLETS MOUNTED ABOVE COUNTERS, BENCHES, AND BACKSPLASHES.

E. LOCATE OUTLET BOXES TO ALLOW LUMINAIRES POSITIONED AS SHOWN ON REFLECTED CEILING PLAN.

F. ALIGN ADJACENT WALL MOUNTED OUTLET BOXES FOR SWITCHES, THERMOSTATS, AND SIMILAR DEVICES.

G. USE FLUSH MOUNTING OUTLET BOX IN FINISHED AREAS.

H. USE GANG BOX WHERE MORE THAN ONE DEVICE IS MOUNTED TOGETHER. DO NOT USE SECTIONAL BOX.

I. USE CAST OUTLET BOX IN EXTERIOR LOCATIONS EXPOSED TO THE WEATHER AND WET LOCATIONS.

7. IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. NAMEPLATES AND LABELS.

B. WIRE AND CABLE MARKERS.

C. CONDUIT MARKERS.

D. FIELD-PAINTED IDENTIFICATION OF CONDUIT.

PART 2 - GENERAL

2.01 NAMEPLATES AND LABELS

A. NAMEPLATES: ENGRAVED THREE-LAYER LAMINATED PLASTIC, BLACK LETTERS ON WHITE BACKGROUND.

B. LOCATIONS:

1. EACH ELECTRICAL DISTRIBUTION AND CONTROL EQUIPMENT ENCLOSURE.

C. LETTER SIZE:

1. USE 1/8 INCH LETTERS FOR IDENTIFYING INDIVIDUAL EQUIPMENT AND LOADS.

D. LABELS: EMBOSSED ADHESIVE TAPE, WITH 3/16 INCH WHITE LETTERS ON BLACK BACKGROUND. USE ONLY FOR IDENTIFICATION OF INDIVIDUAL WALL SWITCHES AND RECEPTACLES, CONTROL DEVICE STATIONS, AND OTHER OUTLETS, WHERE INDICATED FOR SPECIFIC PURPOSES OR AS A DEDICATED CIRCUIT.

2.02 WIRE MARKERS

A. DESCRIPTION: CLOTH OR TAPE TYPE WIRE MARKERS.

B. LOCATIONS: EACH CONDUCTOR AT PANELBOARD GUTTERS AND OUTLET BOXES EACH LOAD CONNECTION.

C. LEGEND:

1. POWER AND LIGHTING CIRCUITS: BRANCH CIRCUIT OR FEEDER NUMBER INDICATED ON DRAWINGS.

2.03 CONNECTORS AND ACCESSORIES

A. SPACING: 20 FEET ON CENTER.

B. COLOR:

1. FIRE ALARM SYSTEM: RED.
2. TELECOMMUNICATION SYSTEM: GREEN AND YELLOW.
3. MECHANICAL AND ELECTRICAL SUPERVISOR SYSTEM: GREEN AND BLUE.

PART 3 - EXECUTION

3.01 INSTALLATION

A. INSTALL NAMEPLATES AND LABELS PARALLEL TO EQUIPMENT LINES.

B. SECURE NAMEPLATES TO EQUIPMENT FRONT USING SCREWS.

C. SECURE NAMEPLATES TO INSIDE SURFACE OF DOOR ON PANELBOARD THAT IS RECESSED IN FINISHED LOCATIONS.

D. IDENTIFY UNDERGROUND CONDUITS USING UNDERGROUND WARNING TAPE. INSTALL ONE TAPE PER TRENCH AT 3 INCHES BELOW FINISHED GRADE.

8. LOW-VOLTAGE TRANSFORMERS

PART 1 - GENERAL

1.01 SUBMITTALS

A. PRODUCT DATA: PROVIDE OUTLINE AND SUPPORT POINT DIMENSIONS OF ENCLOSURES AND ACCESSORIES, UNIT WEIGHT, VOLTAGE, KVA, AND IMPEDANCE RATINGS AND CHARACTERISTICS, TAP CONFIGURATIONS, INSTUALTION SYSTEMS TYPE, AND RATED TAMPERATURE RISE.

PART 2 - PRODUCTS

2.01 MANUFACTURER

A. EATON ELECTRICAL/CUTTER-HAMMER

B. GE INDUSTRIAL

C. SQUARE D

D. SIEMENS

2.02 INSTALLATION

A. DESCRIPTION: NEMA ST 20, FACTORY-ASSEMBLED, AIR COOLED DRY TYPE TRANSFORMERS, RATINGS AS INIDCATED.

B. PRIMARY VOLTAGE: 480 VOLTS, 3 PHASE.

C. SECONDARY VOLTAGE: 208/120 VOLT, 3 PHASE

D. INSULATION SYSTEM AND AVERAGE WINDING TEMPERATURE RISE RATED KVA AS FOLLOWS:

1. 16-500 KVA: CLASS 220 WITH 80 DEGREES C RISE.

E. WINDING TAPS:

1. TRANSFORMERS 15 KVA AND LARGER: NEMA ST 20.

F. SOUND LEVELS: NEMA ST 20.

G. GROUND CORE AND COIL ASSEMBLY TO ENCLOSURE BY MEANS OF A VISIBLE FLEXIBLE COPPER GROUND STRAP.

H. MOUNTING:

1. 16-75 KVA: SUITABLE FOR WALL MOUNTING.

I. COIL CONDUCTORS: CONTINOUS WINIDINGS WITH TERMINATIONS BRAZED OR WELDED.

J. TRANSFORMER ENCLOSURE: NEMA ST 20.

1. TYPE 1.
2. PROVIDE LIFTING EYES OR BRACKETS.

K. ISOLATE CORE AND COIL FROM ENCLOSURE USING VIBRATION-ABSORBING MOUNTS.

L. NAMEPLATE: INCLUDE TRANSFORMER CONNECTION DATA AND OVERLOAD CAPACITY BASED ON RATED ALLOWABLE TEMPERATURE RISE.

PART 3 - EXECUTION

3.01 INSTALLATION

A. SET TANSFORMERS PLUMB AND LEVEL.

B. USE FLEXIBLE CONDUIT, 2 FEET MINIMUM LENGTH, FOR CONNECTIONS TO TANSFORMER CASE. MAKE CONDUIT CONNECTIONS TO SIDE PANEL ENCLOSURE.

C. MOUNT WALL - MOUNTED TRANSFORMER USING INTEGRAL FLANGES OR ACCESSORY BRACKETS FURNISHED B Y THE MANUFACTURER.

D. MOUNT FLOOR - MOUNTED TRANSFORMER ON VIBRATION ISOLATING PADS SUITABLE FOR ISOLATING THE TRANSFORMER NOISE FROM THE BUILDING STRUCTURE.

E. PROVIDE GROUNDING AND BONDING IN ACCORDANCE WITH NFPA 70.

3.02 ADJUSTING

A. MEASURE PRIMARY AND SECONDARY VOLTAGES AND MAKE APPROPRIATE TAP ADJUSTMENTS.

9. PANELBOARDS

PART 1 - GENERAL

1.01 SUBMITTALS

A. SHOP DRAWINGS: INDICATE OUTLINE AND SUPPORT POINT DIMENSIONS, VOLTAGE, MAIN BUS AMPACITY, INTEGRATED SHORT CIRCUIT AMPERE RATING, CIRCUIT BREAKER AND FUSIBLE SWITCH ARRANGEMENT AND SIZES.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. EATON ELECTRICAL/CUTLER-HAMMER

B. GE INDUSTRIAL

C. SQUARE D

D. SIEMENS ENERGY & AUTOMATION, INC.

2.02 LIGHTING AND APPLIANCE PANELBOARDS

A. DESCRIPTION: NEMA PB1, CIRCUIT BREAKER TYPE, LIGHTING AND APPLIANCE BRANCH CIRCUIT PANELBOARD.

B. PANELBOARD BUS: COPPER, RATINGS AS INDICATED. PROVIDE COPPER GROUND BUS IN EACH PANELBOARD; PROVIDE INSULATED GROUND BUS WHERE SCHEDULED.

C. MINIMUM INTEGRATED SHORT CIRCUIT RATING: AS INDICATED.

D. MOLDED CASE CIRCUIT BREAKERS: THERMAL MAGNETIC TRIP CIRCUIT BREAKERS, BOLT-ON TYPE, WITH COMMON TRIP HANDLE FOR ALL POLES; UL LISTED.

1. TYPE SWD FOR LIGHTING CIRCUITS.
2. TYPE HACR FOR AIR CONDITIONING EQUIPMENT CIRCUITS.
3. DO NOT USE TANDEM CIRCUIT BREAKERS.

E. ENCLOSURE: NEMA PB 1, TYPE 1.

F. CABINET BOX: 6 INCHES DEEP, 20 INCHES WIDE FOR 240 VOLT AND LESS PANELBOARDS, 20 INCHES WIDE FOR 480 VOLT PANELBOARDS.

G. CABINET FRONT: SURFACE CABINET FRONT WITH CONCEALED TRIM CLAMPS, CONCEALED HINGE, METAL DIRECTORY FRAME, AND FLUSH LOCK ALL KEYED ALIKE. FINISH IN MANUFACTURER'S STANDARD GRAY ENAMEL.

PART 3 - EXECUTION

3.01 INSTALLATION

A. INSTALL PANELBOARDS IN ACCORDANCE WITH NEMA PB 1.1 AND NECA 1.

B. INSTALL PANELBOARDS PLUMB. INSTALL RECESSED PANELBOARDS FLUSH WITH WALL FINISHES.

C. HEIGHT: 6 FEET TO TOP OF PANELBOARD; INSTALL PANELBOARDS TALLER THAN 6 FEET WITH BOTTOM NO MORE THAN 4 INCHES ABOVE FLOOR.

D. PROVIDE TYPED CIRCUIT DIRECTORY FOR EACH BRANCH CIRCUIT PANELBOARD.

E. PROVIDE ENGRAVED PLASTIC NAMEPLATES.

F. GROUND AND BOND PANELBOARD ENCLOSURE ACCORDING TO NFPA 70.

10. WIRING DEVICES

PART 1 - GENERAL

1.01 SUBMITTALS

A. PRODUCT DATA: PROVIDE MANUFACTURER'S CATALOG INFORMATION SHOWING DIMENSIONS, COLORS, AND CONFIGURATIONS.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. COOPER WIRING DEVICES

B. LEVITON MANUFACTURING, INC

C. HUBBELL INC.

D. PASS & SEYMOUR/LEGRAND

2.02 WALL SWITCHES

A. WALL SWITCHES: HEAVY DUTY, AC ONLY GENERAL-USE SNAP SWITCH, COMPLYING WITH NEMA WD 6 AND WD 1.

1. BODY AND HANDLE: COLOR BY ARCHITECT, PLASTIC WITH TOGGLE HANDLE.
2. RATINGS:
   a. VOLTAGE: 120 VOLTS, AC.
   b. CURRENT: 20 AMPERES.

B. SWITCH TYPES: SINGLE POLE, DOUBLE POLE, AND 3-WAY.

2.03 RECEPTACLES

A. RECEPTACLES: HEAVY DUTY, COMPLYING WITH NEMA WD 6 AND WD 1.

B. MINIMUM INTEGRATED SHORT CIRCUIT RATING: AS INDICATED.

C. MOLDED CASE CIRCUIT BREAKERS: THERMAL MAGNETIC TRIP CIRCUIT BREAKERS, BOLT-ON TYPE, WITH COMMON TRIP HANDLE FOR ALL POLES; UL LISTED.

1. DEVICE BODY: COLOR BY ARCHITECT, PLASTIC.

D. CONVENIENCE RECEPTACLES: TYPE 5 - 20.

E. DUPLEX CONVENIENCE RECEPTACLES.

F. GFCI RECEPTACLES: CONVENIENCE RECEPTACLE WITH INTEGRAL GROUND FAULT CIRCUIT INTERRUPTER TO MEET REGULATORY REQUIREMENTS.

2.04 WALL PLATES

A. DECORATIVE COVER PLATES: COLOR TO MATCH DEVICE, SMOOTH PLASTIC.

B. WEATHERPROOF IN-USE COVER PLATES: GASKETED CAST METAL WITH HINGED.

PART 3 - EXECUTION

3.01 PREPARATION

A. PROVIDE EXTENSION RINGS TO BRING OUTLET BOXES FLUSH WITH FINISHED SURFACE.

3.02 INSTALLATION

A. INSTALL DEVICES PLUMB AND LEVEL.

B. INSTALL SWITCHES WITH OFF POSITION DOWN.

C. INSTALL RECEPTACLES WITH GROUNDING POLE ON BOTTOM.

D. CONNECT WIRING DEVICE GROUNDING TERMINAL TO OUTLET BOX WITH BONDING JUMPER.

E. INSTALL DECORATIVE PLATES ON SWITCH, RECEPTACLE, AND BLANK OUTLETS IN FINISHED AREAS.

11. ENCLOSED SWITCHES

PART 1 - GENERAL

1.01 SUBMITTALS

A. PRODUCT DATA: PROVIDE SWITCH RATINGS AND ENCLOSURE DIMENSIONS.

PART 2 - PRODUCTS

2.01 COMPONENTS

A. FUSIBLE SWITCH ASSEMBLIES: NEMA KS 1, TYPE HD ENCLOSED LOAD INTERRUPTER KNIFE SWITCH.

1. EXTERNALLY OPERABLE HANDLE INTERLOCKED TO PREVENT OPENING FRONT COVER WITH SWITCH IN ON POSITION.
2. HANDLE LOCKABLE IN OFF POSITION.
3. FUSE CLIPS: DESIGNED TO ACCOMMODATE NEMA FU1, CLASS R FUSES.

B. NONFUSIBLE SWITCH ASSEMBLIES: NEMA KS 1, TYPE HD ENCLOSED LOAD INTERRUPTER KNIFE SWITCH.

1. EXTERNALLY OPERABLE HANDLE INTERLOCKED TO PREVENT OPENING FRONT COVER WITH SWITCH IN ON POSITION.
2. HANDLE LOCKABLE IN OFF POSITION.

C. ENCLOSURES: NEMA KS 1.

1. INTERIOR DRY LOCATIONS: TYPE 1.
2. EXTERIOR LOCATIONS: TYPE 3R.

PART 3 - EXECUTION

3.01 INSTALLATION

A. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

B. INSTALL FUSES IN FUSIBLE DISCONNECT SWITCHES.

C. APPLY ADHESIVE TAG ON INSIDE DOOR OF EACH FUSED SWITCH INDICATING NEMA FUSE CLASS AND SIZE INSTALLED.

12. INTERIOR LIGHTING

PART 1 - GENERAL

1.01 SUBMITTALS

A. SHOP DRAWINGS: INDICATE DIMENSIONS AND COMPONENTS FOR EACH LUMINAIRE.

PART 2 - PRODUCTS

2.01 LUMINAIRES

A. FURNISH PRODUCTS AS INDICATED IN SCHEDULE INCLUDED ON THE DRAWINGS.

2.02 BALLASTS AND CONTROL UNITS

A. FLUORESCENT BALLASTS: ELECTRONIC, 20% THD MAXIMUM, SUITABLE FOR LAMPS SPECIFIED.

B. HIGH INTENSITY DISCHARGE (HID) BALLASTS: ANSI C82.4, METAL HALIDE LAMP BALLAST, SUITABLE FOR LAMP SPECIFIED.

C. FLUORESCENT LAMP EMERGENCY POWER SUPPLY: EMERGENCY BATTERY POWER SUPPLY SUITABLE FOR INSTALLATION IN BALLAST COMPARTMENT OF FLUORESCENT LUMINAIRE.

1. INCLUDE TEST SWITCH AND AC ON INDICATOR LIGHT, INSTALLED TO BE OPERABLE AND VISIBLE FROM THE OUTSIDE OF AN ASSEMBLED LUMINAIRE.
2. PRODUCT: PROVIDE PRODUCT TO MEET REQUIREMENTS SPECIFIED IN THE LIGHTING FIXTURE SCHEDULE.

PART 3 - EXECUTION

3.01 INSTALLATION

A. INSTALL FIXTURES SECURELY, IN A NEAT AND WORKMANLIKE MANNER, AS SPECIFIED IN NECA

B. INSTALL SUSPENDED LUMINAIRES AND EXIT SIGNS USING PENDANTS SUPPORTED FROM SWIVEL HANGERS. PROVIDE PENDANT LENGTH REQUIRED TO SUSPEND LUMINAIRE AT INDICATED HEIGHT.

C. LOCATE RECESSED CEILING LUMINAIRES AS INDICATED ON REFLECTED CEILING PLAN.

D. INSTALL SURFACE MOUNTED LUMINAIRES AND EXIT SIGNS PLUMB AND ADJUST TO ALIGN WITH BUILDING LINES AND WITH EACH OTHER. SECURE TO PREVENT MOVEMENT.

E. INSTALL RECESSED LUMINAIRES TO PERMIT REMOVAL FROM BELOW.

F. INSTALL CLIPS TO SECURE RECESSED GRID-SUPPORTED LUMINAIRES IN PLACE.

G. INSTALL WALL MOUNTED LUMINAIRES AND EXIT SIGNS AT HEIGHT AS INDICATED ON DRAWINGS.

H. BOND PRODUCTS AND METAL ACCESSORIES TO BRANCH CIRCUIT EQUIPMENT GROUNDING CONDUCTOR.

3.02 SCHEDULES - SEE DRAWINGS

13. FIRE DETECTION AND ALARM

PART 1 - PRODUCTS

1.01 MANUFACTURERS

A. FIRE ALARM CONTROL UNITS - BASIS OF DESIGN: [SELECT/ENTER MANUFACTURER NAME AND ENTER MODEL NUMBER.]

1.02 FIRE ALARM SYSTEM

A. FIRE ALARM SYSTEM: PROVIDE A NEW AUTOMATIC FIRE DETECTION AND ALARM SYSTEM:

1. PROVIDE ALL COMPONENTS NECESSARY, REGARDLESS OF WHETHER SHOWN IN THE CONTRACT DOCUMENTS OR NOT.
2. PROTECTED PREMISES: ENTIRE BUILDING SHOWN ON DRAWINGS.
3. COMPLY WITH THE FOLLOWING; WHERE REQUIREMENTS CONFLICT, ORDER OF PRECEDENCE OF REQUIREMENTS IS AS LISTED:
   a. NFPA 72; WHERE THE WORD "SHOULD" IS USED CONSIDER THAT PROVISION MANDATORY; WHERE CONFLICTS BETWEEN REQUIREMENTS REQUIRE DEVIATION FROM NFPA 72, IDENTIFY DEVIATIONS CLEARLY ON DESIGN DOCUMENTS.
   b. THE REQUIREMENTS OF THE LOCAL AUTHORITY HAVING JURISDICTION.
   c. APPLICABLE LOCAL CODES.
   d. THE CONTRACT DOCUMENTS (DRAWINGS AND SPECIFICATIONS).
   e. THE AMERICANS WITH DISABILITIES ACT (ADA).
4. EVACUATION ALARM: MULTIPLE SMOKE ZONES; ALLOW FOR EVACUATION NOTIFICATION OF ANY INDIVIDUAL ZONE OR COMBINATION OF ZONES, IN ADDITION TO GENERAL EVACUATION OF ENTIRE PREMISES.
5. GENERAL EVACUATION ZONES: EACH SMOKE ZONE IS CONSIDERED A GENERAL EVACUATION ZONE UNLESS OTHERWISE INDICATED, WITH ALARM NOTIFICATION IN ALL ZONES ON THE SAME FLOOR, ON THE FLOOR ABOVE, AND THE FLOOR BELOW.

B. CIRCUITS:

1. NOTIFICATION APPLIANCE CIRCUITS (NAC): CLASS B, STYLE W.
2. SIGNALING LINE CIRCUITS (SLC) WITHIN SINGLE BUILDING: CLASS B, STYLE 0.5.
3. INITIATING DEVICE CIRCUITS (IDC): CLASS B, STYLE A.

C. POWER SOURCES:

1. EACH COMPUTER SYSTEM: PROVIDE UNINTERRUPTIBLE POWER SUPPLY (UPS).
2. SECONDARY: STORAGE BATTERIES.
3. CAPACITY: SUFFICIENT TO OPERATE ENTIRE SYSTEM FOR PERIOD SPECIFIED BY NFPA 72.
4. PRIMARY: DEDICATED BRANCH CIRCUITS OF THE FACILITY POWER DISTRIBUTION SYSTEM.

1.03 FIRE SAFETY SYSTEMS INTERFACES

A. SUPERVISION: PROVIDE SUPERVISORY SIGNALS IN ACCORDANCE WITH NFPA 72 FOR THE FOLLOWING:

B. ALARM: PROVIDE ALARM INITIATION IN ACCORDANCE WITH NFPA 72 FOR THE FOLLOWING:

1.04 COMPONENTS

A. GENERAL:

1. PROVIDE FLUSH MOUNTED UNITS WHERE INSTALLED IN FINISH AREAS; IN UNFINISHED AREAS, SURFACE MOUNTED UNIT ARE ACCEPTABLE.
2. PROVIDE LEGIBLE, PERMANENT LABELS FOR EACH CONTROL DEVICE, USING IDENTIFICATION USED IN OPERATION AND MAINTENANCE DATA.

B. INITIATING DEVICES:

C. NOTIFICATION APPLIANCES:

D. CIRCUIT CONDUCTORS: COPPER OR OPTICAL FIBER; PROVIDE 200 FEET EXTRA; COLOR CODE AND LABEL.

E. SURGE PROTECTION: IN ACCORDANCE WITH IEEE C62.41 B3 COMBINATION WAVEFORM AND NFPA 70; EXCEPT FOR OPTICAL FIBER CONDUCTORS.

F. LOCKS AND KEYS: DELIVER KEYS TO OWNER.

G. INSTRUCTION CHARTS: PRINTED INSTRUCTION CHART FOR OPERATORS, SHOWING STEPS TO BE TAKEN WHEN A SIGNAL IS RECEIVED (NORMAL, ALARM, SUPERVISORY, AND TROUBLE); EASILY READABLE FROM NORMAL OPERATOR'S STATION.

1. FRAME: STAINLESS STEEL OR ALUMINUM WITH POLYCARBONATE OR GLASS COVER.
2. PROVIDE ONE FOR EACH CONTROL UNIT WHERE OPERATIONS ARE TO BE PERFORMED.
3. OBTAIN APPROVAL OF OWNER PRIOR TO MOUNTING; MOUNT IN LOCATION ACCEPTABLE TO OWNER.
4. PROVIDE EXTRA COPY WITH OPERATION AND MAINTENANCE DATA SUBMITTAL.

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WREN BUILDING
402 S. JEFFERSON ST, MASON, MI
ELECTRICAL SPECIFICATIONS

DATE
8-20-18

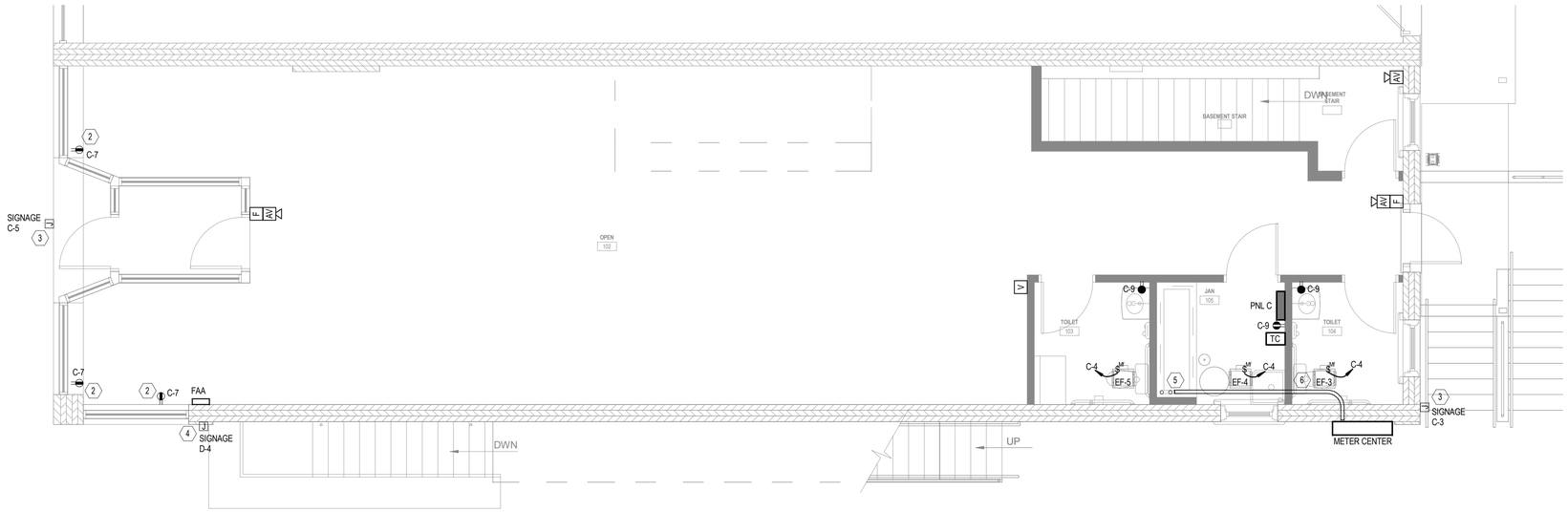
PROJECT NO.
A1169

E2

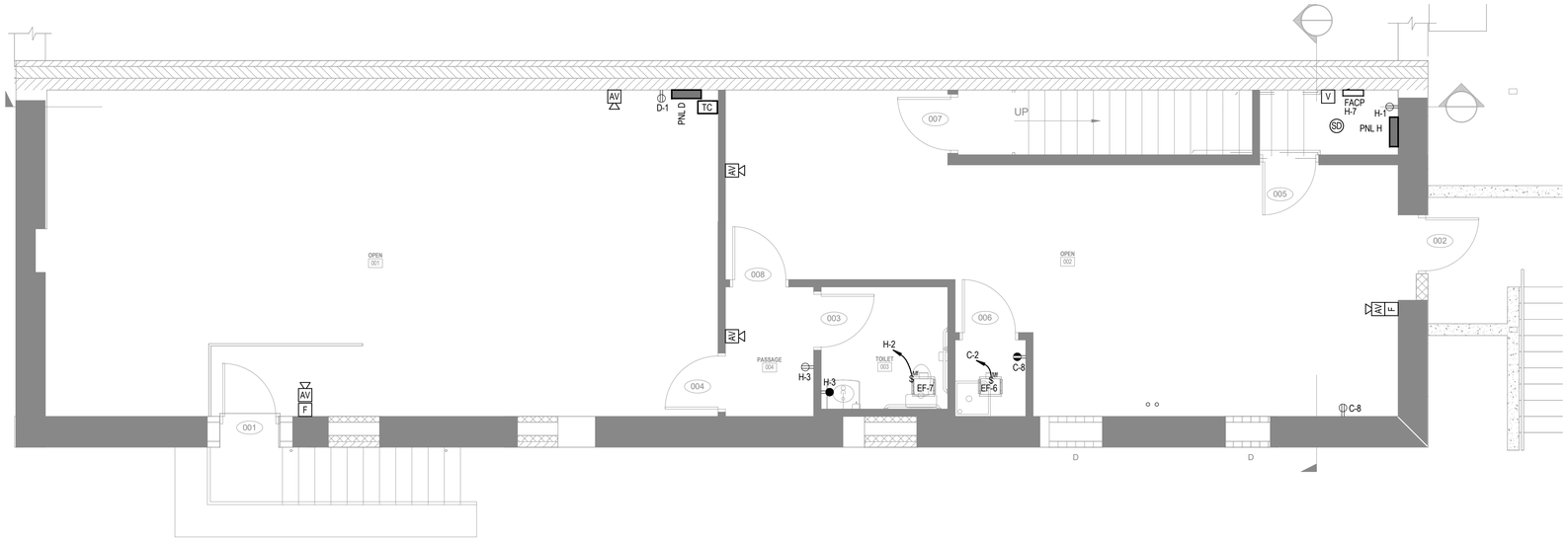
402 S. JEFFERSON ST, MASON, MI WREN BUILDING
8/22/2018 4:00:51 PM

KEYNOTES:

1 CONNECT THRU PHOTOCELL FOR NIGHTTIME SECURITY CONTROL. FIELD VERIFY ALL FINAL LOCATIONS AND HEIGHTS WITH OWNER.
1 CONNECT TO LIGHT SWITCH.
2 MOUNT ABOVE WINDOWS FOR CODE REQUIRED SHOW WINDOW RECEPTACLES.
3 CONNECT SIGNAGE THRU TIMECLOCK W/ 3-POLE CONTACTOR.
4 CONNECT SIGNAGE THRU TIMECLOCK W/ 2-POLE CONTACTOR.
5 VERTICAL SERVICE CONDUITS FOR APARTMENT PANELS
6 RUN APARTMENT FEEDERS TIGHT TO DECK, ABOVE DROP CEILING. FIELD COORDINATE.



FIRST FLOOR PLAN - ELECTRICAL
1/4" = 1'-0"



BASEMENT PLAN - ELECTRICAL
1/4" = 1'-0"

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WREN BUILDING
402 S. JEFFERSON ST, MASON, MI
BASEMENT AND 1ST FLOOR PLAN - ELECTRICAL

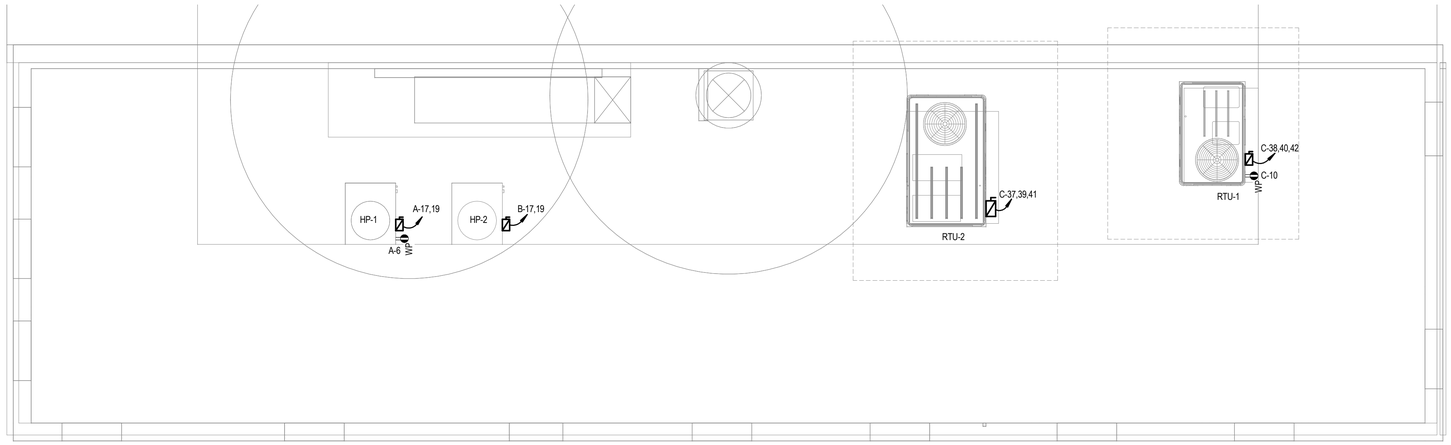
DATE
8-20-18

PROJECT NO.
A1169

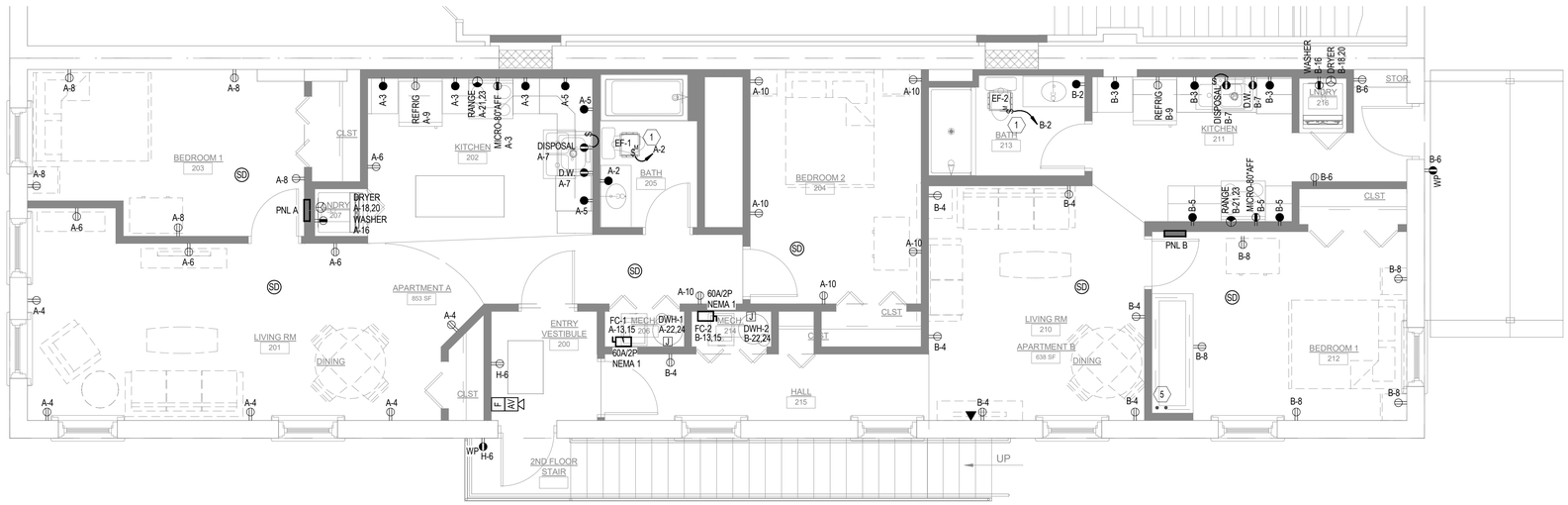
E3

KEYNOTES:

1 CONNECT THRU PHOTOCELL FOR NIGHTTIME SECURITY CONTROL. FIELD VERIFY ALL FINAL LOCATIONS AND HEIGHTS WITH OWNER.
1 CONNECT TO LIGHT SWITCH.
2 MOUNT ABOVE WINDOWS FOR CODE REQUIRED SHOW WINDOW RECEPTACLES.
3 CONNECT SIGNAGE THRU TIMECLOCK W/ 3-POLE CONTACTOR.
4 CONNECT SIGNAGE THRU TIMECLOCK W/ 2-POLE CONTACTOR.
5 VERTICAL SERVICE CONDUITS FOR APARTMENT PANELS
6 RUN APARTMENT FEEDERS TIGHT TO DECK, ABOVE DROP CEILING. FIELD COORDINATE.



ROOF PLAN - ELECTRICAL
1/4" = 1'-0"



SECOND FLOOR PLAN - ELECTRICAL
1/4" = 1'-0"

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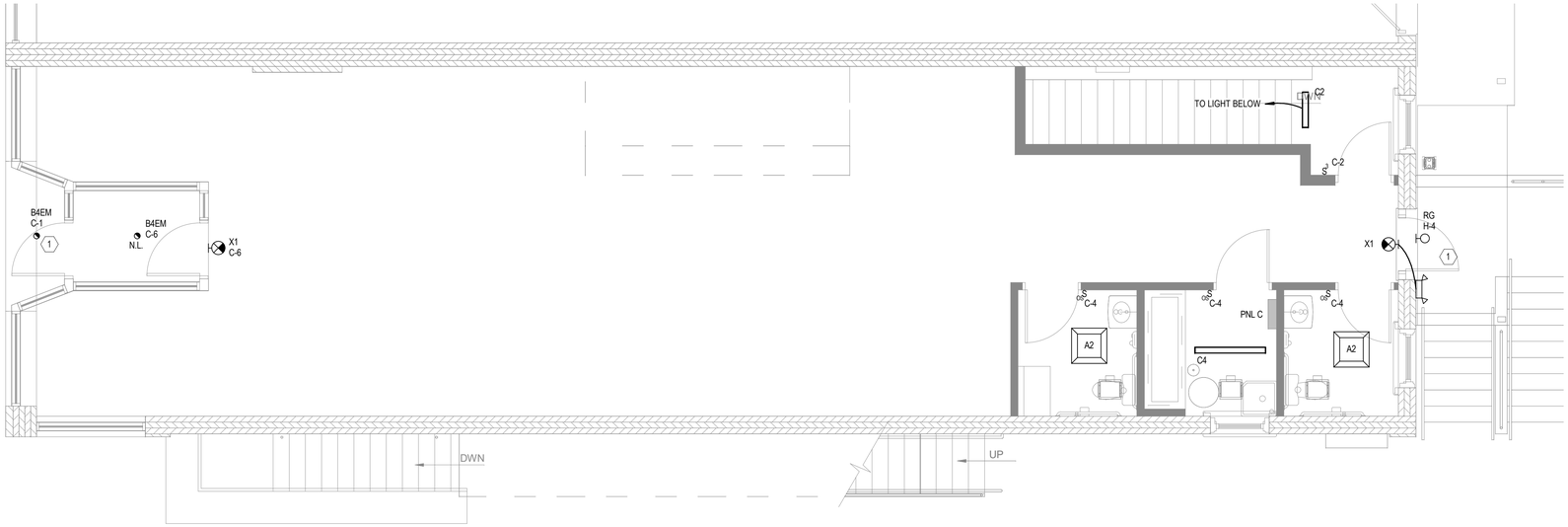
WREN BUILDING
402 S. JEFFERSON ST, MASON, MI
SECOND FLOOR AND ROOF PLAN - ELECTRICAL

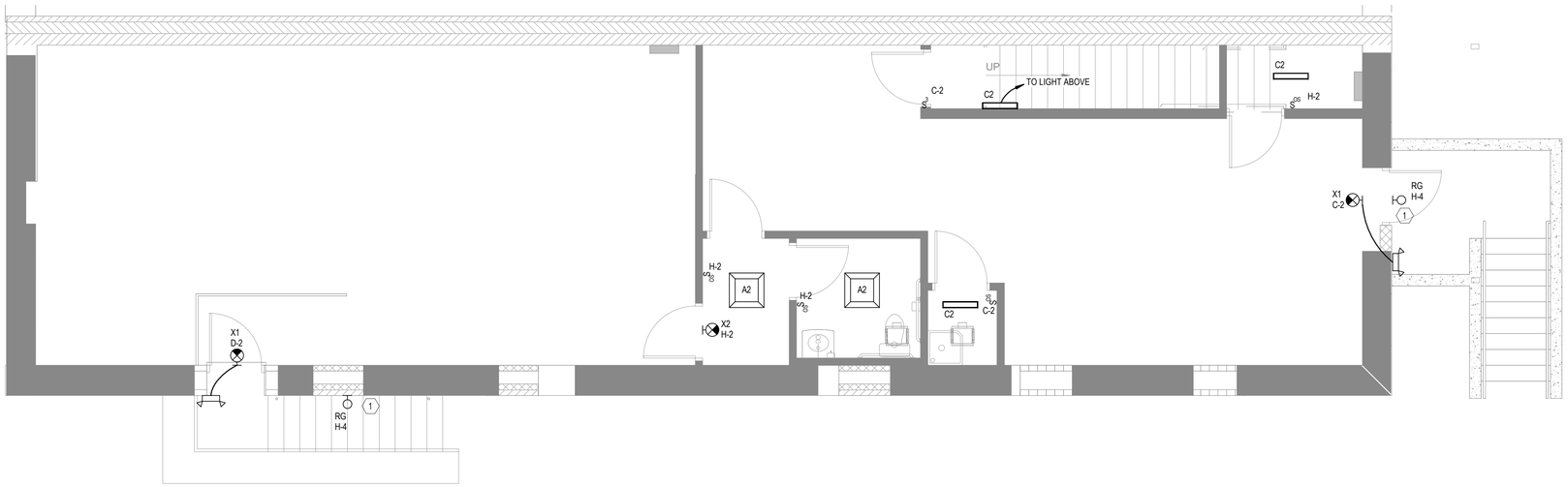
DATE
8-20-18

PROJECT NO.
A1169

E4



FIRST FLOOR PLAN - LIGHTING
1/4" = 1'-0"



BASEMENT PLAN - LIGHTING
1/4" = 1'-0"

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WREN BUILDING
402 S. JEFFERSON ST, MASON, MI
BASEMENT AND 1ST FLOOR PLAN - LIGHTING

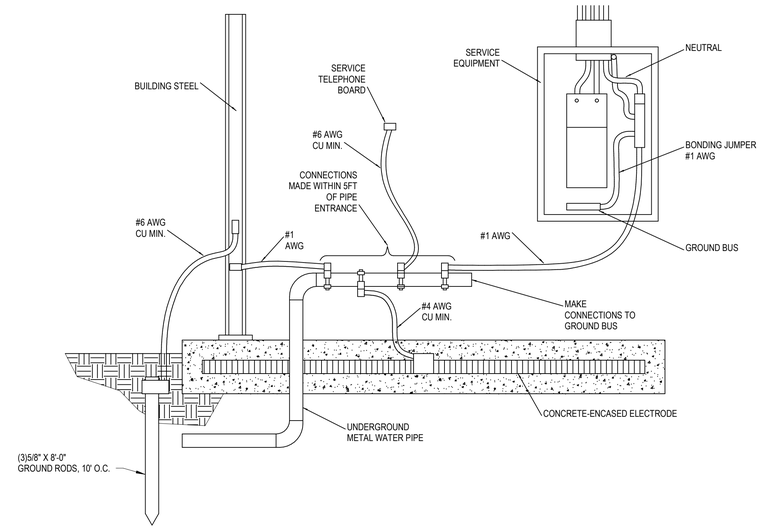
DATE
8-20-18

PROJECT NO.
A1169

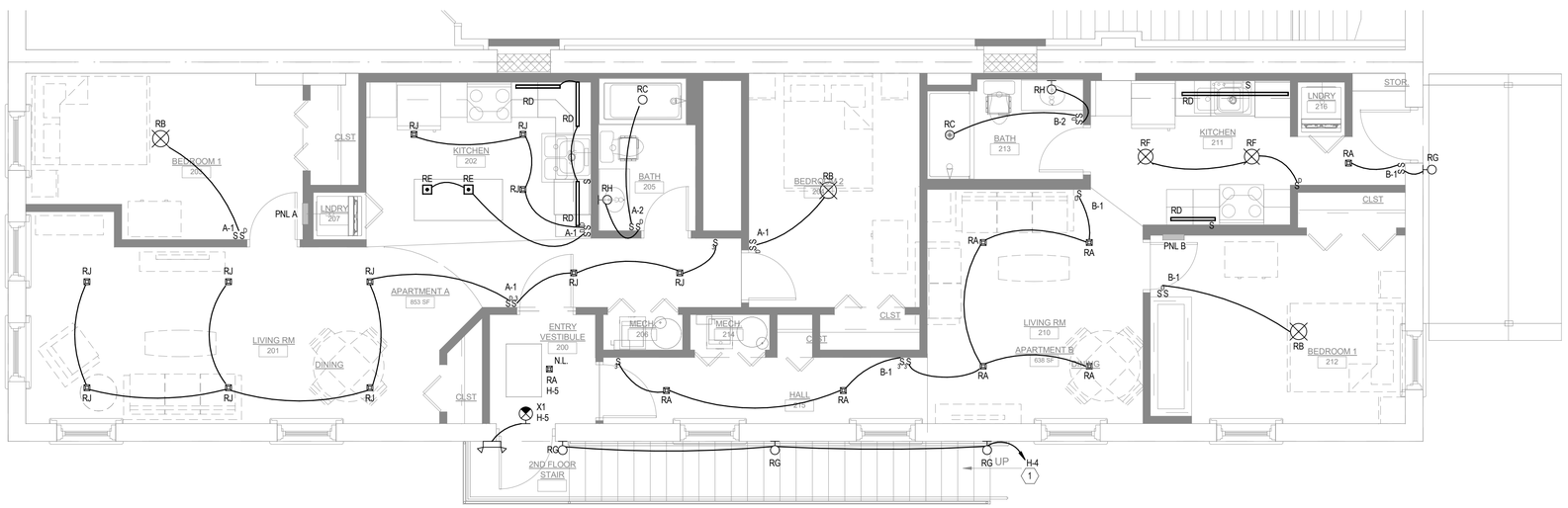
E5

LIGHT FIXTURE SCHEDULE								
ID	MANUFACTURER	MODEL NO.	VOLTAGE	REQUIRED LAMPS			DESCRIPTION	NOTES
				QTY	WATT	TYPE		
A2	LITHONIA	2BLT2-30L-EZ1-LP835	120	1	33 W	LED, 3500K, 3000LM	2'X2' ARCH TROFFER, 0-10V DIMMING	
B4EM	GOTHAM	EVO-35/10-4AR-MD-LD-EZ1-SF-TRW-ELR-CRI90	120	1	13 W	LED, 3500K, 1100LM, 90CRI, L70@60,000	4" DOWNLIGHT, WHITE FLANGE, 1% DIMMING, 1000LM EMERG BATTERY W/ REMOTE TEST	
C2	LITHONIA	ZL1D-L24-SMR-2500LM-FST-120-40K-80CRI-WH	120	1	22 W	LED, 4000K, 2500LM	2' STRIP, SURFACE MTD	
C4	LITHONIA	ZL1D-L48-SMR-3000LM-FST-120-40K-80CRI-WH	120	1	30 W	LED, 4000K, 3000LM	4' STRIP, SURFACE MTD	
RA	NUVO	S9366	120	1	14 W	LED, 3000K, 800LM	7" SQUARE SURFACE MTD.	
RB	BROWNLEE	2322-BN-C17LED-NAL-30K-BAC-DIM-ES	120	1	17 W	LED, 3000K, 1800LM	15" ARCH SURFACE MTD CYLINDER	
RC	KICHLER	IC20 G-211PW	120	1	40 W	LED, A19, 3000K	5" LENSED DOME SHOWER LIGHT, WHITE	
RD	JUNO	SL212-30K-80CRI, SM1 TRIM	120	1		LED, 3000K, 180LM/FT	UNDERCABINET TAPE SYSTEM, WITH LENSED MOUNTING, COMPLETE SYSTEM	
RE	ELK LIGHTING	69029-1-LED	120	1	14 W	LED, 3000K, 800LM	8" SCHOOLHOUSE, SATIN NICKEL	
RF	KICHLER	43925NI	120	3	20 W	LED, 3000K, 1800LM	JOELSCON (3) LIGHT PENDANT, BRUSHED NICKEL	
RG	KICHLER	49825BK	120	1	100 W	LED, A19, 3000K	FINN COLLECTION, BLACK, WEATHERPROOF, EXT. WALL SCONCE	
RH	ELK LIGHTING	17052/3-LED	120	3	20 W	LED, 3000K, 800LM	RETROSPECTIVE (3) LIGHT, POLISHED CHROME	
RJ	NUVO	62-1261	120	1	14 W	LED, 3000K, 800LM	7" ROUND SURFACE MTD.	
X1	LITHONIA	LHQM-LED-B-R-HO-SD-ELA-T-QWP-L0309SD	120	1	3 W	LED	EXIT SIGN, BLACK, RED LETTERS, DUAL HEAD W/ REMOTE WP HEADS	
NOTES:	LITHONIA	LHQM-LED-B-R-SD	120	1	3 W	LED	EXIT SIGN, BLACK, RED LETTERS	

1. VERIFY AND CONFIRM ALL LIGHT FIXTURE SELECTIONS WITH OWNER PRIOR TO ORDERING.



1 E6 **GROUNDING AND BONDING DETAIL (TYPICAL)**
NOT TO SCALE



SECOND FLOOR PLAN - LIGHTING
1/4" = 1'-0"

CLARK TROMBLEY RANDERS
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WREN BUILDING
402 S. JEFFERSON ST, MASON, MI
2ND FLOOR PLAN - LIGHTING

DATE
8-20-18

PROJECT NO.
A1169

E6

Panel: A

Location: BEDROOM 1 9
Supply From:
Mounting: RECESSED
Enclosure: TYPE 1
Series: LOAD CENTER

Volts: 208/120 Single
Phases: 1
Wires: 3
Sub-Feed... No

A.I.C. Rating: 10kAIC
Mains Type: MLO
Mains Rating: 125 A
Bus Rating: 125
Neutral Bus: Yes
Ground Buss: Yes

Notes:

CKT	Circuit Description	Trip	Poles	A		B		Poles	Trip	Circuit Description	CKT
1	LTG Room 21, 6, 9, 20	15	1	0.21	0.28			1	20	BATHROOM	2
3	RECEPT KITCHEN 20	20	1			0.72	0.90	1	15	RECEPT GENERAL	4
5	RECEPT KITCHEN 20	20	1	0.54	0.90			1	15	RECEPT GENERAL	6
7	DISPOSAL/ DISHWASHER	20	1			1.60	0.90	1	15	RECEPT BEDROOM 1 9	8
9	REFRIGERATOR	15	1	1.00	1.08			1	15	RECEPT BEDROOM 2 6	10
11							0.00	1	15	SPARE	12
13	FC-1	40	2	3.00	0.00			1	15	SPARE	14
15	--	--	--			3.00	0.80	1	20	WASHER	16
17	HP-1	30	2	0.00	4.10			2	30	DRYER	18
19	--	--	--			0.00	4.10	--	--	--	20
21	RANGE	40	2	1.41	2.25			2	30	WATER HEATER	22
23	--	--	--			1.41	2.25	--	--	--	24
			Total Load:	15 kW		16 kW					
			Total Amps:	142 A		150 A					

Load Classification	Connected...	Demand Factor	Estimated...	Panel Totals	
LTG	311 VA	125.00%	388 VA		
Motor	6000 VA	125.00%	7500 VA	**Total Load:**	30 kW
Other	18910 VA	100.00%	18910 VA	**Demand Load:**	32 kW
RECEPT	5220 VA	100.00%	5220 VA	**Connected Amps:**	146 A
				Demand Amps:	154 A

Notes:
PROVIDE ARC FAULT BREAKERS PER CODE.

Panel: B

Location: BEDROOM 12
Supply From:
Mounting: RECESSED
Enclosure: TYPE 1
Series: LOAD CENTER

Volts: 208/120 Single
Phases: 1
Wires: 3
Sub-Feed... No

A.I.C. Rating: 42kAIC
Mains Type: MLO
Mains Rating: 400 A
Bus Rating: 125
Neutral Bus: Yes
Ground Buss: Yes

Notes:

CKT	Circuit Description	Trip	Poles	A		B		Poles	Trip	Circuit Description	CKT
1	LTG Room 12, 14, 19	15	1	0.33	0.28			1	20	BATHROOM	2
3	RECEPT KITCHEN 19	20	1			0.54	1.26	1	15	RECEPT GENERAL	4
5	RECEPT KITCHEN 19	20	1	0.54	0.54			1	15	RECEPT ENTRY/ PORCH	6
7	DISPOSAL/ DISHWASHER	15	1			1.60	0.90	1	15	RECEPT BEDROOM 12	8
9	REFRIGERATOR	15	1	1.00	0.00			1	15	SPARE	10
11							0.00	1	15	SPARE	12
13	FC-2	40	2	3.00	0.00			1	15	SPARE	14
15	--	--	--			3.00	0.80	1	20	WASHER	16
17	HP-2	30	2	0.00	4.10			2	30	DRYER	18
19	--	--	--			0.00	4.10	--	--	--	20
21	RANGE	40	2	1.41	2.25			2	30	WATER HEATER	22
23	--	--	--			1.41	2.25	--	--	--	24
			Total Load:	13 kW		16 kW					
			Total Amps:	129 A		149 A					

Load Classification	Connected...	Demand Factor	Estimated...	Panel Totals	
LTG	432 VA	125.00%	539 VA		
Motor	6000 VA	125.00%	7500 VA	**Total Load:**	29 kW
Other	18910 VA	100.00%	18910 VA	**Demand Load:**	31 kW
RECEPT	3960 VA	100.00%	3960 VA	**Connected Amps:**	141 A
				Demand Amps:	149 A

Notes:
PROVIDE ARC FAULT BREAKERS PER CODE.

Panel: C

Location: JAN 30
Supply From:
Mounting: SURFACE
Enclosure: TYPE 1
Series: PANELBOARD

Volts: 208Y/120 Wye
Phases: 3
Wires: 4
Sub-Feed... No

A.I.C. Rating: 42kAIC
Mains Type: MLO
Mains Rating: 400 A
Bus Rating: 400A
Neutral Bus: Yes
Ground Buss: Yes

Notes:

CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT
1	LTG - SIGNAGE	20	1	0.01	0.17					1	20	LTG - BASEMENT	2
3	LTG - SIGNAGE	20	1			0.50	0.40			1	20	LTG RESTROOMS	4
5	LTG - SIGNAGE	20	1					0.50	0.02	1	20	LTG - VESTIBULE	6
7	SHOW WINDOWS	20	1	0.54	0.36					1	20	RECEPT STORAGE 25	8
9	RECEPT TOILET/ JAN.	20	1			0.54	0.18			1	20	RECEPT	10
11													12
13													14
15													16
17													18
19													20
21													22
23													24
25													26
27													28
29													30
31													32
33													34
35													36
37	RTU-1	60	3	3.67	2.72					3	60	RTU-2	38
39	--	--	--			3.67	2.72			--	--	--	40
41	--	--	--					3.67	2.72	--	--	--	42
			Total Load:	7 kW		8 kW		7 kW					
			Total...	63 A		67 A		57 A					

Load Classification	Connected...	Demand Factor	Estimated...	Panel Totals	
LTG	1197 VA	125.00%	1496 VA		
Motor	19550 VA	114.07%	22300 VA	**Total Load:**	22 kW
Other	540 VA	100.00%	540 VA	**Demand Load:**	25 kW
RECEPT	1080 VA	100.00%	1080 VA	**Connected Amps:**	62 A
				Demand Amps:	71 A

Notes:

Panel: D

Location: FUTURE BAR 22
Supply From:
Mounting: SURFACE
Enclosure: TYPE 1
Series: PANELBOARD

Volts: 208Y/120 Wye
Phases: 3
Wires: 4
Sub-Feed... No

A.I.C. Rating: 22kAIC
Mains Type: MLO
Mains Rating: 125 A
Bus Rating: 125 A
Neutral Bus: Yes
Ground Buss: Yes

Notes:

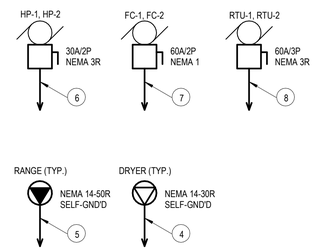
CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT
1	RECEPT BASEMENT	20	1	0.18	0.01					1	20	LTG - EXIT	2
3							0.50			1	20	LTG - SIGNAGE	4
5													6
7													8
9													10
11													12
13													14
15													16
17													18
19													20
21													22
23													24
25													26
27													28
29													30
			Total Load:	0 kW		1 kW		0 kW					
			Total...	2 A		4 A		0 A					

Load Classification	Connected...	Demand Factor	Estimated...	Panel Totals	
LTG	506 VA	125.00%	633 VA		
RECEPT	180 VA	100.00%	180 VA	**Total Load:**	1 kW
				Demand Load:	1 kW
				Connected Amps:	2 A
				Demand Amps:	2 A

Notes:

GENERAL NOTES:

1. ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST ACCEPTED EDITION OF THE NATIONAL ELECTRICAL CODE, NEC, AND ALL STATE AND LOCAL CODES.
2. COORDINATE THE INSTALLATION OF ALL ELECTRICAL EQUIPMENT AND CONNECTIONS WITH ARCHITECTURAL, STRUCTURAL, MECHANICAL AND EQUIPMENT DRAWINGS.
3. ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL ALL POWER, CONDUITS, CABLETRAY, AND OTHER COMPONENTS AS SHOWN ON THE EQUIPMENT PROVIDER DRAWINGS FOR INSTALLATION OF SYSTEM.
4. "BACK TO BACK" OR THROUGH THE WALL BOXES SHALL NOT BE USED.
5. INSTALL HANDLE LOCK-ON, ON ALL CIRCUIT BREAKERS CONTROLLING NIGHT LIGHT, EMERGENCY LIGHT AND EXIT LIGHT CIRCUITS.
6. ALL RECEPTACLES SHALL BE HARD USE, SPECIFICATION GRADE.
7. PROVIDE TAMPER RESISTANT RECEPTACLES WHERE REQUIRED BY APPLICABLE CODES.
8. RECEPTACLES INDICATED AS GROUND FAULT CIRCUIT INTERRUPTER TYPE SHALL BE MOUNTED IN AN ACCESIBLE LOCATION, PER CODE OR PROVIDED WITH A GFCI BREAKER.
9. ALL CONDUCTORS SHALL BE COPPER. ALUMINUM WIRES SHALL NOT BE USED.
10. MINIMUM CONDUIT SIZE SHALL BE 1/2" FOR POWER FEEDS AND 1" FOR DATA FEEDS.
11. FINAL CONNECTION TO ITEMS SUBJECT TO VIBRATION SHALL BE MADE WITH LIQUIDTIGHT FLEXIBLE METALLIC CONDUIT.
12. 120/208VAC CIRCUIT WIRING FOR ANY ROOM OR AREA MAY BE GROUPED INTO RACEWAYS UNLESS SEPARATE RACEWAYS ARE REQUIRED BY THE NEC. COMPLY WITH NEC REQUIREMENTS FOR CONDUCTOR DERATING.
13. PROVIDE EQUIPMENT GROUNDING CONDUCTORS FOR ALL POWER AND LIGHTING CIRCUITS.
14. ALL LIGHTING AND POWER CONDUCTORS SHALL BE 12 AWG MINIMUM. ALL CONTROL CONDUCTORS SHALL BE 14 AWG MINIMUM OR AS SPECIFIED BY MANUFACTURER.
15. DEDICATED NEUTRAL SHALL BE PROVIDED FOR ALL CIRCUITS. SHARED NEUTRALS ARE NOT ALLOWED.
16. BASIS OF DESIGN IS FOR A COMPLETE ELECTRICAL SYSTEM, INSTALLED PER CODE REQUIREMENTS.

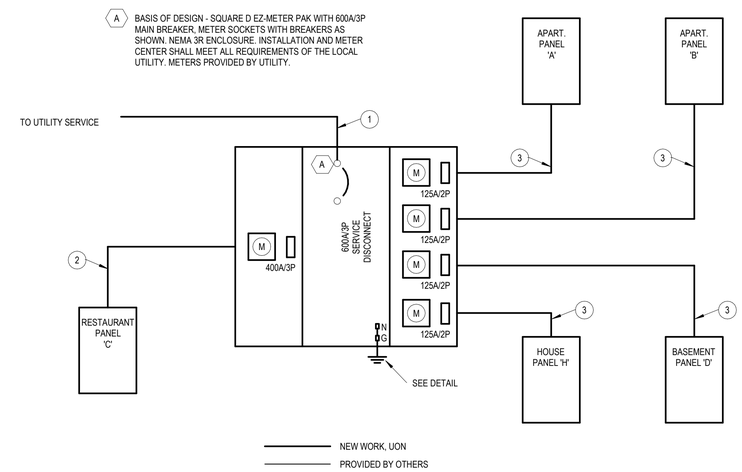


FEEDER SCHEDULE:

1. (2) SETS OF (4)#350 CU, 3"C
2. (4)#600 CU, (1)#3 CU GND, 4"C
3. (3)#1, (1)#6 CU GND, 1-1/4"C.
4. (3)#10, (1)#10 CU GND.
5. (3)#8, (1)#10 CU GND.
6. (2)#10, (1)#10 CU GND, 3/4"C.
7. (2)#8, (1)#10 CU GND, 3/4"C.
8. (3)#8, (1)#10 CU GND, 3/4"C.

ONE LINE DIAGRAM NOTES:

A. BASIS OF DESIGN - SQUARE D EZ-METER PAK WITH 600A/3P MAIN BREAKER, METER SOCKETS WITH BREAKERS AS SHOWN. NEMA 3R ENCLOSURE. INSTALLATION AND METER CENTER SHALL MEET ALL REQUIREMENTS OF THE LOCAL UTILITY. METERS PROVIDED BY UTILITY.



1 / E7 **208Y/120V - 3PH - 4W - ONE-LINE DIAGRAM**
NOT TO SCALE

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WREN BUILDING
402 S. JEFFERSON ST, MASON, MI
ELECTRICAL DETAILS AND SCHEDULES

DATE
8-20-18

PROJECT NO.
A1169

E7