HRRM Investments Retail Complex

Rt. 29 @ The Walmart South Outparcel Eaton Township, PA 18657

F. EFFECTED AREA AND HEIGHT OF PROJECT (SECTIONS 503 & 505):

NEW BUILDING: 6,600 GSF < 9,000 GSF ALLOWABL

NEW BUILDING: 1 STORY = 1 STORY ALLOWABLE

MERCANTILE (M): SPRINKLER INCREASE: NOT APPLICABLE

NON-BEARING WALLS & PARTITIONS (NEW & EXISTING) = 0 HRS

I. TABLE 602 FIRE-RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS BASED ON FIRE SEPARATION

L. MEANS OF EGRESS WIDTH PER OCCUPANT SERVED (SECTION 1005.1) WITHOUT SPRINKLER SYSTEM

M. EXIT ACCESS TRAVEL DISTANCE (TABLE 1017.2) FOR MERCANTILE WITHOUT SPRKLER SYSTEM = 200 FEET

PROVIDED = 56'-2" FEET (MAX) ≤ 200 FEET ALLOWABLE

PROVIDED = 54'-1" FEET (MAX) ≤ 200 FEET ALLOWABLE

REQUIRED: 35 OCCUPANTS X 0.2"/OCCUPANT = 7.0" MIN

REQUIRED: 22 OCCUPANTS X 0.2"/OCCUPANT = 4.4" MIN

REQUIRED: SECTION 1018.3 AISLES IN USE GROUPS B AND M...THE MINIMUM CLEAR AISLE WIDTH

PROVIDED: OCCUPANT LOAD ≤ 50 REQUIRES 36" W. MIN. AISLES.

PROVIDED: OCCUPANT LOAD ≤ 50 REQUIRES 36" W. MIN. AISLES.

SHALL BE DETERMINED BY SECTION 1005.1 FOR THE OCCUPANT LOAD SERVED, BUT SHALL NOT BE LESS THAN THAT REQUIRED FOR CORRIDORS BY SECTION 1020.2 &

300 GROSS SF PER OCCUPANT - STORAGE, STOCK & SHIPPING AREAS

2,000 GSF ÷ 60 GSF = 33 OCCUPANTS 640 GSF ÷ 300 = 2 OCCUPANTS 2,640 GSF = 35 TOTAL OCCUPANTS

3 @ 1,320 GSF EACH ÷ 60 GSF = 22 OCCUPANTS EA.

35 OCCUPANTS (1 - 500 OCCUPANTS) = 2 EXITS REQUIRED, 2

22 OCCUPANTS < 49 MAX & TRAVEL DISTANT < 75'-0") = 1 EXIT REQUIRED, 2 EXITS PROVIDED IN EACH TENANT SPACE

H. FIRE-RESISTANCE RATING REQUIRED FOR BUILDING ELEMENTS (TABLES 601 & 602).

STRUCTURAL FRAME (EXISTING) = 0 HRS EXTERIOR BEARING WALLS (EXISTING) = 0 HRS INTERIOR BEARING WALLS (NEW & EXISTING) = 0 HRS

ROOF CONSTRUCTION (EXISTING) = 0 HRS

MERCANTILE AREAS - 60 GROSS SF PER OCCUPANT - ALL FLOOR AREAS

K. MINIMUM NUMBER OF EXITS FOR OCCUPANCY CODE (TABLE 1021.1 & 1021.2)

A. REQUIRED = (35 X 0.2" =7.0 INCHES)

A. REQUIRED = (22 X 0.2" = 4.4 INCHES EACH

REQUIRED = 200 FEET FOR MERCANTILE (M) OCCUPANCY:

B. PROVIDED = 64 INCHES

B. PROVIDED = 64 INCHES EACH

MERCANTILE (M):

MERCANTILE (M):

G. BUILDING AREA MODIFICATIONS (SECTION 506)

J. OCCUPANCY LOADS AS PER TABLE 1004.1.1

DISTANCE: NOT APPLICABLE

MERCANTILE AREAS: 1. VERIZON STORE:

MERCANTILE AREAS:

VERIZON STORE:

1. TRAVEL DISTANCES:

N. MEANS OF EGRESS AISLES (SECTION 1018)

2. LEASABLE TENANT SPACES:

1. EGRESS STAIRS: NOT APPLICABLE 2. OTHER EGRESS COMPONENTS: MERCANTILE AREAS:

> MERCANTILE AREAS: A. VERIZON STORE:

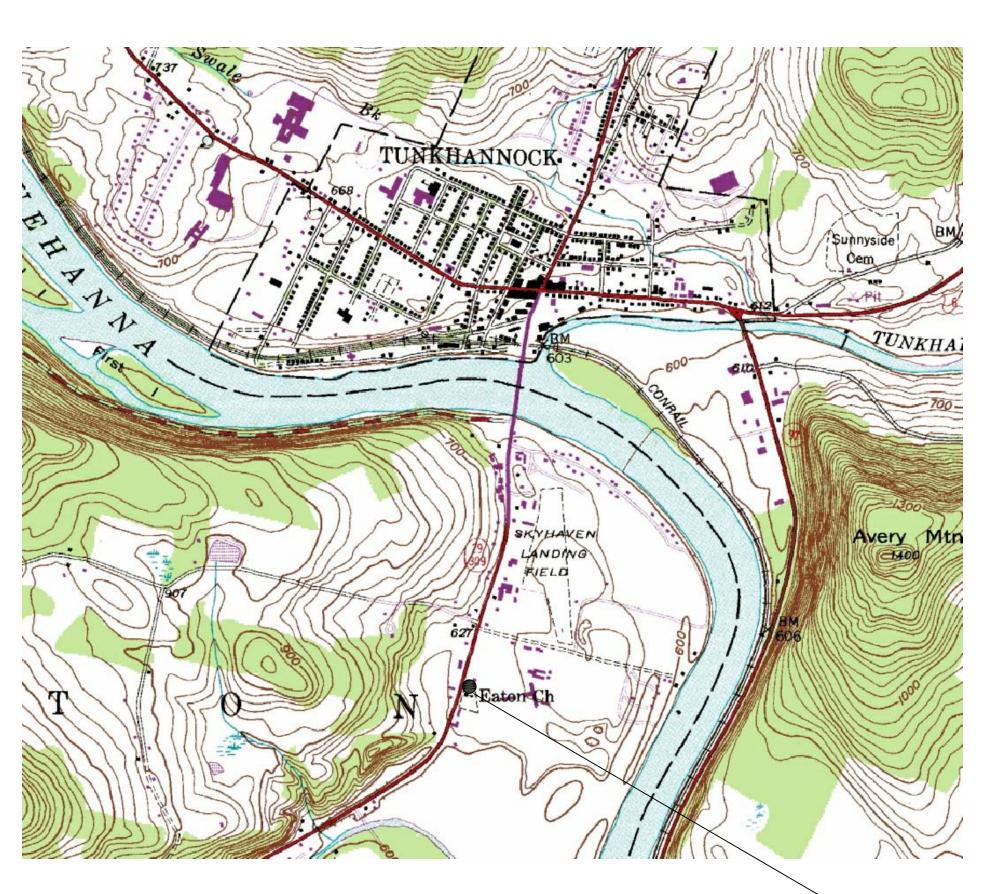
B. LEASABLE TENANT SPACES:

LEASABLE TENANT SPACES:

TYPE V-B CONSTRUCTION

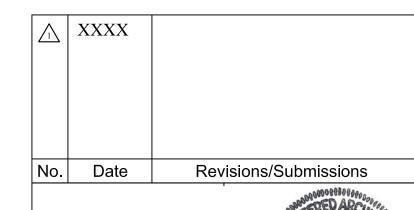
# **DRAWING INDEX:**

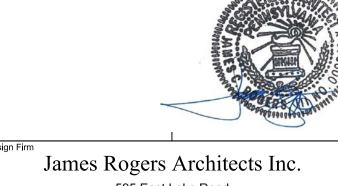
- A0.1 Cover Sheet
- A0.2 Specifications
- S1.0 Foundation Plan Schedules and Notes
- S1.1 Roof Framing Plan Schedules and Notes
- S2.0 Sections and Details
- S2.1 Sections and Details
- S2.2 Sections and Details
- A1.1 Floor Plan
- A1.2 Reflected Ceiling Plan and Details
- A1.3 Roof Plan & Details
- A2.1 Building Elevations
- A2.2 Wall Sections and Details
- A3.1 Large Scale Plan / Interior Elevations / Schedule & Details
- Mechanical Floor Plans, Schedules & Risers
- M-2 Mechanical Specifications
- Electrical Floor Plans, Schedules & Risers
- Electrical Specifications & Site Lighting Plan



PROJECT LOCATION **Location Map** 

**CODE REVIEW SUMMARY** PLUMBING FIXTURE REQUIREMENTS 2902.2 SEPARATE FACILITIES, EXCEPTION 3: SEPARATE FACILITIES NOT REQUIRED IN MERCANTILE NEW VERIZON WE-R-WIRELESS RETAIL COMPLEX STATE ROUTE 29N @ WALMART, EATON TOWNSHIP, WYOMING COUNTY, TUNKHANNOCK, PA 18657 OCCUPANIES WHEN MAXIMUM OCCUPANT LOAD IS 100 OR LESS. SCOPE OF WORK: B. PROVIDED FEMALE = 1 FIXTURE WORK SHALL INCLUDE BUT NOT BE LIMITED TO: C. REQUIRED MALE = 1 FIXTURE (17 MALE OCCUPANTS) NEW 6,600 GSF MERCANTILE GROUP (M) USE AREA ON ONE LEVEL D. PROVIDED MALE = 1 FIXTURE 2. LEASABLE TENANT SPACES: 22 OCCUPANTS EACH ZONING & BUILDING CODE INFORMATION A. SECTION 2029.2.3 EXCEPTION APPLIES B. PROVIDED: EACH SPACE TO HAVE ONE (1) UNI-SEX LAVATORY WITH 1 FIXTURE. A. PRIMARY CODE: 2015 INTERNATIONAL BUILDING CODE 1. SECONDARY CODES: BARRIER-FREE SUBCODE ICC/ANSI A117.1/2009 **B. LAVATORIES** 2. INTERNATIONAL ENERGY CONSERVATION CODE 2015 MERCANTILE AREA- 1 PER 750 OCCUPANTS 3. INTERNATIONAL MECHANICAL CODE 2015 1. VERIZON STORE: 35 OCCUPANTS 4. INTERNATIONAL PLUMBING CONE 2015 A. REQUIRED FEMALE = 1 FIXTURE (18 FEMALE OCCUPANTS) 5. NATIONAL ELECTRICAL CODE 2015 B. PROVIDED FEMALE = 1 FIXTURE 6. INTERNATIONAL FIRE CODE 2015 C. REQUIRED MALE = 1 FIXTURE (17 MALE OCCUPANTS) D. PROVIDED MALE = 1 FIXTURE B. OCCUPANCY GROUP (SECTIONS 304 & 311): 2. LEASABLE TENANT SPACES: 22 OCCUPANTS EACH NEW MERCANTILE (M), 2,640 GSF A. SECTION 2029.2.3 EXCEPTION APPLIES LEASABLE STORE TENANTS: NEW MERCANTILE (M), 3 @ 1,320 GSF EA. = 3,960 GSF B. PROVIDED: EACH SPACE TO HAVE ONE (1) UNI-SEX LAVATORY WITH 1 FIXTURE. TOTAL GROSS AREA: NEW MERCANTILE (M) 6,600 GSF C. NEW CONSTRUCTION TYPE (SECTION 602): V-B D. NEW CONSTRUCTION NOT SPRINKLERED E. SPECIAL USE & OCCUPANCY REQUIREMENTS - NOT APPLICABLE E. ALLOWABLE AREA AND HEIGHT AS PER SECTION & TABLE 503, TYPE V-B CONSTRUCTION MERCANTILE (M): 1 STORY OR 40'-0"



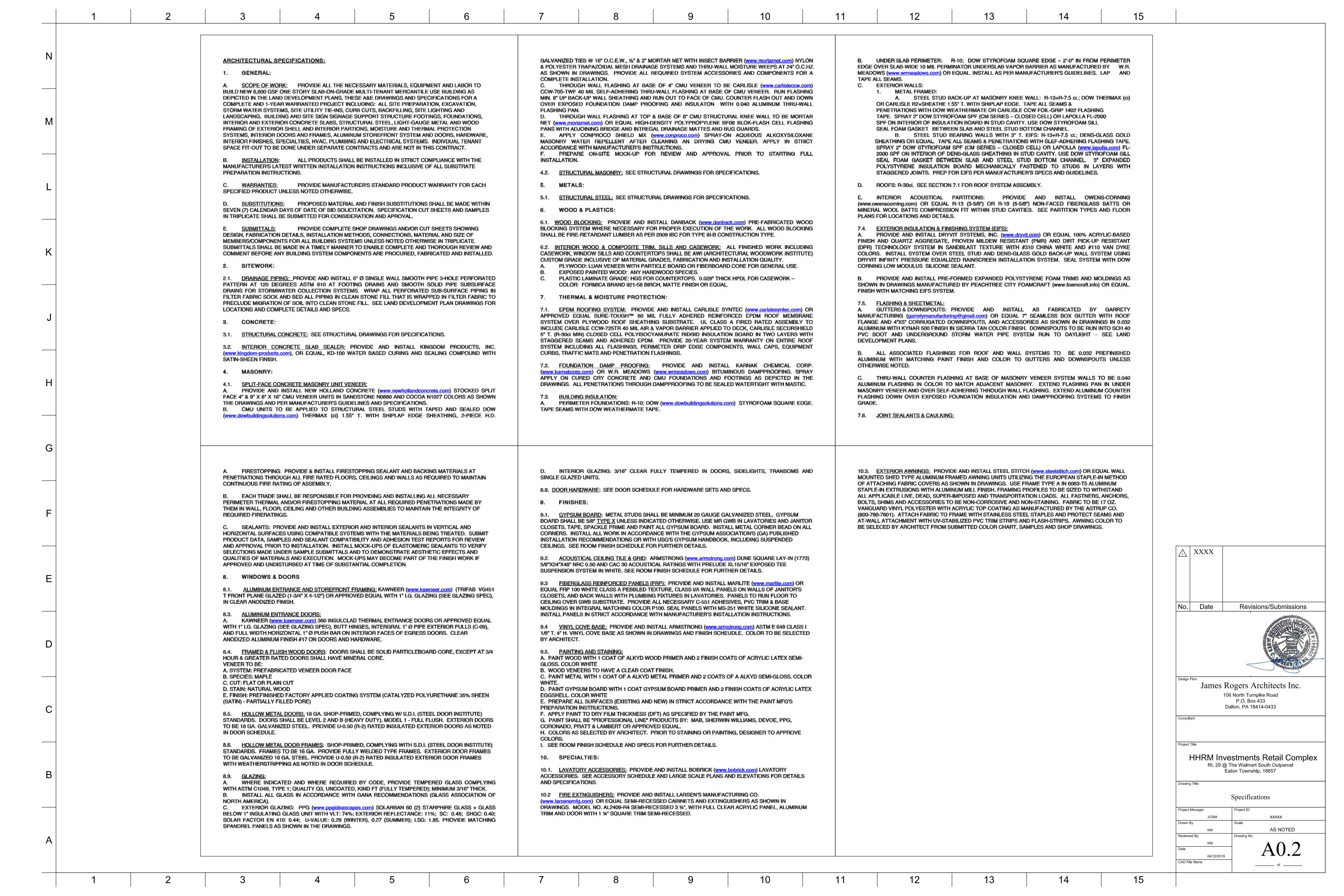


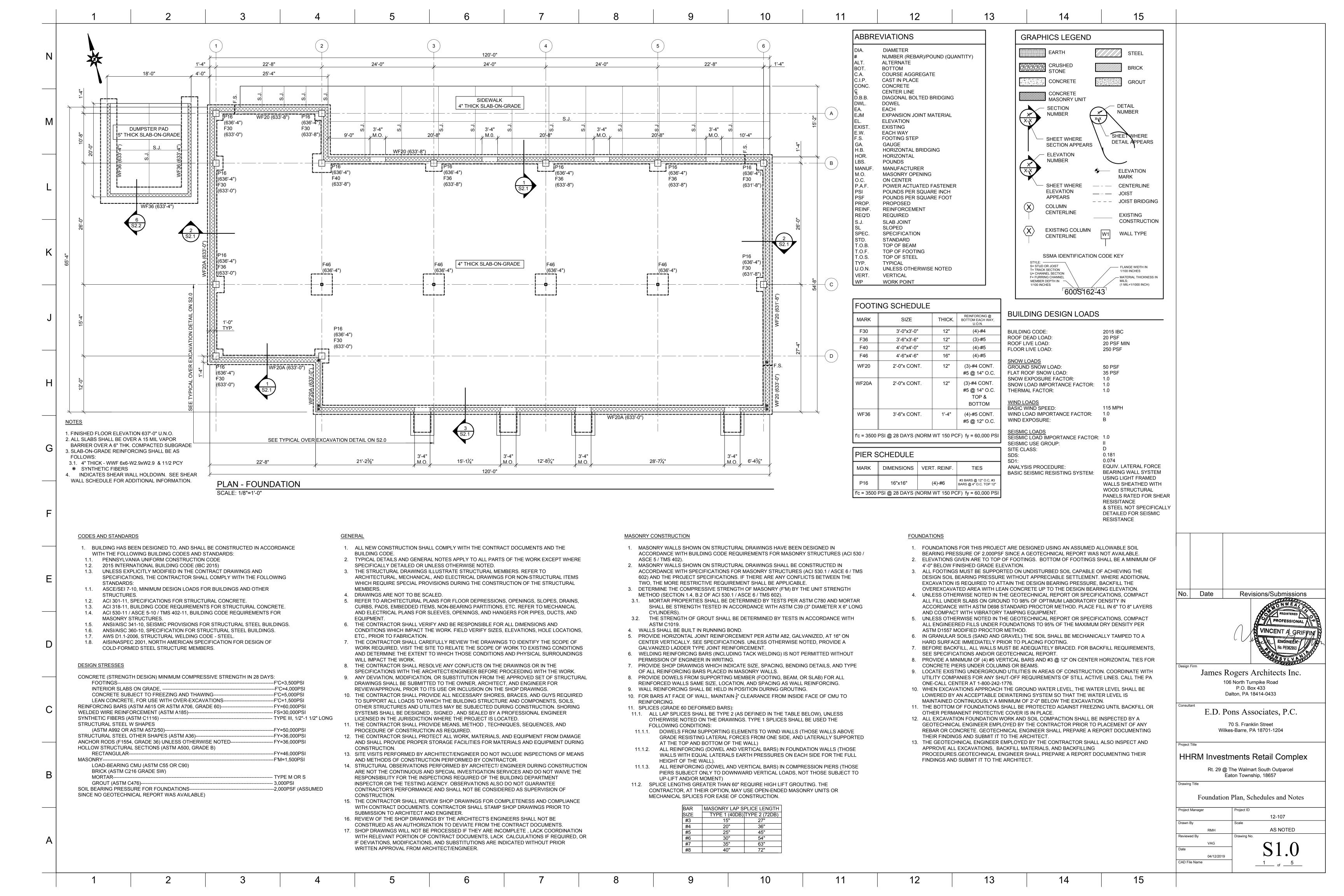
595 East Lake Road P.O. Box 130 Bear Creek, PA. 18062-0130

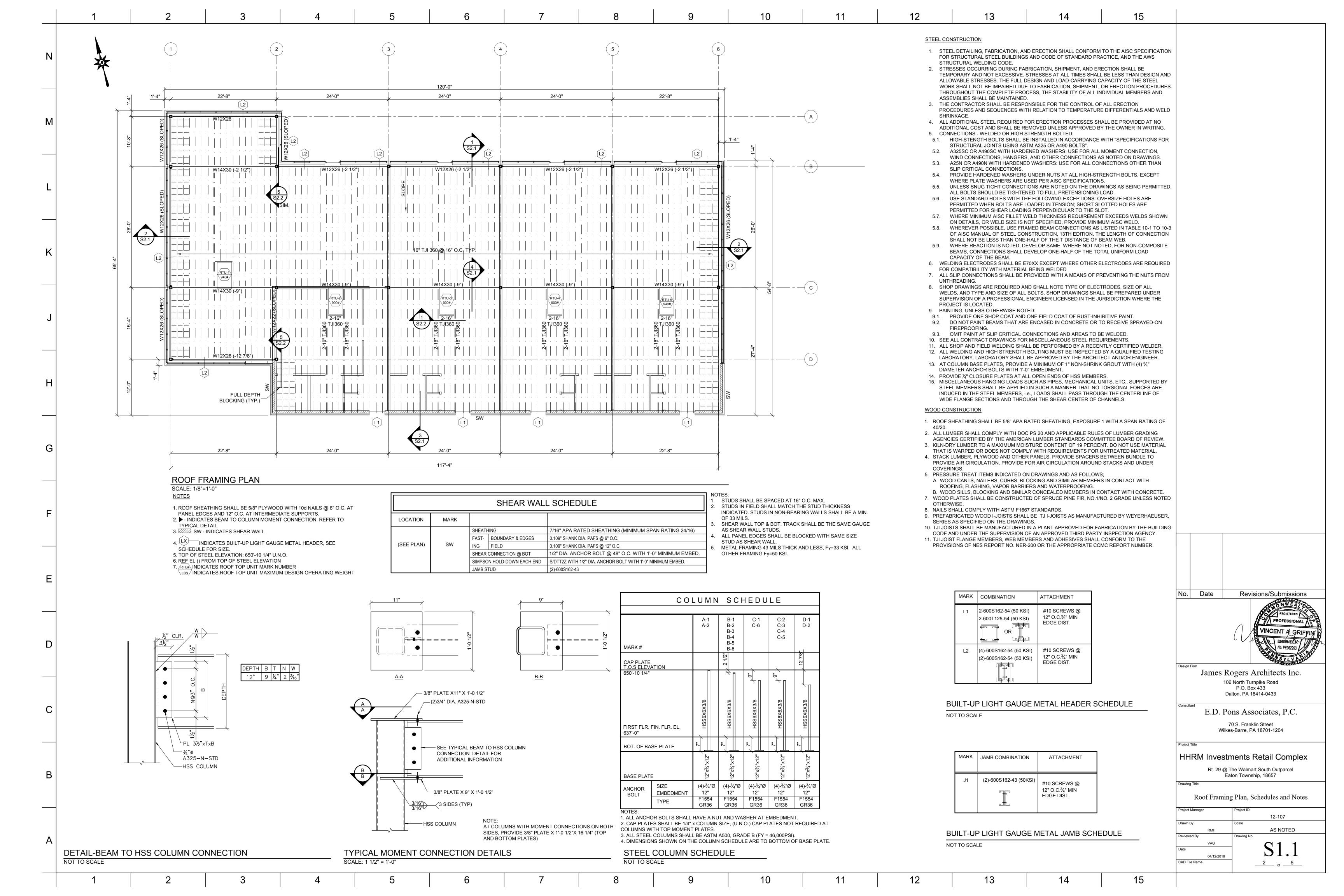
HHRM Investments Retail Complex Rt. 29 @ The Walmart South Outparcel Eaton Township, 18657

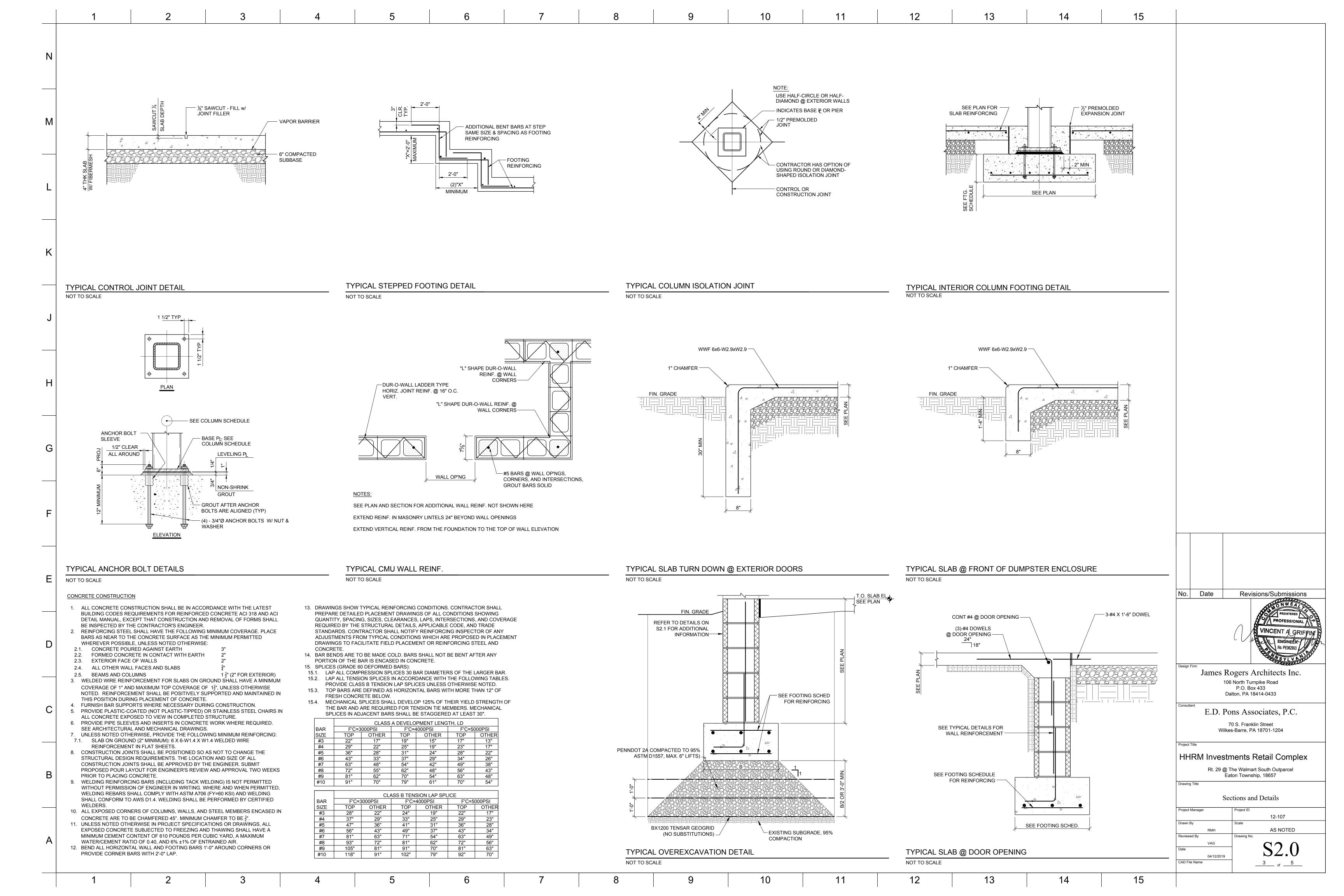
Cover Sheet AS NOTED

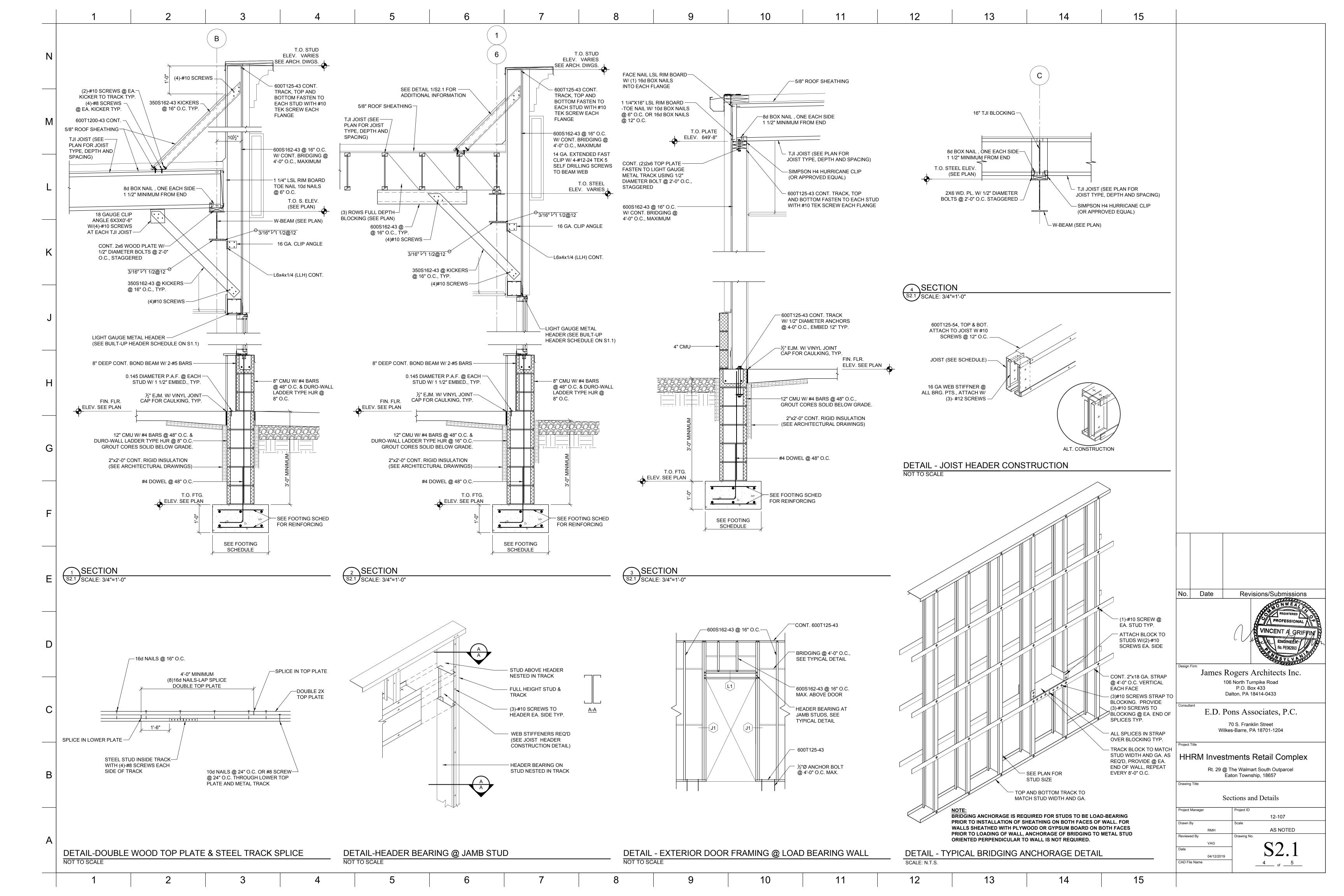
04/12/2019

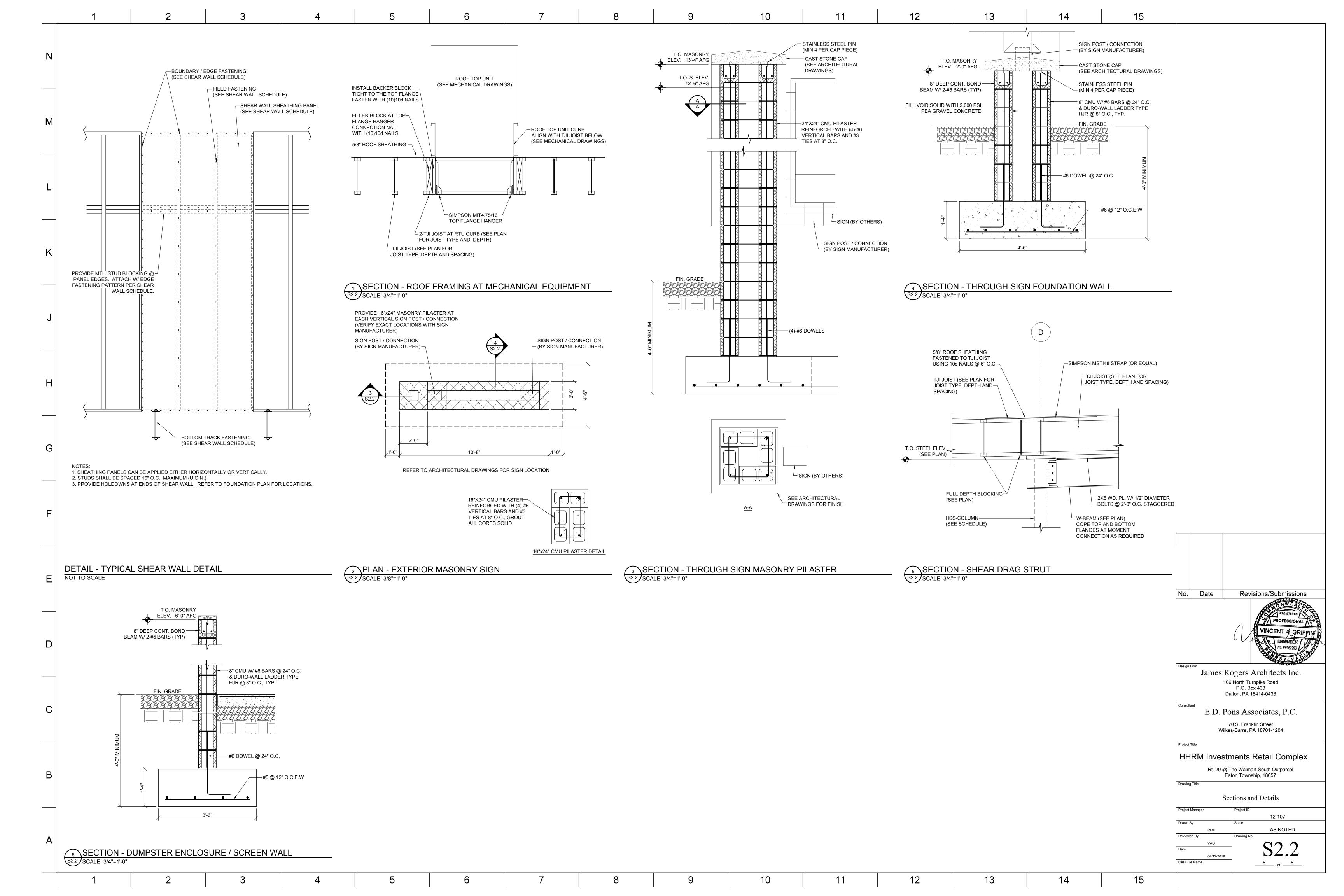


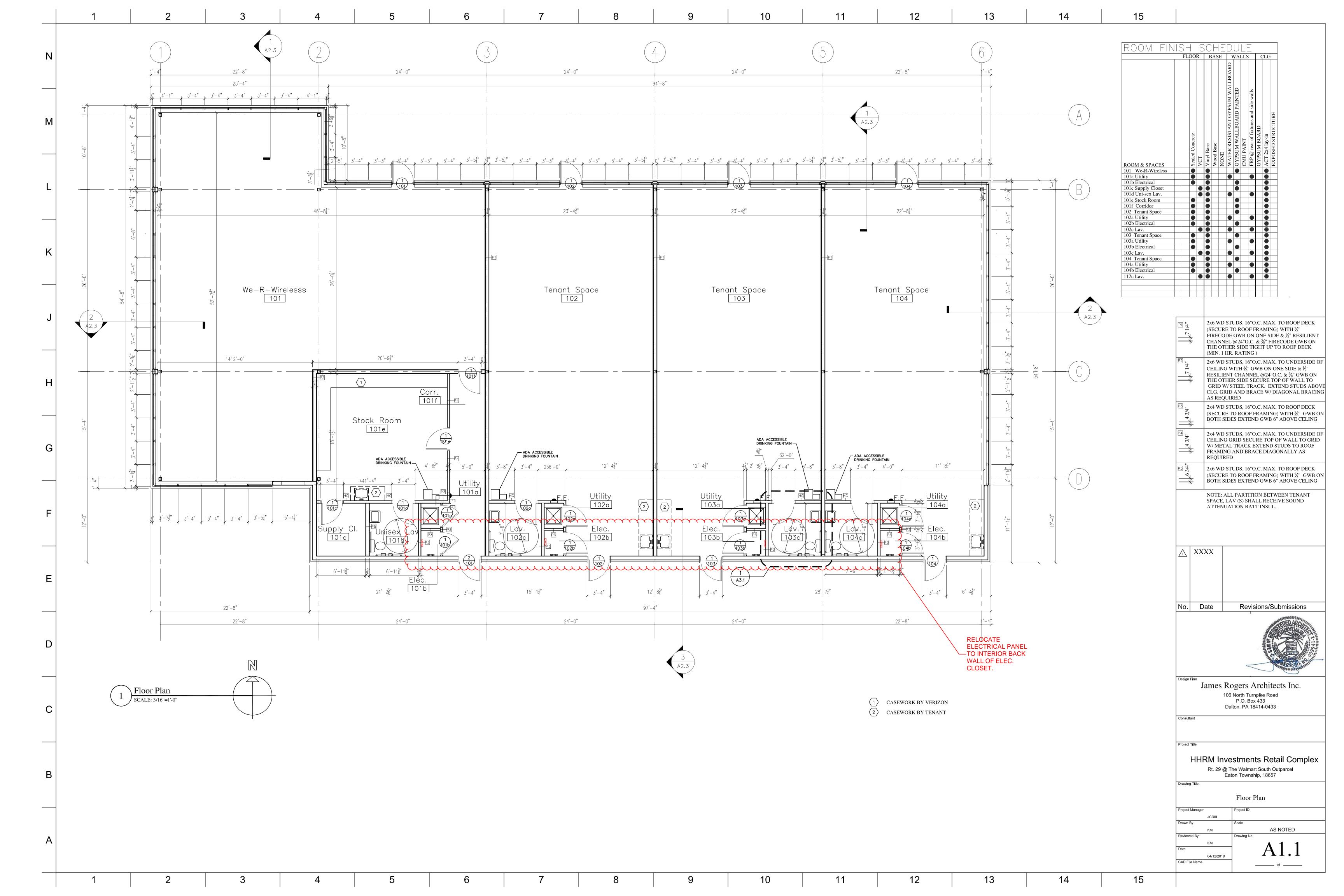


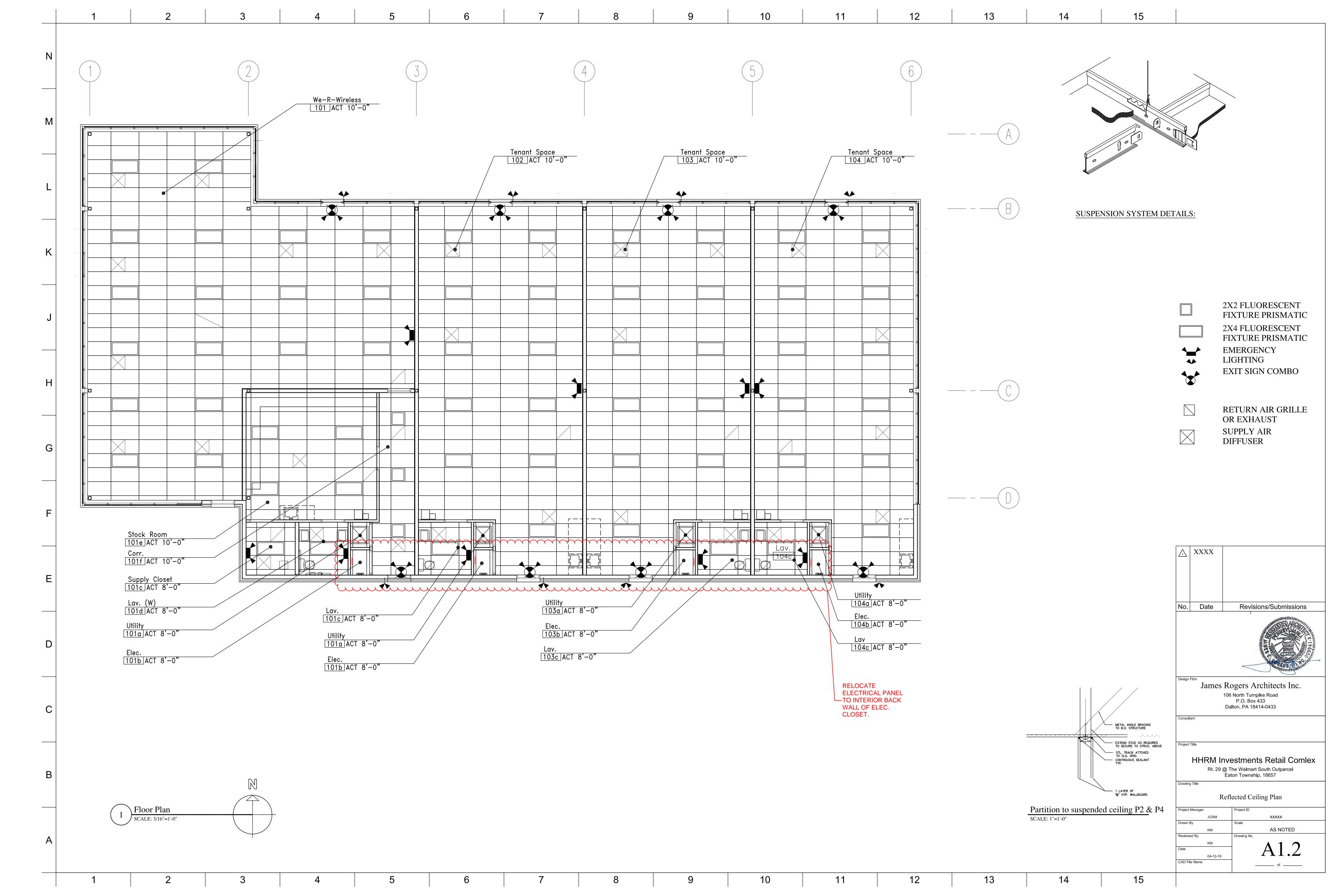


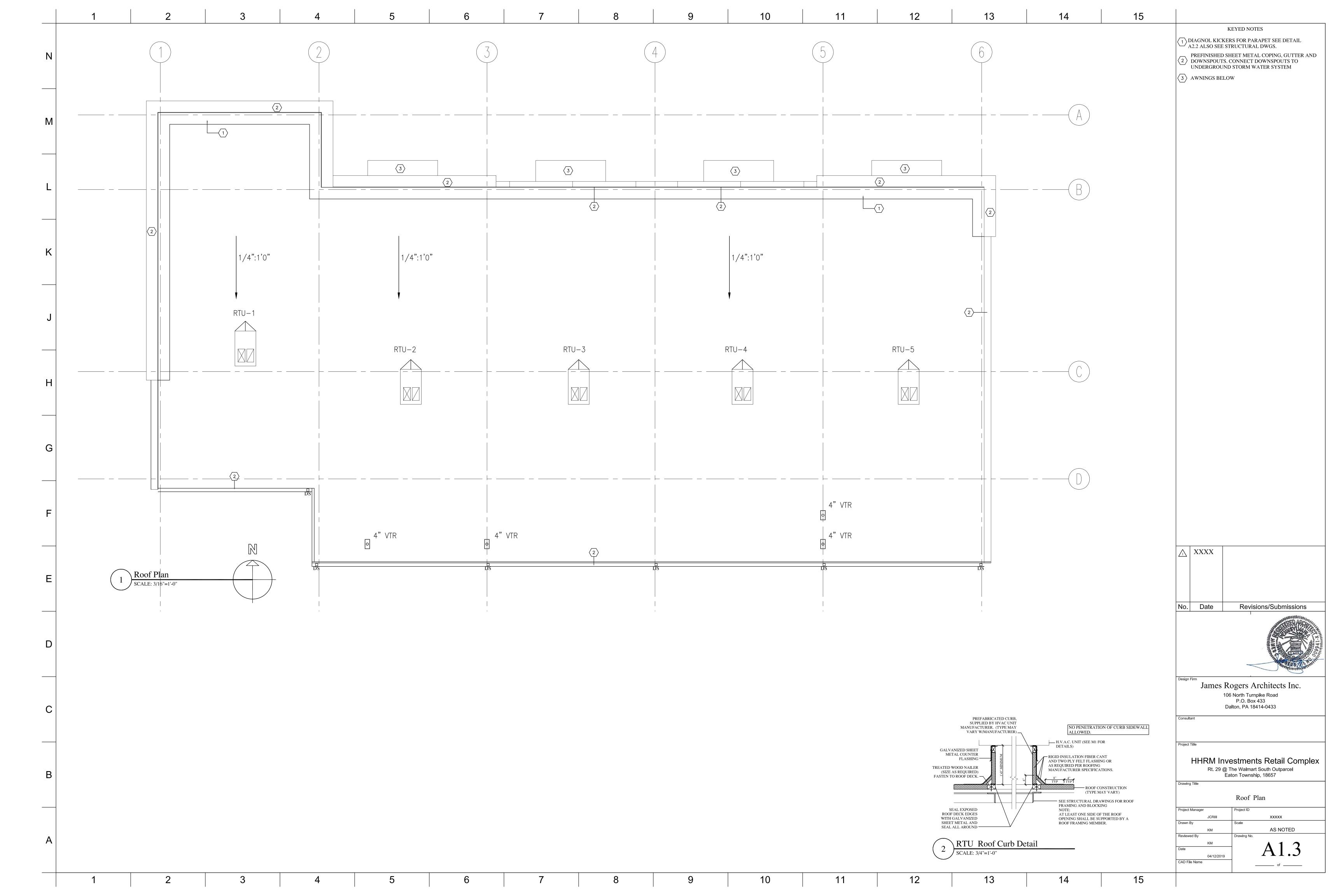


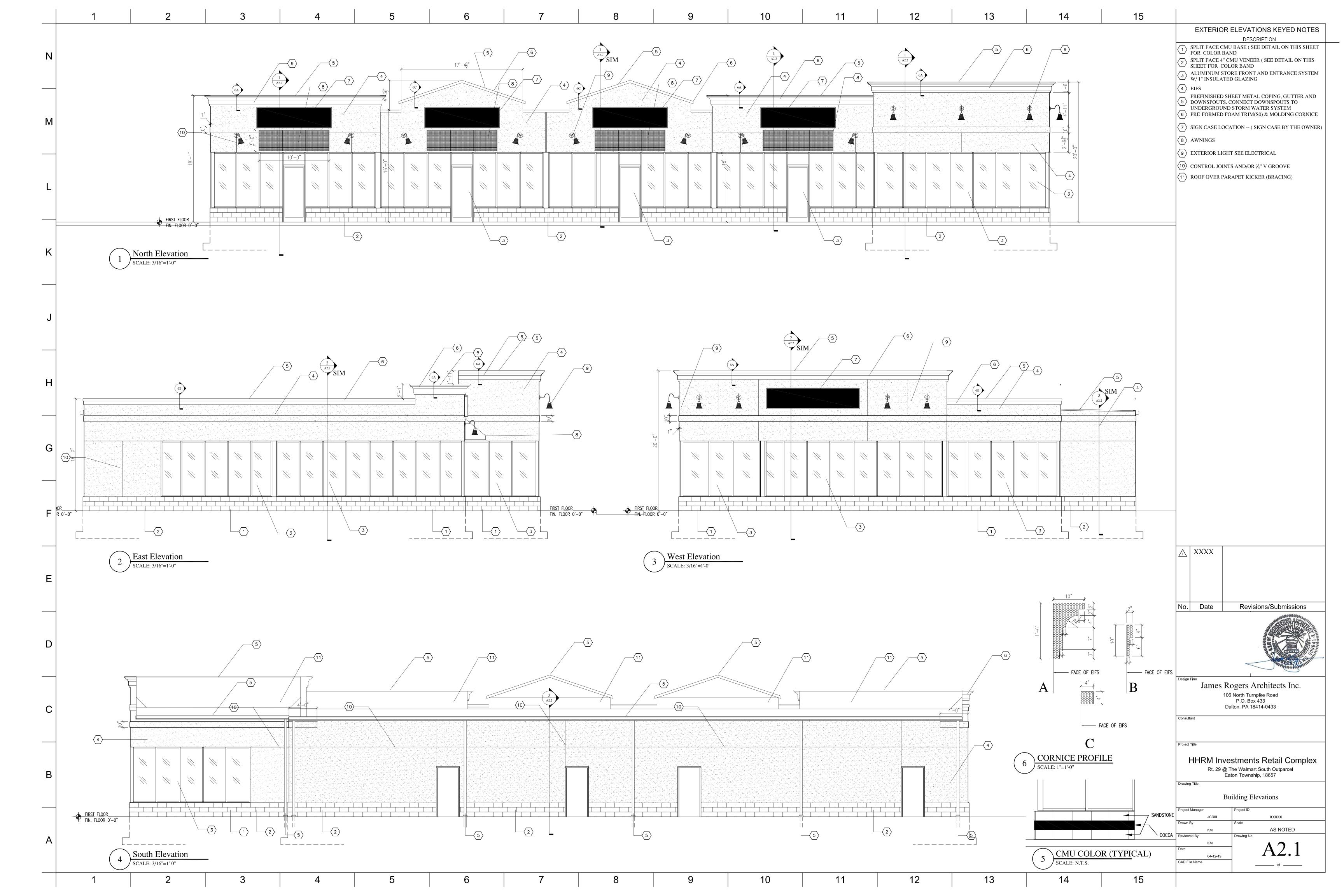


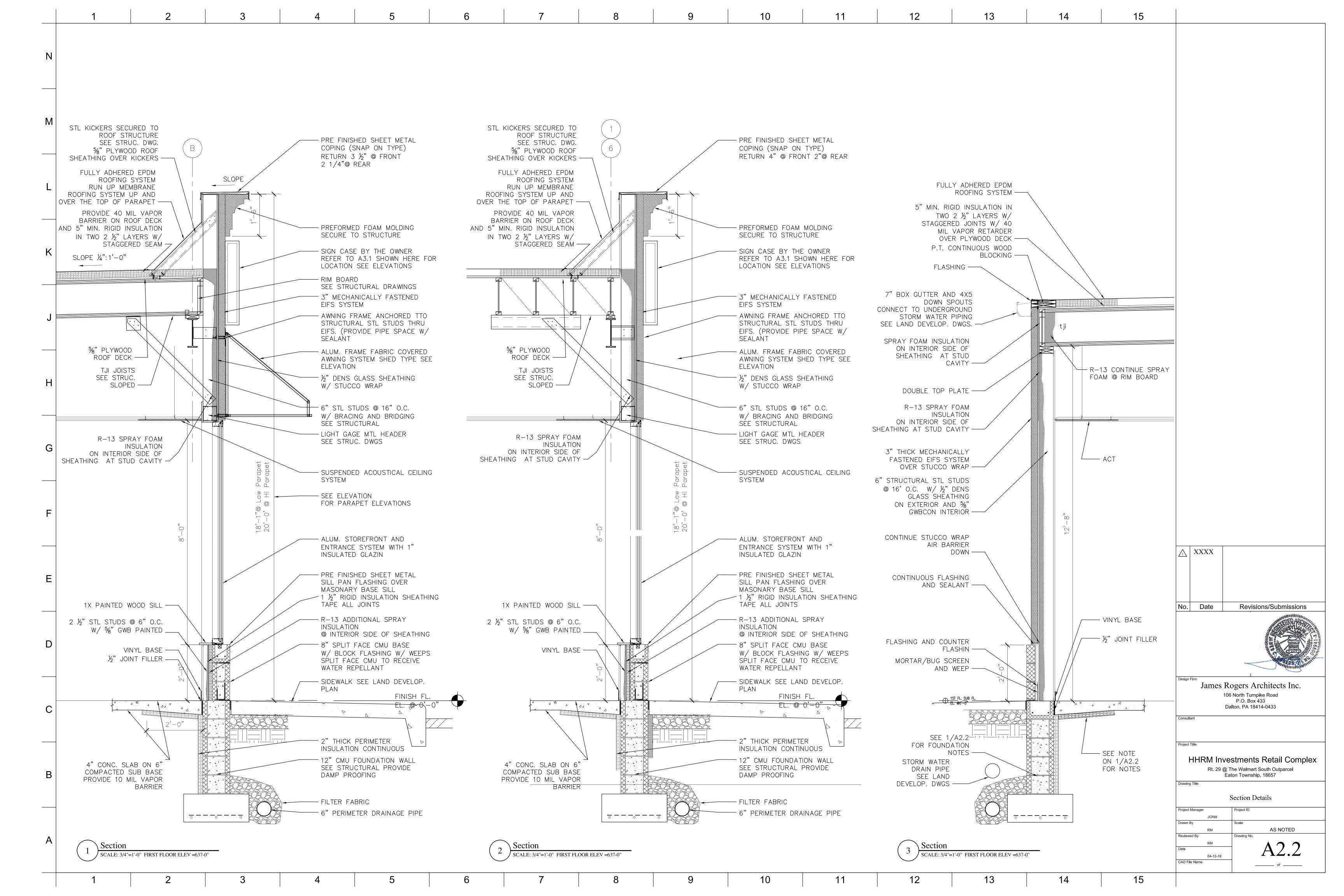


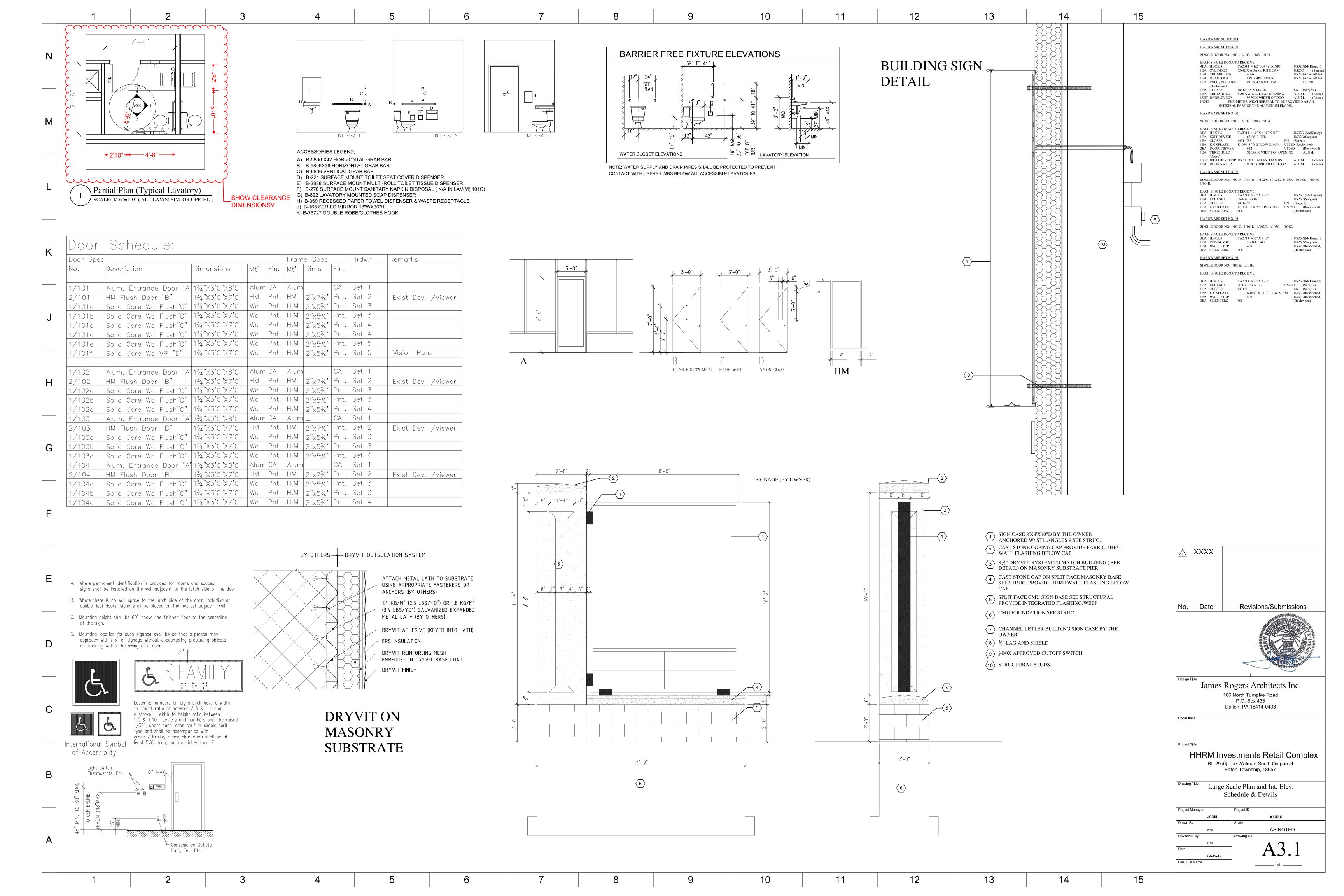


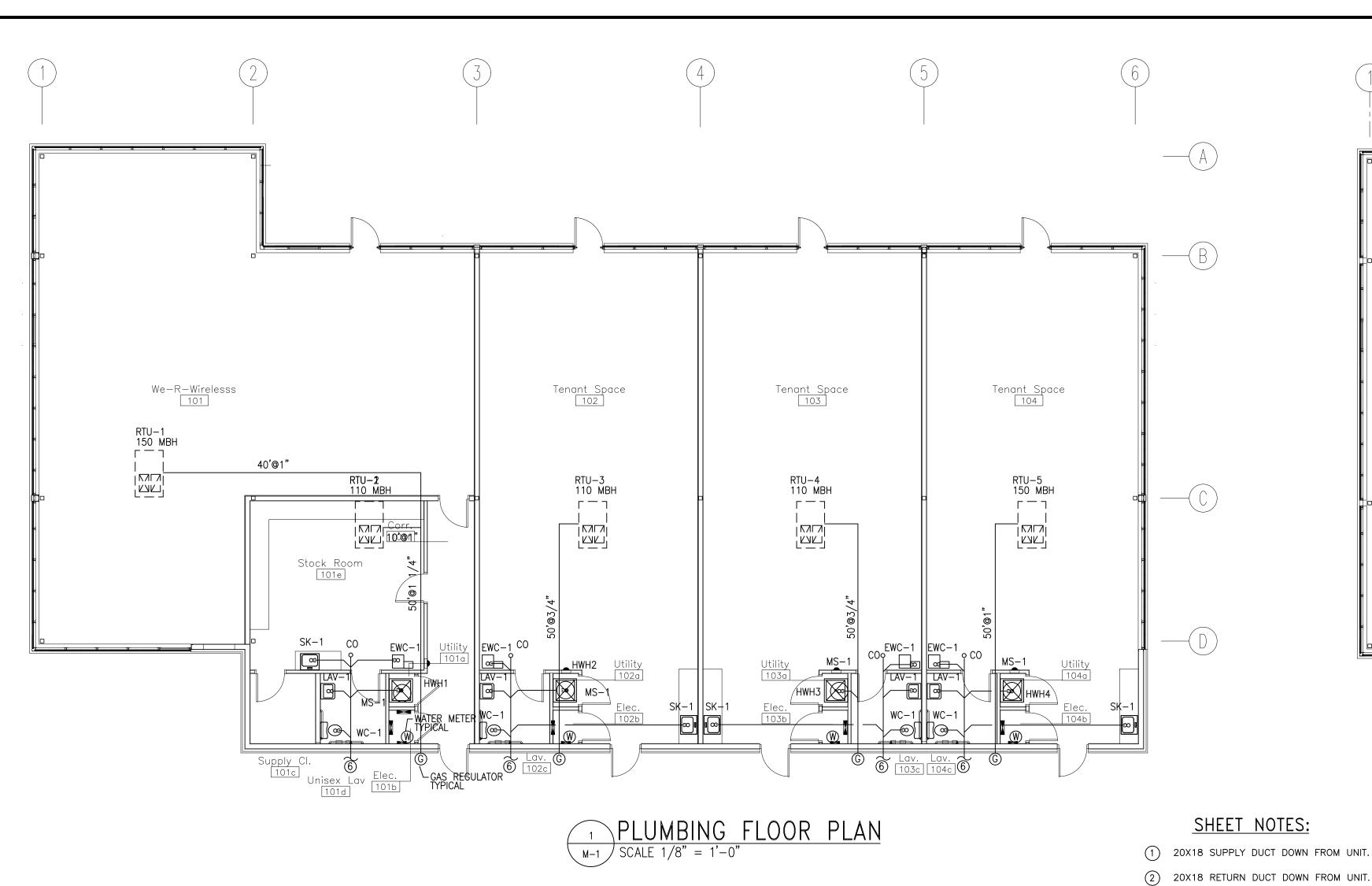










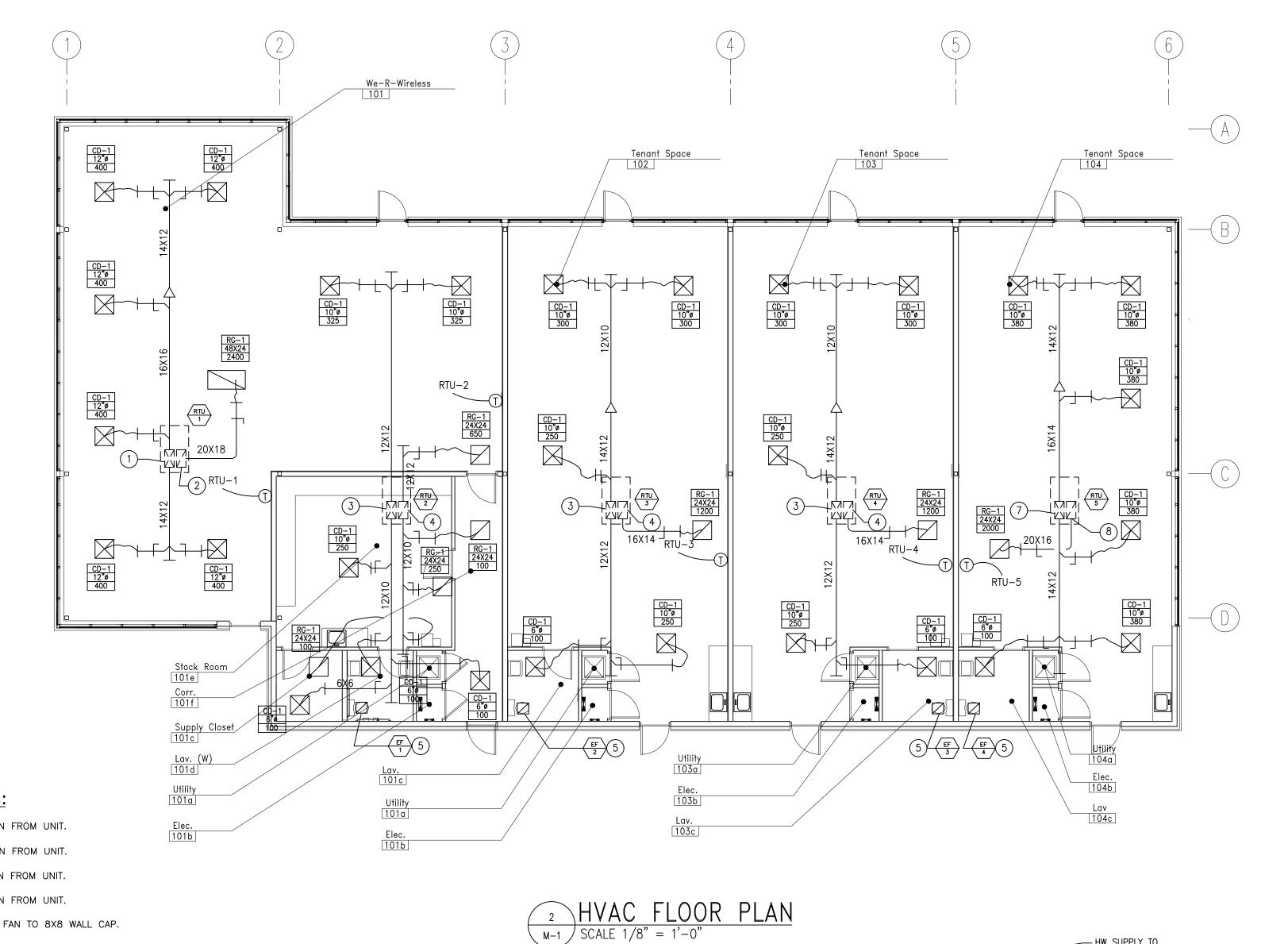


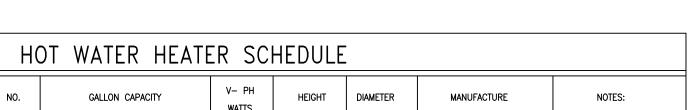
3 16X14 SUPPLY DUCT DOWN FROM UNIT. 4) 16X14 RETURN DUCT DOWN FROM UNIT. 5 6X6 DUCT FROM EXHAUST FAN TO 8X8 WALL CAP.

6 SEE CIVIL ENGINEERING DRAWING U-1 FOR CONTINUATION OF SANITARY LINE, WATER LINE AND PROPANE GAS LINE.

(7) 20X16 SUPPLY DUCT DOWN FROM UNIT.

(8) 20X16 RETURN DUCT DOWN FROM UNIT.





### WATTS 120V-1PH 18" 18" HWH-1 10 GALLON DEL 10 1,500 W

# NOTES:

- 1. PIPING SIZES NOT INDICATED ON FLOOR PLANS ARE SHOWN ON RISER DIAGRAMS.
- 2. PIPING SHOWN ON DRAWING IS DIAGRAMMATIC. CONTRACTOR SHALL PROVIDE ALL HANGERS, SUPPORTS, INSULATION, VALVES, MARKERS, AND OTHER ACCESSORIES AS INDICATED IN GENERAL NOTES ON THIS DRAWING.
- 3. COORDINATE COLOR OF FIXTURES WITH OWNER/ARCHITECT.

4. SLOPE ALL WASTE PIPING IN CONFORMANCE WITH APPLICABLE CODES.

5. CONTRACTOR TO FIELD VERIFY LOCATION OF ALL SANITARY AND WATER LINES BEING CONNECTED INTO PRIOR TO CONSTRUCTION.

EXHAU	EF ·							
						MOTOR		
NO.	CFM	S.P. "H <sub>2</sub> 0	FAN TYPE	FAN RPM	WATTS	RPM	V-ø-Hz	MANUFACTURE/ MODEL
EF-1 TO EF-4	100	0.5	CEILING	1,400	113	1,400	120-1-60	GREENHECK SPA125

INTERNATIONAL STANDARD PLUMBING CODE

WC-1 ADA WATER CLOSET

SK-1 ADA SINK

MS-1 MOP SINK

LAV-1 ADA LAVATORY

EWC-1 ADA ELECTRIC WATER COOLER

PLUMBING FIXTURE CONNECTION SCHEDULE

1 1/4" x 1 1/2" | 1 1/2" | 2 | 1 1/4" | 1/2" |

INTEGRAL

TRAP DRAIN DFU VENT CW CWFU HW HWFU

2 | 1 1/4" | 1/2"

1 1/4" | 1/2"

2" | 1/2" |

2" | 1/2"

1.0 1/2"

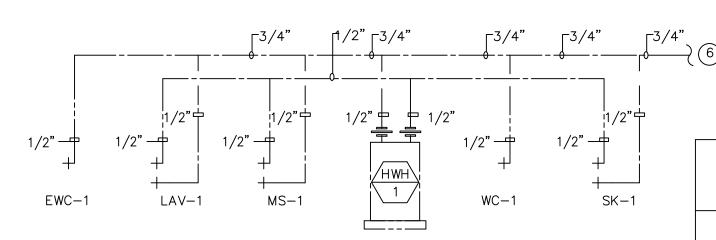
1/2"

1.0 1/2" 1.0

GF	GRILLE AND DIFFUSER DATA  TAG FACE CFM  NO. 0F ACCESSORIES MANUFACTURER / MODEL COMM							
NO.	TYPE	NECK SIZE	FACE SIZE	NO. OF BLOWS ACCESSORIES		MANUFACTURER/ MODEL	COMMENTS	
CD-1	CD-1 CEILING DIFFUSER SEE DWG.		SEE DRAWING	-	-	TITUS TDCA	1	
RG-1	RETURN GRILLE	SEE DWG.	SEE DRAWING	-	-	TITUS 350RL	1	
(1)FINISH	SHALL BE SELECTED	BY ARCHITECT.						

# FIXTURE MOUNTING HEIGHTS TO BE IN ACCORDANCE WITH HANDICAPPED REQUIREMENTS.

REMARKS



4"VTR

1 1/4"

NOTES:

1. UNIT TO RUN ON PROPANE.

SK-1

1 1/4"

TYPICAL SANITARY RISER DIAGRAM

WC-1

LAV-1

1 1/4"

1/2" MS-1

EWC-1

M-1 / N.T.S.

TYPICAL DOMESTIC WATER RISER DIAGRAM
N.T.S.

ROOFTOP UNIT DATA SUPPLY FAN COOLING COIL FILTERS AMBIENT MANUFACTURER/ MODEL TONS AIR OFF CFM AVER. EFF.% UNIT SYS. MCA CIRCUIT LBS. TSP TYPE ESP CFM (ASHRAE) DB WB DB WB MBH MBH BRK. 80 | 67 | 55 | 54 | 51 | 72 | 150 | 120 208-3-60 CARRIER 48CFM07A2A5-6F0C0 2,400 0.75 1 1.5 2,352 208-3-60 30 RTU-2 3 1,200 0.75 0.5 208-3-60 637 6.8 19 25 208-3-60 THROWAWAY 30 CARRIER 48FCEA04A2A5-0K0C0 1,771 1,200 0.75 0.5 208-3-60 67 | 55 | 54 | 26 | 36 | 110 | 88 25 208-3-60 THROWAWAY CARRIER 48FCEA04A2A5-0K0C0 CARRIER 48FCEA04A2A5-0K0C0 RTU-4 1,200 0.75 1 0.5 1,771 208-3-60 80 | 67 | 55 | 54 | 26 | 36 | 110 | 88 25 208-3-60 THROWAWAY 5 2,000 0.75 1 1 2,180 RTU-5 208-3-60 130 776 80 67 55 54 42 60 150 120 11.2 31 45 208-3-60 THROWAWAY 30 95 CARRIER 48CFA06A2A5-6F0C0

AN PROFESSIONAL KENUMALAN GYEST IL ENGINEER NO. 052629-E

KEVIN GUEST, PE, LEED AP GUEST ENGINEERING PROFESSIONAL ENGINEER 27 NORTH LINCOLN AVENUE NEWTOWN, PA 18940 215.860.8046 Issued for Review: Project Number: Issued for Bidding: Issued for Permits: 04/12/19 Issued for Construction: Registration Number: 52629—E Project Location: Rt29 @ Wallmart South Out parcel Eaton Township, 18657 HHRM Investments Retail Complex Mechanical Floor Plans Schedules and Risers

DESCRIPTION

— HW SUPPLY TO SYSTEM SEE PLAN

— CW SUPPLY TO WATER

HEATER SEE PLAN

- 3/4" DRAIN LINE

TÓ MOP SINK

- UNION DIELECTRIC (TYP)

- BALL VALVE

WATER

HEATER

No. DATE

M-1 NOT TO SCALE

HOT WATER HEATER DETAIL

### MECHANICAL SPECIFICATIONS

### 1. GENERAL REQUIREMENTS

- 1.1 THE WORK TO BE DONE UNDER THIS PROJECT INCLUDES PROVIDING ALL
  FIXTURES, EQUIPMENT, MATERIALS, PERMITS, DAILY CLEAN UP, TRASH REMOVAL,
  LABOR AND SERVICES REQUIRED FOR A COMPLETE AND OPERATING SYSTEM.
  ANY WORK NOT SPECIFICALLY COVERED BUT NECESSARY TO COMPLETE THIS INSTALLATION,
  SHALL BE PROVIDED ALL FIXTURES, EQUIPMENT AND PIPING SHALL BE NEW AND PROVIDED
  UNDER THIS CONTRACT UNLESS OTHERWISE NOTED.
- 1.2 THE TERM "FURNISH" SHALL MEAN TO OBTAIN AND SUPPLY TO THE JOB SITE.

  THE TERM "INSTALL" SHALL MEAN TO FIX IN POSITION AND CONNECT FOR USE.

  THE TERM "PROVIDE" SHALL MEAN TO FURNISH AND INSTALL. THE TERM
  "CONTRACTOR" SHALL MEAN PLUMBING CONTRACTOR.
- 1.3 ONLY WRITTEN CHANGES AND/OR MODIFICATIONS APPROVED BY THE ARCHITECT, CONSULTING ENGINEER OR OWNER'S REPRESENTATIVE WILL BE RECOGNIZED.
- 1.4 THE CONTRACTOR SHALL COORDINATE WORK WITH OTHER TRADES.
- 1.5 PROVIDE ALL SCAFFOLDING, LADDERS, RIGGING, HOISTING, ETC., REQUIRED FOR THIS WORK. MAKE ARRANGEMENTS FOR CLOSING OF RIGHT-OF-WAYS.
- .6 PROVIDE TWO (2) SETS OF OPERATING AND MAINTENANCE MANUALS, AND GIVE INSTRUCTIONS TO USER FOR ALL EQUIPMENT AND SYSTEMS PROVIDED UNDER THIS CONTRACT AFTER ALL ARE CLEANED AND OPERATING.
- 1.7 KEEP PREMISES FREE FROM RUBBISH. REMOVE ALL RUBBISH FROM AREA DAILY.
  PROVIDE TRASH REMOVAL FROM SITE.
- 1.8 PROVIDE ALL CONCRETE WORK FOR EQUIPMENT FOUNDATIONS AND PADS, PIPE PENETRATIONS, ETC.
- 1.9 PLUMBING WORK SHALL BE DONE AT SUCH TIME, AND IN SUCH MANNER, AS WILL LEAST INTERFERE WITH THE MAINTENANCE AND OPERATION OF THE SITE'S AND/OR BUILDING'S ACTIVITIES. PROVISIONS SHALL BE MADE TO PERMIT THE USE OF ALL EXISTING PIPING SYSTEMS AT ALL TIMES. PROVIDE TEMPORARY FACILITIES TO SECURE THESE CONDITIONS AND REMOVE SUCH TEMPORARY FACILITIES WHEN NO LONGER REQUIRED.
- 1.10 SHUTDOWN WORK SHALL BE AT SUCH TIME AND IN SUCH MANNER AS
  DIRECTED TO THE OWNER AND TENANT. PROVIDE A MINIMUM OF ONE (1) WEEK NOTICE.
- 1.11 WHERE SHUTDOWN PERIODS CANNOT BE OF DURATION TO ACCOMMODATE
  THE NEW WORK, THE CONTRACTOR SHALL PERFORM THE WORK IN A SERIES
  OF PRE PLANNED STAGES OF MINIMAL ALLOWABLE SHUTDOWN PERIODS.
  PROVIDE TEMPORARY FACILITIES TO ALLOW REUSE OF SERVICE
  BETWEEN WORKING STAGES.
- 1.12 THE CONTRACTOR SHALL VISIT THE SITE AND BECOME FAMILIAR WITH ALL CONDITIONS AND SYSTEMS THAT EFFECT HIS BIDDING AND WORK, AND SHALL VALUE FOR SAME IN HIS BID.
- 1.13 THE CONTRACTOR SHALL CONFIRM THE LOCATIONS OF ALL UTILITIES.

  CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE TO EXISTING UTILITIES AND TO THE BUILDING.
- 1.14 UPON COMPLETION OF WORK, THE CONTRACTOR SHALL CLEAN AND ADJUST ALL FIXTURES, EQUIPMENT AND PIPING AND TEST ALL SYSTEMS TO SATISFACTION OF OWNER/ENGINEER.
- 1.15 ALL WORK SHALL BE PERFORMED BY THOSE SKILLED IN THEIR PARTICULAR TRADE IN A NEAT AND WORKMANLIKE MANNER.
- 1.16 ALL NEW PLUMBING MATERIAL FIXTURES AND EQUIPMENT SHALL BE LISTED BY THE FOLLOWING APPLICABLE STANDARDS:

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

AMERICAN WATER WORKS ASSOCIATION (AWWA)

CAST IRON SOIL PIPE INSTITUTE (CISPI)

MANUFACTURING STANDARDIZATION SOCIETY (MSS)

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NATIONAL SANITATION FOUNDATION (NSF)

UNDERWRITERS LABORATORIES (UL)

1.17 THE DRAWINGS ARE DIAGRAMMATIC AND ALL SPECIALTIES AND APPURTENANCES ARE NOT SHOWN, BUT SHALL BE PROVIDED AS REQUIRED.

# 2. PROJECT COORDINATION

- 2.1 IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY FIELD CONDITIONS AT THE SITE AND NOTIFY THE OWNER OF ANY DISCREPANCIES PRIOR TO COMMENCING WITH THE WORK.
- 2.2 THE CONTRACTOR IS RESPONSIBLE FOR REVIEWING AND COORDINATING WITH THE DOCUMENTS OF ALL TRADES.
- 2.3 THE CONTRACTOR SHALL FURNISH A SCHEDULE INDICATING HIS PORTION OF TIME, WITHIN OVERALL SCHEDULE, REQUIRED TO COMPLETE THE WORK, IN CONDUCTION WITH ALL TRADES.

# CUTTING AND PATCHING AND PAINTING

- THE CONTRACTOR SHALL DO ALL CUTTING, AND
  PATCHING OF NEW CONSTRUCTION REQUIRED BY HIS WORK. PLUMBING
  CONTRACTOR SHALL DO ALL CUTTING AND PATCHING IN EXISTING
  CONSTRUCTION. ALL FINISHES TO MATCH EXISTING. STRUCTURAL MEMBERS
  SHALL NOT BE CUT UNLESS APPROVED BY OWNER'S REPRESENTATIVE.
- 3.2 WHERE EQUIPMENT IS REMOVED, CONTRACTOR TO REFINISH AREA TO MATCH

# PROTECTION OF WORK

4.1 EFFECTIVELY PROTECT ALL MATERIALS AND EQUIPMENT FROM
ENVIRONMENTAL AND PHYSICAL DAMAGE UNTIL FINAL ACCEPTANCE. CLOSE
AND PROTECT ALL OPENINGS DURING CONSTRUCTION. PROVIDE NEW
MATERIALS AND EQUIPMENT TO REPLACE ITEMS DAMAGED.

# REFERENCED STANDARDS AND DEFINITIONS

5.1 ENTIRE INSTALLATION, INCLUDING MATERIALS, EQUIPMENT AND WORKMANSHIP, SHALL CONFORM WITH ALL APPLICABLE LAWS, CODES AND REGULATIONS AND REGULATORY BODIES HAVING JURISDICTION OVER THIS WORK.

### WARRANTIES AND BONDS

- 6.1 ALL MATERIALS, EQUIPMENT AND WORKMANSHIP SHALL BE GUARANTEED IN WRITING FOR A MINIMUM OF ONE (1) YEAR AFTER FINAL ACCEPTANCE BY
- 6.2 OBTAIN AND DELIVER TO THE OWNER'S REPRESENTATIVE ALL GUARANTEES AND CERTIFICATES OF COMPLIANCE.

### SUBMITTALS

- 7.1 SHOP DRAWINGS: BEFORE ROUGHING—IN OR ORDERING ANY EQUIPMENT, THE CONTRACTOR SHALL SUBMIT A MINIMUM OF SIX (6) COPIES OF SHOP DRAWINGS. SHOP DRAWINGS SHALL CONSIST OF PRODUCT PHYSICAL AND PERFORMANCE DATA FOR ALL MATERIALS AND EQUIPMENT PROPOSED TO BE FURNISHED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CHECKING OF PROPOSED EQUIPMENT PRIOR TO SUBMITTING TO ARCHITECT/ENGINEER. THE CAUSE OF ANY REDESIGNING CAUSED BY A SUBSTITUTION OR LACK OF COORDINATION SHALL BE BORNE BY THE CONTRACTOR.
- 7.2 ENGINEER SHALL REVIEW A LIMIT OF TWO (2) SUBMITTALS. COSTS TO ENGINEER FOR REVIEW OF ADDITIONAL SUBMITTALS SHALL BE BORNE BY CONTRACTOR.
- 7.3 NO SUBSTITUTION OF MATERIAL OR EQUIPMENT SPECIFIED WILL BE ALLOWED UNLESS WRITTEN APPROVAL IS RECEIVED FROM THE ARCHITECT OR ENGINEER.

  WHERE SUCH SUBSTITUTIONS ARE ALLOWED, AND THEY ALTER THE DESIGN OR SPACE REQUIREMENTS, THE CONTRACTOR SHALL PAY FOR ALL COSTS INVOLVED SUCH AS ARCHITECTS AND ENGINEER'S REDESIGN FEES AND ANY ADDITIONAL CONSTRUCTION COSTS FOR CONTRACTOR'S OWN WORK AND THAT OF OTHER TRADES. EQUIPMENT SHALL NOT BE PURCHASED, OR WORK STARTED UNTIL SHOP DRAWINGS ARE APPROVED. WHERE NEW EQUIPMENT IS AN EXTENSION OF AN EXISTING SYSTEM, IT SHALL MATCH THE EXISTING SYSTEM EQUIPMENT.

### RECORD DRAWINGS

- DURING CONSTRUCTION, THE CONTRACTOR SHALL MAINTAIN A RECORD SET
  OF INSTALLATION PRINTS. HE SHALL NEATLY AND CLEARLY RECORD ON THESE
  PRINTS ALL DEVIATIONS FROM THE CONTRACT DRAWINGS WITH ALL DESIGN CHANGES
  DURING THE CONSTRUCTION PROCESS. RECORD SET THEN WILL BE GIVE TO ARCHITECT
  FOR SUBMISSION TO OWNER.
- 8.2 AT THE COMPLETION OF THE WORK, THE CONTRACTOR SHALL PROVIDE A SET
  OF MARKED UP "AS BUILT" DRAWINGS (SUBMIT A SET OF REPRODUCIBLE DRAWINGS)

### 9. PERMITS

9.1 CONTRACTOR SHALL PROVIDE ALL NECESSARY PERMITS, APPROVALS, INDEPENDENT INSPECTION AGENCY APPROVALS, AND PAY ALL RELATED FEES AND COSTS.

### 10. DEMOLITION AND ALTERATIONS

- 10.1 EXISTING PLUMBING EQUIPMENT THAT INTERFERES WITH NEW ARRANGEMENT SHALL BE REMOVED, REINSTALLED, RELOCATED, REROUTED, EXTENDED OR ABANDONED AS REQUIRED, TO SUIT THE NEW ARRANGEMENT.
- 10.2 SHOULD REMOVAL, RELOCATION, REROUTING OF ANOTHER TRADE'S WORK BE REQUIRED TO ACCOMMODATE PLUMBING WORK, THE PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR THAT WORK AND SHALL PAY ALL REQUIRED COSTS. WORK SHALL BE PERFORMED BY MECHANICS SKILLED IN PARTICULAR TRADE INVOLVED.
- 10.3 EXISTING PIPING, WHICH IS TO REMAIN IN SERVICE UNDER THE NEW ARRANGEMENT, SHALL BE MODIFIED, EXTENDED, REROUTED AND CONNECTED TO AN AVAILABLE SERVICE MAIN. IF EXISTING PIPING IS FOUND NOT TO BE IN SATISFACTORY CONDITION, NOTIFY ARCHITECT WHO WILL DETERMINE IF REPLACEMENT IS NECESSARY. EXISTING PLUMBING WORK THAT HAS BECOME EXPOSED DUE TO NEW ARRANGEMENT, AND IS TO REMAIN IN SERVICE, SHALL BE RELOCATED MODIFIED, EXTENDED AS REQUIRED TO SUIT THE NEW ARRANGEMENT.
- 10.4 EXISTING EQUIPMENT, BUILDING AREA OR SURFACE DAMAGED SHALL BE RESTORED TO ITS ORIGINAL CONDITION OR REPLACED.
- 10.5 REMOVED EQUIPMENT AND MATERIAL NOT DESIRED BY THE OWNER SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE PROMPTLY REMOVED FROM THE SITE. EQUIPMENT AND MATERIAL DESIRED BY THE OWNER SHALL BE DELIVERED BY THE CONTRACTOR TO LOCATION DESIGNATED BY OWNER. OWNER WILL TAG OR OTHERWISE INDICATE THE EQUIPMENT AND MATERIAL HE DESIRES TO KEEP.
- 10.6 EXISTING PLUMBING WORK THAT IS TO REMAIN WHEN EXISTING STRUCTURE ON WHICH IT IS INSTALLED IS TO BE MODIFIED OR REMOVED SHALL BE PROPERLY SUPPORTED IN PLACE UNTIL WORK OF ALL TRADE'S IS COMPLETED. REINSTALL THE PLUMBING WORK ON THE NEW STRUCTURE.
- 10.7 UNLESS OTHERWISE NOTED, EXISTING PIPING AND EQUIPMENT IN RENOVATED AREAS MAY BE REUSED FOR NEW WORK. PIPING SERVING SYSTEMS WHICH ARE TO REMAIN SHALL BE REROUTED AND RECONNECTED AS REQUIRED.
- 10.8 CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING INTEGRITY OF ALL STRUCTURAL ELEMENTS.

# 11. PIPING

- 11.1 ALL PIPING SHALL BE PROVIDED IN CONFORMANCE WITH THE NATIONAL STANDARD PLUMBING CODE 2015.
- 11.2 SANITARY WASTE PIPING SHALL BE SCHEDULE 40 PVC.
- DOMESTIC WATER PIPING SHALL BE ASTM B88 TYPE "L" HARD DRAWN COPPER TUBE WITH ASME B16.22 PRESSURE FITTINGS AND ASTM B32-96 LEAD FREE ALLOY GRADE AM SOLDERED "AQUAPURE" BY LUKENS METALS CORP. & ACID FREE FLUX.
- 11.4 ALL PENETRATIONS SHALL BE SEALED WITH FIREPROOF COMPOUND USING A UL LISTED FIRESTOP MATERIAL.
- 11.5 ALL PIPING SHALL BE SUPPORTED IN CONFORMANCE WITH THE INTERNATIONAL PLUMBING CODE 2009 AND MSS. ALL SUPPORTS SHALL BE PAINTED OR PLATED.
- 11.6 ALL CONNECTIONS BETWEEN DISSIMILAR METALS SHALL BE MADE WITH DIELECTRIC UNIONS.

### 12. VALVES

12.1 PROVIDE AND INSTALL SHUT OFF VALVES ON ALL SERVICES TO PLUMBING EQUIPMENT AND FIXTURES. SHUT OFF AND ISOLATION VALVES SHALL BE TWO PIECE FULL PORT AS MANUFACTURED BY JAMESBURY "CLINCHER 2000" (BALL VALVE) OR APPROVED EQUAL, UNLESS OTHERWISE NOTED.

### 13. FIXTURES

13.1 PROVIDE AND INSTALL ALL PLUMBING FIXTURES IN CONFORMANCE WITH THE INTERNATIONAL PLUMBING CODE 2009 AND ASME A112.

### 14. IDENTIFICATION

14.1 IDENTIFY AND LABEL ALL PIPING SYSTEMS IN CONFORMANCE WITH THE OWNER'S STANDARDS. IN ABSENCE OF OWNERS STANDARD LABEL AND IDENTIFY PIPING SYSTEM IN CONFORMANCE WITH ASME A13.1.

### 15. EQUIPMENT

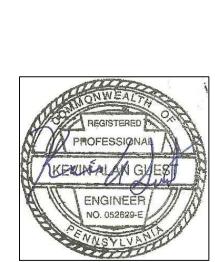
- 15.1 ALL MANUFACTURERS' INSTALLATION INSTRUCTIONS AND/OR SPECIFICATIONS
  SHALL BE COORDINATED WITH THE WORK.
- 15.2 EXCEPT AS OTHERWISE NOTED, EQUIPMENT SHALL BE FURNISHED WITH ALL MOTORS, STARTERS, CONTROL EQUIPMENT, INTERLOCK AND CONTROL WIRING.
- 15.3 PROVIDE AND INSTALL ALL EQUIPMENT AND PLUMBING SPECIALTIES IN CONFORMANCE WITH AUTHORITY HAVING JURISDICTION AND MANUFACTURER'S RECOMMENDATIONS.

### 17. TESTI

17.1 THOROUGHLY CLEAN AND VISUALLY CHECK AND OPERATE ALL THE EQUIPMENT AND SYSTEMS. RESULTS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. OBTAIN SERVICES OF A FACTORY ENGINEER TO ASSIST IN INSTALLATION, AND TESTING OF SYSTEMS OR EQUIPMENT.

### 18. CLEANING AND DISINFECTING

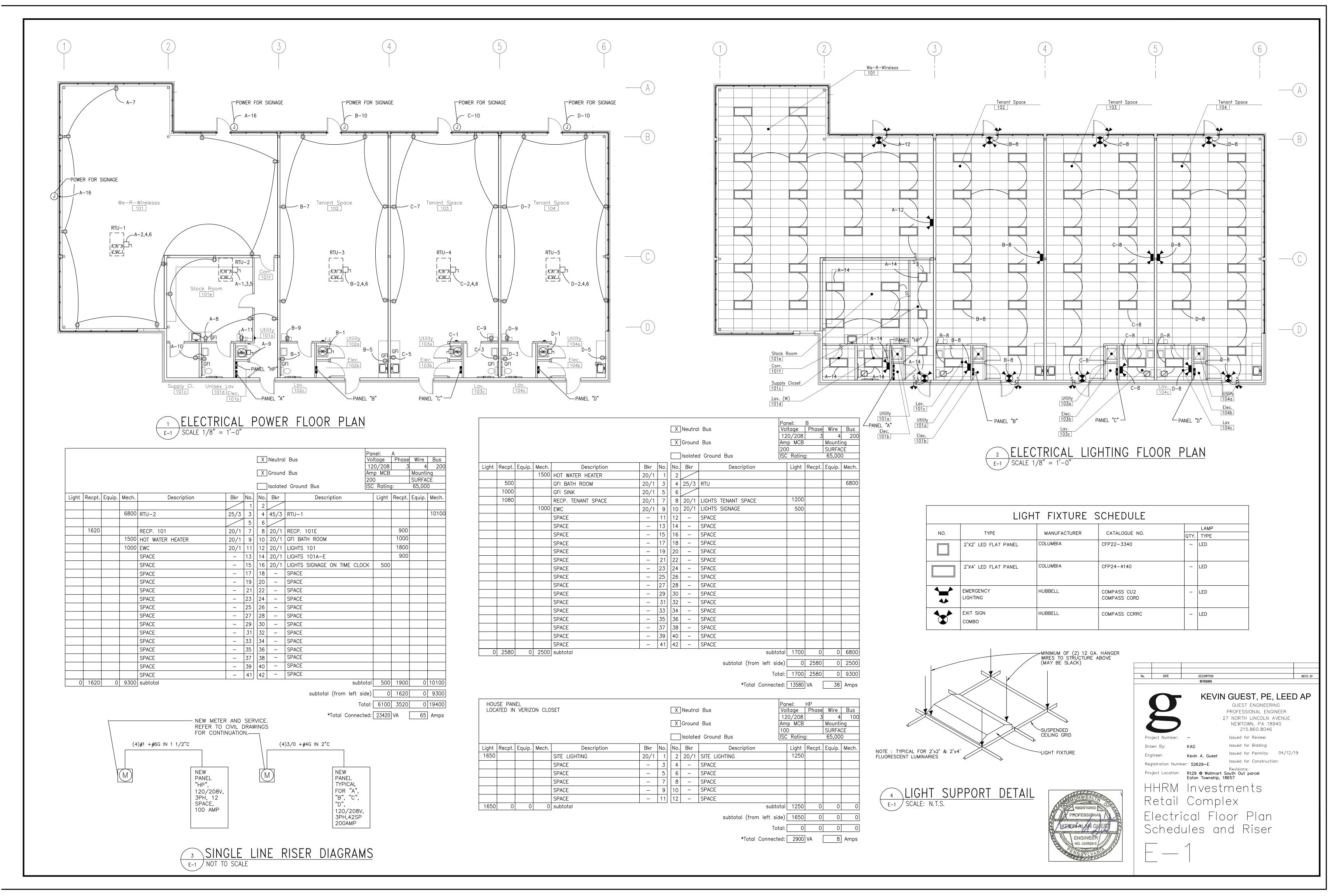
18.1 CLEAN AND DISINFECT ALL DOMESTIC WATER SYSTEMS IN CONFORMANCE WITH THE INTERNATIONAL PLUMBING CODE 2015.



KEVIN GUEST, PE, LEED AP GUEST ENGINEERING PROFESSIONAL ENGINEER 27 NORTH LINCOLN AVENUE NEWTOWN, PA 18940 215.860.8046 Issued for Review: Project Number: — Issued for Bidding: Drawn By: KAG Issued for Permits: 04/12/19 Kevin A. Guest Engineer: Issued for Construction: Registration Number: **52629—E** Project Location: Rt29 @ Wallmart South Out parcel HHRM Investments Retail Complex Mechanical Specifications

DESCRIPTION

No. DATE



### ELECTRICAL SPECIFICATIONS

### 1. GENERAL REQUIREMENTS

- 1.1 THE WORK TO BE DONE UNDER THIS PROJECT INCLUDES PROVIDING ALL EQUIPMENT, MATERIALS, LABOR AND SERVICES, AND PERFORMING ALL OPERATIONS FOR A COMPLETE AND OPERATING SYSTEM. ANY WORK NOT SPECIFICALLY COVERED BUT NECESSARY TO COMPLETE THIS INSTALLATION, SHALL BE PROVIDED. ALL EQUIPMENT AND WIRING TO BE NEW AND PROVIDED UNDER THIS CONTRACT UNLESS OTHERWISE NOTED.
- 1.2 THE TERM "FURNISH" SHALL MEAN TO OBTAIN AND SUPPLY TO THE JOB SITE.
  THE TERM "INSTALL" SHALL MEAN TO FIX IN POSITION AND CONNECT FOR USE.
  THE TERM "PROVIDE" SHALL MEAN TO FURNISH AND INSTALL. THE TERM
  "CONTRACTOR" SHALL MEAN ELECTRICAL CONTRACTOR.
- ONLY WRITTEN CHANGES AND/OR MODIFICATIONS APPROVED BY THE ARCHITECT, CONSULTING ENGINEER OR OWNER'S REPRESENTATIVE WILL BE RECOGNIZED.
- 1.4 THE CONTRACTOR SHALL COORDINATE WITH SPECIFICATIONS PROVIDED BY OTHER TRADES.
- 1.5 PROVIDE ALL SCAFFOLDING, LADDERS, RIGGING, HOISTING, ETC., FOR THIS WORK. MAKE ARRANGEMENTS FOR CLOSING OF RIGHT-OF-WAYS. MUST MEET OSHA REQUIREMENTS.
- 1.6 PROVIDE TWO (2) SETS OF OPERATING AND MAINTENANCE MANUALS, AND GIVE INSTRUCTIONS TO USER FOR ALL EQUIPMENT AND SYSTEMS PROVIDED UNDER THIS CONTRACT AFTER ALL ARE CLEANED AND OPERATING.
- 1.7 KEEP PREMISES FREE FROM RUBBISH. REMOVE ALL ELECTRICAL RUBBISH FROM SITE.
- 1.8 ELECTRICAL WORK SHALL BE DONE AT SUCH TIME, AND IN SUCH MANNER, AS WILL LEAST INTERFERE WITH THE MAINTENANCE AND OPERATION OF THE SITE'S AND/OR BUILDING'S ACTIVITIES. PROVISIONS SHALL BE MADE TO PERMIT THE USE OF ALL EXISTING ELECTRICAL SYSTEMS AT ALL TIMES. PROVIDE TEMPORARY FACILITIES TO SECURE THESE CONDITIONS AND REMOVE SUCH TEMPORARY FACILITIES WHEN NO LONGER REQUIRED.
- 1.9 THE CONTRACTOR SHALL VISIT THE SITE AND BECOME FAMILIAR WITH ALL CONDITIONS AND SYSTEMS THAT EFFECT HIS BIDDING AND WORK, AND SHALL PROVIDE VALUE FOR SAME IN HIS BID.
- 1.10 THE CONTRACTOR SHALL CONFIRM THE LOCATIONS OF ALL UTILITIES.

  CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE TO EXISTING UTILITIES AND TO THE BUILDING.
- 1.11 THE CONTRACTOR SHALL PROVIDE TEMPORARY POWER AND LIGHTING FOR ALL TRADES AS REQUIRED FOR CONSTRUCTION OR AS REQUIRED TO MAINTAIN NORMAL OPERATIONS OF THE SITE AND/OR BUILDING'S ACTIVITIES. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL EQUIPMENT, MAKING ALL ARRANGEMENTS WITH THE UTILITY CO. WHERE ADEQUATE, EXISTING SERVICES MAY BE USED.
- 1.12 UPON COMPLETION OF WORK, THE CONTRACTOR SHALL CLEAN AND ADJUST ALL EQUIPMENT AND LIGHTING AND TEST ALL SYSTEMS TO SATISFACTION OF OWNER/ENGINEER.
- 1.13 ALL WORK SHALL BE PERFORMED BY THOSE SKILLED IN THEIR PARTICULAR TRADE IN A NEAT AND WORKMANLIKE MANNER.
- 1.14 ALL NEW ELECTRICAL MATERIAL AND EQUIPMENT SHALL BE LISTED BY THE
- 1.15 THE DRAWINGS ARE DIAGRAMMATIC AND ALL SPECIALTIES AND APPURTENANCES ARE NOT SHOWN, BUT SHALL BE PROVIDED AS REQUIRED. SEE ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS OF EQUIPMENT. ANY DISCREPANCIES BETWEEN DRAWINGS SHALL BE CLARIFIED BY THE ARCHITECT OR ENGINEER.

UNDERWRITERS' LABORATORIES, INC. (UL) AND BEAR THE UL LABEL.

# 2. PROJECT COORDINATION

- 2.1 IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY FIELD CONDITIONS AT THE SITE AND NOTIFY THE OWNER OF ANY DISCREPANCIES PRIOR TO COMMENCING WITH THE WORK.
- 2.2 THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR REVIEWING AND COORDINATING WITH THE DOCUMENTS OF ALL TRADES.
- THE CONTRACTOR SHALL FURNISH A SCHEDULE INDICATING HIS PORTION OF TIME, WITHIN OVERALL SCHEDULE, REQUIRED TO COMPLETE THE WORK, IN CONJUNCTION WITH ALL TRADES.

# 3. CUTTING AND PATCHING AND PAINTING

- THE CONTRACTOR SHALL DO ALL CUTTING AND PATCHING OF NEW CONSTRUCTION REQUIRED BY HIS WORK. ELECTRICAL CONTRACTOR SHALL DO ALL CUTTING AND PATCHING IN EXISTING CONSTRUCTION. ALL FINISHES TO MATCH EXISTING. STRUCTURAL MEMBERS SHALL NOT BE CUT UNLESS APPROVED BY OWNER'S REPRESENTATIVE. PAINTING SHALL BE BY THE GENERAL CONTRACTOR.
- 3.2 WHERE EQUIPMENT IS REMOVED, CONTRACTOR TO REFINISH AREA TO MATCH EXISTING.
- THE CONTRACTOR SHALL DO ALL FIRE PROOFING OF NEW CONSTRUCTION REQUIRED BY HIS WORK. THESE SPACE INCLUDE STAIRWELLS AND ELEVATOR SPACE.

# 4. PROTECTION OF WORK

4.1 EFFECTIVELY PROTECT ALL MATERIALS AND EQUIPMENT FROM ENVIRONMENTAL AND PHYSICAL DAMAGE UNTIL FINAL ACCEPTANCE. CLOSE AND PROTECT ALL OPENINGS DURING CONSTRUCTION. PROVIDE NEW MATERIALS AND EQUIPMENT TO REPLACE ITEMS DAMAGED.

# 5. REFERENCED STANDARDS AND DEFINITIONS

5.1 ENTIRE INSTALLATION, INCLUDING MATERIALS, EQUIPMENT AND WORKMANSHIP, SHALL CONFORM TO THE LATEST APPROVED EDITION OF THE NATIONAL ELECTRIC CODE AS WELL AS ALL APPLICABLE LAWS AND REGULATIONS AND REGULATORY BODIES HAVING JURISDICTION OVER THIS WORK.

# 6. WARRANTIES AND BONDS

- 6.1 ALL MATERIALS, EQUIPMENT AND WORKMANSHIP SHALL BE GUARANTEED IN WRITING FOR A MINIMUM OF ONE (1) YEAR AFTER SUBSTANTIAL COMPLETION AND FINAL ACCEPTANCE BY OWNER.
- OBTAIN AND DELIVER TO THE OWNER'S REPRESENTATIVE ALL GUARANTEES AND CERTIFICATES OF COMPLIANCE.

# 7. SUBMITTALS

- 7.1 SHOP DRAWINGS: BEFORE ROUGHING—IN OR ORDERING ANY EQUIPMENT, THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS. SHOP DRAWINGS SHALL CONSIST OF PRODUCT PHYSICAL AND PERFORMANCE DATA FOR ALL MATERIALS AND EQUIPMENT PROPOSED TO BE FURNISHED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CHECKING OF PROPOSED EQUIPMENT PRIOR TO SUBMITTING SUBMITTING TO ARCHITECT/ENGINEER. THE ENGINEERING COST OF ANY REDESIGNING CAUSED BY A SUBSTITUTION OR LACK OF COORDINATION SHALL BE BORNE BY THE CONTRACTOR.
- 7.2 ENGINEER SHALL REVIEW A LIMIT OF TWO (2) SUBMITTALS. COSTS TO ENGINEER FOR REVIEW OF ADDITIONAL SUBMITTALS SHALL BE BORNE BY CONTRACTOR.
- 7.3 WHERE NEW EQUIPMENT IS AN EXTENSION OR MODIFICATION OF AN EXISTING SYSTEM, IT SHALL BE THE SAME AS EXISTING MANUFACTURER.

7.4 UNLESS OTHERWISE NOTED, THE CONTRACTOR MAY SUBMIT ANOTHER EQUAL TYPE OR MANUFACTURER OTHER THAN SPECIFIED. WHERE SUCH SUBSTITUTIONS ARE ALLOWED, AND THEY ALTER THE DESIGN OR SPACE REQUIREMENTS, THE CONTRACTOR SHALL PAY FOR ALL COSTS INVOLVED SUCH AS ARCHITECTS AND ENGINEER'S REDESIGN FEES AND ANY ADDITIONAL CONSTRUCTION COSTS FOR HIS OWN WORK AND THAT OF OTHER TRADES. EQUIPMENT SHALL NOT BE PURCHASED, OR WORK STARTED UNTIL SHOP DRAWINGS ARE APPROVED.

### 8. RECORD DRAWINGS

- 8.1 DURING CONSTRUCTION, THE CONTRACTOR SHALL MAINTAIN A RECORD SET OF INSTALLATION PRINTS. HE SHALL NEATLY AND CLEARLY RECORD ON THESE PRINTS ALL DEVIATIONS FROM THE CONTRACT DRAWINGS IN SIZES, LOCATIONS AND DETAILS. PROVIDE TWO COPIES TO G.C..
- 8.2 AT THE COMPLETION OF THE WORK, THE CONTRACTOR SHALL RETURN THE MARKED PRINTS WITH ALL INFORMATION MAINTAINED DURING THE CONSTRUCTION PROCESS TO THE G.C. FOR SUBMISSION TO OWNER.

### DEDMITE

CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS, APPROVALS AND SERVICES OF AN INDEPENDENT INSPECTION AGENCY ALL RELATED REQUIRED FEES AND COSTS ARE BY OWNER.

### 10. RACEWAY

- 10.1 ALL WIRING SHALL BE CONCEALED AND BE IN CONDUIT WITH MINIMUM SIZE 3/4" FOR POWER CIRCUITS AND 1/2" FOR CONTROL CIRCUITS.
- 10.2 ELECTRICAL RACEWAY CONNECTIONS TO VIBRATING EQUIPMENT AND MACHINERY SUCH AS MOTORS, TRANSFORMERS, ETC., SHALL BE MADE WITH FLEXIBLE LIQUID TIGHT CONDUIT
- 10.3 LIQUID TIGHT FLEXIBLE METAL CONDUIT LOCATED BELOW ACCESS FLOORS SHALL BE JACKETED, FLEXIBLE STEEL CONDUIT WITH AN INTEGRAL COPPER SHIELDING CONDUCTOR.
- METAL CLAD CABLE, TYPE 'MC', CAN BE USED WHERE CONCEALED IN CEILINGS, WALLS OR UNDER FLOORS UNLESS OTHERWISE NOTED, OR OTHERWISE PROHIBITED BY CODE, IN WHICH CASE CODE APPROVED RACEWAY SHALL BE INSTALLED. FEEDERS AND SERVICES SHALL BE RUN IN RIGID RACEWAY.
- 10.5 ALL PENETRATIONS SHALL BE SEALED WITH FIREPROOF COMPOUND USING A UL LISTED FIRESTOP MATERIAL.
- 10.6 GROUP AND INSTALL ALL CONDUITS PARALLEL OR PERPENDICULAR TO THE BUILDING SURFACES.
- 10.7 ALL CONDUITS EXPOSED TO THE WEATHER SHALL BE RIGID STEEL GALVANIZED.
  ALL INDOOR CONDUITS SHALL BE EMT.
- 10.8 PROVIDE EXPANSION FITTINGS FOR ALL RACEWAYS THAT CROSS BUILDING EXPANSION JOINTS.

### 11. BOXES

- 11.1 INTERIOR OUTLET BOXES SHALL BE GALVANIZED STEEL, MINIMUM 14 GAUGE, NO LESS THAN 4" SQUARE OR OCTAGON WITH EXTENSION RINGS AND MOUNTING BRACKETS. SECTIONAL BOXES WILL NOT BE PERMITTED.
- 11.2 JUNCTION BOXES SHALL BE OF CODE GAUGE GALVANIZED STEEL WITH SCREW COVERS. BOXES SHALL BE SUPPORTED INDEPENDENTLY OF CONDUITS.
- 11.3 EXTERIOR OUTLET BOXES SHALL BE CAST METAL, NEMA FB1 WITH GASKETED COVERS (DESIGNATED WEATHERPROOF WHILE IN USE).

# 12. WIRING

- 12.1 ALL WIRE SHALL BE COPPER WITH THHN OR THWN INSULATION RATED AT REQUIRED VOLTS. MINIMUM #12 AWG FOR POWER AND LIGHTING CIRCUITS, AN MINIMUM NO. 14 FOR SIGNAL AND CONTROL CIRCUITS. PROVIDE A SEPARATE NEUTRAL FOR EACH POWER CIRCUIT. NEUTRALS SHALL NOT BE SHARED.
- 12.2 DOUBLE NEUTRALS SHALL BE USED WHEN WIRING FROM K-RATED TRANSFORMER SECONDARIES TO 200% NEUTRAL RATED PANEL BOARDS. PROVIDE A SEPARATE NEUTRAL CONDUCTOR, GROUND CONDUCTOR AND ISOLATED GROUND CONDUCTOR FOR EACH BRANCH CIRCUIT DERIVING FROM THESE PANEL BOARDS.
- 12.3 WIRING SHALL BE SIZED PER THE NATIONAL ELECTRIC CODE BASED ON THE CIRCUIT BREAKER TRIP RATING.
- AVOID EXCESSIVE VOLTAGE DROP BY USING No. 10 WIRE FOR 120 VOLT CIRCUITS THAT EXCEED 75 FEET TO OUTLET AT CENTER OF LOAD AND FOR 277 VOLT CIRCUITS THAT EXCEED 150 FEET TO OUTLET AT CENTER OF LOAD.
- 12.5 UNDER NO CIRCUMSTANCES SHALL FEEDERS BE SPLICED.
- 12.6 COLOR CODE THE ENTIRE POWER WIRING SYSTEM AS FOLLOWS:

COLOR CODE THE ENTIRE POWER WIRING STSTEM AS FOLLOWS:										
208Y/120 VOLTS	PHASE	480Y/277 VOLTS  BROWN  ORANGE								
BLACK	Α									
RED	В									
BLUE	С	YELLOW WHITE								
WHITE	NEUTRAL									
GREEN	GROUND	GREEN								
GREEN /YELLOW	ISOLATED GROUND	GREEN / YELLOW								

12.7 CIRCUIT NUMBERS ARE SHOWN ONLY FOR GROUPING AND IDENTIFICATION.
MAINTAIN A LOAD BALANCE OF + 10%.

# 3. GROUNDING

- PROVIDE A COMPLETE EQUIPMENT GROUND SYSTEM, AS AN EXTENSION OF EXISTING SYSTEM, FOR THE ELECTRICAL SYSTEM AS REQUIRED BY ARTICLE 250 OF THE NEC, AND AS SPECIFIED HEREIN.
- 13.2 ALL GROUNDING WIRE, LUGS AND BUS SHALL BE COPPER.
- ALL BRANCH CIRCUITS FOR POWER WIRING SHALL CONTAIN A COPPER GROUND WIRE. NO FLEXIBLE METAL CONDUIT OF ANY KIND OR LENGTH SHALL BE USED AS THE EQUIPMENT GROUNDING CONDUCTOR.
- ALL ISOLATED GROUND WIRING SHALL BE CARRIED BACK TO THE TRANSFORMER GROUND CONNECTION.

# 14. EQUIPMENT

- 14.1 ALL MANUFACTURERS' INSTALLATION INSTRUCTIONS AND/OR SPECIFICATIONS SHALL BE COORDINATED WITH THE WORK.
- 14.2 EXCEPT AS OTHERWISE NOTED, EQUIPMENT FURNISHED UNDER THE MECHANICAL TRADE WILL INCLUDE MOTORS, STARTERS, CONTROL EQUIPMENT, INTERLOCK AND CONTROL WIRING. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL POWER WIRING MOUNTING FROM SOURCE THROUGH INTERVENING EQUIPMENT TO MOTOR TERMINALS.
- DISCONNECT SWITCHES SHALL BE HEAVY DUTY, HORSEPOWER RATED, QUICK—MAKE, QUICK—BREAK TYPE, ENCLOSED IN A HEAVY SHEET METAL ENCLOSURE WITH HINGED INTERLOCKING COVER, IN PROPER NEMA RATED ENCLOSURES. FUSED OR NON-FUSED AS REQUIRED.
- 14.4 COORDINATE ALL RECEPTACLES, PLUGS, WIRING AND LOCATIONS WITH THE EQUIPMENT PROVIDED PRIOR TO ROUGH—IN.
- 4.5 A STRUT FRAME SHALL BE PROVIDED AT ALL LOCATIONS WHERE STRUCTURE WILL NOT ADEQUATELY SUPPORT EQUIPMENT, OR FOR FREESTANDING EQUIPMENT.

### 15. DEVICES

- 15.1 THE CONTRACTOR SHALL VERIFY COLOR, LOCATION AND MOUNTING HEIGHT OF ALL DEVICES WITH G.C. PRIOR TO INSTALLATION. OBSERVE HANDICAPPED HEIGHT IN APPROPRIATE AREAS
- 15.2 RECEPTACLES SHALL BE DUPLEX TYPE, 20 AMP, 125 VOLT RATING, WITH SIDE AND BACK WIRING. HUBBELL #5362.
- GROUND-FAULT INTERRUPTER (GFI) RECEPTACLES SHALL BE INDIVIDUAL TYPE. HUBBELL #GF5352.
- 15.4 ISOLATED GROUND RECEPTACLES SHALL BE DUPLEX TYPE, 20 AMP. 125 VOLT RATING, SPECIFICATION GRADE WITH GROUNDING TERMINAL ISOLATED FROM THE MOUNTING YOKE AND BE ORANGE IN COLOR. HUBBELL # IG 5392.
- 15.5 SWITCHES SHALL BE SPECIFICATION GRADE, 20 AMPERES AT 120/277 VOLTS, FLUSH QUIT, AC, SINGLE POLE, DOUBLE, THREE OR FOUR WAY AS REQUIRED WITH BACK AND SIDE WIRING, TO MATCH EXISTING.
- DIMMERS SHALL BE COMPATIBLE WITH THE DIMMING BALLAST THEY ARE CONTROLLING, WITH WATTAGE AS REQUIRED, WITH CONTINUOUSLY ADJUSTABLE SLIDING CONTROL AND ON-OFF SWITCH. EQUIP WITH ELECTROMAGNETIC FILTER TO ELIMINATE NOISE, RF AND TV INTERFERENCE AND FIVE INCH WIRE CONNECTING LEADS.
- 15.7 WALL PLATES: SINGLE AND COMBINATION, OF TYPES, SIZES, AND GANGING AS REQUIRED. PROVIDE METAL SCREWS FOR SECURING PLATES TO DEVICES WITH SCREW HEADS COLORED TO MATCH FINISH OF PLATES. PROVIDE WALL PLATE COLOR AS SELECTED BY THE OWNER.
- PROVIDE A MINIMUM OF 6" SEPARATION OF OUTLET BOXES LOCATED BACK TO BACK IN WALLS, EXCEPT PROVIDE A MINIMUM OF 24 INCHES SEPARATION IN ACOUSTIC RATED WALLS TO PREVENT SOUND TRANSMISSION. PROVIDE EITHER FIRE RATED BOXES, OR U.L. APPROVED FIRE RATED MATERIAL BETWEEN BOXES.
- 15.9 FOR EACH COMMUNICATIONS OUTLET, PROVIDE A RECESSED OUTLET BOX WITH 1" EMPTY CONDUIT (WITH PULL WIRE) EXTENDING UP TO CEILING CAVITY IN ROOM (OR CORRIDOR), TO 6" INTO CEILING CAVITY. DEVICE PLATES TO BE BY

### 16. PANEL BOARDS AND CIRCUIT BREAKERS

- 16.1 PANELS SHALL BE MOUNTED IN STEEL CABINETS ARRANGED FOR FLUSH OR SURFACE MOUNTING AS REQUIRED. PANEL BOARD MANUFACTURER SHALL BE MANUFACTURED BY SQUARE D, SIEMENS OR GENERAL ELECTRIC.
- 16.2 CABINET AND TRIM SHALL BE OF CODE GAUGE STEEL WITH A HINGED LOCKING DOOR. TWO (2) KEYS SHALL BE FURNISHED WITH EACH CABINET, AND ALL LOCKS ON ALL CABINETS SHALL BE KEYED ALIKE AND MATCH OWNER'S KEYING
- 16.3 WHERE PANELS OCCUR ADJACENT TO ONE ANOTHER, THEY SHALL BE EVENLY ALIGNED BOTH TOP AND BOTTOM, AND HAVE A COMMON TRIM.
- 16.4 PANELS SHALL BE OF THE BOLT-ON MOLDED CASE THERMAL/MAGNETIC CIRCUIT BREAKER TYPE UNLESS NOTED OTHERWISE. PROVIDE FULL BUS WORK WHERE "SPACES" ARE REQUIRED.
- 16.5 NEW CIRCUIT BREAKERS INSTALLED IN EXISTING PANEL BOARDS SHALL MATCH EXISTING CIRCUIT BREAKERS. BREAKERS USED FOR SWITCHING SHALL BE SWITCH-RATED. MODIFY EXISTING PANELS TO ACCOMMODATE NEW WORK.
- 16.6 CIRCUIT BREAKERS THAT ARE NOT USED WITH FUSES FOR PROTECTING COMPRESSOR MOTORS SHALL BE HACR RATED. OTHERWISE INSTALL FUSES WITH THE SAME TRIP RATING AS THE CIRCUIT BREAKER.
- 16.7 PROVIDE A NEW TYPEWRITTEN CIRCUIT DIRECTORY FOR EACH PANEL.
- 16.8 PROVIDE ONE (1) 1" CONDUIT FROM PANEL INTO CEILING SPACE FOR EVERY THREE (3) SPACES OR SPACES IN FLUSH PANELS.
- 16.9 PANEL BOARDS TO HAVE 200% RATED NEUTRAL AND ISOLATED GROUND BUSSES, WHERE APPLICABLE.

# 17. LIGHTING

- 17.1 PROVIDE ENERGY SAVING FLUORESCENT LAMPS AND ELECTRONIC BALLASTS, CAPABLE OF OPERATING LAMP TYPES, WITH HIGH POWER FACTOR, RAPID—START AND LOW—NOISE FEATURES; TYPE 1; CLASS P; SOUND—RATED A.
- 17.2 PROVIDE LAMPS AS REQUIRED. PHILIPS OR APPROVED EQUAL.

  17.3 THE SUSPENDED CEILING FRAMING SYSTEM SHALL BE SECURELY SUPPORTED TO BUILDING STRUCTURE WHERE FIXTURES ARE TO BE INSTALLED. SECURELY SUPPORT FIXTURES TO FRAMING MEMBERS USING THE APPROPRIATE HARDWARE. FIXTURES SHALL BE SUPPORTED TO MEET SEISMIC CODE AND MOUNTING DETAIL SHOWN ON DRAWING E2.
- 17.4 FOR SELF OPERATING EMERGENCY LIGHTING FIXTURES PROVIDE INTERNAL, SELF—CONTAINED, BATTERY—INVERTER UNIT, FACTORY MOUNTED WITHIN THE FIXTURE BODY. ARRANGE UNIT SO THAT TEST SWITCH AND LED INDICATOR LIGHT ARE VISIBLE WITHOUT OPENING THE FIXTURE OR ENTERING THE CEILING SPACE. BATTERY SHALL BE SEALED, MAINTENANCE—FREE, NICKEL—CADMIUM TYPE WITH NORMAL TEN (10) YEAR MINIMUM LIFE. CHARGER SHALL BE FULLY AUTOMATIC, SOLID—STATE, CONSTANT CURRENT TYPE. LAMPS SHALL OPERATE FOR MINIMUM OF 1.5 HOURS. DUAL—LITE OR APPROVED EQUAL.
- 17.5 DESCRIPTION OF THE FIXTURE AND CATALOG NUMBER IS BASIC INFORMATION. PRIOR TO ORDERING FIXTURES, REVIEW FINAL ARCHITECTURAL PLANS AND ROOM FINISH SCHEDULES AND PROVIDE ALL NECESSARY HARDWARE WHICH MAY BE REQUIRED. FIXTURE COLORS AND FINISHES TO BE AS DIRECTED BY ARCHITECT. CONFIRM VOLTAGES WITH CIRCUITING INFORMATION ON PLANS.
- 17.6 CLEAN LIGHTING FIXTURES AND LENSES UPON COMPLETION OF INSTALLATION.

# TESTING

8.1 THOROUGHLY CLEAN AND VISUALLY CHECK AND OPERATE ALL THE EQUIPMENT AND SYSTEMS. RESULTS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. OBTAIN SERVICES OF A FACTORY ENGINEER TO ASSIST IN INSTALLATION, AND TESTING OF SYSTEMS OR EQUIPMENT.

# IDENTIFICATION

- 19.1 PROVIDE PHENOLIC, (EMBOSSED TYPE WHITE WITH BLACK LETTERS) IDENTIFICATION PLATES ON ALL ELECTRICAL EQUIPMENT FURNISHED IN THIS CONTRACT. ATTACH WITH SUITABLE ADHESIVE.
- 19.2 INSTALL NAMEPLATES ON ALL MAJOR EQUIPMENT, INCLUDING STARTERS, TRANSFORMERS, PANEL BOARDS, DISCONNECT SWITCHES AND OTHER ELECTRICAL BOXES AND CABINETS INSTALLED UNDER THIS CONTRACT. PANELS THAT ARE FACTORY ASSEMBLED FOR A PARTICULAR SYSTEM SHALL HAVE FACTORY INSTALLED NAMEPLATES.
- 9.3 APPLY IDENTIFICATION ON CONDUIT FOR LIFE SAFETY SYSTEMS AT MAXIMUM OR 25' CENTERS AND AT LEAST ONE (1) PER ROOM. USE PERMANENT VINYL, SELF ADHERING MARKERS, UNLESS NOTED OTHERWISE.
- APPLY CABLE / CONDUCTOR IDENTIFICATION MARKERS ON EACH CABLE AND CONDUCTOR IN EACH BOX, ENCLOSURE OR CABINET (THOMAS & BETTS TY-RAP OR EQUAL).

- 19.5 PROVIDE SELF-ADHESIVE PLASTIC SIGNS WITH APPROPRIATE INSTRUCTIONS OR WARNINGS AT ALL ELECTRICAL EQUIPMENT ROOMS AND EQUIPMENT ENCLOSURES.
- 19.6 PROVIDE CIRCUIT IDENTIFICATION TAGS TO ALL BRANCH CIRCUIT WIRING DEVICES.
  PANEL DESIGNATION AND CIRCUIT NUMBER SHALL BE TYPE WRITTEN BLACK
  LETTERS ON A CLEAR. SELF—ADHESIVE TAPE STRIP.

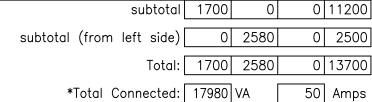
### MOTOR CONTROLLERS AND DISCONNECT SWITCHES

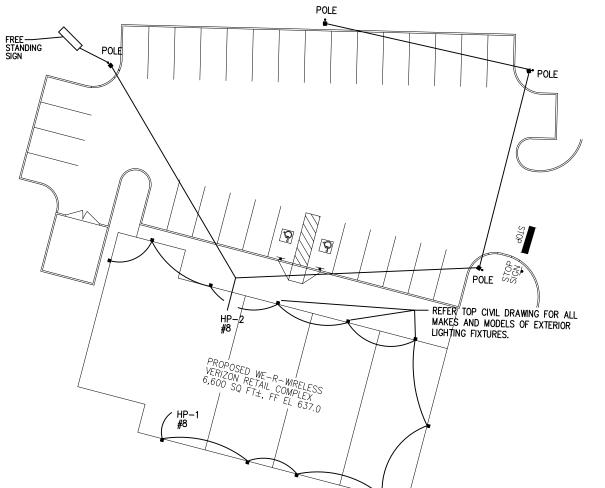
- 20.1 STARTERS SHALL BE FULL VOLTAGE NON-REVERSING UNITS
  CONSISTING OF A THERMAL MAGNETIC CIRCUIT BREAKER, HORSEPOWER
  RATED CONTACTOR AND THERMAL OVERLOAD RELAY MOUNTED IN A
  COMMON ENCLOSURE.
- 20.2 STARTER UNITS SHALL BE FURNISHED WITH EXTERNAL OPERATING HANDLE, CONTROL CIRCUIT TRANSFORMER (120V SECONDARY), PILOT LIGHT, THERMAL OVERLOADS AND UNLESS OTHERWISE INDICATED, A HAND-OFF-AUTOMATIC SELECTOR SWITCH. AUXILIARY CONTACTS SHALL BE PROVIDED AS REQUIRED.
- 20.3 DISCONNECT SWITCHES SHALL BE SQUARE "D", HEAVY DUTY TYPE FUSIBLE OR NON FUSIBLE AS NOTED ON THE DRAWING.
- 20.4 OUTDOOR ENCLOSURES SHALL BE NEMA 3R AND INDOOR ENCLOSURES SHALL BE NEMA 1.

							ГУ	Neutra	I. Rue	Panel: Voltage	C   Phase	Wire	Bus
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							X	Ground	Bus	Amp MCE	3	Mountir	
								•		200		SURFAC	Œ
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ght	Recpt.	Equip.	Mech.	Description	Bkr	No.	No.	Bkr	Description	Light	Recpt.	Equip.	Mech
			1500	HOT WATER HEATER	20/1	1	2						
	500			GFI BATH ROOM	20/1	3	4	25/3	RTU				680
	1000			GFI SINK	20/1	5	6						
	1080			RECP. TENANT SPACE	20/1	7	8	20/1	LIGHTS TENANT SPACE	1200			
			1000	EWC	20/1	9	10	20/1	LIGHTS SIGNAGE	500			
				SPACE	_	11	12	_	SPACE				
				SPACE	_	13	14	_	SPACE				
				SPACE	_	15	16	_	SPACE				
				SPACE	_	17	18	_	SPACE				
				SPACE	_	19	20	_	SPACE				
				SPACE	_	21	22	_	SPACE				
				SPACE	_	23	24	_	SPACE				
				SPACE	_	25	26	_	SPACE				
				SPACE	_	27	28	_	SPACE				
				SPACE	_	29	30	_	SPACE				
				SPACE	_	31	32	_	SPACE				
				SPACE	_	33	34	_	SPACE				
				SPACE	_	35	36	_	SPACE				
				SPACE	_	37	38	_	SPACE				
				SPACE		39	40	_	SPACE				
				SPACE	_	41	42	_	SPACE				
0	2580	0	2500	subtotal					subto	otal 1700	0	0	680
									subtotal (from left si	de) (	2580	0	250
									Sabtotal (Holl lott Si	~~/ <u></u>	, 2000		

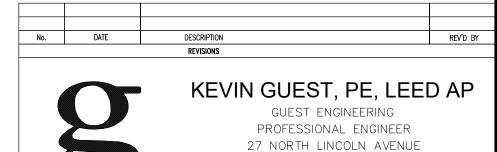
Subtotal (Holli lort Sido)	)	20	0	
Total:	1700	2580	0	9300
•				
*Total Connected:	13580	VA	38	Amps

TE	NANT P.	ANEL "	C"				<u> </u>	Neutra		Vo 12	Itage 20/208	D Phase 3	4	
							X	Ground	Bus		np MCB		Mounti	
							_	1	1. O 1. D	20			SURFA	
								Isolate	d Ground Bus	[120	Rating	:	65,00	<u> </u>
ight	Recpt.	Equip.	Mech.	Description	Bkr	No.	No.	Bkr	Description		Light	Recpt.	Equip.	Mech.
			1500	HOT WATER HEATER	20/1	1	2							
	500			GFI BATH ROOM	20/1	3	4	45/3	RTU					11200
	1000			GFI SINK	20/1	5	6							
	1080			RECP. TENANT SPACE	20/1	7	8	20/1	LIGHTS TENANT SPACE		1200			
			1000	EWC	20/1	9	10	20/1	LIGHTS SIGNAGE		500			
				SPACE	_	11	12	_	SPACE					
				SPACE	_	13	14	_	SPACE					
				SPACE	_	15	16	_	SPACE					
				SPACE	_	17	18	_	SPACE					
				SPACE	_	19	20	_	SPACE					
				SPACE	_	21	22	_	SPACE					
				SPACE	_	23	24	_	SPACE					
				SPACE	_	25	26	_	SPACE					
				SPACE	_	27	28	_	SPACE					
				SPACE	_	29	30	_	SPACE					
				SPACE	_	31	32	_	SPACE					
				SPACE	_	33	34	_	SPACE					
				SPACE	_	35	36	_	SPACE					
				SPACE		37	38	_	SPACE					
				SPACE	_	39	40	_	SPACE					
				SPACE		41	42	_	SPACE					
0	2580	0	2500	subtotal		_ ' '	L' <u>-</u>			ubtotal	1700	0	0	11200
			_ =	i .					subtotal (from left			!		2500









NEWTOWN, PA 18940

215.860.8046

Issued for Review:

Project Number: —
Drawn By: KAG

Drawn By: KAG Issued for Bidding:

Engineer: Kevin A. Guest
Registration Number: 52629-E

Revisions:

Revisions:

HHRM Investments
Retail Complex
Electrical

Project Location: Rt29 @ Wallmart South Out parcel

& Site Lighting Plan

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