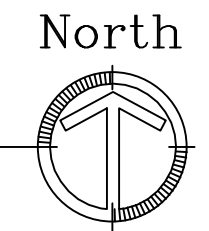


SITE PLAN  
SCALE: 1" = 100'-0"

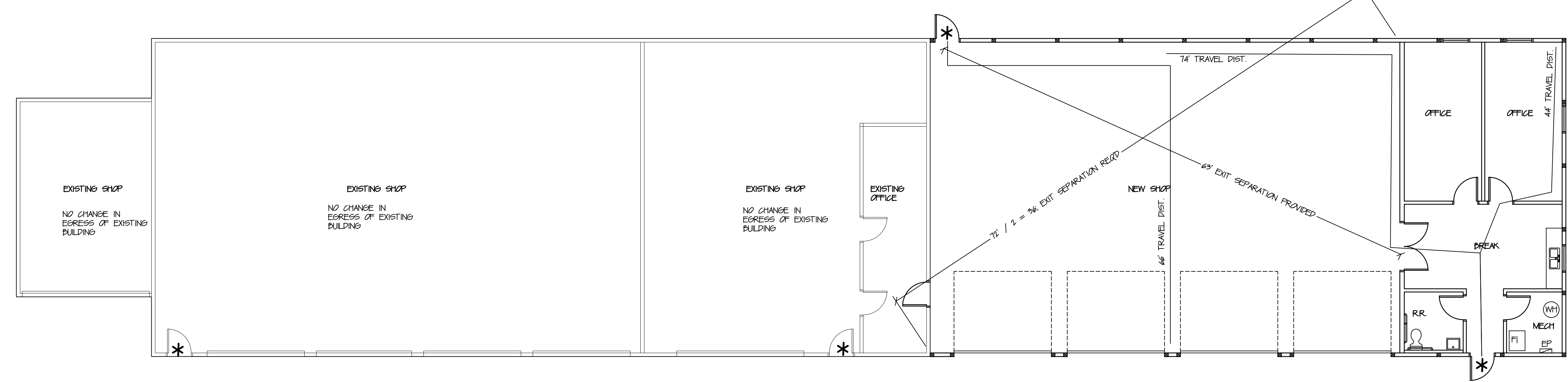


CODE SUMMARY

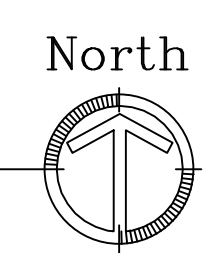
4345 SF EXISTING BUILDING  
3220 SF NEW ADDITION  
7565 SF TOTAL

TYPE VB CONSTRUCTION  
OCCUPANCY SI / I / B  
8,500 SF ALLOWABLE MOST RESTRICTIVE

\* DENOTE EMERGENCY EXIT



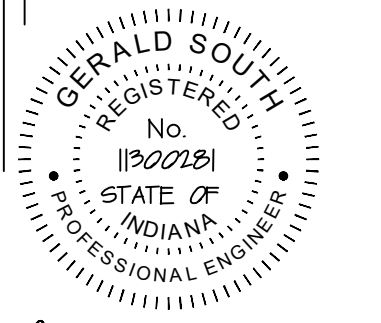
LIFE SAFETY PLAN  
SCALE: 1/8" = 1'-0"



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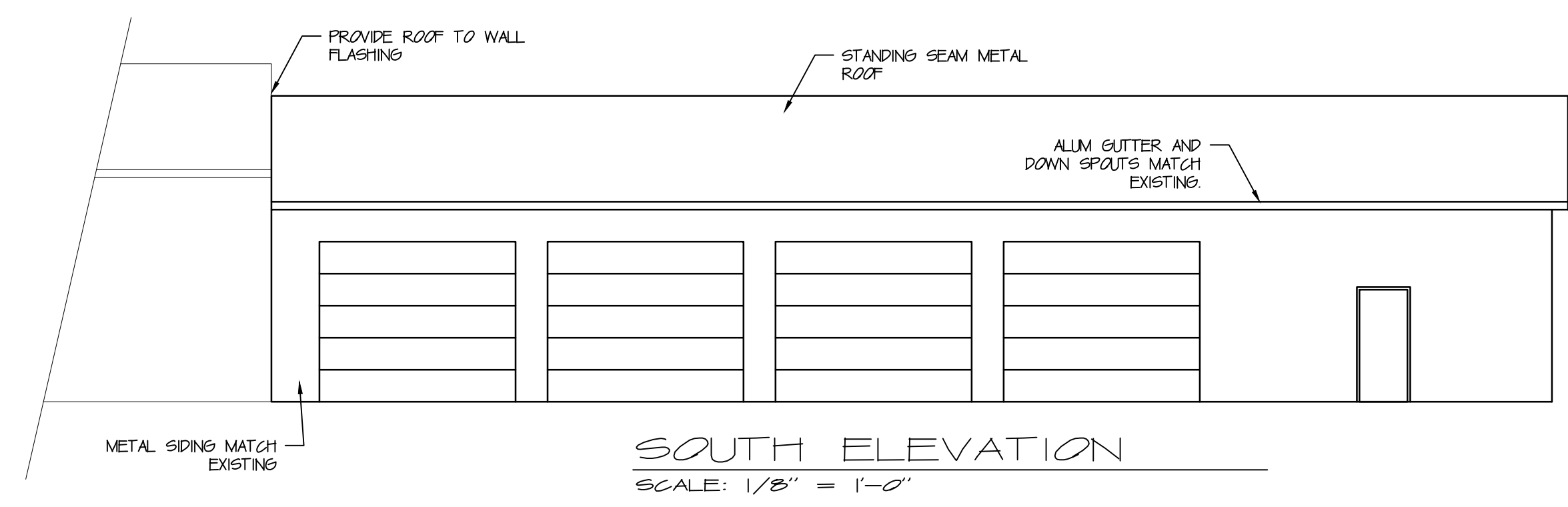
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TOWN OF  
LIBERTY  
POLE BARN  
ADDITION

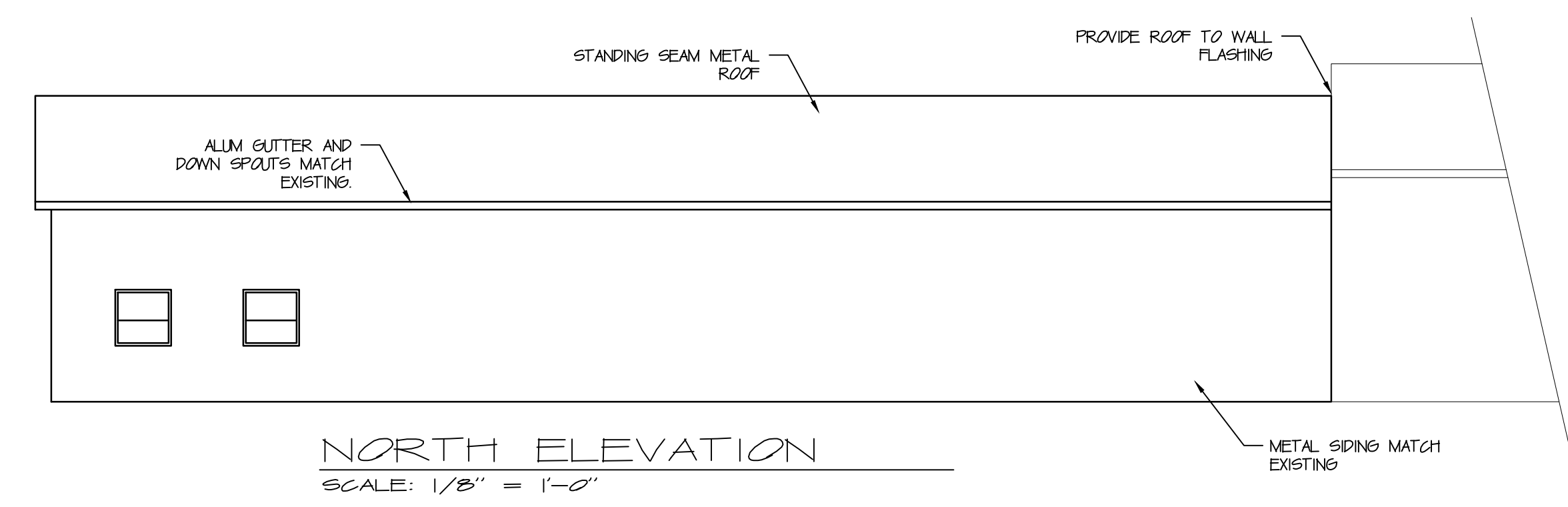
LIBERTY, INDIANA

Project No. .... 2206-1  
Coordinator..... INERSTRADT  
Designer..... INERSTRADT  
Drawn..... G SOUTH  
A RICE  
Checked..... DAI  
Date..... 9/18/2022

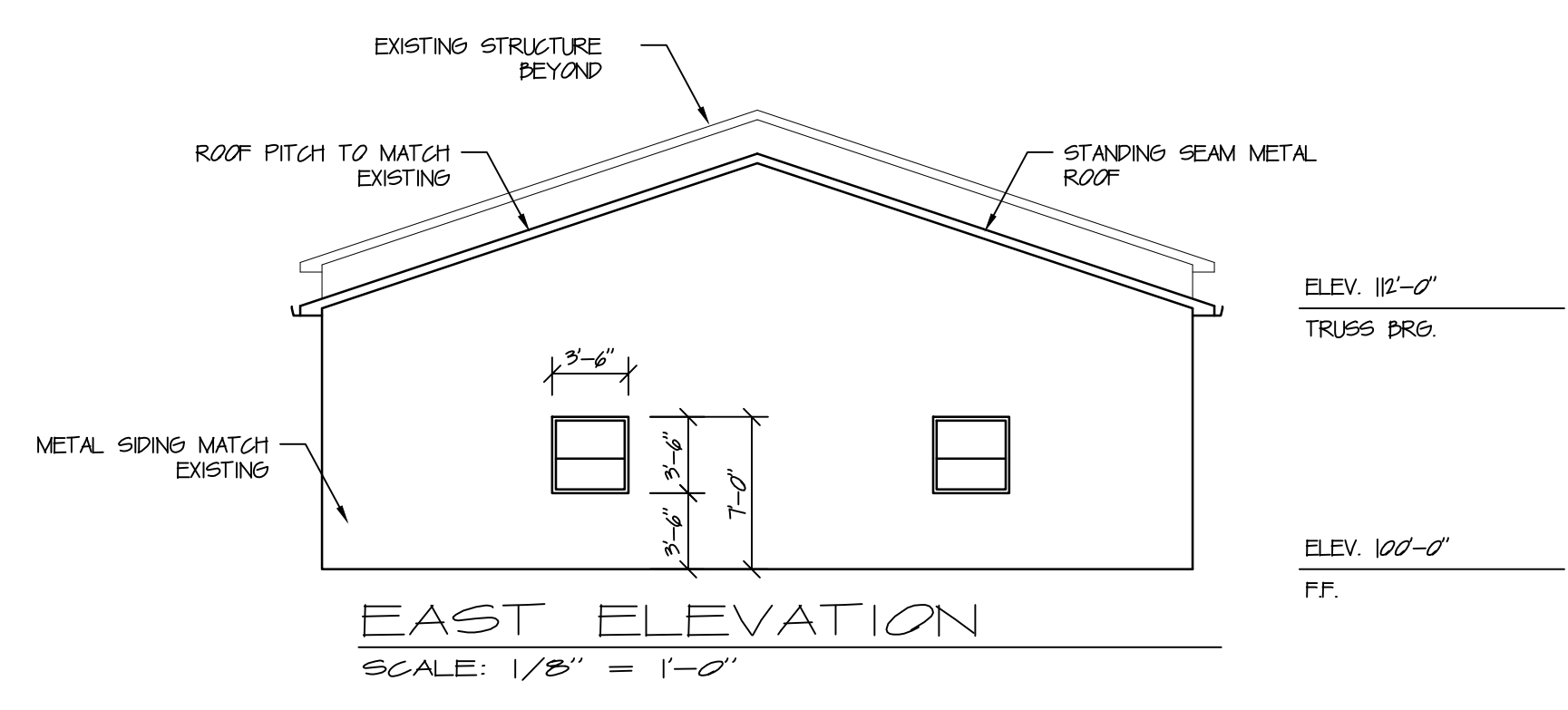
Revision:  
No. Date



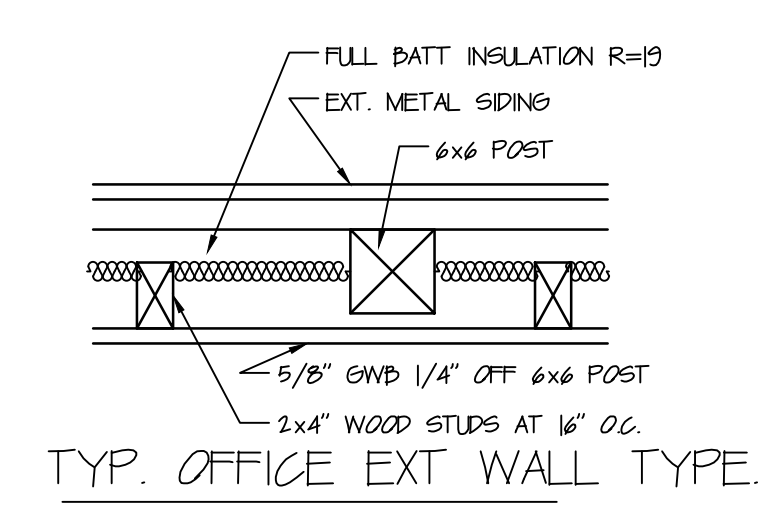
**SOUTH ELEVATION**  
SCALE: 1/8" = 1'-0"



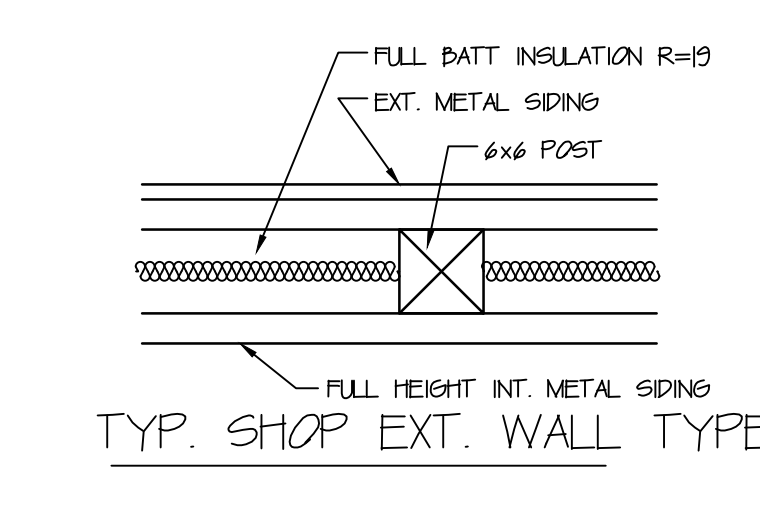
**NORTH ELEVATION**  
SCALE: 1/8" = 1'-0"



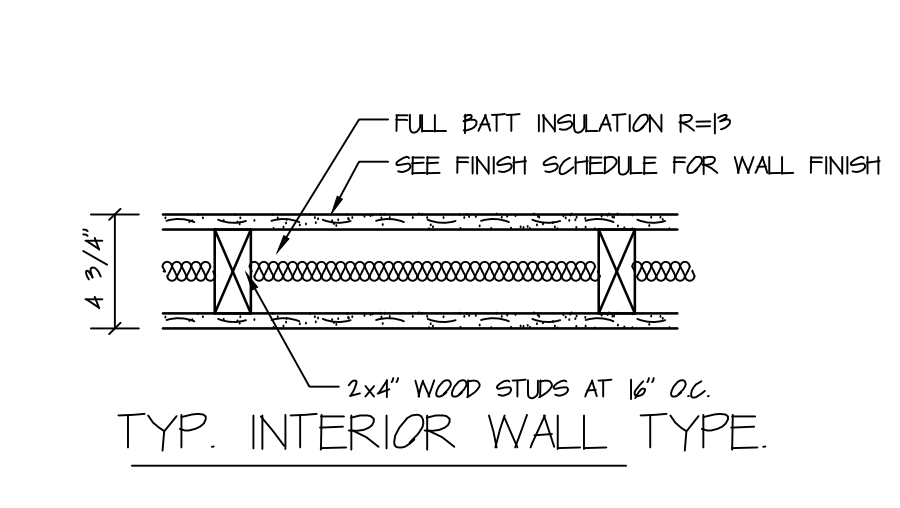
**EAST ELEVATION**  
SCALE: 1/8" = 1'-0"



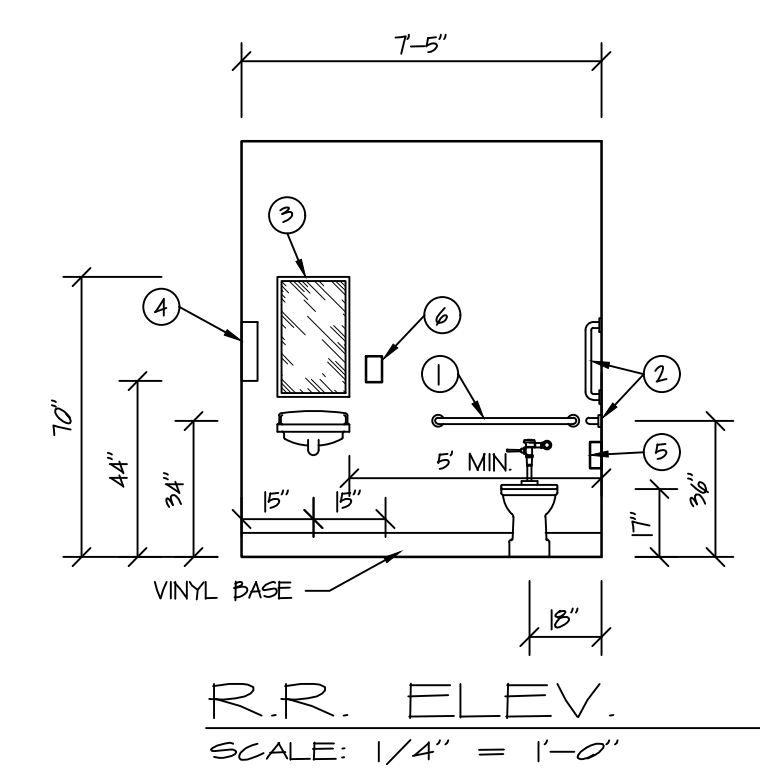
TYP. OFFICE EXT. WALL TYPE



TYP. SHOP EXT. WALL TYPE



TYP. INTERIOR WALL TYPE

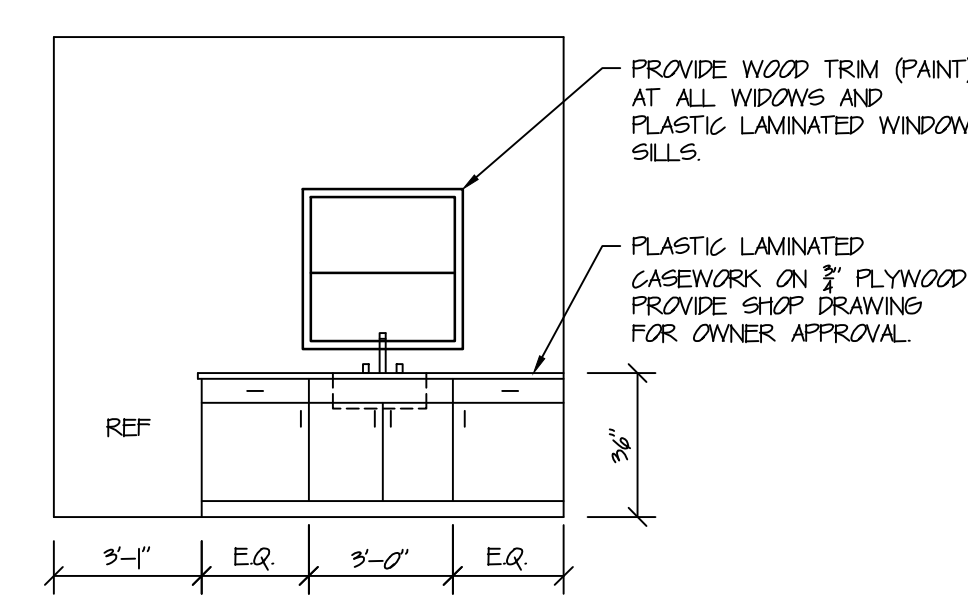


**R.R. ELEV.**  
SCALE: 1/4" = 1'-0"

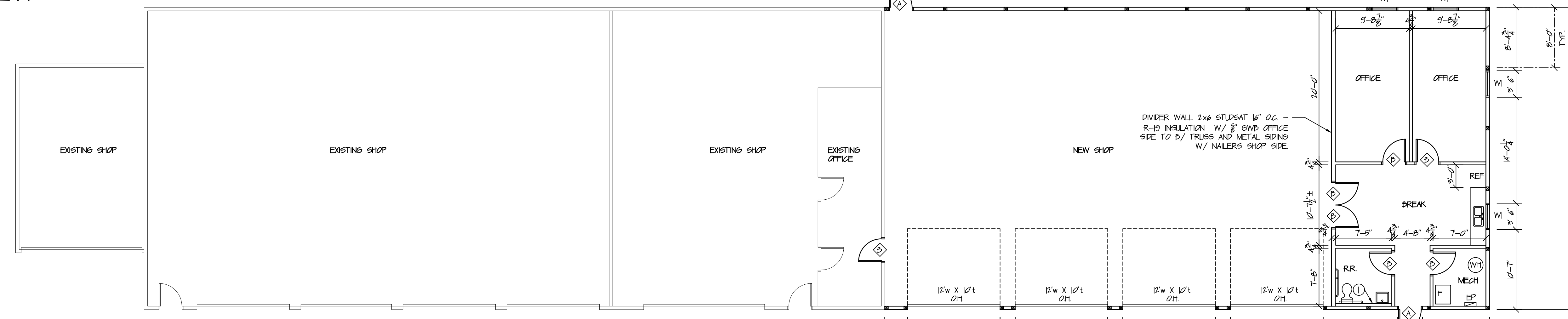
- RESTROOM KEYNOTES**
- 3/8" GRAB BAR
  - 42" HORIZ GRAB BAR & 18" VERT. GRAB BAR
  - MIRROR - 15"x30"
  - OWNER PROVIDED CONTRACTOR INSTALLED PAPER TOWEL DISPENSER
  - OWNER PROVIDED CONTRACTOR INSTALLED TOILET TISSUE DISPENSER
  - OWNER PROVIDED CONTRACTOR INSTALLED SOAP DISPENSER
- GENERAL NOTES**
- ALL FIXTURES AND ACCESSORY MOUNTING HEIGHTS SHALL COMPLY WITH THE REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT.

- FINISH SCHEDULE**
- SHOP  
WALLS - METAL  
CEILING - METAL  
FLOORS - CONC.
- OFFICE AREA  
WALLS - GND PAINT  
CEILING - LAY-IN  
FLOORS - CONC.
- COORDINATE FINAL FINISHES WITH OWNER
- WINDOW SCHEDULE**
- WI 3'-5" X 3'-4" DOUBLE HUNG VINYL CLAD WINDOW WITH INSULATED LOW-E GLASS PELLA 250 SERIES OR EQUAL

- GENERAL NOTES:**
- VERIFY ALL EXISTING CONDITIONS PRIOR TO BID.
  - ALL WORK TO BE IN COMPLIANCE WITH ALL LOCAL, STATE AND FEDERAL BUILDING CODES.
  - VERIFY ALL FINISHES, HARDWARE, FIXTURES W/ OWNER. PROVIDE SUBMITTALS FOR OWNER APPROVAL.
  - TYP. OFFICE WALLS 2x4 STUDS 16" O.C. W/ 5/8" FINISH W/ MIN. R-19 INSULATION.
- DOOR SCHEDULE**
- 3010 METAL EXT. 8" DOOR AND FRAME WITH CLOSURE, WEATHER SEAL AND LEVER EXIT HARDWARE. NO FIRE RATING.
  - 3010 METAL INT. 8" DOOR AND FRAME WITH LEVER HARDWARE. NO FIRE RATING.
- SCHLAGE OR EQUAL HARDWARE. VERIFY ALL KEYING WITH OWNERS EXISTING SYSTEM PRIOR TO BID.
- ALL DOORS AND FRAMES STEEL CRAFT OR EQUAL COMMERCIAL STYLE PAINT DOORS AND FRAMES.
- PROVIDE CUT SHEET OF DOOR HARDWARE FOR OWNERS APPROVAL.



**CASEWORK ELEV.**  
SCALE: 1/4" = 1'-0"



- PLAN KEYNOTES**
- PROVIDE CHASE WALL FOR PLUMBING FIXTURES. CHASE TO BE INSULATED AND IN FRONT OF 2x4 EXT. WALL AND INSULATION.

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

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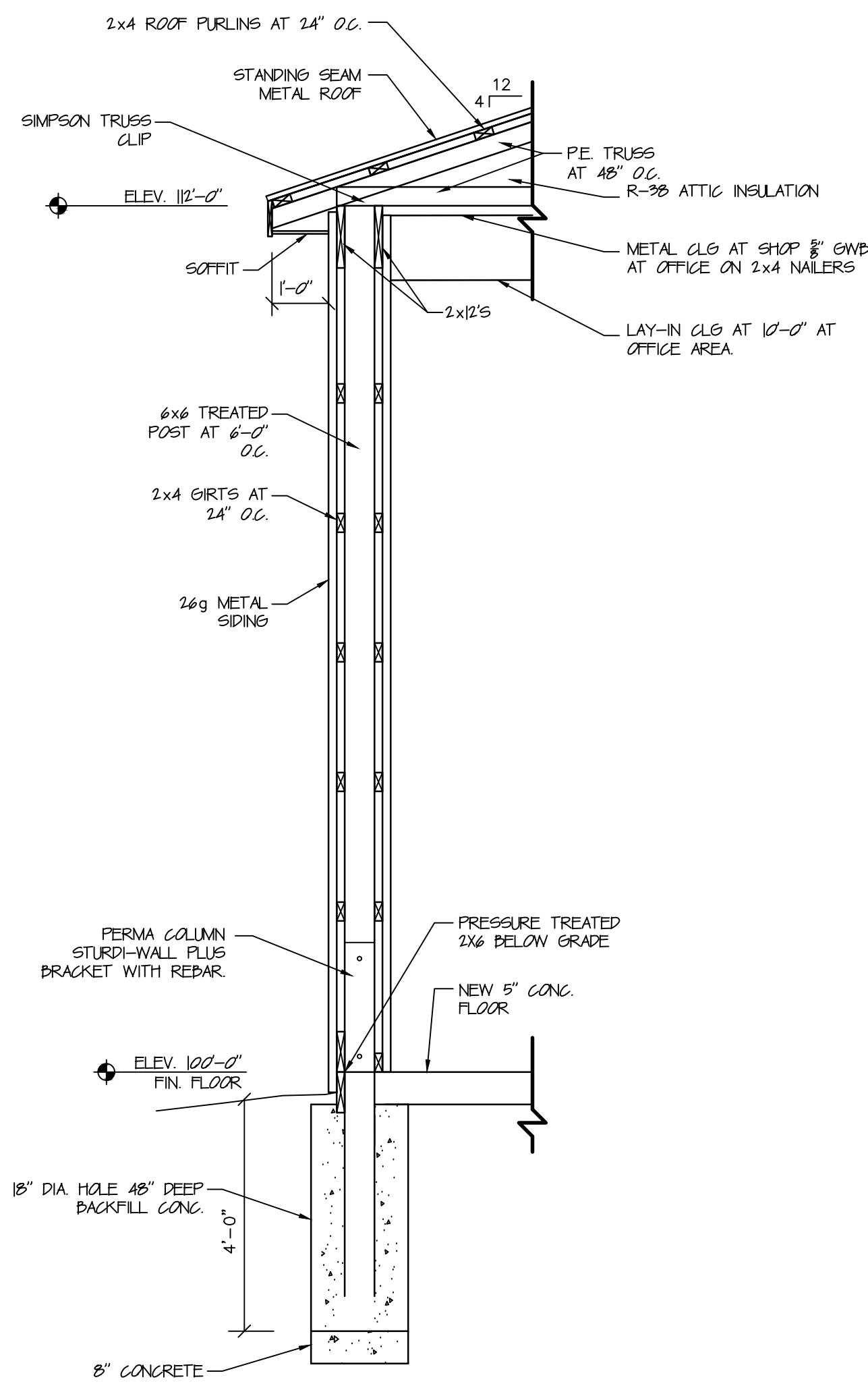
GERALD SOUTH  
REGISTERED  
No. 11000181  
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PROFESSIONAL ENGINEER

Gerald South  
Certified By

TOWN OF LIBERTY  
POLE BARN  
ADDITION  
LIBERTY, INDIANA

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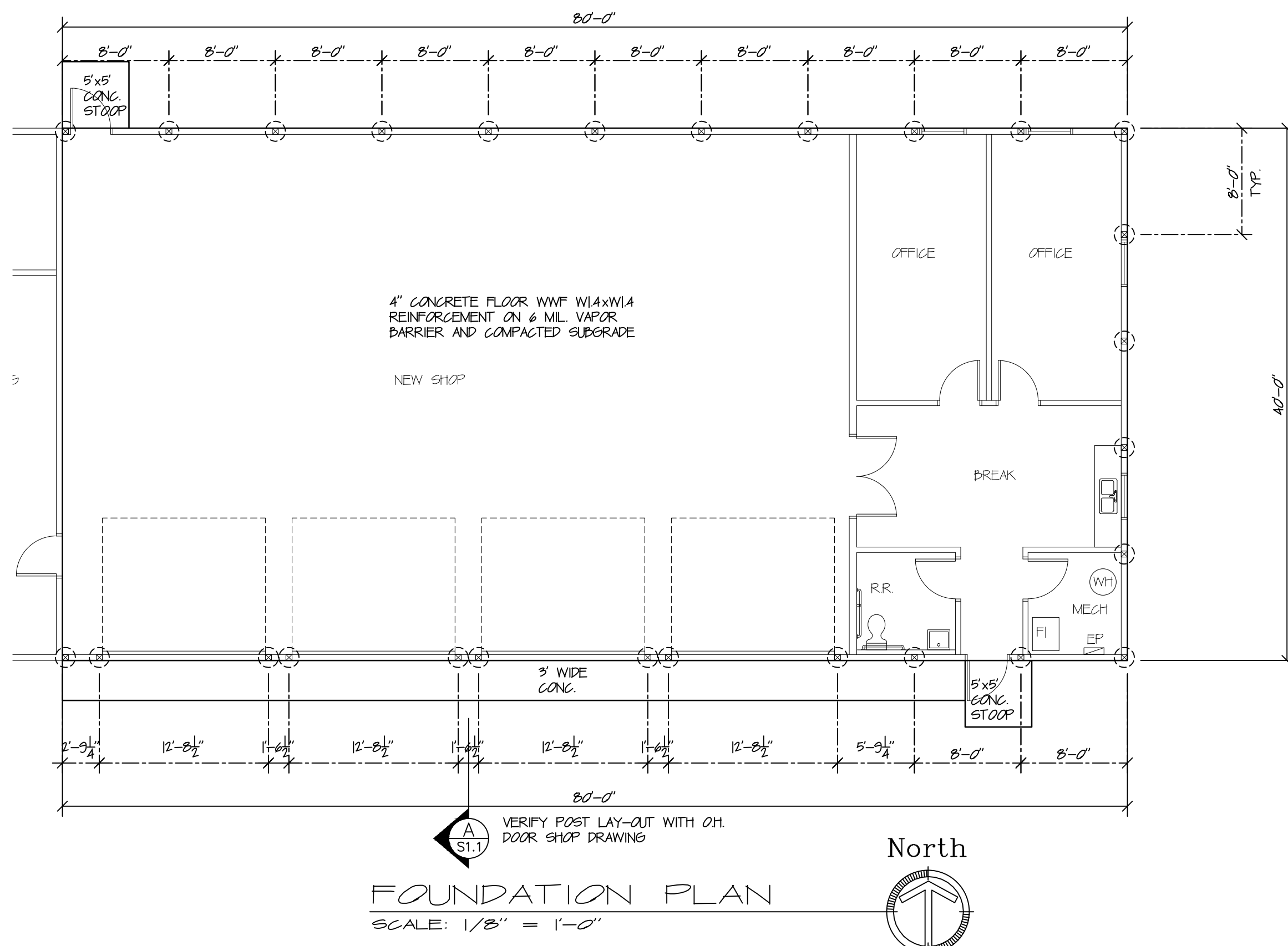
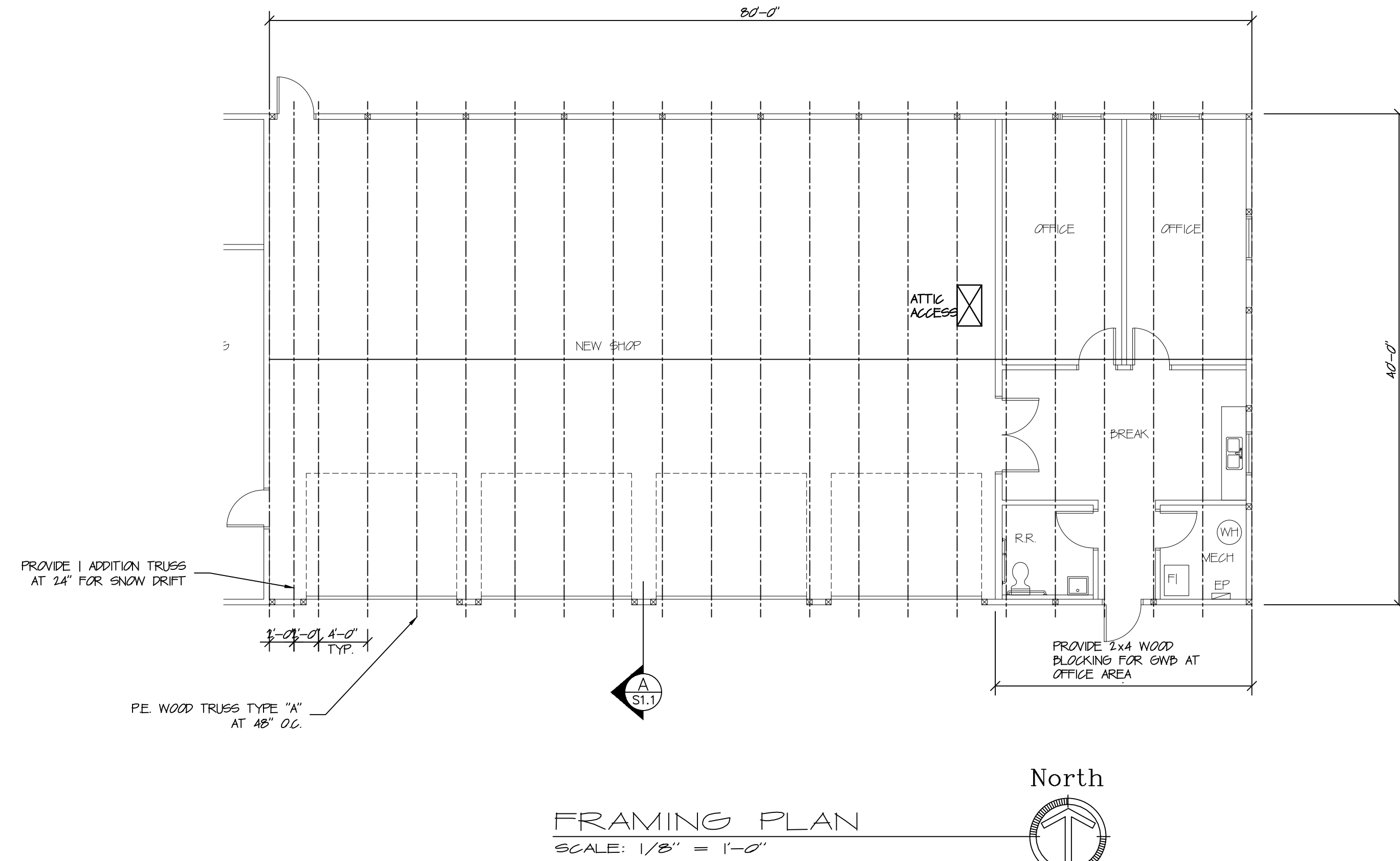
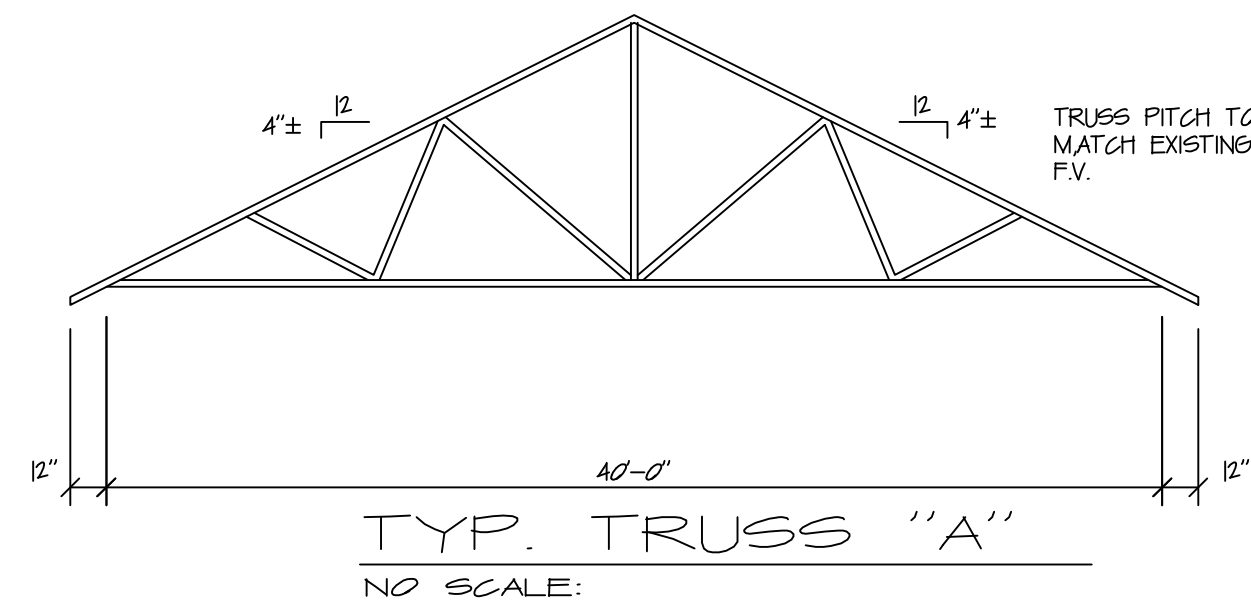
Revision: No. Date



**A** TYP. WALL SECTION  
S1.1 SCALE: 1/2" = 1'-0"

**DESIGN LOADS FOR TRUSSES**

LL 20 PSF SNOW EXPOSURE D  
DL TRUSS, SHEATHING AND PERLINS 24" OC.  
COLLATERAL LOAD IS PSF INCLUDES:  
MAX DEFLECTION L/180 MIN.  
PROVIDE TRUSS DRAGING PER MFG. REQUIREMENTS.



**STRUCTURAL DESIGN DATA:**

- The building was designed in accordance with the Indiana Building Code, 2012 Edition. Wind pressures were computed using 90 mph Basic Wind Speed, Exposure C.
- The following gravity live loads were used in design of new structure:  
A) Roofs----- 25 lbs./sq.ft.+Drift
- No future expansion has been considered.
- If drawings and specifications are in conflict, the most stringent restrictions and requirements shall govern.
- All Contractors are required to coordinate their work with all disciplines to avoid conflicts. The mechanical, electrical and plumbing aspects are not in the scope of these drawings. Therefore, all required materials and work may not be indicated.

**CONCRETE NOTES:**

- Unless otherwise noted in the schedules or details, the minimum 28 day compressive strength of the concrete shall be 4000 p.s.i. for all parts of the structure except for column and wall footings which shall be 3000 p.s.i. All concrete shall be regular weight concrete. All slabs shall have welded wire fabric or fiber secondary reinforcement, u.n.o.
- All concrete exposed to the weather shall be air-entrained with limestone aggregate. All other concrete may be air-entrained or non-air-entrained at the contractor's option. For surface finishes and other requirements, refer to the specifications.
- Provide 3/4" chamfers on all exposed edges of concrete and the exposed corners of beams, piers, and columns unless otherwise shown or noted. See Architectural Drawings for additional details.
- Details of fabrication of reinforcement, handling and placing of the concrete, construction of forms and placement of reinforcement not otherwise covered by the Plans and Specifications, shall comply with the A.C.I. Code Requirements of the latest revised date.
- The Contractor shall consult with the Engineer before starting concrete work to establish a satisfactory placing schedule and to determine the location of construction joints so as to minimize the effects of shrinkage in the floor system.
- All items of work to be installed in any concrete work, including pipes, sleeves and electrical conduits etc., shall be properly located, installed and checked before placing concrete.
- All sizes and locations of slab openings and curbs for mechanical equipment shall be verified with the mechanical contractor. Dimensions of such openings and curbs shown on the structural plans and details MUST be verified with the mechanical contractor.
- Keyed construction joints or control joints shall be provided in all slabs on grade (exposed slabs only). For a framed structure, joints shall be located on all column lines but if the column spacing exceeds 20'-0" intermediate joints should be provided. Exterior slabs and interior slabs without columns shall have joints spaced a maximum of 15'-0" apart.
- All holes drilled into concrete for dowels shall be treated as follows:
  - Drill holes 1/8" larger than bar or bolt to be embedded.
  - Drill holes with single chisel tooth rotary percussion drill that feeds compressed air to the base of the hole through a hollow stem drill bit.
  - Drill the hole a minimum of 15 bar diameters or as shown on the plans.
  - Use a two-part epoxy adhesive system, Rawl-Fast, Hiit Hit HY-150, or approved equal.

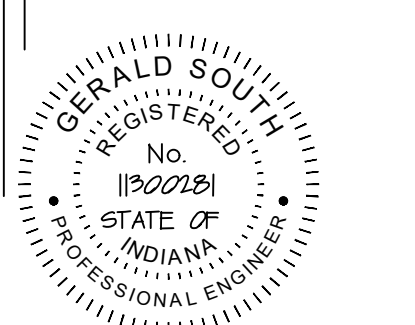
**FOUNDATION NOTES:**

- Proffroll slab on grade areas with a medium-weight roller or other suitable equipment to check for pockets of soft material hidden beneath a thin crust of better soil. Any unsuitable materials thus exposed should be removed and replaced with compacted, engineered fill as outlined in the specifications. Proffrolling operations shall be monitored by the Testing Agency.
- All engineered fill beneath slabs and over footings should be compacted to a dry density of at least 95% of the Standard Proctor maximum dry density (ASTM D-698). All fill which shall be stressed by foundation loads shall be approved granular materials compacted to a dry density of at least 100% (ASTM D-698). Coordinate all fill and compaction operations with the Specifications and the Geotechnical Evaluation.
- Compaction shall be accomplished by placing fill in approx. 8" lifts and mechanically compacting each lift to at least the specified minimum dry density. Field density tests shall be performed on each lift as necessary to insure adequate compaction is being achieved.
- Column footings and wall footings to bear on firm natural soils or well-compacted engineered fill with a design bearing pressure of 2000 psf for column and wall footings.  
  
It is essential that each foundation be inspected to insure that all loose, soft or otherwise undesirable material (such as organics, existing fill, etc.) is removed and that the foundation will bear on satisfactory material. The Soils Engineer shall inspect the subgrade and perform any necessary tests to insure that the actual bearing capacities meet or exceed the design capacities.
- Place footings the same day the excavation is performed. If this is not possible, the footings shall be adequately protected against any detrimental change in condition, such as from disturbance, rain and freezing.
- It is the responsibility of the Contractor and each Sub-Contractor to verify the location of all utilities and services shown, or not shown, and establish safe working conditions before commencing work.
- The Contractor shall layout the entire building and field verify all dimensions prior to excavation.



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POLE BARN  
ADDITION

LIBERTY, INDIANA

Project No. .... 2206-1  
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Designer..... INERSTRADT  
Drawn..... G SOUTH  
A RICE  
Checked..... DAI  
Date..... 9/18/2012

Revision:  
No. Date



QUALITY ASSURANCE

- A. ALL WORK INSTALLED UNDER THIS CONTRACT SHALL CONFORM TO CURRENT CODES AND STANDARDS LISTED HERE AND ALL APPLICABLE REQUIREMENTS OF FEDERAL, STATE AND LOCAL AUTHORITIES HAVING JURISDICTION.
- B. ALL INSTALLATIONS SHALL CONFORM WITH ALL REQUIREMENTS OF: STATE MECHANICAL CODE; AMERICANS WITH DISABILITIES ACT (LATEST EDITION IN EFFECT AT THE TIME OF APPARATUS CONTRACT); STATE CONSTRUCTION INDUSTRY SAFETY CODE; ALL LAWS, ORDINANCES, RULES AND REGULATIONS IN EFFECT IN/OR BY THE STATE AND AS REQUIRED BY DEPARTMENT OF FIRE AND BUILDING SERVICES AND LOCAL AUTHORITY HAVING JURISDICTION.
- C. OBTAIN ALL LICENSES, PERMITS, ETC. AS REQUIRED AND BEAR COMPLETE COST OF SAME.
- D. OWNER'S REQUIREMENTS OR REGULATIONS, PERTAINING TO SAFETY, FIRE, CONDUCT, PARKING, SANITARY CONDITIONS, SMOKING, ETC., SHALL BE STRICTLY ADHERED TO BY ALL CONTRACTORS AND THEIR EMPLOYEES AND SUBCONTRACTORS ON THE JOB.

MATERIALS AND EQUIPMENT IN GENERAL

- A. ALL MATERIALS SHALL BE NEW IN COMPLIANCE WITH APPLICABLE REQUIREMENTS IN "CODES AND STANDARDS" IN THIS SECTION. ALL PIPE, FITTINGS, AND VALVES SHALL BE, AS A MINIMUM, OF SERVICE CLASS SUITABLE FOR WORKING AND TEST PRESSURE FOR WHICH THEY WILL BE USED, RATED FOR RESPECTIVE MEDIA HANDLED.
- B. ALL EQUIPMENT SHALL BE ACCEPTABLE EQUIVALENT TO PRODUCTS REFERENCED; COMPLETE WITH ALL REQUIRED APPARATUS, DEVICES, CONTROLS, ACCESSORIES, HARDWARE, SUPPORTS, ETC.; INSTALLED COMPLETE WITH ALL REQUIRED PIPING, VALVES, ETC.
- C. EQUIPMENT, WIRING, ETC. SHOWN ARE FOR ESTIMATING PURPOSES ONLY. ACTUAL WORK WILL DEPEND ON MANUFACTURER'S STANDARDS FOR EQUIPMENT FURNISHED.
- D. ROUGH-IN AND CONNECT ALL MECHANICAL SERVICES TO ALL EQUIPMENT, UNLESS INDICATED OTHERWISE. EQUIPMENT, ROUGH-IN, WIRING, INSTALLATION, ETC. SHALL BE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS, DIAGRAMS, DRAWINGS, ETC. AND IN COMPLIANCE WITH CURRENT MECHANICAL CODE AND OTHER APPLICABLE CODES.
- E. MOTORS PROVIDED WITH EACH PIECE OF HVAC EQUIPMENT SHALL BE STANDARD NEMA DESIGN; OF TYPE APPROPRIATE AND APPROVED FOR THE APPLICATION; COMPLETE WITH DRIVES.

PRODUCT STORAGE

- A. EQUIPMENT, APPARATUS, ACCESSORIES AND INSTRUMENTS SHALL BE STORED IN ORIGINAL CARTONS OR OTHERWISE PROTECTED, IN SUCH A MANNER SO AS TO PREVENT WEATHER DAMAGE OR BREAKAGE, WITH OPENINGS COVERED TO KEEP OUT DIRT AND FOREIGN MATTER.

WORKMANSHIP

- A. MECHANICAL WORK SHALL CONFORM TO RESPECTIVE TRADE ASSOCIATION STANDARDS OF QUALITY. SHEETMETAL WORKMANSHIP SHALL CONFORM TO THE LATEST EDITION OF THE SMACNA "HVAC DUCT CONSTRUCTION STANDARDS" MANUAL.

PERFORMANCE TESTING, ADJUSTING AND BALANCING

- A. BALANCE AND TESTING AGENCY SHALL BE NEBB CERTIFIED, AN ORGANIZATION WHICH SPECIALIZES IN BALANCING AND TESTING OF HEATING, VENTILATING AND AIR CONDITIONING SYSTEMS.
- B. BALANCE, ADJUST AND TEST AIR MOVING EQUIPMENT, AIR DISTRIBUTION (HEATING-VENTILATING AND RELATED HEAT TRANSFER SYSTEMS) AND EXHAUST SYSTEMS AS SPECIFIED HEREIN.
- C. ALL TESTING AND BALANCING WORK SHALL BE PERFORMED UNDER DIRECT SUPERVISION OF AND ENDORSED BY AN ACCEPTABLE QUALIFIED TEST AND BALANCE TECHNICIAN.
- D. SUBMITTALS
  - 1. PREPARE FOUR (4) COPIES OF ALL TEST DATA, TYPEWRITTEN ON APPROPRIATE DATA SHEETS AND ON SEPIA DRAWINGS MADE FROM LATEST AVAILABLE REVISED SET OF MECHANICAL DRAWINGS (FURNISHED BY CONTRACTOR RESPONSIBLE FOR RESPECTIVE SYSTEM) AND FORWARD REQUIRED COPIES TO CONTRACTOR FOR SUBMISSION TO ENGINEER FOR EVALUATION.
    - A) TEST DATA SHALL INCLUDE ALL DATA RECORDED AS SPECIFIED IN PART 3 OF THIS SECTION.
    - B) PROVIDE A SINGLE LINE DIAGRAM FOR EACH AIR SYSTEM IDENTIFYING EACH AIR TERMINAL UNIT BY NUMBER THAT CORRESPONDS WITH REPORT INFORMATION.
    - C) WORK WILL BE CONSIDERED NOT COMPLETE UNTIL ALL REQUIRED DATA HAS BEEN SUBMITTED BY CONTRACTOR, REVIEWED BY ENGINEER AND ADJUDGED ACCEPTABLE.

E. PREPARATION FOR TESTING AND BALANCING

- 1. CONTRACTOR FURNISHING RESPECTIVE EQUIPMENT SHALL PERFORM OR PROVIDE THE FOLLOWING, PRIOR TO START OF TESTING AND BALANCING:
  - A) CLEAN ALL STRAINERS IN RESPECTIVE LIQUID HEAT TRANSFER SYSTEMS.
  - B) IMMEDIATELY BEFORE ADJUSTING AND BALANCING OPERATIONS, SERVICE ALL AIR SYSTEM FILTRATION EQUIPMENT AND DEVICES.
    - 1) INSTALL FILTERS IF NOT ALREADY IN PLACE.
    - 2) IN AIR HANDLING EQUIPMENT AND SYSTEMS THAT HAVE BEEN OPERATED DURING CONSTRUCTION, AND REPLACE ALL USED THROWAWAY FILTERS.
- 2. PLACE ALL HEATING AND VENTILATING SYSTEMS AND EQUIPMENT INTO FULL OPERATION AND CONTINUE THE OPERATION OF SAME DURING EACH WORKING DAY OF TESTING AND BALANCING.

F. TESTING AND ADJUSTING PROCEDURE IN GENERAL

- 1. PERFORM ALL APPLICABLE TESTS AND ADJUSTMENTS ON EACH RESPECTIVE SYSTEM AND UNIT OF EQUIPMENT.
- 2. AS A MINIMUM, TESTING AND ADJUSTING SHALL INCLUDE ALL APPLICABLE PROCEDURES SPECIFIED IN THIS SECTION.

G. AIR DISTRIBUTION TESTING AND ADJUSTING PROCEDURE

- 1. PERFORM ALL APPLICABLE TESTS AND ADJUSTMENTS ON EACH SYSTEM.
- 2. IDENTIFY AND LIST SIZE, TYPE, AND MANUFACTURER OF ALL EQUIPMENT.
- 3. SUPPLY AND EXHAUST FANS - CHECK FOR CORRECT ROTATION, TEST AND ADJUST TO DESIGN REQUIREMENTS.
- 4. MOTOR - TEST AND RECORD ELECTRICAL CHARACTERISTICS, RPM, SERVICE FACTOR, MEASURED VOLTAGE, FULL LOAD AMPERES AND CORRECTED FULL LOAD AMPERAGE. CHECK AND RECORD STARTER SIZE, OVERLOAD HEATER(S) SIZES AND RATING, REPLACEMENT BELT SIZES, ETC.
- 5. TEST AND RECORD SYSTEM STATIC PRESSURE, SUCTION AND DISCHARGE.
- 6. TEST AND ADJUST SYSTEM FOR DESIGN CFM OF RECIRCULATED AND OUTSIDE AIR.
- 7. TEST AND RECORD ENTERING AIR TEMPERATURES AND LEAVING AIR TEMPERATURES. (D.B. HEATING AND COOLING, W.B. COOLING)
- 8. ADJUST ALL ZONES AND MAIN SUPPLY AND RETURN AIR DUCTS TO PROPER DESIGN CFM.
- 9. EACH DIFFUSER, GRILLE AND REGISTER -
  - A) IDENTIFY AS TO LOCATION AND AREA.
  - B) IDENTIFY AND LIST SIZE, TYPE, FLOW FACTOR AND MANUFACTURER.
  - C) FOR CONSTANT AIR VOLUME SYSTEMS - TEST AND ADJUST TO WITHIN ±10% OF DESIGN REQUIREMENTS.
  - D) READINGS AND TESTS OF DIFFUSERS, GRILLES AND REGISTERS SHALL INCLUDE REQUIRED VELOCITY (FPM) AND TEST RESULTANT VELOCITY, REQUIRED CFM AND TEST RESULTANT CFM AFTER ADJUSTMENTS.
  - E) ALL DIFFUSERS, GRILLES AND REGISTERS SHALL BE ADJUSTED TO MINIMIZE DRAFTS IN ALL AREAS.

CLEANING

- A. CONTRACTOR SHALL CLEAN ALL OF HIS WORK INSIDE AND OUT.
- B. AIR DISTRIBUTION SYSTEMS SHALL HAVE ALL DIRT AND FOREIGN MATERIAL REMOVED FROM INSIDE AND OUTSIDE OF DUCTS, PLENUMS, HOUSINGS, DEVICES, TERMINALS, ETC. AS INSTALLATION PROGRESSES. PROTECT OPEN ENDS OF DUCTWORK AND INLETS AND OUTLETS OF EQUIPMENT AND DEVICES DURING CONSTRUCTION. CLEAN ALL ACCESSIBLE PARTS OF DUCTWORK AND AIR PASSAGES IN EQUIPMENT BEFORE FILTERS ARE INSTALLED OR REPLACED FOR SYSTEM BALANCING.

SLEEVES FOR PIPE

- A. SLEEVES SHALL BE PROVIDED FOR ALL PIPES PASSING THROUGH CONCRETE, MASONRY OR WET PLASTER OR DRYWALL CONSTRUCTION; INSTALLED DURING CONSTRUCTION OF RESPECTIVE BUILDING COMPONENT.
- B. SLEEVE MATERIALS SHALL BE SCHEDULE 40 STEEL PIPE THROUGH CONCRETE AND MASONRY; GALVANIZED SHEETMETAL THROUGH WET PLASTER AND DRYWALL. EXPOSED SLEEVES SHALL BE GALVANIZED EXTENDED 3" ABOVE FLOOR.

SUPPORTS, DEVICES AND HARDWARE

- A. FURNISH AND INSTALL ACCEPTABLE CONCRETE INSERTS, ANCHORS, CLAMPS, BRACKETS, HANGERS, STRUCTURAL MEMBERS (ANGLES, CHANNELS, ETC.) AND FRAMES, ETC., REQUIRED FOR SUPPORTING ALL RESPECTIVE WORK.
- B. SUPPORTING DEVICES, ASSEMBLIES AND ATTACHMENTS SHALL BE DESIGNED AND ARRANGED TO CARRY THE WEIGHT OF THE SUPPORTED ITEMS INCLUDING HANGER AND CONTENTS, WITHOUT TRANSMITTING VIBRATION OR NOISE TO THE BUILDING CONSTRUCTION; DESIGNED, APPROPRIATE AND APPROVED FOR THE PURPOSE USED; HAVE A NEAT AND FINISHED APPEARANCE AND COMPLEMENT THE INSTALLATION; HAVE CORROSION PROTECTION SUITABLE FOR THE ATMOSPHERE WHERE INSTALLED; ADEQUATELY AND SAFELY ATTACHED TO THE BUILDING STRUCTURE OR STRUCTURAL MEMBERS. EXPOSED SUPPORTS SHALL BE PAINTED UNLESS OF NON-FERROUS MATERIAL OR PROVIDED WITH PLATED (RUSTPROOF) FINISH. COPPER HANGERS OR INSULATING INSERTS SHALL BE USED WITH COPPER PIPE.

INSULATION

- A. INSULATE RESPECTIVE WORK INSTALLED UNDER THIS CONTRACT AS SPECIFIED AND SCHEDULED HEREIN AND INDICATED ON DRAWINGS.
- B. ALL MATERIALS (INSULATION, JACKETS, SEALANTS AND ADHESIVES) SHALL HAVE FIRE HAZARD CLASSIFICATION NOT EXCEEDING FLAME SPREAD "25" AND SMOKE DEVELOPED "50" NOR EXCEEDING NFPA, STATE AND LOCAL CODE REQUIREMENTS AS APPROVED BY STATE AND LOCAL AUTHORITIES.
- C. VAPOR BARRIER JACKET SHALL BE UNDERWRITERS' APPROVED, FLAME RETARDANT, FIRE RESISTANT, NONASPHALTIC LAMINATE OF WHITE HEAVY KRAFT PAPER AND ALUMINUM FOIL REINFORCED WITH GLASS FIBER OR ACCEPTABLE EQUIVALENT. INSULATION THAT IS TO BE PAINTED SHALL HAVE A SMOOTH UNIFORM SURFACE SUITABLE FOR PAINTING OR HAVE SIZED GLASS FIBER CLOTH OUTER COVERING APPLIED OVER VAPOR BARRIER AND JOINTS.
  - 1. JACKET SHALL HAVE ALL JOINTS SEALED VAPOR TIGHT. STAPLES SHALL NOT BE USED IN VAPOR BARRIER JACKETS.
- D. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS USING RECOMMENDED ADHESIVES, FASTENERS, ETC. INSULATION SHALL BE APPLIED ONLY AFTER PIPES, DUCTS AND EQUIPMENT HAVE BEEN TESTED, PROVEN TIGHT, THOROUGHLY CLEANED AND THERE IS NO EVIDENCE OF LEAKAGE.
- E. ALL UNACCEPTABLE INSULATION WORK SHALL BE REPLACED WITH NEW ACCEPTABLE WORK. UNACCEPTABLE WORK INCLUDES BUT IS NOT LIMITED TO DEFORMED, CRACKED, DENTED OR SAGGING INSULATION, SEPARATED JOINTS, DAMAGED JACKET, LOOSE COVERING OR TAPE OR OTHERWISE UNEVEN APPEARANCE.
- F. PIPE INSULATION SHALL BE APPLIED TO PIPING AS SCHEDULED HEREIN OR NOTED ON DRAWINGS.
  - 1. MOLDED RIGID GLASS FIBER (MRGF) PIPE INSULATION SHALL BE FACTORY MOLDED RIGID TYPE; .23 MAXIMUM K FACTOR AT 75°F MEAN TEMPERATURE; WITH INTEGRAL FIRE RATED JACKET.
    - A) ALL HEATING WATER PIPING SUPPLY & RETURN = 1".

G. DUCT INSULATION SHALL BE OF THE FOLLOWING RESPECTIVE MATERIAL APPLIED TO DESIGNATED DUCTS IN THE THICKNESS INDICATED AND/OR WHERE NOTED ON DRAWINGS. ONLY ONE TYPE OF MATERIAL SHALL BE USED FOR A PARTICULAR APPLICATION THROUGHOUT THE PROJECT.

- 1. BLANKET GLASS FIBER INSULATION SHALL BE LONG FIBER, GLASS BLANKET TYPE; .25 MAXIMUM K FACTOR AT 75°F DIFFERENTIAL; THREE-QUARTER (.75) PCF DENSITY; EQUIPPED WITH VAPOR BARRIER JACKET SPECIFIED HEREIN, EXTENDING 2" BEYOND GLASS FIBER FOR LAP JOINT SEALING; APPLIED TO FOLLOWING DUCTS:
  - A) ALL SUPPLY AND RETURN DUCTS IN CONCEALED UNCONDITIONED SPACES INCLUDING ATTIC AND RETURN AIR PLENUMS = 1-1/2".
- 2. RIGID BOARD GLASS FIBER DUCT INSULATION SHALL BE .22 MAXIMUM K FACTOR AT 75°F DIFFERENTIAL; THREE (3) PCF DENSITY; WITH INTEGRAL VAPOR BARRIER JACKET SPECIFIED HEREIN WITH JOINTS TAPED USING SAME MATERIAL; APPLIED TO FOLLOWING DUCTS:
  - A. ALL OUTSIDE AIR INTAKE DUCTS = 2".

DUCTWORK

- A. DUCTWORK MATERIALS, PRODUCTS AND INSTALLATION SHALL BE PROVIDED IN COMPLIANCE WITH MECHANICAL RULES AND REGULATIONS PROMULGATED BY DEPARTMENT OF FIRE AND BUILDING SERVICES (UNIFORM MECHANICAL CODE PUBLISHED JOINTLY BY INTERNATIONAL ASSOCIATION OF PLUMBING AND MECHANICAL OFFICIALS AND INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS, WITH EXCEPTIONS AS NOTED), LATEST EDITION, AND THESE SPECIFICATIONS.
- B. DUCTWORK MATERIAL SHALL, UNLESS NOTED OTHERWISE ON DRAWINGS, BE G60 COATED GALVANIZED STEEL CONFORMING TO ASTM STANDARDS A-525 AND A-527, WHICH WILL DOUBLE SEAM WITHOUT FRACTURE, MADE UP TO BE AIRTIGHT, SMOOTH INSIDE, OF SIZE SHOWN ON DRAWINGS.
- C. RECTANGULAR AND SQUARE DUCTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH TABLES 1-13 AND ASSOCIATED DETAILS OF SMACNA "HVAC DUCT CONSTRUCTION STANDARDS", LATEST EDITION.
  - 1. SEAM JOINTS FOR DUCTS SHALL BE AS FOLLOWS: CORNER = PITTSBURGH LOCKED SEAM; TRANSVERSE = STANDING SEAM; LONGITUDINAL = LOCKED SEAM, WHERE SHOWN = WELDED (BRAZED) WATERTIGHT. BUTTON PUNCH SNAP LOCK SEAMS ARE NOT ACCEPTABLE.
  - 2. CROSS BREAK ALL DUCT AREAS OVER 12" WIDE FOR STIFFNESS. WHERE VIBRATION, SAGGING OR BUCKLING WOULD OCCUR, ANGLE IRON STIFFENER BRACES SHALL BE PROVIDED, RIVETED TO DUCTS. SPACING OF BRACES SHALL BE IN ACCORDANCE WITH LATEST EDITION OF SMACNA DUCT CONSTRUCTION STANDARD.
  - 3. ALL DUCT ELBOWS SHALL BE FULL RADIUS DESIGN HAVING INSIDE RADIUS EQUAL TO DUCT WIDTH (R=W), UNLESS 90° ELBOW IS SHOWN ON DRAWING. ALL 90° ELBOWS SHALL BE EQUIPPED WITH TURNING VANES.
  - 4. ALL DUCT TRANSITIONS SHALL BE UNIFORM TAPER DESIGN WITH DIVERGING FLOW TRANSITIONS CONSTRUCTED 20' OR LESS TO PARALLEL DUCT FACES AND CONTRACTING FLOW TRANSITIONS CONSTRUCTED 30' OR LESS TO PARALLEL DUCT FACES, UNLESS SHOWN OTHERWISE ON DRAWING.
  - 5. EXTERNAL BRACING FOR DUCT SHALL BE PROVIDED ON RECTANGULAR AND SQUARE DUCTS OVER 18" WIDE, CONSISTING OF GALVANIZED STEEL ANGLES, OF SIZE AND SPACING AS SCHEDULED, PROVIDED ON ALL FOUR SIDES OF DUCT, FASTENED TO DUCT AT 6" INTERVALS ALONG ANGLES.
  - 6. DUCT HANGER AND SUPPORT SYSTEMS SHALL NOT EXCEED AN EIGHT FOOT (8'-0") SPACING.
- D. FLEXIBLE AIR DUCT SHALL BE CONSTRUCTED OF A MATERIAL CAPABLE OF WITHSTANDING 2" W.G. MAXIMUM WORKING PRESSURE, CLAMPED TO METAL DUCT WITH STRAPS AND SEALED WITH DUCT TAPE; FACTORY INSULATED ON OUTSIDE WITH 1" THICK, .75 PCF DENSITY GLASS FIBER SHEATHED WITH EXTERIOR VINYL VAPOR BARRIER WHERE INSULATED DUCT IS REQUIRED. MAXIMUM LENGTH OF DUCT SHALL BE FIVE (5) FEET. DUCT SHALL BE U.L. 181 LISTED, CLASS 1 FLEXIBLE AIR DUCT; CLEVALEX, FLEXMASTER, GENFLEX, THERMAFLEX, WIREMOLD OR ACCEPTABLE EQUIVALENT.
- E. VOLUME DAMPERS SHALL BE 20 GAUGE GALVANIZED IRON WELDED TO SQUARE COLD ROLLED STEEL OPERATING ROD, WITH END BEARINGS AND SELF-LOCKING DIAL REGULATOR. EXPOSED REGULATORS SHALL BE CHROME PLATED. PROVIDE SHAFT EXTENSION AND CONCEALED REGULATOR WHERE DAMPER IS IN INACCESSIBLE LOCATION.
- F. SEAL ALL OPENINGS AROUND DUCTS WHERE PENETRATING WALLS, FLOORS AND PARTITIONS WITH MATERIAL HAVING A FIRE RESISTANCE RATING EQUAL TO FIRE RESISTANCE RATING OF WALL, FLOOR OR PARTITION PENETRATED. EXTERNAL INSULATION SHALL PASS THROUGH WALLS EXCEPT WHERE FIRE DAMPERS ARE INSTALLED. EXPOSED DUCTS THROUGH WALLS SHALL BE PROVIDED WITH NEAT TRIM TO COVER OPENING AROUND DUCT.

- G. ACCESS DOORS OR PANELS SHALL BE HINGED, UNLESS REMOVABLE TYPE IS REQUIRED TO ALLOW ACCESS; CONSTRUCTED TO SMACNA STANDARDS; INSULATED SANDWICH TYPE IN INSULATED DUCTS; LOCATED WHERE REQUIRED TO ALLOW ACCESS FOR MAINTENANCE, INSPECTION, ADJUSTMENT, LINK REPLACEMENT, ETC. WHERE POSSIBLE WITHOUT ADDITIONAL DUCTWORK, ETC. INSTALL DUCT ACCESS UNITS IN LOCATIONS THAT WILL NOT REQUIRE ACCESS PANELS IN BUILDING CONSTRUCTION. PROVIDE ACCESS PANELS IN NONACCESSIBLE WALL AND CEILING CONSTRUCTION.

DUCT SEALING REQUIREMENTS

- A. SEAL ALL DUCT LONGITUDINAL SEAMS, TRANSVERSE JOINTS AND FITTING CONNECTIONS.
- B. SEALANT SHALL BE APPLIED IN ACCORDANCE WITH MANUFACTURER'S DIRECTIONS; ONE OF THE FOLLOWING:
  - 1. GYPSUM IMPREGNATED TAPE SHALL BE ACCEPTABLE EQUIVALENT TO HARDCAST #DTS300, WITH #FTA20 ACTIVATOR/ADHESIVE.
  - 2. FIBER REINFORCED DUCT SEALER SHALL BE INDUSTRIAL GRADE, INDOOR/OUTDOOR USE, HIGH VELOCITY, WATER BASED, NON-FLAMMABLE; HAVE U.L. LISTING WITH RATINGS OF FLAME SPREAD 0, SMOKE DEVELOPED 0; ACCEPTABLE EQUIVALENT TO HARDCAST #DS-321 "DUCT-SEAL".

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**Building & Interior Design, Engineering, Construction Management**

GERALD SOUTH  
REGISTERED  
No. 1900281  
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PROFESSIONAL ENGINEER

*Gerald South*  
Certified By

TOWN OF  
LIBERTY  
POLE BARN  
ADDITION

LIBERTY, INDIANA

Project No..... 2206-1  
Coordinator..... INERSTRADT  
Designer..... INERSTRADT  
Drawn..... G SOUTH  
A RICE  
Checked..... DAI  
Date..... 9/18/2012

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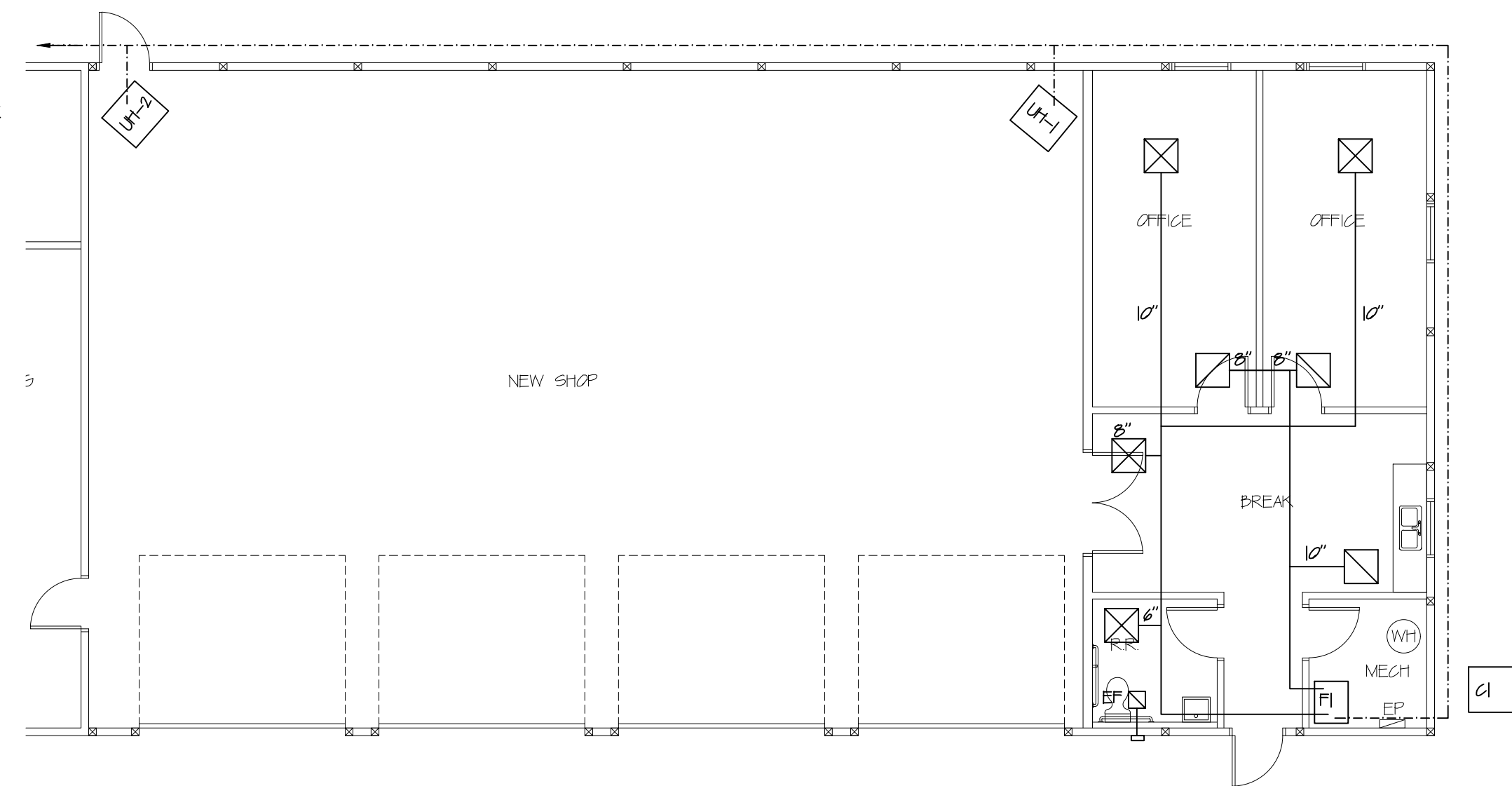
**GENERAL HVAC NOTES**

- A. ALL WORK SHALL MEET ALL CURRENT CODE REQUIREMENTS.
- B. FIELD VERIFY EXISTING CONDITIONS.
- C. COORDINATE ALL WORK WITH OTHER TRADES.
- D. PROVIDE ALL REQUIRED VENT PIPING AND SUPPORTS FOR UNITS PER MFG. RECOMMENDATIONS.
- E. VERIFY THERMOSTAT LOCATIONS WITH OWNER. THERMOSTATS TO BE A PROGRAMMABLE STYLE.
- F. M.C. TO PROVIDE DUCT WORK SHOP DRAWING FOR APPROVAL.
- G. DIFFUSERS TO BE ADJUSTABLE STYLE.

**HVAC SCHEDULE**

- FI 36,000 BTU GAS FURNACE MIN. 95% TEMPSTAR OR EQUAL
- CI 2 TON COOLING CONDENSER MIN. 13 SEER
- UH-1 36,000 BTU SUSPENDED GAS UNIT HEATER REZNR OR EQUAL
- UH-2 36,000 BTU SUSPENDED GAS UNIT HEATER REZNR OR EQUAL
- EF 75 CFM EXHAUST FAN CONNECT TO OPERATE WITH LIGHT CIRCUIT.

CONNECT NEW GAS LINE TO EXISTING SERVICE. FIELD VERIFY LOCATION. EXTEND ALONG EXTERIOR OF BUILDING TO FURNACE ROOM.



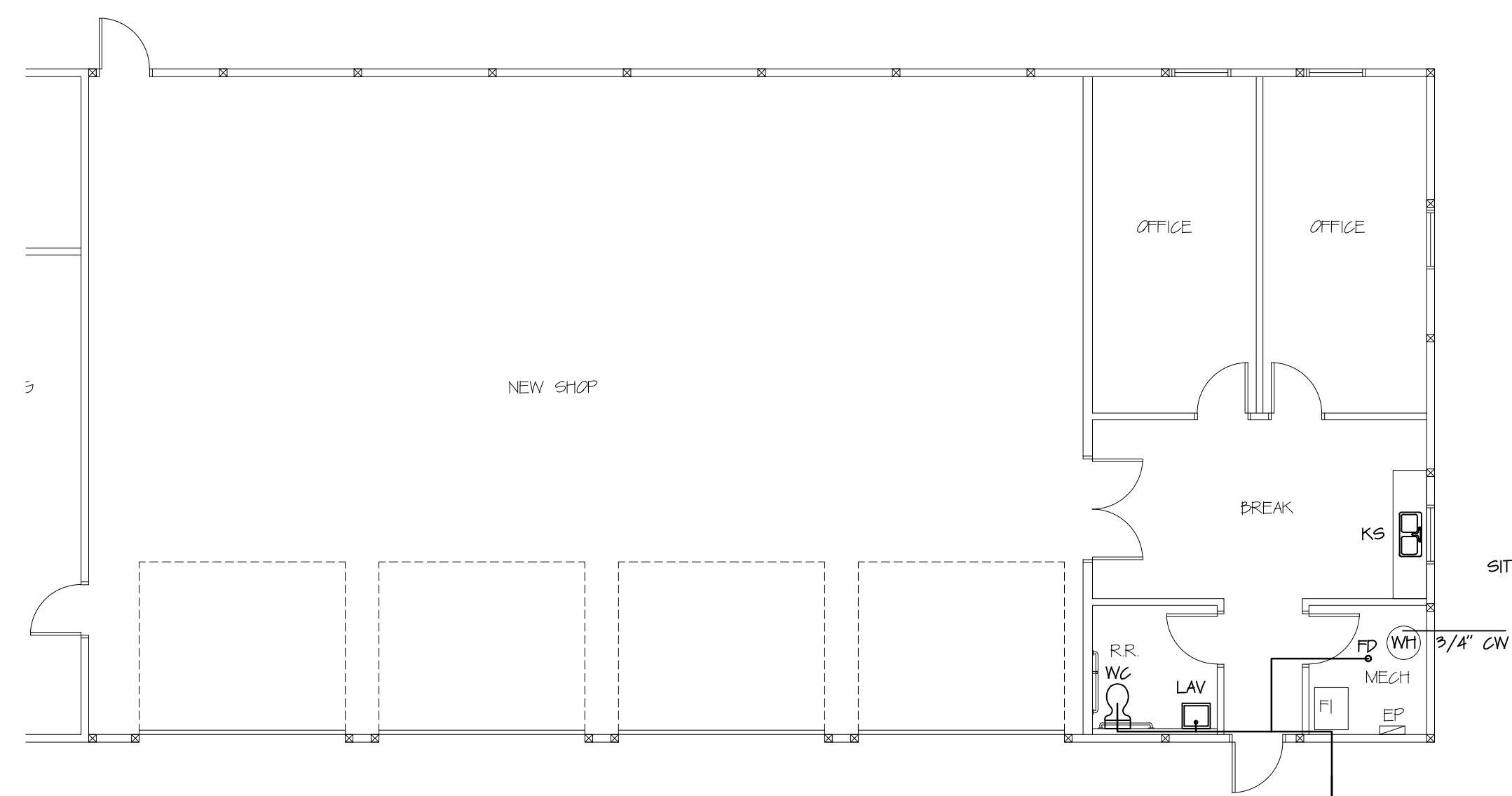
**HVAC PLAN**  
SCALE: 1/8" = 1'-0"

**GENERAL PLUMBING NOTES**

- A. PEX STYLE DOMESTIC WATER LINES ACCEPTABLE.
- B. ALL WORK SHALL MEET ALL CURRENT CODE REQUIREMENTS.
- C. FIELD VERIFY EXISTING CONDITIONS.
- D. COORDINATE ALL WORK WITH OTHER TRADES.
- E. PROVIDE MIN. 1/2" DOMESTIC C/H WATER LINES TO ALL FIXTURES. VERIFY WITH EQUIPMENT CUT SHEETS.
- F. PROVIDE PROTECTIVE PIPE INSULATION AT ADA SINK.

**PLUMBING FIXTURE SCHEDULE**

- WC ADA AMERICAN STANDARD OR EQUAL PRESSURE ASSIST WATER CLOSET.
- LAV ADA AMERICAN STANDARD OR EQUAL WALL MOUNTED PORCELAIN SINK W/ STAINLESS STEEL FAUCET.
- KS AMERICAN STANDARD OR EQUAL STAINLESS STEEL DOUBLE BOWL SINK 32"X18"DEEP W/ AMERICAN STANDARD COLONY SOFT KITCHEN FAUCET.
- FD AMERICAN STANDARD OR EQUAL 4" ROUND STAINLESS FLOOR DRAIN.
- WH EXISTING ELECTRIC 50gal HOT WATER HEATER. CONTRACTOR TO RELOCATE FROM EXISTING BUILDING TO THIS LOCATION. PROVIDE CUT SHEETS FOR OWNER APPROVAL.



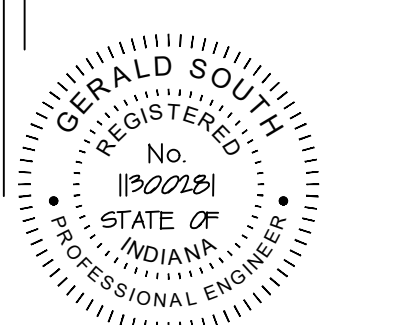
**PLUMBING PLAN**  
SCALE: 1/8" = 1'-0"



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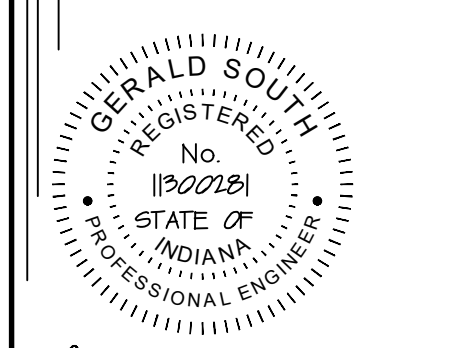
Gerald South  
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TOWN OF LIBERTY  
POLE BARN ADDITION

LIBERTY, INDIANA

Project No.... 2206-1  
Coordinator.... INERSTRADT  
Designer..... INERSTRADT  
Drawn..... G SOUTH  
A RICE  
Checked..... DAI  
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- AND U.L. SPECIFICATION UL-6; U.L. LISTED, WITH EACH LENGTH LABELED.
- C. ELECTRICAL METALLIC TUBING SHALL BE MANUFACTURED FROM MILD STEEL; ZINC GALVANIZED OR SHERARDIZED BOTH INSIDE AND OUTSIDE; MANUFACTURED IN ACCORDANCE WITH USASI SPECIFICATION C80.3, FEDERAL SPECIFICATION WW-C-563, AND U.L. SPECIFICATION 797; U.L. LISTED, WITH EACH LENGTH LABELED.
- D. FLEXIBLE METALLIC CONDUIT SHALL BE SPIRALLY WOUND STEEL STRIP; ZINC GALVANIZED BOTH INSIDE AND OUTSIDE; INTEGRAL GROUND CONDUCTOR; NEOPRENE JACKETED WITH OIL TIGHT FITTINGS IN DAMP AND WET LOCATIONS.
- E. OUTLET BOXES SHALL BE GALVANIZED OR CADMIUM PLATED STEEL OF SIZE, PATTERN AND DEPTH AS REQUIRED; CAST ALUMINUM BOXES SHALL HAVE ONLY HUBS AS REQUIRED FOR THE INSTALLATION; UNITS SHALL HAVE EXTENSION RINGS, RAISED PLASTER COVERS, FIXTURE STUDS, ETC., AS REQUIRED FOR A PROPER INSTALLATION.

1. ACCEPTABLE PRODUCTS SHALL BE RACO, STEEL CITY.
- F. JUNCTION AND PULL BOXES AND WIREWAYS SHALL BE FABRICATED FROM ZINC GALVANIZED SHEET STEEL OF GAUGE AS PER I.E.C.; COVERS SHALL BE SCREW FASTENED AND THOSE OVER 864 SQUARE INCHES SHALL BE SECTIONALIZED; CROSS BRACING AND BARRIERS AS REQUIRED.
1. ACCEPTABLE PRODUCTS SHALL BE KEYSTONE, BOSS, HOFFMAN.
- G. FITTINGS SHALL BE ZINC GALVANIZED OR SHERARDIZED STEEL OR CAST ALUMINUM; USE OIL TIGHT FITTINGS WITH NEOPRENE JACKETED FLEXIBLE METALLIC CONDUIT. EMT FITTINGS SHALL BE STEEL SET-SCREW, OR STEEL COMPRESSION TYPE.
1. ACCEPTABLE PRODUCTS SHALL BE RACO, STEEL CITY, THOMAS & BETTS.

WIRING DEVICES

- A. WIRING DEVICES SHALL BE HEAVY DUTY, U.L. LISTED; THE PRODUCTS OF ONE MANUFACTURER; COLOR AS SELECTED BY THE ARCHITECT FOR EACH RESPECTIVE APPLICATION. COVERPLATES SHALL BE SMOOTH STYLE NYLON, SAME COLOR AS DEVICE. GFCI RECEPTACLES SHALL BE DUPLEX, 20 AMP, 125 VAC, CLASS A-5 MILLIAMP SENSITIVITY, U.L. LISTED, IN COMPLIANCE WITH APPLICABLE REQUIREMENTS OF I.E.C., U.L. AND NEMA.

1. ACCEPTABLE PRODUCTS:	HUBBELL	LEVITON	P & S
TOGGLE SWITCH, 20A., SPECIFICATION GRADE	HBL1220	1220	20AC(1)
RECEPTACLE, DUPLEX 20A., 125 VOLT, SPECIFICATION GRADE	5352	5362	5362

LIGHTING FIXTURES

- A. INSTALLATION OF LIGHTING FIXTURES - CEILING MOUNTED LIGHTING FIXTURES SHALL BE RIGIDLY SUPPORTED FROM THE BUILDING STRUCTURE, EXCEPT AS PERMITTED BY AND IN ACCORDANCE WITH ASTM C630, STATE BUILDING CODE STANDARDS AND CURRENT ELECTRICAL CODE. FASTENERS AND HARDWARE SHALL BE DESIGNED AND APPROPRIATE FOR THE INSTALLATION. JUNCTION BOXES SHALL BE ACCESSIBLE.

- B. ALL INSTALLATIONS SHALL CONFORM WITH ALL REQUIREMENTS OF: CURRENT ELECTRICAL CODE; AMERICANS WITH DISABILITIES ACT; STATE CONSTRUCTION INDUSTRY SAFETY CODE; ALL LAWS, ORDINANCES, RULES AND REGULATIONS IN EFFECT IN/OR BY THE STATE AND AS REQUIRED BY DEPARTMENT OF FIRE AND BUILDING SERVICES AND LOCAL AUTHORITY HAVING JURISDICTION.
- C. OBTAIN ALL LICENSES, PERMITS, ETC. AS REQUIRED AND BEAR COMPLETE COST OF SAME.
- D. ALL MATERIALS SHALL BE NEW BEST GRADE OF EACH REPRESENTATIVE TYPE; MANUFACTURED AND TESTED IN ACCORDANCE WITH LATEST EDITIONS OF U.L., NEMA, ANSI, ASA, IEEE AND IPCIA STANDARDS; UNDERWRITERS' LABORATORIES, INC. LABELED WHERE APPLICABLE.
- E. OWNER'S REQUIREMENTS OR REGULATIONS, PERTAINING TO SAFETY, FIRE, CONDUCT, PARKING, SANITARY CONDITIONS, SMOKING, ETC., SHALL BE STRICTLY ADHERED TO BY ALL CONTRACTORS AND THEIR EMPLOYEES AND SUBCONTRACTORS ON THE JOB.

MATERIALS AND EQUIPMENT IN GENERAL

- A. ALL CONDUCTORS, RACEWAYS, DEVICES, ETC. SHALL BE AS A MINIMUM, OF SERVICE CLASS AND CAPACITY SUITABLE FOR LOCATION AND LOAD FOR WHICH THEY WILL BE USED.
- B. ALL EQUIPMENT SHALL BE ACCEPTABLE EQUIVALENT TO PRODUCTS REFERENCED; COMPLETE WITH ALL REQUIRED APPARATUS, DEVICES, CONTROLS, LAMPS, ACCESSORIES, HARDWARE, SUPPORTS, ETC.; INSTALLED COMPLETE WITH ALL REQUIRED DISCONNECTS, CONNECTORS, ETC.
- C. ALL UNITS OF EACH INDIVIDUAL TYPE DEVICE, EQUIPMENT, ETC. SHALL BE THE PRODUCTS OF ONE MANUFACTURER OR SUPPLIER. MORE THAN ONE MAKE OF A SINGLE ITEM SHALL NOT BE USED.
- D. EQUIPMENT, WIRING, ETC. SHOWN ARE FOR ESTIMATING PURPOSES ONLY. ACTUAL WORK WILL DEPEND ON EXISTING CONDITIONS AND MANUFACTURER'S STANDARDS FOR EQUIPMENT FURNISHED.
- E. ROUGH-IN AND CONNECT ALL ELECTRICAL SERVICES TO ALL EQUIPMENT, UNLESS INDICATED OTHERWISE. EQUIPMENT ROUGH-IN, WIRING, INSTALLATION, ETC. SHALL BE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS, DIAGRAMS, DRAWINGS, ETC. AND IN COMPLIANCE WITH CURRENT ELECTRICAL CODE AND OTHER APPLICABLE CODES.

WIRING METHODS

- A. ELECTRICAL INSTALLATIONS SHALL BE MADE USING GROUNDED METALLIC CONDUIT THROUGHOUT, IN COMPLIANCE WITH I.E.C.
- B. RIGID STEEL CONDUIT SHALL BE UTILIZED FOR ALL PENETRATIONS THROUGH CONCRETE INCLUDING WALLS, EXPOSED ON WALLS BELOW +6'-0" A.F.F. FOR EXTERIOR AND OTHER WET APPLICATIONS AND WHERE SHOWN ON DRAWINGS OR REQUIRED. INTERMEDIATE STEEL CONDUIT MAY BE USED IN LIEU OF RIGID CONDUIT, IN COMPLIANCE WITH I.E.C.
- C. EMT MAY BE USED IN DRY LOCATIONS ONLY, WHERE CONDUIT IS CONCEALED IN WALLS AND ABOVE FINISHED CEILINGS, EXPOSED ON CEILINGS AND EXPOSED ON WALLS ABOVE 6'-0" A.F.F.
- D. FLEXIBLE METALLIC CONDUIT SHALL BE USED ONLY FOR FINAL CONNECTIONS TO MOTORS AND EQUIPMENT.

CONDUCTORS

- A. ALL CONDUCTORS SHALL BE COPPER; NEW, NOT GREATER THAN (2) YEARS OF AGE, COMPLY WITH LATEST SPECIFICATIONS OF NFPA, AND SHALL HAVE U.L. LABEL CLEARLY AFFIXED PER U.L. STANDARDS; NO. 12 MINIMUM UNLESS OTHERWISE INDICATED; #12 = SOLID, #10 = SOLID OR STRANDED, #8 AND LARGER = STRANDED; CONTROL - #14 MINIMUM AND AS REQUIRED; WIRE SIZE FOR LONG BRANCH CIRCUIT RUNS SHALL BE INCREASED AS REQUIRED TO MAINTAIN VOLTAGE DROP LIMITS OF I.E.C. STRANDED WIRE SHALL BE USED WHERE ANY SIZE CONDUCTOR IS SUBJECT TO FLEXING WHILE IN SERVICE AND WHERE RACEWAY HAS A SHORT BEND RADIUS.
- B. INSULATION SHALL BE THWN/THHN UNLESS OTHERWISE INDICATED; 600 VOLT RATING; COLOR CODED PER LATEST EDITION OF I.E.C.
- C. ALL CONDUCTORS OF A GIVEN TYPE SHALL BE A PRODUCT OF THE SAME MANUFACTURER, FURNISHED IN UNBROKEN CONTAINERS MARKED WITH DATE OF PRODUCTION.

CONDUCTOR SPLICING AND TERMINATING CONNECTORS

- A. ALL WIRING CONNECTIONS SHALL BE MADE UP WITH U.L. LISTED TERMINALS OR CONNECTORS WHICH COMPLY WITH I.E.C. AND HAVE MECHANICAL STRENGTH AND INSULATION EQUAL TO THOSE OF THE CONDUCTOR.
- B. CONNECTORS SHALL BE WIRE SIZE #14 THRU #10 = INSULATED METAL SPRING TWIST ON TYPE; WIRE SIZE LARGER THAN #10 = BOLT OR COMPRESSION TYPE.
- C. SO CALLED "WIRE NUTS" (NON-METALLIC THREADED CONNECTORS) WILL NOT BE ALLOWED ON ANY EQUIPMENT INCLUDING FIXTURES.
- D. CONTROL WIRING SHALL BE TERMINATED USING CRIMPED FORKED TONGUE TERMINALS.
- E. SPLICING, TAP AND TERMINAL DEVICES SHALL BE PROPER SIZE AND TYPE FOR THE APPLICATION AND COMPATIBLE WITH THE CONDUCTOR MATERIAL.

CONDUIT AND FITTINGS

- A. ALL CONDUIT SHALL BE RIGID GALVANIZED STEEL, IMC, OR EMT, 3/4" MINIMUM, UNLESS CONFIRMED IN WRITING BY ENGINEER TO BE ACCEPTABLE FOR A SPECIFIC APPLICATION OR UNLESS SHOWN. RIGIDLY SUPPORT CONDUIT FROM THE BUILDING STRUCTURE, USING U.L. LISTED DEVICES AND HARDWARE. ALL CONDUIT SHALL BE CONCEALED ABOVE CEILINGS AND IN WALLS.
1. ACCEPTABLE PRODUCTS SHALL BE ALLIED, JONES & LAUGHLIN, NATIONAL ELECTRIC, PITTSBURGH STANDARD, REPUBLIC STEEL, WHEATLAND KEYSTONE.

CLEANING

- A. CONTRACTOR SHALL CLEAN ALL WORK INSIDE AND OUT.
- B. CONDUIT SYSTEMS, EQUIPMENT, WIREWAYS, OUTLET AND PULLBOXES, ETC. SHALL HAVE ALL FOREIGN MATERIAL, DIRT, PULLING COMPOUND, WIRE SCRAPS, INSULATION STRIPPINGS, ETC., REMOVED FROM INSIDE AS INSTALLATION PROGRESSES.
- C. CLEAN ALL ACCESSIBLE PARTS OF SYSTEMS AND EQUIPMENT BEFORE WORK IS TURNED OVER TO OWNER.

PRODUCT STORAGE

- A. CONDUIT, FITTINGS, BOXES, ETC. SHALL BE STORED IN SUCH A MANNER SO AS TO PREVENT DAMAGE, WITH OPENINGS COVERED TO KEEP OUT DIRT AND FOREIGN MATTER.
- B. EQUIPMENT, APPARATUS, ACCESSORIES AND INSTRUMENTS SHALL BE STORED IN ORIGINAL CARTONS OR OTHERWISE PROTECTED, IN SUCH A MANNER SO AS TO PREVENT WEATHER DAMAGE OR BREAKAGE, WITH OPENINGS COVERED TO KEEP OUT DIRT AND FOREIGN MATTER.
- C. WIRE AND CABLE SHALL BE STORED IN FACTORY CARTONS OR ON SPOOLS, PROTECTED IN SUCH A MANNER SO AS TO PREVENT WEATHER, HEAT OR MECHANICAL DAMAGE.

ROUGH-IN

- A. ROUGH-IN ALL ELECTRICAL CONDUIT, WIRING AND OUTLETS AS REQUIRED FOR SPECIFIC ITEMS FURNISHED. ACTUAL CONNECTIONS AND FACILITIES REQUIRED FOR EQUIPMENT ARE SUBJECT TO MANUFACTURER'S STANDARDS FOR EQUIPMENT FURNISHED.

EQUIPMENT CONNECTIONS

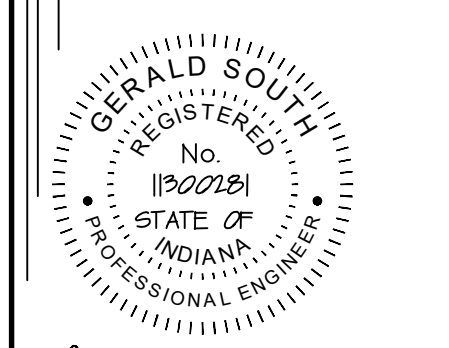
- A. CONNECT ALL ELECTRICAL POWER FEEDERS TO EQUIPMENT COMPLETELY, READY FOR OPERATION.
- B. WIRING AND CONNECTIONS SHOWN ON CONTRACT DRAWINGS ARE TYPICAL AND FOR ESTIMATING PURPOSES ONLY. ACTUAL WORK WILL BE GOVERNED BY EXISTING CONDITIONS AND MANUFACTURER'S STANDARDS FOR EQUIPMENT ACTUALLY FURNISHED.

GROUNDING

- A. SYSTEM AND EQUIPMENT GROUNDING SHALL BE FURNISHED AND INSTALLED COMPLETELY, USING COLOR CODED WIRE AS PRESCRIBED BY I.E.C.
- B. ALL GROUNDING CONDUCTORS SHALL BE INSTALLED IN CONDUIT, UNLESS SHOWN OR SPECIFIED OTHERWISE.
- C. ALL CONNECTIONS TO GROUNDING CONDUCTORS SHALL BE MADE WITH APPROVED SOLDERLESS CONNECTIONS BRAZED OR BOLTED TO EQUIPMENT OR ITEM TO BE GROUNDED, ACCESSIBLE FOR INSPECTION.
- D. SECURELY GROUND ALL MECHANICAL EQUIPMENT.
- E. IN GENERAL, METAL CONDUITS AND RACEWAYS SHALL PROVIDE CONTINUOUS PATHS FOR GROUND. GROUNDING CONDUCTORS SHALL BE INSTALLED WITH ALL CIRCUITS. ISOLATED GROUND RECEPTACLE CIRCUITS SHALL ALSO INCLUDE ISOLATED GROUNDING CONDUCTORS.

DATA RACEWAY

- A. RACEWAY SYSTEM SHALL CONSIST OF CONNECTING CONDUITS, BLANK CONDUIT, BACKBOARD(S) AND BOXES, WITH PULL CORD PROVIDED IN BLANK CONDUITS; ALL PROVIDED AND INSTALLED BY CONTRACTOR AS SHOWN ON DRAWINGS AND REQUIRED, FOR WIRING, INSTRUMENTS, EQUIPMENT, DEVICES, ETC. BY THE OWNER.
- B. OUTLETS SHALL BE STANDARD SINGLE-GANG OR TWO-GANG BOX AS REQUIRED, EQUIPPED WITH DEVICE COVERPLATE TO MATCH WIRING DEVICE PLATES. OPENINGS SHALL BE PROVIDED IN PLATED AS REQUIRED FOR RESPECTIVE CONNECTOR. VERIFY REQUIRED ROUGH-IN BOX SIZE AND COVERPLATE FEATURES (OPENINGS, ECT.) WITH OWNER PRIOR TO ROUGH-IN AND PURCHASE OF PLATES. PROVIDE BLANK PLATE IF REQUIRED CONFIGURATION CAN NOT BE DETERMINED.
- C. OUTLET CONDUIT SHALL BE 3/4" MINIMUM, INSTALLED FROM OUTLET BOX AND TERMINATED WITH BUSHED OPEN END ABOVE CEILING.
- D. CONNECTING CONDUIT SHALL BE AS REQUIRED FOR COMPLETE WIRING ACCESS (TYPICALLY RUN BETWEEN BOXES, BACKBOARDS, CABINETS, ETC., OR INSTALLED AS A SLEEVE BETWEEN POINTS).
- E. MAINTAIN TWO (2) METER (6') MINIMUM SEPARATION BETWEEN COMMUNICATIONS AND METALLIC FEEDER POWER CONDUITS.
- F. MAINTAIN 8" MINIMUM SEPARATION BETWEEN COMMUNICATIONS AND METALLIC BRANCH CIRCUIT POWER CONDUITS. MAINTAIN 12" MINIMUM SEPARATION BETWEEN COMMUNICATIONS AND PVC CONDUITS.
- G. PROVIDE GROUNDING AND BONDING RECOMMENDED BY TIA/EIA-607.



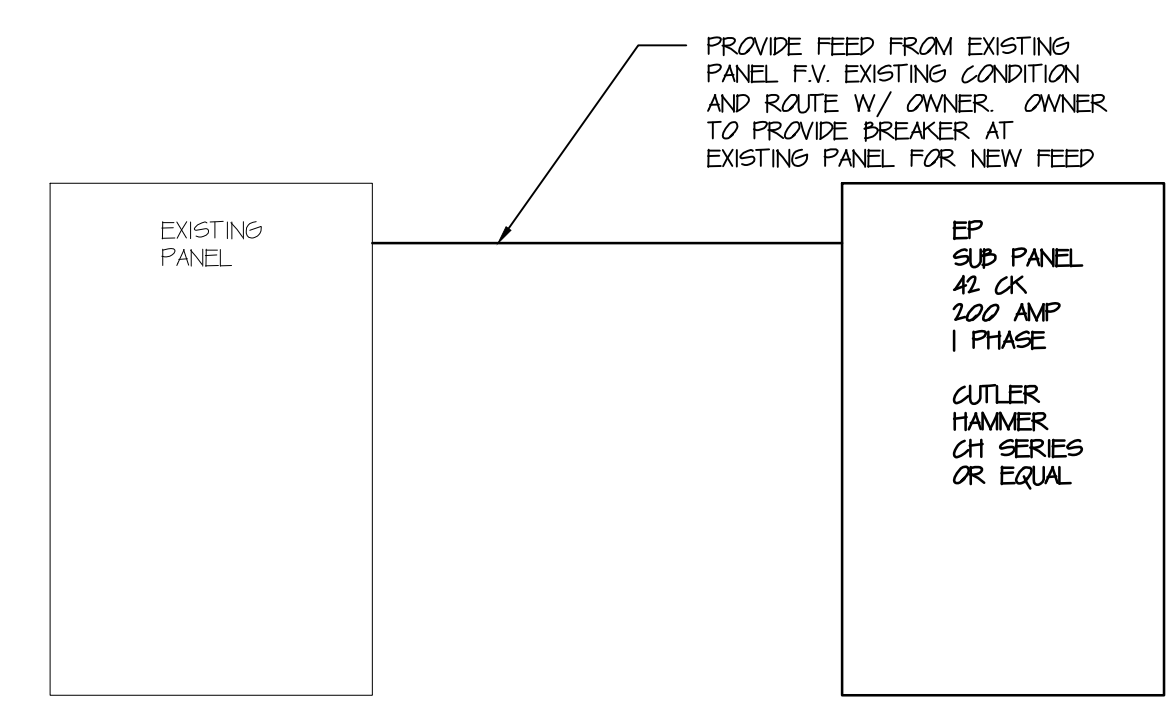
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**ELECTRICAL DIAGRAM**  
 NO SCALE:

**GENERAL NOTE**

- A. ALL WORK TO BE IN COMPLIANCE WITH CURRENT BUILDING CODE REQUIREMENTS.
- B. NOTIFY OWNER OF ANY POSSIBLE CONFLICTS PRIOR TO BID.
- C. COORDINATE ALL WORK WITH ALL TRADES.
- D. E.G. TO PROVIDE PANEL SCHEDULE FOR OWNERS APPROVAL.
- E. E.G. TO VERIFY ALL EQUIPMENT LOCATIONS AND POWER REQUIREMENTS WITH OWNER.
- F. MAX OF 3 OUTLETS PER CIRCUIT
- G. GFI PROTECT OUTLETS AS REQUIRED.

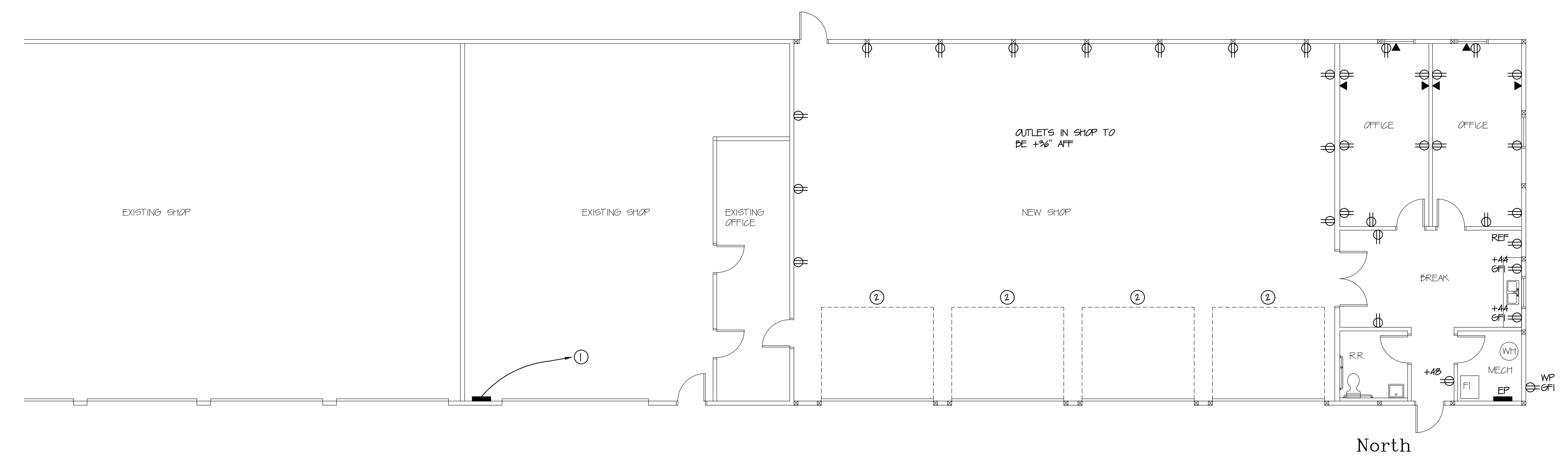
**KEY NOTES**

1. FEED NEW SUB PANEL FROM OWNERS EXISTING PANEL. FIELD VERIFY EXISTING CONDITIONS AND LOCATIONS PRIOR TO BID.
2. PROVIDE POWER TO CH DOOR OPERATOR. VERIFY TYPE WITH OWNER.

**POWER KEY:**

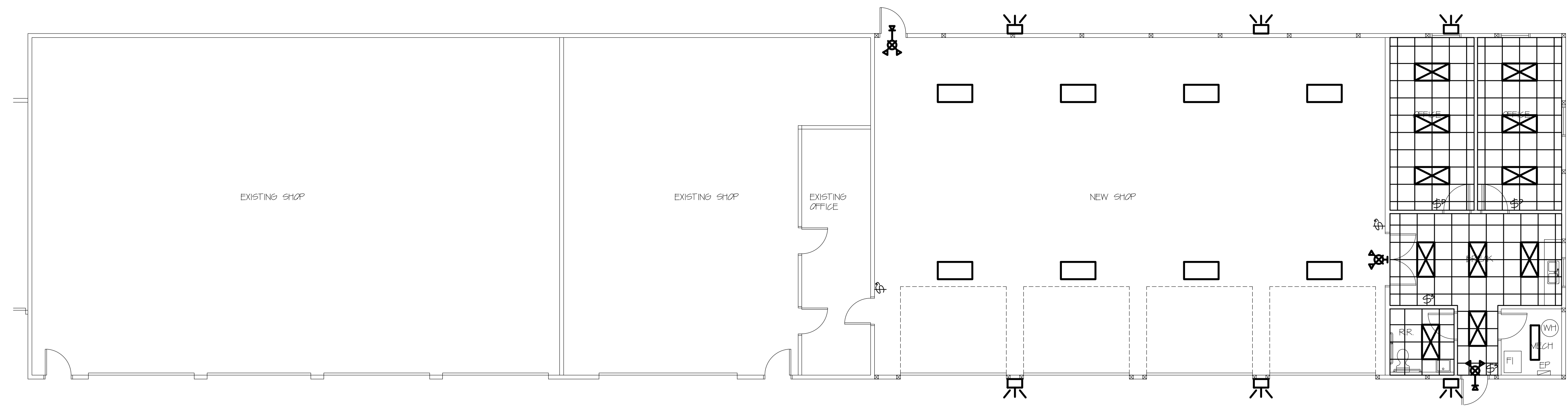
- ELECTRICAL PANEL
- ⊕ SINGLE POLE SNAP SWITCH
- ⊕ 3-WAY SNAP SWITCH
- ⊕ DIMMER SWITCH  
NOTE: VERIFY LOCATIONS OF ALL ROOM SWITCHES WITH OWNER.
- ⊕ 120V RECEPTACLE
- ⊕ GFI 120V RECEPTACLE GFI
- ▼ DATA BOX ONLY CONDUIT TO ABOVE CEILING.

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



**FIXTURE SCHEDULE:**

- ⊗ 2x4 LED LAY-IN LIGHT FIXTURE  
HUBBELL CDT3ALS6S LED FLAT TROFFER
- SURFACE MOUNT SHOP LED LIGHT FIXTURE  
KEYSTONE KTBLED10SPS-2TP-10M-F LED HIGH BAY
- ▭ 1x4 LED MESH ROOM SURFACE MOUNT LIGHT FIXTURE  
HUBBELL CGLA-LSCS 4' LED STRIP
- ⊕ EMERGENCY EXIT LIGHT W/ REMOTE HEAD  
HUBBELL CCRRC & COR
- ⊕ EMERGENCY EXIT LIGHT  
HUBBELL CCRRC
- ⊕ EXT. LED WALL PACK  
C-LITE C-WP-B-ROG-RL-SCOT-DB OUT OFF WALL PACK



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