

## DIVISION - 15 MECHANICAL SPECIFICATIONS

### GENERAL

A. THE GENERAL CONDITIONS OF THE GENERAL SPECIFICATIONS, ALONG WITH ALL APPLICABLE INSTRUCTIONS TO BIDDERS SHALL FORM A PART OF THIS SECTION OF THE SPECIFICATIONS.

B. REFERENCE IS MADE TO REQUISITES FOR BIDDERS AND CONTRACTORS UNDER OTHER SECTIONS OF THESE SPECIFICATIONS, WHICH SHALL BE CONSIDERED BINDING, UNLESS OTHERWISE NOTED UNDER THIS SECTION.

### SCOPE

EACH CONTRACTOR SHALL THOROUGHLY ACQUAINT HIMSELF WITH THE CONSTRUCTION DETAILS, BOTH AS ON TENANT CONSTRUCTION DRAWINGS AND LANDLORD'S AS REFERRED TO, BEFORE SUBMITTING HIS BID AS NO ALLOWANCES WILL BE MADE BECAUSE OF THE CONTRACTOR'S UNFAMILIARITY WITH THESE DETAILS. ALL PERFORMANCE OF CONSTRUCTION SHALL BE AS REQUIRED BY THE PACE OF THE GENERAL CONSTRUCTION.

### INSPECTION OF SITE

ALL PROPOSALS SHALL PRECLUDE THAT CONTRACTOR IS FAMILIAR WITH JOB SITE CONDITIONS AND UTILITY LOCATIONS AND THE LACK OF SPECIFIC INFORMATION ON THE DRAWINGS SHALL NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY.

### PERMITS

ALL PERMITS AND LICENSES NECESSARY FOR THE PROPER EXECUTION OF THE WORK SHALL BE SECURED AND PAID FOR BY THE SUBCONTRACTOR INVOLVED.

### CODE REQUIREMENTS

ALL WORK UNDER THIS CONTRACT SHALL COMPLY WITH THE PROVISIONS OF THE SPECIFICATIONS, DRAWINGS OR AS DIRECTED BY THE OWNER, AND SHALL SATISFY ALL APPLICABLE CODES, ORDINANCES, OR REGULATIONS OF THE GOVERNING BODIES, WHETHER SO SHOWN OR NOT, AND ALL MODIFICATIONS REQUIRED BY SUCH AUTHORITIES SHALL BE MADE BY THE CONTRACTOR WITHOUT ANY ADDITIONAL COST TO THE OWNER.

### MATERIALS AND WORKMANSHIP

A. ALL MANUFACTURED ARTICLES, MATERIALS, AND EQUIPMENT SHALL BE APPLIED AS RECOMMENDED BY THE MANUFACTURERS, AND UNLESS OTHERWISE SPECIFIED SHALL BE NEW, AND FREE FROM ANY DEFECTS. ALL LIKE MATERIALS USED SHALL BE OF THE SAME MANUFACTURE AND QUALITY UNLESS OTHERWISE SPECIFIED.

B. ALL WORK UNDER THIS CONTRACT SHALL BE PERFORMED BY COMPETENT WORKMEN AND EXECUTED IN A NEAT AND WORKMANLIKE MANNER. WORK SHALL BE PROPERLY PROTECTED DURING CONSTRUCTION, AND ON COMPLETION, THE INSTALLATION SHALL BE THOROUGHLY CLEANED AND ALL DEBRIS PRESENT AS A RESULT OF THIS CONTRACT SHALL BE REMOVED FROM THE PREMISES, DO NOT JUST ABANDON.

### CODES AND REGULATIONS

EACH SUBCONTRACTOR SHALL COMPLY WITH ALL LAWS, ORDINANCES, RULES AND REGULATIONS BEARING ON THE CONDUCT OF THE WORK AS DRAWN OR SPECIFIED. IF A SUBCONTRACTOR OBSERVES THAT THE DRAWINGS AND SPECIFICATIONS ARE AT A VARIANCE, HE SHALL PROMPTLY NOTIFY THE GENERAL CONTRACTOR AND THE TENANT IN WRITING. IF ANY SUBCONTRACTOR PERFORMS ANY WORK KNOWING IT TO BE CONTRARY TO LAWS, ORDINANCES, RULES AND REGULATIONS AND WITHOUT GIVING SUCH NOTICE, THE SUBCONTRACTOR SHALL BEAR ALL COSTS ARISING THEREFROM.

### PROTECTION OF WORK AND PROPERTY

A. EACH SUBCONTRACTOR SHALL CONTINUOUSLY MAINTAIN ADEQUATE PROTECTION OF ALL HIS WORK FROM DAMAGE AND SHALL PROTECT THE OWNER'S PROPERTY FROM INJURY OR LOSS ARISING FROM HIS WORK. HE SHALL MAKE GOOD ANY SUCH DAMAGE, INJURY, OR LOSS, EXCEPT SUCH AS MAY BE DIRECTLY DUE TO CAUSES BEYOND HIS CONTROL AND NOT TO HIS FAULT OR NEGLIGENCE. HE SHALL ADEQUATELY PROTECT ADJACENT PROPERTY AS WELL.

B. EACH SUBCONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS FOR THE SAFETY OF THEIR EMPLOYEES ON THE WORK AND SHALL COMPLY WITH ALL PROVISIONS OF FEDERAL, STATE AND LOCAL BUILDING CODES AND SAFETY LAWS TO PREVENT ACCIDENTS OR INJURY TO PERSONS ON OR ADJACENT TO THE PREMISES WHERE THE WORK IS BEING PERFORMED. EACH SUBCONTRACTOR SHALL MAINTAIN ALL INSURANCE REQUIRED TO PROTECT HIMSELF, OWNER AND TENANT FOR THE DURATION OF THE WORK AGAINST PROPERTY DAMAGE AND PUBLIC LIABILITY.

### CHANGES IN THE WORK

THE TENANT, WITHOUT INVALIDATING THE CONTRACT, MAY ORDER EXTRA WORK OR MAKE CHANGES BY ALTERING, ADDING TO OR DEDUCTING FROM THE WORK, THE CONTRACT SUM BEING ADJUSTED ACCORDINGLY.

### COOPERATION

ALL WORK UNDER THESE SPECIFICATIONS SHALL BE ACCOMPLISHED IN CONJUNCTION WITH OTHER CONTRACTORS AND TRADES OF THIS PROJECT IN A MANNER WHICH WILL ALLOW EACH CONTRACTOR AND TRADE ADEQUATE TIME AT THE PROPER STAGE OF CONSTRUCTION TO FULFILL HIS CONTRACTS. REFERENCE SHALL BE MADE TO THE OWNER FOR INSTRUCTIONS SHOULD ANY QUESTIONS ARISE BETWEEN TRADES AS TO THE PLACING OF LINES, DUCTS, CONDUITS, FIXTURES, OR EQUIPMENT, OR SHOULD IT APPEAR DESIRABLE TO REMOVE ANY GENERAL CONSTRUCTION WHICH WOULD AFFECT THE APPEARANCE OR STRENGTH OF THE STRUCTURE.

### SUBSTITUTION OF MATERIALS

MANUFACTURER'S NAMES ARE LISTED HEREIN TO ESTABLISH A STANDARD. THE PRODUCTS OF OTHER MANUFACTURERS WILL BE ACCEPTABLE, IF IN THE OPINION OF THE TENANT, THE SUBSTITUTE MATERIAL IS OF A QUALITY AS GOOD OR BETTER THAN THE MATERIAL SPECIFIED, AND WILL SERVE WITH EQUAL EFFICIENCY AND DEPENDABILITY, THE PURPOSE FOR WHICH THE ITEMS SPECIFIED WERE INTENDED. CONTRACTOR ASSUMES ALL RESPONSIBILITIES AND COST IMPACTS OF SUBSTITUTIONS.

### SHOP DRAWINGS

SHOP DRAWINGS AND CATALOG DATA ON ALL MAJOR ITEMS OF EQUIPMENT AND SYSTEMS, AND SUCH OTHER ILLUSTRATIVE MATERIAL AS MAY BE CONSIDERED NECESSARY BY THE TENANT, SHALL BE SUBMITTED BY THIS CONTRACTOR IN ADEQUATE TIME TO PREVENT DELAY AND CHANGES DURING CONSTRUCTION.

### DRAWINGS AND SPECIFICATIONS

A. THE DRAWINGS SHOW DIAGRAMMATICALLY THE LOCATIONS OF THE VARIOUS LINES, DUCTS, CONDUITS, FIXTURES, AND EQUIPMENT AND THE METHOD OF CONNECTING AND CONTROLLING THEM. IT IS NOT INTENDED TO SHOW EVERY CONNECTION IN DETAIL AND ALL FITTINGS REQUIRED FOR A COMPLETE SYSTEM.

B. SHOULD ANY CHANGES BE DEEMED NECESSARY BY THE CONTRACTOR IN ITEMS SHOWN ON CONTRACT DRAWINGS, THE SHOP DRAWINGS, DESCRIPTIONS, AND THE REASON FOR THE PROPOSED CHANGES SHALL BE SUBMITTED TO THE OWNER FOR APPROVAL.

### RESPONSIBILITY

A. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR THE SATISFACTORY AND COMPLETE EXECUTION OF ALL WORK INCLUDED IN HIS CONTRACT. HE SHALL PRODUCE COMPLETE FINISHED OPERATING SYSTEMS AND PROVIDE ALL INCIDENTAL ITEMS REQUIRED AS PART OF HIS WORK, REGARDLESS OF WHETHER SUCH ITEM IS PARTICULARLY SPECIFIED OR INDICATED.

B. CONTRACTOR SHALL SUPPLY TO LANDLORD AND TENANT A CERTIFIED BALANCE REPORT AT COMPLETION OF PROJECT. THIS IS REQUIRED FOR BOTH REMODELED AND NEW STORES.

### HEATING, VENTILATING AND AIR CONDITIONING

#### GENERAL

A. THE WORK COVERED BY THIS SECTION OF THESE SPECIFICATIONS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE RESPECTIVE DRAWINGS, INFORMATION, OR INSTRUCTIONS TO BIDDERS, AND THE GENERAL CONDITIONS, ADDENDA, OR DIRECTIVES WHICH MAY BE ISSUED BY THE OWNER, HEREWITH, OR OTHERWISE, SHALL BE COMPLIED WITH IN EVERY RESPECT.

B. THE LISTING HEREIN OF AN ARTICLE OR MATERIAL, OPERATION OR METHOD, REQUIRES THAT THE CONTRACTOR SHALL FURNISH AND INSTALL EACH ITEM LISTED, UNLESS SPECIFICALLY NOTED TO THE CONTRARY. THE CONTRACTOR SHALL PERFORM EACH OPERATION PRESCRIBED OR LISTED ACCORDING TO THE CONDITIONS STATED.

#### EXAMINATION OF SITE

ALL CONTRACTORS SUBMITTING PROPOSALS FOR THIS WORK SHALL FIRST EXAMINE THE SITE AND ALL CONDITIONS THEREON AND/OR THEREIN. ALL PROPOSALS SHALL TAKE INTO CONSIDERATION ALL SUCH CONDITIONS AS MAY AFFECT THE WORK UNDER THIS CONTRACT.

#### SCOPE

FURNISH ALL MATERIALS, EQUIPMENT, AND LABOR NECESSARY FOR A COMPLETE FULLY OPERATIVE HEATING, VENTILATING, AND AIR CONDITIONING SYSTEM EXCEPT AS SPECIFICALLY EXCLUDED BY THE DRAWINGS, AND/OR TENANT'S DIRECTIONS.

#### EQUIPMENT

- A. 1. ROOFTOP UNITS: FURNISH HEATING AND AIR CONDITIONING AS SCHEDULED. UNIT TO BE COMBINED PACKAGED SYSTEM, ALL SEASON EQUIPMENT, CONSISTING OF GAS HEATING SECTION, BLOWER, DX COIL, COMPRESSOR(S), AND AIR COOLED CONDENSING SECTION. UNIT SHALL BE DESIGNED FOR DOWN FLOW ARRANGEMENT WITH ALL DUCT PENETRATIONS WITHIN FACTORY ROOF CURB.
2. FEATURES: UNITS TO BE WOUND FOR VOLTAGE AND PHASE AS SCHEDULED. HEAVY GAUGE ALUMINIZED STEEL, STAINLESS STEEL OR COATED HEAT EXCHANGER WILL BE ACCEPTABLE. UNIT MUST BE A.G.A. APPROVED FOR OUTDOOR APPLICATION. DIRECT EXPANSION COIL WITH FACTORY INSTALLED EXPANSION VALVE – BLOWER SHALL BE OF THE CENTRIFUGAL BELT DRIVEN OR MULTI-SPEED DIRECT DRIVE TYPE WITH FORWARD CURVED BLADES – BLOWER AND MOTOR ISOLATED FOR QUIET OPERATION – BUILT IN MOTOR STARTER WITH OVER VOLTAGE PROTECTION. HERMETICALLY SEALED COMPRESSOR WITH INHERENT OVERLOAD PROTECTION THERMOSTAT – NON-PRORATED 5-YEAR WARRANTY ON COMPRESSOR AND 10-YEAR WARRANTY ON HEAT EXCHANGER – CONDENSER COIL CONSTRUCTED OF COPPER TUBING WITH ALUMINUM FINS – CRANKCASE HEATERS – BUILT IN MOTOR STARTERS ELECTRIC IGNITION – HIGH, LOW PRESSURE CUTOUT ON COMPRESSOR – SHUTOFF VALVES ON LIQUID AND SUCTION LINES – SHORT CYCLE TIMER PROTECTION – FILTER – DRYER – VIBRATION ISOLATION. UNIT FACTORY CHARGED.
3. ACCESSORIES: SUPPLY AND RETURN FILTER CASING ASSEMBLY, TWO COMPLETE SETS OF THROWAWAY TYPE FILTERS. FILTERS SHALL BE 2" THICK. ONE SET TO BE REMOVED AND REPLACED JUST PRIOR TO TEST & BALANCE – FULL ECONOMIZER PACKAGE WITH LOW LEAKAGE FRESH AIR STANDARD RETURN AIR DAMPERS AND DAMPER MOTOR, – MINIMUM POSITION SETTING – PROVIDE MANUFACTURER'S INTERFACE AS REQUIRED FOR OPERATION WITH THERMOSTAT AS SPECIFIED. PROVIDE MOUNTING CURB APPROVED BY NATIONAL ROOF CONTRACTORS ASSOCIATION TO SUPPORT THE ENTIRE ASSEMBLY WITH NAILER STRIP AND AIR TIGHT GASKET.

E. ALL HVAC UNITS WILL BE EQUIPPED WITH PROGRAMMABLE THERMOSTAT. DESIGN AND STANDARD CONDITIONS FOR THERMOSTAT OPERATION WILL BE AS FOLLOWS:

COOLING: 75°F MAXIMUM OCCUPIED COOLING TEMPERATURE  
85°F COOLING NIGHT SETBACK.

HEATING: 70°F MAXIMUM OCCUPIED HEATING TEMPERATURE  
60°F HEATING NIGHT SETBACK.

FAN: CONTINUOUS IN OCCUPIED AND RECOVERY MODE AND WITH HEATING OR COOLING EQUIPMENT IN UNOCCUPIED MODE.

DEADBAND: CAPABLE OF MAINTAINING A 5°F DEADBAND.

CLOCK: 7 DAY CAPABLE OF 7 DIFFERENT DAY SCHEDULES.

OVERNIGHT: HAVE A 2 HOUR OVERRIDE ACCESSIBLE TO MANAGER.

BACKUP: CAPABLE OF MAINTAINING PROGRAMMED SETTING FOR AT LEAST 10 HOURS WITHOUT POWER.

F. THE HVAC SUBCONTRACTOR SHALL IDENTIFY ALL ROOF MOUNTED HVAC EQUIPMENT AND APPARATUS WITH 2" HIGH PAINTED STENCILED STORE NAME ON ALL SIDES OF EQUIPMENT.

#### DUCTWORK

A. SQUARE AND RECTANGULAR DUCTWORK SHALL BE CONSTRUCTED OF NEW GALVANIZED PRIME GRADE SHEET STEEL OF THE FOLLOWING GAUGES:

| DUCT SIZE    | GAUGE             |
|--------------|-------------------|
| 12" AND LESS | NO. 26 U.S. GAUGE |
| 13" TO 30"   | NO. 24 U.S. GAUGE |
| 31" TO 54"   | NO. 22 U.S. GAUGE |
| 55" TO 84"   | NO. 20 U.S. GAUGE |
| 85" AND OVER | NO. 18 U.S. GAUGE |

B. SQUARE AND RECTANGULAR DUCTWORK SHALL BE CONSTRUCTED AS FOLLOWS:

| SIZE         | METHOD                                 |
|--------------|--|
| 17" AND LESS | "S" AND DRIVE CLEATS                   |
| 18" TO 30"   | "L" STANDING SEAMS ON 3'-0" CENTERS    |
| 31" TO 54"   | 1-1/4" STANDING SEAMS ON 3'-0" CENTERS |

ALL KITCHEN HOOD EXHAUST DUCTWORK SHALL BE SINGLE WALL, FACTORY-BUILT, GREASE DUCT FOR USE WITH TYPE I HOODS, WHICH CONFORMS TO NFPA-96. SEE ADDITIONAL SPECIFICATIONS ON SHEET MH1-01 OF HOOD DRAWINGS.

1. THE KITCHEN HOOD EXHAUST DUCTWORK SHALL BE ENCLOSED IN A RATED ENCLOSURE PER CODE, TWO (2) LAYERS OF 3M FIRE BARRIER DUCT WRAP 615+ OR SIMILAR.

2. THE CONTRACTOR SHALL INCLUDE IN HIS PRICE:  
– ALL NECESSARY TRANSITION AND CONNECTION FITTINGS TO THE HOOD AND EXHAUST FANS.  
– ALL CLEAN-OUT ACCESS PANELS AS REQUIRED BY CODE.  
– ALL ELBOW AND TRANSITION FITTINGS.  
– ALL HANGERS AND SUPPORTS.  
– SHOP DRAWINGS SHOWING PROPOSED FABRICATION AND INSTALLATION COORDINATED WITH EXISTING FIELD CONDITIONS AND OTHER TRADES.

ROUND SPIRAL DUCTWORK SHALL BE LINX FACTORY PAINTED SPIRAL DUCTWORK AND FITTINGS OR APPROVED EQUAL. INSTALLED AND SUSPENDED AS PER MANUFACTURER'S RECOMMENDATIONS. GAUGES FOR SHOP FABRICATED DUCTS SHALL BE AS FOLLOWS:

|                       |              |
|-----------------------|--------------|
| UP TO 12" IN DIAMETER | NO. 26 GAUGE |
| 13" TO 30"            | NO. 24 GAUGE |
| 31" TO 42"            | NO. 22 GAUGE |
| 43" TO 60"            | NO. 20 GAUGE |

ELBOWS SHALL HAVE A CENTERLINE RADIUS OF 1-1/2 TIMES DUCT DIAMETER AND MAY BE SMOOTH ELBOWS OR 5 PIECE 90 DEGREE ELBOWS AND 3 PIECE 45 DEGREE ELBOWS. JOINTS OF ROUND DUCTS SHALL BE SLIP TYPE WITH A MINIMUM OF 3 SHEET METAL SCREWS.

1. NOT USED.  
2. ALL LOW PRESSURE DUCTWORK SHALL BE EXTERNALLY SEALED USING UNITED SHEET METAL, MMM EC-800, OR HARDCAST DUCT SEALER INSTALLED IN THE JOINTS PRIOR TO CLOSURE. ADDITIONALLY SEAL ALL EXTERNAL TRANSVERSE JOINTS AND FITTING CONNECTIONS EXTERNALLY.

C. ALL SUPPLY AIR DUCTS (HEATING AND COOLING) AND RETURN AIR DUCTS AND OUTSIDE AIR DUCTS SHALL BE GALVANIZED STEEL WITH MIN. 1-1/2" (R-6) THICK EXTERNAL THERMAL INSULATION EXCEPT DUCT LINED FOR ACOUSTICAL PURPOSES. CONTINUE INSULATION TO TOP OF ALL DIFFUSERS, GRILLES, REGISTERS, ETC. ALL EXHAUST AND RELIEF AIR DUCTS SHALL BE GALVANIZED STEEL. ALL KITCHEN HOOD EXHAUST DUCTWORK SHALL HAVE FIRE BARRIER DUCT WRAP. DUCT WRAP SHALL BE TESTED IN ACCORDANCE WITH ASTM E 2336. 2 LAYERS OF 3M FIRE BARRIER DUCT WRAP 615+ OR SIMILAR TO BE USED.

D. CONTRACTOR WILL INSTALL INSECT SCREENS ON ALL DUCT OPENINGS WHICH LEAD TO OR ARE OUTDOORS. INSECT SCREENS SHALL BE 10 GAUGE, ONE-HALF INCH (1/2") MESH IN REMOVABLE GALVANIZED STEEL FRAMES.

E. ALL DUCTWORK SHALL BE DESIGNED IN ACCORDANCE WITH THE PROCEDURES DESCRIBED IN THE AMERICAN SOCIETY OF HEATING REFRIGERATION AND AIR CONDITIONING ENGINEERS GUIDE (ASHRAE) AND FABRICATED AND INSTALLED IN ACCORDANCE WITH THE LATEST METHODS RECOMMENDED IN THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION (SMACNA) LOW VELOCITY DUCT MANUAL, LATEST EDITION.

F. NOT USED.

#### HANGERS AND SUPPORTS

A. ALL HORIZONTAL DUCTS HAVING A DIMENSION OF 40 INCHES AND LESS SHALL BE SUPPORTED BY MEANS OF BAND IRON HANGERS OF NO. 18 U.S. GAUGE ATTACHED TO THE DUCT BY MEANS OF RIVETS, SCREWS, OR CLAMPS, AND FASTENED TO STRUCTURE ABOVE BY TOGGLE BOLTS OR OTHER MEANS. EACH SECTION OF DUCTWORK SHALL HAVE AT LEAST ONE PAIR OF SUPPORTS. VERTICAL DUCTS SHALL BE SUPPORTED WITH 1-1/4" x 1-1/4" x 1-1/4" ANGLES WHERE THEY PASS THROUGH THE FLOOR LINES.

B. ALL HORIZONTAL DUCTS HAVING A DIMENSION OF 40 INCHES AND MORE SHALL BE SUPPORTED BY MEANS OF ANGLE IRON TRAPEZE HANGERS. EACH SECTION OF DUCTWORK SHALL HAVE AT LEAST ONE PAIR OF SUPPORTS.

#### FLASHING

A. CONTRACTOR WILL PROVIDE WATER TIGHT 24 GA. SHEET METAL FLASHINGS AT ALL EXTERIOR WALLS AND ROOF PENETRATIONS.

B. ALL CUTTING OF ROOF OPENINGS, SUPPORTS FOR ROOF OPENINGS, PITCH PANS, ROOF CURBS, FLASHINGS, COUNTER FLASHINGS, REPAIR TO ROOF, ETC. ASSOCIATED WITH HVAC SUBCONTRACTOR SHALL BE THE RESPONSIBILITY AND PART OF THE CONTRACT HVAC SUBCONTRACTOR. HE SHALL EMPLOY THE LANDLORD'S ROOFERS FOR THIS WORK SO AS TO MAINTAIN THE ROOF BOND.

#### DAMPERS

A. SPLITTER DAMPERS SHALL BE FABRICATED OF SHEET STEEL NOT LESS THAN NO. 16 U.S. GAUGE WITH THE LEADING EDGE HEMMED. EACH DAMPER SHALL BE LARGE ENOUGH TO COVER THE SMALLER OF THE TWO OPENINGS IT CONTROLS. DAMPERS SHALL BE CONTROLLED AS FOLLOWS:

EXPOSED OR ACCESSIBLE DUCTWORK – LOCKING QUADRANTS EQUAL TO YOUNG REGULATOR NO. 1 WITH DAMPER ROD END BEARINGS ON OPPOSITE END.

CONCEALED DUCTWORK – LOCKING QUADRANT EQUAL TO YOUNG REGULATOR NO. 315 (CHROMIUM PLATED WITH DAMPER ROD END BEARINGS ON BOTH ENDS).

B. VOLUME DAMPERS SHALL BE OF THE OPPOSED INTERLOCKING TYPE AS MANUFACTURED BY AMERICAN FOUNDRY AND FURNACES CO. (AFFCO) OR EQUAL. BLADES SHALL BE OF NO. 18 GAUGE SHEET METAL AND SHALL NOT EXCEED 48" IN LENGTH OR 12" IN WIDTH. BLADES SHALL BE ON ONE-HALF INCH (1/2") DIAMETER RUSTPROOF AXLE. BEARINGS SHALL BE OF THE SELF-LUBRICATING FERRULE TYPE.

C. FIRE DAMPERS SHALL BE SUPPLIED AND INSTALLED BY HVAC CONTRACTOR AT DUCT PENETRATIONS IN FIRE RATED WALLS, CEILINGS, AND ROOFS AS REQUIRED. COORDINATE WITH LANDLORD, LOCAL FIRE MARSHALL AND ALL CODES AND GOVERNING AUTHORITIES HAVING JURISDICTION.

D. JOB FABRICATED TURNING VANES SHALL BE ACCEPTABLE IN SQUARE ELBOWS. PROVIDE AND INSTALL BARBER-COLEMAN AIR TURNS OR EQUAL. TURNING VANES SHALL BE OF THE SAME GAUGE METAL AS THE DUCT IN WHICH THEY ARE INSTALLED. RADIUS ELBOWS SHALL HAVE A CENTERLINE RADIUS OF ONE AND ONE-HALF (1-1/2) TIMES THE DUCT WIDTH.

#### DUCTWORK - EXCEPTIONS

DUCTWORK FOR EXHAUSTING AIR OR OUTSIDE SUPPLY AIR SHALL BE ALL METAL AND CONSTRUCTED ACCORDING TO RECOMMENDED PRACTICES AS FOUND IN THE LATEST ISSUE OF ASHRAE.

#### SUPPORT OF DUCT SYSTEM

HANGER DESIGN SHALL BE AS DESCRIBED IN THE LATEST EDITION OF THE "SMACNA" MANUAL. REINFORCEMENT MEMBERS MAY BE USED TO SUPPORT DUCT SYSTEM PROVIDED DETAILS OUTLINED IN THE AFOREMENTIONED MANUAL ARE ADHERED TO. DUCTS SHALL BE SUPPORTED AT ALL TURNS AND TRANSITIONS AND NOT MORE THAN 8'-0" O.C. STRAIGHT DUCTS UP TO 59" MAX. DIMENSIONS SHALL BE SUPPORTED 6'-0" O.C. DUCTS OVER 60" MAX. DIMENSIONS SHALL BE SUPPORTED AT 4'-0" O.C.

#### REINFORCEMENT

ALL DUCTS REQUIRING REINFORCEMENT SHALL BE REINFORCED ACCORDING TO THE LATEST EDITION OF "SMACNA" MANUAL.

MATERIALS FOR REINFORCEMENT MEMBERS SHALL BE GALVANIZED STEEL. ALL SCREWS AND WASHERS SHALL BE PLATED OR GALVANIZED.

#### ACCESSORY ITEMS

ALL MANUAL DAMPERS, FIRE DAMPERS, TURNING VANES, REGISTER CONNECTIONS, ACCESS DOORS OR OTHER ASSOCIATED ACCESSORIES SHALL BE INSTALLED ACCORDING TO THE LATEST PUBLICATION OF "SMACNA" MANUAL.

#### TESTING AND ADJUSTING

CONTRACTOR WILL DEMONSTRATE OPERATION OF SYSTEM TO FULL SATISFACTION OF TENANT, WILL BALANCE AIR FLOW IN ACCORDANCE WITH AIR QUANTITIES ON DRAWINGS AND WILL RECORD VOLUME READINGS IN ACCORDANCE WITH ASHRAE AND PROVIDE SAME TO TENANT. ALL PIPING SHALL WITHSTAND AIR PRESSURE TESTING PER GOVERNING PLUMBING CODE.

A. AIR DISTRIBUTION SYSTEMS:

1. INSPECT INSTALLATION AND VERIFY CONFORMITY TO DESIGN. VERIFY THAT SUPPLY, RETURN, AND EXHAUST DUCTS HAVE BEEN PRESSURE-TESTED FOR LEAKAGE AS RECOMMENDED IN THE APPROPRIATE SMACNA STANDARDS.  
2. VERIFY THAT VOLUME AND FIRE DAMPERS ARE PROPERLY LOCATED AND FUNCTIONAL.  
3. VERIFY THAT SUPPLY, RETURN, EXHAUST AND TRANSFER GRILLES, REGISTERS AND DIFFUSERS ARE INSTALLED AND OPERATING PROPERLY.

B. VERIFY THAT CONTROL COMPONENTS ARE INSTALLED IN ACCORDANCE WITH PROJECT REQUIREMENTS AND ARE FUNCTIONING AS INTENDED, INCLUDING ELECTRICAL POWER, CONTROL AND INTERLOCK WIRING, DAMPER SEQUENCES, SMOKE DETECTORS, ETC.

C. UPON COMPLETION OF THE INSTALLATION AND START-UP OF THE MECHANICAL EQUIPMENT, TEST, ADJUST AND BALANCE SYSTEM COMPONENTS TO OBTAIN OPTIMUM CONDITIONS IN EACH CONDITIONED SPACE IN THE BUILDING.

D. BEFORE FINAL ACCEPTANCE IS MADE, FURNISH TO THE ARCHITECT THE FOLLOWING DATA:

- SUMMARY OF MAIN SUPPLY, RETURN AND EXHAUST DUCT PILOT TUBE TRANSVERSES AND FAN SETTINGS.
- AIR QUANTITIES AT EACH SUPPLY, RETURN, RELIEF AND EXHAUST AIR HANDLING DEVICE.
- AIR PRESSURE READINGS ENTERING AND LEAVING EACH SUPPLY FAN AND EXHAUST FAN.
- MOTOR CURRENT AND VOLTAGE READINGS AT EACH EQUIPMENT MOTOR.
- TEST RESULTS SHALL BE RECORDED ON STANDARD FORMS CONFORMING TO AABC AND NEBB REQUIREMENTS. THE REPORT SHALL INCLUDE AIR FLOW SCHEMATIC DIAGRAMS INDICATING AND IDENTIFYING TEST LOCATIONS SUCH AS DUCT TRANSVERSE, OUTLET READINGS, PRESSURE READINGS AND TEMPERATURE READINGS, AND SHALL BE REFERENCED TO THE RECORDED DATA ON THE FORMS.
- MAKE AN INSPECTION IN THE BUILDING DURING THE OPPOSITE SEASON FROM THAT IN WHICH THE INITIAL ADJUSTMENTS WERE MADE, AND AT THAT TIME MAKE ANY NECESSARY MODIFICATIONS TO THE INITIAL ADJUSTMENTS REQUIRED TO PRODUCE OPTIMUM OPERATION OF THE SYSTEM COMPONENTS, TO PRODUCE THE PROPER CONDITIONS IN EACH SPACE.
- INSTRUCTION: THE CONTRACTOR SHALL INSTRUCT THE BUILDING OPERATING PERSONNEL IN THE CONSTRUCTION AND OPERATION OF ALL EQUIPMENT.

#### GUARANTEE

ALL MATERIALS, EQUIPMENT, AND WORKMANSHIP SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR AFTER DATE OF ACCEPTANCE. THE COMPLETED SYSTEM SHALL BE FULLY OPERATIVE AND ACCEPTANCE BY TENANT SHALL BE A CONDITION OF THIS CONTRACT. ALL WORK FOUND TO BE DEFECTIVE SHALL BE REPAIRED OR REPLACED BY THIS SUBCONTRACTOR WITHOUT ADDITIONAL CHARGE TO THE TENANT.

#### MECHANICAL

##### TEMPORARY SERVICES

THE CONTRACTOR SHALL PROVIDE THE FOLLOWING SPECIFIC ITEMS OF TEMPORARY SERVICES:

A. TELEPHONE – THE TENANT'S GENERAL CONTRACTOR SHALL INSTALL A JOB SITE TELEPHONE AND NOTIFY TENANT AS LISTED ON SHEET A-1 OF THE TELEPHONE NUMBER AND THE NAME OF THE SUPERINTENDENT.

B. TEMPORARY WATER – WATER REQUIRED IN THE PERFORMANCE OF THE CONTRACT SHALL BE PROVIDED AND PAID FOR BY THE CONTRACTOR. WATER USED FOR HUMAN CONSUMPTION SHALL CONFORM TO REQUIREMENTS OF STATE AND LOCAL AUTHORITIES FOR POTABLE WATER.

C. TEMPORARY ELECTRICITY – TEMPORARY ELECTRIC SERVICE REQUIRED IN THE PERFORMANCE OF THE CONTRACT SHALL BE FURNISHED AND PAID FOR BY THE CONTRACTOR WHO SHALL FURNISH, INSTALL, AND MAINTAIN ALL TEMPORARY OVERHEAD CONSTRUCTION, METERS, DROPS, AND OTHER WIRING AND FITTINGS FOR BOTH LIGHT AND POWER AT LOCATIONS REQUIRED IN THE WORK AND SHALL BEAR THE COST OF MAKING THE SERVICE CONNECTIONS. BEFORE FINAL ACCEPTANCE, TEMPORARY ELECTRICAL SERVICE FACILITIES INSTALLED BY THE CONTRACTOR SHALL BE REMOVED AND THE SERVICE CONNECTIONS SEVERED IN ACCEPTABLE MANNER.

D. TEMPORARY HEAT – WHEN REQUIRED FOR PROPER INSTALLATION OR PROTECTION OF ANY PORTION OF THE WORK, THE CONTRACTOR SHALL FURNISH AND INSTALL TEMPORARY HEATING UNITS AS APPROVED BY THE LANDLORD OR LOCAL AUTHORITY.

E. COST OF LANDLORD PROVIDED UTILITY SERVICES – IF THE LANDLORD ELECTS TO PROVIDE TEMPORARY UTILITY SERVICES, THE CONTRACTOR WILL BE SO INFORMED BY THE TENANT. THE CONTRACTOR SHALL MAKE TO PAY THE COST OF SAID TEMPORARY CONSTRUCTION AND UTILITY SERVICES.

#### NOTE FOR TENANT GENERAL CONTRACTOR

IT IS THE RESPONSIBILITY OF THE TENANT'S GENERAL CONTRACTOR TO MAKE USE OF APPLICABLE NOTES AND SPECIFICATIONS LISTED ON THIS SHEET AS THEY MAY PERTAIN TO THE SPECIFIC JOB.

#### MUNICIPAL APPROVAL STAMPS

ARCHITECT OF RECORD

### mossArchitects

5122 Penn Avenue  
Pittsburgh, PA 15224  
412.441.6400 ph  
412.441.0723 fx  
www.mossarc.com

CONSULTANT

#### WHS ENGINEERING

2012 WEST 25TH STREET, SUITE 200  
CLEVELAND, OH 44113-4143  
PHONE: 216-227-8505  
FAX: 216-227-8570  
www.whs-eng.com

BROOKLYN, OH - RIDGE PARK

RIDGE PARK SQUARE

4824 RIDGE ROAD

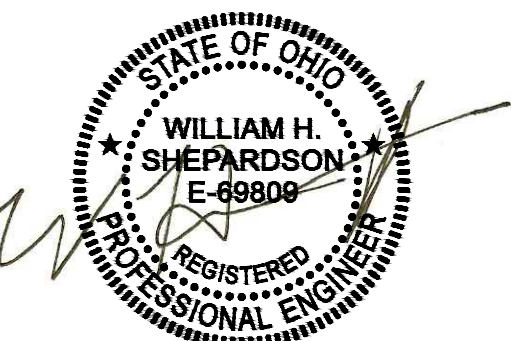
BROOKLYN, OH 44144

XXXXX PROJECT NUMBER:

These drawings and specifications contain material owned or licensed by Five Guys and shall not be copied or reproduced without written authorization.

| ISSUE DATE |        |         |
|------------|--------|---------|
| REV        | ISSUE  | DATE    |
|            | PERMIT | 8-03-21 |
|            |        |         |
|            |        |         |
|            |        |         |
|            |        |         |
|            |        |         |
|            |        |         |

SEAL



SHEET TITLE

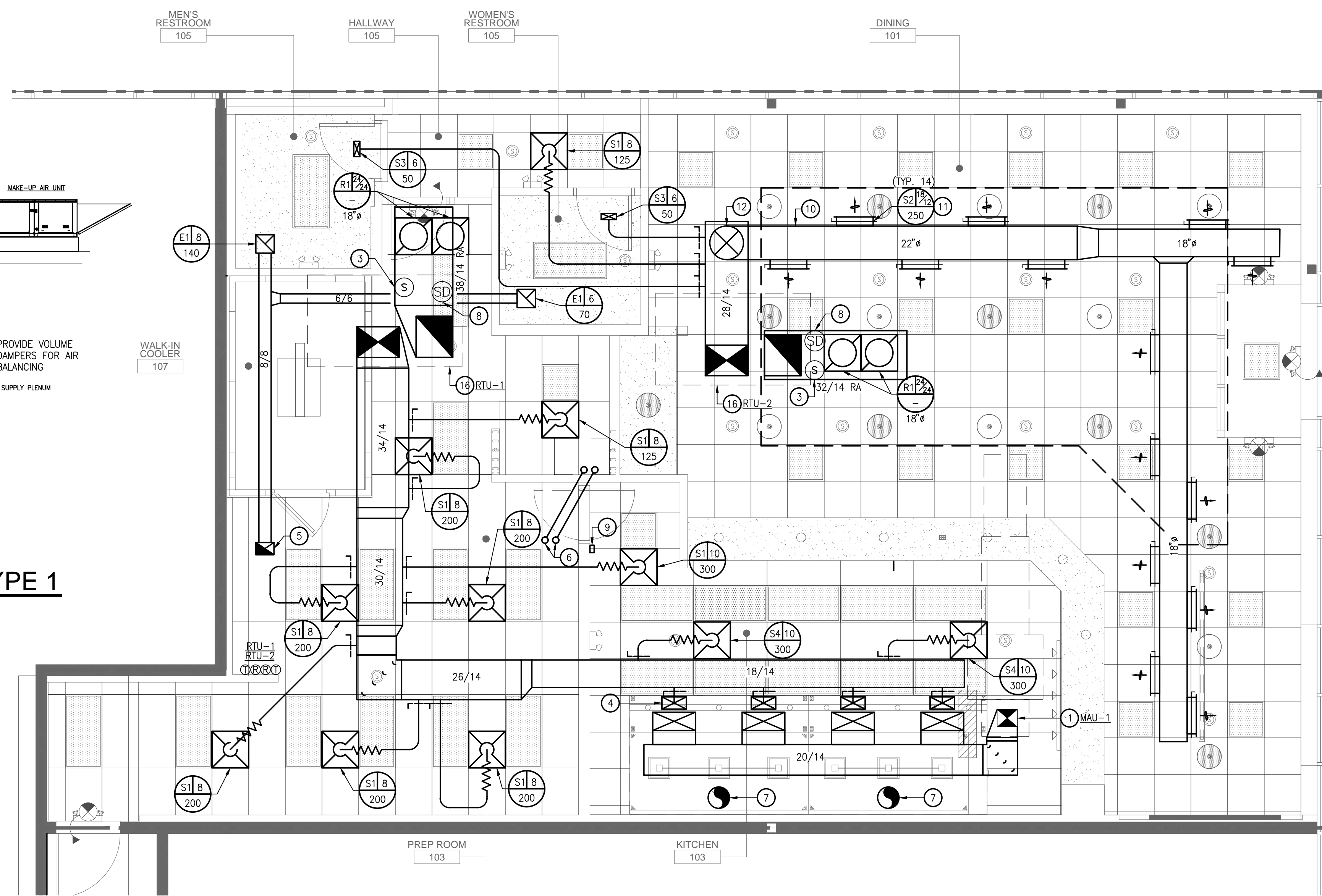
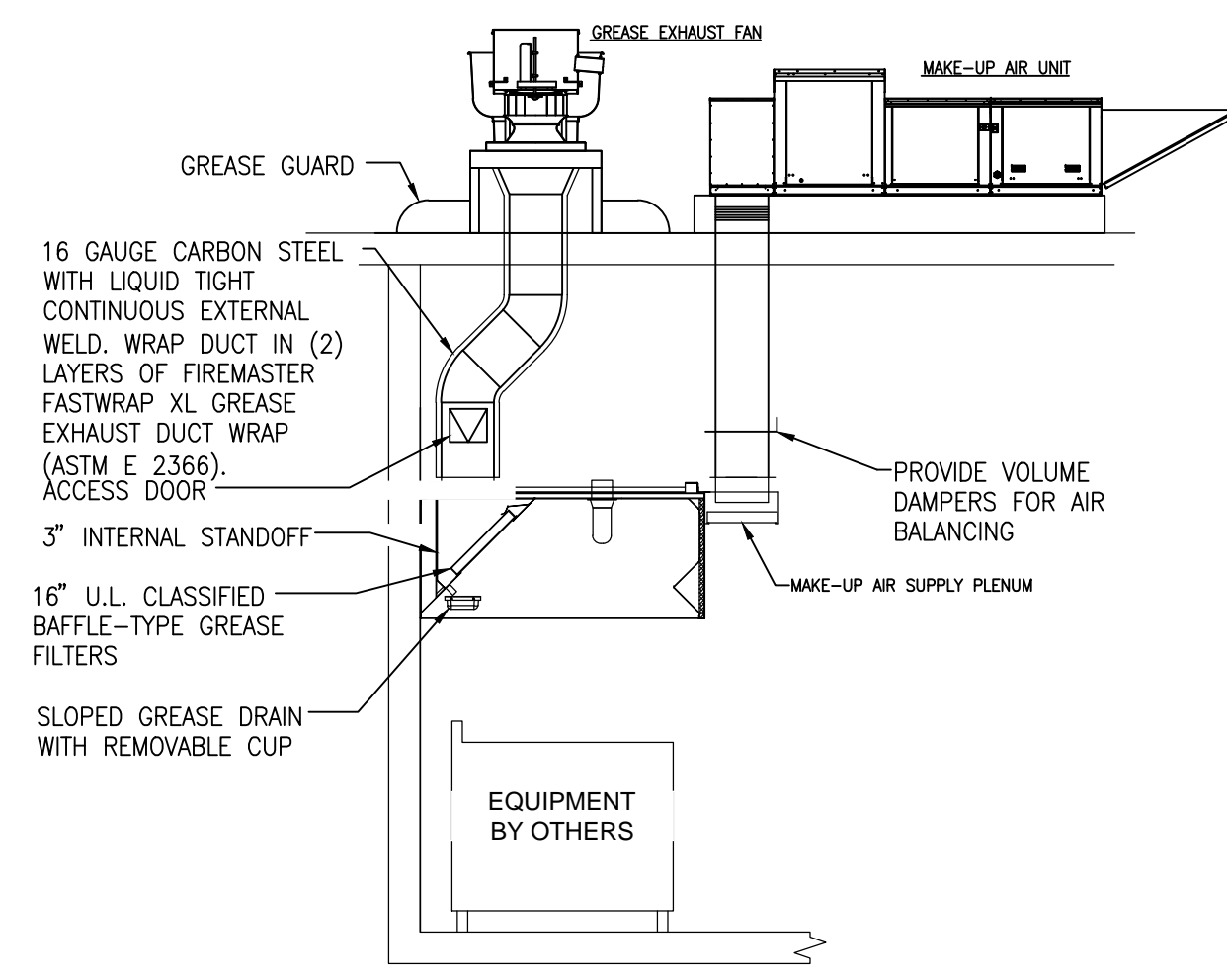
## MECHANICAL SPECIFICATIONS

SHEET NUMBER

# M1.0

| MECHANICAL SYMBOLS LEGEND |                                 |
|---------------------------|---------------------------------|
| (T)                       | THERMOSTAT                      |
| (S)                       | TEMPERATURE SENSOR              |
| (SD)                      | SMOKE DETECTOR                  |
| ---                       | FLEXIBLE DUCT                   |
| ▭                         | VOLUME DAMPER                   |
| FD                        | FIRE DAMPER                     |
| ⊕                         | CEILING SUPPLY AIR DIFFUSER     |
| ⊖                         | CEILING RETURN AIR GRILLE       |
| ▬                         | SIDEWALL AIR DIFFUSER OR GRILLE |
| ▬                         | NEW DUCTWORK                    |
| ▬                         | EXISTING DUCTWORK               |
| D                         | CONDENSATE DRAIN                |
| G                         | GAS PIPING                      |
| →                         | PIPE TURNING DOWN               |
| ↗                         | PIPE TURNING UP                 |
| ●                         | BALL VALVE                      |
| ⊕                         | GATE VALVE                      |
| ⊕                         | CONNECTION OF NEW TO EXISTING   |
| ⊕                         | CHECK VALVE                     |
| ⊕                         | GAS COCK                        |
| ⊕                         | UNION                           |
| ⊕                         | PRESSURE GAUGE                  |
| ⊕                         | STRAINER                        |
| AFF                       | ABOVE FINISHED FLOOR            |
| (B/B)                     | DIFF TYPE   NECK SIZE           |
| (200)                     | CFM                             |

**1 TYP. KITCHEN HOOD TYPE 1**  
NO SCALE



**GENERAL NOTES**

- DUCT/PIPING LAYOUT IS SCHEMATIC, EXACT LOCATION OF DUCT/PIPING AND EQUIPMENT SHALL BE COORDINATED WITH THE BUILDING STRUCTURE, EQUIPMENT, EXISTING CONDITIONS, ARCHITECTURAL DRAWINGS, AND ALL OTHER TRADES PRIOR TO INSTALLATION. ANY CONTRACTOR INSTALLING WORK PRIOR TO COORDINATION SHALL RELOCATE HIS WORK AT HIS EXPENSE TO ALLOW PROPER INSTALLATION OF ANY AND ALL OTHER TRADES' WORK. CONTRACTOR TO VERIFY THAT DUCTWORK SIZES, ELEVATIONS, EQUIPMENT WILL FIT ABOVE CEILING SYSTEM.
- ALL WORK SHALL COMPLY WITH LOCAL MECHANICAL CODE AND ALL OTHER APPLICABLE CODES.
- DUCT SIZES SHOWN ARE NET INSIDE CLEAR DIMENSIONS.
- ALL SUPPLY DUCTWORK ABOVE CEILING SPACES SHALL BE EXTERNALLY INSULATED WITH 1-1/2" THICK FIBERGLASS INSULATION.
- FLEXIBLE RUNOUTS TO AIR DEVICES SHALL BE NO MORE THAN 5'-0" IN LENGTH AND SHALL BE INSULATED.
- MANUAL DAMPERS SHALL BE PROVIDED AT ALL BRANCH TAPS FOR BALANCING.
- ALL MECHANICAL WORK SHALL BE IN STRICT COMPLIANCE WITH THE LOCAL MECHANICAL CODES AND APPLICABLE PROVISION OF THE LOCAL FUEL GAS CODES. ALL WORK IS SUBJECT TO ON-SITE APPROVAL BY THE LOCAL AUTHORITY.
- THE MECHANICAL CONTRACTOR SHALL PROVIDE A COMPLETE SYSTEM BALANCE REPORT, HEAT GAIN, HEAT LOSS, AND COOLING CALCULATIONS TO LANDLORD'S REPRESENTATIVE TO VERIFY THAT THE REQUIRED VENTILATION AIR TO BE PROVIDED TO EACH SPACE HAS BEEN OBTAINED.
- REFER TO SHEET M2-01 FOR MECHANICAL LEGEND.
- SEE ARCHITECTURAL DRAWING A9-01 FOR FINISH SPECIFICATIONS.
- ALL KITCHEN HOOD EXHAUST WORK SHALL BE 14 GAUGE BLACK IRON OR 18 GAUGE 303 STAINLESS STEEL WITH CONTINUOUS WELDED SEAMS. OR CAPTIVEAIRE NON-WELDED FACTORY GREASE DUCT SYSTEM WHICH IS LISTED TO STANDARD UL-1978 AND CAN/ULC-S662 WHEN INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS AND NFPA STANDARD 96. ACCESS DOORS SHALL BE PROVIDED EVERY 20'-0" AND AT ANY CHANGE IN DIRECTION. ALL SEAMS, JOINTS, AND PENETRATIONS SHALL BE LIQUID TIGHT AND CONTINUOUS.
- PROVIDE AND INSTALL ALL ADDITIONAL STEEL FOR ROOF STRUCTURE SUPPORT OF ALL EQUIPMENT ON ROOF. ALL ROOF WORK BY LANDLORD'S CONTRACTOR AT TENANT'S EXPENSE. ALL EQUIPMENT ON ROOF SHALL BE CURB OR RAIL MOUNTED AND FLASHED TO ROOF MEMBRANE.
- THE TOP OF ALL DIFFUSERS SHALL BE INSULATED TO PREVENT CONDENSATION AND RUST TO FORM.
- LINEAR DIFFUSERS TO BE PROVIDED WITH INSULATED PLENUM BOXES.

**SEQUENCE OF OPERATIONS**

- ROOFTOP UNITS:
- THERMOSTATS SHALL CONTROL OCCUPIED/UNOCCUPIED MODE OF OPERATION FOR THE ENTIRE SYSTEM IN ACCORDANCE WITH PROGRAMMED TIMES AND SET POINTS.
  - ON A CALL FOR COOLING FROM THE THERMOSTAT, SYSTEM SHALL ENERGIZE (MECHANICAL COOLING) IN STAGES. WHEN OUTDOOR ENTHALPY, AS SENSED BY UNIT MOUNTED CONTROLS, IS BELOW ITS SETTING, AND FREE COOLING IS AVAILABLE, UNIT MOUNTED ECONOMIZER SHALL BE ENABLED AND MODULATE DAMPERS BEYOND THEIR MIN. POSITION SET-POINTS TO SATISFY THE SETTING OF (55°F ADJUSTABLE). DURING THIS CYCLE, THE MECHANICAL COOLING SHALL BE DISABLED. ENTHALPY CONTROLLER SHALL RESET THE OUTSIDE AIR DAMPERS TO THE MINIMUM POSITION AND ENERGIZE THE MECHANICAL COOLING WHEN THE SET-POINT IS EXCEEDED.
  - ON A CALL FOR HEATING, GAS FIRED HEAT EXCHANGERS SHALL BE ENERGIZED AND SHALL RUN UNTIL SET-POINT IS SATISFIED.
  - DURING NIGHT SETBACK PERIOD AS PROGRAMMED ON ASSOCIATED ROOFTOP UNIT THERMOSTAT, BLOWER FAN SHALL BE OFF AND OUTSIDE AIR DAMPERS SHUT. ON A CALL FOR HEATING OR COOLING, THE OUTSIDE AIR DAMPERS SHALL REMAIN CLOSED AND THE HEAT EXCHANGER OR COMPRESSOR CYCLE SHALL RUN UNTIL SPACE SET-POINT IS SATISFIED.
  - OVERRIDE TIMER SWITCH (MOUNTED ON THERMOSTAT) SHALL BYPASS THE PROGRAMMABLE THERMOSTAT (OCCUPIED SETTING) AND SHALL ENERGIZE THE SYSTEM INTO THE OCCUPIED MODE FOR A MINIMUM OF A 3 HOUR PERIOD.
  - REMOTE TEMPERATURE SENSORS SHALL BE USED SO THAT THERMOSTATS CAN BE IN PREP ROOM AREA, AWAY FROM THE PUBLIC.
- EXHAUST FANS:
- TOILET ROOM EXHAUST FANS SHALL BE INTERLOCKED WITH THE RTU THERMOSTATS. DURING THE OCCUPIED MODE, THE EXHAUST FAN SHALL RUN CONTINUOUSLY. DURING UNOCCUPIED HOURS, EXHAUST FANS SHALL BE TURNED OFF.
- DUCT SMOKE DETECTORS:
- ROOFTOP UNIT SUPPLY FAN SHALL BE DE-ENERGIZED UPON DETECTION OF SMOKE IN DUCT SMOKE DETECTOR.

**1 FLOORPLAN - HVAC**  
1/4" = 1'-0"

**MECHANICAL KEYED NOTES**

- 24"x16" DUCT DOWN FROM MAU. PROVIDE (4) 24"x10" DUCT CONNECTIONS DOWN TO SUPPLY PLENUM AT HOOD. SEE CAPTIVEAIRE DRAWINGS FOR ADDITIONAL INFO.
- NOT USED.
- REMOTE TEMPERATURE SENSOR MOUNTED IN RETURN DUCT. REMOTE SENSOR TO COMMUNICATE WITH THERMOSTAT LOCATED AT MANAGER'S STATION. NEW THERMOSTAT(S) TO BE HONEYWELL MODEL TH8110. VERIFY THERMOSTAT LOCATIONS WITH OWNER.
- PROVIDE 16"x8" SUPPLY DUCT RUN OUT TO SUPPLY PLENUM AT KITCHEN HOOD. PROVIDE WITH VOLUME DAMPER AS SHOWN AND BALANCE TO 300 CFM. SEE CAPTIVEAIRE DRAWINGS FOR ADDITIONAL INFORMATION. TYPICAL OF 4.
- 10"x8" EXHAUST DUCT UP TO EF-3 ON ROOF.
- 4" PVC/CPVC INTAKE AND 4" PVC/CPVC EXHAUST FROM GAS WATER HEATER UP TO ROOF. COMBINE RIGHT BEFORE ROOF PENETRATION WITH CONCENTRIC VENT KIT. WATER HEATER PROVIDED AND INSTALLED BY OTHERS.
- 14" GREASE EXHAUST DUCT UP TO EXHAUST FAN ON ROOF. SEE ROOF PLAN FOR ADDITIONAL DETAILS. TRANSITION DUCTWORK AS NECESSARY TO AVOID OBSTRUCTIONS.
- COORDINATE INSTALLATION OF NEW DUCT SMOKE DETECTOR IN RETURN AIR DUCT WITH ELECTRICAL CONTRACTOR. UNIT TO BE PROVIDED WITH ANNUNCIATOR BELOW UNIT WITH REMOTE TEST STATION LOCATED AT MANAGER'S DESK. VERIFY EXACT LOCATION IN FIELD WITH OWNER REPRESENTATIVE.
- ANSUL MANUAL PULL STATION. SEE SHEET A2-11 FOR EXACT LOCATION.
- EXPOSED SINGLE WALL DUCTWORK. SEE DETAIL 5/M3-01 FOR ADDITIONAL INFORMATION.
- BALANCE DAMPER WITHIN DIFFUSER. TYPICAL OF ALL "SZ" DIFFUSERS.
- 24" SPIRAL DUCT TO DROP IN CEILING SPACE ABOVE DINING, TOP OF DUCT 6" BELOW THE ACT CEILING. CEILING TO BE CUT AND SEALED AROUND SPIRAL DUCT WITH TRIM RING, PAINTED BLACK, TO GIVE CLEAN LOOK.
- NOT USED.
- NOT USED.
- NOT USED.
- NEW LANDLORD PROVIDED & INSTALLED ROOFTOP UNIT TO REPLACE EXISTING. FULL SIZE SUPPLY/RETURN DOWN TO SPACE. ACOUSTICALLY LINE THE FIRST 10'-0" RUN OF SUPPLY AND RETURN DUCT MAINS. SET UNIT OUTSIDE AIR QUANTITY AS LISTED ON ROOFTOP UNIT SCHEDULE. FANS TO RUN CONTINUOUS DURING OCCUPIED HOURS.

| BRANCH DUCTWORK |           |
|-----------------|-----------|
| CFM             | DUCT SIZE |
| 0-100           | 6"        |
| 101-250         | 8"        |
| 251-400         | 10"       |
| 401-650         | 12"       |

MUNICIPAL APPROVAL STAMPS

ARCHITECT OF RECORD

**mossArchitects**  
5122 Penn Avenue  
Pittsburgh, PA 15224  
412.441.6400 ph  
412.441.0723 fx  
www.mossarc.com

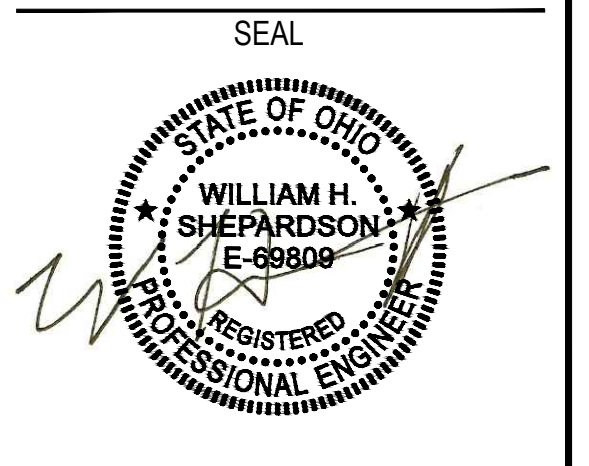
CONSULTANT

**WHS ENGINEERING**  
2012 WEST 25TH STREET, SUITE 200  
CLEVELAND, OH 44113-4143  
PHONE: 216-227-8505  
FAX: 216-227-8570  
www.whs-eng.com

**BROOKLYN, OH - RIDGE PARK**  
RIDGE PARK SQUARE  
4824 RIDGE ROAD  
BROOKLYN, OH 44144  
XXXXX PROJECT NUMBER:

These drawings and specifications contain material owned or licensed by Five Guys and shall not be copied or reproduced without written authorization.

| ISSUE DATE |                                  |          |
|------------|----------------------------------|----------|
| REV        | ISSUE                            | DATE     |
|            | PERMIT                           | 8-03-21  |
|            | PERMIT RESUBMISSION              | 9-03-21  |
|            | FIVE GUYS DESIGN REVIEW COMMENTS | 10-11-21 |
|            | LANDLORD CHANGES                 | 12-20-21 |



SHEET TITLE

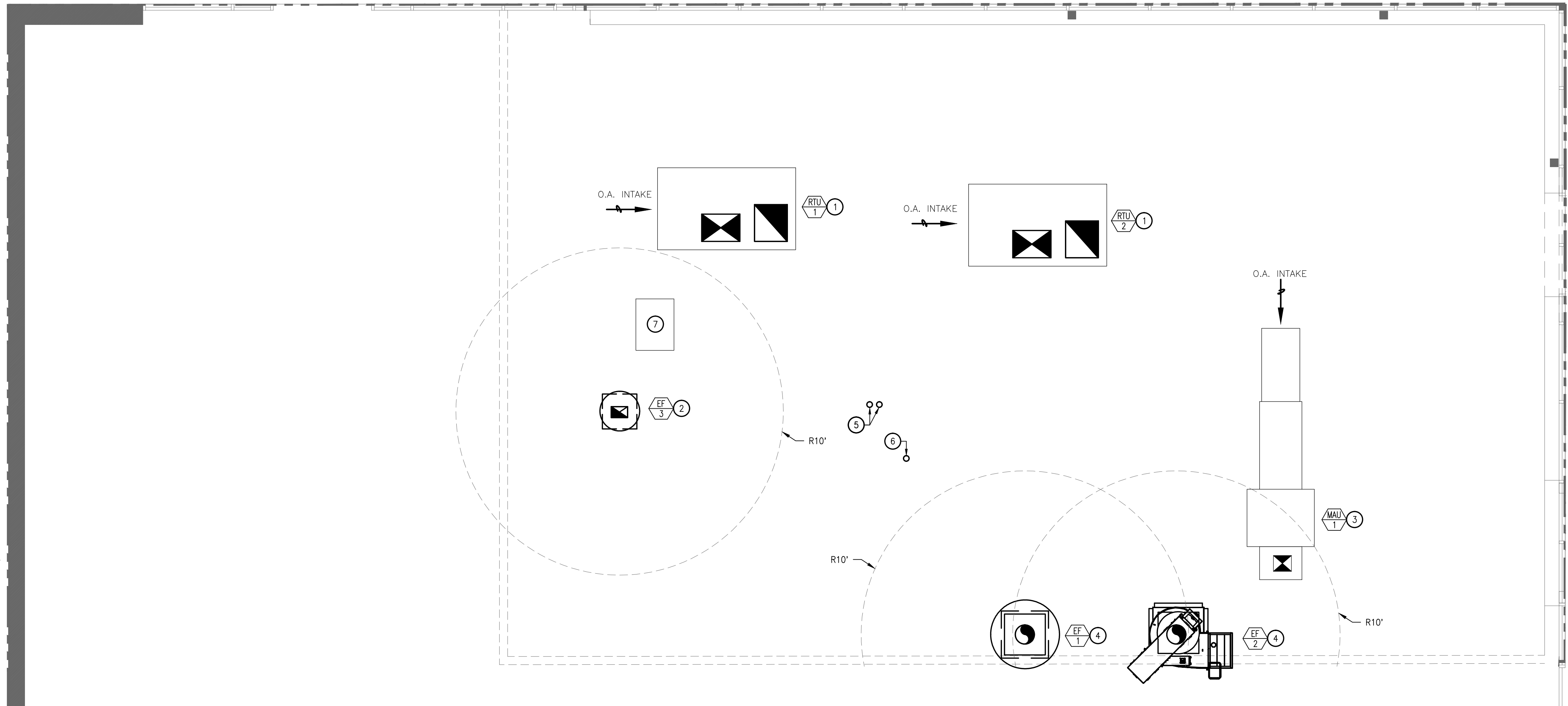
**MECHANICAL PLAN**

SHEET NUMBER

**M2.0**

**GREASE EXHAUST DUCT AND HOOD SYSTEM SPECIFICATIONS:**

1. INSTALL U.L. LISTED TYPE 1 EXHAUST HOOD.
2. THE GREASE HOOD SHALL MEET THE REQUIREMENTS OF THE MECHANICAL CODE, NSF, AND NFPA FOR A TYPE 1 HOOD.
3. FIRE DEPARTMENT APPROVAL SHALL BE REQUIRED ON FIRE PROTECTION SYSTEM FOR GREASE HOODS AND DUCTS AS REQUIRED BY THE MECHANICAL CODE AND AS REQUIRED BY THE FIRE CODE.
4. PROVIDE CHEMICAL FIRE SUPPRESSION SYSTEM AS REQUIRED BY NFPA 17A.
5. THE GREASE EXHAUST SYSTEM SHALL BE CONSTRUCTED OF CARBON STEEL NOT LESS THAN 16 GA. WITH CONTINUOUS GREASE-TIGHT AND WATER-TIGHT WELDS AT ALL JOINTS AND SEAMS. THE SYSTEM SHALL BE SO CONSTRUCTED THAT NO GREASE WILL BECOME POCKETED IN ANY PORTION THEREOF AND SHALL SLOPE AT NOT LESS THAN 1/4" PER FOOT IF HORIZONTAL LENGTH UNDER 75 FEET LONG OR 1" PER FOOT IF OVER 75 FEET, BACK TO THE HOOD OR AS REQUIRED BY THE LOCAL AUTHORITIES.
6. OPENINGS IN DUCT SHALL CONFORM TO CODE REQUIREMENTS AND SHALL BE PROVIDED FOR COMPLETE AND THOROUGH CLEANING OF DUCT SYSTEM.
7. GREASE DUCT SHALL BE WRAPPED WITH (2) LAYERS OF FIREMASTER FASTWRAP XL BY THERMAL CERAMICS GREASE EXHAUST DUCT WRAP OR EQUIVALENT ASTM E 2336 LISTED GREASE DUCT WRAP. INSTALL WRAP PER MANUFACTURER'S INSTRUCTIONS. WHEN A GREASE DUCT IS WRAPPED WITH A FIRE BLANKET, A VENTED ROOF CURB IS NOT REQUIRED.
8. GREASE HOOD TO EXTEND A MINIMUM OF 6" BEYOND THE COOKING SURFACE ON ALL OPEN SIDES.
9. PROVIDE THE "PENETRATOR" GREASE DUCT CLEAN-OUT ACCESS DOORS MANUFACTURED BY FLAME GARD, INC. (OR EQUIVALENT) AT EVERY CHANGE OF DIRECTION IN THE DUCT AND/OR EVERY 10 FEET WITH MINIMUM OF 3 FEET OF CLEARANCE IN FRONT OF CLEAN-OUT. INSULATE ACCESS DOORS TO MAINTAIN RATING OF GREASE DUCT ENCLOSURE PER COMPOSITE GREASE DUCT FIRE PROTECTION INSULATION MANUFACTURER'S INSTRUCTIONS.
10. MAKE-UP AIR UNIT SHALL BE EQUIPPED WITH A MOTORIZED DAMPER THAT WILL AUTOMATICALLY SHUT WHEN UNIT IS NOT IN OPERATION.
11. SECURE HOOD TO WALL FRAMING, INSTALL RIGID COMPRESSION STRUTS & DIAGONAL SWAY BRACING - 4 DIRECTIONS ALL HANGERS.
12. COOKING EQUIPMENT INFORMATION - 620 BTU; 17"-3" LONG.
13. MAKEUP AIR DUCTS CONNECTING TO OR WITHIN 18" SHALL BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH SECTIONS 603.1, 603.3, 603.4, 603.9 603.10 AND 603.12. DUCT INSULATION INSTALLED WITHIN 18" SHALL BE NONCOMBUSTIBLE OR SHALL BE LISTED FOR THE APPLICATION.
14. DUCT-TO-EXHAUST FAN CONNECTIONS. DUCT-TO-EXHAUST FAN CONNECTIONS SHALL BE FLANGED AND GASKETED AT THE BASE OF THE FAN FOR VERTICAL DISCHARGE FANS; SHALL BE FLANGED, GASKETED AND BOLTED TO THE INLET OF THE FAN FOR SIDELET UTILITY FANS; AND SHALL BE FLANGED, GASKETED AND BOLTED TO THE INLET AND OUTLET OF THE FAN FOR IN-LINE FANS.
15. VIBRATION ISOLATION. VIBRATION ISOLATION CONNECTORS SHALL BE INSTALLED ONLY AT THE CONNECTION OF A DUCT TO A FAN INLET OR OUTLET.
16. GREASE DUCT TEST. PRIOR TO THE USE OR CONCEALMENT OF ANY PORTION OF A GREASE DUCT SYSTEM, A LEAKAGE TEST SHALL BE PERFORMED. DUCTS SHALL BE CONSIDERED TO BE CONCEALED WHERE INSTALLED IN SHAFTS OR COVERED BY COATINGS OR WRAPS THAT PREVENT THE DUCTWORK FROM BEING VISUALLY INSPECTED ON ALL SIDES. THE PERMIT HOLDER SHALL BE RESPONSIBLE TO PROVIDE THE NECESSARY EQUIPMENT AND PERFORM THE GREASE DUCT LEAKAGE TEST.
17. CLEANOUTS SERVING IN-LINE FANS.- SUCH CLEANOUTS SHALL BE LOCATED WITHIN 3 FEET (914 MM) OF THE FAN DUCT CONNECTIONS.
18. EXHAUST OUTLETS SERVING TYPE I HOODS. EXHAUST OUTLETS FOR GREASE DUCTS SERVING TYPE I HOODS SHALL CONFORM TO THE REQUIREMENTS OF SECTIONS 506.3.12.1 THROUGH 506.3.12.3.



**1 ROOF PLAN - HVAC**  
1/4" = 1'-0"

| Ventilation Calculation For RTU-1                       |                       |                              |                                   |   |   |   |   |   |                                    |   |   |
|---|-----------------------|------------------------------|-----------------------------------|---|---|---|---|---|------------------------------------|---|---|
| Space Name  | Designation           | Floor Area (A <sub>f</sub> ) | Zone Population (P <sub>z</sub> ) | Area Outdoor Air Rate (R <sub>a</sub> ) | People Outdoor Air Rate (R <sub>p</sub> ) | Area Exhaust Air Rate (R <sub>e</sub> ) | Breathing Zone Outdoor Airflow (V <sub>bz</sub> ) | Zone Outdoor Airflow (V <sub>oz</sub> ) | Minimum Exhaust (R <sub>ex</sub> ) | Zone Primary Airflow (V <sub>pr</sub> ) | Primary Outdoor Air Fraction (Z <sub>pr</sub> ) |
| Prep Room   | Storage Rooms         | 520                          | -                                 | 0.12                                    | -   | -                                       | 62  | 78                                      | 0                                  | 1325                                    | 0.06  |
| Kitchen   | Kitchens (Cooking)    | 376                          | -                                 | -                                       | -   | 0.7                                     | 0   | 0                                       | 263.2                              | 2075                                    | 0.00  |
| Total:  |                       |                              |                                   |   |   |   | 62  | 78                                      | 263                                | 3400                                    |   |
| Maximum Primary Outdoor Air Fraction (Z <sub>pr</sub> ) |                       | 0.06                         |                                   |   |   |   |   |   |                                    |   |   |
| System Ventilation Efficiency (E <sub>v</sub> )         |                       | 1.00                         |                                   |   |   |   |   |   |                                    |   |   |
| Breathing Zone Outdoor Airflow (V <sub>bz</sub> )       |                       | 62                           |                                   |   |   |   |   |   |                                    |   |   |
| Outdoor Air Intake Flow (V <sub>oi</sub> )              |                       | 62                           |                                   |   |   |   |   |   |                                    |   |   |
| Ventilation Calculation For RTU-2                       |                       |                              |                                   |   |   |   |   |   |                                    |   |   |
| Space Name  | Designation           | Floor Area (A <sub>f</sub> ) | Zone Population (P <sub>z</sub> ) | Area Outdoor Air Rate (R <sub>a</sub> ) | People Outdoor Air Rate (R <sub>p</sub> ) | Area Exhaust Air Rate (R <sub>e</sub> ) | Breathing Zone Outdoor Airflow (V <sub>bz</sub> ) | Zone Outdoor Airflow (V <sub>oz</sub> ) | Minimum Exhaust (R <sub>ex</sub> ) | Zone Primary Airflow (V <sub>pr</sub> ) | Primary Outdoor Air Fraction (Z <sub>pr</sub> ) |
| Dining Room   | Cafeteria, Fast Food  | 1117                         | 60                                | 0.18                                    | 7.5                                       | -                                       | 651   | 814                                     | 0                                  | 3500                                    | 0.23  |
| Hallway   | Reception Areas       | 69                           | 2                                 | 0.06                                    | 5   | -                                       | 14  | 18                                      | 0                                  | 150                                     | 0.12  |
| Mens Restroom   | Toilet Rooms - Public | 61                           | -                                 | -                                       | -   | 70/Fixture                              | 0   | 0                                       | 70                                 | 100                                     | 0.00  |
| Womens Restroom   | Toilet Rooms - Public | 57                           | -                                 | -                                       | -   | 70/Fixture                              | 0   | 0                                       | 70                                 | 50                                      | 0.00  |
| Total:  |                       |                              |                                   |   |   |   | 665   | 832                                     | 403                                | 4000                                    |   |
| Maximum Primary Outdoor Air Fraction (Z <sub>pr</sub> ) |                       | 0.23                         |                                   |   |   |   |   |   |                                    |   |   |
| System Ventilation Efficiency (E <sub>v</sub> )         |                       | 0.92                         |                                   |   |   |   |   |   |                                    |   |   |
| Breathing Zone Outdoor Airflow (V <sub>bz</sub> )       |                       | 665                          |                                   |   |   |   |   |   |                                    |   |   |
| Outdoor Air Intake Flow (V <sub>oi</sub> )              |                       | 725                          |                                   |   |   |   |   |   |                                    |   |   |

**MECHANICAL KEYED NOTES**

1. LANDLORD INSTALLED NEW ROOFTOP UNIT AT LOCATION OF EXISTING UNIT BEING REMOVED. VERIFY EXACT LOCATION IN FIELD.
2. NEW EXHAUST FAN FOR RESTROOMS. LOCATE EXHAUST FAN 10 FEET MINIMUM AWAY FROM ALL FRESH AIR INTAKE & ROOF EDGE.
3. NEW MAKE UP AIR UNIT ON CURB.
4. NEW EXHAUST FAN PROVIDED BY CAPTIVEAIRE FOR KITCHEN HOOD. GENERAL CONTRACTOR TO COORDINATE GREASE GUARD SYSTEM INSTALLATION. REFER TO SHEET A2-15 FOR MORE INFO. LOCATE EXHAUST FAN 10 FEET MINIMUM AWAY FROM ALL FRESH AIR INTAKE.
5. 4" CONCENTRIC KIT FOR WATER HEATER. MAINTAIN 12" MIN. CLEARANCE ABOVE HIGHEST ANTICIPATED SNOW LEVEL. MAXIMUM OF 24" ABOVE ROOF.
6. SANITARY VENT THROUGH ROOF. VERIFY EXACT LOCATION IN FIELD, NOTIFY TENANT'S ENGINEER OF ANY MAJOR DISCREPANCIES.
7. REMOTE WALK-IN CONDENSER ON ROOF. LOCATE 10 FEET MINIMUM AWAY FROM ROOF EDGE.

**GENERAL NOTES**

1. CONTRACTOR TO VERIFY ALL REINFORCEMENT LOCATIONS IN FIELD. SEE SHEET A2-15 FOR MORE INFORMATION.

MUNICIPAL APPROVAL STAMPS

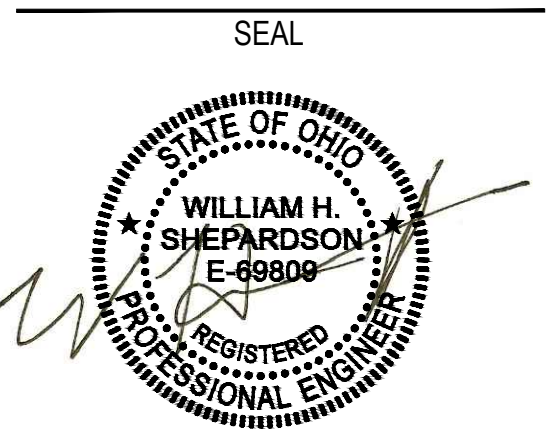
ARCHITECT OF RECORD  
**mossArchitects**  
5122 Penn Avenue  
Pittsburgh, PA 15224  
412.441.6400 ph  
412.441.0723 fx  
www.mossarc.com

CONSULTANT  
**WHS ENGINEERING**  
2012 WEST 25TH STREET, SUITE 200  
CLEVELAND, OH 44113-4143  
PHONE: 216-227-8505  
FAX: 216-227-8570  
www.whs-eng.com

**BROOKLYN, OH - RIDGE PARK**  
RIDGE PARK SQUARE  
4824 RIDGE ROAD  
BROOKLYN, OH 44144  
XXXXX PROJECT NUMBER:

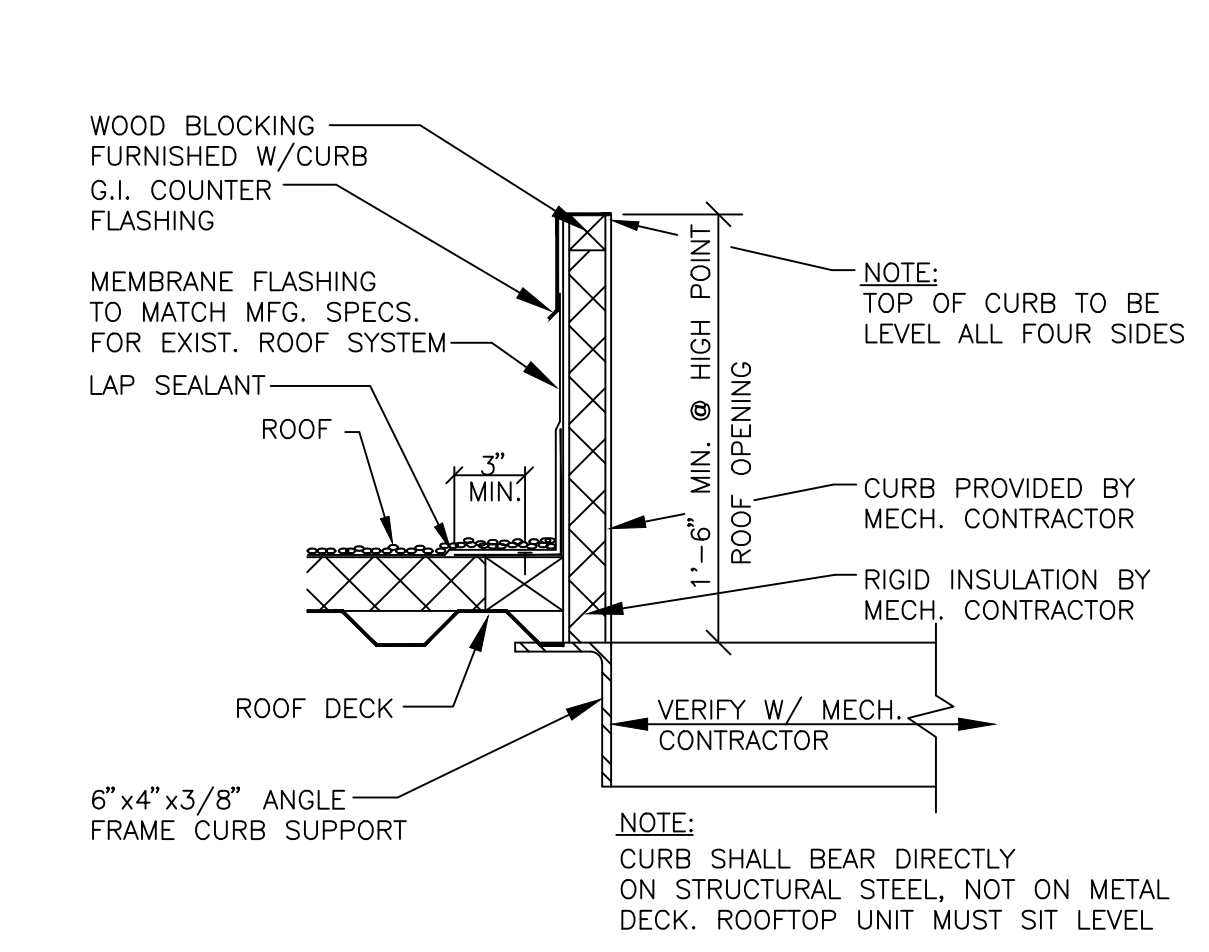
These drawings and specifications contain material owned or licensed by Five Guys and shall not be copied or reproduced without written authorization.

| ISSUE DATE |        |         |
|------------|--------|---------|
| REV        | ISSUE  | DATE    |
|            | PERMIT | 8-03-21 |
|            |        |         |
|            |        |         |
|            |        |         |
|            |        |         |
|            |        |         |
|            |        |         |

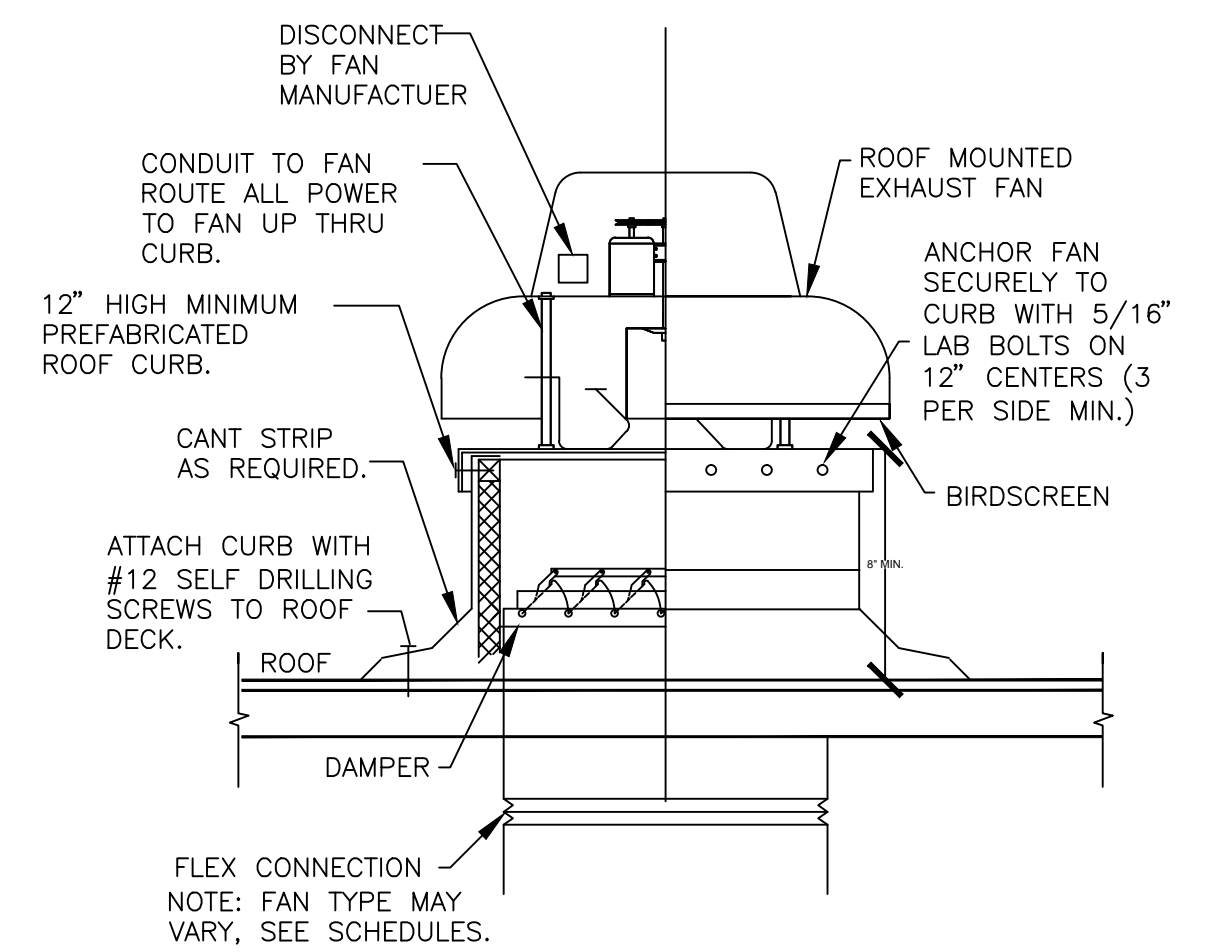


SHEET TITLE  
**ROOF PLAN**

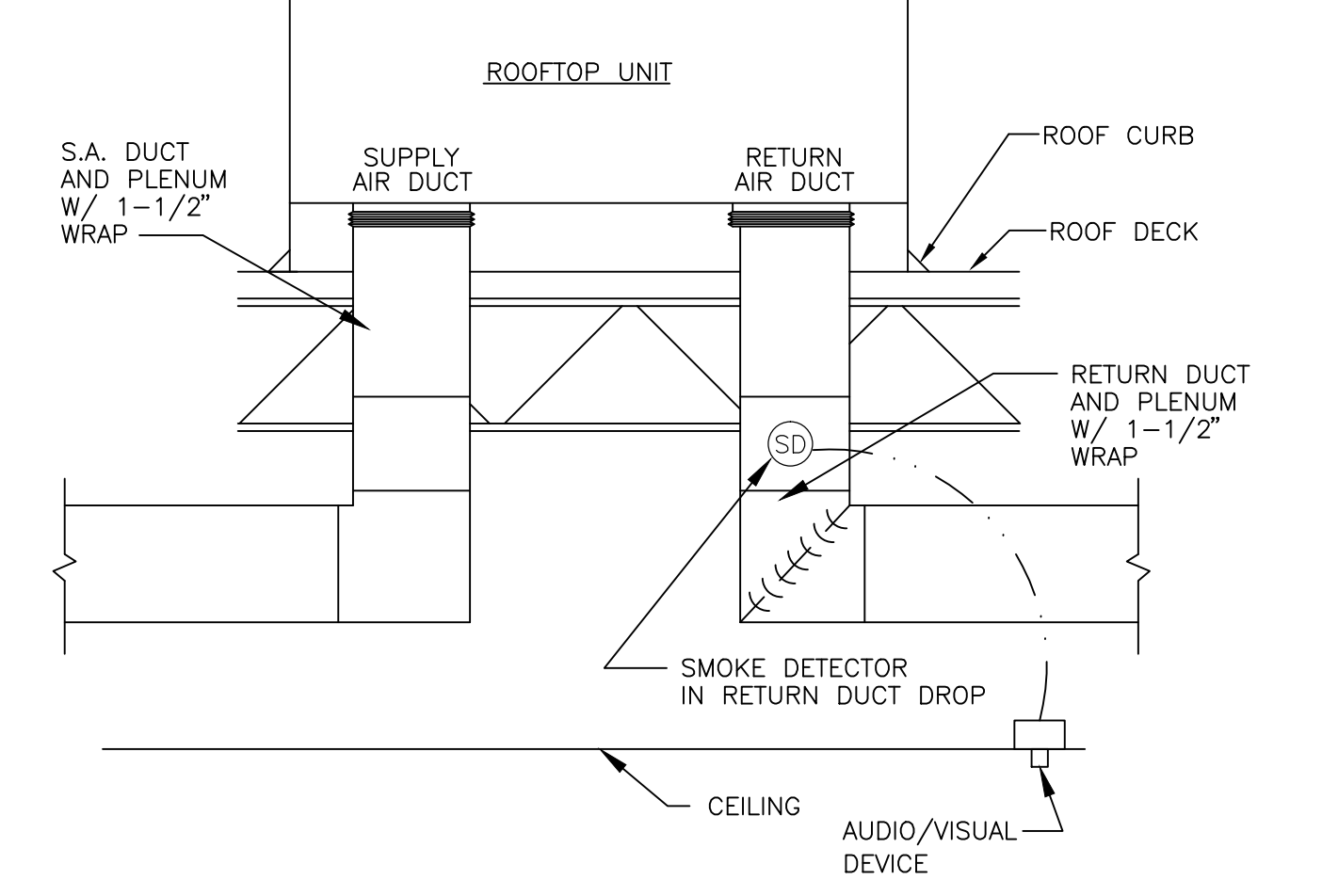
SHEET NUMBER  
**M3.0**



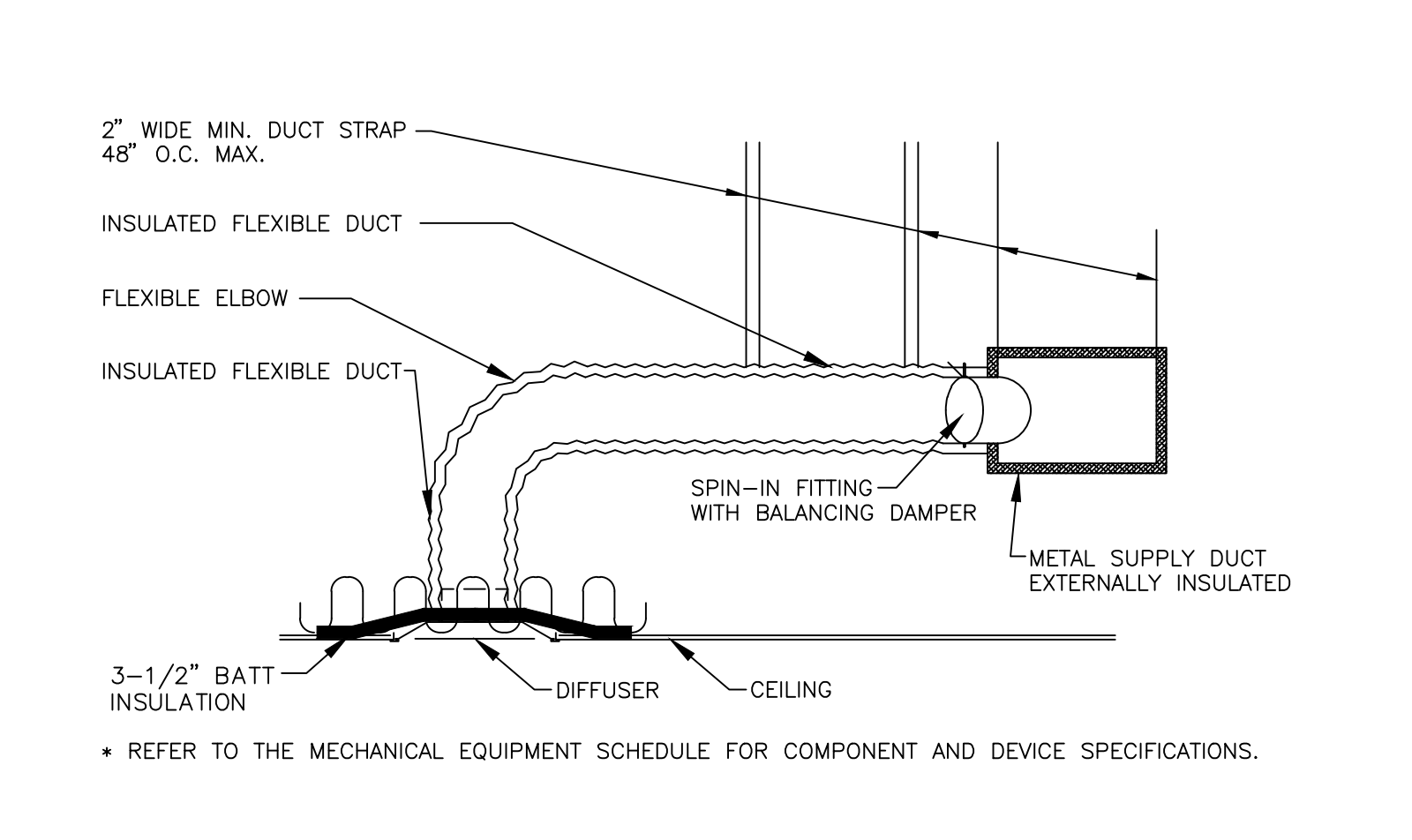
**1 ROOF CURB SECTION**  
NO SCALE



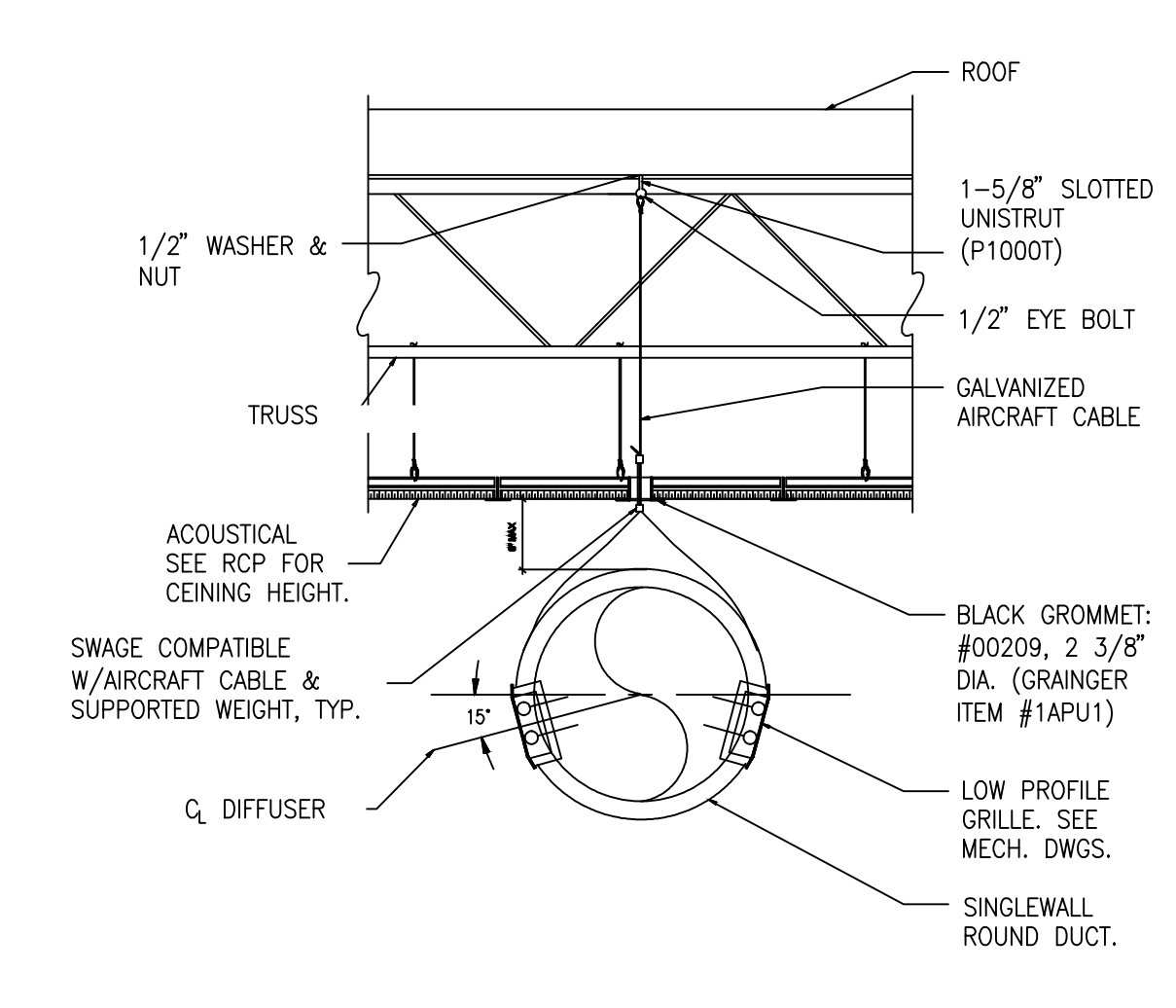
**2 ROOF MOUNTED FAN**  
NO SCALE



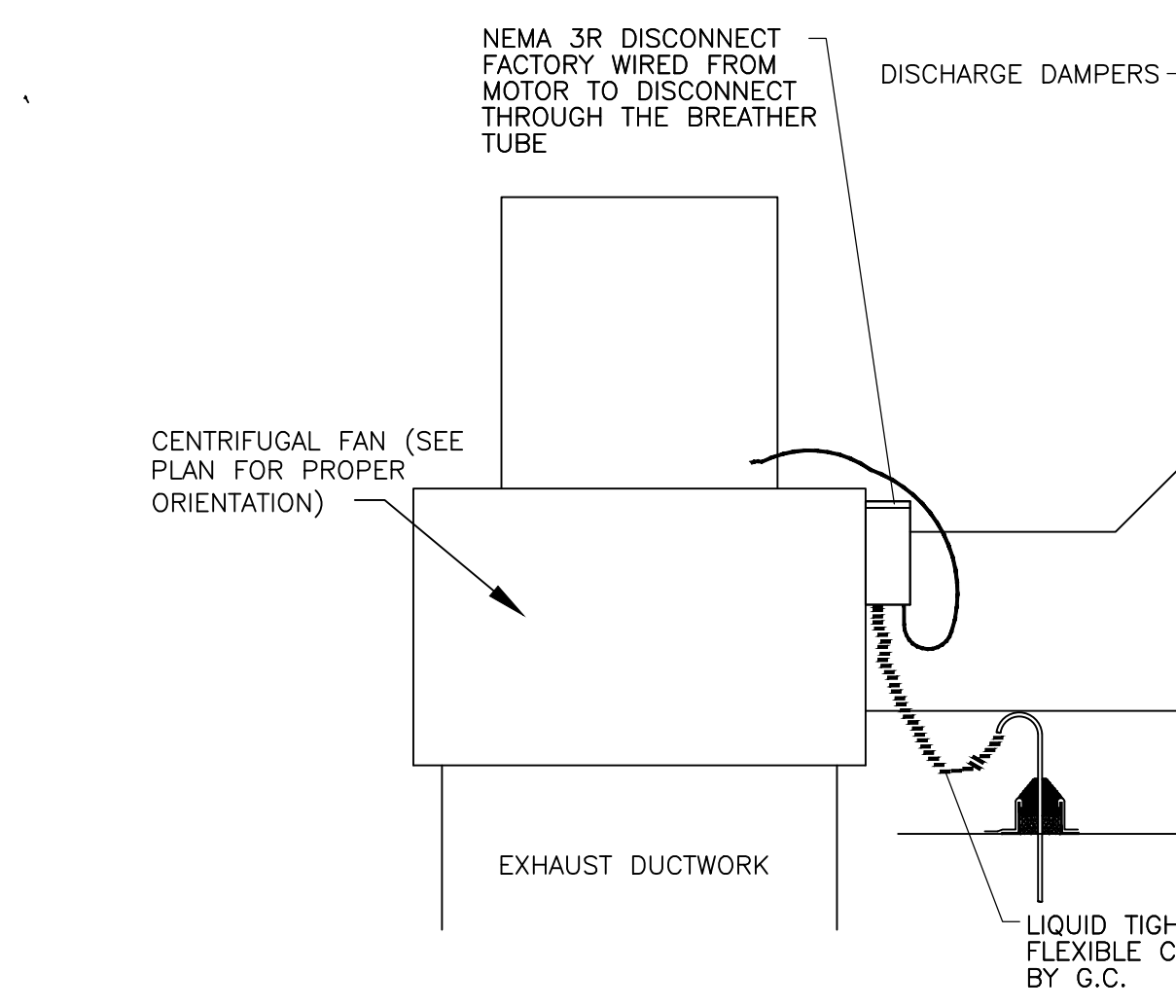
**3 ROOFTOP UNIT MOUNTING DETAIL**  
NO SCALE



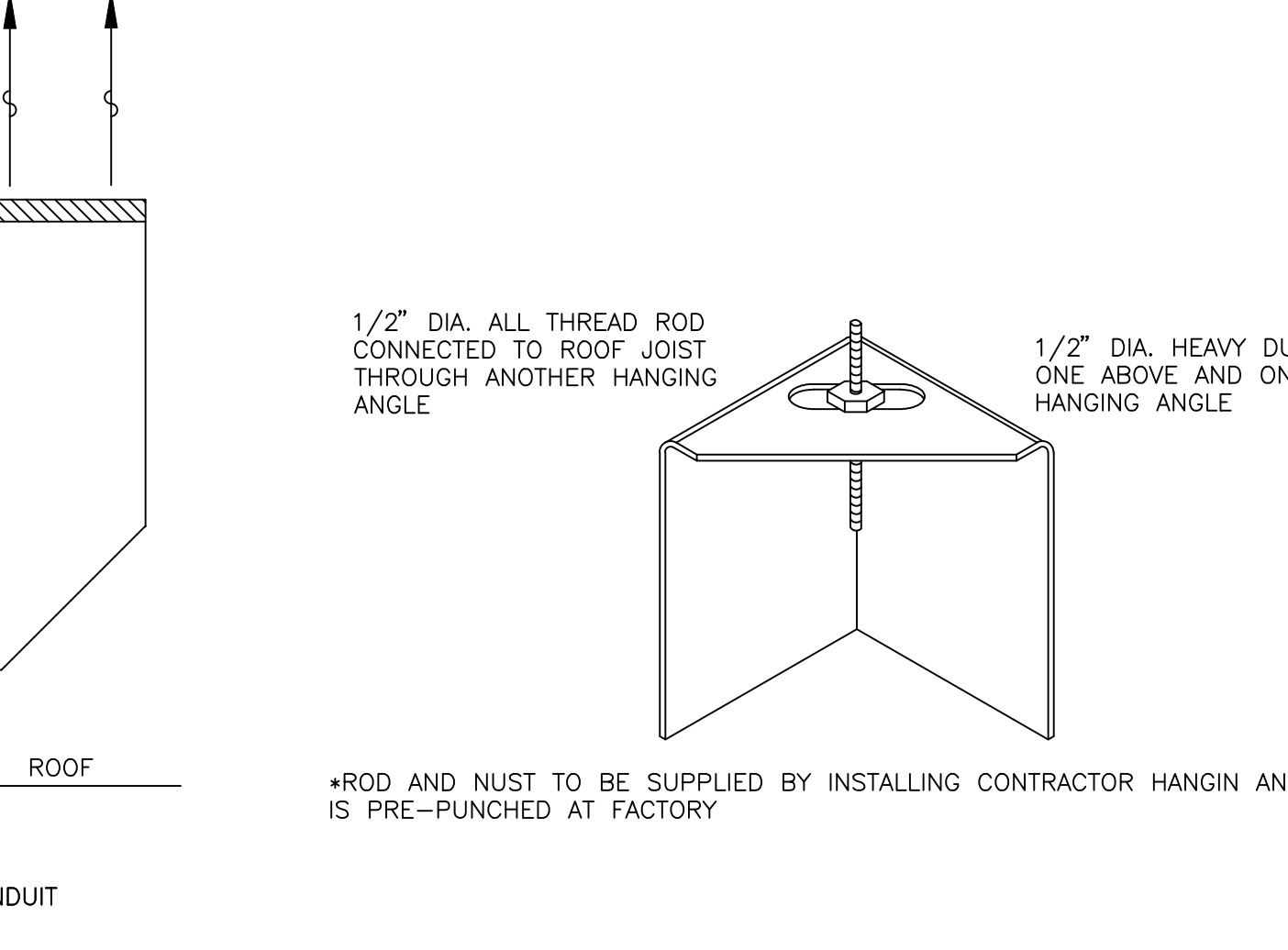
**4 HVAC DUCTWORK DETAIL**  
NO SCALE



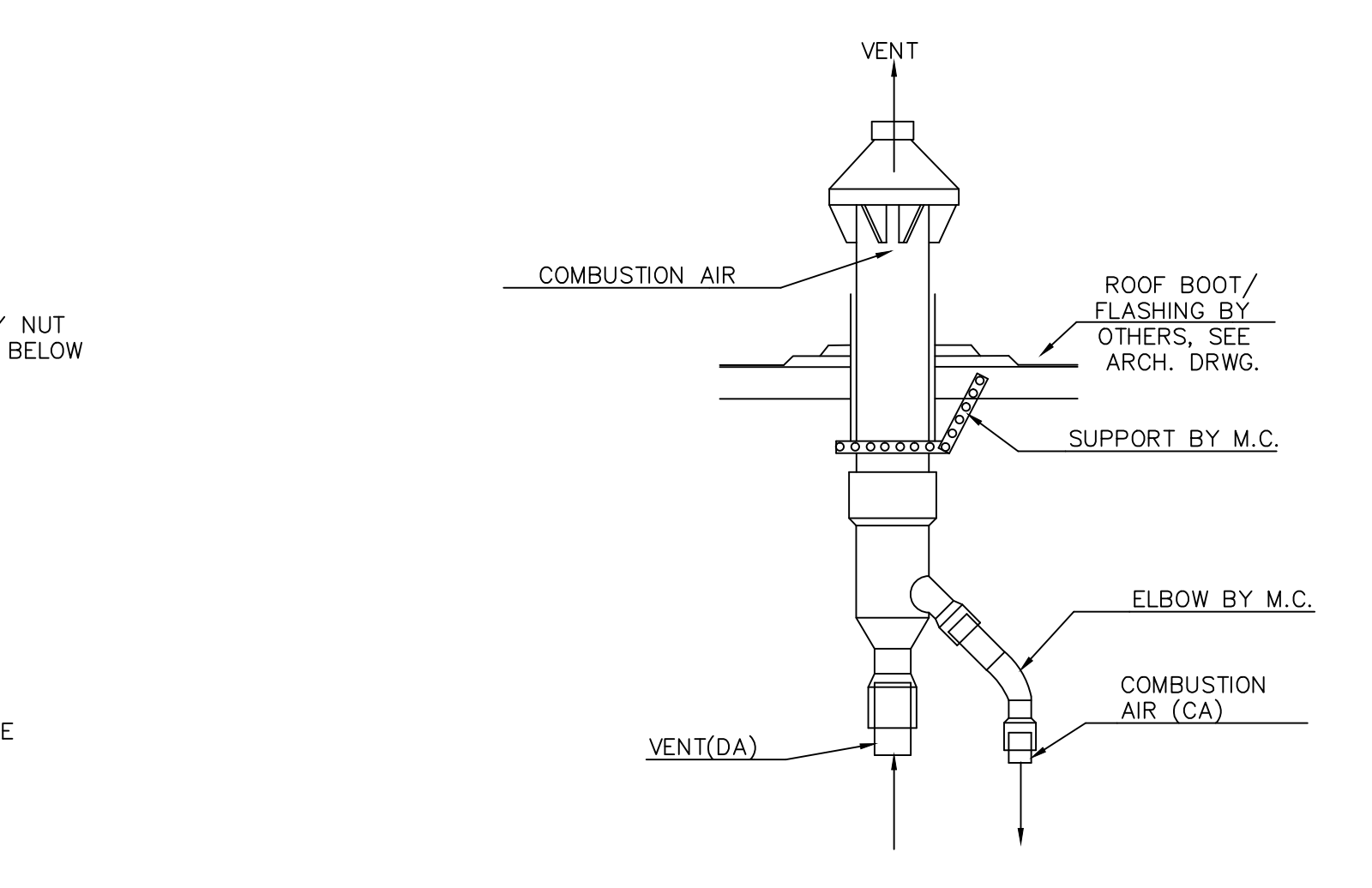
**5 EXPOSED DUCT DETAIL**  
SCALE: NONE  
NOTE: SPIRAL DUCT, VENTS AND HANGER WIRE TO BE FINISHED P-3. FULL TILE AT HANGER WIRE LOCATIONS, GLUE BLACK GROMMET IN HANGER WIRE OPENINGS. DO NOT BOX OUT SUPPLY REGISTER.



**6 GRILL HOOD EXHAUST FAN DETAIL**  
NO SCALE  
NOTE: PROVIDE SECOND DUCT CLEANOUT AT 6" ABOVE CONNECTION TO HOOD DUCT COLLAR.



**7 HOOD HANGING ANGLE DETAIL**  
NO SCALE



**8 CONCENTRIC VENT KIT DETAIL**  
NO SCALE

| AIR BALANCE SCHEDULE |            |             |                 |                 |            |       |
|----------------------|------------|-------------|-----------------|-----------------|------------|-------|
| UNIT MARK            | SUPPLY AIR | OUTSIDE AIR | MAKE-UP AIR     | EXHAUST AIR     | RETURN AIR | NOTES |
| RTU-1                | 4000       | <b>400</b>  |                 |                 | 3600       |       |
| RTU-2                | 3400       | 725         |                 |                 | 2675       |       |
| MAU-1                |            |             | 2821            |                 |            |       |
| EF-1                 |            |             |                 | -1852           |            |       |
| EF-2                 |            |             |                 | -1662           |            |       |
| EF-3                 |            |             |                 | -210            |            |       |
| BLDG. TOTAL          | 7400       | 1125        | 2821            | -3724           | 6275       |       |
|                      |            |             | MAKE-UP         | HVAC UNITS      |            | 1125  |
|                      |            |             |                 | MAKEUP AIR UNIT |            | 2821  |
|                      |            |             |                 | TOTAL           |            | 3946  |
|                      |            |             | EXHAUST         | KITCHEN HOODS   |            | -3514 |
|                      |            |             |                 | GENERAL EXHAUST |            | -210  |
|                      |            |             |                 | TOTAL           |            | -3724 |
|                      |            |             |                 | MAKE-UP         |            | 3946  |
|                      |            |             | BALANCE RESULTS | EXHAUST         |            | -3724 |
|                      |            |             |                 | TOTAL           |            | 222   |

| FAN SCHEDULE |      |      |                   |        |            |       |    |               |             |           |          |           |
|--------------|------|------|-------------------|--------|------------|-------|----|---------------|-------------|-----------|----------|-----------|
| MARK         | TYPE | CFM  | E.S.P. (IN. W.C.) | DRIVE  | MOTOR DATA |       |    | SERVES        | MFR         | MODEL     | UNIT WT. | NOTES     |
|              |      |      |                   |        | HP         | VOLTS | PH |               |             |           |          |           |
| EF-1         | ROOF | 1852 | 1.375             | DIRECT | 3.0        | 208   | 3  | FRYERS        | CAPTIVEAIRE | DU180HFA  | 181      | 3,4,5,6,8 |
| EF-2         | ROOF | 1662 | 1.375             | DIRECT | 3.0        | 208   | 3  | GRILL         | CAPTIVEAIRE | CASRE15DD | 252      | 3,4,5,7,8 |
| EF-3         | ROOF | 375  | 0.25              | DIRECT | 1/20       | 115   | 1  | TOILET/MOP SK | GREENHECK   | G-090-G   | 26       | 1,2       |

NOTES:  
 1. NEW EXHAUST FAN.  
 2. FAN SHALL BE INTERLOCKED WITH RTU THERMOSTATS SO THAT EXHAUST FAN RUNS CONTINUOUSLY DURING OCCUPIED MODE.  
 3. HOOD EXHAUST FAN TO BE CONNECTED TO HOOD CONTROL PANELS AND ANSUL SYSTEM.  
 4. HOOD EXHAUST FAN TO BE PROVIDED BY KITCHEN EQUIPMENT SUPPLIER.  
 5. REFER TO MECHANICAL HOOD DRAWINGS FOR MORE INFORMATION.  
 6. GREASE GUARD TO EXTEND 15" ON ALL SIDES OF EXHAUST FAN, INSTALL BEFORE EXHAUST FAN IS ACTIVATED, CALL JAY MAHON AT 331.229.3460.  
 7. DRIP GUARD TO BE INSTALLED UNDER FAN, CONTACT JAY MAHON AT 331.229.3460.  
 8. REFER TO ARCHITECTURAL SHEET A2-15 FOR MORE INFORMATION ON GREASE GUARDS FOR EXHAUST FANS.

| AIR DEVICE SCHEDULE |        |       |           |           |       |         |  |
|---------------------|--------|-------|-----------|-----------|-------|---------|--|
| PLAN MARK           | MFR    | MODEL | FACE SIZE | NECK SIZE | TYPE  | NOTES   |  |
| S1                  | TITUS  | TMS   | 24"x24"   | SCHEDULE  | DIFF. | 1,2,3,7 |  |
| S2                  | LINDAB | RGS-3 | 33"x6"    | 32"x6"    | DIFF. | 1,4,6   |  |
| S3                  | TITUS  | 350FL | 10"x4"    | SCHEDULE  | DIFF. | 2,3,5,7 |  |
| S4                  | TITUS  | TDC   | 24"x24"   | SCHEDULE  | DIFF. | 2,3,7,8 |  |
| R1                  | TITUS  | TMS   | 24"x24"   | SCHEDULE  | R.G.  | 2,3,7   |  |
| E1                  | TITUS  | 350FL | 12"x12"   | SCHEDULE  | E.G.  | 3,5,7   |  |

NOTES:  
 1. 4-WAY THROW UNLESS OTHERWISE NOTED.  
 2. PROVIDE ADAPTOR BOOTS AS REQUIRED.  
 3. FINISH SHALL MATCH CEILING FINISH UNLESS OTHERWISE SPECIFIED. VERIFY FINISHES WITH ARCHITECTURAL DRAWINGS PRIOR TO ORDERING.  
 4. EXTRACTOR DAMPER.  
 5. PROVIDE SQUARE TO ROUND ADAPTOR AS REQUIRED.  
 6. SPRAY PAINT RED TO MATCH DUCTWORK.  
 7. #26 WHITE IN KITCHEN, PREP, VESTIBULE, AND RESTROOMS, #84 FACTORY BLACK IN DINING ROOM AND HALL.  
 8. 3-WAY AIR THROW PATTERN.

| RTU SCHEDULE (RTU-1) |                  |                    |                   |           |                  |    |         |      |                      |         |      |
|----------------------|------------------|--------------------|-------------------|-----------|------------------|----|---------|------|----------------------|---------|------|
| MFR                  | MODEL NO.        | UNIT WT.           | UNIT SIZE         | VOLTS     | HZ               | PH | MCA     | MOCP | MIN. OUTSIDE AIR CFM | FILTERS |      |
| ENNOX                | LGH120H4B        | 1600 LBS           | 10 TONS           | 208       | 60               | 3  | 54      | 60   | 400                  | NO.     | SIZE |
|                      | 12 EER           |                    |                   |           |                  |    |         |      |                      | NO.     | TYPE |
| TOTAL                | COOLING CAPACITY | HEATING MBH IN/OUT | EVAP. SIZE SQ.FT. | COIL ROWS | INDOOR FAN MOTOR |    |         |      |                      |         |      |
| 4000                 | 146 MBH          | 240/192            | 13.54 SQ.FT.      | 4         | 2.0 HP           | 4  | 20x25x2 |      |                      |         | T/A  |

| RTU SCHEDULE (RTU-2) |                  |                    |                   |           |                  |    |         |      |                      |         |      |
|----------------------|------------------|--------------------|-------------------|-----------|------------------|----|---------|------|----------------------|---------|------|
| MFR                  | MODEL NO.        | UNIT WT.           | UNIT SIZE         | VOLTS     | HZ               | PH | MCA     | MOCP | MIN. OUTSIDE AIR CFM | FILTERS |      |
| ENNOX                | LGH102H4         | 1600 LBS           | 8.5 TONS          | 208       | 60               | 3  | 38      | 45   | 725                  | NO.     | SIZE |
|                      | 12.2 EER         |                    |                   |           |                  |    |         |      |                      | NO.     | TYPE |
| TOTAL                | COOLING CAPACITY | HEATING MBH IN/OUT | EVAP. SIZE SQ.FT. | COIL ROWS | INDOOR FAN MOTOR |    |         |      |                      |         |      |
| 3400                 | 103.8 MBH        | 240/192            | 13.54 SQ.FT.      | 4         | 2.0 HP           | 4  | 20x25x2 |      |                      |         | T/A  |

NOTES:  
 1. FIVE (5) YEAR COMPRESSOR WARRANTY, TEN (10) YEAR HEAT EXCHANGER/BURNER WARRANTY.  
 2. CONTRACTOR SHALL INSTALL FACTORY FURNISHED HAIL GUARDS OVER CONDENSER COILS AND INLET HOODS OVER OUTSIDE AIR INTAKES.  
 3. CONTRACTOR SHALL FLASH RTU OPENINGS TO MATCH DUCTWORK SIZE INDICATED.  
 4. FULL MODULATING ECONOMIZER.  
 5. PROVIDE ENTHALPY SENSOR AND CONTROLS FOR ECONOMIZER.  
 6. PROVIDE UNIT MOUNTED NEMA 3R DISCONNECT.  
 7. PROVIDE GFI RATED CONVENIENCE OUTLET.  
 8. PROVIDE EXHAUST DAMPERS TO MODULATE OUTSIDE AIR AND RETURN AIR AT ROOFTOP UNIT.  
 9. RETURN AIR SMOKE DETECTOR

MUNICIPAL APPROVAL STAMPS

ARCHITECT OF RECORD

**mossArchitects**  
 5122 Penn Avenue  
 Pittsburgh, PA 15224  
 412.441.6400 ph  
 412.441.0723 fx  
 www.mossarc.com

CONSULTANT

**WHS ENGINEERING**  
 2012 WEST 25TH STREET, SUITE 200  
 CLEVELAND, OH 44113-4143  
 PHONE: 216-227-8505  
 FAX: 216-227-8570  
 www.whs-eng.com

**BROOKLYN, OH - RIDGE PARK**

RIDGE PARK SQUARE

4824 RIDGE ROAD

BROOKLYN, OH 44144

XXXXX PROJECT NUMBER:

These drawings and specifications contain material owned or licensed by Five Guys and shall not be copied or reproduced without written authorization.

| ISSUE DATE |        |         |
|------------|--------|---------|
| REV        | ISSUE  | DATE    |
|            | PERMIT | 8-03-21 |

SEAL

SHEET TITLE

**MECHANICAL SCHEDULES**

SHEET NUMBER

**M4.0**

**HOOD INFORMATION - JOB#5001230**

| HOOD NO | TAG    | MODEL             | LENGTH | MAX COOKING TEMP | DESIGN CFM/FT | TOTAL EXH CFM | EXHAUST PLENUM RISER(S) |      |        |     | MUA CFM | AC CFM | HOOD CONSTRUCTION | HOOD CONFIG |     | FILTER(S)            |       |       |                      | LIGHT(S) |                        |     |                     | UTILITY CABINET(S) |                | FIRE SYSTEM PIPING | HOOD HANGING WEIGHT |             |            |         |                    |                   |         |         |
|---------|--------|-------------------|--------|------------------|---------------|---------------|-------------------------|------|--------|-----|---------|--------|-------------------|-------------|-----|----------------------|-------|-------|----------------------|----------|------------------------|-----|---------------------|--------------------|----------------|--------------------|---------------------|-------------|------------|---------|--------------------|-------------------|---------|---------|
|         |        |                   |        |                  |               |               | WIDTH                   | LENG | HEIGHT | DIA |         |        |                   | CFM         | VEL | SP                   | TYPE  | QTY   | HEIGHT               | LENGTH   | EFFICIENCY @ 7 MICRONS | QTY | TYPE                | WIRE GUARD         | LOCATION       |                    |                     | SIZE        | TYPE       | SIZE    | ELECTRICAL MODEL # | SWITCHES QUANTITY |         |         |
| 1       | GRILLS | 5424 ND-2-ACPSP-F | 8' 9"  | 600 DEG          | 190           | 1662          |                         |      | 4"     | 14" | 1662    | 1555   | -0.792"           | 1413        | 584 | 430 SS WHERE EXPOSED | LEFT  | ALONE | CAPTRATE SOLO FILTER | 6        | 16"                    | 16" | 85% SEE FILTER SPEC | 6                  | RECESSED ROUND | NO                 | LEFT                | 12"x54"x24" | ANSUL R102 | 3.0/3.0 | DCV-2111           | 1 LIGHT<br>1 FAN  | YES     | 780 LBS |
| 2       | FRYERS | 5424 ND-2-ACPSP-F | 9' 9"  | 600 DEG          | 190           | 1852          |                         |      | 4"     | 14" | 1852    | 1732   | -0.940"           | 1408        | 584 | 430 SS WHERE EXPOSED | RIGHT | ALONE | CAPTRATE SOLO FILTER | 7        | 16"                    | 16" | 85% SEE FILTER SPEC | 6                  | RECESSED ROUND | NO                 |                     |             |            |         |                    | YES               | 657 LBS |         |

**HOOD OPTIONS**

| HOOD NO | TAG    | OPTION   |
|---------|--------|--|
| 1       | GRILLS | FIELD WRAPPER 18.00" HIGH FRONT, LEFT.<br>LEFT QUARTER END PANEL 23" TOP WIDTH, 0" BOTTOM WIDTH, 23" HIGH 430 SS.<br>1-PINT GREASE CUP.<br>RISER SENSOR INSTALL 3IN DBL.   |
| 2       | FRYERS | FIELD WRAPPER 18.00" HIGH FRONT, RIGHT.<br>RIGHT QUARTER END PANEL 23" TOP WIDTH, 0" BOTTOM WIDTH, 23" HIGH 430 SS.<br>1-PINT GREASE CUP.<br>RISER SENSOR INSTALL 3IN DBL. |

**PERFORATED SUPPLY PLENUM(S)**

| HOOD NO | TAG    | POS   | LENGTH | WIDTH | HEIGHT | TYPE | RISER(S) |      |     |        |
|---------|--------|-------|--------|-------|--------|------|----------|------|-----|--------|
|         |        |       |        |       |        |      | WIDTH    | LENG | DIA | CFM    |
| 1       | GRILLS | Front | 117"   | 24"   | 6"     | MUA  | 12"      | 28"  | 706 | 0.162" |
|         |        |       |        |       |        | MUA  | 12"      | 28"  | 706 | 0.162" |
|         |        |       |        |       |        | AC   | 8"       | 16"  | 292 | 0.079" |
|         |        |       |        |       |        | AC   | 8"       | 16"  | 292 | 0.079" |
| 2       | FRYERS | Front | 117"   | 24"   | 6"     | MUA  | 12"      | 28"  | 704 | 0.161" |
|         |        |       |        |       |        | MUA  | 12"      | 28"  | 704 | 0.161" |
|         |        |       |        |       |        | AC   | 8"       | 16"  | 292 | 0.079" |
|         |        |       |        |       |        | AC   | 8"       | 16"  | 292 | 0.079" |

**BALANCING NOTES:**

**Exhaust Requirements**  
100-105% OF DESIGN PER HOOD  
MEASURED AT THE EXHAUST FILTER WHILE THE FILTER IS INSTALLED

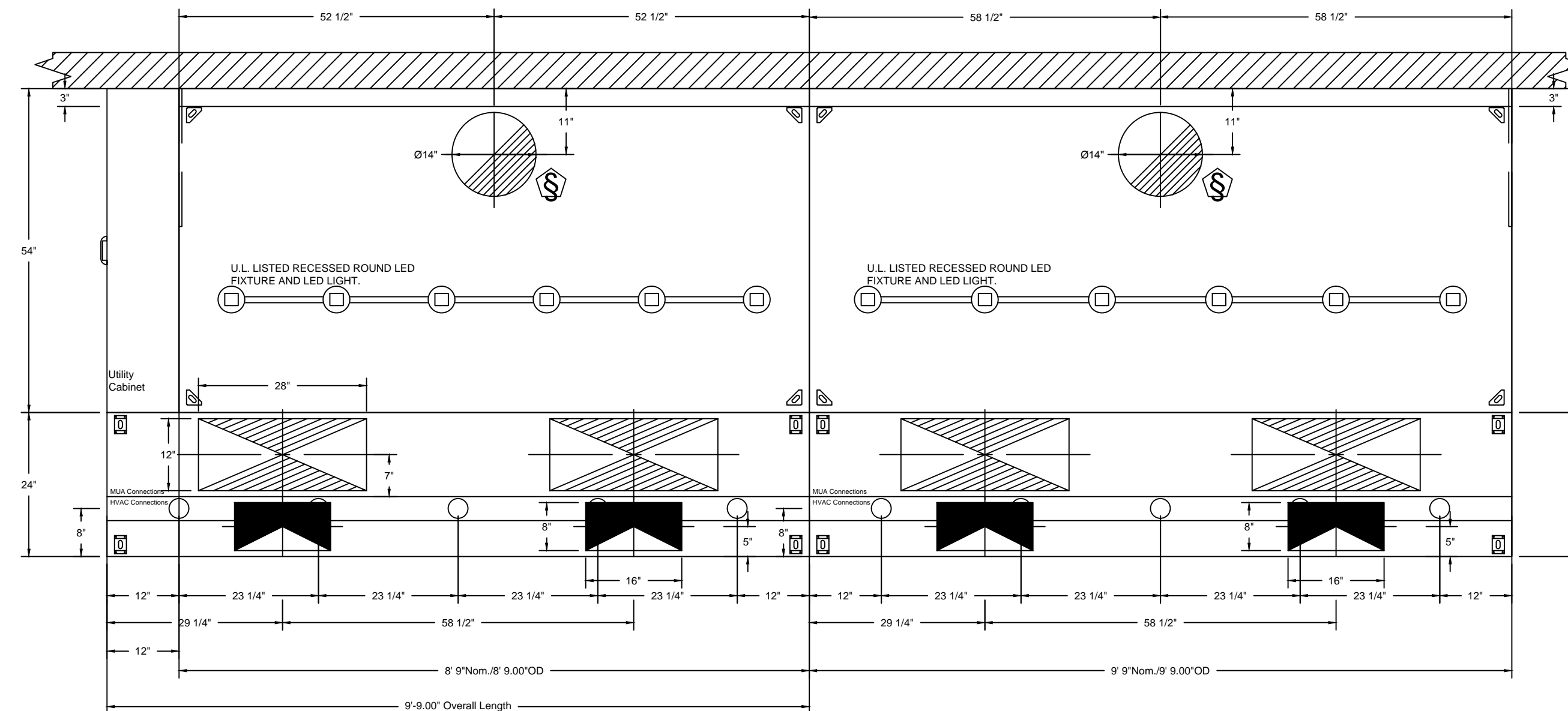
**Supply Requirements**  
95-100% OF DESIGN PER SUPPLY PLENUM  
MEASURED AT THE BOTTOM FACE OF THE PERFORATION (DISCHARGE POINT)

**SCOPE OF WORK**

HOOD(S): PROVIDED BY OWNER. INSTALLED BY GC.  
FIRE SYSTEM(S): PROVIDED & INSTALLED BY OWNER.  
EXHAUST FAN(S): PROVIDED BY OWNER. INSTALLED BY GC.  
MAKEUP AIR UNIT(S): PROVIDED BY OWNER. INSTALLED BY GC.  
ELECTRICAL CONTROL(S): PROVIDED BY OWNER. INSTALLED BY GC.  
GC IS RESPONSIBLE FOR COMPLETE START-UP OF EXHAUST FANS AND MAKEUP AIR UNIT PER CAPTIVEAIRE OPERATION & INSTALLATION MANUAL

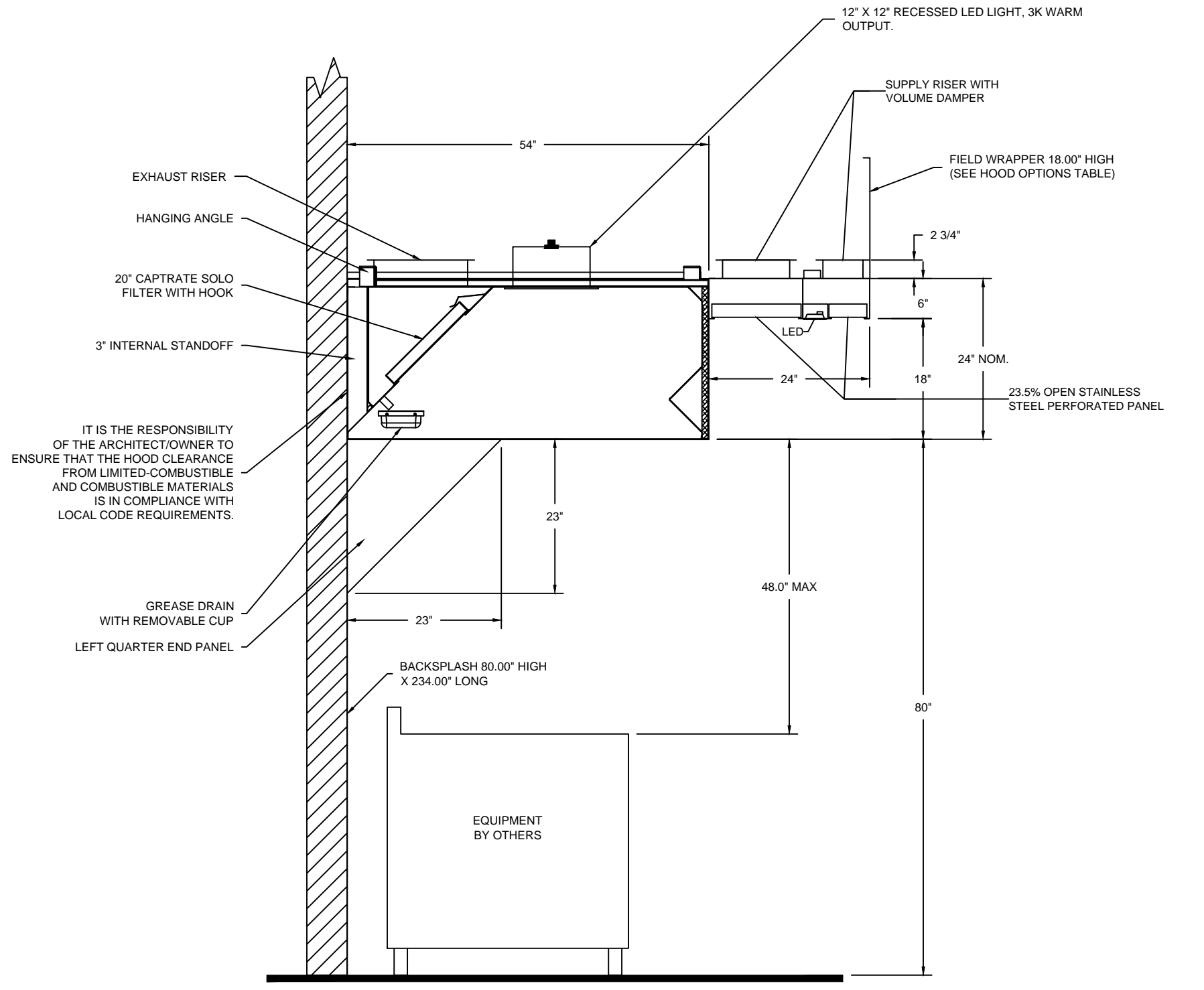
**IMPORTANT INSTALLATION NOTES:**

- LEFT MOUNTED UTILITY CABINET WILL BE PRE-INSTALLED ON HOOD
- IF CEILING HEIGHT IS NOT 10' AFF CONTACT CAPTIVE-AIRE FOR REVISED DRAWINGS AND TO DETERMINE IF THE UTILITY CABINET IS POSSIBLE.
- DO NOT INSTALL QUARTER END PANELS BETWEEN HOODS

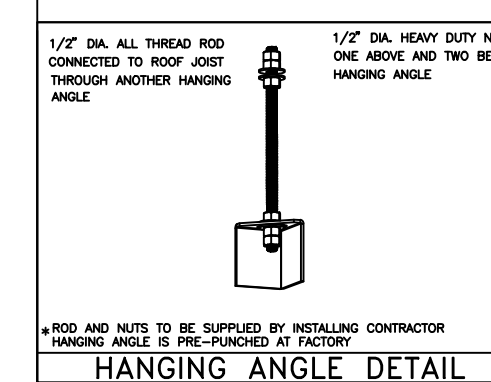


PLAN VIEW - Hood #1 (GRILLS) 8' 9.00" LONG 5424ND-2-ACPSP-F  
PLAN VIEW - Hood #2 (FRYERS) 9' 9.00" LONG 5424ND-2-ACPSP-F  
ACPSP ships loose for field installation

LIGHTING FOR ACPSP Job # 3159529 - Hoods #1, #2  
INPUT: 120V AC, 1 Phase, 60/60Hz, 2.5 Watts per light.  
TO CONTROL LIGHTS WITH HOOD LIGHT SWITCH, WIRE PER HOOD ELECTRICAL CONTROL PANEL SCHEMATIC.  
TO CONTROL LIGHTS WITH BUILDING LIGHT SWITCH, WIRE BLACK AND WHITE WIRE TO A 120VAC SERVICE.  
END TO END ACPSPS REQUIRE 120VAC FIELD WIRING FROM J-BOX TO J-BOX. REPLACE LIGHTS WITH LED LIGHTS ONLY.



SECTION VIEW - MODEL 5424ND-2-ACPSP-F  
HOOD - #1&#2 (GRILLS & FRYERS)



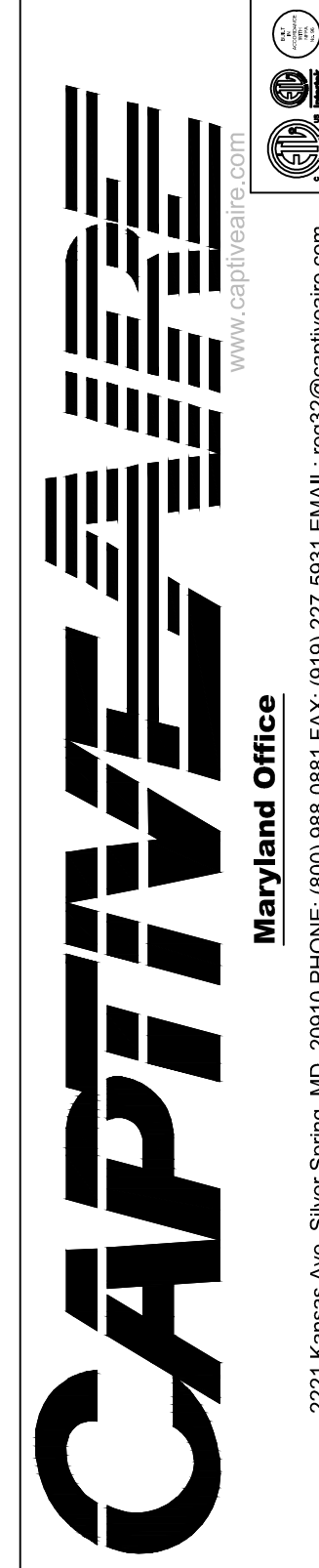
**ETL LISTING DESCRIPTION BLOCK**  
THE CAPTIVEAIRE MODEL ND-2 HAS BEEN U.L. 710 TESTED, LISTED, AND APPROVED TO EXHAUST A MINIMUM OF 140 CFM PER LINEAR FOOT OVER 600 DEGREE COOKING EQUIPMENT WHEN QUARTER END PANELS ARE INSTALLED.

CAPTIVE-AIRE HOODS ARE BUILT IN COMPLIANCE WITH  
ETL LISTED  
NFPA #96  
ETL SANITATION LISTED  
ETL LISTED #3054804-001

FOR QUESTIONS, CONTACT:  
CAPTIVE-AIRE SYSTEMS, INC.  
STORES NORTH OF FAIRFAX, VA CONTACT:  
MARK PROFET  
PHONE (800) 989-0881  
EMAIL: REG32@CAPTIVEAIR.COM  
STORES SOUTH OF FAIRFAX, VA CONTACT:  
JAYSON NEWMAN  
PHONE (800) 419-1447  
EMAIL: REG28@CAPTIVEAIR.COM

**REVISIONS**

| DESCRIPTION | DATE |
|-------------|------|
|             |      |
|             |      |
|             |      |



Five Guys - Brooklyn, OH  
4824 Ridge Rd,  
Brooklyn, OH, 44144

DATE: 7/22/2021  
DWG.#: 5001230  
DRAWN BY: AD-32  
SCALE: NTS  
MASTER DRAWING  
SHEET NO. 1

MUNICIPAL APPROVAL STAMPS

ARCHITECT OF RECORD  
**mossArchitects**  
5122 Penn Avenue  
Pittsburgh, PA 15224  
412.441.6400 ph  
412.441.0723 fx  
www.mossarc.com

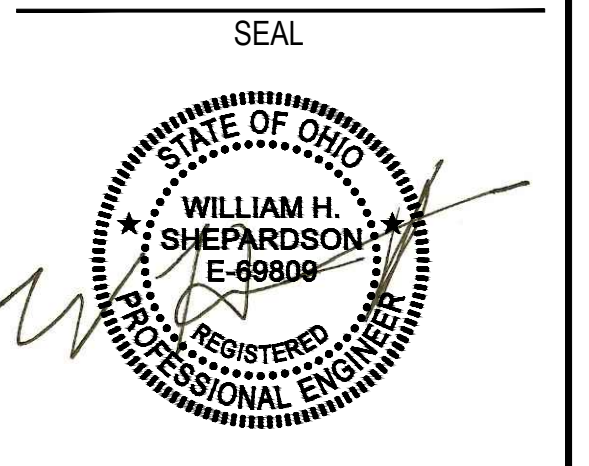
CONSULTANT  
**WHS ENGINEERING**  
2012 WEST 25TH STREET, SUITE 200  
CLEVELAND, OH 44113-4143  
PHONE: 216-227-8505  
FAX: 216-227-8570  
www.whs-eng.com

**BROOKLYN, OH - RIDGE PARK**  
RIDGE PARK SQUARE  
4824 RIDGE ROAD  
BROOKLYN, OH 44144  
XXXXX PROJECT NUMBER:

These drawings and specifications contain material owned or licensed by Five Guys and shall not be copied or reproduced without written authorization.

ISSUE DATE

| REV | ISSUE  | DATE    |
|-----|--------|---------|
|     | PERMIT | 8-03-21 |
|     |        |         |
|     |        |         |
|     |        |         |
|     |        |         |



SHEET TITLE  
**HOOD DRAWINGS**

SHEET NUMBER  
**MH1.0**

| REVISIONS   |      |
|-------------|------|
| DESCRIPTION | DATE |
|             |      |
|             |      |
|             |      |

**CAPTIVE**

Maryland Office  
 2221 Kansas Ave, Silver Spring, MD, 20910 PHONE: (800) 988-0881 FAX: (919) 227-5831 EMAIL: mg52@captivewire.com

Five Guys - Brooklyn, OH  
 4824 Ridge Rd,  
 Brooklyn, OH, 44144

DATE: 7/22/2021  
 DWG.#: 5001230  
 DRAWN BY: AD-32  
 SCALE: NTS  
 MASTER DRAWING

SHEET NO.  
 2

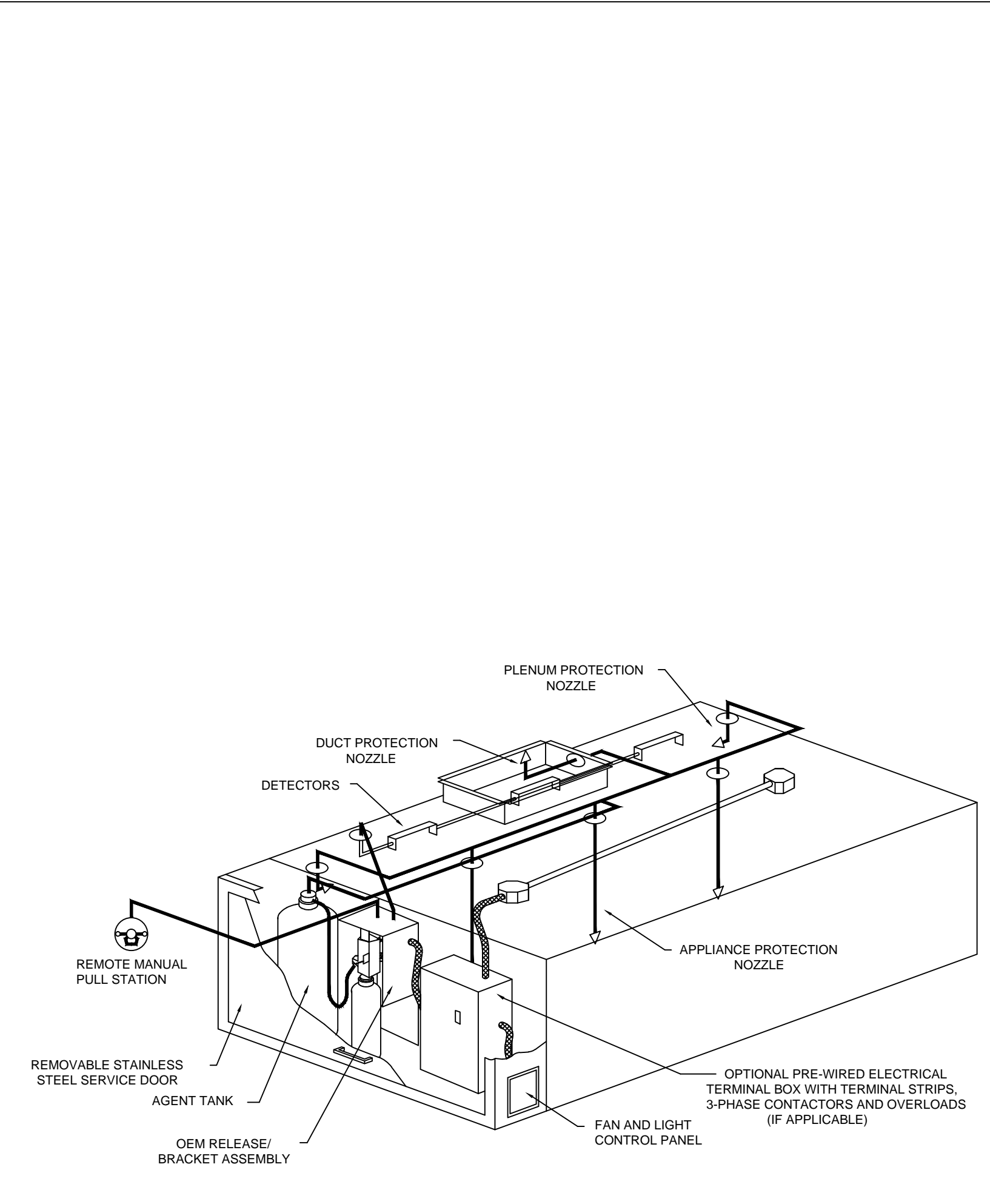
| REV | ISSUE  | DATE    |
|-----|--------|---------|
|     | PERMIT | 8-03-21 |
|     |        |         |
|     |        |         |
|     |        |         |
|     |        |         |

SEAL

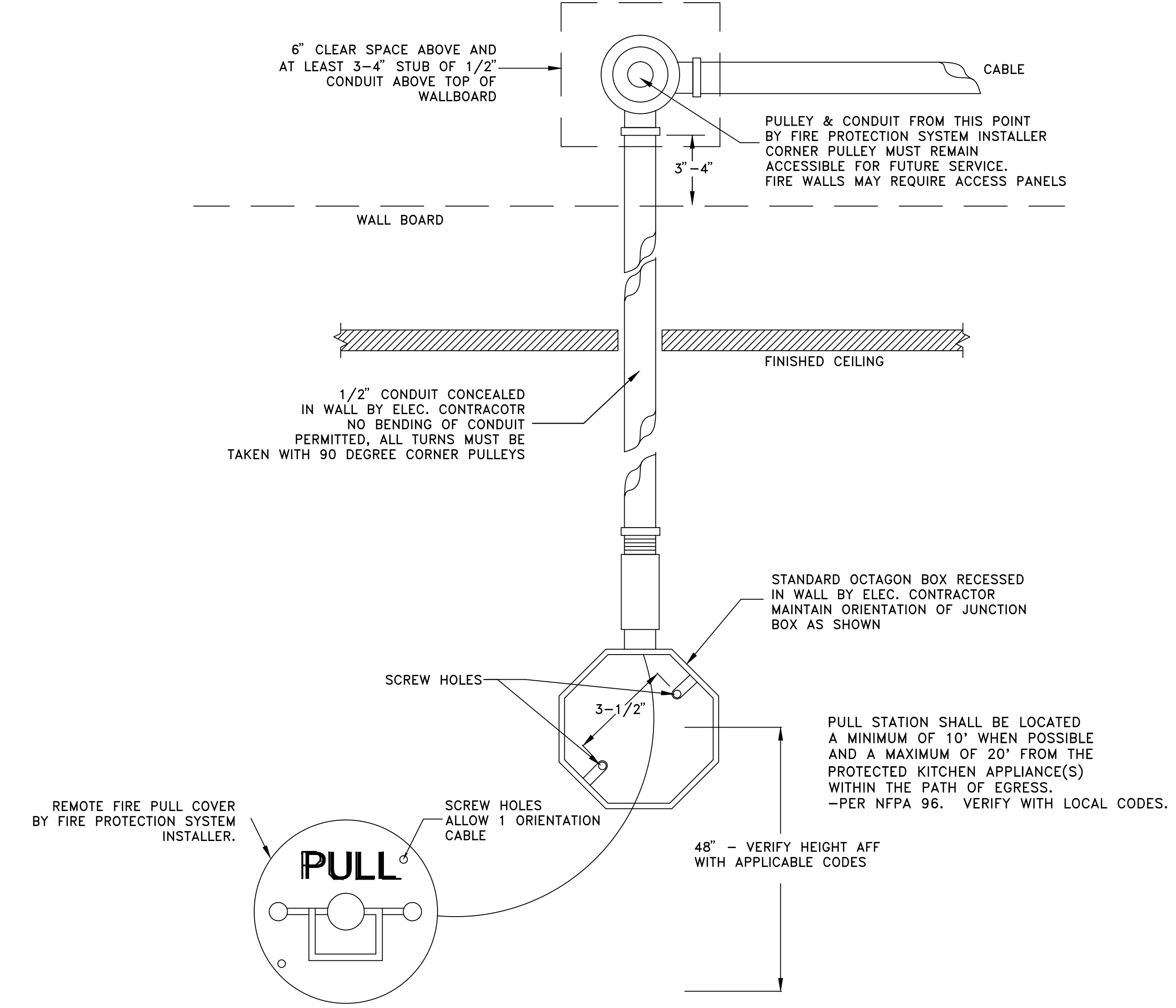
WILLIAM H. SHEPARDSON  
 E-68800  
 REGISTERED PROFESSIONAL ENGINEER

SHEET TITLE  
**ANSUL SYSTEM**

SHEET NUMBER  
**MH2.0**



**TYPICAL ANSUL R102 SYSTEM LAYOUT**  
 NOTE: FIRE SYSTEM TO INCLUDE ALL NECESSARY PERMITS, FIELD HOOKUP, AND FINAL TEST.  
 NOTE: FIRE SYSTEM ENCLOSURE WILL BE FACTORY-MOUNTED ON RIGHT SIDE OF THE LEFT HOOD



**RECESSED REMOTE FIRE PROTECTION PULL STATION DETAIL**

BOX AND CONDUIT INSTALLED & SECURED BY ELECTRICAL TRADE  
 FIRE SYSTEM INSTALLATION TO BE BY AUTHORIZED ANSUL DISTRIBUTOR

MUNICIPAL APPROVAL STAMPS

ARCHITECT OF RECORD  
**mossArchitects**  
 5122 Penn Avenue  
 Pittsburgh, PA 15224  
 412.441.6400 ph  
 412.441.0723 fx  
 www.mossarc.com

CONSULTANT  
**WHS ENGINEERING**  
 2012 WEST 25TH STREET, SUITE 200  
 CLEVELAND, OH 44113-4143  
 PHONE: 216-227-8505  
 FAX: 216-227-8570  
 www.whs-eng.com

**BROOKLYN, OH - RIDGE PARK**  
**RIDGE PARK SQUARE**  
**4824 RIDGE ROAD**  
**BROOKLYN, OH 44144**

XXXXX PROJECT NUMBER:

These drawings and specifications contain material owned or licensed by Five Guys and shall not be copied or reproduced without written authorization.

| ISSUE DATE |        |         |
|------------|--------|---------|
| REV        | ISSUE  | DATE    |
|            | PERMIT | 8-03-21 |
|            |        |         |
|            |        |         |
|            |        |         |
|            |        |         |

SEAL

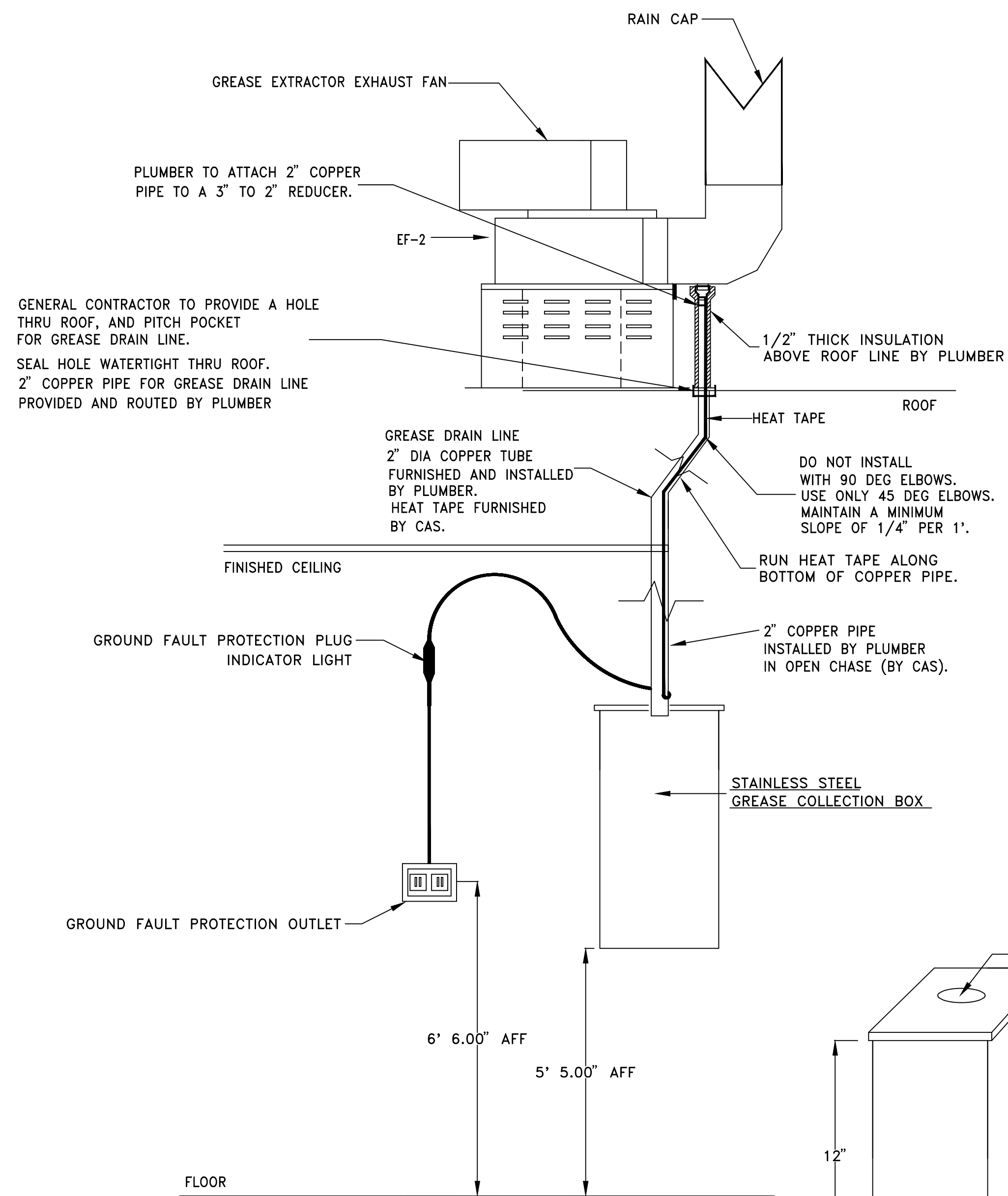
WILLIAM H. SHEPARDSON  
 E-68800  
 REGISTERED PROFESSIONAL ENGINEER

SHEET TITLE  
**ANSUL SYSTEM**

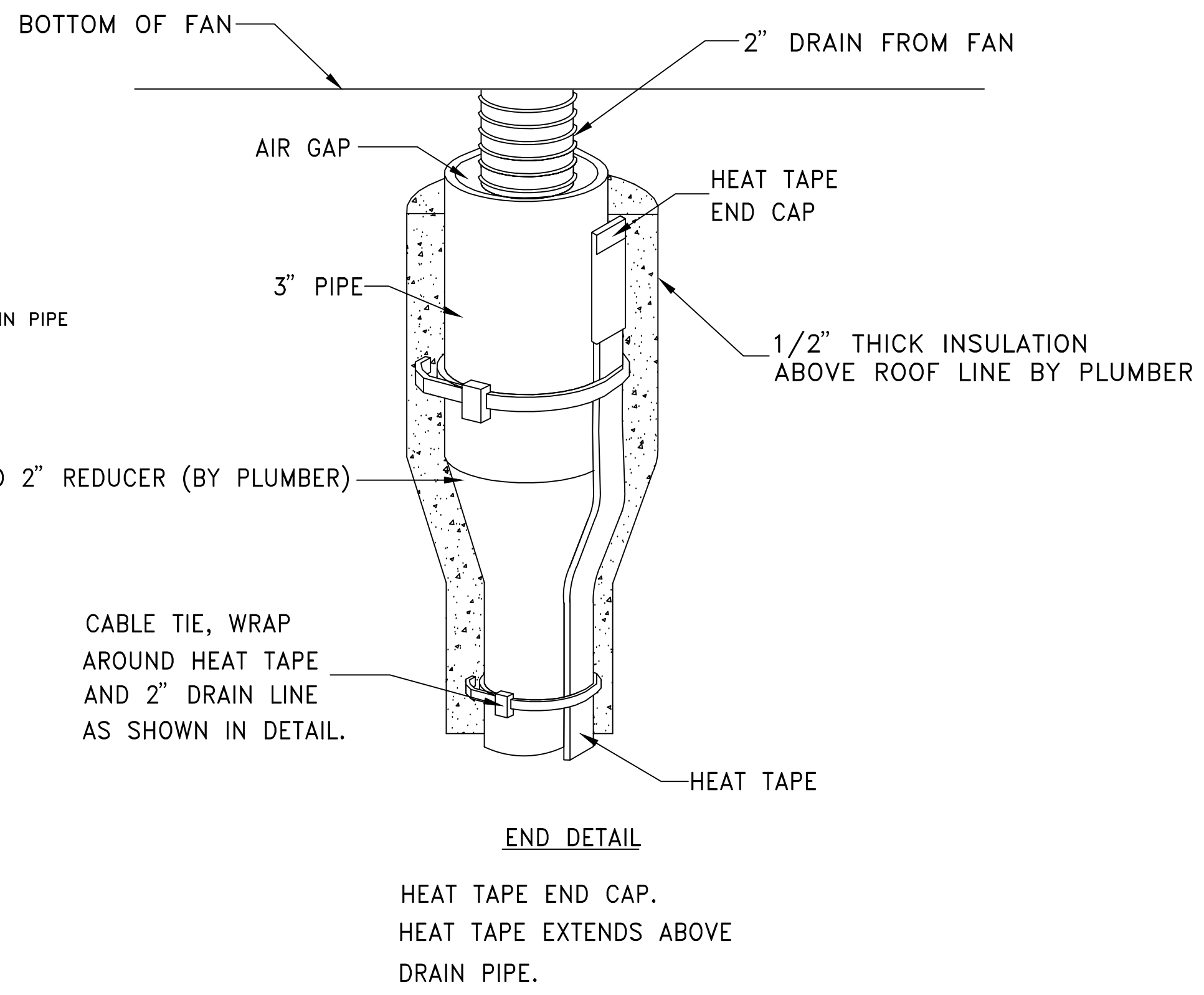
SHEET NUMBER  
**MH2.0**



# DRAIN LINE HEATER INSTALLATION DETAIL



|     | INSTALLATION PROCEDURE:   | TRADE RESPONSIBLE     |
|-----|---|-----------------------|
| 1.  | THE HEAT TAPE ASSEMBLY IS SHIPPED LOOSE FROM THE EXHAUST FAN.   | CAS                   |
| 2.  | THE GENERAL CONTRACTOR IS TO PROVIDE HOLE IN ROOF AND SEAL THE HOLE (SEE DIAGRAM).  | GENERAL CONTRACTOR    |
| 3.  | INSTALL THE COPPER GREASE LINE DRAIN PIPE, SUPPLIED BY THE PLUMBER.   | PLUMBER / ELECTRICIAN |
| 4.  | REMOVE (AND SAVE) THE END CAP AND GROUND FAULT PLUG. (GIVE PARTS TO ELECTRICIAN)  | PLUMBER               |
| 5.  | ROUTE THE HEAT TAPE ON THE OUTSIDE OF THE COPPER TUBE.  | PLUMBER               |
| 6.  | SECURE HEAT TAPE AND END CAP TO DRAIN USING CABLE TIE AS SHOWN IN END DETAIL.   | PLUMBER               |
| 7.  | INSULATE COPPER DRAIN LINE ABOVE THE ROOF LINE.   | PLUMBER               |
| 8.  | THE ELECTRICIAN IS TO SUPPLY GROUND FAULT PROTECTION OUTLET LOCATED NEAR GREASE COLLECTION BOX (15 AMP, 120 VOLT CIRCUIT) THE POWER SOURCE SHOULD BE A SEPERATE CIRCUIT. THE HEAT TAPE IS TO BE PROTECTED BY G.F.C.I. CIRCUIT BREAKER. THE HEAT TAPE STAYS ON ALL THE TIME, AND IS NOT CONTROLLED BY THE FAN ON-OFF SWITCH. | ELECTRICIAN           |
| 9.  | PLUMBER TO MOUNT GREASE COLLECTION BOX ON THE WALL IN PREP AREA. GREASE COLLECTION BOX PROVIDED BY CAS.   | PLUMBER               |
| 10. | ELECTRICIAN TO MAKE FINAL CONNECTION BETWEEN GROUND FAULT PLUG AND HEAT TAPE. GROUND FAULT PLUG PROVIDED BY CAS.  | ELECTRICIAN           |
| 11. | ELECTRICIAN TO MAKE FINAL CONNECTION BETWEEN END CAP AND HEAT TAPE (ON ROOF). END CAP PROVIDED BY CAS.  | ELECTRICIAN           |



**IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE IF THE GREASE DRAIN SYSTEM IS ACCEPTABLE TO LOCAL CODE AUTHORITIES**

| REVISIONS   |      |
|-------------|------|
| DESCRIPTION | DATE |
|             |      |
|             |      |
|             |      |

**CAPTIVE**

Maryland Office  
 2221 Kansas Ave, Silver Spring, MD, 20910 PHONE: (800) 988-0881 FAX: (919) 227-5831 EMAIL: mg52@captivewire.com

Five Guys - Brooklyn, OH  
 4824 Ridge Rd,  
 Brooklyn, OH, 44144

DATE: 7/22/2021  
 DWG.#: 5001230  
 DRAWN BY: AD-32  
 SCALE: NTS  
 MASTER DRAWING

SHEET NO. 4

MUNICIPAL APPROVAL STAMPS

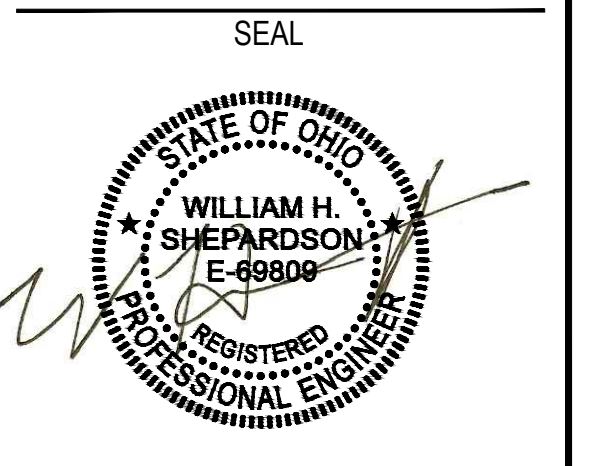
ARCHITECT OF RECORD  
**mossArchitects**  
 5122 Penn Avenue  
 Pittsburgh, PA 15224  
 412.441.6400 ph  
 412.441.0723 fx  
 www.mossarc.com

CONSULTANT  
**WHS ENGINEERING**  
 2012 WEST 25TH STREET, SUITE 200  
 CLEVELAND, OH 44113-4143  
 PHONE: 216-227-8505  
 FAX: 216-227-8570  
 www.whs-eng.com

**BROOKLYN, OH - RIDGE PARK**  
**RIDGE PARK SQUARE**  
**4824 RIDGE ROAD**  
**BROOKLYN, OH 44144**  
 XXXXX PROJECT NUMBER:

These drawings and specifications contain material owned or licensed by Five Guys and shall not be copied or reproduced without written authorization.

| ISSUE DATE |        |         |
|------------|--------|---------|
| REV        | ISSUE  | DATE    |
|            | PERMIT | 8-03-21 |
|            |        |         |
|            |        |         |
|            |        |         |
|            |        |         |

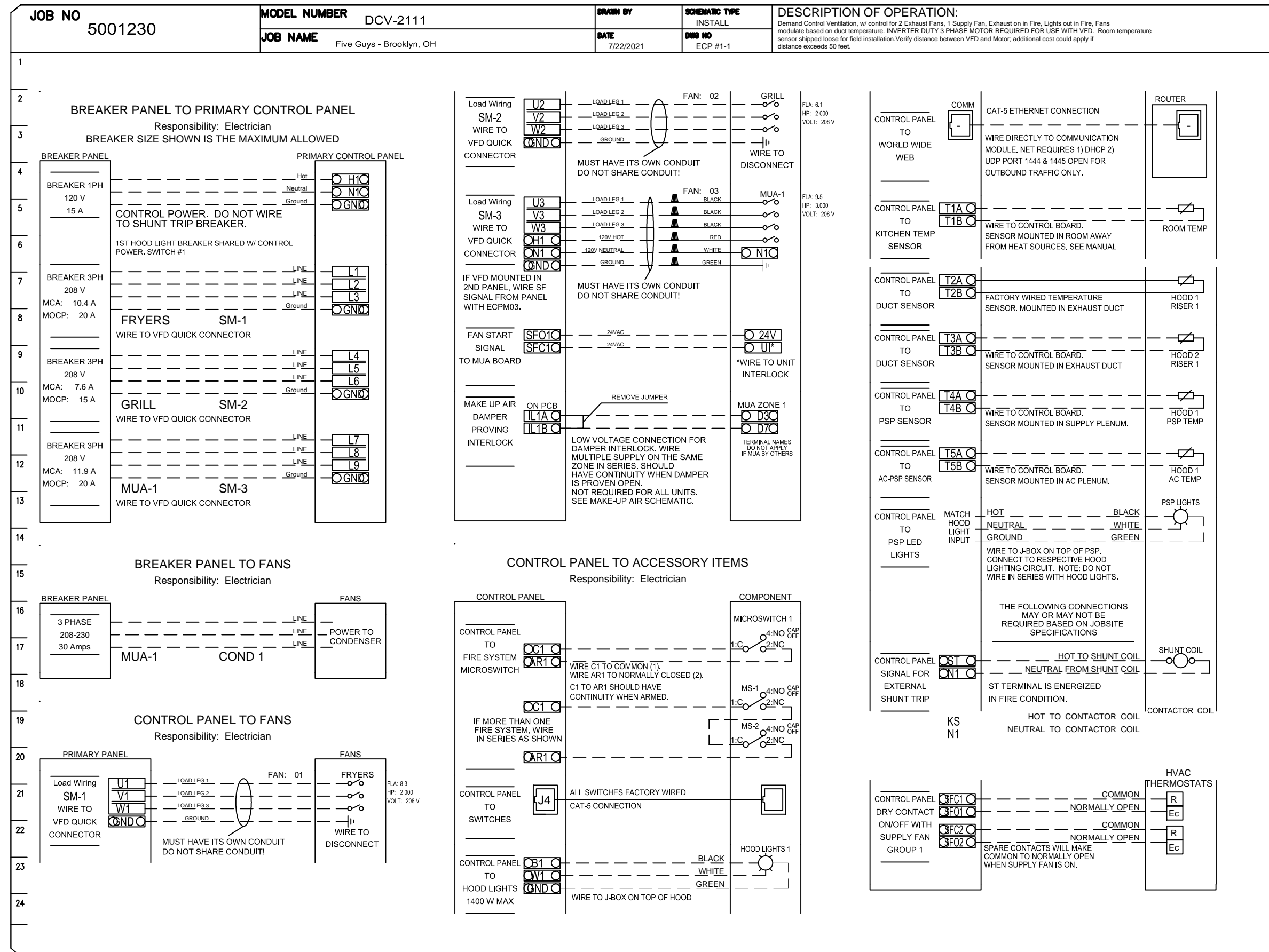


SHEET TITLE  
**DRAIN LINE SYSTEM**

SHEET NUMBER  
**MH4.0**

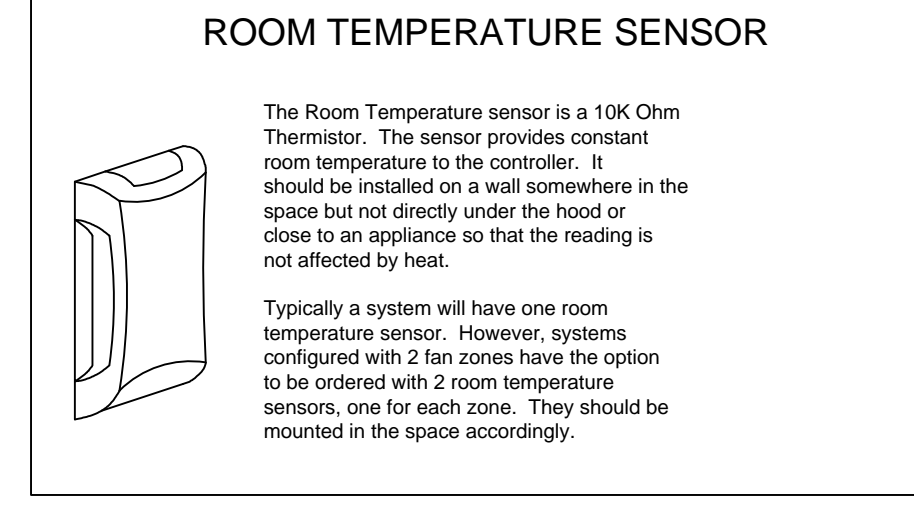
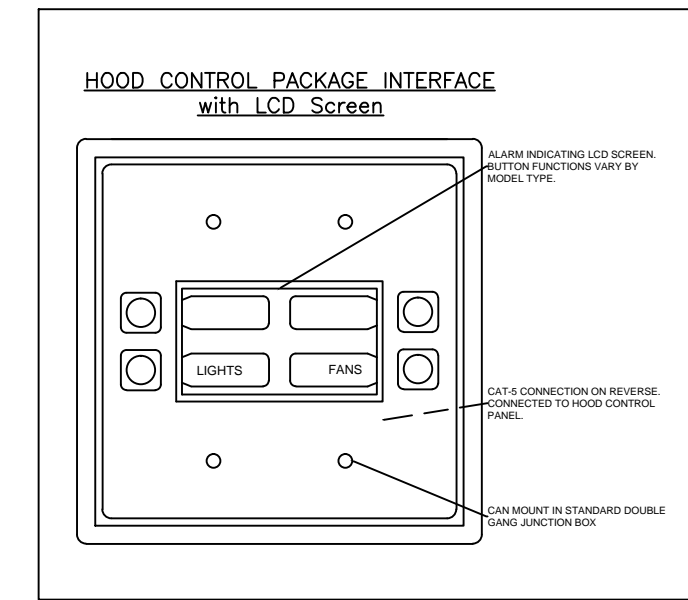
**ELECTRICAL PACKAGE -- JOB#5001230**

| NO | TAG | PACKAGE # | LOCATION             | SWITCHES                  |          | OPTION             | FANS CONTROLLED |         |   |       |       |     |
|----|-----|-----------|----------------------|---------------------------|----------|--------------------|-----------------|---------|---|-------|-------|-----|
|    |     |           |                      | LOCATION                  | QUANTITY |                    | FAN TAG         | TYPE    | # | HP    | VOLTS | FLA |
| 1  |     | DCV-2111  | UTILITY CABINET LEFT | 03 - UTILITY CABINET LEFT | 1 LIGHT  | SMART CONTROLS DCV | FRYERS          | EXHAUST | 3 | 2.000 | 208   | 8.3 |
|    |     |           |                      | HOOD # 1                  | 1 FAN    |                    | GRILL           | EXHAUST | 3 | 2.000 | 208   | 6.1 |
|    |     |           |                      |                           |          |                    | MUA-1           | SUPPLY  | 3 | 3.000 | 208   | 9.5 |



**SEQUENCE OF OPERATION -- APPLIANCE INTERLOCK**

- IN AUTO POSITION, FANS WILL TURN ON WHEN TEMPERATURE IS ABOVE 85 DEGREES AND WILL SHUT DOWN WHEN TEMPERATURE COOLS BELOW 85 DEGREES.
- IN ON POSITION, FANS WILL REMAIN ON CONSTANTLY
- IN FIRE CONDITION, EXHAUST WILL TURN ON OR REMAIN ON. MAKEUP AIR WILL SHUT DOWN AUTOMATICALLY.



**SCOPE OF WORK**

HOOD(S): PROVIDED BY OWNER. INSTALLED BY GC.

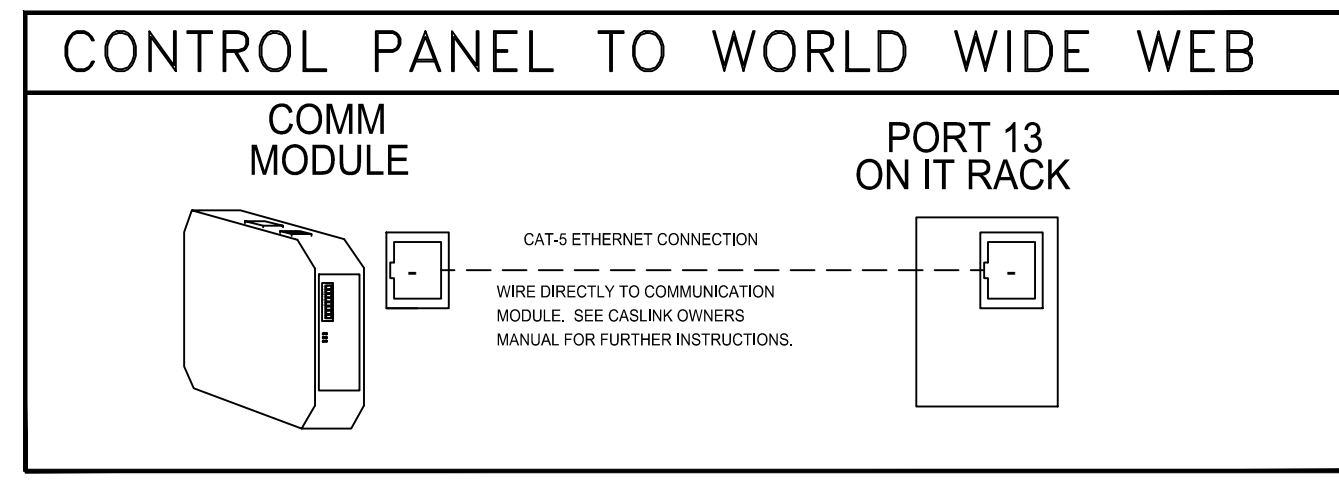
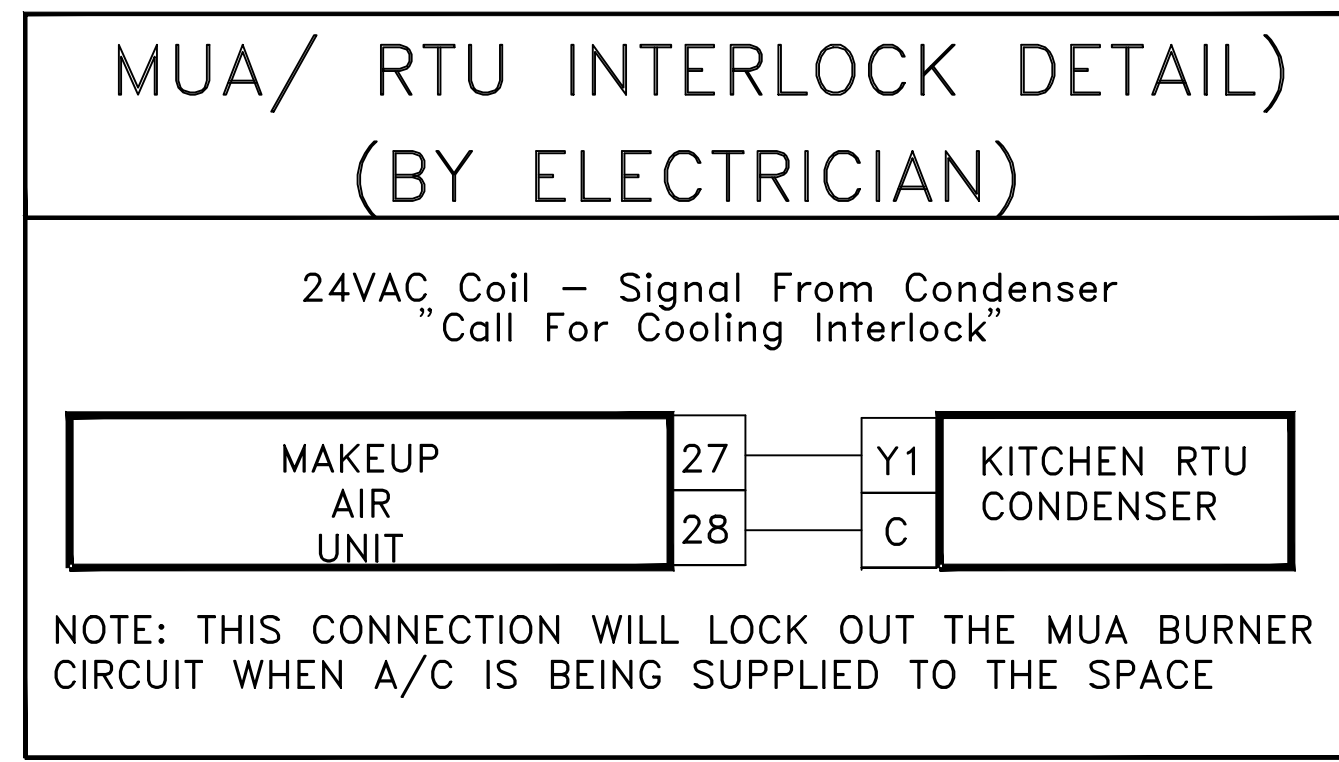
FIRE SYSTEM(S): PROVIDED & INSTALLED BY OWNER.

EXHAUST FAN(S): PROVIDED BY OWNER. INSTALLED BY GC.

MAKEUP AIR UNIT(S): PROVIDED BY OWNER. INSTALLED BY GC.

ELECTRICAL CONTROL(S): PROVIDED BY OWNER. INSTALLED BY GC.

GC IS RESPONSIBLE FOR COMPLETE START-UP OF EXHAUST FANS AND MAKEUP AIR UNIT PER CAPTIVEAIRE OPERATION & INSTALLATION MANUAL



**REVISIONS**

| DESCRIPTION | DATE |
|-------------|------|
|             |      |
|             |      |
|             |      |
|             |      |

**CAPTIVEAIRE**

Maryland Office  
2221 Kansas Ave, Silver Spring, MD, 20910 PHONE: (800) 988-0881 FAX: (301) 227-5831 EMAIL: rgs2@captiveaire.com

Five Guys - Brooklyn, OH  
4824 Ridge Rd,  
Brooklyn, OH, 44144

**DATE:** 7/22/2021  
**DWG.#:** 5001230  
**DRAWN BY:** AD-32  
**SCALE:** NTS  
**MASTER DRAWING**

**SHEET NO.**  
5

MUNICIPAL APPROVAL STAMPS

ARCHITECT OF RECORD  
**mossArchitects**  
5122 Penn Avenue  
Pittsburgh, PA 15224  
412.441.6400 ph  
412.441.0723 fx  
www.mossarc.com

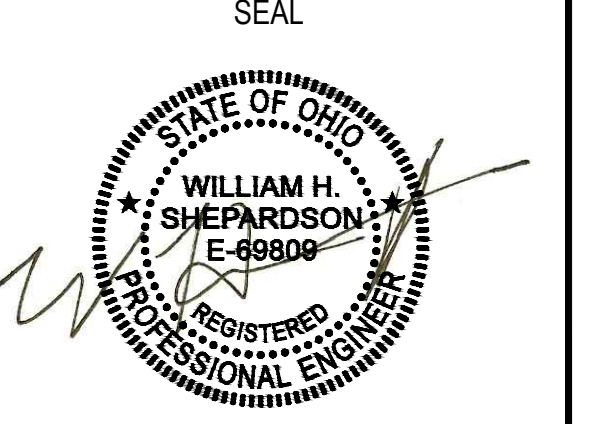
CONSULTANT  
**WHS ENGINEERING**  
2012 WEST 25TH STREET, SUITE 200  
CLEVELAND, OH 44113-4143  
PHONE: 216-227-8505  
FAX: 216-227-8570  
www.whs-eng.com

**BROOKLYN, OH - RIDGE PARK**  
RIDGE PARK SQUARE  
4824 RIDGE ROAD  
BROOKLYN, OH 44144  
XXXXX PROJECT NUMBER:

These drawings and specifications contain material owned or licensed by Five Guys and shall not be copied or reproduced without written authorization.

**ISSUE DATE**

| REV | ISSUE  | DATE    |
|-----|--------|---------|
|     | PERMIT | 8-03-21 |
|     |        |         |
|     |        |         |
|     |        |         |
|     |        |         |



SHEET TITLE  
**WIRING DIAGRAM**

SHEET NUMBER  
**MH5.0**