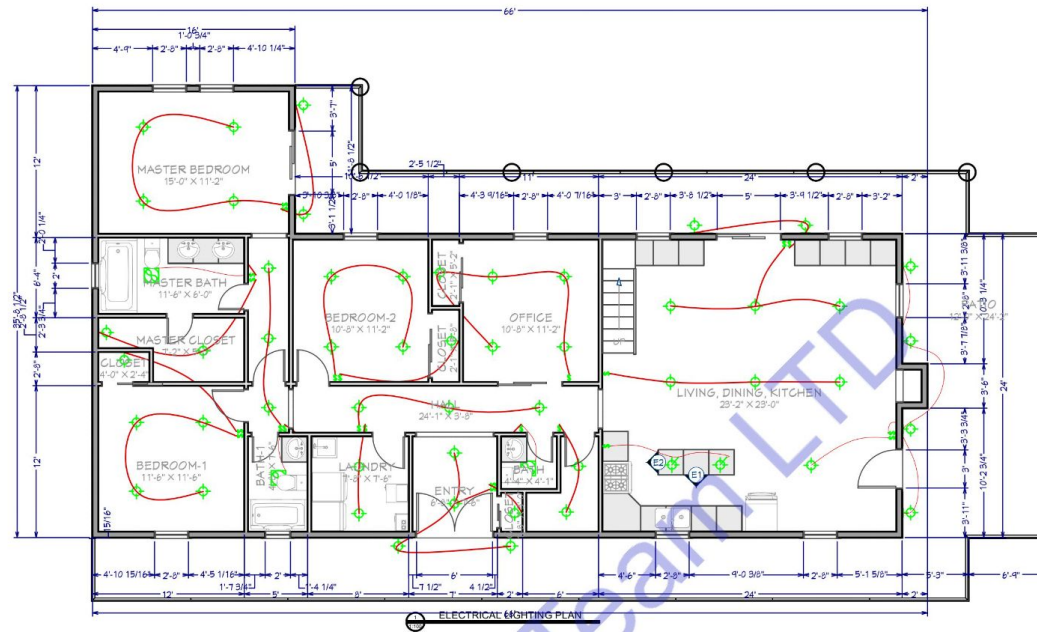




| ELECTRICAL LEGEND |                             |
|-------------------|-----------------------------|
|                   | 20W CEILING MOUNT LED LIGHT |
|                   | 20W HANGING LED LIGHT       |
|                   | SMOKE DETECTOR              |
|                   | 40W LED TUBE LIGHT 4'x4'    |
|                   | 40W LED LIGHT 4'x4'         |
|                   | ONE WAY SWITCH 220V         |
|                   | MULTI SOCKET OUTLET 220V    |
|                   | 10W WALL MOUNTED LED LIGHT  |
|                   | 60W CEILING FAN 220V        |
|                   | SUB DISTRIBUTION BOARD      |
|                   | MAIN DISTRIBUTION BOARD     |
|                   | 40W BATHROOM EXHAUST FAN    |
|                   | CALLING BELL                |



## ENGINEER'S TEAM

430 E 8TH ST STE 8017  
HOLLAND MI 49423

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SUPPORT@ENGRTEAM.COM

### OWNER:

8090 County Road 293 Hico  
Texas, 76457

### SEAL:

Release for construction

### ELECTRICAL LAYOUT PLAN

Drawn by: Engr. Al Amin

Checked:

Date: NOV, 24.

E. 1

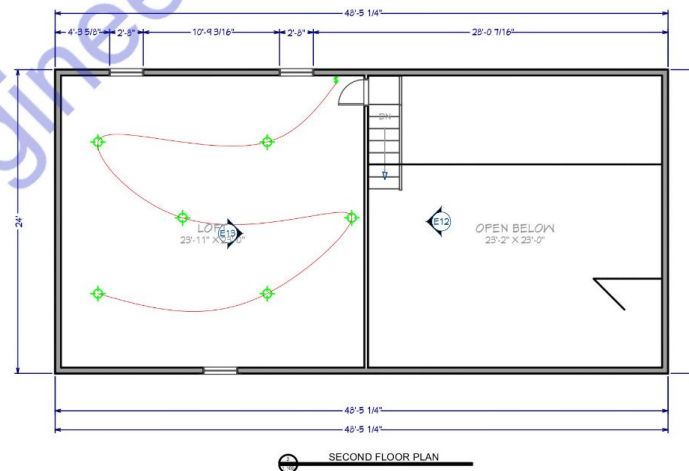
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### Note:

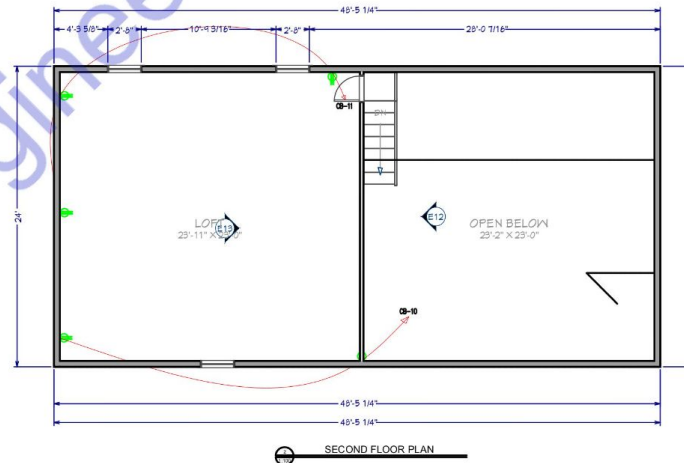
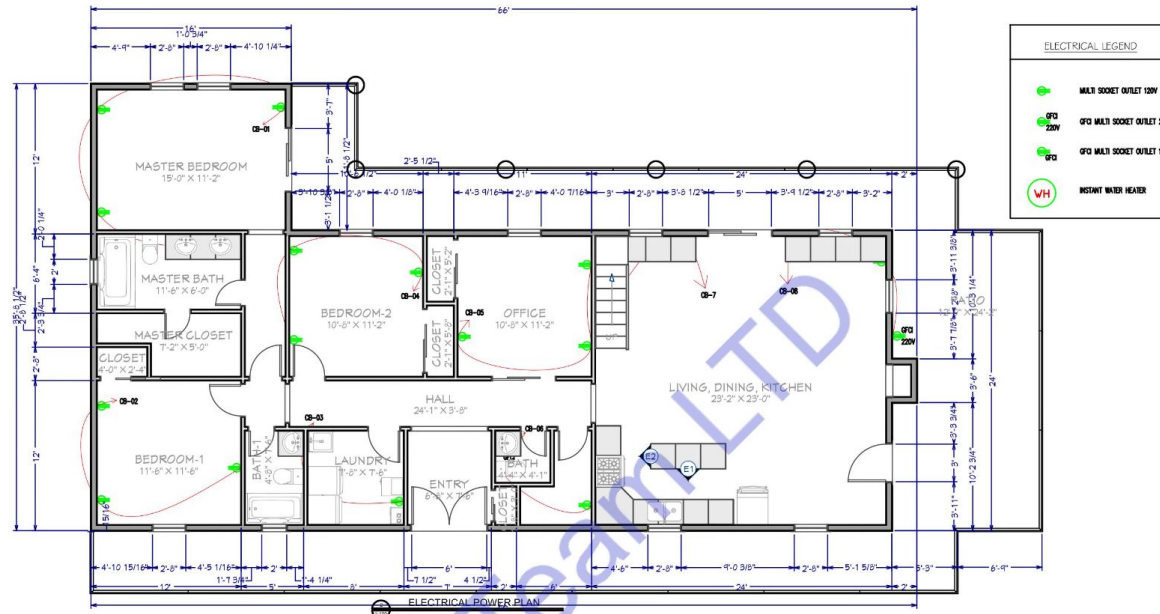
This Electrical Plan for the property located at 8090 County Road 293, Hico, Texas, 76457, adheres to the most current Texas state and local codes, ensuring both safety and compliance. The following standards were applied:

1. National Electrical Code (NEC) 2023: This electrical plan complies with NEC 2023, as adopted by the State of Texas, which governs electrical system safety standards and installations for residential and commercial buildings.
2. Texas Administrative Code - Title 16, Chapter 73: All licensing and installation requirements meet the Texas Department of Licensing and Regulations (TDLR) standards for electricians and electrical systems in accordance with the Texas Electrical Safety and Licensing Act.
3. Local Hico Amendments and Regulations: Additional local ordinances and any specific amendments or requirements for Erath County, where applicable, have been incorporated into the design to ensure full compliance with the regional standards.

These codes ensure that the design and implementation of electrical systems maintain the highest safety and operational standards, meeting Texas's regulatory and safety requirements.



SECOND FLOOR PLAN



**Note:**

This Electrical Plan for the property located at 8090 County Road 293, Hico, Texas, 76457, adheres to the most current Texas state and local codes, ensuring both safety and compliance. The following standards were applied:

- National Electrical Code (NEC) 2023: This electrical plan complies with NEC 2023, as adopted by the State of Texas, which governs electrical system safety standards and installations for residential and commercial buildings.
- Texas Administrative Code - Title 16, Chapter 73: All licensing and installation requirements meet the Texas Department of Licensing and Regulation's (TDLR) standards for electricians and electrical systems in accordance with the Texas Electrical Safety and Licensing Act.
- Local Hico Amendments and Regulations: Additional local ordinances and any specific amendments or requirements for Erath County, where applicable, have been incorporated into the design to ensure full compliance with the regional standards.

These codes ensure that the design and implementation of electrical systems maintain the highest safety and operational standards, meeting Texas's regulatory and safety requirements.

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Texas, 76457

### SEAL:

Release for construction

### ELECTRICAL LAYOUT PLAN

Drawn by: Engr. Al Amin

Checked:

Date: NOV, 24.

E. 1

Scale: 1:100

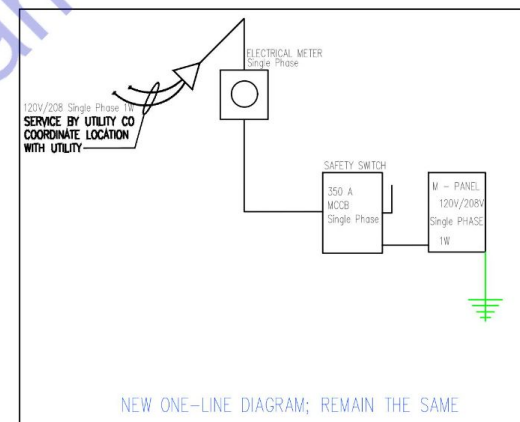
| 120/240 VOLT SINGLE PHASE 2 WIRE ELECTRICAL SERVICE |                 |           |                     |              |
|-----------------------------------------------------|-----------------|-----------|---------------------|--------------|
| ITEM                                                | CONN. LOAD (VA) | DEMAND F. | DEMAND LOAD (WATTS) | TOTAL (AMPS) |
| LIGHTING                                            | 1380            | 125%      | 1725                |              |
| WATER HEATERS                                       | 2000            | 100%      | 2000                |              |
| EQUIPMENT                                           | 5000            | 65%       | 3250                |              |
| HVAC LOADS                                          | 19343           | 100%      | 19343               |              |
| SUB-TOTAL                                           |                 |           | 26318               |              |
| LARGEST MOTOR                                       | 0               | 125%      | 0                   |              |
| TOTAL @ 120/208 V                                   | 27723           |           | 26318               | 220          |

 PANEL SCHEDULE & SERVICE CALCULATION

ELECTRICAL PANEL-MAIN

| LOAD SERVED                                      | CKT # | TYPE | BKR TRIP | WIRE SIZE | PHASE A | PHASE A      | BKR TRIP | WIRE SIZE | TYPE  | CKT # | LOAD SERVED   |
|--------------------------------------------------|-------|------|----------|-----------|---------|--------------|----------|-----------|-------|-------|---------------|
| HVAC-5.5 TONS                                    | 1     |      | 170      | #3/0      | 19343   | 1380         | 15       | #14       |       | 2     | LIGHTING LOAD |
| CB-5                                             | 3     |      | 20       | #12       | 500     | 2000         | 20       | #12       |       | 4     | WATER HEATER  |
| CB-6                                             | 5     |      | 20       | #12       | 1000    | 500          | 20       | #12       |       | 6     | CB-1          |
| CB-7                                             | 7     |      | 20       | #12       | 500     | 500          | 20       | #12       |       | 8     | CB-2          |
| CB-8                                             | 9     |      | 20       | #12       | 500     | 4000         | 40       | #8        |       | 10    | CB-3          |
| CB-9                                             | 11    |      | 20       | #12       | 500     | 500          | 20       | #12       |       | 12    | CB-4          |
| CB-11                                            | 13    |      | 20       | #12       | 500     | 500          | 20       | #12       |       | 14    | CB-10         |
| TOTAL VA PHASE A                                 |       |      |          |           |         | 22843        | 9160     |           | 32003 |       |               |
| TOTAL VOLT-AMPS                                  |       |      |          |           |         |              |          |           | 32000 |       |               |
| DIVIDE TOTAL VOLT-AMPS BY SYSTEM VOLTAGE (PHASE) |       |      |          |           |         | 120          | AMPS     |           | 267   |       |               |
| TOTAL CONNECTED LOAD (AMPS) @ 125%               |       |      |          |           |         | 334          |          |           |       |       |               |
| MAIN TYPE AND AMPERE RATING                      |       |      |          |           |         | 350 AMP MCCB |          |           |       |       |               |
| PANEL FEEDER SIZE - SEE RISER DIAGRAM            |       |      |          |           |         |              |          |           |       |       |               |

| Material                             |      |
|--------------------------------------|------|
| Name                                 | Watt |
| CEILING MOUNT ROUND LED LIGHT        | 20W  |
| WALL MOUNT LED LIGHT                 | 10W  |
| CEILING MOUNT 2"X2" SQUARE LED LIGHT | 40W  |
| HANGING LIGHT                        | 20W  |



 SINGLE LINE DIAGRAM



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### SEAL:

Release for construction

### ELECTRICAL LOAD SCHEDULE PLAN

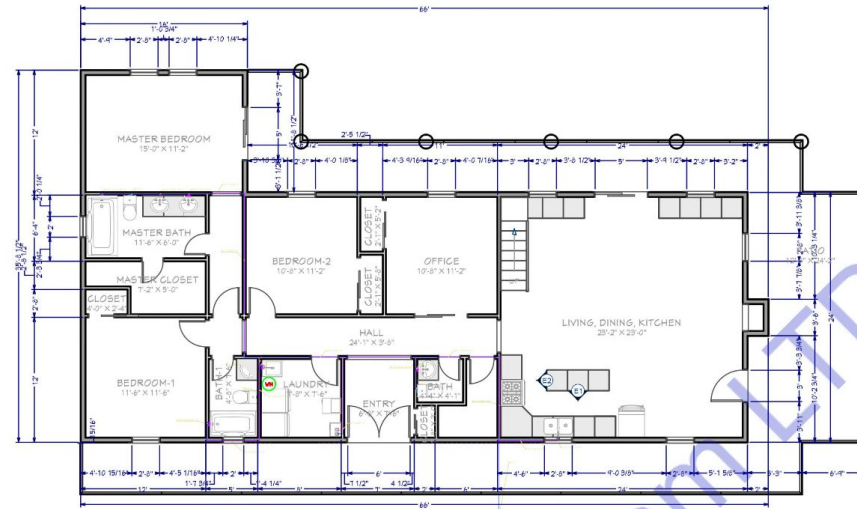
Drawn by: Engr. Al Amin

Checked:

Date: NOV. 24.

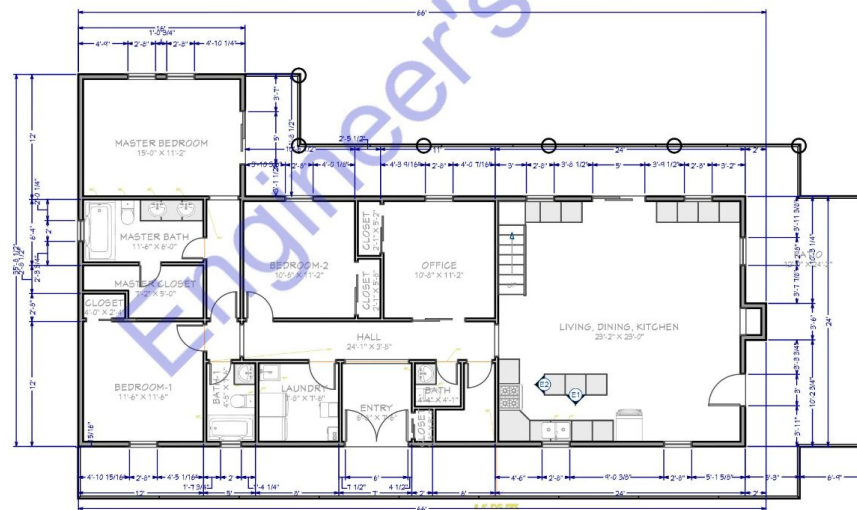
E. 2

Scale: 1:100



FIRST FLOOR PLUMBING WATER SUPPLY PLAN

| PLUMBING LEGEND   |                       |  |
|-------------------|-----------------------|--|
|                   | BALL VALVE (BV)       |  |
|                   | GATE VALVE (GV)       |  |
|                   | MIXING VALVE (MV)     |  |
|                   | FLOOR CLEAN OUT (FCO) |  |
|                   | FLOOR DRAIN (FD)      |  |
|                   | HUB DRAIN (HD)        |  |
|                   | FLOOR SINK (FS)       |  |
|                   | PIPE TURNING UP       |  |
|                   | PIPE TURNING DOWN     |  |
|                   | EXISTING PIPE         |  |
|                   | NEW PIPE              |  |
| LINES TYPE LEGEND |                       |  |
|                   | COLD WATER LINE (CW)  |  |
|                   | HOT WATER LINE (HW)   |  |
|                   | SEWER LINE (SD)       |  |
|                   | GAS LINE (GD)         |  |



FIRST FLOOR PLUMBING SEWERAGE PLAN

| SEWERAGE LEGEND |                                      |
|-----------------|--------------------------------------|
|                 | WASTE WATER/ SEWER LINE (UPVC PIPE)  |
|                 | TOILET WASTE/ SEWER LINE (UPVC PIPE) |

**Note:**  
**Plumbing Plan Compliance Statement**  
 1. This plumbing plan for 8090 County Road 293, Hico, Texas, has been designed and developed in strict adherence to the 2021 International Plumbing Code (IPC), adopted by the Texas Department of Licensing and Regulation, which establishes standards for safe plumbing systems and ensures public health, water efficiency, and sustainability.  
 2. This plan complies with updated provisions, such as requirements for backflow prevention, high-efficiency showerheads with a maximum flow rate of 2.0 gallons per minute, and specific guidelines for drain waste and vent systems to enhance system functionality and reliability.  
 3. Additionally, the plan incorporates the Texas Plumbing License Law requirements and relevant accessibility standards as outlined by the ICC A117.1 standard, providing measures for universal access and maintaining plumbing infrastructure integrity as per state and federal guidelines.  
 This comprehensive compliance approach ensures the plan meets all necessary standards, supporting effective plumbing system performance and regulatory approval.



# ENGINEER'S TEAM

430 E 8TH ST STE 8017  
 HOLLAND MI 49423

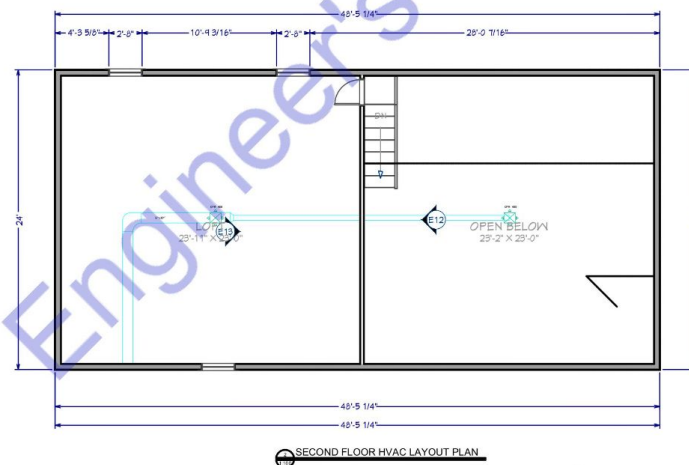
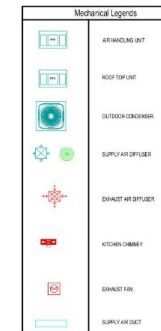
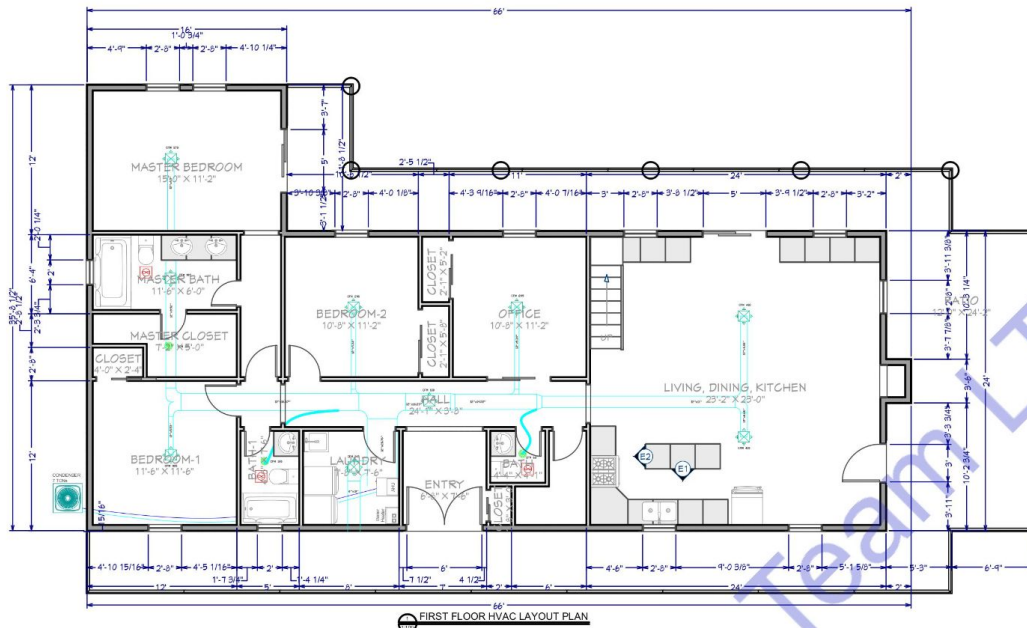
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 SUPPORT@ENGRTEAM.COM

**OWNER:**  
 8090 County Road 293 Hico  
 Texas, 76457

**SEAL:**

Release for construction

**PLUMBING PLAN**  
 Drawn by: Engr. Al Amin  
 Checked:  
 Date: NOV. 24.  
 P. 1  
 Scale: 1:100



#### Note:

This HVAC plan has been designed to fully comply with the updated codes and regulations for the location specified, ensuring safe and efficient system operation. The following codes and standards have been applied:

1. International Mechanical Code (IMC) - 2018 Edition Compliance with the IMC is required under Texas state guidelines, addressing ventilation, ductwork, exhaust, and mechanical system requirements essential for health and safety.
2. International Fuel Gas Code (IFGC) - 2018 Edition This code regulates gas piping installations, including the supply of fuel for HVAC systems, ensuring safe handling and containment within the design.
3. International Energy Conservation Code (IECC) - 2018 Edition The plan incorporates the IECC standards for energy efficiency, which guide the insulation, ventilation, and mechanical system controls to optimize energy use in heating, cooling, and ventilation operations.
4. Uniform Mechanical Code (UMC) - 2018 Edition As per Texas Administrative Code, Title 16, Rule 875.100, either the IMC or UMC may be adopted; for this project, UMC requirements were considered to further align with HVAC best practices.
5. Each aspect of the HVAC system design adheres to the above codes, reflecting a commitment to quality, safety, and compliance with Texas Department of Licensing and Regulation (TDLR) standards.

This document ensures that the HVAC plan meets local and state regulatory requirements, offering a foundation for safe installation and operation.

#### EXHAUST FAN SCHEDULE

| MARK | SERVING  | CFM  | SP | WATTS | RPM  | VOLTAGE  | MAKE MODEL            | NOTES | FAN TYPE |
|------|----------|------|----|-------|------|----------|-----------------------|-------|----------|
| EF-1 | BATHROOM | 50   | -  | 50    | 460  | 120/60/1 | Brown/Tone 688        |       | IN-LINE  |
| EF-2 | KITCHEN  | 1600 | -  | 78    | 1291 | 115/60/1 | HODDGMART 280-1600-FF |       | IN-LINE  |

NOTES:  
1. COMPLETE V/BACKDRAFT DAMPER.  
2. PROVIDE THERMOSTATIC CONTROL DEVICES.  
3. INTERLOCK TO OPERATE WHENEVER RTU'S OPERATE.  
4. MAINTAIN A MINIMUM CLEARANCE OF 36"-0" FROM ALL INTAKE AIR FANS AND ALL ROOF TOP UNITS OUTSIDE AIR INTAKE OPENINGS.



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#### SEAL:

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#### HVAC LAYOUT PLAN

Drawn by: Engr. Al Amin

Checked:  
Date: NOV, 24.

H. 1

Scale: 1:100



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## HVAC LAYOUT PLAN

Drawn by: Engr. Al Amin

Checked:

Date: NOV, 24.

H. 2

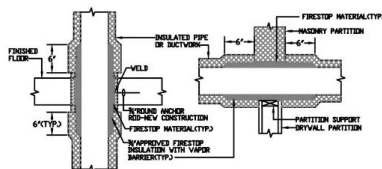
Scale: 1:100



CEILING FAN DETAIL

NOT TO SCALE

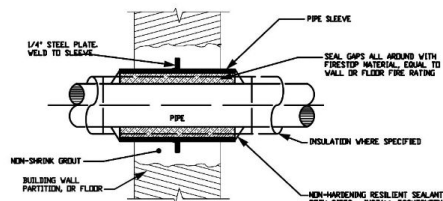
CEILING RADIATION DAMPERS SHALL BE INSTALLED IN ACCORDANCE WITH UL 555C



PENETRATION OF FIRE/SMOKE BARRIERS

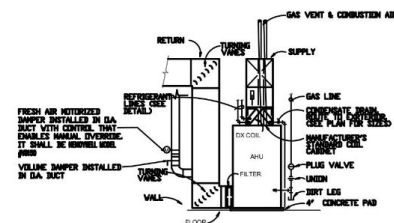
NOT TO SCALE

APPLY SEALANT TO PENETRATIONS OF ALL FIRE RATED MEMBRANES, IN ACCORDANCE WITH 2024 IRC 714, REFER UL LISTED FIRE STOPPING SYSTEMS UL-1479, UL-2043



INTERIOR MASONRY WALL AND FLOOR PENETRATION

NOT TO SCALE



GAS-FIRED AIR HANDLING UNIT DETAIL

N.T.S.

LOW VELOCITY ELBOWS

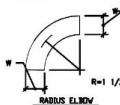
NOT TO SCALE

LOW VELOCITY TRANSITIONS

NOT TO SCALE

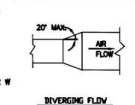
LOW VELOCITY OFFSETS

NOT TO SCALE



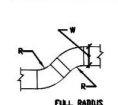
RADIUS ELBOW

NOT TO SCALE



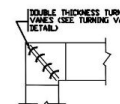
DIVERGING FLOW

NOT TO SCALE



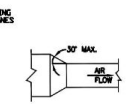
CONTRACTION FLOW

NOT TO SCALE



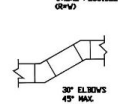
RECTANGULAR ELBOW

NOT TO SCALE



CONTRACTION FLOW

NOT TO SCALE

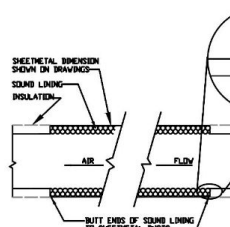


CONTRACTION FLOW

NOT TO SCALE

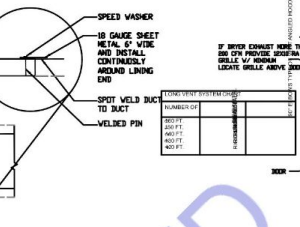
LOW VELOCITY TRANSITIONS, OFFSETS AND ELBOWS

NOT TO SCALE



TYPICAL SOUND LINING DETAIL

NOT TO SCALE



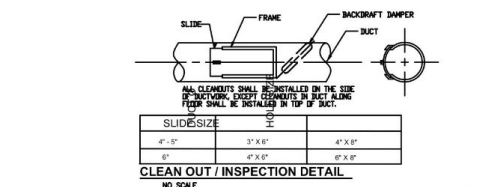
DRYER DETAIL

NOT TO SCALE

RESIDENTIAL GRILLES & REGISTERS SCHEDULE

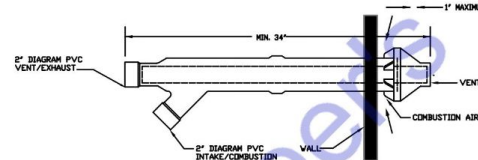
| DESIGN | TYPE (REFER TO DETAILS) | SERVICE | AIR FLOW RANGE (CFM) | NOMINAL SIZE/ DESCRIPTION (INCH) | DUET/ REG. SIZE (IN) | BASIS OF DESIGN/REMARKS |
|--------|-------------------------|---------|----------------------|----------------------------------|----------------------|-------------------------|
| A      | REGISTER                | SA      | 0-50                 | 6x6                              | 4"                   | 300RL, BORDER TYPE A    |
| B      | REGISTER                | SA      | 51-100               | 6x6 OR 10x4                      | 4"                   | 300RL, BORDER TYPE A    |
| C      | REGISTER                | SA      | 101-150              | 10x8                             | 7"                   | 300RL, BORDER TYPE A    |
| D      | REGISTER                | SA      | 151-200              | 12x8                             | 8"                   | 300RL, BORDER TYPE A    |
| E      | REGISTER                | SA      | 201-250              | 14x8                             | 8"                   | 300RL, BORDER TYPE A    |
| F      | RD                      | SA/EA   | 0-100                | 6x6                              | 6x6                  | 300RL, BORDER TYPE A    |
| G      | RD                      | SA/EA   | 101-200              | 8x8                              | 8x8                  | 300RL, BORDER TYPE A    |
| H      | RD                      | SA/EA   | 201-300              | 10x10                            | 10x10                | 300RL, BORDER TYPE A    |
| I      | RD                      | SA/EA   | 301-400              | 12x12                            | 12x12                | 300RL, BORDER TYPE A    |
| J      | RD                      | SA/EA   | 401-500              | 14x14                            | 14x14                | 300RL, BORDER TYPE A    |
| K      | RD                      | SA/EA   | 501-600              | 16x16                            | 16x16                | 300RL, BORDER TYPE A    |
| L      | RD                      | SA/EA   | 601-1100             | 18x18                            | 18x18                | 300RL, BORDER TYPE A    |
| M      | RD                      | SA/EA   | 1101-1300            | 20x20                            | 20x20                | 300RL, BORDER TYPE A    |
| N      | RD                      | SA/EA   | 1301-1600            | 22x22                            | 22x22                | 300RL, BORDER TYPE A    |

- NOTES:
- REFER TO ARCHITECT DRAWINGS FOR TYPE OF CEILING.
  - MODEL NUMBERS IN "BASIS OF DESIGN" ARE TYPICAL.
  - PROVIDE HEAVY DUTY FRAME AND CORE WHERE MOUNTED IN FLOORS.
  - PROVIDE WITH FINE DAMPER FOR UL LISTED CEILING.
  - PROVIDE ROUND TO SQUARE ADAPTER BOOT.



CLEAN OUT / INSPECTION DETAIL

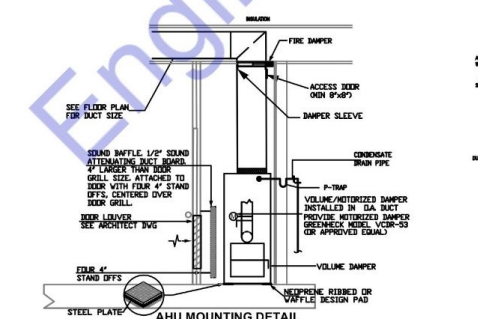
NOT TO SCALE



HORIZONTAL VENT TERMINAL/COMBUSTION AIR INLET

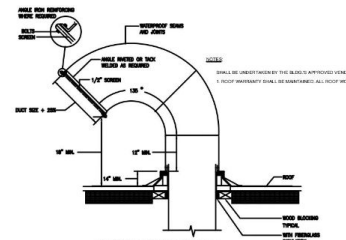
NOT TO SCALE

NOTE: PLASTIC PIPE AND FITTINGS USED TO VENT APPLIANCES SHALL BE INSTALLED IN ACCORDANCE WITH THE APPLIANCE MANUFACTURER'S INSTRUCTIONS. PLASTIC PIPE VENTING MATERIALS LISTED AND LABELED IN ACCORDANCE WITH UL 1709 SHALL BE INSTALLED IN ACCORDANCE WITH THE VENT MANUFACTURER'S INSTALLATION INSTRUCTIONS. FLUID PVC PIPING SHALL NOT BE USED FOR COMBUSTION GAS VENTING.



AHU MOUNTING DETAIL

NOT TO SCALE



GOOSENECK DETAIL

NOT TO SCALE



**Designed By Engr. Al Amin (MEP Engineer | Director - Engineer's Team LTD)**

 [support@engrteam.com](mailto:support@engrteam.com)

 <https://engrteam.com>

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