

**SYMBOLS (NOT ALL USED)**

**GENERAL**

**DUCT ACCESSORIES & CONTROLS INSTRUMENTATION**

**PIPING**

**LINETYPE**

**EQUIPMENT AIR MOVING DEVICE & COMPONENTS**

**VALVES**

**FITTING & PIPING SPECIALTIES**

**GENERAL**

**DUCT ACCESSORIES & CONTROLS INSTRUMENTATION**

**PIPING**

**LINETYPE**

**EQUIPMENT AIR MOVING DEVICE & COMPONENTS**

**VALVES**

**FITTING & PIPING SPECIALTIES**

**ABBREVIATIONS (NOT ALL USED)**

**GENERAL NOTES**

**MECHANICAL NOTES**

**CODES AND STANDARDS**

**DEMOLITION NOTES**

**MECHANICAL SHEET INDEX**

**RESponsibility Matrix**

DESCRIPTION	GENERAL CONTRACTOR	OWNER	LANDLORD	GENERAL CONTRACTOR	OWNER	LANDLORD	REMARKS
<b>DIVISION 23: HEATING, VENTILATING, AND AIR CONDITIONING</b>							
23.1 HVAC DUCTWORK AND PIPING IDENTIFICATION							
23.1.1 HVAC DUCTWORK SYSTEM IDENTIFICATION							
23.1.2 PIPING SYSTEM IDENTIFICATION							
23.1.3 UTILITY SHUT OFF IDENTIFICATION IN KITCHEN							
23.1.4 WALLS AND CHART							
23.1.5 HVAC DAMPER IDENTIFICATION							
23.2 ROOF CURBS							
23.2.1 EXHAUST FAN CURBS							GENERAL CONTRACTOR SCOPE OF WORK TO INCLUDE RIGGING, CURBS, AND ACCESSORIES
23.2.2 ROOFTOP UNIT CURBS							GENERAL CONTRACTOR SCOPE OF WORK TO INCLUDE RIGGING, CURBS, AND ACCESSORIES
23.2.3 CONDENSING UNIT CURBS							GENERAL CONTRACTOR SCOPE OF WORK TO INCLUDE RIGGING, CURBS, AND ACCESSORIES
23.2.4 MAKE UP AIR AND DOAS UNIT CURBS							GENERAL CONTRACTOR SCOPE OF WORK TO INCLUDE RIGGING, CURBS, AND ACCESSORIES
23.2.5 KITCHEN EXHAUST FAN CURBS							GENERAL CONTRACTOR SCOPE OF WORK TO INCLUDE RIGGING, CURBS, AND ACCESSORIES
23.3 HVAC DUCTWORK SYSTEM COMPONENTS							
23.3.1 HVAC DUCTWORK							GENERAL CONTRACTOR SCOPE OF WORK TO INCLUDE TENANT FIT OUT FROM LANDLORD POINT OF CONNECTION
23.3.2 INSULATION AND FIRE WRAP							
23.3.3 DAMPERS							
23.3.4 SMOKE DETECTORS							
23.3.5 SUPPLY, RETURN, AND EXHAUST GRILLS AND REGISTERS							
23.4 MECHANICAL PIPING SYSTEM COMPONENTS							
23.4.1 WALK-IN COOLER AND FREEZER REFRIGERATION							WALK-IN COOLER AND FREEZER SUPPLIED BY VENDOR NO. 103 GENERAL CONTRACTOR SCOPE OF WORK TO INCLUDE PIPING INSTALLATION AND FINAL CONNECTION
23.4.2 REFRIGERATION FOR OTHER HVAC EQUIPMENT							
23.4.3 CHILLED WATER							
23.4.4 CONDENSER WATER							
23.4.5 HEATING HOT WATER							
23.4.6 VALVES AND ACCESSORIES (E.G. AIR VENTS)							
23.5 HVAC EQUIPMENT							GENERAL CONTRACTOR SCOPE OF WORK TO INCLUDE RIGGING FOR ALL ROOFTOP EQUIPMENT
23.5.1 SUPPLY FAN							
23.5.2 TOILET EXHAUST FAN							
23.5.3 KITCHEN EXHAUST FAN							SUPPLIED BY VENDOR NO. 102
23.5.4 DUCTED AND NON-DUCTED HEATING AND COOLING UNITS							
23.5.5 MAKE UP AIR AND DOAS UNITS							SUPPLIED BY VENDOR NO. 102
23.5.6 ELECTRIC PATIO HEATERS							
23.5.7 HVAC CONDENSING UNITS							
23.5.8 REFRIGERATION CONDENSING UNITS							
23.5.9 RGF PHI SYSTEM							GENERAL CONTRACTOR TO PURCHASE FROM VENDOR NO. 7 VENDOR SUBSTITUTION IS NOT PERMITTED
23.6 KITCHEN EXHAUST WITH FIRE SUPPRESSION SYSTEM							
23.6.1 HOOD CONTROL PANEL							SUPPLIED BY VENDOR NO. 102
23.6.2 KITCHEN EXHAUST HOOD							SUPPLIED BY VENDOR NO. 102
23.6.3 STRUCTURAL SUPPORT							
23.6.4 ELECTRICAL AND CONTROL WIRING							
23.6.5 ANSUL SYSTEM							SUPPLIED BY VENDOR NO. 102 GENERAL CONTRACTOR TO COORDINATE AND FACILITATE SYSTEM SIGN-OFF
23.6.6 ANSUL WIRING AND UTILITIES CONNECTION							
23.6.7 ANSUL GAS VALVE							SUPPLIED BY VENDOR NO. 102
23.7 COMMISSIONING ACTIVITIES							
23.7.1 GREASE EXHAUST WATER LEAKAGE TEST							GENERAL CONTRACTOR TO PURCHASE FROM VENDOR NO. 6 VENDOR SUBSTITUTION IS NOT PERMITTED
23.7.2 TESTING AIR BALANCE (TAB) REPORT							GENERAL CONTRACTOR TO PURCHASE FROM VENDOR NO. 7 VENDOR SUBSTITUTION IS NOT PERMITTED

**GENERAL**

**DUCT ACCESSORIES & CONTROLS INSTRUMENTATION**

**PIPING**

**LINETYPE**

**EQUIPMENT AIR MOVING DEVICE & COMPONENTS**

**VALVES**

**FITTING & PIPING SPECIALTIES**

**GENERAL**

**DUCT ACCESSORIES & CONTROLS INSTRUMENTATION**

**PIPING**

**LINETYPE**

**EQUIPMENT AIR MOVING DEVICE & COMPONENTS**

**VALVES**

**FITTING & PIPING SPECIALTIES**

**GENERAL NOTES**

**MECHANICAL NOTES**

**CODES AND STANDARDS**

**DEMOLITION NOTES**

**MECHANICAL SHEET INDEX**

**RESponsibility Matrix**

**SHAKE SHACK**

329 EAST 17TH ST  
COSTA MESA, CA 92627

**Gensler**

500 South Figueroa Street  
Los Angeles, California 90071  
United States  
Bryan Walsingham  
Tel 213.327.3600  
Fax 213.327.3601

**INFRASTRUCTURE FACTORING INC.**

2361 ROSECRANS AVENUE  
SUITE 368  
DEL SEQUEDO, CA 90245  
Tel 910.725.1500  
Fax 910.725.4699

**TriMark**

505 COLLINS ST  
PO BOX 3505  
SOUTH ATTLEBORO  
MA 02703  
Tel 508.339.6000  
Fax 508.761.3620

Contract:  
Michael Henderson  
Tel 508.399.2392

**kpff**

700 FLOWER STREET  
SUITE 2100  
LOS ANGELES, CA 90017  
Tel 213.372.3400

Contract:  
Claudia Walker  
Tel 213.310.8495

**RESponsibility Matrix**

**DESCRIPTION**

**FURNISHED**

**INSTALLED**

**REMARKS**

**GENERAL CONTRACTOR**

**OWNER**

**LANDLORD**

**GENERAL CONTRACTOR**

**OWNER**

**LANDLORD**

**DATE**

**DESCRIPTION**

02/24/2023 ISSUE FOR PERMIT/ID

2 04/18/2023 ADDENDUM 1

3 05/15/2023 ADDENDUM 2

09/01/2023 ISSUE FOR CONSTRUCTION

**Seal / Signature**

**Project**

EXP. 9-24-2023

**SHAKE SHACK - COSTA MESA**

**Project**

005.3847.000

**Description**

MECHANICAL - NOTES, SYMBOLS AND ABBREVIATIONS

**Scale**

As indicated

**M001**

© 2021 Gensler

**SHAKE SHACK**

329 EAST 17TH ST  
COSTA MESA, CA 92627

**Gensler**

500 South Figueroa Street  
Los Angeles, California 90071  
United States  
Bryan Walsingham  
Tel 213.327.3600  
Fax 213.327.3601

**INFRASTRUCTURE FACTORING INC.**

2361 ROSECRANS AVENUE  
SUITE 368  
DEL SEQUEDO, CA 90245  
Tel 910.725.1500  
Fax 910.725.4699

**TriMark**

505 COLLINS ST  
PO BOX 3505  
SOUTH ATTLEBORO  
MA 02703  
Tel 508.339.6000  
Fax 508.761.3620

Contract:  
Michael Henderson  
Tel 508.399.2392

**kpff**

700 FLOWER STREET  
SUITE 2100  
LOS ANGELES, CA 90017  
Tel 213.372.3400

Contract:  
Claudia Walker  
Tel 213.310.8495

**RESponsibility Matrix**

**DESCRIPTION**

**FURNISHED**

**INSTALLED**

**REMARKS**

**GENERAL CONTRACTOR**

**OWNER**

**LANDLORD**

**GENERAL CONTRACTOR**

**OWNER**

**LANDLORD**

**DATE**

**DESCRIPTION**

02/24/2023 ISSUE FOR PERMIT/ID

2 04/18/2023 ADDENDUM 1

3 05/15/2023 ADDENDUM 2

09/01/2023 ISSUE FOR CONSTRUCTION

**Seal / Signature**

**Project**

EXP. 9-24-2023

**SHAKE SHACK - COSTA MESA**

**Project**

005.3847.000

**Description**

MECHANICAL - NOTES, SYMBOLS AND ABBREVIATIONS

**Scale**

As indicated

**M001**

© 2021 Gensler

L. DISTRIBUTION (DUCTWORK AND PIPING)
Table with columns: Dwelling Units, Duct Leakage, and Compliance status. Includes rows for duct system leakage, space conditioning system surface area, and ductwork/plenums.

M. COOLING TOWERS
This section does not apply to this project.

N. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION
Form/Title:
NRCI-MCH-01-E - Must be submitted for all buildings

Registration Number: Generated Date/Time: Documentation Software: Energy Code Ace
CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance Report Version: 2022.0.000 Compliance ID: 85374-0123-0004 Report Generated: 2023-01-24 18:06:44

O. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE
Table with columns: Form/Title, Systems/Spaces To Be Field Verified. Includes rows for outdoor air, fan VFD acceptance, and automatic FSD for air handling units.

P. DECLARATION OF REQUIRED CERTIFICATES OF VERIFICATION
There are no NRCV forms required for this project.

Q. MANDATORY MEASURES DOCUMENTATION LOCATION
Table with columns: O1, O2, O3, O4. Includes rows for mandatory measures documentation, heating equipment efficiency, cooling equipment efficiency, and furnace standby loss control.

Registration Number: Generated Date/Time: Documentation Software: Energy Code Ace
CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance Report Version: 2022.0.000 Compliance ID: 85374-0123-0004 Report Generated: 2023-01-24 18:06:44

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT
I certify that this Certificate of Compliance documentation is accurate and complete.

RESPONSIBLE PERSON'S DECLARATION STATEMENT
I verify the following under penalty of perjury under the laws of the State of California:
1. The information provided on this Certificate of Compliance is true and correct.
2. I am eligible under Division 16 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer).

Registration Number: Generated Date/Time: Documentation Software: Energy Code Ace
CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance Report Version: 2022.0.000 Compliance ID: 85374-0123-0004 Report Generated: 2023-01-24 18:06:44

H. FAN SYSTEMS & AIR ECONOMIZERS
Table with columns: System Name, RTU-1, Quant, Y, Fan System Status, New, System Zoning, DOAS, Servicing Dwelling Units, Not Servicing Dwelling Units, Fan System Airflow (cfm), 3,090, Site Elevation, 98, Economizer, Differentia l/Enthalpy. Includes rows for RTU-1 and EF-1.

Registration Number: Generated Date/Time: Documentation Software: Energy Code Ace
CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance Report Version: 2022.0.000 Compliance ID: 85374-0123-0004 Report Generated: 2023-01-24 18:06:44

H. FAN SYSTEMS & AIR ECONOMIZERS (continued)
Table with columns: System Name, RTU-2, Quant, Y, Fan System Status, New, System Zoning, DOAS, Servicing Dwelling Units, Not Servicing Dwelling Units, Fan System Airflow (cfm), 3,090, Site Elevation, 98, Economizer, Differentia l/Enthalpy. Includes row for RTU-2.

FOOTNOTES: Fans serving spaces with design background noise goals below NC35
Low-turn-down single-zone VAV fan system must be capable of and configured to reduce airflow to 50 percent of design airflow and use no more than 30 percent of the design wattage of that airflow. No more than 10 percent of the design load served by the equipment shall have fixed loads.

Fan Energy Index (FEI)
Table with columns: O1, O2, O3. Includes rows for Name or Item Tag, FEI Exception, and Do/DOAS Line.

Registration Number: Generated Date/Time: Documentation Software: Energy Code Ace
CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance Report Version: 2022.0.000 Compliance ID: 85374-0123-0004 Report Generated: 2023-01-24 18:06:44

I. SYSTEM CONTROLS
Table with columns: O1, O2, O3, O4, O5, O6, O7, O8, O9. Includes rows for System Name, System Zoning, Conditioned Floor Area, Shut Off Controls, Isolation Zone, Demand Control, Supply Air Temp, and Window Interlocks.

FOOTNOTES: Gravity gas wall heaters, gravity floor heaters, gravity room heaters, non-central electric heaters, fireplaces or decorative gas appliances, wood stoves are not required to have setback thermostats.

J. VENTILATION AND INDOOR AIR QUALITY
Table with columns: O1, O2, O3. Includes rows for Check the box if the project is showing ventilation calculations on the plans, or attaching the calculations instead of completing this table. Includes a table for Mechanical Ventilation Required per 120.1(b) & 160.2(b)(2).

Registration Number: Generated Date/Time: Documentation Software: Energy Code Ace
CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance Report Version: 2022.0.000 Compliance ID: 85374-0123-0004 Report Generated: 2023-01-24 18:06:44

K. VENTILATION AND INDOOR AIR QUALITY (continued)
Table with columns: Space Name or Item Tag, Mechanical Ventilation Required per 120.1(b) & 160.2(b)(2), # of Bedrooms, # of Dwelling Units, Required Min. OA CFM1, Supply Air CFM, Exhaust CFM, Local Exhaust, Air Filtration per 120.1(c) & 160.2(b)(1). Includes row for 28.

FOOTNOTES: Uniform Mechanical Code may have more stringent ventilation requirements, the most stringent code requirement takes precedence.
1. Another energy load will be verified per ASHRAE 90.1 to confirm meter is rated by HVAC AHJ.

2. Air filtration requirements apply to the following three system types per 120.1(c)(1A): space conditioning systems utilizing ducts to supply air to occupiable space; supply-only ventilation systems providing outside air to occupiable space; supply side of balanced ventilation systems including heat recovery and energy recovery ventilation systems providing outside air to occupiable space.

3. A balanced ventilation system provides ventilation airflow to each dwelling unit at a rate equal to or greater than the required minimum rate, but not more than twenty percent.

L. TERMINAL BOX CONTROLS
This section does not apply to this project.

M. DISTRIBUTION (DUCTWORK AND PIPING)
This table is used to show compliance with mandatory pipe insulation requirements found in 120.3 and mandatory requirements found in 120.4(g) for duct sealing.

Registration Number: Generated Date/Time: Documentation Software: Energy Code Ace
CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance Report Version: 2022.0.000 Compliance ID: 85374-0123-0004 Report Generated: 2023-01-24 18:06:44

A. GENERAL INFORMATION
Table with columns: O1, O2, O3, O4, O5, O6. Includes rows for Project Location (City), Climate Zone, Total Unconditioned Floor Area, and Occupancy Types Within Project.

B. PROJECT SCOPE
Table with columns: O1, O2, O3. Includes rows for Air System(s), Heating Air System, Cooling Air System, Mechanical Controls, and Mechanical Controls (existing to remain, altered or new).

Registration Number: Generated Date/Time: Documentation Software: Energy Code Ace
CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance Report Version: 2022.0.000 Compliance ID: 85374-0123-0004 Report Generated: 2023-01-24 18:06:44

C. COMPLIANCE RESULTS
Table with columns: O1, O2, O3, O4, O5, O6, O7, O8, O9. Includes rows for System Summary, Pumps, Fans/Economizers, System Controls, Ventilation, Terminal Box Controls, Distribution, and Cooling Towers.

D. EXCEPTIONAL CONDITIONS
This table is auto-filled with available comments because of selections made or data entered in tables throughout the form.

E. ADDITIONAL REMARKS
This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.

F. HVAC SYSTEM SUMMARY (DRY & WET SYSTEMS)
Space Conditioning System Information
Table with columns: O1, O2, O3, O4, O5, O6. Includes rows for System Name, Quantity, System Servicing, System Status, Space Type, and Utilizing Recovered Heat.

Registration Number: Generated Date/Time: Documentation Software: Energy Code Ace
CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance Report Version: 2022.0.000 Compliance ID: 85374-0123-0004 Report Generated: 2023-01-24 18:06:44

F. HVAC SYSTEM SUMMARY (DRY & WET SYSTEMS) (continued)
Table with columns: O1, O2, O3, O4, O5, O6, O7, O8, O9, O10, O11. Includes rows for Name or Item Tag, Equipment Category per Tables 110.2 and 170.2(c)(3a), Equipment Type per Tables 110.2 and Title 20, Smallest Size Available, Heating Output, Cooling Output, and Load Calculations.

FOOTNOTES: Equipment shall be the smallest size, within the available options of the desired equipment line, necessary to meet the design heating and cooling loads of the building per 140.4(b) and 170.2(c)(1). Healthcare facilities are exempted.

1a is common practice to show rated output capacity on the equipment schedule. Sensible cooling output comes from specification sheet tables.

2 If equipment is heating only, leave cooling output and load blank. If equipment is cooling only, leave heating output and load blank.

3 Authority Having Jurisdiction may ask for load calculations used for compliance per 140.4(b) and 170.2(c).

Registration Number: Generated Date/Time: Documentation Software: Energy Code Ace
CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance Report Version: 2022.0.000 Compliance ID: 85374-0123-0004 Report Generated: 2023-01-24 18:06:44

F. HVAC SYSTEM SUMMARY (DRY & WET SYSTEMS) (continued)
Table with columns: O1, O2, O3, O4, O5, O6, O7, O8, O9. Includes rows for Name or Item Tag, Site Category, Rating Condition, Efficiency Unit, Design Efficiency, Efficiency Unit, Minimum Efficiency Required per Tables 110.2 / Title 20, and Design Efficiency.

G. PUMPS
This section does not apply to this project.

Registration Number: Generated Date/Time: Documentation Software: Energy Code Ace
CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance Report Version: 2022.0.000 Compliance ID: 85374-0123-0004 Report Generated: 2023-01-24 18:06:44



329 EAST 17TH ST
COSTA MESA, CA 92627

Gensler
500 South Figueroa Street
Los Angeles, California 90071
United States
Tel: 213.327.3600
Fax: 213.327.3601

Contact:
Bryan Walsingham
Tel: 213.239.8240



2361 ROSECRANS AVENUE
SUITE 368
EL SEGUNDO, CA 90245
Tel: 310.725.1500
Fax: 310.725.4699

Contact:
Yves Yanuaria
Tel: 323.617.0332



505 COLLINS ST
PO BOX 3505
SOUTH ATTLEBORO
MA 02703
Tel: 508.389.6000
Fax: 508.761.3620

Contact:
Michael Henderson
Tel: 508.399.2392



700 FLOWER STREET
SUITE 2100
LOS ANGELES, CA 90017
Tel: 213.372.3400

Contact:
Claudia Walker
Tel: 213.310.8495

Table with columns: Date, Description. Includes rows for 02/24/2023 ISSUE FOR PERMIT/BD, 05/15/2023 ADDENDUM 2, and 09/01/2023 ISSUE FOR CONSTRUCTION.

Seal / Signature



Project: EXP. 9-24-2023

SHAKE SHACK - COSTA MESA

Project: 005.3847.000

Description: MECHANICAL TITLE 24 FORMS

Scale: NTS

M002

**CERTIFICATE OF COMPLIANCE** NRCC-PRC-E  
 Project Name: SHK Costa Mesa 2022 Report Page: (Page 4 of 6)  
 Project Address: 329 East 17th St. Costa Mesa, CA 92627 Date Prepared: 2023-01-24T18:26:28-05:00

**N. COMMERCIAL KITCHEN EXHAUST AND VENTILATION**

02	Replacement Air to Hood Compliance Method 140.9(b)1A	
03	Providing replacement air directly to the hood(s) that does not exceed 10% of the hood(s) exhaust rate	
04	Mechanically cooled or heated makeup air delivered to any space with a kitchen hood is designed per 140.9(b)2A to not exceed the greater of: The supply flow required to meet the space heating and cooling load	
05	Location that is supplying transfer air: The kitchen/ dining facility has a total Type I and Type II kitchen hood exhaust airflow > 5000 cfm and is designed to have one of the following per 140.9(b)2B: NA: Not a kitchen/ dining facility having a total Type I and Type II kitchen hood exhaust airflow rate > 5,000 cfm	

**Kitchen Exhaust: Airflow Rate 140.9(b)1B**

01	Kitchen Name or Item Tag	Open Kitchen 106	Compliance Method per 140.9(b)1B	NA: Kitchen/ dining facility has a total Type I and Type II kitchen hood exhaust airflow rate <= 5,000 cfm
02	03	04	05	06
Name or Item Tag	Hood Type <sup>1</sup>	Hood Style	Hood Length (ft)	Equipment Duty
KEH 1-1	Type I			775
KEH 1-2	Type I			1763

<sup>1</sup>FOOTNOTES: Type II hoods do not have a max hood exhaust air rate per 140.9(b)1B

**O. LABORATORY AND FACTORY EXHAUST AND FUME HOODS**  
 This section does not apply to this project.

**P. CONTROLLED ENVIRONMENT HORTICULTURE**  
 This section does not apply to this project.

**Q. STEAM TRAPS IN INDUSTRIAL FACILITIES**  
 This section does not apply to this project.

Registration Number: Generated Date/Time: Documentation Software: Energy Code Ace  
 CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance Report Version: 2022.0.000 Compliance ID: 85374-0123-0002  
 Schema Version: rev 20220101 Report Generated: 2023-01-24 15:26:31

**CERTIFICATE OF COMPLIANCE** NRCC-PRC-E  
 Project Name: SHK Costa Mesa 2022 Report Page: (Page 5 of 6)  
 Project Address: 329 East 17th St. Costa Mesa, CA 92627 Date Prepared: 2023-01-24T18:26:28-05:00

**R. Pool & SPAs**  
 This section does not apply to this project.

**S. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION**

Form/Title
NRCI-PRC-01-E - Covered Process

**T. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE**

Form/Title	Systems/Spaces To Be Field Verified
NRCA-PRC-02-F Kitchen Exhaust	Open Kitchen 106

Registration Number: Generated Date/Time: Documentation Software: Energy Code Ace  
 CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance Report Version: 2022.0.000 Compliance ID: 85374-0123-0002  
 Schema Version: rev 20220101 Report Generated: 2023-01-24 15:26:31

**CERTIFICATE OF COMPLIANCE** NRCC-PRC-E  
 Project Name: SHK Costa Mesa 2022 Report Page: (Page 6 of 6)  
 Project Address: 329 East 17th St. Costa Mesa, CA 92627 Date Prepared: 2023-01-24T18:26:28-05:00

**DOCUMENTATION AUTHOR'S DECLARATION STATEMENT**  
 I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: Samantha Kelley	Documentation Author Signature:
Company: iFactor Consulting Inc.	Signature Date: 1/26/23
Address: 2361 Rosecrans Ave	CA/VA HERS Certification Identification (if applicable):
City/State/Zip: El Segundo, CA 90245	Phone: (310) 220-2742

**RESPONSIBLE PERSON'S DECLARATION STATEMENT**  
 I certify the following under penalty of perjury, under the laws of the State of California:

- The information provided on this Certificate of Compliance is true and correct.
- I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer).
- The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
- The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
- I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Designer Name: Ron Chin	Responsible Designer Signature:
Company: iFactor Consulting Inc.	Date Signed: 1/26/23
Address: 2361 Rosecrans Ave	License: M26613
City/State/Zip: El Segundo, CA 90245	Phone: (310) 322-1500

Registration Number: Generated Date/Time: Documentation Software: Energy Code Ace  
 CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance Report Version: 2022.0.000 Compliance ID: 85374-0123-0002  
 Schema Version: rev 20220101 Report Generated: 2023-01-24 15:26:31

**CERTIFICATE OF COMPLIANCE** NRCC-PRC-E  
 Project Name: SHK Costa Mesa 2022 Report Page: (Page 1 of 6)  
 Project Address: 329 East 17th St. Costa Mesa, CA 92627 Date Prepared: 2023-01-24T18:26:28-05:00

**A. GENERAL INFORMATION**

01	Project Location (city)	Costa Mesa	04	Total Conditioned Floor Area	1850
02	Climate Zone	6	05	Total Unconditioned Floor Area	1850
03	Occupancy Types Within Project:		06	# of Stories (Habitable Above Grade)	1

• Restaurant

**B. PROJECT SCOPE**  
 This table includes process systems that are within the scope of the permit application and are demonstrating compliance with mandatory requirements in 120.6 / 160.7 or prescriptive requirements in 140.9.  
 My project consists of: (check all that apply):

<input type="checkbox"/> Refrigerated Spaces <3,000 ft <sup>3</sup> Total (no Title 24, P16 requirements)	<input type="checkbox"/> Escalator & Moving Walkway Speed Controls (mandatory 120.6(g))
<input type="checkbox"/> Refrigerated Spaces >=3,000 ft <sup>3</sup> Total (mandatory 120.6(a))	<input type="checkbox"/> Computer Rooms (mandatory 120.6(j)) and prescriptive 140.9(a)1
<input type="checkbox"/> Food/Beverage Stores >8,000 ft <sup>3</sup> cfm (mandatory 120.6(b))	<input checked="" type="checkbox"/> Commercial Kitchen Ventilation/Exhaust (prescriptive 140.9(b)1)
<input type="checkbox"/> Enclosed Parking Garage Exhaust >=10,000 cfm (mandatory 120.6(c))	<input type="checkbox"/> Laboratory Exhaust/Factory Exhaust & Fume Hood (prescriptive 140.9(c)1)
<input type="checkbox"/> Newly Installed Process Boilers (mandatory 120.6(d))	<input type="checkbox"/> Pool/Spa (mandatory 110.4 / 160.7)
<input type="checkbox"/> Compressed Air Systems Combined HP >= 25 (mandatory 120.6(e))	<input type="checkbox"/> Controlled Environment Horticulture (mandatory 120.6(h))
<input type="checkbox"/> Elevator Lighting & Ventilation Controls (mandatory 120.6(f) / 160.7)	<input type="checkbox"/> New Steam Traps (mandatory 120.6(i))

<sup>1</sup>FOOTNOTES: These building features can comply using the performance method. If using the performance method for these features, compliance should be demonstrated on the NRCC-PRC-E.

Registration Number: Generated Date/Time: Documentation Software: Energy Code Ace  
 CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance Report Version: 2022.0.000 Compliance ID: 85374-0123-0002  
 Schema Version: rev 20220101 Report Generated: 2023-01-24 15:26:31

**CERTIFICATE OF COMPLIANCE** NRCC-PRC-E  
 Project Name: SHK Costa Mesa 2022 Report Page: (Page 2 of 6)  
 Project Address: 329 East 17th St. Costa Mesa, CA 92627 Date Prepared: 2023-01-24T18:26:28-05:00

**C. COMPLIANCE RESULTS**  
 Results in this table are automatically calculated from data input and calculations in Tables F through R. Note: If any cell on this table says "COMPLIES with Exceptional Conditions" refer to Table D. Exceptional Conditions for guidance or see applicable Table referenced below.

01	02	03	04	05	06	07	08	09	10	11	12	13	14		
Refrigerate d Warehouse / Space (See Table F)	Commercial Refrigeratio n (See Table G)	Parking Garage Exhaust (See Table H)	Process Boilers Exhaust (See Table I)	Compressed Air Systems (See Table J)	Elevators 120.6(f) / 160.7 (See Table K)	Escalators & Moving Walkways 120.6(g) (See Table L)	Computer Rooms 140.9(a) (See Table M)	Commercial Kitchens 140.9(b) (See Table N)	Laboratory/ Factory Exhaust 140.9(c) (See Table O)	Controlled Environment Horticulture 120.6(h) (See Table P)	Steam Traps 120.6(i) 160.7 (See Table Q)	Multifamily Pool/Spa 160.7 (See Table R)			COMPLIES

**D. EXCEPTIONAL CONDITIONS**  
 This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.

**E. ADDITIONAL REMARKS**  
 This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.

**F. REFRIGERATED WAREHOUSES/SPACES**  
 This section does not apply to this project.

**G. COMMERCIAL REFRIGERATION**  
 This section does not apply to this project.

Registration Number: Generated Date/Time: Documentation Software: Energy Code Ace  
 CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance Report Version: 2022.0.000 Compliance ID: 85374-0123-0002  
 Schema Version: rev 20220101 Report Generated: 2023-01-24 15:26:31

**CERTIFICATE OF COMPLIANCE** NRCC-PRC-E  
 Project Name: SHK Costa Mesa 2022 Report Page: (Page 3 of 6)  
 Project Address: 329 East 17th St. Costa Mesa, CA 92627 Date Prepared: 2023-01-24T18:26:28-05:00

**H. ENCLOSED PARKING GARAGE EXHAUST**  
 This section does not apply to this project.

**I. PROCESS BOILER**  
 This section does not apply to this project.

**J. COMPRESSED AIR SYSTEMS**  
 This section does not apply to this project.

**K. ELEVATOR LIGHTING AND VENTILATION**  
 This section does not apply to this project.

**L. ESCALATORS AND MOVING WALKWAYS SPEED CONTROLS**  
 This section does not apply to this project.

**M. COMPUTER ROOM SYSTEM SUMMARY**  
 This section does not apply to this project.

**N. COMMERCIAL KITCHEN EXHAUST AND VENTILATION**  
 This table contains all new and replacement hoods being installed within the scope of the permit application. Table N is used to demonstrate compliance with prescriptive requirements found in 140.9(b).

**Kitchen Ventilation 140.9(b)2**

01	<input type="checkbox"/>	Existing kitchen hoods not being replaced as part of an addition or alteration (do not need to meet requirements)
<b>Requirements</b>		

Registration Number: Generated Date/Time: Documentation Software: Energy Code Ace  
 CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance Report Version: 2022.0.000 Compliance ID: 85374-0123-0002  
 Schema Version: rev 20220101 Report Generated: 2023-01-24 15:26:31



329 EAST 17TH ST  
 COSTA MESA, CA 92627



500 South Figueroa Street  
 Los Angeles, California 90071  
 United States  
 Contact:  
 Bryan Walsingham  
 Tel 213.239.8240



2361 ROSECRANS AVENUE  
 SUITE 368  
 EL SEGUNDO, CA 90245  
 Tel 310.725.1500  
 Fax 310.725.4699  
 Contact:  
 Yves Yanuaría  
 Tel 323.617.0332

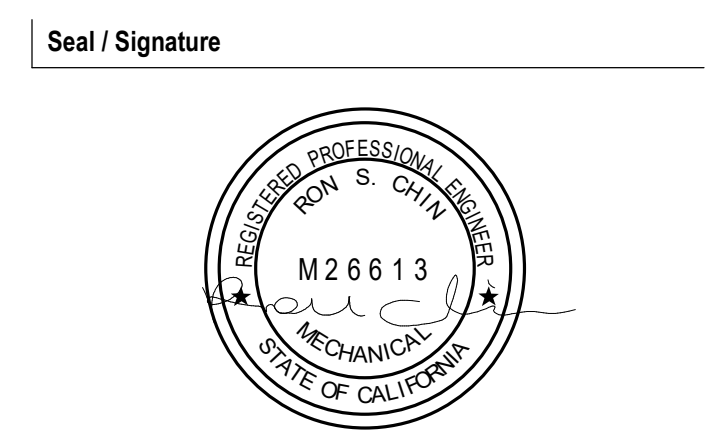


505 COLLINS ST  
 PO BOX 3505  
 SOUTH ATTLEBORO  
 MA 02703  
 Tel 508.399.6000  
 Fax 508.761.3620  
 Contact:  
 Michael Henderson  
 Tel 508.399.2392



700 FLOWER STREET  
 SUITE 2100  
 LOS ANGELES, CA 90017  
 Tel 213.372.3400  
 Contact:  
 Claudia Walker  
 Tel 213.310.8495

Date	Description
02/24/2023	ISSUE FOR PERMIT/BD
3 05/15/2023	ADDENDUM 2
09/01/2023	ISSUE FOR CONSTRUCTION



Project EXP: 9-24-2023

**SHAKE SHACK - COSTA MESA**

Project  
**005.3847.000**

Description  
**MECHANICAL TITLE 24 FORMS**

Scale  
 NTS

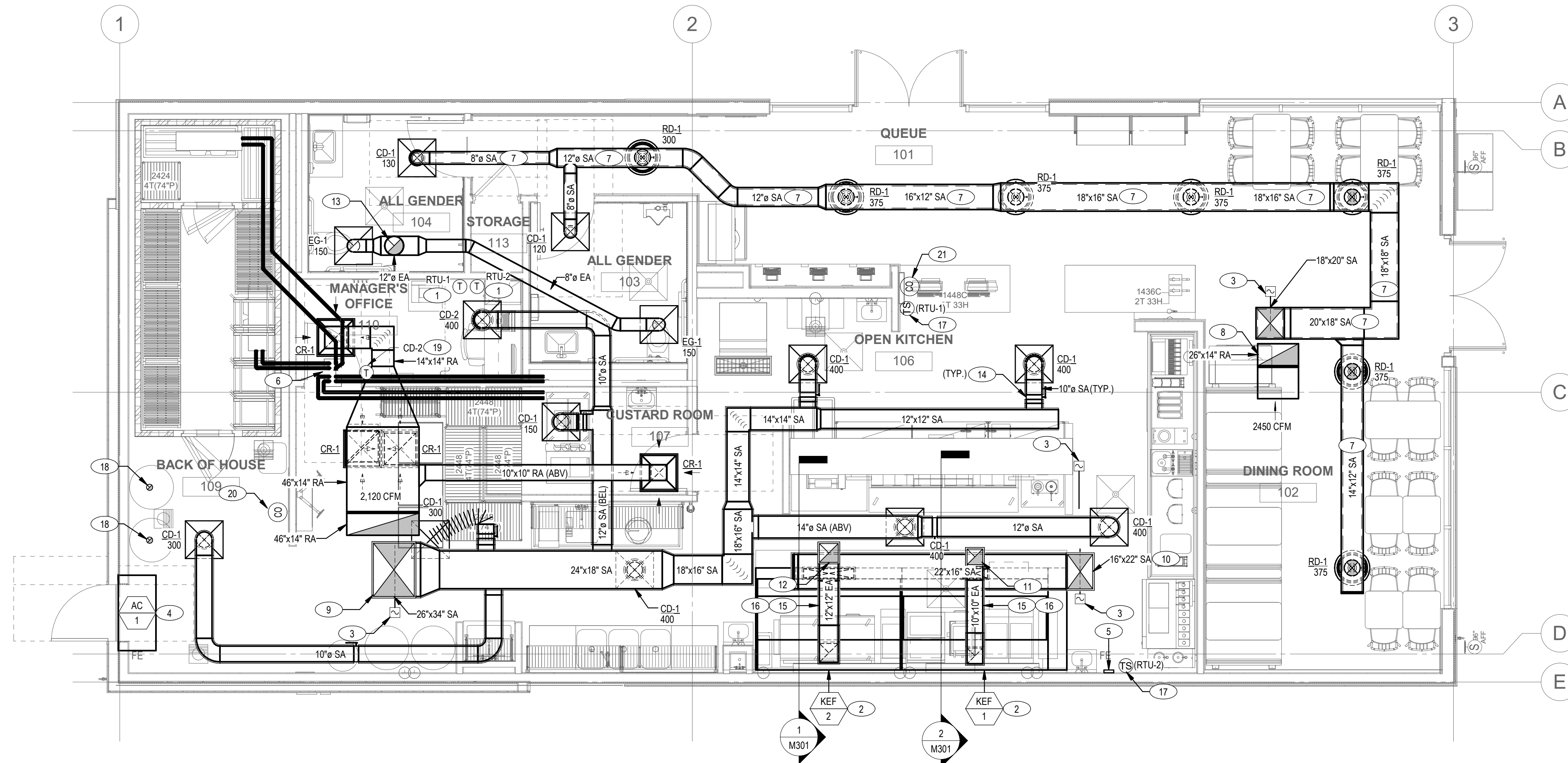
**M003**

**SHEET NOTES**

- 1 MOUNT THERMOSTAT CONTROLLER AT 4" ABOVE FINISHED FLOOR. COORDINATE FINAL LOCATION WITH ARCHITECT.
- 2 KITCHEN HOOD AND HOOD FIRE SUPPRESSION SYSTEM FURNISHED BY CAPTIVEAIRE AND INSTALLED BY CONTRACTOR. REFER TO KITCHEN EQUIPMENT DRAWINGS FOR ADDITIONAL INFORMATION. HOOD FIRE ALARM CONNECTIONS INSTALLED BY FIRE ALARM CONTRACTOR. COORDINATE WITH FIRE PROTECTION CONTRACTOR PRIOR TO INSTALLATION FOR REQUIREMENTS.
- 3 DUCT SMOKE DETECTOR TO BE SUPERVISED BY FIRE ALARM SYSTEM. ACTIVATION OF ANY SMOKE DETECTOR WILL SHUT OFF ALL EQUIPMENT SUPPLYING AIR.
- 4 PROVIDE AIR CURTAIN MOUNTED ABOVE DELIVERY DOOR. PROVIDE WITH DOOR SWITCH. AIR CURTAIN TO OPERATE CONTINUOUSLY WHEN DOOR IS OPEN.
- 5 INSTALL HOOD FIRE SUPPRESSION MANUAL PULL STATION. COORDINATE EXACT LOCATION AND REQUIREMENTS WITH FIRE MARSHALL AND LOCAL CODE REQUIREMENTS.
- 6 REFRIGERATION PIPING ROUTED FROM CONDENSER UNITS ON THE ROOF DOWN TO SERVE KITCHEN EQUIPMENT. PROVIDE JACKETING ON ALL REFRIGERATION LINES.
- 7 INSTALL EXPOSED SUPPLY DUCTWORK FOR DINING AREA. COORDINATE WITH ARCHITECT PRIOR TO INSTALLATION.
- 8 SUPPLY/RETURN DROPS DOWN FROM RTU-1.
- 9 SUPPLY/RETURN DROPS DOWN FROM RTU-2.
- 10 OUTSIDE AIR SUPPLY DUCT DROP DOWN FROM MAU-1.
- 11 EXHAUST AIR DUCT DOWN FROM KEF-1.
- 12 EXHAUST AIR DUCT DOWN FROM KEF-2.
- 13 EXHAUST AIR DUCT DOWN FROM EF-1.
- 14 LOCATION OF MANUAL BALANCING VOLUME DAMPER (TYP.)
- 15 TYPE 1 GREASE EXHAUST DUCT FROM KITCHEN EXHAUST HOOD TO KITCHEN EXHAUST FAN. GREASE DUCT TO BE FIRE WRAPPED TO MAINTAIN 0' CLEARANCE TO COMBUSTIBLES.
- 16 GREASE DUCT SHALL BE SLOPED 2% TOWARDS GREASE COLLECTION BOX INTEGRAL TO HOOD.
- 17 COORDINATE FINAL LOCATION OF REMOTE TEMPERATURE SENSORS WITH ARCHITECT.
- 18 CONCENTRIC VENTING KIT #100148480, BY LOCHINVAR TO BE PROVIDED. PER INSTALLATION MANUAL, PVC CONCENTRIC VENT KIT WITH VERTICAL TERMINATION TO BE PROVIDED FOR EACH WATER HEATER.
- 19 PROVIDE MOTORIZED VAV DIFFUSER WITH LCD THERMOSTAT.
- 20 PROVIDE CO2 SENSOR FOR BACK OF HOUSE UTILITY AREA. CO2 TANKS, SENSOR SHALL BE MKS DETECTOR SET. CO2 SAFETY SYSTEM SET.
- 21 PROVIDE CO2 SENSOR FOR DINING AREA. CO2 TANKS, SENSOR SHALL BE MKS DETECTOR SET. CO2 SAFETY SYSTEM SET.

**GENERAL NOTES**

- 1 WHERE ENCLOSURES ARE NOT REQUIRED, HOODS, GREASE REMOVAL DEVICES, AND EXHAUST FANS, AND DUCTS SHALL HAVE A CLEARANCE OF NOT LESS THAN 18" TO COMBUSTIBLE MATERIAL, 3" TO LIMITED-COMBUSTIBLE MATERIAL, AND 0" TO NON-COMBUSTIBLE MATERIAL. PER 2022 CMC SECTION 507.4.
- 2 PROVIDE MANUAL BALANCING DAMPER FOR ALL BRANCH DUCTWORK FOR PROPER BALANCING OF ALL AIR SYSTEMS, WHETHER SHOWN ON DRAWINGS OR NOT.
- 3 A PERFORMANCE TEST SHALL BE CONDUCTED UPON COMPLETION AND BEFORE APPROVAL OF A VENTILATION SYSTEM SERVING COMMERCIAL COOKING APPLICATIONS. THE TEST SHALL VERIFY THE EXHAUST AIRFLOW RATE IN ACCORDANCE WITH SECTIONS 508.10.1.2 THROUGH 508.10.1.5 OR THE AIRFLOW RATE STAMPED ON LISTED HOOD. 2022 CMC SECTION 511.2.2.1.
- 4 THE PERMIT HOLDER SHALL VERIFY A CAPTURE AND CONTAINMENT PERFORMANCE OF THE HOOD. A FIELD TEST SHALL BE PERFORMED WITH COOKING EQUIPMENT AT NORMAL OPERATING TEMPERATURE AND CAPTURE AND CONTAINMENT SHALL BE VERIFIED THROUGH A VISUAL OBSERVATION OF SMOKE OR STEAM PRODUCED BY SMOKE CANDLES OR PUFFERS. SMOKE BOMBS ARE PROHIBITED FROM USE ON THIS TEST. 2022 CMC SECTION 511.2.2.2.
- 5 PRIOR TO USE OF CONCEALMENT A GREASE DUCT LEAKAGE TEST SHALL BE PERFORMED TO VERIFY THE WELDED SEAMS AND JOINTS ARE LIQUID TIGHT. THE TEST SHALL BE A WATER TEST, A LIGHT TEST, OR AN APPROVED EQUIVALENT TEST. THE PERMIT HOLDER SHALL BE RESPONSIBLE FOR PROVIDING THE EQUIPMENT AND FOR PERFORMING THE TEST. 2022 CMC SECTION 510.5.6.
- 6 THE WALL CONSTRUCTION BEHIND WHERE THE TYPE 1 HOOD IS TO BE HUNG MUST BE A MINIMUM OF LIMITED COMBUSTIBLE CONSTRUCTION TO ACHIEVE THE 7' CLEARANCE TO LIMITED CONSTRUCTION REQUIRED BY THE GREASE EXHAUST HOOD MANUFACTURER. 2022 CMC SECTION 507.4. SEE ARCHITECTURAL DRAWINGS, SHOWING THE REQUIRED CONSTRUCTION.
- 7 AFTER COMPLETION OF TESTING, ADJUSTING, AND BALANCING, PROVIDE A FINAL REPORT OF TESTING SIGNED BY THE INDIVIDUAL RESPONSIBLE FOR PERFORMING THESE SERVICES.
- 8 AT THE TIME OF ROUGH INSTALLATION AND DURING STORAGE ON THE CONSTRUCTION SITE UNTIL FINAL STARTUP OF THE HEATING AND COOLING AND VENTILATION EQUIPMENT, ALL DUCT AND OTHER RELATED AIR DISTRIBUTION COMPONENT OPENINGS SHALL BE COVERED WITH TAPE. PLASTIC SHEET METAL OR OTHER METHODS ACCEPTABLE TO THE ENFORCING AGENCY TO REDUCE THE AMOUNT OF DUST, WATER OR DEBRIS WHICH MAY ENTER THE SYSTEM.



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

Seal / Signature



Project Name EXP. 9-24-2023

**SHAKE SHACK - COSTA MESA**

Project Number  
**005.3847.000**

Description  
**MECHANICAL FIRST FLOOR REMODEL PLAN**

Scale  
1/4" = 1'-0"



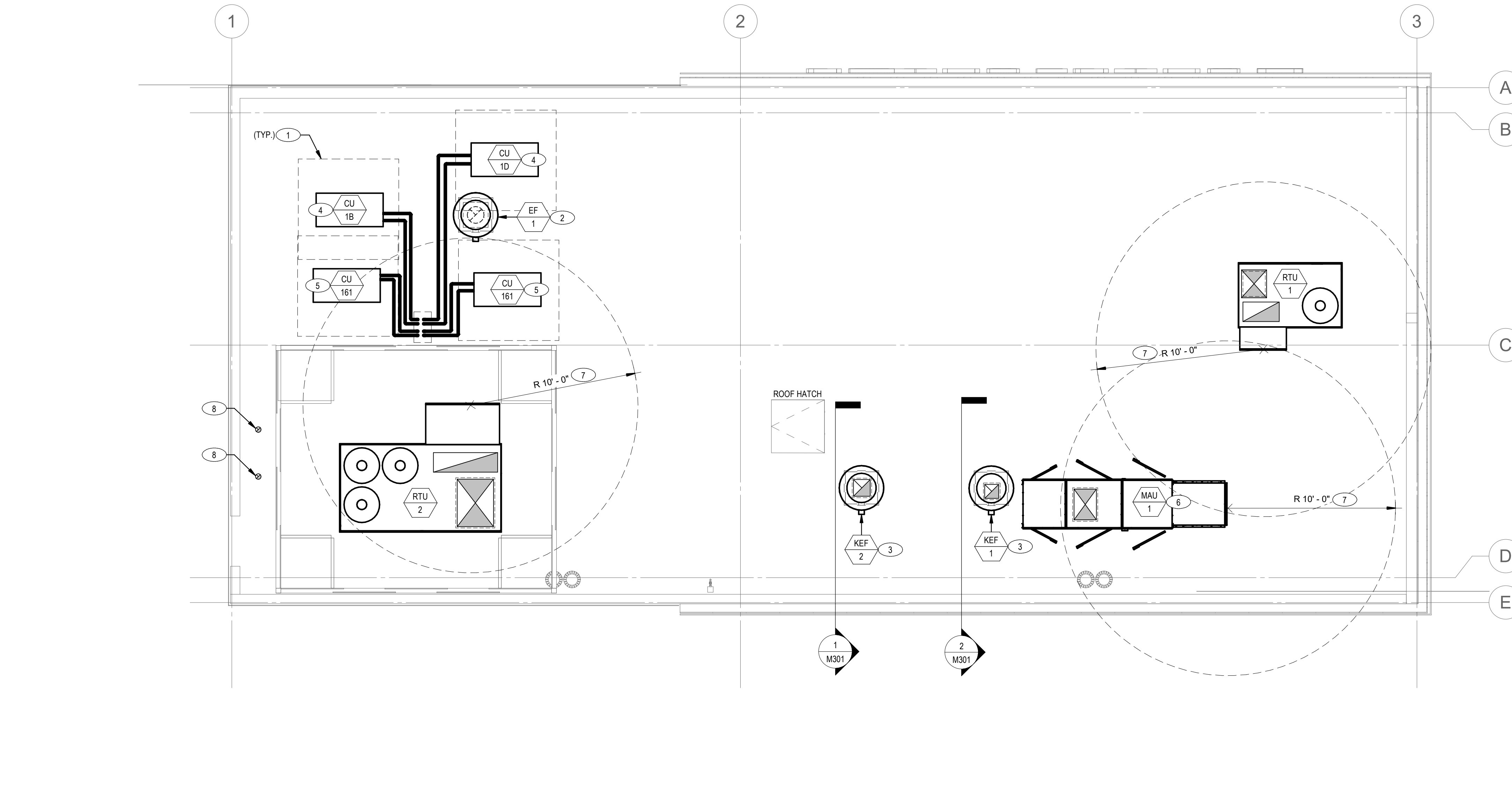
**M201**

**SHEET NOTES**

- SERVICE CLEARANCE FOR CONDENSING UNITS. SERVICE CLEARANCES MAY OVERLAP, BUT NO EQUIPMENT MAY BE PLACED WITHIN THE AREA.
- RESTROOM EXHAUST FAN, INSTALLED PER MANUFACTURER'S RECOMMENDATION. PROVIDE WITH ROOF CURB TO ACCOUNT FOR SLOPED ROOF.
- KITCHEN HOOD EXHAUST FAN FURNISHED BY CAPTIVAIRE AND INSTALLED BY MECHANICAL CONTRACTOR. INSTALLED PER MANUFACTURER'S RECOMMENDATION. REFER TO HALTON DRAWING SERIES M8. PROVIDE WITH ROOF CURB TO ACCOUNT FOR SLOPED ROOF.
- COOLER/FREEZER CONDENSING UNITS TO BE PROVIDED BY VENDOR. INSTALLED PER MANUFACTURER'S RECOMMENDATIONS. SEE MOUNTING DETAILS FOR EQUIPMENT CURBS ON STRUCTURAL DRAWINGS. REFER TO KITCHEN EQUIPMENT SCHEDULE FOR SPECIFICATIONS.
- CLUSTARD MACHINE CONDENSING UNITS TO BE PROVIDED BY VENDOR. INSTALLED PER MANUFACTURER'S RECOMMENDATIONS. SEE MOUNTING DETAILS FOR EQUIPMENT CURBS ON STRUCTURAL DRAWINGS. REFER TO KITCHEN EQUIPMENT SCHEDULE FOR SPECIFICATIONS.
- DEDICATED OUTSIDE AIR SYSTEM FURNISHED BY HALTON AND INSTALLED BY MECHANICAL CONTRACTOR. PROVIDE WITH ROOF CURB TO ACCOMMODATE SLOPED ROOF. COORDINATE CURB REQUIREMENTS WITH MANUFACTURER AND STRUCTURAL DRAWINGS. INSTALL PER MANUFACTURER'S RECOMMENDATION. REFER TO CAPTIVAIRE DRAWINGS SERIES M8.
- OUTSIDE AIR INTAKE SHALL BE A MINIMUM OF 10' AWAY FROM ANY EXHAUST OUTLET OR PLUMBING VENT.
- CONCENTRIC VENTING KIT #10140480, BY LOCHINVAR TO BE PROVIDED. PER INSTALLATION MANUAL, PVC CONCENTRIC VENT KIT WITH VERTICAL TERMINATION TO BE PROVIDED FOR EACH WATER HEATER.

**GENERAL NOTES**

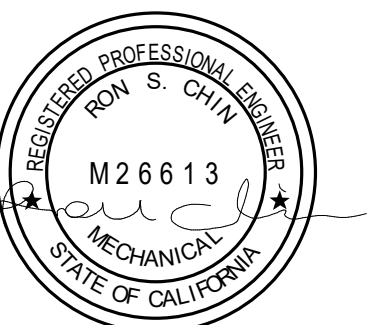
- WHERE ENCLOSURES ARE NOT REQUIRED, HOODS, GREASE REMOVAL DEVICES, AND EXHAUST FANS, AND DUCTS SHALL HAVE A CLEARANCE OF NOT LESS THAN 18" TO COMBUSTIBLE MATERIAL, 3" TO LIMITED-COMBUSTIBLE MATERIAL, AND 0" TO NON-COMBUSTIBLE MATERIAL. PER 2022 CMC SECTION 507.4.
- PROVIDE MANUAL BALANCING DAMPER FOR ALL BRANCH DUCTWORK FOR PROPER BALANCING OF ALL AIR SYSTEMS, WHETHER SHOWN ON DRAWINGS OR NOT.
- A PERFORMANCE TEST SHALL BE CONDUCTED UPON COMPLETION AND BEFORE APPROVAL OF A VENTILATION SYSTEM SERVING COMMERCIAL COOKING APPLICATIONS. THE TEST SHALL VERIFY THE EXHAUST AIRFLOW RATE IN ACCORDANCE WITH SECTIONS 508.10.1.2 THROUGH 508.10.1.5 OR THE AIRFLOW RATE STAMPED ON LISTED HOOD. 2022 CMC SECTION 511.2.2.1.
- THE PERMIT HOLDER SHALL VERIFY A CAPTURE AND CONTAINMENT PERFORMANCE OF THE HOOD. A FIELD TEST SHALL BE PERFORMED WITH COOKING EQUIPMENT AT NORMAL OPERATING TEMPERATURE AND CAPTURE AND CONTAINMENT SHALL BE VERIFIED THROUGH A VISUAL OBSERVATION OF SMOKE OR STEAM PRODUCED BY SMOKE CANDLES OR PUFFERS. SMOKE BOMBS ARE PROHIBITED FROM USE ON THIS TEST. 2022 CMC SECTION 511.2.2.2.
- PRIOR TO USE OF CONSULTANT A GREASE DUCT LEAKAGE TEST SHALL BE PERFORMED TO VERIFY THE WELDED SEAMS AND JOINTS ARE LIQUID TIGHT. THE TEST SHALL BE A WATER TEST, ALIGHT TEST, OR AN APPROVEDEQUIVALENT TEST. THE PERMIT HOLDER SHALL BE RESPONSIBLE FOR PROVIDING THE EQUIPMENT AND FOR PERFORMING THE TEST. 2022 CMC SECTION 510.5.6.
- THE WALL CONSTRUCTION BEHIND WHERE THE TYPE 1 HOOD IS TO BE HUNG MUST BE A MINIMUM OF LIMITED COMBUSTIBLE CONSTRUCTION TO ACHIEVE THE 7' CLEARANCE TO LIMITED CONSTRUCTION REQUIRED BY THE GREASE EXHAUST HOOD MANUFACTURER. 2022 CMC SECTION 507.4. SEE ARCHITECTURAL DRAWINGS, SHOWING THE REQUIRED CONSTRUCTION.
- AFTER COMPLETION OF TESTING, ADJUSTING, AND BALANCING, PROVIDE A FINAL REPORT OF TESTING SIGNED BY THE INDIVIDUAL RESPONSIBLE FOR PERFORMING THESE SERVICES.
- AT THE TIME OF ROUGH INSTALLATION AND DURING STORAGE ON THE CONSTRUCTION SITE UNTIL FINAL STARTUP OF THE HEATING AND COOLING AND VENTILATION EQUIPMENT, ALL DUCT AND OTHER RELATED AIR DISTRIBUTION COMPONENT OPENINGS SHALL BE COVERED WITH TAPE. PLASTIC SHEET METAL OR OTHER METHODS ACCEPTABLE TO THE ENFORCING AGENCY TO REDUCE THE AMOUNT OF DUST, WATER OR DEBRIS WHICH MAY ENTER THE SYSTEM.



**1 MECHANICAL ROOF REMODEL PLAN**

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

Seal / Signature



Project Name EXP. 9-24-2023

**SHAKE SHACK - COSTA MESA**

Project Number

005.3847.000

Description

MECHANICAL ROOF REMODEL PLAN

Scale

1/4" = 1'-0"

Ref North

**M211**

**Gensler**

500 South Figueroa Street  
Los Angeles, California 90071  
United States  
Contact:  
Bryan Walsingham  
Tel 213.239.8240



2361 ROSECRANS AVENUE  
SUITE 368  
EL SEGUNDO, CA 90245  
Tel 310.725.1500  
Fax 310.725.4699  
Contact:  
Yves Yanuaría  
Tel 323.617.0332



505 COLLINS ST  
PO BOX 3505  
SOUTH ATTLEBORO  
MA 02703  
Tel 508.399.6000  
Fax 508.761.3620

Contact:  
Michael Henderson  
Tel 508.399.2392

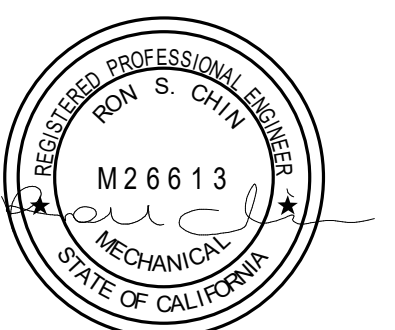


700 FLOWER STREET  
SUITE 2100  
LOS ANGELES, CA 90017  
Tel 213.372.3400

Contact:  
Claudia Walker  
Tel 213.310.8495

Date	Description
02/24/2023	ISSUE FOR PERMIT/BID
3 05/15/2023	ADDENDUM 2
09/01/2023	ISSUE FOR CONSTRUCTION

Seal / Signature



Project EXP. 9-24-2023

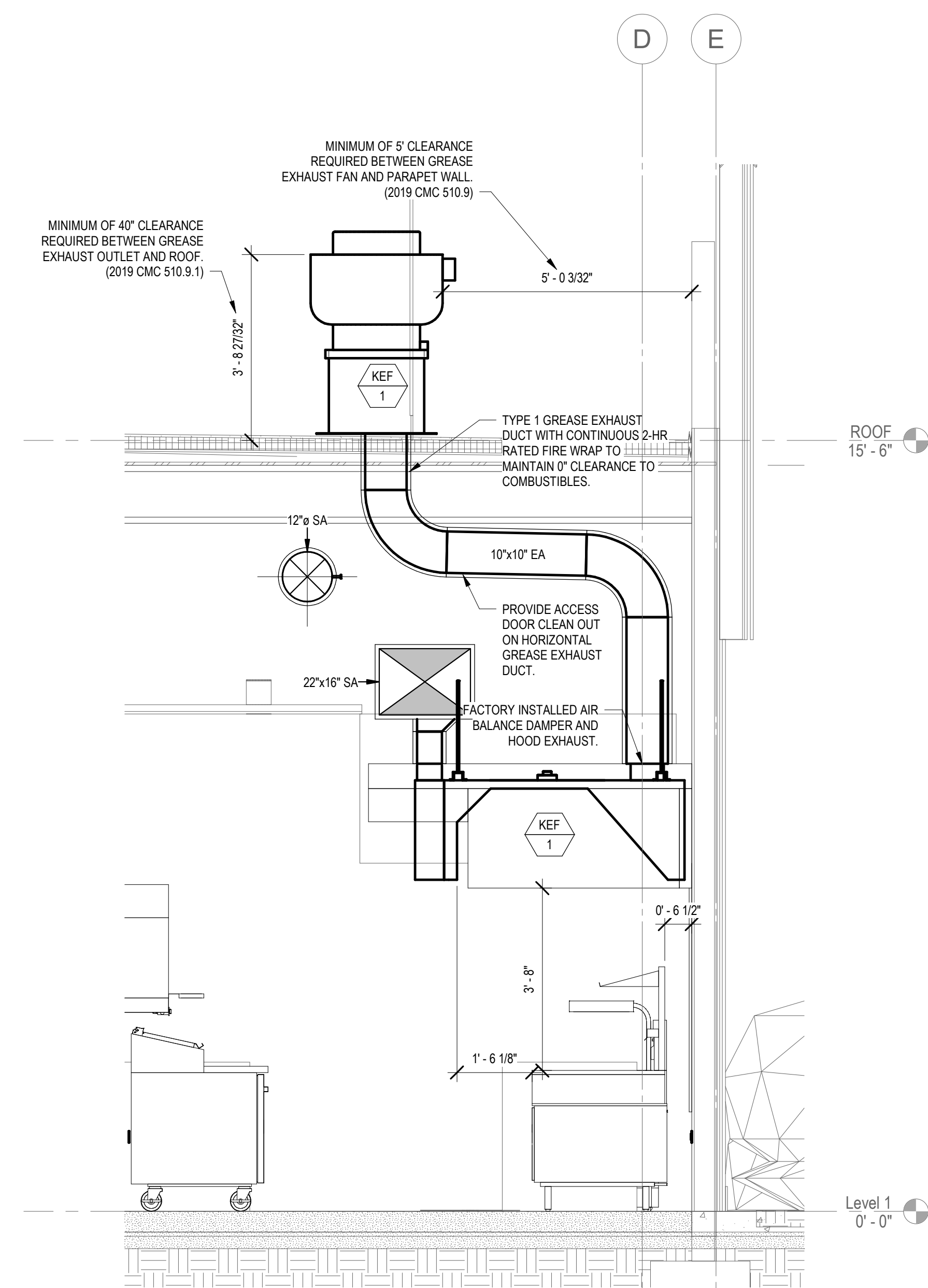
**SHAKE SHACK - COSTA MESA**

Project  
**005.3847.000**

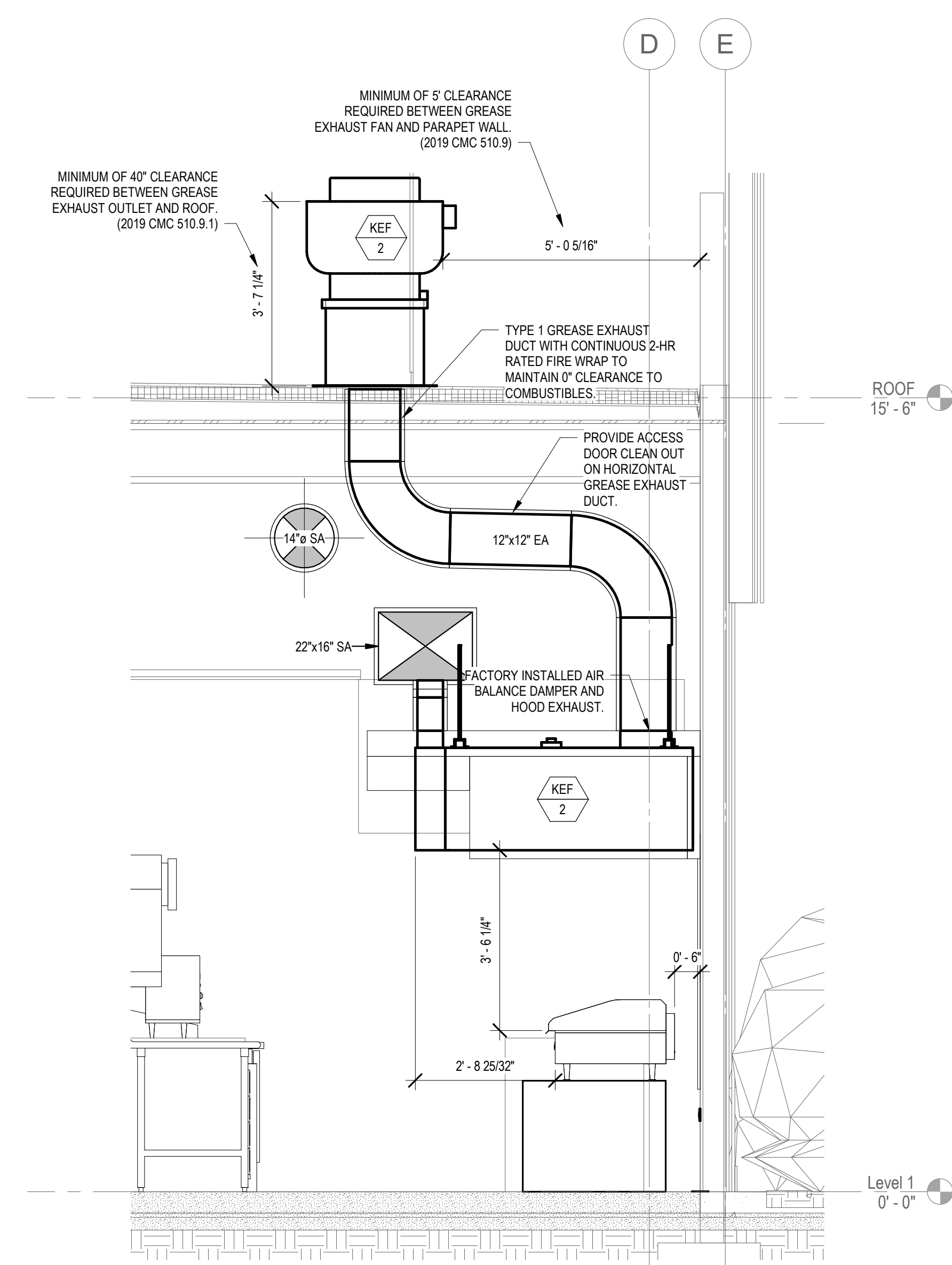
Description  
**MECHANICAL SECTION**

Scale  
1/2" = 1'-0"

**M301**



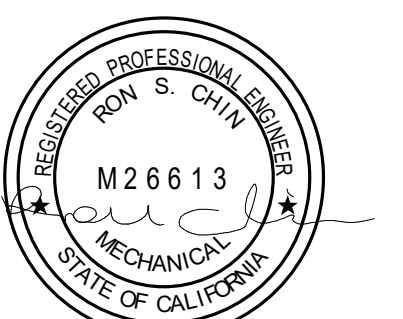
**2 KEF-1 HOOD ELEVATION**  
SCALE: 1/2" = 1'-0"



**1 KEF-2 HOOD ELEVATION**  
SCALE: 1/2" = 1'-0"

Date	Description
02/24/2023	ISSUE FOR PERMIT/BD
05/15/2023	ADDENDUM 2
09/01/2023	ISSUE FOR CONSTRUCTION

Seal / Signature



Project EXP. 9-24-2023

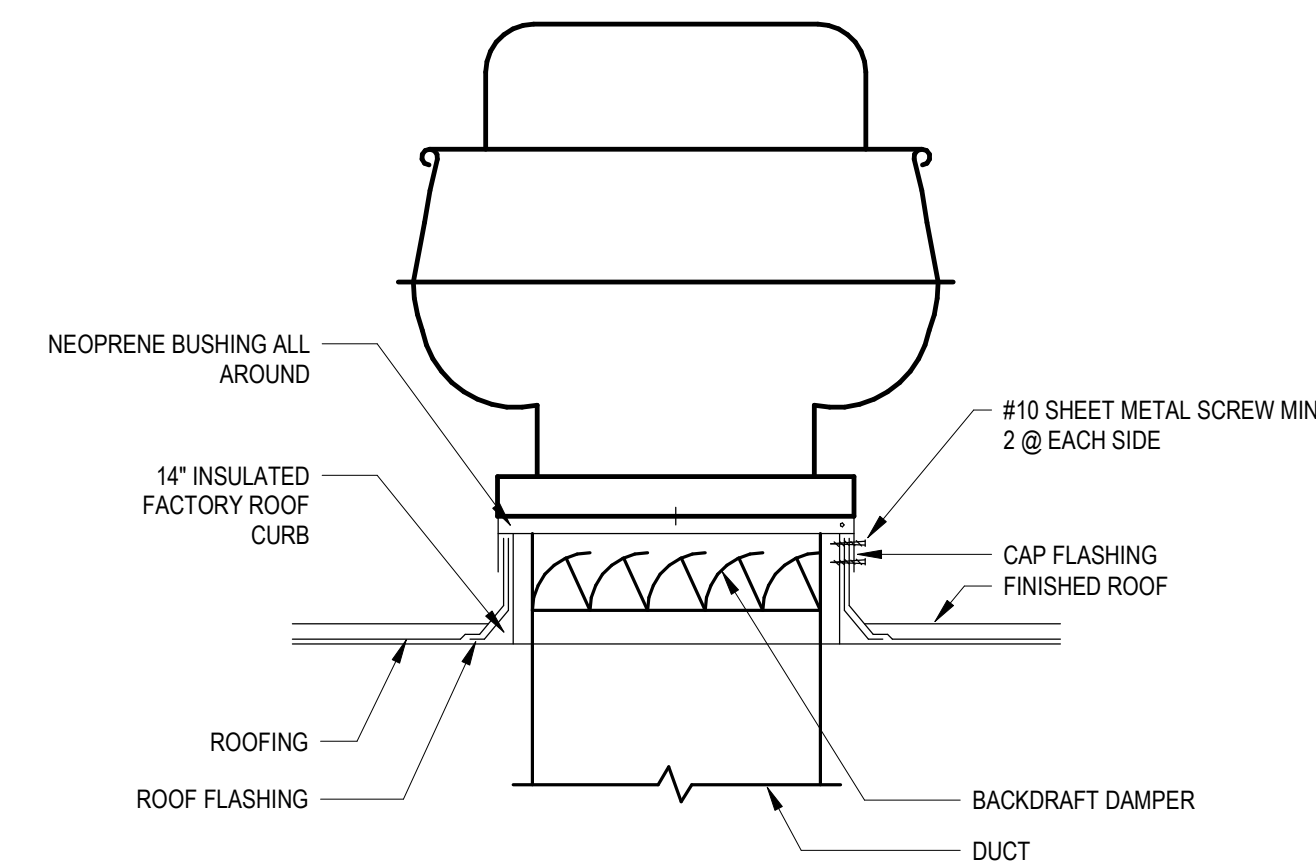
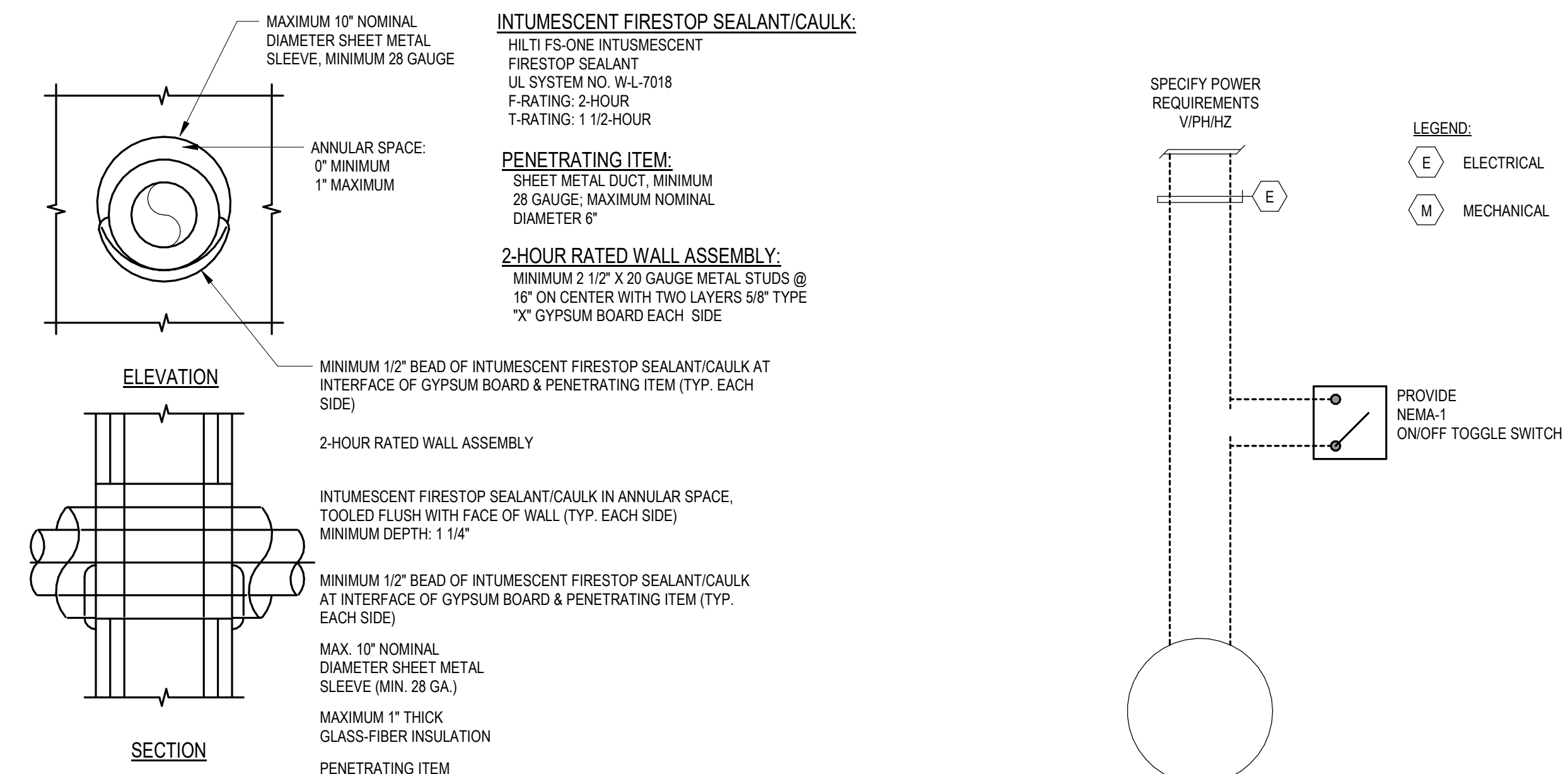
**SHAKE SHACK - COSTA MESA**

Project  
**005.3847.000**

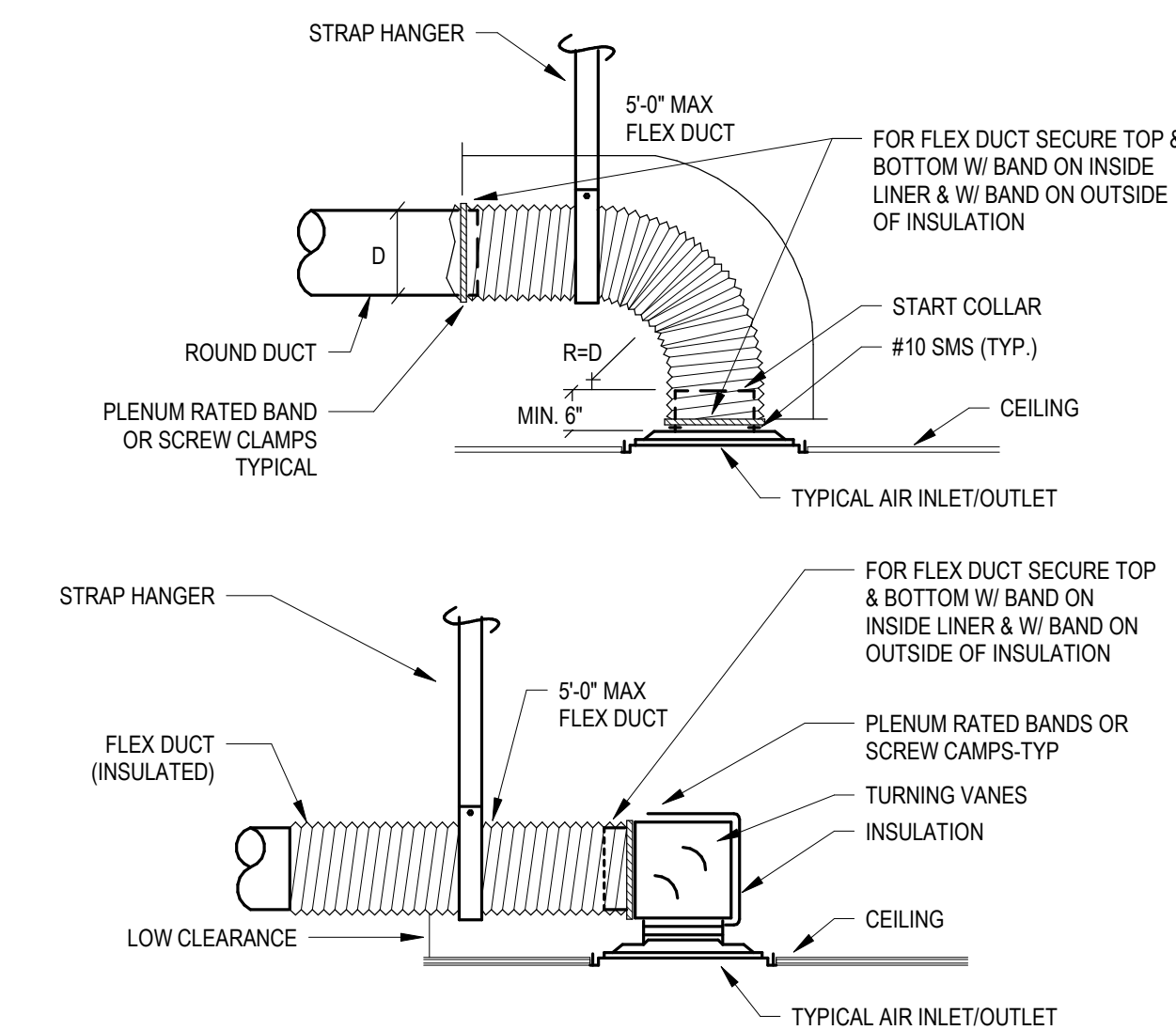
Description  
**MECHANICAL DETAILS**

Scale  
As indicated

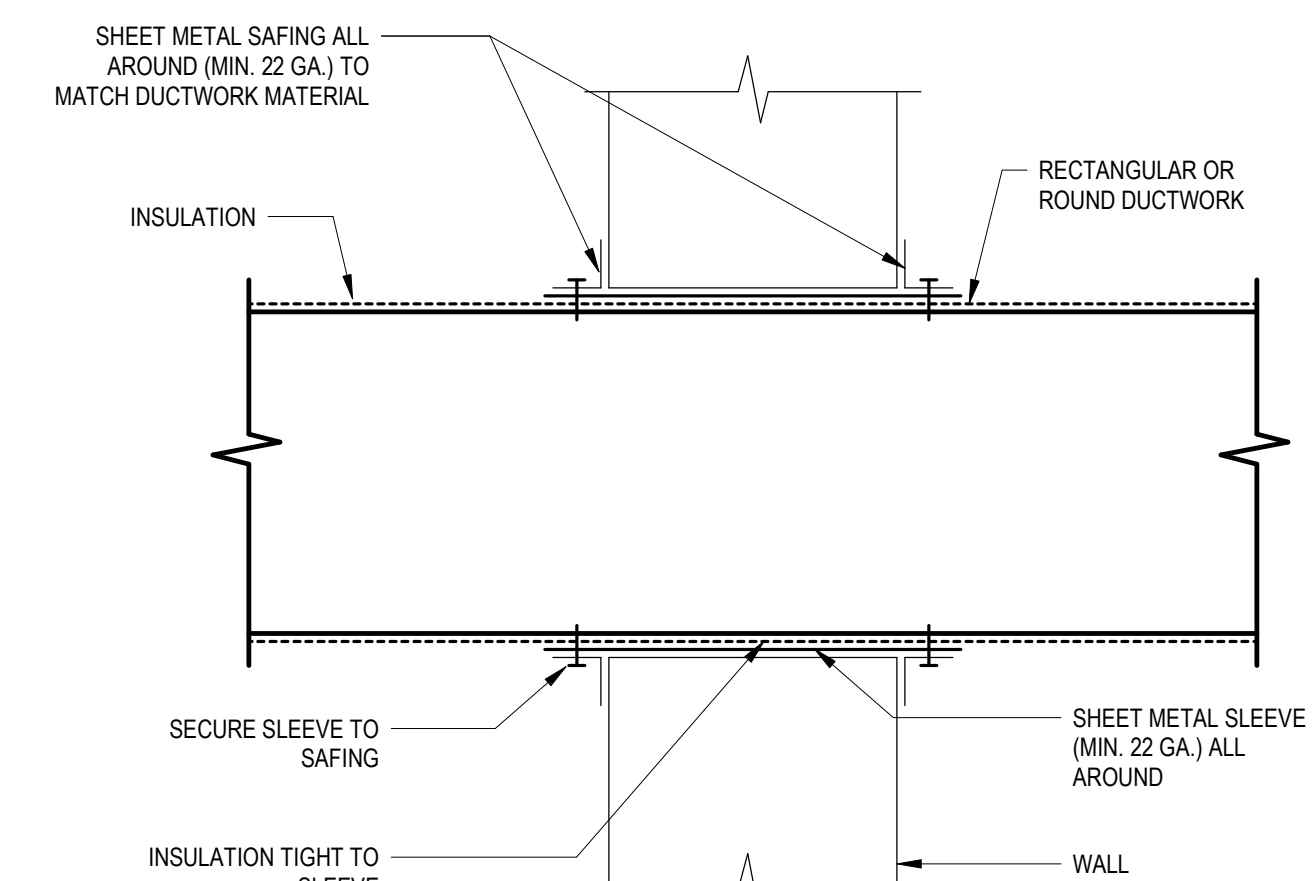
**M501**



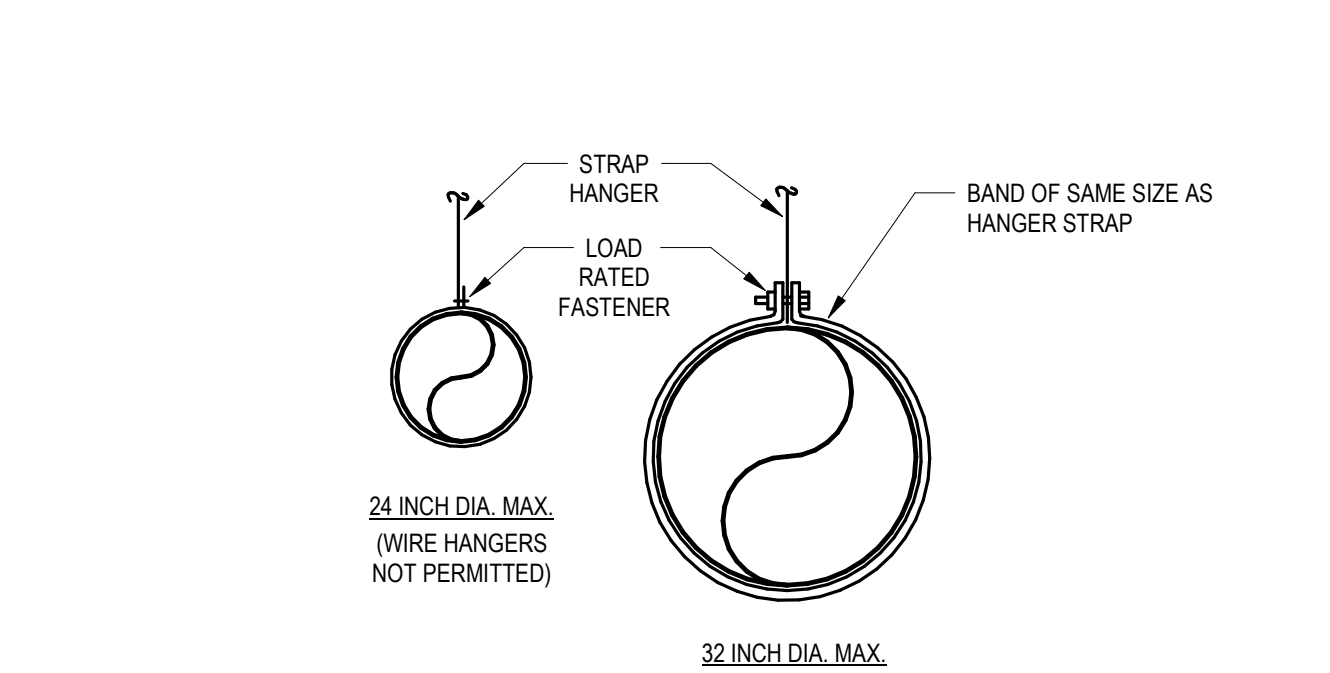
- NOTES:
- FAN DETAIL ONLY APPLIES TO EF-1 RESTROOM EXHAUST FAN.
  - DUCT SHALL BE 1" SMALLER THAN ROOF OPENING.
  - ROOF OPENING SHALL CONFORM TO MANUFACTURER'S CURB SIZE.



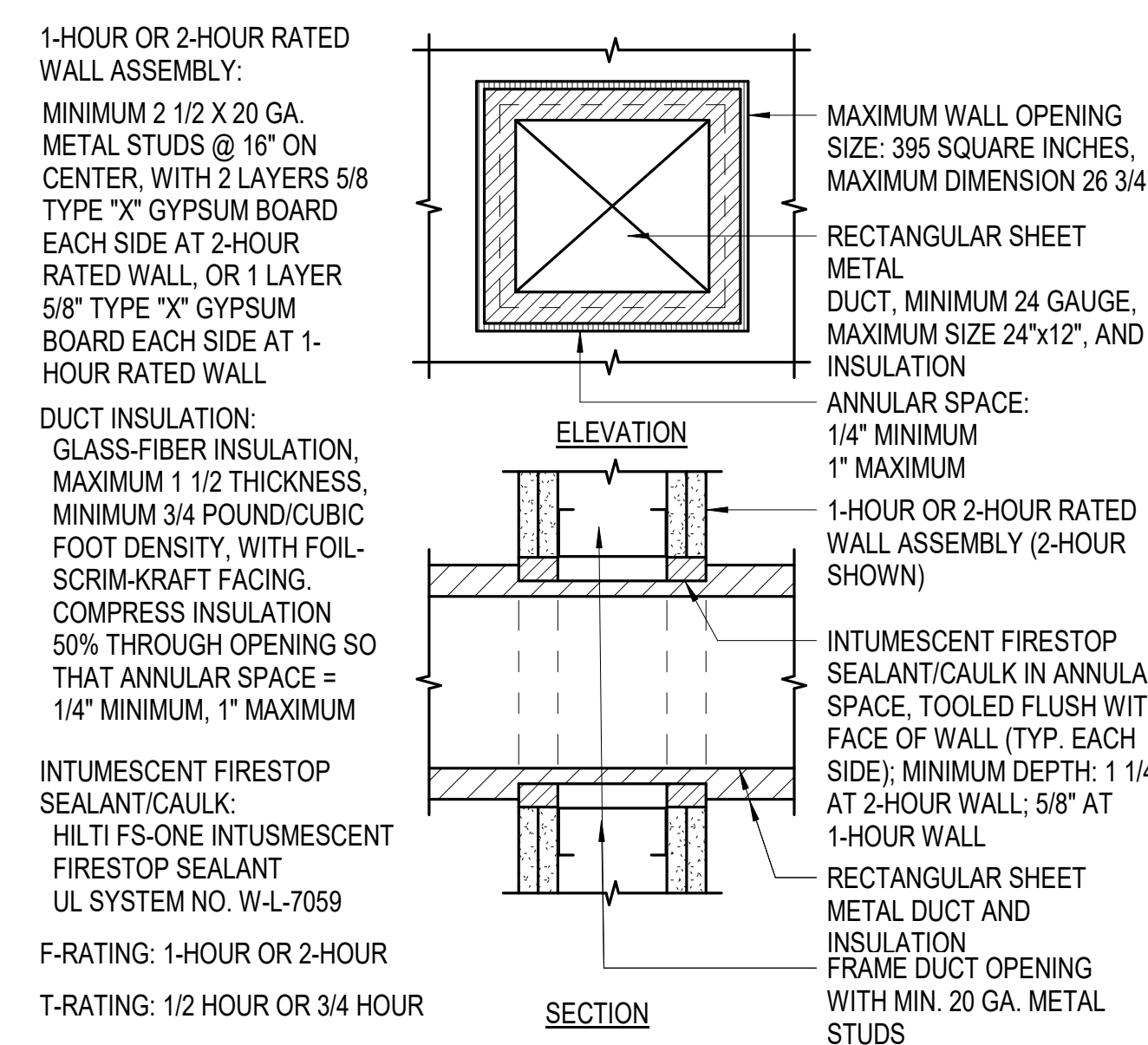
SUPPORT SYSTEM MUST NOT DAMAGE DUCT OR CAUSE OUT OF ROUND SHAPE. SEAL ALL DUCT COLLAR CONNECTIONS TO AIR INLET/OUTLET NECK. REFER TO SMACNA TABLE 5-2 FOR HANGER STRAP SIZE.



NOTE:  
INTERIOR WALL REQUIRE SAFING ON ONE SIDE ONLY ON CONCEALED DUCTS AND ON BOTH SIDES OF WALL ON EXPOSED DUCTS.

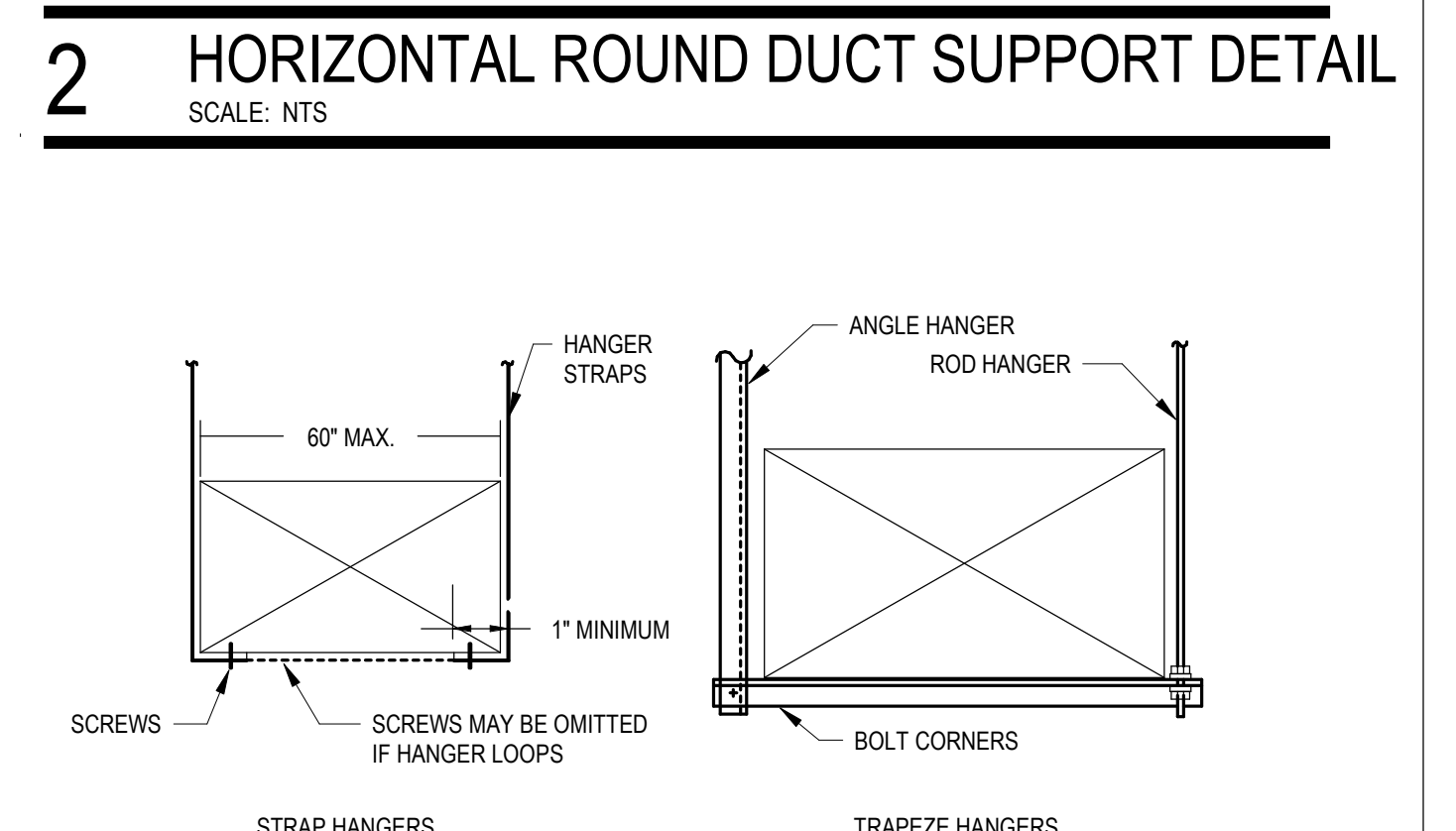


- NOTES:
- APPLICABLE FOR DUCT SIZE UP TO MAXIMUM 32"0 AND WEIGHT OF 20 LBS/FT OR LESS.
  - FOR HANGER SIZE AND SPACING, SEE SMACNA HVAC DUCT TABLE 5-2. FOR TRAPEZE, ALLOWABLE LOAD SEE TABLE 5-3.
  - FOR UPPER ATTACHMENT TO BUILDING, SEE SMACNA HVAC DUCT CONSTRUCTION STANDARDS FIG. 5-1 TO 5-4, WITH SPECIFIC BUILDING STRUCTURAL ENGINEER APPROVAL. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS WITH DETAILS AND SUPPORT LOCATIONS.
  - ALL DUCT HANGER AND ATTACHMENTS SHALL BE REVIEWED AND APPROVED BY SEOR BEFORE FABRICATION AND INSTALLATION.



**8 INSULATED METAL DUCT THRU RATED WALL (REC DUCT)**  
SCALE: NTS

**5 DUCT WALL PENETRATION**  
SCALE: NTS



- NOTES:
- APPLICABLE FOR DUCT SIZE UP TO ITS CROSS SECTIONAL AREA OF MAXIMUM 6 SQ. FT AND WEIGHT OF 20 LBS/FT OR LESS.
  - FOR HANGERS SIZE AND SPACING, SEE SMACNA HVAC DUCT CONSTRUCTION STANDARDS TABLE 5-1.
  - FOR UPPER ATTACHMENT TO BUILDING, SEE SMACNA HVAC DUCT CONSTRUCTION STANDARDS FIG. 5-1 TO 5-4, WITH SPECIFIC BUILDING STRUCTURAL ENGINEER APPROVAL. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS WITH DETAILS AND SUPPORT LOCATIONS.
  - ALL DUCT HANGER AND ATTACHMENTS SHALL BE REVIEWED AND APPROVED BY SEOR BEFORE FABRICATION AND INSTALLATION.

**1 RECTANGULAR DUCT SUPPORT**  
SCALE: NTS

FireMaster® FastWrap® XL

12.2014 Page 1 of 8



Grease Duct Enclosure System

Air Ventilation Duct Enclosure System

Product Data & Installation Guide

1. Product Description

Thermal Ceramics FireMaster® FastWrap XL is a flexible blanket composed of high temperature fibers classified for applications to 2192°F (1200°C) and fully encapsulated in a durable glass fiber reinforced foil facing for easy handling and installation. Thermal Ceramics FastWrap XL is UL and ULC listed for 1 and 2 hour fire resistive enclosure protection, zero clearance for kitchen exhaust ducts, electrical circuit protection, and as a component for firestop designs for fire resistance rated floors, ceilings, and walls. The core fibers in FastWrap XL are manufactured using Thermal Ceramics patented Superwool® fiber which is an alkali-earth silicate wool with low bio-persistence and therefore increased safety for installers. FastWrap XL is under UL's Follow-Up Service Program to ensure the consistent quality essential to this life-safety application.

Product Features

- Thin and lightweight at 1-1/2" (38mm) thick, 6' of (94.7m) density
- Contours easily to complex duct designs
- Grease duct installation UL and ULC listed with butt joints at all seams on both layers
- Fully foil encapsulated for fast and clean installation
- Contains 2192°F (1200°C) rated fibers
- Microbial Resistance Validated by UL Environment
- Good sound absorption
- Compliant to IMC, NFPA 96, UMC, CMC, CNBC

2. Applications

- 2 hour enclosures and firestop system for kitchen exhaust duct
- Zero clearance to combustibles
- 1, 2 and 3 hour enclosures and firestop system for hazardous exhaust ducts, pressurization ducts, clothes dryer exhaust ducts, trash and linen chutes, and other fire rated HVAC ducts
- 1 hour electrical circuit integrity protection
- Engineered and tested solutions for fire protection of structural steel and storage vessels per ASTM E119, ISO 834, and UL 1709

3. Specifications - Division 23 07 00 (or 15088)

CSI Spec and AutoCAD available online: [www.ircd.com/ircd/clear/thermo.html](http://www.ircd.com/ircd/clear/thermo.html)

Thermal Ceramics FireMaster FastWrap XL is a flexible high temperature insulation rated to 2192°F (1200°C) that is fully encapsulated in FSP facing.

The duct enclosure system shall be listed by UL and for ULC per ASTM E 2336, CANULC 5144 and ISO 834 for:

- 1-, 2- and 3-hour rating and zero clearance to combustibles, and tested per ASTM E84 for a flame/smoke rating less than 25/50.
- Insulation shall have a nominal thickness of 1-1/2 inches (38 mm) and density of 1.12 (86 kg/m<sup>3</sup>). Insulation shall have an R-value of 7.3 at 75°F. Installation shall be in strict accordance to manufacturers published installation instructions, UL or ULC Listings, and shop drawings. FastWrap XL shall be used for duct access where specified or as required by code.

FireMaster® FastWrap® XL

12.2014 Page 2 of 8

4. Physical Characteristics

Product	Unit Size	Weight	UL/ULC
FastWrap XL Roll	1-1/2" x 24' x 22'	1	27 lbs. net
FastWrap XL Roll	1-1/2" x 48' x 22'	1	75 lbs. net

5. Performance Specifications

Reference Standard	Standard No.	Performance
--------------------	--------------	-------------

Grease Duct Enclosure System

Section 16.1 - Fire Resistance	ASTM E2336	Pass
Section 16.2 - Fire Resistance (with)	ASTM E139	Pass
Section 16.2 - Fire Resistance (with)	ASTM E119	Pass
Section 16.3 - Durability Test	ASTM C518	Pass
Section 16.4 - Internal Fire Test	ASTM E2336	Pass
Section 16.5 - Fire Engineering (with)	ASTM E814 / E119	Pass
ULC Grease Duct Test Protocol		Pass

Air Ventilation Duct Enclosure System

Section 16.1 - Fire Resistance	ASTM E2336	Pass
Section 16.2 - Fire Resistance (with)	ASTM E139	Pass
Section 16.2 - Fire Resistance (with)	ASTM E119	Pass
Section 16.3 - Durability Test	ASTM C518	Pass
Section 16.4 - Internal Fire Test	ASTM E2336	Pass
Section 16.5 - Fire Engineering (with)	ASTM E814 / E119	Pass
ULC Grease Duct Test Protocol		Pass

Standard Methods of Fire Resistance Tests - Grease Duct Assemblies

CANULC 5144	Pass
ASTM E2336	Pass
ASTM E814 / E119	Pass
ULC Grease Duct Test Protocol	Pass

Standard Methods of Fire Resistance Tests - Grease Duct Assemblies

CANULC 5144	Pass
ASTM E2336	Pass
ASTM E814 / E119	Pass
ULC Grease Duct Test Protocol	Pass

Standard Methods of Fire Resistance Tests - Grease Duct Assemblies

CANULC 5144	Pass
ASTM E2336	Pass
ASTM E814 / E119	Pass
ULC Grease Duct Test Protocol	Pass

Standard Methods of Fire Resistance Tests - Grease Duct Assemblies

CANULC 5144	Pass
ASTM E2336	Pass
ASTM E814 / E119	Pass
ULC Grease Duct Test Protocol	Pass

Standard Methods of Fire Resistance Tests - Grease Duct Assemblies

CANULC 5144	Pass
ASTM E2336	Pass
ASTM E814 / E119	Pass
ULC Grease Duct Test Protocol	Pass

Standard Methods of Fire Resistance Tests - Grease Duct Assemblies

CANULC 5144	Pass
ASTM E2336	Pass
ASTM E814 / E119	Pass
ULC Grease Duct Test Protocol	Pass

Standard Methods of Fire Resistance Tests - Grease Duct Assemblies

CANULC 5144	Pass
ASTM E2336	Pass
ASTM E814 / E119	Pass
ULC Grease Duct Test Protocol	Pass

Standard Methods of Fire Resistance Tests - Grease Duct Assemblies

CANULC 5144	Pass
ASTM E2336	Pass
ASTM E814 / E119	Pass
ULC Grease Duct Test Protocol	Pass

Standard Methods of Fire Resistance Tests - Grease Duct Assemblies

CANULC 5144	Pass
ASTM E2336	Pass
ASTM E814 / E119	Pass
ULC Grease Duct Test Protocol	Pass

Standard Methods of Fire Resistance Tests - Grease Duct Assemblies

CANULC 5144	Pass
ASTM E2336	Pass
ASTM E814 / E119	Pass
ULC Grease Duct Test Protocol	Pass

Standard Methods of Fire Resistance Tests - Grease Duct Assemblies

CANULC 5144	Pass
ASTM E2336	Pass
ASTM E814 / E119	Pass
ULC Grease Duct Test Protocol	Pass

Standard Methods of Fire Resistance Tests - Grease Duct Assemblies

CANULC 5144	Pass
ASTM E2336	Pass
ASTM E814 / E119	Pass
ULC Grease Duct Test Protocol	Pass

Standard Methods of Fire Resistance Tests - Grease Duct Assemblies

CANULC 5144	Pass
ASTM E2336	Pass
ASTM E814 / E119	Pass
ULC Grease Duct Test Protocol	Pass

Standard Methods of Fire Resistance Tests - Grease Duct Assemblies

CANULC 5144	Pass
ASTM E2336	Pass
ASTM E814 / E119	Pass
ULC Grease Duct Test Protocol	Pass

Standard Methods of Fire Resistance Tests - Grease Duct Assemblies

CANULC 5144	Pass
ASTM E2336	Pass
ASTM E814 / E119	Pass
ULC Grease Duct Test Protocol	Pass

Standard Methods of Fire Resistance Tests - Grease Duct Assemblies

CANULC 5144	Pass
ASTM E2336	Pass
ASTM E814 / E119	Pass
ULC Grease Duct Test Protocol	Pass

Standard Methods of Fire Resistance Tests - Grease Duct Assemblies

CANULC 5144	Pass
ASTM E2336	Pass
ASTM E814 / E119	Pass
ULC Grease Duct Test Protocol	Pass

Standard Methods of Fire Resistance Tests - Grease Duct Assemblies

CANULC 5144	Pass
ASTM E2336	Pass
ASTM E814 / E119	Pass
ULC Grease Duct Test Protocol	Pass

Standard Methods of Fire Resistance Tests - Grease Duct Assemblies

CANULC 5144	Pass
ASTM E2336	Pass
ASTM E814 / E119	Pass
ULC Grease Duct Test Protocol	Pass

Standard Methods of Fire Resistance Tests - Grease Duct Assemblies

CANULC 5144	Pass
ASTM E2336	Pass
ASTM E814 / E119	Pass
ULC Grease Duct Test Protocol	Pass

Standard Methods of Fire Resistance Tests - Grease Duct Assemblies

CANULC 5144	Pass
ASTM E2336	Pass
ASTM E814 / E119	Pass
ULC Grease Duct Test Protocol	Pass

Standard Methods of Fire Resistance Tests - Grease Duct Assemblies

CANULC 5144	Pass
ASTM E2336	Pass
ASTM E814 / E119	Pass
ULC Grease Duct Test Protocol	Pass

Standard Methods of Fire Resistance Tests - Grease Duct Assemblies

CANULC 5144	Pass
ASTM E2336	Pass
ASTM E814 / E119	Pass
ULC Grease Duct Test Protocol	Pass

Standard Methods of Fire Resistance Tests - Grease Duct Assemblies

CANULC 5144	Pass
ASTM E2336	Pass
ASTM E814 / E119	Pass
ULC Grease Duct Test Protocol	Pass

Standard Methods of Fire Resistance Tests - Grease Duct Assemblies

CANULC 5144	Pass
ASTM E2336	Pass
ASTM E814 / E119	Pass
ULC Grease Duct Test Protocol	Pass

Standard Methods of Fire Resistance Tests - Grease Duct Assemblies

CANULC 5144	Pass
ASTM E2336	Pass
ASTM E814 / E119	Pass
ULC Grease Duct Test Protocol	Pass

Standard Methods of Fire Resistance Tests - Grease Duct Assemblies

CANULC 5144	Pass
ASTM E2336	Pass
ASTM E814 / E119	Pass
ULC Grease Duct Test Protocol	Pass

Standard Methods of Fire Resistance Tests - Grease Duct Assemblies

CANULC 5144	Pass
ASTM E2336	Pass
ASTM E814 / E119	Pass
ULC Grease Duct Test Protocol	Pass

Standard Methods of Fire Resistance Tests - Grease Duct Assemblies

CANULC 5144	Pass
ASTM E2336	Pass
ASTM E814 / E119	Pass
ULC Grease Duct Test Protocol	Pass

Standard Methods of Fire Resistance Tests - Grease Duct Assemblies

CANULC 5144	Pass
ASTM E2336	Pass
ASTM E814 / E119	Pass
ULC Grease Duct Test Protocol	Pass

Standard Methods of Fire Resistance Tests - Grease Duct Assemblies

CANULC 5144	Pass
ASTM E2336	Pass
ASTM E814 / E119	Pass
ULC Grease Duct Test Protocol	Pass

Standard Methods of Fire Resistance Tests - Grease Duct Assemblies

CANULC 5144	Pass
ASTM E2336	Pass
ASTM E814 / E119	Pass
ULC Grease Duct Test Protocol	Pass

Standard Methods of Fire Resistance Tests - Grease Duct Assemblies

CANULC 5144	Pass
ASTM E2336	Pass
ASTM E814 / E119	Pass
ULC Grease Duct Test Protocol	Pass

Standard Methods of Fire Resistance Tests - Grease Duct Assemblies

CANULC 5144	Pass
ASTM E2336	Pass
ASTM E814 / E119	Pass
ULC Grease Duct Test Protocol	Pass

Standard Methods of Fire Resistance Tests - Grease Duct Assemblies

CANULC 5144	Pass
ASTM E2336	Pass
ASTM E814 / E119	Pass
ULC Grease Duct Test Protocol	Pass

Standard Methods of Fire Resistance Tests - Grease Duct Assemblies

CANULC 5144	Pass
ASTM E2336	Pass
ASTM E814 / E119	Pass
ULC Grease Duct Test Protocol	Pass

Standard Methods of Fire Resistance Tests - Grease Duct Assemblies

CANULC 5144	Pass
ASTM E2336	Pass
ASTM E814 / E119	Pass
ULC Grease Duct Test Protocol	Pass

Standard Methods of Fire Resistance Tests - Grease Duct Assemblies

CANULC 5144	Pass
ASTM E2336	Pass
ASTM E814 / E119	Pass
ULC Grease Duct Test Protocol	Pass

Standard Methods of Fire Resistance Tests - Grease Duct Assemblies

CANULC 5144	Pass
ASTM E2336	Pass
ASTM E814 / E119	Pass
ULC Grease Duct Test Protocol	Pass

Standard Methods of Fire Resistance Tests - Grease Duct Assemblies

CANULC 5144	Pass
ASTM E2336	Pass
ASTM E814 / E119	Pass
ULC Grease Duct Test Protocol	Pass

Standard Methods of Fire Resistance Tests - Grease Duct Assemblies

CANULC 5144	Pass
ASTM E2336	Pass
ASTM E814 / E119	Pass
ULC Grease Duct Test Protocol	Pass

Standard Methods of Fire Resistance Tests - Grease Duct Assemblies

CANULC 5144	Pass
ASTM E2336	Pass
ASTM E814 / E119	Pass
ULC Grease Duct Test Protocol	Pass

Standard Methods of Fire Resistance Tests - Grease Duct Assemblies

CANULC 5144	Pass
ASTM E2336	Pass
ASTM E814 / E119	Pass
ULC Grease Duct Test Protocol	Pass

Standard Methods of Fire Resistance Tests - Grease Duct Assemblies

CANULC 5144	Pass
ASTM E2336	Pass
ASTM E814 / E119	Pass
ULC Grease Duct Test Protocol	Pass

Standard Methods of Fire Resistance Tests - Grease Duct Assemblies

SPECIFICATION TABLE OF CONTENTS

SECTION 23000 - ENERGY CONSERVATION
SECTION 23050 - COMMON WORK RESULTS FOR HVAC
SECTION 23099 - HANGERS AND SUPPORTS
SECTION 23053 - IDENTIFICATION
SECTION 23055 - IDENTIFICATION
SECTION 23059 - TESTING, ADJUSTING, AND BALANCING FOR HVAC
SECTION 23070 - HVAC INSULATION
SECTION 23080 - COMMISSIONING
SECTION 23230 - REFRIGERANT PIPING
SECTION 23113 - METAL DUCTS
SECTION 23300 - AIR DUCT ACCESSORIES
SECTION 23713 - DIFFUSERS, REGISTERS AND GRILLES

SECTION 23000 - ENERGY CONSERVATION

- A. HVAC SYSTEMS AND EQUIPMENT CAPACITIES NOT EXCEED CALCULATED LOADS.
B. THERMOSTATIC CONTROLS.
1. THERMOSTATIC CONTROLS SHALL HAVE A 5 DEG-F DEADBAND.
2. THERMOSTATIC CONTROLS SHALL BE CAPABLE OF OPERATING THE DOWN TO 55-DEG-F UP TO 85-DEG-F.
3. EACH ZONE SHALL BE PROVIDED WITH AUTOMATIC TIME CLOCK OR PROGRAMMABLE CONTROLS FOR STARTING AND STOPPING THE SYSTEM FOR SEVERAL DIFFERENT DAILY SCHEDULES PER WEEK.

SECTION 23050 - COMMON WORK RESULTS FOR HVAC

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

A. DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS, AND DIVISION-1 SPECIFICATION SECTIONS, APPLY TO THIS SECTION.

1.2 SCOPE OF WORK

- A. PROVIDE LABOR, INCLUDING FIELD ERECTION AND SUPERVISION, MATERIALS, EQUIPMENT AND ANCHLAGES, AND COORDINATE. PROVIDE, FABRICATE, DELIVER, ERECT OR INSTALL, INTERFERE WITH EXISTING WORK, START, DEBUG AND TEST ALL SYSTEMS AS NECESSARY TO PROVIDE THE OWNER WITH A COMPLETE OPERATING FACILITY IN CONFORMANCE WITH THE CONTRACT DOCUMENTS AND IN CONFORMITY WITH REQUIREMENTS OF ALL AUTHORITIES HAVING JURISDICTION.
B. THE WORK SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING:
1. DEMOLITION AND REMOVAL OF MECHANICAL WORK
2. DUCTWORK AND AIR OUTLETS
3. AIR-CONDITIONING AND EXHAUST SYSTEMS
4. KITCHEN HOOD AND EXHAUST SYSTEMS
5. MAKEUP AIR SYSTEMS
6. THERMAL INSULATION
7. COORDINATION WITH OTHER TRADES FOR LOCATION OF DUCTWORK AND TO INFACT THE GENERAL CONTRACTOR (VIA DIMENSIONAL DRAWINGS) OF THE EXACT SIZE AND LOCATION OF ALL ROOF WALL OPENINGS.
8. MISCELLANEOUS STEEL WORK, SUPPORTS AND HANGERS AND CUTTING AND PATCHING OF ROOF WALLS AND PARTITIONS.
9. RECORD DRAWINGS.
10. CONTROLS, TESTING, ADJUSTING, AND BALANCING.

1.3 RELATED WORK INCLUDED IN THIS SECTION AND IN OTHER SECTIONS

- 1. GENERAL CONTRACTOR IS RESPONSIBLE FOR ALL WORK DESCRIBED IN THE CONSTRUCTION DOCUMENTS.
2. REFER TO THE RESPONSIBILITY MATRIX FOR ADDITIONAL INFORMATION.

1.3 SUBMITTALS

- A. PROVIDE CONTRACTOR SUBMITTAL MATERIAL WITH DESCRIPTIVE DATA FOR ALL PRODUCTS AND MATERIALS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING, PRIOR TO INSTALLATION. ALL SUBMITTALS SHALL BE IDENTIFIED TO INDICATE SPECIFIC PRODUCTS OR MATERIALS BEING USED. ALLOW MIN 5 DAYS FOR ENGINEER TO REVIEW SUBMITTALS.
1. COORDINATED LAYOUT PLANS, SHOWING WORK OF ALL TRADES, INCLUDING BUT NOT LIMITED TO: DUCTWORK, HVAC, REFRIGERANT PLUMBING, FIRE PROTECTION PIPING, ELECTRICAL CONDUITS AND BUS DUCTS, EQUIPMENT. DRAWINGS SHALL BE 1/4 SCALE.
2. DUCTWORK ACCESSORIES
3. DUCTWORK TYPICAL CONSTRUCTION
4. DUCT SEALING
5. REFRIGERANT PIPING
6. DAMPERS
7. DIFFUSERS, GRILLES AND REGISTERS
8. CERTIFIED ACOUSTICAL TEST PERFORMANCE DATA FOR DIFFUSERS, REGISTERS, GRILLES AND TERMINAL AIR UNITS
9. AIR AND WATER TEST AND BALANCE
10. COMPLETE FORMS PROPOSED FOR USE IN COMPLYING AND RECORDING TEST AND BALANCE DATA
11. CONTROL DEVICES AND SYSTEMS
12. CONTROL SEQUENCE AND SYSTEM DRAWINGS
13. FIRE PROTECTION SYSTEM LAYOUTS IN CODE COMPLIANCE.
14. VIBRATION ISOLATION
15. ONE SET OF AS-BUILT REPRODUCIBLE DRAWINGS.
B. PROVIDE 1 COPY OF APPROVED SUBMITTALS TO THE OFFICE OF THE BUILDING ENGINEER.

1.4 PRODUCT SUBSTITUTIONS

- A. THE CONTRACTOR SHALL CERTIFY THE FOLLOWING ITEMS ARE CORRECT WHEN ON THE DRAWINGS AS BASIS OF DESIGN:
1. THE PROPOSED SUBSTITUTION DOES NOT AFFECT DIMENSIONS SHOWN ON DRAWINGS.
2. THE CONTRACTOR SHALL PAY FOR CHANGES TO BUILDING DESIGN, INCLUDING ENGINEERING DESIGN, DETAILING, STRUCTURAL SUPPORTS, AND CONSTRUCTION COSTS CAUSED BY PROPOSED SUBSTITUTION.
3. THE PROPOSED SUBSTITUTION HAS NO ADVERSE EFFECT ON OTHER TRADES, CONSTRUCTION SCHEDULE, OR SPECIFIED WARRANTY REQUIREMENTS.
4. MAINTENANCE AND SERVICE PARTS AVAILABLE LOCALLY ARE READILY OBTAINABLE FOR THE PROPOSED SUBSTITUTE.
B. THE CONTRACTOR FURTHER CERTIFIES FUNCTION, APPEARANCE, AND QUALITY OF PROPOSED SUBSTITUTION ARE EQUIVALENT OR SUPERIOR TO SPECIFIED ITEM.
C. THE CONTRACTOR AGREES THAT THE TERMS AND CONDITIONS FOR THE SUBSTITUTED PRODUCT THAT ARE FOUND IN THE CONTRACT DOCUMENTS APPLY TO THIS PROPOSED SUBSTITUTION.

1.5 MAINTENANCE MANUALS AND AS-BUILT DRAWINGS

- A. PROVIDE FOUR (4) COPIES OF OPERATING AND MAINTENANCE MANUAL FOR OWNERS USE FOR EACH PIECE OF EQUIPMENT WITHIN 90 DAYS OF ACCEPTANCE. EACH ITEM SHALL BE CROSS-REFERENCED AND NUMBERED WITH AS-BUILT DRAWING DESCRIPTIONS.
B. SOFT COPY OF AS-BUILT DRAWINGS ON AUTOCAD AND PDF AND ONE SET OF HARD COPY SHALL BE DELIVERED TO OWNER WITHIN 90 DAYS OF SYSTEM ACCEPTANCE.

1.6 GUARANTEES

- A. GUARANTEE - ALL MATERIALS, APPARATUS AND WORKMANSHIP INSTALLED UNDER THIS SECTION SHALL BE UNCONDITIONALLY GUARANTEED FOR A PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE OF WORK BY THE OWNER AGAINST FAILURE DUE TO FACTORY MATERIAL OR WORKMANSHIP. THE CONTRACTOR SHALL CORRECT DEFECTS AT NO ADDITIONAL COST TO THE OWNER. LABOR AND REPLACEMENT OF PARTS TO BE ACCOMPLISHED AT NO COST TO OWNER.

1.7 SEISMIC SUPPORT

- A. CONTRACTOR SHALL SUPPORT AND BRACE ALL NEW HVAC, PLUMBING AND FIRE PROTECTION SYSTEMS IN ACCORDANCE WITH REQUIREMENTS SPECIFIED.

1.8 PRODUCT HANDLING

- A. PROTECTION - PROTECT MATERIALS AND EQUIPMENT FROM DAMAGE DURING SHIPPING, STORAGE AND HANDLING. REMOVE FROM THE SITE ANY WET OR DAMAGED DUCT LINER OR INSULATION.
B. STORAGE - WHERE POSSIBLE, STORE MATERIALS AND EQUIPMENT INSIDE AND PROTECT FROM THE WEATHER. WHERE NECESSARY TO STORE OUTSIDE, STORE ABOVE GRADE AND ENCLOSE WITH WATERPROOF WRAPPING.
C. REPLACEMENT - IN THE EVENT OF DAMAGE, IMMEDIATELY REPAIR ALL DAMAGED AND DEFECTIVE WORK TO THE APPROVAL OF THE ENGINEER AT NO ADDITIONAL COST TO THE OWNER.

1.9 CONTRACT DRAWINGS

- A. CONTRACT DRAWINGS FOR MECHANICAL WORK ARE DIAGRAMMATIC, INTENDED TO CONVEY THE SCOPE OF THE WORK AND INDICATE GENERAL ARRANGEMENT OF EQUIPMENT, DUCTS, PIPING AND APPROXIMATE SIZES AND LOCATIONS OF EQUIPMENT AND OUTLETS. DO NOT SCALE DRAWINGS FOR MEASUREMENTS.
B. CONSULT KITCHEN, MECHANICAL, PLUMBING, ARCHITECTURAL, STRUCTURAL AND ELECTRICAL CONTRACT DRAWINGS AND SPECIFICATIONS TO BECOME FAMILIAR WITH ALL CONDITIONS AFFECTING THE WORK, COORDINATE INTERCONNECTING WORK WITH OTHER TRADES AFFECTED, AND VERIFY ALL SPACES IN WHICH THE WORK WILL BE INSTALLED.

C. WHERE JOB CONDITIONS REQUIRE REASONABLE CHANGES IN ORDER TO COORDINATE INSTALLATION WITH OTHER TRADES, THESE CHANGES SHALL BE MADE WITHOUT EXTRA COST TO THE OWNER.

1.10 DEMOLITION

- A. PROTECT ADJACENT MATERIALS TO BE KEPT, REMOVE, INSTALL AND MAINTAIN DUST AND NOISE BARRIERS TO KEEP DUST, DIRT AND NOISE FROM BEING TRANSMITTED TO ADJACENT AREAS. REMOVE PROTECTION AND BARRIERS AFTER DEMOLITION OPERATIONS ARE COMPLETE.
B. LOCATE, IDENTIFY AND PROTECT MECHANICAL SERVICES PASSING THROUGH DEMOLITION AREA AND SERVING OTHER AREAS OUTSIDE THE DEMOLITION LIMITS. MAINTAIN SERVICES TO AREAS OUTSIDE DEMOLITION LIMITS, WHICH SERVICES MUST BE INTERRUPTED, INSTALL TEMPORARY SERVICES FOR AFFECTED AREAS.
C. MATERIALS AND EQUIPMENT TO BE SALVAGED, REMOVE, DEMOUNT, AND DISCONNECT EXISTING MECHANICAL MATERIALS AND EQUIPMENT INDICATED TO BE REMOVED AND SALVAGED, AND DELIVER MATERIALS AND EQUIPMENT TO THE OWNER.
D. REPAIR OR REPLACE EQUIPMENT OR MATERIALS DAMAGED DURING DEMOLITION TO SATISFACTION OF OWNER'S DESIGNATED REPRESENTATIVE.

1.11 INTERRUPTION OF EXISTING UTILITY SERVICE

- A. COORDINATE THE SHUT-OFF AND DISCONNECTION OF UTILITY SERVICES WITH THE OWNER AND THE UTILITY COMPANY.
B. NOTIFY THE OWNER'S REPRESENTATIVE OWNER'S PROJECT REPRESENTATIVE AT LEAST 5 DAYS PRIOR TO COMMENCING DEMOLITION OPERATIONS.

1.12 SCHEDULING

- A. SUBMIT SCHEDULES INDICATING PROPOSED METHODS AND SEQUENCE OF OPERATIONS FOR DEMOLITION PRIOR TO COMMENCEMENT OF WORK. INCLUDE COORDINATION FOR SHUT-OFF OF UTILITY SERVICES AND DETAILS FOR DUST AND NOISE CONTROL.
B. COORDINATE SEQUENCING WITH CONSTRUCTION PHASING AND OWNER OCCUPANCY.

1.13 MAINTENANCE OF EXISTING UTILITY SERVICES

- A. UNINTERRUPTED NORMAL USE OF THE EXISTING FACILITIES MUST BE MAINTAINED DURING THE TIME REQUIRED TO PERFORM THE COMPLETE INSTALLATION OF THE WORK INDICATED IN THE CONTRACT DOCUMENTS. IT IS MANDATORY THAT THE EXISTING BUILDINGS BE MAINTAINED IN SERVICE.
B. INVESTIGATE EXISTING CONDITIONS AND THE LOCATION OF ALL EXISTING EQUIPMENT AND THE LOCATION OF ALL EXISTING SERVICES BEFORE STARTING.
C. IF A SERVICE IS DISTURBED, IMMEDIATELY WITHOUT REGARD FOR WORKING HOURS, PLACE THE SERVICE BACK INTO OPERATION.
D. SUFFICIENT ADVANCE NOTICE SHALL BE GIVEN TO THE OWNER AND ITS PERMISSION OBTAINED PRIOR TO INTERRUPTION OF PRESENT SERVICES. IT SHALL BE ASSURED THAT THE OPERATION OF UTILITIES AND SERVICES SHALL BE DONE AT OTHER THAN NORMAL WORKING HOURS. NO ADDITIONAL OR EXTRA PAYMENT WILL BE AUTHORIZED TO COMPLY WITH THESE REQUIREMENTS.
E. REPAIR, REPLACE AND MAINTAIN IN SERVICE ANY UTILITIES, FACILITIES, OR SERVICES (UNDERGROUND, OVERGROUND, INTERIOR OR EXTERIOR) DAMAGED, BROKEN OR OTHERWISE RENDERED OPERATIVE DURING THE COURSE OF CONSTRUCTION IN THE EXISTING BUILDING.
F. ALL OPENINGS MUST BE SECURELY COVERED, OR OTHERWISE PROTECTED, TO PREVENT INJURY DUE TO CARELESSLY OR MALICIOUSLY DROPPED TOOLS OR MATERIALS, GRT, DIRT, OR ANY FOREIGN MATTER. DAMAGED WORK SHALL BE REPAIRED OR REPLACED UNTIL WORK IS FULLY AND FINALLY ACCEPTED.
G. PROTECT HEATING EQUIPMENT AND ALL SIMILAR ITEMS OF EQUIPMENT FROM DIRT, GRIME, PLASTER, PAINT AND WATER DURING ALL PHASES OF CONSTRUCTION. THIS PROTECTION SHALL BE PROVIDED BY COVERING WITH TRANSPARENT PLASTIC OR SHEETING.
H. MAKE ALL CONNECTIONS TO EXISTING SYSTEM PIPING AND EQUIPMENT SYSTEMS DURING DESIGNATED PERIODS UPON APPROVAL OF THE OWNER AND AT NO INCREASE IN THE CONTRACT SUM.
I. DO NOT INTERRUPT EXISTING UTILITIES UTILIZED BY THE OWNER, EXCEPT AS APPROVED BY THE OWNER. INTERRUPTIONS MUST BE SCHEDULED TO SUIT THE OWNER'S SCHEDULE.
J. VERIFY ALL EXISTING WORK, WHERE EXISTING CONNECTIONS ARE PARTIAL, PROVIDE ALL NECESSARY MATERIALS, LABOR AND EQUIPMENT REQUIRED TO MODIFY EXISTING WORK. IN ADDITION, MAINTAIN INTEGRITY OF THE EXISTING SYSTEMS. RECTIFY ANY CONTAMINATION, DEGRADATION OF MATERIALS OR DAMAGE TO THE EXISTING SYSTEMS TO THE SATISFACTION OF THE OWNER.

1.14 INSTALLATION OF THE WORK

- A. THE CONTRACTOR DRAWINGS INDICATE THE GENERAL ARRANGEMENTS FOR THE HVAC, KITCHEN, PLUMBING AND FIRE PROTECTION SYSTEMS.
1. DRAWINGS ARE DIAGRAMMATIC AND DO NOT INDICATE NECESSARY OFFSETS, OBSTRUCTIONS OR STRUCTURAL CONDITIONS.
2. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO INSTALL THE WORK IN SUCH A MANNER THAT IT WILL BE AT THE HIGHEST ELEVATION POSSIBLE CONFORM TO THE STRUCTURE, AVOID OBSTRUCTIONS, MAINTAIN HEADROOM, LEAVE ADEQUATE CLEARANCES FOR LIGHT FIXTURES, RETURN AIR PATHWAYS, MAINTENANCE AND REPAIRS, AND PROVIDE CLEARANCE AND ACCESS AS REQUIRED BY CODES. NOTHING SHALL BE INSTALLED BELOW CEILING LEVEL WITHOUT ARCHITECT'S WRITTEN CONSENT.
3. ABOVE ITEMS TO BE PERFORMED AT NO ADDITIONAL COST TO THE OWNER.
4. PROCEED AS RAPIDLY AS THE BUILDING CONSTRUCTION WILL PERMIT.
5. THOROUGHLY CLEAN TIES BEFORE INSTALLATION. CAP OPENINGS TO EXCLUDE DIRT UNTIL FINAL CONNECTIONS HAVE BEEN MADE.
6. CUT MATERIALS ACCURATELY, WORK INTO PLACE WITHOUT SPRINGING OR FORCING. PROPERLY CLEAN WINDOWS, DOORS AND OTHER OPENINGS. EXCESSIVE CUTTING OR OTHER WEAKENING OF THE BUILDING STRUCTURE WILL NOT BE PERMITTED.
7. MANUFACTURER'S DRAWINGS AND INSTRUCTIONS SHALL BE FOLLOWED IN ALL CASES WHERE THE DETAILS OF DEVICES AND EQUIPMENT FURNISH DIRECTIONS OR DETAILS NOT SHOWN ON THE DRAWINGS OR DESCRIBED IN THE SPECIFICATIONS.
8. DRAWINGS ARE NOT INTENDED TO BE COORDINATED, BUT SHALL BE FOLLOWED WITH SUFFICIENT ACCURACY TO SCALE WITH OTHER WORK AND STRUCTURAL LIMITATIONS.
9. SEISMIC DESIGN: THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ANCHORS, SUPPORTS AND CONNECTIONS OF MECHANICAL WORK TO THE BUILDING STRUCTURE TO PREVENT DAMAGE AS A RESULT OF AN EARTHQUAKE, INCLUDING MANUFACTURED EQUIPMENT, THE CONNECTION AND INTEGRITY OF SHOP FABRICATED AND FIELD FABRICATED MATERIALS AND EQUIPMENT. ALL SUPPORTS, EQUIPMENT AND CONNECTIONS THERETO SHALL BE DESIGNED TO CONFORM TO REQUIREMENTS OF THE CALIFORNIA ADMINISTRATIVE CODE, OR OTHER GOVERNING CODES.
10. ALL WORK SHALL BE PROPERLY SUPPORTED FROM BUILDING STRUCTURE AND/OR FRAMING IN AN APPROVED MANNER, INDEPENDENT OF THE CEILING SUPPORT SYSTEM, WHERE SUCH OVERHEAD CONSTRUCTION DOES NOT PERMIT DIRECT FASTENING OF SUPPORTS, FURNISH ADDITIONAL FRAMING.
11. ALL EQUIPMENT SHALL BE SECURELY FASTENED TO BUILDING CONSTRUCTION WITH APPROVED SUPPORTS.
12. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF DIFFUSERS, GRILLES, REGISTERS, AND THERMOSTATS (IF DEPICTED). IF THERMOSTATS ARE NOT DEPICTED SPECIFICALLY ON ARCHITECT'S DRAWINGS, OBTAIN ARCHITECT'S APPROVAL FOR LOCATIONS PRIOR TO INSTALLATION.
13. COORDINATE THE WORK OF THIS SECTION WITH THE WORK OF OTHER SECTIONS IN AMPLE TIME FOR PROPER INSTALLATION AND CONNECTION.
14. CAREFULLY CHECK SPACE REQUIREMENTS, INCLUDING SERVING SPACE REQUIREMENTS, WITH OTHER SECTIONS TO ENSURE THAT ALL EQUIPMENT AND MATERIALS CAN BE INSTALLED IN THE SPACES ALLOTTED THERETO.
15. PREPARE DRAWINGS, ATTEND MEETINGS, OBTAIN ALL APPROVALS REQUIRED BY ALL AUTHORITIES HAVING JURISDICTION, CONDUCT REQUIRED TESTS AND OBTAIN REQUIRED PERMITS.

1.15 GENERAL

- A. PAINTING
1. PAINT:
a. BEST GRADE FOR ITS PURPOSE.
b. DELIVER IN ORIGINAL SEALED CONTAINERS.
c. APPLY IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
d. COLORS: TO MATCH EXISTING OR AS SELECTED BY ENGINEER.
2. CLEANING
a. BRUSH AND CLEAN WORK PRIOR TO CONCEALING, PAINTING AND ACCEPTANCE.
b. PAINTED EXPPOSED WORK SOLES OR DAMAGED, CLEAN AND REPAIR TO MATCH ADJOINING WORK BEFORE FINAL ACCEPTANCE.
c. REMOVE DEBRIS FROM INSIDE AND OUTSIDE OF MATERIAL AND EQUIPMENT.
3. CUTTING AND PATCHING: AS REQUIRED FOR NEW WORK

1.16 CONTRACT DEVICES

- A. ALL CONTROL DEVICES NOT SPECIFIED TO BE FURNISHED AND INSTALLED UNDER THE ELECTRICAL SECTIONS SHALL BE PROVIDED UNDER THIS SECTION.

1.17 PROJECT CLOSE-OUT

- A. AFTER FINAL OPERATION FOR INSPECTION AND ACCEPTANCE DELIVER ALL COPIES OF OPERATION INSTRUCTIONS, MAINTENANCE MANUALS AND PARTS DESCRIPTIONS TO THE ENGINEER.
B. ALL TOOLS SUPPLIED WITH THE EQUIPMENT FOR MAINTENANCE SHALL BE TAGGED AND TEMPORARILY SECURED TO THE UNIT, OR TURNED OVER TO THE OWNER.

1.17 ELECTRICAL

A. GENERAL:

- 1. ALL ELECTRICAL MATERIAL, EQUIPMENT, AND APPARATUS SPECIFIED HEREIN SHALL CONFORM TO THE REQUIREMENTS OF DIVISION 26. REFER TO THE RESPONSIBILITY MATRIX FOR ADDITIONAL INFORMATION.
2. PROVIDE ALL MOTORS FOR EQUIPMENT SPECIFIED HEREIN. PROVIDE MOTOR STARTERS, CONTROLLERS, AND OTHER ELECTRICAL APPARATUS AND WIRING WHICH ARE REQUIRED FOR THE OPERATION OF THE EQUIPMENT SPECIFIED HEREIN.
3. SET AND ALIGN ALL MOTORS AND DRIVES IN EQUIPMENT SPECIFIED HEREIN.
4. SPECIFIC ELECTRICAL REQUIREMENTS (I.E. HORSEPOWER AND ELECTRICAL CHARACTERISTICS) FOR MECHANICAL EQUIPMENT ARE SCHEDULED ON THE DRAWINGS.

B. QUALITY ASSURANCE:

- 1. ELECTRICAL COMPONENTS AND MATERIALS SHALL BE UL OR ETL LISTED/LABELED AS SUITABLE FOR LOCATION AND USE - NO EXCEPTIONS.

C. STARTERS AND ELECTRICAL DEVICES:

- 1. MOTOR STARTER CHARACTERISTICS
a. ENCLOSURES: NEMA 1, GENERAL PURPOSE ENCLOSURES WITH PADLOCK EARS, EXCEPT IN NET LOCATIONS SHALL BE NEMA 3R WITH CONDUIT HUBS.
b. TYPE AND SIZE OF STARTER SHALL BE AS RECOMMENDED BY MOTOR MANUFACTURER AND THE DRIVEN EQUIPMENT MANUFACTURER FOR APPLICABLE PROTECTION AND START UP CONDITION.
2. MANUAL SWITCHES SHALL HAVE PILOT LIGHTS AND ALL REQUIRED SWITCH POSITIONS FOR MULTI SPEED MOTORS. OVERLOAD PROTECTION: MELTING ALLOY OR METALLIC TYPE THERMAL, OVERLOAD RELAYS, SIZED ACCORDING TO ACTUAL OPERATING CURRENT (FIELD MEASURED).
3. MAGNETIC STARTERS
a. HEAVY DUTY, OIL RESISTANT, HAND-OFF AUTO (HQA), OR AS INDICATED, AND PILOT LIGHTS, PROPERLY ARRANGED FOR SINGLE SPEED OR MULTI SPEED OPERATION AS INDICATED.
b. TRIP FREE THERMAL OVERLOAD RELAYS, EACH PHASE, SIZED ACCORDING TO ACTUAL OPERATING CURRENT (FIELD MEASURED).
c. INTERLOCKS, PNEUMATIC SWITCHES AND SIMILAR DEVICES AS REQUIRED FOR COORDINATION WITH CONTROL REQUIREMENTS OF DIVISION 23 CONTROL SECTIONS.
d. BUILT IN PRIMARY AND SECONDARY FUSED CONTROL CIRCUIT TRANSFORMER, SUPPLIED FROM LOAD SIDE OF EQUIPMENT DISCONNECT.
e. EXTERNALLY OPERATED MANUAL RESET.
f. UNDER VOLTAGE RELEASE OR PROTECTION FOR ALL MOTORS OVER 20 HP.
4. MOTOR CONNECTIONS: LIGHT TIGHT, FLEXIBLE CONNECT, EXCEPT WHERE PLUG IN ELECTRICAL CORDS ARE SPECIFICALLY INDICATED.

D. LOW VOLTAGE CONTROL WIRING:

- 1. GENERAL: 14 GAUGE, TYPE THHN, COLOR CODED, INSTALLED IN CONDUIT.
2. MANUFACTURER: GENERAL CABLE CORP., ALCAN CABLE, AMERICAN INSULATED WIRE CORP., SENATOR WIRE AND CABLE CO., OR SOUTHWIRE CO.
E. DISCONNECT SWITCHES:
1. FUSIBLE SWITCHES: FOR EQUIPMENT 1/2 HP OR LARGER, PROVIDE LOADED, EACH PHASE, HEAVY DUTY, HORSEPOWER RATED SPRINGS FUSED QUICK MAKE, QUICK BREAK MECHANISM. DEPENDENT ON THE TYPE OF LOAD, SOLDERLESS LUGS SUITABLE FOR COPPER OR ALUMINUM CONDUCTORS. SPRING REINFORCED FUSE CLIPS, ELECTRO SILVER PLATED CURRENT CARRYING PARTS, WINGED BREAK AIR OUTLETS, WALL REGISTERS, ETC.
2. NON FUSIBLE SWITCHES: FOR EQUIPMENT LESS THAN 1/2 HORSEPOWER. PROVIDE WITH THERMAL OVERLOAD PROTECTION WITH THERMAL OVERLOAD QUANTITY OF POLES AND VOLTAGE RATING AS REQUIRED.

PART 2 - EXECUTION

2.1 GENERAL

- A. WORKMANSHIP SHALL BE PERFORMED BY LICENSED JOURNEYMEN OR MASTER MECHANICS AND SHALL RESULT IN AN INSTALLATION CONSISTENT WITH THE BEST PRACTICES OF TRADES.
B. INSTALL WORK UNIFORM, LEVEL, AND PLUMB, IN RELATIONSHIP TO LINES OF GUIDELINES.
C. PROVIDE IRREGULAR SECTION AT ALL HANGER SUPPORTS.
D. PROVIDE SEISMIC RESTRAINTS TO MEET LOCAL CODES.
E. PREVENT VIBRATION OR CONTAMINATION DEGRADATION OF MATERIALS OR DAMAGE TO THE EXISTING SYSTEMS TO THE SATISFACTION OF THE OWNER.
F. FOLLOW MANUFACTURER'S DIRECTIONS AND RECOMMENDATIONS IN ALL CASES WHERE THE MANUFACTURERS OF ARTICLES USED ON THIS CONTRACT FURNISH DIRECTIONS COVERING POINTS NOT SHOWN ON THE DRAWINGS OR COVERED IN THESE SPECIFICATIONS.
2.2 INSTALLATION
A. COORDINATE THE WORK BETWEEN THE VARIOUS MECHANICAL SECTIONS AND WITH THE WORK SPECIFIED UNDER OTHER DIVISIONS. IF ANY COOPERATIVE WORK MUST BE ALTERED DUE TO LACK OF PROPER SUPERVISION OR FAILURE TO MAKE PROPER AND TIMELY PROVISIONS, THE ALTERATIONS SHALL BE MADE TO THE SATISFACTION OF THE ENGINEER AND AT THE CONTRACTOR'S COST. COORDINATE WALL AND CEILING WORK WITH THE GENERAL CONTRACTOR, AND HIS SUBCONTRACTORS IN LOCATED, FIELD HANGERS AND SUPPORTS.
B. INSPECT ALL MATERIAL, EQUIPMENT, AND APPARATUS UPON DELIVERY AND DO NOT INSTALL ANY DAMAGED OR DEFECTED MATERIALS.
2.4 ELECTRICAL REQUIREMENTS
A. MECHANICAL CONTRACTOR SHALL COORDINATE WITH DIVISION 26 WORK TO PROVIDE COMPLETE SYSTEMS AS REQUIRED TO OPERATE ALL MECHANICAL DEVICES INSTALLED UNDER THIS DIVISION OF WORK.
B. INSTALLATION OF ELECTRICAL CONNECTIONS, FURNISH, SHIELD AND WIRE (EXCEPT AS MAY BE OTHERWISE INDICATED) ALL HEATING, VENTILATING, AIR CONDITIONING, PLUMBING AND FIRE PROTECTION, ETC. MOTORS AND CONTROLS IN ACCORDANCE WITH THE FOLLOWING SCHEDULE AND IN ACCORDANCE WITH EQUIPMENT MANUFACTURER'S WRITTEN INSTRUCTIONS AND WITH RECOGNIZED INDUSTRY PRACTICES, AND COMPLYING WITH APPLICABLE REQUIREMENTS OF UL, NEC, AND NECA'S STANDARDS OF INSTALLATION.
C. DIVISION 23 IS RESPONSIBLE FOR ELECTRICALLY POWERED OR CONTROLLED MECHANICAL EQUIPMENT WHICH IS SPECIFIED IN DIVISION 23 SPECIFICATIONS OR SCHEDULED ON DIVISION 23 DRAWINGS. THE SPECIFIC DIVISION OF RESPONSIBILITIES BETWEEN DIVISION 23 AND 26 FOR FURNISHING OR WIRING THIS EQUIPMENT IS AS FOLLOWS:
1. DIVISION 26 MECHANICAL RESPONSIBILITIES:
a. MOTORS: FURNISH AND INSTALL ALL MOTORS NECESSARY FOR MECHANICAL EQUIPMENT.
b. DISCONNECTS: PROVIDE THE DISCONNECTS WHICH ARE PART OF FACTORY WIRED DIVISION 23 EQUIPMENT. FACTORY WIRING TO INCLUDE WIRING BETWEEN MOTOR AND DISCONNECT OR COMBINATION STARTER/DISCONNECT.
c. CONTROLS: DIVISION 22 CONTRACTOR (INCLUDING THE TEMPERATURE CONTROL SUBCONTRACTOR) IS RESPONSIBLE FOR THE FOLLOWING EQUIPMENT IN ITS ENTIRETY: THIS EQUIPMENT INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING:
1) CONTROL RELAYS NECESSARY FOR CONTROLLING DIVISION 23 EQUIPMENT.
2) CONTROL TRANSFORMERS NECESSARY FOR PROVIDING POWER TO CONTROLS FOR DIVISION 23 EQUIPMENT.
3) LINE VOLTAGE THERMOSTATS.
4) LOW OR NONLOAD VOLTAGE CONTROL COMPONENTS.
5) REMOTE BULB THERMOSTATS.
6) NON-LIFE SAFETY RELATED VALVE OR DAMPER ACTUATORS.
7) FLOAT SWITCHES.
8) SOLENOID VALVES, EP AND PE SWITCHES.
9) REFRIGERATION CONTROLS, DIVISION 26 PROVIDES POWER TO REFRIGERATION (LINELS).
10) PNEUMATIC THERMOSTATS.
d. FIRE AND LIFE SAFETY EQUIPMENT:
1) FIRE/SMOKE DAMPERS: DIVISION 23 IS RESPONSIBLE FOR PROVIDING AND PHYSICALLY INSTALLING THE DAMPER AND FOR INSTALLING ANY REQUIRED CONTROL INTERFERENCE WIRING TO DIVISION 23 CONTROLS.
a) WHERE FIRE/SMOKE DAMPERS ARE PART OF AN INTEGRATED SMOKE CONTROL SYSTEM, DIVISION 23 IS RESPONSIBLE FOR PROVIDING DAMPERS WITH NECESSARY END SWITCHES FOR PROOF OF CLOSURE.
b) WHERE THESE DAMPERS ARE NOT PART OF AN INTEGRATED AREA WIDE SMOKE DETECTION SYSTEM, DIVISION 23 IS RESPONSIBLE FOR PROVIDING EACH FIRE/SMOKE DAMPER WITH A DEDICATED DUCT DETECTOR INSTALLED PER THE REQUIREMENTS OF THE BUILDING CODE. IF NOT INTEGRAL WITH THE DAMPER ASSEMBLY, THE DETECTOR IS TO BE INSTALLED BY DIV. 23 BUT WIRED FOR DAMPER CONTROL BY DIV. 26.
2) FIRE SPRINKLER SYSTEM: DIVISION 23 IS RESPONSIBLE FOR PROVIDING NECESSARY CONTROLS INCLUDING FLOW SWITCHES AND ALARM BELLS.
3) SPECIALIZED FIRE SUPPRESSION SYSTEMS: DIVISION 23 IS RESPONSIBLE FOR PROVIDING NECESSARY SYSTEM CONTROLS AND HANGERS REQUIRED BETWEEN THEM, AND HANGER LOAD IS TOO GREAT FOR SLAB OR DECK ATTACHMENT.
b. SPREADERS MAY BE REQUIRED.
c. COMBINATION OF BOTH MAY BE REQUIRED.
D. DIVISION 26 HAS RESPONSIBILITIES FOR ELECTRICALLY POWERED OR CONTROLLED MECHANICAL EQUIPMENT WHICH IS SPECIFIED IN DIVISION 23 SPECIFICATIONS OR SCHEDULED ON DIVISION 23 DRAWINGS. THE SPECIFIC DIVISION OF RESPONSIBILITIES BETWEEN DIVISION 23 AND 26 FOR FURNISHING

OR WIRING THIS EQUIPMENT IS AS FOLLOWS:

- 1. DIVISION 26 ELECTRICAL RESPONSIBILITIES:
2. MOTORS: PROVIDE THE POWER WIRING FOR THE MOTORS.
3. DISCONNECTS: PROVIDE ALL DISCONNECTS NECESSARY FOR DIVISION 23 MECHANICAL EQUIPMENT WHICH ARE NOT PROVIDED AS PART OF FACTORY WIRED DIVISION 23 EQUIPMENT. PROVIDE POWER WIRING TO ALL DISCONNECTS. IN ADDITION, PROVIDE POWER WIRING BETWEEN MOTOR AND DISCONNECT WHEN THE DISCONNECT IS NOT FACTORY INSTALLED. SEE ALSO VARIABLE FREQUENCY DRIVE ADDENDUM FOR SPECIAL WIRING REQUIREMENTS.
a. CONTROLS: DIVISION 26 CONTRACTOR IS RESPONSIBLE FOR PROVIDING POWER TO CONTROL PANELS AND CONTROL CIRCUIT OUTLETS.
b. FIRE AND LIFE SAFETY EQUIPMENT:
1) FIRE/SMOKE DAMPERS: DIVISION 26 IS RESPONSIBLE FOR POWER WIRING TO THE DAMPER AND AS FOLLOWS:
a) WHERE THESE DAMPERS ARE PART OF AN INTEGRATED SMOKE CONTROL SYSTEM, DIVISION 26 IS RESPONSIBLE FOR PROVIDING THE DETECTORS AND FOR ALL FIRE DETECTION SYSTEM WIRING NECESSARY TO INTEGRATE DAMPERS AND RELATED END SWITCHES INTO THE SYSTEM.
b) WHERE THESE DAMPERS ARE NOT PART OF AN INTEGRATED AREA WIDE SMOKE DETECTION SYSTEM, DIVISION 23 IS RESPONSIBLE FOR PROVIDING EACH FIRE/SMOKE DAMPER WITH A DEDICATED DUCT DETECTOR INSTALLED PER THE REQUIREMENTS OF THE BUILDING CODE. (SEE SECTION 1909). IF NOT INTEGRAL WITH THE DAMPER ASSEMBLY, THE DETECTOR IS TO BE INSTALLED BY DIV. 23 BUT WIRED FOR DAMPER CONTROL BY DIV. 26.
2) FIRE SPRINKLER SYSTEM: DIVISION 26 IS RESPONSIBLE FOR PROVIDING POWER WIRING TO FIRE PROTECTION CONTROLS INCLUDING FLOW SWITCHES AND ALARM BELLS.
3) SPECIALIZED FIRE SUPPRESSION SYSTEMS: DIVISION 26 IS RESPONSIBLE FOR PROVIDING NECESSARY SYSTEM CONTROLS AND HANGERS REQUIRED BETWEEN THEM, AND HANGER LOAD IS TOO GREAT FOR SLAB OR DECK ATTACHMENT.
b. SPREADERS MAY BE REQUIRED.
c. COMBINATION OF BOTH MAY BE REQUIRED.
D. DIVISION 26 HAS RESPONSIBILITIES FOR ELECTRICALLY POWERED OR CONTROLLED MECHANICAL EQUIPMENT WHICH IS SPECIFIED IN DIVISION 23 SPECIFICATIONS OR SCHEDULED ON DIVISION 23 DRAWINGS. THE SPECIFIC DIVISION OF RESPONSIBILITIES BETWEEN DIVISION 23 AND 26 FOR FURNISHING

2) FORMED CHANNELS WITH FITTINGS, SIMILAR TO SUPERSTRUT, SUBMIT MANUFACTURER'S CALCULATIONS FOR INSTALLATION.

SECTION 23053 - IDENTIFICATION

- A. AN IDENTIFICATION LABEL SHALL BE PROVIDED FOR THE FOLLOWING TYPES OF EQUIPMENT:
1. ROOF TOP UNITS
2. EXHAUST FANS
3. MAKEUP AIR UNITS
4. SPLIT SYSTEMS.
5. CONDENSING UNITS
6. KITCHEN HOOD AND EXHAUST SYSTEMS.
B. IDENTIFICATION LABELS SHALL BE BY SYSTEM, OR EQUIVALENT. PROVIDE LABELS & FLOW ARROWS ON ALL DUCT AND PIPING, @ 1' INTERVALS.
C. TEMPERATURE CONTROL PANELS SHALL BE IDENTIFIED WITH ENGRAVED PHENOLIC NAMEPLATES AND EACH CONTROL COMPONENT SHALL BE IDENTIFIED WITH ITS SETPOINTS.
D. ALL MECHANICAL EQUIPMENT INSTALLED ABOVE SUSPENDED CEILINGS SHALL BE MARKED ON THE BOTTOM WITH ITS EQUIPMENT NUMBER MATCHING THE EQUIPMENT SCHEDULE AND CONTROL GRAPHICS.
E. ALL LABELING OF EXTERIOR EQUIPMENT SHALL USE ENGRAVED PHENOLIC LABELS.
F. IDENTIFICATION SHALL CONFORM TO ANSI/MCA A13.1 WHERE APPLICABLE.

SECTION 23099 - TESTING, ADJUSTING, AND BALANCING FOR HVAC

- A. GENERAL:
1. TAB SHALL BE PERFORMED BY NATIONAL TAB, NORTH KANSAS CITY, MO (WILL TURNBUROH 314-684-8244), NO EXCEPTIONS.
2. ADJUSTMENT: EACH PIECE OF EQUIPMENT AND ALL OF THE SYSTEMS SHALL BE ADJUSTED TO INSURE PROPER FUNCTIONING OF ALL CONTROLS, AND SHALL BE LEFT IN OPERATING CONDITION. CONTRACTOR SHALL BE RESPONSIBLE TO REPLACE EXISTING MOTOR SHEAVES AND FAN BELTS AS REQUIRED.
3. PRELIMINARY OPERATION: THE OWNER RESERVES THE RIGHT TO OPERATE ANY SYSTEMS OR EQUIPMENT PRIOR TO FINAL COMPLETION AND ACCEPTANCE OF THE WORK. SUCH PRELIMINARY OPERATION SHALL NOT BE CONSTRUED AS AN ACCEPTANCE OF ANY WORK.
B. AIR DISTRIBUTION SYSTEMS:
1. BALANCE AND ADJUST AIR DISTRIBUTION SYSTEM TO QUANTITIES INDICATED ON DRAWINGS IN ACCORDANCE WITH ASSOCIATED AIR BALANCE COUNCIL (IABAC) MANUAL, LATEST EDITION.
2. BALANCING AND TESTING SHALL BE PERFORMED AND SUPERVISED BY A CERTIFIED INDEPENDENT FIRM SPECIALIZING IN TESTING AND BALANCING. FIRM SHALL BE AN APPROVED TAB CONTRACTOR. TEST REPORTS SHALL BE SUBMITTED IN BOUND FOLDERS AND ON A4C2 TYPE REPORT FORMS. ALL AIR INLET/OUTLET SHALL BE IDENTIFIED BY DESIGNATIONS ON DRAWINGS.
3. ALL TESTING DATA SHALL BE PROVIDED IN A MICROSOFT EXCEL COMPATIBLE FORMAT.
4. DIFFUSER AIR DELIVERY SHALL NOT BE LESS THAN NOKR EXCEED BY MORE THAN 10% THE AIR DELIVERY INDICATED ON THE PLAN.
5. VOLUME DAMPERS IN AIR INLETS/OUTLETS SHALL BE USED ONLY FOR MINOR ADJUSTMENT (LESS THAN 10% OF SPECIFIED CFM WHEN AVAILABLE).
6. CONTRACTOR SHALL PROVIDE MANUAL VOLUME DAMPERS IN DUCTS AS REQUIRED.
7. UPON COMPLETION OF THE INSTALLATION, CONTRACTOR SHALL REBALANCE ANY AIR DISTRIBUTION SYSTEM AFFECTED BY THE RENOVATION, INCLUDING TERMINAL AIR UNITS AND AIR OUTLETS.

- C. ADDITIONAL NOTES:
1. KITCHEN HOODS MUST BE BALANCED WITH KITCHEN.
2. KITCHEN SHALL BE NEGATIVE WITH RESPECT TO DRAINAGE AREA.
3. RESTAURANT SHALL BE POSITIVE WITH RESPECT TO AMBIENT.
4. OWNER TO BE PROVIDED WITH BALANCING REPORT.
D. AIR DISTRIBUTION SYSTEMS:
1. BALANCE AND ADJUST AIR DISTRIBUTION SYSTEM TO QUANTITIES INDICATED ON DRAWINGS IN ACCORDANCE WITH ASSOCIATED AIR BALANCE COUNCIL (IABAC) MANUAL, LATEST EDITION.
2. BALANCING AND TESTING SHALL BE PERFORMED AND SUPERVISED BY A CERTIFIED INDEPENDENT FIRM SPECIALIZING IN TESTING AND BALANCING. FIRM SHALL BE AN APPROVED TAB CONTRACTOR. TEST REPORTS SHALL BE SUBMITTED IN BOUND FOLDERS AND ON A4C2 TYPE REPORT FORMS. ALL AIR INLET/OUTLET SHALL BE IDENTIFIED BY DESIGNATIONS ON DRAWINGS.
3. ALL TESTING DATA SHALL BE PROVIDED IN A MICROSOFT EXCEL COMPATIBLE FORMAT.
4. DIFFUSER AIR DELIVERY SHALL NOT BE LESS THAN NOKR EXCEED BY MORE THAN 10% THE AIR DELIVERY INDICATED ON THE PLAN.
5. VOLUME DAMPERS IN AIR INLETS/OUTLETS SHALL BE USED ONLY FOR MINOR ADJUSTMENT (LESS THAN 10% OF SPECIFIED CFM WHEN AVAILABLE).
6. CONTRACTOR SHALL PROVIDE MANUAL VOLUME DAMPERS IN DUCTS AS REQUIRED.
7. UPON COMPLETION OF THE INSTALLATION, CONTRACTOR SHALL REBALANCE ANY AIR DISTRIBUTION SYSTEM AFFECTED BY THE RENOVATION, INCLUDING TERMINAL AIR UNITS AND AIR OUTLETS.

SECTION 23070 - HVAC INSULATION

- A. MINERAL-FIBER BLANKET INSULATION: MINERAL OR GLASS FIBERS BONDED WITH A THERMOSETTING RESIN. COMPLY WITH ASTM C 553, TYPE II AND ASTM C 1290, TYPE III WITH FACTORY-APPLIED FIRE JACKET. KNAUF ECO FRIENDLY OR JOHNS MANVILLE (FORMALDEHYDE FREE).
B. CLOSED CELL PIPE INSULATION: ASTM C 534 TYPE I AEROFLEX OR ARMACELL.
C. INSULATING CEMENTS: MINERAL-FIBER, HYDRAULIC SETTING INSULATING AND FINISHING CEMENT. COMPLY WITH ASTM C 449C 449M.
D. MINERAL-FIBER ADHESIVE: COMPLY WITH MIL-A-2316C, CLASS A USE ADHESIVE THAT HAS A VIOC CONTENT OF 8% OR LESS WHEN CALCULATED ACCORDING TO 40 CFR 59, SUBPART D (EPA METHOD 24).
E. FSK AND PVDC JACKET ADHESIVE: COMPLY WITH MIL-A-3316C, CLASS 2, GRADE A USE GRADE A FOR BONDING INSULATION JACKET LAP SEAMS AND JOINTS.
F. FSK AND METAL JACKET FLASHING SEALANTS:
1. MATERIALS SHALL BE COMPATIBLE WITH INSULATION MATERIALS, JACKETS, AND SUBSTRATES.
2. FIRE- AND WATER-RESISTANT, FLEXIBLE, ELASTOMERIC SEALANT.
3. SERVICE TEMPERATURE RANGE: MINUS 40 TO PLUS 250 DEG F.
4. COLOR: ALUMINUM.
G. FOR INDOOR APPLICATIONS: USE SEALANTS THAT HAVE A VOC CONTENT OF 25% OR LESS WHEN CALCULATED ACCORDING TO 40 CFR 59, SUBPART D (EPA METHOD 24).
H. FACTORY APPLIED FIRE JACKET: ALUMINUM-FOIL, FIBERGLASS-REINFORCED SCRIM WITH KRAFT-PAPER BACKING, COMPLYING WITH ASTM C 1136, TYPE II.
I. FIELD APPLIED ALUMINUM JACKET: ALUMINUM ROLLS STOCK WITH 3MIL MOISTURE BARRIER, COMPLY WITH ASTM C 1079. PROVIDE FACTORY-FABRICATED COVERS FOR FITTINGS.
J. TYPE OF INSULATION
1. DUCT INSULATION: MINERAL-FIBER BLANKET INSULATION, R-6 VALUE. PROVIDE WEATHERPROOF JACKET ON OUTDOOR DUCT. EXTERNALLY INSULATE AIR DUCT WHEN CONCEALED ABOVE CEILING MATERIALS TO ENSURE THAT:
2. PIPING: PROVIDE THICKNESS PER IMC TABLE 403.2.10
a. CONDENSATE: CLOSED-CELL TYPE.
b. REFRIGERANT PIPING: CLOSED-CELL PIPE INSULATION PROVIDE WEATHERPROOF JACKET ON OUTDOOR PIPING.
J. ADDITIONAL PIPING INSULATION REQUIREMENTS
1. ALL REFRIGERANT COPPER LINES MUST BE FREE OF EXTRANEOUS CHEMICALS SUCH AS CORROSIVE CLEANERS OR BUILDING MATERIAL DUST PRIOR TO THE INSTALLATION OF THE INSULATION. THE INSULATION MUST BE CLEAN AND DRY PRIOR TO INSTALLATION.
2. REFRIGERANT PIPE SHALL BE SEALED WHILE SUPPLYING INSULATION TO PREVENT FOREIGN MATTER FROM ENTERING THE TUBE.

SECTION 23300 - REFRIGERANT PIPING

- A. COPPER PIPE AND FITTINGS
1. COPPER TYPE: ASTM B 280, TYPE 1 (STRAIGHT LENGTH) ACR.
2. WROUGHT-COPPER FITTINGS: ASME B16.22.
4. BRAZING FILLER METALS: AWS A5.8.
B. PIPE JOINT CONSTRUCTION
1. BRAZED JOINTS: CONTRACTOR JOINTS ACCORDING TO AWS'S "BRAZING HANDBOOK" CHAPTER 7 AND TUBE:
C. HANGERS AND SUPPORTS
1. PIPING HANGERS AND SUPPORTS MUST ACCOMMODATE EXPANSION AND CONTRACTION, VIBRATION, DEAD LOAD OF PIPING AND ITS CONTENTS, AND SEISMIC-BRACING REQUIREMENTS.
D. INSTALL HANGERS FOR COPPER TUBING WITH THE FOLLOWING MAXIMUM SPACING AND MINIMUM ROD SIZES:
1. NPS 1/2": MAXIMUM SPAN: 60 INCHES; MINIMUM ROD SIZE: 1/4 INCH.
2. NPS 3/8": MAXIMUM SPAN: 60 INCHES; MINIMUM ROD SIZE: 1/4 INCH.
3. NPS 1": MAXIMUM SPAN: 72 INCHES; MINIMUM ROD SIZE: 1/4 INCH.
E. SUPPORT MULTI-FLOOR VERTICAL RUNS AT LEAST AT EACH FLOOR.

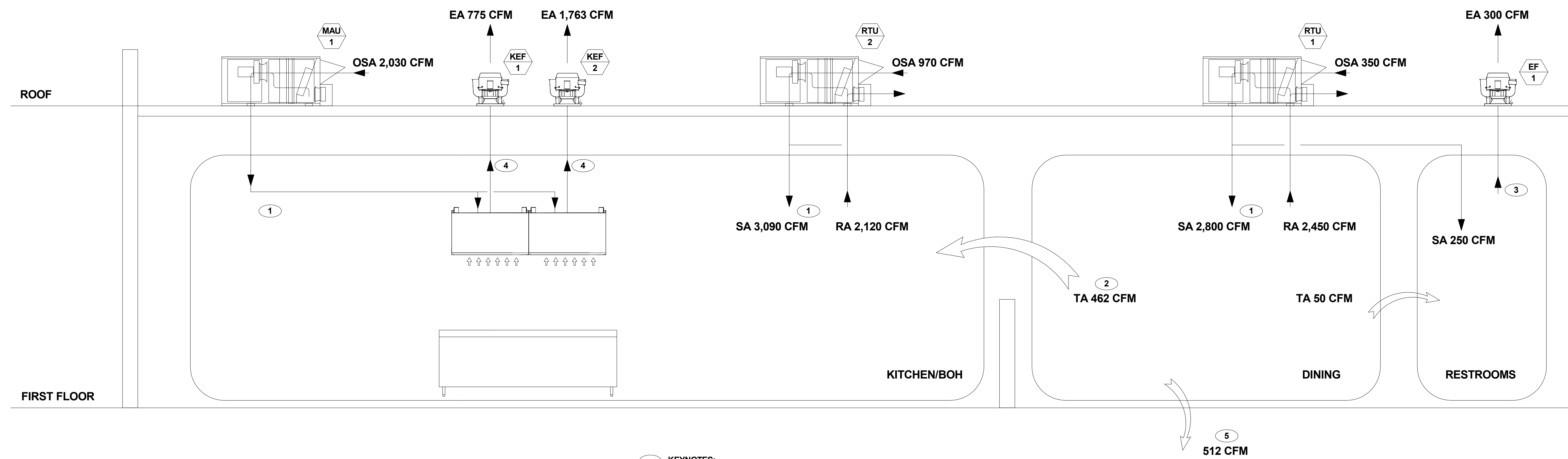
SECTION 23113 - METAL DUCTS

- A. GENERAL: ALL SAFING, DUCTS, DAMPERS, ACCESS DOORS, JOINTS, HANGERS, STIFFENERS, FIRE DAMPERS AND FIRE RETARDING MATERIALS SHALL BE IN ACCORDANCE WITH REQUIREMENTS OF SMACNA "HVAC DUCT CONSTRUCTION STANDARDS," LATEST EDITION, AND ALL OTHER AUTHORITIES HAVING JURISDICTION AND AS DESCRIBED HEREIN. ALL SHEET METAL WORK SHALL HAVE A PRESSURE CLASSIFICATION AS FOLLOWS:
1. SUPPLY DUCT BETWEEN MAIN LOOP AND INLET TO TERMINAL AIR UNIT - 4 INCHES W.G.
2. SUPPLY DUCTS DOWNSTREAM OF TERMINAL AIR UNITS, AIR HANDLING UNITS AND FANS - 2 INCHES W.G.
3. RETURN AND EXHAUST AIR DUCTS - 2 INCHES W.G.
B. DUCTWORK - UNLESS OTHERWISE SPECIFIED:
1. COLD ROLLED "COMMERCIAL" QUALITY HOT DIPPED GALVANIZED IN ACCORDANCE WITH ASTM NO. A456, Q36.
2. DIMENSIONS SHOWN ON DRAWINGS ARE CLEAR INSIDE DIMENSIONS.
3. FITTINGS: SAME GAUGE AND CONSTRUCTION AS DUCTS, ELBOWS SHALL HAVE CENTERLINE RADII NOT LESS THAN 1.5 TIMES WIDTH.
4. DUCT SUPPORTS AS REQUIRED.
5. DUCTS WITH TRANSVERSE AND LONGITUDINAL BRACINGS IN ACCORDANCE WITH SMACNA.
6. DUCTWORK SHALL BE SEALED, JOINTS AND SEAMS SHALL COMPLY WITH SECTION 0603.09 OF THE IMC.
C. KITCHEN COOKING HOOD AND GREASE EXHAUST:
1. TYPE I GREASE HOOD EXHAUST DUCTWORK OF MINIMUM 16 GAUGE COLD ROLLED STEEL OR 18 GA. STAINLESS STEEL WITH LIQUID TIGHT WELDS OR AS NOTED AND ZERO CLEARANCE. ALL LISTED MATERIALS WHEN REQUIRED. GREASE DUCT, WITH ACCESS PANELS FOR GREASE CLEANING AS REQUIRED BY NFA 96 AND LOCAL CODES.
2. SLOPE DUCT BACK TOWARDS HOOD AT MINIMUM OF 1/4" PER LINEAL FOOT MAINTAINING 1" CLEARANCE TO COMBUSTIBLE MATERIALS WHEN REQUIRED.
3. INSTALL GREASE DUCTS IN AN APPROVED FIRE-RESISTANT ENCLOSURE SEPARATED FROM THE EXHAUST DUCT BY A MINIMUM OF 6" AND MAXIMUM 12" VENTILATED ENCLOSURE TO THE OUTSIDE AIR IF REQUIRED BY CODE.
4. AS AN OPTION, IF APPROVED BY LOCAL CODES, PROVIDE AN APPROVED WRAP SYSTEM IN LIEU OF THE RATED DUCT ENCLOSURE SYSTEM DUCT WRAP SYSTEM SHALL MEET UL REQUIREMENTS FOR GREASE DUCT ENCLOSURES.

**AIR BALANCE TABLE AT DESIGN**

	HVAC SUPPLY (CFM)	HVAC RETURN (CFM)	HVAC OSA (CFM)	HOOD EXHAUST (CFM)	GENERAL EXHAUST (CFM)	AREA SERVED
RTU-1	2,800	2,450	350	-	-	DINING/ RESTROOMS
RTU-2	3,150	2,120	970	-	-	BOH
MAU-1	-	-	2,030	-	-	KITCHEN
KEF-1	-	-	-	750	-	KEH-1
KEF-2	-	-	-	1,763	-	KEH-2
EF-1	-	-	-	-	300	RESTROOMS
<b>TOTAL</b>	<b>5,950</b>	<b>4,570</b>	<b>3,350</b>	<b>2,538</b>	<b>300</b>	
<b>OSA</b>			<b>3,350</b>		<b>-2,838</b>	

TOTAL PRESSURIZATION DIFFERENCE = +512



**KEYNOTES:**

1. TOTAL OF AIR OUTLETS.
2. TRANSFER AIR TO KITCHEN FROM DINING.
3. TOTAL OF RESTROOM EXHAUST FANS.
4. KITCHEN HOOD EXHAUST.
5. EXFILTRATION

Date	Description
02/24/2023	ISSUE FOR PERMIT/BID
3 05/15/2023	ADDENDUM 2
09/01/2023	ISSUE FOR CONSTRUCTION

Seal / Signature



Project EXP. 9-24-2023

**SHAKE SHACK - COSTA MESA**

Project  
**005.3847.000**

Description  
**MECHANICAL AIRFLOW DIAGRAMS**

Scale  
NTS

**M601**

# Gensler

500 South Figueroa Street  
Los Angeles, California 90071  
United States  
Contact:  
Bryan Walsingham  
Tel 213.239.8240

Tel 213.327.3600  
Fax 213.327.3601



2361 ROSECRANS AVENUE  
SUITE 368  
EL SEGUNDO, CA 90245  
Tel 310.725.1500  
Fax 310.725.4699  
Contact:  
Yves Yanuaría  
Tel 323.617.0332



505 COLLINS ST  
PO BOX 3505  
SOUTH ATTLEBORO  
MA 02703  
Tel 508.389.6000  
Fax 508.761.3620

Contact:  
Michael Henderson  
Tel 508.399.2392



700 FLOWER STREET  
SUITE 2100  
LOS ANGELES, CA 90017  
Tel 213.372.3400

Contact:  
Claudia Walker  
Tel 213.310.8495

Date	Description
02/24/2023	ISSUE FOR PERMIT/BD
2 04/18/2023	ADDENDUM 1
3 05/15/2023	ADDENDUM 2
09/01/2023	ISSUE FOR CONSTRUCTION

#### GENERAL

ALL ROOFTOP UNITS SHALL SHUT DOWN UPON ALARM FROM KITCHEN EXHAUST HOOD FIRE EXTINGUISHING SYSTEM.

#### RTU-1 AND RTU-2

- DURING OCCUPIED HOURS, UNIT SHALL RUN CONTINUOUSLY AND OUTDOOR AIR DAMPER AND RETURN AIR DAMPER SET TO MINIMUM POSITION TO MAINTAIN MINIMUM VENTILATION.
- WHEN FREE COOLING IS NOT AVAILABLE, THE COMPRESSORS WILL BE CONTROLLED BY THE ZONE THERMOSTAT. WHEN FREE COOLING IS AVAILABLE, THE OUTDOOR AIR DAMPER IS MODULATED BY ECONOMIZER CONTROL TO PROVIDE A 50 DEG-F TEMPERATURE INTO THE ZONE. AS THE MIXED AIR TEMPERATURE FLUCTUATES ABOVE 50DEG-F OR BELOW 50 DEG-F, DAMPERS WILL BE MODULATED OPEN OR CLOSE TO BRING THE MIXED AIR TEMPERATURE BACK WITHIN CONTROL.
- IF MECHANICAL COOLING IS UTILIZED WITH FREE COOLING, THE OUTDOOR AIR DAMPER WILL MAINTAIN ITS CURRENT POSITION AT THE TIME THE COMPRESSOR IS STARTED. IF THE INCREASE IN COOLING CAPACITY CAUSES THE MIXED AIR TEMPERATURE TO DROP BELOW 45 DEG-F, THEN THE OUTDOOR AIR DAMPER POSITION WILL BE DECREASED TO THE MINIMUM POSITION. IF THE MIXED AIR TEMPERATURE CONTINUES TO FALL, THE OUTDOOR AIR DAMPER WILL CLOSE. CONTROL RETURNS TO NORMAL ONCE THE MIXED AIR TEMPERATURE RISES ABOVE 48 DEG-F.
- THE POWER EXHAUST FANS WILL BE ENERGIZED AND DE-ENERGIZED AS THE OUTDOOR AIR DAMPER OPENS AND CLOSES. FOR ECONOMIZER OPERATION, THERE MUST BE A THERMOSTAT CALL FOR THE FAN.
- IF THE UNIT IS ON, OCCUPIED MODE AND THE FAN IS ON, THE DAMPER WILL OPERATE AT MINIMUM POSITION, OTHERWISE, THE DAMPER WILL BE CLOSED. WHEN THE ECONOMIZER IS IN OCCUPIED MODE AND A CALL FOR COOLING EXISTS, THE CONTROL WILL FIRST CHECK FOR INDOOR FAN OPERATION. IF THE FAN IS NOT ON, THEN COOLING WILL NOT BE ACTIVATED.
- IF THE FAN IS ON, THEN THE CONTROL WILL OPEN THE ECONOMIZER TO THE MINIMUM POSITION. IF FREE COOLING CAN BE USED AS DETERMINED FROM THE APPROPRIATE CHANGE-OVER COMMAND (73 DEG-F DB), THEN THE CONTROL WILL MODULATE THE DAMPERS OPEN TO MAINTAIN THE MIXED AIR TEMPERATURE SET-POINT AT 50-DEG-F TO 55 DEG-F. IF THERE IS A FURTHER DEMAND FOR, THEN THE CONTROL WILL BRING ON COMPRESSOR STAGE 1 TO MAINTAIN THE MIXED AIR TEMPERATURE SET POINT.

#### MULTI

- DURING OCCUPIED HOURS, UNIT SHALL RUN CONTINUOUSLY AND:  
WHEN THE EXHAUST HOOD CONTROLLER IS TURNED ON, ACTIVATING THE KITCHEN EXHAUST, THE MIXING BOX DAMPER IS MODULATED TO PROVIDE 2,000 CFM OF OA AIR FOR MAKE UP AIR.  
WHEN THE EXHAUST HOOD CONTROLLER IS TURNED OFF, DEACTIVATING THE KITCHEN EXHAUST.
- UNIT SHALL BE OUTFITTED WITH CASLINK FOR FUTURE CLOUD-BASED MONITORING, WHICH MONITORS EVERY POINT OF OPERATION, PROVIDES CONFIGURABLE AUTOMATED FAULT ALERT E-MAILS, AND REMOTE CONTROL CAPABILITIES.
- MAKE-UP UNIT SUPPLY AIR FAN SHALL BE DE-ENERGIZED BY ANY KITCHEN EXHAUST HOOD FIRE EXTINGUISHING SYSTEM, SMOKE DETECTOR ALARM, OR UPON ALARM FROM DUCT MOUNTED SMOKE DETECTOR OF HAU-1.  
MAKE-UP UNIT SUPPLY AIR FAN SHALL BE DE-ENERGIZED WHEN ANY KITCHEN EXHAUST FAN IS DE-ENERGIZED/NOT RUNNING.
- EVAPORATIVE COOLING OR GAS HEAT SHALL ENABLE TO MAINTAIN THE DISCHARGE AIR TEMPERATURE BETWEEN 75 DEG-F (ADJ.) AND 80 DEG-F (ADJ.).

#### KITCHEN EXHAUST FANS

- KEF 1-1 AND 1-2 SHALL BE ENERGIZED BY CONTACTORS IN THE HOOD CONTROLLER, COORDINATE INSTALLATION WITH ELECTRICAL CONTRACTOR.
- UPON ALARM FROM KITCHEN EXHAUST HOOD FIRE EXTINGUISHING SYSTEM, EXHAUST FAN SHALL CONTINUE TO RUN.
- NORMAL TEMPERATURE TEST: EXHAUST FANS SHALL OPERATE CONTINUOUSLY WHILE EXHAUSTING AIR AT 300 DEG-F UNTIL ALL FAN PARTS HAVE REACHED THERMAL EQUILIBRIUM AND WITHOUT ANY DETERIORATING EFFECTS TO THE FAN WHICH WOULD CAUSE UNSAFE OPERATION.

#### BESTROOM EXHAUST FAN

- EXHAUST FAN EF-1 SHALL OPERATE CONTINUOUSLY DURING OCCUPIED HOURS. INTERLOCK WITH RTU-1.

#### KITCHEN EXHAUST HOODS

- THE ELECTRICAL PACKAGE, TYPICALLY TD, IS DESIGNED TO THERMOSTATICALLY ACTIVATE THE EXHAUST FANS FOR AN EXHAUST HOOD WHENEVER ELEVATED TEMPERATURES ARE SENSED IN THE EXHAUST SYSTEM. THIS OPTION WILL MEET THE REQUIREMENTS OF BY PROVIDING A THERMOSTAT(S) MOUNTED IN THE DUCT OR HOOD RISER TO SENSE INCREASED EXHAUST TEMPERATURES.
- CONTROLS SHALL BE LISTED BY ETL (UL 508A). THE CONTROL ENCLOSURE SHALL BE NEMA 1 RATED AND LISTED FOR INSTALLATION INSIDE OF THE EXHAUST HOOD UTILITY CABINET. THE CONTROL ENCLOSURE MAY BE CONSTRUCTED OF STAINLESS STEEL OR PAINTED STEEL.
- TEMPERATURE PROBE(S) LOCATED IN THE DUCT RISER SHALL BE CONSTRUCTED OF STAINLESS STEEL.
- A ROOM TEMPERATURE SENSOR IS ALSO PROVIDED FOR FIELD INSTALLATION IN THE KITCHEN SPACE IN ORDER TO START THE FAN(S) BASED ON THE TEMPERATURE DIFFERENTIAL BETWEEN THE ROOM AND THE EXHAUST AIR IN THE DUCT, RATHER THAN FIXED SET-POINTS. THE SYSTEM IS FACTORY PRE-SET TO ACTIVATE THE FANS AT 10 DEG-F ABOVE THE ROOM TEMPERATURE.
- ONCE THE DUCT TEMPERATURE REACHES THE ACTIVATION POINT, THE EXHAUST FANS WILL BE ACTIVATED. THE CONTROLS ALSO PROVIDE HYSTERESIS TO PREVENT CYCLING OF THE FANS AFTER THE COOKING APPLIANCES HAVE BEEN TURNED OFF AND THE HEAT IN THE EXHAUST SYSTEM IS REDUCED. THE HYSTERESIS IS FACTORY SET 2 DEGREES AND WILL KEEP THE EXHAUST RUNNING UNTIL THE TEMPERATURE FALLS 2 DEGREES BELOW THE ACTIVATION SET POINT. A HYSTERESIS TIMER ALSO EXISTS TO KEEP THE FANS RUNNING FOR AT LEAST 30 MIN AFTER BEING ACTIVATED BY THE TEMPERATURE RISE.
- THE ACTIVATION AND HYSTERESIS SETTINGS MAY BE FIELD ADJUSTED ON THE BOARD-LOC INTERFACE LOCATED INSIDE THE CONTROL ENCLOSURE TO MEET APPLICATION NEEDS. THE PANEL IS FACTORY CONFIGURED TO SHUT DOWN SUPPLY FANS, TURN ON THE EXHAUST FANS AND TURN OFF THE HOOD LIGHTS IN A FIRE CONDITION.

#### Seal / Signature



Project EXP: 9-24-2023

SHAKE SHACK - COSTA MESA

Project  
005.3847.000

Description  
MECHANICAL CONTROL DIAGRAMS

#### Scale

NTS

# M602

PACKAGED HEAT PUMP ROOFTOP UNIT SCHEDULE																										
ITEM	ITEM NO.	MANUFACTURER	MODEL	AREA SERVED	SUPPLY FAN				OSA (CFM)	COOLING					HEATING				ELECTRICAL				REF.	WT. (LBS)	REMARKS	
					CFM	E.S.P. (IN. WG.)	FAN RPM	FAN BHP		NOM. TOTAL (TONS)	TOTAL (MBH)	SENSIBLE (MBH)	EAT (DB/WB)	LAT (DB/WB)	EER/IEER	CAPACITY (MBH)	EAT (DB/WB)	LAT (DB/WB)	COP	V	PH	MCA				MCCP
RTU	1	CARRIER	50FCQM07C3AS-6U0A0	DINING	2800	1.0	2640	1.95	350	6	76.19	68.89	80/65	55/54.1	11.2/15.0	62.42	60.0	80.6	3.6	208	3	33	80	R-410A	801	1, 2, 3, 4, 5, 6, 7, 8
RTU	2	CARRIER	50FCQM14A2AS-6U0A0	BACK OF HOUSE	3150	1.0	1386	1.39	970	12.5	130.84	89.39	80/65	53.7/50.7	10.8/15.0	113.99	60.0	93.5	3.3	208	3	51	60	R-410A	1250	1, 2, 3, 4, 5, 6, 7, 8

- NOTES:
- EFFICIENCY BASED ON AHRI 210/240 STANDARD RATING CONDITIONS.
  - PROVIDE WITH FAN VFD.
  - PROVIDE WITH FACTORY INSTALLED ENTHALPY ULTRA LOW LEAK ECONOMIZER WITH POWER EXHAUST.
  - PROVIDE WITH SMOKE DETECTOR FOR AUTOMATIC SHUT-DOWN OF UNIT UPON SMOKE DETECTION.
  - PROVIDE WITH MERV-13 FILTERS.
  - PROVIDE WITH 14" ROOF CURB.
  - PROVIDE WITH CASLINK BUILDING MONITORING SYSTEM FOR FUTURE CONNECTION.
  - PROVIDE WITH NATIONAL TAB UV-PHI INDOOR PURIFICATION SYSTEM PHI-PKG14-24V (GENERAL CONTRACTOR FURNISHED; MECHANICAL CONTRACTOR INSTALLED).

TEMPERED EVAPORATIVE/GAS MAKE UP AIR UNIT SCHEDULE																								
ITEM	ITEM NO.	MANUFACTURER	MODEL	AREA SERVED	SUPPLY FAN				RETURN AIR CFM	EVAPORATIVE COOLING			GAS HEATING			ELECTRICAL				REF.	WT. (LBS)	REMARKS		
					SUPPLY CFM	E.S.P. (IN. WG.)	FAN RPM	BHP		HP	EAT (F) (DB/WB)	LAT (F) (DB/WB)	INPUT (MBH)	OUTPUT (MBH)	EAT (F)	LAT (F)	THERMAL EFF.	V	PH				MCA	MOP
MAU	1	HALTON	XDGX-P112-H12-MF	KITCHEN	2,030	1.0	2417	1.11	1-1/2	1,400	91.272.5	74.372.5	68.6	63.1	41.2	70	92.0%	208	3	10.7	15	EVAP.	929	1, 2, 3, 4, 5, 6, 7

- NOTES:
- PROVIDE WITH CASLINK BUILDING MONITORING SYSTEM FOR FUTURE CONNECTION.
  - PROVIDE WITH INLET AND MANIFOLD PRESSURE GAUGES.
  - PROVIDE WITH MOTORIZED BACKDRAFT DAMPER.
  - PROVIDE WITH FAN VFD.
  - PROVIDE WITH ROOF EQUIPMENT CURB. COORDINATE CURB REQUIREMENTS WITH MANUFACTURER. FAN HAS INTERNAL SPRING ISOLATION.
  - PROVIDE WITH SMOKE DETECTOR FOR AUTOMATIC SHUT-DOWN OF UNIT UPON SMOKE DETECTION.
  - SEE M803 FOR FIELD WIRING.

EXHAUST FAN SCHEDULE																			
ITEM	ITEM NO.	MANUFACTURER	MODEL	AREA SERVED	SUPPLY FAN						ELECTRICAL						WT. (LBS)	REMARKS	
					CFM	ESP	TYPE	DRIVE	RPM	BHP	HP	V	PH	HZ	FLA				
EF	1	GREENHECK	G-080-VG	RESTROOMS	300	0.25	DOWNBLAST	DIRECT	1366	0.04	1/10	115	1	60	1.3	70	1, 2, 3, 4		
KEF	1	HALTON	VCR-D	KITCHEN HOOD	775	0.70	UPBLAST	DIRECT	-	-	1/3	115	1	60	7.2	116	5, 6		
KEF	2	HALTON	VCR-D	KITCHEN HOOD	1763	1.0	UPBLAST	DIRECT	-	-	3/4	115	1	60	13.8	116	5, 6		

- NOTES:
- PROVIDE WITH VARI-GREEN ECM WITH DIAL ONLY.
  - PROVIDE WITH STANDARD CURB CAP SIZE.
  - PROVIDE WITH BACKDRAFT DAMPER, GRAVITY OPERATED.
  - EF-1 TO BE INTERLOCK WITH RTU-1.
  - PROVIDE WITH FACTORY CURB, GREASE BOX, ECM WIRING PACKAGE, AND FAN BASE CERAMIC SEAL.
  - PROVIDE WITH UL782 LISTING.

KITCHEN EXHAUST HOOD SCHEDULE													
ITEM	ITEM NO.	MANUFACTURER	MODEL	LENGTH	EXHAUST COLLAR				HOOD CONSTRUCTION	FIRE SYSTEM	FIRE SYSTEM PIPING	WT. (LBS)	REMARKS
					CFM	LENGTH	WIDTH	ESP					
KEH	1-1	HALTON	KVC	7'-9"	775	8"	8"	-0.18	18 GA. 304 S.S.	ANSUL R102	YES	684	1
KEH	1-2	HALTON	KVC	7'-9"	1763	12"	12"	-0.43	18 GA. 304 S.S.	ANSUL R102	YES	684	1

- NOTES:
- SEE M801-M805 FOR ADDITIONAL REQUIREMENTS AND FIELD WIRING.

AIR CURTAIN SCHEDULE													
ITEM	ITEM NO.	MANUFACTURER	MODEL	AREA SERVED	CFM	VELOCITY	HP	ELECTRICAL				WT. (LBS)	REMARKS
								V	PH	FLA	MCCP		
AC	1	MARS	LPV236-OB	DELIVERY DOOR	900	1800	1/6	120	1	2.4	-	32	1, 2

- NOTES:
- PROVIDE WITH WALL MOUNTING BRACKET.
  - AIR CURTAIN TO BE CONTROLLED BY DOOR SWITCH.
  - PROVIDE WITH MAGNETIC REED SWITCH KIT TO OPERATE UNIT WHEN WINDOW OPENS.

AIR DISTRIBUTION SCHEDULE					
MARK NO.	MANUFACTURE MODEL NUMBER	NECK SIZE (IN)	CFM RANGE	MAX NC LEVEL	REMARKS
CD-1	PRICE PDS	6"	60-100	30	NOTE 1,2,3
	PRICE PDS	8"	101-200	30	NOTE 1,2,3
	PRICE PDS	10"	201-375	30	NOTE 1,2,3
	PRICE PDS	12"	376-500	30	NOTE 1,2,3
	PRICE PDS	14"	501-750	30	NOTE 1,2,3
CD-2	PRICE PDD	12"	450	30	NOTE 1,2,3,5
CR-1 / EG-1	PRICE PDR	6"	60-100	30	NOTE 1,2,3,4
	PRICE PDR	8"	101-200	30	NOTE 1,2,3,4
	PRICE PDR	10"	201-375	30	NOTE 1,2,3,4
	PRICE PDR	12"	376-500	30	NOTE 1,2,3,4
	PRICE PDR	14"	501-750	30	NOTE 1,2,3,4
SG-1	PRICE 510	12"x10"	SEE PLAN	30	NOTE 1,2
RG-1	PRICE 530	26"x18"	SEE PLAN	30	NOTE 1,2
RD-1	PRICE RCD	10"	301-500	30	NOTE 1
EG-1	PRICE 530	8"x8"	SEE PLAN	30	NOTE 1
DG-1	PRICE STG SERIES	16"x6"	0-200	30	NOTE 1

- NOTES:
- FURNISH WITH OFF-WHITE BAKED ENAMEL FINISH UON. COORDINATE EXACT FINISHES WITH ARCH.
  - PROVIDE OPTIONAL INSULATION ON SUPPLY DIFFUSERS. OMIT INSULATION ON RETURN DIFFUSERS.
  - PROVIDE LAY IN TYPE 24x24 BORDER, OTHERWISE COORDINATE BORDER TYPE WITH ARCH. PRIOR TO ORDERING.
  - PROVIDE WITH CORE OF 1/2"x1/2"x1/2".
  - PROVIDE VAV DIFFUSER WITH ROOM LCD THERMOSTAT, TR155 ONBOARD TRANSFORMER, AND INSULATED BACKPAN.

DUCT SIZING CHART*	
MARK NO.	SIZE (IN)
210	6X6 OR 6"
215 TO 380	6X6 OR 6"
381 TO 610	8X8 OR 10"
610 TO 910	10X10 OR 12"
911 TO 1300	12X12 OR 14"
1301 TO 1790	14X14 OR 16"
1791 TO 2000	14X14 OR 16"

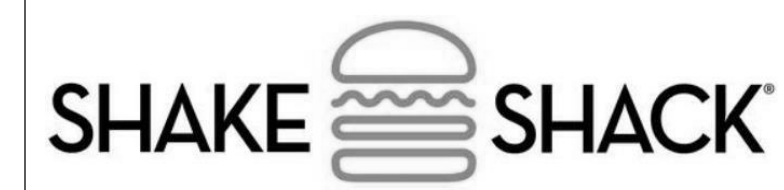
FOR COMMERCIAL EXHAUST DUCT AIR VELOCITY SHALL SHALL NOT BE LESS THAN 500 FPM AND NOT EXCEED 2,500 FPM.

\*NOTES  
DUCT SIZING SHALL BE SIZED IN ACCORDANCE WITH THE RECOGNIZED METHOD OF ASHRAE DUCT SIZING GUIDELINES. DUCT SIZING CHARTS ABOVE FOLLOW THESE GUIDELINES AND ARE TO BE UTILIZED FOR THIS PROJECT.

DUCT SIZING CHART*	
MARK NO.	SIZE (IN)
210	10X6 OR 8"
215 TO 380	14X6 OR 10"
381 TO 610	16X8 OR 12"
610 TO 910	20X8 OR 14"
911 TO 1300	24X10 OR 16"
1301 TO 1790	30X10 OR 18"
1791 TO 2000	30X12 OR 20"

FOR LOW VELOCITY SUPPLY AND RETURN DUCT

OUTSIDE AIR SCHEDULE							
UNIT	AREA SERVED	AREA	NUMBER OF PEOPLE	OSA BY AREA	OSA BY PEOPLE	MINIMUM OSA REQUIRED	OSA PROVIDED
RTU-1	QUEUE/ DINING AREA	680	20	102	300	300	310
RTU-1	WOMEN'S RESTROOM	68	1	10.2	15	15	20
RTU-1	MEN'S RESTROOM	67	1	10.1	15	15	20
RTU-2	OPEN KITCHEN/ BACK OF HOUSE	895	12	134.3	180	180	930
RTU-2	CUSTARD ROOM	48	1	7.2	15	15	20
RTU-2	MANAGER'S OFFICE	68	1	10.2	15	15	20



329 EAST 17TH ST  
COSTA MESA, CA 92627

## Gensler

500 South Figueroa Street  
Los Angeles, California 90071  
United States  
Contact:  
Bryan Walsingham  
Tel 213.239.8240



2361 ROSECRANS AVENUE  
SUITE 368  
EL SEQUOIO, CA 90245  
Tel 310.725.1500  
Fax 310.725.4699  
Contact:  
Yves Yanuaría  
Tel 323.617.0332



505 COLLINS ST  
PO BOX 3505  
SOUTH ATTLEBORO  
MA 02703  
Tel 508.389.6000  
Fax 508.761.3620

Contact:  
Michael Henderson  
Tel 508.399.2392



700 FLOWER STREET  
SUITE 2100  
LOS ANGELES, CA 90017  
Tel 213.372.3400

Contact:  
Claudia Walker  
Tel 213.310.8495

Date	Description
02/24/2023	ISSUE FOR PERMIT/BID
2 04/18/2023	ADDENDUM 1
3 05/15/2023	ADDENDUM 2
09/01/2023	ISSUE FOR CONSTRUCTION

Seal / Signature



Project EXP. 9-24-2023

SHAKE SHACK - COSTA MESA

005.3847.000

Description  
MECHANICAL SCHEDULES

Scale

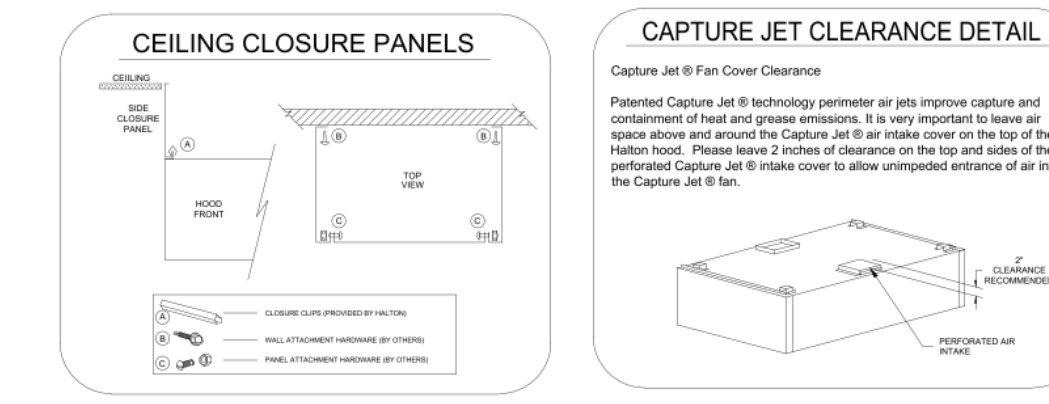
NTS

# M701





HOOD INFORMATION TABLE																		
HOOD NUMBER	HOOD MODEL	EXHAUST AIR FLOW REQUIREMENTS				GREASE EXTRACTOR				HOOD CONSTRUCTION	HOOD WEIGHT (LBS)	SUPPLY AIR REQUIREMENTS						
		EXHAUST CFM	T.A.B. PORT STATIC PRESSURE	TOTAL HOOD STATIC PRESSURE	EXHAUST COLLAR	QTY.	SIZE	L	H			TYPE	SUPPLY CFM	SUPPLY STATIC PRESSURE	SUPPLY COLLAR	QTY.	LENGTH	WIDTH
1-1	KVC	775	0.06"	0.18"	1	8"	8"	4	20"	13"	KSA	ALL 18 GA. 304 S.S.	684	620	0.10"	1	16"	6"
1-2	KVC	1763	0.32"	0.43"	1	12"	12"	1	11"	13"	KSA	ALL 18 GA. 304 S.S.	684	1410	0.10"	1	32"	6"
TOTAL EXH. CFM =		2538		TOTAL SUPPLY CFM = 2030														

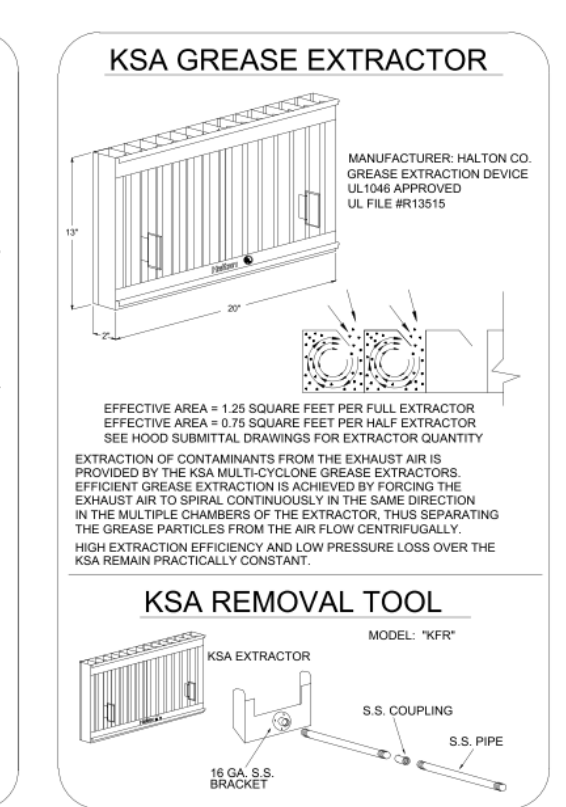
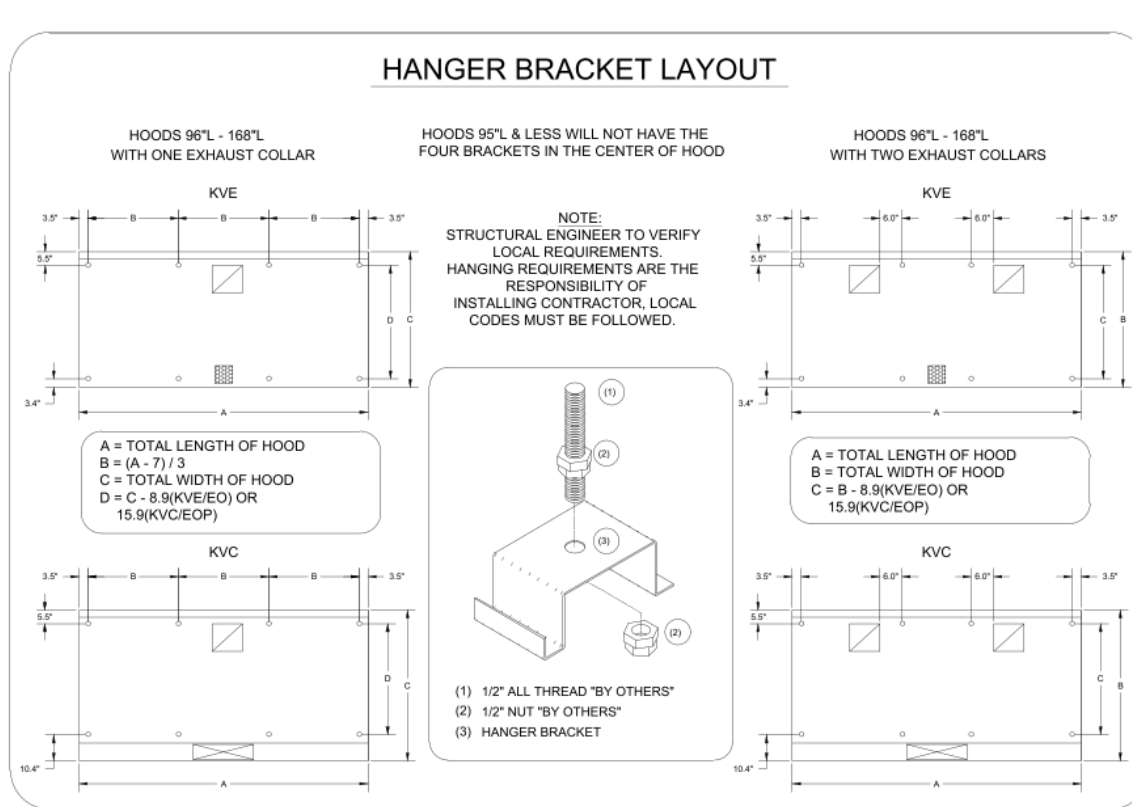
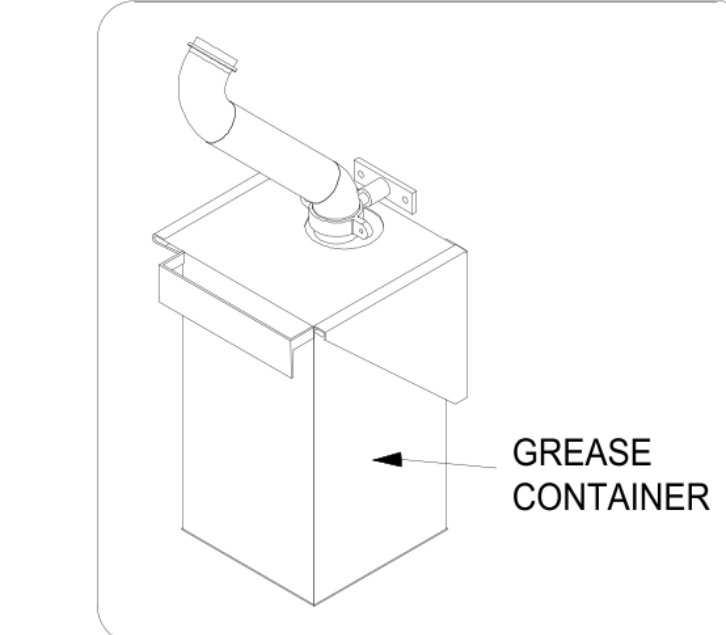
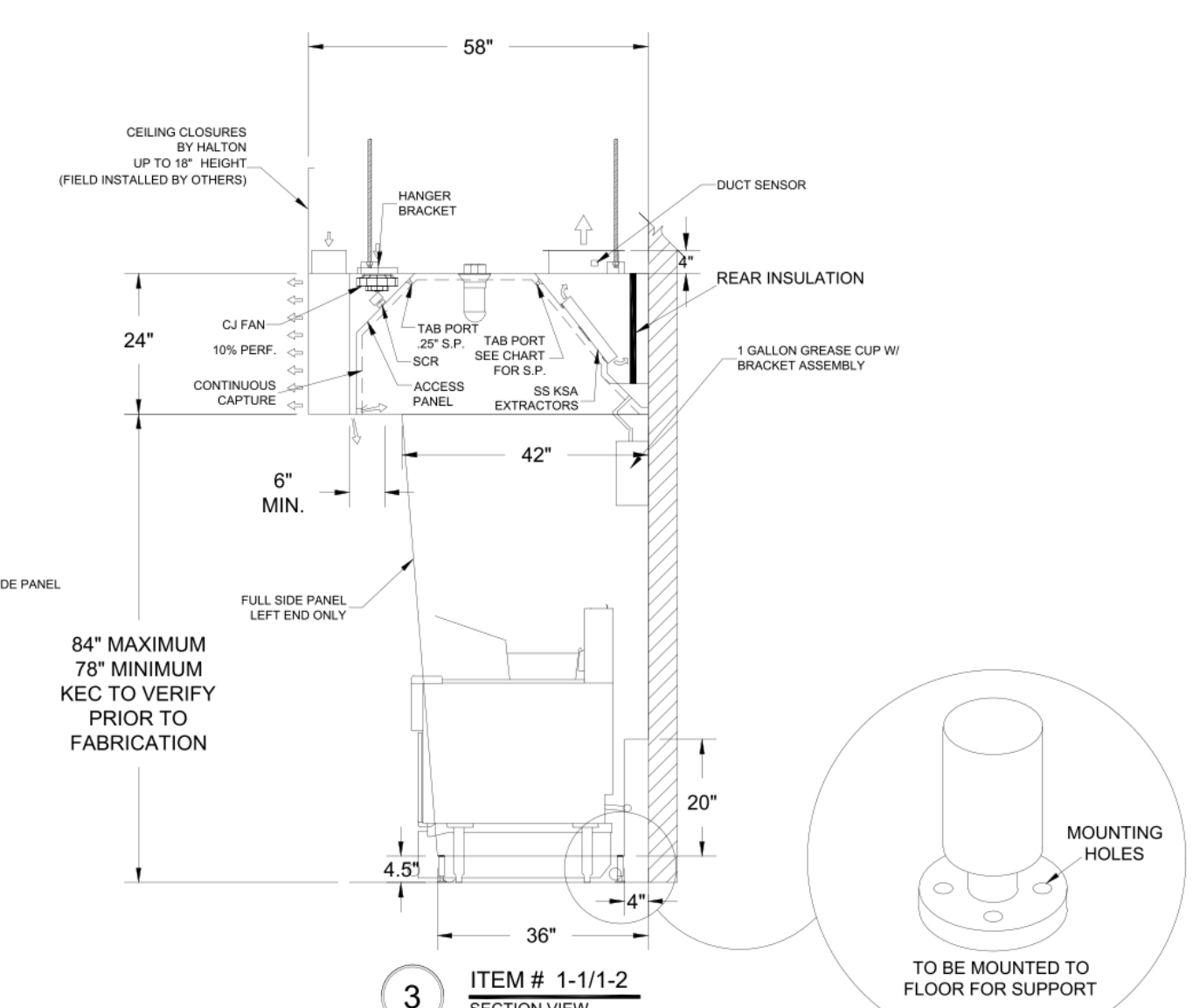
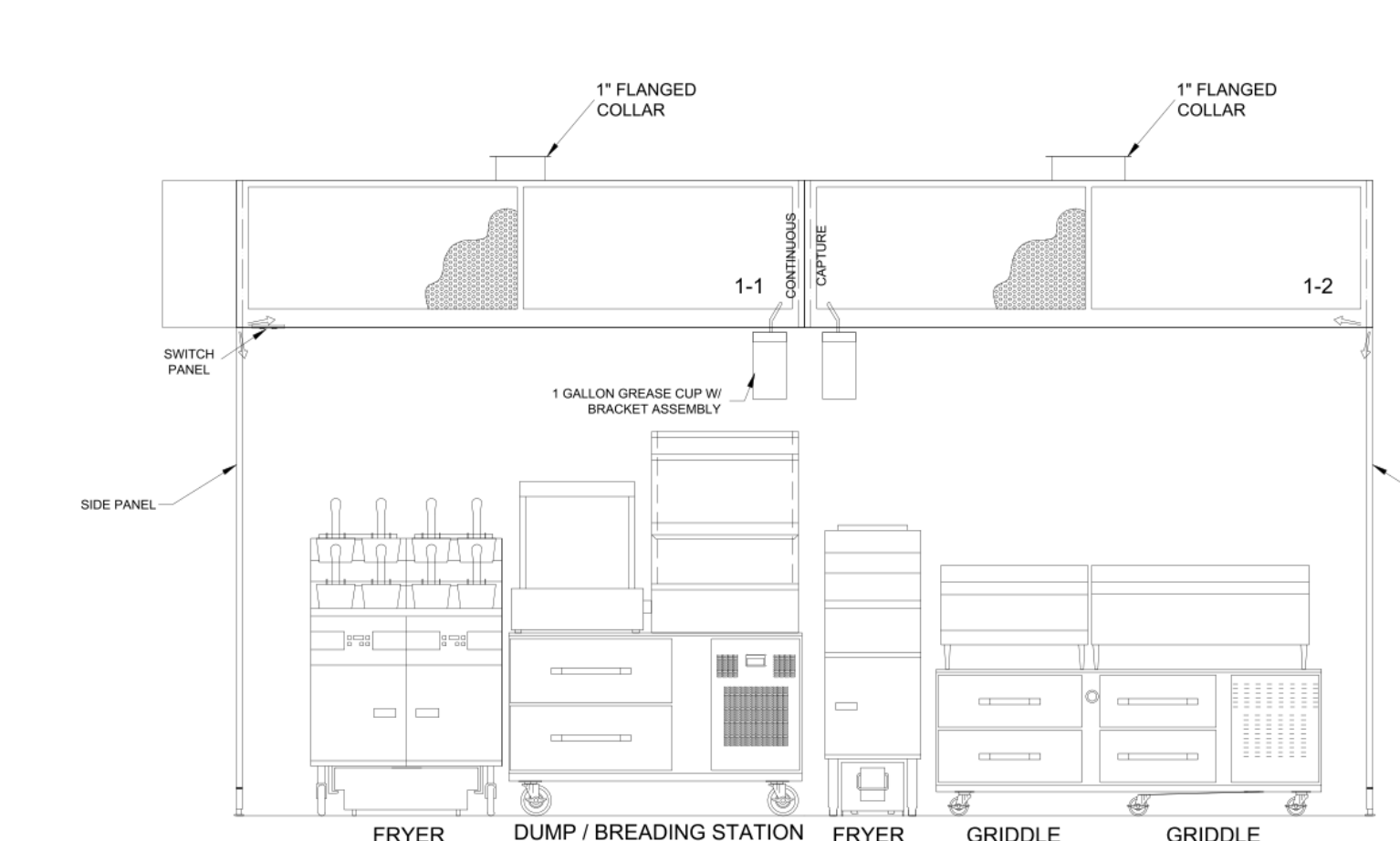
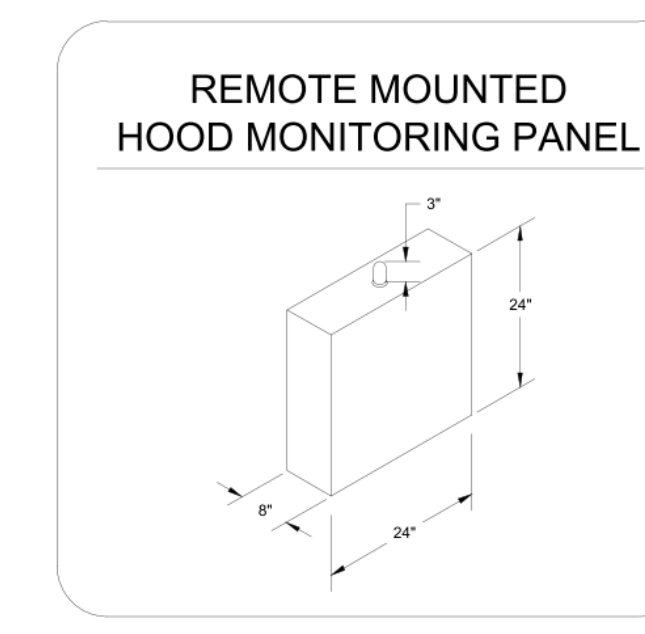
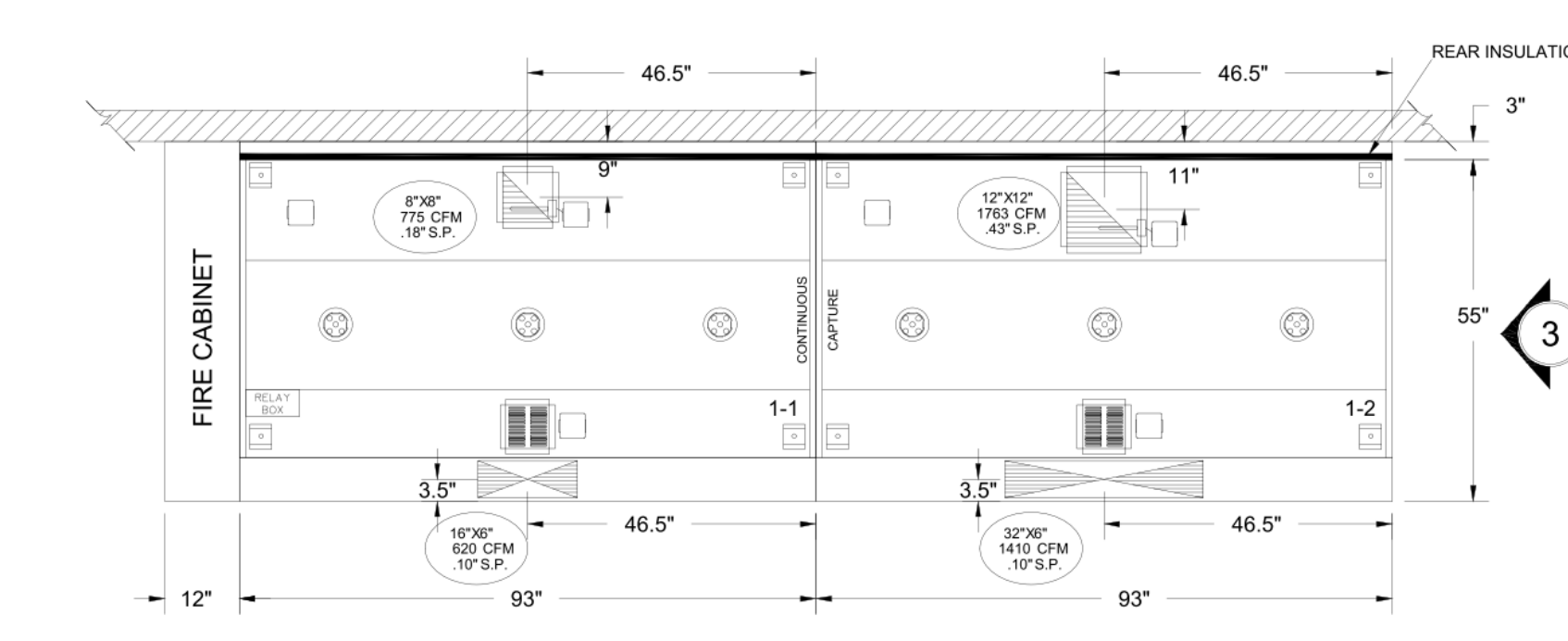


- ### GENERAL SPECIFICATIONS
- HOOD CONSTRUCTION AND DESIGN MEETS NFPA 96 AND UL 710 STANDARD.
  - HOOD IS NSF AND ETL LISTED UNDER THE FOLLOWING FILE NUMBER: ETL #P10143204PRT-001
  - ALL INSTALLATION WORK IS TO BE PERFORMED BY QUALIFIED PERSONS AND IN ACCORDANCE WITH STATE AND LOCAL BUILDING CODE REQUIREMENTS.
  - THE INSTALLATION SHALL BE IN ACCORDANCE WITH NFPA 96, REMOVAL OF SMOKE AND GREASE, LADEN VAPORS FROM COMMERCIAL COOKING EQUIPMENT.
  - ALL EXHAUST DUCTWORK AND TRANSITIONS ARE TO BE PROVIDED BY THE HVAC CONTRACTOR.
  - CLEARANCE FROM HOOD AND DUCTS TO COMBUSTIBLE MATERIAL SHALL BE PER APPLICABLE BUILDING CODES.
  - FOR PROPER OPERATION OF THE HOOD SYSTEM, IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO HAVE THE HOOD BALANCED AND TESTED TO ENSURE THAT THE EXHAUST AND SUPPLY REQUIREMENTS OF THE HOOD ARE MET.

- ### INSTALLATION REQUIREMENTS
- KITCHEN EQUIPMENT CONTRACTORS REQUIREMENTS
- PROVIDE DRAWINGS TO APPROPRIATE TRADES, REFERENCING UTILITY SERVICE AND COORDINATE FINAL CONNECTION.
  - DELIVER, ASSEMBLE AND INSTALL HALTON SYSTEM PER DRAWING.
  - FURNISH WIRING AND PLUMBING DIAGRAMS TO END USER.
  - THE K.E.C. MUST INFORM HALTON OF ANY CHANGES IN EQUIPMENT OR BUILDING STRUCTURE. FIELD MODIFICATIONS ARE THE RESPONSIBILITY OF THE K.E.C.
  - IF HALTON MANUAL EXHAUST VOLUME DAMPERS ARE PROVIDED, THE K.E.C. IS RESPONSIBLE FOR THEIR INSTALLATION OR TO MAKE ARRANGEMENTS WITH OTHER TRADES FOR THEIR INSTALLATION.
  - IF HALTON MODEL NO. 4000 SERIES STYLE HOODS ARE PROVIDED, THE K.E.C. IS RESPONSIBLE FOR THE INSTALLATION OF THE CAPTURE-JET FAN.
- ELECTRICAL CONTRACTORS REQUIREMENTS
- PROVIDE AND CONNECT ALL REQUIRED VOLTAGES, CONNECTIONS, WIRING, CONDUIT, ETC., PER NEC AND ALL APPLICABLE LOCAL CODES.

- ### ELECTRICAL EQUIPMENT REQUIREMENTS
- FLUORESCENT LIGHT FIXTURE: 40 WATT MAX BULB- 40 AMP EA.
  - RECESSED INCANDESCENT LIGHT FIXTURE: 150 WATT MAX BULB- 125 AMP EA.
  - CLOSE INCANDESCENT LIGHT FIXTURE: 100 WATT MAX BULB- 80 AMP EA.
  - LED LIGHT FIXTURES- 30 AMP EA.
  - CAPTURE-JET FAN- 72 AMP EA.
  - "ALL HOOD CIRCUITS ARE NOT TO EXCEED 15 AMP"
  - "LIGHT BULBS, IF REQUIRED, ARE TO BE PROVIDED BY OTHERS"
- IF HALTON COMPANY IS TO PROVIDE CEILING CLOSURE PANELS, THE EXACT DIMENSION OF THE FINISHED CEILING HEIGHT MUST BE PROVIDED PRIOR TO RELEASE.
- FINISHED CEILING HEIGHT A.F.F.:

**\*\*NOTE\*\***  
HOOD IS LISTED AND LABELED FOR 0" CLEARANCE.



### PERFORMANCE CRITERIA

OTHER MANUFACTURERS WISHING TO OFFER AN ALTERNATE TO THE SPECIFIED MANUFACTURER MUST APPLY FOR PERMISSION TO DO SO IN WRITING FROM THE OFFICE OF THE SPECIFYING CONSULTANT. APPLICATION MUST BE RECEIVED BY THE CONSULTANT AT LEAST TEN WORKING DAYS PRIOR TO THE BID DATE. ANY ALTERNATE SYSTEM MUST MEET CONSTRUCTION AND PERFORMANCE REQUIREMENTS AND EFFICIENCIES AS OUTLINED IN THIS SPECIFICATION.

REQUESTS FOR APPROVAL MUST INCLUDE GREASE FILTRATION PERFORMANCE DATA (INCH SIZE VS. EXTRACTION EFFICIENCY) AND MANUFACTURERS OWN EXHAUST AIR FLOW CALCULATIONS BASED ON THE CONNECTIVE HEAT LOAD OF COOKING EQUIPMENT BENEATH THE HOOD.

EFFICIENCY COMPARISON DATA TO BE PERFORMED IN ACCORDANCE WITH THE MOST CURRENT ASTM STANDARD F1744 AND INCLUDE RESULTS FOR THE REQUIRED CAPTURE AND CONTAINMENT EXHAUST AIR FLOW IN ACCORDANCE WITH THE TEST METHOD TO DETERMINE THE THRESHOLD OF CAPTURE AND CONTAINMENT. DATA MUST INCLUDE THERMAL IMAGING RESULTS TO VALIDATE CONFORMANCE TO ASTM F1744 AND SUPPLY AIR TEMPERATURE REQUIREMENT OF 74°F.

MAKE UP AIR WILL BE CALCULATED SO THAT THE SAME AMOUNT OF AIR WILL BE TAKEN FROM THE ZONE AS IS REQUIRED BY THE SPECIFIED SYSTEM. AN ADDITIONAL LOAD CANNOT BE PLACED ON THE KITCHEN HVAC SYSTEM.

MANUFACTURER MUST PROVIDE A WRITTEN GUARANTEE OF PERFORMANCE, ENSURING THE SPECIFYING ENGINEER THAT THE SYSTEM WILL PERFORM TO THE ENGINEERS SATISFACTION WHEN INSTALLED AND BALANCED ACCORDING TO DESIGN AND FLOW. AND RESULTS OF A TEST PERFORMED FOR TEST USE DETERMINED BY FAB PORTS AND PRESSURE VS. AIR FLOW CURVES. CONSULTANT RESERVES THE RIGHT TO SELECT ANY SYSTEM WHICH, WHEN INSTALLED, DOES NOT PROVIDE CAPTURE AND CONTAINMENT AT THE THRESHOLD LOW RATE DETERMINED IN ASTM F1744. RELEASED SYSTEM MUST BE REPLACED WITH SPECIFIED SYSTEM WITH ALL REPLACEMENT COSTS PAID BY MANUFACTURER OF RELEASED SYSTEM.

ANY CHANGES IN THE SPECIFIED SIZES OF POWER WIRING, FAN SIZE, HORSEPOWER REQUIREMENTS, OR GAL LINES DUE TO THE USE OF ANY SYSTEM OTHER THAN THAT WHICH IS SPECIFIED IS THE RESPONSIBILITY OF THE ALTERNATE HOOD MANUFACTURER AND MUST BE COORDINATED BY THE HOOD MANUFACTURER AND CONTRACTORS INVOLVED.

THE DRAWINGS ARE TO BE CHECKED, SIGNED AND RETURNED TO THE APPROPRIATE FACTORY. PLEASE VERIFY THE FOLLOWING:

- ALL DIMENSIONAL INFORMATION, MOUNTING POSITIONS
- THE LOCATION AND TYPE OF COOKING EQUIPMENT

NOTE: TO APPROVE, THE EQUIPMENT SHALL BE MARKED ENERGY EFFICIENT OR EQUIPMENT PERFORMANCE AFFECT EXHAUST AIR FLOW. HALTON MUST BE NOTIFIED BY ANY OF THESE METHODS. THE MANUFACTURER SHALL BE NOTIFIED BY ANY OF THESE METHODS.

APPROVED FOR FABRICATION:  REVISION AND REQUIRMENT  WITH CHANGES AS NOTED  WITH CHANGES

APPROVED BY: \_\_\_\_\_ DATE: \_\_\_\_\_

---

MAIL APPROVED DRAWINGS TO APPROPRIATE FACTORY BELOW:

WEBSITE: www.halton.com	DATE: 08/22/23
HALTON CO. (USA) 1270-237-5900	BY: SKM
HALTON CO. (CANADA) 1-800-524-4301	DATE: 08/22/23
MISSISSAUGA, ON L4W 3R7	BY: SKM
REVISION DESCRIPTION	DATE
1. NO CHANGE	08/22/23
2. NO CHANGE	08/22/23
3. NO CHANGE	08/22/23
4. ADDED 0" CLEARANCE NOTE	04/17/23
5. NO CHANGE	04/26/23
6. NO CHANGE	04/26/23
7. NO CHANGE	04/26/23

---

PROJECT: SHAKE SHACK 1437 COSTA MESA, CA  
 LOCATION: COSTA MESA, CA  
 DRAWN BY: SKM DATE: 08/26/22  
 SCALE: NOT TO SCALE  
 CONSULTANT:

**Halton**

DRAWING TITLE: HOOD DETAILS  
 DRAWING NO.: U22-656  
 REV. NO.: 5 SHEET NO.: 1 of 6

Date	Description
02/24/2023	ISSUE FOR PERMIT/BID
04/18/2023	ADDENDUM 1
05/15/2023	ADDENDUM 2
09/01/2023	ISSUE FOR CONSTRUCTION

Seal / Signature

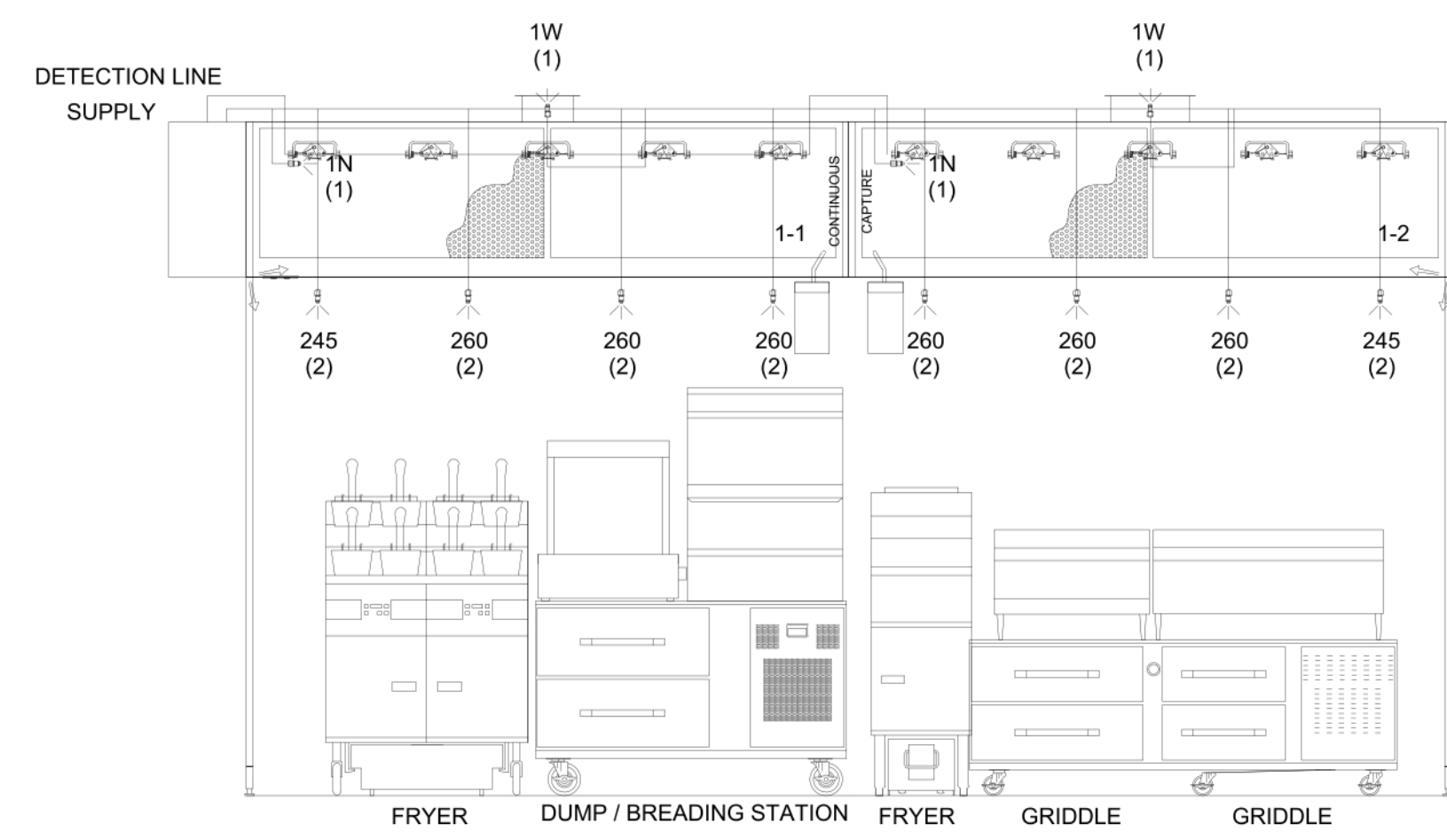
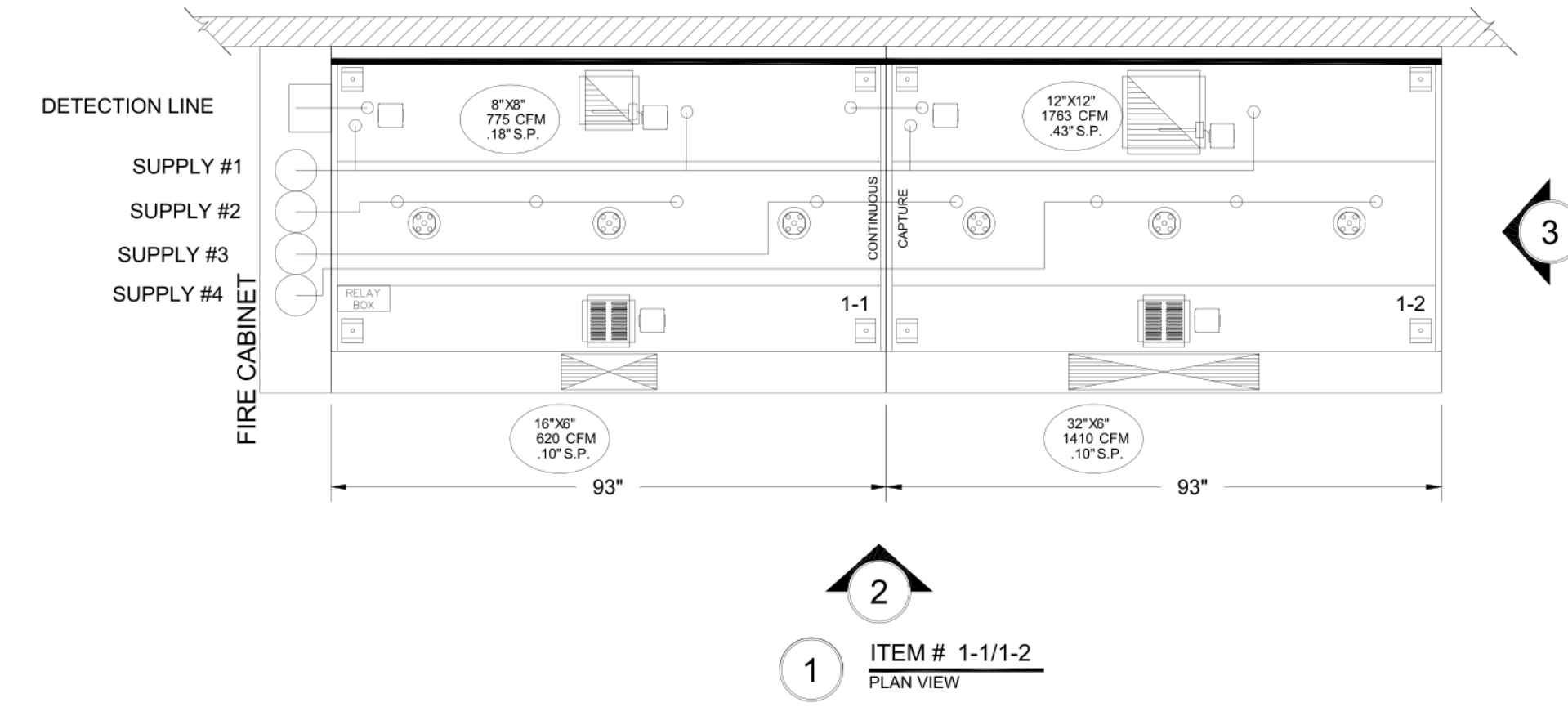


Project: EXP. 9-24-2023  
**SHAKE SHACK - COSTA MESA**  
 Project  
 005.3847.000  
 Description  
 HALTON DRAWINGS

Scale

## ANSUL R-102 FIRE SUPPRESSION SYSTEM FIRE SYSTEM IS INTEGRAL WITH FACTORY DESIGN/PIPING/FIELD CERTIFICATION

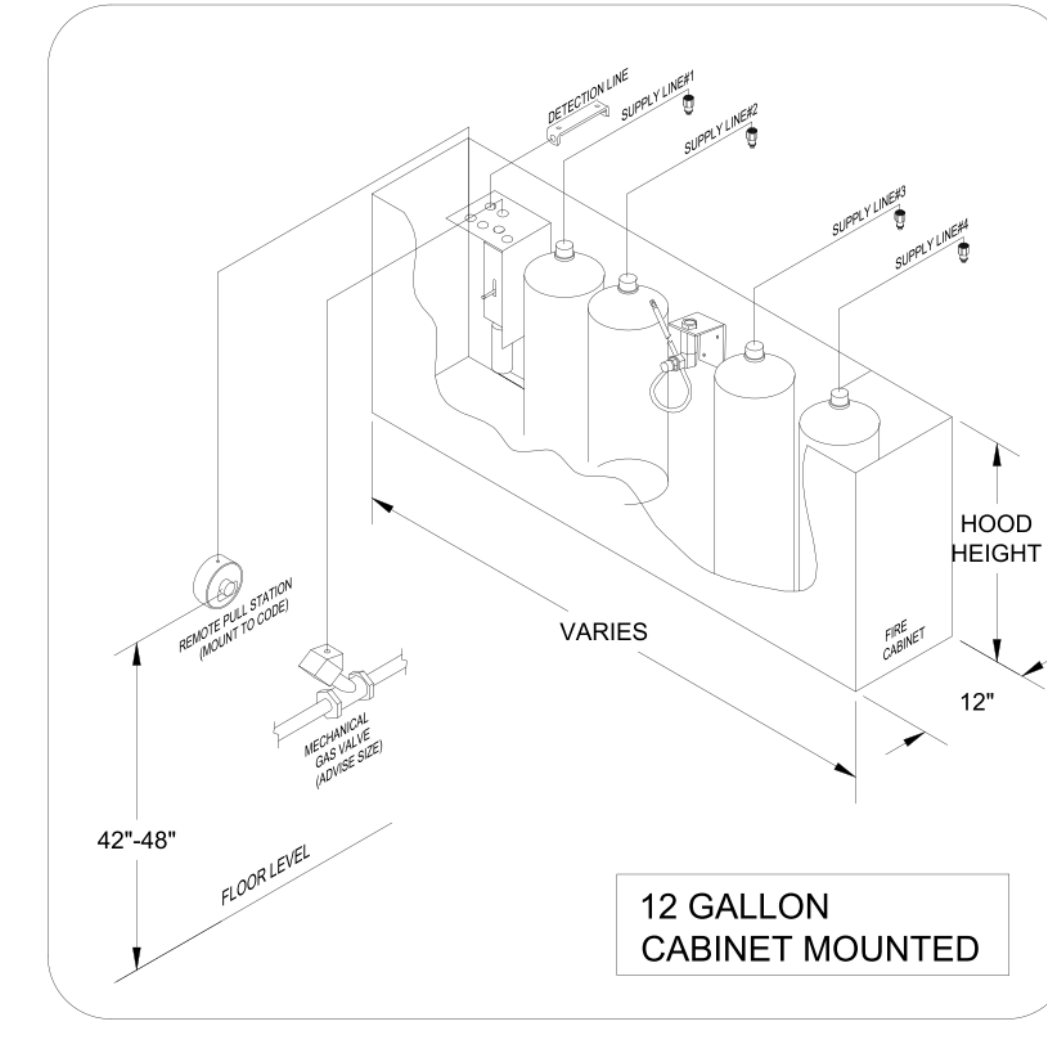
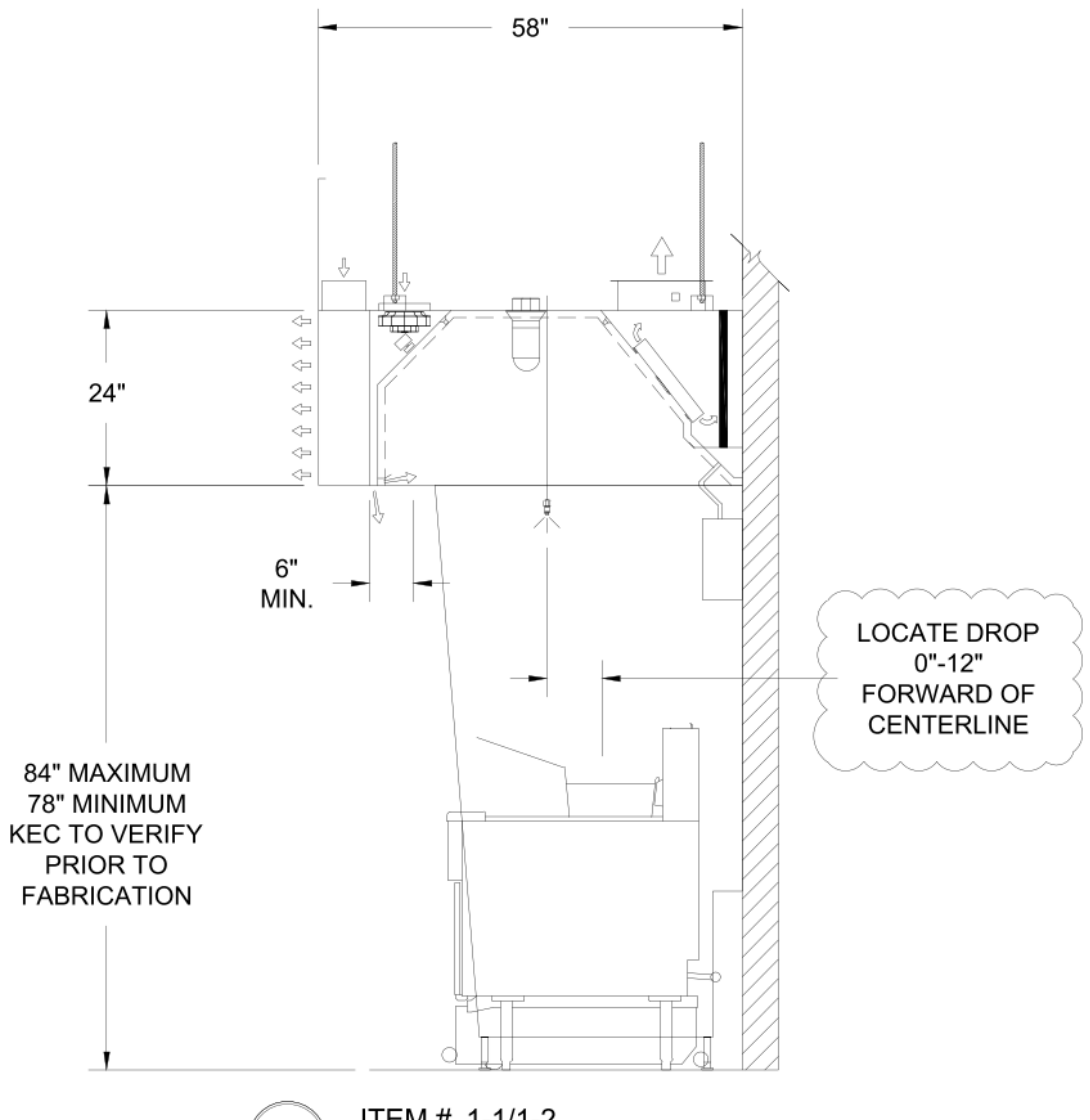
MOUNTED IN FIRE CABINET:  
1 - OEM REGULATED RELEASE  
1 - OEM REGULATED ACTUATOR  
4 - 3 GALLON TANKS



- 1) ANSUL R-102 FIRE SYSTEM
- 2) FOUR TANK SYSTEM (1/2 GALLON)
- 3) 3/8" BLACK IRON PIPING (CONCEALED)
- 3/8" S.S. APPLIANCE DRIPS (EXPOSED)
- 4) MECHANICAL GAS VALVE = (ADVISE SIZE)

ALL APPLIANCE DROPS TO HAVE SWIVELS

**\*\*NOTE\*\***  
ANSUL R-102  
OVERLAPPING SYSTEM



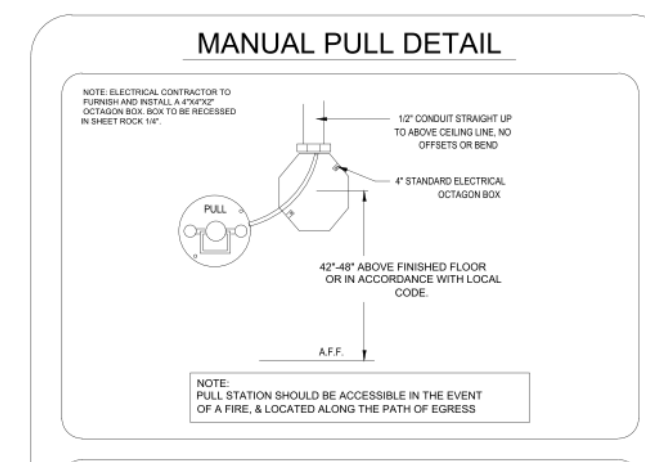
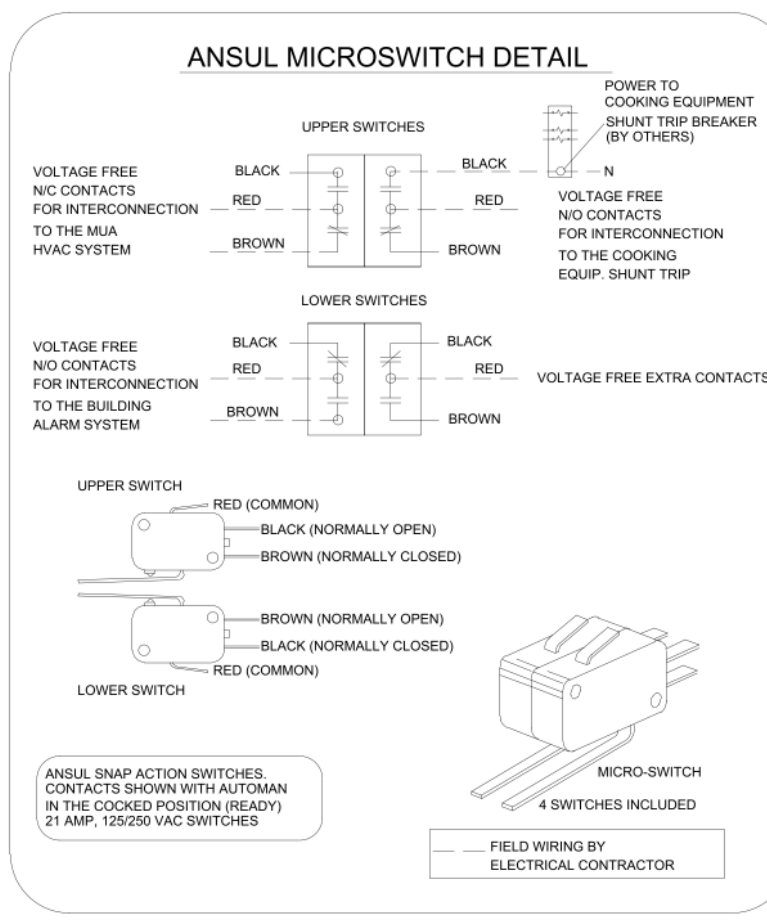
**FLOW POINT CHART**

ANSUL R-102 FLOW POINT CALCULATION

NOZZLE TYPE	NOZZLE FLOW PT.	NOZZLE QUANTITY	TOTAL FLOW PT.
3N	3	0	0
280	2	0	0
260	2	6	12
245	2	2	4
230	2	0	0
2W	2	0	0
2100	2	0	0
1W	1	2	2
1N	1	2	2
1F	1	0	0
102N	1/2	0	0
TOTAL FLOW POINTS USED			28
MAX. SYSTEM FLOW POINTS			24 (1/2 GALLON)

**NOTE:**  
HALTON COMPANY WILL SUPPLY ANSUL COMPONENTS AND PRE-PIPED HOODS PER PUBLISHED ANSUL GUIDELINES AND ACCORDANCE WITH ALL STATE AND LOCAL CODES. F.S.E.C. TO INFORM HALTON OF ANY SPECIAL REQUIREMENTS OF THE LOCAL JURISDICTION PRIOR TO RELEASE OF EQUIPMENT.

- ANSUL NOTES**
1. THIS INSTALLATION IS TO BE MADE IN ACCORDANCE WITH THE R-102 INSTALLATION MANUAL AND IN ACCORDANCE WITH ALL STATE AND LOCAL CODES.
  2. THE WIRE ROPE FOR THE DETECTOR AND REMOTE PULL STATION IS TO BE INSTALLED BY AN AUTHORIZED AND FACTORY TRAINED DISTRIBUTOR OR SERVICE REPRESENTATIVE.
  3. THIS INSTALLATION IS TO BE INSPECTED, PUT INTO OPERATION AND CERTIFIED BY AN AUTHORIZED AND FACTORY TRAINED DISTRIBUTOR OR SERVICE REPRESENTATIVE.
  4. ELECTRICAL CONTACTS AND WIRING FOR APPLIANCE SHUT OFF TO BE PROVIDED BY THE ELECTRICAL CONTRACTOR.
  5. ANSUL R-102 RESTAURANT FIRE SUPPRESSION SYSTEMS HAVE BEEN TESTED AND ARE LISTED BY UNDERWRITERS LABORATORIES INC. AS FIRE-ENGINEERED SYSTEMS, AND WHEN INSTALLED AS SHOWN ON THIS DRAWING SHALL COMPLY WITH ALL RELEVANT ANSUL INSTALLATION RECHARGE INSPECTION AND MAINTENANCE MANUALS AND SHALL COMPLY WITH NFPA 96 WHEN INSTALLED AND CERTIFIED BY AUTHORIZED TRAINED ANSUL DISTRIBUTORS IN ACCORDANCE WITH THE MANUAL.
  6. ALL AGENT DISTRIBUTION PIPING AND DETECTION CONDUIT HOOD PENETRATIONS MUST BE PROPERLY SEALED IN ACCORDANCE WITH NFPA 96.
- DISTRIBUTION PIPING REQUIREMENT NOTES:**
1. PIPE SHALL BE 3/8" SCHEDULE 40 BLACK IRON, CHROME PLATED OR STAINLESS STEEL UNLESS OTHERWISE NOTED.
  2. FINAL NOZZLE LOCATION MAY NOT VARY FROM LOCATION SHOWN.



- NOTE:**  
ALL PIPING FOR LOW PROXIMITY APPLIANCE PROTECTION SHALL BE PROVIDED & INSTALLED BY THE INSTALLING ANSUL DISTRIBUTOR & NOT BY HALTON.
- NOTE:**  
HAND HELD EXTINGUISHERS, IF REQUIRED, ARE TO BE PROVIDED BY OTHERS.

THIS DRAWING IS TO BE CHECKED, SIGNED AND RETURNED TO THE APPROPRIATE FACTORY:  
1. ALL DIMENSIONAL INFORMATION, MOUNTING POSITIONS AND CONNECTIONS TYPE OF COOKING EQUIPMENT.  
2. THE LOCATION AND TYPE OF COOKING EQUIPMENT.  
**NOTE TO APPROVER:**  
INSTALLATION OF COOKING EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE RELEVANT ANSUL INSTALLATION RECHARGE INSPECTION AND MAINTENANCE MANUALS AND SHALL COMPLY WITH NFPA 96 WHEN INSTALLED AND CERTIFIED BY AUTHORIZED TRAINED ANSUL DISTRIBUTORS IN ACCORDANCE WITH THE MANUAL.  
 REVISE AND RESUBMIT  
 APPROVED FOR FABRICATION  
 WITH CHANGES AS NOTED  
APPROVED BY: \_\_\_\_\_ DATE: \_\_\_\_\_



WEBSITE: www.halton.com

BY	DATE
SKM	08.31.22
SKM	09.12.22
SKK	04.17.23
SKK	04.26.23

MAIL APPROVED DRAWINGS TO APPROPRIATE FACTORY BELOW:

REVISION DESCRIPTION	REV.	DATE
1. NO CHANGE	1	08.31.22
2. NO CHANGE	2	09.12.22
3. NO CHANGE	3	04.17.23
4. NO CHANGE	4	04.26.23
5. NO CHANGE	5	04.26.23
6. NO CHANGE	6	04.26.23
7. NO CHANGE	7	04.26.23

PROJECT: **SHAKE SHACK**  
1437 COSTA MESA, CA

DRAWN BY: SKM DATE: 08.26.22  
SCALE: NOT TO SCALE  
CONSULTANT:

Halton

HOOD DETAILS  
DRAWING No.: **U22-656**  
REV. NO.: 5 SHEET NO.: 2 of 5

Date	Description
02/24/2023	ISSUE FOR PERMIT/ID
04/18/2023	ADDENDUM 1
05/15/2023	ADDENDUM 2
09/01/2023	ISSUE FOR CONSTRUCTION

Seal / Signature



Project EXP. 9-24-2023

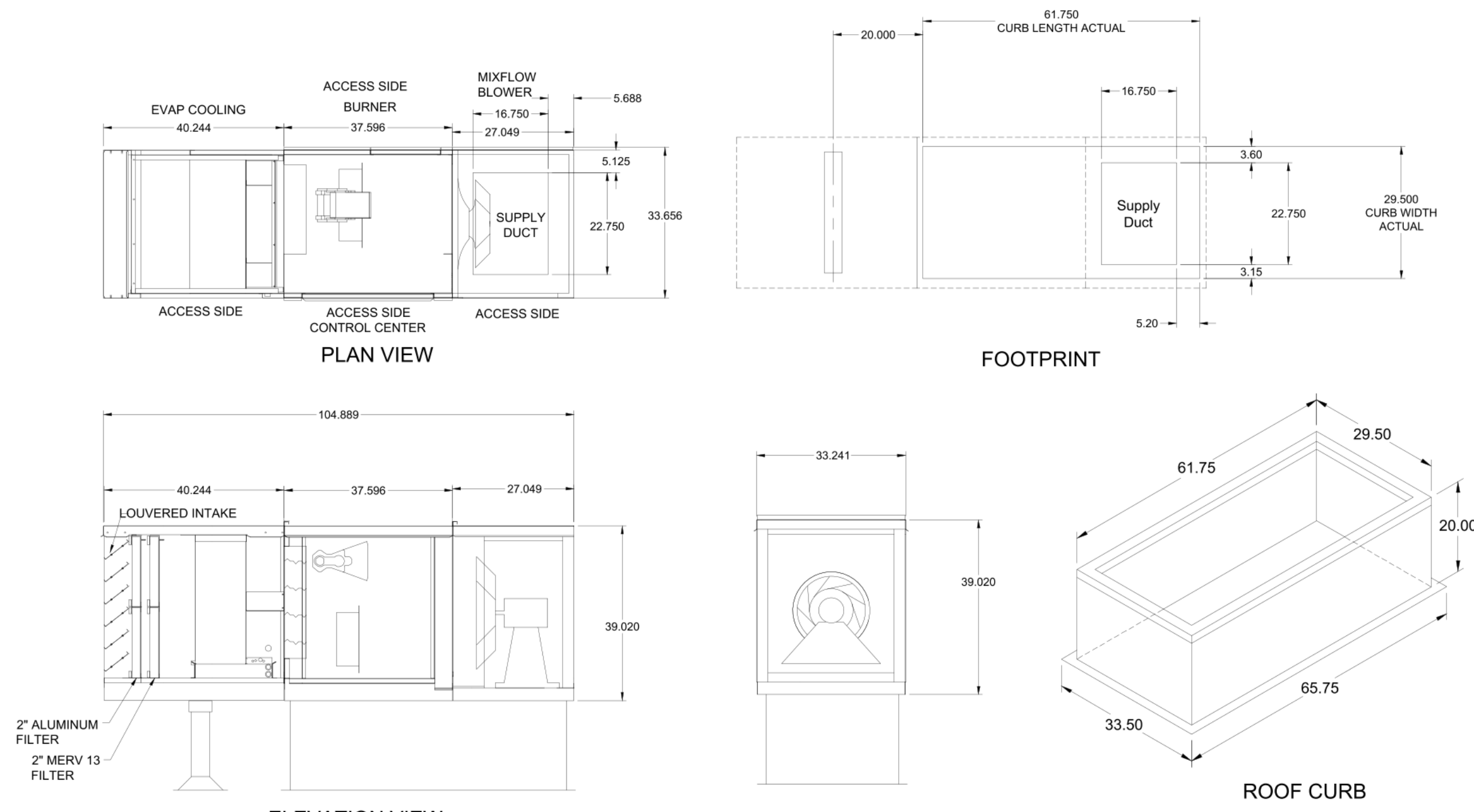
**SHAKE SHACK - COSTA MESA**

Project  
**005.3847.000**

Description  
HALTON DRAWINGS

Scale

EQUIPMENT SCHEDULE										OPTIONS AND ACCESSORIES	
Tempered Make-Up Air Unit										Mark: MUA-1	
Qty	Accurex Model	Volume	External SP	Total SP	FRPM	Operating Power	Weight			Air Flow Arrangement: Variable Volume Filter Section: MERV13, 16x20x2 - (4)	
1	XDGX-P112-H12-MF	2,030 CFM	1 in. wg	1,905 in. wg	2434	1.13 hp	933 lb			Damper: Inlet Outdoor Air Intake Position: End Discharge Position: Bottom Coating: Galvanized Insulation: Double Wall - Tempering On	
Motor Information										MCA	
Size	VICP	Enclosure	Motor with Shaft Grounding	Motor RPM	Windings	MOP				Supply Fan Control: VFD VFD Control: External 0-10 VDC Access Side: Right-Hand Control Center Heat Inlet Air Sensor Cool Inlet Air Sensor Unit Controls: Terminal Strip Temperature Control: Discharge Direct Gas Options/Accessories Approvals: ETL FM Compliant Flame Sensing: Flame Rod Ignition Control: Pilot Unit Rated Gas Pressure: 1/2 PSI	
1 1/2 hp	20B/60/3	OOP	No	1725	1	10.7	15				
Heating										Cooling	
Type	Gas Type	Temperature	Winter DB	Max Δ	Max LAT	Input	Output	Energy Efficiency	Connection Gas Pressure	Building Gas Access	Control Access
Direct Gas	Natural	41.2 F	28.8 F	70.0 F	68.6 MBH	63.1 MBH	92%	3/4"	1/2 PSI	Right Hand	
Cooling										Required Flow**	
Cooling Type	Cooling Media	Summer Bulb Dry	Wet	Filters	Cooling Control						
Evaporative	CELdek	91.2 F	72.5 F	2in. Aluminum Mesh	Automatic, Drain Flush Valve					NA	
Outlet Sound Power By Octave Band										LWA	
dB	125	250	500	1000	2000	4000	8000			dBa	
62.5	76.5	71.4	74.4	69.6	74.9	75.8	74.4	68.8	81.1	70.1	17.4
*Required flow and inlet pressure are for supply line sizing only. They do not represent water usage during normal operation. Consult factory for actual water usage.											
**Note: LWA - A weighted sound power level based on ANSI S1.4 ***Note: dBA - A weighted sound pressure level based on 111 dB attenuation per octave band at 5.0 ft. ****Note: Criteria (PNC) based on an average attenuation of 11.5 dB per octave band at 5.0 ft.											
Damper(s) supplied are low leakage, motorized VCD-23 (leakage rate of 3 CFM/ft <sup>2</sup> @ 1 in.wg), Class 1A											

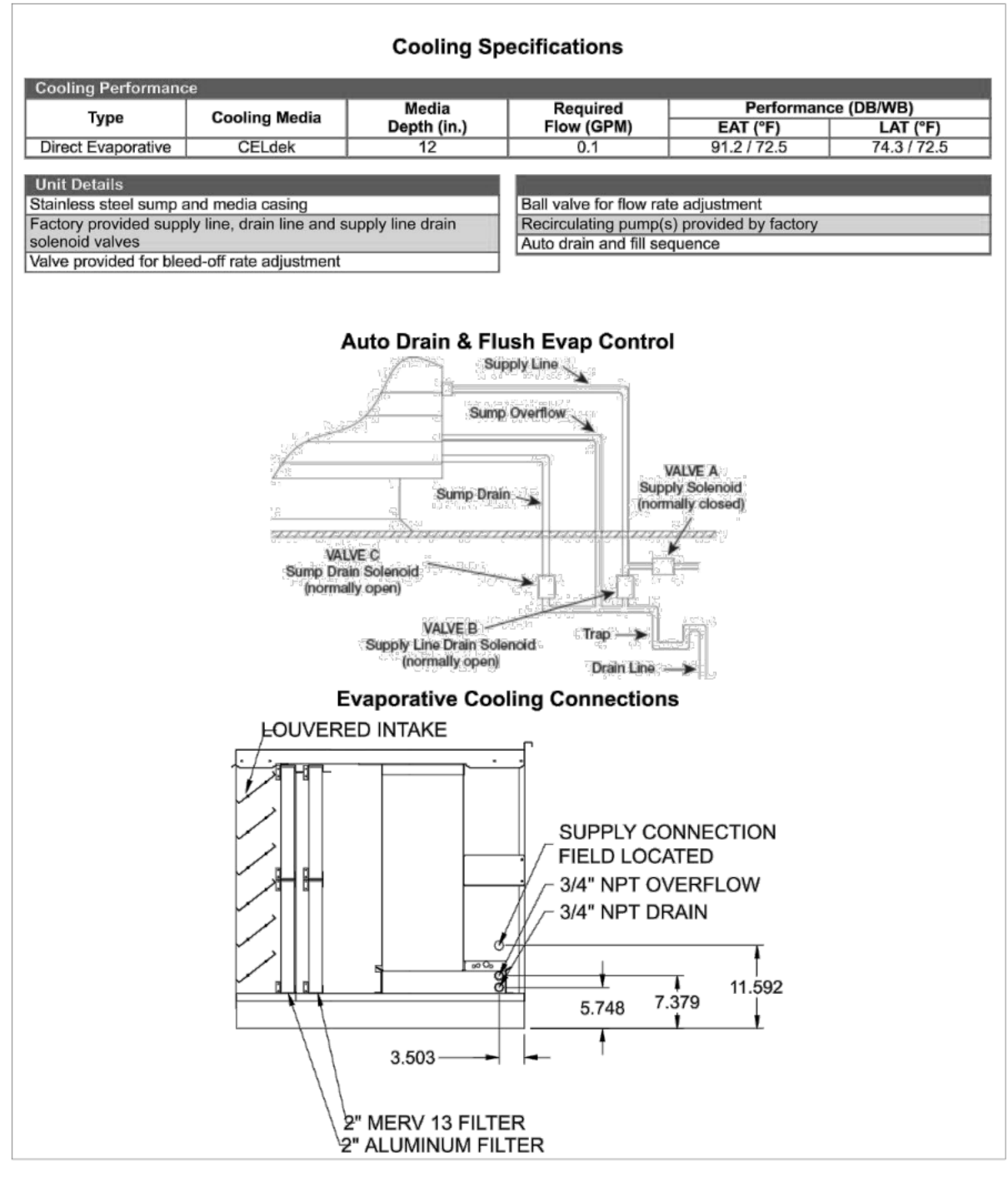
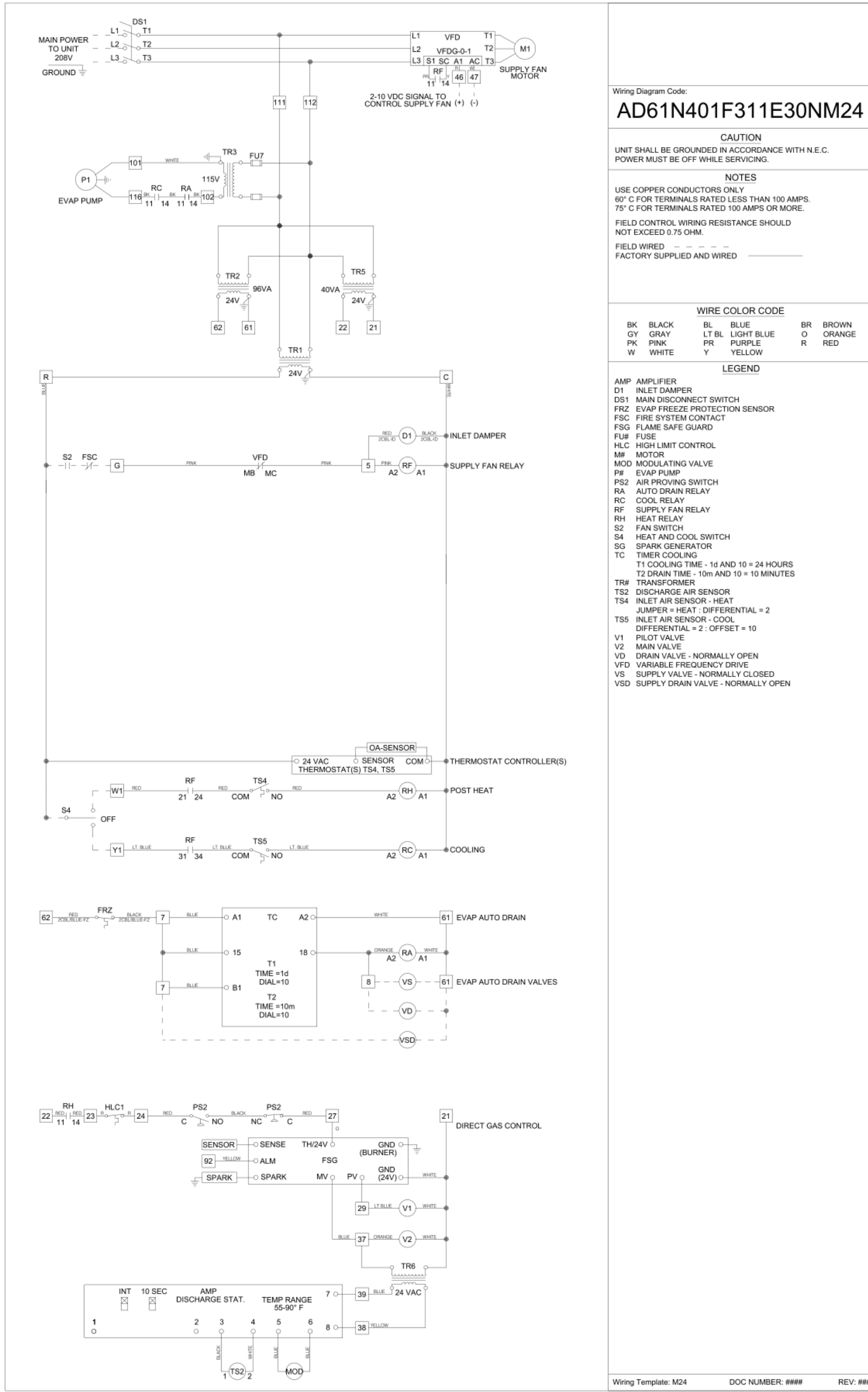


**NOTE: Roof Opening Requirements:**

**Minimum Roof Opening:** The minimum roof opening size is the illustrated duct diameter plus 0.25 in. on all sides. For example: If the duct size is 14 x 14 in. square, the minimum roof opening size is 14.5 x 14.5 in. square.

**Maximum Roof Opening:** There must be a minimum perimeter of 1.75 in. between the roof opening and the roof curb. For example: If the roof curb is 75 x 30 in. square, the maximum roof opening is 71.5 x 26.5 in. inches square.

**NOTE:** The weatherhood and filter sections of the make-up air unit are not supported by the curb. This is by design, in order to help alleviate water infiltration issues.



THIS DRAWING MUST BE CHECKED, SIGNED AND RETURNED TO THE APPROPRIATE FACTORY. PLEASE VERIFY THE FOLLOWING:

1. ALL DIMENSIONAL INFORMATION, MOUNTING POSITIONS AND WEIGHTS MUST BE VERIFIED.
2. THE LOCATION AND TYPE OF COOLING EQUIPMENT.

NOTE TO APPROVER: FACTORY PROVIDED SUPPLY LINE, DRAIN LINE AND SUPPLY LINE DRAIN (SEPARATE VALVES) INFORMATION. FACTORY PROVIDED SUPPLY LINE, DRAIN LINE AND SUPPLY LINE DRAIN (SEPARATE VALVES) INFORMATION. FACTORY PROVIDED SUPPLY LINE, DRAIN LINE AND SUPPLY LINE DRAIN (SEPARATE VALVES) INFORMATION.

APPROVED FOR FABRICATION:  WITH CHANGES AS NOTED

APPROVED BY: \_\_\_\_\_ DATE: \_\_\_\_\_

WEBSITE: www.halton.com

DATE: 08/22/2023

BY: SKM

REVISION DESCRIPTION:

REV.	DESCRIPTION
1	CHANGED FAN SELECTION
2	ADDED COOLING INFORMATION
3	ADDED ROOF CURB & MERV FILTER INFO
4	NO CHANGE
5	NO CHANGE
6	NO CHANGE
7	NO CHANGE

PROJECT: SHAKE SHACK 1437 COSTA MESA, CA

LOCATION: COSTA MESA, CA

DRAWN BY: SKM DATE: 08/26/22

SCALE: NOT TO SCALE

CONSULTANT:

DRAWING TITLE: U22-656

REV. NO.: 5 SHEET NO.: 3 of 5

**Halton**

Date	Description
02/24/2023	ISSUE FOR PERMIT/BID
04/18/2023	ADDENDUM 1
05/15/2023	ADDENDUM 2
09/01/2023	ISSUE FOR CONSTRUCTION

Seal / Signature



Project: EXP. 9-24-2023

SHAKE SHACK - COSTA MESA

Project: 005.3847.000

Description: HALTON DRAWINGS

Scale

## FAN INFORMATION TABLE

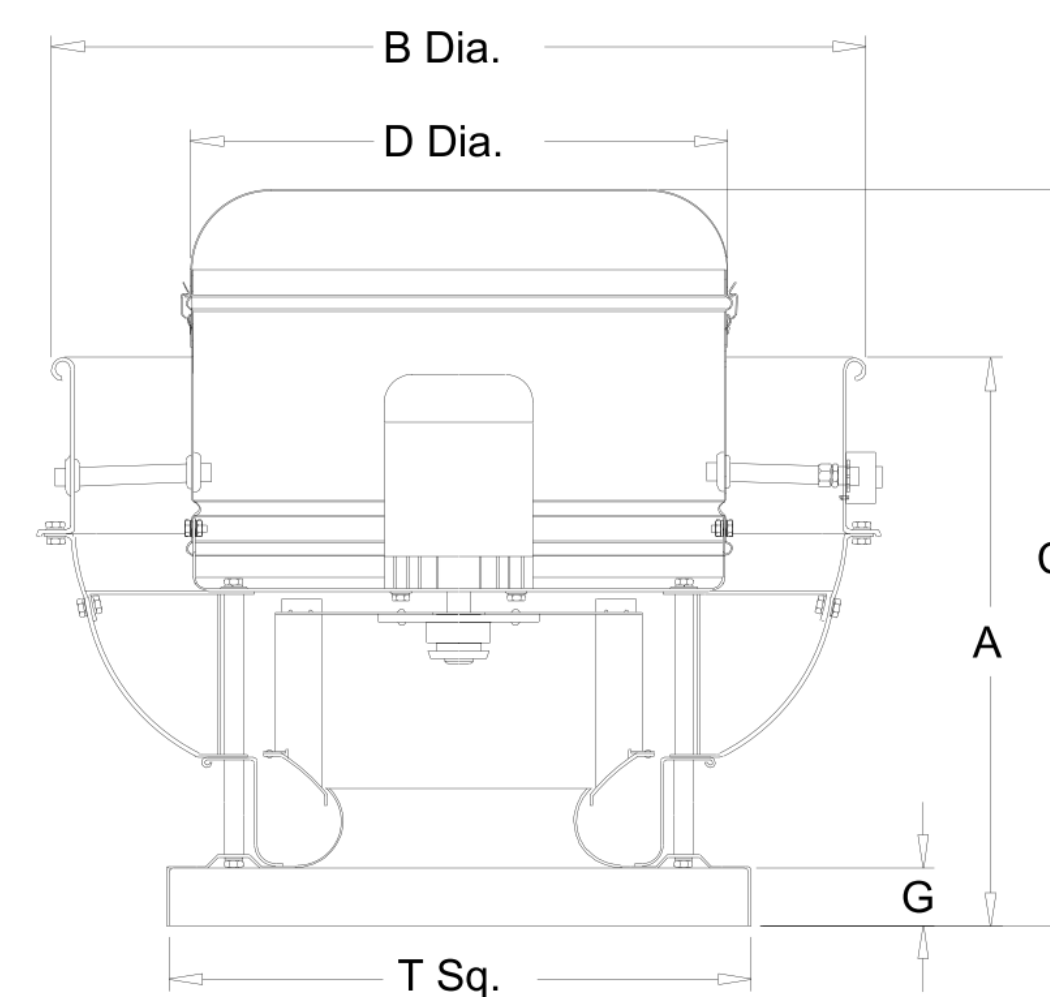
FAN NO	MODEL	QTY	CFM	S.P.	H.P.	VOLTAGE	AMPS	ACCESSORIES
EF-1	VCR-D	1	775	0.70"	1/3	115/1/60	7.2	DISCONNECT NEMA 3 PRE-WIRED, ROOF CURB RCG 22, LABEL UL 762, HINGED BASE KIT, KEYWAY GREASE TROUGH, FAN SPEED CONTROLLER
EF-2	VCR-D	1	1763	1.0"	3/4	115/1/60	13.8	DISCONNECT NEMA 3 PRE-WIRED, ROOF CURB RCG 22, LABEL UL 762, HINGED BASE KIT, KEYWAY GREASE TROUGH, FAN SPEED CONTROLLER

### NOTE:

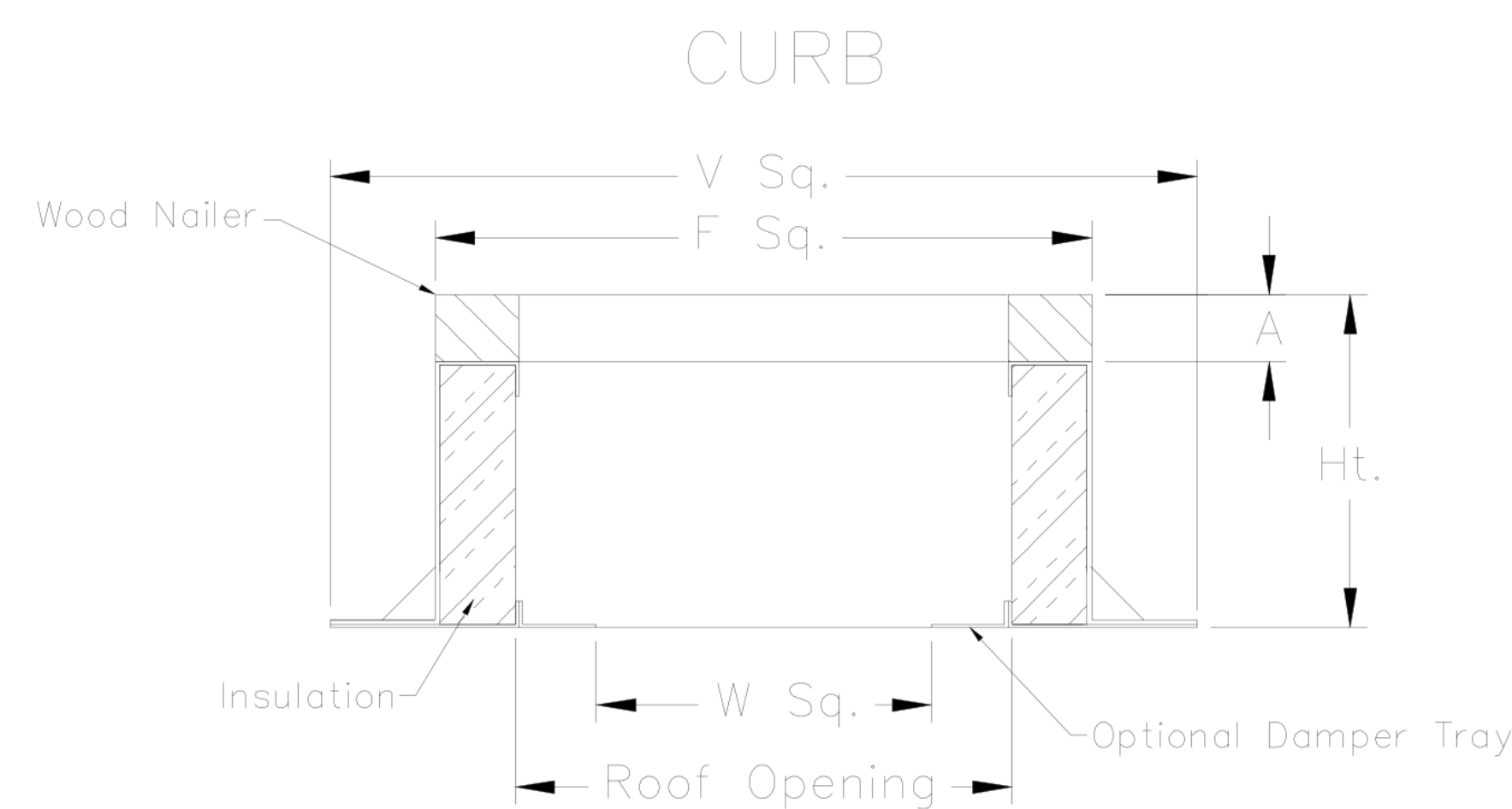
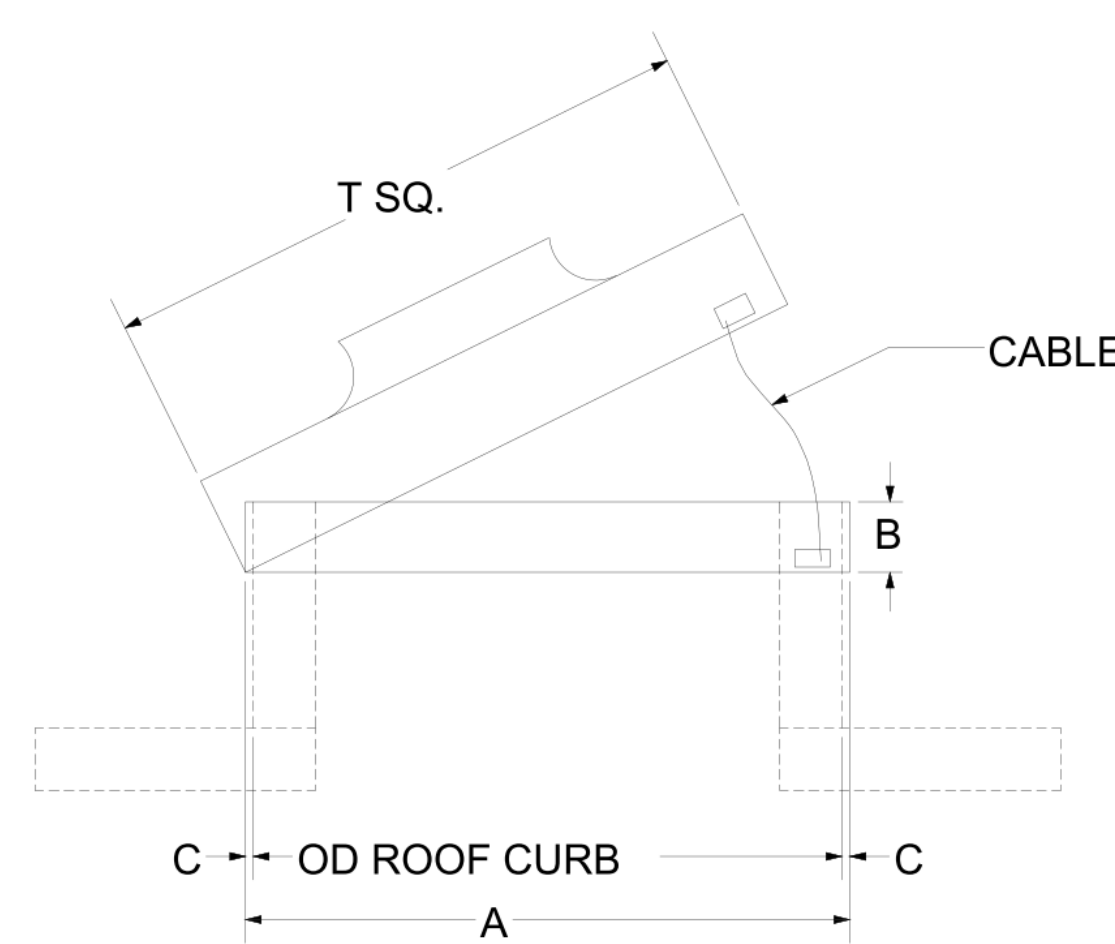
ON ROOF UNITS, ANCHOR THE FAN SECURELY TO THE CURB. ANCHORING THROUGH THE VERTICAL PORTION OF THE CURB CAP FLANGE IS RECOMMENDED. USE A MINIMUM OF FOUR LAG BOLTS OR OTHER SUITABLE FASTENERS.

### NOTE:

ELECTRICAL CONNECTIONS TO BE MADE ON HINGE SIDE OF FAN.

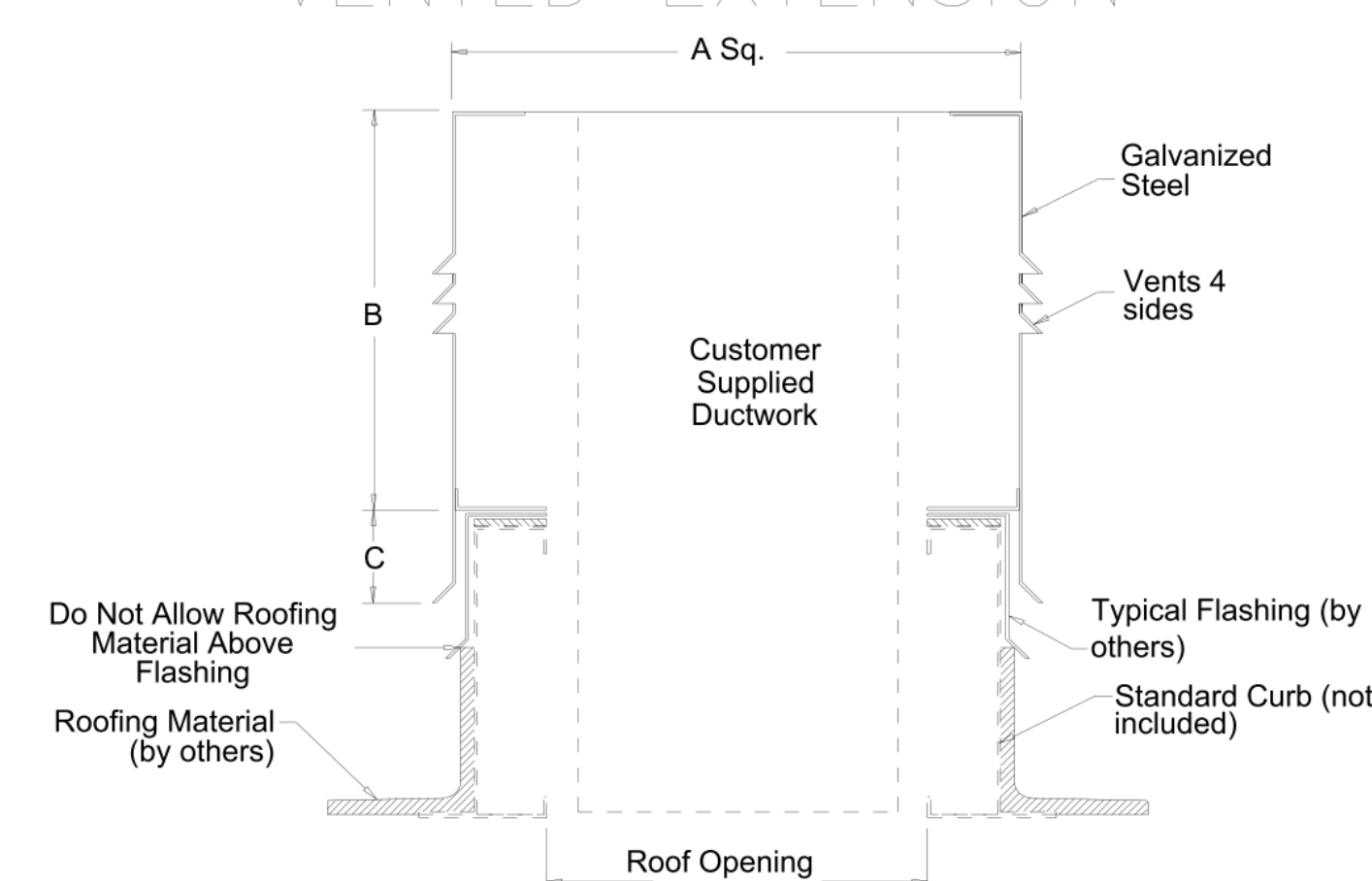


TAG	SIZE	A	B	C	D	G	T Sq.	Roof Opening Sq.	SHIP'G WT.
EF-1	165V10D	20 15/16"	34 11/16"	30 3/4"	23 13/16"	2"	24"	19 1/2"	168
EF-2	150V15D	20 15/16"	34 11/16"	30 1/4"	23 13/16"	2"	24"	19 1/2"	168



TAG	QTY	DESCRIPTION	MATERIAL GAUGE	Ht.	A	F Sq.	V Sq.	W Sq.	ROOF OPENING
EF-1	1	RCG 22	18	9.5"	1.5"	22.5"	26.5"	15.75"	19.5"
EF-2	1	RCG 22	18	9.5"	1.5"	22.5"	26.5"	15.75"	19.5"

### VENTED EXTENSION



TAG	QTY	DESCRIPTION	A Sq.	B	C	ROOF OPENING
EF-1	1	VE-23	23"	16"	3.75"	19.5"
EF-2	1	VE-23	23"	16"	3.75"	19.5"

THIS DRAWING MUST BE CHECKED, SIGNED AND RETURNED TO THE APPROPRIATE FACTORY. PLEASE VERIFY THE FOLLOWING:

1. ALL DIMENSIONS, INFORMATION, MOUNTING FOOTINGS AND CLEARANCES.
2. THE LOCATION AND TYPE OF COOKING EQUIPMENT.

ANY CHANGES IN COOKING EQUIPMENT SUCH AS INCREASED ENERGY INPUTS OR EQUIPMENT CHANGES REQUIRING A RE-EVALUATION OF LOADS MUST BE REQUESTED.

REUSE AND RECOMMIT  APPROVED FOR FABRICATION

WITH NO CHANGES  WITH CHANGES AS NOTED

APPROVED BY: \_\_\_\_\_ DATE: \_\_\_\_\_

REV.	NO.	CHANGE	DATE	BY	DATE
1	NO CHANGE	NO CHANGE	08.31.22	SKM	08.31.22
2	NO CHANGE	NO CHANGE	09.12.22	SKM	09.12.22
3	NO CHANGE	NO CHANGE	12.01.22	SKM	12.01.22
4	NO CHANGE	NO CHANGE	04.17.23	SKM	04.17.23
5	REVISED FAN SELECTIONS	NO CHANGE	04.17.23	SKM	04.17.23
6					
7					

PROJECT: SHAKE SHACK COSTA MESA, CA  
 LOCATION: 1437 COSTA MESA, CA  
 DRAWN BY: SKM  
 DATE: 08-26-22  
 SCALE: NOT TO SCALE  
 CONSULTANT:  
**Halton**  
 DRAWING TITLE: FAN DETAILS  
 DRAWING NO: U22-656  
 REV. NO.: 5 SHEET NO.: 4 of 5

Date	Description
02/24/2023	ISSUE FOR PERMIT/BD
04/18/2023	ADDENDUM 1
05/15/2023	ADDENDUM 2
09/01/2023	ISSUE FOR CONSTRUCTION

Seal / Signature



Project EXP. 9-24-2023

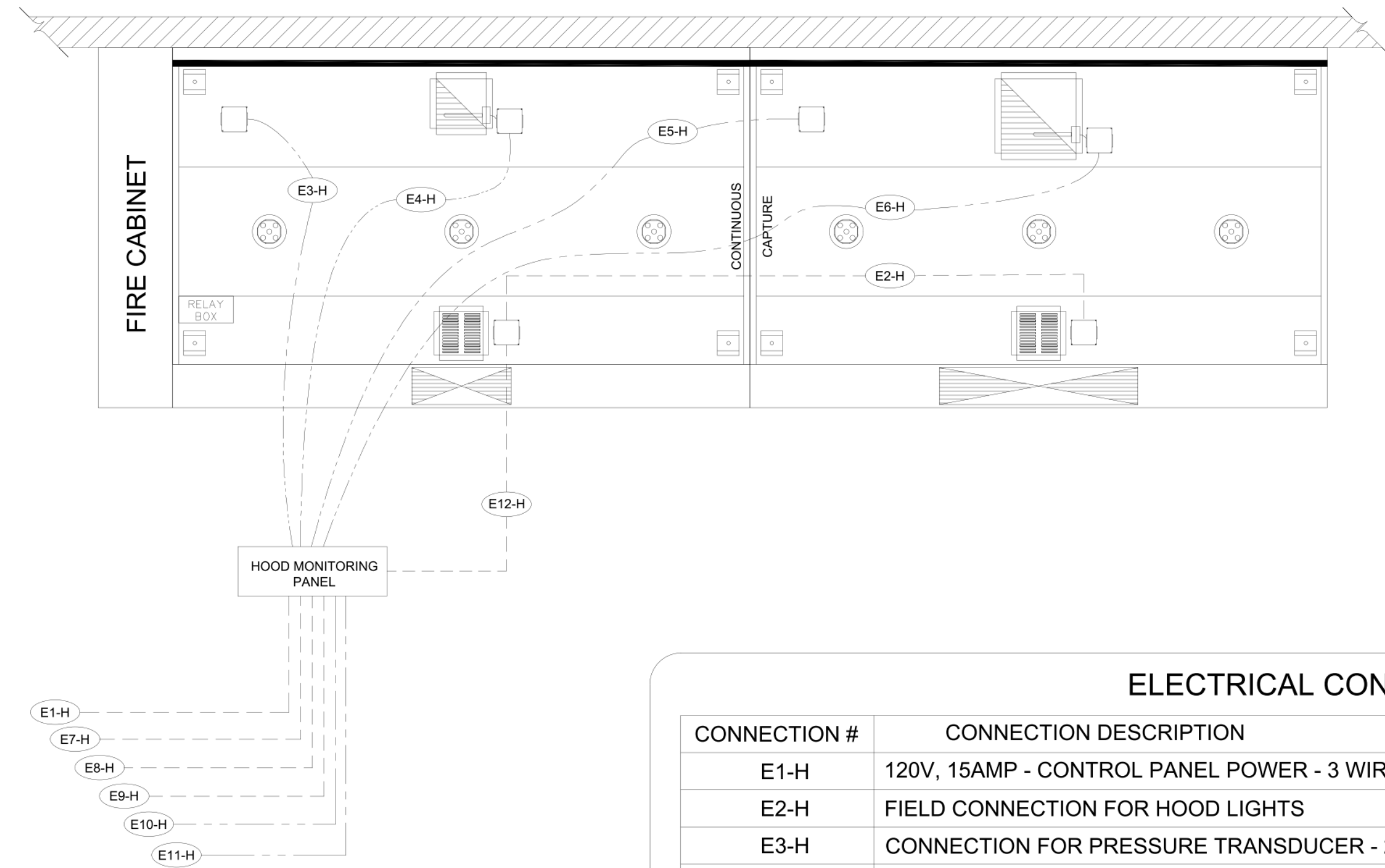
SHAKE SHACK - COSTA MESA

Project  
 005.3847.000

Description  
 HALTON DRAWINGS

Scale

M804



**SEQUENCE OF OPERATIONS:**

**FIRE MODE:**

- EXHAUST FAN TO ENERGIZE TO 100% OF DESIGN AIRFLOW
- MUA FAN TO SHUT DOWN

**FAN SWITCH PRESSED:**

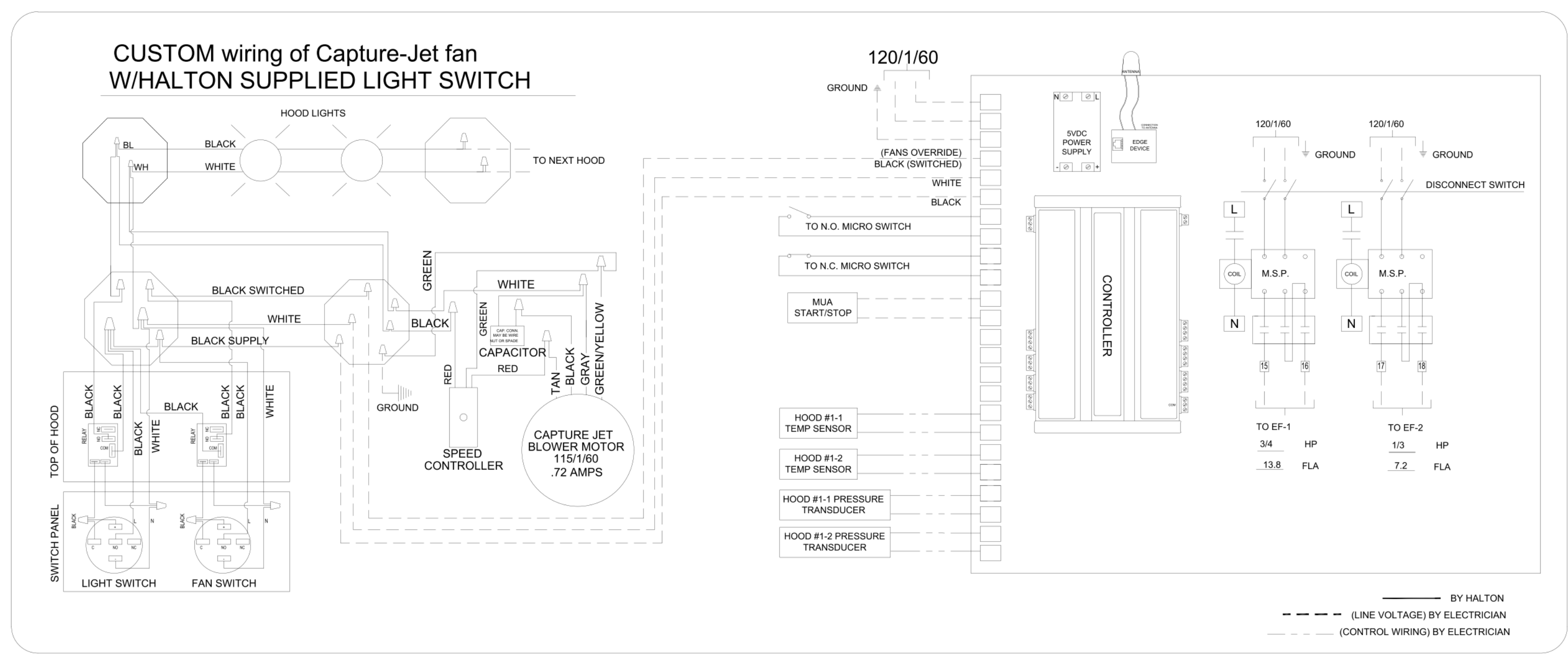
- EXHAUST FAN TO ENERGIZE TO 100% OF DESIGN AIRFLOW
- MUA FAN TO ENERGIZE TO 100% OF DESIGN AIRFLOW

**TEMPERATURE SENSOR ACTIVATION:**

- ONCE TEMP SENSOR INDICATES 95°F, THE EXHAUST FAN WILL ENERGIZE TO 100% OF DESIGN AIRFLOW.
- MUA FAN TO ENERGIZE TO 100% OF DESIGN AIRFLOW

**ELECTRICAL CONNECTION SCHEDULE**

CONNECTION #	CONNECTION DESCRIPTION	FROM	TO
E1-H	120V, 15AMP - CONTROL PANEL POWER - 3 WIRES	BUILDING SOURCE	HOOD 1-1
E2-H	FIELD CONNECTION FOR HOOD LIGHTS	HOOD 1-1	HOOD 1-2
E3-H	CONNECTION FOR PRESSURE TRANSDUCER - 2 WIRES	CONTROL PANEL	HOOD 1-1
E4-H	CONNECTION FOR TEMP SENSOR - 2 WIRES	CONTROL PANEL	HOOD 1-1
E5-H	FIELD CONNECTION FOR PRESSURE TRANSDUCER - 2 WIRES	CONTROL PANEL	HOOD 1-2
E6-H	FIELD CONNECTION FOR TEMP SENSOR - 2 WIRES	CONTROL PANEL	HOOD 1-2
E7-H	START/STOP TO MUA UNIT - 2 WIRES	CONTROL PANEL	MUA UNIT
E8-H	120V/1PH - MOTOR STARTER POWER	BUILDING SOURCE	CONTROL PANEL
E9-H	120V/1PH - MOTOR STARTER POWER	BUILDING SOURCE	CONTROL PANEL
E10-H	FIELD CONNECTION TO NORMALLY OPEN MICRO-SWITCH	ANSUL SYSTEM	CONTROL PANEL
E11-H	FIELD CONNECTION TO NORMALLY CLOSED MICRO-SWITCH	ANSUL SYSTEM	CONTROL PANEL
E12-H	FIELD CONNECTION FOR FAN SWITCH - 3 WIRES 120V	HOOD 1-1	CONTROL PANEL



MAIL APPROVED DRAWINGS TO APPROPRIATE FACTORY BELOW:

PROJECT: **SHAKE SHACK COSTA MESA, CA**  
 DRAWING TITLE: **DEMAND CONTROL DETAILS**  
 DRAWING No.: **U22-656**

REVISIONS:

REV.	DESCRIPTION	DATE
1	NO CHANGE	08.31.22
2	NO CHANGE	08.31.22
3	NO CHANGE	08.31.22
4	NO CHANGE	04.17.23
5	NO CHANGE	04.26.23
6	NO CHANGE	
7	NO CHANGE	

BY: SKM DATE: 08.26.22  
 SCALE: NOT TO SCALE  
 CONSULTANT:

REVISIONS TO APPROPRIATE FACTORY BELOW:

WEBSITE: www.halton.com  
**HALTON CO. (USA)**  
 101 INDUSTRIAL DRIVE  
 SUITE 100  
 1-270-237-5500

REVISIONS TO APPROPRIATE FACTORY BELOW:

WEBSITE: www.halton.com  
**HALTON CO. (CANADA)**  
 1021 BREVIN PLACE  
 MISSISSAUGA, ONTARIO  
 L4V 1R5  
 1-905-624-0301

APPROVED BY: **Halton**

DATE: \_\_\_\_\_

Date	Description
02/24/2023	ISSUE FOR PERMIT/BD
04/18/2023	ADDENDUM 1
05/15/2023	ADDENDUM 2
09/01/2023	ISSUE FOR CONSTRUCTION

Seal / Signature



Project: **SHAKE SHACK - COSTA MESA**  
 Project: **MESA**  
 Project: **005.3847.000**  
 Description: **HALTON DRAWINGS**

Scale