

# Proposed Handel's Homemade Ice Cream

410 NW Chipman Road, Lee's Summit, , Jackson County, MO

## International Building Code

State of Nevada, City of Henderson, Clark County

Applicable Codes: 2021 International Building Code  
2021 International Fire Code  
2018 International Mechanical Code  
2018 International Plumbing Code  
2018 International Energy Code  
2017 National Electrical Code

Scope of Work - Interior Tenant Fit-Out

### Chapter 3 - Use and Occupancy Classification

Section 304 Primary Occupancy = B

### Chapter 5 - General Building Heights & Areas -

S - Height 55' Allowable - 22' Provided (Existing)  
S - Stories 3 Stories Allowable - 1 Provided (Existing)  
S - Area 19,000sf Allowable - 1,700sf (Existing)

### Chapter 6 - Types of Construction - Type V - B

### Chapter 8 - Interior Finishes

Table 803.11 Interior Wall and Ceiling Finish Requirements by Occupancy - B Business

Sprinklered

Interior Exit Stairways and Ramps and Exit Passageways  
Corridors and Enclosure for Exit Access Stairways and Ramps  
Rooms and Enclosed Spaces Class B Rating  
Class C Rating  
Class C Rating

### Chapter 9 - Fire Protection Systems

Section 906 Portable Fire Extinguishers = 1 Per Floor Mounted in conspicuous location

Section 907.2.1 Group B - No manual fire alarm system required.

### Chapter 10 - Means of Egress

Section 1004 Occupant Load = 12

Occupancy Schedule					
Number	Name	Area	Load Factor	Exit Egress Width	Room Occupancy
100	Dipping	572 SF	100 SF	1.4"	6
101	Holding	211 SF	100 SF	0.5"	2
102	Production	558 SF	200 SF	0.7"	3
103	Stock	180 SF	300 SF	0.1"	1
104	Office	89 SF	100 SF	0.2"	1
105	Toilet Rm	80 SF	0 SF		
				2.9"	12

Section 1005 Means of Egress Sizing  
12 Occupants x 2 inches = 2.4 inches required : Provided 32 inches  
12 Occupants : 1 Means of Egress required : Provided 1

Section 1013 Exit Signs - Required as per this section

Section 1017.2 Exit Access Travel Distance - Business  
w Sprinkler System - Max. Distance 300' : Provided 69'-4" Max.

Table 1020.1 Corridor Resistance Fire Rating  
B-Business, Occupant Load Served <30 = 0

Table 1020.2 Max. Corridor Width  
Any Facility not listed below 44"  
Access to Mech / Elec / Plumb 24"  
With Occupant Load of Less than 50 36"

### Chapter 11 - Accessibility

Section 1104 Accessible Route  
One route from accessible parking spaces to accessible entrances

Table 1106.1 Accessible Parking Spaces - 1 per every 25 spots up to 500, See chart for 500+ spaces

Section 1111 Signage - As per this section

### Chapter 12 - Interior Environment

Section 1210 Toilet and Bathroom Requirements  
1210.2.1 Floors and Wall Bases - Smooth, Hard, Non-absorbent surface, base to extend up walls min. of 4"  
1210.2.2 Walls and Partitions - Within 2' of service sinks, urinals and water closets - smooth, hard, non-absorbent surface to less than 4' above finish floor.

### Chapter 29 - Plumbing Fixtures

Table 2902.1 Minimum Number of required Plumbing Fixtures

Business Toilet Fixtures Required = 1 per 25: 12/25 = 1 Required - Provided 1

Business Lavatory Fixtures Required = 1 per 25: 12/40 = 1 Required - Provided 1

Service Sink Required = 1 : Provided 1

## General Notes:

- The General contractor and/or Subcontractor shall visit the project site of the proposed work prior to the contract signing to examine the conditions of the site and any existing structures. It is also recommended that all contractors and/or subcontractors visit the site to familiarize themselves with the scope of the project before submitting their bid. They shall study all existing conditions comparing their condition to the intent of the contract documents and shall notify the architect and owner in writing within seven (7) calendar days in advance of the contract signing of all discrepancies, conflicts or qualifications which may arise.
- Any items not specifically mentioned or shown on the drawings but which obviously are necessary for a complete working installation shall be brought to the attention of the architect prior to contract signing or will be understood to be included in the base scope of work.
- The General Contractor shall obtain any and all permits required for the performance of this work and pay all fees in connection therewith U.N.O.
- The General Contractor shall comply in all respects to the Industrial Code Part (Rule No. 53) relating to the construction, excavation, and demolition at or near underground facilities as issued by the state in which the project is taking place.
- The General Contractor shall perform all work in strict accordance with the rules and regulations of any and all federal, state or local agencies or departments having jurisdiction over any portion or specific phase of the work.
- The General Contractor shall remove all debris from the premises at the end of each working day as described in the specifications.
- The General Contractor shall check and verify all dimensions, conditions, grades, and conditions at the site before any construction work is started. All discrepancies shall be reported to the architect. Failure to do so will result in contractors full liability for such discrepancies and any costs associated in mitigating the same.
- The General Contractor shall verify existing dimensions, conditions, and clearances prior to submission of shop drawings.
- If a fire extinguishers is required during the construction, all personnel should be made aware of its location and operation.
- The General Contractor shall notify the architect of all cases where piping, ductwork, structural, etc. breaks below finished or exposed ceiling lines indicated prior to installation of soffits and ceilings.
- The General Contractor shall enclose all exposed mechanical, plumbing, electrical lines, and all ducts occurring within occupied spaces in gypsum wall board soffits, chases, or shafts unless otherwise noted.
- All utilities are to be notified at least 48 hours in advance of the start of construction.
- The General Contractor shall expose existing utilities ahead of the pipe laying operation, so that, if minor adjustments must be made in elevation and/or alignment due to interference from these utilities, said changes can be made in advance of the work.
- The General Contractor shall bear the responsibility for construction means, methods, techniques, and craftsmanship. All work shall be performed in a first class, workmanlike manner according to best trade practices. Materials and equipment shall be new, and all construction shall be good and usable condition at the date of completion and/or opening of the premises for business.
- The General Contractor shall verify all existing utility line, air ducts, mechanical equipment, etc. and their proposed connections and their locations. Any discrepancies should be reported to the architect and the owner immediately.
- The General Contractor, before starting to build, shall complete the layout of the wall/space and verify that all proposed construction dimensions can be performed in the assigned space.
- The General Contractor shall properly protect the work for public safety and against accidents, weather or any other hazard.
- The General Contractor shall properly protect the finished floors - especially prior to the arrival of furnishings, fixtures and equipment.
- Wood in contact with masonry, concrete or earth, or within 1'-0" of grade or exposed to the exterior shall be pressure preservative treated.
- Guarantees and Certificates: Upon completion of the work the contractor shall furnish to the owner written guarantee against defective materials and workmanship on all items under this contract for a period of one (1) year. Additionally, furnish the owner with written guarantee is of longer duration as stated in various sections of this specification. The contractor shall furnish to the owner all certificates as required, including a certificate of occupancy.

## General Door Notes:

- Doors: Shall be as per A117.1-2009 - ADA  
Exterior Hollow Metal Egress Doors shall be insulated, and shall have Automatic Closers, Panic Hardware, Latches, Ball Bearing Hinges, Weatherstripping, and Alum. Saddles.
- Interior Hollow Metal Fire-Rated Doors shall have Automatic Closers, Panic Hardware (or Lever Where Indicated), Latches, and Ball Bearing Hinges
- Interior Wood Passage Doors shall have Automatic Closers, Locksets, and Ball Bearing Hinges
- Levers shall be used at all doors, knobs are not acceptable
- Door opening force shall be per IBC 2015, Section 1010.3 and ICC A117.1-2009, Section 404.2.8:  
**404.2.8 Door-Opening Force.** Fire doors shall have the minimum opening force allowable by the appropriate administrative authority. The force for pushing or pulling open doors other than fire doors shall be as follows:
  - Interior hinged door: 5.0 pounds (22.2 N) maximum
  - Sliding or folding door: 5.0 pounds (22.2 N) maximumThese forces do not apply to the force required to retract latch bolts or disengage other devices that hold the door in a closed position.
- Door closing speed shall be per ICC A117.1-2009, Section 404.2.7:  
**404.2.7 Closing Speed.**  
**404.2.7.1 Door Closers.** Door closers shall be adjusted so that from an open position of 90 degrees, the time required to move the door to an open position of 12 degrees shall be 5 seconds minimum.  
**404.2.7.2 Spring Hinges.** Door spring hinges shall be adjusted so that from an open position of 70 degrees, the door shall move to the closed position in 1.5 seconds minimum.

## Scope of Work

### General Description:

The project is a renovation of an existing building to transform it into a new walk-up, ice cream shop. The entire interior will be recreated as per the drawings. New interior full heights walls, half walls, new ceiling grid and tile, MEP systems will be largely revised. New Flooring, Cabinets, Countertops. The exterior remain largely the same, with the exception of aluminum systems on the south and partially on west side being renovation to accommodate new walk-up service windows.

### General Construction:

The GC shall provide all work as indicated on the drawings, including, but not limited to, the following:

- Construction of all wall, studs, drywall, tape, spackle and paint & FRP.
- Installation of Ceilings Grid and Tiles.
- Preparation of subfloor, and installation of new flooring.
- Installation of Owner provided Cabinets / Countertops.
- Installation of Doors / Frames and Hardware.
- Installation of all accessories including toilet accessories and signage
- Modify storefront to accommodate new entry door
- Exterior Cleaning and Painting

### Electrical:

The EC shall provide all work as indicated on the drawings, including, but not limited to, the following:

- Provide a new conductors, conduit, etc. from existing utility distribution to new panels MP and PP as indicated on the one-line diagram.
- Provide panelboards PP and MP and all branch circuits as indicated on the plans.
- Provide connections to equipment as indicated on the plans.
- Provide lighting system as indicated on the plans including the following:
  - General purpose lighting fixtures.
  - Emergency battery packs for emergency lighting.
  - Emergency exit signage to light the path of egress.
  - Daylighting and occupancy sensing systems to meet the enforced revision of the energy code.
- Provide branch circuits and final equipment connections to accommodate the equipment to be installed.

### Mechanical:

It is the intent of the drawings and specifications that the mechanical contractor shall provide a working installation complete in every detail, and all items necessary for a complete installation shall be furnished whether or not specified or shown on the drawings. Upon completion of the work, all equipment shall be thoroughly cleaned and left in first class condition. The contractor shall be responsible for the start up of all systems. The contractor shall build into his work all sleeves, anchors, inserts, chases, recesses, openings, etc. necessary for installation of the mechanical work unless otherwise noted. The mechanical contractor shall provide information as to the location of such items to the general contractor prior to construction. Equipment specified to be furnished shall be complete with electric motors and starting equipment where required or specified.

The MC shall provide all work as indicated on the drawings, including, but not limited to, the following:

- Provide Gas/electric packaged rooftop units with controls and options as specified.
- Provide roof mounted exhaust fan with controls and mounting hardware as specified.
- Provide all grilles, registers, and diffusers and associated volume dampers and accessories as specified.
- Provide all ductwork and duct insulation as indicated on plans and required by code.
- Testing, adjusting, balancing, and placing into service all systems and equipment installed.
- Operation and maintenance manuals as well as owner training on all installed systems.

### Plumbing:

The plumbing contractor shall provide all materials and equipment and perform all labor required to install complete and operable plumbing system as indicated on the drawings, as specified and as required by code.

The PC shall provide all work as indicated on the drawings, including, but not limited to, the following:

- Provide all domestic water, sanitary, vent, and gas piping as indicated on plans.
- Provide water heaters and all associated controls, options, and accessories as required for operation and indicated on plumbing plans.
- Provide all required piping insulation as indicated on plans and required by code.
- Provide all mounting hardware for piping and plumbing equipment.
- Provide all plumbing fixtures as scheduled on plans except where indicated to be provided by others.
- Provide all valves, piping accessories, etc. to complete an operable plumbing system.
- Coordinate all work with owner and all other trades.

Required Submittals List					
Free-Standing	In-Line	Shop	Shop Drawings	Cut Sheets	DATE
X		Reinforcement, CMU/Masonry	Shop Drawings	Cut Sheets	
X		Exterior Finishes	Shop Drawings	Cut Sheets	
X		Steel Beam / Misc. Steel	Shop Drawings	Cut Sheets	
X		Conc. Mix Designs	Report		
X		Conc. Testing / Breaks @ 7 & 28 day	Report		
<b>General Construction / PA-CU</b>					
X	X	Studs		Cut Sheets	
X	X	Gypsum Wall Board		Cut Sheets	
X	X	FRP		Cut Sheets	
X	X	Half Wall Finish Selection (if required)		Cut Sheets	
X	X	Countertops & Cabinets	Shop Drawings	Cut Sheets	
X	X	Floor Finishes		Cut Sheets	
X	X	Ceiling Finishes (Grid & Tile)		Cut Sheets	
X	X	Doors & Frames	Shop Drawings	Cut Sheets	
X	X	Alum. Systems (Including Service Windows)	Shop Drawings	Cut Sheets	
<b>Electrical</b>					
X	X	Service Equipment		Cut Sheets	
X	X	Light Fixtures (Including Exit / E.R. Lighting)		Cut Sheets	
<b>Plumbing</b>					
X	X	Non-Food Equipment Plumbing Fixtures		Cut Sheets	
X	X	Hot Water Heater		Cut Sheets	
<b>HVAC</b>					
X	X	HVAC Units (if new units required)		Cut Sheets	
X	X	Diffusers & Registers		Cut Sheets	
<b>Fire Protection, (if Required)</b>					
X	X	Sprinkler Engineered Design	Shop Drawings	Cut Sheets	
<b>General Administration</b>					
X	X	Building Permit		Certificate	
X	X	Certificate of Occupancy - Inspection notes	Report	Certificate	
X	X	Certificate of Occupancy		Certificate	
X	X	Department of Health - notes / comments	Report	Certificate	
X	X	Department of Health Certificate		Certificate	
X	X	As Built Drawings		Shop Drawings	

## Contact List

### Contacts:

Tenant:  
Contact: Patrick Frank  
Company Name - PGF, LLC  
dba Handel's Ice Cream

Architect:  
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scott@sda-pc.com

Mechanical, Electrical & Plumbing Engineer:  
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cmcallister@fortisengineers.us  
480-221-9002

Structural Engineer:  
n/a

## Drawing Index

### Project Drawings

CS Cover Sheet  
C1.01 Site Plan

ADA-1.0 Accessibility Details  
ADA-1.1 Accessibility Details  
ADA-1.2 Accessibility Details  
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A1.3 Floor Plans  
A1.4 Floor Plans  
A1.5 Equipment Plan / Schedules  
A1.6 Millwork Details  
A2.0 Interior Elevations

P1 Plumbing Schedules / Notes  
P2 Plumbing Plans  
P3 Plumbing Isometrics

M1 Mechanical Schedules / Notes  
M2 Mech. Plan  
M3.0 Energy Compliance  
M3.1 Energy Compliance

E-01 Electrical Plan / Notes  
E-02 Lighting Plan  
E-03 Power Plan  
E-04 Electrical Schedules / Riser

### Franchise Prototype Drawings

W0.1 Wall Types  
B0.1 Branding Details  
B0.2 Branding Details  
EQ0.1 Equipment Cut Sheets  
EQ0.2 Equipment Cut Sheets  
EQ0.3 Equipment Cut Sheets  
EQ0.4 Equipment Cut Sheets  
EQ0.5 Equipment Cut Sheets  
EQ0.6 Equipment Cut Sheets  
EQ0.7 Equipment Cut Sheets  
EQ0.8 Equipment Cut Sheets  
EQ0.9 Equipment Cut Sheets  
EQ0.10 Equipment Cut Sheets  
EQ0.11 Equipment Cut Sheets

## REVISIONS

No.	Description	Date



SDA



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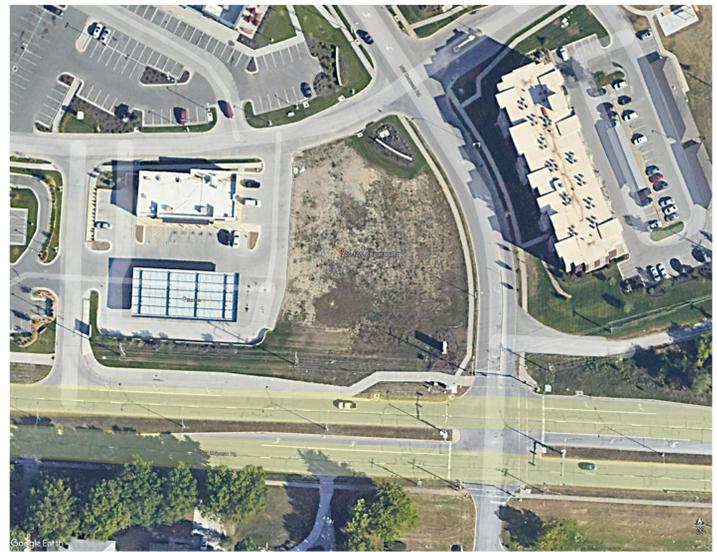
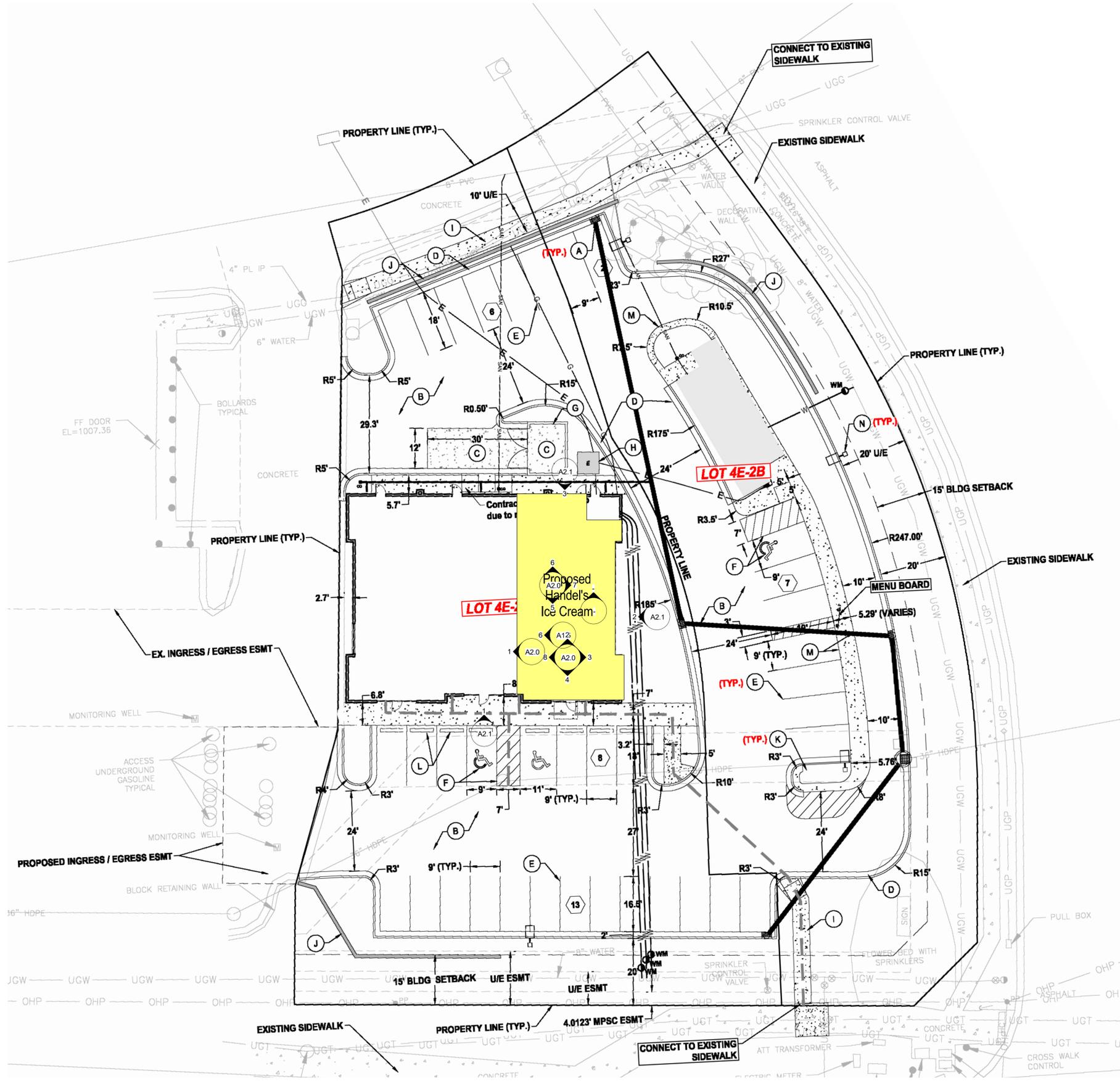
TBH Enterprises, LLC

Handel's Ice Cream  
410 NW Chipman Road  
Lee's Summit, MO

Cover Sheet

Proj. No. 24TF604  
Date 11-9-25  
Drawn by sda  
Checked by sda As indicated

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**2** Location Plan



**1** Site Plan  
1/16" = 1'-0"

Info above provided by:  
AGC Engineers, Inc.  
245 S. Leonard St., Suite D  
Liberty Missouri 64068

REVISIONS		
No.	Description	Date



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TBH Enterprises, LLC

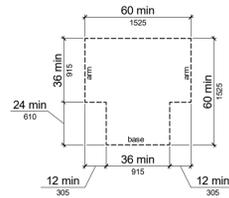
Handel's Ice Cream  
410 NW Chipman Road  
Lee's Summit, MO

Site Plan	
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Drawn by	Author
Checked by	Checker
	As indicated

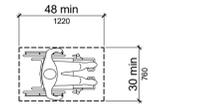
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Convention	Description
	dimension showing English units (in inches unless otherwise specified) above the line and SI units (in millimeters unless otherwise specified) below the line
	dimension for small measurements
	dimension showing a range with minimum - maximum
	minimum
	maximum
	greater than
	less than or equal to
	boundary of clear floor space or maneuvering clearance
	centerline
	a permitted element or its extension
	direction of travel or approach
	a wall, floor, ceiling or other element cut in section or plan
	a highlighted element in elevation or plan
	location zone of element, control or feature

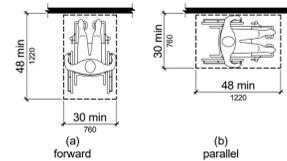
Graphic Convention for Figures



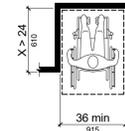
T-Shaped Turning Space



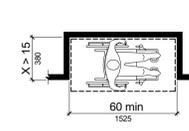
Clear Floor or Ground Space



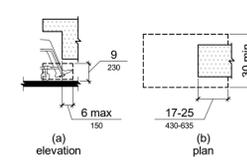
Position of Clear Floor or Ground Space



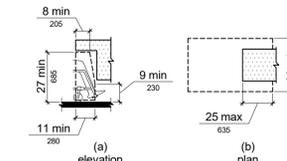
Maneuvering Clearance in an Alcove, Forward Approach



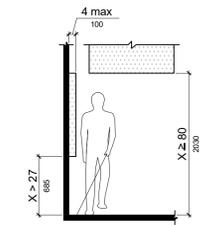
Maneuvering Clearance in an Alcove, Parallel Approach



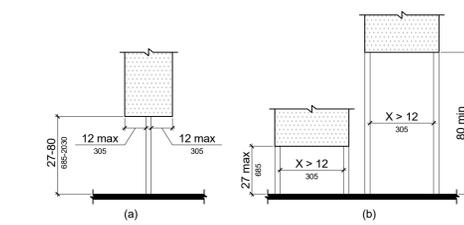
Toe Clearance



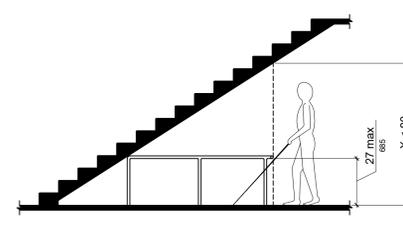
Knee Clearance



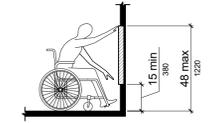
Limits of Protruding Objects



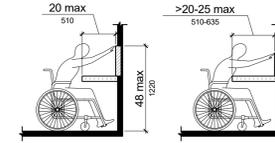
Post-Mounted Protruding Objects



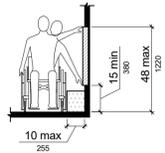
Vertical Clearance



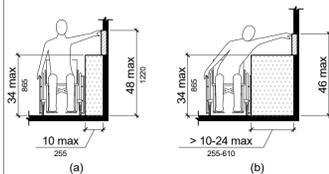
Unobstructed Forward Reach



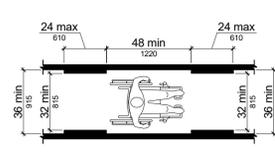
Obstructed High Forward Reach



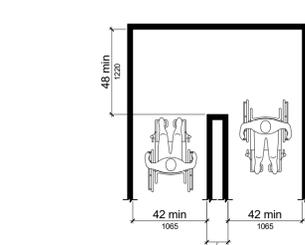
Unobstructed Side Reach



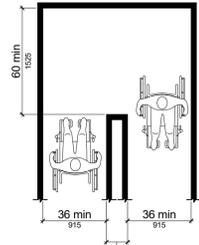
Obstructed High Side Reach



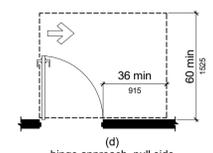
Clear Width of an Accessible Route



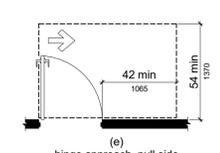
Clear Width at Turn



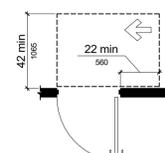
Maneuvering Clearance at Manual Swinging Doors and Gates



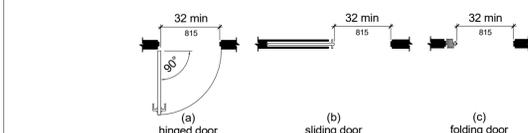
Maneuvering Clearance at Manual Swinging Doors and Gates



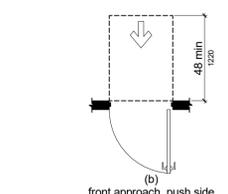
Maneuvering Clearance at Manual Swinging Doors and Gates



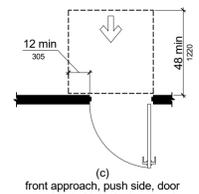
Maneuvering Clearance at Manual Swinging Doors and Gates



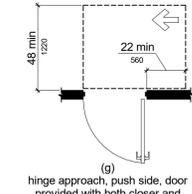
Clear Width of Doorways



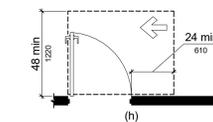
Maneuvering Clearance at Manual Swinging Doors and Gates



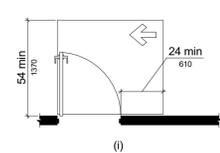
Maneuvering Clearance at Manual Swinging Doors and Gates



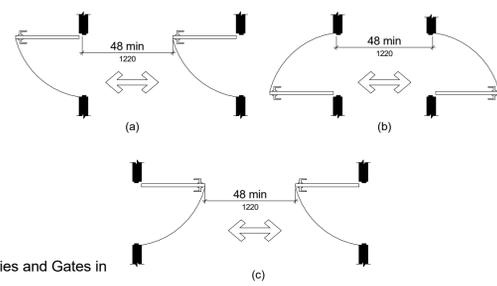
Maneuvering Clearance at Manual Swinging Doors and Gates



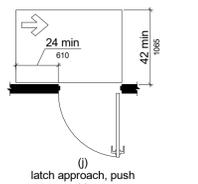
Maneuvering Clearance at Manual Swinging Doors and Gates



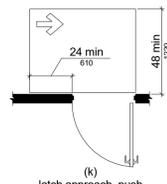
Maneuvering Clearance at Manual Swinging Doors and Gates



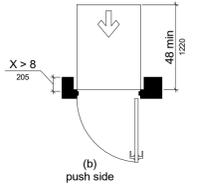
Doors in Series and Gates in Series



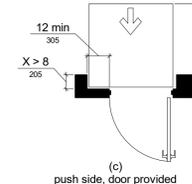
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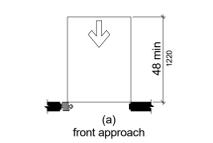
Maneuvering Clearance at Manual Swinging Doors and Gates



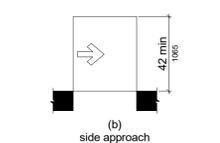
Maneuvering Clearance at Recessed Doors and Gates



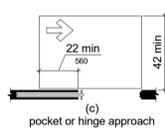
Maneuvering Clearance at Recessed Doors and Gates



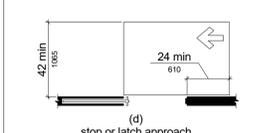
Maneuvering Clearance at Sliding and Folding Doors



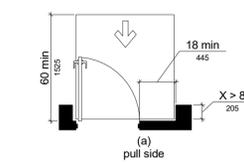
Maneuvering Clearance at Sliding and Folding Doors



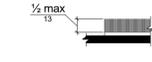
Maneuvering Clearance at Sliding and Folding Doors



Maneuvering Clearance at Sliding and Folding Doors



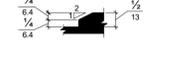
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Carpet Pile Height

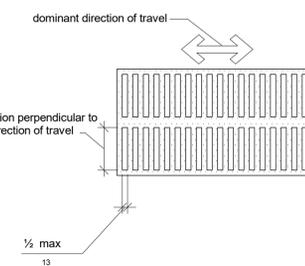


Vertical Change in Level

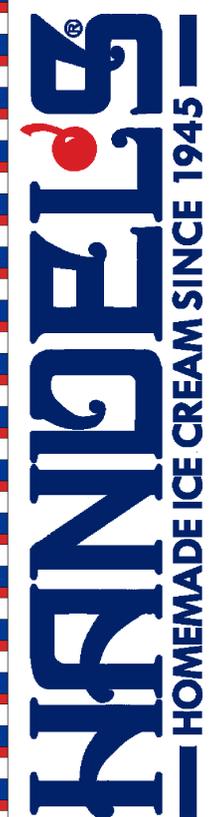
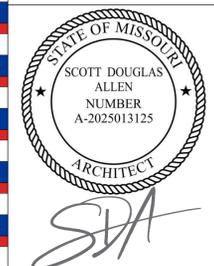


Beveled Change in Level

Elongated Openings in Floor or Ground Surfaces



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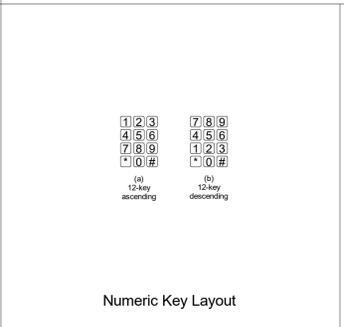
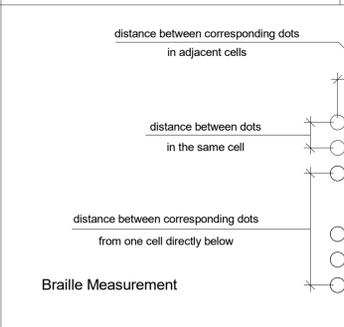
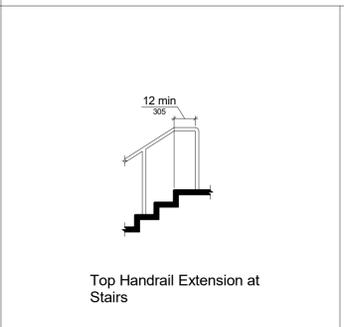
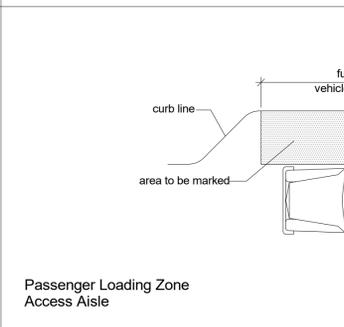
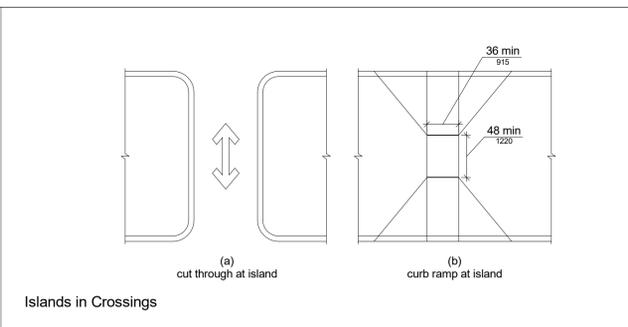
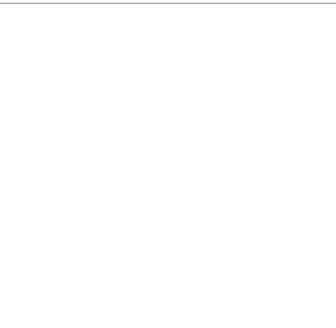
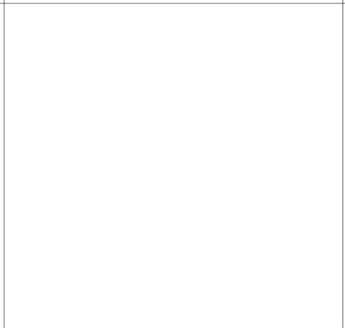
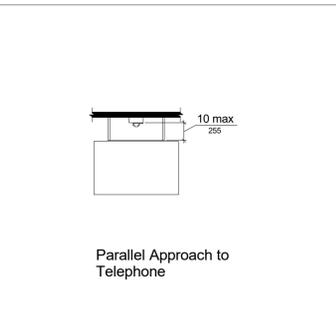
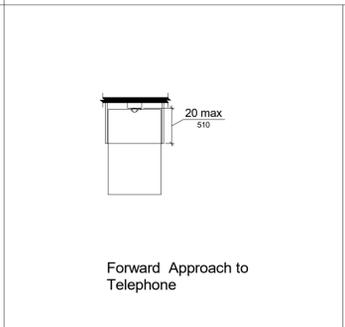
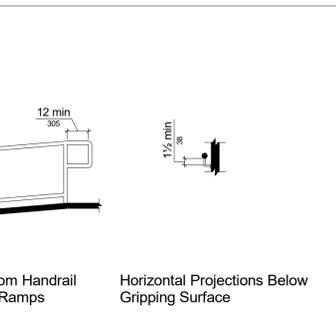
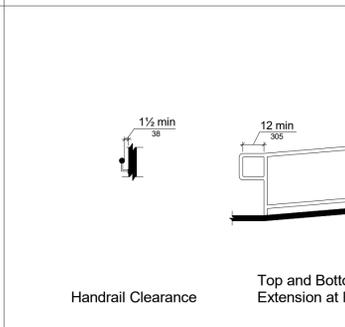
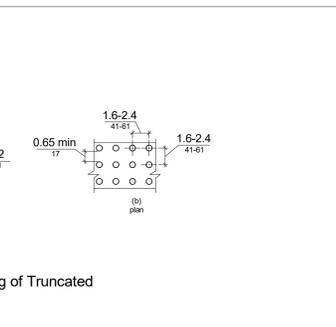
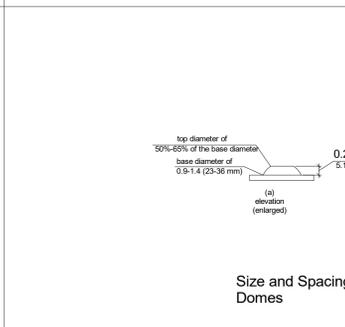
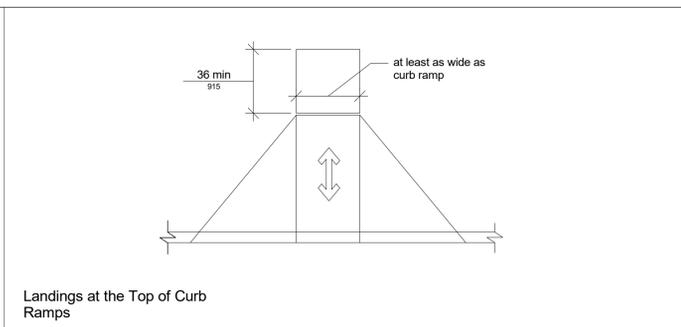
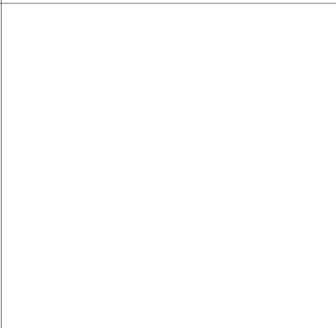
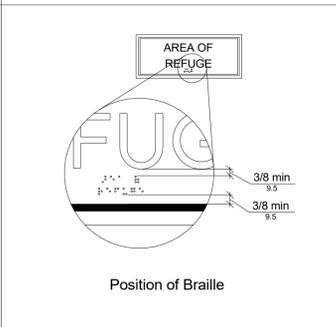
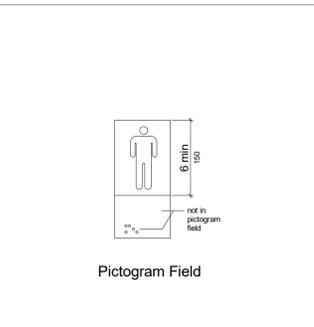
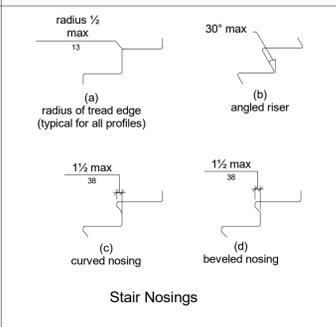
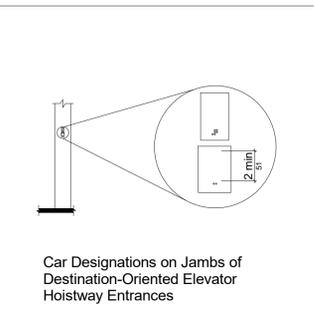
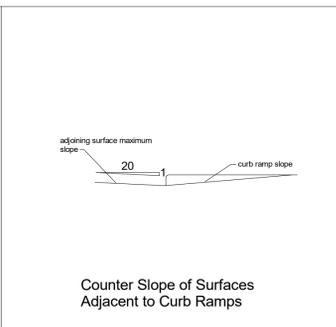
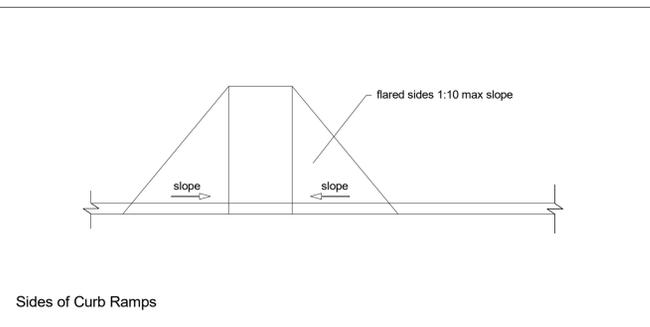
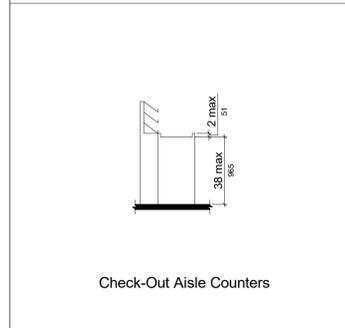
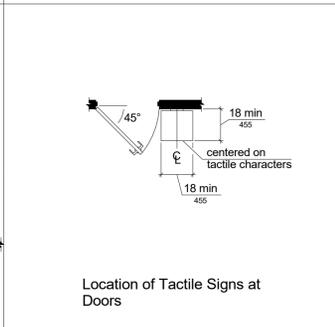
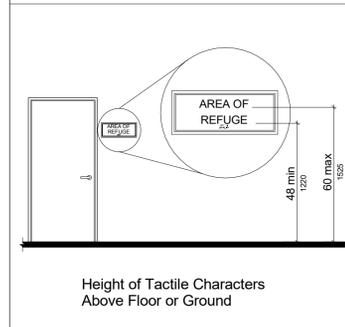
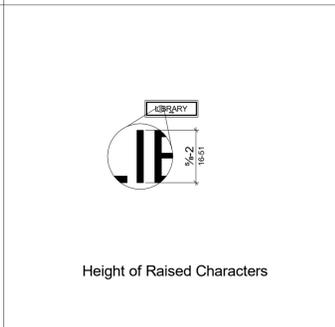
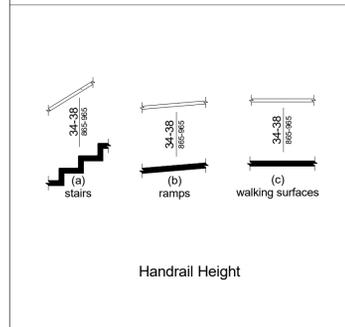
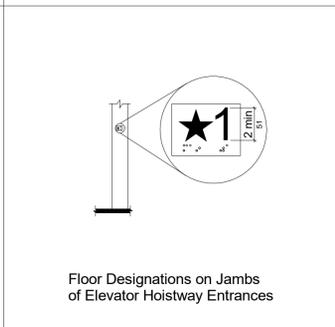
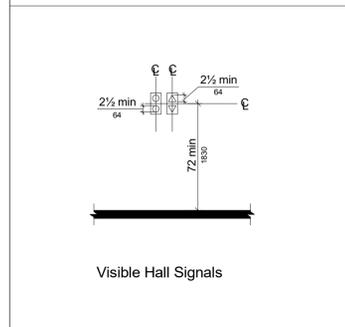
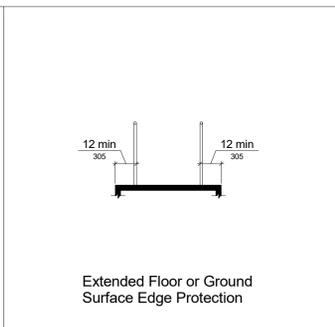
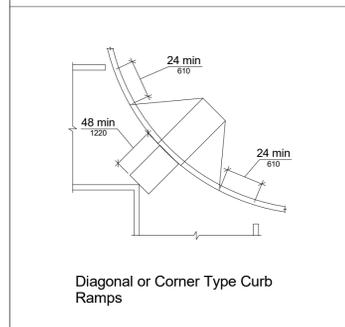
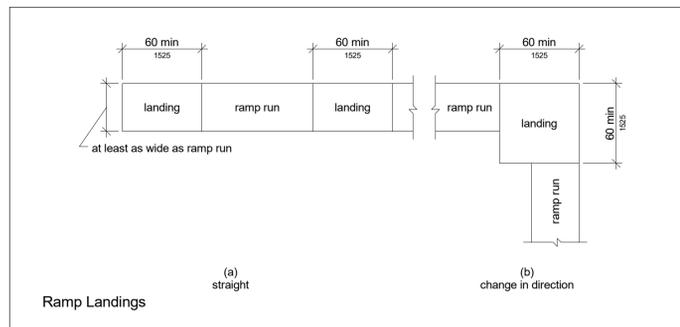
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 SCOTT DOUGLAS ALLEN ARCHITECTS

STATE OF MISSOURI  
 SCOTT DOUGLAS ALLEN  
 NUMBER A-2025013125  
 ARCHITECT

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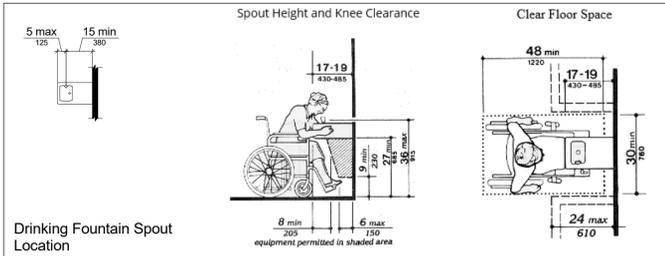
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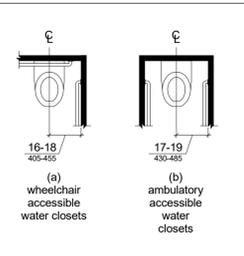
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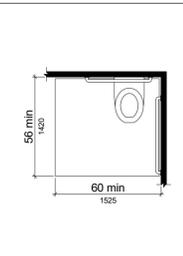


Drinking Fountain Spout Location

Note: Drinking Fountain shall also adhere to CBC 2019 11B-211 & 11B-602 for Design Guidelines



Water Closet Location



Size & Clearance of Water Closets

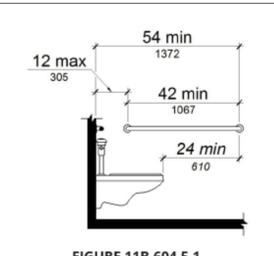


FIGURE 11B-604.5.1 SIDE WALL GRAB BAR AT WATER CLOSETS

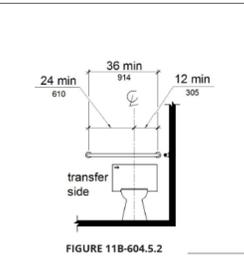


FIGURE 11B-604.5.2 REAR WALL GRAB BAR AT WATER CLOSETS

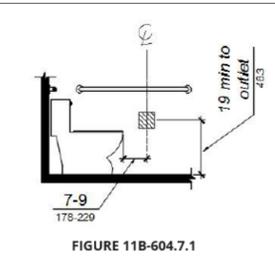
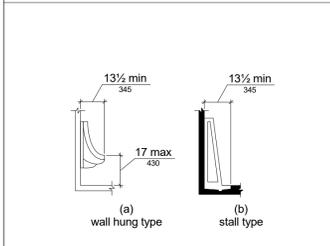
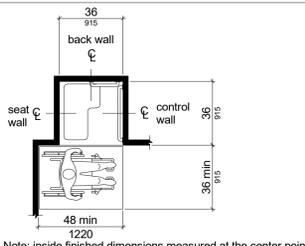


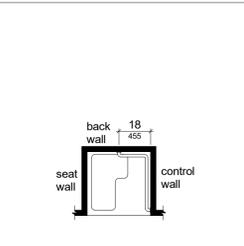
FIGURE 11B-604.7.1 DISPENSER OUTLET LOCATION



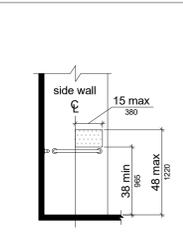
Height and Depth of Urinals



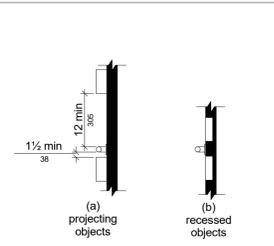
Transfer Type Shower Compartment Size and Clearance



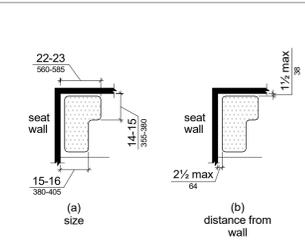
Grab Bars for Transfer Type Showers



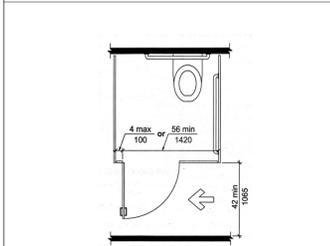
Transfer Type Shower Compartment Control Location



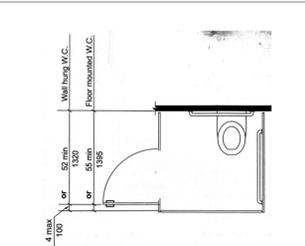
Spacing of Grab Bars



L-Shaped Shower Seat

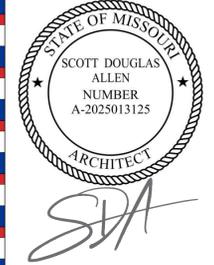


Wheelchair Accessible Compartment Door Openings - Front



Wheelchair Accessible Compartment Door Openings - Front

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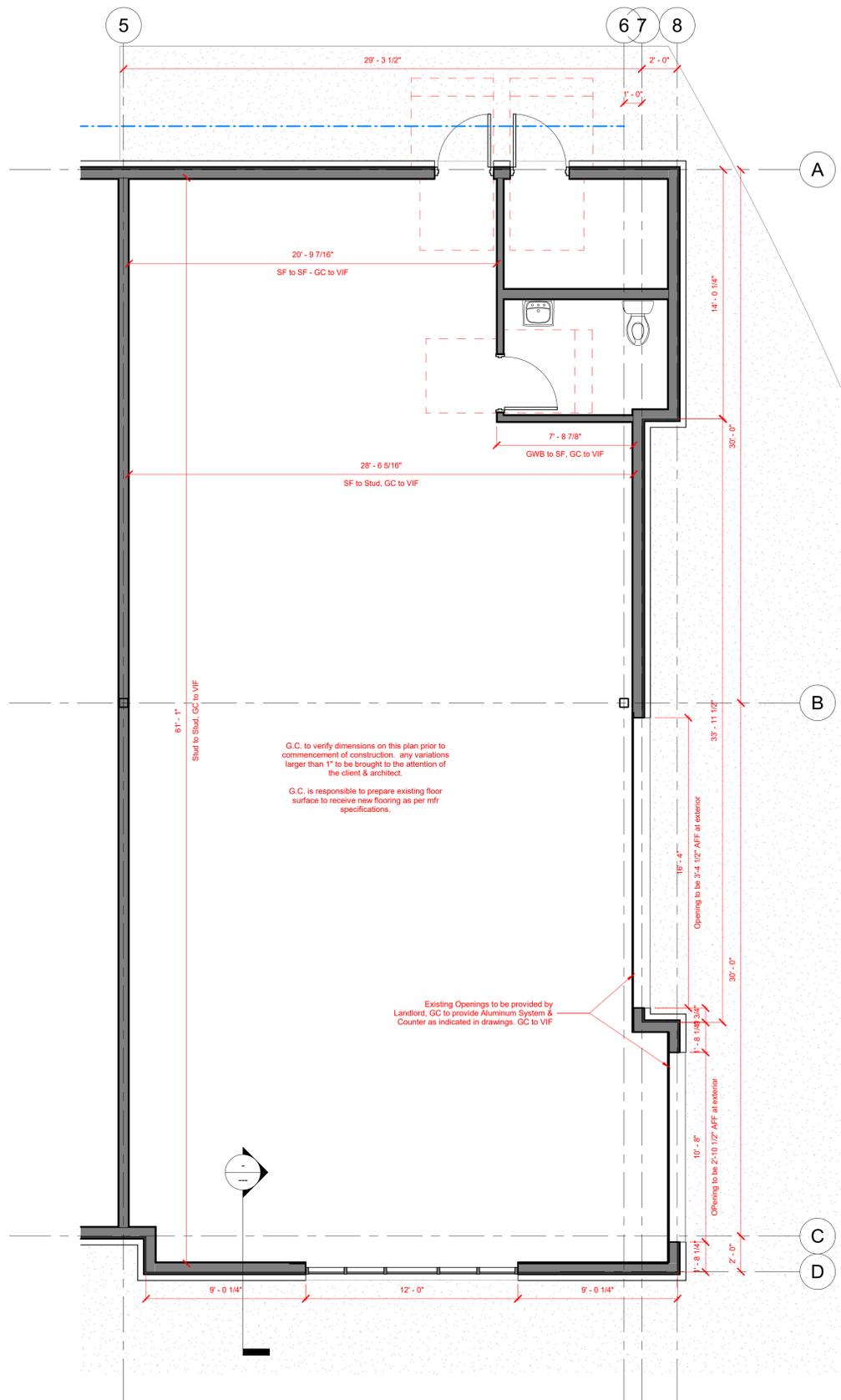
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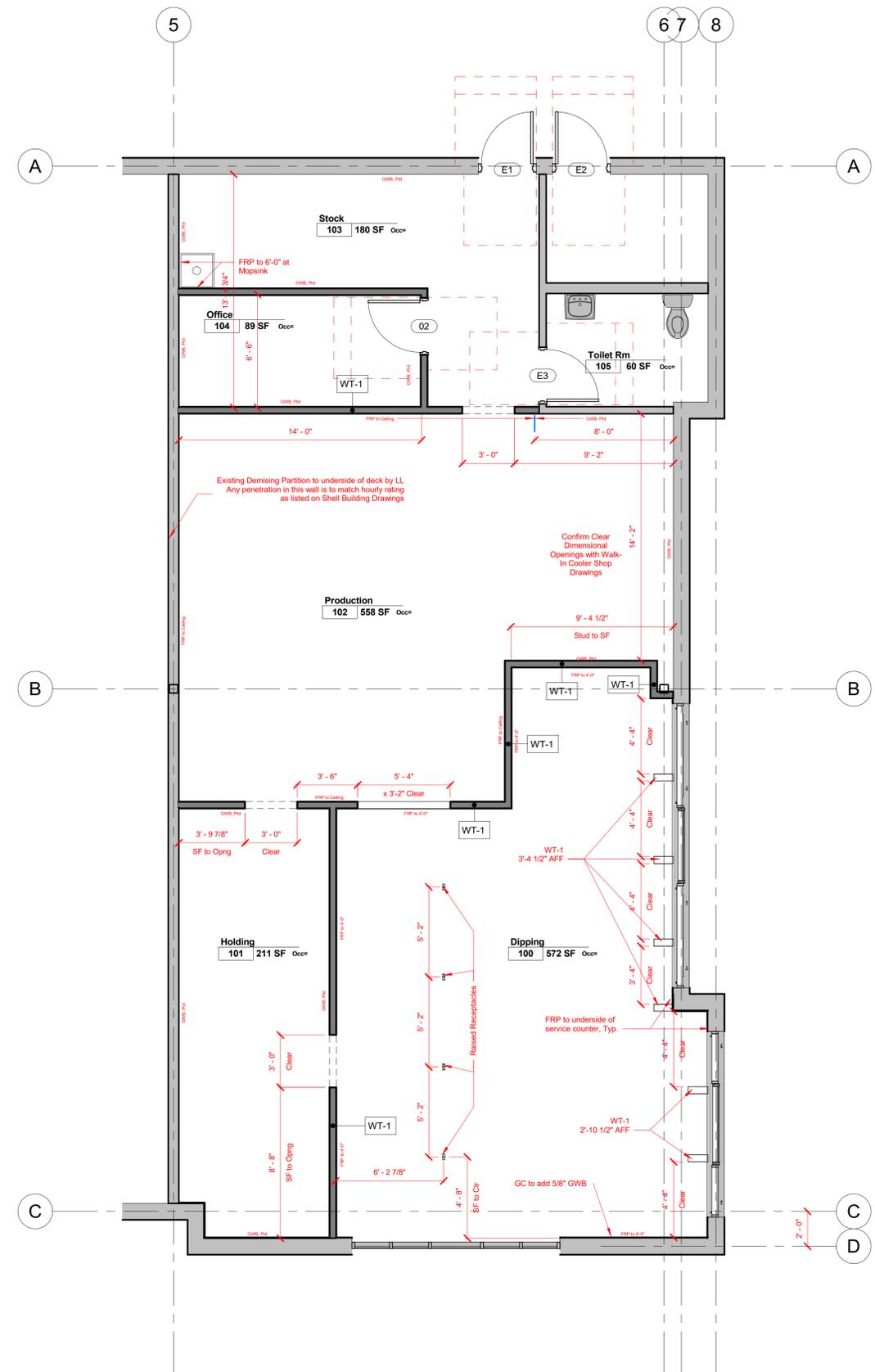
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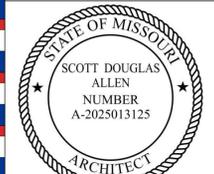
**1 Existing Floor Plan**  
1/4" = 1'-0"



**2 Floor Plan**  
1/4" = 1'-0"

Note:  
1. Dimensions are Stud to Stud unless noted otherwise  
2. "SF" = Shell Wall Face  
3. See Wall Types on Sheet W0.01

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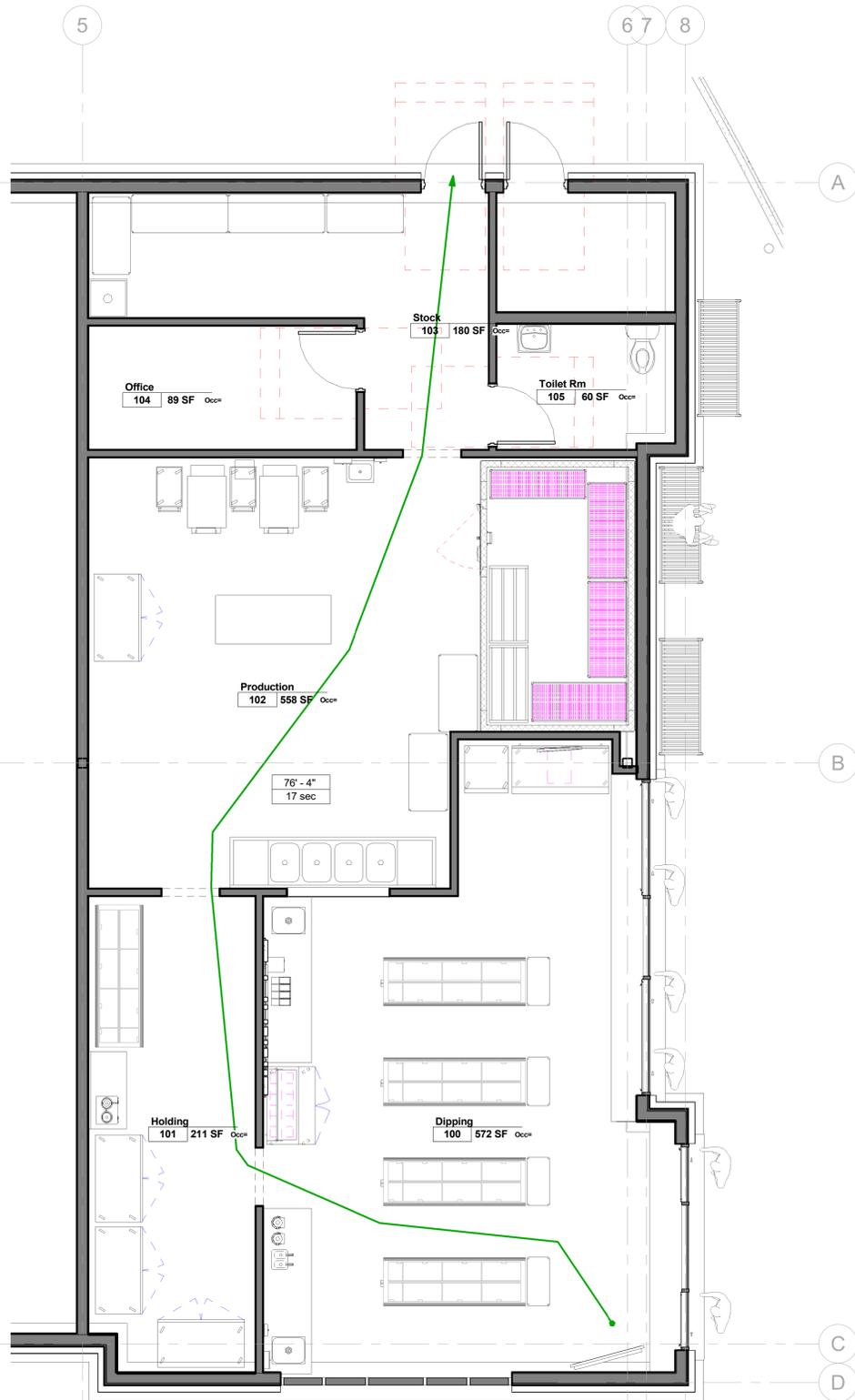
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A1.1

1/4" = 1'-0"



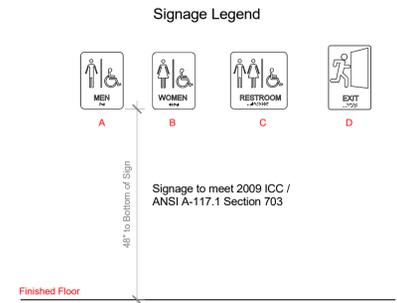




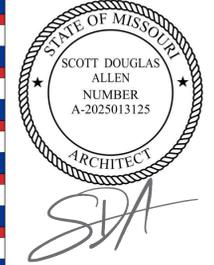
**1 Life Safety Plan**  
1/4" = 1'-0"

Occupancy Schedule					
Number	Name	Area	Load Factor	Exit Egress Width	Room Occupancy
100	Dipping	572 SF	100 SF	1.4"	6
101	Holding	211 SF	100 SF	0.5"	2
102	Production	558 SF	200 SF	0.7"	3
103	Stock	180 SF	300 SF	0.1"	1
104	Office	89 SF	100 SF	0.2"	1
105	Toilet Rm	60 SF	0 SF	2.9"	12

- Exit Signs shall be internally or externally illuminated at all times and shall be connected to an emergency power system (batteries, unit equipment or an on-site generator) that will automatically illuminate the exit signs for a duration of not less than 90 minutes.
- The means of egress will be illuminated to a level of not less than one foot-candle at the walking surface at all times the building space serviced by the means of egress is occupied.



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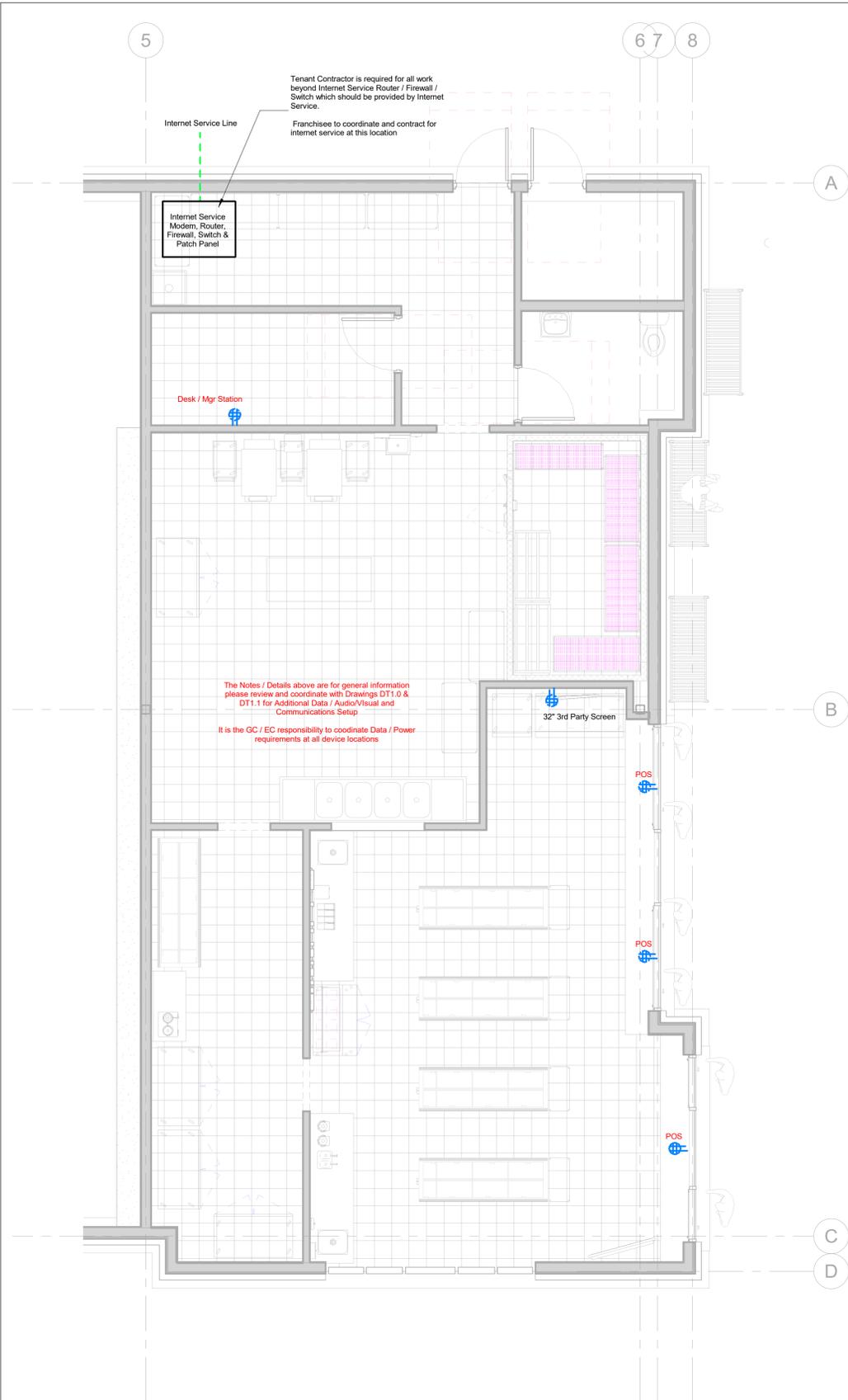
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**Life Safety Plan**  
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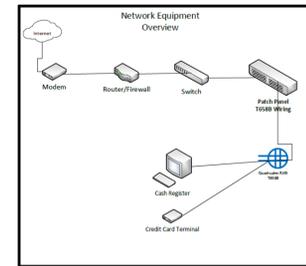
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The Notes / Details above are for general information please review and coordinate with Drawings DT1.0 & DT1.1 for Additional Data / Audio/Visual and Communications Setup.

It is the GC / EC responsibility to coordinate Data / Power requirements at all device locations

**1 Data Plan**  
1/4" = 1'-0"



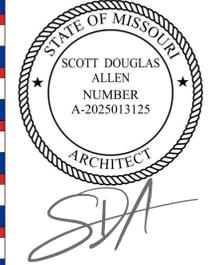
**Network Panel Location Notes:**  
Location of the network panels may vary slightly by store design. The components needing installed in this area are listed below. Proper electrical outlets must be installed in this area as well.

1. Network/Internet connection and Modem provided by service provider
2. Network Patch Panel connecting wiring from the front counter to the network panel area.
3. Firewall/Router (if not provided by internet service provider)
4. Network switch

**Front Counter Installation Notes:**  
Locations of the quadplex RJ45 terminations may vary slightly by store layout. The ideal location would be directly below each cash register. A minimum of eight CAT 5e or CAT 6 cable runs are required to be installed between the network panel area in the back of the store and front counter. Wire terminations at the front counter should be done using the T658B wiring standard shown below. Each RJ45 jack will have a color key showing the proper punch down for T658B.



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Hande's Ice Cream  
410 NW Chipman Road  
Lee's Summit, MO

Data		
Proj. No.	24TF604	A1.4
Date	11-9-25	
Drawn by	Author	
Checked by	Checker	

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Dept. of Health Notes

1. ALL EQUIPMENT & CUSTOM EQUIPMENT TO BE CONSTRUCTED TO N.S.F. STANDARDS AND WILL BE N.S.F. CERTIFIED.
2. ALL EQUIPMENT INCLUDING SHELIVING TO BE INSTALLED TO N.S.F. STANDARDS, ON 6" HI METAL EASILY CLEANABLE LEGS / COMMERCIAL CASTERS / 4" HIGH MASONARY CURBS W/ 3/8" COVERED BASE.
3. TOTAL NUMBER OF EMPLOYEES ON THE BUSIEST SHIFT IS 7 (SEVEN)
4. Minimum 20 FC AT ALL KITCHEN, PREPARATION AND WARE WASHING AREAS AT 30" ABOVE FLOOR.
5. LIGHTING ABOVE FOOD OR UTENSIL AREAS TO BE SHATTERPROOF.
6. ALL FLOOR SINKS UNDER CABINETS TO BE 50 % EXPOSED WITH CURB AROUND COVERED BASE.
7. ALL SINKS & LAVATORIES IN THE FOOD FACILITY WILL BE SUPPLIED WITH HOT ( MIN. 120°F ) & COLD RUNNING WATER UNDER PRESSURE.
8. ALL SINKS, LAVATORIES OR HAND SINKS WILL HAVE A COMBINATION FAUCET OR PRE MIXING FAUCET CAPABLE OF SUPPLYING WARM WATER FOR MIN. OF 10 SECONDS.
9. ALL LINES NOT CONCEALED TO BE AT LEAST 3/4" FROM WALLS AND 6" OFF THE FLOOR USING STANDOFF BRACKETS. HORIZONTAL RUNS OF DRAIN LINES SHALL TERMINATE AT LEAST 1" ABOVE THE OVERFLOW RIM OF THE FLOOR SINK VIA RIGID PLUMBING.
10. ALL DOORS LEADING TO THE OUTSIDE, REST & LOCKER ROOMS TO BE SELF CLOSING.
11. ALL WINDOWS ARE FIXED. FACILITY IS TO BE FULLY ENCLOSED. VENTILATION FOR THE REST ROOM, LOCKER, JANITOR, & ICE MAKER AREAS ARE LIGHT ACTIVATED OR LOCKER, JAN, ICE, MAKER AREAS MAY HAVE A LOUVERED PANEL.
12. SUBMIT ACTUAL SAMPLES OF ALL TILES & FINISH MATERIALS TO HEALTH DEPT. FOR APPROVAL PRIOR TO PURCHASING & CONSTRUCTION.
13. ALL FLOORS UNDER EQUIPMENT TO BE SMOOTH NONABRASIVE.

Scoops Cleaning Procedures

**HANDEL'S HOMEMADE ICE CREAM & YOGURT DIPPER WELL EXCEPTION REQUEST**

Handel's is requesting the use of individual scoopers for each flavor which then does not require the use of dipper wells. Our standard Cleaning / Maintenance Procedures are listed below.

**HANDEL'S HOMEMADE ICE CREAM & YOGURT CLEANING/ MAINTENANCE**

**SCOOPS**

**DAILY OPENING PROCEDURES**

After scoops have been collected, washed, rinsed, sanitized and air dried they are to be placed (hung) on the rim of the ice cream pail. The handle is to be above the rim with the ball head placed inside the pail itself. This should be done approximately one hour to store opening. This will regulate the temperature of the scoop prior to its use. Scoops should be picked up by the plastic handle and not the actual metal scooping surface. Scoops that have fallen inside the pail with the handle coming in contact with the ice cream should be removed and washed. Scoops that have fallen onto the center board or on the floor should be immediately washed.

**DAILY CLOSING PROCEDURES**

Click excess ice cream into the same pail on which the scoop was located. Collect all scoops from the rims of the pails and place into a clean empty container. Rinse any excess ice cream off the scoops. Fill three (3) bay sink using appropriate amounts of cleaning liquid, sanitizer, and rinse water. Make certain water levels are high enough to accommodate any and all sized utensils. Always refer to the manufactures specifications regarding ph levels, water temperatures, and concentration levels of sanitizer. We are recommending water temperatures for wash solutions and rinse water not to be below 110 degrees. Sanitized water should not be lower than 75 degrees and have a minimum concentration of 100 ppm. Wash, Rinse and Sanitize scoops. Lay scoops on drain board with ball heads turned down to eliminate any standing water in the scoop. Let air dry overnight.



Floor Sink Exception Request

We are requesting exception to the requirements of installation of floor sinks for each dipping/holding cabinets.

Although the model we are utilizing for the dipping/holding cabinets come defaulted with an external drainage location we do not use that drainage component and they remain continuously capped.

Our procedure is to defrost and then shop vac the melted ice and wipe down and sanitize each cabinet on a weekly basis.

In addition, without the use of dipping wells, as we implement a scoop cleaning procedure, we don't utilize floor drains at all and would like your consideration to exempt us from this requirement should it exist.

In the event we did need to utilize the drain in emergent instances, they are all on casters and can be relocated to utilize one of the other installed floor sinks.

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TBH Enterprises, LLC

Handel's Ice Cream  
410 NW Chipman Road  
Lee's Summit, MO

DoH Plan

Proj. No.	24TF604	A1.4a
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Checked by	Checker	

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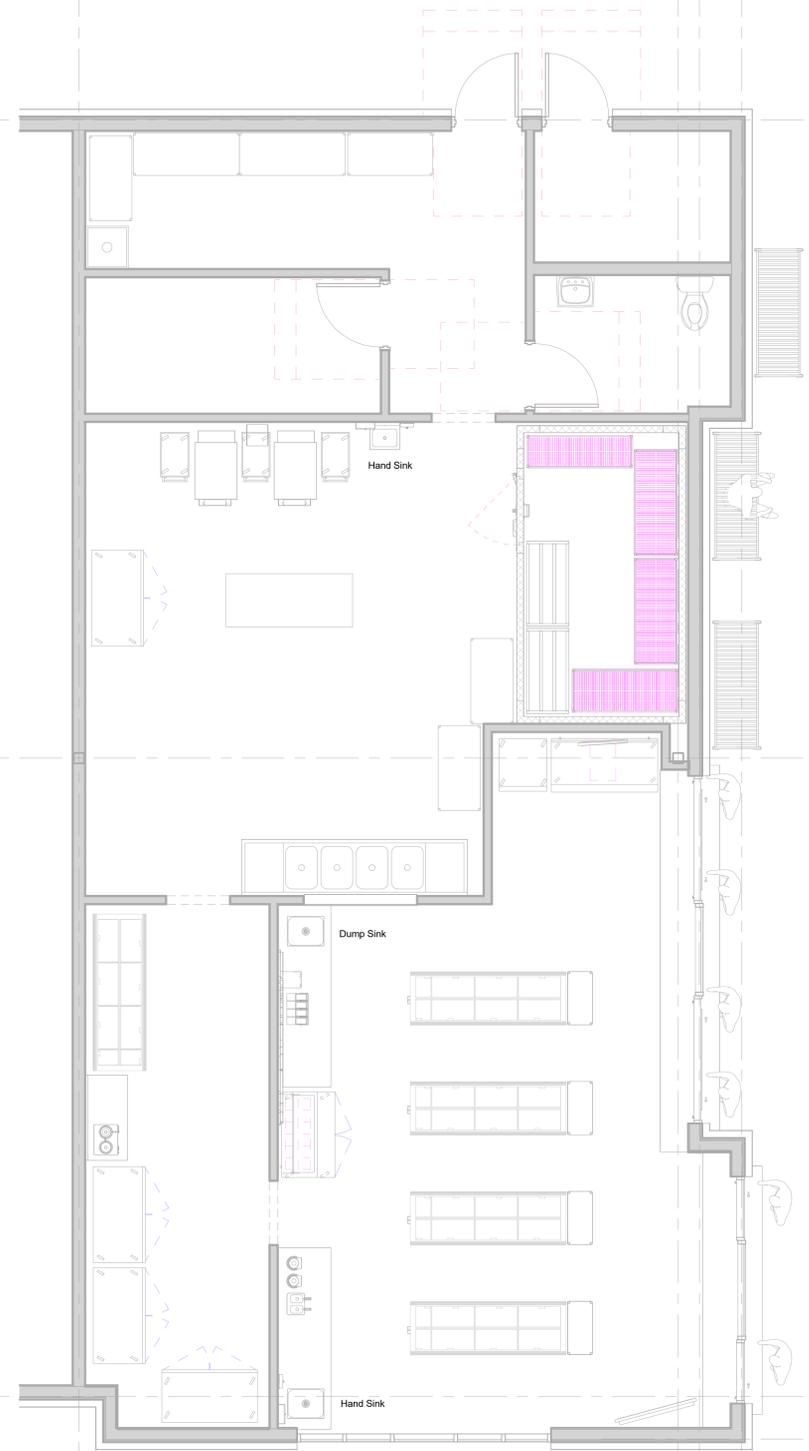
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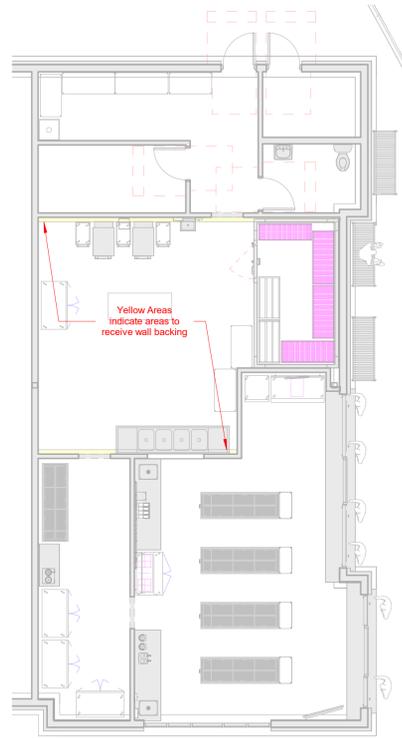
B

C

D

1 Dept. of Health Plan  
1/4" = 1'-0"

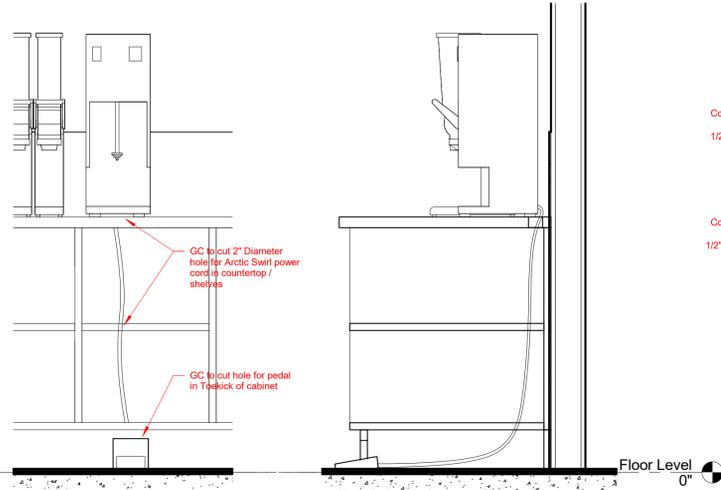




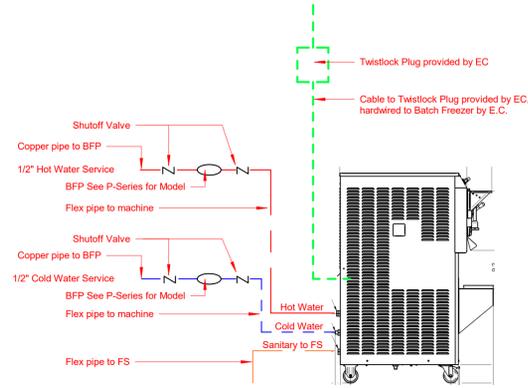
**7 Wall Blocking Plan**  
1/8" = 1'-0"

Wall Blocking Areas to Receive 1 Layer of 1/2" CDX plywood, glued and screwed to studs. GC to verify screws to be 12" O/C horizontally and vertically, seams are smooth and plywood is ready to accept GWB.

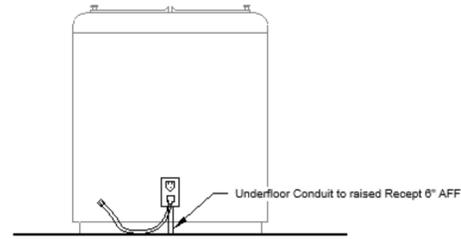
**6 Artic Swirl Pedal Cut Detail**  
1" = 1'-0"



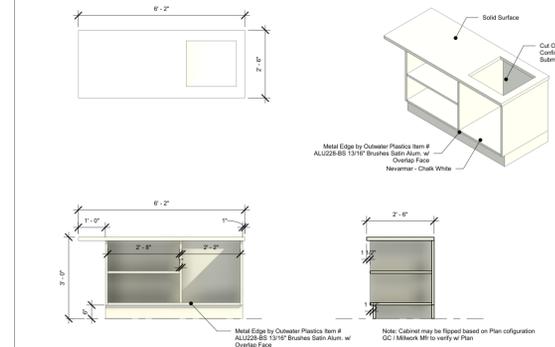
**5 Batch Freezer Connection Detail**  
3/4" = 1'-0"



**10 Raised Receptacle Dtl**  
12" = 1'-0"



**1 C96**  
12" = 1'-0"



**2 C74**  
12" = 1'-0"

**Cabinet Notes:**

Wood: 3/4" Marine Grade Plywood  
Laminate: Nevamar - Chalk White

Metal Edge on Bottom Horizontal Edge: Outwater Plastics, ALU-228-BS, 13/16" Brushed Satin Aluminum Face w/Overlap Face

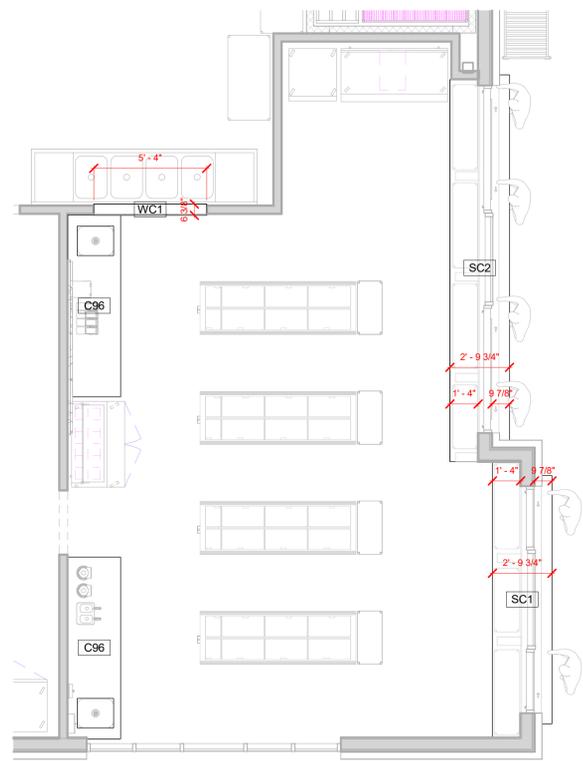
PVC Bumper Tee Molding: Outwater Plastics, 303-812-WH, 5.5mm Exposed

**Countertop Notes:**

Solid Surface - Interior: Corian Sparkling White  
Solid Surface - Exterior: Corian Sparkling White

**Shelving Dowel Placement**

Millwork Mf: to provide alternate for vertical dowel holes w/ peg supports as shown on all millwork sides, except finish outside face. Spacing to be 1" O/C and start 6" from top and bottom



**8 Millwork Plan**  
1/4" = 1'-0"

G.C. to verify dimensions prior to fabrication of countertops and cabinets and provide a set of shop drawings for review

DUPONT™ CORIAN® SOLID SURFACE TECHNICAL BULLETIN

**DUPONT™ CORIAN® PERFORMANCE PROPERTIES**

PROPERTY	TEST	TYPICAL RESULTS
<b>PHYSICAL PROPERTIES</b>		
Density	ASTM D792	2.7 g/cm <sup>3</sup>
Approximate weight per square foot 6 mm (1/4")		2.2 lbs.
Approximate weight per square foot 12 mm (1/2")		4.4 lbs.
Thermal Expansion	ASTM E228	3.9 x 10 <sup>-5</sup> in/in (2.2 x 10 <sup>-4</sup> in./in./°F)
Hardness - Rockwell "M" Scale	ASTM D785	>85
Hardness - Barcol Impresor	ISO 19712-2 (ASTM D2583)	56
<b>MECHANICAL PROPERTIES</b>		
Flexural Modulus	ASTM D790	1.2 x 10 <sup>6</sup> psi
Flexural Strength		10,000 psi
Tensile Modulus		3.5 x 10 <sup>6</sup> psi
Tensile Strength	ASTM D638	6,000 psi
Tensile Elongation		0.4 % min.
Compressive strength	ASTM C265	16,000 psi
<b>FITNESS FOR USE</b>		
<b>Properties</b>		
Light Resistance (D5000 Acc)	ISO 19712-2	Pass
Weatherability	ASTM G155	≥25 cycles (1,000 hrs)
Ball Impact Resistance (Shore No fracture)—1/2 lb. ball - 6mm		50 in. (No failure at height)
Ball Impact Resistance (Shore No fracture)—1/2 lb. ball - 12mm	NEMA LD-3-3.8	144 in. (No failure at height)
Wear and Abrasion	CSA B45 S-11	Pass
Stain Resistance	ISO 2478-2011	Pass
Stain/chemical resistance test		Pass
Resistance to cigarette burns		Pass
Resistance to hot heat	ISO 19712-2	Pass
Hot/cold cycle water resistance test		Pass
Lead test		Pass
Dimensional stability	ISO 4586-2	Pass
Resistance to surface wear	ISO 4586-2	0.18 % w/25 revolutions
Fungal Resistance	ASTM G21	ASTM Rating of 0; No abnormal growth on product at 100% percent
Bacterial Resistance	ASTM G22	No observed growth on product at 100% percent
Microbial Resistance	UL 2894 (ASTM D6259)	Highly resistant to mold growth
Coefficient of Friction (Slip Resistance)	ASTM C1028	0.94 - 0.95 (mean finish under dry conditions) 0.50 - 0.61 (mean finish under wet conditions)

DUPONT™ CORIAN® SOLID SURFACE TECHNICAL BULLETIN

**DUPONT™ CORIAN® PERFORMANCE PROPERTIES**

PROPERTY	TEST	TYPICAL RESULTS
<b>FITNESS FOR USE (continued)</b>		
<b>Properties</b>		
Boiling Water Resistance	NEMA LD-3-3.5	No visible change
High Temperature Resistance	NEMA LD-3-3.6	No change
Flammability, Surface Burning Characteristics of Building Materials	NFPA 701 (UL 94V-0)	Class A
Flame Spread Index Surface Burning Characteristics of Building Materials	ANSI UL 723 (ASTM E84, NFPA 255)	Flame Spread Index (FSI) < 25
Smoke Developed Index Surface Burning Characteristics of Building Materials	ANSI UL 723 (ASTM E84, NFPA 255)	Smoke Developed Index (SDI) < 25
Flame Spread Surface Burning Characteristics of Flooring, Floor Covering, and Miscellaneous Materials	CAN/ULC-S102.2	Flame Spread Value 0
Smoke Developed, Surface Burning Characteristics of Flooring, Floor Covering, and Miscellaneous Materials	CAN/ULC-S102.2	Smoke Developed Value 5

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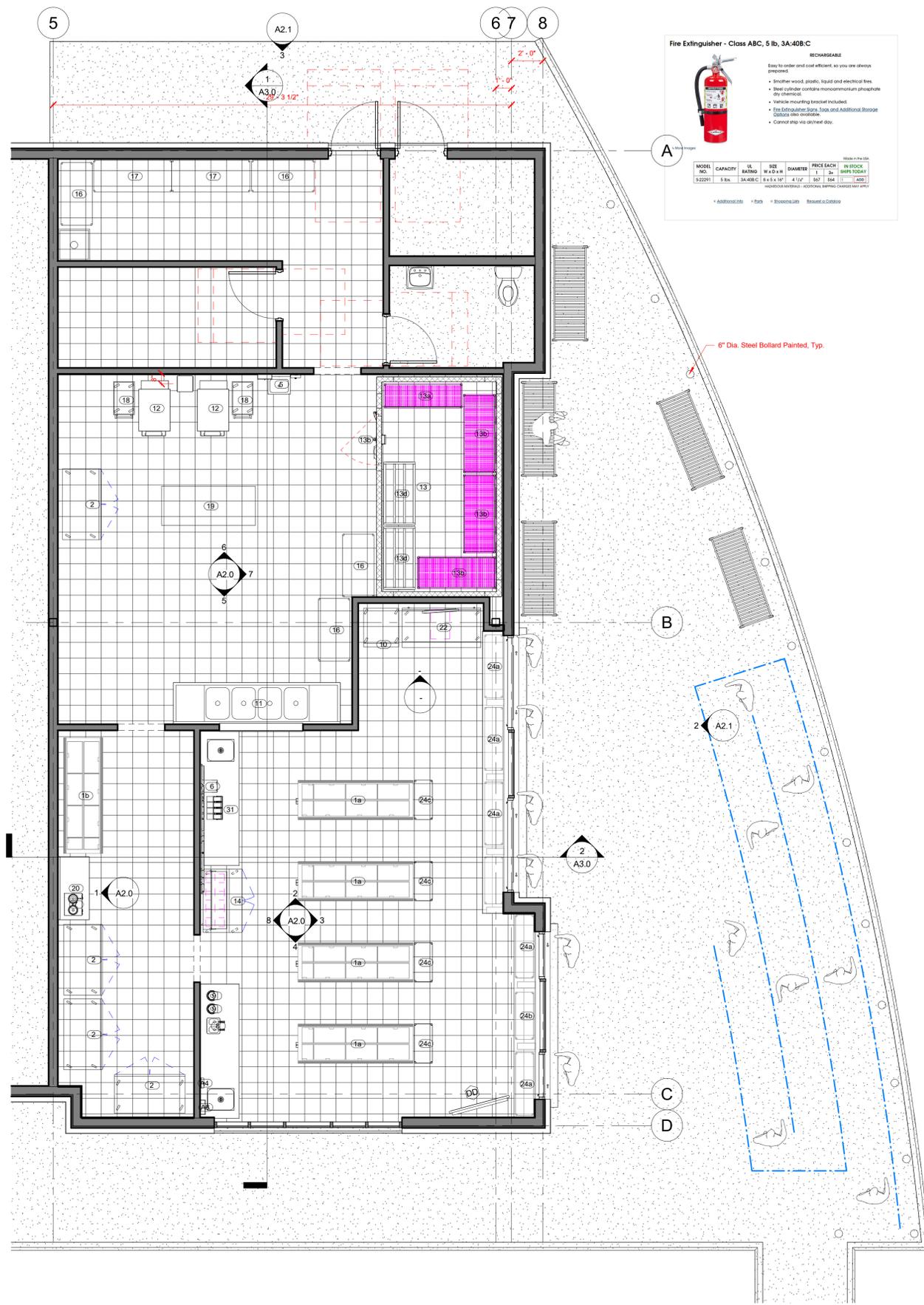
Hande's Ice Cream  
410 NW Chipman Road  
Lee's Summit, MO

Millwork Details

Proj. No.	24TF604	A1.5
Date	11-9-25	
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**Fire Extinguisher - Class ABC, 5 lb, 3A:40B:C**

**RECHARGEABLE**

- Easy to order and cost efficient, so you are always prepared!
- Another wood, plastic, liquid and electrical fires.
- Steel cylinder contains monomommonium phosphate dry chemical.
- Vehicle mounting bracket included.
- Fire Extinguisher Sign, Top and Additional Backside. (Options are available).
- Comport strip via carnet day.

Model No. 52221 Capacity 5.0 Gal. 3A:40B:C Size 8 1/2 x 5 1/2" Diameter 4 1/2" Price Each \$67.00 In Stock 400

Additional Info: Back, Borehole cut, Resistant to Corrosion

### Food Service Equipment & Toilet Accessories Schedule

Type Mark	Description	Count	Type	Manufacturer	Model	Provided by	Installed by	Comments
1a	Serving Cabinet	4	Serving Cabinet BD14	Nelson Mfg.	BD14RB	Food Equip. Vendor	Food Equip. Vendor	Serving Cabinet
1b	Holding Cabinet	1	Holding Cabinet BD14	Nelson Mfg.	BD14	Food Equip. Vendor	Food Equip. Vendor	
2	Double Reach-In Solid Swing Door - Freezer	4	T-49F-HC_115/60/1	TRUE FOOD SERVICE EQUIPMENT, INC.	T-49F-HC	Food Equip. Vendor	Food Equip. Vendor	www.truefmfg.com
4	T-Compartment Countertop Drop-In Sink	2	SR16-19-13.5-1-ND	Eagle Group	SR16-19-13.5-1-ND	Food Equip. Vendor	PC	
5	Hand Washing Sink	1	BP4S-1014-F-LRS	BlendPort	BP4S-1014-F-LRS	Food Equip. Vendor	Food Equip. Vendor	
6	Arctic Swirl Flavor Blender	1	Arctic Swirl Flavor Blender	Electro Freeze	HDM-75A	Food Equip. Vendor	Food Equip. Vendor	
7	Twin Topping Warmer	1	Twin Topping Warmer 6-8-22	Server	81220	Food Equip. Vendor	Food Equip. Vendor	
8	EZ Topper Pouch Warmer	1	85899	Server	85899	Food Equip. Vendor	Food Equip. Vendor	
9	Blender	2	7003	Vitamix	7003	Food Equip. Vendor	Food Equip. Vendor	
10	Reach-In Solid Swing Door -10°F Freezer	1	T-23F_115/60/1	TRUE FOOD SERVICE EQUIPMENT, INC.	T-23F	Food Equip. Vendor	Food Equip. Vendor	www.truefmfg.com
11	Four-Compartment Sink	1	414-18-24	Eagle Group	414-18-24	Food Equip. Vendor	PC	
12	Carpigiani Batch Freezer	2	Carpigiani Batch Freezer 6-6-22			Food Equip. Vendor	EC	
13	Walk In Cooler	1	Cooler 36" Door	Arctic Walk-Ins	See Cut Sheet EQ-0.5	Food Equip. Vendor	FEV, EC, MC	
13a	Shelving Unit, Polymer/Wire, 5-Tier	1	18x48x74 Legs, 5-Tier, All Grid Shelves	Metro	SC357G3	Food Equip. Vendor	Food Equip. Vendor	
13b	<varies>	4	<varies>	<varies>	<varies>	Food Equip. Vendor	Food Equip. Vendor	
13d	DUNNAGE RACK	2	6009	Newage Industrial	6009	Food Equip. Vendor	Food Equip. Vendor	
14	Sandwich / Salad Unit	1	TSSU-48-12-HC_115/60/1	True Food Service Equipment, Inc.	TSSU-48-12-HC	Food Equip. Vendor	Food Equip. Vendor	
16	Quad-Adjust 4-Tier Starter Unit	4	#16 - Shelving 24" x 48"	Eagle Group	F2QA2-74-XXXX	Food Equip. Vendor	Food Equip. Vendor	
17	Quad-Adjust 4-Tier Starter Unit	2	#17 - Shelving 24" x 60"	Eagle Group	F2QA2-74-XXXX	Food Equip. Vendor	Food Equip. Vendor	
19	Utility / Bussing Cart	3	UC3019K	Winco	UC3019K	Food Equip. Vendor	Food Equip. Vendor	
19	Stainless Steel Top Work Tables	1	BPT-3072SEB	BlendPort	BPT-3072SEB	Food Equip. Vendor	Food Equip. Vendor	
20	Work Table	1	BPT2448SEB-BS	BlendPort	BPT2448SEB-BS	Food Equip. Vendor	Food Equip. Vendor	Stainless Steel Top
22	Freezer, Worktop	1	TWT-60F-HC	True Manufacturing	TWT-60F-HC	Food Equip. Vendor	Food Equip. Vendor	
24a	Stainless Steel Shelving	5	#24a - Metal Shelving 12x48x33	Metro				
24b	Stainless Steel Shelving	2	Metal Shelving 12x30x33	Metro				
24c	Stainless Steel Shelving	4	Metal Shelving 12x30x33	Metro				
31		1	Quad Candy Dispenser			Food Equip. Vendor	Food Equip. Vendor	

Abbreviations: Food Equipment Vendor = FEV, General Contractor = GC, Plumbing Contractor = PC, Electrical Contractor = EC, Mechanical Contractor = MC

### Finish Schedule

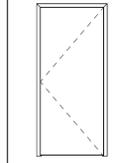
Room Number	Room Type	Area	Floor Finish	Perimeter	Base Finish	Wall Finish	Ceiling Finish	Comments
100	Dipping	571.63		121.08				
101	Holding	210.84		66.60				
102	Production	557.89		105.11				
103	Stock	179.73		68.28				
104	Office	89.21		40.69				
105	Toilet Rm	60.30		31.68				

- Wall Paint to be Sherwin Williams - Duration Home - Semi-Gloss Finish - See Style Guide for Colors - (1) Prime Coat & (2) Finish Coats
- Wall Ceramic Tile to be Daltile, Color Wheel Classic, White, 3"x6", Subway Pattern w/ Shutter Strip 5'-0" AFF
- Floor Ceramic Tile to be Daltile, Volume 1.0, White, 12" x 12"
- Flooring to be Epoxy, See Floor Finish Sheet for Specifications
- Base Cove to be 6" Roppe - 700 Series, Color - 654 Blue Jay
- Base Cove to be applied to all cabinets in addition to walls
- Stainless corner protectors on all corners

Color Info Below is for Print Sizing, Info should be adjusted for larger quantities as required.

### Door Schedule

Mark	Manufacturer	Model	Width	Height	Thickness	Door Material	Door Finish	Door/Frame Type	Frame Material	Frame Finish	Door Hardware	Comments
02		Int-F-WDMF-36" x 84"	3'-0"	7'-0"	1 3/4"						(none)	



Reference Floor Plan for Hinge/Swing Configuration

- All Exterior Doors are self-closing and tight-fitting
- G.C. to verify all existing and new Ext Doors to have panic hardware and all associated hardware to meet IBC Code
- Entry Door with locking device to be in accordance with Code, it shall be readily distinguishable as locked and key operated and a readily visible sign posted on egress side stating "THIS DOOR TO REMAIN UNLOCKED WHEN THIS SPACE IS OCCUPIED". This sign to have 1" Letters on contrasting background.
- All doors including existing shall be accessible door max. 5lb operating force, level handle, 10 min. kickplate, operable part mounted at 34" to 44"

### Door Hardware Schedule

Key Name	Lockset	Hinges	Silencer	Wall Stop	Kickplate	Push / Pull	Comments
A	Classroom	(3) 4 1/2" x 4 1/2"	Yes	Yes	Yes		
B	Privacy	(3) 4 1/2" x 4 1/2"	Yes	Yes	Yes		
C	Passage	(3) 4 1/2" x 4 1/2"	Yes	Yes	Yes		
D	Thumblock / Key	As per Alum. Mfr.				Yes	Match Existing

### Audio Visual Device Schedule

Type Mark	Mfr.	Count	Type	Comments
AA		1	32" 3rd Party Screen	3rd Party Order Screen, GC to install including mount
DD		1	50" KDS	

### Toilet Accessories Schedule

Type Mark	Description	Count	Type	Manufacturer	Model	Provided by	Installed by	Comments
A4	Bobrick B-2112 Classic Series Surface Mounted Soap Dispenser	2	B-2112	Bobrick Washroom Equipment, Inc.	B-2112			
A8	Bobrick B-2621 Classic Series Surface Mounted Paper Towel Dispenser	2	B-2621	Bobrick Washroom Equipment, Inc.	B-2621			

No.	Description	Date



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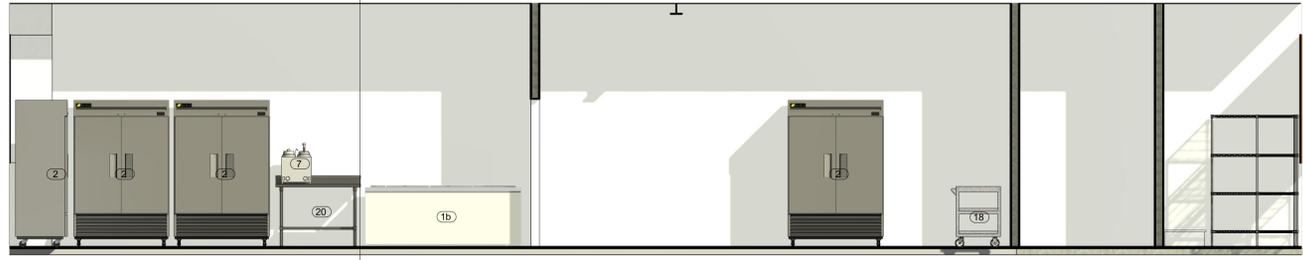
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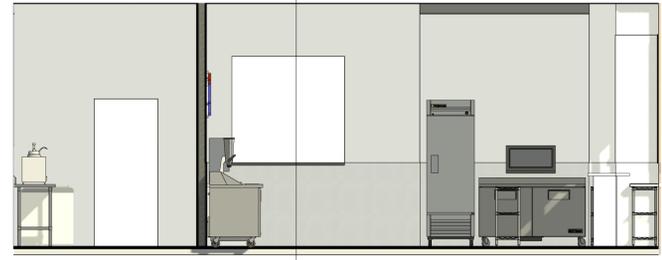
Equipment Plan

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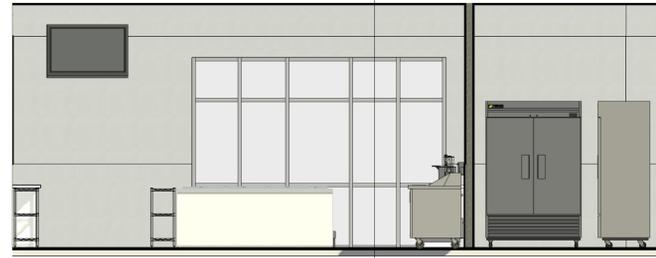
**1** Elevation 1 - a  
1/4" = 1'-0"



**2** Elevation 1 - b  
1/4" = 1'-0"



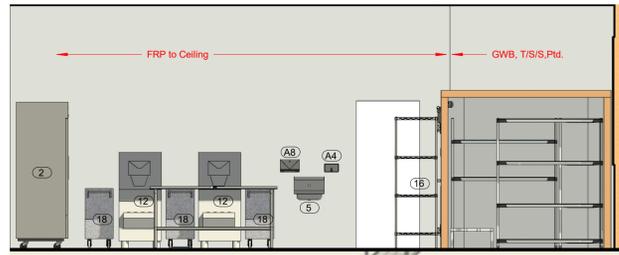
**3** Elevation 1 - c  
1/4" = 1'-0"



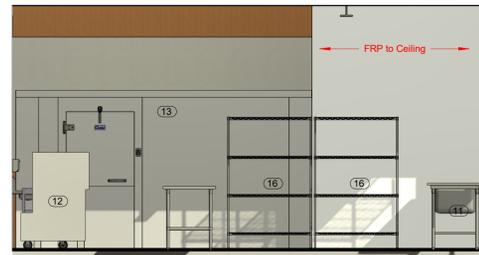
**4** Elevation 1 - d  
1/4" = 1'-0"



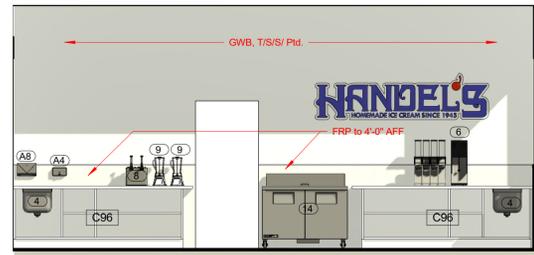
**5** Elevation 2 - a  
1/4" = 1'-0"



**6** Elevation 2 - c  
1/4" = 1'-0"



**7** Elevation 2 - d  
1/4" = 1'-0"



**8** Elevation 5 - a  
1/4" = 1'-0"

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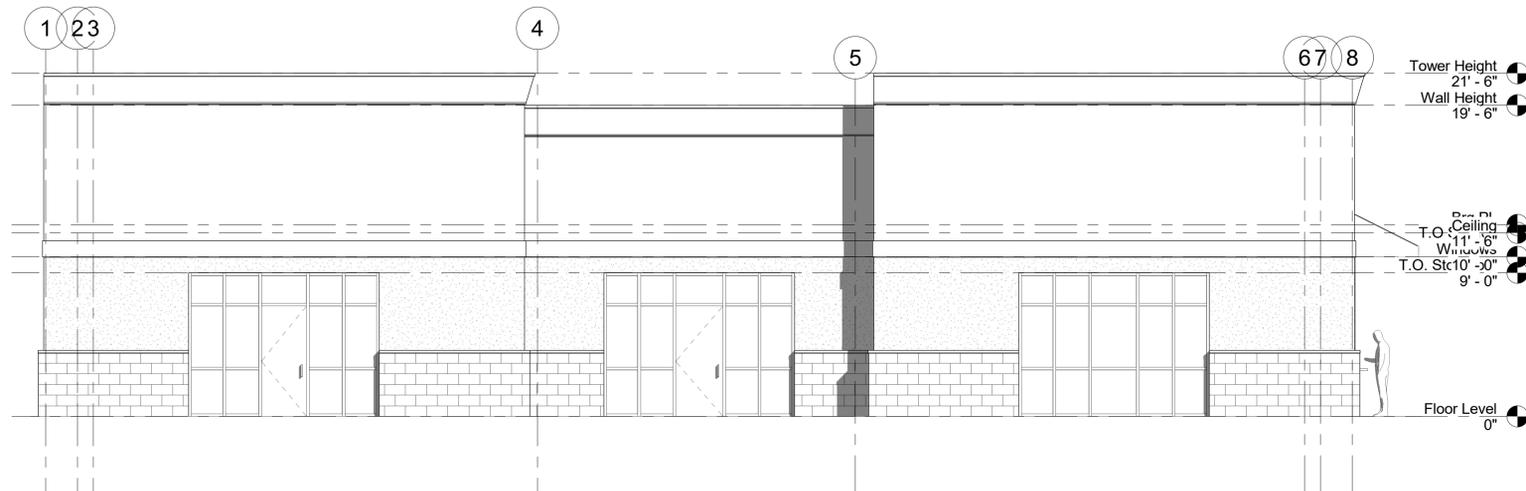
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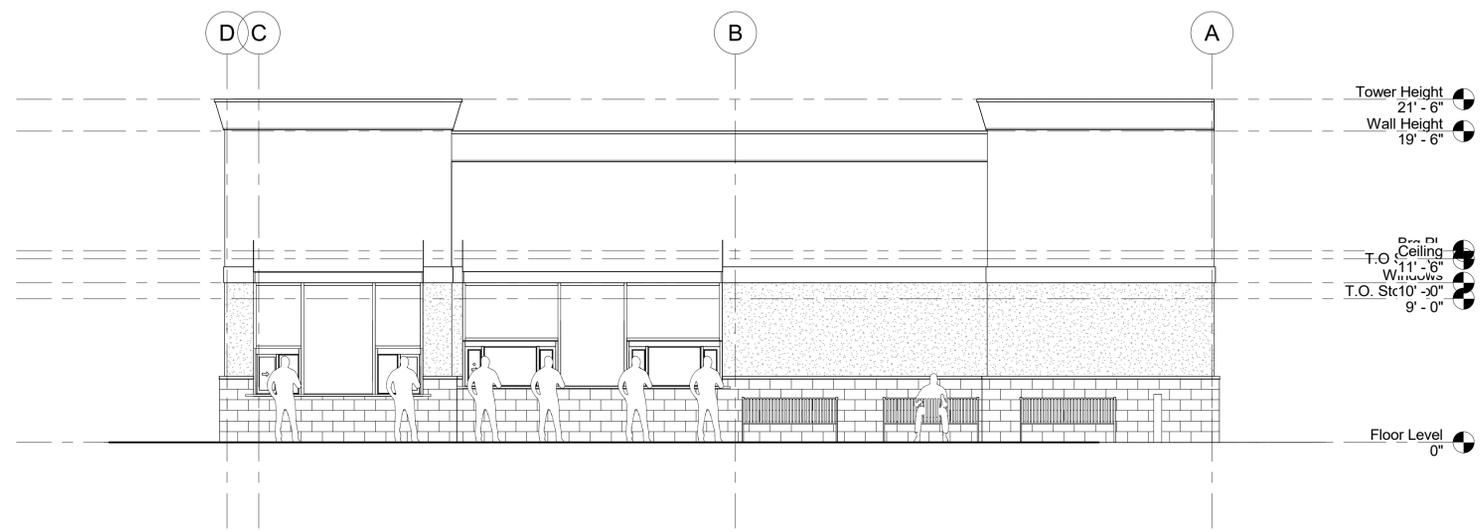
Interior Elevations

Proj. No.	24TF604	<b>A2.0</b>
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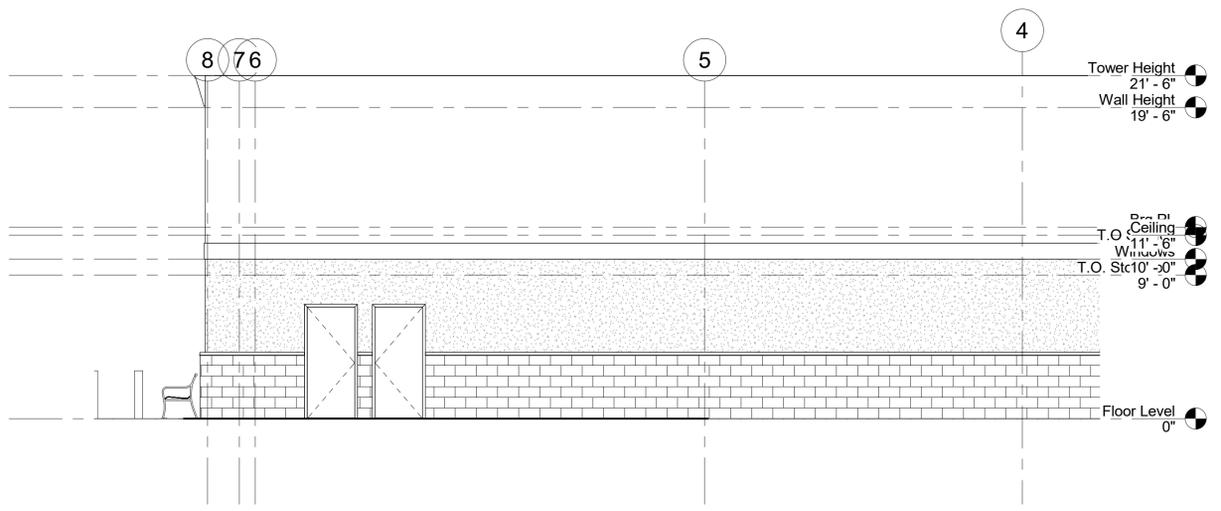
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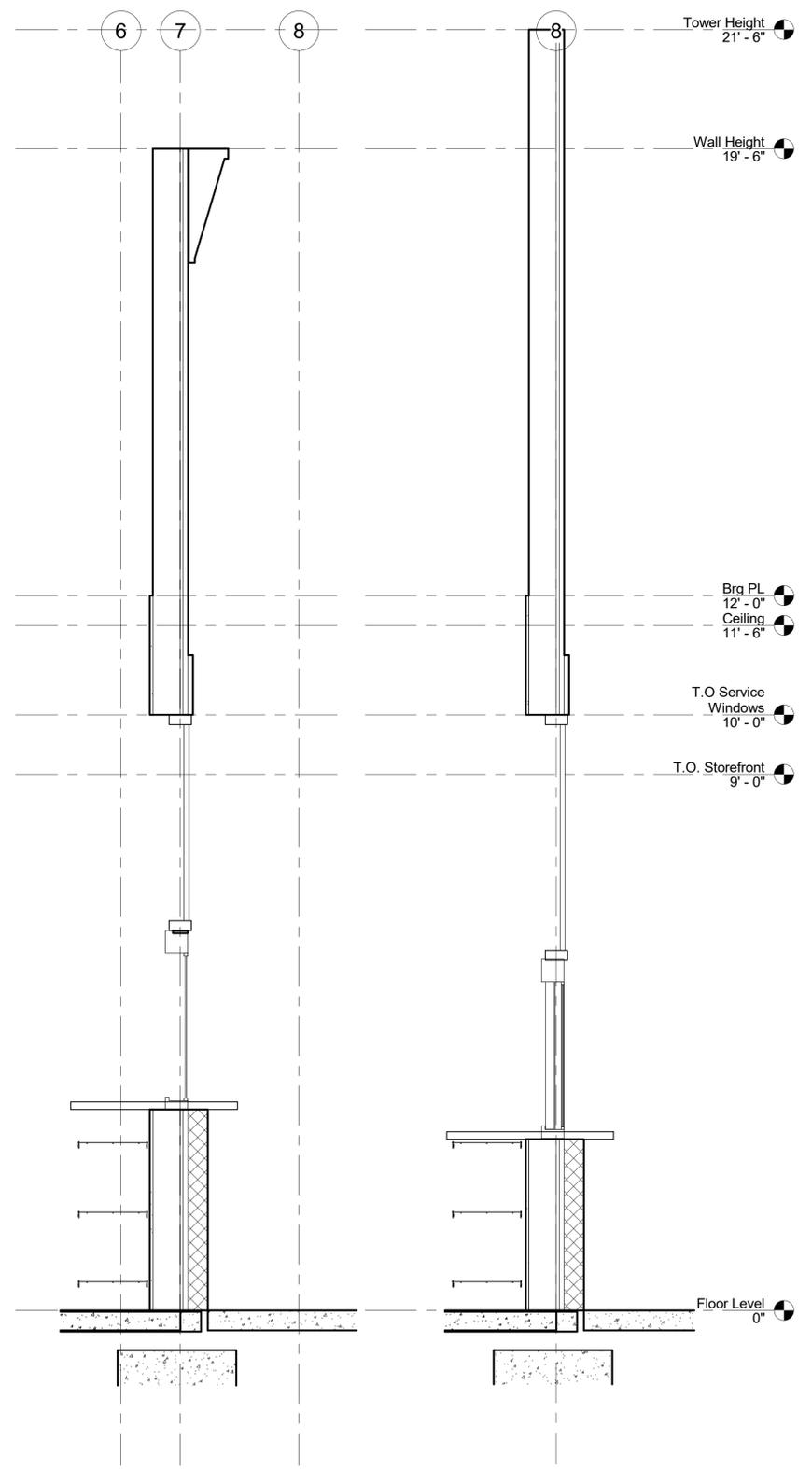
**1 Front Elevation**  
3/16" = 1'-0"



**2 Right Elevation**  
3/16" = 1'-0"

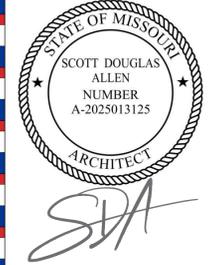


**3 Rear Elevation**  
3/16" = 1'-0"



**5 Section @ Service Windows**  
3/4" = 1'-0"

REVISIONS		
No.	Description	Date



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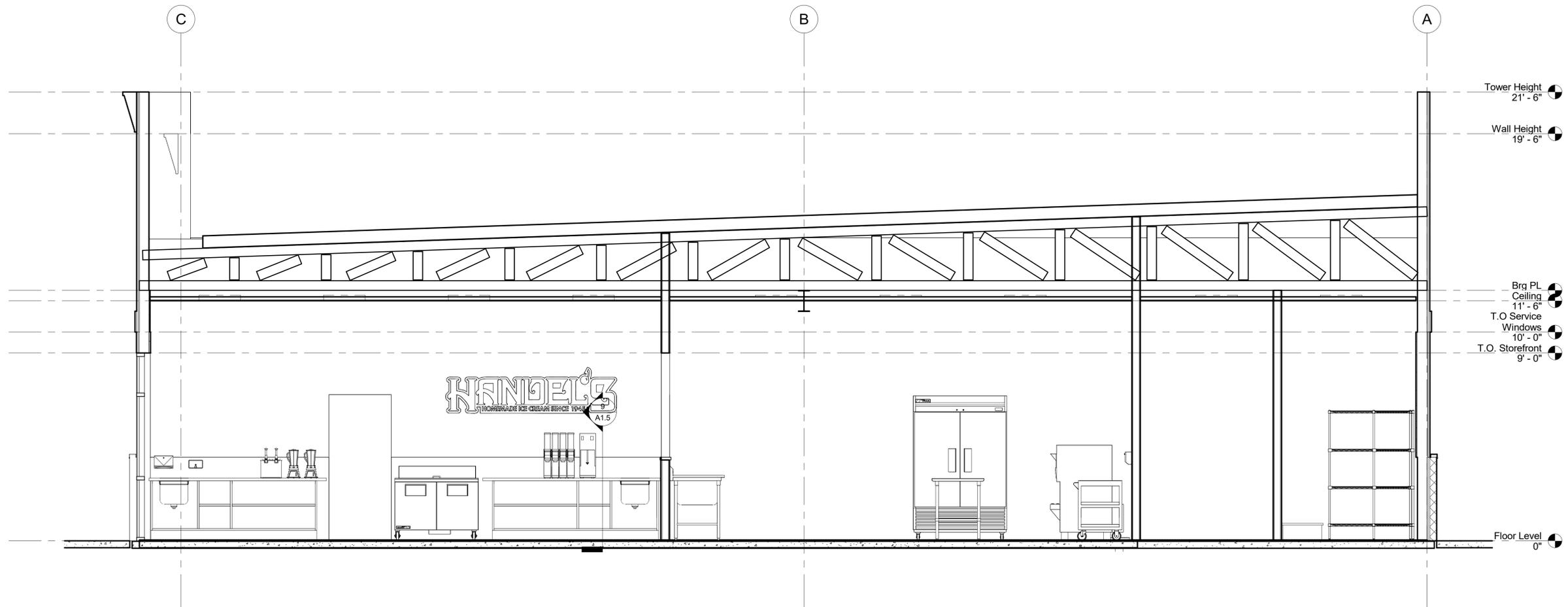
TBH Enterprises, LLC

Hande's Ice Cream  
410 NW Chipman Road  
Lee's Summit, MO

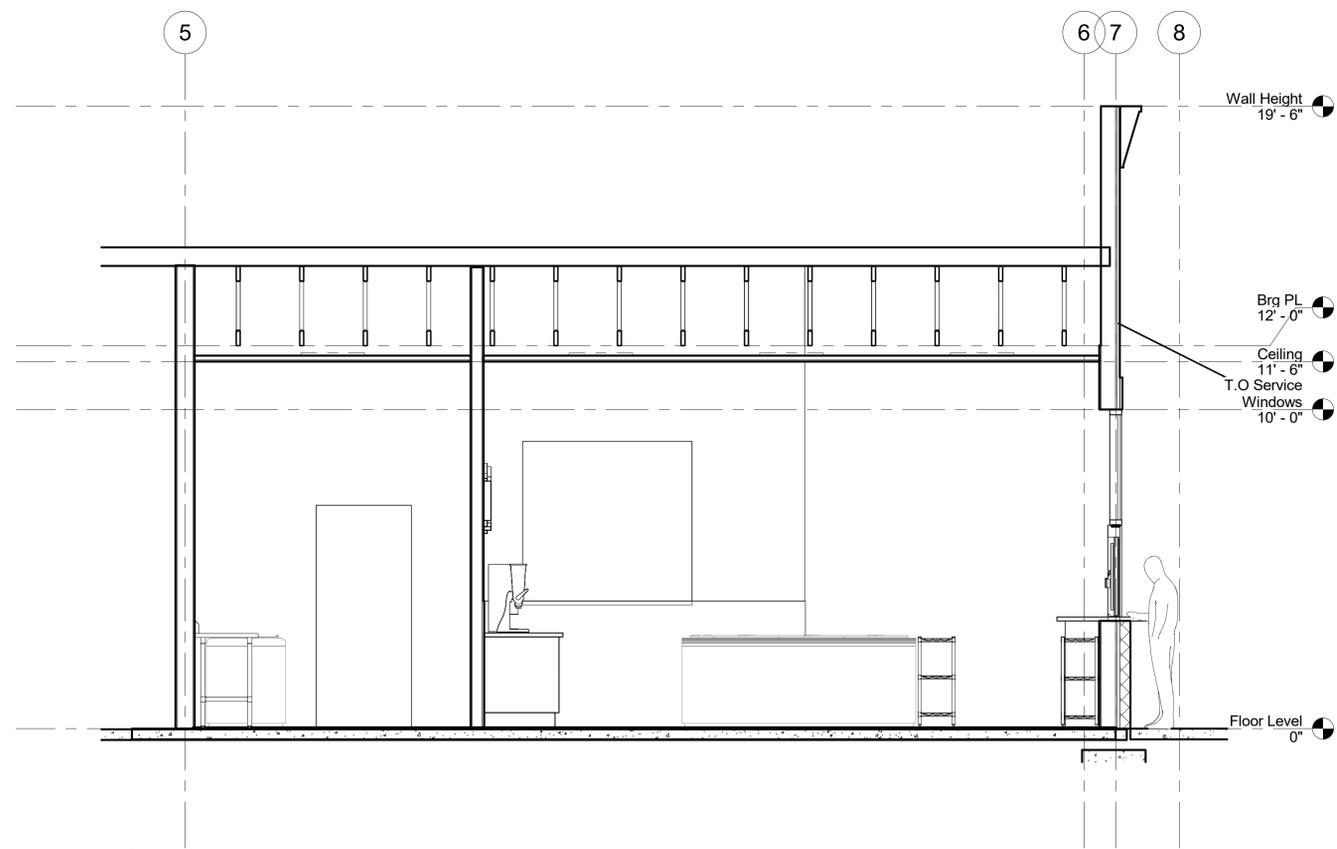
Exterior Elevations

Proj. No.	24TF604	A2.1
Date	11-9-25	
Drawn by	sda	
Checked by	sda	

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**1** Long Section  
3/8" = 1'-0"



**2** Lat Section  
3/8" = 1'-0"

REVISIONS		
No.	Description	Date



*SDA*

**HANDLÉ'S**  
HOMEMADE ICE CREAM SINCE 1945



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Building Sections

Proj. No.	24TF604	<b>A3.0</b>
Date	11-9-25	
Drawn by	Author	
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**MECHANICAL SYMBOLS LIST**

-  ROOF TOP UNIT
-  CEILING MOUNTED FAN

**AIR DEVICES**

-  CEILING DIFFUSER SUPPLY
-  CEILING DIFFUSER RETURN/EXHAUST

**DUCT ACCESSORIES**

-  VOLUME DAMPER W/ ACCESS DOOR
-  BACKDRAFT DAMPER

**CONTROLS AND SENSORS**

-  THERMOSTAT
-  TEMPERATURE SENSOR

**DUCTWORK**

-  RECTANGULAR DUCT (WIDTH X DEPTH)
-  FLEXIBLE CONNECTION
-  FLEXIBLE DUCT
-  ROUND DUCT CROSS SECTION
-  SUPPLY AIR RECTANGULAR DUCT GOING UP/DOWN
-  RETURN AIR RECTANGULAR DUCT GOING UP/DOWN

**APPLICABLE CODES**

- A. 2018 INTERNATIONAL BUILDING CODE
- B. 2018 INTERNATIONAL MECHANICAL CODE
- C. 2018 INTERNATIONAL PLUMBING CODE
- D. 2018 INTERNATIONAL FIRE CODE
- E. 2018 INTERNATIONAL ENERGY CONSERVATION CODE

**MECHANICAL DRAWING LIST**

M0.1	MECHANICAL SYMBOL, ABBREVIATION & NOTES
M0.2	MECHANICAL SPECIFICATIONS
M1.0	MECHANICAL FLOOR AND ROOF PLAN
M2.0	MECHANICAL DETAILS
M3.0	MECHANICAL SCHEDULE

**MECHANICAL ABBREVIATIONS**

- AFF ABOVE FINISHED FLOOR
- AL ACOUSTIC LINING
- BD GRAVITY DAMPER
- CD CONDENSATE DRAIN
- CFM CUBIC FEET OF AIR PER MINUTE
- DN DOWN
- E EXISTING
- EER ENERGY EFFICIENCY RATIO
- EF EXHAUST FAN
- FC FLEXIBLE CONNECTION
- FD/AD FIRE DAMPER W/ACCESS DOOR
- FD FIRE DAMPER W/FUSIBLE LINK
- FSD FIRE SMOKE DAMPER
- IEER INTEGRATED ENERGY EFFICIENCY RATIO
- MD MOTORIZED DAMPER
- N NEW
- RA RETURN AIR
- RAD RETURN AIR DUCT
- RTU ROOF TOP UNIT
- SA SUPPLY AIR
- SAD SUPPLY AIR DUCT
- SEER SEASONAL ENERGY EFFICIENCY RATIO
- TEF TOILET EXHAUST FAN
- VD VOLUME CONTROL DAMPER

**FIELD VERIFY ALL CONDITIONS**

DESIGN DRAWINGS ARE SCHEMATIC. THIS CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING OR AWARD OF CONTRACT TO INSPECT EXISTING FIELD CONDITIONS. THIS CONTRACT SHALL INCLUDE ALL LABOR AND MATERIALS NECESSARY FOR FIELD MODIFICATIONS DUE TO EXISTING CONDITIONS. THE CONTRACTOR SHALL CONTACT THE ARCHITECT, ENGINEER OR OWNER PRIOR TO BIDDING FOR INTERPRETATIONS AND CLARIFICATIONS OF THE DESIGN AND INCLUDE IN HIS BID ALL COSTS TO MEET THE DESIGN INTENT CLARIFICATIONS MADE BY THE ARCHITECT, ENGINEER OR OWNER AFTER BIDDING WILL BE FINAL AND SHALL BE IMPLEMENTED AT CONTRACTORS COST. BIDDING CONTRACTORS SHALL HAVE A WORKING KNOWLEDGE OF LOCAL CODES AND ORDINANCES AND SHALL INCLUDE IN THEIR BIDS THE COSTS FOR ALL WORK INSTALLED IN STRICT ACCORDANCE WITH GOVERNING CODES. THE PLANS AND SPECIFICATIONS NOT WITHSTANDING THE CONTRACTOR SHALL ALERT ARCHITECT, ENGINEER OR OWNER OF ANY APPARENT DISCREPANCIES BETWEEN GOVERNING CODES AND DESIGN INTENT.

**BUILDING DEPARTMENT NOTES**

ALL WORK SHALL COMPLY WITH APPLICABLE SECTIONS OF THE 2018 INTERNATIONAL BUILDING CODE AND ALL AMENDMENTS AND RULES AND REGULATIONS OF THE DEPARTMENT OF BUILDINGS TO DATE.

- THE CONTRACTOR SHALL ENGAGE THE SERVICES OF A PROFESSIONAL ENGINEER TO PROVIDE THE REQUIRED SPECIAL INSPECTIONS AND TESTS.
- TESTS WILL BE CONDUCTED UNDER DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT OR OTHER PERSON HAVING NOT LESS THAN FIVE (5) YEARS EXPERIENCE SUPERVISING THE INSTALLATION OF SUCH MECHANICAL SYSTEMS. THE TESTS WILL SHOW COMPLIANCE WITH 2018 BUILDING CODE REQUIREMENTS AS OUTLINES IN SECTION BC 1704.
- THE LICENSED PROFESSIONAL ENGINEER, ARCHITECT OR OTHER PERSON HAVING NOT LESS THAN FIVE (5) YEARS EXPERIENCE SUPERVISING THE INSTALLATION OF SUCH MECHANICAL SYSTEMS AND CONDUCTING SUCH TESTS WILL FILE DOCUMENTATION AND REPORTS OF TESTS THAT THE SYSTEM COMPLIES WITH THE CONSTRUCTION DOCUMENTS AND APPLICABLE LAWS.
- TESTS OF MECHANICAL SYSTEMS SHALL BE PERFORMED IN ACCORDANCE WITH THE FOLLOWING SECTIONS OF THE 2018 INTERNATIONAL MECHANICAL CODE:
  - A. VENTILATION SYSTEM BALANCING MC 403.3.1.5
- THE FOLLOWING WORK ITEMS, COMPONENTS, MATERIALS, CAPACITIES, ETC. SHALL COMPLY WITH THE REFERENCED CODE OR STANDARD:
  - A. STANDARDS OF HEATING - 2018 IMC 309.1
  - B. DUCT CONSTRUCTION AND INSTALLATION - 2018 IMC 603
  - C. AIR INTAKES, EXHAUSTS AND RELIEF - 2018 IMC 401.5
  - D. AIR FILTERS - 2018 IMC 605
  - E. SMOKE DETECTION CONTROL SYSTEM - 2018 IMC 606
- MINIMUM TEMPERATURE TO BE MAINTAINED IN OCCUPIED SPACES DURING HEATING SEASON: 68 DEG. FAHRENHEIT.
- VENTILATION OF ALL AREA SHALL COMPLY WITH 2018 IMC 401.
- A STATEMENT SHALL BE FILED BY THE OWNER OR TENANT IN POSSESSION THAT THE VENTILATION SYSTEM WILL BE KEPT IN CONTINUOUS OPERATION AT ALL TIMES DURING THE NORMAL OCCUPANCY OF THE STRUCTURE AS REQUIRED BY 2018 IMC 403.3
- REFER TO ARCHITECTURAL DRAWINGS FOR REQUIRED FIRE-RATED WALL AND SMOKE WALL CONSTRUCTION AND LOCATION.
- THESE PLANS ARE APPROVED ONLY FOR THE WORK INDICATED ON THE APPLICATION SPECIFICATION SHEET. ALL OTHER MATTERS SHOWN ARE NOT TO BE RELIED UPON OR TO BE CONSIDERED AS EITHER BEING APPROVED OR IN ACCORDANCE WITH APPLICABLE CODES.
- SMOKE DETECTOR SHALL MEET UL268A.
- ALL HEATING AND COOLING LOADS CALCULATED PER ASHRAE/ACCA 183.

**THERMOSTATIC CONTROL NOTES**

C403.4.1 THERMOSTATIC CONTROLS  
THE SUPPLY OF HEATING AND COOLING ENERGY TO EACH ZONE SHALL BE CONTROLLED BY INDIVIDUAL THERMOSTATIC CONTROLS CAPABLE OF RESPONDING TO TEMPERATURE WITHIN THE ZONE. WHERE HUMIDIFICATION OR DEHUMIDIFICATION OR BOTH IS PROVIDED, NOT FEWER THAN ONE HUMIDITY CONTROL DEVICE SHALL BE PROVIDED FOR EACH HUMIDITY CONTROL SYSTEM.

C403.4.1.2 DEADBAND  
WHERE USED TO CONTROL BOTH HEATING AND COOLING, ZONE THERMOSTATIC CONTROLS SHALL BE CONFIGURED TO PROVIDE A TEMPERATURE RANGE OR DEADBAND OF NOT LESS THAN 5°F (2.8°C) WITHIN WHICH THE SUPPLY OF HEATING AND COOLING ENERGY TO THE ZONE IS SHUT OFF OR REDUCED TO A MINIMUM.

C403.4.1.3 SETPOINT OVERLAP RESTRICTION  
WHERE A ZONE HAS A SEPARATE HEATING AND A SEPARATE COOLING THERMOSTATIC CONTROL LOCATED WITHIN THE ZONE, A LIMIT SWITCH, MECHANICAL STOP OR DIRECT DIGITAL CONTROL SYSTEM WITH SOFTWARE PROGRAMMING SHALL BE CONFIGURED TO PREVENT THE HEATING SETPOINT FROM EXCEEDING THE COOLING SETPOINT AND TO MAINTAIN A DEADBAND IN ACCORDANCE WITH SECTION C403.4.1.2.

C403.4.2 OFF-HOUR CONTROLS  
EACH ZONE SHALL BE PROVIDED WITH THERMOSTATIC SETBACK CONTROLS THAT ARE CONTROLLED BY EITHER AN AUTOMATIC TIME CLOCK OR PROGRAMMABLE CONTROL SYSTEM.

C403.4.2.1 THERMOSTATIC SETBACK  
THERMOSTATIC SETBACK CONTROLS SHALL BE CONFIGURED TO SET BACK OR TEMPORARILY OPERATE THE SYSTEM TO MAINTAIN ZONE TEMPERATURES DOWN TO 55°F (13°C) OR UP TO 85°F (29°C).

C403.4.2.2 AUTOMATIC SETBACK AND SHUTDOWN  
AUTOMATIC TIME CLOCK OR PROGRAMMABLE CONTROLS SHALL BE CAPABLE OF STARTING AND STOPPING THE SYSTEM FOR SEVEN DIFFERENT DAILY SCHEDULES PER WEEK AND RETAINING THEIR PROGRAMMING AND TIME SETTING DURING A LOSS OF POWER FOR NOT FEWER THAN 10 HOURS. ADDITIONALLY, THE CONTROLS SHALL HAVE A MANUAL OVERRIDE THAT ALLOWS TEMPORARY OPERATION OF THE SYSTEM FOR UP TO 2 HOURS, A MANUALLY OPERATED TIMER CONFIGURED TO OPERATE THE SYSTEM FOR UP TO 2 HOURS, OR AN OCCUPANCY SENSOR.

C403.4.2.3 AUTOMATIC START AND STOP  
AUTOMATIC START CONTROLS SHALL BE PROVIDED FOR EACH HVAC SYSTEM. THE CONTROLS SHALL BE CONFIGURED TO AUTOMATICALLY ADJUST THE DAILY START TIME OF THE HVAC SYSTEM IN ORDER TO BRING EACH SPACE TO THE DESIRED OCCUPIED TEMPERATURE IMMEDIATELY PRIOR TO SCHEDULED OCCUPANCY.

THERMOSTAT SET POINT SCHEDULE			
PERIOD	HEATING	COOLING	FAN
OCCUPIED	68°F	72°F	ON

**GENERAL NOTES**

- CONTRACTOR SHALL SURVEY THE AREA OF THIS WORK BEFORE SUBMITTING A BID AND SHALL BE RESPONSIBLE FOR NOTIFYING THE ARCHITECT OF ANY CONDITIONS WHICH WOULD PREVENT THE INSTALLATION OF THE WORK AS SHOWN ON DRAWINGS.
- ALL APPLICABLE CODES, LAWS AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THIS WORK ARE HEREBY INCORPORATED INTO AND MADE A PART OF THESE SPECIFICATIONS, AND THEIR PROVISIONS SHALL BE CARRIED OUT BY THE CONTRACTOR WHO SHALL INFORM THE OWNER, PRIOR TO SUBMITTING A PROPOSAL, OF ANY WORK OR MATERIALS WHICH VIOLATE ANY OF THE ABOVE LAWS AND REGULATIONS. ANY WORK DONE BY THE CONTRACTOR CAUSING SUCH VIOLATION SHALL BE CORRECTED BY THE CONTRACTOR.
- BEFORE PROCEEDING WITH ANY WORK IN OCCUPIED OR USED AREAS, THE CONTRACTOR SHALL APPLY TO OWNER FOR PERMISSION TO ENTER SUCH AREAS. THE CONTRACTOR IS OBLIGED TO PERFORM HIS WORK ONLY AT THE TIMES DESIGNATED BY OWNER. THERE WILL BE NO ADDITIONAL COMPENSATION FOR THE WORK PERFORMED AFTER HOURS OR ON OFF-DAYS WITHOUT PRIOR WRITTEN APPROVAL.
- THE WORK IN THE BUILDING SHALL BE DONE WHEN AND AS DIRECTED, AND IN A MANNER SATISFACTORY TO THE OWNER. THE WORK SHALL BE PERFORMED SO AS TO CAUSE THE LEAST POSSIBLE INCONVENIENCE AND DISTURBANCE TO THE PRESENT OCCUPANTS.
- THE CONTRACTOR'S PROPOSAL FOR ALL WORK SHALL BE PREDICATED ON THE PERFORMANCE OF THE WORK DURING REGULAR WORKING HOURS. WHEN SO DIRECTED, HOWEVER, THE CONTRACTOR SHALL INSTALL WORK IN OVERTIME AND THE ADDITIONAL COST TO BE CHARGED THEREFORE SHALL BE ONLY THE "PREMIUM" PORTION OF THE WAGES PAID.
- CONTRACTOR SHALL ASCERTAIN THE APPROPRIATE METHOD FOR BRINGING THE UNITS INTO AND THROUGH THE BUILDING TO POSITION UNIT IN LOCATION SHOWN ON THE PLANS. WHERE NECESSARY, EQUIPMENT SHALL BE SHIPPED FROM MANUFACTURER IN SECTIONS OF SIZE SUITABLE FOR MOVING THROUGH RESTRICTIVE SPACES. COORDINATE WITH BUILDING OWNER APPROPRIATE TIMES OF DAY SUCH EQUIPMENT MAY BE MOVED THROUGH ALL AREAS.
- DUCTWORK AND PIPING IS SHOWN DIAGRAMMATICALLY AND DOES NOT SHOW ALL OFFSETS, DROPS AND RISES OF RUNS. THE CONTRACTOR SHALL MAKE ALLOWANCE IN PRICING FOR ROUTING OF DUCTWORK AND PIPING TO AVOID OBSTRUCTIONS. EXACT LOCATIONS ARE SUBJECT TO APPROVAL OF ARCHITECT. COORDINATION WITH THE OTHER TRADES IS REQUIRED.
- SUPPORT ALL DUCTWORK AND PIPING FROM BUILDING STRUCTURE AND/OR FRAMING IN AN APPROVED MANNER. WHERE OVERHEAD CONSTRUCTION DOES NOT PERMIT FASTENING OR SUPPORTS FOR EQUIPMENT, FURNISH ADDITIONAL FRAMING. INSERTS SHALL BE STEEL, SLOTTED TYPE AND FACTORY PAINTED. SINGLE ROD SHALL BE SIMILAR TO GRINNELL FIG. 281. MULTI-ROD SHALL BE SIMILAR TO FEE & MASON SERIES 9000 WITH END CAPS AND CLOSURE STRIPS. MAXIMUM LOADS INCLUDING PIPES, DUCTWORK CONTENTS AND COVERING SHALL NOT EXCEED 75% OF RATED INSERT CAPABILITY. WHEN SUPPORTING FROM BUILDING USE BEAM CLAMPS IN APPROVED MANNER.
- PROVIDE ALL NECESSARY FLASHING AND COUNTER FLASHING TO MAINTAIN THE WATERPROOFING INTEGRITY OF THIS BUILDING AS REQUIRED BY THE INSTALLATION OR REMOVAL OF PIPES, DUCTS, LOUVERS, CONDUIT, AND EQUIPMENT. PROVIDE EQUIPMENT CURBS AND DUNNAGE STEEL AS REQUIRED.
- SEAL OPENINGS AROUND DUCTS AND PIPING THROUGH PARTITIONS, WALLS AND FLOORS (NOT IN SHAFTS) WITH MINERAL WOOL OR OTHER NONCOMBUSTIBLE MATERIAL (FIBERGLASS INSULATION IS NOT ACCEPTABLE).
- WHERE PENETRATIONS THROUGH FIRE RATED WALLS ARE NOT FIRE PROOFED THIS CONTRACTOR SHALL BE RESPONSIBLE TO SEAL SAME TO MAINTAIN THE RATED INTEGRITY.
- INSTALL WORK SO AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE AND REPAIR. MINOR DEVIATIONS FROM DRAWINGS MAY BE MADE TO ACCOMPLISH THIS, BUT CHANGES WHICH INVOLVE EXTRA COST SHALL NOT BE MADE WITHOUT APPROVAL.
- ACCESS DOORS ARE REQUIRED FOR ALL BUILDING SERVICE VALVES THAT RUN THROUGH THE SPACE, AND ACCESS DOOR SHALL HAVE THE EQUAL RATED CAPACITY (1HR, 2HR, ETC.) AS WALL. COORDINATE ALL LOCATIONS OF ACCESS DOORS WITH THE ARCHITECT.
- REMOVABLE ACCESS TILE AND/OR ACCESS DOOR ARE REQUIRED IN HUNG CEILINGS, SHAFTS AND WALLS FOR ALL VOLUME AND FIRE DAMPERS, AUTOMATIC DAMPERS AND ALL OTHER MECHANICAL EQUIPMENT AND DEVICES. HVAC CONTRACTOR TO FURNISH ACCESS LOCATION REQUIREMENTS TO GENERAL CONTRACTOR. ACCESS TILE IDENTIFICATION: PROVIDE BUTTONS, TABS, AND MARKERS TO IDENTIFY LOCATION OF CONCEALED VALVES, DAMPERS AND EQUIPMENT.
- THE CONTRACTOR SHALL KEEP ALL EQUIPMENT AND MATERIALS, AND ALL PARTS OF THE BUILDING, EXTERIOR SPACES AND ADJACENT STREETS, SIDEWALKS AND PAVEMENTS, FREE FROM MATERIAL AND DEBRIS RESULTING FROM THE EXECUTION OF THIS WORK. EXCESS MATERIALS WILL NOT BE PERMITTED TO ACCUMULATE EITHER ON THE INTERIOR OR THE EXTERIOR.
- MATERIALS AND WORKMANSHIP, UNLESS OTHERWISE NOTED, SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.
- ALL EQUIPMENT SHALL BE PROVIDED WITH ONE YEAR WARRANTY PARTS AND LABOR AND FIVE YEARS ON COMPRESSORS. WARRANTY PERIOD BEGINS UPON PROJECT ACCEPTANCE
- ALL MATERIAL AND EQUIPMENT TO BE NEW UNLESS OTHERWISE NOTED AND SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR HIS WORK WITH ITS COMPLETION AND FINAL ACCEPTANCE AND SHALL REPLACE ANY OF THE SAME WHICH MAY BE DAMAGED, LOST, OR STOLEN WITHOUT ADDITIONAL COST TO THE OWNER.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FAILURE OF ANY DUCTWORK SYSTEM OR EQUIPMENT TO FUNCTION PROPERLY UPON COMPLETION OF HIS WORK UPON SAID SYSTEM OR EQUIPMENT.
- SUBMIT SHOP DRAWING OF ALL WORK WHICH MUST BE APPROVED BY THE ARCHITECT AND ENGINEER BEFORE WORK COMMENCES.
- INSURANCE: IN ACCORDANCE WITH BUILDING REQUIREMENTS THE CONTRACTOR SHALL INCLUDE A HOLD HARMLESS CLAUSE FOR OWNER AND ENGINEER.
- THE FINAL ACCEPTANCE WILL BE MADE AFTER THE CONTRACTOR HAS ADJUSTED HIS EQUIPMENT, BALANCED THE VARIOUS SYSTEMS, DEMONSTRATED THAT IT FULFILLS THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS AND HAS FURNISHED ALL THE REQUIRED CERTIFICATES OF INSPECTION AND APPROVAL.
- SPECIFICATIONS ARE OF SIMPLIFIED FORM AND INCLUDE INCOMPLETE SENTENCES, WORDS OR PHRASES SUCH AS "THE CONTRACTOR SHALL," "SHALL BE," "FURNISH," "PROVIDE," "A," "THE," AND "ALL" HAVE BEEN OMITTED FOR BREVITY.
- WHERE A CONFLICT EXISTS BETWEEN THE DRAWINGS, THE SPECIFICATIONS OR ANY OTHER CONSTRUCTION DOCUMENT, THE ONE WITH THE MOST STRINGENT REQUIREMENT(S) SHALL APPLY.

**DEFINITIONS:**

- "PROVIDE": TO SUPPLY, INSTALL AND CONNECT UP COMPLETE AND READY FOR SAFE AND REGULAR OPERATION THE PARTICULAR WORK REFERRED TO UNLESS SPECIFICALLY OTHERWISE NOTED.
- "INSTALL": TO ERECT, MOUNT AND CONNECT COMPLETE WITH RELATED ACCESSORIES.
- "FURNISH" OR "SUPPLY": TO PURCHASE, PROCURE, ACQUIRE AND DELIVER COMPLETE WITH RELATED ACCESSORIES.

**GENERAL HVAC NOTES**

- PROVIDE ALL MATERIAL AND EQUIPMENT AND PERFORM ALL LABOR REQUIRED TO INSTALL COMPLETE AND OPERABLE MECHANICAL SYSTEMS AS INDICATED ON THE DRAWINGS, AS SPECIFIED AND AS REQUIRED BY CODE.
- CONTRACT DOCUMENT DRAWINGS FOR MECHANICAL WORK (HVAC, PLUMBING, AND FIRE PROTECTION) ARE DIAGRAMMATIC AND ARE INTENDED TO CONVEY SCOPE AND GENERAL ARRANGEMENT ONLY.
- THE LOCATIONS OF ALL ITEMS SHOWN ON THE DRAWINGS OR CALLED FOR IN THE SPECIFICATIONS THAT ARE NOT FIXED BY DIMENSIONS ARE APPROXIMATE ONLY. THE EXACT LOCATIONS NECESSARY TO SECURE THE BEST CONDITIONS AND RESULTS MUST BE DETERMINED BY THE PROJECT SITE CONDITIONS AND SHALL HAVE THE APPROVAL OF THE ENGINEER BEFORE BEING INSTALLED. DO NOT SCALE DRAWINGS.
- WHEN MECHANICAL WORK (HVAC, PLUMBING, SHEET METAL, FIRE PROTECTION, ETC.) IS SUBCONTRACTED, IT SHALL BE THE MECHANICAL CONTRACTOR'S RESPONSIBILITY TO COORDINATE SUBCONTRACTORS AND THE ASSOCIATED CONTRACTS. WHEN DISCREPANCIES ARISE PERTAINING TO WHICH CONTRACTOR PROVIDES A PARTICULAR ITEM OF THE MECHANICAL CONTRACT OR WHICH CONTRACTOR PROVIDES FINAL CONNECTIONS FOR A PARTICULAR ITEM OF THE MECHANICAL CONTRACT, IT SHALL BE BROUGHT TO THE ATTENTION OF THE MECHANICAL CONTRACTOR, WHOSE DECISION SHALL BE FINAL.
- COORDINATE CONSTRUCTION OF ALL MECHANICAL WORK WITH ARCHITECTURAL, STRUCTURAL, CIVIL, ELECTRICAL WORK, ETC., SHOWN ON OTHER CONTRACT DOCUMENT DRAWINGS.
- INSTALL ALL MECHANICAL EQUIPMENT AND APPURTENANCES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, CONTRACT DOCUMENTS, AND APPLICABLE CODES AND REGULATIONS.
- WHERE TWO OR MORE ITEMS OF THE SAME TYPE OF EQUIPMENT ARE REQUIRED, THE PRODUCT OF ONE MANUFACTURER SHALL BE USED.
- COORDINATE ALL EQUIPMENT CONNECTIONS WITH MANUFACTURERS' CERTIFIED DRAWINGS. COORDINATE AND PROVIDE ALL DUCT AND PIPING TRANSITIONS REQUIRED FOR FINAL EQUIPMENT CONNECTIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DUCT AND PIPING DIMENSIONS BEFORE FABRICATION.
- ALL CONTROL WIRE AND CONDUIT SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE AND ELECTRICAL DIVISION OF THE SPECIFICATION.
- PROVIDE VIBRATION ISOLATION FOR ALL MECHANICAL EQUIPMENT TO PREVENT TRANSMISSION OF VIBRATION TO BUILDING STRUCTURE.
- LOCATE ALL TEMPERATURE, PRESSURE, AND FLOW MEASURING DEVICES IN ACCESSIBLE LOCATIONS WITH THE STRAIGHT SECTION OF PIPE OR DUCT UP, AND DOWNSTREAM AS RECOMMENDED BY THE MANUFACTURER FOR GOOD ACCURACY.
- WHERE BEAMS ARE INDICATED TO BE PENETRATED WITH DUCTWORK OR PIPING, COORDINATE DUCTWORK AND PIPING LAYOUT WITH BEAM OPENING SIZE AND OPENING LOCATIONS. COORDINATION SHALL BE DONE PRIOR TO THE FABRICATION OF DUCTWORK, CUTTING OF PIPING, OR FABRICATION OF BEAMS.
- ALL MISCELLANEOUS STEEL REQUIRED TO ENSURE PROPER INSTALLATION AND AS SHOWN IN THE DETAILS FOR PIPING, DUCTWORK, AND EQUIPMENT (UNLESS OTHERWISE NOTED) SHALL BE FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACTOR.
- PROVIDE ACCESS PANELS FOR INSTALLATION IN WALLS AND CEILINGS, WHERE REQUIRED, TO SERVICE DAMPERS, VALVES, SMOKE DETECTORS, AND OTHER CONCEALED MECHANICAL EQUIPMENT. ACCESS PANELS SHALL BE TURNED OVER TO THE GENERAL CONTRACTOR FOR INSTALLATION. ACCESS PANELS SHALL HAVE THE EQUAL RATED CAPACITY (1HR, 2HR, ETC.) AS WALL.
- MECHANICAL EQUIPMENT, DUCTWORK, AND PIPING SHALL NOT BE SUPPORTED FROM A METAL DECK.
- ALL EQUIPMENT, PIPING, DUCTWORK, ETC., SHALL BE SUPPORTED AS DETAILED, SPECIFIED AND REQUIRED TO PROVIDE A VIBRATION-FREE INSTALLATION.
- ALL DUCTWORK, PIPING, AND EQUIPMENT SUPPORTED FROM STRUCTURAL STEEL SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR. ALL ATTACHMENTS TO STEEL BAR JOISTS, TRUSSES, OR JOIST GIRDERS SHALL BE AT PANEL POINTS. PROVIDE BEAM CLAMPS MEETING MSS STANDARDS. WELDING TO STRUCTURAL MEMBERS SHALL NOT BE PERMITTED. THE USE OF C-CLAMPS SHALL NOT BE PERMITTED.
- ALL ROOF-MOUNTED EQUIPMENT CURBS/STEEL RAILS FOR EQUIPMENT PROVIDED BY THE MECHANICAL CONTRACTOR SHALL BE FURNISHED BY THE MECHANICAL CONTRACTOR AND INSTALLED BY THE GENERAL CONTRACTOR.
- LOCATIONS AND SIZES OF ALL FLOOR, WALL, AND ROOF OPENINGS SHALL BE COORDINATED WITH ALL OTHER TRADES INVOLVED.
- ALL OPENINGS IN FIRE WALLS DUE TO DUCTWORK, PIPING, CONDUIT, ETC., SHALL BE FIRE STOPPED WITH A PRODUCT SIMILAR TO 3M OR APPROVED EQUAL.
- ALL AIR CONDITIONING CONDENSATE DRAIN LINES FROM EACH AIR HANDLING UNIT SHALL BE PIPED FULL SIZE OF THE UNIT DRAIN OUTLET, WITH "P" TRAP, AND PIPED TO THE NEAREST DRAIN. SEE THE DETAILS SHOWN IN THE DRAWINGS OR THE CONTRACT SPECIFICATIONS FOR THE DEPTH OF THE AIR CONDITIONING CONDENSATE TRAP.
- REFER TO TYPICAL DETAILS FOR DUCTWORK, PIPING, AND EQUIPMENT INSTALLATION.

**SCOPE OF WORK**

**SCOPE OF WORK**

- THE WORK UNDER CONTRACT INCLUDES ALL LABOR, MATERIALS AND APPLIANCES NECESSARY FOR THE FURNISHING, INSTALLING AND TESTING, COMPLETE AND READY FOR SAFE OPERATION OF THE SYSTEMS AS DESCRIBED IN THE SPECIFICATIONS, FLOOR PLAN(S) DESIGN, DETAIL DRAWINGS, NOTES, RFIS, ETC. FOR THIS PROJECT. WORK SHALL BE INSTALLED IN A NEAT, WORKMANLIKE MANNER.
- THE CONTRACTOR SHALL GIVE NECESSARY NOTICE, FILE DRAWINGS AND SPECIFICATIONS WITH THE DEPARTMENT HAVING JURISDICTION, OBTAIN PERMITS OR LICENSES NECESSARY TO CARRY OUT THIS WORK AND PAY ALL FEES THEREFORE. THE CONTRACTOR SHALL ARRANGE FOR INSPECTION AND TESTS OF ANY OR ALL PARTS OF THE WORK IF SO REQUIRED BY AUTHORITIES AND PAY ALL CHARGES FOR SAME. THE CONTRACTOR SHALL PAY ALL COSTS FOR, AND FURNISH TO THE OWNER BEFORE FINAL BILLING, ALL CERTIFICATES NECESSARY AS EVIDENCE THAT THE WORK INSTALLED CONFORMS WITH ALL REGULATIONS WHERE THEY APPLY TO THIS WORK.
- THE CONTRACTOR SHALL FURNISH A WRITTEN GUARANTEE TO REPLACE OR REPAIR PROMPTLY AND ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED FOR ANY WORKMANSHIP AND EQUIPMENT IN WHICH DEFECTS DEVELOP WITHIN ONE YEAR FROM THE DATE OF FINAL CERTIFICATE FOR PAYMENT AND/OR FROM DATE OF ACTUAL USE OF EQUIPMENT OR OCCUPANCY OF SPACES, BY OWNER, INCLUDED UNDER THE VARIOUS PARTS OF THE WORK, WHICHEVER DATE IS EARLIER. THIS WORK SHALL BE DONE AS DIRECTED BY THE OWNER. THIS GUARANTEE SHALL ALSO PROVIDE THAT WHERE DEFECTS OCCUR, THE CONTRACTOR WILL ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED IN REPAIRING AND REPLACING WORK OF OTHER TRADES AFFECTED BY DEFECTS, REPAIRS OR REPLACEMENTS IN EQUIPMENT SUPPLIED BY THE CONTRACTOR.

**REVISIONS**

No.	Description	Date



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TBH Enterprises, LLC

**Handel's Ice Cream**

410 NW Chipman Road  
Lee's Summit, MO

**MECHANICAL SYMBOL, ABBREVIATION & NOTES**

Proj. No.	24TF604	<b>M0.1</b>
Date	11-9-25	
Drawn by	NVE	
Checked by	NVE	

## SPECIFICATIONS

### SECTION 0001 - NOTICE TO BIDDERS

#### 1.1 BIDDERS REPRESENTATIONS

- THE BIDDER BY MAKING A BID REPRESENTS THAT:
- THE BIDDER HAS READ AND UNDERSTANDS THE BIDDING DOCUMENTS, TO THE EXTENT THAT SUCH DOCUMENTATION RELATES TO THE WORK FOR WHICH THE BID IS SUBMITTED, AND FOR OTHER PORTIONS OF THE PROJECT, IF ANY, BEING BID CONCURRENTLY OR PRESENTLY UNDER CONSTRUCTION.
- THE BID IS MADE IN COMPLIANCE WITH THE BIDDING DOCUMENTS.
- THE SPECIFICATIONS AND DRAWINGS ARE INTENDED TO SERVE JOINTLY AS A BASIS FOR THE BIDDER TO SUBMIT A CONTRACT PRICE FOR THE MATERIAL AND LABOR.
- SHOULD CONFLICTS OR DISCREPANCIES OCCUR WITHIN THE BIDDING DOCUMENTS, THE ITEM OR ITEMS IN DISPUTE THAT REPRESENT THE GREATER COST SHALL PREVAIL IN THE FINAL BID.
- THE BID IS BASED UPON THE MATERIALS, EQUIPMENT AND SYSTEMS REQUIRED BY THE BIDDING DOCUMENTS WITHOUT EXCEPTION.

#### 1.2 EXISTING CONDITIONS AND COORDINATION

- THE BIDDER HAS VISITED THE SITE, BECOME FAMILIAR WITH LOCAL CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED, AND HAS CORRELATED THE BIDDER'S OBSERVATIONS WITH THE REQUIREMENTS OF THE PROPOSED BIDDING DOCUMENTS.
- THE BIDDER SHALL PROPOSE COORDINATION OF WORK SUCH THAT CONFLICTS WITH OTHER TRADES AND SPACE ALLOCATIONS ARE AVOIDED.

#### 1.3 RESPONSIBILITIES

- THE BIDDER UNDERSTANDS THAT ANY CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE TIMELY COMPLETION AND ACCEPTANCE OF THEIR WORK AND THAT ANY ITEMS DAMAGED, LOST, OR STOLEN DURING TIME OF CONSTRUCTION SHALL BE REPAIRED OR REPLACED WITHOUT ANY ADDITIONAL COST TO THE OWNER.
- THE BIDDER UNDERSTANDS THAT ANY PROPOSED WORK IN OCCUPIED TENANT SPACES SHALL BE PERFORMED DURING TIMES OF NON-TENANT OCCUPANCY OR AS SCHEDULED OR DIRECTED BY THE BUILDING MANAGER.
- THE BIDDER UNDERSTANDS THAT ANY PROPOSED SHUTDOWN OF EXISTING SYSTEMS DURING CONSTRUCTION SHALL BE PRE-ARRANGED WITH THE BUILDING MANAGER AND THAT SUCH SHUTDOWNS ARE TO BE KEPT TO A MINIMUM.

END OF SECTION 0001

### SECTION 0101 - QUALITY OF WORK

#### 1.1 WORKMANSHIP

- ALL WORK SHALL BE FREE FROM DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE.
- ALL DEFECTS WHICH DEVELOP OR ARE DISCOVERED WITHIN THIS PERIOD SHALL BE REPAIRED BY THE CONTRACTOR TO THE SATISFACTION OF THE ARCHITECT OR BUILDING MANAGER AT NO ADDITIONAL COST TO THE OWNER.
- UPON COMPLETION OF THE WORK THE CONTRACTOR SHALL REMOVE FROM THE SITE, ALL TOOLS, DEMOLISHED APPLIANCES AND ANY SURPLUS MATERIAL.

#### 1.2 CODE COMPLIANCE

- ALL WORK SHALL MEET ALL STATE AND LOCAL CODES HAVING JURISDICTION.

END OF SECTION 0101

### SECTION 0102 -REQUIRED DOCUMENTS

#### 1.1 SHOP DRAWINGS

- A SET OF PRINTS FOR ANY MECHANICAL WORK INCLUDING BUT NOT LIMITED TO, DUCTWORK AND PIPING LAYOUT SHALL BE SUBMITTED FOR APPROVAL TO THE ENGINEER PRIOR TO CONSTRUCTION OR PURCHASE OF MATERIALS.

#### 1.2 SUBMITTALS

- EQUIPMENT SUBMITTALS OF ALL PROPOSED MECHANICAL AND ANCILLARY EQUIPMENT INCLUDING ALL ACCESSORIES SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW. ALL PERTINENT MODELS, SIZES, ACCESSORIES, AND CHOICES SHALL BE CHECKED, PRINTED, OR OTHERWISE INDICATED ON THE SUBMITTALS.

#### 1.3 RECORD DRAWINGS

- UPON COMPLETION OF THE WORK, A RECORD DRAWING SHALL BE SUBMITTED TO THE OWNER DEPICTING ALL SUBSEQUENT CHANGES, ADDITIONS AND OR CORRECTIONS TO THE CONTRACT DRAWINGS AND OR CONTRACT SCOPE MADE DURING CONSTRUCTION. THIS DRAWING SHALL REPRESENT A COMPLETE RECORD OF THE WORK INSTALLED.

#### 1.4 EQUIPMENT OPERATING INSTRUCTIONS

- ON COMPLETION AND ACCEPTANCE OF WORK, THIS CONTRACTOR SHALL FURNISH WRITTEN INSTRUCTIONS, EQUIPMENT MANUALS AND DEMONSTRATE TO THE OWNER THE PROPER OPERATION AND MAINTENANCE OF ALL EQUIPMENT AND APPARATUS FURNISHED UNDER THIS CONTRACT.

- THESE INSTRUCTIONS SHALL BE TYPED ON 8-1/2 IN. X 11 IN. PAPER AND BOUND IN THREE-RING BINDERS WITH CLEAR ACETATE COVERS. THE CONTRACTOR SHALL GIVE THREE COPIES OF THE INSTRUCTIONS TO THE OWNER AND ONE ELECTRONIC COPY TO THE ENGINEER.

- THE INSTRUCTION BOOKLET SHALL BE ORGANIZED IN SECTIONS, WITH ONE SECTION PER SYSTEM. THE COVER OF THE INSTRUCTION BOOKLET SHALL BEAR THE NAME, ADDRESS AND PHONE NUMBER OF THE PROJECT, ARCHITECT, ENGINEER, MECHANICAL CONTRACTOR AND SUBCONTRACTORS.

END OF SECTION 0102

### SECTION 078413-PENETRATION FIRE-STOPPING

#### 1.1 QUALITY ASSURANCE

- INSTALLER QUALIFICATIONS: AN FM GLOBAL-APPROVED FIRE-STOP CONTRACTOR OR A UL-QUALIFIED FIRE-STOP CONTRACTOR.

- FIRE-TEST-RESPONSE CHARACTERISTICS: UL, INTERTEK ETL SEMKO OR FM GLOBAL.

#### 1.2 PENETRATION FIRESTOPPING

- PENETRATIONS IN FIRE-RESISTANCE-RATED WALLS: F-RATINGS PER ASTM E 814 OR UL 1479.

- PENETRATIONS IN HORIZONTAL ASSEMBLIES: F- AND T-RATINGS PER ASTM E 814 OR UL 1479.

- PENETRATIONS IN SMOKE BARRIERS: L-RATINGS PER UL 1479.

- W-RATINGS: PER UL 1479.

#### 1.3 INSTALLATION

- IDENTIFICATION: PREPRINTED METAL OR PLASTIC LABELS.

#### 1.5 FIELD QUALITY CONTROL

- INSPECTION OF INSTALLED FIRE-STOPPING: BY OWNER-ENGAGED AGENCY ACCORDING TO ASTM E 2174, THROUGH-PENETRATION FIRESTOP SYSTEM SCHEDULE.

- WHERE UL-CLASSIFIED SYSTEMS ARE INDICATED, THEY REFER TO SYSTEM NUMBERS IN UL'S "FIRE RESISTANCE DIRECTORY" UNDER PRODUCT CATEGORY XHEZ.

- FOR THE FOLLOWING SYSTEMS: METALLIC AND NON-METALLIC PIPES, CONDUIT, OR TUBING, ELECTRICAL CABLES, CABLE TRAYS WITH ELECTRIC CABLES, MISCELLANEOUS ELECTRICAL PENETRANTS, INSULATED PIPES, GROUPINGS OF PENETRANTS, USE ONE OR MORE OF THE FOLLOWING MATERIALS:

- LATEX SEALANT

- SILICONE SEALANT

- MORTAR

- SILICONE FOAM

- PILLOWS/BAGS

- INTUMESCENT WRAP STRIPS

#### 1.6 MANUFACTURERS

- HILTI CONSTRUCTION CHEMICAL, INC

- 3M FIRE PROTECTION PRODUCTS

END OF SECTION 078413

### SECTION 230517 - SLEEVES AND SLEEVE SEALS FOR

#### HVAC PIPING

#### 1.1 SLEEVE-SEAL SYSTEMS

- FIELD-ASSEMBLED, MODULAR SEALING-ELEMENT UNIT FOR FILLING ANNULAR SPACE BETWEEN PIPING AND SLEEVE.

- SEALING ELEMENTS: EPDM RUBBER OR NBR.
- PRESSURE PLATES: CARBON STEEL, PLASTIC, STAINLESS STEEL.
- CONNECTING BOLTS AND NUTS: CARBON STEEL WITH CORROSION-RESISTANT COATING, STAINLESS STEEL.

- MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, AVAILABLE MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:

- ADVANCE PRODUCTS & SYSTEMS, INC.

- CALPICO, INC.

- METRAFLEX COMPANY (THE).

- PIPELINE SEAL AND INSULATOR, INC.

#### 1.2 SLEEVE-SEAL FITTINGS

- MANUFACTURED PLASTIC, SLEEVE-TYPE, PLASTIC OR RUBBER WATER-STOP ASSEMBLY MADE FOR IMBEDDING IN CONCRETE SLAB OR WALL.

#### 1.3 GROUT

- NON-SHRINK, FACTORY PACKAGED.

#### 1.4 SLEEVE AND SLEEVE-SEAL SCHEDULE

- USE SLEEVES AND SLEEVE SEALS FOR THE FOLLOWING PIPING-PENETRATION APPLICATIONS:

#### 1. INTERIOR PARTITIONS:

- PIPING SMALLER THAN NPS 6 (DN 150): GALVANIZED-STEEL-PIPE SLEEVES, PVC-PIPE SLEEVES.

- PIPING NPS 6 (DN 150) AND LARGER: GALVANIZED-STEEL-SHEET SLEEVES.

END OF SECTION 230517

### SECTION 230529 - HANGERS AND SUPPORTS FOR

#### HVAC PIPING AND EQUIPMENT

#### 1.1 PERFORMANCE REQUIREMENTS

- DELEGATED DESIGN: DESIGN TRAPEZE PIPE HANGERS AND EQUIPMENT SUPPORTS, INCLUDING COMPREHENSIVE ENGINEERING ANALYSIS BY A QUALIFIED PROFESSIONAL ENGINEER, USING PERFORMANCE REQUIREMENTS AND DESIGN CRITERIA INDICATED.

- STRUCTURAL PERFORMANCE: HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT SHALL WITHSTAND THE EFFECTS OF GRAVITY LOADS AND STRESSES WITHIN LIMITS AND UNDER CONDITIONS INDICATED ACCORDING TO ASCE/SEI 7.

- DESIGN SUPPORTS FOR MULTIPLE PIPES CAPABLE OF SUPPORTING COMBINED WEIGHT OF SUPPORTED SYSTEMS, SYSTEM CONTENTS, AND TEST WATER.

- DESIGN EQUIPMENT SUPPORTS CAPABLE OF SUPPORTING COMBINED OPERATING WEIGHT OF SUPPORTED EQUIPMENT AND CONNECTED SYSTEMS AND

- DESIGN SEISMIC-RESTRAINT HANGERS AND SUPPORTS FOR PIPING AND EQUIPMENT AND OBTAIN APPROVAL FROM AUTHORITIES HAVING JURISDICTION.

#### 1.2 SUBMITTALS

- SHOP DRAWINGS: SIGNED AND SEALED BY A PROFESSIONAL ENGINEER

#### 1.3 QUALITY ASSURANCE

- AWS D1.1/D1.1M, "STRUCTURAL WELDING CODE - STEEL."

#### 1.4 COMPONENTS

- METAL PIPE HANGERS AND SUPPORTS: CARBON OR STAINLESS STEEL

- FIBERGLASS PIPE HANGERS: -CLEVIS, CENTURY COMPOSITES, COOPER B-LINE

- METAL FRAMING SYSTEMS: MFMA MANUFACTURER

- FIBERGLASS STRUT SYSTEMS: COOPER B-LINE

- THERMAL-HANGER SHIELD INSERTS:

- FASTENER SYSTEMS: POWDER-ACTUATED FASTENERS OR MECHANICAL-EXPANSION ANCHORS

- PIPE STANDS: COMPACT, LOW TYPE, SINGLE PIPE, HIGH TYPE, SINGLE PIPE, HIGH TYPE, MULTIPLE PIPES, CURB-MOUNTED TYP EQUIPMENT SUPPORTS.

END OF SECTION 230529

### SECTION 230548 - VIBRATION CONTROLS FOR PIPING

#### AND HVAC EQUIPMENT

#### PART 1 - GENERAL

#### 1.1 PERFORMANCE REQUIREMENTS

- SEISMIC-RESTRAINT LOADING:

- SITE CLASS AS DEFINED IN THE IBC: A, B

- ASSIGNED SEISMIC USE GROUP OR BUILDING CATEGORY AS DEFINED IN THE IBC: III III

- COMPONENT IMPORTANCE FACTOR: 1.0

- COMPONENT RESPONSE MODIFICATION FACTOR: 2.5

- COMPONENT AMPLIFICATION FACTOR: 2.5.

- DESIGN SPECTRAL RESPONSE ACCELERATION AT SHORT PERIODS (0.2 SECOND) 18%

- DESIGN SPECTRAL RESPONSE ACCELERATION AT 1-SECOND PERIOD: 8%

#### 1.2 COMPONENTS

- VIBRATION ISOLATORS:

- ISOLATOR PADS: NEOPRENE, RUBBER, HERMETICALLY AND/OR SEALED COMPRESSED FIBERGLASS

- MOUNTS: DOUBLE-DEFLECTION TYPE.

- RESTRAINED MOUNTS: ALL DIRECTIONAL MOUNTINGS WITH SEISMIC RESTRAINT; CAST-DUCTILE-IRON HOUSING.

- SPRING ISOLATORS: FREESTANDING, LATERALLY STABLE, OPEN-SPRING TYPE.

- RESTRAINED SPRING ISOLATORS: FREESTANDING, STEEL, OPEN-SPRING TYPE WITH SEISMIC RESTRAINT.

- HOUSED SPRING MOUNTS: DUCTILE-IRON OR STEEL HOUSING, WITH INTEGRAL, VERTICALLY ADJUSTABLE SEISMIC SNUBBERS.

- ELASTOMERIC HANGERS: DOUBLE-DEFLECTION TYPE.

- SPRING HANGERS: COMBINATION COIL-SPRING AND ELASTOMERIC-INSERT HANGERS WITH SPRING AND INSERT IN COMPRESSION.

- SPRING HANGERS WITH VERTICAL-LIMIT STOP: COMBINATION COIL-SPRING AND ELASTOMERIC-INSERT HANGERS WITH SPRING AND INSERT IN COMPRESSION AND WITH VERTICAL-LIMIT STOP.

- PIPE RISER RESILIENT SUPPORT: ALL-DIRECTIONAL, ACOUSTICAL PIPE ANCHOR.

- RESILIENT PIPE GUIDES.

- AIR-MOUNTING SYSTEMS:

- AIR MOUNTS: FREESTANDING, SINGLE OR MULTIPLE, COMPRESSED-AIR BELLOWES.

- RESTRAINED VIBRATION ISOLATION ROOF-CURB RAILS: FACTORY-ASSEMBLED, FULLY ENCLOSED, INSULATED, AIR- AND WATERTIGHT CURB RAIL; WITH SPRING ISOLATORS MOUNTED ON ELASTOMERIC ISOLATION PADS, AND SNUBBER BUSHINGS.

- VIBRATION ISOLATION EQUIPMENT BASES:

- STEEL BASE: FACTORY-FABRICATED, WELDED, STRUCTURAL-STEEL BASES AND RAILS.

- INERTIA BASE: FACTORY-FABRICATED, WELDED, STRUCTURAL-STEEL BASES AND RAILS READY FOR FIELD-APPLIED, CAST-IN-PLACE CONCRETE

#### 1.3 FIELD QUALITY CONTROL

- TESTING: BY EITHER OWNER-ENGAGED AGENCY, CONTRACTOR-ENGAGED AGENCY, OR CONTRACTOR.

#### PART-2 PRODUCTS

- VIBRATION ISOLATORS & SEISMIC-RESTRAINT DEVICES

- AVAILABLE MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:

- MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:

- ACE MOUNTINGS CO., INC.

- AMBER/BOOTH COMPANY, INC.

- CALIFORNIA DYNAMICS CORPORATION.

- COOPER B-LINE, INC.: A DIVISION OF COOPER INDUSTRIES.

- HILTI, INC.

- ISOLATION TECHNOLOGY, INC.

- KINETICS NOISE CONTROL.

END OF SECTION 230548

### SECTION 230593 - TESTING, ADJUSTING, AND

#### BALANCING FOR HVAC

#### 1.1 SUMMARY

- TESTING, ADJUSTING, AND BALANCING FOR THE FOLLOWING:

- MOTORS.

- CONDENSING UNITS.

- AIR SYSTEM: CONSTANT VOLUME

#### 1.2 QUALITY ASSURANCE

- THE CONTRACTOR SHALL PROCURE THE SERVICES OF A TESTING, ADJUSTING AND BALANCING (TAB) SPECIALIST WHO SPECIALIZES IN HEATING, VENTILATION AND AIR CONDITIONING SYSTEMS, THE TAB AGENT SHALL HAVE THE FOLLOWING QUALIFICATIONS: AABC, NEBB OR TABB CERTIFIED.

#### 1.3 EXECUTION

- THE TAB SPECIALIST SHALL PERFORM FLOW MEASUREMENTS OF ALL EXISTING AIR AND HYDRONIC SYSTEMS THAT ARE TO REMAIN OR TO BE INCORPORATED INTO NEW WORK PRIOR TO THE STARTING OF WORK IN THE PROJECT SCOPE. A REPORT OF THESE MEASUREMENTS, INDICATING ANY AND ALL DEFICIENCIES SHALL BE SUBMITTED FOR OWNER REVIEW.

- THE TAB SPECIALIST SHALL PERFORM FLOW MEASUREMENTS OF ALL NEW AIR AND HYDRONIC SYSTEMS AS LISTED ABOVE IN THE PROJECT SCOPE. A REPORT OF THESE MEASUREMENTS, INDICATING ANY AND ALL DEFICIENCIES SHALL BE SUBMITTED FOR OWNER REVIEW.

- THE REPORT SHALL INDICATE A SCHEMATIC DIAGRAM INDICATING LOCATIONS OF ALL EQUIPMENT TESTED AND MEASUREMENT LOCATIONS.

- PRIOR TO FINAL INSPECTION OF THE WORK, THE TAB SPECIALIST SHALL BALANCE ALL SYSTEMS AS INDICATED ABOVE TO THE REQUIREMENTS OF THE DESIGN.

- THE CONTRACTOR SHALL HAVE FURNISH AND INSTALL ALL ADDITIONAL BALANCING EQUIPMENT, PRESSURE TAPS, GAUGES AND OTHER EQUIPMENT AS REQUIRED FOR A PROPERLY BALANCED SYSTEM AT NO ADDITIONAL COST TO THE OWNER. SUCH ADDITIONAL EQUIPMENT SHALL ADHERE IN STRICT ACCORDANCE WITH THE RESPECTIVE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS.

- THE CONTRACTOR SHALL HAVE THE TESTING AND BALANCING SPECIALIST COORDINATE ALL WORK OF THIS SECTION WITH THE BUILDING MANAGER. BALANCING WORK SHALL NOT CONFLICT WITH OTHER WORK SO AS TO MAINTAIN COMPLETION WITHIN THE SPECIFIED TIME.

- ALL INSTRUMENTS USED FOR TAB SHALL BE MAINTAINED IN GOOD WORKING CONDITION AND ACCURATELY CALIBRATED.

- TOLERANCES: PLUS OR MINUS 5 PERCENT OF DESIGN VALUES.

- INSPECTIONS: RANDOM CHECKS BY OWNER OR ARCHITECT TO VERIFY FINAL TESTING, ADJUSTING, AND BALANCING REPORT.

- ADDITIONAL TESTS: RANDOM TESTS WITHIN 90 DAYS OF COMPLETING TAB TO VERIFY BALANCE CONDITIONS AND SEASONAL TESTS.

END OF SECTION 230593

### SECTION 233713 - DIFFUSERS, REGISTERS, AND

#### GRILLES

#### 1.1 PRODUCTS

- DIFFUSERS, REGISTERS AND GRILLES SHALL BE FURNISHED AND INSTALLED FOR CAPACITIES AND IN LOCATIONS INDICATED ON DRAWINGS. ALL REGISTERS AND DIFFUSERS SHALL BE PRIME COATED STEEL OR EXTRUDED ALUMINUM FINISHED UNLESS OTHERWISE NOTED IN BAKED WHITE ENAMEL.

- MANUFACTURERS: TITUS

- SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCT BY ONE OF THE FOLLOWING:

- HART & COOLEY INC.

- KRUEGER.

- METALAIRE, INC.

- RUSKIN

- ALL DIFFUSERS SHALL HAVE CONTROLLING/EQUALIZING GRID AND OPPOSED BLADE DAMPER UNLESS OTHERWISE NOTED.

- ALL DUCTED RETURN REGISTERS SHALL HAVE AN OPPOSED BLADE DAMPER UNLESS OTHERWISE NOTED.

END OF SECTION 233713

### SECTION 233113 - METAL DUCTS

#### 1.1 CONSTRUCTION

- EACH DUCT SYSTEM SHALL BE CONSTRUCTED FOR THE SPECIFIC SMACNA DUCT PRESSURE CLASSIFICATIONS SHOWN ON THE CONTRACT DRAWINGS. WHERE NO PRESSURE CLASSES ARE SPECIFIED BY THE DESIGNER, THE SMACNA 1 INCH WG PRESSURE, SEAL CLASS "A".

- ALL DUCTWORK SHALL BE CONSTRUCTED TO SMACNA 1" WG DESIGN AND NOT LESS THAN THE FOLLOWING STANDARDS:

- CONSTRUCT SO THAT ALL INTERIOR SURFACES ARE SMOOTH. USE SLIP AND DRIVE OR FLANGED AND BOLTED CONSTRUCTION WHEN FABRICATING RECTANGULAR DUCTWORK. USE SPIRAL LOCK SEAM CONSTRUCTION WHEN FABRICATING ROUND SPIRAL DUCTWORK. SHEET METAL SCREWS MAY BE USED ON DUCT HANGERS, TRANSVERSE JOINTS AND OTHER SMACNA APPROVED LOCATIONS IF THE SCREW DOES NOT EXTEND MORE THAN 1/2 INCH INTO THE DUCT.

- SHEET STEEL SHALL COMPLY WITH ASTM A653 STANDARD SPECIFICATION FOR STEEL SHEET METAL, ZINC COATED (GALVANIZED) OR ZINC IRON ALLOY-COATED (GALVANNEALD) BY HOT DIP PROCESS, AND A924 STANDARD SPECIFICATION FOR GENERAL REQUIREMENT FOR SHEET METALLIC-COATED BY HOT DIP PROCESS. ALL ANGLE IRON USED FOR SUPPORT SHALL BE GALVANIZED. CONNECTIONS TO WALLS OR FLOOR SHALL BE AIR TIGHT WITH ANGLE IRON AND CAULKING. SEAL ALL DUCT SEAMS, TRANSVERSE AND LONGITUDINAL, AIR TIGHT. PROVIDE TURNING VANES ALL 90° ELBOWS.

- USE ELBOWS AND TEES WITH A CENTER LINE RADIUS TO WIDTH OR DIAMETER RATIO OF 1.5 WHEREVER SPACE PERMITS. WHEN A SHORTER RADIUS MUST BE USED DUE TO LIMITED SPACE, INSTALL SINGLE WALL SHEET METAL SPLITTER VANES IN ACCORDANCE WITH SMACNA PUBLICATIONS, TYPE RE 3. WHERE SPACE WILL NOT ALLOW AND THE C VALUE OF THE RADIUS ELBOW, AS GIVEN IN SMACNA PUBLICATIONS, EXCEEDS 0.31, USE RECTANGULAR ELBOWS WITH TURNING VANES AS SPECIFIED IN SECTION 23 33 00. SQUARE THROAT-RADIUS HEEL ELBOWS WILL NOT BE ACCEPTABLE. STRAIGHT TAPS OR BULLHEAD TEES ARE NOT ACCEPTABLE.

- WHERE RECTANGULAR ELBOWS ARE USED, PROVIDE TURNING VANES IN ACCORDANCE WITH SECTION 23 33 00.

- PROVIDE EXPANDED TAKE-OFFS OR 45 DEGREE ENTRY FITTINGS FOR BRANCH DUCT CONNECTIONS WITH BRANCH DUCTWORK AIRFLOW VELOCITIES GREATER THAN 700 FPM. SQUARE EDGE 90-DEGREE TAKE-OFF FITTINGS OR TRIGHT TAPS WILL NOT BE ACCEPTED.

- BUTTON PUNCH SNAP-LOCK CONSTRUCTION WILL NOT BE ACCEPTED ON ALUMINUM DUCTWORK.

- WHERE LATEST EDITION OF SMACNA DOES NOT CLEARLY STATE GAUGES AND/OR STIFFENERS TO BE USED OR, WHERE SMACNA STANDARDS REQUIRE INTERPRETATION, THE FOLLOWING MINIMUM METAL GAUGES AND BRACING SHALL BE USED:

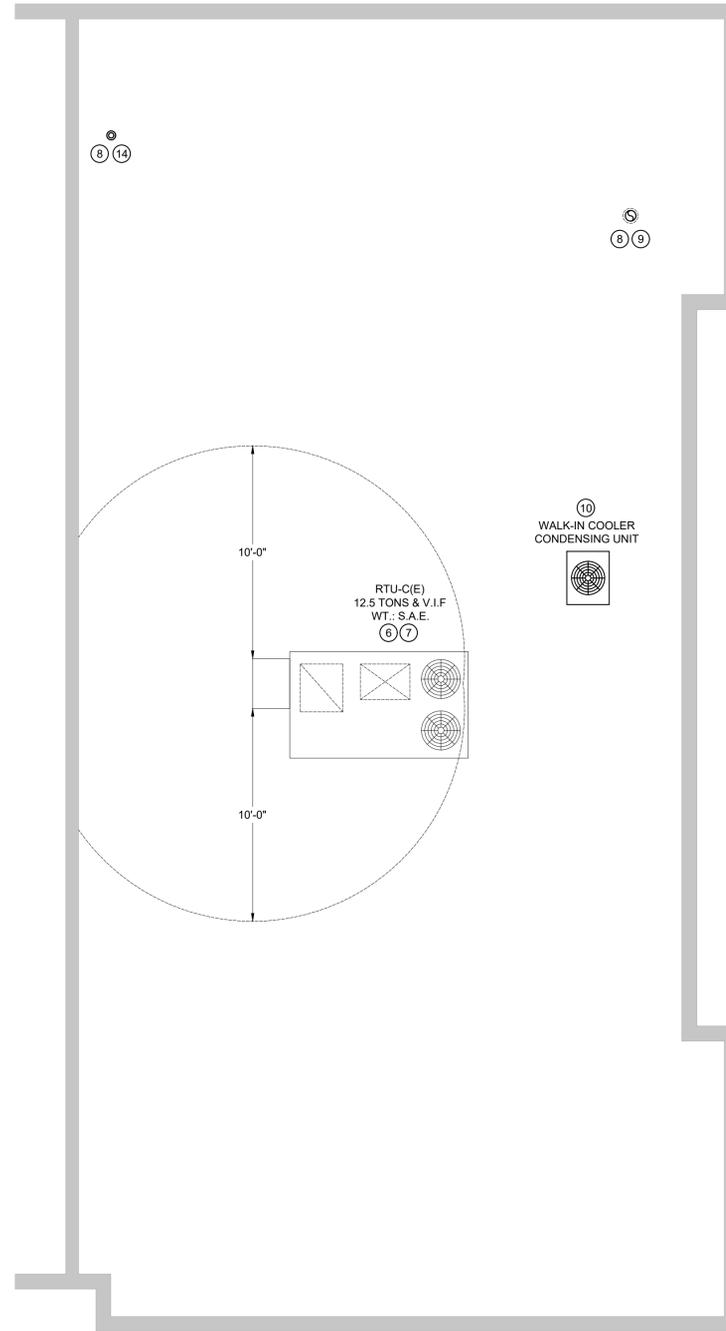
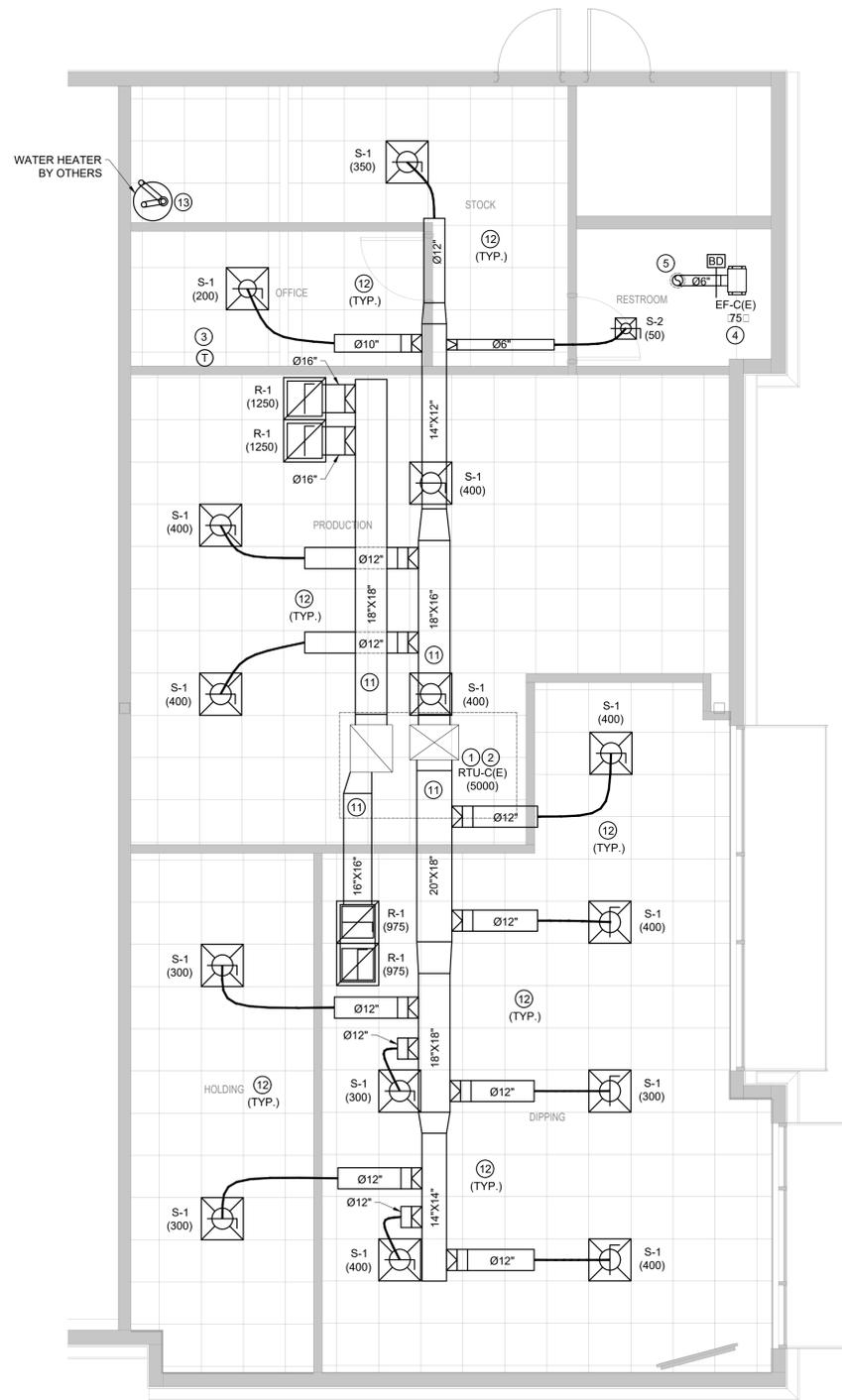
#### SUPPORT SCHEDULE - DUCTWORK

USG	MAX SIDE INCHES	TRANSVERSE JOINT AND BRACING
22	UP TO 12	S SLIP, DRIVE, ONE INCH POCKET ON 8 FOOT
22	13 TO 24	1"X1"X1/8" ANGLES ON 4 FOOT CENTERS
20	25 TO 35	1"X1"X1/8" ANGLES ON 2 FOOT CENTERS

- PROVIDE TAPPING IN DUCTS FOR THERMOMETERS WHERE SPECIFIED. IN ADDITION, PROVIDE AN AIRTIGHT PLUGGED TAPPING LOCATED AS FOLLOWS:

- UPSTREAM OF EACH REHEAT COIL AND VAV BOX.
- DOWNSTREAM OF EACH REHEAT COIL AND VAV BOX.

- FLAT OVAL OR ROUND DUCTWORK MAY BE PROVIDED IN LIEU OF RECTANGULAR DUCTWORK WITH THE REINFORCEMENT FOR FLAT SIDES SAME AS SPECIFIED FOR THE RECTANGULAR DUCTWORK, AND AS PER SMACNA FLAT OVAL DUCT CONSTRUCTION STANDARDS



**GENERAL NOTES:**

- A. ALL WORK SHALL COMPLY WITH ALL LOCAL AND STATE CODES AND AUTHORITIES HAVING JURISDICTION.
- B. THE CONTRACTOR SHALL SECURE AND PAY FOR ALL REQUIRED PERMITS AND ARRANGE ALL REQUIRED INSPECTIONS.
- C. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH OTHER CONTRACTORS AND TRADES.
- D. THESE DRAWINGS, AS PREPARED, ARE DIAGRAMMATIC BUT SHALL BE FOLLOWED AS CLOSELY AS CONSTRUCTION OF THE PROJECT AND THE WORK OF THE TRADES WILL PERMIT. EQUIPMENT LOCATIONS INDICATED ARE APPROXIMATE. COORDINATE EXACT LOCATIONS AND REQUIRED CLEARANCES WITH EQUIPMENT SUPPLIER AND ALL TRADES PRIOR TO INSTALLATION.
- E. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL THE EQUIPMENT INDICATED WITHIN THE MECHANICAL DRAWINGS UNLESS OTHERWISE NOTED. ALL EQUIPMENT SHALL BE UL LISTED. VERIFY LOCATION AND DIMENSIONS IN THE FIELD PRIOR TO FABRICATION AND / OR INSTALLATION.
- F. EACH UNIT GENERATING CONDENSATE SHALL BE PROVIDED WITH A CONDENSATE DRAIN WITH EXTERNAL 4" DEEP P-TRAP. EXTEND DRAIN TO A ROOF MOUNTED SPLASH PAD OR AN ACCEPTABLE LOCATION REQUIRED BY CODE.
- G. DUCT SIZES SHOWN ON DRAWINGS ARE CLEAR INSIDE DIMENSION.
- H. ALL DUCTWORK SHALL BE FABRICATED, INSTALLED, SEALED, AND INSULATED PER THE LATEST ISSUE OF SMACNA LOW-VELOCITY DUCT MANUAL.
- I. ALL FLEX DUCT SHALL BE TESTED IN ACCORDANCE WITH UL 181. AND DUCT SHALL BE LISTED AND LABELED AS CLASS 1. MAXIMUM LENGTH TO BE 14'-0" PER DROP OR PER LOCAL CODE.
- J. THE CONTRACTOR SHALL COORDINATE DIFFUSER LOCATIONS ON SITE WITH THE MOST RECENT REFLECTED CEILING PLAN.
- K. THE CONTRACTOR IS TO MAKE ALL LOW-VOLTAGE WIRING CONNECTIONS FOR ALL HVAC EQUIPMENT INCLUDING TEMPERATURE CONTROLS, ROOF TOP UNITS, SMOKE DETECTORS AND CONTRACTOR PANEL.
- L. PROVIDE AND INSTALL SMOKE DUCT DETECTORS IN EACH AIR CONDITIONING UNIT RETURN DUCT GREATER THAN 2000 CFM. CONTRACTOR SHALL PROVIDE INTERCONNECTION AND WIRE TO THE FIRE ALARM CONTROL PANEL IF REQUIRED. DUCT DETECTORS SHALL HAVE REMOTE TEST STATIONS LOCATED IN THE OFFICE NEAR THE RESPECTIVE THERMOSTATS. VERIFY CODE REQUIREMENTS FOR DUCT DETECTORS IN BOTH THE SUPPLY AND RETURN AIR STREAMS.
- M. THE ENTIRE INSTALLATION SHALL BE GUARANTEED FREE OF DEFECTS AND CONTRACTOR SHALL REPAIR AND / OR REPLACE ANY DEFECTIVE MATERIALS OR EQUIPMENT AT NO COST TO THE OWNER FOR A MINIMUM PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE BY ARCHITECT OR ENGINEER.
- N. ALL WORK SHALL BE SUBJECT TO THE ACCEPTANCE AND APPROVAL OF THE ARCHITECT AND OWNER. THE ARCHITECT SHALL BE NOTIFIED OF ANY AND ALL DISCREPANCIES BETWEEN FIELD CONDITIONS AND THE CONTRACT DOCUMENTS BEFORE PROCEEDING WITH THAT PORTION OF THE WORK. FAILURE OF PROPER NOTIFICATION DOES NOT RELIEVE THE CONTRACTOR. THE CONTRACTOR SHALL CORRECT ANY AND ALL WORK ARISING FROM SUCH FAILURE TO COORDINATE DISCREPANCIES TO THE SATISFACTION OF THE ARCHITECT WITHOUT ADDITIONAL COST TO THE OWNER.
- O. THE CONTRACTOR SHALL, UPON COMPLETION OF PROJECT, PERFORM A COMPLETE TEST AND BALANCE OF ALL EQUIPMENT. PROVIDE A WRITTEN REPORT TO THE ARCHITECT. ALL CAPACITIES MUST BE SET TO WITHIN 10% OF AMOUNTS INDICATED ON THE FLOOR PLAN AND SCHEDULES.
- P. PROVIDE FIRE OR FIRE+SMOKE DAMPER WHEREVER DUCTS ARE CROSSING FIRE/SMOKE RATED WALLS/ BARRIERS. COORDINATE WITH ARCHITECTURAL DRAWING FOR FIRE RATINGS OF THE WALLS.
- Q. PROVIDE VOLUME DAMPER IN ACCESSIBLE CEILING AND PROVIDE CORD OPERATED DAMPER IN INACCESSIBLE CEILING.
- R. FLEXIBLE CONNECTION SHALL BE INSTALLED BETWEEN EQUIPMENT AND CONNECTING DUCTWORK.
- S. COORDINATE LOCATIONS AND SIZES OF ROOF OPENINGS WITH OWNER AND LL ROOFING CONTRACTOR. PROVIDE NEW OPENING IF REQUIRED AND CLOSE USED OPENINGS.
- T. EQUIPMENT SIZES, DIMENSIONS AND REQUIRED CONNECTIONS SHALL BE VERIFIED WITH THE ACTUAL EQUIPMENT SELECTED VENDOR DRAWINGS AND SITE BEFORE FABRICATION OF DUCTWORK, PIPING ETC.
- U. CONTRACTOR SHALL COORDINATE ALL ELECTRICAL REQUIREMENTS FOR ALL HVAC BASED ON ACTUAL EQUIPMENT SELECTED PRIOR TO INSTALLATION.
- V. CONTRACTOR SHALL COORDINATE EQUIPMENT WEIGHTS AND SUPPORTS BASED ON ACTUAL EQUIPMENT SELECTED.
- W. COORDINATE ALL EQUIPMENT WITH STRUCTURAL DRAWING.
- X. MAINTAIN ALL CODE AND MANUFACTURERS RECOMMENDED CLEARANCE AROUND ALL ROOF EQUIPMENT.
- Y. ALL ROOF PENETRATION AND MEMBRANE ROOF REPAIRS ARE TO BE ACCOMPLISHED BY THE LANDLORD'S ROOFING CONTRACTOR FOR WARRANTY PURPOSES.
- Z. ROOF REPAIR UNIT PRICES SHOULD BE SUBMITTED PRIOR TO COMMENCEMENT OF CONSTRUCTION.

**KEYED NOTES: #**

- 1. EXTEND FULL SIZE SUPPLY AND RETURN DUCTWORK FROM ROOFTOP UNIT TO SPACE. EXTEND AS SHOWN. CONTRACTOR TO FIELD VERIFY EXACT LOCATION AND SIZE. ACOUSTICALLY LINE THE FIRST 10'-0" OF BOTH SUPPLY AND RETURN MAIN DUCTS.
- 2. PROVIDE REMOTE TEMP SENSOR MOUNTED IN RETURN DUCT AND WIRE BACK TO T-STAT.
- 3. RELOCATE THE EXISTING THERMOSTAT AT SHOWN LOCATION. IF NOT REUSABLE, PROVIDE NEW 7-DAY PROGRAMMABLE THERMOSTAT. MOUNT THE THERMOSTAT ON THE WALL AT 48" A.F.F. COORDINATE THE EXACT LOCATIONS WITH THE ARCHITECT AND OWNER PRIOR TO ROUGH-IN. PROVIDE LOCKABLE COVER FOR THE THERMOSTAT.
- 4. EXISTING CEILING-MOUNTED EXHAUST FAN SHALL REMAIN. EXISTING DUCTWORK AND ALL ASSOCIATED ACCESSORIES SHALL REMAIN IN PLACE. CLEAN AND REPAIR OR REPLACE ACCESSORIES AS REQUIRED. IF EXISTING DUCTWORK IS NOT PRESENT, PROVIDE NEW DUCTWORK AND TERMINATE AS SHOWN ON THE PLANS.
- 5. Ø6" TOILET EXHAUST DUCT UP TO ROOF.
- 6. EXISTING MECHANICAL ROOFTOP UNIT TO REMAIN ALONG WITH ALL ACCESSORIES. CLEAN AND REFURBISH TO LIKE NEW CONDITION. REPAIR/REPLACE ANY ACCESSORIES AS REQUIRED TO PROVIDE FULLY FUNCTIONING. VERIFY PRIOR TO BID. SET OUTSIDE AIR AS INDICATED ON ROOFTOP UNIT SCHEDULES. MECHANICAL CONTRACTOR SHALL SCRIBE INTO UNIT POSITION OF OUTSIDE AIR DAMPER AND LABEL OUTSIDE AIR VOLUME AND PERCENT OF OUTSIDE AIR. TRANSITION AND CONNECT SUPPLY AND RETURN DUCTWORK FROM BELOW. COORDINATE ROUTING THROUGH STRUCTURAL TRUSSES AND OFFSET AS REQUIRED IN CURB SPACE. CONTRACTOR TO COORDINATE FINAL LOCATION OF EQUIPMENT TO STRUCTURE ENGINEER.
- 7. EXISTING RTU CONDENSATE DRAIN SHALL REMAIN. CONTRACTOR SHALL FLUSH THE EXISTING DRAIN AND CLEAN, REPAIR, OR REPLACE THE DRAIN PIPING IF FOUND DAMAGED OR UNSERVICEABLE. IF NO EXISTING CONDENSATE DRAIN IS PRESENT, CONTRACTOR SHALL PROVIDE A NEW CONDENSATE DRAIN FROM THE UNIT AND CONVEY IT TO AN APPROVED PLACE OF DISPOSAL. CONDENSATE PIPING SHALL MAINTAIN A MINIMUM HORIZONTAL SLOPE OF NOT LESS THAN 1/8" INCH PER 12 INCHES (1% SLOPE) IN THE DIRECTION OF DISCHARGE. CONDENSATE SHALL NOT DISCHARGE INTO A STREET, ALLEY, OR OTHER AREAS WHERE IT MAY CREATE A NUISANCE. CONTRACTOR SHALL FIELD-VERIFY THE EXACT LOCATION OF THE EXISTING RTU.
- 8. CONTRACTOR TO ENSURE THAT EXHAUST OUTLETS SHALL MAINTAIN MINIMUM 10' HORIZONTALLY DISTANCE FROM OUTSIDE AIR INTAKE SOURCE ON ROOF.
- 9. 6"Ø TOILET EXHAUST DUCT FROM BELOW. TERMINATE ON ROOF WITH GOOSENECK AND BIRD SCREEN. MAINTAIN MINIMUM 10'-0" HORIZONTAL DISTANCE FROM ANY OUTSIDE AIR INTAKE SOURCE.
- 10. WALK-IN COOLER CONDENSER UNIT TO BE INSTALL ON ROOF OVER WALK IN COOLER BY MECHANICAL CONTRACTOR.
- 11. RUN DUCTWORK AS HIGH AS POSSIBLE UNDER ROOF JOISTS.
- 12. RUN DUCT THROUGH OPEN WEBBING OF ROOF TRUSSES (WHERE POSSIBLE). COORDINATE WITH TRUSS DESIGN PRIOR TO DUCT WORK FABRICATION.
- 13. 2 X Ø3" DIRECT VENT PIPE FOR COMBUSTION AIR INTAKE AND EXHAUST FROM GAS FIRED EQUIPMENT TO ROOF TERMINATION KIT. ROUTE PIPING WITH MINIMAL AMOUNT OF BENDS AND MINIMUM LENGTH AS REQUIRED BY MANUFACTURER'S REQUIREMENTS. PROVIDE CONCENTRIC TERMINATION VENT KIT AT ROOF LEVEL.
- 14. TERMINATE WATER HEATER CONCENTRIC VENT KIT AS PER MANUFACTURER RECOMMENDATION WITH ALL REQUIRED ACCESSORIES.

**REVISIONS**

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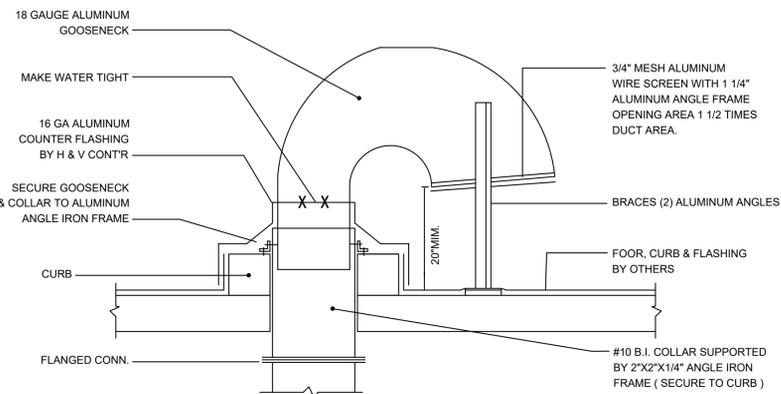
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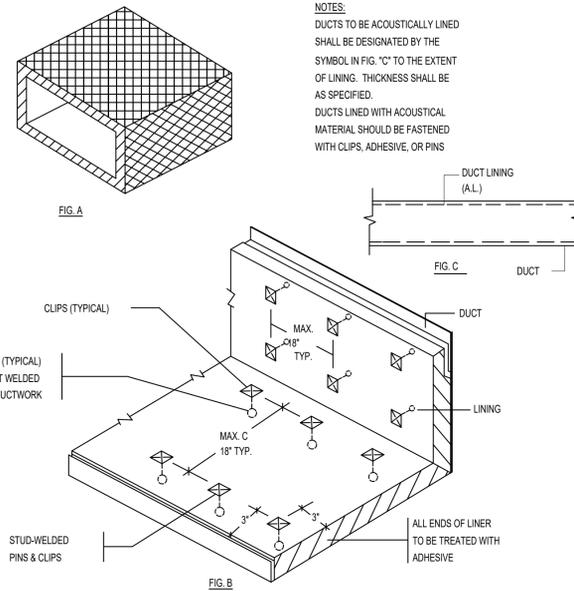
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Date 11-9-25  
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Checked by NYE

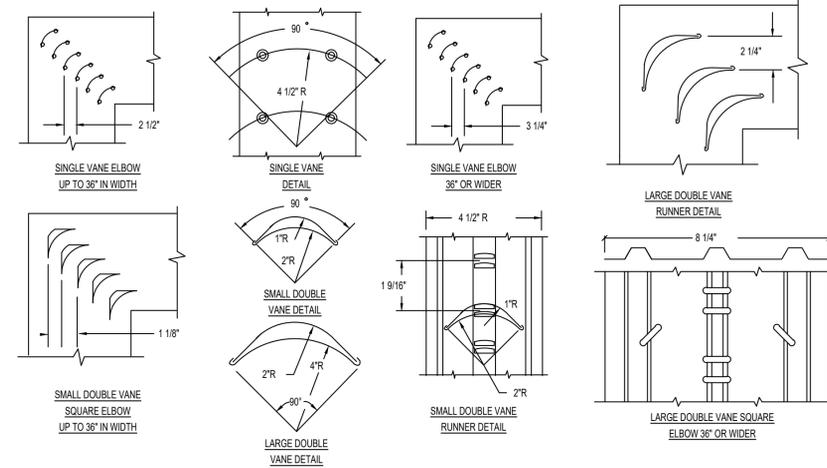
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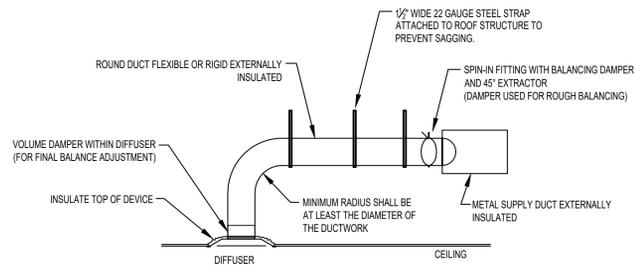
**1 TYPICAL GOOSENECK DETAIL**  
N.T.S



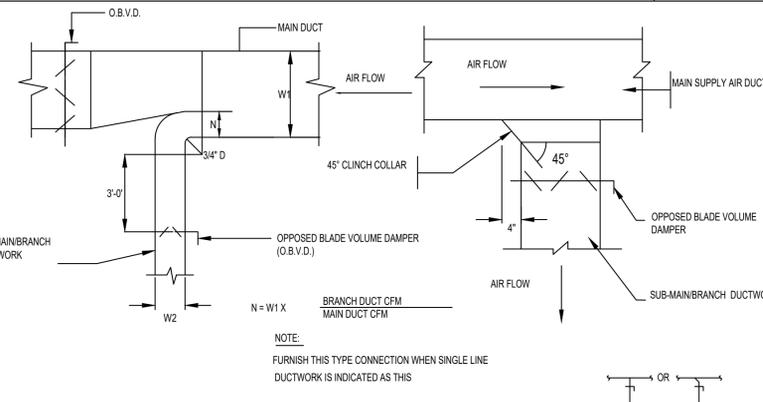
**2 ACOUSTIC LINING DETAIL**  
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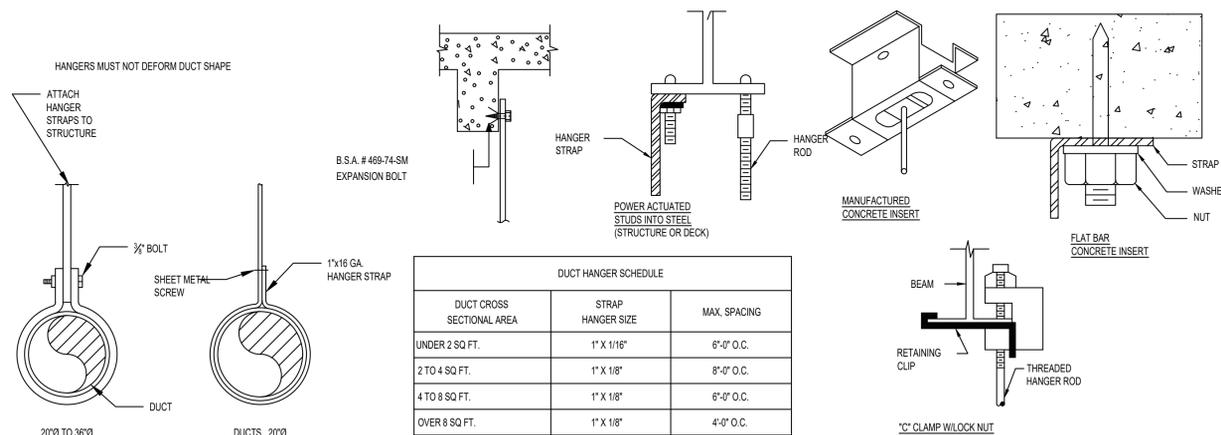
**3 LOW VELOCITY DUCTWORK ELBOW**  
N.T.S



**4 DIFFUSER CONNECTION DETAILS**  
N.T.S



**5 SUPPLY DUCT MAIN BRANCH TAP-OFF DETAILS**  
N.T.S



**6 TYPICAL DUCT HANGING DETAIL**  
N.T.S

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MECHANICAL  
DETAILS

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ROOF TOP UNIT SCHEDULE																				
UNIT ID	MANUFACTURER	MODEL	AREA SERVED	NOMINAL TONS	SUPPLY FAN DATA			HEATING DATA		COOLING DATA		ELECTRICAL DATA				EER	IEER	THERMAL EFFICIENCY	REFRIGERANT TYPE	OPERATING WEIGHT (LBS)
					TOTAL CFM	OUTSIDE AIR CFM	E.S.P. (IN. W.G.)	INPUT MBH	OUTPUT MBH	TOTAL MBH	SENSIBLE MBH	VOLTS	PHASE	MCA(A)	MCCP(A)					
RTU-C(E)	LENNOX (V.I.F.)	LGT150 (V.I.F.)	SEE PLAN	12.5 (V.I.F.)	5000 (V.I.F.)	550	S.A.E.	240 (V.I.F.)	194 (V.I.F.)	S.A.E.	S.A.E.	208 (V.I.F.)	3 (V.I.F.)	64 (V.I.F.)	80 (V.I.F.)	S.A.E.	S.A.E.	S.A.E.	S.A.E.	S.A.E.

NOTES / ACCESSORIES FOR EXISTING UNIT:

- EXISTING RTU WITH ALL ACCESSORIES TO REMAIN SAME AND TO BE REUSED.
- S.A.E. : SAME AS EXISTING . V.I.F. : VERIFY IN FIELD
- CONTRACTOR TO FIELD VERIFY IF ALL RTUs ARE WORKING AT THEIR 100% RATED CAPACITY. INFORM TO DESIGN ENGINEER IF ANY DISCREPANCIES ARE FOUND IN PERFORMANCE PRIOR TO CONSTRUCTION.
- CONTRACTOR TO FIELD VERIFY EXACT LOCATION AND CONFIGURATION OF UNIT ON SITE.
- IF REQUIRED, PROVIDE NEW THERMOSTAT AND TEMPERATURE SENSOR COMPATIBLE WITH EXISTING RTU. CO-ORDINATE FINAL LOCATION OF T-SENSOR WITH ARCHITECT/OWNER.
- CONTRACTOR TO BALANCE OUTSIDE AIR & RETURN AIR DAMPER ON EXISTING RTU TO MATCH VALUES MENTIONED IN ABOVE TABLES.
- REPLACE FILTERS, IF REQUIRED.
- CONTRACTOR SHALL VERIFY EXACT ELECTRICAL CONNECTIONS, WIRE SIZES, BREAKER, DISCONNECT ETC. PRIOR TO ORDERING AND BID.

VENTILATION CALCULATIONS AS PER IMC 2018												
ROOM NAME	AREA (SQ.FT.)	NO. OF PEOPLE/1000 SQ.FT AS PER IMC-2018	NO. OF PEOPLE AS PER IMC-2018	FINAL PEOPLE NO.	MIN. OUTSIDE AIR AS PER IMC-2018		EFFECTIVENESS	REQ. OA (CFM)	PROVIDED OA(CFM)	EXHAUST AIRFLOW RATE (CFM/SQ.FT OR CFM/FIXT.)	TOTAL EXHAUST (CFM)	PROVIDED EXHAUST (CFM)
					CFM/PEOPLE	CFM/SQ.FT						
DIPPING	575	70	41	12	7.5	0.18	0.8	242	250	-	-	-
HOLDING	215	-	-	-	-	0.12	0.8	32	50	-	-	-
PRODUCTION	555	70	39	8	7.5	0.18	0.8	200	200	-	-	-
OFFICE	90	5	1	1	5	0.06	0.8	13	20	-	-	-
STOCK	180	-	-	-	-	0.12	0.8	27	30	-	-	-
RESTROOM	60	-	-	-	-	-	-	-	-	70	70	75
<b>TOTAL</b>								<b>514</b>	<b>550</b>	-	-	<b>75</b>

TOILET EXHAUST FAN SCHEDULE									
UNIT ID	MANUFACTURER	MODEL	CFM	RPM	E.S.P. (IN. W.G.)	ELECTRICAL DATA			WEIGHT (LBS)
						VOLTS (V)	PHASE	FLA (A)	
EF-C(E)	GREENHECK (V.I.F.)	SP-A110 (V.I.F.)	75 (V.I.F.)	S.A.E.	S.A.E.	120 (V.I.F.)	1 (V.I.F.)	S.A.E.	S.A.E.

NOTES:

- EXISTING FAN WITH ALL ACCESSORIES TO REMAIN SAME AND TO BE REUSED.
- S.A.E. : SAME AS EXISTING . V.I.F. : VERIFY IN FIELD
- CONTRACTOR SHALL FIELD-VERIFY THAT FAN ARE OPERATING AT THEIR FULL RATED CAPACITIES AND LOADS. IF ANY DISCREPANCIES ARE FOUND IN PERFORMANCE SHALL BE REPORTED TO THE DESIGN ENGINEER PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- CONTRACTOR TO FIELD VERIFY EXACT LOCATION AND CONFIGURATION OF UNIT ON SITE.
- CONTRACTOR SHALL VERIFY EXACT ELECTRICAL CONNECTIONS, WIRE SIZES, BREAKERS, DISCONNECT ETC. PRIOR TO ORDERING AND BID.

SCHEDULE OF GRILLES/DIFFUSER					MAKE: TITUS	
TAG	TYPE	MODEL NO.	DIMENSION (IN)	MOUNTING	FRAME TYPE	MAX NC dBA
S-1	SUPPLY	OMNI	24X24	SAT / HARD CEILING	LAY IN	20
S-2	SUPPLY	OMNI	12X12	SAT / HARD CEILING	LAY IN	20
R-1	RETURN	50FF	24X24	SAT / HARD CEILING	LAY IN	20

NOTES FOR DIFFUSERS

- ALL GRILLES : CONTRACTOR SHALL COORDINATE WITH LATEST ARCHITECTURAL REFLECTED CEILING PLANS TO ENSURE PROPER AIR DEVICE BORDER SELECTION.
- COORDINATE COLOR/FINISH WITH ARCHITECT.

FOR ROUND NECK DIFFUSERS:

FOR ROUND DIFFUSER NECK SIZE	FOR SQUARE DIFFUSER NECK SIZE
6" DIA: 0-100 CFM	6"X6" : 0 - 115 CFM
8" DIA: 101-175 CFM	8"X8" : 116 - 220 CFM
10" DIA: 176-275 CFM	10"X10" : 221 - 350 CFM
12" DIA: 276-395 CFM	12"X12" : 351 - 520 CFM
14" DIA: 396-535 CFM	14"X14" : 521 - 730 CFM
15" DIA: 536-750 CFM	16"X16" : 731 - 840 CFM
	18"X18" : 840 - 1035 CFM
	20"X20" : 1036 - 1285 CFM
	22"X22" : 1286 - 1570 CFM

AIR BALANCE					
UNIT	AREA SERVED	SUPPLY AIR (CFM)	OUTSIDE AIR (CFM)	RETURN AIR (CFM)	EXHAUST AIR(CFM)
RTU-C(E)	SEE PLAN	5000	550	4450	-
EF-C(E)	SEE PLAN	-	-	-	75
TOTAL:		5000	550	4450	75
BUILDING PRESSURE:			475	POSITIVE	

NOTES:

- CONTRACTOR TO ADJUST MOTORIZED DAMPER ON OUTSIDE AIR TAP TO PROVIDE OUTSIDE AIR AS MENTIONED IN ABOVE TABLE.

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**MECHANICAL SCHEDULE**

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As indicated

PLUMBING SYMBOL LIST	
— SAN —	SANITARY SEWER (ABOVE FLOOR)
— SAN —	SANITARY SEWER (UNDERGROUND)
— EX.GW —	EXISTING GREASE WASTE (UNDERGROUND)
— GW —	GREASE WASTE (UNDERGROUND)
— FW —	FILTER WATER PIPING
— — — — —	VENT PIPING
— — — — —	COLD WATER PIPING
— — — — —	HOT WATER PIPING
— — — — —	EXISTING COLD WATER PIPING
— — — — —	EXISTING HOT WATER PIPING
— — — — —	HOT WATER RETURN PIPING
— — — — —	GAS PIPING
— — — — —	EXISTING GAS PIPING
— — — — —	P-TRAP
— — — — —	PIPE UP
— — — — —	PIPE DROP
— — — — —	FLOOR CLEANOUT
— — — — —	PLUGGED OUTLET/CLEANOUT
— — — — —	SHUT-OFF VALVE
— — — — —	POINT OF CONNECTION
— — — — —	ANGLE VALVE
— — — — —	RECIRCULATION PUMP
— — — — —	BALANCING VALVE

PLUMBING ABBREVIATIONS	
FCO	FLOOR CLEANOUT
CW	COLD WATER
HW	HOT WATER
HWR	HOT WATER RETURN
SAN	SANITARY
V	VENT
LAV	LAVATORY
WC	WATER CLOSET
TYP.	TYPICAL
DN	DOWN
FD	FLOOR DRAIN
GW	GREASE WASTE
FW	FILTER WATER
WH	WATER HEATER
ET	EXPANSION TANK
RCP	RECIRCULATION PUMP
FS	FLOOR SINK
GI	GREASE INTERCEPTOR
WH	WATER HEATER
RPZ	REDUCED PRESSURE ZONE DEVICE
EWT	ENTERING WATER TEMPERATURE
LWT	LEAVING WATER TEMPERATURE
G	GAS
CD	CONDENSATE DRAIN

PLUMBING DRAWING LIST	
P0.1	PLUMBING SYMBOLS, ABBREVIATIONS & NOTES
P0.2	PLUMBING SPECIFICATIONS & DETAIL
P1.0	PLUMBING WATER & GAS FLOOR PLAN
P2.0	PLUMBING SANITARY FLOOR PLAN
P3.0	PLUMBING DETAILS
P4.0	PLUMBING SCHEDULE & RISER DIAGRAMS

### BUILDING DEPARTMENT PLUMBING NOTES

- ALL PLUMBING SYSTEMS (SANITARY WASTE, VENT, WATER) AND ASSOCIATED EQUIPMENT SHALL BE INSTALLED, OPERATED AND MAINTAINED IN ACCORDANCE WITH THE REQUIREMENTS OF 2018 INTERNATIONAL PLUMBING CODE.
- INSTALLATION OF UNDERGROUND PIPING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF 2018 INTERNATIONAL PLUMBING CODE SECTION 704.
- PROTECTION OF PIPING AND PLUMBING SYSTEM COMPONENTS AS PER 2018 INTERNATIONAL PLUMBING CODE SECTION 305.
- TRENCHING, EXCAVATION AND BACKFILL AS PER 2018 INTERNATIONAL PLUMBING CODE SECTION 306.
- RODENT PROOFING AS PER 2018 INTERNATIONAL PLUMBING CODE 304.
- MATERIALS USED IN PLUMBING SYSTEMS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF 2018 INTERNATIONAL PLUMBING CODE SECTION PC 303, 605, 702, AND 902.
- DEEP SEAL TRAPS FOR FLOOR DRAINS SHALL BE PROVIDED AS PER 2018 INTERNATIONAL PLUMBING CODE SECTION 1002, AND CLEAN-OUTS SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 708.
- VERTICAL AND HORIZONTAL PIPING SHALL BE SUPPORTED IN ACCORDANCE WITH THE REQUIREMENTS OF 2018 INTERNATIONAL PLUMBING CODE SECTION 308.
- WATER SUPPLY SYSTEMS SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE REQUIREMENTS OF 2018 INTERNATIONAL PLUMBING CODE CHAPTE 6 SECTION 601-603, 604, 605, 606, 607, 608, 610.
- THE SANITARY DRAINAGE SYSTEM SHALL BE SIZED AND INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF 2018 INTERNATIONAL PLUMBING CODE CHAPTE 7 SECTION 701, 704, 705, 706, 707, 708, 711.
- VENT PIPING FOR THE SANITARY DRAINAGE SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF 2018 INTERNATIONAL PLUMBING CODE CHAPTER 9 SECTIONS 917.
- INSPECTION AND TESTING OF PLUMBING SYSTEMS SHALL BE IN ACCORDANCE WITH 2018 INTERNATIONAL PLUMBING CODE SECTION 312.

APPLICABLE CODES	
A.	2018 INTERNATIONAL BUILDING CODE
B.	2018 INTERNATIONAL MECHANICAL CODE
C.	2018 INTERNATIONAL PLUMBING CODE
D.	2018 INTERNATIONAL FIRE CODE
E.	2018 INTERNATIONAL ENERGY CONSERVATION CODE

### PLUMBING SPECIFICATIONS

- BASIC PLUMBING REQUIREMENTS, MATERIALS AND METHODS
  - SCOPE
    - PROVIDE ALL MATERIAL, TOOLS, SUPERVISION AND LABOR INCLUDING ALL MISCELLANEOUS AND INCIDENTAL ITEMS REQUIRED FOR COMPLETE AND OPERABLE PLUMBING INSTALLATIONS AS SHOWN OR DESCRIBED ON THE DRAWINGS AND IN THESE SPECIFICATIONS.
    - THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING AND NEW CONDITIONS AND MATERIALS WITHIN THE CONSTRUCTION AREA. ANY DAMAGE CAUSED BY THE CONTRACTOR SHALL BE REPAIRED TO THE OWNER'S SATISFACTION.
    - OBTAIN ALL PERMITS, PAY ALL PERMIT FEES AND SCHEDULE ALL REQUIRED INSPECTIONS. COPIES OF ALL PERMITS AND INSPECTION CERTIFICATES SHALL BE FORWARDED TO THE OWNER FOR RECORD.
    - THE GENERAL CONDITIONS OF THE CONTRACT AND ALL DIVISION 1 REQUIREMENTS APPLY TO THE WORK OF THIS SECTION.
    - THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO SUBMITTING BID TO DETERMINE CONDITIONS AND THE EXTENT OF THE WORK. BY COMMENCING WORK, THE CONTRACTOR ACKNOWLEDGES HIS CONFIRMATION OF ALL CONDITIONS AS ACCEPTABLE WITH REFERENCE TO HIS CONTRACT, SCOPE OF WORK AND BID PRICE SUCH THAT NO ADDITIONAL COMPENSATION SHALL BE FORTHCOMING FOR UNFORESEEN EXISTING CONDITIONS.
  - IN ALL AREAS SUBJECT TO FREEZING CONDITIONS, THE CONTRACTOR SHALL PROVIDE FREEZE PROTECTION FOR ALL DOMESTIC WATER PIPING INSTALLED UNDER HIS CONTRACT.
  - ALL ELECTRICAL REQUIREMENTS SHALL BE COORDINATED WITH THE CONTRACTOR FOR ELECTRICAL WORK. THIS CONTRACTOR IS RESPONSIBLE FOR ALL LOW VOLTAGE WIRING FOR EQUIPMENT INSTALLED UNDER HIS CONTRACT. THE CONTRACTOR FOR ELECTRICAL WORK IS RESPONSIBLE FOR LINE VOLTAGE POWER WIRING ONLY.
  - COLOR AND FINISH SELECTIONS FOR ALL MATERIALS, INCLUDING PAINTING OF PIPING, SHALL BE AS DIRECTED AND/OR APPROVED BY THE ARCHITECT.
  - MINOR DETAILS NOT SHOWN OR SPECIFIED, BUT NECESSARY FOR THE PROPER AND ACCEPTABLE CONSTRUCTION, INSTALLATION OR OPERATION OF ANY PART OF THE WORK AS DETERMINED BY THE ENGINEER SHALL BE INCLUDED AS IF SPECIFIED OR INDICATED ON THE DRAWINGS.
  - THIS CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIREMENTS FOR THE INSTALLATION, CONNECTION, EXTENSION OR MODIFICATION TO ALL UTILITY SERVICES WITH RESPECTIVE PROVIDERS INCLUDING PAYMENT OF ALL ASSOCIATED FEES.
  - THE CONTRACTOR IS RESPONSIBLE FOR ALL PAINTING ASSOCIATED WITH CUTTING AND PATCHING. ALL PAINTING IN AREAS WITH COMPLETE FINISH RENOVATIONS SHALL BE PROVIDED BY THE GENERAL CONTRACTOR.
- SUBMITTALS
  - ALL SUBMITTAL REQUIREMENTS SHALL BE COORDINATED WITH THE ARCHITECT AND AUTHORITIES HAVING JURISDICTION. UNLESS OTHERWISE DIRECTED, CONTRACTOR SHALL PROVIDE SUBMITTALS AS LISTED BELOW.
    - PIPE AND FITTINGS
    - VALVES
    - HANGERS AND SUPPORTS
    - PLUMBING PIPING LAYOUT
    - TESTS
    - PLUMBING FIXTURES
    - WATER HEATERS & ACCESSORIES
    - MIXING VALVES
    - ALL SCHEDULED PLUMBING EQUIPMENT
  - SUBMITTALS FROM SUPPLIERS OR MANUFACTURERS WHICH DO NOT BEAR THE STAMP OF THE SUBMITTING CONTRACTOR INDICATING THAT THE CONTRACTOR HAS REVIEWED THE SUBMITTAL FOR CONFORMANCE WITH THE PROJECT REQUIREMENTS WILL BE RETURNED REJECTED.
  - THE ENGINEER'S REVIEW OF SUBMITTALS IS A COURTESY WHICH DOES NOT RELIEVE THE CONTRACTOR FROM CONFORMING WITH THE CONSTRUCTION DOCUMENTS, REGARDLESS OF THE ACTION INDICATED BY THE SHOP DRAWINGS STAMP.
  - REVIEW OF SHOP DRAWINGS BY THE ENGINEER SHALL BE LIMITED TO THE INITIAL REVIEW, AND A SECOND REVIEW OF ANY REQUIRED RESUBMITTED DATA. IF THE ENGINEER IS REQUIRED TO REVIEW SHOP DRAWINGS FOR A THIRD (OR MORE) SUBMISSION OF THE SAME ITEM, THE CONTRACTOR SHALL BE LIABLE FOR COMPENSATING THE ENGINEER FOR THESE SUBSEQUENT REVIEWS AS PER THE ENGINEER'S CURRENT HOURLY RATE SCHEDULE.
  - SUBMIT PROOF OF APPROVAL AND/OR CONFIRMATION OF SATISFACTORY TEST RESULTS TO THE OWNER AND THE ARCHITECT.
  - SUBMIT TO THE OWNER'S MAINTENANCE PERSONNEL OPERATION AND MAINTENANCE DATA FOR ALL SYSTEM COMPONENTS, SERVICING REQUIREMENTS, INSPECTION DATA, REPLACEMENT PART NUMBERS AND AVAILABILITY AND CONTACT INFORMATION FOR SERVICE/SUPPLY COMPANY.
  - FOR ALL BELOW GRADE PIPING WHERE ACTUAL INSTALLATION DEVIATES FROM CONSTRUCTION DRAWINGS, THE CONTRACTOR SHALL PROVIDE AS-BUILT DRAWINGS INDICATING BELOW GRADE PIPE LOCATIONS DIMENSIONED TO NEAREST COLUMN LINES.
  - RECORD AS-BUILT DRAWINGS SHALL BE SUPPLIED TO THE OWNER/TENANT AFTER COMPLETION OF THE WORK SHOWING ANY ALTERATIONS, ADDITIONS AND/OR DELETIONS TO THE SYSTEM(S) INSTALLED.

- SCOPE
  - PROVIDE ALL MATERIAL, TOOLS, SUPERVISION AND LABOR INCLUDING ALL MISCELLANEOUS AND INCIDENTAL ITEMS REQUIRED FOR COMPLETE AND OPERABLE PLUMBING INSTALLATIONS AS SHOWN OR DESCRIBED ON THE DRAWINGS AND IN THESE SPECIFICATIONS.
  - THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING AND NEW CONDITIONS AND MATERIALS WITHIN THE CONSTRUCTION AREA. ANY DAMAGE CAUSED BY THE CONTRACTOR SHALL BE REPAIRED TO THE OWNER'S SATISFACTION.
  - OBTAIN ALL PERMITS, PAY ALL PERMIT FEES AND SCHEDULE ALL REQUIRED INSPECTIONS. COPIES OF ALL PERMITS AND INSPECTION CERTIFICATES SHALL BE FORWARDED TO THE OWNER FOR RECORD.
  - THE GENERAL CONDITIONS OF THE CONTRACT AND ALL DIVISION 1 REQUIREMENTS APPLY TO THE WORK OF THIS SECTION.
  - THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO SUBMITTING BID TO DETERMINE CONDITIONS AND THE EXTENT OF THE WORK. BY COMMENCING WORK, THE CONTRACTOR ACKNOWLEDGES HIS CONFIRMATION OF ALL CONDITIONS AS ACCEPTABLE WITH REFERENCE TO HIS CONTRACT, SCOPE OF WORK AND BID PRICE SUCH THAT NO ADDITIONAL COMPENSATION SHALL BE FORTHCOMING FOR UNFORESEEN EXISTING CONDITIONS.
- IN ALL AREAS SUBJECT TO FREEZING CONDITIONS, THE CONTRACTOR SHALL PROVIDE FREEZE PROTECTION FOR ALL DOMESTIC WATER PIPING INSTALLED UNDER HIS CONTRACT.
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- THIS CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIREMENTS FOR THE INSTALLATION, CONNECTION, EXTENSION OR MODIFICATION TO ALL UTILITY SERVICES WITH RESPECTIVE PROVIDERS INCLUDING PAYMENT OF ALL ASSOCIATED FEES.
- THE CONTRACTOR IS RESPONSIBLE FOR ALL PAINTING ASSOCIATED WITH CUTTING AND PATCHING. ALL PAINTING IN AREAS WITH COMPLETE FINISH RENOVATIONS SHALL BE PROVIDED BY THE GENERAL CONTRACTOR.

- SUBMITTALS
  - ALL SUBMITTAL REQUIREMENTS SHALL BE COORDINATED WITH THE ARCHITECT AND AUTHORITIES HAVING JURISDICTION. UNLESS OTHERWISE DIRECTED, CONTRACTOR SHALL PROVIDE SUBMITTALS AS LISTED BELOW.
    - PIPE AND FITTINGS
    - VALVES
    - HANGERS AND SUPPORTS
    - PLUMBING PIPING LAYOUT
    - TESTS
    - PLUMBING FIXTURES
    - WATER HEATERS & ACCESSORIES
    - MIXING VALVES
    - ALL SCHEDULED PLUMBING EQUIPMENT
  - SUBMITTALS FROM SUPPLIERS OR MANUFACTURERS WHICH DO NOT BEAR THE STAMP OF THE SUBMITTING CONTRACTOR INDICATING THAT THE CONTRACTOR HAS REVIEWED THE SUBMITTAL FOR CONFORMANCE WITH THE PROJECT REQUIREMENTS WILL BE RETURNED REJECTED.
  - THE ENGINEER'S REVIEW OF SUBMITTALS IS A COURTESY WHICH DOES NOT RELIEVE THE CONTRACTOR FROM CONFORMING WITH THE CONSTRUCTION DOCUMENTS, REGARDLESS OF THE ACTION INDICATED BY THE SHOP DRAWINGS STAMP.
  - REVIEW OF SHOP DRAWINGS BY THE ENGINEER SHALL BE LIMITED TO THE INITIAL REVIEW, AND A SECOND REVIEW OF ANY REQUIRED RESUBMITTED DATA. IF THE ENGINEER IS REQUIRED TO REVIEW SHOP DRAWINGS FOR A THIRD (OR MORE) SUBMISSION OF THE SAME ITEM, THE CONTRACTOR SHALL BE LIABLE FOR COMPENSATING THE ENGINEER FOR THESE SUBSEQUENT REVIEWS AS PER THE ENGINEER'S CURRENT HOURLY RATE SCHEDULE.
  - SUBMIT PROOF OF APPROVAL AND/OR CONFIRMATION OF SATISFACTORY TEST RESULTS TO THE OWNER AND THE ARCHITECT.
  - SUBMIT TO THE OWNER'S MAINTENANCE PERSONNEL OPERATION AND MAINTENANCE DATA FOR ALL SYSTEM COMPONENTS, SERVICING REQUIREMENTS, INSPECTION DATA, REPLACEMENT PART NUMBERS AND AVAILABILITY AND CONTACT INFORMATION FOR SERVICE/SUPPLY COMPANY.
  - FOR ALL BELOW GRADE PIPING WHERE ACTUAL INSTALLATION DEVIATES FROM CONSTRUCTION DRAWINGS, THE CONTRACTOR SHALL PROVIDE AS-BUILT DRAWINGS INDICATING BELOW GRADE PIPE LOCATIONS DIMENSIONED TO NEAREST COLUMN LINES.
  - RECORD AS-BUILT DRAWINGS SHALL BE SUPPLIED TO THE OWNER/TENANT AFTER COMPLETION OF THE WORK SHOWING ANY ALTERATIONS, ADDITIONS AND/OR DELETIONS TO THE SYSTEM(S) INSTALLED.

- SCOPE
  - PROVIDE ALL MATERIAL, TOOLS, SUPERVISION AND LABOR INCLUDING ALL MISCELLANEOUS AND INCIDENTAL ITEMS REQUIRED FOR COMPLETE AND OPERABLE PLUMBING INSTALLATIONS AS SHOWN OR DESCRIBED ON THE DRAWINGS AND IN THESE SPECIFICATIONS.
  - THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING AND NEW CONDITIONS AND MATERIALS WITHIN THE CONSTRUCTION AREA. ANY DAMAGE CAUSED BY THE CONTRACTOR SHALL BE REPAIRED TO THE OWNER'S SATISFACTION.
  - OBTAIN ALL PERMITS, PAY ALL PERMIT FEES AND SCHEDULE ALL REQUIRED INSPECTIONS. COPIES OF ALL PERMITS AND INSPECTION CERTIFICATES SHALL BE FORWARDED TO THE OWNER FOR RECORD.
  - THE GENERAL CONDITIONS OF THE CONTRACT AND ALL DIVISION 1 REQUIREMENTS APPLY TO THE WORK OF THIS SECTION.
  - THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO SUBMITTING BID TO DETERMINE CONDITIONS AND THE EXTENT OF THE WORK. BY COMMENCING WORK, THE CONTRACTOR ACKNOWLEDGES HIS CONFIRMATION OF ALL CONDITIONS AS ACCEPTABLE WITH REFERENCE TO HIS CONTRACT, SCOPE OF WORK AND BID PRICE SUCH THAT NO ADDITIONAL COMPENSATION SHALL BE FORTHCOMING FOR UNFORESEEN EXISTING CONDITIONS.
- IN ALL AREAS SUBJECT TO FREEZING CONDITIONS, THE CONTRACTOR SHALL PROVIDE FREEZE PROTECTION FOR ALL DOMESTIC WATER PIPING INSTALLED UNDER HIS CONTRACT.
- ALL ELECTRICAL REQUIREMENTS SHALL BE COORDINATED WITH THE CONTRACTOR FOR ELECTRICAL WORK. THIS CONTRACTOR IS RESPONSIBLE FOR ALL LOW VOLTAGE WIRING FOR EQUIPMENT INSTALLED UNDER HIS CONTRACT. THE CONTRACTOR FOR ELECTRICAL WORK IS RESPONSIBLE FOR LINE VOLTAGE POWER WIRING ONLY.
- COLOR AND FINISH SELECTIONS FOR ALL MATERIALS, INCLUDING PAINTING OF PIPING, SHALL BE AS DIRECTED AND/OR APPROVED BY THE ARCHITECT.
- MINOR DETAILS NOT SHOWN OR SPECIFIED, BUT NECESSARY FOR THE PROPER AND ACCEPTABLE CONSTRUCTION, INSTALLATION OR OPERATION OF ANY PART OF THE WORK AS DETERMINED BY THE ENGINEER SHALL BE INCLUDED AS IF SPECIFIED OR INDICATED ON THE DRAWINGS.
- THIS CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIREMENTS FOR THE INSTALLATION, CONNECTION, EXTENSION OR MODIFICATION TO ALL UTILITY SERVICES WITH RESPECTIVE PROVIDERS INCLUDING PAYMENT OF ALL ASSOCIATED FEES.
- THE CONTRACTOR IS RESPONSIBLE FOR ALL PAINTING ASSOCIATED WITH CUTTING AND PATCHING. ALL PAINTING IN AREAS WITH COMPLETE FINISH RENOVATIONS SHALL BE PROVIDED BY THE GENERAL CONTRACTOR.

- SCOPE
  - PROVIDE ALL MATERIAL, TOOLS, SUPERVISION AND LABOR INCLUDING ALL MISCELLANEOUS AND INCIDENTAL ITEMS REQUIRED FOR COMPLETE AND OPERABLE PLUMBING INSTALLATIONS AS SHOWN OR DESCRIBED ON THE DRAWINGS AND IN THESE SPECIFICATIONS.
  - THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING AND NEW CONDITIONS AND MATERIALS WITHIN THE CONSTRUCTION AREA. ANY DAMAGE CAUSED BY THE CONTRACTOR SHALL BE REPAIRED TO THE OWNER'S SATISFACTION.
  - OBTAIN ALL PERMITS, PAY ALL PERMIT FEES AND SCHEDULE ALL REQUIRED INSPECTIONS. COPIES OF ALL PERMITS AND INSPECTION CERTIFICATES SHALL BE FORWARDED TO THE OWNER FOR RECORD.
  - THE GENERAL CONDITIONS OF THE CONTRACT AND ALL DIVISION 1 REQUIREMENTS APPLY TO THE WORK OF THIS SECTION.
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- THE CONTRACTOR IS RESPONSIBLE FOR ALL PAINTING ASSOCIATED WITH CUTTING AND PATCHING. ALL PAINTING IN AREAS WITH COMPLETE FINISH RENOVATIONS SHALL BE PROVIDED BY THE GENERAL CONTRACTOR.

- DEFINITIONS
  - FURNISH: TO PURCHASE, PROCURE, ACQUIRE AND DELIVER, COMPLETE WITH RELATED ACCESSORIES.
  - INSTALL: TO ERECT, MOUNT AND CONNECT, COMPLETE WITH RELATED ACCESSORIES.
  - PROVIDE: TO FURNISH AND INSTALL.
  - PLUMBING CONTRACTOR, THE CONTRACTOR, THIS CONTRACTOR: THE CONTRACTOR FOR PLUMBING WORK WHICH IS SPECIFIED HEREIN AND SHOWN ON THESE DRAWINGS.
- DRAWINGS
  - THE DRAWINGS ARE DIAGRAMMATIC AND ARE INTENDED TO ILLUSTRATE THE GENERAL ARRANGEMENT AND ROUTING OF PIPING AND GENERAL LOCATIONS OF EQUIPMENT. PRECISE LOCATIONS OF EQUIPMENT, RISERS AND STACKS, AND ROUTING AND ELEVATION OF ALL PIPING SYSTEMS SHALL BE COORDINATED IN THE FIELD WITH THE ARCHITECT, ARCHITECTURAL DRAWINGS, THE WORK OF OTHER TRADES, EXISTING AND NEW BUILDING CONDITIONS AND/OR THE PREFERENCES OF THE OWNER/TENANT AS CONSTRUCTION PROCEEDS. ALL PIPING SHALL BE INSTALLED CONCEALED IN FINISHED SPACES, UNLESS NOTED OTHERWISE.
  - PROVIDE ALL NECESSARY INCIDENTAL MATERIALS AND ACCESSORIES REQUIRED TO MAKE THE WORK COMPLETE IN ALL RESPECTS, EVEN IF NOT PARTICULARLY SHOWN OR SPECIFIED.
  - REFER TO PLUMBING EQUIPMENT/FIXTURE SCHEDULE ON THE DRAWINGS FOR ALL FIXTURE AND EQUIPMENT SPECIFICATIONS.
  - REFER TO FIXTURE CONNECTION SIZE SCHEDULE FOR ALL FIXTURE ROUGHING SIZE REQUIREMENTS.
  - VERIFY ALL INDICATED CONDITIONS BEFORE STARTING WORK AND REPORT ANY DISCREPANCIES. THE DRAWINGS REFLECT CONDITIONS WHICH CAN BE REASONABLY INTERPRETED FROM THE EXISTING VISIBLE CONDITIONS OR FROM DRAWINGS AND INFORMATION FURNISHED BY THE OWNER.
  - LOCATE ALL FIXTURES AND EQUIPMENT AS PER THE FINAL ARCHITECTURAL DRAWINGS.
- PRODUCTS
  - SANITARY AND VENT PIPING:
    - GRAVITY SEWERS SHALL BE REINFORCED CONCRETE PIPE.
    - SLOPE OF DRAINAGE SYSTEM SHALL BE 1/8" PER FOOT OF RUN FOR PIPE 3" AND OVER (I.D.) AND 1/4" PER FOOT OF RUN FOR PIPE 2-1/2" AND SMALLER (I.D.). VENT PIPING SHALL BE PITCHED TO DRAIN.
  - DOMESTIC WATER PIPING:
    - ABOVE GRADE WATER PIPING SHALL BE TYPE 'L' HARD-DRAWN COPPER TUBE.
    - PEX (CROSS-LINKED POLYETHYLENE) PIPING CAN BE USED IN LIEU OF COPPER PIPING.
    - FITTINGS IN DOMESTIC WATER PIPING SHALL BE COPPER OR COPPER ALLOY
    - JOINTS SHALL BE MADE WITH LEAD-FREE SOLDER.
    - THE ENTIRE DOMESTIC WATER DISTRIBUTION SYSTEM SHALL BE INSULATED INCLUDING ALL VALVES, FITTINGS, ETC.
    - COMPLY WITH NSF 61 FOR MATERIALS FOR WATER-SERVICE PIPING AND SPECIALTIES FOR DOMESTIC WATER.
    - AS PER 2018 INTERNATIONAL ENERGY CONSERVATION CODE SECTION C404.4, PIPING FROM A WATER HEATER TO THE TERMINATION OF HEATED WATER FIXTURE SUPPLY PIPE SHALL BE INSULATED IN ACCORDANCE WITH TABLE C403.11.3 OF MINIMUM PIPE INSULATION THICKNESS.

- DEFINITIONS
  - FURNISH: TO PURCHASE, PROCURE, ACQUIRE AND DELIVER, COMPLETE WITH RELATED ACCESSORIES.
  - INSTALL: TO ERECT, MOUNT AND CONNECT, COMPLETE WITH RELATED ACCESSORIES.
  - PROVIDE: TO FURNISH AND INSTALL.
  - PLUMBING CONTRACTOR, THE CONTRACTOR, THIS CONTRACTOR: THE CONTRACTOR FOR PLUMBING WORK WHICH IS SPECIFIED HEREIN AND SHOWN ON THESE DRAWINGS.
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  - PROVIDE ALL NECESSARY INCIDENTAL MATERIALS AND ACCESSORIES REQUIRED TO MAKE THE WORK COMPLETE IN ALL RESPECTS, EVEN IF NOT PARTICULARLY SHOWN OR SPECIFIED.
  - REFER TO PLUMBING EQUIPMENT/FIXTURE SCHEDULE ON THE DRAWINGS FOR ALL FIXTURE AND EQUIPMENT SPECIFICATIONS.
  - REFER TO FIXTURE CONNECTION SIZE SCHEDULE FOR ALL FIXTURE ROUGHING SIZE REQUIREMENTS.
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    - PEX (CROSS-LINKED POLYETHYLENE) PIPING CAN BE USED IN LIEU OF COPPER PIPING.
    - FITTINGS IN DOMESTIC WATER PIPING SHALL BE COPPER OR COPPER ALLOY
    - JOINTS SHALL BE MADE WITH LEAD-FREE SOLDER.
    - THE ENTIRE DOMESTIC WATER DISTRIBUTION SYSTEM SHALL BE INSULATED INCLUDING ALL VALVES, FITTINGS, ETC.
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- SCOPE
  - PROVIDE ALL MATERIAL, TOOLS, SUPERVISION AND LABOR INCLUDING ALL MISCELLANEOUS AND INCIDENTAL ITEMS REQUIRED FOR COMPLETE AND OPERABLE PLUMBING INSTALLATIONS AS SHOWN OR DESCRIBED ON THE DRAWINGS AND IN THESE SPECIFICATIONS.
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  - OBTAIN ALL PERMITS, PAY ALL PERMIT FEES AND SCHEDULE ALL REQUIRED INSPECTIONS. COPIES OF ALL PERMITS AND INSPECTION CERTIFICATES SHALL BE FORWARDED TO THE OWNER FOR RECORD.
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- IN ALL AREAS SUBJECT TO FREEZING CONDITIONS, THE CONTRACTOR SHALL PROVIDE FREEZE PROTECTION FOR ALL DOMESTIC WATER PIPING INSTALLED UNDER HIS CONTRACT.
- ALL ELECTRICAL REQUIREMENTS SHALL BE COORDINATED WITH THE CONTRACTOR FOR ELECTRICAL WORK. THIS CONTRACTOR IS RESPONSIBLE FOR ALL LOW VOLTAGE WIRING FOR EQUIPMENT INSTALLED UNDER HIS CONTRACT. THE CONTRACTOR FOR ELECTRICAL WORK IS RESPONSIBLE FOR LINE VOLTAGE POWER WIRING ONLY.
- COLOR AND FINISH SELECTIONS FOR ALL MATERIALS, INCLUDING PAINTING OF PIPING, SHALL BE AS DIRECTED AND/OR APPROVED BY THE ARCHITECT.
- MINOR DETAILS NOT SHOWN OR SPECIFIED, BUT NECESSARY FOR THE PROPER AND ACCEPTABLE CONSTRUCTION, INSTALLATION OR OPERATION OF ANY PART OF THE WORK AS DETERMINED BY THE ENGINEER SHALL BE INCLUDED AS IF SPECIFIED OR INDICATED ON THE DRAWINGS.
- THIS CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIREMENTS FOR THE INSTALLATION, CONNECTION, EXTENSION OR MODIFICATION TO ALL UTILITY SERVICES WITH RESPECTIVE PROVIDERS INCLUDING PAYMENT OF ALL ASSOCIATED FEES.
- THE CONTRACTOR IS RESPONSIBLE FOR ALL PAINTING ASSOCIATED WITH CUTTING AND PATCHING. ALL PAINTING IN AREAS WITH COMPLETE FINISH RENOVATIONS SHALL BE PROVIDED BY THE GENERAL CONTRACTOR.

MINIMUM PIPE INSULATION THICKNESS						
FLUID OPERATING TEMPERATURE RANGE AND USAGE (°F)	INSULATION CONDUCTIVITY		NOMINAL PIPE OR TUBE SIZE (INCHES)			
	CONDUCTIVITY BTU IN./ (H. FT2 °F)	MEAN RATING TEMPERATURE, °F	1 to 1	1 to 4	4 to 8	8 to 10
141-200	0.25-0.29	125	1.5	1.5	2	2 2
105-140	0.21-0.28	100	1.0	1.0	1.5	1.5 1.5
40-60	0.21-0.27	75	0.5	0.5	1.0	1.0 1.0

- AS PER 2018 INTERNATIONAL ENERGY CONSERVATION CODE SECTION C404.6.1, AUTOMATIC CONTROLS SHALL BE INSTALLED THAT LIMITS THE OPERATION OF A RE-CIRCULATING PUMP AND THE SYSTEM RETURN PIPE SHALL BE A DEDICATED RETURN PIPE OR A COLD WATER SUPPLY PIPE.
- AS PER 2018 INTERNATIONAL ENERGY CONSERVATION CODE SECTION C404.7, PUMPS SHALL HAVE CONTROLS THAT COMPLY WITH BOTH OF THE FOLLOWING:
  - THE CONTROL SHALL START THE PUMP UPON RECEIVING A SIGNAL FROM THE ACTION OF A USER OF A FIXTURE OR APPLIANCE, SENSING THE PRESENCE OF A USER OF A FIXTURE OR SENSING THE FLOW OF HOT OR TEMPERED WATER TO A FIXTURE FITTING OR APPLIANCE.
  - THE CONTROL SHALL LIMIT THE TEMPERATURE OF THE WATER ENTERING THE COLD-WATER PIPING TO 104°F (40°C).
- AS PER 2018 IECC, THE MAXIMUM ALLOWABLE PIPING LENGTH FROM THE NEAREST SOURCE OF WATER TO THE TERMINATION OF FIXTURE SUPPLY PIPE SHALL BE AS PER TABLE C404.5.1.

NOMINAL PIPE SIZE (INCHES)	MIXIMUM PIPING LENGTH (FEET)	
	PUBLIC LAV	OTHER FIXTURES
½"	2'	43'
¾"	0.5'	21'
1"	0.5'	13'

- SUBSTITUTIONS
  - ALL EQUIPMENT SHALL BE PRODUCTS OF THE SPECIFIED MANUFACTURER OR MANUFACTURERS. ALL BIDS SHALL BE BASED ON THE SPECIFIED MANUFACTURER OR MANUFACTURER'S EQUIPMENT. FOR SUBSTITUTIONS OF OTHER MANUFACTURER'S EQUIPMENT TO BE CONSIDERED, THE SUBSTITUTION MUST BE INDICATED PRIOR TO BIDDING WITH THE REASON FOR THE PROPOSED SUBSTITUTION IDENTIFIED, AND THE PROPOSED CREDIT TO THE OWNER INDICATED. THE ENGINEER SHALL DETERMINE THE ACCEPTABILITY OF ANY PROPOSED SUBSTITUTIONS.
  - THE CONTRACTOR ASSUMES ALL RESPONSIBILITY FOR COORDINATING THE WORK OF OTHER TRADES WHICH MAY BE AFFECTED BY SUBSTITUTIONS, INCLUDING ALL RELATED COSTS.

- HANGERS AND SUPPORTS:
  - HANGERS SHALL BE STANDARD STEEL, MALLEABLE OR WROUGHT IRON, AS MANUFACTURED BY GRINNELL OR APPROVED EQUAL, SUITABLE FOR THE TYPE OF CONSTRUCTION. PIPING SHALL NOT BE HUNG FROM OTHER PIPE.
  - SECTIONS OF INDIVIDUAL PIPE RUNS SHALL BE SUPPORTED BY CLEVIS HANGERS.
  - ALL EQUIPMENT SHALL BE PROVIDED WITH APPROVED SUPPORTS.
  - PROVIDE SEISMIC RESTRAINTS IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL CODES AND STANDARDS AND THE REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION.
  - SUPPORTS SHALL BE PROVIDED IN STRICT ACCORDANCE WITH THE RECOMMENDATIONS OF THE PIPING MANUFACTURER.

- VALVES:
  - PROVIDE GATE VALVES, BUTTERFLY OR BALL VALVES FOR SHUT-OFF DUTY ON MAIN AND BRANCH SUPPLY LINES. FOR ALL PIPE RUNS 2" AND SMALLER, PROVIDE BALL FOR ALL PIPE RUNS LARGER THAN 2" AND SMALLER THAN 4", PROVIDE GATE VALVES. PIPING 4" AND LARGER, PROVIDE BUTTERFLY VALVES FOR SHUT-OFF DUTY.
  - ALL FIXTURES WITH THE EXCEPTION O FLUSHMETER-EQUIPPED WATER CLOSETS AND URINALS SHALL HAVE STOP VALVES TO CONTROL SUPPLY TO THE FIXTURE. WHERE SUPPLIES ARE EXPOSED PROVIDE CHROME-PLATED STOPS WITH CHROME-PLATED ESCUTCHEONS ON PIPING PENETRATIONS.
  - ALL PLUMBING FIXTURES AND EQUIPMENT TO HAVE SHUT-OFF VALVES ON SUPPLY LINES.
  - ALL BRANCH LINES TO HAVE SHUT-OFF VALVES.
  - ALL VALVES SHALL BE ACCESSIBLE. PROVIDE ACCESS DOORS WHERE REQUIRED FOR VALVE ACCESS.
  - PROVIDE GLOBE VALVES FOR THROTTLING/BALANCING OF THE HOT WATER CIRCULATING SYSTEM.

- INSTALL PIPING TO CONSERVE BUILDING SPACE. DO NOT INTERFERE WITH USE OF BUILDING SPACE AND THE WORK OF OTHER TRADES. ALL PIPING RUN IN CEILING SHALL BE INSTALLED TIGHT TO THE STRUCTURE ABOVE.
- INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE, JOINTS OR CONNECTED EQUIPMENT. PROVIDE PIPE ANCHORS, GUIDES AND EXPANSION JOINTS OR LOOPS IN ALL HOT WATER AND HOT WATER CIRCULATING MAIN SUPPLY PIPING AND SEGMENTS OF SUCH PIPE THAT EXCEED 30'-0" IN LENGTH.
- IN ALL AREAS WITH FINISHED SURFACES, SYSTEM PIPING AND COMPONENTS SHALL BE CONCEALED ABOVE OR UNDER FINISHED SURFACES.
- REDUCTIONS IN PIPE SIZES SHALL BE MADE WITH ONE-PIECE REDUCING FITTINGS. BUSHINGS ARE NOT ACCEPTABLE. USE FLANGED FITTINGS AT THE BASE OF RISERS.
- VENT PENETRATIONS THROUGH THE ROOF SHALL BE FLASHED.
- IF WATER PRESSURE EXCEEDS 80 PSI, A WATER PRESSURE REDUCING VALVE SHALL BE INSTALLED IN WATER PIPING AT CONNECTION TO MAIN.
- PIPE BACKFLOW PREVENTER DRAINS TO FLOOR DRAIN OR OTHER APPROVED INDIRECT WASTE SOURCE.
- PROVIDE ACCESS DOORS/PANELS FOR SERVICE AND ACCESS TO ALL VALVES AND OTHER SYSTEM COMPONENTS ENCLOSED IN WALLS AND CEILINGS. ACCESS DOORS SHALL BE FURNISHED BY THIS CONTRACTOR, INSTALLED BY THE GENERAL CONTRACTOR.

- ALL FIXTURES REQUIRING VACUUM BREAKERS SHALL BE EQUIPPED WITH INTEGRAL VACUUM BREAKERS.
- ANY PENETRATIONS THROUGH FIRE RATED PARTITIONS, FLOORS, OR CEILINGS SHALL BE STEEL SLEEVED AND SEALED WITH 3M BRAND UL RATED FIRE BARRIER CAULK OR APPROVED EQUAL.
- WHEN THE WATER PIPING SYSTEM IS COMPLETE, THOROUGHLY FLUSH ALL DIRT, SEDIMENT, SOLDER, ETC., OUT OF THE SYSTEM, REMOVING ALL STRAINERS, VALVE STEM SEATS, ETC., REQUIRED TO ACCOMPLISH THE FLUSHING.

- AT ALL INDIRECT WASTE DRAINS, MAINTAIN AIR GAP AS REQUIRED BY CODE.
- INSTALL SLEEVES FOR ALL PIPES WHICH PASS THROUGH WALLS, FLOORS, AND CEILINGS. WHERE PIPES ARE TO BE INSULATED, THE SLEEVE SHALL BE LARGE ENOUGH TO ACCOMMODATE INSULATION. SLEEVES SHALL BE FLUSH WITH FINISHED SURFACES AT BOTH ENDS. ON FINISHED SURFACES IN EXPOSED AREAS PROVIDE ESCUTCHEONS COMPATIBLE WITH FINISH.
- INSTALLATION

- GENERAL
  - ALL WORK WHICH REQUIRES DISRUPTION OF THE ROOFING SHALL BE DONE BY A CONTRACTOR CERTIFIED BY THE ROOFING MANUFACTURER AS REQUIRED TO MAINTAIN ANY EXISTING ROOF WARRANTIES.
  - EXTERIOR INSTALLATIONS TO BE WEATHER PROOF IN ALL RESPECT.
  - EXTERIOR MATERIALS AND EQUIPMENT SHALL BE PAINTED TO PREVENT CORROSION, COLOR PER ARCHITECT.
  - COORDINATE THE PLUMBING WORK WITH ALL OTHER AFFECTED WORK AND THE CONSTRUCTION SCHEDULE.
  - REAM PIPE AND TUBE ENDS. REMOVE BURRS. BEVEL PLAIN AND FERROUS END PIPE.
  - REMOVE SCALE AND FOREIGN MATERIAL, FROM INSIDE AND OUTSIDE, BEFORE ASSEMBLY.

- PREPARE PIPING CONNECTIONS TO EQUIPMENT WITH FLANGES AND UNIONS.
- COORDINATION WITH THE WORK OF OTHER TRADES IS REQUIRED. PROVIDE OFFSETS IN PIPING SYSTEMS OR MINOR DEVIATIONS TO THE INDICATED PIPE ROUTING IN ORDER TO COORDINATE THE PLUMBING WORK WITH THE WORK OF ALL OTHER TRADES AND THE GENERAL BUILDING CONDITIONS.
- NO DOMESTIC WATER PIPING SHALL BE INSTALLED IN UNHEATED SPACES.
- PRIOR TO DISCONNECTING AND CONNECTING NEW WORK TO EXISTING SYSTEMS, THE PLUMBING CONTRACTOR SHALL NOTIFY THE PROPERTY MANAGER AND OFFER A PROPOSED SCHEDULE OF WORK. ESB WILL AUTHORIZE CONNECTIONS AND COORDINATE NECESSARY SHUT DOWNS AND DRAIN DOWNS AS REQUIRED. SHUT DOWNS AND DRAIN DOWNS MAY BE PERFORMED BY THE PLUMBING CONTRACTOR ONLY AFTER RECEIVING ESB AUTHORIZATION, AND SHOULD BE PERFORMED UNDER SUPERVISION OF ESB PERSONNEL THREE (3) DAYS ADVANCE NOTICE TO THE PROPERTY MANAGER IS REQUIRED.
- THE PLUMBING CONTRACTOR IS ADVISED THAT DUE TO THE NATURE OF THE OPERATIONS AND TENANT REQUIREMENTS, CONNECTIONS TO EXISTING SYSTEMS MAY HAVE TO BE MADE AFTER REGULAR WORKING HOURS. THE PROPERTY MANAGER WILL ADVISE THE PLUMBING CONTRACTOR OF THE TIME CONSTRAINTS UPON RECEIPT AND APPROVAL OF THE PLUMBING CONTRACTOR'S REQUEST FOR SHUT DOWN AND CONNECTION TO EXISTING SYSTEMS.
- WHEN CONNECTING TO EXISTING STACKS AND RISERS, PROVISION IS TO

4. WARRANTY

A. EQUIPMENT, MATERIALS AND WORKMANSHIP FURNISHED UNDER THIS CONTRACT SHALL BE GUARANTEED BY THE CONTRACTOR FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE OF THE WORK BY THE OWNER. THE CONTRACTOR SHALL KEEP THE WORK IN GOOD REPAIR FOR ONE YEAR AFTER THE DATE OF FINAL APPROVAL. THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, PROMPTLY CORRECT AND REPAIR ANY AND ALL BREAKS, FAILURES OR WEAR DUE TO FAULTY MATERIALS, WORKMANSHIP OR EQUIPMENT. ALL SETTLEMENTS OF SURFACES THAT MAY OCCUR WITHIN THAT PERIOD SHALL ALSO BE PROMPTLY REPAIRED.

B. GAS STORAGE WATER HEATER

1. TANKS SHALL 50 GALLON CAPACITY AND SHALL HAVE 150 PSI WORKING PRESSURE AND BE EQUIPPED WITH SELF-ADJUSTING, NON-SACRIFICIAL POWER ANODES.
2. HAVE A WET-BASE DESIGN AND FURNISHED WITH A HEAT EXCHANGE SYSTEM WITH BOTH SIDES COATED IN HIGH TEMPERATURE PORCELAIN ENAMEL.
3. MAXIMIZES ENERGY SAVINGS BY OPTIMIZING BTU INPUT FOR SPECIFIC WATER HEATING DEMAND.
4. ADJUST TO HEAT WATER ONLY DURING PEAK OPERATING HOURS. ELIMINATE DOWNTIME WITH THE ABILITY TO DETECT AND PREVENT WATER HEATER PROBLEMS.

C. HOT WATER RE-CIRCULATING PUMP

1. IN-LINE PUMP, SINGLE STAGE VOLUTE TYPE PUMP SHALL BE MADE OF CAST IRON OR FORGED LEAD-FREE BRONZE IMPELLER.
2. THE PUMP SHALL HAVE A GROUND AND POLISHED STEEL SHAFT WITH A HARDENED INTEGRAL THRUST COLLAR. THE SHAFT SHALL BE SUPPORTED BY TWO HORIZONTAL SLEEVE BEARINGS DESIGNED TO CIRCULATE OIL. THE PUMPS ARE TO BE EQUIPPED WITH A MECHANICAL SEAL WITH CARBON SEAL FACE ROTATING AGAINST CERAMIC SEAT. THE MOTOR SHALL BE NON-OVERLOADING AT ANY POINT ON PUMP CURVE.
3. DIRECT CONNECT PUMP TO ELECTRIC MOTOR WITH FLEXIBLE COUPLING. THE MOTOR SHALL BE OF THE DRIP-PROOF, SLEEVE- BEARING, QUIET OPERATING, RUBBER-MOUNTED CONSTRUCTION. EQUIPMENT MOTOR WITH BUILT-IN THERMAL OVERLOAD PROTECTION.
4. INSTALL IN-LINE CIRCULATING PUMPS BETWEEN PIPE FLANGES IN PIPING SYSTEMS. INSTALL OVERHEAD PIPE SUPPORTS, BOTH SIDES OF IN-LINE PUMPS, INSTALLED IN HORIZONTAL PIPING RUNS.

D. GAS PIPING INSTALLATION

1. GAS PIPING SHALL BE SIZED IN ACCORDANCE WITH PIPE SIZING TABLES OR SIZING EQUATIONS IN ACCORDANCE WITH INTERNATIONAL FUEL GAS CODE 2018 SECTION 402.4.
2. INDIVIDUAL OUTLETS TO GAS RANGES SHALL NOT BE LESS THAN 3/4 INCHES NPS.
3. METALLIC PIPE SHALL COMPLY WITH SECTIONS 403.4.1 THROUGH 403.4.4.
4. PIPING SYSTEM INSTALLATION SHALL COMPLY WITH REQUIREMENTS OF INTERNATIONAL FUEL GAS CODE 2018 SECTION 404.
5. AS PER INTERNATIONAL FUEL GAS CODE 2018 SECTION 404.4; UNDERGROUND PIPING, WHERE INSTALLED BELOW GRADE THROUGH THE OUTER FOUNDATION OR BASEMENT WALL OF A BUILDING, SHALL BE ENCASED IN A PROTECTIVE PIPE SLEEVE. THE ANNULAR SPACE BETWEEN THE GAS PIPING AND THE SLEEVE SHALL BE SEALED.
6. PIPING INSTALLED UNDERGROUND BENEATH BUILDINGS IS PROHIBITED EXCEPT WHERE THE PIPING IS ENCASED IN A CONDUIT OF WROUGHT IRON OR STEEL PIPE DESIGNED TO WITHSTAND THE SUPERIMPOSED LOADS. THE CONDUIT SHALL BE PROTECTED FROM CORROSION IN ACCORDANCE WITH SECTION 404.9 AND SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 404.12.1 OR 404.12.2 OF INTERNATIONAL FUEL GAS CODE 2018.
7. AS PER INTERNATIONAL FUEL GAS CODE 2018 SECTION 404.4; UNDERGROUND PIPING SYSTEMS SHALL BE INSTALLED A MINIMUM DEPTH OF 24 INCHES BELOW GRADE.
8. THE GAS PIPING IS ENCASED IN A CONDUIT OF WROUGHT IRON OR STEEL PIPE TO WITH STAND THE SUPERIMPOSED LOADS.
9. SHUTOFF VALVES SHALL BE LOCATED IN PLACES SO AS TO PROVIDE ACCESS FOR OPERATION AND SHALL BE INSTALLED SO AS TO BE PROTECTED FROM DAMAGE.

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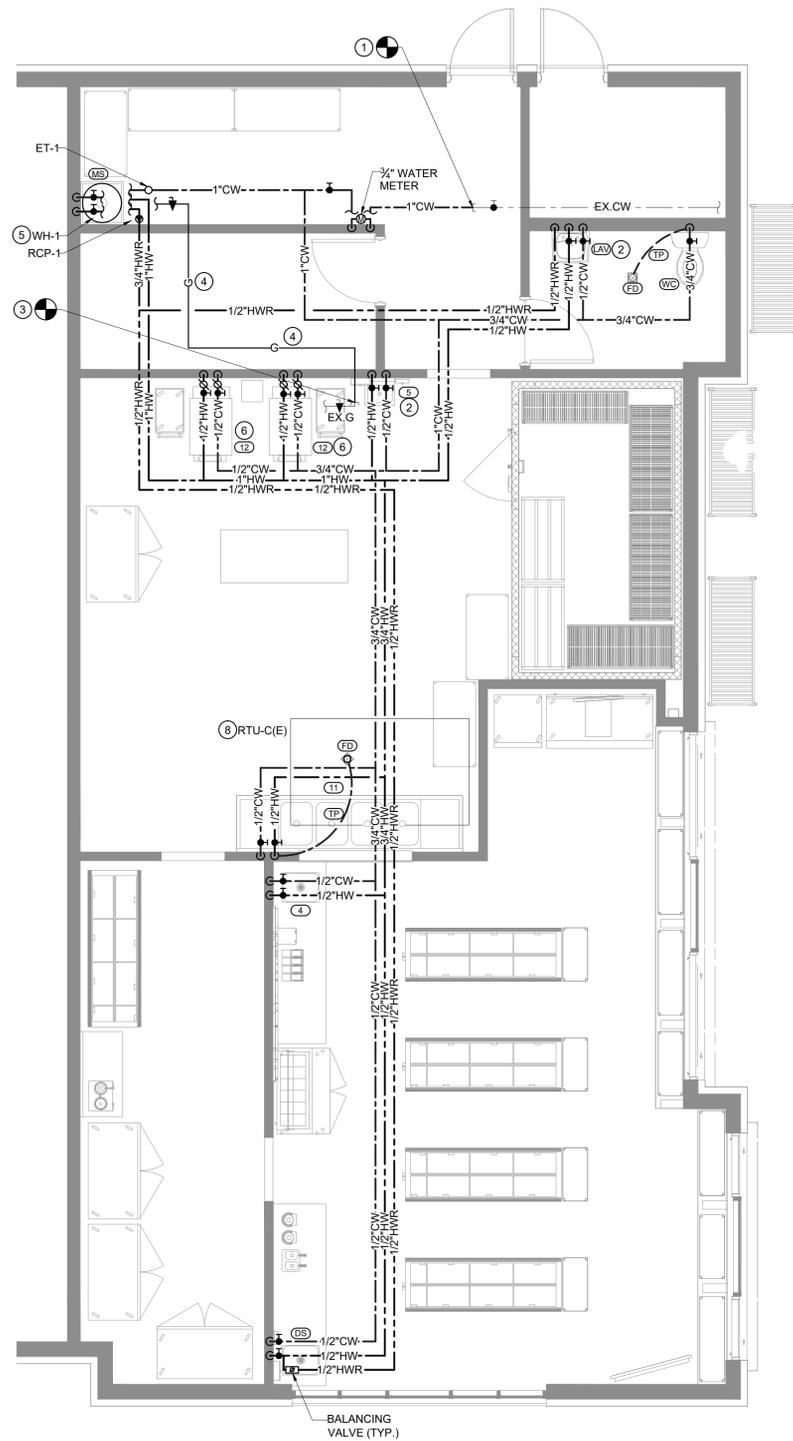
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PLUMBING SPECIFICATIONS

Proj. No.	24TF604	P0.2
Date	11-9-25	
Drawn by	NVE	
Checked by	NVE	



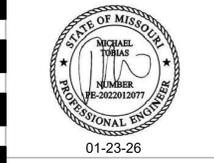
**1 PLUMBING WATER AND GAS FLOOR PLAN**  
 1/4" = 1'-0"

- WATER GENERAL NOTES:
1. CW/HW PIPING TO BE PROVIDED WITH INSULATION AS PER 2018 INTERNATIONAL ENERGY CONSERVATION CODE
  2. PROVIDE BRANCH PRV IF PRESSURE EXCEEDS 80 PSI.
  3. PROVIDE ACCESS PANELS FOR WATER HAMMER ARRESTOR & SHUT-OFF VALVES AS REQUIRED.
  4. REFER RISER DIAGRAMS FOR ALL PIPE SIZES.

- WATER AND GAS KEY NOTES: #
1. CONNECT NEW 1" CW PIPING TO THE EXISTING COLD WATER STUB IN SPACE WITH EXISTING RPZ AND NEW WATER METER. CONTRACTOR TO FIELD VERIFY THE SIZE, ROUTING AND LOCATION OF EXISTING CW STUB AND UPGRADE IF REQUIRED.
  2. PROVIDE A TEMPERATURE MIXING VALVE FOR HAND SINK AND LAVATORY. SET TEMPERATURE TO A MAXIMUM OF 110°F.
  3. EXTEND AND CONNECT NEW 3/4" GAS LINE TO THE EXISTING GAS STUB IN SPACE. THE GAS METER SHOULD HAVE THE MINIMUM CAPACITY OF 45 CFH. CONTRACTOR TO VERIFY THE EXACT LOCATION, PRESSURE AND CONDITION OF EXISTING GAS STUB AND GAS METER IN SPACE. UPGRADE/REPLACE IF REQUIRED
  4. GAS PIPING RUNNING THROUGH CEILING, SHOWN ON PLAN FOR REFERENCE.
  5. CONTRACTOR TO MAKE SURE THAT ADEQUATE INLET PRESSURE PROVIDED FOR GAS FIRED WH-1.
  6. INSTALL NEW BATCH FREEZER AND ALL ASSOCIATED WATER PIPING. PROVIDE BACKFLOW PREVENTER. MANUFACTURER:WATTS, MODEL: SD-2 (ASSE 1032).
  7. PROVIDE TRAP PRIMER TO FLOOR DRAIN.
  8. EXISTING RTU-C(E) TO REMAIN WITH EXISTING GAS PIPING AND CONNECTION. CONTRACTOR TO FIELD VERIFY THE CONDITION OF EXISTING GAS PIPING AND CONNECTION. REPLACE IF REQUIRED.

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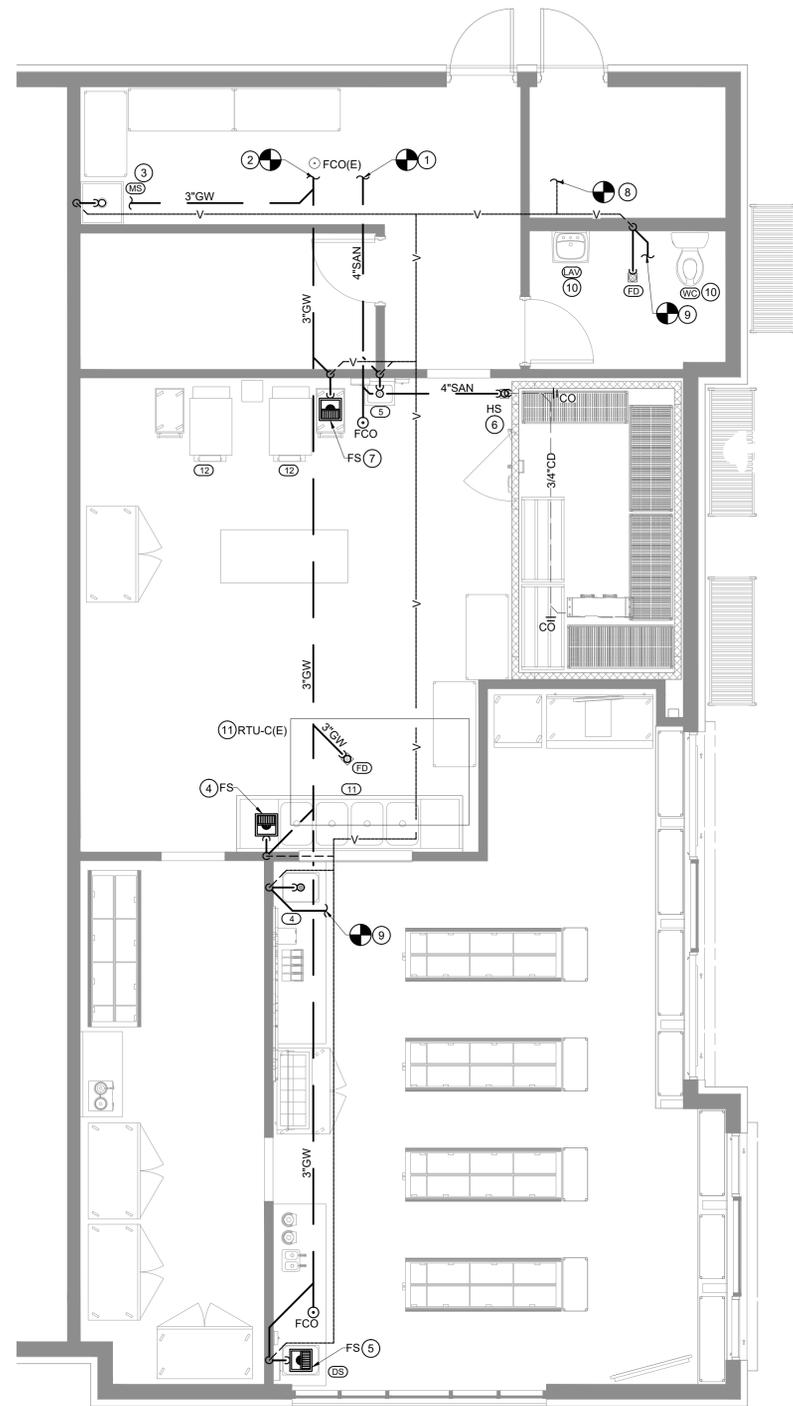
**HANDEL'S**  
 HOMEMADE ICE CREAM SINCE 1945



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**PLUMBING WATER & GAS FLOOR PLAN**  
 Proj. No. 24TF604  
 Date 11-9-25 **P1.0**  
 Drawn by NYE  
 Checked by NYE 1/4" = 1'-0"



**1 PLUMBING SANITARY FLOOR PLAN**  
1/4" = 1'-0"

- SANITARY GENERAL NOTES:
1. CONTRACTOR TO FIELD VERIFY FEASIBILITY OF SLAB PENETRATION AS PER STRUCTURAL REQUIREMENT.
  2. REFER RISER DIAGRAMS FOR ALL PIPE SIZES.
  3. THE VENT SHALL RISE 6 INCHES VERTICALLY ABOVE THE FLOOD RIM LEVEL OF THE FIXTURE BEING VENTED BEFORE OFFSETTING HORIZONTALLY OR VERTICALLY DOWNWARD BEFORE CONNECTING TO THE OUTSIDE VENT TERMINAL.

- SANITARY AND VENT KEY NOTES: (H)
1. CONNECT NEW 4" SANITARY WASTE PIPING TO EXISTING SANITARY PIPE IN AREA. CONTRACTOR TO FIELD VERIFY EXACT SIZE, ROUTING, DIRECTION OF FLOW AND INVERT OF EXISTING PIPE ON SITE.
  2. CONNECT NEW 4" GREASE WASTE PIPING TO EXISTING GREASE PIPE IN AREA. CONTRACTOR TO FIELD VERIFY EXACT SIZE, ROUTING, DIRECTION OF FLOW AND INVERT OF EXISTING PIPE ON SITE.
  3. ROUTE INDIRECT CONDENSATE DRAIN FROM WATER HEATER TO MOP SINK WITH APPROVED AIR GAP.
  4. ROUTE INDIRECT DRAIN FROM 4-COMPARTMENT SINK TO FLOOR SINK WITH APPROVED AIR GAP.
  5. ROUTE INDIRECT DRAIN FROM 1-COMPARTMENT SINK TO FLOOR SINK WITH APPROVED AIR GAP.
  6. ROUTE CONDENSATE DRAIN LINE FROM WALK-IN COOLER TO HUB DRAIN WITH APPROVED AIR GAP.
  7. ROUTE INDIRECT DRAIN FROM BATCH FREEZER TO FLOOR SINK WITH APPROVED AIR GAP.
  8. CONNECT NEW 3" VENT PIPING TO EXISTING VENT PIPE IN AREA. CONTRACTOR TO FIELD VERIFY EXACT SIZE, ROUTING, OF EXISTING PIPE ON SITE.
  9. CONNECT NEW 3" SANITARY WASTE PIPING TO EXISTING SANITARY PIPE IN AREA. CONTRACTOR TO FIELD VERIFY EXACT SIZE, ROUTING, DIRECTION OF FLOW AND INVERT OF EXISTING PIPE ON SITE.
  10. EXISTING PLUMBING FIXTURES TO REMAIN WITH EXISTING SANITARY AND VENT PIPING. CONTRACTOR TO FIELD VERIFY CONDITION OF EXISTING PIPING AND REPLACE IF REQUIRED.
  11. EXISTING RTU-C(E) TO REMAIN WITH EXISTING CONDENSATE DRAIN PIPING. CONTRACTOR TO FIELD VERIFY CONDITION OF EXISTING PIPING AND REPLACE IF REQUIRED.

**GREASE INTERCEPTOR SIZING CALCULATIONS**

SR. NO.	FIXTURE	QUANTITY	DFU	TOTAL DFUS
1	FLOOR SINK	3	5	15
2	FLOOR DRAIN	1	5	5
3	MOP SINK	1	5	5
TOTAL				25

AS PER 2018 INTERNATIONAL PLUMBING CODE, SECTION 1003.3.7, UPC(TABLE 1014.3.6) FOR 25 DFUS, MINIMUM OF 1,000 GALLONS GREASE INTERCEPTOR IS REQUIRED FOR HANDEL'S SPACE.

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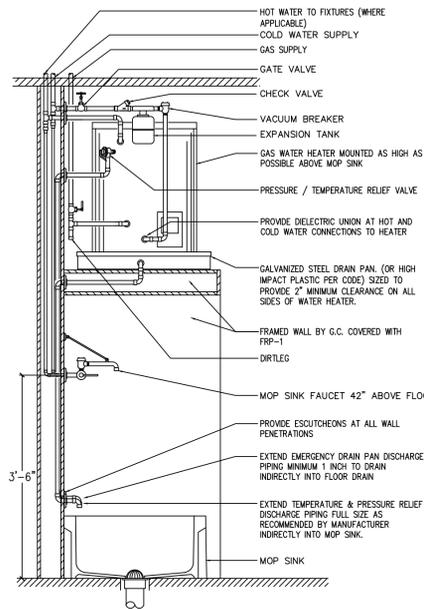
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PLUMBING SANITARY  
FLOOR PLAN

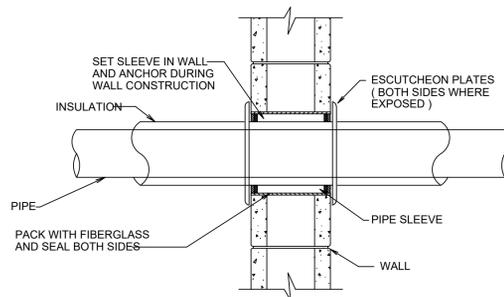
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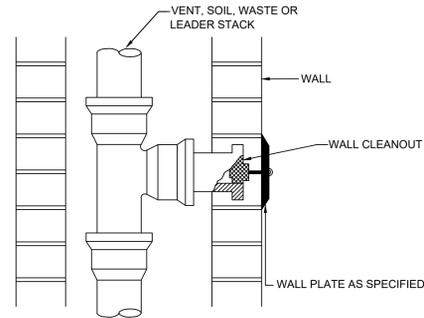
1/4" = 1'-0"



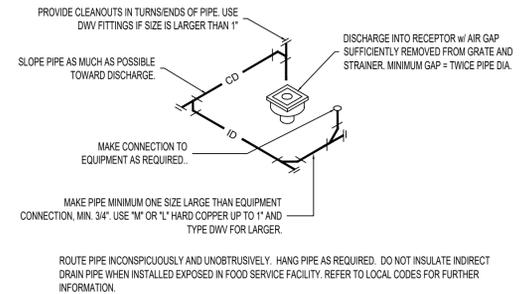
**1 WATER HEATER DETAIL**  
SCALE: N.T.S.



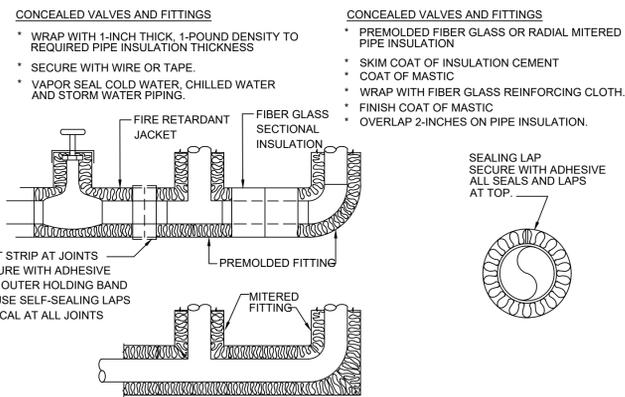
**2 PIPE SLEEVE THRU WALL SECTION**  
SCALE: N.T.S.



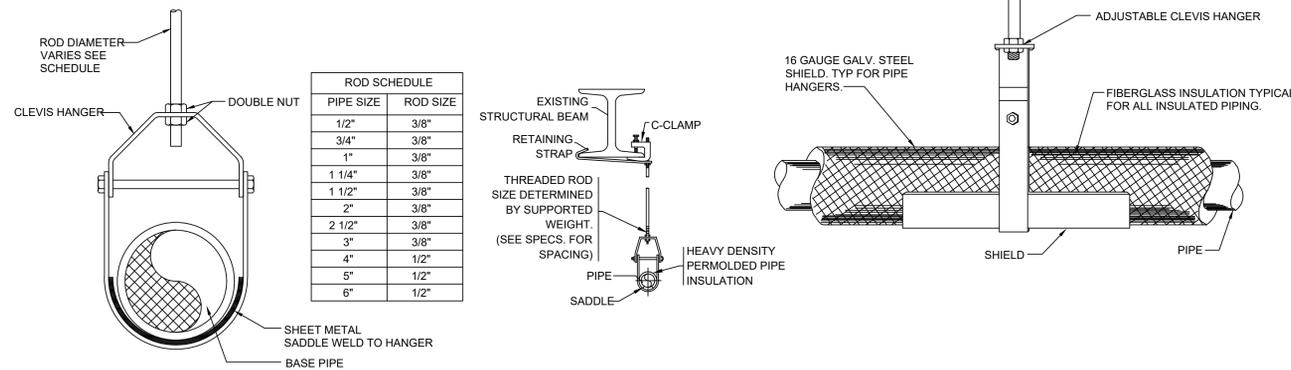
**3 WALL CLEANOUT DETAIL**  
SCALE: N.T.S.



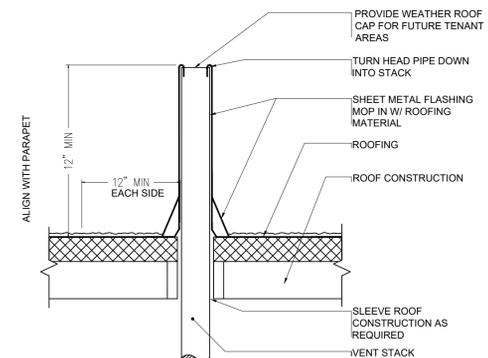
**4 INDIRECT WASTE DETAIL**  
SCALE: N.T.S.



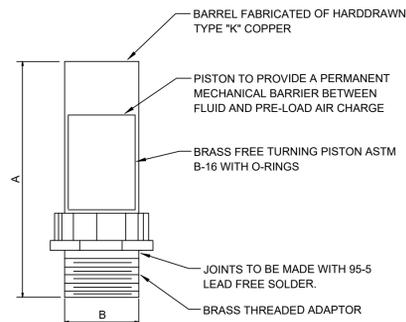
**5 INSULATION FOR EXPOSED AND CONCEALED LOCATIONS**  
SCALE: N.T.S.



**6 HANGER DETAIL**  
SCALE: N.T.S.



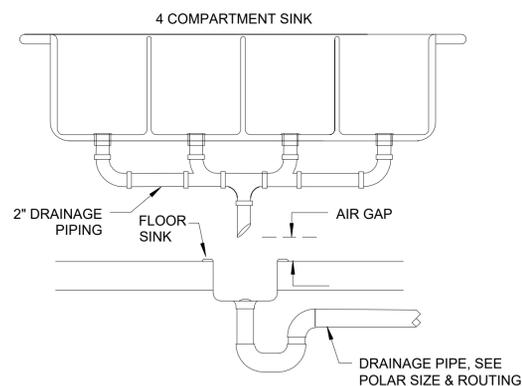
**7 VENT THROUGH ROOF**  
SCALE: N.T.S.



PIPE SIZE	P.D.I. SYMBOL	FIXTURE UNIT RATINGS	A SIZE	B SIZE
1/2"	A	1 - 11	5"	1/2"
3/4"	B	12 - 32	5"	3/4"
1"	C	33 - 60	7"	1"
1-1/4"	D	61 - 113	7"	1-1/4"
1-1/2"	E	114 - 154	9"	1-1/2"
2"	F	155 - 330	9"	2"

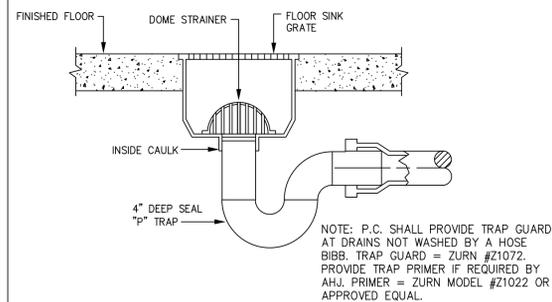
NOTE: LOCATE ONE FOR EACH BANK OF FLUSHOMETER. FIXTURES AT LAST FIXTURE PROVIDE A STAINLESS STEEL ACCESS DOOR FOR EACH SUFFICIENT IN SIZE TO ALLOW REPLACEMENT OF ARRESTOR AT A FUTURE DATE.

**8 WATER HAMMER ARRESTOR DETAIL**  
SCALE: N.T.S.



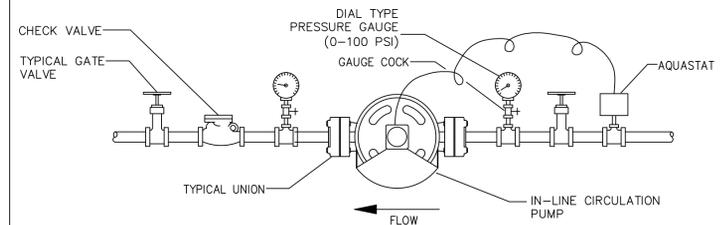
COMMENTS:  
1. COORDINATE INDIVIDUAL BAY DRAINAGE, AIR GAP, & FLOOR SINK WITH LOCAL CODE REQUIREMENTS.

**9 FOUR COMPARTMENT SINK DETAIL**  
SCALE: N.T.S.



NOTE: P.C. SHALL PROVIDE TRAP GUARD AT DRAINS NOT WASHED BY A HOSE BIBB. TRAP GUARD = ZURN #Z1072. PROVIDE TRAP PRIMER IF REQUIRED BY A.H.J. PRIMER = ZURN MODEL #Z1022 OR APPROVED EQUAL.

**10 FLOOR SINK DETAIL**  
SCALE: N.T.S.



**11 INLINE RECIRCULATING PUMP DETAIL**  
SCALE: N.T.S.

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PLUMBING DETAILS

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PLUMBING FIXTURE SCHEDULE									
TAG	FIXTURE TYPE	HW	CW	VENT	WASTE	DESCRIPTION	REMARK		
FS	FLOOR SINK	--	--	2"	3"	FLOOR SINK SHALL BE EQUAL TO ZURN MODEL #FD2376-T, 3/4" GRATE. PROVIDE FLOOR SINK WITH P-TRAP.			
FD	FLOOR DRAIN	--	--	2"	3"	FLOOR DRAIN SHALL BE EQUAL TO ZURN MODEL #ZS-415 TYPE "S".	PROVIDE TRAP PRIMER CONNECTION AS REQUIRED.		
FCO	FLOOR CLEANOUT	--	--	--	--	FLOOR CLEANOUT SHALL BE EQUAL TO ZURN MODEL #ZS-1400-VP. CLEANOUT.	GAS/WATER TIGHT ABS PLUG		
HD	HUB DRAIN	--	--	2"	4"	HUB DRAIN SHALL BE EQUAL TO ZURN MODEL #Z1870.			
TP	TRAP PRIMER	--	1/2"	--	--	FLOOR CLEANOUT SHALL BE EQUAL TO ZURN MODEL #Z1021 WATER SAVER, P TRAP PRIMER.			
MS	MOP SINK	1/2"	1/2"	2"	3"	KINTERA / KMSI	PROVIDE CHECK VALVE STOPS ON HW & CW SUPPLIES WITH ACCESS DOOR ABOVE FAUCET		
WC	WATER CLOSET	--	3/4"	E	E		EXISTING TO REMAIN		
LAV	LAVATORY	1/2"	1/2"	E	E		EXISTING TO REMAIN		
DS	DUMP SINK	1/2"	1/2"	--	--	EAGLE GROUP - SR19-16-13.5-1-ND	INDIRECT DRAIN.		
4	1-COMPARTMENT SINK	1/2"	1/2"	--	--	EAGLE GROUP - SR19-16-13.5-1-ND			
5	HAND WASHING SINK	1/2"	1/2"	2"	3"	BLEND PORT - BPHS-1014-F-LRS			
11	4-COMPARTMENT SINK	1/2"	1/2"	--	--	EAGLE GROUP - 414-18-4-24	INDIRECT DRAIN.		
12	BATCH FREEZER	1/2"	1/2"	--	--	CARPIGIANI BATCH FREEZER 6-6-22			

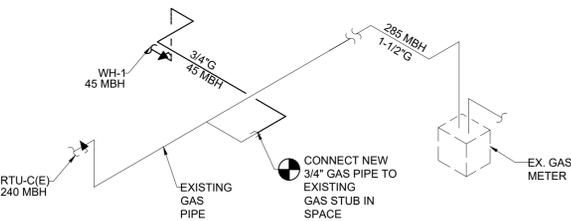
GAS STORAGE WATER HEATER SCHEDULE						
TAG No.	STORAGE GALLONS	MANUFACTURER & MODEL NO.	INPUT MBH	THERMAL EFF.	APPROX. WEIGHT (LBS)	REMARKS
WH-1	48	A.O. SMITH GPD 50	45	0.72	192	-DIMENSIONS 22"DX30" -HEATERS SHALL HAVE 150PSI WORKING PRESSURE

RECIRCULATION PUMP SCHEDULE												
TAG	DESCRIPTION	TYPE	CAPACITY		ELECTRICAL DATA					SELECTION BASED ON		REMARKS/OPTIONS
			GPM	HEAD (ft.)	HP	V	PH	HZ	MANUFACTURER	MODEL NUMBER		
RCP-1	HOT WATER RECIRC. PUMP	IN-LINE	2.5	7	1/12	120	1	60	BELL & GOSSETT	PL-30-B	NOTE 1.2	
OPTIONS (ALL RCP UNITS)			ADDITIONAL OPTIONS (UNITS AS NOTED)									
AQUA-STAT & NIGHT TIMER FLANGED PUMP BALANCING VALVE & CHECK VALVE MAINTENANCE BALL VALVES ON BOTH SIDES OF PUMP			30"X30"X30" BASIN BY G.C. DISCHARGE CHECK VALVE DISCHARGE BALL VALVE					A.OIL-MINDER ALARM/CONTROL SYSTEM				
NOTES: 1. SET AQUA-STAT WITH SET POINT 10 DEGREES BELOW SYSTEM SUPPLY TEMP. 2. INSTALL RECIRCULATION PUMP PER MANUFACTURERS REQUIREMENTS.												

EXPANSION TANK SCHEDULE							
TAG	DESCRIPTION	VOLUME (GALLONS)	DIAMETER (INCHES)	HEIGHT (INCHES)	SELECTION BASED ON		REMARKS
					MANUFACTURER	MODEL NUMBER	
ET-1	BLADDER TYPE	2.0	8"	12 1/2"	AMTROL	ST-5C-DD	NOTE 1
NOTES: 1. INSTALL EXPANSION TANK ON IN-COMING COLD WATER PER MANUFACTURERS REQUIREMENTS.							

GAS PIPE SIZING	
TABLE : 2018 INTERNATIONAL FUEL GAS CODE, PIPE SIZING, 402.4(2) MAXIMUM GAS DEMAND, TABLE 402.4(2) SCHEDULE 40 METALLIC PIPE.	
INLET PRESSURE : LESS THAN 2.0 PSI	
PRESSURE DROP : 0.5 IN.W.C.	
FITTINGS FACTOR : 40%	
TOTAL EQUIVALENT LENGTH : 70 FT	
PIPE SIZE (INCHES)	CAPACITY (MBH)
1/2"	60
3/4"	126
1"	237
1-1/2"	486

GAS LOAD REQUIREMENTS				
TAG	DESCRIPTION	QTY	INPUT MBH	TOTAL CFH
WH-1	WATER HEATER	1	45	45
RTU-C(E)	EXISTING ROOF TOP UNIT	1	240	240
TOTAL				285

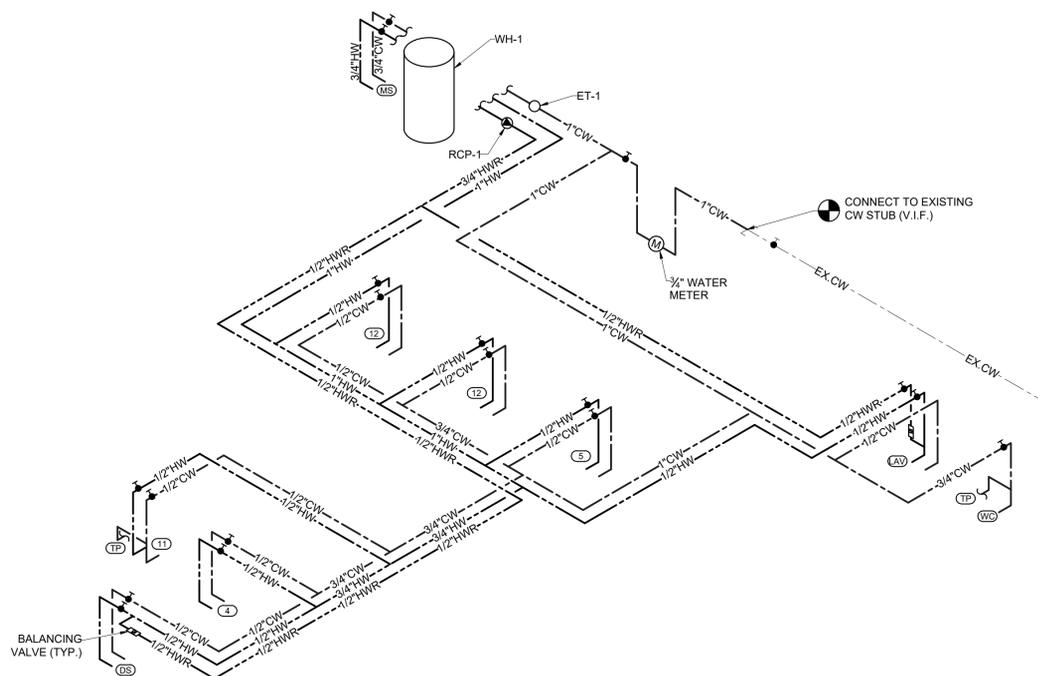


**3 GAS RISER DIAGRAM**  
SCALE : N.T.S.

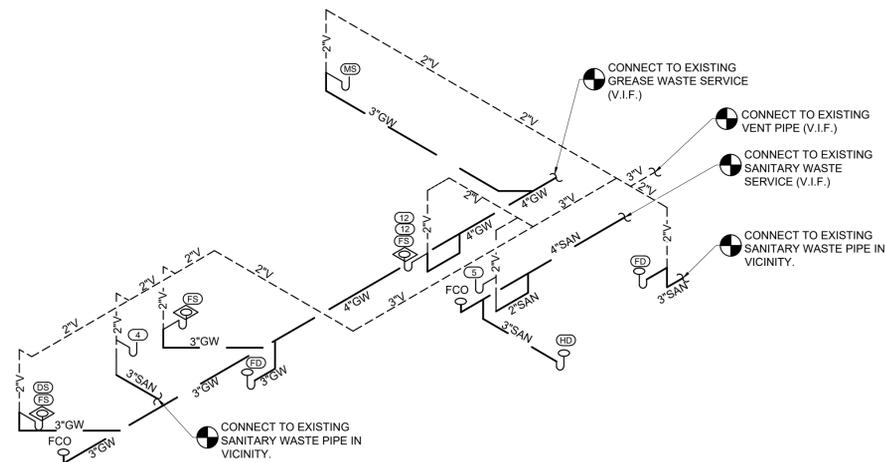
PLUMBING PIPE MATERIAL SCHEDULE		
PIPING SYSTEM	ABBREVIATION	PIPING MATERIAL
SANITARY DRAINAGE & VENT (ABOVE GRADE)	SAN OR V	SCH.40 PVC/ CAST IRON / COPPER
SANITARY DRAINAGE & VENT (BELOW GRADE)	SAN OR V	SCH.40 PVC/ CAST IRON / COPPER
POTABLE WATER (ABOVE GRADE)	CW, HW OR HWR	TYPE L HARD-DRAWN COPPER PIPE AND FITTINGS (CPVC PIPING AND FITTINGS OR PEX PIPING AND FITTINGS ALLOWED IF AHJ AND LANDLORD PERMITS).
POTABLE WATER - 2" & SMALLER (BELOW GRADE)	CW, HW OR HWR	TYPE K SOFT ANNEALED COPPER

\*ALL PLUMBING SYSTEMS (SANITARY, WASTE, VENT,GAS, WATER DISTRIBUTION PIPING SYSTEMS) AND ASSOCIATED EQUIPMENT SHALL BE INSTALLED, OPERATED AND MAINTAINED IN ACCORDANCE WITH THE REQUIREMENTS OF 2018 INTERNATIONAL PLUMBING CODE. PVC ONLY WHERE ALLOWABLE PER LOCAL AHJ. PVC SHALL NOT BE USED WHERE EXPOSED IN RETURN AIR PLENUM, OR WHERE WATER TEMPS EXCEED 140°F

THERMOSTATIC MIXING VALVE SCHEDULE							
TAG	DESCRIPTION	MAXIMUM GPM	MINIMUM GPM	PRESSURE LOSS	SELECTION BASED ON		REMARKS/OPTIONS
					MANUFACTURER	MODEL NUMBER	
TMV	THERMOSTATIC MIXING VALVE	3.5	0.25	5	LEONARD	Z70-LF	NOTE 1, A
OPTIONS (ALL UNITS) LEAD FREE NSF APPROVED PROVIDE T'STAT ON TEMPERED LINE					ADDITIONAL OPTIONS (UNITS AS NOTED) A: ASSE 1070 APPROVED, SET 110°F, 3/8" INLET/ 1/2" OUTLET, MOUNT BELOW FIXTURE.		
NOTES: 1. INSTALL MIXING VALVE PER MANUFACTURERS REQUIREMENTS. PROVIDE ALL PIPING AND VALVES PER O&M MANUAL.							



**1 WATER RISER DIAGRAM**  
SCALE : N.T.S.



**2 SANITARY AND VENT RISER DIAGRAM**  
SCALE : N.T.S.

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**HANDEL'S** - HOMEMADE ICE CREAM SINCE 1945

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since 1945



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PLUMBING SCHEDULE &  
RISER DIAGRAM

Proj. No. 24TF604  
Date 11-9-25  
Drawn by NYE  
Checked by NYE

P4.0

N.T.S.

### SWITCHES AND CONTROLS

	20A SPST SWITCH U.O.N. "a" DENOTES SWITCH'S TAG
	DIMMER SWITCH U.O.N. "a" DENOTES SWITCH'S TAG
	THREE WAY DIMMER SWITCH
	DAYLIGHT SENSOR
	SWITCH BANK
	TIME SWITCH

### WIRING SYSTEMS

	EXISTING
	NEW

### ANNOTATION

	INDICATES MOUNTING HEIGHT CENTER LINE TO FINISHED FLOOR.
	KEYED NOTE REFERENCE

### POWER DISTRIBUTION

	DISTRIBUTION PANELBOARD, SURFACE OR FLUSH MOUNTED.
---	--

### ELECTRICAL DRAWING LIST

E0.1	ELECTRICAL SYMBOL, ABBREVIATION AND NOTES
E0.2	ELECTRICAL SPECIFICATIONS
E0.3	ELECTRICAL SPECIFICATIONS
E1.0	LIGHTING FLOOR PLAN
E2.0	POWER FLOOR PLAN
E2.1	ROOF POWER PLAN
E3.0	ELECTRICAL DETAILS (1 OF 2)
E3.1	ELECTRICAL DETAILS (2 OF 2)
E4.0	ELECTRICAL RISER AND PANEL SCHEDULES

### POWER AND TELECOMMUNICATION

	JUNCTION BOX
	CEILING MOUNTED OCCUPANCY SENSOR
	DUPLEX RECEPTACLE, +18" AFF OR AS NOTED.
	GFI DUPLEX RECEPTACLE, +18" AFF OR AS NOTED.
	SPECIAL RECEPTACLE
	QUAD RECEPTACLE
	DATA OUTLET AT +16" TO BOTTOM (OR AS NOTED) X (X INDICATES NUMBER OF JACKS, IF MORE THAN ONE)

### DISCONNECT AND MOTOR CONTROLS

	30A NON FUSED DISCONNECT SWITCH, POLES AS NOTED.
	60A NON FUSED DISCONNECT SWITCH, POLES AS NOTED.
	MANUAL MOTOR SWITCH

### APPLICABLE CODES

- A. 2018 INTERNATIONAL BUILDING CODE
- B. 2018 INTERNATIONAL MECHANICAL CODE
- C. 2018 INTERNATIONAL FIRE CODE
- D. 2017 NATIONAL ELECTRICAL CODE
- E. 2018 INTERNATIONAL PLUMBING CODE
- F. 2018 INTERNATIONAL ENERGY CONSERVATION CODE

### ELECTRICAL ABBREVIATIONS

A	AMPERES	EA	EACH
A/C, AC	AIR CONDITIONING UNIT	EC	EMPTY CONDUIT/ ELECTRICAL CONTRACTOR
AF	AMPERE FRAME/AMP FUSE	EF	EXHAUST FAN
AFF	ABOVE FINISHED FLOOR	EM	EMERGENCY
AS	AMP SWITCH	EMT	ELECTRICAL METALLIC TUBING
AIC	AMPS INTERRUPTING CAPACITY	EQUIP	EQUIPMENT
AUTO	AUTOMATIC	ER	EXISTING TO BE RELOCATED
AWG	AMERICAN WIRE GAUGE	ETR	EXISTING TO REMAIN
C	CONDUIT	EWF	ELECTRIFIED WORKSTATION FURNITURE
C/B,CB	CIRCUIT BREAKER	EWH	ELECTRIC WATER HEATER
CKT	CIRCUIT	FA	FIRE ALARM
CLG	CEILING	FBO	FURNISHED BY OTHERS, INSTALLED & WIRED BY EC
COMM	COMMUNICATION	FDR	FEEDER
CT	CURRENT TRANSFORMER	FIBO	FURNISHED & INSTALLED BY OTHERS, WIRED BY EC
CU	COPPER	FIXT	FIXTURE
°C	DEGREE CELSIUS	FL	FLOOR
°F	DEGREE FAHRENHEIT	FLUOR	FLUORESCENT
DIA	DIAMETER	G	GROUND
DISC	DISCONNECT	GFI	GROUND FAULT INTERRUPTER
DN	DOWN	GP	GENERAL PURPOSE
DWG	DRAWING	HC	HUNG CEILING
JB	JUNCTION BOX	HP	HORSEPOWER
KCMIL	ONE THOUSAND CIRCULAR MILS	HWH	HOW WATER HEATER
KV	KILOVOLT	HZ	HERTZ
KVA	KILOVOLT-AMPERES	IC	INTERRUPTING CAPACITY
KW	KILOWATTS	PP	POWER PANEL
LP	LIGHTING PANEL	PVC	POLYVINYL CHLORIDE
LTG	LIGHTING	PWR	POWER
MAX	MAXIMUM	R	REMOVE
MC	MOTOR CONTROLLER	RE	RELOCATED EXISTING
MCB	MAIN CIRCUIT BREAKER	REC	RECEPTACLE
MER	MECHANICAL EQUIPMENT ROOM	RR	REMOVE & RELOCATE
MIN	MINIMUM	SECT	SECTION
MLO	MAIN LUGS ONLY	SPDT	SINGLE POLE DOUBLE THROW
MTD	MOUNTED	SPST	SINGLE POLE SINGLE THROW
N	NEUTRAL	SPEC	SPECIFICATION
NE	NEW DEVICE TO REPLACE EXISTING	SW	SWITCH
NIC	NOT IN CONTRACT	SWBD	SWITCHBOARD
NL	NIGHT LIGHT	SYM	SYMMETRICAL
NTS	NOT TO SCALE	SYS	SYSTEMS
OC	ON CENTER	TELE	TELEPHONE
P	POLES	TEMP	TEMPERATURE
PB	PULLBOX	TXF	TOILET EXHAUST FAN
PC	PERSONAL COMPUTER	TYP	TYPICAL
Ø	PHASE	UON	UNLESS OTHERWISE NOTED
PNL	PANEL	V	VOLT/VOLTAGE
W	WATT	VA	VOLT AMPERE
W	WIRE	VFD	VARIABLE FREQUENCY DRIVE
WH	WALL HEATER	WP	WEATHER PROOF
E	EXISTING	XFMR	TRANSFORMER
TC	TIME CLOCK	IG	ISOLATED GROUND
VIF	VERIFY IN FIELD	TR	TAMPER RESISTANCE
TS	TIME SWITCH		
CL	CEILING		
FL	FLOOR		

### GENERAL NOTES

(APPLY TO ALL "E" DRAWINGS)

- ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE 2017 NATIONAL ELECTRICAL CODE (NEC), THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION (A.H.J.), AND ALL APPLICABLE LOCAL CODES, LAWS, AND REGULATIONS.
- CONTRACTOR SHALL VISIT THE SITE AND BECOME FAMILIAR WITH ALL EXISTING CONDITIONS THAT MAY AFFECT THE WORK. NO ADDITIONAL COMPENSATION WILL BE CONSIDERED FOR FAILURE TO DO SO.
- CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, TEST REPORTS, AND CERTIFICATIONS FOR TEMPORARY AND FINAL CERTIFICATE OF OCCUPANCY.
- FIRE STOP ALL PENETRATIONS OF FIRE RATED CONSTRUCTION IN A CODE APPROVED MANNER IN ORDER TO MAINTAIN FIRE RATING. ALL PENETRATIONS SHALL BE SLEEVED AND SEALED WATERTIGHT.
- SECURE ALL SUPPORTS TO BUILDING STRUCTURE UTILIZING TOGGLE BOLTS (HOLLOW MASONRY), EXPANSION SHIELDS OR INSERTS (CONCRETE AND BRICK), MACHINE SCREWS (METAL), BEAM CLAMPS (FRAMEWORK), WOOD SCREWS (WOOD) OR PAN THRU STRAPS (METAL DECK). NAILS, RAWL PLUGS AND WOOD PLUGS ARE NOT PERMITTED. WHERE REQUIRED BY STRUCTURE, PROVIDE THRU BOLTS AND FISH PLATES. SUPPORT HORIZONTAL RUNS OF METALLIC RACEWAYS NOT MORE THAN 10 FT APART. SUPPORT RACEWAY RISERS AT EACH FLOOR LEVEL. RUN EXPOSED RACEWAYS PARALLEL WITH OR AT RIGHT ANGLES TO WALLS.
- LEAVE WIRES WITH SUFFICIENT SLACK TO PERMIT MAKING FINAL CONNECTIONS. RACEWAYS OVER 10 FT LONG IN WHICH WIRING IS NOT INSTALLED: FURNISH FISH WIRE.
- VERIFY LOCATIONS OF OUTLETS AND SWITCHES IN FINISHED ROOMS WITH ARCHITECTURAL DRAWINGS OF INTERIOR DETAILS AND FINISH. IN CENTERING OUTLETS AND LOCATING BOXES AND OUTLETS, ALLOW FOR OVERHEAD PIPES, DUCTS AND MECHANICAL EQUIPMENT, EQUIPMENT, VARIATIONS IN FIREPROOFING AND PLASTERING, WINDOW AND DOOR TRIM, PANELING, HUNG CEILINGS AND THE LIKE. CORRECT ANY INACCURACY RESULTING FROM FAILURE TO DO SO WITHOUT EXPENSE TO OWNER.
- CONTRACTOR SHALL PROVIDE A WARRANTY ON ALL MATERIALS, EQUIPMENT, AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE.
- ALL UNUSED MATERIALS AND DEBRIS SHALL BE LEGALLY REMOVED AND DISPOSED OF AWAY FROM THE PREMISES ON A DAILY BASIS.
- CONTRACTOR SHALL PATCH, PAINT, AND RESTORE EXISTING SURFACES DAMAGED DURING THE COURSE OF THIS CONSTRUCTION TO PRE-EXISTING CONDITIONS OR BETTER.
- MINIMUM SIZE OF CONDUIT SHALL BE 3/4", AND TYPE SHALL BE ELECTRICAL METALLIC TUBING (EMT), UNLESS OTHERWISE NOTED. PROVIDE NYLON DRAG LINE AND CONDUIT CAP FOR ALL EMPTY CONDUITS.
- CONNECT CONDUIT TO MOTOR CONDUIT TERMINAL BOXES WITH FLEXIBLE CONDUIT (MINIMUM 18 IN. LENGTH AND 50% SLACK). DO NOT TERMINATE IN OR FASTEN RACEWAYS TO MOTOR FOUNDATION.
- PULL AND JUNCTION BOXES WHERE INDICATED ON THE DRAWINGS, SHALL BE CONSIDERED SHOWN AT THEIR APPROXIMATE LOCATION. THE CONTRACTOR SHALL LOCATE THEM AS FIELD CONDITIONS DICTATE. ADDITIONAL PULL AND JUNCTION BOXES NOT SHOWN ON DRAWINGS SHALL BE PROVIDED WHERE REQUIRED BY APPLICABLE CODE PROVISIONS OR WHERE CALLED FOR BY FIELD CONDITIONS. PULL AND JUNCTION BOXES SHALL BE SURFACE TYPE IN UNFINISHED AREAS AND INSTALLED CONCEALED IN FINISHED AREAS, AND ALL COVERS TO PULL & JUNCTION BOXES SHALL BE READILY ACCESSIBLE.
- SUPPORT PANEL, JUNCTION AND PULLBOXES INDEPENDENTLY TO BUILDING STRUCTURE WITH NO WEIGHT BEARING ON RACEWAYS.
- FOR EXACT LOCATION AND MOUNTING HEIGHT OF LIGHTING FIXTURES AND SWITCH/RECEPTACLE OUTLETS, REFER TO ARCHITECTURAL REFLECTED CEILING AND POWER PLANS.
- ALL ELECTRICAL ACCESSORIES AND EQUIPMENT INSTALLED OUTSIDE OR EXPOSED TO WEATHER SHALL HAVE NEMA 3R ENCLOSURES AND SHALL BE TIGHTLY GASKETED FOR A COMPLETE RAIN TIGHT INSTALLATION. ALL BUILDING EXTERIOR MOUNTED RECEPTACLES SHALL BE GFCI RATED AND MOUNTED IN WEATHERPROOF ENCLOSURE.
- ALL ACCESS PANEL LOCATIONS SHALL BE REVIEWED BY ARCHITECT PRIOR TO INSTALLATION.
- ELECTRICAL CONTRACTOR SHALL COORDINATE THE LOCATION AND INSTALLATION OF NEW WORK WITH THE GENERAL CONTRACTOR AND OTHER ASSOCIATED TRADES IN A TIMELY MANNER. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL DIMENSIONS AND CONDITIONS PRIOR TO CONSTRUCTION. REFER TO ALL GENERAL, MECHANICAL, AND ELECTRICAL DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT.
- ALL CONDUITS AND EQUIPMENT TO BE CONCEALED IN FINISHED SPACES UNLESS OTHERWISE NOTED. CONDUITS SHALL BE ENCASED IN THE CONCRETE FLOOR SLAB.
- ALL EQUIPMENT AND MATERIALS INSTALLED IN PLENUM CEILINGS SHALL BE APPROVED FOR THAT APPLICATION.
- OUTLET BOXES AND JUNCTION BOXES ON OPPOSITE SIDES OF FIRE-RATED WALLS SHALL BE SEPARATED BY A HORIZONTAL DISTANCE OF NOT LESS THAN 24 INCHES, UNLESS FIRE-RATED BOXES OR PUTTY PADS ARE UTILIZED.
- COORDINATE ALL FLOOR PENETRATIONS WITH THE STRUCTURAL AND ARCHITECTURAL DRAWINGS. CONFIRM PENETRATION LOCATIONS WITH THE ENGINEER AND OWNER BEFORE INSTALLATION.
- COORDINATE THE MOUNTING HEIGHT AND LOCATION OF RACEWAYS, COMMUNICATIONS OUTLETS, AND RECEPTACLES WITH THE ARCHITECTURAL CASEWORK DRAWINGS AND DETAILS. COORDINATE LOCATIONS OF LIGHT FIXTURES, SWITCHES, AND RELATED DEVICES WITH THE ARCHITECTURAL DRAWINGS AND DETAILS.
- REFER TO ARCHITECTURAL PLANS FOR FINAL LOACTIONS OF ALL LUMINARIES AND SWITCHES, AND FOR ALL FINISHED CEILING HEIGHTS.
- REFER TO ARCHITECTURAL PLANS FOR FINAL LOCATIONS OF ALL ELECTRICAL DEVICES, AND FOR FINAL CEILING AND WALL HEIGHTS AND LAYOUTS.
- LIGHTING FIXTURES PROVIDED WITH EMERGENCY BATTERY PACKS AND INDICATED WITH SWITCH CONTROL SHALL BE WIRED WITH BATTERY CHARGING/SENSING CIRCUIT WIRED AHEAD OF SWITCH CONTROL.
- NUMBER(S) SHOWN AT RECEPTACLES, JUNCTION BOXES AND EQUIPMENT INDICATES CIRCUIT NUMBERS IN PANELBOARD. PROVIDE WIRE AND CONDUIT TO INTERCONNECT EQUIPMENT AND DEVICES WITH SAME CIRCUIT NUMBERS AND RUN TO PANELBOARD.

### REVISIONS

No.	Description	Date



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### ELECTRICAL SYMBOL, ABBREVIATION & NOTES

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## ELECTRICAL SPECIFICATION

1. GENERAL:
- A. THE "GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION," AIA DOCUMENT, LATEST EDITION, AND THESE SPECIFICATIONS AS APPLICABLE ARE PART OF THIS CONTRACT.
- B. DRAWING ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK. CONDUIT ROUTING IS SHOWN DIAGRAMMATICALLY AND DOES NOT SHOW ALL OFFSETS, DROPS AND RISES OF RUNS. THE CONTRACTOR SHALL ALLOW IN HIS PRICE FOR ROUTING OF CONDUIT TO AVOID OBSTRUCTIONS. COORDINATION WITH EXISTING SERVICES, INCLUDING THOSE OF OTHER TRADES, IS REQUIRED. MAINTAIN HEADROOM AND SPACE CONDITIONS.
- C. BIDDERS, BEFORE SUBMITTING PROPOSALS, SHALL VISIT AND CAREFULLY EXAMINE THE AREA AFFECTED BY THIS WORK TO FAMILIARIZE THEMSELVES WITH THE EXISTING CONDITIONS AND THE DIFFICULTIES THAT WILL ATTEND THE EXECUTION OF THIS WORK. SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT SUCH AN EXAMINATION HAS BEEN MADE, AND LATER CLAIMS WILL NOT BE RECOGNIZED FOR EXTRA LABOR, EQUIPMENT, OR MATERIALS. REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN HAD SUCH AN EXAMINATION BEEN MADE.
- D. INSTALL WORK SO AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTANANCE AND REPAIR. MINOR DEVIATIONS FROM DRAWING MAY BE MADE TO ACCOMPLISH THIS, BUT CHANGES WHICH INVOLVE EXTRA COST SHALL NOT BE MADE WITHOUT APPROVAL.
- E. REMOVAL AND RELOCATION OF CERTAIN EXISTING WORK MAY BE NECESSARY FOR THE PERFORMANCE OF THE GENERAL WORK. ALL EXISTING CONDITIONS CANNOT BE COMPLETELY DETAILED ON THE DRAWINGS. THE CONTRACTOR SHALL SURVEY THE SITE AND INCLUDE ALL CHANGES AND CHARGES IN MAKING UP THE WORK PROPOSAL.
- F. CONNECTIONS TO EXISTING WORK: INSTALL NEW WORK AND CONNECT TO EXISTING WORK WITH MINIMUM INTERFERENCE TO EXISTING FACILITIES. TEMPORARY SHUTDOWNS OF EXISTING SERVICES SHALL BE PERFORMED AT NO ADDITIONAL CHARGES. AT TIMES NOT TO INTERFERE WITH NORMAL OPERATION OF EXISTING FACILITIES AND ONLY WITH WRITTEN CONSENT OF OWNER. ALARM AND EMERGENCY SYSTEMS SHALL NOT BE INTERRUPTED. MAINTAIN CONTINUOUS OPERATION OF EXISTING FACILITIES AS REQUIRED WITH NECESSARY TEMPORARY CONNECTIONS BETWEEN NEW AND EXISTING WORK. CONNECT NEW WORK TO EXISTING WORK IN NEAT AND ACCEPTABLE MANNER. RESTORE EXISTING DISTURBED WORK TO ORIGINAL CONDITION, INCLUDING MAINTENANCE OF WIRING CONTINUITY AS REQUIRED.
- G. DISCONNECT, REMOVE AND/OR RELOCATE EXISTING MATERIAL, EQUIPMENT AND OTHER WORK AS NOTED OR REQUIRED FOR PROPER INSTALLATION OF NEW WORK.
- H. THE CONTRACTOR SHALL KEEP ALL EQUIPMENT AND MATERIALS, AND ALL PARTS OF THE BUILDING EXTERIOR SPACES AND ADJACENT STREETS, SIDEWALKS AND PAVEMENTS, FREE FROM MATERIAL AND DEBRIS RESULTING FROM THE EXECUTION OF THIS WORK. EXCESS MATERIALS WILL NOT BE PERMITTED TO ACCUMULATE EITHER ON THE INTERIOR OR THE EXTERIOR.
- I. SEAL OPENINGS THROUGH PARTITIONS, WALLS AND FLOORS WITH MINERAL WOOL OR OTHER NONCOMBUSTIBLE MATERIAL, UNLESS OTHERWISE NOTED.
- J. PROVIDE ALL NECESSARY FLASHING AND COUNTER FLASHING TO MAINTAIN THE WATERPROOFING INTEGRITY OF THE BUILDING AS REQUIRED BY THE INSTALLATION OR REMOVAL OF CONDUIT AND EQUIPMENT, PROVIDE EQUIPMENT CURBS AS REQUIRED.
- K. ALL EXISTING MATERIAL, EQUIPMENT AND CONSTRUCTION DEBRIS TO BE REMOVED UNDER THIS CONTRACT SHALL BECOME THE PROPERTY OF THE CONTRACTOR WITH THE EXCEPTION OF SPECIFIC EQUIPMENT AND APPARATUS REQUESTED BY THE BUILDING REPRESENTATIVE, ARCHITECT OR AS NOTED TO BE RELOCATED ON THE DRAWINGS. REMOVED EQUIPMENT SHALL BE PROPERLY DISPOSED OF BY THIS CONTRACTOR.
- L. THE CONTRACTOR'S PROPOSAL FOR ALL WORK SHALL BE PREDICATED ON THE PERFORMANCE OF THE WORK DURING REGULAR WORKING HOURS. WHEN SO DIRECTED, HOWEVER, THE CONTRACTOR SHALL INSTALL WORK DURING OVERTIME HOURS AND THE ADDITIONAL COST TO BE CHARGED THEREFORE SHALL BE ONLY THE "PREMIUM" PORTION OF THE WAGES PAID.
- M. UNLESS OTHERWISE SPECIFICALLY NOTED OR SPECIFIED, INCLUDE ALL CUTTING AND PATCHING OF EXISTING FLOORS, WALLS, PARTITIONS AND OTHER MATERIALS IN THE EXISTING BUILDING. THE CONTRACTOR SHALL RESTORE THESE AREAS TO ORIGINAL CONDITION.
- N. ALL MATERIAL AND EQUIPMENT SHALL BE NEW UNLESS OTHERWISE NOTED AND SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.
- O. INSURANCE: PROVIDE IN ACCORDANCE WITH OWNER/BUILDING REQUIREMENTS AND SHALL INCLUDE A HOLD HARMLESS CLAUSE FOR OWNER AND ENGINEER.
- P. THE FINAL ACCEPTANCE SHALL BE MADE AFTER THE CONTRACTOR HAS ADJUSTED HIS EQUIPMENT, TESTED THE VARIOUS SYSTEMS, DEMONSTRATED THAT IT FULFILLS THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS AND HAS FURNISHED ALL THE REQUIRED CERTIFICATED OF INSPECTION AND APPROVAL.

### 2. GENERAL PROVISIONS FOR ELECTRICAL WORK:

- A. DEFINITIONS:
- "PROVIDE": TO FURNISH, INSTALL AND CONNECT UP COMPLETE AND READY FOR SAFE AND REGULAR OPERATION THE PARTICULAR WORK REFERRED TO UNLESS SPECIFICALLY OTHERWISE NOTED.
  - "INSTALL": TO ERECT, MOUNT AND CONNECT COMPLETE WITH RELATED ACCESSORIES.
  - "FURNISH" OR "SUPPLY": TO PURCHASE, PROCURE, ACQUIRE, AND DELIVER COMPLETE WITH RELATED ACCESSORIES.
  - "WORK": LABOR, MATERIALS, EQUIPMENT, APPARATUS, CONTROLS, ACCESSORIES AND OTHER ITEMS REQUIRED FOR PROPER AND COMPLETE INSTALLATION.
  - "WIRING": RACEWAY, FITTINGS, WIRE, BOXES, AND RELATED ITEMS.
  - "CONCEALED": EMBEDDED IN MASONRY OR OTHER CONSTRUCTION, INSTALLED IN FURRED SPACES, WITHIN DOUBLE PARTITIONS OR HUNG CEILINGS, IN TRENCHES, IN CRAWL SPACES, OR IN ENCLOSURES
  - "EXPOSED": NOT INSTALLED UNDERGROUND OR "CONCEALED" AS DEFINED ABOVE.

- "SIMILAR" OR "EQUAL": EQUAL IN MATERIALS, WEIGHT, SIZE, DESIGN AND EFFICIENCY OF SPECIFIED PRODUCT.
- TEMPORARY LIGHT AND POWER: PROVIDE TEMPORARY LIGHT AND POWER SYSTEMS AT EARLIEST POSSIBLE DATE WITHIN THE CONSTRUCTION AREAS FOR THE REQUIREMENTS OF ALL TRADES AS HEREIN DESCRIBED. EXTEND SYSTEMS TO NEW CONSTRUCTION AS SOON AS PHYSICALLY POSSIBLE. MAINTAIN SYSTEM DURING WORKING OWNER. PROVIDE ALL REQUIRED MAINTENANCE, INCLUDING LAMPS AND SOCKETS.
- QUALITY ASSURANCE
  - QUALITY OF MATERIALS: ALL EQUIPMENT SHALL BE NEW SPECIFICATION GRADE, FREE FROM DEFECTS AND LISTED BY APPROVED TESTING AGENCY AND BEARING THEIR LABEL. MATERIALS AND EQUIPMENT OF SIMILAR APPLICATION SHALL BE OF SAME MANUFACTURER, EXCEPT AS NOTED.
  - GUARANTEE: ALL MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED AS DEFINED IN PARAGRAPH 2.C.
  - CURRENT CHARACTERISTICS:
    - DISTRIBUTION: 120/208 VOLT, 3 PHASE, 4 WIRE, 60 HERTZ WITH GROUNDED NEUTRAL.
  - HEIGHTS OF OUTLETS:
    - FROM FINISHED FLOOR TO CENTERLINE OF OUTLETS FOR:
      - RECEPTACLES AND TELEPHONES: 1 FT-6 IN.
      - WALL SWITCHES: 4 FT-0 IN.
      - WALL FIXTURES: 7 FT-0 IN.
      - MOTOR CONTROLLERS: 5 FT-0 IN.
      - CLOCKS: 7 FT 6 IN
    - EXCEPTIONS: AT JUNCTION OF DIFFERENT WALL FINISH MATERIALS, ON MOLDING OR BREAK IN WALL SURFACE, IN VIOLATION OF CODE, OR AS NOTED OR DIRECTED.

### D. PRODUCT DELIVERY, STORAGE AND HANDLING

- MOVING OF EQUIPMENT: WHERE NECESSARY, SHIP IN CARTED SECTIONS OF SIZE TO PERMIT PASSING THROUGH AVAILABLE SPACES.
  - ACCESSIBILITY: FOR OPERATION, MAINTENANCE AND REPAIR, MINOR DEVIATIONS SHALL BE PERMITTED, CHANGES OF MAGNITUDE OR INVOLVING EXTRA COST ARE NOT PERMISSIBLE WITHOUT REVIEW. GROUP CONCEALED ELECTRICAL EQUIPMENT REQUIRING ACCESS WITH EQUIPMENT FREELY ACCESSIBLE THROUGH ACCESS DOORS.
- E. MATERIALS
- NAMEPLATES: PROVIDE BLACK LAMICOID SHEET WITH 3/4 IN. WHITE LETTERING, FASTENED WITH EPOXY CEMENT FOR EACH DISCONNECT SWITCH, CIRCUIT BREAKER, PANEL, CABINET, TRANSFORMER, ENCLOSURE, MOTOR CONTROLLER AND THE LIKE. NAMEPLATES SHALL DESCRIBE THE NAME AND NUMBER OF EACH COMPONENT.
  - CABLE TAGS: TAG EACH CONDUCTOR PASSING THROUGH SPLICE OR PULLBOX WITH A WHITE LINEN TAG, INDICATING POINT OF ORIGIN AND TERMINATION OF THE CIRCUIT.
  - INSERTS AND SUPPORTS:
    - INSERTS: STEEL, SLOTTED TYPE, FACTORY PAINTED.
      - SINGLE ROD: SIMILAR TO GRINNELL FIG. 281.
      - MULTI-ROD: SIMILAR TO FEE AND MASON SERIES 9000 WITH END CAPS AND CLOSURE STRIPS.
      - CLIP FORM NAILS FLUSH WITH INSERTS.
      - MAXIMUM LOADING 75 PERCENT OF RATING.
    - SUPPORTS FROM BUILDING CONSTRUCTION: INSERTS, BEAM CLAMPS, STEEL FISHPLATES (IN CONCRETE FILL ONLY), CANTILEVER BRACKETS OR OTHER MEANS. SUBMIT FOR REVIEW.
    - GROUPED LINES AND SERVICES: TRAPEZE HANGERS OF BOLTED ANGLES OR CHANNELS.
    - WHERE BUILDING CONSTRUCTION IS INADEQUATE: PROVIDE ADDITIONAL FRAMING. SUBMIT FOR REVIEW.

- F. PAINT SHALL BE THE BEST GRADE FOR ITS PURPOSE. DELIVER IN ORIGINAL SEALED CONTAINERS AND APPLY IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. COLORS SHALL BE AS SELECTED BY ARCHITECT OR ENGINEER. UTILIZE GALVANIZED IRON PRIMER ON PANEL AND PULL BOXES, AFTER FABRICATION. UTILIZE HOT DIPPED GALVANIZED OR DIPPED IN ZINC BASED PRIMER FOR: OUTLET BOXES, JUNCTION BOXES, CONDUIT HANGERS, RODS, INSERTS AND SUPPORTS. ZINC BASED PRIMER WITH FINISH TO MATCH BRUSH AND CLEAN WORK PRIOR TO CONCEALING, PAINTING AND ACCEPTANCE. PAINTED EXPOSED WORK SOILED OR DAMAGED, CLEAN AND REPAIR TO MATCH ADJOINING WORK BEFORE FINAL ACCEPTANCE. REMOVE DEBRIS FROM INSIDE AND OUTSIDE OF MATERIAL AND EQUIPMENT.

- G. FINAL LOCATIONS AND MOUNTING ORIENTATIONS OF ALL SWITCHES, RECEPTACLES AND LIGHT FIXTURES SHALL BE VERIFIED WITH ARCHITECT.

- H. ALL ACCESS DOOR LOCATIONS SHALL BE REVIEWED BY ARCHITECT PRIOR TO INSTALLATION.

### 3. SCOPE OF WORK:

- A. SCOPE OF WORK SHALL CONSIST OF PROVIDING ALL LABOR, MATERIALS, EQUIPMENT, SERVICES, AND FEES NECESSARY FOR A COMPLETE AND SAFE INSTALLATION, IN ACCORDANCE WITH THE 2017 NATIONAL ELECTRICAL CODE WITH LOCAL ADPTIONS, ALL APPLICABLE INDUSTRY STANDARDS, NATIONAL AND LOCAL CODES, AND THE REQUIREMENTS OF THE AUTHORITIES HAVING JURISDICTION, AS INDICATED ON THE DRAWINGS AND HEREIN SPECIFIED.
- B. ALL DRAWINGS, PLANS, DETAILS, SPECIFICATIONS AND SPECIFICATION ADDENDA ARE MADE PART OF THIS CONTRACT AND SHALL APPLY TO ALL WORK UNDER THE CONTRACT UNLESS OTHERWISE AMENDED, MODIFIED, SUPPLIED OR SPECIFIED HEREIN.
- C. THE CONTRACTOR SHALL FURNISH A WRITTEN GUARANTEE TO REPLACE OR REPAIR PROMPTLY AND ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED FOR ANY WORKMANSHIP AND EQUIPMENT IN WHICH DEFECTS DEVELOP WITHIN ONE YEAR FROM THE DATE OF FINAL CERTIFICATE FOR PAYMENT AND/OR FROM DATE OF ACTUAL USE OF EQUIPMENT OR OCCUPANCY OF SPACES BY OWNER INCLUDED UNDER THE VARIOUS PARTS OF THE WORK, WHICHEVER, DATE IS EARLIER, THIS WORK SHALL BE DONE AS DIRECTED BY THE OWNER. THIS GUARANTEE SHALL ALSO PROVIDED THAT WHERE DEFECTS OCCUR, THE CONTRACTOR WILL ASSUME RESPONSIBILITY OF OTHER TRADES AFFECTED BY DEFECTS, REPAIRS OR

### REPLACEMENTS IN EQUIPMENT SUPPLIED BY THE CONTRACTOR.

- D. THE CONTRACTOR SHALL GIVE NECESSARY NOTICE, FILE DRAWINGS AND SPECIFICATIONS WITH ALL DEPARTMENTS HAVING JURISDICTION, WORK AND PAY ALL FEES THEREFORE. THE CONTRACTOR SHALL ARRANGE FOR INSPECTION AND TESTS OF ANY OR ALL PARTS OF THE WORK IF SO REQUIRED BY AUTHORITIES AND PAY ALL CHARGES FOR SAME. THE CONTRACTOR SHALL PAY ALL COSTS FOR, AND FURNISH TO THE OWNER BEFORE FINAL BILLING, ALL CERTIFICATES NECESSARY AS EVIDENCE THAT THE WORK INSTALLED CONFORMS WITH ALL REGULATIONS WHERE THEY APPLY TO THIS WORK.

- E. CONTRACTOR SHALL PERFORM ALL CONTROLLED INSPECTIONS IN ACCORDANCE WITH THE BUILDING CODE. SECURE ALL REQUIRED PERMITS AND APPROVALS AND TRANSMIT SAME TO OWNER. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL FEES.

- F. AREAS WITH NO ELECTRICAL WORK SHALL REMAIN AS IS. CONTRACTOR SHALL MAINTAIN CONTINUITY OF ALL ELECTRICAL SYSTEMS TO ALL AREAS NOT COVERED BY THIS RENOVATION AND SHALL PROVIDE 48 HOUR NOTICE TO LANDLORD OF ANY PLANNED POWER INTERRUPTIONS OR SIGNAL SYSTEM OUTAGES.

### 4. SHOP DRAWINGS

- A. PRIOR TO THE INSTALLATION OF ANY WORK AND PROCUREMENT OF EQUIPMENT, CONTRACTOR SHALL PROVIDE COMPLETE SETS OF COORDINATED SHOP DRAWINGS OF ALL NEW AND EXISTING EQUIPMENT INDICATING CAPACITY, DIMENSIONS AND SEQUENCE OF OPERATION FOR WRITTEN APPROVAL BY THE ARCHITECT AND ENGINEER.

### B. INDICATE ON EACH SHOP DRAWINGS SUBMITTED:

- PROJECT NAME AND LOCATION
- NAME OF ARCHITECT AND ENGINEER
- ITEM IDENTIFICATION
- APPROVAL STAMP OF PRIME CONTRACTOR

### C. SUBMISSIONS:

- SUBMISSIONS 11 IN. X 17 IN. OR SMALLER: IF THE SUBMISSION IS A CATALOG CUT, THEN THE CONTRACTOR SHALL SUBMIT ONE ORIGINAL AND TWO COPIES. OTHERWISE, HE SHALL SUBMIT THREE COPIES. THE ARCHITECT WILL FORWARD THE ORIGINAL AND ONE COPY (TWO COPIES WHEN NO ORIGINAL IS RECEIVED) TO THE ENGINEER. ALL CATALOG CUTS SHALL BE COMPLETE.
- SUBMISSIONS LARGER THAN 11 IN. X 17 IN.: SUBMIT TWO PRINTS AND ONE PAPER SEPIA TO THE ARCHITECT. THE ARCHITECT WILL FORWARD ONE PRINT AND THE PAPER SEPIA TO THE ENGINEER.

### D. SUBMIT SHOP DRAWINGS FOR THE FOLLOWING:

- SAFETY/DISCONNECT SWITCHES
- FUSES
- CIRCUIT BREAKERS
- PANELBOARDS/LOADCENTER (INCLUDING DIMENSIONS, SCHEDULES, AND CATALOG CUTS).
- RACEWAYS
- WIRE AND CABLE
- WALL SWITCHES
- INSERTION RECEPTACLES
- MOMENTARY CONTACT SWITCHES
- TIME SWITCHES
- LIGHTING FIXTURES.
- TRANSFORMER.

- E. ASSIST AND PROVIDE ALL NECESSARY INFORMATION, DIAGRAMS, SKETCHES, ETC. TO THE HVAC CONTRACTOR, FOR THE PREPARATION OF COORDINATED SHOP DRAWINGS INDICATING ROUTING OF FEEDERS, CONTROL CONDUITS, RECESSED FIXTURES AND ADJACENT NEARBY PIPING AND DUCTWORK WHERE APPLICABLE, CERTIFIED BY ALL TRADES THAT COORDINATION HAS BEEN ESTABLISHED. SUBMIT FOUR(4) BOOKBOUND OPERATING AND SERVICE MANUALS WHICH SHALL INCLUDE COPIES OF ALL SHOP DRAWING. PROVIDE SHOP DRAWINGS FOR PANELS, FIXTURES, WIRING DEVICES, CONDUIT, CABLE, DISCONNECT SWITCH, RELAYS, CONTRACTORS, AND OTHER SYSTEMS AS DIRECTED BY THE ENGINEER.

### 5. AS-BUILT DRAWINGS AND EQUIPMENT OPERATIONAL INSTRUCTIONS

- A. UPON COMPLETION AND ACCEPTANCE OF WORK, CONTRACTOR SHALL FURNISH WRITTEN INSTRUCTIONS AND EQUIPMENT MANUALS, AND DEMONSTRATE TO THE OWNER THE PROPER OPERATION AND MAINTENANCE OF ALL EQUIPMENT AND APPARATUS FURNISHED UNDER THIS CONTRACT.

- B. THESE INSTRUCTIONS SHALL BE TYPED ON 8-1/2 IN. X 11 IN. PAPER A BOUND IN THREE RING BINDERS WITH CLEAR ACETATE COVERS. CONTRACTOR SHALL GIVE THREE COPIES OF THE INSTRUCTIONS TO THE OWNER AND ONE COPY TO THE ENGINEER.

- C. THE INSTRUCTION BOOKLET SHALL BEAR THE NAME, ADDRESS AND TELEPHONE NUMBER OF THE PROJECT, ARCHITECT AND ENGINEER.

- D. REPRODUCIBLE "AS-BUILT" DRAWINGS SHALL BE PROVIDED INDICATING THE AS INSTALLED CONDITIONS OF THE WORK. "AS-BUILT" DRAWINGS SHALL BE PROVIDED TO THE ARCHITECT AFTER COMPLETION OF THE INSTALLATION.

### 6. LOW-VOLTAGE DISTRIBUTION EQUIPMENT:

- A. PROVIDE COMPLETE EQUIPMENT INCLUDING: SWITCHES, FUSES, CIRCUIT BREAKERS, PANELS AND TRANSFORMERS.

- B. ALL EQUIPMENT SHALL CONFORM TO NEMA, ANSI AND IEEE STANDARDS.

- C. DISCONNECT SWITCHES SHALL BE FUSED OR NONFUSED AS NOTED. VOLTAGE SHALL BE AS REQUIRED. SWITCHES SHALL BE HEAVY DUTY, EXCEPT AS NOTED, AND HORSEPOWER RATED FOR MOTOR LOADS. TOGGLE TYPE SWITCHES SHALL BE NONFUSED, LOAD BREAK, HAVING MAXIMUM RATINGS OF 20 AMP AT 600 VOLTS AND 30 AMP AT 240 VOLTS. TWO-POLE SWITCHES SHALL BE SIMILAR TO HART AND HEGEMAN NO. 6808F. THREE-POLE SWITCHES SHALL BE SIMILAR TO HART AND HEGEMAN NO. 7810F. KNIFE-BLADE TYPE SWITCHES SHALL BE LOAD BREAK, QUICK-MAKE- QUICK-BREAK, UL CLASS R UP TO 800 AMP. MAXIMUM RATING EXCEPT AS NOTED SHALL BE 800 AMP. ARC QUENCHERS SHALL BE PROVIDED. SWITCHES SHALL BE SIMILAR TO GENERAL ELECTRIC QMR. ALL SWITCH ENCLOSURES SHALL BE DEAD FRONT, NEMA TYPE 1, EXCEPT AS NOTED.

### 7. FUSES:

- A. CIRCUITS 0 TO 600 AMPERES SHALL BE PROTECTED BY FUSES SIMILAR TO CURRENT LIMITING BUSSMAN LOW-PEAK DUAL-ELEMENT TIME-DELAY LPN-RK (AMP)SP (250V)/LPS-RK (AMP)SP (600V) OR LPJ (AMP)SP (600V) (UL CLASS RK1 OR CLASS J), AND BE LISTED BY UL WITH AN INTERRUPTING RATING OF 300,000 AMPERES RMS SYMMETRICAL.

- B. MOTOR CIRCUITS - ALL INDIVIDUAL MOTOR CIRCUITS WITH FULLLOAD AMPERE RATINGS (FLA) OF 480 AMPERES OR LESS SHALL BE PROTECTED BY FUSES SIMILAR TO CURRENT LIMITING BUSSMAN LOW-PEAK DUAL-ELEMENT TIME-DELAY LPN-RK (AMP)SP (250V)/LPS-RK (AMP)SP (600V) OR LPJ (AMP) SP (600V) (UL CLASS RK1 OR CLASS J), AND BE LISTED BY UL WITH AN INTERRUPTING RATING OF 300,000 AMPERES RMS SYMMETRICAL.

- C. ALL FUSES SHALL BE PROVIDED BY SAME MANUFACTURER.

- D. PROVIDE 1 SPACE MATCHING FUSE FOR EACH SET OF 3.

- E. CIRCUIT BREAKERS: MOLDED CASE BREAKERS SHALL BE THERMAL-MAGNETIC, QUICK-MAKE-QUICK-BREAK, BOLT-ON TYPE, MANUALLY OPERATED WITH INSULATED TRIP-FREE HANDLE. MULTI-POLE TYPE BREAKERS SHALL CONTAIN INTERNAL TRIP BAR. TERMINALS SHALL BE SUITABLE FOR COPPER OR ALUMINUM CABLE. FURNISH AUXILIARY DEVICES WHERE REQUIRED FOR SHUNT-TRIPPING, OPEN AND CLOSE MOTOR OPERATOR AND ALARM INDICATION. ENCLOSURES SHALL BE DEAD FRONT, NEMA TYPE 1, EXCEPT AS NOTED. FRAMES, IC AND INTERCHANGEABLE TRIPS SHALL BE AS FOLLOWS, UNLESS OTHERWISE NOTED:

- 120 VOLTS, 100-AMP FRAME: 10,000 AMPS, 1 POLE.
- 120/240 VOLTS, 225-AMP FRAME: 22,000 AMPS MINIMUM.

### 8. DISTRIBUTION PANELBOARDS, CIRCUIT BREAKER TYPE:

- A. THREE PHASE, 4 OR 5 WIRE, COPPER BUS BARS, WITH 2, 3, OR 4 WIRE BRANCHES, AS NOTED. CAPACITY OF PANEL AND CIRCUITS, AS NOTED BELOW. PANELBOARD TO HAVE GROUND BUS SAME SIZE AS PHASE BUSES.

- B. CABINETS: CODE GAUGE GALVANIZED SHEET STEEL PRIMED AND PAINTED WITH TRIM AND DOOR, TYPE AS NOTED, LAP AND RIVET CORNERS OR FORM AS APPROVED.

- C. TRIM: ONE PIECE FULL FINISH PRIMED AND PAINTED SHEET STEEL. TRIM SHALL BE MOUNTED WITH A CONTINUOUS PIANO HINGE CONFIGURED IN SUCH A MANNER THAT IT SHALL BE POSSIBLE TO GAIN FULL ACCESS TO CIRCUIT BREAKERS AND WIRING GUTTERS WITHOUT REMOVING THE TRIM. PROVIDE A MULTI-PIN CYLINDER LOCK (YALE, CORBIN OR EQUAL) TO LATCH THE TRIM. KEYS SHALL BE MILLED.

- D. HARDWARE: MULTI-PIN, CYLINDER LOCKS WITH MILLED KEYS. ALL PANELS SHALL BE KEYPED ALIKE. DOOR OVER 48" HIGH SHALL BE EQUIPPED WITH A CHROME PLATED YALLT HANDLE, BUILT-IN LOCK AND 3-POINT CATCH FASTENING DOOR AT TOP, BOTTOM AND CENTER.

- E. HINGES: CONCEALED, CONTINUOUS PIANO HINGE AS DESCRIBED ABOVE.

- F. DIRECTORY HOLDER: MEAL FRAME WITH NONBREAKABLE TRANSPARENT COVER AND DIRECTORY CARD ENTRIES TO BE TYPEWRITTEN BY ELECTRICAL CONTRACTOR. PROVIDE AN ENGRAVED LAMINATED NAMEPLATE ADJACENT TO EACH BRANCH BREAKER. MOUNT WITH SELF TAPPING MACHINE SCREWS.

- G. FURNISH MULTI-CABLE LUGS WHERE REQUIRED. DOUBLE LUGGING NOT PERMITTED. SECURE LUGS TO BUS BY STUD BOLTS.

- H. PANELBOARD CONSTRUCTION FOR BOLTED TYPE BREAKERS. MINIMUM SHORT CIRCUIT RATING 25,000 AMPERES, RMS SYMMETRICAL FOR ALL 120/208V APPLICATIONS. INDIVIDUAL CIRCUIT BREAKERS SHALL HAVE MINIMUM 100A FRAME, TRIPS SIZED AS SHOW ON THE PLANS.

- I. MINIMUM GUTTER SPACES: PANELS WITH 225 AMPERE MAINS, 5-3/4" MINIMUM, 400 AMPERES AND OVER, MINIMUM GUTTERS 8". FOR PANELS WITH THROUGH FEEDERS, INCREASE GUTTER WIDTH BY 2" MINIMUM AND PROVIDE A SHEET STEEL BARRIER BETWEEN THE PANEL GUTTER AND THE THROUGH FEEDER PORTION OF THE BACK BOX. BRANCH CIRCUIT BREAKERS SHALL BE MECHANICALLY INTERLOCKED WHEN SHOWN ON DRAWINGS.

- J. DISTRIBUTION AND SUB-DISTRIBUTION PANELBOARDS SHALL BE A MINIMUM OF 30" WIDE AND 10" DEEP.

- K. PANELBOARD SHALL HAVE MAIN CIRCUIT BREAKER OR MAIN LUGS AS INDICATED ON THE DRAWINGS. QUANTITY, POLES AND TRIP RATINGS OF BRANCH CIRCUIT BREAKERS TO BE AS INDICATED ON DRAWINGS.

- L. PANELBOARD SHALL HAVE ENGRAVED WHITE CORE, BLACK LAMACOID NAMEPLATE SCREWED ONTO PANE TRIM WITH DESIGNATION LISTED (PANELBOARD NAME, VOLTAGE, RATING OR MAINS IN AMPS).

### 9. DISTRIBUTION PANELBOARDS, SWITCH AND FUSE:

- A. THREE PHASE, 3 OR 4 WIRE WITH COPPER BUS BARS. ALL THROUGH BUS SHALL BE INSULATED.

- B. NEMA CLASS 1 CONSTRUCTION TO ACCOMMODATE FUSIBLE, INDIVIDUALLY ENCLOSED SWITCHES, FRONT REMOVABLE, SWITCH AND DOOR INTERLOCKS. COVERS TO BE PAD-LOCKABLE.

- C. PANELBOARD SHALL BE CONSTRUCTED OF CODE-GAUGE STEEL. GRAY FINISH OVER RUST INHIBITOR, FOR SURFACE MOUNTING. BOX AND PANEL FRAME SHALL BE FLANGED AND REINFORCED FOR RIGID SUPPORT OF INTERIOR AND ACCURATE ALIGNMENT OF INTERIOR WITH FRONT. TRIMS TO BE FASTENED TO BACK BOX WITH SCREWS.

- D. ALL BRANCH SWITCHES SHALL HAVE INDIVIDUAL ENGRAVED LAMICOID NAMEPLATES (BLACK WITH WHITE CORE).

- E. DISTRIBUTION PANELBOARD CONSTRUCTION MINIMUM SHORT CIRCUIT RATING 25,000 AMPERES, REMS SYMMETRICAL FOR ALL 120/208V APPLICATIONS. APPLICATIONS.

### F. DISCONNECTS

- DISCONNECT SWITCHES SHALL CONFORM TO NEMA AND UL STANDARDS, AND SHALL BE HORSEPOWER RATED.

- SWITCHING MECHANISM SHALL BE QUICK-MAKE, QUICK-BREAK, SINGLE THROW WITH EXTERNAL OPERATING HANDLE MECHANICALLY INTERLOCKED WITH ENCLOSURE COVER TO PROVIDE ACCESS TO INTERIOR WHEN DISCONNECT IS IN OFF POSITION ONLY. PROVIDE MEANS TO LOCK OPERATING HANDLE IN THE OPEN AND CLOSED POSITION. DESIGNATE ON THE ENCLOSURE THE OPEN AND CLOSED POSITION OF THE OPERATING HANDLE.

- SWITCHES SHALL BE OF THE DOUBLE STATIONARY CONTACT TYPE.

- SWITCHES SHALL BE EQUIPPED WITH REJECTION TYPE FUSE HOLDERS, FUSIBLE AS SHOWN ON THE DRAWINGS; PROVIDE COMPLETE WITH FUSES AS SCHEDULED.

### REVISIONS

No.	Description	Date



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01-23-26



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### ELECTRICAL SPECIFICATIONS

Proj. No.	24TF604	E0.2
Date	11-9-25	
Drawn by	NVE	
Checked by	NVE	
		N.T.S.

## ELECTRICAL SPECIFICATION (CONT.)

### D. INSTALLATION

- DISTRIBUTION PANELBOARD SHALL BE MOUNTED TO STRUCTURAL STEEL CHANNEL (KINDORF) WHICH SHALL BE BOLTED TO THE WALL USING EXPANSION ANCHORS FOR LARGE PANELS.

### H. IDENTIFICATION

- PROVIDE NAMEPLATE AT EACH SWITCH IDENTIFYING THE LOAD SERVED.
- NAMEPLATES SHALL BE MOUNTED ON THE FRONT COVER SECURED WITH SELF-TAPPING SCREWS OR NUTS AND BOLTS. NAMEPLATES SHALL BE LAMINATED PHENOLIC, BLACK WITH A MINIMUM OF 1/4" HIGH WHITE LETTERING.

### I. DISTRIBUTION AND SUB-DISTRIBUTION PANELBOARDS SHALL BE A MINIMUM OF 30" WIDE AND 10" DEEP.

### J. POWER PANELBOARDS SHALL BE SIMILAR TO GENERAL ELECTRIC TYPE "OMR", AS MANUFACTURED BY ATLAS SWITCH COMPANY, ELECTRIC SWITCHBOARD COMPANY OR APPROVED EQUAL.

### K. PANELBOARD SHALL HAVE MAIN CIRCUIT BREAKER OR MAIN LUGS AS INDICATED ON THE DRAWINGS. QUANTITY, POLES AND TRIP RATINGS OF BRANCH CIRCUIT BREAKERS TO BE AS INDICATED ON DRAWINGS.

### L. PANELBOARD SHALL HAVE ENGRAVED WHITE CORE, BLACK LAMACOID NAMEPLATE SCREWED ONTO PANE TRIM WITH DESIGNATION LISTED (PANELBOARD NAME, VOLTAGE, RATING OR MAINS IN AMPS).

### M. MATERIALS

#### 1) RACEWAYS:

- RIGID STEEL CONDUIT: FULL-WEIGHT PIPE, GALVANIZED, THREADED.
- ELECTROMETALLIC TUBING (EMT): THIN WALL PIPE, GALVANIZED, THREADLESS.
- FLEXIBLE STEEL CONDUIT: CONTINUOUS SINGLE STRIP, GALVANIZED.
- WIREWAYS: WIRE SHALL BE AS NOTED, MINIMUM NO. 16 GAUGE STEEL WITH GROUND CONTINUITY. FINISH SHALL BE BAKED ENAMEL. COVERS SHALL BE SCREW-ON.
- SURFACE METAL RACEWAY: SIZE AS NOTED, BASE 0.04 IN., COVER 0.25 IN. MATERIAL SHALL BE STEEL, FINISH SHALL BE BAKED ENAMEL. COVERS SHALL BE SCREW-ON.

#### 2) FITTINGS AND ACCESSORIES:

- RIGID STEEL: NONSPLIT, THREADED, STEEL OR MALLEABLE IRON. ZINC DIE CAST NOT PERMITTED.
- ELECTROMETALLIC TUBING: COMPRESSION TYPE. GALVANIZED RIGID STEEL ELBOWS, 2 IN. OR LARGER.
- FLEXIBLE METALLIC CONDUIT: ANGLE WEDGE TYPE WITH INSULATED THROAT.
- BUSHINGS: METALLIC INSULATED TYPE.

#### 3) BOXES:

- OUTLET BOXES: EXCEPT AS OTHERWISE REQUIRED BY CONSTRUCTION, DEVICES OR WIRING, BOXES SHALL BE STAMPED STEEL, 4 IN. SQUARE OR OCTAGON FOR FIXTURES. BOXES ABOVE CEILING SHALL BE 1-1/2 IN. DEEP. BOXES IN CEILING OR SLAB SHALL BE 3 IN. DEEP. BOXES IN WALL FOR FIXTURES SHALL BE 2-3/4 IN. DEEP. BOXES IN WALL FOR RECEPTACLES AND SWITCHES SHALL BE 1-1/2 IN. DEEP. FURNISH WITH RAISED COVERS AND FIXTURE STUDS WHERE REQUIRED. WITHOUT FIXTURE OR DEVICE: FURNISH BLANK COVER, OFFSET BACK-TO-BACK OUTLETS WITH MINIMUM 6 IN. SEPARATION.
- JUNCTION AND PULL BOXES: GALVANIZED SHEET STEEL WITH SCREW-ON COVERS, EXCEPT AS NOTED. FURNISH WITH INSULATED SUPPORTS FOR CABLES. LOCATIONS SHALL BE AS NOTED OR REQUIRED AND ACCESSIBLE. PROVIDE BARRIERS IN NEW AND RENOVATED BOXES BETWEEN 120/208 VOLT AND 265/460 VOLT WIRING AND BETWEEN EMERGENCY AND NORMAL WIRING. FLOOR BOXES SHALL BE SUITABLE FOR CONDUIT AND DEVICES NOTED. RAISED OUTLETS SHALL BE HUBBELL #B2414 SERIES WITH ABOVE FLOOR FITTING. TELEPHONE; BUSHED HOLE. POWER: DUPLEX RECEPTACLE OR OTHER AS NOTED. INCREASE SIZE TO SUIT AS NECESSARY. FLUSH OUTLETS SHALL BE HUBBELL #B2414 SERIES WITH FLUSH FLOOR FITTING FOR TELEPHONE AND FLUSH DUAL FLAP COVER WITH DUPLEX RECEPTACLE FOR POWER AS NOTED. INCREASE SIZE TO SUIT AS NECESSARY.

### N. PROVIDE RACEWAYS ONLY AS HEREIN SPECIFIED, EXCEPT AS NOTED. RACEWAYS SHALL BE RUN CONCEALED, EXCEPT AS NOTED.

PROVIDE RACEWAY SUPPORT UTILIZING CEILING TRAPEZE, STRAP HANGERS, OR WALL BRACKETS. PROVIDE U-BOLTS AT EACH FLOOR LEVEL OF RISER RACEWAYS AND CONNECTED TO ACCEPTABLE SUPPORTS. PROVIDE RISER CLAMPS AT EACH FLOOR LEVEL OF RISER RACEWAYS AND RESTING ON SLAB. FOR THROUGH-THE-FLOOR SYSTEMS, UTILIZE AN ASSEMBLY SIMILAR TO HUBBELL FIRE RATED POKE-THROUGH-FLOOR BOX SYSTEM. FOR ABOVE FLOOR FITTINGS TELEPHONE SHALL BE BUSHED HOLE AND POWER SHALL BE DUPLEX RECEPTACLE OR OTHER AS NOTED. PROVIDE SEPARATION BARRIER BETWEEN POWER AND TELEPHONE COMPARTMENTS. PROVIDE JUNCTION BOX ON UNDERSIDE OF FLOOR. PACK FITTING TO RESTORE FIRE RATING OF FLOOR.

SECURE ALL RACEWAYS TO SUPPORTS WITH PIPE STRAPS OR U-BOLTS. SPACING OF SUPPORTS SHALL BE A MINIMUM OF 10 FT ON CENTER FOR METALLIC RACEWAY AND AS REQUIRED FOR NONMETALLIC RACEWAY. SPACING SHALL BE 5 FT ON CENTER FOR WIREWAYS AND PER CODE AND AS NOTED FOR OTHERS. MOUNT SUPPORTS TO STRUCTURE MASONRY WITH TOGGLE BOLTS ON HOLLOW MASONRY, EXPANSION SHIELDS OR INSERTS IN CONCRETE AND BRICK, MACHINE SCREWS ON METAL, BEAM CLAMPS ON FRAMEWORK, WOOD SCREWS ON WOOD, AND PANI THROUGH STRAPS IN METAL DECK. NAILS, RAWL PLUGS OR WOOD PLUGS SHALL NOT BE PERMITTED. WHERE REQUIRED BY STRUCTURE, FURNISH THROUGH BOLTS AND FISHPLATES.

EXPOSED RACEWAYS SHALL BE RUN PARALLEL WITH OR AT RIGHT ANGLES TO WALLS. PROVIDE CLEARANCE WITH WATER, STEAM OR OTHER PIPING (MINIMUM 3 IN. SEPARATION FROM STEAM AND HOT WATER PIPES, EXCEPT 1 IN. FROM PIPE COVER AT CROSSINGS AND 18 IN. FOR PARALLEL RUNS) FOR HUNG CEILING OUTLETS, RUN IN HUNG CEILING AND CONNECT TO CEILING SUPPORT CHANNELS. IN MASONRY AND POURED CONCRETE, RUN VERTICALLY ONLY.

EMPTY RACEWAYS OVER 10 FT LONG: PROVIDE FISH OR PULL WIRE,

### GALVANIZED OR NYLON ROPE.

RIGID STEEL CONDUIT SHALL BE PERMITTED FOR FEEDERS AND BRANCH CIRCUITS. PAINT MALE THREADS OF FIELD-THREADED CONDUIT WITH GRAPHITE-BASE PIPE COMPOUND AND BUTT CONDUIT ENDS. TOUCH UP MARRED SURFACES AND FIELD-CUT THREADS, CRC-COLD GALVANIZED. EMT SHALL BE PERMITTED FOR BRANCH CIRCUITS ONLY, IN DRY LOCATIONS, DRY WALLS, HUNG CEILINGS, HOLLOW BLOCK WALLS AND FURRED SPACES. EMT SHALL NOT BE PERMITTED IN RAISED FLOORS. FLEXIBLE STEEL CONDUIT SHALL BE UTILIZED FOR SHORT CONNECTIONS WHERE RIGID CONDUIT IS IMPRACTICAL. FROM OUTLET BOX TO RECESSED LIGHTING FIXTURE: PROVIDE MINIMUM 4 FT AND MAXIMUM 6 FT LENGTHS. FOR FINAL CONNECTION TO MOTOR TERMINAL BOX, TRANSFORMER AND OTHER VIBRATING EQUIPMENT: PROVIDE WITH POLYVINYL SHEATHING AND GROUND CONDUCTOR, MINIMUM LENGTH: 18 IN WITH SLACK. CONNECT GROUND CONDUCTOR TO ENCLOSURE OR RACEWAY AT EACH END. FOR EXPANSION JOINT CROSSINGS, CROSS AT RIGHT ANGLES AND ANCHOR ENDS.

CUT CONDUIT ENDS SQUARE. REAM SMOOTH. PAINT MALE THREADS OF FIELD THREADED RACEWAYS WITH GRAPHITE BASE PIPE COMPOUND. DRAW UP TIGHT WITH RACEWAY COUPLING.

ALL COUPLINGS SHALL BE COMPRESSION TYPE, NO SET SCREW FITTINGS.

EXPANSION FITTINGS SHALL BE INSTALLED AT RIGHT ANGLES WITH CLIP JOINT CENTERED IN EXPANSION JOINT. PROVIDE A LENGTH OF RUN IN ACCORDANCE MANUFACTURER'S RECOMMENDATIONS. PRESET FITTINGS SHALL ALLOW FOR TEMPERATURE VARIATION.

RACEWAYS PASSING THROUGH FIRE-RATED CONSTRUCTION: SEAL OPENING WITH FIRE SEALANT.

- PROVIDE CABLE SUPPORTS IN ACCORDANCE WITH NEC 2017 ARTICLE 300.19. CABLE SUPPORTS SHALL UTILIZE A ONE-PIECE PLUG WITH POZI-GRIP WEDGING PLUG AS MANUFACTURED BY OZ-GEDNEY. TYPE SF SHALL BE USED FOR ARMORED CABLE.

INSTALL CABLE SUPPORTS AT THE TOP OF A VERTICAL RISE AND PROVIDE INTERMEDIATE ADDITIONAL SUPPORTS AS REQUIRED TO LIMIT SUPPORTED CONDUCTOR LENGTHS TO NOT GREATER THAN THOSE SPECIFIED IN TABLE 300.19(A).

- ERECT WALL AND SWITCH OUTLETS IN ADVANCE OF FURRING AND FIREPROOFING. OUTLET BOXES SHALL BE SET SQUARE AND TRUE WITH BUILDING FINISH. SECURE TO BUILDING STRUCTURE BY ADJUSTABLE STRAP IRON OR GROUT IN WITH MASONRY. VERIFY OUTLET LOCATIONS IN FINISHED SPACES WITH ARCHITECTURAL DRAWINGS OF INTERIOR DETAILS AND FINISHES. PROVIDE BARRIER BETWEEN SWITCHES CONNECTED TO DIFFERENT PHASES FOR VOLTAGES EXCEEDING 150 VOLTS TO GROUND.

- PANEL, JUNCTION AND PULL BOXES SHALL BE LOCATED CLEAR OF OTHER TRADES. CONCEAL JUNCTION AND PULL BOXES IN FINISHED WHERE NECESSARY, REROUTE RACEWAYS OR MAKE OTHER ARRANGEMENTS FOR CONCEALMENT. BOXES SHALL BE ACCESSIBLE. SUPPORT BOXES FROM BUILDING STRUCTURE, INDEPENDENT OF CONDUIT. PROVIDE FLOOR-TO-CEILING CHANNELS FOR MOUNTING ON DRYWALL AND LIGHTWEIGHT CONSTRUCTION. OUTLET BOXES FOR FIXTURES RECESSED IN HUNG CEILINGS SHALL BE ACCESSIBLE THROUGH OPENING CREATED BY REMOVAL OF FIXTURE. SECURE TO BLACK IRON SUPPORT. MOTOR TERMINAL BOXES: COORDINATE WITH MOTOR BRANCH CIRCUIT CONDUIT AND WIRING; ADD BOX VOLUME WHERE REQUIRED.

- FIRE SEALANTS: PROVIDE FOR RACEWAYS AND WIRE PASSING THROUGH FLOOR SLOTS, SLEEVES OR OPENINGS IN FIRE-PARTITIONS ROOMS.

- PERFORM CONTINUITY TESTS OF RESISTANCE OF FEEDER CONDUITS FROM SERVICE TO POINT OF FINAL DISTRIBUTION USING 1 CONDUCTOR RETURN. MAXIMUM RESISTANCE SHALL BE 25 OHMS.

### 10. WIRE AND CABLE:

- PROVIDE WIRE AND CABLE COMPLETE WITH ACCESSORIES. SIZE REFERENCE SHALL BE AWG EXCEPT AS NOTED.

- CONDUCTORS SHALL BE COPPER, ASTM STANDARD SOLID (NO. 10 AND SMALLER) OR STRANDED (NO. 8 AND LARGER). GENERAL USE CABLING SHALL BE NO. 12 MINIMUM. AT 120 VOLTS AND OVER 100 FT CIRCUIT LENGTH PROVIDE NO. 10 MINIMUM. AT 265 VOLTS AND OVER 200 FT CIRCUIT LENGTH PROVIDE NO. 10 MINIMUM.

- CONTROL AND ALARM CABLING, EXCEPT AS NOTED, SHALL BE NO. 14 MINIMUM. AT 120 VOLTS AND OVER 200 FT CIRCUIT LENGTH PROVIDE NO. 12 MINIMUM. OTHER VOLTAGES AND PHASES: ADJUST CABLE SIZING AS REQUIRED TO MAINTAIN VOLTAGE DROP. INCREASE RACEWAY SIZES FOR LARGER WIRE AS REQUIRED.

- INSULATION SHALL BE RUBBER AND THERMOPLASTIC MEETING ASTM AND IPCEA STANDARDS. TYPE THW OR THWN SHALL BE UTILIZED FOR FEEDERS AND BRANCH CIRCUITS EXCEPT AS NOTED. TYPE SFF-2 SHALL BE UTILIZED FOR BRANCH CIRCUITS LOCATED IN WIRING CHANNELS OF CONTINUOUS FLUORESCENT FIXTURES AND IN AMBIENT TEMPERATURES OVER 90 DEG C. FOR GROUNDING ISOLATED BRANCH CIRCUITS PROVIDE CROSS-LINKED POLYETHYLENE INSULATION (TYPE XHHW).

- ARMORED CABLE (BX) SHALL BE UTILIZED FOR BRANCH CIRCUITS IN DRY HOLLOW LOCATIONS, HUNG CEILINGS, AND BLOCK WALLS, WHEN USED IN LIEU OF WIRING IN CONDUIT. STATE IN PROPOSAL THAT PRICE IS BASED UPON THE USE OF HOSPITAL GRADE BX.

- COLOR CODING SHALL BE AS FOLLOWS:

120/208 VOLT SYSTEM:	277/480 VOLT SYSTEM:
BLACK FOR A PHASE	BROWN FOR A PHASE
RED FOR B PHASE	ORANGE FOR C PHASE
BLUE FOR C PHASE	YELLOW FOR C PHASE

- NEUTRAL WIRE SHALL UTILIZE WHITE OUTER COVERING THROUGHOUT. EQUIPMENT GROUND WIRE SHALL UTILIZE GREEN OUTER COVERING THROUGHOUT.

- WHERE COLOR-CODED CABLE IS NOT AVAILABLE, CERTIFY IN WRITING AND REQUEST PERMISSION TO OVERLAP CONDUCTORS WITH 6 IN. OF COLOR TAPING IN ACCESSIBLE LOCATIONS.

- TERMINATIONS, SPLICES AND TAPS UNDER 600 VOLTS: COPPER CONDUCTORS NO. 10 AND SMALLER SHALL UTILIZE COMPRESSION-TYPE OF TWIST-ON SPRING-LOADED CONNECTORS AND CLEAR NYLON-INSULATED COVERING. COPPER CONDUCTORS NO. 8 AND LARGER SHALL UTILIZE MECHANICAL BOLTED PRESSURE OR HYDRAULIC COMPRESSION TYPE USING MANUFACTURER'S RECOMMENDED TOOLING. CABLE LUGS AND CONNECTORS SHALL UTILIZE COMPRESSION TYPE OF SAME METAL AS CONDUCTOR. PROVIDE TO MATCH CABLE, WITH MARKING INDICATING SIZE AND TYPE. COPPER LUG CONNECTIONS TO BUS BARS: USE ANTISIZE COMPOUND ON TANG.

- NOT MORE THAN 3 LIGHTING OR CONVENIENCE OUTLET CIRCUITS SHALL BE INSTALLED IN ONE CONDUIT UNLESS OTHERWISE INDICATED. PULL NO THERMOPLASTIC WIRES AT TEMPERATURES LOWER THAN 32 DEG F. PROVIDE SEPARATE RACEWAYS FOR CONDUCTORS OF 120/208 AND 265/460 VOLT SYSTEMS, EXCEPT 460 VOLT MOTOR BRANCH CIRCUIT WIRING AND RELATED 120 VOLT CONTROL WIRING. THERMOPLASTIC WIRES SHALL NOT BE INSTALLED IN COMPUTER AREA RAISED FLOORS.

- LEAVE WIRES WITH SUFFICIENT SLACK TO PERMIT MAKING FINAL CONNECTIONS.

- PERFORM CONTINUITY AND INSULATION TESTS, MEGGER TEST 100 PERCENT OF FEEDERS, 10 PERCENT OF BRANCH CIRCUITS AND ALL MOTOR BRANCH CIRCUITS OVER 25 HP.

PERFORM TESTS PRIOR TO CONNECTING EQUIPMENT AND IN PRESENCE OF AUTHORIZED REPRESENTATIVES. SUBMIT WRITTEN REPORT OF RESULTS. CORRECT OR REPLACE CABLE TESTING BELOW MANUFACTURER'S STANDARDS.

### 11. WIRING DEVICES:

- WIRING DEVICES SHALL BE SPECIFICATION GRADE UNLESS OTHERWISE SPECIFIED. ALL DEVICES SHALL BE FLUSH MOUNTED, UNLESS OTHERWISE NOTED. PROVIDE COMPLETE MATERIAL AND ACCESSORIES AS NOTED.

- LOCAL WALL SWITCHES SHALL BE ROCKER TYPE, QUIET OPERATING, RATED 20 AMP, 120/277 VOLT, AC. SIMILAR TO LEVITON DECORA SERIES A5621 (SINGLE POLE), A5623 (3-WAY) AND A5624 (4-WAY).

- STRAIGHT BLADE RECEPTACLES SHALL BE RESIDENTIAL GRADE DUPLEX CONVENIENCE 125 VOLTS, 2 POLE, 3 WIRE, U GROUND SLOT, DECORA SERIES BY LEVITON. GROUNDED, EXCEPT AS NOTED.

- SINGLE GANG, RECESSED, DUPLEX RECEPTACLE: TAMPER RESISTANT, 2-POLE, 3-WIRE GROUNDING, 15A, 125V, NEMA 5-20R; LEVITON 689 SERIES (COLOR AS SPECIFIED BY ARCHITECT).

- USB CHARGER/ DUPLEX TAMPER-RESISTANT RECEPTACLE: TAMPER RESISTANT.

- DEVICE PLATES: SEE ARCHITECT FOR TYPE. FOR RECEPTACLES WITH OTHER THAN 120 VOLT, INSCRIBED VOLTAGE AVAILABLE.

- COLORS: COORDINATE COLORS WITH ARCHITECT.

- MOUNTING ORIENTATION OF RECEPTACLES (HORIZONTAL OR VERTICAL): COORDINATE WITH ARCHITECT.

### 12. LIGHTING FIXTURES:

- FIXTURES TO BE AS SPECIFIED BY ARCHITECT AND SHALL BE COMPLETELY FACTORY ASSEMBLED, WIRED AND EQUIPPED WITH ALL NECESSARY SOCKETS, BALLASTS, SUPPORTING HARDWARE AND ACCESSORIES. REFER TO DRAWINGS FOR INDIVIDUAL FIXTURE DESCRIPTIONS.

- FIXTURE CATALOG NUMBERS USED TO ILLUSTRATE EQUIPMENT TYPE DO NOT NECESSARILY DENOTE REQUIRED MOUNTING EQUIPMENT OR ACCESSORIES. PROVIDE ACCESSORIES TO SUIT.
- BALLAST: CLASS P, HIGH POWER FACTOR, LOWEST AVAILABLE NEMA RATED NOISE LEVEL, ET1 AND CBM APPROVED. ENERGY SAVING TYPE. TRIGGER START FOR 24-INCH LAMPS AND RAPID START FOR 48-INCH TWO LAMP BALLASTS; NO THREE LAMP BALLASTS. BALLASTS SHALL BE ADVANCE MAGNETEK, UNIVERSAL OR EQUAL.

- LED DRIVERS SHALL BE ELECTRONIC TYPE, LABELED AS COMPLIANT WITH RADIO FREQUENCY INTERFERENCE (RFI) REQUIREMENTS OF FCC TITLE 47 PART 15 AND COMPLY WITH NEMA SSL 1 "ELECTRONIC DRIVERS SHALL HAVE A SOUND RATING OF "A", HAVE A MINIMUM EFFICIENCY OF 85% AND BE RATED FOR A THD OF LESS THAN 20% AT ALL INPUT VOLTAGES.

- DIMMABLE LED DRIVERS SHALL BE CAPABLE OF DIMMING WITHOUT LED STROBING OR FLICKER ACROSS THEIR FULL DIMMING RANGE. PROVIDE TYPE OF LED DRIVER AS PER LIGHTING FIXTURE SCHEDULE. DIMMABLE LED DRIVERS SHALL BE 0-10V WHERE NOT INDICATED.

- CONTINUOUS ROW, TWO LAMP STRIP FIXTURES SHALL BE STAGGERED TYPE.

- EXIT SIGNS SHALL BE PRECISION DIE-CAST ALUMINUM HOUSING WITH LASER-FORMED ACRYLIC LEGEND. EXIT SIGNS SHALL COMPLY WITH UL 924 AND BE LOCAL AHJ APPROVED. AC POWERED WITH PREMIUM LONG-LIFE NICKEL CADMIUM BATTERY WITH STANDARD UL LISTED 3-HOUR RUN TIME OR AS REQUIRED. PROVIDE WITH INTEGRAL AUTOMATIC CHARGER IN A SELF CONTAINED POWER PACK. LED INDICATOR WITH PUSH TO TEST SWITCH.

### 13. TELEPHONE CONDUIT SYSTEM:

- PROVIDE COMPLETE SYSTEM OF: RACEWAYS AND ACCESSORIES, OUTLET BOXES, SLEEVES AND FISHWIRES.

- EQUIPMENT SHALL CONFORM TO REQUIREMENTS OF TELEPHONE COMPANY.

- OUTLETS SHALL BE:

- WALL: 4 IN. SQUARE WITH BUSHED COVER PLATE.

- PROVIDE FISHWIRES, IN RACEWAYS OVER 10 FT LONG.

- CONDUIT SHALL BE 3/4 IN. MINIMUM. FURNISH EMPTY CONDUIT FROM OUTLET BOX TO BUSHED END THRU WALL 6" BELOW THE PLASTER CEILING.

- FACE RACEWAYS IN ROOMS SHALL HUBBELL HBL500, HBL750 OR HBL2000 SERIES OR AS ACCEPTABLE.

### 14. INTERCOM CONDUIT SYSTEM:

- PROVIDE COMPLETE SYSTEM OF: RACEWAYS AND ACCESSORIES, OUTLET BOXES, SLEEVES AND FISHWIRES.

- EQUIPMENT SHALL CONFORM TO REQUIREMENTS OF INTERCOM MANUFACTURER.

- OUTLETS SHALL BE:

- WALL: 4 IN. SQUARE WITH SINGLE GANG COVER PLATE.

- PROVIDE FISH WIRES, IN RACEWAYS OVER 10 FT LONG.

- CONDUIT SHALL BE 3/4 IN. MINIMUM. FURNISH EMPTY CONDUIT FROM EACH APARTMENT TO MAIN INTERCOM CONTROLLER AT ENTRANCE.

### REVISIONS

No.	Description	Date



### NY ENGINEERS

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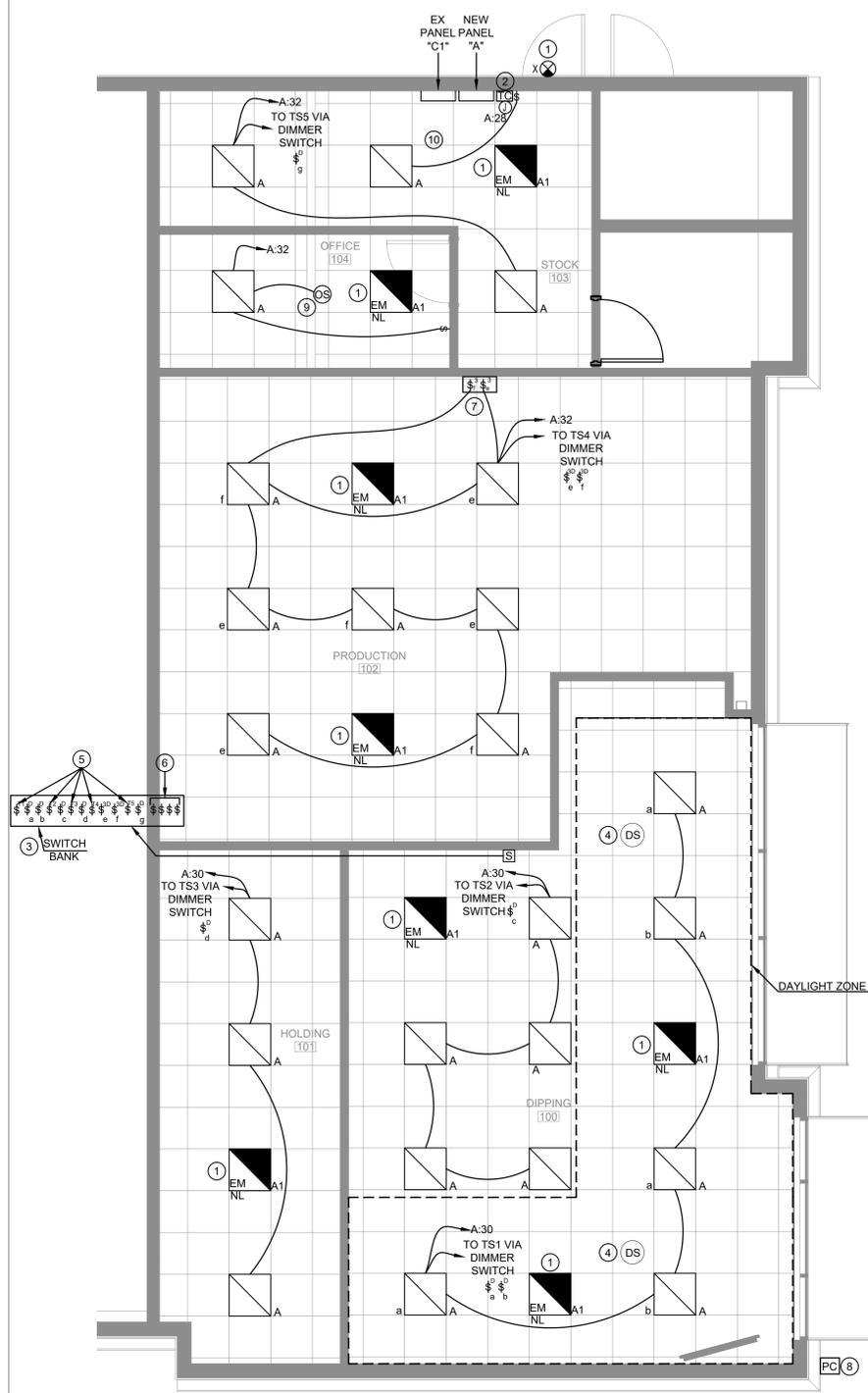
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Lee's Summit, MO

### ELECTRICAL SPECIFICATIONS

Proj. No.	24TF604	<b>E0.3</b>
Date	11-9-25	
Drawn by	NVE	
Checked by	NVE	

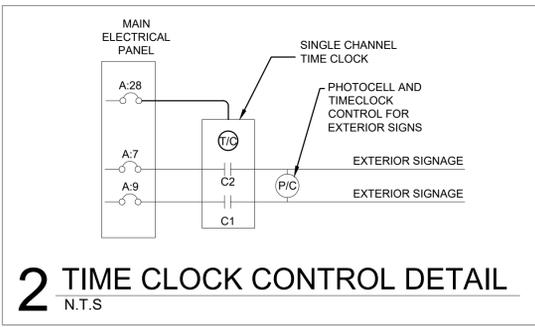


**1 LIGHTING FLOOR PLAN**  
1/4" = 1'-0"

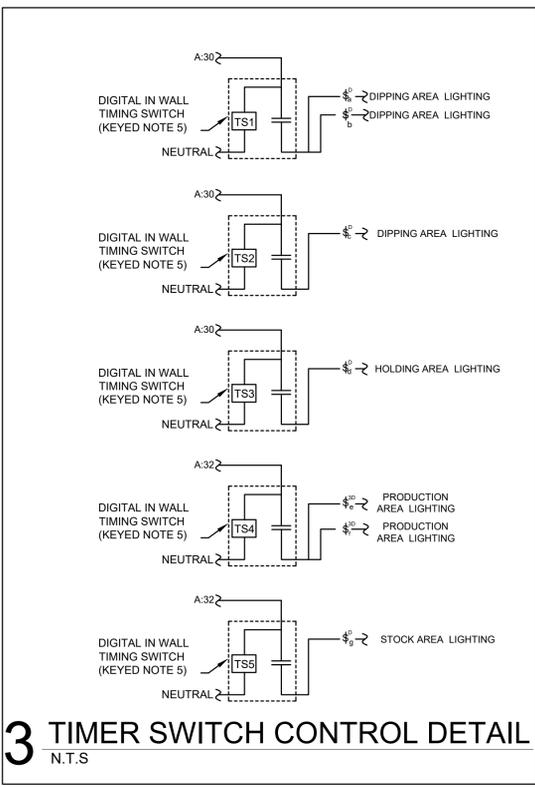
LIGHTING FIXTURE SCHEDULE						
TYPE	DESCRIPTION	VOLTAGE	LIGHT SOURCE	CCT	FIXTURE WATTS	MANUFACTURER / MODEL NUMBER
INTERIOR						
A	LED TROFFER	120V	LED	3,500K	31 VA	COOPER METALUX LIGHTING CATALOG # 22FPX-32-L840-SVPD1
A1	LED TROFFER NIGHT LIGHT	120V	LED	3,500K	31VA	COOPER METALUX LIGHTING CATALOG # 22FPX-32-L840-ELV7W
EMERGENCY						
X	EXIT SIGN	120V	LED	-	7 VA	LITHONIA LIGHTING CATALOG # EXGR EL M6

**GENERAL NOTES:**

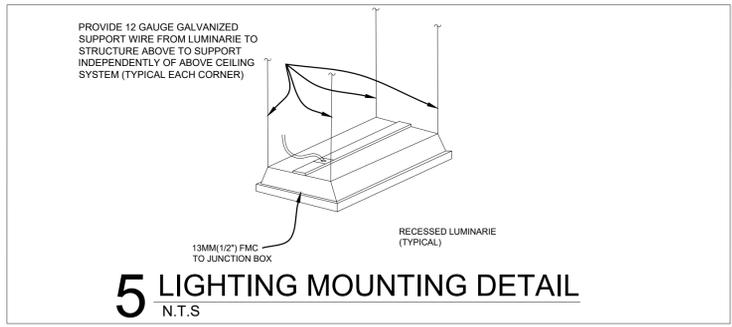
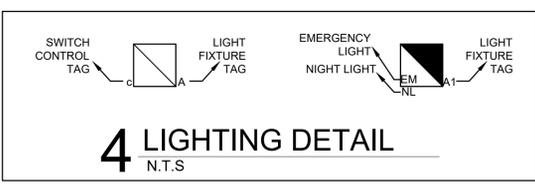
- BATTERY PACKS FOR ALL EXIT, NIGHT LIGHT AND EMERGENCY LIGHT FIXTURES SHALL BE CAPABLE OF PROVIDING EMERGENCY POWER TO THE FIXTURES FOR A MINIMUM OF 90 MINUTES.
- E.C. SHALL COORDINATE EXACT MAKE/MODEL, COLOR, FINISH & CCT OF LIGHTING FIXTURES WITH ARCHITECT/OWNER IN FIELD.
- FIXTURE MODEL NUMBER MAY NOT REFLECT ALL MOUNTING HARDWARE. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL NECESSARY MOUNTING EQUIPMENT, LENSES, STEMS, SAFETY CHAINS, END PLATES, AND ALL OTHER HARDWARE NECESSARY FOR A COMPLETE FIXTURE INSTALLATION. SEE MOUNTING DETAILS WHEN APPLICABLE.
- LINE VOLTAGE DRIVERS MAY BE SUBSTITUTED FOR "UNIVERSAL" OR "MULTI-VOLTAGE" DRIVERS.
- ALL FIXTURES SHALL BE UL OR ETL LISTED.



- LIGHTING PLAN GENERAL NOTES:**
- CONTRACTOR IS ADVISED THAT ADJUSTMENTS TO EMERGENCY AND EXIT LIGHT FIXTURE LOCATIONS/QUANTITIES MAY BE REQUIRED BY AHJ UPON FINAL INSPECTION.
  - ALL EXTERIOR LIGHTS AND SIGNS SHALL BE CONTROLLED VIA PHOTOCELL AND/OR TIME CLOCK. THE ELECTRICAL CONTRACTOR (E.C.) SHALL PROVIDE ALL LIGHTING CONTROLS IN COMPLIANCE WITH THE FLORIDA BUILDING CODE 2020 AND THE REQUIREMENTS OF THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ).
  - REFER TO DWG. E0.1 FOR ELECTRICAL GENERAL NOTES, SYMBOL LIST, ABBREVIATIONS AND E0.2 AND E0.3 FOR ADDITIONAL SPECIFICATIONS.
  - FINAL CONDUIT/CABLE ROUTING SHALL BE DETERMINED IN-FIELD, AND PRIOR TO THE COMMENCEMENT OF WORK, COORDINATED WITH OTHER TRADE CONTRACTORS AND THE TENANT.
  - LAY-IN TYPE FIXTURES SHALL BE SUPPORTED FROM THE STRUCTURE INDEPENDENT FROM THE CEILING SYSTEM AND BE CLIPPED TO THE GRID WITH EARTHQUAKE/HURRICANE CLIPS.
  - ALL SWITCHES QUANTITIES, LOCATION AND MOUNTING DETAILS SHALL BE COORDINATED WITH ARCHITECT/OWNER IN THE FIELD.
  - G.C. SHALL LABEL ALL JUNCTION BOXES WITH CIRCUIT NUMBERS.
  - ALL CEILING GRID LIGHTS SHALL BE SUPPORTED TO STRUCTURAL FRAMING OF THE BUILDING. (BY NEC ARTICLE 300.11 (E) AMENDMENT.
  - COORDINATE EXACT EXIT SIGN LOCATION/ PLACEMENT WITH THE CITY'S FIELD BUILDING INSPECTOR PRIOR TO ROUGH-IN INSPECTION.
  - ALL EMERGENCY AND EXIT LIGHTS SHALL BE INSTALLED ACCORDING TO THE DRAWINGS AND SHALL BE FIELD VERIFIED MEETING ALL CODE REQUIREMENTS.



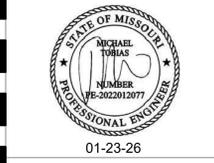
- LIGHTING PLAN KEYED NOTES: (#)**
- WIRE ALL NIGHT LIGHT, EMERGENCY AND EXIT LIGHT TO THE DEDICATED CIRCUIT (C1-7) AHEAD OF ALL CONTROLS & SWITCHING FOR CONTINUOUS OPERATION.
  - E.C. SHALL PROVIDE NEW TIME CLOCK FOR EXTERIOR LIGHTING, TORK, 1109A OR SIMILAR. E.C. SHALL CO-ORDINATE LOCATION & MAKE / MODEL OF TIME CLOCK & LIGHTING CONTRACTORS WITH ARCHITECT / OWNER IN FIELD. SEE DETAIL-2 THIS SHEET FOR ADDITIONAL INFORMATION.
  - PROVIDED LIGHTING CONTROL SWITCH BANK. SEE SWITCH BANK DETAIL BELOW. ELECTRICAL CONTRACTOR TO VERIFY SWITCH BANK WILL FIT WITHIN SPECIFIED AREA AND STACK MULTIPLE SWITCH BANKS AT THIS LOCATION IF A SINGLE SWITCH BANK WILL NOT FIT WITHIN THE SPECIFIED REGION.
  - LIGHTING IN THIS AREA SHALL BE CONTROLLED VIA DAY LIGHT SENSOR. E.C. TO COORDINATE EXACT MAKE/MODEL OF WALL MOUNTED DAYLIGHT SENSOR WITH ARCHITECT/OWNER IN COORDINATION WITH EQUIPMENT MANUFACTURER IN FIELD. BASE BID ACCORDINGLY.
  - PROVIDE DIGITAL IN-WALL TIMER SWITCH, PROGRAMMABLE 7 DAY CONTROL, LITHIUM BATTERY BACKUP FOR TIMEKEEPING. MANUAL OVERRIDE CONTROL FOR MAXIMUM 2 HOURS. E.C. SHALL COORDINATE EXACT MAKE/MODEL/COLOR OF TIMER WITH ARCHITECT/OWNER IN FIELD. ADJUST TO ON/OFF SCHEDULE DIRECTED BY AUTHORIZED REPRESENTATIVE FOR TENANT.
  - SWITCH FOR CONTROL OF "SHOW WINDOW" RECEPTACLE. E.C. TO COORDINATE EXACT LOCATION & MAKE/MODEL OF SWITCH WITH ARCHITECT/OWNER IN COORDINATION WITH DEVICE MANUFACTURER IN FIELD. BASE BID ACCORDINGLY.
  - COORDINATE EXACT LOCATION OF SWITCHES WITH ARCHITECT/OWNER IN FIELD.
  - EXTERIOR SIGNS CONTROLLED VIA PHOTOCELL. E.C. SHALL COORDINATE EXACT MAKE/MODEL OF PHOTOCELL WITH EQUIPMENT MANUFACTURER. E.C. SHALL ADJUST PHOTOCELL QUANTITIES AS RECOMMENDED BY MANUFACTURER. BASE BID ACCORDINGLY.
  - E.C. TO COORDINATE EXACT MAKE/MODEL OF CEILING MOUNTED OCCUPANCY SENSOR WITH ARCHITECT/OWNER IN COORDINATION WITH EQUIPMENT MANUFACTURER IN FIELD. BASE BID ACCORDINGLY.
  - LIGHT IN THIS AREA SHALL NOT BE CONTROLLED BY ANY AUTOMATIC MEANS AND SHALL BE COMPLIED AS PER NEC 110.26(D).



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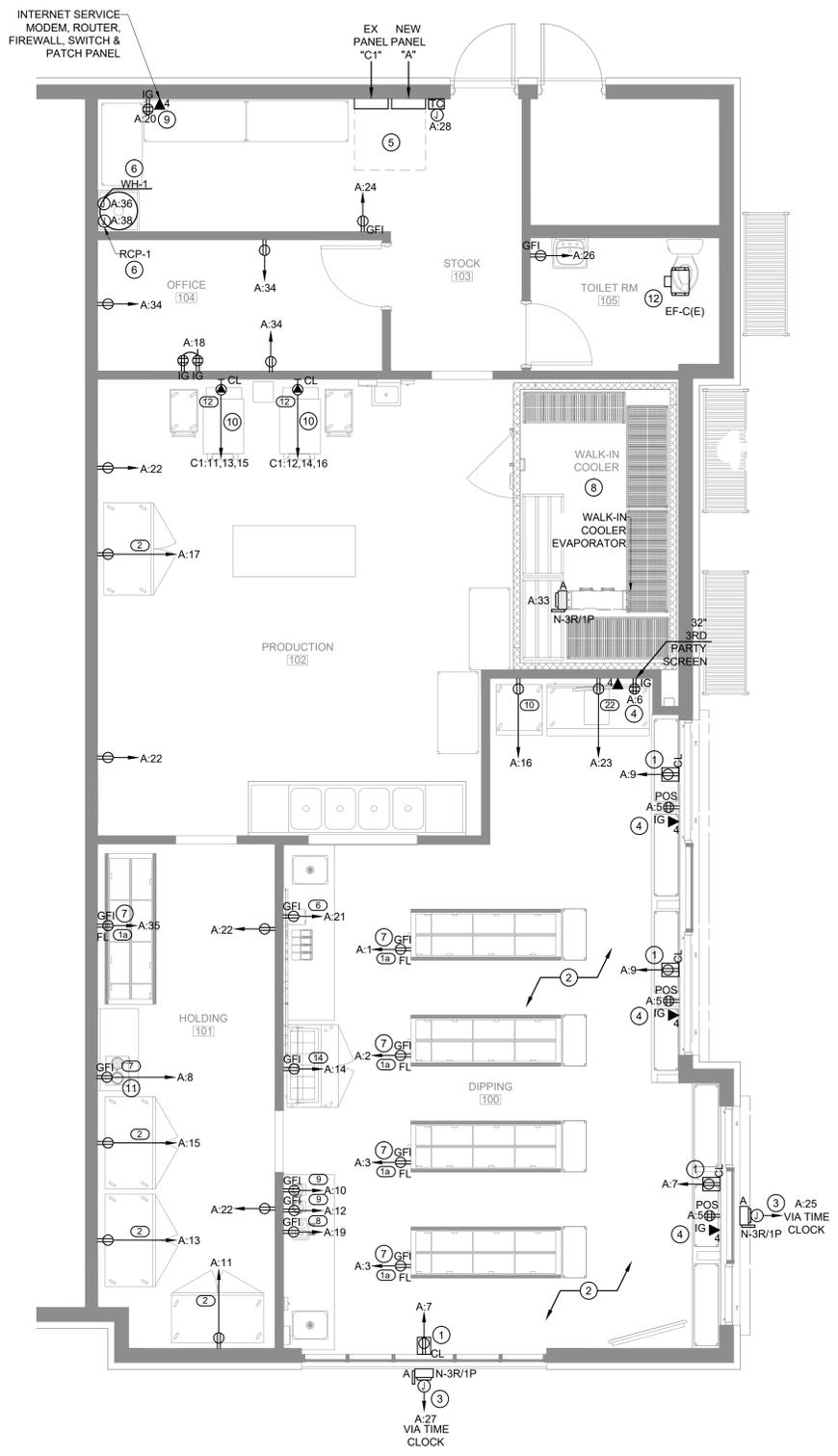
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**LIGHTING FLOOR PLAN**

Proj. No. 24TF604  
Date 11-9-25  
Drawn by NYE  
Checked by NYE

**E1.0**  
1/4" = 1'-0"



**POWER PLAN KEYED NOTES: (4)**

- E.C. TO INSTALL SHOW WINDOW RECEPTACLES AS PER NEC 210.62. COORDINATE EXACT LOCATION OF OUTLET IN FIELD WITH ARCHITECT/OWNER BEFORE COMMENCEMENT OF ANY WORK. SHOW WINDOW SHALL BE CONTROLLED VIA MANUAL SWITCH. COORDINATE EXACT CONTROL REQUIREMENT WITH ARCHITECT/OWNER IN FIELD. BASE BID ACCORDINGLY.
- ALL RECEPTACLES IN THIS AREA SHALL BE TAMPER RESISTANCE AS PER NEC 406.12.
- PROVIDE JUNCTION BOX WITH LOCAL TOGGLE SWITCH DISCONNECT LOCATED ABOVE ACCESSIBLE CEILING AND ASSOCIATED 120V, 10, 20 AMP CIRCUIT(S) FOR SIGNAGE. E.C. TO VERIFY EXACT LOCATION AND QUANTITY BEFORE ROUGH-IN LOCATION. CIRCUIT THRU TIME CLOCK FOR AUTOMATIC ON/OFF CONTROL OF LIGHTING.
- E.C. SHALL COORDINATE EXACT LOCATION/MOUNTING DETAILS OF ELECTRICAL/DATA OUTLET FOR KITCHEN DISPLAY SCREEN/POS/3RD PARTY SCREEN IN FIELD WITH ARCHITECT/OWNER. BASE BID ACCORDINGLY. SEE TV DETAIL-6/8/10 ON SHEET E3.0 & E3.1.
- THE ELECTRICAL CONTRACTOR (E.C.) SHALL FIELD VERIFY THAT ALL ELECTRICAL PANELS ARE UNOBSTRUCTED. THE AREA IN FRONT OF ELECTRICAL PANELS SHALL NOT BE USED FOR STORAGE. WORKING SPACE SHALL BE PROVIDED IN ACCORDANCE WITH THE 2017 NATIONAL ELECTRICAL CODE (NEC) SECTION 110.26(A).
- ELECTRICAL POWER PROVISION FOR MECHANICAL/PLUMBING EQUIPMENT. E.C. SHALL COORDINATE EXACT POWER AND ELECTRICAL OUTLET/DISCONNECT REQUIREMENT FOR MECHANICAL/PLUMBING EQUIPMENT WITH EQUIPMENT MANUFACTURER IN COORDINATION WITH ARCHITECT/OWNER IN THE FIELD PRIOR TO ROUGH-IN. BASE BID ACCORDINGLY.
- E.C. SHALL COORDINATE EXACT LOCATION/MOUNTING DETAILS OF ELECTRICAL OUTLET FOR THE EQUIPMENT IN FIELD WITH ARCHITECT/OWNER. SEE RAISED RECEPTACLE DETAIL-4 ON SHEET E3.0. BASE BID ACCORDINGLY.
- VERIFY WALK-IN COOLER ELECTRICAL REQUIREMENT IN THE FIELD. ADJUST ELECTRICAL CONNECTIONS PER MANUFACTURER'S DOCUMENTATION AS REQUIRED. SEE ARCHITECTURAL PLAN.
- E.C. SHALL COORDINATE EXACT LOCATION/MOUNTING DETAILS OF ELECTRICAL/DATA OUTLET FOR NETWORK & AUDIO VISUAL SYSTEM IN FIELD WITH ARCHITECT/OWNER/LOW VOLTAGE VENDOR. BASE BID ACCORDINGLY. SEE DETAIL-7/9 ON E3.1 SHEET & ARCHITECTURE PLAN.
- E.C. SHALL COORDINATE EXACT RECEPTACLE/OUTLET/DISCONNECT TYPE FOR EQUIPMENT WITH EQUIPMENT VENDOR/ MANUFACTURER BEFORE COMMENCEMENT OF WORK. MAKE POWER PROVISION ACCORDINGLY & BASE BID ACCORDINGLY. SEE BATCH FREEZER CONNECTION DETAIL-5 ON SHEET E3.0.
- E.C. SHALL VERIFY EXACT OUTLET MOUNTING HEIGHT, ORIENTATION, AND CONNECTION DETAILS WITH EQUIPMENT MANUFACTURER IN FIELD PRIOR TO INSTALLATION.
- EXISTING CIRCUIT & CONTROL OF ALL EXISTING MECHANICAL EQUIPMENT SHALL REMAIN AS IT IS. E.C. SHALL VERIFY EXACT LOCATION AND OPERABLE CONDITION OF EXISTING DISCONNECT & EXISTING CIRCUIT INCLUDING WIRE/CONDUIT/ BREAKER IN FIELD FOR EXISTING MECHANICAL EQUIPMENTS. REPLACE WITH NEW IF FOUND INOPERABLE IN COORDINATION WITH EQUIPMENT MANUFACTURER. BASE BID ACCORDINGLY.

**FOOD SERVICE EQUIPMENT SCHEDULE**

TAG (E)	DESCRIPTION	QNT.	ELECTRICAL			PLUG TYPE	
			VOLTS	PHASE	KW		
1a	SERVING CABINET	4	11 00	115	1	1.27	NEMA 5-15P
1b	HOLDING CABINET	1	11 00	115	1	1.27	NEMA 5-15P
2	DOUBLE REACH-IN SOLID SWNG DOOR - FREEZER	4	9 60	115	1	1.10	NEMA 5-15P
6	ARCTIC SWRL FLAVOR BLENDER	1	10 00	115	1	1.15	NEMA 5-15P
7	TWIN TOPPING WARNER	1	8 35	120	1	1.00	NEMA 5-15P
8	EZ TOPPER POUCH WARMER	1	3 30	120	1	0.40	NEMA 5-15P
9	BLENDER	2	11 50	120	1	1.38	NEMA 5-20P
10	REACH-IN SOLID SWNG DOOR -10°F FREEZER	1	9 00	115	1	1.04	NEMA 5-20P
12	CAPJIAN BATCH FREEZER	2	39 00	208	3	8.11	-
13	WALK IN COOLER	1	16 10	208	1	3.35	DISCONNECT
13	WALK IN COOLER DOOR	1	1 60	115	1	0.18	-
14	SANDWICH/SALAD UNIT	1	5 80	115	1	0.87	NEMA 5-15P
22	FREEZER	1	4 80	115	1	0.55	NEMA 5-15P

NOTE: COORDINATE ALL MOUNTING HEIGHTS WITH ARCHITECT/OWNER PRIOR TO INSTALL. ALSO REFER DETAIL-11 ON SHEET E3.1.

**POWER PLAN GENERAL NOTES:**

- SCOPE OF WORK PER ARCHITECTURAL PLANS
- COORDINATE EXACT LOCATION OF HVAC EQUIPMENTS ON ABOVE CEILING WITH MECHANICAL CONTRACTOR.
- E.C. SHALL COORDINATE DISCONNECT REQUIREMENT FOR MECHANICAL/PLUMBING UNIT WITH MECHANICAL/PLUMBING CONTRACTOR AND EQUIPMENT MANUFACTURER FOR FINAL SELECTION PRIOR TO ROUGH-IN. E.C. COORDINATE LOCATION OF DISCONNECT SWITCH WITH MANUFACTURER AND MECHANICAL/PLUMBING CONTRACTOR PRIOR TO ROUGH-IN.
- REFER TO DWG. E0.1 FOR ELECTRICAL GENERAL NOTES, SYMBOL LIST, ABBREVIATIONS AND E0.2 AND E0.3 FOR ADDITIONAL SPECIFICATIONS.
- FINAL CONDUIT/CABLE ROUTING SHALL BE DETERMINED IN-FIELD, AND PRIOR TO THE COMMENCEMENT OF WORK, COORDINATED WITH OTHER TRADE CONTRACTORS AND THE TENANT.
- CONTRACTOR SHALL COORDINATE EXACT RECEPTACLE TYPE FOR EQUIPMENT WITH EQUIPMENT VENDOR/MANUFACTURER.
- ALL WIRING TO BE #12AWG WITH #12AWG GND IN 3/4" CONDUIT UNLESS OTHERWISE NOTED OR REQUIRED.
- ALL 125-VOLT THROUGH 250-VOLT RECEPTACLES SUPPLIED BY SINGLE-PHASE BRANCH CIRCUITS RATED 150 VOLTS OR LESS TO GROUND, 50 AMPERES OR LESS, AND ALL RECEPTACLES SUPPLIED BY THREE-PHASE BRANCH CIRCUITS RATED 150 VOLTS OR LESS TO GROUND, 100 AMPERES OR LESS LOCATED IN KITCHEN, DRIVE-THRU, AND FOOD PREP AREAS SHALL BE GFCI PROTECTION PER NEC 210.8(B).
- VERIFY ALL EXPOSED CONDUIT ROUTING WITH ARCHITECT/ENGINEER WHERE CONDUIT IS EXPOSED IN FINISHED ROOMS.
- DETAIL REFERENCES ON PLANS ARE TO AID THE CONTRACTOR IN IDENTIFYING THE APPLICABLE DETAIL. NOT ALL DETAILS, OR INSTANCES OF DETAILS, ARE REFERENCES ON PLANS. CONTRACTOR IS RESPONSIBLE TO REVIEW AND COMPLY WITH ALL APPLICABLE DETAILS WHETHER OR NOT REFERENCED ON PLANS.
- ALL 120V, 1P 15 & 20 AMP RECEPTACLES IN THE KITCHEN AREA SHALL BE GFCI TYPE AND MOUNTED IN A READILY ACCESSIBLE LOCATION. READILY ACCESSIBLE IS DEFINED AS NOT HAVING TO MOVE ANY EQUIPMENT IN ORDER TO RESET OR TEST THE GFCI RECEPTACLE.
- VERIFY ALL PLUG CONFIGURATIONS AND MOUNTING HEIGHTS OF ALL KITCHEN EQUIPMENT OUTLET BOXES WITH FOOD SERVICE EQUIPMENT CONTRACTOR BEFORE INSTALLATION OF CONDUIT AND WIRING.
- ELECTRICAL CONTRACTOR TO VERIFY ELECTRICAL REQUIREMENTS OF WALK-IN COOLER BEFORE PURCHASING BREAKER, CONDUIT, AND WIRING.
- ELECTRICAL CONTRACTOR SHALL NOT PENETRATE ROOF OF WALK-IN COOLER.
- ALL ELECTRICAL CONDUCTORS FOR COMMERCIAL, OFFICE, OR INDUSTRIAL INSTALLATION SHALL BE INSTALLED UN APPROVED CONDUITS OR RACEWAY, REGARDLESS OF TYPE OF CONSTRUCTION.
- ELECTRICAL CONTRACTOR TO COORDINATE WITH OWNER REGARDING EXTERIOR SIGNAGE VOLTAGE/AMPACITY REQUIREMENTS BEFORE PURCHASING AND INSTALLING CONDUIT, WIRE AND CIRCUIT BREAKERS. COORDINATE CONTROL OF SIGNAGE WITH OWNER/TENANT.
- THE ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL ALL DISCONNECT SWITCHES, RECEPTACLES, CONCEALED WIRING, ETC. TO KITCHEN EQUIPMENT AS REQUIRED. THE ELECTRICAL CONTRACTOR SHALL ALSO PROVIDE ALL CORDS, FITTINGS, BOXES, CORD GRIPS, PLUGS, CABLES, ETC. ON EQUIPMENT REQUIRING SUCH ITEMS.
- ALL TEMPERATURE CONTROL AND INTERLOCK CONDUIT AND WIRING SHALL BE BY ELECTRICAL CONTRACTOR UNLESS NOTED OTHERWISE. SEE MECHANICAL/PLUMBING DRAWINGS FOR ALL INFORMATION.
- ALL PENETRATIONS THROUGH FIRE RATED WALLS SHALL BE PROTECTED FROM THE SPREAD OF FIRE WITH AN APPROVED FIRESTOP SYSTEM EQUAL OR GRATER THAN THE FIRE RATING OF THE WALL.

**1 POWER FLOOR PLAN**  
1/4" = 1'-0"

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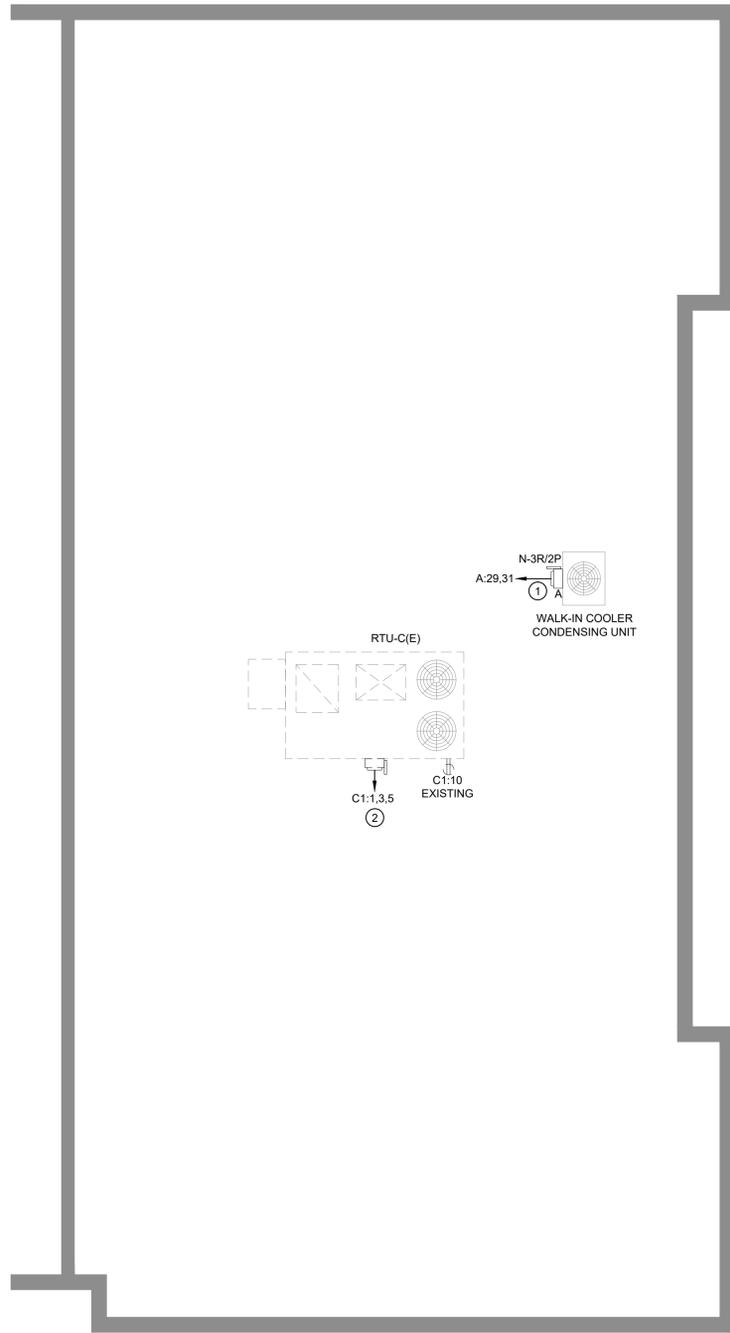
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**POWER FLOOR PLAN**

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**E2.0**

1/4" = 1'-0"



- ROOF POWER PLAN GENERAL NOTES:**
1. ELECTRICAL CONTRACTOR TO VERIFY ELECTRICAL REQUIREMENTS OF WALK-IN COOLER BEFORE PURCHASING BREAKER, CONDUIT, AND WIRING.
  2. ELECTRICAL CONTRACTOR SHALL NOT PENETRATE ROOF OF WALK-IN COOLER.
  3. WHERE PORTIONS OF A RACEWAY ARE SUBJECT TO DIFFERENT TEMPERATURES, AND WHERE CONDENSATION IS KNOWN TO BE A PROBLEM, AS IN COOLER AND FREEZER APPLICATIONS OR WHERE PASSING FROM WARM TO COLD AREAS, ELECTRICAL CONTRACTOR TO FILL THE RACEWAY WITH AN APPROVED MATERIAL TO PREVENT CIRCULATION OF WARM AIR TO A COLDER SECTION OF THE RACEWAY.
  4. "FWE" ADJACENT TO DEVICE DENOTES FURNISHED WITH EQUIPMENT.
  5. ELECTRICAL CONTRACTOR TO VERIFY EXACT ELECTRICAL REQUIREMENTS WITH NAMEPLATE DATA ON PRIOR TO PURCHASING & INSTALLING WIRING AND CONDUIT.

- ROOF POWER PLAN KEYED NOTES: (R)**
1. PROVIDE 25A/2P CIRCUIT FOR WALK-IN COOLER CONDENSER. E.C. SHALL COORDINATE WITH EQUIPMENT MANUFACTURER FOR EXACT LOCATION AND ELECTRICAL REQUIREMENTS IN FIELD.
  2. EXISTING DISCONNECT & CIRCUIT OF ALL EXISTING MECHANICAL EQUIPMENT ON ROOF SHALL REMAIN AS IT IS. E.C. SHALL VERIFY EXACT LOCATION AND OPERABLE CONDITION OF EXISTING DISCONNECT & EXISTING CIRCUIT INCLUDING WIRE/CONDUIT/BREAKER IN FIELD FOR EXISTING MECHANICAL EQUIPMENTS. REPLACE WITH NEW IF FOUND INOPERABLE IN COORDINATION WITH EQUIPMENT MANUFACTURER. BASE BID ACCORDINGLY.

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

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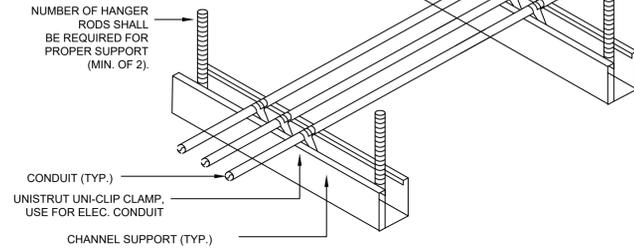
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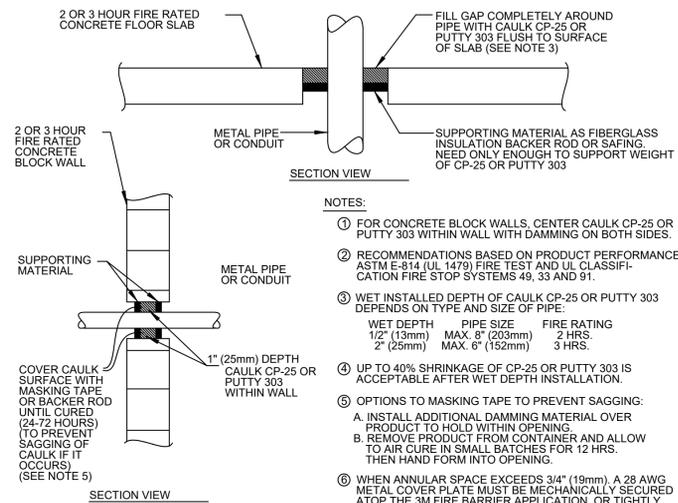
NOTE:  
THIS INFORMATION MAY NOT CONTAIN ALL  
DETAILS REQUIRED FOR CONSTRUCTION.  
APPROPRIATE MODIFICATION MAY BE  
REQUIRED TO ENSURE SUITABILITY OF THESE  
DRAWINGS FOR THE SPECIFIC APPLICATION. IT  
IS THE USER'S RESPONSIBILITY TO ENSURE  
INSTALLATION OF THE EQUIPMENT/SYSTEM IS IN  
ACCORDANCE WITH BUILDING/PROJECT  
SPECIFICATIONS, APPLICABLE CODES AND  
STANDARDS.



- NOTES:
1. ALL CONDUIT MAY BE COMBINED ON SAME SUPPORT CHANNEL WHERE PRACTICAL.
  2. SUPPORT CHANNEL LENGTH SHALL NOT BE DETERMINED UNTIL ALL PIPING, CONDUIT, ETC. TO BE SUPPORTED IS COORDINATED.
  3. SUPPORT CHANNEL SPACING SHALL BE NO MORE THAN 10'-0".
  4. UNISTRUT AND CONDUIT INSTALLATION MAY BE REVERSED.

### 1 CONDUIT SUPPORT DETAIL

N.T.S.



### 2 FIRE STOP DETAIL

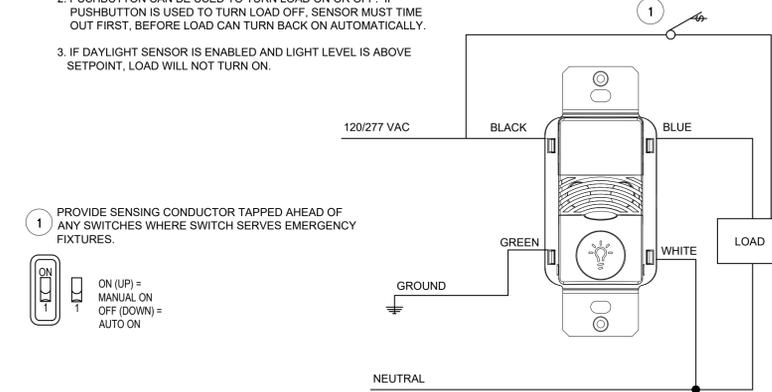
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#### MANUAL MODE OPERATION:

1. PUSHBUTTON PRESS IS REQUIRED TO TURN LOAD ON.
2. LOAD TURNS OFF WHEN SENSOR TIMES OUT OR BY PRESSING PUSH BUTTON.
3. IF DAYLIGHT SENSOR IS ENABLED AND LIGHT LEVEL IS ABOVE SETPOINT, LOAD WILL NOT TURN ON.

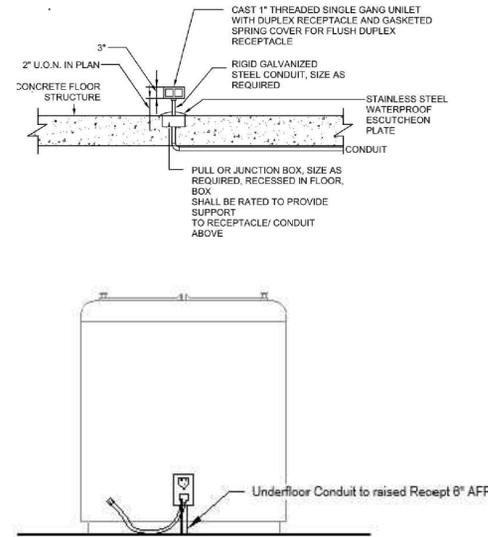
#### AUTOMATIC MODE OPERATION:

1. WHEN SENSOR ACTIVATES LOAD TURNS ON.
2. PUSHBUTTON CAN BE USED TO TURN LOAD ON OR OFF. IF PUSHBUTTON IS USED TO TURN LOAD OFF, SENSOR MUST TIME OUT FIRST, BEFORE LOAD CAN TURN BACK ON AUTOMATICALLY.
3. IF DAYLIGHT SENSOR IS ENABLED AND LIGHT LEVEL IS ABOVE SETPOINT, LOAD WILL NOT TURN ON.



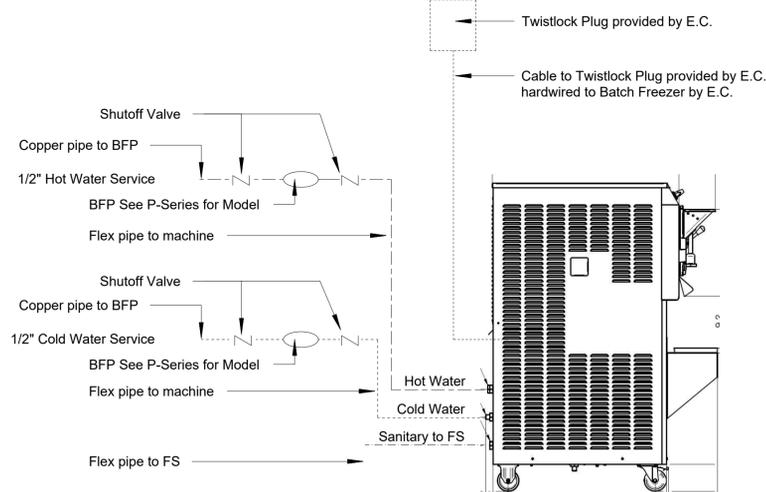
### 3 WALL SWITCH SENSOR

N.T.S.



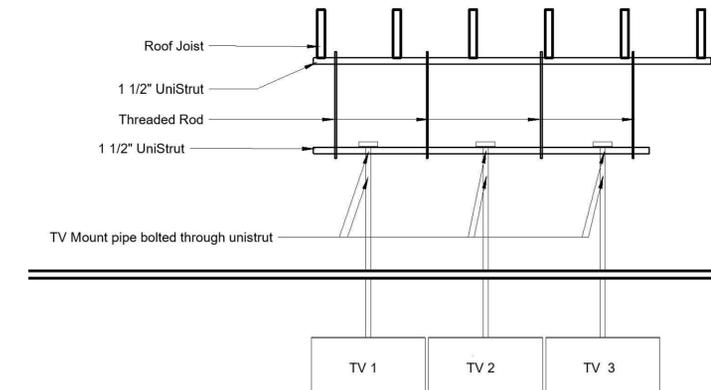
### 4 SERVING CABINET RAISED RECEPTACLE DETAIL

N.T.S.



### 5 BATCH FREEZER CONNECTION DETAIL

N.T.S.



NOTE: TV'S TO BE PROVIDED BY OWNER, GC. TO PROVIDE ALL MATERIALS AND LABOR TO MOUNT AND ATTACH TO EXISTING ROOF STRUCTURE

### 6 TV MOUNT DETAIL

N.T.S.

#### REVISIONS

No.	Description	Date



NY ENGINEERS

382 NE 191st Street Suite 49674  
MIAMI, FL 33179  
(786)-788-0295  
ny-engineers.com



01-23-26



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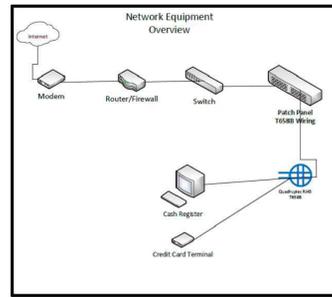
Handel's Ice Cream  
410 NW Chipman Road  
Lee's Summit, MO

ELECTRICAL  
DETAILS (1 OF 2)

Proj. No. 24TF604  
Date 11-9-25  
Drawn by NYE  
Checked by NYE

E3.0

N.T.S.



**Network Panel Location Notes:**  
Location of the network panels may vary slightly by store design. The components needing installed in this area are listed below. Proper electrical outlets must be installed in this area as well.

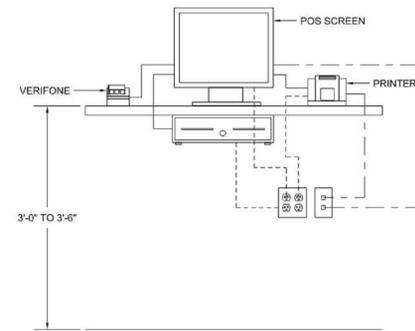
1. Network/Internet connection and Modem provided by service provider
2. Network Patch Panel connecting wiring from the front counter to the network panel area.
3. Firewall/Router (if not provided by internet service provider)
4. Network switch

**Front Counter Installation Notes:**  
Locations of the quadruplex RJ45 terminations may vary slightly by store layout. The ideal location would be directly below each cash register. A minimum of eight CAT 5e or CAT 6 cable runs are required to be installed between the network panel area in the back of the store and front counter. Wire terminations at the front counter should be done using the T658B wiring standard shown below. Each RJ45 jack will have a color key showing the proper punch down for T658B.



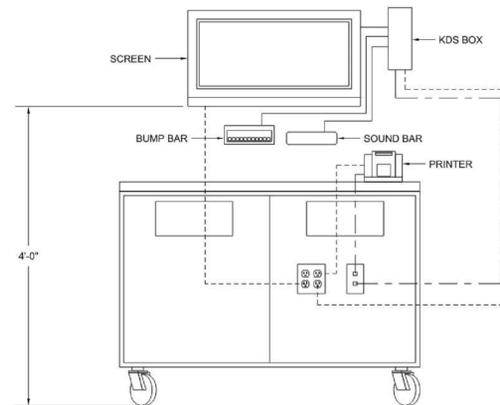
## 7 NETWORK SYSTEM DETAIL

N.T.S.



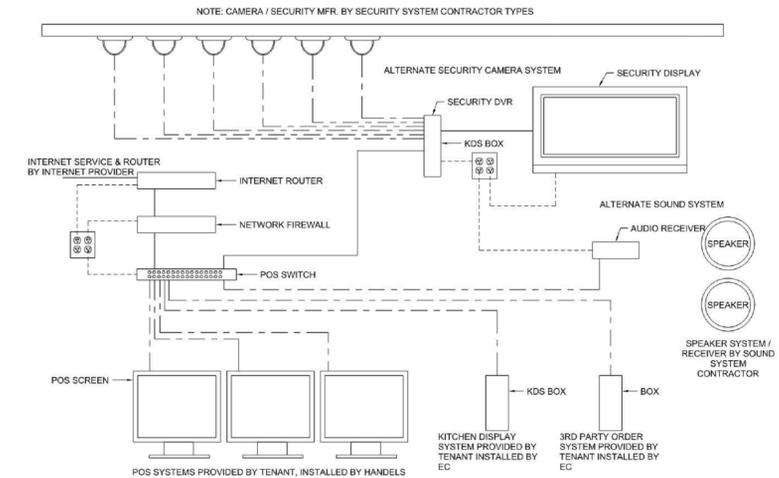
## 8 POS STATION DETAIL

N.T.S.



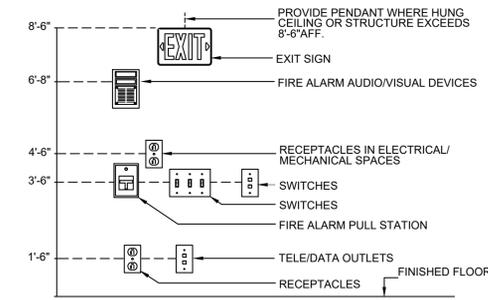
## 10 3RD PARTY STATION DETAIL

N.T.S.



## 9 BOH AV SETUP

N.T.S.



- NOTES:
1. DEVICES SHALL BE INSTALLED ON A COMMON VERTICAL CENTERLINE WHEREVER POSSIBLE.
  2. ELECTRICAL RECEPTACLES SHALL BE MOUNTED A MINIMUM OF 15 INCHES TO THE BOTTOM OF THE RECEPTACLE.
  3. ELECTRICAL SWITCHES SHALL BE MOUNTED A MAXIMUM OF 48 INCHES TO THE TOP OF THE SWITCH.
  4. COUNTERTOP ELECTRICAL RECEPTACLES SHALL BE MOUNTED A MAXIMUM OF 44 INCHES TO THE TOP OF THE RECEPTACLE.
  5. CIRCUIT BREAKERS, DISCONNECT SWITCHES, ETC. SHALL BE INSTALLED SO THAT THE CENTER OF THE GRIP OF THE OPERATING HANDLE IN ITS HIGHEST POSITION IS NOT MORE THAN 6'-7" A.F.F.
  6. MOUNT VISIBLE FIRE ALARM DEVICES WITH THE LENS OF THE STROBE NOT LESS THAN 80 IN AND NOT GREATER THAN 96 IN A.F.F. WALL-MOUNTED VISIBLE FIRE ALARM DEVICES SHALL NOT BE WITHIN 6 IN OF THE CEILING.
  7. MOUNT EXIT SIGNS ABOVE DOORS WITH 2" BETWEEN BOTTOM OF EXIT SIGN AND TOP OF DOOR.
  8. THE MOUNTING HEIGHTS SHOWN ARE GENERALLY DIMENSIONED TO THE MID-LINE OF A GIVEN DEVICE. EXACT DEVICE MOUNTING HEIGHTS SHALL BE WITHIN THE SPECIFIC REACH LIMITS SPECIFIED IN THE LATEST REVISION OF THE ADA GUIDELINES AND THE LATEST REVISION OF ICC/ANSI A117.1, SPECIFICALLY FIRE ALARM DEVICES, CONTROLS, OPERATING MECHANISMS AND HARDWARE, INCLUDING RECEPTACLES AND SWITCHES THAT CONTROL LIGHTING, VENTILATION, ETC.
  9. THIS DETAIL IS MEANT AS A GENERAL GUIDE. ALL FINAL MOUNTING HEIGHTS SHALL BE INSTALLED PER ARCHITECTURAL DRAWINGS AND ADOPTED CODES

## 11 TYPICAL DEVICE MOUNTING HEIGHTS

N.T.S.

### REVISIONS

No.	Description	Date



**NY ENGINEERS**

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TBH Enterprises, LLC

**Handel's Ice Cream**  
410 NW Chipman Road  
Lee's Summit, MO

**ELECTRICAL  
DETAILS (2 OF 2)**

Proj. No. 24TF604  
Date 11-9-25  
Drawn by NYE  
Checked by NYE

**E3.1**

N.T.S.

PANEL: C1(EXISTING)										MOUNTING:		SURFACE			
120/208	VOLTS,	3	PHASE,	4	WIRE	LOCATION				STOCK ROOM					
MAIN CB		400A		MLO:		NA		BUS:		400A		FED FROM		EXISTING ELECTRICAL SERVICE	
CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TYPE	LOAD (KVA)	MINIMUM BRANCH CIRCUIT	PER PHASE (KVA)			MINIMUM BRANCH CIRCUIT	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.	
						A	B	C							
1			H	7.69		7.69						SPARE	20	2	
3	3P-80	RTU-C(E)	H	7.69	EXISTING		7.70		EXISTING	0.02	M	EXHAUST FAN EF-C (E)	15	4	
5			H	7.69			7.69					SPARE	20	6	
7	20	EMERGENCY LIGHTING	L	0.30	2#12, #12G, 3/4"C	0.30						SPARE	20	8	
9	20	SPARE					0.18		EXISTING	0.18	R	ROOF RECEPTACLE	20	10	
11			E	4.68			9.37							12	
13	3P-50**	12_CAPIGIANI BATCH FREEZER	E	4.68	3#8, #10G, 3/4"C	9.37			3#8, #10G, 3/4"C	4.68	E	12_CAPIGIANI BATCH FREEZER	3P-50**	14	
15			E	4.68			9.37			4.68	E			16	
17		SPACE						0.00				SPACE		18	
19		SPACE						0.00				SPACE		20	
21		SPACE					0.00					SPACE		22	
23		SPACE						0.00				SPACE		24	
25		SPACE						0.00				SPACE		26	
27		SPACE					0.00					SPACE		28	
29		SPACE						0.00				SPACE		30	
31		SPACE						0.00				SPACE		32	
33		SPACE					0.00					SPACE		34	
35		SPACE						0.00				SPACE		36	
37			O	9.67		9.67						SPACE		38	
39	3P-100*	PANEL-A	O	10.47	4#3, #8G, 1 1/4"C	10.47						SPACE		40	
41			O	9.73						9.73		SPACE		42	
TOTAL CONNECTED LOAD (KVA)						27.03	27.72	26.78							

PANEL: A (NEW)										MOUNTING:		SURFACE			
120/208	VOLTS,	3	PHASE,	4	WIRE	LOCATION				STOCK ROOM					
MAIN CB		NA		MLO:		125A		BUS:		125A		FED FROM		PANEL-C1(EXISTING)	
CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TYPE	LOAD (KVA)	MINIMUM BRANCH CIRCUIT	PER PHASE (KVA)			MINIMUM BRANCH CIRCUIT	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.	
						A	B	C							
1	20	1a_SERVING CABINET	E	1.27	2#12, #12G, 3/4"C	2.53			2#12, #12G, 3/4"C	1.27	E	1a_SERVING CABINET	20	2	
3	20	1a_SERVING CABINET	E	1.27	2#12, #12G, 3/4"C		2.53		2#12, #12G, 3/4"C	1.27	E	1a_SERVING CABINET	20	4	
5	20	POS RECEPTACLE	R	1.08	2#12, #12G, 3/4"C			1.58	2#12, #12G, 3/4"C	0.50	R	32" 3RD PARTY SCREEN RECEPTACLE	20	6	
7	20	SHOW WINDOW RECEPTACLE	L	1.20	2#12, #12G, 3/4"C	2.20			2#12, #12G, 3/4"C	1.00	E	7_TWIN TOPPING WARNER	15	8	
9	20	SHOW WINDOW RECEPTACLE	L	1.20	2#12, #12G, 3/4"C		2.58		2#12, #12G, 3/4"C	1.38	E	9_BLENDER	20	10	
11	20**	2_DOUBLE REACH-IN SOLID SWING DOOR - FREEZER	E	1.04	2#12, #12G, 3/4"C			2.42	2#12, #12G, 3/4"C	1.38	E	9_BLENDER	20	12	
13	20**	2_DOUBLE REACH-IN SOLID SWING DOOR - FREEZER	E	1.04	2#12, #12G, 3/4"C	1.73			2#12, #12G, 3/4"C	0.70	E	14_SANDWICH / SALAD UNIT	20	14	
15	20**	2_DOUBLE REACH-IN SOLID SWING DOOR - FREEZER	E	1.04	2#12, #12G, 3/4"C		2.07		2#12, #12G, 3/4"C	1.04	E	10_REACH-IN SOLID SWING DOOR -10" F FREEZER	20**	16	
17	20**	2_DOUBLE REACH-IN SOLID SWING DOOR - FREEZER	E	1.04	2#12, #12G, 3/4"C			1.76	2#12, #12G, 3/4"C	0.72	R	MANAGER DESK RECEPTACLE	20	18	
19	20	8_EZ TOPPER POUCH WARMER	E	0.40	2#12, #12G, 3/4"C	0.76			2#12, #12G, 3/4"C	0.36	R	NETWORK PANEL RECEPTACLE	20	20	
21	20	6_ARCTIC SWIRL FLAVOR BLENDER	E	1.15	2#12, #12G, 3/4"C		1.87		2#12, #12G, 3/4"C	0.72	R	HOLDING & PRODUCTION AREA GENERAL RECEPTACLE	20	22	
23	20**	22_FREEZER	E	0.55	2#12, #12G, 3/4"C			0.73	2#12, #12G, 3/4"C	0.18	R	CONVENIENCE RECEPTACLE	20	24	
25	20	SIGNAGE	O	0.20	2#12, #12G, 3/4"C	0.38			2#12, #12G, 3/4"C	0.18	R	RESTROOM RECEPTACLE	20	26	
27	20	SIGNAGE	O	0.20	2#12, #12G, 3/4"C		0.70		2#12, #12G, 3/4"C	0.50	O	TIME CLOCK	20	28	
29			H	1.67				1.96	2#12, #12G, 3/4"C	0.31	R	DIPPING & HOLDING AREA LIGHTING	20	30	
31	2P-25	13_WALK IN COOLER CONDENSER UNIT	H	1.67	2#10, #10G, 3/4"C	2.07			2#12, #12G, 3/4"C	0.40	R	PRODUCTION, OFFICE & STOCK AREA LIGHTING	20	32	
33	20	WALK IN COOLER EVAPORATOR	H	0.18	2#12, #12G, 3/4"C		0.72		2#12, #12G, 3/4"C	0.54	R	CONVENIENCE RECEPTACLE	20	34	
35	20	1b_HOLDING CABINET	E	1.27	2#12, #12G, 3/4"C			1.75	2#12, #12G, 3/4"C	0.48	O	WH-1	20	36	
37	20	SPARE				0.25			2#12, #12G, 3/4"C	0.25	M	RC-1	20	38	
39	20	SPARE					0.00					SPACE		40	
41	20	SPARE						0.00				SPACE		42	
TOTAL CONNECTED LOAD (KVA)						9.92	10.47	10.21							

PANEL SCHEDULE GENERAL NOTES:

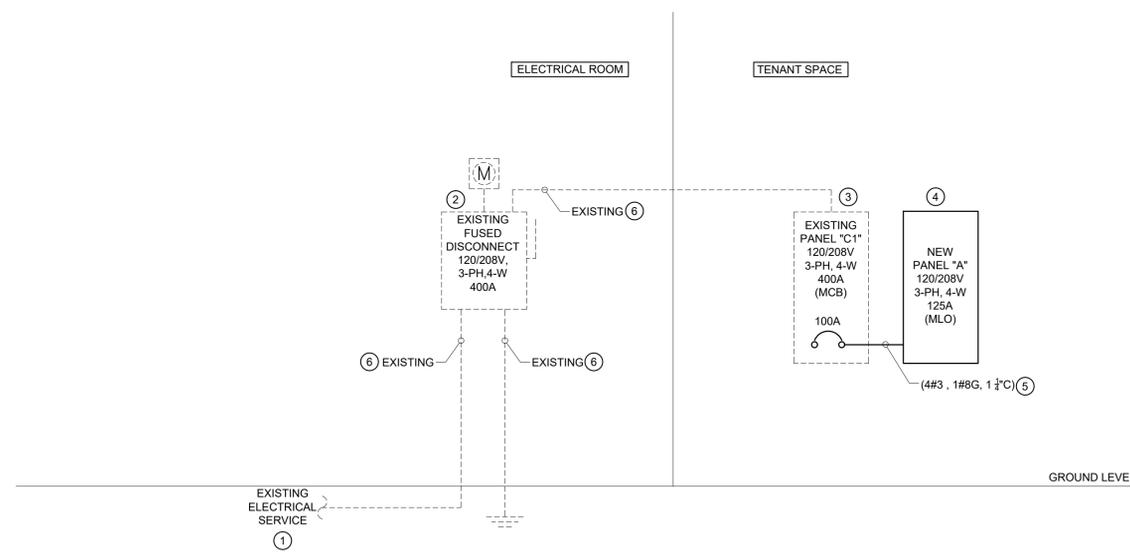
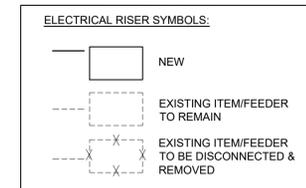
- E.C. TO VERIFY THE EXACT PANEL SIZES AND INCOMING FEEDER SIZE IN FIELD.
- E.C. SHALL COORDINATE BREAKER RATING AND POWER REQUIREMENT FOR PLUMBING/MECHANICAL EQUIPMENT WITH PLUMBING/MECHANICAL CONTRACTOR AND EQUIPMENT MANUFACTURER FOR FINAL SELECTION PRIOR TO ROUGH-IN.
- E.C. TO VERIFY EXACT BREAKER RATING FOR THE KITCHEN EQUIPMENT WITH MANUFACTURER FOR FINAL SELECTION PRIOR TO ROUGH-IN.
- E.C. SHALL VERIFY OPERABLE CONDITION OF ALL THE EXISTING BREAKERS/WIRE/CONDUIT BEFORE REUSING IT, REPLACE WITH NEW IF FOUND INOPERABLE. BASE BID ACCORDINGLY.

ELECTRICAL PANEL SCHEDULE ABBREVIATIONS:

(E) EXISTING  
(N) NEW  
MCB MAIN CIRCUIT BRAKER  
L LIGHTING  
R RECEPTACLE  
H HVAC  
M MOTOR  
E EQUIPMENT  
O OTHER  
\* NEW BREAKER  
\*\* GFI BREAKER  
# LOCK ON TYPE BREAKER

## 2 ELECTRICAL PANEL SCHEDULES

N.T.S



- RISER DIAGRAM KEYED NOTES: (4)
- EXISTING ELECTRICAL SERVICE FOR THE PROJECT SPACE SHALL REMAIN AS IS. E.C. SHALL COORDINATE WITH ARCHITECT/UTILITY/LANDLORD TO VERIFY EXACT LOCATION, RATING, AND POWER DISTRIBUTION IN FIELD. ANY DISCREPANCY SHALL BE REPORTED TO THE ENGINEER OF RECORD.
  - EXISTING ELECTRICAL METER, AND 400A, 120/208V, 3-PHASE, 4-WIRE FUSED DISCONNECT FOR THE PROJECT SPACE SHALL REMAIN AS IS. E.C. SHALL VERIFY EXACT LOCATION AND OPERABLE CONDITION OF EXISTING METER AND DISCONNECT IN FIELD WITH ARCHITECT/LANDLORD. PROVIDE NEW IF FOUND INOPERABLE. ANY DISCREPANCY SHALL BE REPORTED TO THE ENGINEER OF RECORD PRIOR TO COMMENCING WORK.
  - EXISTING 400A (MCB), 120/208V, 3-PHASE, 4-WIRE ELECTRICAL PANEL "C1" TO REMAIN. E.C. TO FIELD VERIFY EXACT SIZE, LOCATION & OPERABLE CONDITION OF THE PANEL. REPLACE WITH NEW IF FOUND INOPERABLE. BASE BID ACCORDINGLY.
  - NEW 125A (MLO), 120/208V, 3-PHASE, 4-WIRE, ELECTRICAL PANEL "A" FOR PROJECT SPACE. E.C. TO COORDINATE WITH ARCHITECT/OWNER FOR FINAL LOCATION OF ELECTRICAL PANEL "A" IN FIELD.
  - E.C. TO FIELD VERIFY EXACT LENGTH OF THE CABLE AND CHECK THE VOLTAGE DROP IS UNDER LIMIT PER NEC BEFORE INSTALLATION. E.C. SHALL PROVIDE THE UPDATED WIRE/FEEDER SIZE AS NEEDED AS PER THE VOLTAGE DROP CALCULATION. BASE BID ACCORDINGLY.
  - EXISTING FEEDER/CONNECTION SHALL REMAIN. E.C. TO VERIFY OPERABLE CONDITION, EXACT POWER DISTRIBUTION, LOCATION AND CONNECTION OF FEEDER IN FIELD. REPLACE IF INOPERABLE. BASE BID ACCORDINGLY.

- RISER DIAGRAM GENERAL NOTES:
- ABOVE RISER DIAGRAM IS FOR REFERENCE PURPOSE ONLY. E.C. TO VERIFY EXACT POWER DISTRIBUTION, INCOMING CONNECTION & OPERABLE CONDITION OF EXISTING ELECTRICAL SERVICE & DEVICES IN FIELD AND INFORM ENGINEER FOR ANY DISCREPANCY.
  - E.C. SHALL VERIFY THE RATING, SIZE, LOCATION AND OPERABLE CONDITION OF ALL THE EXISTING ELECTRICAL EQUIPMENTS / PANELS AND ELECTRICAL CONNECTION IN FIELD. INFORM ENGINEER FOR ANY DISCREPANCY FOUND BEFORE COMMENCING ANY WORK.
  - E.C. SHALL VERIFY THE INCOMING SERVICE AMPERAGE, VOLTAGE, NUMBER OF PHASES, WIRE SIZE AND DISTRIBUTION IN FIELD.
  - E.C. TO COORDINATE FAULT CURRENT (ISC) RATING WITH UTILITY COMPANY AND AHJ PRIOR TO COMMENCING ANY WORK.

## 1 ELECTRICAL RISER

N.T.S

REVISIONS		
No.	Description	Date

**SDA** Architects  
SCOTT • DOUGLAS • ALLEN

**NY ENGINEERS**  
382 NE 191st Street Suite 49674  
MIAMI, FL 33179  
(786)-788-0295  
ny-engineers.com



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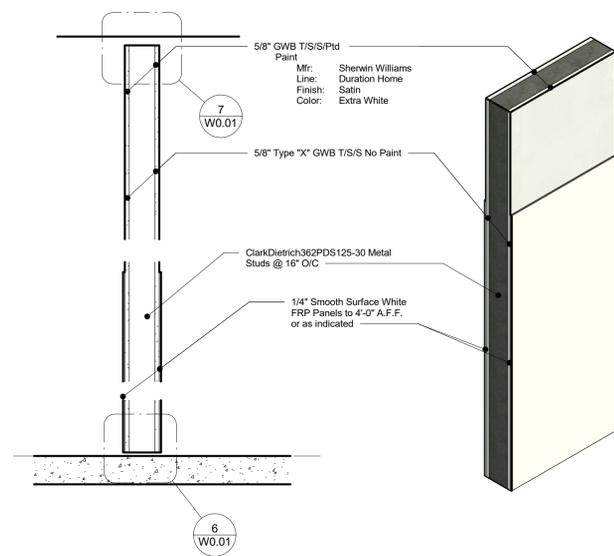
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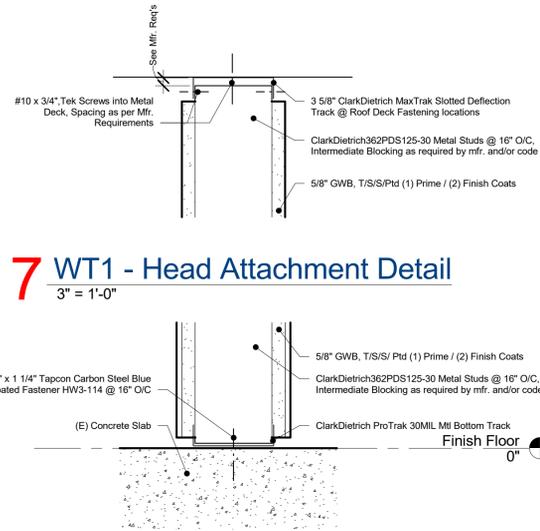
ELECTRICAL RISER AND PANEL SCHEDULES

Proj. No. 24TF604  
Date 11-9-25  
Drawn by NYE  
Checked by NYE

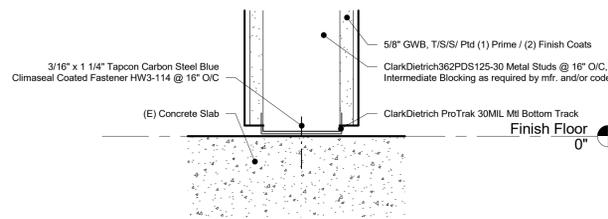
**E4.0**  
N.T.S



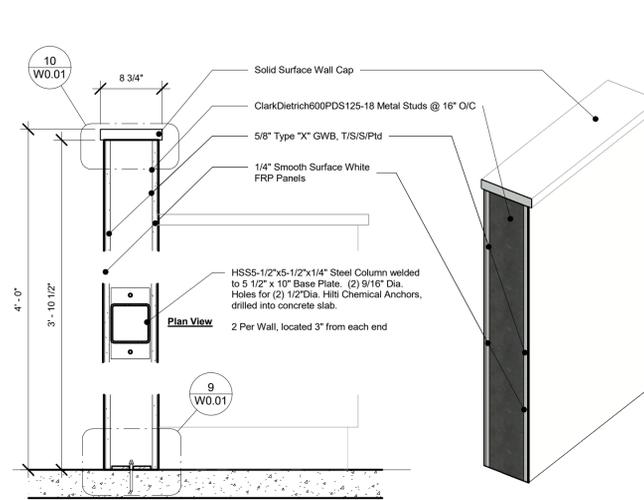
**1 Wall Type - WT1 - 4 7/8" Full Height**  
1" = 1'-0"



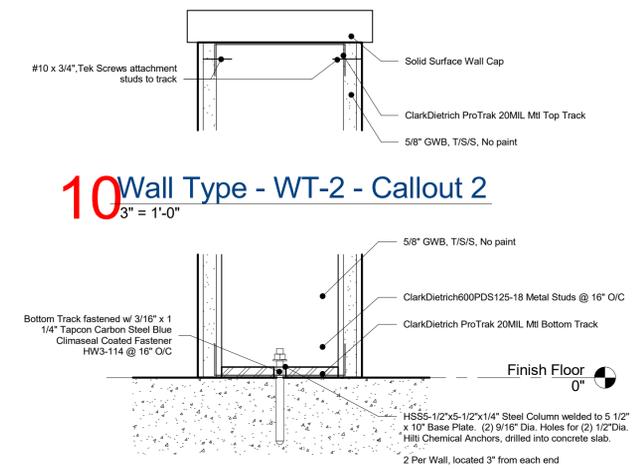
**7 WT1 - Head Attachment Detail**  
3" = 1'-0"



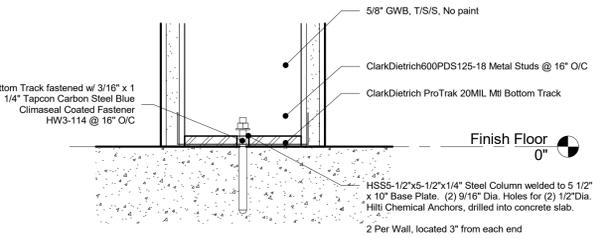
**6 WT1 - Base Attachment Detail**  
3" = 1'-0"



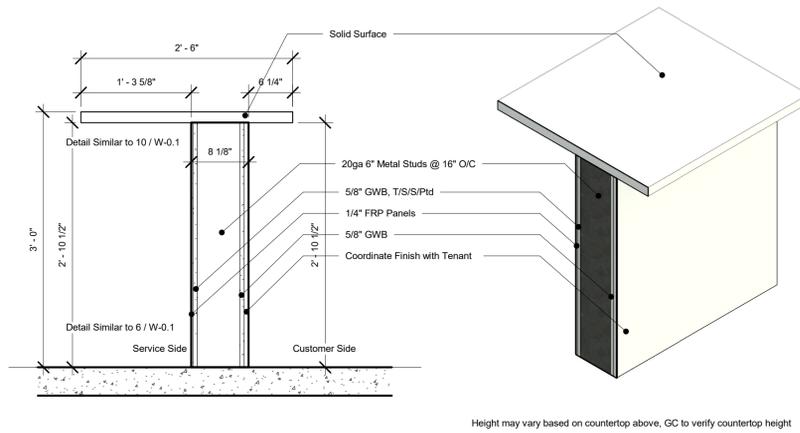
**3 Wall Type - WT-2**  
1" = 1'-0"



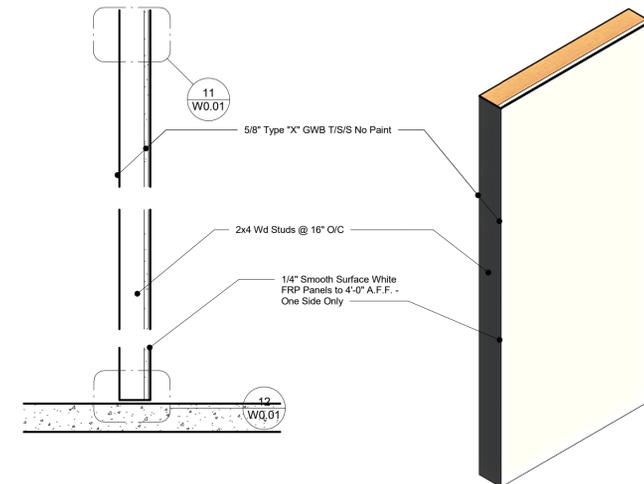
**10 Wall Type - WT-2 - Callout 2**  
3" = 1'-0"



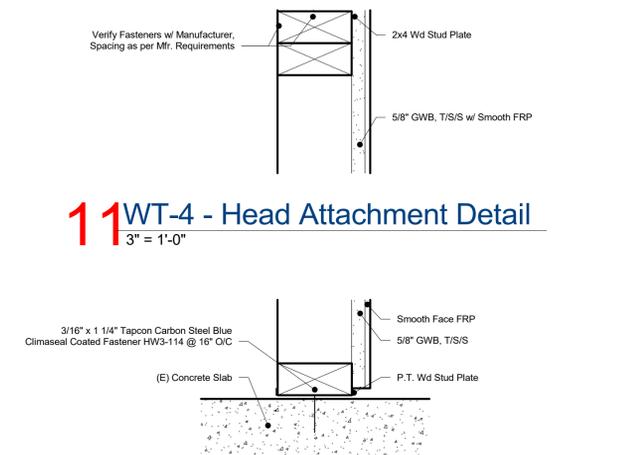
**9 WT2 - Base Attachment Detail**  
3" = 1'-0"



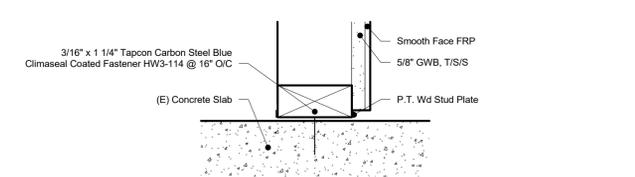
**2 Wall Type - WT3 - Service Counter**  
1" = 1'-0"



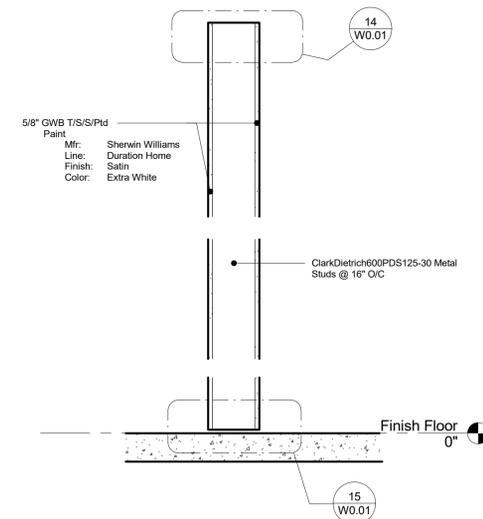
**4 Wall Type - WT4**  
1" = 1'-0"



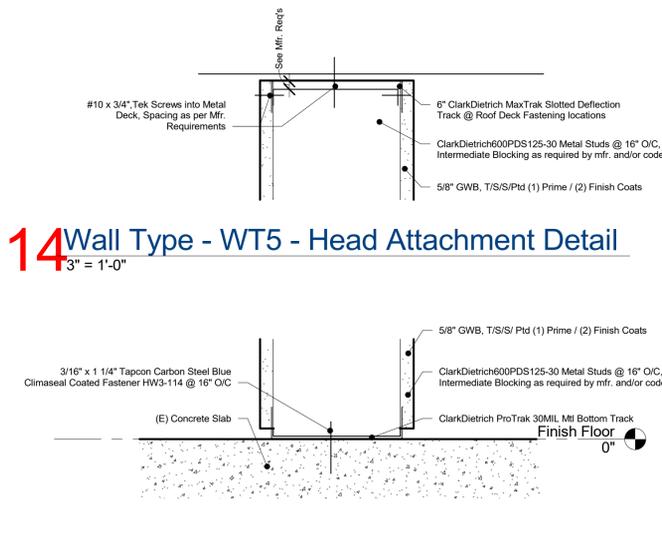
**11 WT-4 - Head Attachment Detail**  
3" = 1'-0"



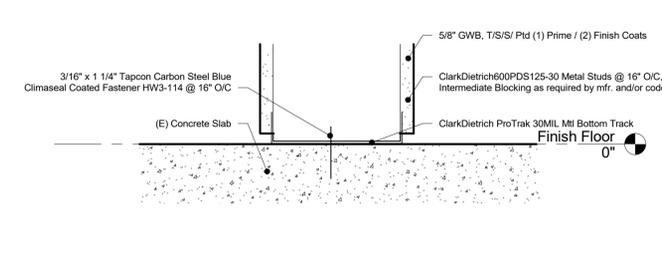
**12 WT-4 - Base Attachment Detail**  
3" = 1'-0"



**13 Wall Type - WT5 - 7 1/4" Full Height**  
1" = 1'-0"

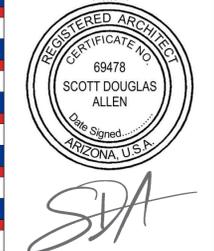


**14 Wall Type - WT5 - Head Attachment Detail**  
3" = 1'-0"



**15 Wall Type - WT5 - Base Attachment Detail**  
3" = 1'-0"

REVISIONS		
No.	Description	Date



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TBH Enterprises, LLC

Handel's Ice Cream  
410 NW Chipman Road  
Lee's Summit, MO

Wall Types  
Proj. No. 23HAN162  
Date 1-23-26  
Drawn by sda  
Checked by sda As indicated

W0.01

1/23/2026 4:18:52 PM

**HANDEL'S AWNING**



2-1: Red (d72627) Pantone 1795 C / Blue (2c3691) Pantone 287 C / White (ffffff)

**LOGOS**



**DO NOT:**  
Stretch or obscure the logo  
Deviate from the brand colors  
Accent the logo with characters or patterns

**BRAND FONTS**

**TW CEN MT**

This is the main font used throughout our advertising and signage. It's a bold, all caps font that is easy to read and clear.

*Brannboll NY*

This cursive font is used as a secondary font for highlights to bring a fun free feeling to our advertising and signage.

**RAIDERS**

For bold headings, such as specials and coupons.

Arial Narrow

Used for small print and legal lines.

**BRAND COLORS**



Red (d72627) Pantone 1795 C Blue (2c3691) Pantone 287 C White (ffffff)

**HANDEL'S AWNING**

Striping are 1ft 5in tall.  
Colors are a ratio of 2:1  
Words are 4in tall and 2in from Striping

**MENU**

3 Slat - 18x45/each w/ 3 inch in between. Logo above 48x15 (w/ cherry)  
Print on PVC and Hang with French Cleats

**WALL COMPS**

10ft  
10ft

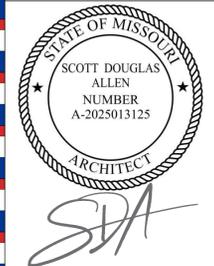
**WALK IN LOCATIONS**

3 Slat - 18x45/each w/ 3 inch in between  
Print on PVC and Hang with French Cleats

**WALK UP LOCATIONS**

66.5 x 25.75  
Print on PVC

REVISIONS		
No.	Description	Date



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TBH Enterprises, LLC

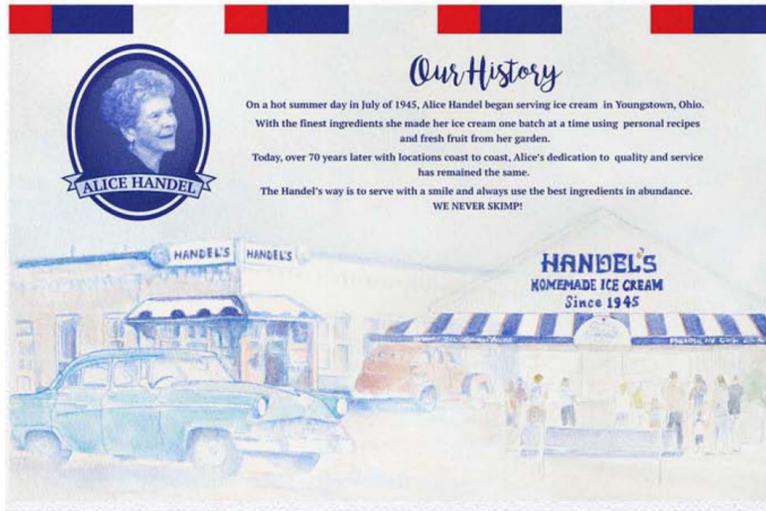
Handel's Ice Cream  
410 NW Chipman Road  
Lee's Summit, MO

Branding  
Proj. No. 24TF604  
Date 11-9-25  
Drawn by Author  
Checked by Checker  
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**POSTERS**

11"x17"



**FLAVORS**

Digital Display on 50" TV's (50" TV = 43.6"X 24.5")

Banana	Blueberry Cobbler	Coconut Almond Fudge Ripple	<b>FAT FREE</b>
Banana Cream Pie	Blue Moon	Coconut Caramel Delight	<b>NO SUGAR ADDED</b>
Banana's Foster	Buckeye	Coconut Creme Pie	Strawberry Banana
Banana Nut Cake	Butter Fudge	Coconut Pineapple	<b>SHERBET</b>
Birthday Cake	Butter Pecan	Coffee	Orange
Black Cherry	Butterscotch Ripple	Coffee Chocolate Chip	Pineapple
Black Raspberry	Banana Pudding	Coffee with Heath®	Pink Champagne
Black Raspberry Chunk	Blue Monster	Cotton Candy	Red Raspberry
Black Walnut	Brownie Dough	Deep Dish Apple Pie	<b>ICES</b>
Blueberry Cheesecake Chunk	Butter Toffee	Dolce de Leche	Blue Moon
Cake Batter	Chunky Mint Chocolate Chip		
Caramel Apple	Cinnamon		
Caramel Cashew	Cinnamon Pecan		
Caramel Corn with Nuts	Cinnamon Sticky Bun		
Caramel Pretzel Crunch	Caramel Latte		
Cheesecake with OreO®	Cherry Magnolia		
Cherry Cordial	Chocolate Oreo-Dough		
Chocolate Pecan	Cinnamon Graham Cracker		
Chocolate Raspberry Truffle	Cinnamon Roll		
Chunky Chocolate Chip	Cupcake		

**POSTERS**

24"x36"

Can be resized for individual applications  
 Frames - Alpina Manufacturing FF-ST fast change frame in white



**STANCHION SIGNS**

Location specific and generic phrases available.



**SIGNAGE**



**REVISIONS**

No.	Description	Date



*SDA*

**HANDELS**  
 HOMEMADE ICE CREAM SINCE 1945



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TBH Enterprises, LLC

HandeL's Ice Cream  
 410 NW Chipman Road  
 Lee's Summit, MO

Branding  
 Proj. No. 24TF604  
 Date 11-9-25  
 Drawn by Author  
 Checked by Checker

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## Food Service Equipment & Toilet Accessories Schedule

Type Mark	Description	Count	Type	Manufacturer	Model	Provided by	Installed by	Comments
1a	Serving Cabinet	4	Serving Cabinet BD14	Nelson Mfg	BD14RB	Food Equip. Vendor	Food Equip. Vendor	Serving Cabinet
1b	Holding Cabinet	1	Holding Cabinet BD14	Nelson Mfg	BD14	Food Equip. Vendor	Food Equip. Vendor	
2	Double Reach-In Solid Swing Door - Freezer	4	T-49F-HC, 115/60/1	TRUE FOOD SERVICE EQUIPMENT, INC.	T-49F-HC	Food Equip. Vendor	Food Equip. Vendor	www.truefmfg.com
4	1-Compartment Countertop Drop-In Sink	2	SR16-19-13.5-1-ND	Eagle Group	SR16-19-13.5-1-ND	Food Equip. Vendor	PC	
5	Hand Washing Sink	1	BPHS-1014-F-LRS	BlendPort	BPHS-1014-F-LRS	Food Equip. Vendor	PC	
6	Arctic Swift Flavor Blender	1	414-18-4-24	Arctic	HDM75A	Food Equip. Vendor	Food Equip. Vendor	
7	Twin Topping Warmer	1	Twin Topping Warmer 6-8-22	Server	81220	Food Equip. Vendor	Food Equip. Vendor	
8	EZ Topper Pouch Warmer	1	85899	Server	85899	Food Equip. Vendor	Food Equip. Vendor	
9	Blender	2	700G	Vitamix	700G	Food Equip. Vendor	Food Equip. Vendor	
10	Reach-In Solid Swing Door -10°F Freezer	1	T-23F, 115/60/1	TRUE FOOD SERVICE EQUIPMENT, INC.	T-23F	Food Equip. Vendor	PC	www.truefmfg.com
11	Four-Compartment Sink	1	414-18-4-24	Arctic	414-18-4-24	Food Equip. Vendor	EC	
12	Capigiani Batch Freezer	2	Capigiani Batch Freezer 6-6-22	Arctic	6009	Food Equip. Vendor	FEV, EC, MC	
13	Walk In Cooler	1	Cooler 36" Door	Arctic Walk-ins	See Cut Sheet EQ-0.5	Food Equip. Vendor	FEV, EC, MC	
13a	Shelving Unit, Polymer/Wire, 5-Tier	1	18x48x74 Legs, 5-Tier, All Grid Shelves	Metro	5Q357G3	Food Equip. Vendor	Food Equip. Vendor	
13b	<varies>	4	<varies>	<varies>	<varies>	Food Equip. Vendor	Food Equip. Vendor	
13c	DUNNAGE RACK	2	6009	Newage Industrial	6009	Food Equip. Vendor	Food Equip. Vendor	
14	Sandwich / Salad Unit	1	TSSU-48-12-HC, 115/60/1	True Food Service Equipment, Inc.	TSSU-48-12-HC	Food Equip. Vendor	Food Equip. Vendor	
16	Quad-Adjust 4-Tier Starter Unit	4	#16 - Shelving 24" x 48"	Eagle Group	F2QA2-74-XXXX	Food Equip. Vendor	Food Equip. Vendor	
17	Quad-Adjust 4-Tier Starter Unit	2	#17 - Shelving 24" x 60"	Eagle Group	F2QA2-74-XXXX	Food Equip. Vendor	Food Equip. Vendor	
18	Utility / Bussing Cart	3	UC3019K	Winco	UC3019K	Food Equip. Vendor	Food Equip. Vendor	
19	Stainless Steel Top Work Tables	1	BPT3072SEB	BlendPort	BPT3072SEB	Food Equip. Vendor	Food Equip. Vendor	
20	Work Table	1	BPT2448SEB-BS	BlendPort	BPT2448SEB-BS	Food Equip. Vendor	Food Equip. Vendor	Stainless Steel Top
22	Freezer, Worktop	1	TWT-60F-HC	True Manufacturing	TWT-60F-HC	Food Equip. Vendor	Food Equip. Vendor	
24a	Stainless Steel Shelving	5	#24a - Metal Shelving 12x48x33	Metro		Food Equip. Vendor	Food Equip. Vendor	
24b	Stainless Steel Shelving	2	Metal Shelving 12x36x33	Metro		Food Equip. Vendor	Food Equip. Vendor	
24c	Stainless Steel Shelving	4	Metal Shelving 12x30x33	Metro		Food Equip. Vendor	Food Equip. Vendor	
31		1	Quad Candy Dispenser					

EQ2 & EQ3 NOT USED



www.cnelson.com 419-898-3305  
sales@cnelson.com  
Oak Harbor, Oh 43449  
We Sell Cool



### Nelson Treasure Chests Double Row Dipping Cabinets

**Features:**  
All Digital, All the Time. Electronic thermostats included in all Nelson dipping cabinets takes the guess work out of the perfect temperature setting. T-stats adjust from -30 to +30 degrees.

Front Breathing cabinets allow for flexibility in proper placement in cabinetry or against a wall. BD12& BD14 require rear venting.

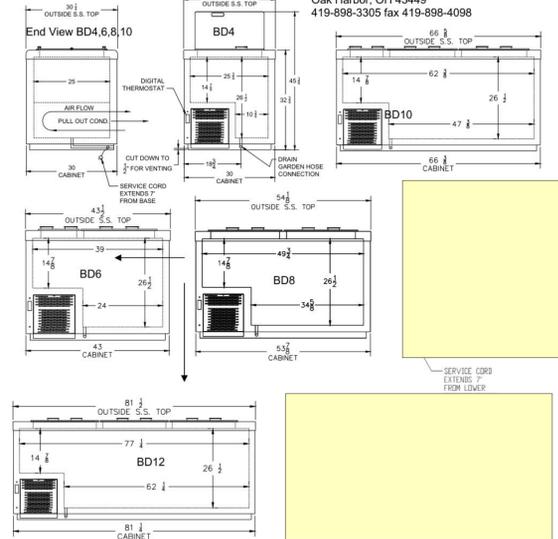
Permanent Stainless Steel Gaskets never need replaced.



10/18/2017 10:11 AM



www.cnelson.com.sales@cnelson.com  
265 N. Lake Winds Pkwy.  
Oak Harbor, OH 43449  
419-898-3305 fax 419-898-4098



Specs	BD4	BD6	BD8	BD10	BD12	BS2	BS4
Ship Wt	225	275	315	365	430	175	240
Cu/Ft Capacity	8.0	13	17.5	22.5	27.5	4.8	10.5
#Facing	5	8	11	14	17	2	5
Total Tubs	7	12	15	22	26	3	8
Compressor	F7CLX	F7CLX	F7CLX	F7CLX	SC12CLX	F4CLX	F4CLX
Amps	8/4	8	8	8	11	5	5
Electric	115v / 220v	115v	115v	115v	115v	115v	115v

EQ1

Note: #1a = Serving Cabinets, #1b = Holding Cabinet



SR16-19-13.5-1-ND Item #4

Item No.: \_\_\_\_\_  
Project No.: \_\_\_\_\_  
S.I.S. No.: \_\_\_\_\_

### Specification Sheet

**Short Form Specifications**  
Eagle Countertop Drop-In Sink With No Deck, model SR16-19-13.5-1-ND. Sinks are type 304 stainless steel, deep-draw and self-rimming. 1 1/2" trim on all four sides. Positive hold-down clamping tabs for top mount.

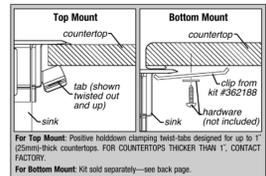


### Countertop Drop-In Sinks With No Deck

- MODELS:**
- SR10-14-5-1-ND
  - SR10-14-9-5-1-ND
  - SR10-14-9-5-1-ND
  - SR12-14-9-5-1-ND
  - SR12-14-9-5-2-ND
  - SR12-14-9-5-2-ND
  - SR14-16-9-5-1-ND
  - SR14-16-9-5-2-ND
  - SR14-16-9-5-2-ND
  - SR16-19-13.5-1-ND
  - SR16-19-13.5-2-ND
  - SR16-19-13.5-2-ND
  - SR22-22-13.5-1-ND
  - SR22-22-13.5-2-ND
  - SR24-24-13.5-1-ND
  - SR24-24-13.5-2-ND
  - SR24-24-13.5-2-ND
  - SR24-24-13.5-2-ND

- Design and Construction Features**
- Sinks can be mounted onto top or bottom of countertop. For bottom mount, order kit #362188 (see back page).
  - Heavy gauge type 304 series stainless steel coved bowls with large radius.
  - All sinks feature 1 1/2" (35mm) trim on all four sides of sink.
  - 18 or 20 gauge industrial grade construction and quality.
  - 4 1/2" (121mm) sump in sink bowl.
  - 3/4" (98mm) basket drain with 1 1/2" (38mm) outlet.
  - Self-rimming.
  - Deep-draw.

- Options / Accessories**
- P-trap



**For Top Mount:** Positive hold-down clamping hold-tab designed for up to 1 1/2" (38mm) thick countertops. FOR COUNTERTOPS THICKER THAN 1 1/2", CONTACT FACTORY.  
**For Bottom Mount:** Kit sold separately—see back page.

EAGLE GROUP  
100 Industrial Boulevard  
Clayton, DE 19938-8903 USA  
Phone: 302-653-3000 • 800-441-8440  
Fax: 302-653-2065  
www.eaglegrp.com • www.eaglehmc.com



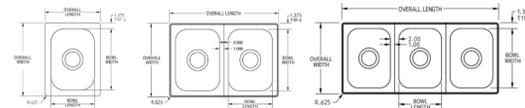
For custom configuration or fabrication needs, contact our SpecFAB® Division.  
Phone: 302-653-3000 • Fax: 302-653-2065 • e-mail: quotes@eaglegrp.com  
Spec sheets available for viewing, printing or downloading from our online literature library at [www.eaglegrp.com](http://www.eaglegrp.com)



SR16-19-13.5-1-ND Item #4

Item No.: \_\_\_\_\_  
Project No.: \_\_\_\_\_  
S.I.S. No.: \_\_\_\_\_

### Countertop Drop-In Sinks With No Deck



**One-Compartment Sinks**

model #	inside bowl dimensions width x length x depth	overall dimensions width x length	cutout for top mount width x length	cutout for bottom mount width x length	weight lbs. kg	18 or 20 gauge
SR10-14-5-1-ND	14" x 10" x 9"	358 x 254 x 127	16" x 12" x 422 x 324	15" x 11" x 387 x 286	34 1/2	10
SR10-14-9-5-1-ND	14" x 12" x 9"	358 x 305 x 241	16" x 14" x 422 x 375	15" x 13" x 387 x 337	34 1/2	10
SR12-14-9-5-1-ND	14" x 12" x 9"	358 x 305 x 241	16" x 14" x 422 x 375	15" x 13" x 387 x 337	34 1/2	10
SR12-14-9-5-2-ND	14" x 12" x 9"	358 x 305 x 241	16" x 14" x 422 x 375	15" x 13" x 387 x 337	34 1/2	10
SR14-16-9-5-1-ND	16" x 14" x 9"	408 x 359 x 241	18" x 16" x 472 x 425	17" x 15" x 438 x 387	40 1/2	10
SR16-19-13.5-1-ND	20" x 16" x 8"	508 x 469 x 243	22" x 18" x 568 x 470	21" x 17" x 533 x 432	50 1/2	18
SR16-19-13.5-2-ND	24" x 18" x 13"	610 x 487 x 343	26" x 20" x 676 x 581	25" x 19" x 635 x 483	62 1/2	18
SR22-22-13.5-1-ND	22" x 22" x 13"	559 x 559 x 343	24" x 24" x 626 x 629	23" x 23" x 591 x 591	52 1/2	18
SR24-24-13.5-1-ND	24" x 24" x 13"	610 x 610 x 343	26" x 26" x 676 x 678	25" x 25" x 635 x 635	62 1/2	18

**Two-Compartment Sinks**

model #	inside bowl dimensions width x length x depth	overall dimensions width x length	cutout for top mount width x length	cutout for bottom mount width x length	weight lbs. kg	18 or 20 gauge
SR16-16-9-5-2-ND	14" x 10" x 9"	358 x 254 x 241	16" x 24" x 418 x 629	15" x 23" x 376 x 584	25	11
SR12-14-9-5-2-ND	14" x 12" x 9"	358 x 305 x 241	16" x 28" x 422 x 730	14" x 26" x 365 x 676	27	12
SR14-16-9-5-2-ND	16" x 14" x 9"	408 x 359 x 241	18" x 30" x 472 x 830	16" x 28" x 422 x 738	42	18
SR16-18-9-5-2-ND	20" x 16" x 8"	508 x 469 x 243	22" x 36" x 568 x 921	21" x 34" x 533 x 883	54	18
SR16-19-13.5-2-ND	20" x 16" x 13"	508 x 489 x 343	22" x 36" x 568 x 921	21" x 34" x 533 x 883	54	18
SR16-19-13.5-2-ND	24" x 18" x 13"	610 x 487 x 343	26" x 40" x 676 x 1022	25" x 38" x 635 x 984	62 1/2	18
SR22-22-13.5-2-ND	22" x 22" x 13"	559 x 559 x 343	24" x 48" x 626 x 1238	23" x 47" x 591 x 1200	52 1/2	18
SR24-24-13.5-2-ND	24" x 24" x 13"	610 x 610 x 343	26" x 52" x 676 x 1324	25" x 50" x 635 x 1286	62 1/2	18

**Three-Compartment Sinks**

model #	inside bowl dimensions width x length x depth	overall dimensions width x length	cutout for top mount width x length	cutout for bottom mount width x length	weight lbs. kg	18 or 20 gauge
SR16-16-9-5-3-ND	14" x 10" x 9"	358 x 254 x 241	16" x 36" x 418 x 933	15" x 35" x 376 x 889	37	16
SR12-14-9-5-3-ND	14" x 12" x 9"	358 x 305 x 241	16" x 42" x 422 x 1086	15" x 41" x 387 x 1031	41	20
SR14-16-9-5-3-ND	16" x 14" x 9"	408 x 359 x 241	18" x 48" x 472 x 1239	16" x 46" x 438 x 1184	46	20
SR16-18-9-5-3-ND	20" x 16" x 8"	508 x 469 x 243	22" x 54" x 568 x 1372	21" x 52" x 533 x 1334	54	18
SR16-19-13.5-3-ND	20" x 16" x 13"	508 x 489 x 343	22" x 54" x 568 x 1372	21" x 52" x 533 x 1334	54	18
SR24-24-13.5-3-ND	24" x 24" x 13"	610 x 487 x 343	26" x 60" x 676 x 1524	25" x 58" x 635 x 1486	62 1/2	18

**Bottom-Mount Kit**  
One kit per one-compartment sink,  
two kits per two-compartment sink,  
three kits per three-compartment sink.



EAGLE GROUP  
100 Industrial Boulevard, Clayton, DE 19938-8903 USA  
Phone: 302-653-3000 or 800-441-8440 • Fax: 302-653-2065  
www.eaglegrp.com • www.eaglehmc.com

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Although every attempt has been made to ensure the accuracy of the information provided, we cannot be held responsible for typographical or printing errors. Information and specifications are subject to change without notice. Please confirm at time of order.

EQ4

### REVISIONS

No.	Description	Date



SCOTT DOUGLAS ALLEN  
ARCHITECT



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TBH Enterprises, LLC

Handel's Ice Cream  
410 NW Chipman Road  
Lee's Summit, MO

Equipment Submittals

Proj. No.	24TF604
Date	11-9-25
Drawn by	Author
Checked by	Checker

EQ0.1  
12" = 1'-0"



Specification Sheet

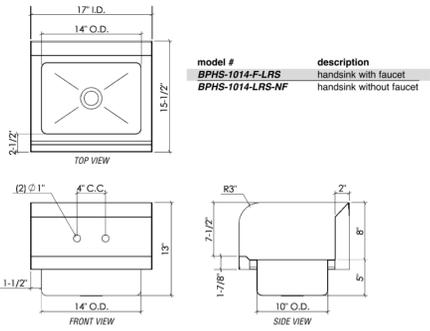
**Short Form Specifications**  
BlendPort Hand Sinks with Side Splashes, model BPHS-1014-F-LRS, 18 gauge type 304 stainless steel construction throughout. 10" x 14" x 5" sink bowl. Comes standard with left and right side splashes and basket drain. Offered with or without splash-mount faucet.



**Hand Sinks with Side Splashes**

MODELS:  
 BPHS-1014-F-LRS  BPHS-1014-LRS-NF

- Features**
- 18 gauge type 304 stainless steel construction.
  - Sink bowl is 10" front-to-back, 14" end-to-end, and 5" deep.
  - Left and right side splashes with 3" radius at front.
  - Basket drain.
  - Sink #BPHS-1014-LRS comes with swivel splash-mount gooseneck faucet on 4" center.



model #	description
BPHS-1014-F-LRS	handsink with faucet
BPHS-1014-LRS-NF	handsink without faucet

**BlendPort®**  
An Eagle Group Company  
100 Industrial Boulevard, Clayton, DE 19938-8903 USA  
Phone: 800-441-8440 • Fax: 302-653-2065

Certifications / Approvals



BP100.26 Rev. 01/20  
Page: 5

Catalog Specification Sheet No. BP100.26

Hand Sinks with Side Splashes

EQ5

**DECREASE WASTE. INCREASE WOW.**  
EZ-TOPPER™ POUCHED TOPPING WARMERS

Dispense more servings with eco-friendly pouched topping dispensers; deliver up to 98% evacuation and create 97% less packaging waste than cans. Minimize downtime during changeouts - models available to simultaneously warm a reserve pouch.

Promote dessert consistency with portion control; 1 oz pump serving is adjustable in 1/8 oz increments.



**EZ-TOPPER™ DISPENSERS**  
Models EZT & EZT-S

**Food Applications**

- Ideal for self-serve dessert stations as tamper-resistant packaging brings peace of mind
- High-volume operations looking to optimize downtime during changeouts
- Lower-volume or sporadic use operations serving topping over an extended period of time

**Fast Facts**  
EZ-Topper warmers serve up to 98% of your Fudge or Caramel from special 48 oz pouches with 16 mm center fitment, available through your food distributor.

Adjustable portion control pump ensures dessert consistency; max 1 oz serving reduces in 1/8 oz increments.

Models accommodate large and small operations, serving 1 or 2 toppings with or without the ability to pre-heat a reserve pouch; single unit also available without spout heater.



SERVER  
SERVE BETTER™  
1.800.558.8722  
EZ-Topper.com

EQ6

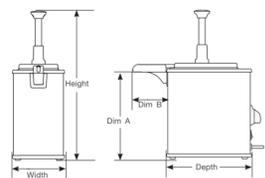
**MORE SERVINGS. MORE RESPONSIBLE. SWEET.**

**EZ-TOPPER™ POUCHED TOPPING WARMERS**  
Model EZT & EZT-S

**Specifier Statement**  
EZ-Topper™ unit will be one of (2) EZT Twin or (3) EZT-S Single topping warmer models by Server Products. Models accept specialized 48 oz (1.4 L) topping pouches with 16 mm center fitment and are available with and without room to pre-heat a reserve pouch; plus a single, tall non-spout heater model. Twin warmers use individual temperature sensing thermostats to control wrap-around heating elements for accurate heating and holding. Temperatures range from 100°F (38°C) to 200°F (93°C). Pumps dispense 1 oz (30 mL) max stroke adjustable in 1/8 oz (3.9 mL) increments. Black knobs standard; units include black engraved replacement knobs reading Caramel and Fudge. NSF listed. c-UL-US listed. Two-year warranty. Ships FOB Richfield, WI 53076.

**EZ-Topper™ Product Codes**

- Single Tall with Heated Spout EZT-S 85790
- Single Short with Heated Spout EZT-S 85880
- Twin Short with Heated Spout EZT 85920
- Single Tall without Heated Spout EZT-S 85860



SERVER  
Server Products, Inc. | 800.558.8722 | Int: 262.628.5600  
3601 Pleasant Hill Road | Richfield WI 53076  
spales@server-products.com | server-products.com

**Single & Twin Merchandisers**

- To keep topping at its peak flavor and texture, pouched product is heated with temperature-sensing thermostats, without the need for a water-bath
- Manage serving sizes of expensive ingredients with the portion-controlled, stainless steel pump; 1 oz max portion; adjusts in 1/8 oz increments



model/item	description	capacity	dimensions (HxWxD)	plug	voltage	watts	weight
EZT-S 85790	base warmers spout & (2) pouches; includes (1) pump (85820)	(2) 48 oz	17 3/8" x 6" x 9 1/2"	5-15P	120 AC	150	15 lb
EZT-S 84888	base warmers spout & (2) pouches; includes (1) pump (85820)	(2) 48oz	17 3/8" x 6" x 9 1/2"	Aust	230 AC	200	6.6 kg
EZT-S 84887	base warmers spout & (2) pouches; includes (1) pump (85820)	(2) 1.4 L	44.1 x 15.2 x 24.4 cm	Euro	230 AC	200	6.4 kg
EZT-S 84889	base warmers spout & (2) pouches; includes (1) pump (85820)	(2) 1.4 L	44.1 x 15.2 x 24.4 cm	UK	230 AC	200	6.4 kg
EZT-S 85860	base warmers (2) pouches; includes (1) pump (85820)	(1) 48 oz	17 3/8" x 6" x 9 1/2"	5-15P	120 AC	150	15 lb
EZT-S 84895	base warmers (2) pouches; includes (1) pump (85820)	(1) 1.4 L	44.1 x 15.2 x 24.4 cm	Aust	230 AC	200	6.4 kg
EZT-S 84894	base warmers (2) pouches; includes (1) pump (85820)	(1) 1.4 L	44.1 x 15.2 x 24.4 cm	Euro	230 AC	200	6.4 kg
EZT-S 84896	base warmers (2) pouches; includes (1) pump (85820)	(1) 1.4 L	44.1 x 15.2 x 24.4 cm	UK	230 AC	200	6.4 kg
EZT-S 85880	base warmers spout & (1) pouch; includes (1) pump (85820)	(1) 48 oz	13 1/8" x 6" x 9 1/2"	5-15P	120 AC	150	12 lb
EZT-S 84882	base warmers spouts & (4) pouches; includes (2) pumps (85820)	(4) 1.4 L	44.1 x 30.2 x 24.4 cm	Aust	230 AC	400	11.3 kg
EZT-S 84881	base warmers spouts & (4) pouches; includes (2) pumps (85820)	(4) 1.4 L	44.1 x 30.2 x 24.4 cm	Euro	230 AC	400	11.3 kg
EZT-S 84883	base warmers spouts & (2) pouches; includes (2) pumps (85820)	(2) 48 oz	13 1/8" x 11 7/8" x 9 1/2"	5-15P	120 AC	300	20 lb

EZ-Topper™ units use specialized pouched toppings. Contact your food distributor for 48 oz topping pouches with a 16 mm center fitment.

**SWEET RESPONSIBILITY**

Server pouched topping warmers eliminate product degradation and waste - helping reduce food costs while delivering a superior product.



**Flavor Blender**

**Model HDM 75A**  
This Flavor Blender has proven to be dependable even under very heavy use. There have been thousands sold.

**3/4 Horsepower Motor**

Industrial grade motor designed to handle heavy loads. This powerful motor helps to blend a mix-in product quickly and efficiently.

**Proven Belt Drive System**

Stress is put on an inexpensive belt rather than an expensive motor. The belt drive system allows us to use a longer shaft supported by two bearings to reduce vibration and noise.

**Patented Mixing Shaft**

Designed to blend quickly and efficiently without destroying the frozen product or cutting cups. The mixing shaft is manufactured from stainless steel which adds to shaft life and durability.

**Variable Speed Control**

Allows the operator to control the speed of the mixing shaft for blending. The Arctic Swirl® can be adjusted to blend cookies, candy or fruit with soft serve or hard pack ice cream or mix a standard shake. The mixing shaft speed can also be reduced when cleaning or sanitizing, preventing the water or sanitizer from being thrown from the container.

**Stainless Steel Cabinet**

Easy to clean and appearance remains "like new" longer.

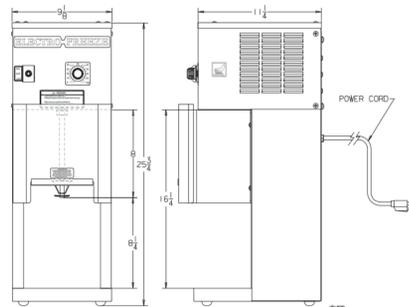
**Sound Insulated**

Sound deadening insulation covers the inside walls of the top of the mixer where the motor is located. Also, the base is foamed to help reduce noise.



Model HDM 75A

**ELECTRO FREEZE**  
**Arctic Swirl®**  
SPECIFICATIONS  
All specifications are subject to change without notice.



Model HDM 75A

**SPECIAL FEATURES**

- Electrical - 115/160, 10 Amps
- Blending Speed Variable speed control
- Motor - 3/4 HP
- Weight - 40 Lbs.
- Finish - Stainless Steel Panels
- Plastic Splash Guard

**OPTIONS**

- Attractive point-of-sale posters
- Foot Switch

Authorized Distributor

**division of H.C. DUKE & SON, INC.**

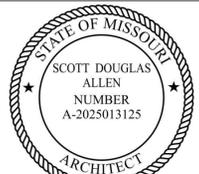
2116 - 8th Avenue • East Moline, Illinois 61244  
Phone (309) 755-4553 • (800)755-4545  
Fax (309) 755-9858  
E-mail: sales@electrofreeze.com • www.electrofreeze.com

184768 Printed in U.S.A. 4/07 2M

EQ7

REVISIONS

No.	Description	Date



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TBH Enterprises, LLC

**Handel's Ice Cream**  
410 NW Chipman Road  
Lee's Summit, MO

**Equipment Submittals**

Proj. No.	24TF604	EQ0.2
Date	11-9-25	
Drawn by	Author	
Checked by	Checker	

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## TWICE THE TOPPINGS. TWICE THE YUM. TWIN TOPPING WARMERS

Warm and dispense two hot toppings from #10 cans or 3 qt (2.8 L) jars – choose from the following dispensing methods:

- (2) stainless steel pumps
- (2) lids and ladles
- (1) lid and ladle, (1) pump

Portion-control pumps provide consistent servings and help manage food costs



**TWIN TOPPING WARMER**  
Model Twin FS/FSP, Twin FS & Twin FSP

**Food Applications**

- Warm two sauces, gravies or toppings for dipping, dressing or plating.
- Small batch prep maintains ideal freshness
- Great for heating different products that require specific temperature settings

**Fast Facts**

- Safely warm sauces, gravies or toppings and serve with a ladle or portion-control pump – max 1 oz (30 mL) stroke adjusts in 1/8 oz (3.7 mL) increments.

Individual thermostats with temp markings control each heating element and use a water-bath to warm each topping. Accurate, even heat prevents scorching and burning.

Add colored, engraved knobs for quick product differentiation – specify when ordering.

Also accepts a squeeze bottle inset with (3) 16 oz squeeze bottles for plating.



86819 inset

NSF listed as a rethermalizer – quickly heat toppings to a safe serving temperature

1,800.558.8722  
Server-Products.com

Handel's Fresco Texas Bezac Equipment Page: 15

## TAKE ULTIMATE CONTROL OF TOPPINGS

**TWIN HOT TOPPING WARMER**  
Models Twin FS/FSP, Twin FS & Twin FSP

**Specifier Statement**

Server Products Twin Topping Warmers Models Twin FS/FSP, Twin FS, and Twin FSP are designed to pump or ladle hot toppings straight from a #10 manufacturer's can or 3 qt (2.8 L) stainless steel jar (not included). Stainless steel water-bath warmers include (2) adjustable thermostats with temperature markings to control individual 500W wrap-around heating elements. Temperatures range from 100°F to 200°F, and power is controlled with (2) switches.

Twin FS/FSP, designed to pump and ladle toppings, includes (1) lift-off lid and 1 oz (30 mL) ladle, and (1) stainless steel pump with 1 oz (30 mL) max stroke adjustable in 1/8 oz (3.7 mL) increments.

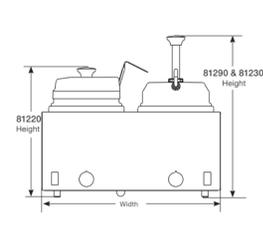
Twin FS designed to ladle toppings, includes (2) lift-off lids and (2) ladles.

Twin FSP designed to pump toppings and includes (2) stainless steel pumps.

NSF listed. Rethermalizer, C-UL-US listed. Two-year warranty. Ships FOB Richfield, WI 53076.

**Twin Warmer Product Codes**

- Warmer, pump & ladle Twin FS/FSP 81290
- Warmer, (2) ladles Twin FS 81220
- Warmer, (2) pumps Twin FSP 81230



SERVER  
Server Products, Inc. 800.558.8722 | Int: 262.628.5600  
3801 Pleasant Hill Road | Richfield, WI 53076  
spisales@server-products.com | server-products.com

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**Specifications**

Part Number	Capacity	Dimensions (height x width x depth)	Weight	Electrical
81290	15 1/2" x 17" x 13 1/2"	38.9 x 43.2 x 34.3 cm	18 lb 9.5 kg	120V 1000W 15A
81220	(2) 3 qt Jars (2) 2.8 L Jars	12 1/2" x 17" x 9 1/2" 31.3 x 43.2 x 24.4 cm	17 lb 9.1 kg	
81230	15 1/2" x 17" x 13 1/2"	38.9 x 43.2 x 34.3 cm	10 kg	

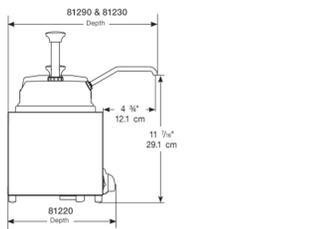
Plug is NEMA 5-15P with 72" (183 cm) cord

230V models also available



**Accessory Items**

- Customize an item.
- Stainless steel jar, 3 qt (2.8 L) 94009
  - Stainless steel 10" ladle, 1 oz (30 mL) 82561
  - Squeeze bottle inset 86819



SERVER  
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Handel's Fresco Texas Bezac Equipment Page: 16

## Twin Warmers

- Water-bath twin base with independent heat control serves toppings with pumps, ladles or one of each from #10 cans or stainless steel jars (accessory – 94009)
- Pumps provide consistent servings while managing food costs; 1 oz per stroke; adjust in 1/8 oz increments
- Adaptable base accepts (3) 16 oz high-density squeeze bottles (86809) and bottle inset (86811)



model/item	description	capacity	dimensions (HxWxD)	plug	voltage	weight	weight
d Twin FSP 81230	warmer with (2) pumps (81230)	(2) 3 qt	15 1/2" x 17" x 13 1/2"	5-15P	120 AC	18 lb	9.5 kg
Twin FSP 81460	warmer with (2) pumps (81230) & stainless steel jar (94009)	(2) 2.8 L	38.9 x 43.2 x 34.3 cm	Aust	230 AC	1000	9.1 kg
Twin FSP 94990	warmer with (2) ladles, lids & adapters	(2) 3 qt	12 1/2" x 17" x 13 1/2"	UK	120 AC	17 lb	9.1 kg
e Twin FS 81220	warmer with (2) ladles (82561), lids (82509), adapters (82507) & stainless steel jars (94009)	(2) 2.8 L	31.3 x 43.2 x 34.3 cm	Euro	230 AC	1000	8.6 kg
Twin FS 81400	warmer with (2) ladles (82561), lids (82509), adapters (82507) & stainless steel jars (94009)	(2) 2.8 L	31.3 x 43.2 x 34.3 cm	Euro	230 AC	1000	9.1 kg
Twin FS 84910	warmer with (2) ladles (82561), lids (82509), adapters (82507) & stainless steel jars (94009)	(2) 2.8 L	31.3 x 43.2 x 34.3 cm	UK	230 AC	1000	9.1 kg



## SWEET SAVINGS with Portion Optimization™

Reducing your serving size by as little as 1/8 oz can create significant savings without sacrificing flavor.

If you change portions from 1 oz to 7/8 oz:  
*That's like getting every eighth can for free!*

Handel's Fresco Texas Bezac Equipment Page: 17

**TRUE FOOD SERVICE EQUIPMENT, INC.**  
2001 East Terra Lane • O'Fallon, Missouri 63366-4434 • (636)240-2400  
Fax (636)272-2408 • Toll Free (800)325-6152 • Int'l Fax# (001)636-272-7546  
Parts Dept. (800)424-TRUE • Parts Dept. Fax# (636)272-9471 • www.truemfg.com

Project Name: \_\_\_\_\_ AIA # \_\_\_\_\_  
Location: \_\_\_\_\_ SIS # \_\_\_\_\_  
Item #: \_\_\_\_\_ Qty: \_\_\_\_\_  
Model #: \_\_\_\_\_

Model: **T-23F-HC** T-Series: **Reach-In Solid Swing Door Freezer with Hydrocarbon Refrigerant**



**T-23F-HC**

- True's solid door reach-in is designed with enduring quality that protects your long term investment.
- Designed using the highest quality materials and components to provide the user with colder product temperatures, lower utility costs, exceptional food safety and the best value in today's food service marketplace.
- Extra large evaporator coil balanced with higher horsepower compressor and large condenser maintains -10°F (-23.3°C) cabinet temperatures, ideally suited for both frozen foods and ice cream.
- Stainless steel solid door and front. The very finest stainless with higher tensile strength for fewer dents and scratches.
- Adjustable, heavy duty PVC coated shelves.
- Positive self-closing door. Lifetime guaranteed door hinges and torsion type closure system.
- Automatic defrost system time-initiated, temperature-terminated. Saves energy consumption and provides shortest possible defrost cycle.
- "No stoop" lower shelf.
- Storage on top of cabinet.
- Compressor performs in coolest, most grease free area of kitchen.
- Easily accessible condenser coil for cleaning.

**ROUGH-IN DATA**

Chart dimensions rounded up to the nearest 1/4" (millimeters rounded up to next whole number).

Model	Doors	Shelves	Cabinet Dimensions (inches) (mm)			HP	Voltage	Amps	NEMA Config.	Cord Length (total ft.) (m)	Crated Weight (lbs.) (kg)
T-23F-HC	1	3	L	D	H*						
			27	29 1/2	78 3/4	1/2	115/60/1	3.7	5-15P	9	295
			686	750	1991	1/2	230-240/50/1	1.9	▲	2.74	134

\*Height does not include 5" (127 mm) for castors or 6" (153 mm) for optional legs. ▲ Plug type varies by country.

APPROVALS: AVAILABLE AT: \_\_\_\_\_  
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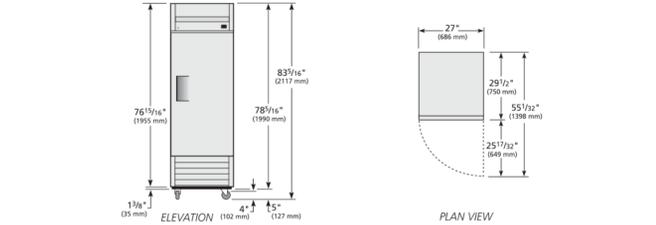
Handel's Fresco Texas Bezac Equipment Page: 24  
True T-23F-HC Item #10

Model: **T-23F-HC** T-Series: **Reach-In Solid Swing Door Freezer with Hydrocarbon Refrigerant**

**STANDARD FEATURES**

- DESIGN**
- True's commitment to using the highest quality materials and oversized refrigeration systems provides the user with colder product temperatures, lower utility costs, exceptional food safety and the best value in today's food service marketplace.
  - Factory engineered, self-contained, capillary tube system using environmentally friendly R290 hydro carbon refrigerant that has zero (0) ozone depletion potential (ODP) & three (3) global warming potential (GWP).
  - Extra large evaporator coil balanced with higher horsepower compressor and large condenser; maintains -10°F (-23.3°C). Ideally suited for both frozen foods and ice cream.
  - State of the art, electronically commutated evaporator and condenser fan motors. ECM motors operate at higher peak efficiencies and move a more consistent volume of air which produces less heat, reduces energy consumption and provides greater motor reliability.
  - Bottom mounted condensing unit positioned for easy cleaning. Compressor runs in coolest and most grease free area of the kitchen. Allows for storage area on top of unit.
  - Automatic defrost system time-initiated, temperature-terminated. Saves energy consumption and provides shortest possible defrost cycle.
- REFRIGERATION SYSTEM**
- Interior - attractive, NSF approved, clear coated aluminum liner. Stainless steel floor with coved corners.
  - Insulation - entire cabinet structure and solid door are foamed-in-place using a high density, polyurethane insulation that has zero ozone depletion potential (ODP) and zero global warming potential (GWP).
  - Welded, heavy duty steel frame rail, black powder coated for corrosion protection.
  - Frame rail fitted with 4" (102 mm) diameter stem castors - locks provided on front set.
- DOOR**
- Stainless steel exterior with clear aluminum liner to match cabinet interior. Door extend full width of cabinet shell. Door lock standard.
  - Lifetime guaranteed recessed door handle. Door fitted with 12" (305 mm) long recessed handle that is foamed-in-place with a sheet metal interlock to ensure permanent attachment.
  - Positive self-closing door. Lifetime guaranteed door hinges and torsion type closure system.
  - Magnetic door gasket of one piece construction, removable without tools for ease of cleaning.
- SHELVING**
- Three (3) adjustable, heavy duty PVC coated wire shelves 22 1/2" x 23 1/2" D (582 mm x 591 mm). Four (4) chrome plated shelf clips included per shelf.
  - Self support plasters made of same material as cabinet interior; shelves are adjustable on 1/2" (13 mm) increments.
- CABINET CONSTRUCTION**
- Exterior - Stainless steel front. Anodized quality aluminum ends. Corrosion resistant Galvan coated steel back.
- MODEL FEATURES**
- Exterior temperature display.
  - Evaporator is epoxy coated to eliminate the potential of corrosion.
  - Rear airflow guards prevent product from blocking optimal airflow.
  - NSF/ANSI Standard 7 compliant for open food product.
- ELECTRICAL**
- Unit completely pre-wired at factory and ready for final connection to a 115/60/1 phase, 15 amp dedicated outlet. Cord and plug set included.
- OPTIONAL FEATURES/ACCESSORIES**
- Upgrade and lead times may apply.
- 230 - 240V / 50 Hz.
  - 3" (76 mm) standard legs.
  - 6" (153 mm) seismic/flanged legs.
  - Alternate door hinging (factory installed).
  - Novelty baskets.
  - Additional shelves.
  - Half door bun tray racks. Each holds up to eleven 18" x 26" D (458 mm x 661 mm) sheet pans (sold separately) (airflow guards need to be removed).
  - Full door bun tray rack. Holds up to twenty-two 18" x 26" D (458 mm x 661 mm) sheet pans (sold separately) (airflow guards need to be removed).
- LIGHTING**
- Interior lighting - safety shielded. Lights activated by rocker switch mounted above door.

**PLAN VIEW**



**WARRANTY:** Three year warranty on all parts and labor and an additional 2 year warranty on compressor. (U.S.A. only)

METRIC DIMENSIONS ROUNDED UP TO THE NEAREST WHOLE MILLIMETER. SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.

Model	Elevation	Right	Plan	3D	Back
T-23F-HC	TFEY35E	TFEY03S	TFEY03P	TFEY633	

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Handel's Fresco Texas Bezac Equipment Page: 25

EQ10

EQ8



**Signature Drinks for Great Beverage Menus**

The Drink Machine Advance™ has 6 new programs for effortless blending of a wide variety of popular beverages, and offers custom program capabilities for menu specialization.

**Smart Product Design**

- 6 new programs deliver fast and consistent high-quality beverages.
- Enhanced motor design delivers power and durability for improved processing and back-to-back blends.
- Optimized programs with automatic shut-off let you turn it on, walk away, and achieve consistent results every time.
- Now comes standard with a 48-ounce Advance™ container, providing 50% more blending capacity than the previous model.
- Pulse feature allows off-menu flexibility by allowing staff to manually fine-tune blends.

**Beidas exclusivas para menús de bebidas excelentes**

La Drink Machine Advance™ tiene 6 nuevos programas para lograr la mezcla sin esfuerzo de una amplia variedad de bebidas populares, y ofrece las capacidades de los programas personalizados para la especialización del menú.

Item Number	062824 Black	062825 Red
Motor	~2.3 peak output horsepower motor	
Electrical	120 V, 50/60 Hz, 11.5 A	
Net Weight	12.2 lbs. (13.2 lbs. with box)	
Dimensions	17.7 x 8.0 x 9.0 in. (HxWxD)	

**Producto con diseño inteligente**

- Los 6 programas nuevos ofrecen bebidas rápidas y calidad alta y uniforme.
- El diseño mejorado del motor ofrece potencia y durabilidad para la mejora el procesamiento y las mezclas consecutivas.
- Los programas optimizados con apagado automático permiten que la encienda, se aleje y consiga resultados uniformes en todo momento.
- Ahora se comercializa de serie con un recipiente Advance™ de 14 L, que aporta un 50 % más de capacidad de mezcla que el modelo anterior.
- La función de pulso permite una flexibilidad fuera del menú por que el personal puede ajustar manualmente las mezclas.

**Contact Information / Información de Contacto**

U.S.A. & Canada  
Phone 800.4DRINK4 or 800.437.4654 | Email commercial@vitamix.com

vitamix.com/commercial  
For more information, contact your local foodservice distributor. For más informaciones, entre en contacto con su distribuidor local de servicios alimenticios.

Handel's Fresco Texas Bezac Equipment Page: 22

EQ9

No.	Description	Date



SCOTT DOUGLAS ALLEN ARCHITECT  
NUMBER A-2025013125

# HANDEL'S

HOMEMADE ICE CREAM SINCE 1945



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TBH Enterprises, LLC

Handel's Ice Cream  
410 NW Chipman Road  
Lee's Summit, MO

Equipment Submittals

Proj. No.	24TF604
Date	11-9-25
Drawn by	Author
Checked by	Checker

EQ.0.3  
12" = 1'-0"



Profit from the Eagle Advantage®

### Specification Sheet

Short Form Specifications  
Eagle Four-Compartment Sink, model \_\_\_\_\_ with 2"-wide Euro-Style edging on front and sides. Sink bowls are heavy gauge type 304 stainless steel, with 13/16" water level, deep drawn, seamless and have all corners covered. Top—including backsplash, and drainboards (when required)—is heavy gauge type 430 stainless steel. Drainboards shall be "V" creased for positive drainage. 9/16" high backsplash with 1" upturn and tile edge. Legs to be 1 1/2" O.D. galvanized tubing with front-to-back crossbracing, and 1" high impact plastic adjustable bullet feet.

Item No.: \_\_\_\_\_  
Project No.: \_\_\_\_\_  
S.I.S. No.: \_\_\_\_\_

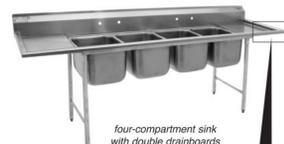
### 414 Series Covered Corner Four-Compartment Sinks

- MODELS:
- 414-16-4
  - 414-18-4
  - 414-24-4
  - 414-16-4-18L
  - 414-18-4-18L
  - 414-24-4-18L
  - 414-16-4-24R
  - 414-18-4-24R
  - 414-24-4-24R
  - 414-16-4-24L
  - 414-18-4-24L
  - 414-24-4-24L

- Materials:
- Sink bowls: Heavy gauge type 304 stainless steel.
  - Top: Drainboards, backsplash and euro-style edging are heavy gauge type 430 stainless steel.
  - Legs: 1 1/2" (41mm)-diameter heavy-gauge galvanized tubing with 12-gauge gussets and high-impact corrosion resistant fully adjustable bullet feet - crossbracing is 1" (25mm)-diameter heavy-gauge galvanized tubing.

- Design and Construction Features:
- All bowls have deep-drawn one-piece seamless construction, using state-of-the-art hydraulic presses.
  - Sink bowls have generous radius with minimum dimension of 3" (76mm) and are rectangular for maximum capacity.
  - New 20" x 16" (508 x 406mm) bowl design, with enhanced polishing techniques.
  - 13/16" (34mm) water level is standard.
  - Swirl-away drainage.
  - Leg gusset assemblies located adjacent to sink bowl for maximum weight support and stability.
  - 9/16" (24mm) standard backsplash includes 1" (25mm) upturn and tile edge for easy installation and feathering to wall/splash surface.
  - "V" creased drainboards for positive drainage.

- Mechanical:
- Water supply is 1/2" (13mm) IPS for hot and cold lines.
  - Faucet holes are 1 1/4" (29mm) punched on 8" (203mm) centers; two sets of faucet holes are punched.
  - Basinet-type waste drain included fits sink bowls' 3/8" (9.5mm) opening and features 1 1/4" (38mm) outlet.



- Options / Accessories
- Stainless steel legs
  - Stainless steel bullet feet
  - Lever drains
  - Twist handle drains
  - Twist drain brackets
  - Faucets
  - Sink covers
  - Waste outlets
  - Sink kits
  - Overflow hole

EAGLE GROUP  
100 Industrial Boulevard, Clayton, DE 19938-8903 USA  
Phone: 302-653-3000 • Fax: 302-653-2065  
www.eaglegrp.com

Certifications / Approvals  
NSF KCL  
AUTOQUOTES

Foodservice Division: Phone 800-441-8440  
MHC/Retail Display Divisions: Phone 800-637-5100

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MHC/Retail Display Divisions: Phone 800-637-5100

For custom configuration or fabrication needs, contact our SpecFAB® Division.  
Phone: 302-653-3000 • Fax: 302-653-3001 • e-mail: specfab@eaglegrp.com

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Phone: 302-653-3000 • Fax: 302-653-3001 • e-mail: specfab@eaglegrp.com

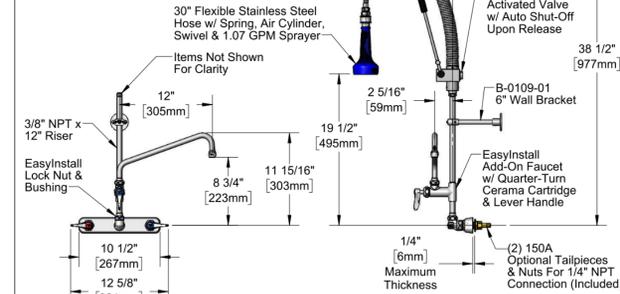
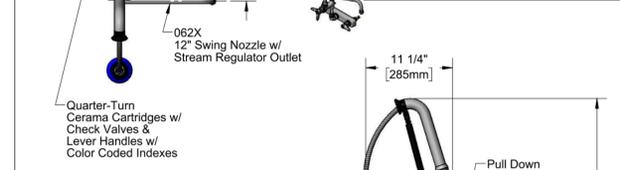
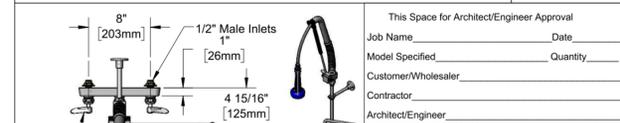
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Spec sheets available for viewing, printing or downloading from our online literature library at www.eaglegrp.com

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T&S Brass B-5125-12-CR88P Item #11A

T&S BRASS AND BRONZE WORKS, INC.  
2 Saddleback Cove / P.O. Box 1088  
Travelers Rest, SC 29690  
Model No. B-5125-12-CR88P  
Item No. \_\_\_\_\_



Rough-In Requirement:  
(2) 1/2" [25mm] Mounting Holes

Product Specifications:  
EasyInstall Pull-Down Pre-Rinse Unit: 8" Wall Mount Workboard Faucet, Quarter-Turn Cerama Cartridges w/ Check Valves, Add-On Faucet w/ 12" Swing Nozzle, Lever Handles, 12" Riser, 30" Flexible Stainless Steel Hose, 1.07 GPM Sprayer, 6" Wall Bracket & 1/2" NPT Male Inlets

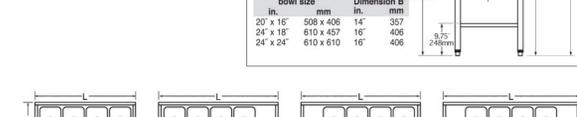
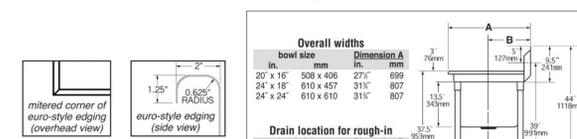
Product Compliance:  
ASME A112.18.1 / CSA B125.1  
NSF 61 - Section 9  
NSF 372 (Low Lead Content)  
2019 DOE PRRV - Class II

Drawn: KJG Checked: JRM Approved: JHB Date: 09/17/19 Scale: 1:10 Sheet: 1 of 2



Profit from the Eagle Advantage®

### 414 Series Covered Corner Four-Compartment Sinks



model #	BOWL DIMENSIONS		DRAINBOARD length in. mm	quantity	OVERALL DIMENSIONS		weight lbs. kg
	width in. mm	length in. mm			width in. mm	length in. mm	
414-16-4	20" 508	16" 406	0	1	27" 699	76" 1943	125 56.3
414-16-4-18R or L	20" 508	16" 406	1	18" 457	27" 699	92" 2340	144 65.3
414-16-4-18	20" 508	16" 406	2	18" 457	27" 699	107" 2737	163 73.9
414-16-4-24R or L	20" 508	16" 406	1	24" 610	27" 699	99" 2512	150 68.0
414-16-4-24	20" 508	16" 406	2	24" 610	27" 699	119" 3042	175 79.5
414-18-4	24" 610	18" 457	0	1	31" 807	85" 2172	135 61.2
414-18-4-18R or L	24" 610	18" 457	1	18" 457	31" 807	100" 2559	154 69.9
414-18-4-18	24" 610	18" 457	2	18" 457	31" 807	116" 2948	173 78.5
414-18-4-24R or L	24" 610	18" 457	1	24" 610	31" 807	108" 2741	160 72.6
414-18-4-24	24" 610	24" 610	0	1	31" 807	109" 2783	153 55.6
414-24-4-18R or L	24" 610	24" 610	1	18" 457	31" 807	124" 3169	172 78.0
414-24-4-18	24" 610	24" 610	2	18" 457	31" 807	140" 3556	191 86.6
414-24-4-24R or L	24" 610	24" 610	1	24" 610	31" 807	130" 3321	178 80.7
414-24-4-24	24" 610	24" 610	2	24" 610	31" 807	152" 3861	203 92.1

EAGLE GROUP  
100 Industrial Boulevard, Clayton, DE 19938-8903 USA  
Phone: 302-653-3000 • Fax: 302-653-2065  
www.eaglegrp.com

Foodservice Division: Phone 800-441-8440  
MHC/Retail Display Divisions: Phone 800-637-5100

For custom configuration or fabrication needs, contact our SpecFAB® Division.  
Phone: 302-653-3000 • Fax: 302-653-3001 • e-mail: specfab@eaglegrp.com

Spec sheets available for viewing, printing or downloading from our online literature library at www.eaglegrp.com

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T&S Brass B-5125-12-CR88P Item #11A

T&S BRASS AND BRONZE WORKS, INC.  
2 Saddleback Cove / P.O. Box 1088  
Travelers Rest, SC 29690  
Model No. B-5125-12-CR88P  
Item No. \_\_\_\_\_

ITEM NO.	SALES NO.	DESCRIPTION
1	019898-40	1.07 GPM Sprayer w/ Swivel
2	108SF-RK	Spray Face Repair Kit
3	001014-45	Washer, B-0100 Hose Barrel
4	018200-40	3/8" NPT Live Swivel
5	005221-25	7/8"-20 x 1/2" BSPP Adapter
6	019901-45	30" Stainless Steel Braided Hose w/ 1/2" NPSM Threads
7	020062-45	Air Cylinder Repair Kit
8	020060-45	Spring & Tube Repair Kit
9	020061-45	Valve Stem Repair Kit
10	020063-45	Valve Body Repair Kit
11	001359-40	Hex Bushing, 1/2" NPT Male x 3/8" NPT Female
12	B-0109-01	6" Wall Bracket
13	000366-40	3/8" NPT x 12" Riser
14	EZ-K	EasyInstall Kit: Nut, Bushing, O-ring & Lock Washer
15	019611-40	8" c/c Brass Escutcheon
16	009999-45	Brass Lock Washer
17	002954-45	Shank Lock Nut
18	150A	1/4" NPT Tailpiece & Nut
19	012394-25NS	Quarter-Turn Cerama Cartridge, RTC w/ Check Valve
20	001638-45NS	Lever Handle (New Style)
21	000925-45	Lab Handle Screw
22	018506-19NS	Blue Button Index, Press-in
23	019641-25	Quarter-Turn Cerama Cartridge, RTC w/ Check Valve, Lever Handle, Index & Screw
24	019640-25	Quarter-Turn Cerama Cartridge, LTC w/ Check Valve, Lever Handle, Index & Screw
25	001193-19NS	Red Button Index, Press-in
26	012395-25NS	Quarter-Turn Cerama Cartridge, LTC w/ Check Valve
27	019376-40	Escutcheon Lock Nut
28	000082-40	B-1100 Knob
29	B-0155-CR-LN	EasyInstall Cerama Add-On Faucet, Less Nozzle
30	B-PT	Full Flow Stream Regulator, 55/64-27
31	062X	12" Swing Nozzle w/ Stream Regulator Outlet
32	020064-45	PRU Control Valve Seal Repair Kit

Product Specifications:  
EasyInstall Pull-Down Pre-Rinse Unit: 8" Wall Mount Workboard Faucet, Quarter-Turn Cerama Cartridges w/ Check Valves, Add-On Faucet w/ 12" Swing Nozzle, Lever Handles, 12" Riser, 30" Flexible Stainless Steel Hose, 1.07 GPM Sprayer, 6" Wall Bracket & 1/2" NPT Male Inlets

Product Compliance:  
ASME A112.18.1 / CSA B125.1  
NSF 61 - Section 9  
NSF 372 (Low Lead Content)  
2019 DOE PRRV - Class II

Drawn: KJG Checked: JRM Approved: JHB Date: 09/17/19 Scale: NTS Sheet: 2 of 2



Profit from the Eagle Advantage®

### Specification Sheet

Short Form Specifications  
Eagle Three-Compartment Utility Sinks, model \_\_\_\_\_ Constructed of type 304 or 430 stainless steel with square corners, Euro-Style edging on front, and 8" backsplash. All partitions have 1/2" rolled top edge. Faucet holes punched on 8" centers. All outside corners to be bullnosed for clean, safe edges. 1 1/2" O.D. galvanized tubular legs with adjustable bullet feet.



- Options / Accessories
- Faucets
  - Detachable drainboard
  - Lever waste w/ overflow
  - Stainless steel legs
  - Stainless steel top

- Design and Construction Features:
- For numerous applications when NSF approval is not required (For NSF-approved utility sinks, add prefix "N-" to model number. Example: N-2460-3-16/3)
  - Entire assembly is fuse welded and planished, providing a one-piece seamless sink unit.
  - 3/4" x 35" (876 to 902mm) working height.

EAGLE GROUP  
100 Industrial Boulevard, Clayton, DE 19938-8903 USA  
Phone: 302-653-3000 • Fax: 302-653-2065  
www.eaglegrp.com

Foodservice Division: Phone 800-441-8440  
MHC/Retail Display Divisions: Phone 800-637-5100

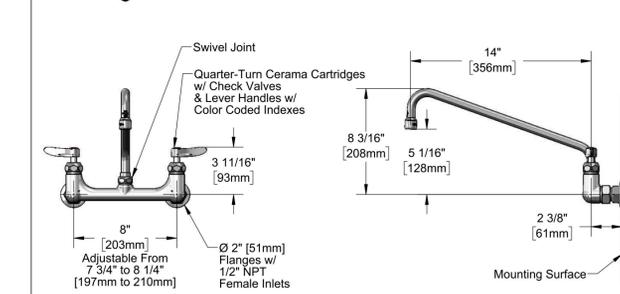
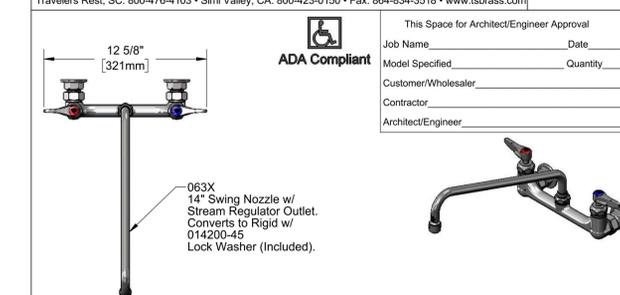
For custom configuration or fabrication needs, contact our SpecFAB® Division.  
Phone: 302-653-3000 • Fax: 302-653-3001 • e-mail: specfab@eaglegrp.com

Spec sheets available for viewing, printing or downloading from our online literature library at www.eaglegrp.com

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T&S Brass B-2299-CR Item #11C

T&S BRASS AND BRONZE WORKS, INC.  
2 Saddleback Cove / P.O. Box 1088  
Travelers Rest, SC 29690  
Model No. B-2299-CR  
Item No. \_\_\_\_\_



Product Specifications:  
8" Wall Mount Mixing Faucet, Quarter-Turn Cerama Cartridges w/ Check Valves, Lever Handles, 14" Swing Nozzle & 1/2" NPT Female Inlets

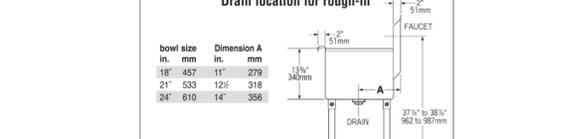
Product Compliance:  
ASME A112.18.1 / CSA B125.1  
NSF 61 - Section 9  
NSF 372 (Low Lead Content)  
ANSI A117.1 (ADA)

Drawn: MRC Checked: JRM Approved: JHB Date: 01/22/18 Scale: 1:6 Sheet: 1 of 2



Profit from the Eagle Advantage®

### Three-Compartment Utility Sinks with Square Corner Construction



16 gauge type 430 stainless steel model #	BOWL DIMENSIONS		DRAINBOARD length in. mm	quantity	OVERALL DIMENSIONS		weight lbs. kg
	width in. mm	length in. mm			width in. mm	length in. mm	
1836-3-16/4	18" 457	12" 305	0	n/a	22" 559	37" 949	79 35.8
1848-3-16/4	18" 457	16" 406	0	n/a	22" 559	49" 1254	90 40.8
1854-3-16/4	18" 457	18" 457	0	n/a	22" 559	55" 1406	97 44.0
2136-3-16/4	21" 533	12" 305	0	n/a	25" 635	37" 949	85 38.6
2148-3-16/4	21" 533	16" 406	0	n/a	25" 635	49" 1254	97 39.5
2154-3-16/4	21" 533	18" 457	0	n/a	25" 635	55" 1406	100 45.4
2160-3-16/4	21" 533	20" 508	0	n/a	25" 635	61" 1559	110 49.9
2448-3-16/4	24" 610	16" 406	0	n/a	28" 711	49" 1254	92 41.7
2460-3-16/4	24" 610	20" 508	0	n/a	28" 711	61" 1559	115 52.2
2472-3-16/4	24" 610	24" 610	0	n/a	28" 711	73" 1864	125 56.7

- Options / Accessories
- Faucets
  - Detachable drainboard
  - Lever waste w/ overflow
  - Stainless steel legs
  - Stainless steel top

- Design and Construction Features:
- For numerous applications when NSF approval is not required (For NSF-approved utility sinks, add prefix "N-" to model number. Example: N-2460-3-16/3)
  - Entire assembly is fuse welded and planished, providing a one-piece seamless sink unit.
  - 3/4" x 35" (876 to 902mm) working height.

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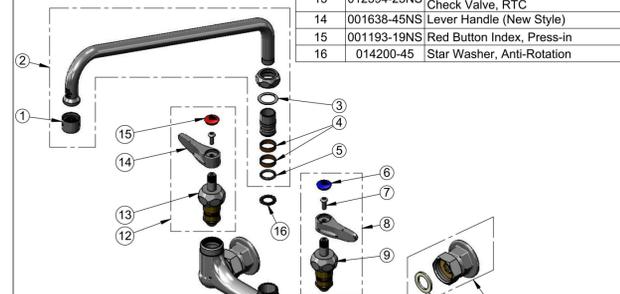
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T&S Brass B-2299-CR Item #11C

T&S BRASS AND BRONZE WORKS, INC.  
2 Saddleback Cove / P.O. Box 1088  
Travelers Rest, SC 29690  
Model No. B-2299-CR  
Item No. \_\_\_\_\_

ITEM NO.	SALES NO.	DESCRIPTION
1	B-PT	Full Flow Stream Regulator, 55/64-27
2	063X	14" Swing Nozzle
3	009538-45	Swivel Washer
4	011429-45	Swivel Sleeves (2)
5	001074-45	O-Ring
6	018506-19NS	Blue Button Index, Press-in
7	000925-45	Lab Handle Screw
8	012447-25NS	Quarter-Turn Cerama Cartridge w/ Check Valve, Handle, Blue Index & Screw, LTC
9	012395-25NS	Quarter-Turn Cerama Cartridge w/ Check Valve, LTC
10	001019-45	Coupling Nut Washer
11	00AA	1/2" NPT Female Eccentric Flange
12	012446-25NS	Quarter-Turn Cerama Cartridge w/ Check Valve, Handle, Red Index & Screw, RTC
13	012394-25NS	Quarter-Turn Cerama Cartridge w/ Check Valve, RTC
14	001638-45NS	Lever Handle (New Style)
15	001193-19NS	Red Button Index, Press-in
16	014200-45	Star Washer, Anti-Rotation



Product Specifications:  
8" Wall Mount Mixing Faucet, Quarter-Turn Cerama Cartridges w/ Check Valves, Lever Handles, 14" Swing Nozzle & 1/2" NPT Female Inlets

Product Compliance:  
ASME A112.18.1 / CSA B125.1  
NSF 61 - Section 9  
NSF 372 (Low Lead Content)  
ANSI A117.1 (ADA)

Drawn: MRC Checked: JRM Approved: JHB Date: 01/22/18 Scale: NTS Sheet: 2 of 2

### REVISIONS

No.	Description	Date

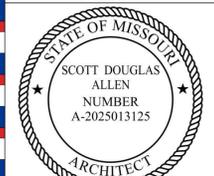


TBH Enterprises, LLC

Handel's Ice Cream  
410 NW Chipman Road  
Lee's Summit, MO

Equipment Submittals  
Proj. No. 24TF604  
Date 11-9-25  
Drawn by Author  
Checked by Checker  
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No.	Description	Date



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TBH Enterprises, LLC

Handel's Ice Cream  
410 NW Chipman Road  
Lee's Summit, MO

Equipment Submittals

Proj. No.	24TF604
Date	11-9-25
Drawn by	Author
Checked by	Checker

- OVERALL DIMENSIONS WIDTH 14'-0" DEPTH 8'-0" HEIGHT 7'-6" 20
- FINISH-Exterior
- 26 Ga. Stucco Embossed Galv. Steel
  - 24" Stucco Aluminum
  - 20 Ga. Type 304 #3 Finish Stainless Steel
  - White Stucco Aluminum
  - White Smooth Aluminum
  - White Stucco Galv.
  - White Smooth Galv.
- Interior (walls and ceiling)
- 26 Ga. Stucco Embossed Galv. Steel
  - 24" Stucco Aluminum
  - 20 Ga. Type 304 #3 Finish Stainless Steel
  - White Stucco Aluminum
  - White Smooth Aluminum
  - White Stucco Galv.
  - White Smooth Galv.
- FINISH-Interior Floor
- Built-in by others. (Breaker strip must be under all wall panels including partitions)
  - 4" x 2" Vinyl U-Channel Screeds
  - 14 Ga. Bright Galvanized Steel
  - 18 Ga. Stainless Steel
  - Smooth Aluminum
  - Treadbride Aluminum Foamed-In-Place
- SEE DETAIL BELOW.

THERMO-KOOL WALK-IN FLOOR PANELS ARE DESIGNED TO WITHSTAND UNIFORMLY DISTRIBUTED STATIONARY LOADS OF 600 LBS. PER SQUARE FOOT. THERMO-KOOL'S WARRANTY DOES NOT COVER DAMAGE DUE TO PALLET LACKS, MOBILE CARTS, MOBILE SHELVING, FORKS, OR ANY OTHER FORM OF ROLLING TRAFFIC. A CONC. WEARING FLOOR MUST BE INSTALLED ON TOP OF THE WALK-IN FLOOR PANELS FOR THIS APPLICATION.

SECTION FASTENERS-THERMO-KOOL can type Inada-Lok INSULATION-4" thickness "Foamed-in-place" urethane-DURATHANE CONSTRUCTION CLASS I

OUTDOOR INSTALLATION

- Vinyl weather roof w/ Facia Bar & Cover
- Sloped Foam  50 FT. OF 4-MIL POLYETHYLENE (BETWEEN SLOPED FOAM & VINYL WEATHERCAP)
- Aluminum weather roof by Thermo-Kool (w/ Weathercap Trim)

INDOOR INSTALLATION

ELECTRICAL-Wiring contained within the door sections is 115/60/10. Connections to this and all other lights and refrigeration supplied by others.

- UNEXPOSED CONDUIT - Wiring stubs out top of panels 8"
- EXPOSED CONDUIT - Wiring terminates in a field service box at top of panels

ENTRANCE DOOR-Flush infilling type with poly vinyl magnetic gasket and vinyl sweep gasket on bottom edge. Heater cables are built in around door opening to prevent frost accumulation and sweating. Exit has a thermometer, indicating light and toggle switch. Interior has vapor proof light. Hinges and cam action type.

\* Door finishes will be the same as adjacent panels unless specified otherwise under Door Accessories.

DOOR SIZE & CITY

- ( ) 34" x 76"
- ( ) 30" x 76"
- (1) 36" x 78"

- 1238-C LATCH, (2) 1346 PERFORMER ADJUSTABLE HINGES, DOOR CLOSER
- 1238-C LATCH, (3) 1346 PERFORMER ADJUSTABLE HINGES, DOOR CLOSER
- (1) KASON 26 LATCH W/ INSIDE RELEASE, (2) 1346 PERFORMER ADJUSTABLE HINGE, DOOR CLOSER

- DOOR ACCESSORIES
- ( ) 14" x 14" Peep Window(s) w/ HEATED FRAME & GLASS
  - ( ) 14" x 24" Peep Window(s) w/ HEATED FRAME & GLASS
- KASON # 1808 LED LIGHT FIXTURE(S) w/ BULBS ON DOOR FRAME(S)
- (1) VINYL STRIP CURTAIN TO FIT THE ABOVE DOOR SIZE(S)
  - (1) KASON 1802NL LED SAFETY NIGHT LIGHT

- MISCELLANEOUS EQUIPMENT
- ( ) Lights (NOT MOUNTED) 1 AMP EACH
  - Interior Floor Ramp
  - Exterior Floor Ramp
  - # 1825 Heated Pressure Relief Vent    AMPS EACH
  - # 1830 Heated Pressure Relief Vent    AMPS EACH
  - # 1832-4 Heated Pressure Relief Vent    AMPS EACH
  - Trim & Enclosures (see detail)
- (1) 48" LED LIGHT FIXTURE(S) w/ BULBS (4 AMPS)

- REFRIGERATION-
- Aircooled
  - Watercooled
  - By Others
- 1 1/4 HP MED TEMP RFD150E4SDANT 208-230/60/10 w/ RL6A17ADA 115/60/10 CONDENSING UNIT AMPS: MCA 15.1 MOP<sub>2</sub> 25. COMPRESSOR RLA 11.3
- COIL AIR R448A REFRIGERANT SCROLL BTU CAPACITY @ 110°F ROOM TEMP @ 110°F AMBIENT= 10,630
- LIQUID LINE SIZE = 1/2" SECTION LINE SIZE = 1/4"
- BASE SIZE = 28 1/4" X 38 1/4" X 18 3/4"
- RECEIVER CAPACITY AT 10W FULL= 11.6 #
- CONDENSING UNIT WEIGHT: 202 #
- HEAT OF REJECTION: 13,819 BTU'S

- CONTROL KIT-The following controls indicated with a mark are included:
- Expansion valve
  - Dryer
  - Sight glass
  - Temperature control
  - Pump down solenoid valve
  - Freezer Time Clock
  - Pressure control
  - Suction line vibration eliminator
  - Winter control
  - Crankcase heater
  - Condensing unit cover
  - Coil Mounting Kit

CONDENSING UNIT indoor

- Condensing unit outdoor
- Side Mounted Self Contained
- Top Mounted Self Contained
- Quick Connect
- Remote
- Top Mounted
- Prewired, Preassembled Remote

CONDENSING UNIT indoor

- Condensing unit outdoor
- Side Mounted Self Contained
- Top Mounted Self Contained
- Quick Connect
- Remote
- Top Mounted
- Prewired, Preassembled Remote

ITEM # 1

DATE	REV. BY	REVISIONS DESCRIPTION

DATE 05-17-2024 SCALE 3/8"=1'-0" SHEET NO. 70168 1 OF 1

These drawings represent our understanding of the requirements of your order. We submit them to you for the purpose of securing complete approval of sizes, finishes, framing, insulation, dimensions, specifications, and interpretations. The return of these drawings to us with instructions to proceed, or subsequent instructions to that effect, shall constitute complete approval.

Approved by \_\_\_\_\_ Date \_\_\_\_\_

**WARNING**  
DO NOT EXPOSE CARTONED OR STACKED PANELS TO MOISTURE OR HIGH HUMIDITY CONDITIONS DURING STORAGE. STAINING OR OXIDIZING OF METAL SKINS MAY OCCUR.

**NOTICE**  
THIS ORDER CANNOT BE PLACED INTO PRODUCTION UNTIL WE RECEIVE FINAL APPROVED DRAWING AND SPECIFICATIONS. THE DATE OF RECEIPT CAN AFFECT YOUR PROMISED DELIVERY DATE.

THIS THERMO-KOOL WALK-IN WILL BE MANUFACTURED TO UL & NSF REQUIREMENTS. THERMO-KOOL ACCEPTS NO LIABILITY FOR LOCAL CODE REQUIREMENTS OF WHICH THERMO-KOOL HAS NOT BEEN MADE AWARE IN WRITING PRIOR TO FABRICATION.

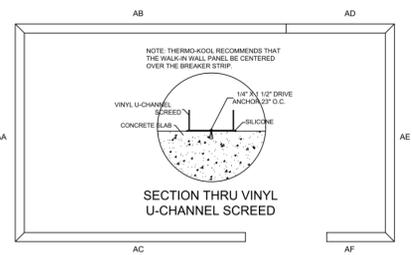
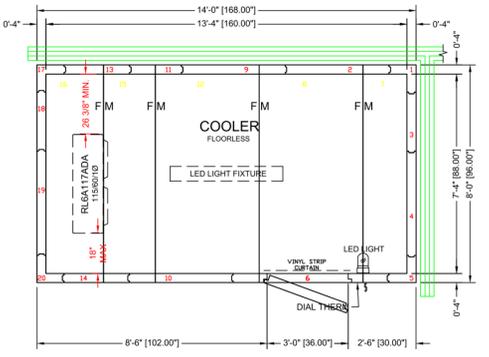
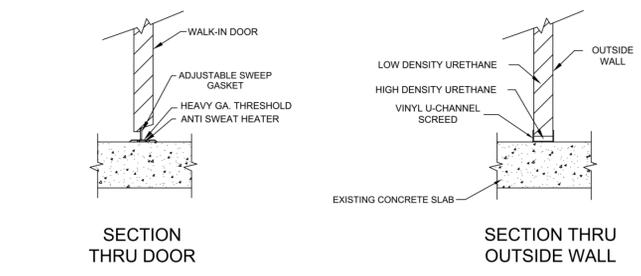
<b>Thermo-Kool</b> WALK-IN PANEL		
Thermo-Kool/Mid-South Industries, Inc. R-14781		
BUILDING UNITS 1F68		
USA		
SURFACE BURNING CHARACTERISTICS		
MATERIAL DETAILS	FLAME SPREAD	SMOKE DEVELOPED
ALUMINUM PANELS, PAINTED OR UNPAINTED, 1/8" OR LESS	15	300-400
GALVANIZED OR STAINLESS STEEL PANELS, PAINTED OR UNPAINTED, 1/8" OR LESS	20	450-OVER 300
CORE MATERIAL, 6" THICK	20	250
CANADA		
SURFACE BURNING CHARACTERISTICS / CARACTERISTIQUES DE COMBUSTION SUPERFICIELLE EN ACCORDANCE WITH THE STANDARD / SELON LA NORME CANULLO-S102		
MATERIAL DETAILS / DETAILS DU MATERIAU	FLAME SPREAD / INDEXE DE PROPAGATION DE FLAMME	SMOKE DEVELOPED / INDEXE DE DEVELOPPEMENT DE FUMEE
ALUMINUM PANELS, PAINTED OR UNPAINTED, 1/2 MM (3/16") THICK OR LESS. PANNEAUX EN ALUMINUM, PEINTS OU NON PEINTS, 1/2 MM (3/16") D'EPaisseur ou moins	10	105
GALVANIZED OR STAINLESS STEEL PANELS, PAINTED OR UNPAINTED, 1/2 MM (3/16") THICK OR LESS. PANNEAUX EN ACIER GALVANISE OU EN ACIER INOXYDABLE, PEINTS OU NON (3/16") D'EPaisseur ou moins	5	175
CORE MATERIAL, 150 MM (6")	25	100

PULL DOWN RATE TO 45° F IS UNRESTRICTED. AFTER 45° F, PULL DOWN RATE SHOULD BE RESTRICTED TO 10° F PER 24 HOUR PERIOD.

NOT APPLICABLE TO BLAST CHILLER CABINETS.

\*THERMO-KOOL WALK-IN COOLERS AND FREEZERS COMPLY WITH 2021 INTERNATIONAL ENERGY CONSERVATION CODE (IECC), SECTION C403.11

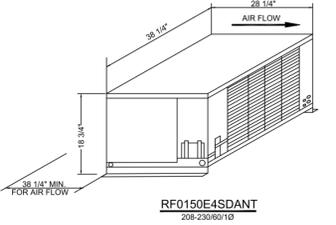
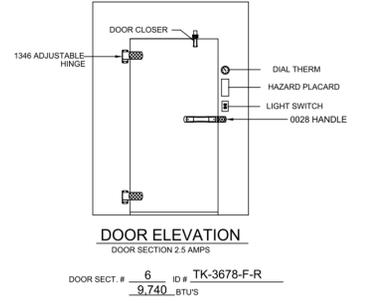
**NOT APPROVED**



VINYL U-CHANNEL SCREED LAYOUT

**BEZAC EQUIPMENT COMPANY**

ENG. NOTE: REFER TO JOB # 69895 BZAC  
#NIT\_A\_RUN-OFF



<p>NOTE: This drawing and all drawings or specifications submitted by Thermo-Kool, and reproductions thereof in whole or in part shall remain the legal property of Mid-South Industries, Inc. Subject to recall at any time and shall not be used for installations or production by others except by our special permission in writing.</p> <p>Walk-in panels manufactured under Patent # 5,424,116.</p>		<p>Mid-South Industries, Inc. • P.O. Box 889 Leland, Mississippi 39441 • Phone 601/949-4600 FAX 601/949-0558</p>		<p>SUBJECT WALK-IN REFRIGERATION FOR HANDEL'S ICE CREAM HENDERSOON, NV</p>	
DR. BY SDH	CH. BY SDH	DATE 05-17-2024	SCALE 3/8"=1'-0"	DWG. NO. 70168	SHEET NO. 1 OF 1



**True** TRUE MANUFACTURING CO., INC. U.S.A. FOODSERVICE DIVISION  
 2001 East Terra Lane • O'Fallon, Missouri 63366-4434 • (636)240-2400  
 Fax (636)272-2408 • Toll Free (800)325-6152 • Int'l Fax (001)636-272-7546  
 Parts Dept. (800)424-TRUE • Parts Dept. Fax (636)272-9471 • www.truemfg.com

Project Name: \_\_\_\_\_ AIA # \_\_\_\_\_  
 Location: \_\_\_\_\_ SIS # \_\_\_\_\_  
 Item #: \_\_\_\_\_ Qty: \_\_\_\_\_  
 Model #: \_\_\_\_\_

Model: **TSU-48-12-HC** **Food Prep Table: Solid Door Sandwich/Salad Unit with Hydrocarbon Refrigerant**



- TSU-48-12-HC**
- Trucks salad/sandwich units are designed with enduring quality that protects your long term investment.
  - Factory engineered, self-contained, capillary tube system using environmentally friendly R290 hydrocarbon refrigerant that has zero (0) ozone depletion potential (ODP), & three (3) global warming potential (GWP).
  - Energy efficient, factory balanced refrigeration system with guided airflow to provide uniform temperature in food pans and cabinet interior.
  - Patented forced air design holds 33°F to 41°F L5°C to 5°C product temperature in food pans and cabinet interior. Complies with ANSI/NF-7.
  - Sealed, self-lubricating evaporator fan motor and larger fan blades give True sandwich/salad units a more efficient, low velocity, high volume airflow design.
  - Condensing unit access in back of cabinet, slides out for easy maintenance.
  - Corrosion resistant GalFan coated steel back.
  - Interior - stainless steel front, top and ends.
  - Insulation - entire cabinet structure and solid doors are foamed-in place using a high density, polyurethane insulation that has zero ozone depletion potential (ODP) and zero global warming potential (GWP).
  - Interior - attractive, NSF approved, clear coated aluminum liner. Stainless steel floor with covered corners.
  - 11" (299 mm) deep, 1/2" (13 mm) thick, full length removable cutting board included. Sanitary, high density, NSF approved white polyethylene provides tough preparation surface.
  - Heavy duty PVC coated wire shelves.
  - Formed-in place using a high density, polyurethane insulation that has zero ozone depletion potential (ODP) and zero global warming potential (GWP).

**ROUGH-IN DATA**

Chart dimensions rounded up to the nearest 1/4" (millimeters rounded up to next whole number). Specifications subject to change without notice.

Model	Doors	Shelves	Pans (top)	W	Dt	H*	HP	Voltage	Amps	NEMA Config.	Cord Length (total ft.)	Crated Weight (lbs.)
TSU-48-12-HC	2	4	12	48 1/4"	30 3/4"	36 1/4"	115/60/1	230-240/50/1	5.8	5-15P	11	340

\* Depth does not include 1" (25mm) for rear bumpers. † Height does not include 6 1/4" (159mm) for castors or 6" (153mm) for optional legs.

▲ Plug type varies by country.

HANDELS SPECS Bezac Equipment Page: 42

Model: **TSU-48-12-HC** **Food Prep Table: Solid Door Sandwich/Salad Unit with Hydrocarbon Refrigerant**

**STANDARD FEATURES**

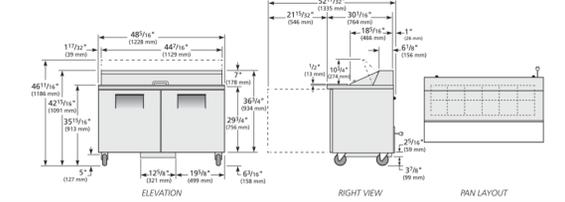
**DESIGN**

- Truck commitment to using the highest quality materials and oversized refrigeration systems provides the user with cooler product temperatures, lower utility costs, exceptional food safety and the best value in today's food service marketplace.

**REFRIGERATION SYSTEM**

- Factory engineered, self-contained, capillary tube system using environmentally friendly R290 hydrocarbon refrigerant that has zero (0) ozone depletion potential (ODP), & three (3) global warming potential (GWP).
- Energy efficient, factory balanced refrigeration system with guided airflow to provide uniform temperature in food pans and cabinet interior.
- Patented forced air design holds 33°F to 41°F L5°C to 5°C product temperature in food pans and cabinet interior. Complies with ANSI/NF-7.
- Sealed, self-lubricating evaporator fan motor and larger fan blades give True sandwich/salad units a more efficient, low velocity, high volume airflow design.
- Condensing unit access in back of cabinet, slides out for easy maintenance.
- Corrosion resistant GalFan coated steel back.
- Interior - attractive, NSF approved, clear coated aluminum liner. Stainless steel floor with covered corners.
- Insulation - entire cabinet structure and solid doors are foamed-in place using a high density, polyurethane insulation that has zero ozone depletion potential (ODP) and zero global warming potential (GWP).
- Interior - attractive, NSF approved, clear coated aluminum liner. Stainless steel floor with covered corners.
- 11" (299 mm) deep, 1/2" (13 mm) thick, full length removable cutting board. Sanitary, high-density, NSF approved white polyethylene provides tough preparation surface.
- Heavy duty PVC coated wire shelves.
- Formed-in place using a high density, polyurethane insulation that has zero ozone depletion potential (ODP) and zero global warming potential (GWP).

**PLAN VIEW**



WARRANTY: Three year warranty on all parts and labor and an additional 2 year warranty on compressor. (U.S.A. only)

METRIC DIMENSIONS ROUNDED UP TO THE NEAREST MILLIMETER. SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.

Model	Elevation	Right	Plan	3D	Back
TSU-48-12-HC	TNY09E	TNY02S	TNY04D	TNY043	

**TRUE MANUFACTURING CO., INC.**  
 2001 East Terra Lane • O'Fallon, Missouri 63366-4434 • (636)240-2400 • Fax (636)272-2408 • Toll Free (800)325-6152 • Int'l Fax (001)636-272-7546 • www.truemfg.com

HANDELS SPECS Bezac Equipment Page: 43

**True** TRUE MANUFACTURING CO., INC. U.S.A. FOODSERVICE DIVISION  
 2001 East Terra Lane • O'Fallon, Missouri 63366-4434 • (636)240-2400  
 Fax (636)272-2408 • Toll Free (800)325-6152 • Int'l Fax (001)636-272-7546  
 Parts Dept. (800)424-TRUE • Parts Dept. Fax (636)272-9471 • www.truemfg.com

Project Name: \_\_\_\_\_ AIA # \_\_\_\_\_  
 Location: \_\_\_\_\_ SIS # \_\_\_\_\_  
 Item #: \_\_\_\_\_ Qty: \_\_\_\_\_  
 Model #: \_\_\_\_\_

Model: **T-49F-HC** **T-Series: Reach-In Solid Swing Door Freezer with Hydrocarbon Refrigerant**



- T-49F-HC**
- Trucks solid door reach-ins are designed with enduring quality that protects your long term investment.
  - Designed using the highest quality materials and components to provide the user with cooler product temperatures, lower utility costs, exceptional food safety and the best value in today's food service marketplace.
  - Factory engineered, self-contained, capillary tube system using environmentally friendly R290 hydrocarbon refrigerant that has zero (0) ozone depletion potential (ODP), & three (3) global warming potential (GWP).
  - High capacity, factory balanced refrigeration system that maintains -10°F (-23.3°C) temperatures. Ideal for both frozen foods and ice cream.
  - Stainless steel solid doors and front. The very finest stainless with higher tensile strength for fewer dents and scratches.
  - Adjustable, heavy duty PVC coated shelves.
  - Positive seal self-closing doors. Lifetime guaranteed door hinges and torsion type closure system.
  - Automatic defrost system time-initiated, temperature-terminated. Saves energy consumption and provides shortest possible defrost cycle.
- CABINET CONSTRUCTION**
- Interior - Stainless steel front. Anodized quality aluminum ends. Corrosion resistant GalFan coated steel back.
- Bottom mounted units feature:**
- No stoop' lower shelf.
  - Storage on top of cabinet.
  - Easy accessible condenser coil for cleaning.

**ROUGH-IN DATA**

Chart dimensions rounded up to the nearest 1/4" (millimeters rounded up to next whole number). Specifications subject to change without notice.

Model	Doors	Shelves	W	D	H*	HP	Voltage	Amps	NEMA Config.	Cord Length (total ft.)	Crated Weight (lbs.)	
T-49F-HC	2	4	12	48 1/4"	30 3/4"	36 1/4"	115/60/1	230-240/50/1	5.5	▲	2,74	218

\* Height does not include 5" (127mm) for castors or 6" (153mm) for optional legs.

▲ Plug type varies by country.

3 YEAR PARTS & LABOR WARRANTY (U.S.A. only)

APPROVALS: \_\_\_\_\_ AVAILABLE AT: \_\_\_\_\_

Printed in U.S.A.

HANDELS SPECS Bezac Equipment Page: 46

Model: **T-49F-HC** **T-Series: Reach-In Solid Swing Door Freezer with Hydrocarbon Refrigerant**

**STANDARD FEATURES**

**DESIGN**

- Truck commitment to using the highest quality materials and oversized refrigeration systems provides the user with cooler product temperatures, lower utility costs, exceptional food safety and the best value in today's food service marketplace.

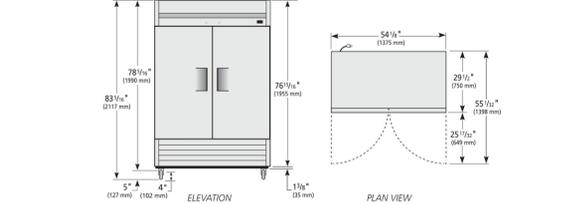
**REFRIGERATION SYSTEM**

- Factory engineered, self-contained, capillary tube system using environmentally friendly R290 hydrocarbon refrigerant that has zero (0) ozone depletion potential (ODP), & three (3) global warming potential (GWP).
- High capacity, factory balanced refrigeration system that maintains -10°F (-23.3°C) temperatures. Ideal for both frozen foods and ice cream.
- Stainless steel solid doors and front. The very finest stainless with higher tensile strength for fewer dents and scratches.
- Adjustable, heavy duty PVC coated shelves.
- Positive seal self-closing doors. Lifetime guaranteed door hinges and torsion type closure system.
- Automatic defrost system time-initiated, temperature-terminated. Saves energy consumption and provides shortest possible defrost cycle.

**CABINET CONSTRUCTION**

- Interior - attractive, NSF approved, clear coated aluminum liner. Stainless steel floor with covered corners.
- Insulation - entire cabinet structure and solid doors are foamed-in place using a high density, polyurethane insulation that has zero ozone depletion potential (ODP) and zero global warming potential (GWP).
- Interior - attractive, NSF approved, clear coated aluminum liner. Stainless steel floor with covered corners.
- 11" (299 mm) deep, 1/2" (13 mm) thick, full length removable cutting board included. Sanitary, high density, NSF approved white polyethylene provides tough preparation surface.
- Heavy duty PVC coated wire shelves.
- Formed-in place using a high density, polyurethane insulation that has zero ozone depletion potential (ODP) and zero global warming potential (GWP).

**PLAN VIEW**



METRIC DIMENSIONS ROUNDED UP TO THE NEAREST MILLIMETER. SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.

Model	Elevation	Right	Plan	3D	Back
T-49F-HC	TNY09E	TNY02S	TNY04D	TNY043	

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HANDELS SPECS Bezac Equipment Page: 47

**EQ14**

Metro 2448NK3 Item #17

**METRO Super Erecta® Shelf Wire Shelving**

NSF

Wire Shelves

- Unique Design: The open wire design of these shelves minimizes dust accumulation and allows free circulation of air, greater visibility of stored items and greater light penetration.
- Durable Construction: Super Erecta shelves and posts are constructed of heavy-gauge carbon steel or Type 304 stainless steel.
- Choice of Finishes: Super Erecta Brite™ and chrome-plated for dry storage; Metroseal™ Epoxy (green or gray), and Type 304 stainless steel for corrosive environments; and attractive epoxy color options for merchandising applications.
- Metroseal: Proprietary rust-resistant finish is a durable epoxy coating over a protective zinc substrate. Metroseal contains Microban® antimicrobial product protection which continuously fights the growth of bacteria, mold, and mildew that cause stains and odors. 12-year limited warranty against rust and corrosion.
- Versatile: Super Erecta® Shelf wire shelving can adapt to your changing needs. By using various accessories, hundreds of shelving configurations become possible.
- Fast, Secure Assembly: SiteSelect™ Posts have a double groove visual guide feature every 8" (203mm), circular grooves at 1" (25mm) increments, and are numbered at 2" (50mm) intervals. A patented, tapered split sleeve snaps together around each post. Tapered openings in the shelf corners slide over the tapered split sleeves providing a positive lock. Shelf is assembled in minutes without the use of any special tools.
- Adjustability: Shelves can be adjusted at 1" (25mm) intervals along the entire length of the post.
- Shelf Ribs: Run front to back, allowing you to slide items on and off shelves smoothly.
- Shelf Accessibility: Shelves can be loaded/unloaded easily from all sides This open construction allows maximum use of storage cube.
- Adjustable Feet: Bolt levelers compensate for surface irregularities.

Super Erecta Chrome Wire

Super Erecta with Metroseal

Microban®

NSF

10.01

InterMetro Industries Corporation  
 North Washington Street, Wilkes-Barre, PA 18705  
 Product Information: U.S. and Canada: 1.800.962.1776  
 Outside U.S. and Canada: www.metro.com/contact-us

Printed in U.S.A. 6/20

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HANDELS SPECS Bezac Equipment Page: 46

Metro 2448NK3 Item #17

**METRO Super Erecta® Shelf Wire Shelving**

NSF

Wire Shelves

- See spec sheet 10.14 for epoxy color options.
- Plastic split sleeves are included with each shelf. Replacements are available: Cat. No. 9985 (bag of 4)
- Aluminum split sleeves are recommended for abusive mobile applications. Shelves with stainless steel C-rings are best for cart wash applications (exceeding 200°F/93°C) and for all autoclave applications.
- Cat. No. 9982 (bag of 4 with zinc C-rings)
- Cat. No. 9985 (bag of 4 with stainless steel C-rings)
- Weight capacity (evenly distributed) per shelf: 800 lbs. (363kg) for lengths of 18" to 48" (457 to 1219mm) and 600 lbs. (272kg) for lengths of 54" (1370mm) or longer.
- Weight capacity (evenly distributed) per unit: Stationary shelving units have a maximum load capacity (evenly distributed) of 2,000 lbs. (907kg). Mobile units have a maximum capacity of three times the caster load rating up to but not exceeding 1,000 lbs. (453kg) total. Consult the Metro catalog for caster load ratings.

Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Nominal Width/Length	Approx. Pktd Wt.
Super Erecta Brite	Chrome	Metroseal Green (K3)	Metroseal Gray (K4)	Stainless	(in.) (mm)	(lbs.) (kg)
1424BR	1424NC	1424NK3	1424NK4	1424NS	14x24	355x610 5.3 2.4
1430BR	1430NC	1430NK3	1430NK4	1430NS	14x30	355x760 6.3 2.8
1436BR	1436NC	1436NK3	1436NK4	1436NS	14x36	355x914 7.5 3.4
1442BR	1442NC	1442NK3	1442NK4	1442NS	14x42	355x1066 8.3 3.8
1448BR	1448NC	1448NK3	1448NK4	1448NS	14x48	355x1219 9.4 4.3
1460BR	1460NC	1460NK3	1460NK4	1460NS	14x60	355x1524 11.8 5.4
1472BR	1472NC	1472NK3	1472NK4	1472NS	14x72	355x1829 14.4 6.5
1818BR	1818NC	1818NK3	1818NK4	1818NS	18x18	457x457 5.3 2.4
1824BR	1824NC	1824NK3	1824NK4	1824NS	18x24	457x610 6.1 2.7
1830BR	1830NC	1830NK3	1830NK4	1830NS	18x30	457x760 7.1 3.2
1836BR	1836NC	1836NK3	1836NK4	1836NS	18x36	457x914 8.2 3.7
1842BR	1842NC	1842NK3	1842NK4	1842NS	18x42	457x1066 9.3 4.2
1848BR	1848NC	1848NK3	1848NK4	1848NS	18x48	457x1219 10.7 4.9
1854BR	1854NC	1854NK3	1854NK4	1854NS	18x54	457x1370 11.9 5.4
1860BR	1860NC	1860NK3	1860NK4	1860NS	18x60	457x1524 13.4 6.1
1872BR	1872NC	1872NK3	1872NK4	1872NS	18x72	457x1829 14.6 6.6
2130BR	2130NC	2130NK3	2130NK4	2130NS	21x30	530x760 10.5 4.8
2136BR	2136NC	2136NK3	2136NK4	2136NS	21x36	530x914 10.7 4.9
2142BR	2142NC	2142NK3	2142NK4	2142NS	21x42	530x1066 11.5 5.2
2148BR	2148NC	2148NK3	2148NK4	2148NS	21x48	530x1219 11.9 5.4
2154BR	2154NC	2154NK3	2154NK4	2154NS	21x54	530x1370 12.9 5.8
2160BR	2160NC	2160NK3	2160NK4	2160NS	21x60	530x1524 13.4 6.1
2172BR	2172NC	2172NK3	2172NK4	2172NS	21x72	530x1829 14.4 6.5
2424BR	2424NC	2424NK3	2424NK4	2424NS	24x24	610x610 6.5 3.0
2430BR	2430NC	2430NK3	2430NK4	2430NS	24x30	610x760 8.3 3.8
2436BR	2436NC	2436NK3	2436NK4	2436NS	24x36	610x914 10.1 4.6
2442BR	2442NC	2442NK3	2442NK4	2442NS	24x42	610x1066 11.9 5.4
2448BR	2448NC	2448NK3	2448NK4	2448NS	24x48	610x1219 14.2 6.4
2454BR	2454NC	2454NK3	2454NK4	2454NS	24x54	610x1370 16.1 7.3
2460BR	2460NC	2460NK3	2460NK4	2460NS	24x60	610x1524 18.0 8.2
2472BR	2472NC	2472NK3	2472NK4	2472NS	24x72	610x1829 21.4 9.7

Note: The actual length of the shelves is 1/8" (3.2mm) shorter than the nominal dimension shown. The actual depth of the shelves is 1/8" (3.2mm) greater than the nominal dimension shown.

Note: The following restrictions apply to shelving units that utilize 1" (25mm) wide shelves:  
 Free-standing units: Units taller than 60" (1524mm) must be properly fastened to the floor or wall using Metro bolt plates or wall brackets.  
 Mobile units: Maximum allowable post height is 64" (1626mm).

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HANDELS SPECS Bezac Equipment Page: 47

**EQ17**

Metro 2448NK3 Item #17

**METRO Super Erecta® Shelf Wire Shelving**

NSF

Wire Shelves

- See spec sheet 10.14 for epoxy color options.
- Plastic split sleeves are included with each shelf. Replacements are available: Cat. No. 9985 (bag of 4)
- Aluminum split sleeves are recommended for abusive mobile applications. Shelves with stainless C-rings must be used for cart wash applications (exceeding 200°F/93°C) and for all autoclave applications.
- Cat. No. 9982 (bag of 4 with zinc C-rings)
- Cat. No. 9985 (bag of 4 with stainless steel C-rings)
- Weight capacity (evenly distributed) per shelf: 800 lbs. (363kg) for lengths of 18" to 48" (457 to 1219mm) and 600 lbs. (272kg) for lengths of 54" (1370mm) or longer.
- Weight capacity (evenly distributed) per unit: Stationary shelving units have a maximum load capacity (evenly distributed) of 2,000 lbs. (907kg). Mobile units have a maximum capacity of three times the caster load rating up to but not exceeding 1,000 lbs. (453kg) total. Consult the Metro catalog for caster load ratings.

Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Nominal Width/Length	Approx. Pktd Wt.
Super Erecta Brite	Chrome	Metroseal Green (K3)	Metroseal Gray (K4)	Stainless	(in.) (mm)	(lbs.) (kg)
1424BR	1424NC	1424NK3	1424NK4	1424NS	14x24	355x610 5.3 2.4
1430BR	1430NC	1430NK3	1430NK4	1430NS	14x30	355x760 6.3 2.8
1436BR	1436NC	1436NK3	1436NK4	1436NS	14x36	355x914 7.5 3.4
1442BR	1442NC	1442NK3	1442NK4	1442NS	14x42	355x1066 8.3 3.8
1448BR	1448NC	1448NK3	1448NK4	1448NS	14x48	355x1219 9.4 4.3
1460BR	1460NC	1460NK3	1460NK4	1460NS	14x60	355x1524 11.8 5.4
1472BR	1472NC	1472NK3	1472NK4	1472NS	14x72	355x1829 14.4 6.5
1818BR	1818NC	1818NK3	1818NK4	1818NS	18x18	457x457 5.3 2.4
1824BR	1824NC	1824NK3	1824NK4	1824NS	18x24	457x610 6.1 2.7
1830BR	1830NC	1830NK3	1830NK4	1830NS	18x30	457x760 7.1 3.2
1836BR	1836NC	1836NK3	1836NK4	1836NS	18x36	457x914 8.2 3.7
1842BR	1842NC	1842NK3	1842NK4	1842NS	18x42	457x1066 9.3 4.2
1848BR	1848NC	1848NK3	1848NK4	1848NS	18x48	457x1219 10.7 4.9
1854BR	1854NC	1854NK3	1854NK4	1854NS	18x54	457x1370 11.9 5.4
1860BR	1860NC	1860NK3	1860NK4	1860NS	18x60	457x1524 13.4 6.1
1872BR	1872NC	1872NK3	1872NK4	1872NS	18x72	457x1829 14.6 6.6
2124BR	2124NC	2124NK3	2124NK4	2124NS	21x24	530x610 10.1 4.6
2130BR	2130NC	2130NK3	2130NK4	2130NS	21x30	530x760 10.5 4.8
2136BR	2136NC	2136NK3	2136NK4	2136NS	21x36	530x914 10.7 4.9
2142BR	2142NC	2142NK3	2142NK4	2142NS	21x42	530x1066 11.5 5.2
2148BR	2148NC	2148NK3	2148NK4	2148NS	21x48	530x1219 11.9 5.4
2154BR	2154NC	2154NK3	2154NK4	2154NS	21x54	530x1370 12.9 5.8
2160BR	2160NC	2160NK3	2160NK4	2160NS	21x60	530x1524 13.4 6.1
2172BR	2172NC	2172NK3	2172NK4	2172NS	21x72	530x1829 14.4 6.5
2424BR	2424NC	2424NK3	2424NK4	2424NS	24x24	610x610 6.5 3.0
2430BR	2430NC	2430NK3	2430NK4	2430NS	24x30	610x760 8.3 3.8
2436BR						

Not Used

EQ18

Eagle Group  
**BlendPort®**  
 AN ECONOMICAL SOLUTION  
 An Eagle Group Company

Item #19  
 BPT-3072SEB

Item No.: \_\_\_\_\_  
 Project No.: \_\_\_\_\_  
 S.I.S. No.: \_\_\_\_\_

**Specification Sheet**

**Short Form Specifications**  
 Blendport worktables, Deluxe series, model \_\_\_\_\_  
 Top constructed of 16 gauge 300 series stainless steel with 1 1/2" roll on front and rear, and sides turned down 90°. Undershelf is adjustable and constructed of heavy gauge type 430 stainless steel with marine edge. Top reinforced with hat channels and sound deadened. Constructed with uni-lok® patented gusset system with the gussets recessed into the hat channels to reduce lateral movement. Legs are 1 1/2" O.D., stainless steel, with galvanized gussets and 1" stainless steel adjustable bullet feet.

**Worktables with Flat Top and Stainless Steel Base with Undershelf—Deluxe Series**

**MODELS:**  
 BPT-2424SEB     BPT-2484SEB     BPT-3060SEB  
 BPT-2430SEB     BPT-2496SEB     BPT-3072SEB  
 BPT-2436SEB     BPT-3024SEB     BPT-3096SEB  
 BPT-2448SEB     BPT-3036SEB  
 BPT-2460SEB     BPT-3036SEB  
 BPT-2472SEB     BPT-3048SEB

**Tabletop**  
 • Patented uni-lok® gusset system (patent #5,165,349); gussets are recessed into hat channel, reducing lateral movement.  
 • Top reinforced with welded-on hat channel.  
 • Sound-deadened between top and channels.  
 • 1 1/2" (38mm)-diameter 180° rolled edges on front and rear. Ends are turned down 90° providing for flush installations when required.  
 • 16 gauge 300 series polished stainless steel.

**Adjustable Undershelf**  
 • Heavy gauge stainless steel.  
 • Gusset welded to each corner.  
 • Heavy duty marine edge design.

**Legs—1 1/2" (41mm)-diameter**  
 • Tables 96" (2438mm) and longer come with six legs or more.  
 • Heavy gauge stainless steel.  
 • 1" (25mm) adjustable stainless steel feet\*.

\* Optional casters available. Consult factory.

**BlendPort®**  
 An Eagle Group Company  
 100 Industrial Boulevard, Clayton, DE 19938-8903 USA  
 Phone: 800-441-8440 • Fax: 302-653-2065

Certifications / Approvals

BP100.9B Rev. 05/20  
 Page: 52

Handels Specs    Bezac Equipment

EQ19

Eagle Group  
**BlendPort®**  
 AN ECONOMICAL SOLUTION  
 An Eagle Group Company

Item #19  
 BPT-3072SEB

Item No.: \_\_\_\_\_  
 Project No.: \_\_\_\_\_  
 S.I.S. No.: \_\_\_\_\_

**Specification Sheet**

**Worktables with Flat Top and Stainless Steel Base with Undershelf—Deluxe Series**

**MODELS:**  
 BPT-2424SEB     BPT-2484SEB     BPT-3060SEB  
 BPT-2430SEB     BPT-2496SEB     BPT-3072SEB  
 BPT-2436SEB     BPT-3024SEB     BPT-3096SEB  
 BPT-2448SEB     BPT-3036SEB  
 BPT-2460SEB     BPT-3036SEB  
 BPT-2472SEB     BPT-3048SEB

**Tabletop**  
 • Patented uni-lok® gusset system (patent #5,165,349); gussets are recessed into hat channel, reducing lateral movement.  
 • Top reinforced with welded-on hat channel.  
 • Sound-deadened between top and channels.  
 • 1 1/2" (38mm)-diameter 180° rolled edges on front and rear. Ends are turned down 90° providing for flush installations when required.  
 • 16 gauge 300 series polished stainless steel.

**Adjustable Undershelf**  
 • Heavy gauge stainless steel.  
 • Gusset welded to each corner.  
 • Heavy duty marine edge design.

**Legs—1 1/2" (41mm)-diameter**  
 • Tables 96" (2438mm) and longer come with six legs or more.  
 • Heavy gauge stainless steel.  
 • 1" (25mm) adjustable stainless steel feet\*.

\* Optional casters available. Consult factory.

**BlendPort®**  
 An Eagle Group Company  
 100 Industrial Boulevard, Clayton, DE 19938-8903 USA  
 Phone: 800-441-8440 • Fax: 302-653-2065

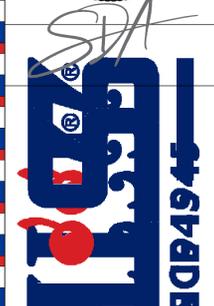
Certifications / Approvals

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Handels Specs    Bezac Equipment

REVISIONS

No.	Description	Date



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 Rev. 05/20

Eagle Group  
**BlendPort®**  
 AN ECONOMICAL SOLUTION  
 An Eagle Group Company

Item #20  
 BPT-2448SEB-BS

Item No.: \_\_\_\_\_  
 Project No.: \_\_\_\_\_  
 S.I.S. No.: \_\_\_\_\_

**Specification Sheet**

**Short Form Specifications**  
 Blendport worktables, Deluxe series, model \_\_\_\_\_  
 Top constructed of 16 gauge 300 series stainless steel with 1 1/2" roll on front, 4 1/2" backplash, and sides turned down 90°. Adjustable undershelf constructed of heavy gauge type 430 stainless steel with marine edge. Top reinforced with hat channels and sound deadened. Constructed with uni-lok® patented gusset system with the gussets recessed into the hat channels to reduce lateral movement. Legs are 1 1/2" diameter stainless steel legs with galvanized gussets and 1" stainless steel adjustable bullet feet.

**Worktables with Backsplash and Stainless Steel Base with Undershelf—Deluxe Series**

**MODELS:**  
 BPT-2424SEB-BS     BPT-3024SEB-BS  
 BPT-2430SEB-BS     BPT-3036SEB-BS  
 BPT-2436SEB-BS     BPT-3048SEB-BS  
 BPT-2448SEB-BS     BPT-3060SEB-BS  
 BPT-2472SEB-BS     BPT-3072SEB-BS  
 BPT-2484SEB-BS     BPT-3096SEB-BS  
 BPT-2496SEB-BS     BPT-3096SEB-BS

**Tabletop**  
 • Patented uni-lok® gusset system (patent #5,165,349); gussets are recessed into hat channel, reducing lateral movement.  
 • Top reinforced with welded-on hat channel.  
 • Sound-deadened between top and channels.  
 • 4 1/2" (114mm)-high 90° backplash with 1" (25mm) turn at 90°.  
 • 1 1/2" (38mm)-diameter 180° rolled edge on front. Ends are turned down 90°, providing for flush installations when required.  
 • 16 gauge 300 series polished stainless steel.

**Adjustable Undershelf**  
 • Heavy gauge stainless steel.  
 • Gusset welded to each corner.  
 • Heavy duty marine edge design.

**Legs—1 1/2" (41mm)-diameter**  
 • Tables 96" (2438mm) and longer come with six legs or more.  
 • Heavy gauge stainless steel.  
 • 1" (25mm) adjustable stainless steel feet\*.

\* Optional casters available. Consult factory.

**BlendPort®**  
 An Eagle Group Company  
 100 Industrial Boulevard, Clayton, DE 19938-8903 USA  
 Phone: 800-441-8440 • Fax: 302-653-2065

Certifications / Approvals

BP100.17B Rev. 01/20  
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Handels Specs    Bezac Equipment

EQ20

Eagle Group  
**BlendPort®**  
 AN ECONOMICAL SOLUTION  
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Item #20  
 BPT-2448SEB-BS

Item No.: \_\_\_\_\_  
 Project No.: \_\_\_\_\_  
 S.I.S. No.: \_\_\_\_\_

**Specification Sheet**

**Worktables with Backplash and Stainless Steel Base with Undershelf—Deluxe Series**

**MODELS:**  
 BPT-2424SEB-BS     BPT-3024SEB-BS  
 BPT-2430SEB-BS     BPT-3036SEB-BS  
 BPT-2436SEB-BS     BPT-3048SEB-BS  
 BPT-2448SEB-BS     BPT-3060SEB-BS  
 BPT-2472SEB-BS     BPT-3072SEB-BS  
 BPT-2484SEB-BS     BPT-3096SEB-BS  
 BPT-2496SEB-BS     BPT-3096SEB-BS

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Item #20  
 BPT-2448SEB-BS

Item No.: \_\_\_\_\_  
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 S.I.S. No.: \_\_\_\_\_

**Specification Sheet**

**Worktables with Backplash and Stainless Steel Base with Undershelf—Deluxe Series**

**MODELS:**  
 BPT-2424SEB-BS     BPT-3024SEB-BS  
 BPT-2430SEB-BS     BPT-3036SEB-BS  
 BPT-2436SEB-BS     BPT-3048SEB-BS  
 BPT-2448SEB-BS     BPT-3060SEB-BS  
 BPT-2472SEB-BS     BPT-3072SEB-BS  
 BPT-2484SEB-BS     BPT-3096SEB-BS  
 BPT-2496SEB-BS     BPT-3096SEB-BS

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Handels Specs    Bezac Equipment

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TBH Enterprises, LLC  
 TBH Enterprises, LLC

Handel's Ice Cream  
 410 NW Chipman Road  
 Lee's Summit, MO

Equipment Submittals

Proj. No.	24TF604
Date	11-9-25
Drawn by	Author
Checked by	Checker

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 12" = 1'-0"

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ACP RMS10DSA Item #21



## Low Volume Amana® Commercial Microwave RMS Series

**Power Output**

- 1000 watts of power
- Perfect replacement for inappropriate domestic ovens used in foodservice applications

**Available with Touch or Dial Controls**

- Touch controls:**
  - 20 programmable menu items simplifies cooking
  - 5 power levels and 4 cooking stages for cooking flexibility
  - Multiple quantity pad calculates the proper cooking times for multiple portions
- Dial Controls:**
  - Timer automatically resets to zero if door is opened during heating
  - 6 minute digital timer lights up for "at-a-glance" monitoring
  - Full power only for simple operation

**Easy to Use**

- See-through door and lighted interior for monitoring without opening the door
- 0.8 cubic foot (23 liter) capacity accommodates a 12" (305mm) platter, prepackaged foods and single servings

**Certified Oven for Commercial Applications**

- Tested to higher standards for a commercial rating — required by most commercial insurance policies and health inspectors
- Interlock safety switch is tested to 4 times the standard of residential ovens
- Constructed to withstand the foodservice environment, multiple users and variable ambient temperatures
- Compared to a residential oven, this oven is more powerful for faster heating and better quality results
- Engineered for a simple, "self-service" operation

**Easy to Maintain**

- Stainless steel exterior wrap, door, and oven interior for increased durability
- Sealed-in Borosilicate Glass shelf for easy cleaning

**Service**

All products are backed by the ACP, Inc. 24/7 ComServ Support Center

**Warranty**

Warranty Certificate for this product can be found on the ACP, Inc. website at [www.acpsolutions.com/warranty](http://www.acpsolutions.com/warranty)

**Safety and Sanitation**

This ACP, Inc. product meets and exceeds safety and sanitation standards set for commercial microwave ovens by UL, ETL, NSF, CSA, and FDA.

Value Line | Low Volume  
This category of microwave oven is ideal for...

**Applications**

- Convenience Stores
- Coffee shops
- Dessert stations
- Teachers/Staff lounge
- Nurses stations
- Vending

**Boost heats and re-therms foods in seconds**

- Slice of apple pie re-therms in 20 seconds
- 9 oz. (255g) cup of chili re-therms in 1-45

All ACP, Inc. commercial ovens are supported by our Culinary Center. Do not hesitate to contact us for any questions regarding food preparation, menu development and cooking times. [tech@acpsolutions.com](mailto:tech@acpsolutions.com)

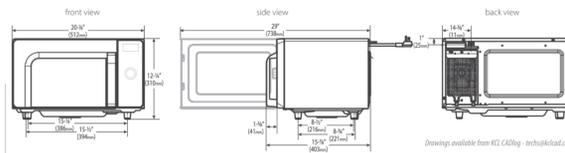
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225 49th Ave. Dr. SW Cedar Rapids, IA 52404 U.S.A. | 800-233-2366 | 319-368-8120 | Fax: 319-368-8198 | [www.acpsolutions.com](http://www.acpsolutions.com)

Handels PASADENA Bezac Equipment Page: 58

ACP RMS10DSA Item #21

## Amana® Commercial Microwave RMS Series | Low Volume



Dimensions

Dimension	Front View	Side View	Back View
Exterior H	12 1/4" (310)	20 1/4" (512)	15 1/4" (403)
Exterior W	13" (330)	13" (330)	13" (330)
Exterior D	13" (330)	13" (330)	13" (330)
Interior H	10 1/2" (267)	10 1/2" (267)	10 1/2" (267)
Interior W	10 1/2" (267)	10 1/2" (267)	10 1/2" (267)
Interior D	10 1/2" (267)	10 1/2" (267)	10 1/2" (267)

Features

Feature	Touch Models (TS)	Dial Models (DS)
Configuration	Countertop	Countertop
Stackable	No	No
Display	LED	Lighted Dial
Control System	Touchpad	Dial
Programmable Control	Yes, 10 pads	No
Braille	Overly available	No
Settings/Programmable	20	—
Max. Cooking Time	3:00	6:00
Microwave Distribution	Rotating stirrer, bottom	Rotating stirrer, bottom
Power Levels	5	1
Defrost	Yes, 20% power	No
Time Entry System	Yes	Yes
Multiple-Portion Setting	Yes, X2	No
Stage Cooking	4 stages	1 stage
Interior Light	Yes, LED, 42lm	Yes, LED, 42lm
Automatic Voltage Sensor	No	No
Air Filter	No	No
Signal	End of cycle, adjustable	End of cycle
Door Handle	Grab & Go	Grab & Go
Exterior Finish	Stainless steel	Stainless steel
Interior Finish	Stainless steel	Stainless steel

Electrical Configuration

Region	Model/UPC	Control System	Power Consumption	Power Output (microwave)	Power Source	Plug Configuration	Cord Length	Frequency	Magnetron
North America single phase	RMS10TSA 728028470208	Touch	1500 W, 13A	1000 W*	120V, 60 Hz 15 A, single phase	NEMA 5-15	5 ft. (1.5m)	2450MHz	1
North America single phase	RMS10DSA 728028450339	Dial	1500 W, 13A	1000 W*	120V, 60 Hz 15 A, single phase	NEMA 5-15	5 ft. (1.5m)	2450MHz	1

Optional Accessories

- Oven cavity shelf (SE10)
- Non-stick baskets (TB10/S, SB10/S, MB10/S)
- Stainless cart/equipment stands (CA24, CA30)

Measurements are US Standard. Measurements in ( ) are in millimeters

\*ETL 6075 listed  
\*Includes handle

ACP 225 49th Ave. Dr. SW Cedar Rapids, IA 52404 U.S.A. | 800-233-2366 | 319-368-8120 | Fax: 319-368-8198 | [www.acpsolutions.com](http://www.acpsolutions.com)

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Handels PASADENA Bezac Equipment Page: 59

ACP RMS10DSA Item #21

## RMS Series VALUE LINE

**NEW DESIGN!**

RMS10TSA- 1000 Watts, Touch pad controls  
RMS10DSA- 1000 Watts, Dial controls

**FEATURES AND BENEFITS**

- 1000 watts of cooking power
- Efficient reheating/thawing reduces food waste
- 0.8 cubic ft. (23 L) oven capacity
- Accommodates a 12" (305 mm) platter
- Motor driven bottom antenna system
- Efficient energy distribution for reliable heating results

**TOUCH CONTROL MODELS**

- 20 programmable menu items
- 4 cooking stages
- 5 power levels

**DIAL CONTROL MODELS**

- 6:00 light up dial timer
- 100% power only
- Auto reset to zero when cooking is interrupted




**IDEAL APPLICATIONS**

- Convenience stores
- Dessert stations
- Nurses stations
- Coffee shops
- Teacher's lounge

**BOOST HEATS AND RE-THERMS IN SECONDS!**

- Slice of apple pie re-therms in 20 seconds
- 9 oz. (255 g) cup of chili re-therms in 1-45

Reliable, long lasting Grab 'n Go handle with no moving parts

Available with touch pad or dial controls

USA

ACP, Inc. | [www.acpsolutions.com](http://www.acpsolutions.com) | 1-800-233-2366

Handels PASADENA Bezac Equipment Page: 60

EQ21

Winco Item #18

## FOLDING UTILITY CARTS

Folding carts add convenience of mobility and compact storage in one. Unfold to transport stacked dishes, bus boxes, or meals to serve. Handles on both ends to push or pull for mobility in either direction. Fold down to fit behind doors, between counters or in delivery van. Ideal for room service, off-site catering and table service.

- Fold and unfold in a single smooth motion
- Handles on both ends for easy mobility
- 3-tiers of easy to clean plastic shelves
- 18/8 stainless steel uprights with built-in locking latch
- 350Lb overall capacity
- Swivel casters w/4" wheels: 2 with step-lock brakes

ITEM	DESCRIPTION	WOM	CASE
UCF-2916K	29" W x 16-1/2" D x 36" H	Set	1
UCF-3820K	38-3/4" W x 20-3/4" D x 36" H	Set	1

ONLY 8" WIDE WHEN FOLDED

Built-in locking latch

Easy lift handle for transporting

UCF-2916K shown with one (1) PLW-7G

UCF-3820K shown with two (2) PLW-7G

## UTILITY & BUS CARTS

UTILITY CARTS

- 3-tier cart
- Polypropylene
- UC-2415 series weighs 17.5 lbs
- UC-3019 series weighs 27 lbs
- Accessory bins sold separately
- Ships knocked down

ITEM	DESCRIPTION	CAPACITY	COLOR	WOM	CASE
UC-2415G	32 1/2" x 16-1/8" W x 36-3/4" H	330 Lbs	Gray	Set	1
UC-2415K	32 1/2" x 16-1/8" W x 36-3/4" H	330 Lbs	Black	Set	1
UC-3019G	40-3/4" x 19-1/2" W x 37-3/8" H	400 Lbs	Gray	Set	1
UC-3019K	40-3/4" x 19-1/2" W x 37-3/8" H	400 Lbs	Black	Set	1
UC-RB	Refuse Bin	Each	3		
UC-SB	Silverware Bin	Each	6		
UC-WH	Casters	Each	1/30		

Replace former UC-35 Series, UC-40 Series, UC-8 Series

**STAINLESS STEEL TROLLEYS**

- 3-tier mobile cart
- Caster bumpers protect walls, doors, and the cart from minor collisions
- Ships knocked down

ITEM	DESCRIPTION (L x W x H)	WOM	CASE
SUC-30	30" x 19" x 33" (w/Caster)	Set	1
SUC-40	33" x 19" x 35" (w/Caster)	Set	1
SUC-50	37" x 19" x 37" (w/Caster)	Set	1
SUC-CT	Caster for SUC-Series	Each	4/16
SUC-CB	Caster w/brake for SUC-Series	Each	4/16

Caster with brake

Handels PASADENA Bezac Equipment [www.winco.us.com](http://www.winco.us.com) Page: 53

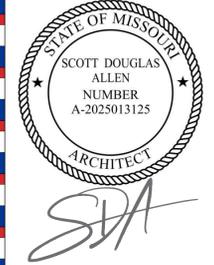
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EQ23

Not Used

REVISIONS

No.	Description	Date



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TBH Enterprises, LLC

Handel's Ice Cream  
410 NW Chipman Road  
Lee's Summit, MO

Equipment Submittals

Proj. No.	24TF604	EQ0.8
Date	11-9-25	
Drawn by	Author	
Checked by	Checker	

12" = 1'-0"

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**SUPER ADJUSTABLE™ SUPER ERECTA SHELF® WIRE SHELVING**



**Dimensions**

**Super Adjustable™ Super Erecta Wire Shelving**

Model No. (Shelves)	Model No. (Shelves)	Model No. (Shelves)	Shelf Width (mm)	Shelf Depth (mm)	Approx. Pk. Wt. (lbs.)
A1424NC	A1424NC	A1424NS	14.24	35.5x10	6 2.7
A1436NC	A1436NC	A1436NS	14.36	35.5x10	8 3.6
A1448NC	A1448NC	A1448NS	14.48	35.5x12.19	10 4.7
A1460NC	A1460NC	A1460NS	14.60	35.5x12.19	14 6.3
A1472NC	A1472NC	A1472NS	14.72	35.5x12.19	17 7.7
A1824NC	A1824NC	A1824NS	18.24	45.7x10	7 3.2
A1836NC	A1836NC	A1836NS	18.36	45.7x10	8 3.6
A1848NC	A1848NC	A1848NS	18.48	45.7x12.19	9 4.3
A1860NC	A1860NC	A1860NS	18.60	45.7x12.19	11 5.0
A1872NC	A1872NC	A1872NS	18.72	45.7x12.19	12 5.4
A2124NC	A2124NC	A2124NS	21.24	53.0x10	9 4.1
A2136NC	A2136NC	A2136NS	21.36	53.0x10	10 4.7
A2148NC	A2148NC	A2148NS	21.48	53.0x12.19	11 5.0
A2160NC	A2160NC	A2160NS	21.60	53.0x12.19	12 5.4
A2172NC	A2172NC	A2172NS	21.72	53.0x12.19	14 6.3
A2424NC	A2424NC	A2424NS	24.24	61.0x10	13 5.9
A2436NC	A2436NC	A2436NS	24.36	61.0x10	15 6.8
A2448NC	A2448NC	A2448NS	24.48	61.0x12.19	16 7.3
A2460NC	A2460NC	A2460NS	24.60	61.0x12.19	18 8.6
A2472NC	A2472NC	A2472NS	24.72	61.0x12.19	21 9.5
A3024NC	A3024NC	A3024NS	30.24	76.0x10	19 8.9
A3036NC	A3036NC	A3036NS	30.36	76.0x10	21 9.5
A3048NC	A3048NC	A3048NS	30.48	76.0x12.19	21 9.5
A3060NC	A3060NC	A3060NS	30.60	76.0x12.19	23 10.4
A3072NC	A3072NC	A3072NS	30.72	76.0x12.19	23 10.4
A3636NC	A3636NC	A3636NS	36.36	91.4x12.19	18 8.2
A3648NC	A3648NC	A3648NS	36.48	91.4x12.19	22 10.4
A3660NC	A3660NC	A3660NS	36.60	91.4x12.19	29 13.1
A3672NC	A3672NC	A3672NS	36.72	91.4x12.19	31 14.4



**Mobile Options**



**SUPER ADJUSTABLE™ SUPER ERECTA SHELF® WIRE SHELVING**

Super Adjustable™ Super Erecta Wire Shelving is the most advanced and innovative wire storage system available.

- Maximum Space Utilization:** The Corner Release System encourages repositioning of shelves during initial assembly to reclaim wasted vertical space. In some cases, reformed vertical space will allow an extra shelving tier to be added to the storage unit resulting in a 25% increase in storage capacity!
- Easily Assembled:** The unique Corner Release System enables quick and easy repositioning of shelves during the initial set up to accommodate different package or container sizes. Total Assembly is complete only after the shelves are properly spaced to maximize storage. SiteSelect™ Posts, with the double-groove visual guide feature, have circular grooves at 1" (25mm) increments and are numbered at 2" (51mm) intervals to easily identify proper shelf locations.
- Easily Adjustable:** The unique shelf design and SiteSelect™ Posts enable "tool-free," quick adjustment at 1" (25mm) increments along the entire height of the post.
- Improved Rigidity:** An enhanced Corner Release System has made Super Adjustable™ the most rigid, easily adjustable shelving system on the market.
- Strong:** Super Adjustable™ shelves hold as much weight as traditional Super Erecta wire shelving. Stationary units hold a maximum of 2,000 lb. (907kg). Maximum weight capacity per shelf (48" [1219mm] or shorter = 800 lb. [364kg]; longer than 48" [1219mm] = 600 lb. [273kg]) is based on even distribution.
- Choice of Finishes:** Super Erecta shelving is available in a variety of finishes: chrome-plated for dry storage; Microban® 3™ with antimicrobial product protection and Type 304 stainless steel for corrosive environments.
- Accessories:** Compatible with the entire system of Super Erecta shelves and accessories. See Catalog Sheets 10.04, 10.05, 10.06 for more information.



**Super Adjustable™ Advantage . . .**



\*MICROBAN® and the MICROBAN® symbol are registered trademarks of the Microban Products Company, Huntsville, VA.

InterMetro Industries Corporation  
North Washington Street, Wilkes-Barre, PA 18705  
Phone: 570-825-2741 • Fax: 570-825-2852  
For Product Information:  
U.S. and Canada: 1-800-992-1776  
Outside U.S. and Canada: www.metro.com/contactus

METRO Adjustable Wire Shelving

10.01A

**TRUE MANUFACTURING CO., INC.**  
U.S.A. FOODSERVICE DIVISION  
2001 East Terra Lane • O'Fallon, Missouri 63366-4434 • (636)240-2400  
Fax (636)272-2408 • Toll Free (800)325-6152 • Intl. Fax (001)636-272-7546  
Parts Dept. (800)424-TRUE • Parts Dept. Fax (636)272-9471 • www.truemfg.com

Project Name: \_\_\_\_\_ AIA # \_\_\_\_\_  
Location: \_\_\_\_\_ SIS # \_\_\_\_\_  
Item #: \_\_\_\_\_ Qty: \_\_\_\_\_  
Model #: \_\_\_\_\_

**Model: TWT-48F-HC** **Worktop: Solid Door Freezer with Hydrocarbon Refrigerant**



**TWT-48F-HC**

- Trucks worktop units are designed with enduring quality that protects your long term investment.
- Designed using the highest quality materials and components to provide the user with colder product temperatures, lower utility costs, exceptional food safety and the best value in today's food service marketplace.
- Factory engineered, self-contained, capillary tube system using environmentally friendly R290 hydrocarbon refrigerant that has zero (0) ozone depletion potential (ODP), & three (3) global warming potential (GWP).
- Energy Efficient, environmentally friendly forced-air refrigeration system holds -10F (-23.3°C). Ideally suited for both frozen foods and ice cream.
- All stainless steel front, top and ends. Corrosion resistant GalFan coated steel back. Top and backplash are one piece formed construction. Bacteria and food particles cannot be trapped underneath as with other two-piece worktop units.
- Interior - attractive, NSF approved, clear coated aluminum liner. Stainless steel floor with covered corners.
- Heavy duty PVC coated wire shelves.
- Foamed-in-place using a high density, polyurethane insulation that has zero ozone depletion potential (ODP) and zero global warming potential (GWP).

**ROUGH-IN DATA**

Model	Doors	Shelves	W (mm)	Dt (mm)	H* (mm)	HP	Voltage	Amps	NEMA Config.	Cord Length (total ft.)	Crated Weight (lbs.) (kg)
TWT-48F-HC	2	4	48 1/2 (1228)	30 1/2 (766)	33 1/2 (848)	N/A	115/60/1	3.2	5-1SP	7	285
			1229	766	848	N/A		N/A		2.13	130

Chart dimensions rounded up to the nearest 1/8" (millimeters rounded up to next whole number).  
\*Depth does not include 1" (25mm) for rear bumpers.  
\*Height does not include 6 1/2" (165mm) for castors or 6" (153mm) for optional legs.

WARRANTY: 3 YEAR PARTS & LABOR COMPRESSOR WARRANTY (U.S.A. only)

APPROVALS: METRIC DIMENSIONS ROUNDED UP TO THE NEAREST WHOLE MILLIMETER. SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.

AVAILABLE AT: INNOVATION, METRO, TRUE MANUFACTURING CO., INC.

**Model: TWT-48F-HC** **Worktop: Solid Door Freezer with Hydrocarbon Refrigerant**

**STANDARD FEATURES**

- Trucks worktop units are designed with enduring quality that protects your long term investment.
- Designed using the highest quality materials and components to provide the user with colder product temperatures, lower utility costs, exceptional food safety and the best value in today's food service marketplace.
- Factory engineered, self-contained, capillary tube system using environmentally friendly R290 hydrocarbon refrigerant that has zero (0) ozone depletion potential (ODP), & three (3) global warming potential (GWP).
- Energy Efficient, environmentally friendly forced-air refrigeration system holds -10F (-23.3°C). Ideally suited for both frozen foods and ice cream.
- All stainless steel front, top and ends. Corrosion resistant GalFan coated steel back. Top and backplash are one piece formed construction. Bacteria and food particles cannot be trapped underneath as with other two-piece worktop units.
- Interior - attractive, NSF approved, clear coated aluminum liner. Stainless steel floor with covered corners.
- Heavy duty PVC coated wire shelves.
- Foamed-in-place using a high density, polyurethane insulation that has zero ozone depletion potential (ODP) and zero global warming potential (GWP).

**PLAN VIEW**

**ROUGH-IN DATA**

Model	Doors	Shelves	W (mm)	Dt (mm)	H* (mm)	HP	Voltage	Amps	NEMA Config.	Cord Length (total ft.)	Crated Weight (lbs.) (kg)
TWT-48F-HC	2	4	48 1/2 (1228)	30 1/2 (766)	33 1/2 (848)	N/A	115/60/1	3.2	5-1SP	7	285
			1229	766	848	N/A		N/A		2.13	130

Chart dimensions rounded up to the nearest 1/8" (millimeters rounded up to next whole number).  
\*Depth does not include 1" (25mm) for rear bumpers.  
\*Height does not include 6 1/2" (165mm) for castors or 6" (153mm) for optional legs.

WARRANTY: 3 YEAR PARTS & LABOR COMPRESSOR WARRANTY (U.S.A. only)

APPROVALS: METRIC DIMENSIONS ROUNDED UP TO THE NEAREST WHOLE MILLIMETER. SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.

AVAILABLE AT: INNOVATION, METRO, TRUE MANUFACTURING CO., INC.

**TRUE MANUFACTURING CO., INC.**  
2001 East Terra Lane • O'Fallon, Missouri 63366-4434 • (636)240-2400 • Fax (636)272-2408 • Toll Free (800)325-6152 • Intl. Fax (001)636-272-7546 • www.truemfg.com

EQ24

True Mfg. - General Foodservice **TWT-60F-HC** Item #26

**TRUE MANUFACTURING CO., INC.**  
U.S.A. FOODSERVICE DIVISION  
2001 East Terra Lane • O'Fallon, Missouri 63366-4434 • (636)240-2400  
Fax (636)272-2408 • Toll Free (800)325-6152 • Intl. Fax (001)636-272-7546  
Parts Dept. (800)424-TRUE • Parts Dept. Fax (636)272-9471 • www.truemfg.com

Project Name: \_\_\_\_\_ AIA # \_\_\_\_\_  
Location: \_\_\_\_\_ SIS # \_\_\_\_\_  
Item #: \_\_\_\_\_ Qty: \_\_\_\_\_  
Model #: \_\_\_\_\_

**Model: TWT-60F-HC** **Worktop: Solid Door Freezer with Hydrocarbon Refrigerant**



**TWT-60F-HC**

- Trucks worktop units are designed with enduring quality that protects your long term investment.
- Designed using the highest quality materials and components to provide the user with colder product temperatures, lower utility costs, exceptional food safety and the best value in today's food service marketplace.
- Factory engineered, self-contained, capillary tube system using environmentally friendly R290 hydrocarbon refrigerant that has zero (0) ozone depletion potential (ODP), & three (3) global warming potential (GWP).
- High capacity, factory balanced refrigeration system that maintains -10F (-23.3°C). Ideally suited for both frozen foods and ice cream.
- All stainless steel front, top and ends. Corrosion resistant GalFan coated steel back. Top and backplash are one piece formed construction. Bacteria and food particles cannot be trapped underneath as with other two-piece worktop units.
- Interior - attractive, NSF approved, clear coated aluminum liner. Stainless steel floor with covered corners.
- Heavy duty PVC coated wire shelves.
- Foamed-in-place using a high density, polyurethane insulation that has zero ozone depletion potential (ODP) and zero global warming potential (GWP).

**ROUGH-IN DATA**

Model	Doors	Shelves	W (mm)	Dt (mm)	H* (mm)	HP	Voltage	Amps	NEMA Config.	Cord Length (total ft.)	Crated Weight (lbs.) (kg)
TWT-60F-HC	2	4	60 1/2 (1534)	30 1/2 (766)	33 1/2 (848)	N/A	115/60/1	4.8	5-1SP	7	375
			1534	766	848	N/A		N/A		2.13	171

Chart dimensions rounded up to the nearest 1/8" (millimeters rounded up to next whole number).  
\*Depth does not include 1" (25mm) for rear bumpers.  
\*Height does not include 6 1/2" (165mm) for castors or 6" (153mm) for optional legs.

WARRANTY: 3 YEAR PARTS & LABOR COMPRESSOR WARRANTY (U.S.A. only)

APPROVALS: METRIC DIMENSIONS ROUNDED UP TO THE NEAREST WHOLE MILLIMETER. SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.

AVAILABLE AT: INNOVATION, METRO, TRUE MANUFACTURING CO., INC.

Handels Specs Bezac Equipment Page: 66

True Mfg. - General Foodservice **TWT-60F-HC** Item #26

**TRUE MANUFACTURING CO., INC.**  
U.S.A. FOODSERVICE DIVISION  
2001 East Terra Lane • O'Fallon, Missouri 63366-4434 • (636)240-2400  
Fax (636)272-2408 • Toll Free (800)325-6152 • Intl. Fax (001)636-272-7546  
Parts Dept. (800)424-TRUE • Parts Dept. Fax (636)272-9471 • www.truemfg.com

Project Name: \_\_\_\_\_ AIA # \_\_\_\_\_  
Location: \_\_\_\_\_ SIS # \_\_\_\_\_  
Item #: \_\_\_\_\_ Qty: \_\_\_\_\_  
Model #: \_\_\_\_\_

**Model: TWT-60F-HC** **Worktop: Solid Door Freezer with Hydrocarbon Refrigerant**

**STANDARD FEATURES**

- Trucks worktop units are designed with enduring quality that protects your long term investment.
- Designed using the highest quality materials and components to provide the user with colder product temperatures, lower utility costs, exceptional food safety and the best value in today's food service marketplace.
- Factory engineered, self-contained, capillary tube system using environmentally friendly R290 hydrocarbon refrigerant that has zero (0) ozone depletion potential (ODP), & three (3) global warming potential (GWP).
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- Heavy duty PVC coated wire shelves.
- Foamed-in-place using a high density, polyurethane insulation that has zero ozone depletion potential (ODP) and zero global warming potential (GWP).

**PLAN VIEW**

**ROUGH-IN DATA**

Model	Doors	Shelves	W (mm)	Dt (mm)	H* (mm)	HP	Voltage	Amps	NEMA Config.	Cord Length (total ft.)	Crated Weight (lbs.) (kg)
TWT-60F-HC	2	4	60 1/2 (1534)	30 1/2 (766)	33 1/2 (848)	N/A	115/60/1	4.8	5-1SP	7	375
			1534	766	848	N/A		N/A		2.13	171

Chart dimensions rounded up to the nearest 1/8" (millimeters rounded up to next whole number).  
\*Depth does not include 1" (25mm) for rear bumpers.  
\*Height does not include 6 1/2" (165mm) for castors or 6" (153mm) for optional legs.

WARRANTY: 3 YEAR PARTS & LABOR COMPRESSOR WARRANTY (U.S.A. only)

APPROVALS: METRIC DIMENSIONS ROUNDED UP TO THE NEAREST WHOLE MILLIMETER. SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.

AVAILABLE AT: INNOVATION, METRO, TRUE MANUFACTURING CO., INC.

Handels Specs Bezac Equipment Page: 67

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True Mfg. - General Foodservice **GDM-07-HC-TSL01** Item #27

**TRUE MANUFACTURING CO., INC.**  
U.S.A. FOODSERVICE DIVISION  
2001 East Terra Lane • O'Fallon, Missouri 63366-4434 • (636)240-2400  
Fax (636)272-2408 • Toll Free (800)325-6152 • Intl. Fax (001)636-272-7546  
Parts Dept. (800)424-TRUE • Parts Dept. Fax (636)272-9471 • www.truemfg.com

Project Name: \_\_\_\_\_ AIA # \_\_\_\_\_  
Location: \_\_\_\_\_ SIS # \_\_\_\_\_  
Item #: \_\_\_\_\_ Qty: \_\_\_\_\_  
Model #: \_\_\_\_\_

**Model: GDM-07-HC-TSL01** **Worktop: Glass Door Merchandiser**

**GDM-07-HC-TSL01**

- The world's #1 manufacturer of glass door merchandisers.
- Trucks worktop units are designed with enduring quality that protects your long term investment.
- Designed using the highest quality materials and oversized refrigeration systems provides the user with colder product temperatures, lower utility costs, exceptional food safety and the best value in today's food service marketplace.
- Factory engineered, self-contained, capillary tube system using environmentally friendly R290 hydrocarbon refrigerant that has zero (0) ozone depletion potential (ODP), & three (3) global warming potential (GWP).
- High capacity, factory balanced refrigeration system that maintains cabinet temperatures of 33°F to 38°F (3°C to 3.3°C) for the best in food preservation.
- Interior - non-peek or chip black powder coated cold rolled steel; durable and permanent.
- Self closing door. Positive seal, torsion type closure system.
- Low-E, double pane thermal insulated glass door assembly with mitered plastic channel frame. The latest in energy efficient technology.
- LED interior lighting provides more even lighting throughout the cabinet. Safety shielded.
- Entire cabinet structure is foamed-in-place using a high density, polyurethane insulation that has zero ozone depletion potential (ODP) and zero global warming potential (GWP).

**PLAN VIEW**

**ROUGH-IN DATA**

Model	Doors	Shelves	W (mm)	Dt (mm)	H* (mm)	HP	Voltage	Amps	NEMA Config.	Cord Length (total ft.)	Crated Weight (lbs.) (kg)
GDM-07-HC-TSL01	1	3	24 1/2 (613)	24 1/2 (613)	39 1/2 (991)	1.1	115/60/1	1.9	5-1SP	9	180
			613	613	991	1.1	230-240/50/1	1.1	A	2.74	82

Chart dimensions rounded up to the nearest 1/8" (millimeters rounded up to next whole number).  
\*Depth does not include 1 1/2" (42mm) for door handle. Depth does not include 1 1/2" (38mm) for system mechanical components.

WARRANTY: 3 YEAR PARTS & LABOR COMPRESSOR WARRANTY (U.S.A. only)

APPROVALS: METRIC DIMENSIONS ROUNDED UP TO THE NEAREST WHOLE MILLIMETER. SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.

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Handels Specs Bezac Equipment Page: 68

True Mfg. - General Foodservice **GDM-07-HC-TSL01** Item #27

**TRUE MANUFACTURING CO., INC.**  
U.S.A. FOODSERVICE DIVISION  
2001 East Terra Lane • O'Fallon, Missouri 63366-4434 • (636)240-2400  
Fax (636)272-2408 • Toll Free (800)325-6152 • Intl. Fax (001)636-272-7546  
Parts Dept. (800)424-TRUE • Parts Dept. Fax (636)272-9471 • www.truemfg.com

Project Name: \_\_\_\_\_ AIA # \_\_\_\_\_  
Location: \_\_\_\_\_ SIS # \_\_\_\_\_  
Item #: \_\_\_\_\_ Qty: \_\_\_\_\_  
Model #: \_\_\_\_\_

**Model: GDM-07-HC-TSL01** **Worktop: Glass Door Merchandiser**

**STANDARD FEATURES**

- Trucks worktop units are designed with enduring quality that protects your long term investment.
- Designed using the highest quality materials and oversized refrigeration systems provides the user with colder product temperatures, lower utility costs, exceptional food safety and the best value in today's food service marketplace.
- Factory engineered, self-contained, capillary tube system using environmentally friendly R290 hydrocarbon refrigerant that has zero (0) ozone depletion potential (ODP), & three (3) global warming potential (GWP).
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- Interior - non-peek or chip black powder coated cold rolled steel; durable and permanent.
- Self closing door. Positive seal, torsion type closure system.
- Low-E, double pane thermal insulated glass door assembly with mitered plastic channel frame. The latest in energy efficient technology.
- LED interior lighting provides more even lighting throughout the cabinet. Safety shielded.
- Entire cabinet structure is foamed-in-place using a high density, polyurethane insulation that has zero ozone depletion potential (ODP) and zero global warming potential (GWP).

**PLAN VIEW**

**ROUGH-IN DATA**

Model	Doors	Shelves	W (mm)	Dt (mm)	H* (mm)	HP	Voltage	Amps	NEMA Config.	Cord Length (total ft.)	Crated Weight (lbs.) (kg)
GDM-07-HC-TSL01	1	3	24 1/2 (613)	24 1/2 (613)	39 1/2 (991)	1.1	115/60/1	1.9	5-1SP	9	180
			613	613	991	1.1	230-240/50/1	1.1	A	2.74	82

Chart dimensions rounded up to the nearest 1/8" (millimeters rounded up to next whole number).  
\*Depth does not include 1 1/2" (42mm) for door handle. Depth does not include 1 1/2" (38mm) for system mechanical components.

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Handels Specs Bezac Equipment Page: 69

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Handels Specs Bezac Equipment Page: 66

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Handels Specs Bezac Equipment Page: 68

REVISIONS

No.	Description	Date

**SDIA** ARCHITECTS  
SCOTT DOUGLAS ALLEN ARCHITECTS

STATE OF MISSOURI  
SCOTT DOUGLAS ALLEN  
NUMBER  
A-2025013125  
ARCHITECT

SJA

**HANDEL'S** - HOMEMADE ICE CREAM SINCE 1945

**HANDEL'S** homemade ice cream & yogurt since 1945

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TBH Enterprises, LLC

Handel's Ice Cream  
410 NW Chipman Road  
Lee's Summit, MO



SWS1572-16/4-X Item #28

Item No.:
Project No.:
S.I.S. No.:

Specification Sheet

Short Form Specifications

Eagle Snap-n-Slide® Wall Shelf with Rolled Front Edge, model #SWS1236-16/4-X. Unit constructed of 16/430, 16/304, or 14/304 stainless steel.

Eagle Snap-n-Slide® Wall Shelf with "V" Marine Front Edge, model #SWS1272-16/4-X. Unit constructed of 16/430, 16/304, 14/304, or 14/316 stainless steel.

Snap-n-Slide® Wall Shelves

- MODELS:
SWS1224-\*, SWS1236-\*, SWS1248-\*, SWS1260-\*, SWS1272-\*, SWS1524-\*, SWS1536-\*, SWS1548-\*, SWS1560-\*, SWS1572-\*, SWS1524-V, SWS1536-V, SWS1548-V, SWS1560-V, SWS1572-V

- Design and Construction Features:
• Brackets can be mounted to studs—no wall backing required.
• Heavy gauge stainless steel construction.
• 1 1/2" (38mm) upturn on rear and ends of shelf.
• Models available with 1/2" (38mm) rolled front edge or 1 1/2" (45mm) "V" marine edge on shelf.
• 12" and 15" (305 and 381mm) widths available.
• Lengths available range from 24" to 72" (610 to 1829mm).
• No tools required to attach shelf to wall brackets.



- Options / Accessories:
• Solid Dividers - 16 gauge stainless steel, 4" (76mm)-high

EAGLE GROUP
100 Industrial Boulevard, Clayton, DE 19938-8903 USA
Phone: 302-653-3000 • Fax: 302-653-2065
www.eaglegrp.com



Foodservice Division: Phone 800-441-8440
MHC/Retail Display Divisions: Phone 800-637-5100
For custom configuration or fabrication needs, contact our SpecFAB® Division.
Phone: 302-653-3000 • Fax: 302-653-3091 • e-mail: specfab@eaglegrp.com



SWS1572-16/4-X Item #28

Item No.:
Project No.:
S.I.S. No.:

Snap-n-Slide® Wall Shelves

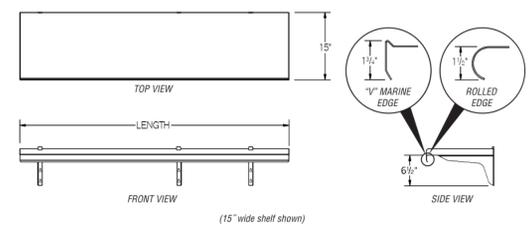


Table with 2 columns: SHELVES WITH ROLLED FRONT EDGE and 15" (381mm)-WIDE SHELVES. Includes model numbers, gauges, and weights.

Table with 2 columns: 15" (381mm)-WIDE SHELVES WITH "V" MARINE FRONT EDGE and 15" (381mm)-WIDE SHELVES WITH "V" MARINE FRONT EDGE. Includes model numbers, gauges, and weights.

EAGLE GROUP
100 Industrial Boulevard, Clayton, DE 19938-8903 USA
Phone: 302-653-3000 • Fax: 302-653-2065
www.eaglegrp.com

Foodservice Division: Phone 800-441-8440
MHC/Retail Display Divisions: Phone 800-637-5100
Spec sheets available for viewing, printing or downloading from our online literature library at www.eaglegrp.com

EQ28

EQ29

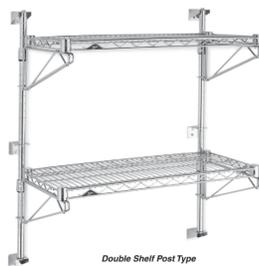
Metro 13PDFS Item #30



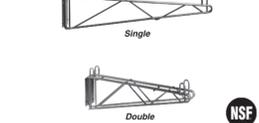
Item #
Job

SUPER ERECTA SHELF® POST-TYPE AND DIRECT WALL MOUNTS

- Ideal for Storing items conveniently overhead or above work surfaces.
Versatile: Can accommodate Super Erecta wire and solid shelves.
Note: For MetroMax i shelves, order (1) M9997-4 adapter kit per shelf.
Single and Double Supports: Double support used for mounting adjacent shelves; single supports at the ends of the shelving tier.



- Fast, Secure Assembly: Post has rolled, circular grooves along its entire height.
Adjustable: Shelf supports and shelves can be positioned or repositioned on the post.
For Easy Ordering: "End Unit" and "Mid Unit" models are available to meet a wide range of wall-shelving requirements.



METRO InterMetro Industries Corporation
North Washington Street
Wilkes-Barre, PA 18705
www.metro.com



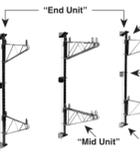
EQ30

Metro 13PDFS Item #30



SUPER ERECTA SHELF® POST-TYPE AND DIRECT WALL MOUNTS

- Post Type Wall Mounts - Preconfigured Models. Just add shelves.
End Unit and Mid Unit configurations.
Guide: Single unit, Two units connected end-to-end, Three units connected end-to-end, Four units connected end-to-end, Five units connected end-to-end.
To Order By Components: Posts & Brackets, Shelf Supports - Post Mounting, Direct Wall Mounts.



Tables for Posts & Brackets, Shelf Supports - Post Mounting, and Direct Wall Mounts. Includes model numbers, descriptions, and load ratings.

InterMetro Industries Corporation
North Washington Street, Wilkes-Barre, PA 18705
Phone: 570-825-2741 • Fax: 570-825-2852
For Product Information: U.S. and Canada: 1-800-992-1776

METRO InterMetro Industries Corporation
North Washington Street, Wilkes-Barre, PA 18705
www.metro.com

EQ31

REVISIONS table with columns: No., Description, Date



Signature of Scott Douglas Allen



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TBH Enterprises, LLC

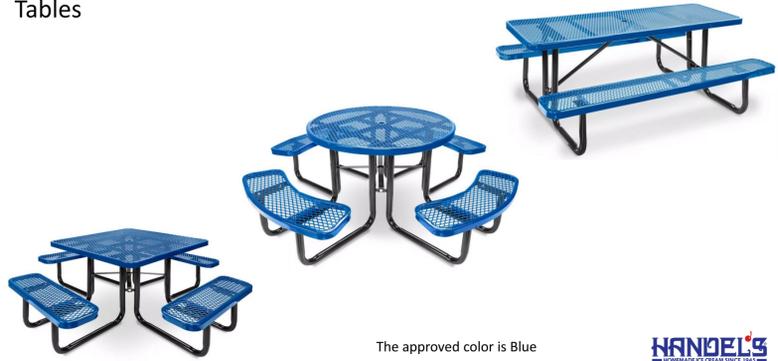
Handel's Ice Cream
410 NW Chipman Road
Lee's Summit, MO

Equipment Submittals table with columns: Proj. No., Date, Drawn by, Checked by, Author, Checker

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### Tables



The approved color is Blue



### Benches



The approved color is Blue as well. Please purchase benches with backs in any size: 4, 6 or 8 foot.



### Benches & Tables

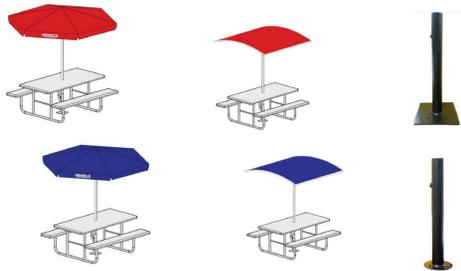
- Benches and tables can be purchased through Uline via the links below
  - [https://www.uline.com/BL\\_8773/Metal-Picnic-Tables](https://www.uline.com/BL_8773/Metal-Picnic-Tables)
- The only approved color for benches and tables is 'Blue'. Please make sure to check Blue when selecting your items.
- It is approved to purchase 4-, 6- or 8-foot benches to customize your outdoor area. Please purchase benches with backs.
- It is approved to purchase round, square or rectangle options
- The mounting hardware for all equipment is sold separately. Please make sure to purchase enough materials to mount the equipment properly.
- The equipment ships unassembled. You can view the instructions by clicking on 'additional info' and then 'instructions'.
- The current lead time from order to arrival is ~10-20 days as of March 2022.
- The materials ship from North Carolina, based on destination and purchase mix (weight), the freight costs will vary.
- All product cost and price breaks are listed on the website.



EQ28



### Umbrellas & Bases



The umbrella poles in the picture to the left are white but moving forward the program will support black powder coated support poles to match Uline benches



### Umbrellas & Bases

- Umbrellas are purchased direct from the manufacturer, Baraboo Awning. Please send an inquiry to Jason Cognac Jason@barabooawning.com and she will help guide you through the process from initial interest, answering any questions, order processing and shipping.
- Handel's supports 2 different specs: Classic, which is branded and Contemporary Curve is an unbranded option. Both specs come in 2 colors, red or blue.
- To purchase umbrellas you must purchase a mounting kit as well. These are industrial style umbrellas and we need them mounted properly into concrete. If you have to move once mounted you can purchase concrete repair materials as well.
- Our program requires a minimum of 50% of the umbrellas on location need to be blue. This will help with brand recognition in the market compared to some competitors.
- The umbrella support poles are colored black to match the Uline bench metal posts.

Item	Price Per Each	Note
Classic umbrella with logo	\$675	Logo will be on alternating panels
Contemporary Curve umbrella – no logo	\$735	No logo
Mounting Hardware	\$95 per umbrella	\$95 per base
Shipping Fee	\$110 per umbrella	Per umbrella (same across the country)
Liftgate Fee	\$125 per order	\$125 per invoice



#### REVISIONS

No.	Description	Date



Signature of SDA



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TBH Enterprises, LLC

Handel's Ice Cream  
410 NW Chipman Road  
Lee's Summit, MO

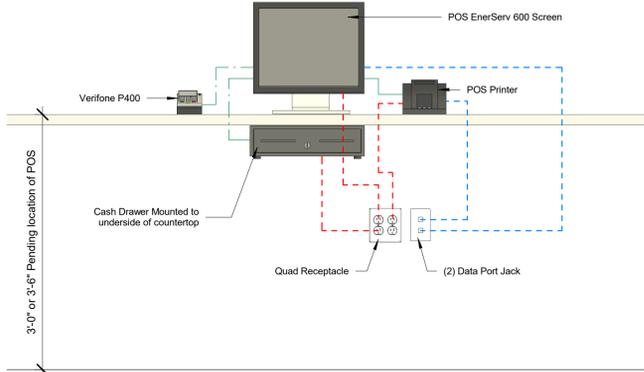
#### Equipment Submittals

Proj. No.	24TF604
Date	11-9-25
Drawn by	Author
Checked by	Checker

EQ0.11

1/4" = 1'-0"

1/23/2025 4:10:28 PM



**1 POS Station**  
1" = 1'-0"



**5 POS Station - 3D**

**Verifone**

**Verifone P400**

The Verifone P400, part of the Verifone Engage portfolio, leverages the latest Linux-based operating system for power and performance. Boasting a vibrant, color display, this P400 pad enhances user experience with a design that is as fast as it is stylish. Optional advanced commerce capabilities enable additional revenue streams at the point of sale via value-added services—customized for individual shoppers. Pair the P400 with a host device for a complete consumer-facing solution that will be reliable for years to come.

- HDGA color touchscreen with built-in audio for multimedia
- Maximum security and compliance with end-to-end encryption
- Single connector reduces logistical complexities
- Accepts all payment inputs including NFC/CTLS, EMV, and magstripe
- Advanced commerce capabilities available, including BLE/beaconing support

**Specifications**

**Processor**  
600 MHz, 1500 MIPS, Arm Cortex-A9 32-bit RISC processor

**Memory**  
256 MB DRAM Flash, 128 MB SDRAM, microSD

**Display**  
5.0" HDGA color capacitive touchscreen, Corning® Gorilla® Glass technology

**Operating System**  
VIOS (Linux-based)

**Connectivity**  
Ethernet

**Card Reader**  
Triple track MSR, ISO 7810, 7811, 7813; smart card reader; EMVCo-approved

**Contactless**  
ISO 14443 Types A and B, ISO 18092; NFC, EMVCo L1 certification, MFARF, supports near-field communication

**Peripheral Ports**  
Single connector supports RS-232, USB device, USB host, Ethernet

**Audio**  
Speaker

**Power Supply**  
5-12 V DC, 4.8-5.2 W power consumption, power over USB 3.0/5.0-wk

**Environmental**  
Operating temperature: 0° to 50° C (32° to 122° F); storage temperature: -20° to 60° C (-4° to 140° F); relative humidity: 5% to 95%, non-condensing

**Security**  
PCI PTS 5.3 approved

**Physical**  
167 mm L x 80 mm W x 44 mm H, 310 g

**Other Standard Features**  
3 SDA slots (optional 3rd), backlit keypad, SSD memory slot

**Options/Accessories**  
Privacy shield, mounting hardware, power over Ethernet (PoE 802.3at), cables, keyboard compatible with Vx

**P400 Plus**  
• Memory: 1024 MB (512 MB Flash, 512 MB SDRAM)  
• Capacity: 3.2 GHz + 2.4 GHz Wi-Fi, Bluetooth 4.0 BLE

**OUT OF STOCK TM-T88V POS Receipt Printer**



**Fast, Reliable, Easy To Configure and Supports All The Leading Mobile Operating Systems Including iOS, Android and Windows**

Epson's mPOS-friendly TM-T88V is the industry's leading POS thermal printer. It is fast, reliable, easy to configure and supports all the leading mobile operating systems including iOS, Android and Windows. It features printing up to 300mm/second, best-in-class reliability, multiple ease-of-use features, dual interfaces and print options that reduce paper usage up to 30%.

**Model: C31CA85084**

\*\*\*\*\* Write a review

**Overview**

- mPOS-friendly printer compatible with iOS, Android and Windows mobile devices
- Durable model available for easy integration
- Printer class model available for easy connection and discovery
- Supports 802.11a/b/g/n with 2.4GHz/5GHz compatibility and Bluetooth® 2.1 + EDR
- Easy to configure and install
- Fast printing up to 300mm/sec for both text and graphics
- Special print options reduce paper usage up to 30%
- Industry-leading four-year limited warranty

**par EverServ® 600**

**A SOPHISTICATED SPIN ON THE TRADITIONAL POINT-OF-SALE.**

With the EverServ® 600, PAR has upgraded the look and feel of the conventional POS terminal, architected to grow with your clientele and your business needs. This versatile & adaptable model supports multi-chain concepts, small and local businesses, and everything in between.



AVAILABLE IN STANDARD AND WIDESCREEN

**Sophisticated, Simplistic and Sleek**  
The EverServ 600's modern appearance creates a clutter-free and minimalist environment.

- Small footprint
- Sleek, polished appearance
- Customizable design

**Modular & Adaptive Design**  
The EverServ 600 was designed to accommodate your specific business needs.

- Projective Capacitive (PCAP) Touchscreen in Standard and Widescreen Form Factors
- Multiple Customer Display options including 2x20 Line Display, 5.7" and 12.1" Graphical displays in both touch and non-touch. Graphical displays provide opportunities for suggested spelling, order customization and order accuracy.
- A800 and B-series options
- Available with optional for use on counter or panel only version

**Multipurpose & Adaptable POS system**  
A new spin on the traditional restaurant terminal.

- Upgraded look and feel of the conventional point-of-sale
- Supports multi-chain concepts, as well as small businesses & storefront
- Favorable and popular POS system for all market tiers and levels

**Specifications**

**System**  
CPU Intel® Celeron® J1900 (2.0 GHz) Quad-Core Processor / Fanless  
Memory 4GB Standard (Max 8GB)  
Storage 64 and 128GB SSD Options

**OS Support**  
POS ready 7.64b  
Windows 10 IoT LTSC 64b

**LCD Display / Touch Screen**  
Standard Screen Model  
15.6" TFT LED Backlight  
Resolution: 1024 x 768  
Type: Projective Capacitance Touch (PCAP)

**Widescreen Model**  
15.6" TFT LED Backlight  
Resolution: 1366x768  
Type: Projective Capacitance Touch (PCAP)

**Power Supply**  
DC Output: 12V 5.0Amp  
AC Input: 100-240V 5.0Amp

**Mechanical/Environmental**  
Operating Temperature 5°C ~ 40°C at 10% ~ 90% humidity  
Storage Temperature -18°C ~ 60°C at 5% ~ 90% humidity

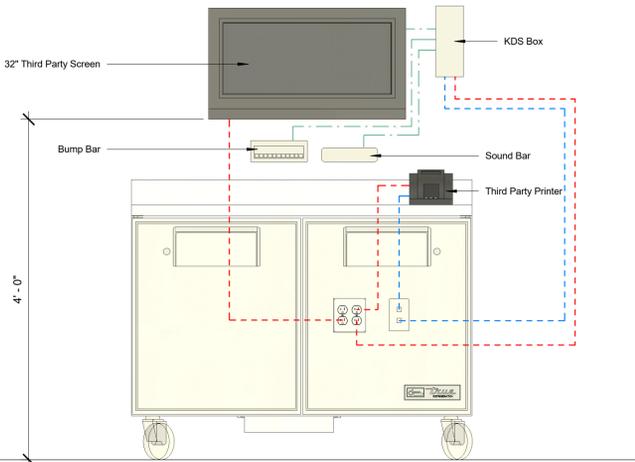
**Dimensions (WxHxD)**  
Standard Screen Model  
• 36.4 x 33.3 x 21.3 (inches)  
• 36.3 x 33.3 x 21.3 (inches)  
Wide Screen Model  
• 35.1 x 22.7 x 21.3 (inches)  
• 35.6 x 22.9 x 8.3 (inches)  
Net Weight 5.3kg / 11.7lbs

**I/O Interface**  
Display Port: 1 x VGA (With 12V power output)  
USB Port: 5 Total (2 in cable wall, 4 on panel)  
Serial Port: 3 in cable wall  
• RS-232 with 10/30/57600  
• RS-485 3.3kV 45, Full Duplex  
• 4800 baud support requires UART to USB adapter sold separately  
Ethernet Port: RJ-45 10/100/1000 BaseT  
Audio: Line-out  
Power: DC-IN 1 (4-pin connector)  
Dedicated 24V Cash Drawer Port: (RJ12) with support for dual drawers via adapter cable

**Terminal Options & Accessories**



**2 32" 3rd Party Station**  
1" = 1'-0"



**4 32" 3rd Party Station - 3D**

**SPECIFICATIONS**

**PROCESSING**  
CPU Intel® Celeron® J1900 (2.0 GHz) Quad-Core Processor / Fanless  
Memory 4GB Standard (Max 8GB)  
Storage 64 and 128GB SSD Options

**MEMORY**  
1x DDR4 SDRAM up to 32GB (Windows)  
3GB (Android)

**STORAGE**  
Standard 64GB (Windows)  
Standard 128GB (Android)

**REAR I/O PORTS**  
Front: USB, Audio I/O  
Back: USB 2xUSB 2.0, 2xUSB 3.0, 2xUSB Type-C  
Serial: 2xRS-232  
Network Port: 1xRJ-45 10/100/1000baseT  
Video Port: 2xDP (Convertible to HDMI, DP, DVI, VGA)  
Cash Drawer Port: RJ12

**OPTIONAL PERIPHERALS**  
Internal Wireless with 2.4GHz Support, subGHz (Windows)  
SDS (Android)  
Mounting Bracket

**DIMENSIONS**  
3.9" x 2.1" x 1.2" (inches)  
25.3" x 36.1" x 21.3" (inches)  
2.8 x 1.8 (inches) (PCAP)

**OS SUPPORT**  
Windows 10 IoT, Windows 10 Pro, Windows 11 Pro, Linux, Android 9

**KEY FEATURES**

- 1 Slim, Sleek Design
- 2 Front USB Port
- 3 Multiple Rear Port Options
- 4 Fanless & Ventless

888.508.6824 | contact@touchdynamic.com | www.touchdynamic.com

**logic controls**

**KB1700**

**FEATURES**

- All 17 tactile keys are programmable, up to 110 characters per key with programmable inter-press delays
- Programming utility to create layouts for multiple keypads
- No programming accessory kit, TSP program, or battery required
- High quality, stainless steel dome disk, switches last more than 3 million cycles
- Data set includes all alphanumeric, control, function and optional international output codes
- Internal beeper
- Various legend sheet options available

**Kitchen Bump Bar**

The KB1700 is one of the most popular bump bars on the market today, built to withstand the most demanding requirements of kitchen systems and other industrial applications.

The KB1700 is one of the most programmable bumpbars on the market. Using a powerful Windows-based programming utility that stores key definitions in a data file, an integrator can create a program layout for multiple keypads, rather than programming key by key, keypad by keypad. The KB1700's I/O ports allow easy changing of other smart devices. It provides either a RS232 or USB output and supports true keyboard wedge functions, operating with or without a computer keyboard.

**logiccontrols.com**

**KB1700 specifications**

**KEYBOARD**  
Type: Stainless steel dome disk  
Life cycle: > 5 million tactile operations

**ELECTRICAL**  
Input Voltage (Vohm control): +5VDC  
Current: 20 mA

**ENVIRONMENTAL**  
Operating temperature: 0°C to +50°C (32°F to 122°F)  
Storage temperature: -20°C to +60°C (-4°F to 140°F)  
Relative humidity: 5% to 95%  
Non-condensing  
Operating: 85% max. non-condensing  
40% max. non-condensing  
Vibration (10 to 50 Hz): 0.25g

**MECHANICAL**  
Weight without bracket: 670 g (23.7 oz)  
140 g (5.0 oz) (23.5mm x 88.0mm x 20.0mm)  
Bracket: 3.0mm (0.12")  
Dimensions with bracket attached (W x H x D):  
R250 x 285mm x 405mm (9.84" x 11.25" x 15.94")

**PROGRAMMING THE KEYPAD**  
1. Use the utility software supplied with keypad to program up to 110 alphanumeric characters per key. Utility program will program write to and read from computer ROM memory.  
2. Keypad supports special IBM 101 control keys (Ctrl, Alt, F1 through F12, and up/down/left/right) arrows keys)

**CONNECTOR PINOUTS**

32 (D11) Female to 32 (D11) Female  
1 Keyboard clock  
2 CPU data  
3 No connection  
4 Ground  
5 +5VDC  
6 Chassis ground

32 (D11) Female to 32 (D11) Female  
1 Keyboard clock  
2 CPU data  
3 No connection  
4 Ground  
5 +5VDC  
6 Chassis ground

**CONNECTOR ARRANGEMENT**

32 (D11) Female to 32 (D11) Female

**GENERAL INFORMATION**  
Mounting hardware, cables, programming software, and mounting bracket supplied

**logiccontrols.com**  
logiccontrols.com | sales@logiccontrols.com | 516.248.0400

**REVISIONS**

No.	Description	Date



*SDA*



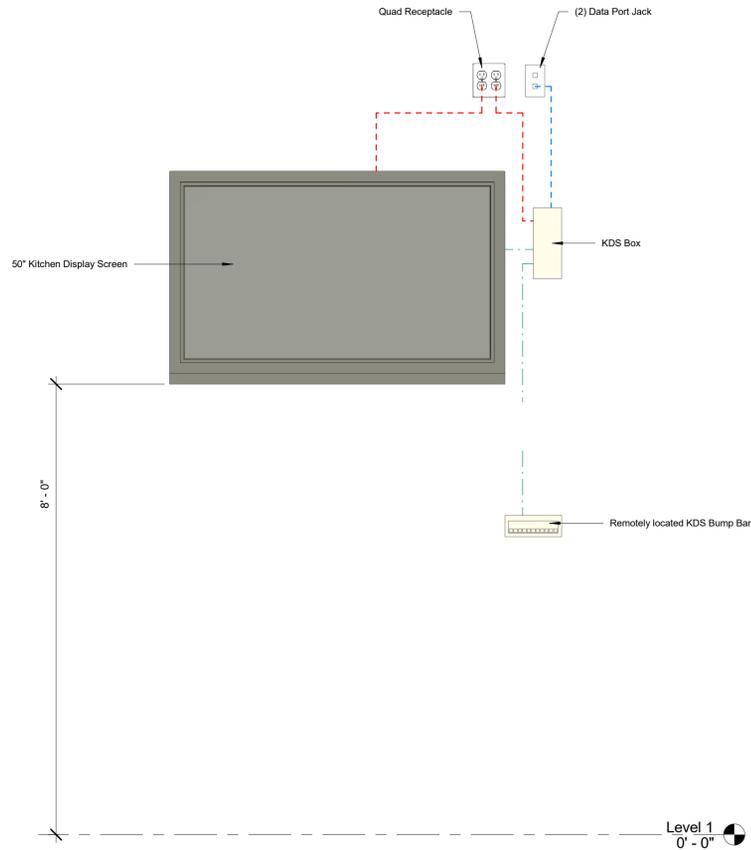
TBH Enterprises, LLC

Handel's Ice Cream  
410 NW Chipman Road  
Lee's Summit, MO

A/V / Data Info

Proj. No.	23HAN613	
Date	1-23-26	DT1.0
Drawn by	sda	
Checked by	sda	As indicated

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**1** 50" KDS Screen  
1" = 1'-0"

**logic controls**

**KB1700**

**FEATURES**

- + All 17 tactile keys are programmable, up to 109 characters per key with programmable inter-string delays
- + Programming utility to create layouts for multiple keypads
- + No programming necessary kit, USB program, or battery required
- + High quality, stainless steel dome disk, switches last more than 3 million cycles
- + Data set includes all alphanumeric, control, function and optional international output codes
- + Internal beeper
- + Various legend sheet options available

**Kitchen Bump Bar**

The KB1700 is one of the most popular bump bars on the market today, built to withstand the most demanding requirements of kitchen systems and other industrial applications.

The KB1700 is one of the most programmable bumpbars on the market. Using a powerful Windows-based programming utility that stores key definitions in a data file, an integrator can create a program for multiple keypads, rather than programming key by key, keypad by keypad. The KB1700's I/O ports allow direct charging of other input devices. It provides either a PS/2 or USB output and supports full keyboard wedge functions, operating with or without a computer keyboard.

**logiccontrols.com**

**KB1700 specifications**

**KEYBOARD**  
Type: Stainless steel dome disks  
Use: 17M  
Life: 3 million tactile operations

**ELECTRICAL**  
Input Voltage (from panel): +5VDC  
Current: 25 max

**ENVIRONMENTAL**  
Operating temperature: 0°C to +50°C (32°F to 122°F)  
Storage temperature: -20°C to +70°C (-4°F to 158°F)  
Relative humidity: 5% to 95% max, non-condensing  
Operating humidity: 5% to 95% max, non-condensing  
Vibration (50 to 50 Hz): 45 G  
Shock: 45 G

**MECHANICAL**  
Weight without bracket: 0.70 lbs (0.32 Kg)  
Weight with bracket: 1.40 lbs (0.64 Kg)  
Dimensions without bracket attached (W x H x D): 9.25in x 3.02in x 1.10in (23.54cm x 7.68cm x 2.80cm)  
Dimensions with bracket attached (W x H x D): 9.25in x 2.86in x 4.00in (23.54cm x 7.26cm x 10.16cm)

**PROGRAMMING THE KEYPAD**

- Use the utility software supplied with keypad to program up to 109 alphanumeric characters per key. Utility program will program write to and read from computer disk memory.
- Keypad supports special IBM 101 control keys (Shift, Ctrl, Alt, F1 through F12, and up/down/left/right/ arrows keys).

**CONNECTOR PINOUTS**

**Pin 1 (Female) to Computer:**

- Keyboard dock
- CPU data
- Bus connection
- Ground
- +5VDC
- Chassis ground

**Pin 2 (Male) to Keyboard:**

- Keyboard dock
- DPD
- Bus connection
- Ground
- +5VDC
- Chassis ground

**CONNECTOR ARRANGEMENT**

1 Keyboard dock  
2 CPU data  
3 Bus connection  
4 Ground  
5 +5VDC  
6 Chassis ground

**GENERAL INFORMATION**  
Manual, programming utility, programming software, and mounting bracket supplied

**logic controls**  
logiccontrols.com | sales@logiccontrols.com | 516.248.0400

**SPECIFICATIONS**

**PROCESSING**  
CPU: Intel® i3-4130 (3.2 GHz) (Windows)  
Intel® i3-4150 (3.5 GHz) (Windows)  
Intel® i3-4170 (3.7 GHz) (Windows)  
Qualcomm 410 (Android)

**MEMORY**  
1x DDR3 SDRAM up to 32GB (Windows)  
32GB (Android)

**STORAGE**  
Standard 128 GB M.2 SSD (Windows)  
Standard 32GB (Android)

**REAR I/O PORTS**  
Front: USB 3.0, USB 2.0  
Back: USB 2.0, USB 3.0, 2x USB Type-C  
Serial: 2x DB9  
Network Port: 1x RJ45, 10/100/1000mbps  
Video Port: 2x HDMI (Convertible to HDMI, DP, DVI, VGA)  
Card Reader Port: SD/TF

**OPTIONAL PERIPHERALS**  
Internal Wireless with 2.4GHz Support, a/b/g/n/ac (Windows)  
SDC (Android)  
Mounting Bracket

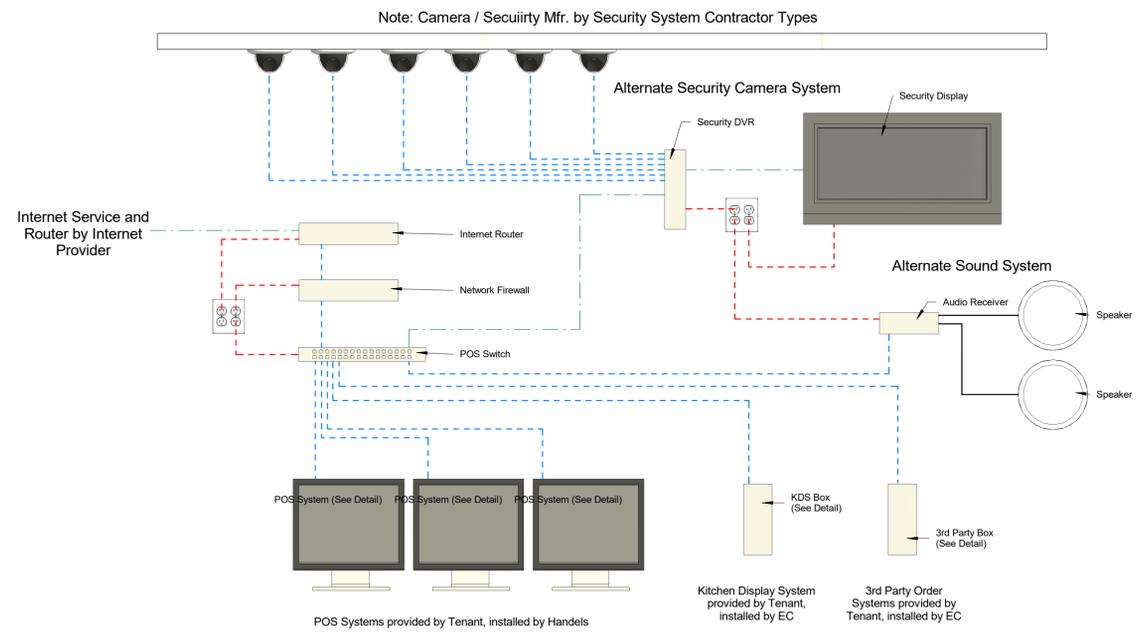
**DIMENSIONS**  
13.0" x 7.1" x 1.0" (Inches)  
330.2" x 180.3" x 25.4" (Millimeters)  
2.1x USB (Standard I/O)

**OS SUPPORT**  
Windows 10 IoT, Windows 10 Pro, Windows 11 Pro, Linux, Android 9

**KEY FEATURES**

- 1 Slim, Sleek Design
- 2 Front USB Port
- 3 Multiple Rear Port Options
- 4 Fanless & Ventless

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**5** BoH A/V Setup  
1" = 1'-0"

Speaker System / Receiver by Sound System Contractor

**REVISIONS**

No.	Description	Date



SCOTT DOUGLAS ALLEN



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Lee's Summit, MO

**AV Data Info**

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Date	1-23-26
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