



134 3rd Ave E
Twin Falls, ID 83301
208.736.8050

Addendum NO. 1

PROJECT: A New Hotel For: Terra Development LLC
Date: June 2, 2022

To the General Contractor, Subcontractors and Suppliers:

The following items contain additions, deletions, or modifications to the Plans and Specifications. This Addendum forms a part of the Contract Documents and shall be bound inside the cover of the Project Manual.

General Contractor shall be responsible for contacting their sub-contractors as this addendum may affect them.

Bidders shall acknowledge receipt of this Addendum on the Contractor Bid Proposal.

GENERAL NOTES:

1. Concrete installer shall review the Concrete cure and finishing system and polished concrete floor specifications for polished concrete floor installation requirements.
2. Non exposed CMU can be gray.
3. Concrete at polished concrete location shall be 4,000 PSI. Concrete polishing shall start 3-4 days after concrete placement.
4. Pool Questions: What is shown on the pool design drawings is provided by the pool installer which is OFOI. Coping is OFOI. The waterline tile and tile depth marker is OFOI. The pool equipment is OFOI with connections by the GC. Backflow is by the GC.
5. Pool Launch tile: thick set tile floor. Refer to detail 2 /A9-3

SPECIFICATIONS MANUAL:

SECTION 033000 CONCRETE

2.2 ADD B. as follows:

2.2 REINFORCING MATERIALS

A. Reinforcing Bars: ASTM A 615, Grade 60, deformed, unless otherwise indicated.

B. Fiber Reinforcing at polished concrete: Product: Green Umbrella, FiberLite.

- a. Monofilament acrylic fiber compliant with ASTM C1116/C1116M, Section 4.1.3, and Note 3, and ICC ES AC 32, Sections 4.1.1 and 4.1.2.
- b. Flexural Strength: 60 psi at 2/3 lbs/yd.
- c. Specific Gravity: 1.17.
- d. Fiber Length: 6 mm.



ADD "Section 033509 CONCRETE CURE AND FINISHING SYSTEM" In its entirety

DELETE "Section 033650 – Polished Concrete Floors" in its entirety

ADD "Section 033543 – Polished Concrete Finishing" in its entirety

ADD "Section 035400 "Floor Underlayment" in its entirety

SECTION 055000 – METAL FABRICATIONS

At 1.02, F. Aluminum sun shade canopies. (NOT USED).

At 2.14 Aluminum sun shade canopies (NOT USED).

SECTION 079000 JOINT SEALERS

At 2.1 Sealants ADD

E. joint treatment at polished concrete floor system

1. Green Umbrella Polylock

2. Hi Tech PE 85

SECTION 084100 – ALUMINUM FRAMED ENTRANCES AND STOREFRONT

2.1, A., 1. REVISE as follows:

1. Kawneer:

Store-front doors: Series 500 wide stile swing doors. Dark Bronze.

Aluminum windows: TriFab 451T (thermal break) center set window frames. Dark Bronze.

2.2, D., REVISE as follows:

D. **Doors: 1-3/4 inches thick, 5 inch wide top rail, 5 inch wide vertical stiles, 8-1/4 inch mid rail, 10 inch wide bottom rail: beveled glazing stops.**

ADD "Section 87100 Hardware" in its entirety.

SECTION 088100 – GLASS GLAZING

At 2.1, B., 2., DELETE ~~b. Solarban 70(2) + Clear at Octagon 103.~~

SECTION 092900 – GYPSUM BOARD ASSEMBLIES

At 1.1 Section Includes, ADD D. Refer to drawings for proprietary gypsum board.

SECTION 095113 – ACCOUSTICAL PANEL CEILINGS

At 2.5, 1., a., REVISE per **a. Tile 4: Armstrong World Industries, Inc. "TINCRAFT"**

SECTION 096500 RESILIENT FLOORING

1.02, A. ADD **5. Provide Rubber Flooring 2 at Stair 1.10, 2.5, 3.5, and 4.6**

2.01, A., ADD 5. Rubber Stair Flooring (Rubber 2)



- a. Design Standard: Mannington Commercial, Mannington Rubber Stair Systems Tread and Landing ConnectStep Stair Tread
- b. Other manufacturers must request prior approval.

2.02, ADD

5. Rubber Stair Flooring (Rubber 2)

1. **Design Standard Mannington Rubber Stair Systems Tread and Landing. ConnectStep Stair Tread with Visually Impaired Strip**
2. **Color: Sand Dollar**
3. **Profile: Square Nosing**

2.03 ACCESSORIES, A., ADD:

2. Rubber 2 Rubber Stair Flooring: Mannington MR-911.

SECTION 099120-PAINTS AND COATINGS

At 2.13 Epoxy Paint, B. REVISE:

B. Epoxy Paint swimming pool and slide launch walls **and ceilings**: EcoLogic 705 Waterbased Epoxy Topcoat MPI 115, MPI 215

2.16 CONCRETE SIDEWALK SEALER (EXTERIOR)

A. Rust-Oleum Clear-Seal

B. Green Umbrella SoloCure

ADD "SECTION 064100 — CASEWORK" in its entirety

ADD Kitchen Specification in its entirety. Kitchen Equipment is OFOI. GC is responsible for all connections.

ADD gas fire place specification in its entirety.

ADD Geotechnical Report in its entirety.

ARCHITECTURAL DRAWINGS

REVISE Sheet A2-6 per Attached.

REVISE Sheet A2-7 per Attached.

REVISE Sheet A2-8 per attached.

REVISE Sheet A2-10 per attached.

REVISE Sheet A2-13 per attached.

REVISE Sheet A6-0 per attached.

REVISE Sheet A7-0 per attached.

REVISE Sheet A8-0 per attached.

REVISE Sheet A9-10 per Attached.

REVISE Sheet A10-9 per Attached.

APPROVED SUBSTITUTION REQUESTS

- | | | |
|----|---------|--------------------------------------|
| 1. | 084100 | Aluminum Storefront Windows and Door |
| 2. | 23 3400 | Exhaust Fans |
| 3. | 23 3713 | Diffusers Registers & Grilles |
| 4. | 23 7413 | Packaged Terminal Air Conditioners |
| 5. | 23 7433 | Packaged DOAS RTU |
| 6. | 23 8129 | VRF System |
| 7. | 23 8416 | Pool Dehumidification Unit |

Trulite
Soler Palau (S&P)
Metal Aire
Amana
Daikin Applied
Samsung HVAC
Desert Aire



Summary of Attachments to Addendum No. 1

(Bidders check to verify receipt of all attachments.)

SPECIFICATIONS

Section 033509 CONCRETE CURE AND FINISHING SYSTEM

Section 033543 – Polished Concrete Finishing

Section 035400 Floor Underlayment

Section 87100 Hardware

Section 064100 — CASEWORK

Kitchen Specification

gas fire place specification in its entirety.

Geotechnical Report

ARCHITECTURAL DRAWINGS

Sheet A2-6

Sheet A2-7

Sheet A2-8

Sheet A2-10

Sheet A2-13

Sheet A6-0

Sheet A7-0

Sheet A8-0

Sheet A9-10

Sheet A10-9

END OF ADDENDUM No. 1

SECTION 033509 – CONCRETE CURE AND FINISHING SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Concrete floor slab finishing including floating, troweling, curing, and sealing.
2. Protecting finished concrete floor slab until Substantial Completion.

1.2 RELATED REQUIREMENTS

A. Concrete for polished concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, initial finishing and curing. Additional requirements are specified in Section 033000 "Concrete."

1. Coordinate with sections:
 - a. Section 033000 - Concrete.
 - b. Section 079000 - Joint Sealants.
2. Coordinate with finishing manufacturer for system "products" for sections above.

1.3 REFERENCES

A. ASTM International (ASTM):

1. ASTM C94/C94M: Standard Specification for Ready-Mixed Concrete
2. ASTM C156: Standard Test Method for Water Loss (from a Mortar Specimen) Through Liquid Membrane-Forming Curing Compounds for Concrete.
3. ASTM C779/C779M: Standard Test Method for Abrasion Resistance of Horizontal Concrete Surfaces.
4. ASTM C805/C805M: Standard Test Method for Rebound Number of Hardened Concrete.
5. ASTM C944/C944M: Standard Test Method for Abrasion Resistance of Concrete or Mortar Surfaces by the Rotating-Cutter Method.
6. ASTM C979/C979M: Standard Specification for Pigments for Integrally Colored Concrete.
7. ASTM C1077: Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation.
8. ASTM C1116/C1116M: Standard Specification for Fiber-Reinforced Concrete.

9. ASTM C1583/C1583M: Standard Test Method for Tensile Strength of Concrete Surfaces and the Bond Strength or Tensile Strength of Concrete Repair and Overlay Materials by Direct Tension (Pull-off Method).
10. ASTM C1895 - Standard Test Method for Determination of Mohs Scratch Hardness.
11. ASTM E96/E96M-10: Standard Test Method for Water Vapor Transmission of Materials.
12. ASTM E329: Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection.
13. ASTM E1155: Standard Test Method for Determining FF Floor Flatness and FL Floor Levelness Numbers.
14. ASTM G152: Standard Practice for Operating Open Flame Carbon Arc Light Apparatus for Exposure of Nonmetallic Materials.

B. American National Standards Institute (ANSI):

1. ANSI/NFSI B101.1-2009: Test Method for Measuring Wet SCOF of Common Hard-Surface Floor Materials.
2. ANSI/NFSI B101.3-2012: Test Method for Measuring Wet DCOF of Common Hard-Surface Floor Materials

C. American Concrete Institute (ACI):

1. ACI 302.1R-89-15: Guide to Concrete Floor and Slab Construction.
2. ACI 305.1-14(20) Specification for Hot Weather Concreting (Reapproved 2020).
3. ACI 306.1-90: Standard Specification for Cold Weather Concreting (Reapproved 2002).
4. ACI 310R-19: Guide to Decorative Concrete.

D. British Standard (BS):

1. BS EN 13892-4:2002: Methods of Test for Screed Materials. Determination of Wear Resistance BCA.

E. Concrete Sawing and Drilling Association, Inc. (CSDA):

1. CSDA ST-115: Measuring Concrete Micro Surface Texture.

F. International Code Council Evaluation Service (ICC ES):

1. ICC ES AC 32: Concrete with Synthetic Fibers.

1.4 PREINSTALLATION MEETING

A. Preinstallation Conference: Conduct conference at project site or video conference.

1. Schedule meeting between 7 and 14 days prior to first concrete slab placement of 10,000 SF or greater and after placement of test slab and after concrete submittals have been approved.
2. Obtain Pre-slab Installation Meeting Agenda from Green Umbrella, (844) 200-7336.

3. Require responsible representatives of each party involved with the interior concrete slab work to attend the meeting. Representatives to be present shall include personnel who are directly involved in overseeing the work for each placement and who have authority to control the concreting work.
4. Before submitting design mixtures, review concrete design mixture and review quality procedures for concrete materials, installation procedures, and compatibility with concrete densification and finish materials.
5. Require representatives of each entity directly concerned with concrete. Attendees shall include, but not be limited to the following:
 - a. Owner's Construction Manager.
 - b. Owner's Concrete Consultant.
 - c. Contractor:
 - 1) Project Manager.
 - 2) Superintendent.
 - d. Green Umbrella Certified Place/Finish Concrete Subcontractor:
 - 1) Green Umbrella Master Craftsman/Project Manager.
 - 2) Green Umbrella Craftsman/Finish Foreman.
 - e. Concrete Producer:
 - 1) Quality Control Representative.
 - f. Base Fine Grading Contractor.
 - g. Owner's Construction Testing Laboratory.
 - h. Independent testing agency responsible for concrete design mixtures.
 - i. Concrete architectural concrete system manufacturer.

1.5 SCHEDULING

- A. Give preference to Thursday or Friday placement and finishing to reduce interference and expedite project release to other trades.

1.6 ACTION SUBMITTALS

- A. General: Provide submittals as required by this Specification in accordance with Contract Documents. No work shall be performed relating to a submittal until the submittal is approved by the Architect/Engineer in writing.
- B. Submit submittal items concurrently for submittals shown with the same submittal date specified in the Concrete Submittal Register included at the end of this Section. Do not submit submittals of this section together with submittals in any other Section. Identify submittals explicitly in accordance with the requirements of Section 010010.

- C. Green Umbrella Certified Place/Finish Concrete Subcontractor Qualification Statement: Submit Green Umbrella Certification Form including Floor Finisher Qualifications as required in Quality Assurance paragraph.
 - 1. Provide ACI certification documents for at least three finishers who will install all interior slab placements.
- D. Slab Joint and Placement Plan:
 - 1. Develop and submit slab joint and placement plan. Plan shall identify the following:
 - a. Exterior walls and column grid locations.
 - b. Truck access location.
 - c. Extent of pours including width, length, slab placement area and volume.
 - d. Sequence of placement.
 - e. Location of test slab placement.
 - f. Locations of construction joints.
 - a. Location of sawn contraction joints when locations differ from those shown on the structural drawings.
- E. Product Data: Material and Technical Data for all materials including, but not limited to:
 - 1. Concrete: Provide concrete plant record of concrete mix, including additives and on-site water quantity compensation, reviewed by architect and floor system manufacturer.
 - 2. Fiber reinforcement material.
 - 3. Concrete cure treatment(s).
 - 4. Repair materials.
 - a. Surface Defect Repairs: The Owner's Representative shall submit map of locations where surface defects are to be repaired. Map shall be referenced to the building column line locations.
 - b. Crack Repair: The Owner's Representative shall submit a map of locations where cracking is to be repaired. Map shall be referenced to the building column line locations.
 - 5. Interior slab protection materials.
 - 6. Exterior slab protection materials.
- F. System Data: Technical data, testing and surface profile requirements for completed concrete finish system.
- G. Concrete Floor Protection Plan: Submit concrete floor protection plan addressing procedures specified in Part 3 of this Section.
- H. Equipment Data: Technical and performance data on all types of equipment to be used in the processing of concrete and application of finish systems. Mandatory documentation that

indicates the number of and compliance of propane equipment with finishing and treatment manufacturer's written requirements and recommendations.

1. Integral Mechanical Densification Finishing Trowel:
 - a. Ride-on Trowel:
 - 1) Provide minimum of three units per 10,000 sq. ft. min six for greater areas.
 - 2) Provide minimum of one 10 foot unit for areas greater than 15,000 sq. ft.
 - 3) On-board retardant tank, flushed and inspected.
 - 4) Propane required for sustainable projects.
 - 5) Maximum 90 dBA measured 3 feet from sound source per ISO 11201.
 - b. Walk-behind Trowel:
 - 1) Provide minimum of six units for initial 10,000 sq. ft.
 - 2) Additional two units per 10,000 sq. ft. thereafter.
 - 3) 46 inch unit preferred.
 - 4)
 - c. Edger Trowel:
 - 1) Provide minimum of three units per 10,000 sq. ft.
 - 2) 24 inch, 30/36 inch unit.
 - 3) Rotating guard-rings required.
2. Walk Behind Concrete Slurry Recovery:
 - a. Manufactured by Green Umbrella.
 - b. 40 gallon recovery.
 - c. Vacuum Motors: Two, 24V DC 3-stage, 140 CFM.
 - d. Environmentally preferable gel batteries.
3. Floor Auto Scrubber Machine:
 - a. Water application and minimum 30 gallon recovery tank.
 - b. Variable Head Pressure: 0-350 psi.
 - c. Provide minimum of two units per 10,000 sq. ft.
 - d. Battery-powered equipment is equipped with environmentally preferable gel batteries.
4. Concrete Weighted Ultra High Speed Burnisher:
 - a. Manufactured by Green Umbrella.
 - b. Weighted pad driver.
 - c. CARB/EPA certified.
 - d. Width: 27 inch.
 - e. Maximum 90 dBA measured 3 feet from sound source per ISO 11201.
 - f. No substitute accepted.
 - g. Ergonomically designed to minimize vibration, noise, and user fatigue.

- I. Shop Drawings: Application area plans to show expansion joints and layout of colorant(s), indication of topical or integral (if specified). Indicate locations and schedule of concrete placement, integral troweled cure and abrasive profile.
- J. Sustainable Design Submittals:
 - 1. Laboratory Test Reports: For **[colorants]** **[and]** **[liquid concrete treatments]**, indicating compliance with requirements for low-emitting materials.
 - 2. Products shall comply with the requirements of the California Department of Public Health's (CDPH) "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."
- K. Pre-Slab Installation Meeting Documents:
 - 1. Record of notification of pre-slab meeting including company name, persons contacted, date, and method of contact.
 - 2. Meeting Agenda
 - 3. Meeting Minutes. Submit meeting minutes including attendance record to participants and Owner's Construction Manager. Minutes of the meeting shall be distributed to parties in attendance by the Contractor within 5 days of the meeting. One copy of the minutes shall also be transmitted to Green Umbrella for informational purposes.
- L. Delivery Tickets:
 - 1. Submit delivery tickets for each load of concrete delivered to site.
 - 2. Indicate information required by ASTM C 94 on each ticket including additional information required for slabs.
 - 3. Information on ticket shall include quantities of all material batched including the amount of free water in the aggregate and the quantity of water that can be added at the site without exceeding the maximum water cement ratio of the approved mix design. Aggregate moisture corrections shall be based on ASTM definitions of aggregate moisture content and absorption.
 - 4. Mix identification number on ticket shall match number on submitted and approved mix design.

1.7 INFORMATIONAL SUBMITTALS

- A. Product Test Reports: Provide testing reports for each product. Indicate entity performing the testing, testing standards and results and the qualified testing agency that approves or certifies the testing and results.
- B. Provide manufacturer's written installation instructions and recommendations.
- C. Field quality control reports.
- D. Testing agency qualifications.
- E. Installer qualifications.

1.8 CLOSEOUT SUBMITTALS

- A. Maintenance Data: Manufacturer's written recommendations for protecting, cleaning, and maintaining concrete finishes.

1.9 QUALITY ASSURANCE

- A. Testing Agency Qualifications: An independent testing agency qualified to perform specified or required testing in accordance with ASTM C1077 and ASTM E329.
- B. Placement and Finisher Qualifications: A firm currently certified by Green Umbrella as a Craftsman or Master Craftsman approved by polished concrete finish manufacturer prior to project award. Installer must provide written documentation from the manufacturer confirming the Installer's current accreditation and training from Green Umbrella on installation of the Green Umbrella GreenIce System and related equipment and processes. Failure to provide current accreditation will void any warranty implied or otherwise associated with the Green Umbrella Architectural Concrete System.

- 1. Acceptable Green Umbrella Master Craftsman: (www.greenumbrellasystems.com)

- a. Contact Info.

- C. Green Umbrella Certified Qualifications: A firm currently certified as a Green Umbrella Craftsman or Master Craftsman approved by polished concrete finish manufacturer prior to project award.

- 1. Acceptable Green Umbrella Craftsman: (www.greenumbrellasystems.com)

- a. Contact Info.

- D. Manufacturer's Representative: Provide oversight and inspection by concrete finish manufacturer in accordance with manufacturer's requirements.

- 1. Green Umbrella Representative: (www.greenumbrellasystems.com)

- a. Contact Info. tom@greenumbrellasystems.com , 716-771-6352

- E. Mockups: Construct mockups **as directed by Architect**, [**minimum 20x20 feet**] for each finish to verify selections made and to demonstrate typical joints, surface profile and gloss, tolerances, and standard of workmanship. Build mockups using materials specified for the completed Work, and in compliance with recommendations of manufacturer.

- 1. Obtain **Architect's** approval of mockups prior to starting construction.
 - 2. Viewed in light similar to project completion.
 - 3. Mock-up construction performance should demonstrate actual construction methodology to the extent possible. Differences in equipment and actual methodology will cause variations and differences between mock-up and finished floor.
 - 4. Demonstrate curing, finishing, and choice of protection of architectural concrete.

5. Maintain mockups, marked and undisturbed during construction to provide a baseline standard for assessing completed Work.
 6. Remove mockup when directed.
 7. Approved, undisturbed, and undamaged mockups may remain as a part of the Work.
- F. Protection of Concrete Finishes: Provide protection for concrete slab finishes as indicated in manufacturer's written instructions, 310R-19, and as follows:
1. Provide protection of concrete finishes from any contact with any substance that contains petroleum, acids or detergents.
 - a. Prohibit vehicle transit and parking on concrete surfaces without providing protection.
 - b. Prohibit storage, transit or use of hydraulic equipment on concrete surfaces without providing protection.
 - c. Prohibit construction operations that include the use of substances listed above without providing approved protection.
 2. Provide protection to finished concrete surface from any materials placed and/or stored on the surface, including but not limited to:
 - a. Steel and iron.
 - b. Petroleum based products.
 - c. Vehicles and machinery.
 - d. Hydraulic fluid.
 - e. Paints and coatings.
 - f. Paper and plastic packaging.
 - g. Aggregates.
 - h. Food and beverages.
 3. Surface Contaminant Cleaning Procedure:
 - a. Provided by system manufacturer.
 - b. On-site spill kits:
 - 1) Solid removal.
 - 2) Liquid removal.

1.10 DELIVERY, STORAGE, AND HANDLING

- A. Deliver material in original containers with unbroken seals, bearing manufacturer labels indicating brand name and directions for storage.
- B. Protect materials from weather and elements. Do not allow liquid products to freeze.

1.11 PROJECT CONDITIONS

- A. Maintain environmental conditions on day of placement as recommended by treatment manufacturer and certified installer.
- B. Changes to placement schedule for environmental conditions from certified installer recommendations shall be approved in writing by Owner's Construction Manager prior to implementation.
- C. Hot and cold weather concreting shall be in accordance with ACI 305.1 (hot weather) and ACI 306.1 (cold weather) except as otherwise specified herein. In case of conflict, provisions stated herein shall prevail over ACI standard specifications.
- D. Concreting in Hot, Dry or Windy Weather:
 - 1. Determine rate of evaporation in accordance with ACI 305.1.
 - 2. Employ precautions as required to protect fresh concrete before and during finishing when the concrete rate of evaporation exceeds 0.1 pounds per square foot per hour or when any combination of concrete materials and weather conditions are favorable for the formation of plastic shrinkage cracks.
 - a. Cool ingredients before mixing to reduce concrete temperature at time of placement. Mixing water may be chilled, or chopped ice may be used to control the concrete temperature provided the water equivalent of the ice is calculated to the total amount of mixing water.
 - b. Dampen subgrade and forms.
 - c. Cover reinforcing steel with water-soaked burlap so the steel temperature will not exceed the ambient air temperature immediately before embedment in concrete.
 - 3. Maintain an accurate reading thermometer at the Site to check temperature of concrete
 - 4. Temperature of concrete at time of placing: Not to exceed 85 degrees F.
 - 5. Reject concrete if more than one slump adjustment, as defined in ASTM C 94, is required.
 - 6. Do not place concrete when forms, subgrade, aggregate base or reinforcing bars are more than 120 degrees F or the temperature differential between the forms, aggregate base, or reinforcing bars and concrete will create conditions favorable for settlement cracks or thermal cracking.
- E. Concreting in Cold Weather:
 - 1. Minimum base surface temperature and ambient building air temperature shall be 55 degrees F during placement and throughout curing period except as otherwise specified herein. In case of conflict, provisions stated herein shall prevail over the ACI standard specifications.
 - 2. Measure and record concrete temperature during protection period at regular time intervals, but not less than 3 times per 24 hours.
 - 3. Do not place slabs on subgrade, or base that is more than 20 degrees F cooler than concrete. Warm subgrade, or base to decrease temperature differential to 20 degrees F or less.

4. Minimum concrete temperature as measured at the point of discharge shall be 60 F.(65 F for approved SCM mix)
5. Do not use unvented combustion heaters during concrete placement so as to prevent exposure of concrete to excessive exhaust gases containing carbon dioxide (CO₂) or carbon monoxide (CO). During slab placement and curing periods, maximum CO₂ levels shall be 4,500 parts per million and maximum CO levels shall be 15 parts per million at concrete surface within 5 feet of any source of exhaust gases to minimize potential damage to concrete.

F. Placing Environment:

1. Architectural exposed concrete that will be profiled (PHP), shall be placed within a completely enclosed structure after the roof membrane is completely installed and watertight
 - a. Roof construction, skylight installation, overhead painting, and roof drainage system shall be complete and weather tight prior to placement of sales floor slabs.
 - b. Lighting: Permanent lighting or equivalent temporary lighting shall be operational during all slab placements.

G. Ff/FI 60/40 on slab on grade and Ff/40 for slab on deck.

1.12 MANUFACTURER SPECIAL WARRANTY

- A. Provide manufacturer's 10-year warranty providing coverage that architectural concrete will remain water resistant, non-off-dusting, hardened and abrasion resistant throughout warranty period. Must accompany a time of installation report by certified installer, verified by manufacturer's consultant and/or Corporate Office.
- B. Must be installed by manufacturer's certified installer. Certified Craftsman Warranty: 1 year for installation defect.

PART 2 - PRODUCTS

2.1 MANUFACTURERS AND PRODUCTS

- A. Subject to compliance with requirements, provide products by the following:
 1. Green Umbrella Architectural Concrete Systems, Inc. 20 Jetview Dr. Rochester, NY 14624, basis of design manufacturer. Technical and Architectural Support:(844) 200-7336, info@greenumbrellasystems.com
 2. No substitutions.

2.2 PERFORMANCE REQUIREMENTS

- A. Abrasion Resistance: Special/WS, per BS EN 13892-4.

- B. Abrasion Resistance: ASTM C944/C944M of 0.038 mm.
- C. Fiber: ASTM C1116/C1116M.
- D. Burnished Concrete: per ACI 310R-19, 7.2.7.
- E. Slip Resistance: Minimum Dynamic Coefficient of Friction of 0.42, per ANSI/NFSI B101.3.
- F. Abrasion Resistance: Abrasion resistance of 0.25 mm at 30 minutes and 0.5 mm at 60 minutes, per ASTM C779/C779M.
- G. Abrasion Resistance: Special/DF, per BS EN 13892-4.
- H. Water Vapor Transmission of Materials: ASTM E96/E96M of 0.34 g/h/m².
- I. Ultra-Violet Light and Water Spray: No adverse effects to ultra-violet and water spray, per ASTM G152.

2.3 MATERIALS

- A. Concrete: Provide ready-mixed concrete from a single design mix and single batch plant for the entire Project specified herein. Provide concrete in conformance with Division 03 Section "Concrete" and ASTM C94/C94M.
 - 1. Admixtures: Use only admixtures designed for use with concrete colorants and compatible with finish system. Do not use admixtures containing chlorides.
 - 2. Product System: Green Umbrella
 - a. Product: Green Umbrella, FiberLite.
 - 1) Monofilament acrylic fiber compliant with ASTM C1116/C1116M, Section 4.1.3, and Note 3, and ICC ES AC 32, Sections 4.1.1 and 4.1.2.
 - 2) Flexural Strength: 60 psi at 2/3 lbs/yd.
 - 3) Specific Gravity: 1.17.
 - 4) Fiber Length: 6 mm.
- B. Concrete Cure Finishing System:
 - 1. Product System: Green Umbrella, "GreenIce Cure System":
 - a. Curative / FinishAid / Fixative / Densifier System: Clear, penetrating, reactive VOC compliant compound designed to promote proper cure as well as mechanically, and chemically densified power troweled concrete surfaces.
 - a) Product: Green Umbrella, IceStart & IceStop.
 - b) Cure.

- c) Fixative.
- d) pH neutral.

2) Mechanical:

- a) Integral Mechanical Densification Finishing Trowel.
- b) Black Pad High-Speed Propane Burnished.

C. Interior Slab In Dry Protection Materials:

1. Product: Green Umbrella Ramboard:

- a. Forest Stewardship Council (FSC) certified. Recycled and recyclable materials.
- b. Roll Dimensions (W x L): 38 inches x 100 feet (965 mm x 30.5 m). 317 sq ft. Rolls per Pallet: 16.
- c. Green Umbrella Ramboard Vapor-Cure Tape: Vapor-Cure used to cover seams which prevents tape lines. Allows vapors and moisture to escape from concrete.
- d. Roll Dimensions (WxL): 3 inches x108 feet (76 mm x 32.9 m) Rolls per Box: 16.
- e. Or Pre-Approved Equal.

2. Product: Green Umbrella GreenGuard:

- a. Roll Dimensions (W x L): 38 inches x 180 feet 10 mil.
- b. Or Equal To.
- c. Interior, dry conditions only.

D. Cleaning Agent:

1. Product: GreenClean with Slip Resist:

- a. Slip resistance enhancing.
- b. pH neutral.

2. Product: GreenClean and Degreaser:

- a. Enzyme degreaser.
- b. pH neutral.
- c. Water treatment friendly.

3. Product: GreenClean Spill Kit:

- a. Solid spill kit.
- b. Liquid spill kit.
- c. 72-hour recovery.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine architectural concrete substrates with polisher, for conditions that may affect the Work.
- B. Verify preparations and placement of concrete is in accordance with ACI standards and manufacturer's written instructions.
 - 1. Verify coordination with concrete mix plant, use of correct dosage, and proper mixing per ASTM C94/C94M.
- C. Verify ambient and surface temperatures to be in accordance with manufacturer's requirements for all products for the work.
- D. Verify concrete compressive strengths are in accordance with Contract Documents.
- E. Verify that the owner's testing agency results for Mohs Hardness test per ASTM C1895 are in accordance with this specification.

3.2 PREPARATION

- A. Site Conditions
 - 1. The building shell shall be completed sufficiently to keep out wind, rain, snow or other adverse weather affects that could damage the polishing work.
 - 2. Provide suitable water, power, lighting and ventilation.
 - a. Provide minimum lighting of 40-foot candles (440 lux) measured at floor surface.
 - 3. Provide and maintain minimum floor slab temperature of 50 degrees F.
- B. All penetrations, drains, floor embeds, or conduit shall be cut, capped, clearly identified and made safe prior to any polishing work.
- C. Prepare equipment to be used in application of finish system materials according to finish system manufacturer's written instructions.
- D. Completely clean liquid treatment application sprayers free of any potential contaminating material and make ready for application.
- E. Prepare power trowels per finish system manufacturer's written instructions, cleaned and ready to trowel with accompanying spray of finish system materials. (Recommended to keep Finish Trowel dedicated for final Combo Blade finish process.)

3.3 APPLICATION

- A. Concrete finish system is incorporated into the processing of newly placed concrete slabs. Proceed with placement of concrete under the supervision of finish system manufacturer's representative.
- B. All concrete placement and finishing is to be performed in accordance with finishing system manufacturer's written instructions.
 - 1. Troweled Finish: Provide troweled finish as indicated herein and according to manufacturer's written instructions.
- C. Installation of Curative / Fixative / Densifier (GreenIce IceStart) in three applications as follows:
 - 1. Apply Green Umbrella, IceStart through high volume, low pressure sprayers prior to the first bull float process. Spray-apply at a rate 1200 Square Feet per gallon. Perform bull float process as recommended by manufacturer and ACI standard.
 - 2. Apply second application at a rate of 1200 Square feet per gallon, either by sprayers or through sprayers on power trowels. Pan material into the surface of the concrete. Power trowel with pans to ACI standard.
 - 3. Apply third application prior to Combo Blade finishing at an application rate of 1200 Square Feet per gallon. Perform Combi Blade finishing as recommended by manufacturer and ACI standard.
 - 4. Be prepared to apply setting/curing catalyst immediately upon completion of finishing operations.
- D. Installation of Setting/Curing Catalyst:
 - 1. Apply Green Umbrella, IceStop using high-volume, low-pressure (pump or battery powered) sprayers at a rate of 400 Square Feet per gallon..
 - 2. Allow setting/curing/catalyst to remain on the slab for a minimum of 30 minutes wet dwell time and allow to dry. If necessary spray additional Ice Stop to maintain wet, not water.
 - 3. Verify that the treatment has completely dried, indicating that curing system installation is complete.
- E. Thoroughly sweep floor. Auto scrub with manufacturer's cleaning agent, neutral pH Green Clean and Degreaser.

3.4 EQUIPMENT

- A. Refer to manufacturer's written instructions for requirements of installation equipment, including but not limited to: sprayers, power trowels, burnishers, auto scrubbers, saws, profiling, honing and polishing abrasives and dust collection system.

3.5 FIELD QUALITY CONTROL

- A. Measure concrete micro surface RA texture as specified herein, re-polish if required to achieve specified requirements.
- B. Measure slip resistance using certified slip-test method; verify compliance with specified slip resistance rating. NFSI approved tribometer.

3.6 PROTECTION AND CLEANING

- A. Prohibit wheeled traffic on finished surfaces for a minimum of 8 hours following application or with approval of Green Umbrella Craftsman.
- B. Protect finished floor as specified above and as indicated in manufacturer's written instructions and 310R-19.
- C. Provide daily scrubbing of the entire exposed concrete slab surface with riding equipment that utilizes only pads and water, Daily scrubbing shall continue from time of dried initial application of surface densifier until time of store turnover. Use white or red pads, cleaned or replaced daily, and avoid using excessive downward head pressure that may damage the slab surface

END OF SECTION 033509

SECTION 033543 – POLISHED CONCRETE FINISHING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Concrete floor slab profiling including [honing] [polishing] [dyeing] and sealing.
2. Protecting finished concrete floor slab until Substantial Completion.

1.2 RELATED REQUIREMENTS

A. Concrete for polished concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, initial finishing and curing. Additional requirements are specified in Section 033000 "Concrete."

1. Coordinate with sections:

- a. Section 033000 - Concrete.
- b. Section 033509 - Concrete Finishing.
- c. Section 033509 - Concrete Curing.
- d. Section 079000 - Joint Sealants.

2. Coordinate with finishing manufacturer for system "products" for sections above.

1.3 REFERENCES

A. ASTM International (ASTM):

1. ASTM C94/C94M: Standard Specification for Ready-Mixed Concrete
2. ASTM C156: Standard Test Method for Water Loss (from a Mortar Specimen) Through Liquid Membrane-Forming Curing Compounds for Concrete.
3. ASTM C779/C779M: Standard Test Method for Abrasion Resistance of Horizontal Concrete Surfaces.
4. ASTM C805/C805M: Standard Test Method for Rebound Number of Hardened Concrete.
5. ASTM C878/C878M: Standard Test Method for Restrained Expansion of Shrinkage-Compensating Concrete.
6. ASTM C944/C944M: Standard Test Method for Abrasion Resistance of Concrete or Mortar Surfaces by the Rotating-Cutter Method.
7. ASTM C979/C979M: Standard Specification for Pigments for Integrally Colored Concrete.
8. ASTM C1077: Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation.

9. ASTM C1116/C1116M: Standard Specification for Fiber-Reinforced Concrete.
10. ASTM C1583/C1583M: Standard Test Method for Tensile Strength of Concrete Surfaces and the Bond Strength or Tensile Strength of Concrete Repair and Overlay Materials by Direct Tension (Pull-off Method).
11. ASTM C1895 - Standard Test Method for Determination of Mohs Scratch Hardness.
12. ASTM D4039: Standard Test Method for Reflection Haze of High-Gloss Surfaces.
13. ASTM D5767: Standard Test Method for Instrumental Measurement of Distinctness-of-Image (DOI) Gloss of Coated Surfaces.
14. ASTM E96/E96M-10: Standard Test Method for Water Vapor Transmission of Materials.
15. ASTM E329: Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection.
16. ASTM E1155: Standard Test Method for Determining FF Floor Flatness and FL Floor Levelness Numbers.
17. ASTM G152: Standard Practice for Operating Open Flame Carbon Arc Light Apparatus for Exposure of Nonmetallic Materials.

B. American National Standards Institute (ANSI):

1. ANSI/NFSI B101.1-2009: Test Method for Measuring Wet SCOF of Common Hard-Surface Floor Materials.
2. ANSI/NFSI B101.3-2012: Test Method for Measuring Wet DCOF of Common Hard-Surface Floor Materials

C. American Concrete Institute (ACI):

1. ACI 302.1R-89-15: Guide to Concrete Floor and Slab Construction.
2. ACI 305.1-14(20) Specification for Hot Weather Concreting (Reapproved 2020).
3. ACI 306.1-90: Standard Specification for Cold Weather Concreting (Reapproved 2002).
4. ACI 310R-19: Guide to Decorative Concrete.

D. Concrete Sawing and Drilling Association, Inc. (CSDA):

1. CSDA ST-115: Measuring Concrete Micro Surface Texture.

E. International Code Council Evaluation Service (ICC ES):

1. ICC ES AC 32: Concrete with Synthetic Fibers.

1.4 PREINSTALLATION MEETING

A. Preinstallation Conference: Conduct conference at project site or video conference.

1. Schedule meeting between 7 and 14 days prior to first concrete slab placement of 10,000 SF or greater and after placement of test slab and after concrete submittals have been approved.
2. Obtain Pre-slab Installation Meeting Agenda from Green Umbrella, (844) 200-7336.
3. Require responsible representatives of each party involved with the interior concrete slab work to attend the meeting. Representatives to be present shall include personnel who are directly involved in overseeing the work for each placement and who have authority to control the concreting work.

4. Require representatives of each entity directly concerned with concrete. Attendees shall include, but not be limited to the following:
 - a. Owner's Construction Manager.
 - b. Owner's Concrete Consultant.
 - c. Contractor:
 - 1) Project Manager.
 - 2) Superintendent.
 - d. Green Umbrella Certified Place/Finish Concrete Subcontractor:
 - 1) Green Umbrella Master Craftsman/Project Manager.
 - 2) Green Umbrella Craftsman/Finish Foreman.
 - e. Review sequencing. Review concrete profiling and protection of finished concrete.
 - f. Meeting Minutes: Record on the agenda document, discussions of meeting and decisions and agreements reached. Submit in accordance with the requirements of Submittals paragraph.
 - g. Changes to Contract Documents from recommendations or discussions at the Pre-slab Installation Meeting shall be approved in writing by Owner's Construction Manager prior to implementation.

1.5 SCHEDULING

- A. Give preference to Thursday or Friday placement and finishing to reduce interference and expedite project release to other trades.
- B. Profile, Hone and Polish Schedule: Submit plan showing polished concrete surfaces and schedule of abrasive polishing operations for each area of polished concrete. Review and approve before the start of concrete placement operations. Include locations of all joints, including construction joints. Indicate joint filler.

1.6 ACTION SUBMITTALS

- A. General: Provide submittals as required by this Specification in accordance with Contract Documents. No work shall be performed relating to a submittal until the submittal is approved by the Architect/Engineer in writing.
- B. Submit submittal items concurrently for submittals shown with the same submittal date specified in the Concrete Submittal Register included at the end of this Section. Do not submit submittals of this section together with submittals in any other Section. Identify submittals explicitly in accordance with the requirements of Section 013300.
- C. Green Umbrella Certified Place/Finish Concrete Subcontractor Qualification Statement: Submit Green Umbrella Certification Form including Floor Finisher Qualifications as required in Quality Assurance paragraph.
 1. Provide ACI certification documents for at least three finishers who will install all interior slab placements.

- D. Product Data: Material and Technical Data for all materials including, but not limited to:
 - 1. Concrete post-placement and abrasive finish, densifier, impregnating stain treatment.
 - 2. Process cutting agent and abrasive materials(s).
 - 3. Repair materials.
 - a. Surface Defect Repairs: The Owner's Representative shall submit map of locations where surface defects are to be repaired. Map shall be referenced to the building column line locations.
 - b. Crack Repair: The Owner's Representative shall submit a map of locations where cracking is to be repaired. Map shall be referenced to the building column line locations.
 - 4. Interior slab protection materials.
- E. System Data: Technical data, testing and surface profile requirements for completed concrete finish system.
- F. Concrete Floor Protection Plan: Submit concrete floor protection plan addressing procedures specified in Part 3 of this Section.
- G. Equipment Data: Technical and performance data on all types of equipment to be used in the processing of concrete and application of finish systems. Mandatory documentation that indicates the number of and compliance of propane equipment with finishing and treatment manufacturer's written requirements and recommendations.
 - 1. Concrete Weighted Ultra High Speed Burnisher:
 - a. Manufactured by Green Umbrella.
 - b. Weighted pad driver.
 - c. CARB/EPA certified.
 - d. Width: 27 inch.
 - e. Maximum 90 dBA measured 3 feet from sound source per ISO 11201.
 - f. No substitute accepted.
 - g. Ergonomically designed to minimize vibration, noise, and user fatigue.
 - 2. Architectural Concrete Profile Equipment: Propane powered.
 - a. Rider Trowel & Profiler:
 - 1) Manufactured by Green Umbrella.
 - 2) Provide minimum of one unit per 10,000 sq. ft.
 - 3) Wet abrasive compatible.
 - 4) Rider may be limited in aggregate exposure due to gearbox design.
 - 5) Or Equal to.
 - b. Walk-Behind Profiler:
 - 1) Manufactured by Green Umbrella.

- 2) Provide minimum of two units per 10,000 sq. ft.
 - 3) Wet abrasive compatible.
 - 4) Pre-approved Equal.
- c. Variable Abrasive Concrete Grinder:
 - 1) Manufactured by Green Umbrella.
 - 2) 800 lbs. or 580 head pressure model.
 - 3) Designed for wet abrasives.
 - 4) 30 inch grinding path.
 - 5) Emission shut down system (ESDS)
 - 6) 1400 square feet per hour production rate.
 - 7) Provide minimum of two units per 10,000 sq. ft.
- d. Variable Abrasive Concrete Edge Grinder:
 - 1) Manufactured by Green Umbrella.
 - 2) Designed for wet abrasives.
 - 3) To assure edge/field profile same manufacture as Field Grinder.
 - 4) 1/4 inch cut to wall.
 - 5) Emission shut down system (ESDS).
 - 6) Provide minimum of 1 units per 10,000 sq. ft.
- H. Shop Drawings: Application area plans to show layout of colorant(s). Indicate locations and schedule of abrasive profile.
- I. Sustainable Design Submittals:
 1. Laboratory Test Reports: For **[colorants]** **[and]** **[liquid concrete treatments]**, indicating compliance with requirements for low-emitting materials.
 2. Products shall comply with the requirements of the California Department of Public Health's (CDPH) "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."
- J. Samples for Initial Selection: Available colors prepared on manufacturer's standard samples, subject to Architect approval in mockups.
- K. Samples for Verification: Manufacturer's standard samples of each color and finish. Recreate approved samples in mockups as design reference samples for comparing Work in place, subject to Architect approval in mockups.
- L. Pre-Slab Installation Meeting Documents:
 1. Record of notification of pre-slab meeting including company name, persons contacted, date, and method of contact.
 2. Meeting Agenda
 3. Meeting Minutes. Submit meeting minutes including attendance record to participants and Owner's Construction Manager. Minutes of the meeting shall be distributed to parties in attendance by the Contractor within 5 days of the meeting. One copy of the minutes shall also be transmitted to Green Umbrella for informational purposes.

1.7 INFORMATIONAL SUBMITTALS

- A. Product Test Reports: Provide testing reports for each product. Indicate entity performing the testing, testing standards and results and the qualified testing agency that approves or certifies the testing and results.
- B. Provide manufacturer's written installation instructions and recommendations.
- C. Field quality control reports.
- D. Testing agency qualifications.
- E. Installer qualifications.

1.8 CLOSEOUT SUBMITTALS

- A. Maintenance Data: Manufacturer's written recommendations for protecting, cleaning, and maintaining concrete finishes.

1.9 QUALITY ASSURANCE

- A. Testing Agency Qualifications: An independent testing agency qualified to perform specified or required testing in accordance with ASTM C1077 and ASTM E329.
- B. Green Umbrella Certified Qualifications: A firm currently certified as a Green Umbrella Craftsman or Master Craftsman approved by polished concrete finish manufacturer prior to project award.
 - 1. Acceptable Green Umbrella Craftsman: (www.greenumbrellasystems.com)
 - a. Contact Info.
- C. Manufacturer's Representative: Provide oversight and inspection by concrete finish manufacturer in accordance with manufacturer's requirements.
 - 1. Green Umbrella Representative: (www.greenumbrellasystems.com)
 - a. Contact Info. tom@greenumbrellasystems.com , 716-771-6352
- D. Mockups: Construct mockups **as directed by Architect**, [**minimum 20x20 feet**] for each finish to verify selections made and to demonstrate typical joints, surface profile and gloss, tolerances, and standard of workmanship. Build mockups using materials specified for the completed Work, and in compliance with recommendations of manufacturer.
 - 1. Obtain **Architect's** approval of mockups prior to starting construction.
 - 2. Viewed in light similar to project completion.
 - 3. Mock-up construction performance should demonstrate actual construction methodology to the extent possible. Differences in equipment and actual methodology will cause variations and differences between mock-up and finished floor.
 - 4. Demonstrate profiling, finishing, and choice of protection of architectural concrete.

5. Maintain mockups, marked and undisturbed during construction to provide a baseline standard for assessing completed Work.
 6. Remove mockup when directed.
 7. Approved, undisturbed, and undamaged mockups may remain as a part of the Work.
- E. Protection of Concrete Finishes: Provide protection for concrete slab finishes as indicated in manufacturer's written instructions, 310R-19, and as follows:
1. Provide protection of concrete finishes from any contact with any substance that contains petroleum, acids or detergents.
 - a. Prohibit vehicle transit and parking on concrete surfaces without providing protection.
 - b. Prohibit storage, transit or use of hydraulic equipment on concrete surfaces without providing protection.
 - c. Prohibit construction operations that include the use of substances listed above without providing approved protection.
 2. Provide protection to finished concrete surface from any materials placed and/or stored on the surface, including but not limited to:
 - a. Steel and iron.
 - b. Petroleum based products.
 - c. Vehicles and machinery.
 - d. Hydraulic fluid.
 - e. Paints and coatings.
 - f. Paper and plastic packaging.
 - g. Aggregates.
 - h. Food and beverages.
 3. Surface Contaminant Cleaning Procedure:
 - a. Provided by system manufacturer.
 - b. On-site spill kits:
 - 1) Solid removal.
 - 2) Liquid removal.

1.10 DELIVERY, STORAGE, AND HANDLING

- A. Deliver material in original containers with unbroken seals, bearing manufacturer labels indicating brand name and directions for storage.
- B. Protect materials from weather and elements. Do not allow liquid products to freeze.

1.11 PROJECT CONDITIONS

- A. Maintain environmental conditions on day of placement as recommended by treatment manufacturer and certified installer.

B. Placing Environment:

1. Architectural exposed concrete that will be profiled (PHP), shall be protected by enclosed structure after the roof membrane is completely installed and watertight
 - a. Roof construction, skylight installation, overhead painting, and roof drainage system shall be complete and weather tight prior to placement of sales floor slabs.
 - b. Lighting: Permanent lighting or equivalent temporary lighting shall be operational during all slab placements.

1.12 MANUFACTURER SPECIAL WARRANTY

- A. Provide manufacturer's 10-year warranty providing coverage that architectural concrete will remain water resistant, non-off-dusting, hardened and abrasion resistant throughout warranty period. Must accompany a time of installation report by certified installer, verified by manufacturer's consultant and/or Corporate Office.
- B. Must be installed by manufacturer's certified installer. Certified Craftsman Warranty: 1 year for installation defect.

PART 2 - PRODUCTS

2.1 MANUFACTURERS AND PRODUCTS

- A. Subject to compliance with requirements, provide products by the following:
 1. Green Umbrella Architectural Concrete Systems, Inc. 20 Jetview Dr. Rochester, NY 14624, basis of design manufacturer. Technical and Architectural Support: (844) 200-7336, info@greenumbrellasystems.com
 2. No substitutions.

2.2 PERFORMANCE REQUIREMENTS

- A. Burnished Concrete: per ACI 310R-19, 7.2.7.
- B. Slip Resistance: Minimum Dynamic Coefficient of Friction of 0.42, per ANSI/NFSI B101.3.
- C. Abrasion Resistance: Abrasion resistance of 0.25 mm at 30 minutes and 0.5 mm at 60 minutes, per ASTM C779/C779M.
- D. Abrasion Resistance: Special/DF, per BS EN 13892-4.
- E. Water Vapor Transmission of Materials: ASTM E96/E96M of 0.34 g/h/m².
- F. Ultra-Violet Light and Water Spray: No adverse effects to ultra-violet and water spray, per ASTM G152.

G. Surface Profile:

1. Class of Grind: per 310R-19, 7.2.5.
2. Level of Gloss: per ACI 310R-19, 7.2.6.
3. Level of Roughness Average: per CSDA ST-115.

2.3 MATERIALS

A. Finish Surface Profile System:

1. Green Umbrella, "Max Defense & Profile System"
 - a. Joint Sealer:
 - 1) Product: Green Umbrella Polylock
 - a) Pre-approved Equal: PE85 by Hi Tech
 - b. Profiling, Honing, and Polishing Abrasive:
 - 1) Product: Green Umbrella, GreenCut Abrasives.
 - a) Stock removal, profile, hone and polish.
 - b) Early age wet cutting abrasive.
 - c) Compatible with liquid cutting agent.
 - d) Compatible with propane variable abrasive grinders and trowel profilers.
 - c. Wet Cutting Agent:
 - 1) Product: Green Umbrella, GreenCut Cutting Agent:
 - a) pH neutral.
 - b) Free from sodium, potassium butyl, and polymers.
 - c) Bearing manufacturer label.
 - d. Penetrating Protective Treatment & Surface Colorant:
 - 1) Product: Green Umbrella, Dry Shield & Nano Color.
 - a) Penetrating.
 - b) Non-film forming.
 - e. Penetrating Protective Treatment:
 - 1) Product: Green Umbrella, Shield and Enhance.
 - a) Liquid hardener and densifier
 - 2) Product: Green Umbrella, RTU Microfilm.

- a) Improved stain resistance.
- b) Non-film forming.
- 3) Mechanical:
 - a) Integral mechanical densification finishing trowel.
 - b) Rider trowel and walk-behind abrasive profiler.
 - c) Variable abrasive concrete grinder.
 - d) Black pad high-speed concrete weighted propane burnished.

B. Interior Slab In Dry Protection Materials:

- 1. Product: Green Umbrella Ramboard:
 - a. Forest Stewardship Council (FSC) certified. Recycled and recyclable materials.
 - b. Roll Dimensions (W x L): 38 inches x 100 feet (965 mm x 30.5 m). 317 sq ft. Rolls per Pallet: 16.
 - c. Green Umbrella Ramboard Vapor-Cure Tape: Vapor-Cure used to cover seams which prevents tape lines. Allows vapors and moisture to escape from concrete.
 - d. Roll Dimensions (WxL): 3 inches x108 feet (76 mm x 32.9 m) Rolls per Box: 16.
 - e. Or Pre-Approved Equal.
- 2. Product: Green Umbrella GreenGuard:
 - a. Roll Dimensions (W x L): 38 inches x 180 feet 10 mil.
 - b. Or Equal To.
 - c. Interior, dry conditions only.

C. Exterior Slab Protection Materials:

- 1. Product: Green Umbrella GreenGuard.
 - a. Exterior, wet conditions expected.
 - b. Pre-approved Equal.

D. Cleaning Agent:

- 1. Product: GreenClean with Slip Resist:
 - a. Slip resistance enhancing.
 - b. pH neutral.
- 2. Product: GreenClean and Degreaser:
 - a. Enzyme degreaser.
 - b. pH neutral.
 - c. Water treatment friendly.
- 3. Product: GreenClean Spill Kit:

- a. Solid spill kit.
- b. Liquid spill kit.
- c. 72-hour recovery.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine architectural concrete substrates with polisher, for conditions that may affect the Work.
- B. Verify preparations and placement of concrete is in accordance with ACI standards and manufacturer's written instructions.
- C. Verify ambient and surface temperatures to be in accordance with manufacturer's requirements for all products for the work.
- D. Verify that the owner's testing agency results for Mohs Hardness test per ASTM C1895 are in accordance with this specification.

3.2 PREPARATION

- A. Site Conditions
 - 1. The building shell shall be completed sufficiently to keep out wind, rain, snow or other adverse weather affects that could damage the polishing work.
 - 2. Provide suitable water, power, lighting and ventilation.
 - a. Provide minimum lighting of 40-foot candles (440 lux) measured at floor surface.
 - 3. Provide and maintain minimum floor slab temperature of 50 degrees F.
- B. All penetrations, drains, floor embeds, or conduit shall be cut, capped, clearly identified and made safe prior to any polishing work.
- C. Prepare equipment to be used in profiling and application of finish system materials according to finish system manufacturer's written instructions.
- D. Completely clean liquid treatment application sprayers free of any potential contaminating material and make ready for application.

"Max Defense & Profile System".ABRASIVE PROFILE-HONE-POLISH

- A. Profile and Hone designated concrete substrates using a wet polishing process per manufacturer's written instructions.
 - 1. Profile Cut: **Class C Medium Aggregate**.
 - 2. Prepared to apply setting/curing catalyst immediately upon completion of finishing operations.

- B. Final polishing abrasive as recommended by treatment system manufacturer to achieve required finish.
 - 1. Level of Gloss : Distinctness-of-Image (DOI) Gloss: Image Clarity as measured by Image Clarity Meter, per ASTM D5767.
 - a. **Level 3: High Gloss Polished; Image clarity 50-60 percent.**
 - 2. Haze Index: Haze Index value of less than 10, as measured by Gloss meter per ASTM D4039.
 - 3. Surface Finish: Average Roughness (Ra) in micro-meters or micro-inches measured by Surface Profilometer, per CSDA ST-115: Measuring Concrete Micro Surface Texture
 - a. Green Umbrella MaxDefense; Ra 32 μ inch \pm 2 μ inch
- C. Thoroughly sweep floor. Auto scrub with manufacturer's cleaning agent, neutral pH Green Clean and Degreaser.
- D. Burnish with a non-resinous black pad in accordance with manufacture recommendation.

3.4 SURFACE COLORANT

- A. Apply Green Umbrella NanoDye following manufacturer's instructions using a pump-up sprayer with conical tip. Use overlapping circular motion holding tip approximately 12 inches from the surface; ensure consistent coverage. Before proceeding, remove excess dye using an auto scrubber.
- B. Reduced Downtime Application:
 - 1. Densifier and Colorant Application Method: Combine Green Umbrella NanoDye and Green Umbrella DryShield as dye carrying agent, with appropriate sprayer and in accordance with manufacturer's instruction.
 - 2. Wait until dry, then clean with auto-scrubber and wipe small area with dry cloth; ensure color acceptability.

3.5 PROTECTIVE TREATMENTS

- A. Installation of Cure Protective Finish Treatment (Green Umbrella, Shield and Enhance):
- B. Installation of Cure Protective Finish Treatment (Green Umbrella, Microfilm):
- C. Installation of Abrasive Protective Finish Stain Treatment (Green Umbrella, RTU Microfilm):
 - 1. Remove all dirt, dust, and debris from concrete surface. Clean the surface with manufacturer's recommended cleaning agent.
 - 2. Spray-apply the protective treatment using high volume, low pressure (pump or battery powered) sprayers at a rate specified by manufacturer.
 - 3. Spread the protective treatment using an applicator as recommended by manufacturer. Provide uniform treatment coverage and allow to dry for a minimum of 1 hour.

4. After the protective treatment has dried completely another application may be applied as recommended by manufacturer. Avoid over application, which may cause poor results.
5. Once dry, High Speed Burnish the protective treatment using a thick, black, non-resinous transfer concrete pad (Green Umbrella Black Pads). Use only equipment as recommended by concrete treatment manufacturer in writing.

3.6 EQUIPMENT

- A. Refer to manufacturer's written instructions for requirements of installation equipment, including but not limited to: sprayers, burnishers, auto scrubbers, profiling, honing and polishing abrasives and dust collection system.

3.7 FIELD QUALITY CONTROL

- A. Measure Gloss Rating, DOI and Haze Index as specified herein, re-polish if required to achieve specified requirements.
- B. Measure concrete micro surface RA texture as specified herein, re-polish if required to achieve specified requirements.
- C. Measure slip resistance using certified slip-test method; verify compliance with specified slip resistance rating. NFSI approved tribometer. Prior to turnover, floor must be cleaned with Green Clean and maintain with slip resist. Then measured for SCOF.

3.8 PROTECTION AND CLEANING

- A. Prohibit wheeled traffic on finished surfaces for a minimum of 8 hours following application or with approval of Green Umbrella Craftsman.
- B. Protect finished floor as specified above and as indicated in manufacturer's written instructions and 310R-19.
- C. Provide daily scrubbing of the entire exposed concrete slab surface with riding equipment that utilizes only pads and water, Daily scrubbing shall continue from time of dried initial application of surface densifier until time of store turnover. Use white or red pads, cleaned or replaced daily, and avoid using excessive downward head pressure that may damage the slab surface

END OF SECTION 033509

SECTION 035400 Floor Underlayment

PART 1 - GENERAL

1.01 SUMMARY

- A. Description of Work: Work of this sections includes self leveling underlayment for interior finish flooring but is not limited to, the following:
 - 1. LEVELROCK ® 2500™ Floor Underlayment covering normal project conditions and applications.
 - 2. Sound Attenuation Mat
 - 3. Division 3 Section “Concrete Toppings” applied over various substrates.
 - 4. Division 9 Section sound control, patching, and leveling compounds applied with finish flooring.

1.02 REFERENCES

- A. ASTM C472 Compressive Strength
- B. ASTM C33 Sand Aggregate
- C. ASTM D4263 Standard test method for indicating moisture in concrete
- D. ASTM F2419 Standard test method for installation of thick poured Gypsum concrete and preparation of surface to receive resilient flooring
- E. ASTM E492 Impact Insulation Class (IIC)
- F. ASTM E90 Sound Transmission Class (STC)

1.03 RELATED WORK SPECIFIED ELSEWHERE

- A. See Section 9 for acceptable flooring materials including vinyl, tile, wood, and laminates.

1.04 SUBMITTALS

- A. Product Data: Submit manufacturer’s specifications and installation instructions with project conditions and materials clearly identified or detailed for each required product or system.
- B. Acoustical Data: Submit sound tests according to IBC code criteria ASTM E492 (IIC) and ASTM E90 (STC)

1. Submit in writing that all sound tests or data provided has been tested according to UL (Underwriters Laboratory) fire resistance design number.

1.05 SYSTEM REQUIREMENTS

A. Performance Requirements:

1. LEVELROCK ® 2500™ Floor Underlayment
 - a. Minimum compressive strength 2,500 psi.
 - b. Minimum density 115 pounds per cubic foot.

1.06 QUALITY ASSURANCE

A. Performance Standards:

1. All materials, unless otherwise indicated, shall be manufactured by United States Gypsum Company and shall be installed in accordance with its current printed directions and by a USG LEVELROCK ® Authorized Applicator.
2. Product compatibility: Manufacturer's of underlayment and finished flooring system certify in writing that products are compatible
3. Underlayment mix shall be tested for a slump using a 2" (i.d.) x 4" cylinder resulting in a patty size of 8 3/4"-9 1/2".
4. At least one set of three molded cube samples shall be taken from each day's pour or every 10,000 square feet which ever is less during the underlayment application. Cube shall be tested in accordance with ASTM C472.

1.07 DELIVERY, STORAGE AND HANDLING

- ##### A.
- All materials shall be delivered in their original unopened packages and stored in an enclosed shelter providing protection from damage and exposure from the elements. Damaged or deteriorated materials shall be removed from the premises.

1.08 PROJECT CONDITIONS

- ##### A.
- Before, during, and after installation of product, building interior shall be enclosed, with adequate ventilation and heat maintained at a temperature above 50_ F to allow for drying of product.

PART 2 – GENERAL

2.01 PRODUCTS AND MANUFACTURERS

- ##### A.
- Manufacturer: USG Corporation

1. 125 S. Franklin Street, Chicago, IL 60606; Telephone (800) 487-4431;
www.levelrock.com

2.02 MATERIALS

- A. Proprietary products/systems: Poured flooring underlayment and topping products, including the following:
 1. LEVELROCK® 2500™ Floor Underlayment:
 - a. Material: Gypsum Cement.
 - b. Minimum Compressive Strength (ASTM C472): 2,500psi. (Avg. 2,500 -3,200) psi (17.24 – 22.06) MPa.
 - c. Nominal Average Density: 115 pounds per cubic foot
 2. LEVELROCK® SAM-N12™ Sound Attenuation Mat

2.03 ACCESSORIES

1. LEVELROCK TM Brand Primer
 - a. Material Standard: Comply with specifications outlined in manufacturer's Applicator Manual for wood and concrete.
2. LEVELROCK TM SE-100™ Surface Enhancer
 - a. Material Standard: Comply with specifications outlined in manufacturer's applicator manual.
3. Mix Water:
 - a. Material Standard: Potable, free from impurities and from domestic source.
4. Sand Aggregate:
 - a. Sand shall meet ASTM C33 as well as specifications outlined in manufacturer's applicator manual.
5. Fast Track Primer Sealer
 - a. Material Standard: Comply with specification outlined by the manufacturer Valspar Flooring Division.

2.04 REPAIR

1. ULTRAFLOW™ Floor Patch
 - a. High polymer-modified blend of engineered cements

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Site Verification of Conditions:
 1. Wood or Concrete substrate shall be structurally sound, properly fastened, and dry. Contractor shall clean subfloor to remove mud, oil, grease, and other contaminating factors before arrival of the authorized applicator.
 2. Wood substrate:
 - a. Limit design of subfloor and framing to a minimum L/360
 - b. Wood should be APA rated T&G or back blocked at joints.
 3. Concrete substrate.
 - a. *Verify concrete has been properly cured for at least 28 days and is dry. Perform moisture test outlined in, ASTM D4263. Proceed with installation only after substrates do not exceed a maximum moisture-vapor-emission rate of 3 lbs. of water/ per 1000 sq. ft. (1.36 kg of water/100 sq. m) in 24 hours prior to underlayment installation.*
 - b. *If concrete contains more than 3 lbs. of water / per 1000 sq. ft. the application of FastTrack Primer is required. Fast Track Primer is an approved concrete sealer manufactured by Valspar Flooring Division.* 4. Do not proceed with installation until unsatisfactory conditions are corrected.

3.02 REQUIREMENTS

- A. Leak Prevention:
 1. Fill cracks and voids in subfloor where leakage of slurry could occur using compressed building insulation, a suitable quick-setting patch material or caulk.
- B. Priming subfloor:

1. Prime substrate according to manufacturer's recommendations. Instructions and the number of coats will vary depending on application.
 - a. Wood substrate: LEVELROCK TM Primer (concentrate, ready mix, or powdered).
 - b. Concrete substrate: LEVELROCK TM Concrete Primer
- C. Application:
 1. Installation shall not begin until the building is enclosed, including roof, windows, doors, and any other apertures.
 2. Install in accordance with reference standards and manufacturer's instructions and as required to comply with seismic requirements.

3.03 GENERAL INSTALLATION REQUIREMENTS

- A. Mixing Proportions:
 1. Mix design shall be proportioned to provide an average compressive strength of 2500 psi or greater with a density of 115 pounds per cubic foot.
 2. Underlayment mix shall be tested for slump using a 2 inch (i.d.) x 4 inch cylinder resulting a patty size of 8 3/4" -9 3/4".
- B. Application:
 1. Pour floor topping to recommended thickness. Immediately spread and screed product to a smooth surface. At substrate expansion, isolation, and other moving joints, allow joint of same width to continue through underlayment.
 - a. Wood: Minimum thickness 3/4".
 - b. Concrete: Minimum thickness 3/4"
 2. This application requires a sound mat or board, the installation of a perimeter isolation strip is required prior to pouring floor topping. Refer to product literature or Applicator Manual for details.
 - a. SAM-N12 Sound Attenuation Mat: Minimum thickness 0.125 in.
- B. Field Quality Control:
 1. Underlayment mix shall be tested for a slump using a 2" (i.d.) x 4" cylinder resulting in a patty size of 8 3/4"-9 3/4". Slump shall be taken at the beginning of each installation to

verify required mix. Slump should be tested periodically there after at a minimum of every 2500 sq. ft. to verify it is being maintained during installation.

C. Protection:

1. After installation protect floor with plywood for heavy traffic areas and non staining FIBEROCK TM floor protective paper for all other areas.

3.04 INSTALLATION OF FINISH FLOOR

A. General Requirements:

1. Damaged areas of the underlayment must be repaired prior to applying any sealer or treatment.
2. Heavily soiled floors need to be cleaned and free from paint, dirt, dust, or foreign matter. The use of oil based sweeping compounds is prohibited.
3. Apply only LEVELROCK® approved sealers or surface enhancer as recommended by application and by the manufacturer.
4. Fasteners to be installed in underlayment must be designed for use in concrete or masonry systems.
5. Follow manufacturer's recommendations regarding moisture levels and vapor retarders before proceeding with installation of finish floor system.
6. Floor must be dry prior to installation of finished floor or application of floor coatings. Check dryness by taping an 18" x18" section of plastic and checking for condensation or discoloration after 16 – 24 hours. (ASTM D4263) or use a Protimeter® SM Survey Master following floor underlayment recommendations.
7. Preventative maintenance, cautions, and procedures.

B. Resilient Floor Applications:

1. Follow floor-covering and or adhesive manufacturer's guidelines for:
2. Proper application and procedures (ASTM F2419).
3. Adequate curing or setting time prior to allowing traffic on finished floor.
4. Proper trowel selections regarding porous-non porous substrates.

C. Ceramic Tile Applications:

1. Install ceramic tile, marble, porcelain, granite, natural stone in accordance with TCNA (Tile Council of North America, Inc.) printed recommendations.\
- D. Wood Flooring Applications:
1. Install hardwood, laminated, and engineered wood flooring according to NOFMA (National Wood Flooring Association) or manufacturer's printed recommendations.

END OF SECTION

SECTION 08 71 00 – DOOR HARDWARE

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes:

1. Mechanical and electrified door hardware
2. Electronic access control system components
3. Field verification, preparation and modification of existing doors and frames to receive new door hardware.

B. Section excludes:

1. Windows
2. Cabinets (casework), including locks in cabinets
3. Signage
4. Toilet accessories
5. Overhead doors

C. Related Sections:

1. Division 01 Section "Alternates" for alternates affecting this section.
2. Division 06 Section "Rough Carpentry"
3. Division 06 Section "Finish Carpentry"
4. Division 07 Section "Joint Sealants" for sealant requirements applicable to threshold installation specified in this section.
5. Division 08 Sections:
 - a. "Metal Doors and Frames"
 - b. "Flush Wood Doors"
 - c. "Aluminum-Framed Entrances and Storefronts"
 - d. "Special Function Doors"
6. Division 09 sections for touchup, finishing or refinishing of existing openings modified by this section.
7. Division 26 "Electrical" sections for connections to electrical power system and for low-voltage wiring.
8. Division 28 "Electronic Safety and Security" sections for coordination with other components of electronic access control system and fire alarm system.

1.02 SUBMITTALS

A. General:

1. Submit in accordance with Conditions of Contract and Division 01 Submittal Procedures.
2. Prior to forwarding submittal:
 - a. Comply with procedures for verifying existing door and frame compatibility for new hardware, as specified in PART 3, "EXAMINATION" article, herein.

- b. Review drawings and Sections from related trades to verify compatibility with specified hardware.
- c. Highlight, encircle, or otherwise specifically identify on submittals: deviations from Contract Documents, issues of incompatibility or other issues which may detrimentally affect the Work.

B. Action Submittals:

1. Product Data: Submit technical product data for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements.
2. Riser and Wiring Diagrams: After final approval of hardware schedule, submit details of electrified door hardware, indicating:
 - a. Wiring Diagrams: For power, signal, and control wiring and including:
 - 1) Details of interface of electrified door hardware and building safety and security systems.
 - 2) Schematic diagram of systems that interface with electrified door hardware.
 - 3) Point-to-point wiring.
 - 4) Risers.
3. Samples for Verification: If requested by Architect, submit production sample of requested door hardware unit in finish indicated and tagged with full description for coordination with schedule.
 - a. Samples will be returned to supplier. Units that are acceptable to Architect may, after final check of operations, be incorporated into Work, within limitations of key coordination requirements.
4. Door Hardware Schedule:
 - a. Submit concurrent with submissions of Product Data, Samples, and Shop Drawings. Coordinate submission of door hardware schedule with scheduling requirements of other work to facilitate fabrication of other work critical in Project construction schedule.
 - b. Submit under direct supervision of a Door Hardware Institute (DHI) certified Architectural Hardware Consultant (AHC) or Door Hardware Consultant (DHC) with hardware sets in vertical format as illustrated by Sequence of Format for the Hardware Schedule published by DHI.
 - c. Indicate complete designations of each item required for each opening, include:
 - 1) Door Index: door number, heading number, and Architect's hardware set number.
 - 2) Quantity, type, style, function, size, and finish of each hardware item.
 - 3) Name and manufacturer of each item.
 - 4) Fastenings and other pertinent information.
 - 5) Location of each hardware set cross-referenced to indications on Drawings.
 - 6) Explanation of all abbreviations, symbols, and codes contained in schedule.
 - 7) Mounting locations for hardware.
 - 8) Door and frame sizes and materials.
 - 9) Degree of door swing and handing.
 - 10) Operational Description of openings with electrified hardware covering egress, ingress (access), and fire/smoke alarm connections.
5. Key Schedule:

- a. After Keying Conference, provide keying schedule that includes levels of keying, explanations of key system's function, key symbols used, and door numbers controlled.
- b. Use ANSI/BHMA A156.28 "Recommended Practices for Keying Systems" as guideline for nomenclature, definitions, and approach for selecting optimal keying system.
- c. Provide 3 copies of keying schedule for review prepared and detailed in accordance with referenced DHI publication. Include schematic keying diagram and index each key to unique door designations.
- d. Index keying schedule by door number, keyset, hardware heading number, cross keying instructions, and special key stamping instructions.
- e. Provide one complete bitting list of key cuts and one key system schematic illustrating system usage and expansion. Forward bitting list, key cuts and key system schematic directly to Owner, by means as directed by Owner.
- f. Prepare key schedule by or under supervision of supplier, detailing Owner's final keying instructions for locks.

C. Informational Submittals:

1. Provide Qualification Data for Supplier, Installer and Architectural Hardware Consultant.
2. Provide Product Data:
 - a. Certify that door hardware approved for use on types and sizes of labeled fire-rated doors complies with listed fire-rated door assemblies.
 - b. Include warranties for specified door hardware.

D. Closeout Submittals:

1. Operations and Maintenance Data: Provide in accordance with Division 01 and include:
 - a. Complete information on care, maintenance, and adjustment; data on repair and replacement parts, and information on preservation of finishes.
 - b. Catalog pages for each product.
 - c. Final approved hardware schedule edited to reflect conditions as installed.
 - d. Final keying schedule
 - e. Copy of warranties including appropriate reference numbers for manufacturers to identify project.
 - f. As-installed wiring diagrams for each opening connected to power, both low voltage and 110 volts.

1.03 QUALITY ASSURANCE

A. Qualifications and Responsibilities:

1. Supplier: Recognized architectural hardware supplier with a minimum of 5 years documented experience supplying both mechanical and electromechanical door hardware similar in quantity, type, and quality to that indicated for this Project. Supplier to be recognized as a factory direct distributor by the manufacturer of the primary materials with a warehousing facility in the Project's vicinity. Supplier to have on staff, a certified Architectural Hardware Consultant (AHC) or Door Hardware Consultant (DHC) available to Owner, Architect, and Contractor, at reasonable times during the Work for consultation.

2. Installer: Qualified tradesperson skilled in the application of commercial grade hardware with experience installing door hardware similar in quantity, type, and quality as indicated for this Project.
3. Architectural Hardware Consultant: Person who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project and meets these requirements:
 - a. For door hardware: DHI certified AHC or DHC.
 - b. Can provide installation and technical data to Architect and other related subcontractors.
 - c. Can inspect and verify components are in working order upon completion of installation.
 - d. Capable of producing wiring diagram and coordinating installation of electrified hardware with Architect and electrical engineers.
4. Single Source Responsibility: Obtain each type of door hardware from single manufacturer.

B. Pre-Installation Meetings

1. Keying Conference

- a. Incorporate keying conference decisions into final keying schedule after reviewing door hardware keying system including:
 - 1) Function of building, flow of traffic, purpose of each area, degree of security required, and plans for future expansion.
 - 2) Preliminary key system schematic diagram.
 - 3) Requirements for key control system.
 - 4) Requirements for access control.
 - 5) Address for delivery of keys.

2. Pre-installation Conference

- a. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
- b. Inspect and discuss preparatory work performed by other trades.
- c. Inspect and discuss electrical roughing-in for electrified door hardware.
- d. Review sequence of operation for each type of electrified door hardware.
- e. Review required testing, inspecting, and certifying procedures.
- f. Review questions or concerns related to proper installation and adjustment of door hardware.

3. Electrified Hardware Coordination Conference:

- a. Prior to ordering electrified hardware, schedule and hold meeting to coordinate door hardware with security, electrical, doors and frames, and other related suppliers.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up for hardware delivered to Project site. Promptly replace products damaged during shipping.

- B. Tag each item or package separately with identification coordinated with final door hardware schedule, and include installation instructions, templates, and necessary fasteners with each item or package. Deliver each article of hardware in manufacturer's original packaging.
- C. Maintain manufacturer-recommended environmental conditions throughout storage and installation periods.
- D. Provide secure lock-up for door hardware delivered to Project. Control handling and installation of hardware items so that completion of Work will not be delayed by hardware losses both before and after installation.
- E. Handle hardware in manner to avoid damage, marring, or scratching. Correct, replace or repair products damaged during Work. Protect products against malfunction due to paint, solvent, cleanser, or any chemical agent.
- F. Deliver keys to manufacturer of key control system for subsequent delivery to Owner.

1.05 COORDINATION

- A. Coordinate layout and installation of floor-recessed door hardware with floor construction. Cast anchoring inserts into concrete.
- B. Installation Templates: Distribute for doors, frames, and other work specified to be factory or shop prepared. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.
- C. Security: Coordinate installation of door hardware, keying, and access control with Owner's security consultant.
- D. Electrical System Roughing-In: Coordinate layout and installation of electrified door hardware with connections to power supplies and building safety and security systems.
- E. Existing Openings: Where existing doors, frames and/or hardware are to remain, field verify existing functions, conditions and preparations and coordinate to suit opening conditions and to provide proper door operation.

1.06 MAINTENANCE

- A. Furnish complete set of special tools required for maintenance and adjustment of hardware, including changing of cylinders.
- B. Turn over unused materials to Owner for maintenance purposes.

PART 2 - PRODUCTS

2.01 HINGES

- A. Manufacturers and Products:
 - 1. Scheduled Manufacturer and Product:

- a. Ives 5BB series
- 2. Acceptable Manufacturers and Products:
 - a. Hager BB1191/1279 series
 - b. McKinney TB series
 - c. Stanley FBB series
- B. Requirements:
 - 1. Provide hinges conforming to ANSI/BHMA A156.1.
 - 2. Provide five knuckle, ball bearing hinges.
 - 3. 1-3/4 inch (44 mm) thick doors, up to and including 36 inches (914 mm) wide:
 - a. Exterior: Standard weight, bronze or stainless steel, 4-1/2 inches (114 mm) high
 - b. Interior: Standard weight, steel, 4-1/2 inches (114 mm) high
 - 4. 1-3/4 inch (44 mm) thick doors over 36 inches (914 mm) wide:
 - a. Exterior: Heavy weight, bronze/stainless steel, 5 inches (127 mm) high
 - b. Interior: Heavy weight, steel, 5 inches (127 mm) high
 - 5. 2 inches or thicker doors:
 - a. Exterior: Heavy weight, bronze or stainless steel, 5 inches (127 mm) high
 - b. Interior: Heavy weight, steel, 5 inches (127 mm) high
 - 6. Adjust hinge width for door, frame, and wall conditions to allow proper degree of opening.
 - 7. Provide three hinges per door leaf for doors 90 inches (2286 mm) or less in height, and one additional hinge for each 30 inches (762 mm) of additional door height.
 - 8. Where new hinges are specified for existing doors or existing frames, provide new hinges of identical size to hinge preparation present in existing door or existing frame.
 - 9. Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:
 - a. Steel Hinges: Steel pins
 - b. Non-Ferrous Hinges: Stainless steel pins
 - c. Out-Swinging Exterior Doors: Non-removable pins
 - d. Out-Swinging Interior Lockable Doors: Non-removable pins
 - e. Interior Non-lockable Doors: Non-rising pins
 - 10. Provide hinges with electrified options as scheduled in the hardware sets. Provide with number and gage of wires enough to accommodate electric function of specified hardware. Locate electric hinge at second hinge from bottom or nearest to electrified locking component. Provide mortar guard for each electrified hinge specified.

2.02 CONTINUOUS HINGES

- A. Manufacturers:
 - 1. Scheduled Manufacturer:
 - a. Ives
 - 2. Acceptable Manufacturers:

- a. Select
- b. Roton
- c. Hager

B. Requirements:

1. Provide aluminum geared continuous hinges conforming to ANSI/BHMA A156.26, Grade 1.
2. Provide aluminum geared continuous hinges, where specified in the hardware sets, fabricated from 6063-T6 aluminum.
3. Provide split nylon bearings at each hinge knuckle for quiet, smooth, self-lubricating operation.
4. Provide hinges capable of supporting door weights up to 450 pounds, and successfully tested for 1,500,000 cycles.
5. On fire-rated doors, provide aluminum geared continuous hinges classified for use on rated doors by testing agency acceptable to authority having jurisdiction.
6. Provide aluminum geared continuous hinges with electrified option scheduled in the hardware sets. Provide with number and gage of wires enough to accommodate electric function of specified hardware.
7. Provide hinges 1 inch (25 mm) shorter in length than nominal height of door, unless otherwise noted or door details require shorter length and with symmetrical hole pattern.

2.03 FLUSH BOLTS

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Ives
2. Acceptable Manufacturers:
 - a. Burns
 - b. Rockwood
 - c. DCI
 - d. Trimco
 - e. Don-Jo
 - f. Hager

B. Requirements:

1. Provide automatic, constant latching, and manual flush bolts with forged bronze or stainless-steel face plates, extruded brass levers, and with wrought brass guides and strikes. Provide 12 inch (305 mm) steel or brass rods at doors up to 90 inches (2286 mm) in height. For doors over 90 inches (2286 mm) in height increase top rods by 6 inches (152 mm) for each additional 6 inches (152 mm) of door height. Provide dust-proof strikes at each bottom flush bolt.

2.04 HOTEL LOCK SYSTEM

A. Manufacturers and Products:

1. Acceptable Manufacturers and Products:

- a. SAFLOK
- b. VINGCARD
- c. SALTO
- d. Stanley QM 100 series

B. Requirements:

- 1. Provide mortise locks conforming to ANSI/BHMA A156.13 Series 1000, Grade 1, and UL Listed for 3-hour fire doors.
- 2. Provide locks manufactured from heavy gauge steel, containing components of steel with a zinc dichromate plating for corrosion resistance.
- 3. Provide lock case that is multi-function and field reversible for handing without opening case. Cylinders: Refer to "KEYING" article, herein.
- 4. Provide locks with standard 2-3/4 inches (70 mm) backset with full 3/4 inch (19 mm) throw stainless steel mechanical anti-friction latchbolt. Provide deadbolt with full 1-inch (25 mm) throw, constructed of stainless steel.
- 5. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.
- 6. Lever Trim: Solid brass, bronze, or stainless steel, cast or forged in design specified, with wrought roses and external lever spring cages. Provide thru-bolted levers with 2-piece spindles.
 - a. Lever Design: Match Falcon Latitude

2.05 CYLINDRICAL LOCKS – GRADE 1

A. Manufacturers and Products:

- 1. Scheduled Manufacturer and Product:
 - a. Falcon T series
- 2. Acceptable Manufacturers and Products:
 - a. Corbin-Russwin CL3300 series
 - b. Sargent 10-Line
 - c. Marks 95 series

B. Requirements:

- 1. Provide cylindrical locks conforming to ANSI/BHMA A156.2 Series 4000, Grade 1, and UL Listed for 3-hour fire doors.
- 2. Cylinders: Refer to "KEYING" article, herein.
- 3. Provide locks with standard 2-3/4 inches (70 mm) backset, unless noted otherwise, with 1/2-inch latch throw. Provide proper latch throw for UL listing at pairs.
- 4. Provide locksets with separate anti-rotation thru-bolts, and no exposed screws.
- 5. Provide independently operating levers with two external return spring cassettes mounted under roses to prevent lever sag.
- 6. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.
- 7. Provide electrified options as scheduled in the hardware sets.
- 8. Lever Trim: Solid cast levers without plastic inserts and wrought roses on both sides.

2.06 CYLINDRICAL LOCKS – GRADE 2

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
 - a. Falcon W series
2. Acceptable Manufacturers and Products:
 - a. Corbin-Russwin CL3800 series
 - b. Sargent 6500 series
 - c. Hager 3200 series

B. Requirements:

1. Provide cylindrical locks conforming to ANSI/BHMA A156.2 Series 4000, Grade 2, and UL Listed for 3-hour fire doors.
2. Cylinders: Refer to “KEYING” article, herein.
3. Provide locks with standard 2-3/4 inches (70 mm) backset, unless noted otherwise, with 1/2-inch latch throw. Provide proper latch throw for UL listing at pairs.
4. Provide locksets with separate anti-rotation thru-bolts, and no exposed screws.
5. Provide independently operating levers with two external return spring cassettes mounted under roses to prevent lever sag.
6. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.
7. Lever Trim: Solid cast levers without plastic inserts and wrought roses on both sides.

2.07 EXIT DEVICES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
 - a. Falcon 24/25 series
2. Acceptable Manufacturers and Products:
 - a. Sargent 19-43-GL-80 series
 - b. Precision Apex series

B. Requirements:

1. Provide exit devices tested to ANSI/BHMA A156.3 Grade 1 and UL listed for Panic Exit or Fire Exit Hardware.
2. Cylinders: Refer to “KEYING” article, herein.
3. Provide touchpad type exit devices, fabricated of brass, bronze, stainless steel, or aluminum, plated to standard architectural finishes to match balance of door hardware.
4. Touchpad must extend a minimum of one half of door width. No plastic inserts are allowed in touchpads.
5. Provide exit devices with deadlatching feature for security and for future addition of alarm kits and/or other electrified requirements.
6. Provide flush end caps for exit devices.
7. Provide exit devices with manufacturer’s approved strikes.

8. Provide exit devices cut to door width and height. Install exit devices at height recommended by exit device manufacturer, allowable by governing building codes, and approved by Architect.
9. Mount mechanism case flush on face of doors or provide spacers to fill gaps behind devices. Where glass trim or molding projects off face of door, provide glass bead kits.
10. Provide cylinder or hex-key dogging as specified at non fire-rated openings.
11. Removable Mullions: 2 inches (51 mm) x 3 inches (76 mm) steel tube. Where scheduled as keyed removable mullion, provide type that can be removed by use of a keyed cylinder, which is self-locking when re-installed.
12. Provide factory drilled weep holes for exit devices used in full exterior application, highly corrosive areas, and where noted in hardware sets.
13. Provide electrified options as scheduled.
14. Provide exit devices with optional trim designs to match other lever and pull designs used on the project.

2.08 ELECTRIC STRIKES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
 - a. Von Duprin 6000 Series.
2. Acceptable Manufacturers and Products:
 - a. Folger Adam 300 Series
 - b. HES 1006 Series

B. Requirements:

1. Provide electric strikes designed for use with type of locks shown at each opening.
2. Provide electric strikes UL Listed as burglary resistant that are tested to a minimum endurance test of 1,000,000 cycles.
3. Where required, provide electric strikes UL Listed for fire doors and frames.
4. Provide transformers and rectifiers for each strike as required. Verify voltage with electrical contractor.

2.09 CYLINDERS

A. Manufacturers and Products:

1. Scheduled Manufacturer:
 - a. Falcon
2. Acceptable Manufacturers and Products:
 - a. Best
 - b. Corbin-Russwin
 - c. Sargent

B. Requirements:

1. Provide cylinders/cores compliant with ANSI/BHMA A156.5; latest revision; cylinder face finished to match lockset; manufacturer's series as indicated. Refer to "KEYING" article, herein.
2. Provide cylinders in the below-listed configuration(s), distributed throughout the Project as indicated.
 - a. Conventional Open: cylinder with small format interchangeable core (SFIC) core with open keyway

2.10 KEYING

A. Scheduled System:

1. **New non-factory registered system:**

- a. Provide cylinders/cores keyed into Owner's new keying system managed by Owner's locksmith, complying with guidelines in ANSI/BHMA A156.28, incorporating decisions made at keying conference.

Requirements:

2. Construction Keying:

- a. Temporary Construction Cylinder Keying.
 - 1) Provide construction cores that permit voiding construction keys without cylinder removal, furnished in accordance with the following requirements.
 - a) Split Key or Lost Ball Construction Keying System.
 - b) 3 construction control keys, and extractor tools or keys as required to void construction keying.
 - c) 12 construction change (day) keys.
 - 2) Owner or Owner's Representative will void operation of temporary construction keys.

3. Permanent Keying:

- a. Provide permanent cylinders/cores keyed by the manufacturer according to the following key system.
 - 1) Master Keying system as directed by the Owner.
- b. Forward biting list and keys separately from cylinders, by means as directed by Owner. Failure to comply with forwarding requirements will be cause for replacement of cylinders/cores involved at no additional cost to Owner.
- c. Provide keys with the following features:
 - 1) Material: Nickel silver; minimum thickness of .107-inch (2.3mm)
 - 2) Patent Protection: Keys and blanks protected by one or more utility patent(s).
 - 3) Geographically Exclusive: Where High Security or Security cylinders/cores are indicated, provide nationwide, geographically exclusive key system complying with the following restrictions.
- d. Identification:
 - 1) Mark permanent cylinders/cores and keys with applicable blind code for identification. Do not provide blind code marks with actual key cuts.
 - 2) Identification stamping provisions must be approved by the Architect and Owner.
 - 3) Stamp cylinders/cores and keys with Owner's unique key system facility code as established by the manufacturer; key symbol and embossed or stamped with

"DO NOT DUPLICATE" along with the "PATENTED" or patent number to enforce the patent protection.

- 4) Failure to comply with stamping requirements will be cause for replacement of keys involved at no additional cost to Owner.
 - 5) Forward permanent cylinders/cores to Owner, separately from keys, by means as directed by Owner.
- e. Quantity: Furnish in the following quantities.
- 1) Change (Day) Keys: 3 per cylinder/core.
 - 2) Permanent Control Keys: 3.
 - 3) Master Keys: 6.

2.11 KEY CONTROL SYSTEM

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Telkee
2. Acceptable Manufacturers:
 - a. No Substitute
 - b. HPC
 - c. Lund

B. Requirements:

1. Provide key control system, including envelopes, labels, tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet, all as recommended by system manufacturer, with capacity for 150% of number of locks required for Project.
 - a. Provide complete cross index system set up by hardware supplier, and place keys on markers and hooks in cabinet as determined by final key schedule.
 - b. Provide hinged-panel type cabinet for wall mounting.

2.12 DOOR CLOSERS

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
 - a. Falcon SC70A series
2. Acceptable Manufacturers and Products:
 - a. LCN 4050 series
 - b. Sargent 351 series

B. Requirements:

1. Provide door closers conforming to ANSI/BHMA A156.4 Grade 1 requirements by BHMA certified independent testing laboratory. ISO 9000 certify closers. Stamp units with date of manufacture code.
2. Provide door closers with fully hydraulic, full rack and pinion action with aluminum cylinder.
3. Closer Body: 1-1/2-inch (38 mm) diameter with 5/8-inch (16 mm) diameter heat-treated pinion journal.
4. Hydraulic Fluid: Fireproof, passing requirements of UL10C, and requiring no seasonal closer adjustment for temperatures ranging from 120 degrees F to -30 degrees F.
5. Spring Power: Continuously adjustable over full range of closer sizes, and providing reduced opening force as required by accessibility codes and standards.
6. Hydraulic Regulation: By tamper-proof, non-critical valves, with separate adjustment for latch speed, general speed, and backcheck.
7. Pressure Relief Valve (PRV) Technology: Not permitted.
8. Provide special templates, drop plates, mounting brackets, or adapters for arms as required for details, overhead stops, and other door hardware items interfering with closer mounting.

2.13 DOOR CLOSERS

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
 - a. Falcon SC60A series
2. Acceptable Manufacturers and Products:
 - a. LCN 1250 series
 - b. Sargent 1131 series

B. Requirements:

1. Provide door closers conforming to ANSI/BHMA A156.4 Grade 1 requirements by BHMA certified independent testing laboratory.
2. Provide door closers with fully hydraulic, full rack and pinion action with aluminum cylinder.
3. Closer Body: 1-3/8-inch (35 mm) diameter with 5/8-inch (16 mm) diameter pinion journal.
4. Hydraulic Fluid: Fireproof, passing requirements of UL10C.
5. Pressure Relief Valve (PRV) Technology: Not permitted.
6. Provide special templates, drop plates, mounting brackets, or adapters for arms as required for details, overhead stops, and other door hardware items interfering with closer mounting.

2.14 DOOR TRIM

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Ives.
2. Acceptable Manufacturers:

- a. Elmes
- b. Trimco
- c. Burns
- d. Rockwood

B. Requirements:

- 1. Provide push plates, push bars, pull plates, pulls, and hands-free reversible door pulls with diameter and length as scheduled.

2.15 PROTECTION PLATES

A. Manufacturers:

- 1. Scheduled Manufacturer:
 - a. Ives
- 2. Acceptable Manufacturers:
 - a. Burns
 - b. Trimco
 - c. Rockwood

B. Requirements:

- 1. Provide protection plates with a minimum of 0.050 inch (1 mm) thick, beveled four edges as scheduled. Furnish with sheet metal or wood screws, finished to match plates.
- 2. Sizes plates 2 inches (51 mm) less width of door on single doors, pairs of doors with a mullion, and doors with edge guards. Size plates 1 inch (25 mm) less width of door on pairs without a mullion or edge guards.
- 3. At fire rated doors, provide protection plates over 16 inches high with UL label.

2.16 DOOR STOPS AND HOLDERS

A. Manufacturers:

- 1. Scheduled Manufacturer:
 - a. Ives
- 2. Acceptable Manufacturers:
 - a. No Substitute
 - b. Trimco
 - c. Burns
 - d. Rockwood

B. Provide door stops at each door leaf:

- 1. Provide wall stops wherever possible. Provide concave type where lockset has a push button or thumbturn.
- 2. Where a wall stop cannot be used, provide universal floor stops.

3. Where wall or floor stop cannot be used, provide overhead stop.
4. Provide roller bumper where doors open into each other and overhead stop cannot be used.

2.17 THRESHOLDS, SEALS, DOOR SWEEPS, AUTOMATIC DOOR BOTTOMS, AND GASKETING

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Zero International
2. Acceptable Manufacturers:
 - a. National Guard
 - b. Reese
 - c. Legacy
 - d. Pemko

B. Requirements:

1. Provide thresholds, weather-stripping, and gasketing systems as specified and per architectural details. Match finish of other items.
2. Smoke- and Draft-Control Door Assemblies: Where smoke- and draft-control door assemblies are required, provide door hardware that meets requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105.
3. Provide door sweeps, seals, astragals, and auto door bottoms only of type where resilient or flexible seal strip is easily replaceable and readily available.
4. Size thresholds 1/2 inch (13 mm) high by 5 inches (127 mm) wide by door width unless otherwise specified in the hardware sets or detailed in the drawings.

2.18 SILENCERS

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Ives
2. Acceptable Manufacturers:
 - a. Burns
 - b. Rockwood
 - c. Trimco

B. Requirements:

1. Provide "push-in" type silencers for hollow metal or wood frames.
2. Provide one silencer per 30 inches (762 mm) of height on each single frame, and two for each pair frame.
3. Omit where gasketing is specified.

2.19 MAGNETIC HOLDERS

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. LCN
2. Acceptable Manufacturers:
 - a. Rixson
 - b. Sargent

B. Requirements:

1. Provide wall or floor mounted electromagnetic door release as specified with minimum of 25 pounds of holding force. Coordinate projection of holder and armature with other hardware and wall conditions to ensure that door sits parallel to wall when fully open. Connect magnetic holders on fire-rated doors into the fire control panel for fail-safe operation.

2.20 DOOR VIEWERS

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Ives
2. Acceptable Manufacturers:
 - a. Auth Chimes
 - b. Burns
 - c. Rockwood

- ### B. Provide appropriate door viewer for door type and rating with minimum of 180-degree view area.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Prior to installation of hardware, examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire-rated door assembly construction, wall and floor construction, and other conditions affecting performance. Verify doors, frames, and walls have been properly reinforced for hardware installation.
- B. Field verify existing doors and frames receiving new hardware and existing conditions receiving new openings. Verify that new hardware is compatible with existing door and frame preparation and existing conditions.

- C. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.
- D. Submit a list of deficiencies in writing and proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Where on-site modification of doors and frames is required:
 - 1. Carefully remove existing door hardware and components being reused. Clean, protect, tag, and store in accordance with storage and handling requirements specified herein.
 - 2. Field modify and prepare existing doors and frames for new hardware being installed.
 - 3. When modifications are exposed to view, use concealed fasteners, when possible.
 - 4. Prepare hardware locations and reinstall in accordance with installation requirements for new door hardware and with:
 - a. Steel Doors and Frames: For surface applied door hardware, drill and tap doors and frames according to ANSI/SDI A250.6.
 - b. Wood Doors: DHI WDHS.5 "Recommended Hardware Reinforcement Locations for Mineral Core Wood Flush Doors."
 - c. Doors in rated assemblies: NFPA 80 for restrictions on on-site door hardware preparation.

3.03 INSTALLATION

- A. Mount door hardware units at heights to comply with the following, unless otherwise indicated or required to comply with governing regulations.
 - 1. Standard Steel Doors and Frames: ANSI/SDI A250.8.
 - 2. Custom Steel Doors and Frames: HMMA 831.
 - 3. Interior Architectural Wood Flush Doors: ANSI/WDMA I.S. 1A
 - 4. Installation Guide for Doors and Hardware: DHI TDH-007-20
- B. Install door hardware in accordance with NFPA 80, NFPA 101 and provide post-install inspection, testing as specified in section 1.03.E unless otherwise required to comply with governing regulations.
- C. Install each hardware item in compliance with manufacturer's instructions and recommendations, using only fasteners provided by manufacturer.
- D. Do not install surface mounted items until finishes have been completed on substrate. Protect all installed hardware during painting.
- E. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate as necessary for proper installation and operation.
- F. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.
- G. Install operating parts so they move freely and smoothly without binding, sticking, or excessive clearance.

- H. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than quantity recommended by manufacturer for application indicated.
- I. Wiring: Coordinate with Division 26, ELECTRICAL and Division 28 ELECTRONIC SAFETY AND SECURITY sections for:
 - 1. Conduit, junction boxes and wire pulls.
 - 2. Connections to and from power supplies to electrified hardware.
 - 3. Connections to fire/smoke alarm system and smoke evacuation system.
 - 4. Connection of wire to door position switches and wire runs to central room or area, as directed by Architect.
 - 5. Connections to panel interface modules, controllers, and gateways.
 - 6. Testing and labeling wires with Architect's opening number.
- J. Key Control System: Tag keys and place them on markers and hooks in key control system cabinet, as determined by final keying schedule.
- K. Door Closers: Mount closers on room side of corridor doors, inside of exterior doors, and stair side of stairway doors from corridors. Mount closers so they are not visible in corridors, lobbies and other public spaces unless approved by Architect.
- L. Closer/Holders: Mount closer/holders on room side of corridor doors, inside of exterior doors, and stair side of stairway doors.
- M. Power Supplies: Locate power supplies as indicated or, if not indicated, above accessible ceilings or in equipment room, or alternate location as directed by Architect.
- N. Thresholds: Set thresholds in full bed of sealant complying with requirements specified in Division 07 Section "Joint Sealants."
- O. Stops: Provide floor stops for doors unless wall or other type stops are indicated in door hardware schedule. Do not mount floor stops where they may impede traffic or present tripping hazard.
- P. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.
- Q. Meeting Stile Gasketing: Fasten to meeting stiles, forming seal when doors are closed.
- R. Door Bottoms and Sweeps: Apply to bottom of door, forming seal with threshold when door is closed.

3.04 ADJUSTING

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.
 - 1. Spring Hinges: Adjust to achieve positive latching when door can close freely from an open position of 30 degrees.
 - 2. Electric Strikes: Adjust horizontal and vertical alignment of keeper to properly engage lock bolt.

- 3. Door Closers: Adjust sweep period to comply with accessibility requirements and requirements of authorities having jurisdiction.
- B. Occupancy Adjustment: Approximately three to six months after date of Substantial Completion, examine and readjust each item of door hardware, including adjusting operating forces, as necessary to ensure function of doors and door hardware.

3.05 CLEANING AND PROTECTION

- A. Clean adjacent surfaces soiled by door hardware installation.
- B. Clean operating items per manufacturer's instructions to restore proper function and finish.
- C. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of Substantial Completion.

3.06 DOOR HARDWARE SCHEDULE

- A. The intent of the hardware specification is to specify the hardware for interior and exterior doors, and to establish a type, continuity, and standard of quality. However, it is the door hardware supplier's responsibility to thoroughly review existing conditions, schedules, specifications, drawings, and other Contract Documents to verify the suitability of the hardware specified.
- B. Discrepancies, conflicting hardware, and missing items are to be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application.
- C. Hardware items are referenced in the following hardware schedule. Refer to the above specifications for special features, options, cylinders/keying, and other requirements.
- D. Hardware Sets:

END OF SECTION

Abbreviation	Name
FAL	Falcon
IVE	H.B. Ives
LCN	Lcn Commercial Division
SAF	Saflok
VON	Von Duprin
ZER	Zero International Inc

Hardware Group No. 01

For use on Door #(s):

1.1A 1.1B

Provide each SL door(s) with the following:

QTY	DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	CARD READER/LOCK	OWNER PROVIDED CARD LOCK		
1		HARDWARE BY DOOR MANUFACTURER		

Hardware Group No. 02

For use on Door #(s):

1.25A

Provide each PR door(s) with the following:

QTY	DESCRIPTION	CATALOG NUMBER	FINISH	MFR
6 EA	HINGE	5BB1 4.5 X 4.5	B643E	IVE
1 SET	CONST LATCHING BOLT	FB51P	613	IVE
1 EA	FIRE EXIT HARDWARE	F-25-V-L-BE-LBR-LAT	643E	FAL
1 EA	COORDINATOR	COR X FL	315AN	IVE
2 EA	SURFACE CLOSER	SC61A RW/PA SLIM	695	FAL
2 EA	KICK PLATE	8400 10" X 2" LDW B-CS	613	IVE
2 EA	FIRE/LIFE WALL MAG	SEM7840 12V/24V/120V	695	LCN
1 EA	GASKETING	188SBK PSA	BK	ZER
2 EA	MEETING STILE	8194AA	AA	ZER
	ASTRAGAL			

Hardware Group No. 03

For use on Door #(s):

1.4 1.11 1.18

Provide each SGL door(s) with the following:







QTY	DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3 EA	HINGE	5BB1 4.5 X 4.5	B643E	IVE
1 EA	SFIC CORE	CB847 SFIC RES	643e	FAL
1 EA	CARD LOCK	PROVIDED BY OWNER	643e	SAF
1 EA	SURFACE CLOSER	SC61A RW/PA SLIM	695	FAL
1 EA	WALL STOP	WS406/407CCV	643E	IVE
3 EA	SILENCER	SR64	GRY	IVE

Hardware Group No. 04

For use on Door #(s):

1.5B 1.26 2.3 3.3 4.3

Provide each SGL door(s) with the following:





QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		B643E	IVE
1	EA	PASSAGE SET	T101 LAT		643e	FAL
1	EA	SURFACE CLOSER	SC61A RW/PA SLIM		695	FAL
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		613	IVE
1	EA	WALL STOP	WS406/407CCV		643E	IVE
1	EA	GASKETING	188SBK PSA		BK	ZER

Hardware Group No. 05

For use on Door #(s):

1.23

Provide each SGL door(s) with the following:





QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
1	EA	CONT. HINGE	112XY		313AN	IVE
1	EA	PASSAGE SET	T101 LAT		643e	FAL
1	EA	WALL STOP	WS406/407CCV		643E	IVE
3	EA	SILENCER	SR64		GRY	IVE

Hardware Group No. 06

For use on Door #(s):

1.5C

Provide each SGL door(s) with the following:






QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		B643E	IVE
1	EA	PASSAGE SET	T101 LAT		643e	FAL
1	EA	WALL STOP	WS406/407CCV		643E	IVE
3	EA	SILENCER	SR64		GRY	IVE

Hardware Group No. 07

For use on Door #(s):

4.5B

Provide each SGL door(s) with the following:







QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		B643E	IVE
1	EA	STOREROOM LOCK	T581B LAT		643e	FAL
1	EA	SFIC CORE	CB847 SFIC RES		643e	FAL
1	EA	WALL STOP	WS406/407CCV		643E	IVE
3	EA	SILENCER	SR64		GRY	IVE

Hardware Group No. 08

For use on Door #(s):

2.1 3.1 3.7 4.1

Provide each SGL door(s) with the following:







QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		B643E	IVE
1	EA	STOREROOM LOCK	T581B LAT		643e	FAL
1	EA	SFIC CORE	CB847 SFIC RES		643e	FAL
1	EA	SURFACE CLOSER	SC61A RW/PA SLIM		695	FAL
1	EA	WALL STOP	WS406/407CCV		643E	IVE
1	EA	GASKETING	188SBK PSA		BK	ZER

Hardware Group No. 09

For use on Door #(s):

1.10A 1.17A 2.5 2.6 3.5 3.6
4.5A 4.6

Provide each SGL door(s) with the following:








QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5		B643E	IVE
1	EA	FIRE EXIT HARDWARE	F-25-R-L-BE-LAT		643E	FAL
1	EA	SURFACE CLOSER	SC61A RW/PA SLIM		695	FAL
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		613	IVE
1	EA	WALL STOP	WS406/407CCV		643E	IVE
1	EA	GASKETING	188SBK PSA		BK	ZER

Hardware Group No. 10

For use on Door #(s):

2.2 3.2 4.2

Provide each SGL door(s) with the following:











QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		B643E	IVE
1	EA	PANIC HARDWARE	25-R-L-NL-LAT		643E	FAL
1	EA	RIM CYLINDER	C953-B7 SFIC HOUSING		643e	FAL
1	EA	SFIC CORE	CB847 SFIC RES		643e	FAL
1	EA	SURFACE CLOSER	SC61A RW/PA SLIM		695	FAL
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		613	IVE
1	EA	WALL STOP	WS406/407CCV		643E	IVE
1	EA	GASKETING	188SBK PSA		BK	ZER

Hardware Group No. 11

For use on Door #(s):

1.10B 1.17B 1.17C 1.19A 1.19B

Provide each SGL door(s) with the following:











QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5 NRP		B643E	IVE
1	EA	FIRE EXIT HARDWARE	F-25-R-NL		643E	FAL
1	EA	ELECTRIC STRIKE	6300 FSE 12/24 VAC/VDC	 ✎	630	VON
1	EA	SURFACE CLOSER	SC71A SS		695	FAL
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		613	IVE
1	EA	WALL STOP	WS406/407CCV		643E	IVE
1	EA	RAIN DRIP	142AA		AA	ZER
1	EA	GASKETING	8303AA		AA	ZER
1	EA	DOOR SWEEP	39A		A	ZER
1	EA	THRESHOLD	545A		A	ZER
1		CARD READER/LOCK	OWNER PROVIDED CARD LOCK			

Hardware Group No. 12

For use on Door #(s):

1.25

Provide each SGL door(s) with the following:












QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5 NRP		B643E	IVE
1	EA	STOREROOM LOCK	T581B LAT		643e	FAL
1	EA	SFIC CORE	CB847 SFIC RES		643e	FAL
1	EA	SURFACE CLOSER	SC71A SS		695	FAL
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		613	IVE
1	EA	WALL STOP	WS406/407CCV		643E	IVE
1	EA	RAIN DRIP	142AA		AA	ZER
1	EA	GASKETING	8303AA		AA	ZER
1	EA	DOOR SWEEP	39A		A	ZER
1	EA	THRESHOLD	545A		A	ZER
1		CARD READER/LOCK	OWNER PROVIDED CARD LOCK			

Hardware Group No. 13

For use on Door #(s):

1.14 1.19C 1.25B

Provide each SGL door(s) with the following:








QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
1	EA	CONT. HINGE	112XY		313AN	IVE
1	EA	FIRE EXIT HARDWARE	F-25-R-NL		643E	FAL
1	EA	ELECTRIC STRIKE	6300 FSE 12/24 VAC/VDC	 ✎	630	VON
1	EA	SURFACE CLOSER	SC71A SS		695	FAL
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		613	IVE
1	EA	WALL STOP	WS406/407CCV		643E	IVE
1	EA	RAIN DRIP	142AA		AA	ZER
1	EA	GASKETING	188SBK PSA		BK	ZER
1	EA	GASKETING	8303AA		AA	ZER
1	EA	DOOR SWEEP	39A		A	ZER
1	EA	THRESHOLD	545A		A	ZER
1		CARD READER/LOCK	OWNER PROVIDED CARD LOCK			

Hardware Group No. 14

For use on Door #(s):

1.6 1.7 1.8 1.10 1.22 4.7A
4.7B

Provide each SGL door(s) with the following:







QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		B643E	IVE
1	EA	CLASSROOM LOCK	T561B LAT		643e	FAL
1	EA	SFIC CORE	CB847 SFIC RES		643e	FAL
1	EA	SURFACE CLOSER	SC61A RW/PA SLIM		695	FAL
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		613	IVE
1	EA	WALL STOP	WS406/407CCV		643E	IVE
1	EA	GASKETING	188SBK PSA		BK	ZER

Hardware Group No. 15

For use on Door #(s):

1.12

Provide each SGL door(s) with the following:










QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		B643E	IVE
1	EA	CLASSROOM LOCK	T561B LAT		643e	FAL
1	EA	SFIC CORE	CB847 SFIC RES		643e	FAL
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		613	IVE
1	EA	WALL STOP	WS406/407CCV		643E	IVE
3	EA	SILENCER	SR64		GRY	IVE

Hardware Group No. 16

For use on Door #(s):

1.5A

Provide each PR door(s) with the following:







QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
6	EA	HINGE	5BB1HW 4.5 X 4.5		B643E	IVE
1	SET	CONST LATCHING BOLT	FB51P		613	IVE
1	EA	CLASSROOM LOCK	T561B LAT		643e	FAL
1	EA	SFIC CORE	CB847 SFIC RES		643e	FAL
1	EA	COORDINATOR	COR X FL		315AN	IVE
2	EA	SURFACE CLOSER	SC61A RW/PA SLIM		695	FAL
2	EA	KICK PLATE	8400 10" X 2" LDW B-CS		613	IVE
2	EA	WALL STOP	WS406/407CCV		643E	IVE
1	EA	GASKETING	188SBK PSA		BK	ZER

Hardware Group No. 17

For use on Door #(s):

1.15 1.16 1.20 1.21

Provide each SGL door(s) with the following:










QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		B643E	IVE
1	EA	PRIVACY LOCK	T301S LAT		643e	FAL
1	EA	SURFACE CLOSER	SC61A RW/PA SLIM		695	FAL
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		613	IVE
1	EA	WALL STOP	WS406/407CCV		643E	IVE
1	EA	GASKETING	188SBK PSA		BK	ZER

Hardware Group No. 18

For use on Door #(s):

303A 307A 308A 407A 408A 429A

Provide each SGL door(s) with the following:










QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		B643E	IVE
1	EA	SFIC CORE	CB847 SFIC RES		643e	FAL
1	EA	CARD LOCK	PROVIDED BY OWNER		643e	SAF
1	EA	SURFACE CLOSER	SC61A RW/PA SLIM		695	FAL
1	EA	WALL STOP	WS406/407CCV		643E	IVE
1	EA	GASKETING	8150SBK 20FT (6096MM) PSA		BK	ZER
1	EA	AUTO DOOR BOTTOM	364AA		AA	ZER
1	EA	THRESHOLD	1685R-NH			ZER
2	EA	VIEWER	U698		B643E	IVE

Hardware Group No. 19

For use on Door #(s):

101A	102A	103A	104A	105A	106A
107A	108A	109A	110A	111A	112A
113A	115A	201A	202A	203A	204A
205A	206A	207A	208A	209A	210A
211A	212A	213A	214A	215A	216A
217A	218A	219A	220A	221A	222A
223A	224A	225A	226A	227A	301A
302A	304A	305A	306A	309A	310A
311A	312A	313A	314A	315A	316A
317A	318A	319A	320A	321A	322A
323A	324A	325A	326A	327A	328A
329A	330A	331A	332A	333A	335A
401A	402A	403A	404A	405A	406A
409A	410A	411A	412A	413A	414A
415A	416A	417A	418A	419A	420A
421A	422A	423A	424A	425A	426A
427A	428A	430A	431A	432A	433A

Provide each SGL door(s) with the following:





QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		B643E	IVE
1	EA	SFIC CORE	CB847 SFIC RES		643e	FAL
1	EA	CARD LOCK	PROVIDED BY OWNER		643e	SAF
1	EA	SURFACE CLOSER	SC61A RW/PA SLIM		695	FAL
1	EA	WALL STOP	WS406/407CCV		643E	IVE
1	EA	GASKETING	8150SBK 20FT (6096MM) PSA		BK	ZER
1	EA	AUTO DOOR BOTTOM	364AA		AA	ZER
1	EA	THRESHOLD	1685R-NH			ZER
1	EA	VIEWER	U698		B643E	IVE

Hardware Group No. 20

For use on Door #(s):

101B	102B	103B	104B	105B	106B
107B	108B	109B	110B	111B	112B
113B	115B	201B	202B	203B	204B
205B	206B	207B	208B	209B	210B
211B	212B	213B	214B	215B	216B
217B	218B	219B	220B	221B	222B
223B	224B	225B	226B	227B	301B
302B	303B	304B	305B	306B	307B
308B	309B	310B	311B	312B	313B
314B	315B	316B	317B	318B	319B
320B	321B	322B	323B	324B	325B
326B	327B	328B	329B	330B	331B
332B	333B	335B	401B	402B	403B
404B	405B	406B	407B	408B	409B
410B	411B	412B	413B	414B	415B
416B	417B	418B	419B	420B	421B
422B	423B	424B	425B	426B	427B
428B	429B	430B	431B	432B	433B

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		B643E	IVE
1	EA	PRIVACY LOCK	W301S LAT		643e	FAL
1	EA	WALL STOP	WS406/407CCV		643E	IVE
1	EA	GASKETING	188SBK PSA		BK	ZER

SECTION 064100 - CASEWORK

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Specially fabricated cabinet units.
- B. Countertops.
- C. Cabinet hardware.
- D. Preparation for installing utilities.

1.2 SUBMITTALS

- A. Shop Drawings: Indicate materials, component profiles, fastening methods, joining details, and accessories. Provide the information required by AWI/AWMAC/WI Architectural Woodwork Standards.
- B. Product Data: Provide data for hardware accessories.

1.3 QUALITY ASSURANCE

- A. Fabricator Qualifications: Company specializing in fabricating the products specified in this section with minimum five years of experience.

PART 2 PRODUCTS

2.1 CABINETS

- A. Quality Grade: Unless otherwise indicated provide products of quality specified by AWI/AWMAC/WI Architectural Woodwork Standards for Custom Grade.
- B. Plastic Laminate Faced Cabinets: Premium grade.
- C. Cabinets:
 - 1. Finish – Exposed Exterior Surfaces: Decorative laminate.
 - 2. Door and Drawer Front Edge Profiles: Self-Edge banding with material of same finish and pattern.
- 3. Casework Construction Type: Type A – Frameless.
- 4. Interface Style for Cabinet and Door: Style 1 – Overlay; Flush overlay.

5. Adjustable Shelf Loading: 50 lbs. per sq. ft.

2.2 LAMINATE MATERIALS

- A. High Pressure Decorative Laminate (HPDL): NEMA LD 3, types as recommended for specific applications.
- B. Provide specific types as indicated.
 1. Horizontal Surfaces: HGL, 0.050-inch nominal thickness, colors as scheduled, finish as scheduled.
 2. Vertical Surfaces: VGS, 0.028-inch nominal thickness, colors as scheduled, finish as scheduled.
 3. Cabinet Liner: CLS 0.020-inch nominal thickness, colors as scheduled, finish as scheduled.
 4. Laminate Backer: BKL, 0.020-inch nominal thickness, undecorated; for application to concealed backside of panels faced with high pressure decorative laminate.
 5. Chemical Resistant Grade: 0.036"
- C. Low Pressure Thermofused Polyester and Melamine Laminates: ALA (American Laminators Association).
- D. PVC edge banding (polyvinyl chloride) on seamless rolls to be applied with automatic edge banding machines using hot-melt adhesives. Product to be chip proof, flame and moisture resistant.
- E. Colors of laminates shall be as selected from the following manufacturers: "Nevamar," "Pionite", "Wilsonart", "Formica" and "Advanced Technology, Inc". Color as selected by Architect.
- F. Colors of semi-exposed and concealed melamine shall be as selected from Almond, Folkstone Grey, Black and White. Color as selected by Architect.
- G. Brands, colors, textures and patterns shall be as selected by the Architect from the full range of laminate choices, from any or all of the manufacturers specified above.

2.3 COUNTERTOPS

- A. Plastic Laminate Countertops; Medium density fiberboard substrate covered with HPDL, 3-mm PVC edge banding and other specified requirements.
- B. Wall-Mounted Counters: Provide skirts, aprons, brackets, and braces as indicated on drawings, finished to match.

- C. Solid Surface: Provide solid surface as manufactured by the following:
 - 1. Corian by DuPont;
 - 2. Samsung Chemical USA;
 - 3. Wilsonart Contract.
 - 4. Solid Surface Material:
 - a. Non-porous, homogeneous material maintaining the same composition throughout the part with a composition of acrylic polymer, aluminum trihydrate filler and pigment; not coated, laminated or of composite construction; meeting following criteria:
 - b. Flammability: Class 1 and A when tested to UL 723.
 - c. Finish: Matte, with a 60° gloss rating of 5 - 20.

2.4 ACCESSORIES

- A. Adhesive: Type recommended by AWI/AWMAC to suit application to meet requirements of ASTM-D3110.
- B. Solvent Based Contact Cement: MMM-A-J130B.
- C. Fasteners: Size and type to suit application.
- D. Bolts, Nuts, Washers, Lags, Pins, and Screws: Of size and type to suit application; galvanized or chrome-plated finish in concealed locations and stainless-steel chrome-plated finish in exposed locations.
- E. Concealed Joint Fasteners: Threaded steel.
- F. Grommets: Standard plastic, painted metal, or rubber grommets for cut-outs, in color to match adjacent surface. Provide a wiring grommet at each electrical or data outlet and additional grommets as indicated in the contract documents.
- G. Provide National Lock No. C8173-26D for cabinets as indicated in the contract documents.
- H. Workmanship Complies with Industry Standards: AWI (Architectural Woodwork Institute).

2.5 HARDWARE

- A. Hardware: BHMA A156.9, types as recommended by fabricator for quality grade specified.
- B. Drawer and Door Pulls: If not specified in drawings then provide 5/16" "U" shaped wire pull, aluminum with satin finish, 4-inch centers.
- C. Drawer Slides:

1. Box Drawer: Single extension, almond epoxy finish with 75 lb. load rating and positive in and out stops, stay close detent, one side captive and four nylon rollers. Hettich #FR602L, Accuride No. 3832, or Blum No. 230M.
 2. File Drawers: Full extension, zinc finish with 150 lb. load rating and positive in and out stops, stay close detent and steel ball bearing. Accuride #4034.
- D. Adjustable Shelf Support System:
1. Standard adjustable shelf support system shall be provided by inserting nickel plated steel "L" shaped clips into predrilled 5-mm diameter holes 32-mm (1-1/4") on centers. Liberty #A1131 HNP. Shelves shall be fixed using a retaining screw.
- E. Wall Standards and Brackets:
1. All adjustable shelves indicated on the Interior Elevations to have heavy duty metal standards and brackets, to be provided with zinc plated steel, adjustable 2" center. Knappe & Vogt No. 85 and 185 double-slot standards and brackets.
- F. Countertop Support Brackets:
1. Countertop support brackets shall be constructed of 16 gauge 1-1/2" tube steel, with welded construction, designed to support countertops off finished wall at desired heights. Brackets are powder coated. Color as selected by Architect.
 2. 18" x 21" legs for up to 26" deep countertop.
 3. 21" x 27" legs for up to 32" deep countertop.
- G. Hinges: European style concealed self-closing type, steel with satin finish. Maximum door size of 24" x 36" and 24" x 48" shall be provided with 2 knuckles. Maximum door size of 24" x 84" shall be provided with 3 knuckles. Maximum door size of 24" x 90" shall be provided with 4 knuckles.

2.6 FABRICATION

- A. Assembly: Shop assemble cabinets for delivery to sit in units easily handled and to permit passage through building openings.
- B. Edging: Fit shelves, doors, and exposed edges with specified edging. Do not use more than one piece for any single length.
- C. Fitting: When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide matching trim for scribing and site cutting.

- D. Plastic Laminate: Apply plastic laminate finish in full uninterrupted sheets consistent with manufactured sizes. Fit corners and joints hairline; secure with concealed fasteners. Slightly bevel arises. Locate counter butt joints minimum 2 feet from sink cut-outs.
- 1. Apply laminate backing sheet to reverse side of plastic laminate finished surfaces.
- E. Provide cutouts for plumbing fixtures. Verify locations of cutouts from on-site dimensions. Seal cut edges.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify adequacy of backing and support framing.
- B. Verify location and sizes of utility rough-in associated with work of this section.

3.2 INSTALLATION

- A. Set and secure custom cabinets in place, assuring that they are rigid, plumb, and level.
- B. Use fixture attachments in concealed locations for wall mounted components.
- C. Use concealed joint fasteners to align and secure adjoining cabinet units.
- D. Carefully scribe casework abutting other components, with maximum gaps of 1/32 inch. Do not use additional overlay trim for this purpose.
- E. Secure cabinets to floor using appropriate angles and anchorages.
- F. Countersink anchorage devices at exposed locations. Conceal with solid wood plugs of species to match surrounding wood; finish flush with surrounding surfaces.
- G. Securely attach countertops to cabinets using concealed fasteners. Make flat surfaces level; shim where required.
- H. Attach plastic laminate countertops using screws with minimum penetration into substrate board of 5/8 inch.
- I. Seal joint between back/end splashes and vertical surfaces. Back and end splashes with plastic laminate self edge at tops and exposed ends; construction similar to counter tops.
- J. Framed Walls: Wall sheathing, weather barrier, cementitious backer board, and direct application; TCNA W244E.

END OF SECTION 064100



02/28/2019

Specifications

ITEM # 1
Dimensions: 1(h) x 60(w) x 18(d)
Quantity: Four (4)
Manufacturer: Quantum
Model: 1860GY



Four (4) Model 1860GY Wire Shelf, 60"W x 18"D, 600 - 800 lb. capacity, gray epoxy antimicrobial finish, NSF
 Four (4) Model 1872GY Wire Shelf, 72"W x 18"D, 600 - 800 lb. capacity, gray epoxy antimicrobial finish, NSF
 Four (4) 15 year limited warranty (limited against rust and corrosion)
 Four (4) 15 year limited warranty (limited against rust and corrosion)
 Eight (8) Model P74GY Post with Leveling Legs, 74"H, numbered grooves in 1" increments, includes (1) W-PLI & (1) W-PLB, gray epoxy antimicrobial finish, NSF

ITEM # 2
Dimensions: 78(h) x 51.75(w) x 30.75(d)
Quantity: One (1)
Manufacturer: Turbo Air
Model: M3R47-2-N



ELECTRICAL

	VOLTS	CYCLE	PHASE	CONN	AFF	NEMA	AMPS	KW	HP	MCA	MOCP
1	115	60	1	Cord & Plug		5-15P	2.8		1/3		

One (1) Model M3R47-2-N M3 Refrigerator, reach-in, two-section, 42.3 cu. ft. exterior LED digital thermometer, door open beep, self-diagnostic monitoring system, hot gas condensate system, automatic fan motor delays, door pressure release, LED interior lighting, self-cleaning condenser device, (2) hinged solid door with recessed handle & lock, (6) PE coated wire shelves, stainless steel front & sides (galvanized steel top, bottom & back), aluminum interior with stainless steel floor, top mount self-contained compressor, R290 Hydrocarbon refrigerant, 1/3 HP, 115v/60/1-ph, 2.8 amps, NEMA 5-15P, ETL-Sanitation, cETLus, ENERGY STAR®

One (1) Note: Contact factory representative for parts & accessories discounts

One (1) 3 year parts & labor warranty, standard

One (1) Additional 2 year compressor warranty (5 year total), standard

One (1) Self-cleaning condenser device equipped, standard

One (1) Caster Set, swivel, locking front wheels, standard

ITEM # 3
Dimensions: 35.75(h) x 48(w) x 30(d)
Quantity: One (1)
Manufacturer: John Boos
Model: UFBLG4830-X



One (1) Model UFBLG4830-X Economy Work Table, 48"W x 30"D, 18/430 stainless steel top with 1-1/2" rear up-turn, 1-

1/2" Stallion Safety Edge on front, 90° turndown on sides, galvanized legs & adjustable undershelf, adjustable 1" plastic bullet feet, NSF, CSA-Sanitation, KD (Available in Effingham)

ITEM # 4 **THREE (3) COMPARTMENT SINK**
Dimensions: **43.75(h) x 68.5(w) x 25.5(d)**
Quantity: **One (1)**
Manufacturer: **John Boos**
Model: **E3S8-1620-12R18-X**

**WATER**

	HOT SIZE	HOT AFF	HOT GPH	COLD SIZE	COLD AFF	FILTERED SIZE	FILTERED AFF	CONDENSER INLET SIZE	CONDENSER OUTLET SIZE
1									
2									
3									
4	1/2"			1/2"					

WASTE

	INDIRECT SIZE	DIRECT SIZE
1		
2		
3		
4		

PLUMBING 1 REMARKS

3-1/2" drain opening

PLUMBING 2 REMARKS

3-1/2" drain opening

PLUMBING 3 REMARKS

(1) set of 1-1/8" faucet holes, 8" centers, 3-1/2" drain opening

One (1) Model E3S8-1620-12R18-X E-Series Sink, 3-compartment, 68-1/2"W x 25-1/2"D x 43-3/4"H overall size, (3) 16"W x 20" front-to-back x 12" deep compartments, (1) 18" right drainboard, 9-3/4"H boxed backsplash with 45° top and 2" return, (1) set of splash mount faucet holes with 8" centers, 3-1/2" diameter die-stamped drain openings, 18/300 stainless steel, galvanized legs & gussets, adjustable plastic bullet feet, NSF, CSA-Sanitation (Available in Effingham)

One (1) Standard flyer accessories only, NO modifications to flyer items allowed or their accessories

One (1) Krowne Model 14-812L Krowne Royal Series Faucet, splash-mounted, 8" centers, 12" swing spout, quarter-turn ceramic cartridge valve, low lead compliant, NSF, Includes internal check valves to prevent backflow & cross contamination

One (1) Krowne 3 year warranty, standard

ITEM # 5 **GLASSWASHER, UNDERCOUNTER / UNDERBAR**
Dimensions: **33.5(h) x 23.88(w) x 25(d)**
Quantity: **One (1)**
Manufacturer: **CMA Dishmachines**
Model: **H-1X**

**ELECTRICAL**

	VOLTS	CYCLE	PHASE	CONN	AFF	NEMA	AMPS	KW	HP	MCA	MOCP
1									1		

WATER

	HOT SIZE	HOT AFF	HOT GPH	COLD SIZE	COLD AFF	FILTERED SIZE	FILTERED AFF	CONDENSER INLET SIZE	CONDENSER OUTLET SIZE
1	1/2"								

WASTE

	INDIRECT SIZE	DIRECT SIZE
1	1"	

One (1) Model H-1X Dishwasher, Glasswasher, undercounter, 23 7/8"W x 25"D x 33-1/2"H, high temperature water

sanitizing with built-in booster heater, unique Dump & Fill cycle drains wash water every cycle, factory installed Detergent & Rinse Pump, (24) racks/hour, deliming system, 14.25" door opening, automatic fill feature, pumped drain, LCD display, stainless steel construction, uses 20"x20" dishracks, includes (1) dishrack, 1 HP wash pump, ENERGY STAR®, NSF, ETL

One (1) Safe-T-Temp feature assures 180 degree sanitizing rinse once the booster thermostat has been satisfied. Cycle time will vary due to incoming water temperature.

ITEM # 6 **WIRE SHELVING**
Dimensions: **1(h) x 24(w) x 24(d)**
Quantity: **One (1)**
Manufacturer: **Quantum**
Model: **2424GY**



One (1) Model 2424GY Wire Shelf, 24"W x 24"D, 600 - 800 lb. capacity, gray epoxy antimicrobial finish, NSF

One (1) 15 year limited warranty (limited against rust and corrosion)

One (1) Model P74GY Post with Leveling Legs, 74"H, numbered grooves in 1" increments, includes (1) W-PLI & (1) W-PLB, gray epoxy antimicrobial finish, NSF

ITEM # 7 **HAND SINK**
Dimensions: **13.13(h) x 17(w) x 15.5(d)**
Quantity: **One (1)**
Manufacturer: **John Boos**
Model: **PBHS-W-1410-P-X**



WATER

	HOT SIZE	HOT AFF	HOT GPH	COLD SIZE	COLD AFF	FILTERED SIZE	FILTERED AFF	CONDENSER INLET SIZE	CONDENSER OUTLET SIZE
1	1/2"			1/2"					

WASTE

	INDIRECT SIZE	DIRECT SIZE
1		

PLUMBING 1 REMARKS

(1) set of 1" faucet holes, 4" centers, 1-7/8" drain opening; 1-1/2" drain connection

One (1) Model PBHS-W-1410-P-X Pro-Bowl Hand Sink, wall mount, 14"W x 10" front-to-back x 5" deep bowl, splash mount faucet holes with 4" centers, 1-7/8" drain opening with basket drain, includes mounting bracket, all stainless steel construction, NSF, CSA-Sanitation (splash mount faucet included) (Available in Effingham and Nevada)

One (1) Standard flyer accessories only, NO modifications to flyer items allowed or their accessories

ITEM # 8 **WORK TABLE, 72", STAINLESS STEEL TOP**
Dimensions: **35.75(h) x 72(w) x 30(d)**
Quantity: **One (1)**
Manufacturer: **John Boos**
Model: **UFBLG7230-X**



One (1) Model UFBLG7230-X Economy Work Table, 72"W x 30"D, 18/430 stainless steel top with 1-1/2" rear up-turn, 1-1/2" Stallion Safety Edge on front, 90° turndown on sides, galvanized legs & adjustable undershelf, adjustable 1" plastic bullet feet, NSF, CSA-Sanitation, KD (Available in Effingham)

ITEM # 9 **CONVECTION OVEN, ELECTRIC**

Dimensions: 21.75(h) x 24(w) x 23.88(d)
Quantity: One (1)
Manufacturer: Moffat
Model: E22M3



ELECTRICAL

	VOLTS	CYCLE	PHASE	CONN	AFF	NEMA	AMPS	KW	HP	MCA	MOCP
1	110-120	50/60	1	Cord & Plug		5-15P	12.0	1.5			

One (1) Model E22M3 Turbofan® Convection Oven, electric, countertop, 21-3/4" assembled height, (3) 1/2 size sheet pan capacity, 2-5/8" tray spacing, manual controls, mechanical thermostat range 150 - 500° F, 60 minute timer, stainless steel front, sides and top exterior, pull-down twin pane glass door, porcelain interior, 3" adjustable stainless steel feet, cETLus, NSF

One (1) 1 year parts and labor warranty

One (1) 110-120v/50/60/1ph, 12.0 amps, 1.5kW, NEMA 5-15P, standard

One (1) 3% freight surcharge

ITEM # 9.1 **MULTI-COOK OVEN**
Dimensions: 36.63(h) x 21.5(w) x 37.5(d)
Quantity: One (1)
Manufacturer: Alto-Shaam
Model: VMC-H3



ELECTRICAL

	VOLTS	CYCLE	PHASE	CONN	AFF	NEMA	AMPS	KW	HP	MCA	MOCP
1	208-240	60	1	Cord & Plug		6-50	38.0-43.0	7.9-10.3			

One (1) Model VMC-H3 Vector® H Series Multi-Cook Oven, electric, (3) individually controlled cooking chambers, (3) half-size sheet pan capacity, programmable touch screen controls with Structured Air Technology®, double pane glass door, interior LED cavity lighting, ventless catalytic converter, includes: (1) wire rack & (2) jet plates per cooking chamber, USB port, stainless steel construction, 4" adjustable legs, cULus, UL EPH Classified, Made in USA

One (1) NOTE: Subject to Manufacturer's Terms & Conditions. See Documents Section

One (1) One year parts and labor warranty, standard

One (1) 208-240v/60/1-ph, 7.9-10.3 kW, 38.0-43.0 amps, NEMA 6-50

One (1) Deluxe Controls – Touch screen user interface with customizable home screen, programmable recipes, unlimited cook stages, recipe management, service diagnostics, and reporting on screen; enables access to ChefLinc™ remote oven management system to monitor ovens, view reports and push/pull recipes and oven settings via Wi-Fi or Ethernet connectivity

One (1) Right-hand hinged door, standard

One (1) Stainless steel exterior, standard

One (1) Model 5028173 Equipment Stand with Casters, 25-1/8", stainless steel, for Vector Series Ovens

ITEM # 10 **ONE (1) COMPARTMENT SINK**
Dimensions: 43.75(h) x 21(w) x 25.5(d)
Quantity: One (1)
Manufacturer: John Boos
Model: E1S8-1620-12-X



WATER

	HOT SIZE	HOT AFF	HOT GPH	COLD SIZE	COLD AFF	FILTERED SIZE	FILTERED AFF	CONDENSER INLET SIZE	CONDENSER OUTLET SIZE
1									
2	1/2"			1/2"					

WASTE

	INDIRECT SIZE	DIRECT SIZE
1		
2		

PLUMBING 1 REMARKS

(1) set of 1-1/8" faucet holes, 8" centers, 3-1/2" drain opening

One (1) Model E1S8-1620-12-X E-Series Sink, 1-compartment, 21"W x 25-1/2"D x 43-3/4"H overall size, (1) 16"W x 20" front-to-back x 12" deep compartment, 9-3/4"H boxed backsplash with 45° top and 2" return, (1) set of splash mount faucet holes with 8" centers, 3-1/2" die-stamped drain openings, 18/300 stainless steel, galvanized legs & gussets, adjustable plastic bullet feet, NSF, CSA-Sanitation (Available in Effingham and Nevada)

One (1) Standard flyer accessories only, NO modifications to flyer items allowed or their accessories

One (1) Krowne Model 14-812L Krowne Royal Series Faucet, splash-mounted, 8" centers, 12" swing spout, quarter-turn ceramic cartridge valve, low lead compliant, NSF, Includes internal check valves to prevent backflow & cross contamination

One (1) Krowne 3 year warranty, standard

ITEM # 11 **REACH-IN FREEZER**
Dimensions: **83(h) x 28.75(w) x 32.75(d)**
Quantity: **One (1)**
Manufacturer: **Turbo Air**
Model: **M3F24-1-N**



ELECTRICAL

	VOLTS	CYCLE	PHASE	CONN	AFF	NEMA	AMPS	KW	HP	MCA	MOCP
1	115	60	1	Cord & Plug		5-15P	4.4		3/8		

One (1) Model M3F24-1-N M3 Freezer, reach-in, one-section, 21.6 cu. ft. capacity, 28-3/4"W x 33-3/4"D x 83"H, top mount self-contained refrigeration with self-cleaning condenser, (1) field reversible hinged solid door with lock & door alarm, exterior LED digital thermometer, door open beep, self-diagnostic monitoring system, smart fuzzy defrost, automatic fan motor delays, LED interior lighting, (3) PE coated wire shelves, aluminum interior with stainless steel floor, stainless steel front & sides (galvanized steel top, bottom & back), R290 Hydrocarbon refrigerant, 3/8 HP, 115v/60/1-ph, 4.4 amps, cord with NEMA 5-15P, ETL-Sanitation, cETLus, ENERGY STAR®

One (1) Note: Contact factory representative for parts & accessories discounts

One (1) 3 year parts & labor warranty, standard

One (1) Additional 2 year compressor warranty (5 year total), standard

One (1) Self-cleaning condenser device equipped, standard

One (1) Caster Set, swivel, locking front wheels, standard

ITEM # 12 **WORK TABLE, 60", STAINLESS STEEL TOP**
Dimensions: **37.25(h) x 60(w) x 30(d)**
Quantity: **One (1)**
Manufacturer: **John Boos**
Model: **ST6R1.5-3060GSK-X**



One (1) Model ST6R1.5-3060GSK-X Work Table, 60"W x 30"D, 16/300 stainless steel top with 1-1/2"H rear up-turn, with Stallion Safety Edge front, 90° turndown on sides, galvanized legs & adjustable undershelf, adjustable bullet feet, NSF, CSA-Sanitation, KD (Available in Effingham and Nevada)

One (1) Standard flyer accessories only, NO modifications to flyer items allowed or their accessories

ITEM # 13 **SANDWICH / SALAD PREPARATION REFRIGERATOR**
Dimensions: **37(h) x 27.5(w) x 30(d)**
Quantity: **One (1)**
Manufacturer: **Turbo Air**
Model: **MST-28-N**

**ELECTRICAL**

	VOLTS	CYCLE	PHASE	CONN	AFF	NEMA	AMPS	KW	HP	MCA	MOCP
1	115	60	1	Cord & Plug		5-15P	3.8		1/5		

One (1) Model MST-28-N M3 Series Sandwich/Salad Unit, one-section, rear mount self-contained compressor, 7.0 cu. ft., 8-pan top opening with hood, (1) field reversible swing door, (1) adjustable PE coated wire shelf, 9-1/2" deep cutting board with side rail, digital temperature control, self-cleaning condenser, cold bunker system, stainless steel top, front & sides (galvanized steel back & bottom), aluminum interior, stainless steel floor & ABS door liner, LED interior lighting & fan control, R290 Hydrocarbon refrigerant, 1/5 HP, 115v/60/1-ph, 3.8 amps, NEMA 5-15P, cETLus, ETL-Sanitation

One (1) Note: Contact factory representative for parts & accessories discounts

One (1) 3 year parts & labor warranty, standard

One (1) Additional 2 year compressor warranty (5 year total), standard

One (1) Self-cleaning condenser device equipped, standard

One (1) 1/6 size, 4" deep condiment pan & pan dividers included, standard

One (1) Caster Set, swivel, locking front wheels, standard

ITEM # 14 **REACH-IN REFRIGERATOR**
Dimensions: **78(h) x 51.75(w) x 30.75(d)**
Quantity: **One (1)**
Manufacturer: **Turbo Air**
Model: **M3R47-2-N**

**ELECTRICAL**

	VOLTS	CYCLE	PHASE	CONN	AFF	NEMA	AMPS	KW	HP	MCA	MOCP
1	115	60	1	Cord & Plug		5-15P	2.8		1/3		

One (1) Model M3R47-2-N M3 Refrigerator, reach-in, two-section, 42.3 cu. ft. exterior LED digital thermometer, door open beep, self-diagnostic monitoring system, hot gas condensate system, automatic fan motor delays, door pressure release, LED interior lighting, self-cleaning condenser device, (2) hinged solid door with recessed handle & lock, (6) PE coated wire shelves, stainless steel front & sides (galvanized steel top, bottom & back), aluminum interior with stainless steel floor, top mount self-contained compressor, R290 Hydrocarbon refrigerant, 1/3 HP, 115v/60/1-ph, 2.8 amps, NEMA 5-15P, ETL-Sanitation, cETLus, ENERGY STAR®

One (1) Note: Contact factory representative for parts & accessories discounts

One (1) 3 year parts & labor warranty, standard

One (1) Additional 2 year compressor warranty (5 year total), standard

One (1) Self-cleaning condenser device equipped, standard

One (1) Caster Set, swivel, locking front wheels, standard

ITEM # 15 **ICE MAKER, CUBE-STYLE**

Dimensions: 21.5(h) x 30(w) x 24(d)
Quantity: One (1)
Manufacturer: Manitowoc
Model: IYT0450A



ELECTRICAL

	VOLTS	CYCLE	PHASE	CONN	AFF	NEMA	AMPS	KW	HP	MCA	MOCP
1	115	60	1				11.9				
2	115	60	1			5-15P	1.6				

WATER

	HOT SIZE	HOT AFF	HOT GPH	COLD SIZE	COLD AFF	FILTERED SIZE	FILTERED AFF	CONDENSER INLET SIZE	CONDENSER OUTLET SIZE
1				3/8"					

WASTE

	INDIRECT SIZE	DIRECT SIZE
1	1/2"	

PLUMBING 1 REMARKS

Drain for ice maker

One (1) Model IYT0450A Indigo NXT™ Series Ice Maker, cube-style, air-cooled, self-contained condenser, 30"W x 24"D x 21-1/2"H, production capacity up to 490 lb/24 hours at 70°/50° (378 lb AHRI certified at 90°/70°), easyTouch display with 13 different language options, date/time stamp display, automatic reminder/alert icon, one touch asset information, automatic detection of accessories, continuous operating status, programmable production options (time, weight, day or night), one touch cleaning with displayed instructions, Alpha-San anti-microbial protection, acoustical ice sensing probe, self-diagnostic technology, DuraTech™ exterior, half-dice size cubes, R410A refrigerant, NSF, cULus, CE, ENERGY STAR®

One (1) Model WARRANTY-ICE-SC 3 year parts & labor (Machine), 5 year parts & labor (Evaporator), 5 year parts & 3 years labor (Compressor), standard

One (1) (-161) 115v/60/1-ph, 11.9 amps

One (1) Model SPA312 Vending Ice Dispenser, touchless lever, floor model, 30"W x 32"D x 82"H, AHRI certified 180-lb capacity, designed for dice or half-dice ice type, bucket filling, stainless steel exterior with vinyl trim, accepts 22" or 30" dice or half-dice machines, cULus, CE, NSF, ADA compliant

One (1) Model WARRANTY-BIN/DISP 3 year parts & labor warranty, standard

One (1) (-161) 115v/60/1-ph, 1.6 amps, NEMA 5-15P, standard

One (1) Surcharge 5%

ice machine for different floors for ice service for guests

PLEASE NOTE: Sales tax is not included unless specifically noted in the total above.

We offer financing through our in-house leasing company, CCF Leasing--learn more at sporest.com/financing today!

General Terms: (Unless Prior Arrangements Have Already Been Made)

*We are pleased to submit this quotation for your consideration. Any taxes, fees, permits or additional equipment required because of changes in City, County or State building codes or regulations are solely the responsibility of the building owner or equipment buyer.

Due to the current **Global Supply Chain** volatility, our quotes are currently subject to price change without notice due to factors such as, manufacture price increases, increases in fuel cost, or any and all other price increase related occurrences. Suppliers are updating their prices frequently during this time.

*All major credit cards are accepted. We will be glad to waive processing fees for credit card payments if quote is paid in full upfront with the exception of American Express. In the event American Express is your preferred payment, we will be required to charge a 4% processing fee. A 50% down payment by check will also be accepted and can be processed via ACH to expedite the order. To facilitate this, a copy of the check sent via text or email to the salesman will suffice.

*Special terms are given to quotes considered contracts. (ie: multiple pieces of equipment for a remodel or new build) **A 50% down payment is required to initiate the order.** If down payment method is by credit card, refer to the paragraph above. Payment is expected within 10 days of billing. Items will remain the sole property of ours until paid in full.

*Please note that any cancellation or returns may result in factory restock fees and return shipping charges. Some special order items are not returnable or refundable.

*Ask your salesperson about our **in-house finance company**, CCF Leasing, offering a fast approval process with no pre-payment penalty and automatic monthly payments over 1-5 years. More information can be found on our website under financing.

*We offer open accounts with credit limits on approved credit. This is helpful to many of our customers due to our ability to track and facilitate regular small wares orders. We also specialize in providing orders for schools and other institutions based upon the utilization of Purchase Orders. Let us know how we can be of service to you.



WIRE SHELVING

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.

CONSTRUCTION: All welded wire shelves and posts are constructed of heavy-gauge carbon steel or Type 304 stainless steel.

CHOICE OF FINISHES:

- **Chrome** - is a plating process which deposits hard chrome OVER a copper, nickel surface. This process is VERY durable and allows product to be used in any application in a dry storage ENVIRONMENT. 1 year limited warranty to not rust or corrode when used in dry and non-humid ENVIRONMENTS.
- **Stainless Steel** - 304 Stainless with an electro-polish finish represents the highest industry standard in the PREVENTION of corrosion. This finish is highly EFFECTIVE for CORROSIVE, high humidity or clean room ENVIRONMENTS. Lifetime warranty for 304 stainless steel electro-polish finish.
- **Proform Green, Gray and Black Epoxy** - are an ideal solution for high humidity, wet, or walk-in-cooler applications. The carbon steel is treated with an iron phosphate and the powder coated epoxy is electrostatically applied, baked and cured to a hard surface. All three colors are antimicrobial. 15 year limited warranty for antimicrobial finish to not rust or corrode.

ADAPTABLE: Wire shelving can adapt to your changing needs. By using various accessories, hundreds of shelving configurations become possible.

QUICK, EASY ASSEMBLY: Posts have a double groove visual guide feature every 8", circular grooves at 1" increments, and are numbered at 1" intervals. 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.

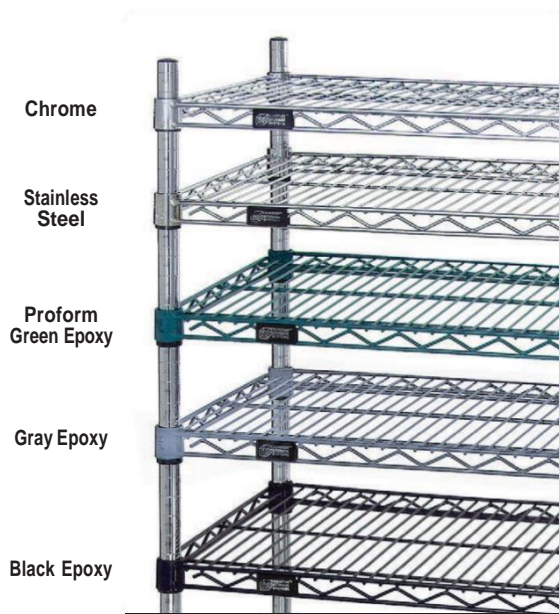
ADJUSTABLE: Shelves can be adjusted at 1" intervals along length of the post.

WIRE TRUSSES: Architectural wire trusses increase shelf capacity.

TOP MAT WIRES: Run front to back to slide items easily off and on the shelf.

SHELF ACCESSIBILITY: Shelves can be loaded/unloaded easily from all sides. This open construction allows maximum use of storage cube.

ADJUSTABLE FOOT: 3/8-16 leveling bolt compensate for irregular floor surfaces.



Note: Stainless stationary posts are equipped with stainless steel LEVELING feet.

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WIRE SHELVING

WIRE SHELVES

- **Plastic Split SLEEVES** - are included with each shelf

Replacements are available:

Model No: **WR-SS** (4 Pairs)

- **Plastic CONDUCTIVE Split SLEEVES** - are AVAILABLE for CONDUCTIVE applications

Model No: **WR-SSCO** (4 Pairs)

- **Aluminum Split SLEEVES** - are recommended for extreme mobile applications and CONDUCTIVE applications

Model No: **ESD-SS** (4 Pairs)

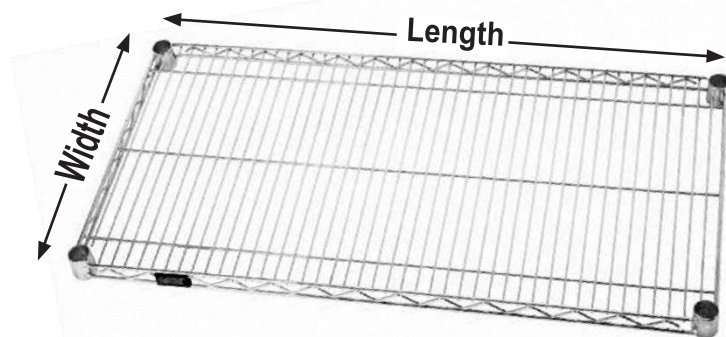
- **Load capacity (evenly distributed) per shelf**

Widths: 12" to 36"

Lengths: 800 lbs. for 18" to 48"

600 lbs. for 54" or longer except heavy-duty

1,000 lbs. for 60" or 72" on chrome heavy-duty



All welded construction with additional wire trussing for high strength characteristics

Top mat wires run front to back (except on 12" x 36" size) for ease of loading and unloading

- Numbered GROOVED posts on 1" increments for quick assembly

- Wire allows air to circulate and light to penetrate for increased product VISIBILITY

- Minimal dirt accumulation

- Adjustable foot LEVELERS

- No tools required for assembly

- Durable finishes

- Aesthetically pleasing

- National Sanitation Foundation (NSF) APPROVED

- Shipped KD Class 70



Split Sleeve



Aluminum Split Sleeve

		CHROME	STAINLESS STEEL	EPOXY		
				PROFORM GREEN	GRAY	BLACK
SHELF W" x L"	SHIP WGT	MODEL NO.	MODEL NO.	MODEL NO.	MODEL NO.	MODEL NO.
12" Deep - Wire Shelves						
12" x 24"	6 lbs	1224C	-	1224P	1224GY	1224BK
12" x 30"	6 lbs	1230C	-	1230P	1230GY	1230BK
12" x 36"	7 lbs	1236C	1236S	1236P	1236GY	1236BK
12" x 42"	8 lbs	1242C	-	1242P	1242GY	1242BK
12" x 48"	9 lbs	1248C	1248S	1248P	1248GY	1248BK
12" x 60"	14 lbs	1260C	1260S	1260P	1260GY	1260BK
12" x 72"	17 lbs	1272C	1272S	1272P	1272GY	1272BK
14" Deep - Wire Shelves						
14" x 24"	6 lbs	1424C	-	1424P	1424GY	1424BK
14" x 30"	7 lbs	1430C	1430S	1430P	1430GY	1430BK
14" x 36"	8 lbs	1436C	1436S	1436P	1436GY	1436BK
14" x 42"	10 lbs	1442C	1442S	1442P	1442GY	1442BK
14" x 48"	11 lbs	1448C	1448S	1448P	1448GY	1448BK
14" x 54"	12 lbs	1454C	1454S	1454P	1454GY	1454BK
14" x 60"	14 lbs	1460C	1460S	1460P	1460GY	1460BK
14" x 72"	17 lbs	1472C	1472S	1472P	1472GY	1472BK
18" Deep - Wire Shelves						
18" x 24"	7 lbs	1824C	1824S	1824P	1824GY	1824BK
18" x 30"	8 lbs	1830C	1830S	1830P	1830GY	1830BK
18" x 36"	10 lbs	1836C	1836S	1836P	1836GY	1836BK
18" x 42"	11 lbs	1842C	1842S	1842P	1842GY	1842BK
18" x 48"	14 lbs	1848C	1848S	1848P	1848GY	1848BK
18" x 54"	15 lbs	1854C	1854S	1854P	1854GY	1854BK
18" x 60"	17 lbs	1860C	1860S	1860P	1860GY	1860BK
18" x 72"	20 lbs	1872C	1872S	1872P	1872GY	1872BK
21" Deep - Wire Shelves						
21" x 24"	8 lbs	2124C	2124S	2124P	2124GY	2124BK
21" x 30"	9 lbs	2130C	2130S	2130P	2130GY	2130BK
21" x 36"	11 lbs	2136C	2136S	2136P	2136GY	2136BK
21" x 42"	12 lbs	2142C	2142S	2142P	2142GY	2142BK
21" x 48"	14 lbs	2148C	2148S	2148P	2148GY	2148BK
21" x 54"	16 lbs	2154C	2154S	2154P	2154GY	2154BK
21" x 60"	18 lbs	2160C	2160S	2160P	2160GY	2160BK
21" x 72"	24 lbs	2172C	2172S	2172P	2172GY	2172BK
24" Deep - Wire Shelves						
24" x 24"	9 lbs	2424C	2424S	2424P	2424GY	2424BK
24" x 30"	11 lbs	2430C	2430S	2430P	2430GY	2430BK
24" x 36"	13 lbs	2436C	2436S	2436P	2436GY	2436BK
24" x 42"	15 lbs	2442C	2442S	2442P	2442GY	2442BK
24" x 48"	16 lbs	2448C	2448S	2448P	2448GY	2448BK
24" x 54"	18 lbs	2454C	2454S	2454P	2454GY	2454BK
24" x 60"	21 lbs	2460C	2460S	2460P	2460GY	2460BK
24" x 66"	23 lbs	2466C	-	2466P	2466GY	-
24" x 72"	26 lbs	2472C	2472S	2472P	2472GY	2472BK
24" Deep Heavy-Duty - Wire Shelves (1,000 lb. capacity)						
24" x 60"	25 lbs	2460CHD	-	-	-	-
24" x 72"	30 lbs	2472CHD	-	-	-	-
30" Deep - Wire Shelves						
30" x 36"	15 lbs	3036C	3036S	3036P	3036GY	3036BK
30" x 42"	18 lbs	3042C	3042S	3042P	3042GY	3042BK
30" x 48"	21 lbs	3048C	3048S	3048P	3048GY	3048BK
30" x 60"	27 lbs	3060C	3060S	3060P	3060GY	3060BK
30" x 72"	31 lbs	3072C	3072S	3072P	3072GY	3072BK
36" Deep - Wire Shelves						
36" x 36"	18 lbs	3636C	3636S	3636P	3636GY	3636BK
36" x 48"	23 lbs	3648C	3648S	3648P	3648GY	3648BK
36" x 60"	29 lbs	3660C	3660S	3660P	3660GY	3660BK
36" x 72"	35 lbs	3672C	3672S	3672P	3672GY	3672BK

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WIRE SHELVING

POSTS

All posts are fabricated from 16 gauge carbon steel with locating grooves on 1" increments and printed numbers between the grooves. Post also have doubled grooves every 8" for fast identification. Leveling legs are enclosed with all posts. Leveling legs cannot be used in conjunction with stem casters. Custom post heights are available.

STATIONARY POSTS ARE EQUIPPED WITH:

- **Post LEVELER Insert & LEVELING Bolt** - use to account for *UNEVEN* floors, it adjusts up or down allowing height flexibility
Replacements are available:
Insert
Model No: **W-PLI**
Leveling Bolt
Model No: **W-PLB**
- **Foot Plates** - triangular plate allows additional surface to disperse weight. It may be ordered separately and installed in place of LEVELING foot
Model No: **FP**
- **Floor Guides** - Serves as protection to PREVENT marring of floors
Model No: **FG** (Pack of 4)
- **Fully Threaded Stud Connector** - can be utilized to connect two posts enabling any post height to be ACHIEVED
Model No: **W-PC-STUD**
- **Post Cap** - Plastic caps are included with each post
Replacements are available:
Model No: **W-PC** (Pack of 4)
- **Shelf Collar Plug** - Shelf Collar Plug COVERS shelf collar when post is not being used
Model No: **WR-SP** (Pack of 4)
- **S-Hook** - For continuous runs of SHELVING. Two hooks should be placed per shelf where two posts are not utilized.
Model No: **S-HOOK** (Pack of 8)



Post Insert

Post Leveling Bolt



Fully Threaded Stud Connector



Post Cap



S-Hook



Foot Plate



Floor Glides



Shelf Collar Plug



FINISHES:

Chrome, Stainless Steel, Proform and Epoxy Green, Gray, Black

DESCRIPTION	SHIP WGT	Foot Plate		Floor Glides		Shelf Collar Plug	
		CHROME	STAINLESS STEEL	EPOXY			
		MODEL NO.	MODEL NO.	PROFORM GREEN	GRAY	BLACK	
DESCRIPTION	SHIP WGT	MODEL NO.	MODEL NO.	MODEL NO.	MODEL NO.	MODEL NO.	
6"H Post	1 lb	P6C	P6S	P6P	P6GY	P6BK	
14"H Post	1 lb	P14C	P14S	P14P	P14GY	P14BK	
34"H Post	2 lbs	P34C	P34S	P34P	P34GY	P34BK	
36"H Post	2 lbs	P36C	-	-	-	-	
39"H Post	2 lbs	P39C	-	-	-	P39BK	
42"H Post	2 lbs	-	P42S	-	-	-	
54"H Post	3 lbs	P54C	P54S	P54P	P54GY	P54BK	
63"H Post	4 lbs	P63C*	P63S	P63P*	P63GY*	P63BK*	
74"H Post	4 lbs	P74C*	P74S	P74P*	P74GY*	P74BK*	
86"H Post	5 lbs	P86C*	P86S	P86P*	P86GY*	P86BK*	
96"H Post	6 lbs	P96C	P96S	P96P	P96GY	P96BK	

*For easy installation, 63", 74" and 86" posts are available with pre-inserted leveler and bolt by adding an X to the Model No. P74CX

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SHELVING UNITS

Heavy-duty shelving units allows up to 800 lb. shelf capacity. Starter kits come complete with 4 posts and 4 shelves. Additional shelves may be purchased separately.

Additional Add-On kits allows you to expand your starter kit by sharing a set of posts. Configuration options include side to side, back to back and right angles (L-Shape). Add-On kits come complete with 2 posts, 4 shelves and 8 S-Hooks. Additional shelves and posts may be purchased separately. Units with Add-on kits cannot be made mobile.

ADD SUFFIX TO THE END OF EACH MODEL NO. WHEN REFERENCING TO PART FINISHES

• CHROME C
• STAINLESS S
• ENJOY E
• GREEN P
• GRAY GY
• BLACK BK



DB

Donut Bumper

Non-marking donut bumper used to protect walls and help cushion impact. Sold individually. Measures 3" diameter



WR-00HS

Polyurethane Stainless Steel Casters w/ Zerk Grease Fittings

Sold as a set of 4 casters, 2 with brake. Measures 5" x 1-1/4"



WR-00H

Polyurethane Casters

Sold as a set of 4 casters, 2 with brake. Measures 5" x 1-1/4"

63"H STARTER KIT UNITS			63"H ADD-ON KIT UNITS		
DIMENSIONS	SHIP WGT	MODEL NO.	DIMENSIONS	SHIP WGT	MODEL NO.
12" x 36" x 63"	44	WR63-1236	12" x 36" x 63"	37	AD63-1236C
12" x 42" x 63"	48	WR63-1242	12" x 42" x 63"	41	AD63-1242C
12" x 48" x 63"	52	WR63-1248	12" x 48" x 63"	45	AD63-1248C
12" x 60" x 63"	60	WR63-1260	12" x 60" x 63"	53	AD63-1260C
12" x 72" x 63"	68	WR63-1272	12" x 72" x 63"	61	AD63-1272C
14" x 24" x 63"	40	WR63-1424	14" x 24" x 63"	33	AD63-1424C
14" x 30" x 63"	44	WR63-1430	14" x 30" x 63"	37	AD63-1430C
14" x 36" x 63"	48	WR63-1436	14" x 36" x 63"	41	AD63-1436C
14" x 42" x 63"	56	WR63-1442	14" x 42" x 63"	49	AD63-1442C
14" x 48" x 63"	60	WR63-1448	14" x 48" x 63"	53	AD63-1448C
14" x 54" x 63"	64	WR63-1454	14" x 54" x 63"	57	AD63-1454C
14" x 60" x 63"	72	WR63-1460	14" x 60" x 63"	65	AD63-1460C
14" x 72" x 63"	84	WR63-1472	14" x 72" x 63"	77	AD63-1472C
18" x 24" x 63"	44	WR63-1824	18" x 24" x 63"	37	AD63-1824C
18" x 30" x 63"	48	WR63-1830	18" x 30" x 63"	41	AD63-1830C
18" x 36" x 63"	54	WR63-1836	18" x 36" x 63"	49	AD63-1836C
18" x 42" x 63"	58	WR63-1842	18" x 42" x 63"	53	AD63-1842C
18" x 48" x 63"	62	WR63-1848	18" x 48" x 63"	57	AD63-1848C
18" x 54" x 63"	74	WR63-1854	18" x 54" x 63"	69	AD63-1854C
18" x 60" x 63"	82	WR63-1860	18" x 60" x 63"	77	AD63-1860C
18" x 72" x 63"	94	WR63-1872	18" x 72" x 63"	89	AD63-1872C
21" x 24" x 63"	46	WR63-2124	21" x 24" x 63"	41	AD63-2124C
21" x 30" x 63"	50	WR63-2130	21" x 30" x 63"	45	AD63-2130C
21" x 36" x 63"	58	WR63-2136	21" x 36" x 63"	53	AD63-2136C
21" x 42" x 63"	62	WR63-2142	21" x 42" x 63"	57	AD63-2142C
21" x 48" x 63"	70	WR63-2148	21" x 48" x 63"	65	AD63-2148C
21" x 54" x 63"	78	WR63-2154	21" x 54" x 63"	73	AD63-2154C
21" x 60" x 63"	86	WR63-2160	21" x 60" x 63"	81	AD63-2160C
21" x 72" x 63"	110	WR63-2172	21" x 72" x 63"	105	AD63-2172C
24" x 24" x 63"	50	WR63-2424	24" x 24" x 63"	45	AD63-2424C
24" x 30" x 63"	58	WR63-2430	24" x 30" x 63"	53	AD63-2430C
24" x 36" x 63"	66	WR63-2436	24" x 36" x 63"	61	AD63-2436C
24" x 42" x 63"	74	WR63-2442	24" x 42" x 63"	69	AD63-2442C
24" x 48" x 63"	78	WR63-2448	24" x 48" x 63"	73	AD63-2448C
24" x 54" x 63"	86	WR63-2454	24" x 54" x 63"	81	AD63-2454C
24" x 60" x 63"	98	WR63-2460	24" x 60" x 63"	93	AD63-2460C
24" x 72" x 63"	118	WR63-2472	24" x 72" x 63"	113	AD63-2472C
30" x 36" x 63"	74	WR63-3036	30" x 36" x 63"	69	AD63-3036C
30" x 42" x 63"	86	WR63-3042	30" x 42" x 63"	81	AD63-3042C
30" x 48" x 63"	98	WR63-3048	30" x 48" x 63"	93	AD63-3048C
30" x 60" x 63"	122	WR63-3060	30" x 60" x 63"	117	AD63-3060C
30" x 72" x 63"	138	WR63-3072	30" x 72" x 63"	133	AD63-3072C
36" x 36" x 63"	86	WR63-3636	36" x 36" x 63"	81	AD63-3636C
36" x 48" x 63"	106	WR63-3648	36" x 48" x 63"	101	AD63-3648C
36" x 60" x 63"	130	WR63-3660	36" x 60" x 63"	125	AD63-3660C
36" x 72" x 63"	138	WR63-3672	36" x 72" x 63"	133	AD63-3672C

74" H STARTER KIT UNITS			74" H ADD-ON KIT UNITS		
DIMENSIONS	SHIP WGT	MODEL NO.	DIMENSIONS	SHIP WGT	MODEL NO.
12" x 36" x 74"	44	WR74-1236	12" x 36" x 74"	38	AD74-1236
12" x 42" x 74"	48	WR74-1242	12" x 42" x 74"	42	AD74-1242
12" x 48" x 74"	52	WR74-1248	12" x 48" x 74"	46	AD74-1248
12" x 60" x 74"	60	WR74-1260	12" x 60" x 74"	54	AD74-1260
12" x 72" x 74"	68	WR74-1272	12" x 72" x 74"	62	AD74-1272
14" x 24" x 74"	40	WR74-1424	14" x 24" x 74"	34	AD74-1424
14" x 30" x 74"	44	WR74-1430	14" x 30" x 74"	38	AD74-1430
14" x 36" x 74"	48	WR74-1436	14" x 36" x 74"	42	AD74-1436
14" x 42" x 74"	56	WR74-1442	14" x 42" x 74"	50	AD74-1442
14" x 48" x 74"	60	WR74-1448	14" x 48" x 74"	54	AD74-1448
14" x 54" x 74"	64	WR74-1454	14" x 54" x 74"	58	AD74-1454
14" x 60" x 74"	72	WR74-1460	14" x 60" x 74"	66	AD74-1460
14" x 72" x 74"	84	WR74-1472	14" x 72" x 74"	78	AD74-1472
18" x 24" x 74"	44	WR74-1824	18" x 24" x 74"	38	AD74-1824
18" x 30" x 74"	48	WR74-1830	18" x 30" x 74"	42	AD74-1830
18" x 36" x 74"	56	WR74-1836	18" x 36" x 74"	50	AD74-1836
18" x 42" x 74"	60	WR74-1842	18" x 42" x 74"	54	AD74-1842
18" x 48" x 74"	64	WR74-1848	18" x 48" x 74"	58	AD74-1848
18" x 54" x 74"	76	WR74-1854	18" x 54" x 74"	70	AD74-1854
18" x 60" x 74"	84	WR74-1860	18" x 60" x 74"	78	AD74-1860
18" x 72" x 74"	96	WR74-1872	18" x 72" x 74"	90	AD74-1872
21" x 24" x 74"	48	WR74-2124	21" x 24" x 74"	42	AD74-2124
21" x 30" x 74"	52	WR74-2130	21" x 30" x 74"	46	AD74-2130
21" x 36" x 74"	60	WR74-2136	21" x 36" x 74"	54	AD74-2136
21" x 42" x 74"	64	WR74-2142	21" x 42" x 74"	58	AD74-2142
21" x 48" x 74"	72	WR74-2148	21" x 48" x 74"	66	AD74-2148
21" x 54" x 74"	80	WR74-2154	21" x 54" x 74"	74	AD74-2154
21" x 60" x 74"	88	WR74-2160	21" x 60" x 74"	82	AD74-2160
21" x 72" x 74"	112	WR74-2172	21" x 72" x 74"	106	AD74-2172
24" x 24" x 74"	52	WR74-2424	24" x 24" x 74"	46	AD74-2424
24" x 30" x 74"	60	WR74-2430	24" x 30" x 74"	54	AD74-2430
24" x 36" x 74"	68	WR74-2436	24" x 36" x 74"	62	AD74-2436
24" x 42" x 74"	76	WR74-2442	24" x 42" x 74"	70	AD74-2442
24" x 48" x 74"	80	WR74-2448	24" x 48" x 74"	74	AD74-2448
24" x 54" x 74"	88	WR74-2454	24" x 54" x 74"	82	AD74-2454
24" x 60" x 74"	100	WR74-2460	24" x 60" x 74"	94	AD74-2460
24" x 72" x 74"	120	WR74-2472	24" x 72" x 74"	114	AD74-2472
30" x 36" x 74"	76	WR74-3036	30" x 36" x 74"	70	AD74-3036
30" x 42" x 74"	88	WR74-3042	30" x 42" x 74"	82	AD74-3042
30" x 48" x 74"	100	WR74-3048	30" x 48" x 74"	94	AD74-3048
30" x 60" x 74"	124	WR74-3060	30" x 60" x 74"	118	AD74-3060
30" x 72" x 74"	140	WR74-3072	30" x 72" x 74"	134	AD74-3072
36" x 36" x 74"	88	WR74-3636	36" x 36" x 74"	82	AD74-3636
36" x 48" x 74"	108	WR74-3648	36" x 48" x 74"	102	AD74-3648
36" x 60" x 74"	132	WR74-3660	36" x 60" x 74"	126	AD74-3660
36" x 72" x 74"	140	WR74-3672	36" x 72" x 74"	134	AD74-3672

Highest Quality, Lowest Price Guaranteed!

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Hotel TF Colby Ricks

BS & R Equipment Co.

Page: 12

 REFRIGERATOR MANUFACTURER Turbo air more durable, efficient, beautiful	4184 E. Conant St. Long Beach, CA 90808 Tel. 310-900-1000 Fax. 310-900-1077 www.turboairinc.com		Project:
			Model #:
			Item #:
			Available W/H: Qty:
			Approval:
			AIA #: SIS #:
			CSI Section 11400

Solid Door Refrigerator

Reach-In Top Mount
M3 Series

FEATURES & BENEFITS

Self-Cleaning Condenser

The accumulation of dust in the condenser can cause the failure or breakdown of refrigerators. Refrigerators run normally until they reach a certain level of accumulation. At some point, when they are over the limit, their performance drops quickly resulting in damage to, or disposal of the stored products inside. The Self-Cleaning Condenser device keeps the condenser clean and prevents system failure by automatically brushing daily.

Digital temperature control & monitor system

- Keep food products safe by maintaining constant temperatures.
- Alarms that sound when doors are not sealed shut; protect against food spoilage that originates from cold air leaks.
- Early warning alarm program detects issues before malfunction occurs.
- Digital display allows for easy monitoring.
- Programs interpret the condition of refrigeration systems by self-diagnosis.
- Rapid cool-down function (Turbo cooling).
- Automatic evaporator fan motor delays.

Hydrocarbon refrigerants (R-290)

With innovative and eco-friendly technology, Turbo Air brings you hydrocarbon refrigerators designed to meet DOE's Energy Conservation Standards in 2017 and to use EPA's SNAP Program approved HC refrigerants. Hydrocarbon refrigerants do not deplete the ozone layer and have very low contribution to global warming (ODP-0, GWP-3).

Hot gas condensate system

Through Turbo Air's creative innovation, the condensate system surfaces have been specially treated to resist corrosion. This not only increases efficiency without the risk of refrigerant leakage from corrosion, but also thoroughly prevents the overflow of condensate water.

Stainless steel exterior

The Turbo Air M3 refrigerator model boasts a stainless steel exterior (galvanized steel top, bottom and back) and AL interior with stainless steel floor. It guarantees the utmost in cleanliness and long product life. Sharp corners and edges have been rounded to reduce the risk of injury. The M3 adds a touch of style to the most refined setting.

Door pressure release device

Pressure relief doors are designed to eliminate vacuum pressure and allow easy, instant door opening.

LED interior lighting

Adjustable, heavy duty, PE (polyethylene) coated wire shelves

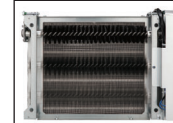
High-density polyurethane insulation

The entire cabinet structure and solid doors are foamed-in-place using high density, CFC free polyurethane insulation.

Top mount compressor



Patented Self-Cleaning Condenser



This product is equipped with a fine mesh filter to the front of the condenser to catch dust, and a rotating brush that moves up and down daily to remove excess buildup outward and away.

Refrigerator holds 33°F ~ 38°F for the best in food preservation

- M3R47-2-N: Left hinged + Right hinged
- M3R47-2-N-AL: All left hinged
- M3R47-2-N-AR: All right hinged




Model	Swing Door	CU./FT.	#of Shelves	HP	AMPS	Crated Weight (lbs.)	L x D x H [†] (inches)
M3R47-2-N(-AR)(-AL)	2	42.3	6	1/3	2.8	401	51 3/4 x 30 3/4 x 78

Solid Door Refrigerator

Reach-In Top Mount
M3 Series

Model : M3R47-2-N(-AL)(-AR)

ELECTRICAL DATA	
Voltage	115/60/1
Plug Type	 NEMA 5-15P
Full Load Amperes	2.8
Compressor HP	1/3
Feed Wires with Ground	3
Cord Length (ft.)	9
Refrigerant	R-290
DIMENSIONAL DATA	
# of Doors	2
# of Racks Accepted	2
Net Capacity (cu. ft.)	42.3
Ext. Length Overall (in.)	51 3/4 (1314mm)
Ext. Depth Overall (in.)*	30 3/4 (780mm)
Ext. Height Overall (in.)†	78 (1981mm)
Int. Length Overall (in.)	47 3/4 (1213mm)
Int. Depth Overall (in.)	26 1/2 (675mm)
Int. Height Overall (in.)	54 1/2 (1378mm)
# of Shelves	6
Shelf Size (L x D) (in.)	23 x 23 1/2
Gross Weight (lbs.)	401

Design and specifications subject to change without notice.

Actual shipping weight may differ due to extra packing materials for product protection.

* Depth does not include 2" for rear condensate enclosure.

† Height does not include 5" for caster height.

■ WARRANTY : 3 Year Parts and Labor Warranty Additional 2 Year Warranty on Compressor

■ STANDARD FEATURES

- Anti-corrosion coated evaporator
- Self-contained system
- Standard 4" dia. swivel casters with locks on the front set
- Door locks standard
- Magnetic door gaskets
- Solid and sturdy grille design

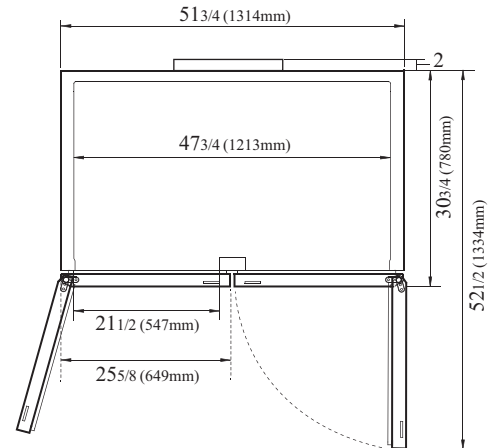
■ OPTIONAL ACCESSORIES

- 5" caster, 1/2" diameter & 13 TPI: M726500100 (non-brake), M726500200 (w/ brake)
- 6" stainless steel leg: 30221M0600
- Additional PE coated wire shelf: G8F1800101
- Half door bun tray rack: TSP-2224 (each holds up to six 18"L x 26"D sheet pans)
- Full door bun tray rack: TSP-2250 (each holds up to fifteen 18"L x 26"D sheet pans)

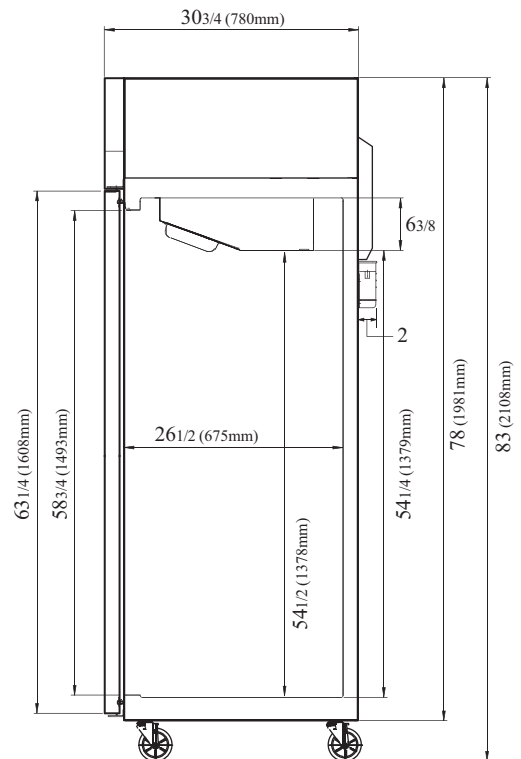
Ver.20210212

PLAN VIEW

(unit : inch)



TOP VIEW



SIDE VIEW



ENERGY STAR®
Qualified
(Standard hinged only)

- Turbo Air : 800-627-0032 ■ GK : 800-500-3519
- Warranty : 800-381-7770 ■ AC : 888-900-1002

TURBO AIR REFRIGERATOR MANUFACTURER
Turbo air

GERMAN KNIFE

RADIANCE

TURBO AIR REFRIGERATION SYSTEM
Turbo air

Texaking

Continued product development may necessitate specification changes without notice.



ITEM #: _____ QTY: _____
 MODEL #: _____
 PROJECT NAME: _____

063017

3601 S. Banker St. Effingham, IL 62401 • P.O. BOX 609 • Ph: (888) 431-2667 • Fax: (800) 433-2667

"UFBLG" STAINLESS STEEL TOP WORK TABLES



18GA TOP W/1-1/2" REAR RISER AND GALV LEGS AND ADJUSTABLE UNDERSHELF
BUDGET E-SERIES

FEATURES:

- 18 GAUGE STAINLESS STEEL TOP W/1-1/2" REAR RISER
- TYPE 430 STAINLESS STEEL WITH SATIN FINISH
- TOP IS SOUND DEADENED
- REINFORCED WITH 1"X2" CHANNEL RUNNING ENTIRE LENGTH OF TABLE
- 1-1/2" STALLION EDGE ON FRONT AND REAR WITH SIDE EDGES 90 DEGREE BEND DOWN FOR TABLE LINE-UP
- GALVANIZED BASE AND ADJUSTABLE UNDERSHELF
- SHIPPED KNOCKED-DOWN, EASY-TO-ASSEMBLE
- NSF CERTIFIED

CONSTRUCTION:

- TOP: STAINLESS STEEL TOPS ARE TIG WELDED, EXPOSED WELDS ARE POLISHED TO MATCH ADJACENT SURFACE.

MATERIAL:

- TOP: 18 GAUGE STAINLESS STEEL TYPE 430 STAINLESS STEEL WITH SATIN FINISH
- SHELF: 18 GAUGE GALVANIZED STEEL
- LEGS: 1-5/8" ROUND O.D. 16 GAUGE TUBULAR GALVANIZED STEEL
- GUSSETS: GALVANIZED STEEL
- FEET: 1" ADJUSTABLE PLASTIC BULLET FEET



UFBLG4830

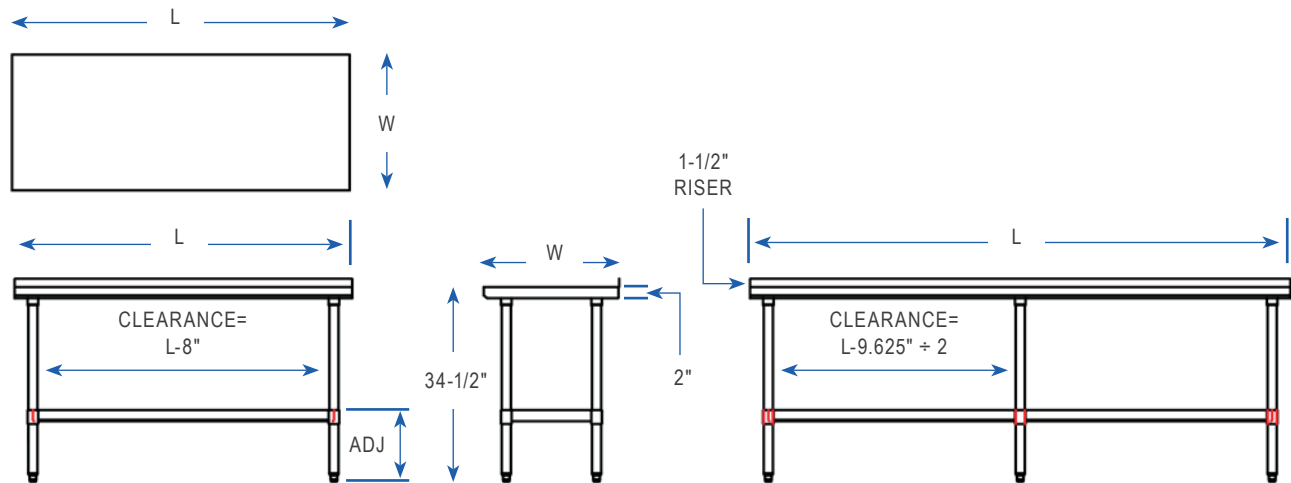


ADJUSTABLE SHELF

STAINLESS STEEL TOP WORK TABLES

18" WIDE	QTY	24" WIDE	QTY	30" WIDE	QTY
-		UFBLG2424		-	
-		UFBLG3024		UFBLG3030	
UFBLG3618		UFBLG3624		UFBLG3630	
UFBLG4818		UFBLG4824		UFBLG4830	
UFBLG6018		UFBLG6024		UFBLG6030	
UFBLG7218		UFBLG7224		UFBLG7230	
-		UFBLG8424		UFBLG8430	
UFBLG9618		UFBLG9624		UFBLG9630	

DETAILED SPECIFICATIONS



- UNITS 7 FT. AND LARGER ARE FURNISHED WITH SIX LEGS.
- FINISHED SIZE OF UNDERSHELF.
SHELF LENGTH = LENGTH MINUS 4.875"
SHELF WIDTH = WIDTH MINUS 4.25"

STAINLESS STEEL TOP WORK TABLES

LENGTH	18" WIDE	WT. (LBS)	24" WIDE	WT. (LBS)	30" WIDE	WT. (LBS)
24"	-	-	UFBLG2424	41	-	-
30"	-	-	UFBLG3024	46	UFBLG3030	63
36"	UFBLG3618	48	UFBLG3624	50	UFBLG3630	56
48"	UFBLG4818	54	UFBLG4824	60	UFBLG4830	63
60"	UFBLG6018	61	UFBLG6024	71	UFBLG6030	82
72"	UFBLG7218	77	UFBLG7224	80	UFBLG7230	96
84"	-	-	UFBLG8424	99	UFBLG8430	116
96"	UFBLG9618	94	UFBLG9624	110	UFBLG9630	129

SOME UNITS SHIP UNASSEMBLED FOR REDUCED SHIPPING COST. ALL DIMENSIONS ARE TYPICAL. TOLERANCE +/- .500"

John Boos & Co. is constantly engaged in a program of improving products and therefore reserves the right to change specifications without prior notice.



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ITEM #: _____ QTY: _____
MODEL #: _____
PROJECT NAME: _____

011719

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"E3S8-1D" - 3 COMPARTMENT "E-SERIES" SINKS

WITH ONE DRAIN BOARD AND GALVANIZED LEGS



FEATURES:

- 18GA STAINLESS STEEL
- TYPE 300 STAINLESS STEEL WITH #4 POLISH, SATIN FINISH
- 14" DEEP BOWLS
- ALL CORNERS, BOTH VERTICAL AND HORIZONTAL, COVED AT 3/4" RADIUS
- BOTTOMS OF BOWLS FORMED FOR DRAINAGE TO 3-1/2" DIAMETER DIE STAMPED OPENING
- FULL LENGTH 9-3/4" HIGH BOXED BACKSPLASH, WITH 2" RETURN TO WALL AT 45 DEGREE AND 1" TILE EDGE
- 1-1/8" FAUCET HOLES IN BACKSPLASH
- ALL OUTSIDE CORNERS OF ASSEMBLY ARE BULLNOSED TO PROVIDE SAFE, CLEAN, AND POLISHED EDGE
- STANDARD STAINLESS STEEL LEGS 1-5/8" DIAMETER

CONSTRUCTION:

- TOP: STAINLESS STEEL SINKS ARE TIG WELDED, EXPOSED WELDS ARE POLISHED TO MATCH ADJACENT SURFACE
- BASE: GALVANIZED BASE

MATERIAL:

- BOWLS & TOP: 18GA TYPE 300 STAINLESS STEEL WITH #4 POLISH, SATIN FINISH
- LEGS: 1-5/8" ROUND O.D. GALVANIZED STEEL
- GUSSETS: GALVANIZED STEEL
- FEET: 1" ADJUSTABLE PLASTIC BULLET FEET

10" DEEP - 3 COMP SINKS - 18GA

MODEL	BOWL SIZE (LxWxD)	QTY
E3S8-1014-10L15	10" X 14" X 10"	
E3S8-1014-10R15	10" X 14" X 10"	

12" DEEP - 3 COMP SINKS - 18GA

MODEL	BOWL SIZE (LxWxD)	QTY
E3S8-1620-12L18	16" X 20" X 12"	
E3S8-1620-12R18	16" X 20" X 12"	
E3S8-18-12L18	18" X 18" X 12"	
E3S8-18-12R18	18" X 18" X 12"	

14" DEEP - 3 COMP SINKS - 18GA

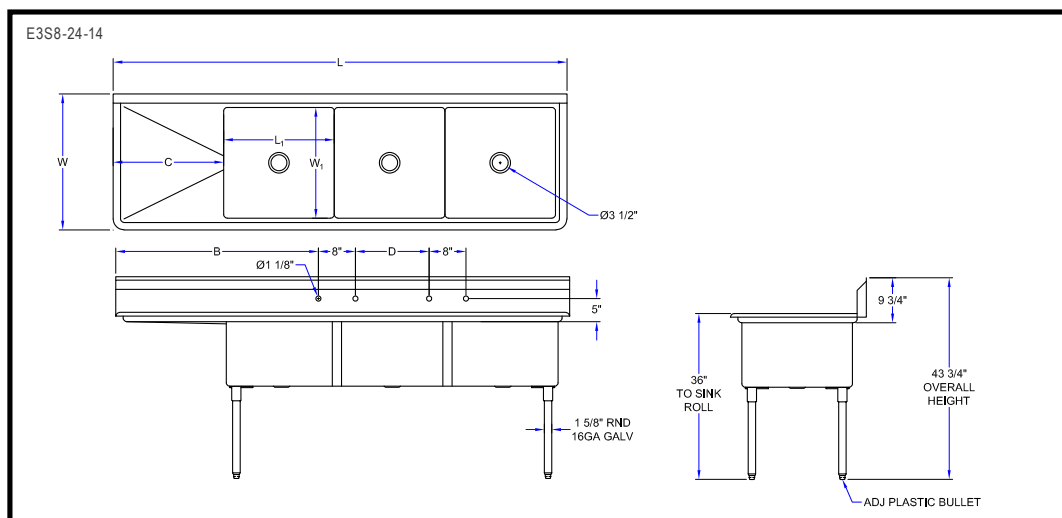
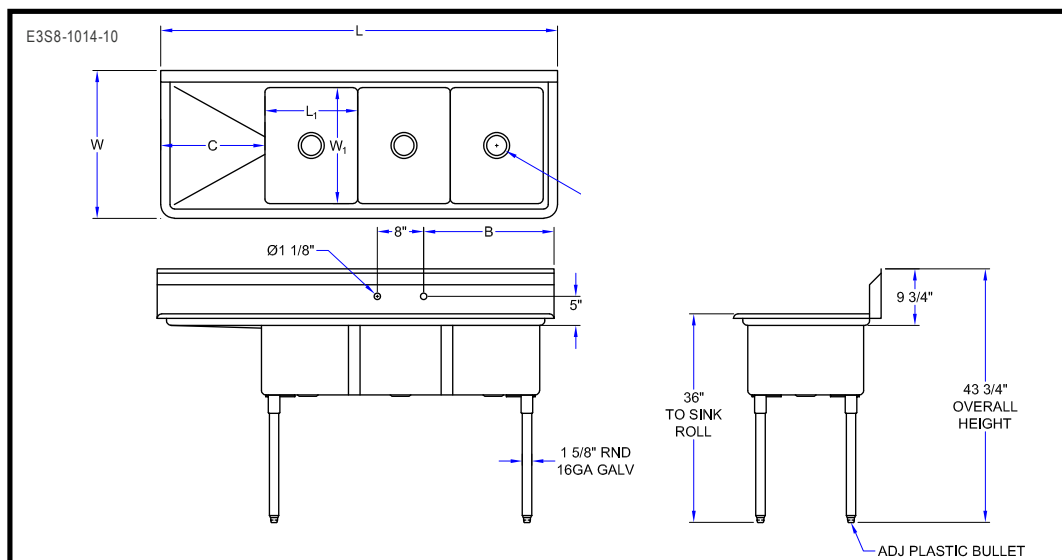
MODEL	BOWL SIZE (LxWxD)	QTY
E3S8-15-14L15	15" X 15" X 14"	
E3S8-15-14R15	15" X 15" X 14"	
E3S8-1824-14L24	18" X 24" X 14"	
E3S8-1824-14R24	18" X 24" X 14"	
E3S8-24-14L24 *	24" X 24" X 14"	
E3S8-24-14R24 *	24" X 24" X 14"	

* WITH TWO SETS OF FAUCET HOLES



E3S8-1824-14R24

* WITH TWO SETS OF FAUCET HOLES



10" DEEP - 18GA - "E3S8-1D" 3 COMPARTMENT "E-SERIES" SERIES SINKS

MODEL	L	W	L1	W1	A	B	C	WT (LBS)
E3S8-1014-10L15	47-1/2"	19-1/2"	10"	14"	9-15/16"	13-1/2"	15"	60
E3S8-1014-10R15	47-1/2"	19-1/2"	10"	14"	9-15/16"	13-1/2"	15"	60

12" DEEP - 18GA - "E3S8-1D" 3 COMPARTMENT "E-SERIES" SERIES SINKS

MODEL	L	W	L1	W1	A	B	C	WT (LBS)
E3S8-1620-12L18	68-1/2"	25-1/2"	16"	20"	12-15/16"	22-1/2"	18"	87
E3S8-1620-12R18	68-1/2"	25-1/2"	16"	20"	12-15/16"	22-1/2"	18"	87
E3S8-18-12L18	74-1/2"	23-1/2"	18"	18"	11-15/16"	25-1/2"	18"	88
E3S8-18-12R18	74-1/2"	23-1/2"	18"	18"	11-15/16"	25-1/2"	18"	88

14" DEEP - 18GA - "E3S8-1D" 3 COMPARTMENT "E-SERIES" SERIES SINKS

MODEL	L	W	L1	W1	A	B	C	D	WT (LBS)
E3S8-15-14L15	62-1/2"	20-1/2"	15"	15"	10-7/16"	21"	15"	-	78
E3S8-15-14R15	62-1/2"	20-1/2"	15"	15"	10-7/16"	21"	15"	-	78
E3S8-1824-14L24	80-1/2"	29-1/2"	18"	24"	14-15/16"	25-1/2"	24"	-	111
E3S8-1824-14R24	80-1/2"	29-1/2"	18"	24"	14-15/16"	25-1/2"	24"	-	111
E3S8-24-14L24 *	98-1/2"	29-1/2"	24"	24"	14-15/16"	22-1/2"	24"	16"	128
E3S8-24-14R24 *	98-1/2"	29-1/2"	24"	24"	14-15/16"	22-1/2"	24"	16"	128

SOME UNITS SHIP UNASSEMBLED FOR REDUCED SHIPPING COST. ALL DIMENSIONS ARE TYPICAL. TOLERANCE +/- .500"

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ROYAL SERIES PLUMBING

8" CENTER WALL MOUNT FAUCETS

MODEL: _____ PROJECT: _____ ITEM #: _____ QTY: _____

PRODUCT IMAGE



14-812 SHOWN

**ALSO AVAILABLE IN LOW LEAD BY
ADDING "L" TO MODEL NUMBER**

STANDARD FEATURES

- 1/4 turn high performance ceramic cartridge valve with built-in back flow preventers
- Heavy-Duty flanges with eccentric fittings for quick installations
- Heavy-Duty spout with double O-Ring construction and welded shoulder for durability
- High precision machining and polished nickel chromium finish
- Color-coded handles
- Optional wrist blade handles available
- Mounting kit included (1/2" NPT x 1 1/2" male nipples with locknuts)
- Full replacement parts available
- 1 Year Warranty
- **Low Lead Compliance**

"L" Models meet California AB-1953 and Vermont S152 standards
(Faucet models already listed with the "L" suffix (i.e. 12-806L) are only available in Low Lead Compliant model)

SPECIFICATIONS

- 8" on center wall mount with 1/2" NPT male inlets
- Rough in: Two 7/8" round holes on 8" centers
- Temperature Range: 40°F to 180°F
- Flow rate: 2 GPM max
- Shipping weight: 5 1/2 lbs.
- Quantity per case: 6



APPROVED BY:

Due to our commitment to continued product improvement, specifications are subject to change without notice.

CERTIFICATIONS:

Printed in the USA

Krowne Metal Corporation

100 Haul Rd. Wayne, NJ 07470 • Toll Free: (800) 631-0442 • Fax: (973) 872-1129

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Rev. 05/2012
No. 14-8XX

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BS & R Equipment Co.

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ROYAL SERIES PLUMBING

8" CENTER WALL MOUNT FAUCETS

MODEL: _____ PROJECT: _____ ITEM #: _____ QTY: _____

MODELS

STANDARD SPOUTS

Model Numbers	Ⓐ	Ⓑ	Ⓒ
14-806	6"	2 3/8"	4 7/8"
14-808	8"	2 3/8"	4 7/8"
14-810	10"	2 5/8"	5 1/4"
14-812	12"	3 1/8"	5 5/8"
14-814	14"	3 1/2"	6"
14-816	16"	4 1/2"	7"
12-818L*	18"	5 1/2"	8"

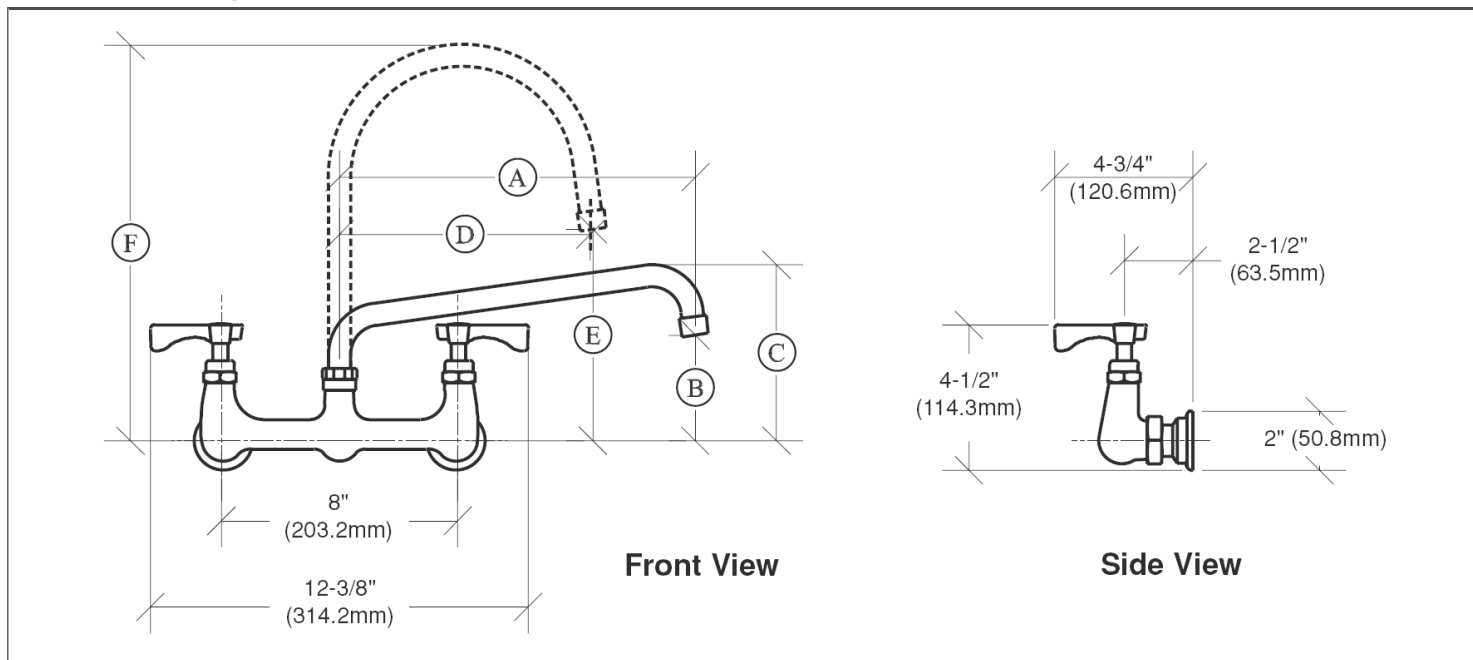
NOTE: Add "L" to end of Model Number for Low Lead Model

*Double Jointed Spout

GOOSENECK SPOUTS

Model Numbers	Ⓓ	Ⓔ	Ⓕ
14-801L	6"	6"	10"
14-802L	8 1/2"	7 1/2"	12 7/8"

DRAWING



Certified to
NSF/ANSI 61-G

APPROVED BY:

CERTIFICATIONS:

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Rev. 05/2012

No. 14-8XX

Hotel TF Colby Ricks

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HIGH TEMPERATURE UNDERCOUNTER DISHWASHER/GLASSWASHER

H-1X

High Temperature Sanitizing Undercounter
Dishwasher/Glasswasher

FEATURES

- 24 racks / 96 covers per hour.
- Unique Dump & Fill cycle drains the wash water every cycle and refills with high temperature water for your sanitizing rinse.
- Pumped wash and rinse ensures exact water pressure for excellent results.
- Safe T Temp feature ensures high temperature final rinse every cycle.
- Top mounted LCD display constantly informs user of machine status. Controls are easy to understand and simple to operate.
- Fully automatic cycle for easy operation.
- Automatic fill.
- All stainless steel construction assures long life and years of trouble free operation.
- Large 14-1/4" door opening accommodates larger dishes and glasses.
- Operator friendly removable spray arm system features upper and lower spray arms for easy cleaning.
- Built-in chemical pumps assure consistent chemical usage.
- 5kW Internal booster heater.
- 2kW Wash tank heater.
- Pumped drain allows for flexible installation. Requires no floor drain.
- Pump purging system improves results by eliminating soil and chemical carryover during rinse cycle.
- Dishrack included.
- Built-in prime switches.
- Built-in instant start.
- Door safety switch makes operation safe.

AVAILABLE OPTIONS



48" Undercounter dishtable
with Pre-Rinse

- Drain Tempering Kit
- Drain Board



Universal Pedestal



Low Chemical Alarm



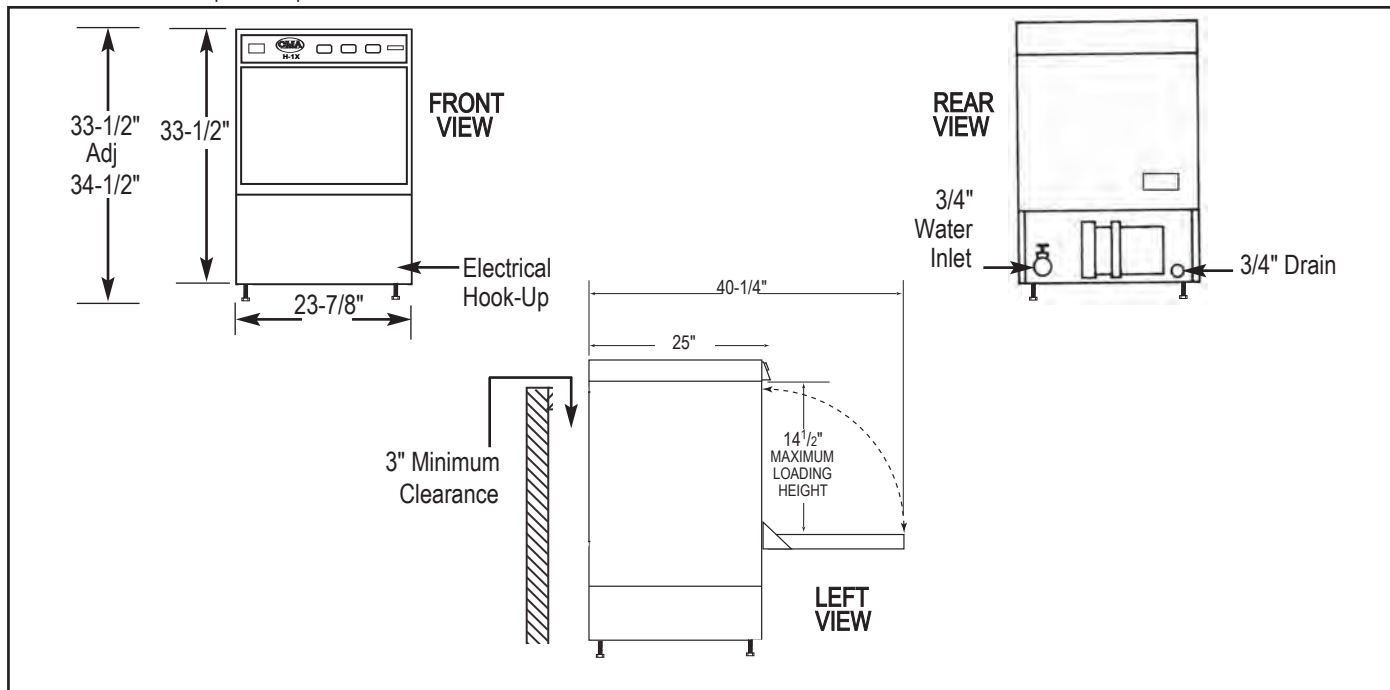


H-1X


High Temperature
Sanitizing Undercounter
Dishwasher/Glasswasher

WARNINGS:

- Plumbing connections must be made by a qualified service company who will comply with all available Federal, State, and Local Health, Plumbing and Safety codes.
- CMA recommends utilizing a water softening system to maintain water hardness measurements of 3.5 gpg (grains per gallon) or less. This will assure maximum results and optimum operation of the dishmachine.



Specifications:

MODEL H-1X	USA	METRIC		USA	METRIC
WATER CONSUMPTION			FRAME DIMENSIONS		
PER RACK	1.4 GAL.	5.3 L	DEPTH	25"	63.5 CM
PER HOUR	33.6 GAL	127.2 L	WIDTH	23-7/8"	60.7 CM
OPERATING CYCLE			HEIGHT	33-1/2"	85.1 CM
WASH TIME-SEC	90	90	MAX CLEARANCE FOR DISHES	14-1/2"	36.8 CM
RINSE TIME-SEC	15	15	WASH PUMP MOTOR	1 HP	1 HP
DWELL TIME-SEC	45	45	ELECTRICAL RATING	208 VOLTS	240 VOLTS
TOTAL CYCLE TIME *	150 Sec	150 Sec	1 PH-60 Hz		1 PH-60 Hz
OPERATING CAPACITY			TOTAL AMPS	22.0 AMPS	24.0 AMPS
RACKS PER HOUR *	24	24	BOOSTER HEATER KW	5 kW	5.5 kW
WASH TANK CAPACITY	1.4 GAL.	5.3 L	WASH HEATER KW	2 kW	2.2 kW
FLOW PRESSURE	25-60 psi	172-413 kPA	THIS SYSTEM REQUIRES TWO POWER WIRES. AN ADDITIONAL THIRD WIRE MUST BE PROVIDED FOR MACHINE GROUND. NO GFI BREAKER.		
WATER REQUIREMENTS			APPROXIMATE SHIPPING WEIGHT	165#	75KG
REQUIRED MINIMUM TEMP	110°F	43°C	SHIPPING DIMENSIONS	PALLET & BOX @ 29" X 28" X 41"	
RECOMMENDED TEMP	140°F	60°C			
WATER INLET	3/4"	1.27 CM			
DRAIN CONNECTION	3/4"	2.54 CM			
CYCLE TEMPERATURES					
WASH-°F	150° F-160° F	66°C/71°C			
RINSE-°F	180° F-195° F	82°C/90°C			

Summary Specifications: Model H-1X CMA undercounter high temperature sanitizing commercial dishwashers meets ETL and NSF safety and sanitation standards.. The model H-1X is constructed entirely of stainless steel. Each unit automatically washes, rinses and sanitizes food service wares in standard 19-3/4"X19-3/4" racks. H-1X comes standard with upper and lower spray arms. The H-1X incorporates an innovative Dump & Fill cycle technology to drain the wash water and refill with fresh water prior to the rinse cycle ensuring the best results possible.

* Excludes 30 second NSF load/unload time

Advisory: CMA does NOT endorse "Tankless On-Demand" water heaters for use on CMA Dishmachine products. CMA DOES endorse, and highly recommends, the standard "tank" style water heaters, sized properly to handle each particular facility with its water heating requirements.



CMA Dishmachines 12700 Knott Street Garden Grove, CA 92841 • 800-854-6417 • 714-898-8781 • Fax: 714-895-2141 • www.cmadishmachines.com

CMA reserves the right to modify specifications or discontinue models without prior notification.



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**John
BOOS**
Since 1887

ITEM #: _____ QTY: _____
MODEL #: _____
PROJECT NAME: _____

031819

3601 S. Banker St. Effingham, IL 62401 • P.O. BOX 609 • Ph: (888) 431-2667 • Fax: (800) 433-2667

"PBHS-14" PRO-BOWL HAND SINKS

FOR SPLASH MOUNT FAUCETS



FEATURES:

- ONE PIECE DEEP DRAWN BOWL
- ALL SINK BOWLS HAVE LARGE LIBERAL RADII CORNERS
- INCLUDES BASKET DRAIN
- SPLASH MOUNT FAUCET HOLES 4" ON-CENTER
- 1-1/2" DRAIN PLUMBING CONNECTION



PBHS-W-1410



PBHS-W-1410-P

CONSTRUCTION:

- BOWL: STAINLESS STEEL TOPS ARE TIG WELDED, EXPOSED WELDS ARE POLISHED TO MATCH ADJACENT SURFACE.



PBHS-W-1410-SSLR



PBHS-W-1410-SSR

MATERIAL:

- BOWL: TYPE 300 STAINLESS STEEL POLISH, SATIN FINISH
- BRACKET: TYPE 300 STAINLESS STEEL POLISH, SATIN FINISH



PBHS-W-1410-P-SSLR



PBHS-W-1410-4D

PRO-BOWL HAND SINKS

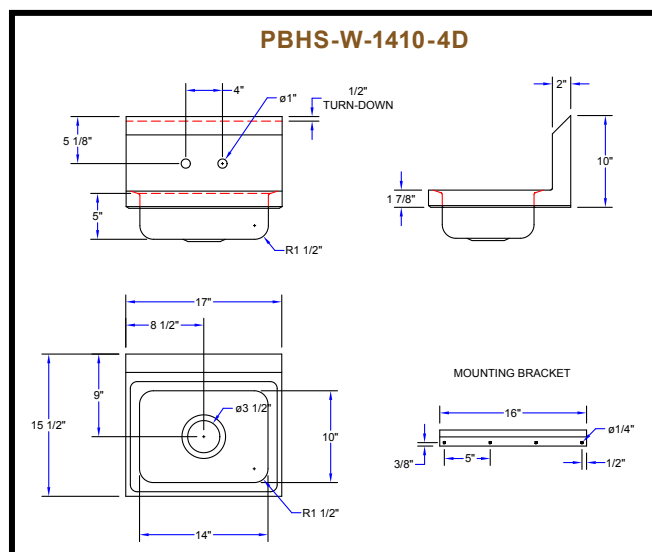
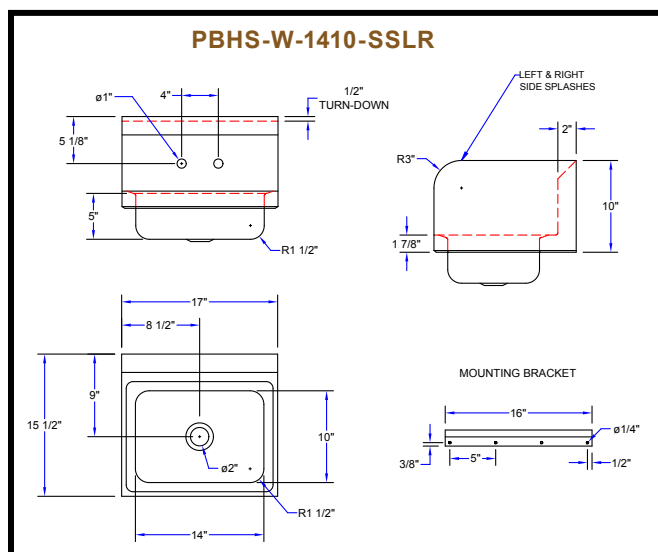
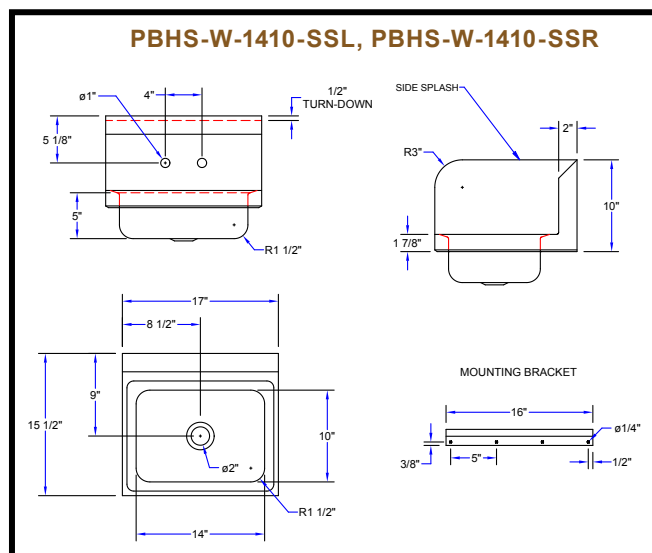
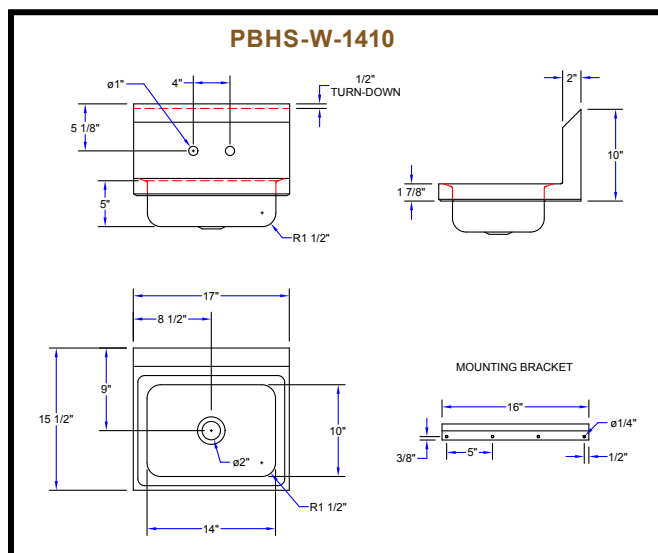
MODEL #	QTY
PBHS-W-1410	
PBHS-W-1410-P	
PBHS-W-1410-SSL	
PBHS-W-1410-SSR	
PBHS-W-1410-SSLR	
PBHS-W-1410-P-SSLR	
PBHS-W-1410-4D	
PBHS-W-1410-PD	

-P INCLUDES FAUCET

OPTIONAL ACCESSORIES

DESCRIPTION	QTY
FAUCETS	
SIDE SPASH	
ADA WRIST BLADES	
TOWEL DISPENSER	
LEVER WASTES	
OVER FLOWS	
P-TRAPS	

DETAILED SPECIFICATIONS



PRO-BOWL HAND SINKS

MODEL #	BOWL SIZE (LxWxD)	DRAIN SIZE	FAUCET LOCATION	SIDE SPLASH
PBHS-W-1410	14" X 10" X 5"	1-7/8"	SPLASH MOUNT: 4" ON-CENTER	N/A
PBHS-W-1410-P	14" X 10" X 5"	1-7/8"	SPLASH MOUNT: 4" ON-CENTER (FAUCET INCLUDED)	N/A
PBHS-W-1410-SSL	14" X 10" X 5"	1-7/8"	SPLASH MOUNT: 4" ON-CENTER	LH
PBHS-W-1410-SSR	14" X 10" X 5"	1-7/8"	SPLASH MOUNT: 4" ON-CENTER	RH
PBHS-W-1410-SSLR	14" X 10" X 5"	1-7/8"	SPLASH MOUNT: 4" ON-CENTER	LH & RH
PBHS-W-1410-P-SSLR	14" X 10" X 5"	1-7/8"	SPLASH MOUNT: 4" ON-CENTER (FAUCET INCLUDED)	LH & RH
PBHS-W-1410-4D	14" X 10" X 5"	3-1/2"	SPLASH MOUNT: 4" ON-CENTER (FAUCET INCLUDED)	N/A
PBHS-W-1410-PD	14" X 10" X 5"	1-7/8"	DECK MOUNT: 4" ON-CENTER (FAUCET INCLUDED)	N/A

SOME UNITS SHIP UNASSEMBLED FOR REDUCED SHIPPING COST. ALL DIMENSIONS ARE TYPICAL. TOLERANCE +/- .500"

John Boos & Co. is constantly engaged in a program of improving products and therefore reserves the right to change specifications without prior notice.



Boos
locks

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turbofan®

20MSERIES

E22M3

Technical data sheet for

E22M3 ON THE SK23 STAND

Half Size Manual / Electric Convection Oven
on a Stainless Steel Stand



STANDARD FEATURES

- 3 half size sheet pan capacity
- 2 $\frac{5}{8}$ " / 70mm tray spacing
- Compact 24" / 610mm width
- Single direction low-velocity fan
- 1.5kW heating power
- 110-120V plug-in 15A NEMA 5-15P cordset fitted
- Porcelain enameled oven chamber
- Plug-in continuous oven door seal
- Safe-Touch vented drop down door
- Stay-Cool door handle
- Heavy-duty door hinges
- Easy clean door glass system
- Mechanical thermostat 150-500°F / 50-260°C
- 60 minute timer with time up alarm
- Anti-skid 2" / 50mm dia. 3" / 76mm high adjustable stainless steel feet
- 3 oven wire racks supplied
- 100% recyclable packaging

ACCESSORIES

- Turbofan SK23 Oven Stand



E22M3

Unit shall be a Moffat electrically heated Turbofan convection oven E.T.L. listed and NSF-4 listed. The oven shall have a one piece porcelain enameled oven chamber, stainless top and sides and safe touch vented easy clean drop down door. Oven shall have capacity for three half size sheet pans. The oven shall have a single direction low velocity fan system. The oven shall be controlled by a mechanical thermostat with a range of 150-500°F / 50-260°C, and 60 minute bake timer. Oven shall be able to be bench mounted on 3" / 76mm feet or mounted on oven stand model SK23. Oven shall be fitted with a NEMA 5-15P cordset. Unit shall be supplied in 100% recyclable shipping packaging.

SK23

Unit shall be a Moffat Turbofan stainless steel oven stand NSF-4 listed. The stand shall be constructed from stainless steel tube with castors, with front castors having dual swivel and wheel locks. It shall be fitted with 6 tray runners suitable for half size sheet pans. The stand shall be fully compatible with, and support, Turbofan Convection Oven models E22 and E23. Unit shall be supplied in 100% recyclable shipping packaging.



turbofan®

20MSERIES

E22M3

E22M3 Half Size Manual / Electric Convection Oven on a Stainless Steel Stand

CONSTRUCTION

Porcelain enameled fully welded oven chamber
Stainless steel front, sides and top exterior
Stainless steel oven fan baffle
Removable 3 position chrome plated wire side racks
Oven racks chrome plated wire (3 supplied)
Stainless steel frame drop down hinged door
0.2" / 5mm thick door outer glass
0.2" / 5mm thick low energy loss door inner glass
Heavy-duty counterbalanced door hinges
Wear resistant powder coated welded door handle
Stainless steel control panel
Aluminized coated steel base and rear panels

CONTROLS

Power ON control panel indicator
Mechanical thermostat 150-500°F / 50-260°C
Heating ON control panel indicator
Manual 60 minute timer
Time-Up control panel indicator and buzzer

CLEANING

Stainless steel top and sides continuous exterior panel
Porcelain enameled oven chamber
Fully removable chrome plated oven side racks
Removable stainless steel oven fan baffle
Easy clean door system with hinge out door inner glass (no tools required)
Removable plug-in oven door seal (no tools required)
3" / 76mm high stainless steel feet for easy access underside

SPECIFICATIONS

Electrical Requirements
110-120V, 50/60Hz, 1-phase, 1.5kW, 12A
NEMA 5-15P cordset fitted

External Dimensions

Width 24" / 610mm
Height 21¾" / 552mm including 3" / 76mm feet
Depth 23⅞" / 608mm

Oven Internal Dimensions

Width 19½" / 495mm
Height 10" / 250mm
Depth 13⅜" / 340mm
Volume 1.48ft³ / 0.042m³

Oven Rack Dimensions

Width 18" / 460mm

Depth 13" / 330mm

Nett Weight (E22M3)
78lbs / 35.4kg

Packing Data (E22M3)

106lbs / 48kg
12 ft³ / 0.34m³
Width 29½" / 750mm
Height 27¾" / 705mm
Depth 25" / 635mm

SK23 Stainless Steel Stand

All stainless steel welded frame oven stand for Turbofan E22 and E23 Series ovens
6 position tray runners standard
3" / 76mm diameter wheel swivel castors standard with 2 front castors with dual swivel and wheel
Welded 1½" and 1¼" square tube front and rear frames
Welded rack supports/side frames
4 dia. 3" / 76mm swivel castors with 2 front castors dual wheel and swivel lock
Top frame oven supports suit Turbofan E22 and E23 Series Oven mounting
Supplied CKD for assembly on site

External Dimensions (SK23 Oven Stand)

Width 24" / 610mm
Height 34⅞" / 880mm
Depth 20⅞" / 530mm

Nett Weight (SK23 Oven Stand)
35lbs / 16kg

Packing Data (SK23 Oven Stand)

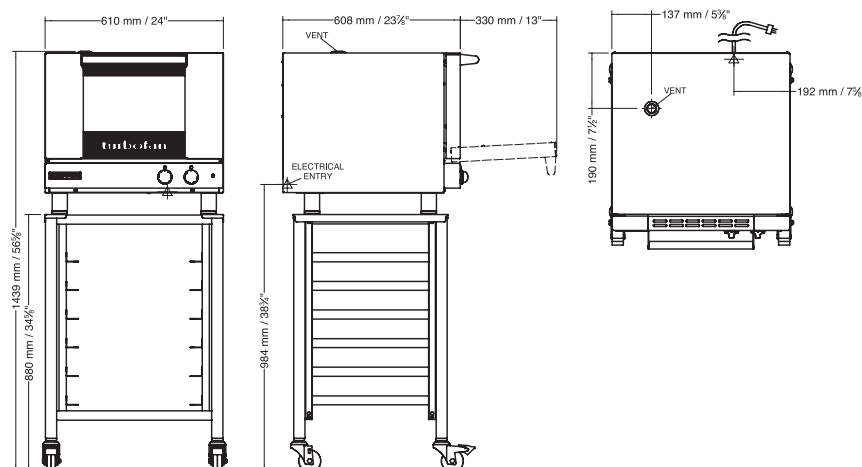
40lbs / 18kg
3.2ft³ / 0.09m³
Width 24⅞" / 630mm
Height 35½" / 900mm
Depth 6" / 152mm

INSTALLATION CLEARANCES

Rear 1" / 25mm
LH Side 1" / 25mm
RH Side 1" / 25mm

CLEARANCE FROM SOURCES OF HEAT

A minimum distance of 12" / 300mm from the appliance sides is required



www.moffatusa.com
www.turbofanoven.com

U.S.A.

Moffat Inc
3765 Champion Boulevard
Winston-Salem
North Carolina 27105
Ph Toll Free 1-800-551 8795
Ph 336-661 0257
Fax 336-661 9546
Email sales@moffat.com
www.moffatusa.com

Manufactured by:
Moffat Limited
45 Illinois Drive, Izone Business Hub
Rolleston 7675, New Zealand



ISO9001
Quality
Management
Standard

Designed and manufactured by



ISO9001

All Turbofan products are designed and manufactured by Moffat using the internationally recognised ISO9001 quality management system, covering design, manufacture and final inspection, ensuring consistent high quality at all times.

In line with policy to continually develop and improve its products, Moffat Limited reserves the right to change specifications and design without notice.



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Vector® H Series Multi-Cook Oven

UL-Listed

ALTO-SHAAM

Providing an unmatched volume and variety of food, Vector H Series countertop models are specifically designed for foodservice operations where space is at a premium but food demand is high.

Featuring up to four independent oven chambers, operators can control the temperature, fan speed and cook time in each individual chamber for maximum flexibility – simultaneously cooking a variety of menu items with no flavor transfer.

Exclusive Structured Air Technology® delivers focused heat for faster, more even cooking and consistent, high-quality results.

Reduce labor by eliminating extra steps in food production and the need to watch and rotate pans.

Place anywhere with a small, 21" [533mm] footprint and ventless, waterless operation.

Custom colors available for enhanced branding and a front-of-house experience for customers.

An advanced control – designed intentionally simple – features an intuitive, user-friendly interface and programmable recipes to ensure consistency with each cook.

ChefLinc™, cloud-based remote oven management software, streamlines processes and maximizes profits with data-driven insights [deluxe control only].

ISO 9001:2015-certified

Standard Features

- Programmable, touchscreen control
- Easy recipe upload/download via USB port
- UL-listed ventless catalytic converter
- Double-pane glass door
- One [1] wire stainless steel rack and two [2] jet plates per cooking chamber
- 4" [102mm] adjustable legs
- Cord and plug on 208-240V models [except Canada]



- 2** VMC-H2: 2 shelf, 2 half-size sheet pans—18" x 13" x 1" [2 GN 2/3 pans—354mm x 325mm x 25mm]
- 3** VMC-H3: 3 shelf, 3 half-size sheet pans—18" x 13" x 1" [3 GN 2/3 pans—354mm x 325mm x 25mm]
- 4** VMC-H4: 4 shelf, 4 half-size sheet pans—18" x 13" x 1" [4 GN 2/3 pans—354mm x 325mm x 25mm]
- 2** VMC-H2H: 2 shelf, 2 full-size hotel pans—20-3/4" x 12-3/4" x 4" [2 GN 1/1 pans - 530mm x 325mm x 65mm] or 2 half-size sheet pans—18" x 13" x 1" [2 GN 2/3 pans—354mm x 325mm x 25mm]
- 3** VMC-H3H: 3 shelf, 3 full-size hotel pans—20-3/4" x 12-3/4" x 4" [3 GN 1/1 pans—530mm x 325mm x 65mm] or 3 half-size sheet pans—18" x 13" x 1" [3 GN 2/3 pans—354mm x 325mm x 25mm]
- 4** VMC-H4H: 4 shelf, 4 full-size hotel pans—20-3/4" x 12-3/4" x 4" [4 GN 1/1 pans—530mm x 325mm x 65mm] or 4 half-size sheet pans—18" x 13" x 1" [4 GN 2/3 pans—354mm x 325mm x 25mm]



IP X4



COA #5879

Hotel TF Colby Ricks

BS & R Equipment Co.



VMC-H4

VMC-H3

VMC-H2

Configurations (select one)

Models

These models accommodate a half-size sheet pan

- ☐ VMC-H2 ☐ VMC-H3
- ☐ VMC-H4

These models accommodate a full-size hotel pan

- ☐ VMC-H2H ☐ VMC-H3H
- ☐ VMC-H4H

Control

- ☐ Deluxe ☐ Simple

Kit

- ☐ Ethernet Cable [5030518] for Deluxe only

Door swing

- ☐ Right hinged ☐ Left hinged

Electrical

VMC-H2/H2H

- ☐ 208-240V, 1PH, with cord and plug
- ☐ 208-240V, 1PH, no cord, no plug [Canada]
- ☐ 220-240V, 1PH, no cord, no plug
- ☐ 380-415V, 3PH, no cord, no plug

VMC-H3/H3H

- ☐ 208-240V, 1PH, with cord and plug
- ☐ 208-240V, 1PH, no cord, no plug [Canada]
- ☐ 208-240V, 3PH, with cord and plug
- ☐ 208-240V, 3PH, no cord, no plug [Canada]
- ☐ 220-240V, 1PH, no cord, no plug
- ☐ 380-415V, 3PH, no cord, no plug

VMC-H4/H4H

- ☐ 208-240V, 3PH, with cord and plug
- ☐ 208-240V, 3PH, no cord, no plug [Canada]
- ☐ 380-415V, 3PH, no cord, no plug

Accessories (select all that apply)

- ☐ See accessories brochure for all available accessories

Casters and legs

- ☐ 3" [76mm] casters, set of four [4] [5027946]

Cookware

- ☐ Jet plate assembly, half-size sheet pan [5025235]
- ☐ Jet plate assembly, hotel pan [5025236]
- ☐ Wire shelf, half-size sheet pan [SH-37662]
- ☐ Wire shelf, hotel pan [SH-39077]

Cleaning

- ☐ Alto-Shaam® non-caustic cleaner, one [1] bottle [CE-46828]
- ☐ Alto-Shaam® non-caustic cleaner, case of six [6] bottles [CE-46829]

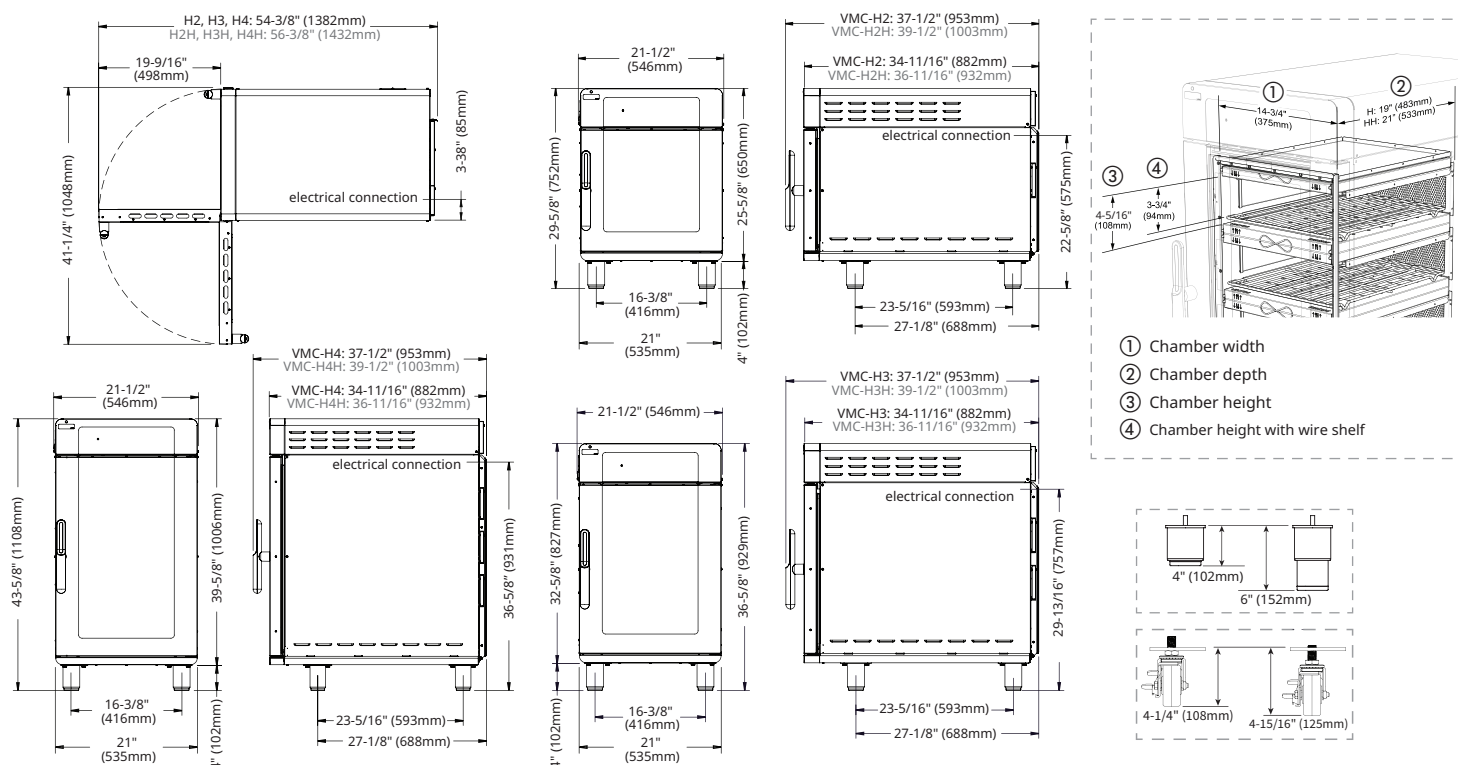
Grease filters

- ☐ Internal chamber filters—order one [1] kit per chamber [5027119]

Vector® H Series Multi-Cook Oven

Specification

ALTO-SHAAM



DIMENSIONS

Model	Exterior (H x W x D)	Interior (H x W x D)	Net Weight
VMC-H2	29-5/8" x 21-1/2" x 37-1/2" [752mm x 546mm x 953mm]	14-3/8" x 14-11/16" x 19" [366mm x 373mm x 483mm]	209 lb [95 kg]
VMC-H2H	29-5/8" x 21-1/2" x 39-1/2" [752mm x 546mm x 1003mm]	14-3/8" x 14-11/16" x 21-1/2" [366mm x 373mm x 546mm]	213 lb [97 kg]
VMC-H3	36-5/8" x 21-1/2" x 37-1/2" [929mm x 546mm x 953mm]	21-3/8" x 14-11/16" x 19" [544mm x 373mm x 483mm]	272 lb [123 kg]
VMC-H3H	36-5/8" x 21-1/2" x 39-1/2" [929mm x 546mm x 1003mm]	21-3/8" x 14-11/16" x 21-1/2" [544mm x 373mm x 546mm]	278 lb [126 kg]
VMC-H4	43-5/8" x 21-1/2" x 37-1/2" [1108mm x 546mm x 953mm]	28-3/8" x 14-11/16" x 19" [721mm x 373mm x 483mm]	341 lb [155 kg]
VMC-H4H	43-5/8" x 21-1/2" x 39-1/2" [1108mm x 546mm x 1003mm]	28-3/8" x 14-11/16" x 21-1/2" [721mm x 373mm x 546mm]	348 lb [158 kg]

Model	Ship Dimensions (L x W x H)*	Ship Weight*
VMC-H2/H 48" x 29" x 56" [1219mm x 737mm x 1422mm]		291 lb [132 kg]
VMC-H3/H 48" x 29" x 56" [1219mm x 737mm x 1422mm]		375 lb [170 kg]
VMC-H4/H 48" x 29" x 56" [1219mm x 737mm x 1422mm]		425 lb [193 kg]

*Domestic ground shipping information. Contact factory for export weight and dimensions.

Vector® H Series Multi-Cook Oven

ALTO-SHAAM

**CLEARANCE**

Top: 2" [51mm]*
 Left: 2" [51mm]
 Right: 2" [51mm]
 Front: 20" [508mm]
 Back: 2" [51mm]

* 18" [457mm] recommended for service access

**CHECK FIRST**

- The oven must be installed level.
- The oven must not be installed in any area where it may be affected by steam, grease, dripping water, high temperatures, or any other severely adverse conditions.
- Oven not intended for built-in installation.
























**HEAT****Heat of rejection**

VMC-H	Heat Gain qs, BTU/hr	Heat Gain qs, kW
	1,898	0.56

**TEMPERATURE**

Maximum temperature: 525°F [274°C]

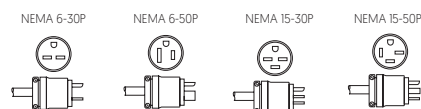
**ELECTRIC**

VMC-H2/VMC-H2H	V	Ph	Hz	Awg	IEC	A	Breaker (A)	kW	Plug Configuration**	Certification
208–240V	208	1	60	8	—	25	30*	5.2	NEMA 6-30	  ANSI/NSF 4
	240	1	60	8	—	28	30*	6.7	NEMA 6-30	
220–240V	220	1	50/60	—	4	25	32*	5.4	No cord, no plug	  IP X4 
	240	1	50/60	—	4	28	32*	6.4	No cord, no plug	
380–415V	380	3	50/60	—	1.5	8	16	5.4	No cord, no plug	  IP X4 
	415	3	50/60	—	1.5	9	16	6.4	No cord, no plug	
VMC-H3/VMC-H3H										
208–240V	208	1	60	6	—	38	50*	7.9	NEMA 6-50	  ANSI/NSF 4
	240	1	60	6	—	43	50*	10.3	NEMA 6-50	
208–240V	208	3	60	10	—	22	30	7.9	NEMA 15-30P	  ANSI/NSF 4
	240	3	60	10	—	25	30	10.3	NEMA 15-30P	
220–240V	220	1	50/60	6	10	37	63	8.1	No cord, no plug	  IP X4 
	240	1	50/60	6	10	41	63	9.6	No cord, no plug	
380–415V	380	3	50/60	—	1.5	13	16	8.1	No cord, no plug	  IP X4 
	415	3	50/60	—	1.5	14	16	9.6	No cord, no plug	
VMC-H4/VMC-H4H										
208–240V	208	3	60	6	—	32	40	10.6	NEMA 15-50P	  ANSI/NSF 4
	240	3	60	6	—	36	40	13.9	NEMA 15-50P	
380–415V	380	3	50/60	—	4	17	32	10.8	No cord, no plug	  IP X4 
	415	3	50/60	—	4	18	32	12.7	No cord, no plug	

Electrical connections must meet all applicable federal, state, and local codes.

* For use on individual branch circuit only.

**No cord, no plug, in Canada.

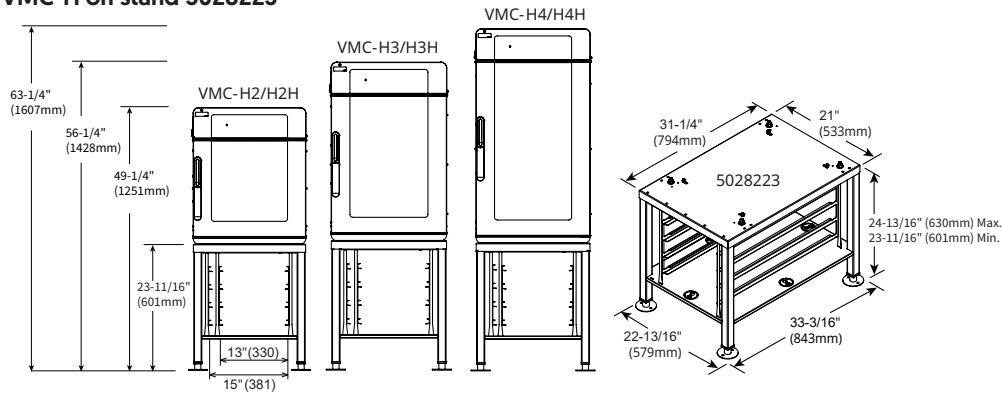


Vector® H Series Multi-Cook Oven

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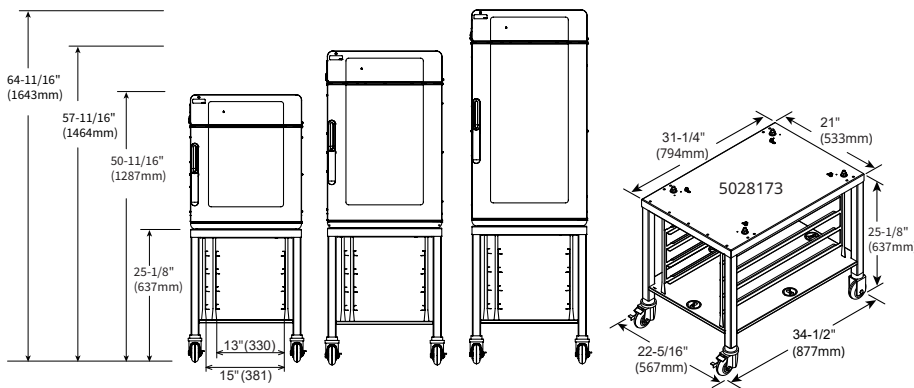
Stacked Configurations and Stands

VMC-H on stand 5028223

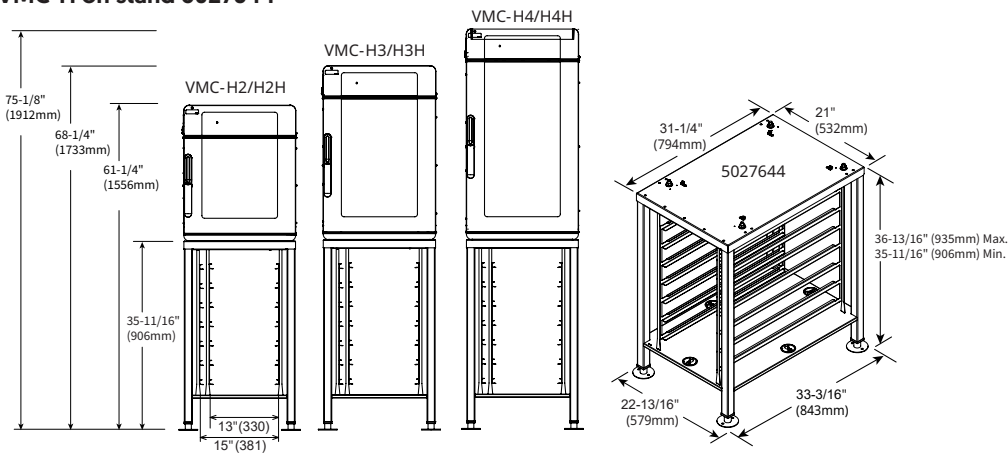


Dimensions shown are with adjustable feet at minimum height.

VMC-H on stand 5028173



VMC-H on stand 5027644



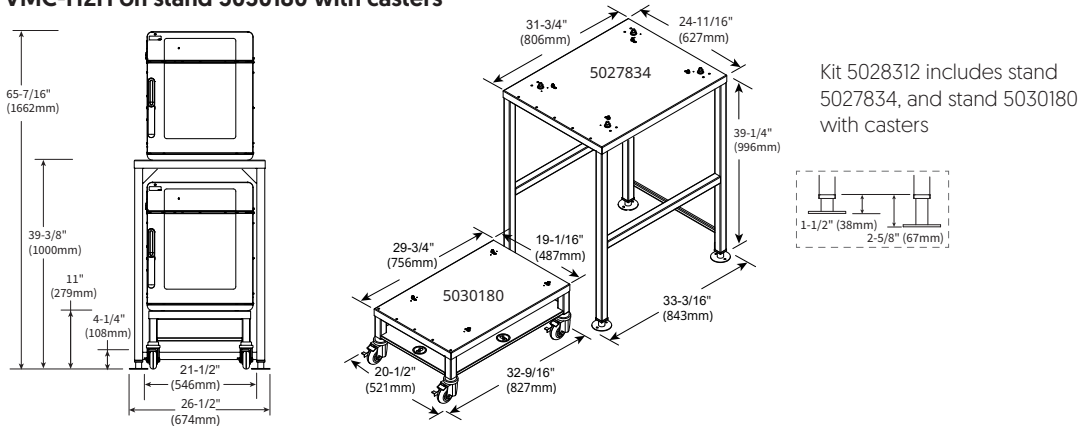
Dimensions shown are with adjustable feet at minimum height.

Vector® H Series Multi-Cook Oven

ALTO-SHAAM

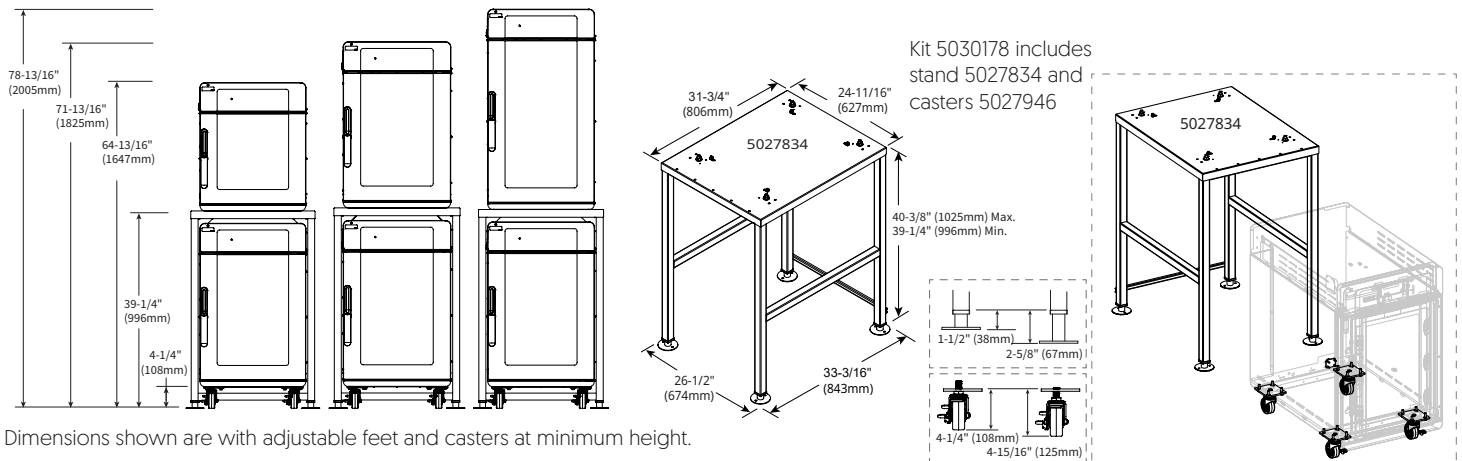
Stacked Configurations and Stands

VMC-H2 on stand 5027834 over VMC-H2 or VMC-H2H on stand 5030180 with casters



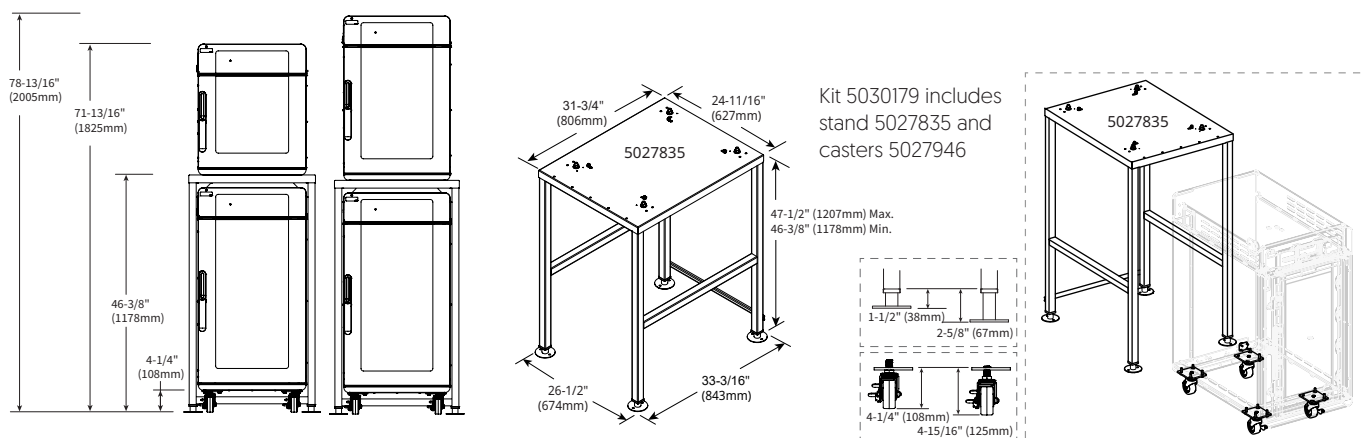
Dimensions shown are with adjustable feet at minimum height.

VMC-H on stand 5027834 over VMC-H3 or VMC-H3H with casters



Dimensions shown are with adjustable feet and casters at minimum height.

VMC-H2, VMC-H2H, VMC-H3, or VMC-H3H on stand 5027835 over VMC-H4 or VMC-H4H (a VMC-H4 or VMC-H4H cannot be stacked on top of this stand)



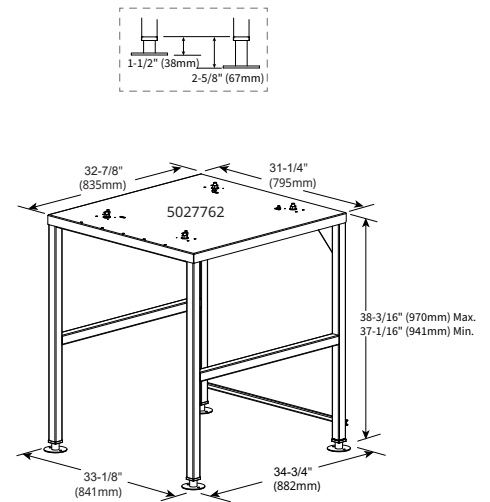
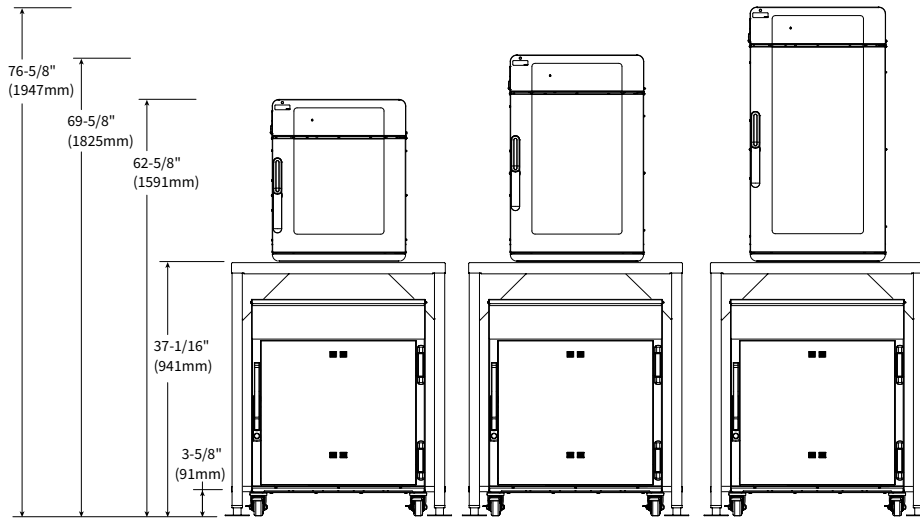
Dimensions shown are with adjustable feet and casters at minimum height.

Vector® H Series Multi-Cook Oven

ALTO-SHAAM

Alternative Stacked Configurations and Stands

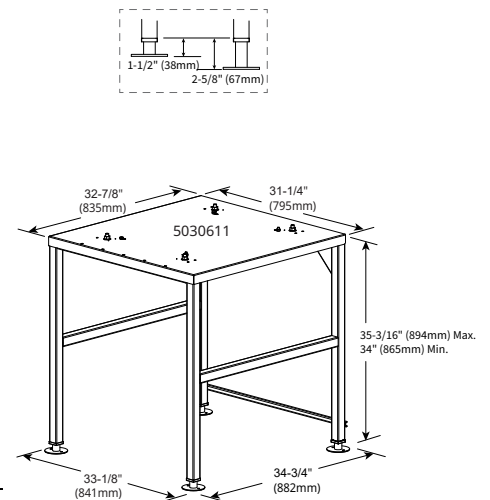
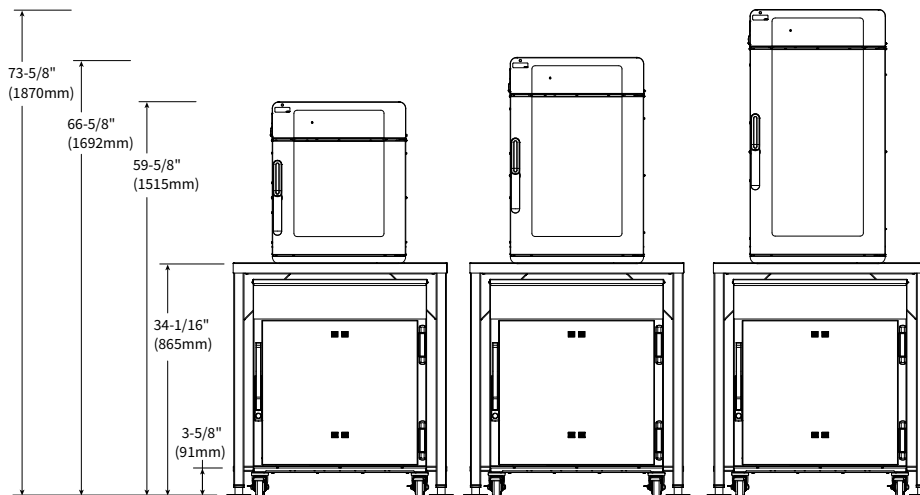
VMC-H on stand 5027762 over 750-S, 750-TH/II, 750-TH/III, or 767-SK/III*



Dimensions shown are with adjustable feet at minimum height.

*Smoker models must be under a hood.

VMC-H on stand 5030611 over 750-S, 750-TH/II, 750-TH/III, or 767-SK/III*



Dimensions shown are with adjustable feet at minimum height.

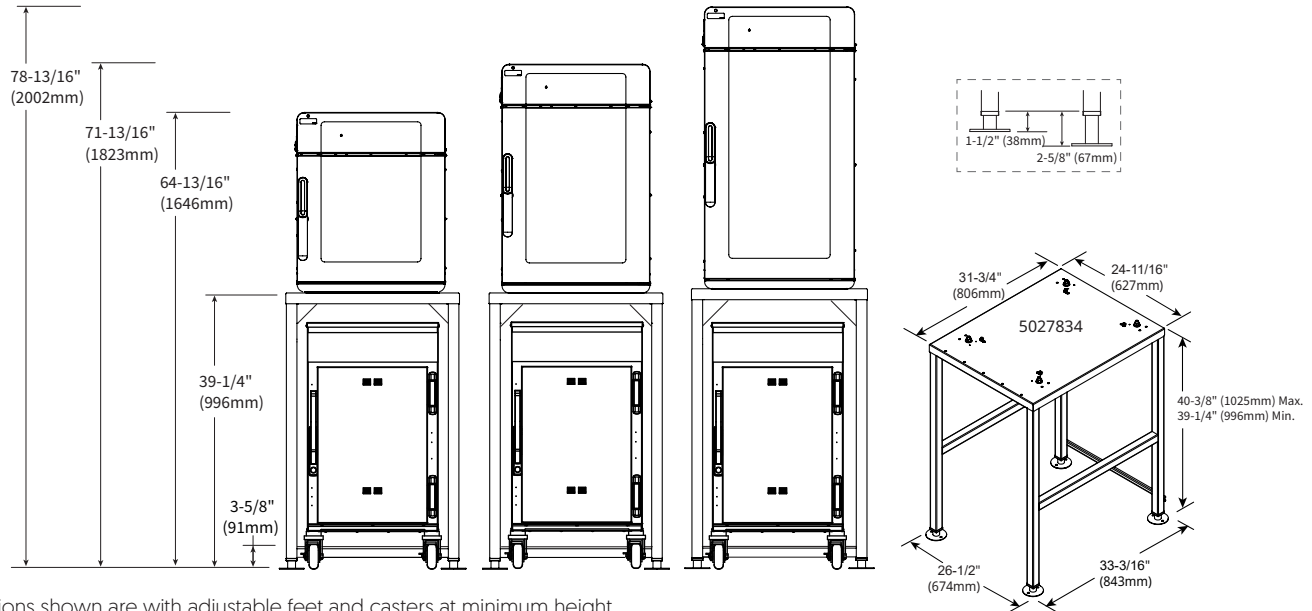
*Smoker models must be under a hood.

Vector® H Series Multi-Cook Oven

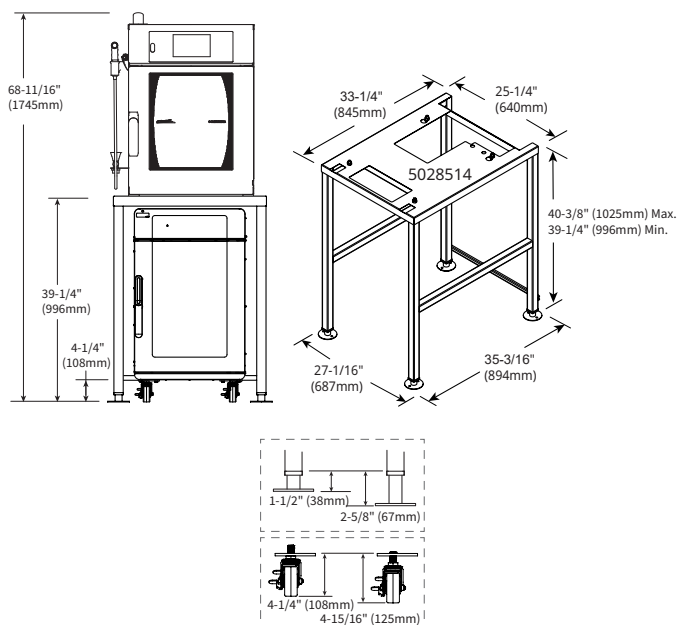
ALTO-SHAAM.

Alternative Stacked Configurations and Stands

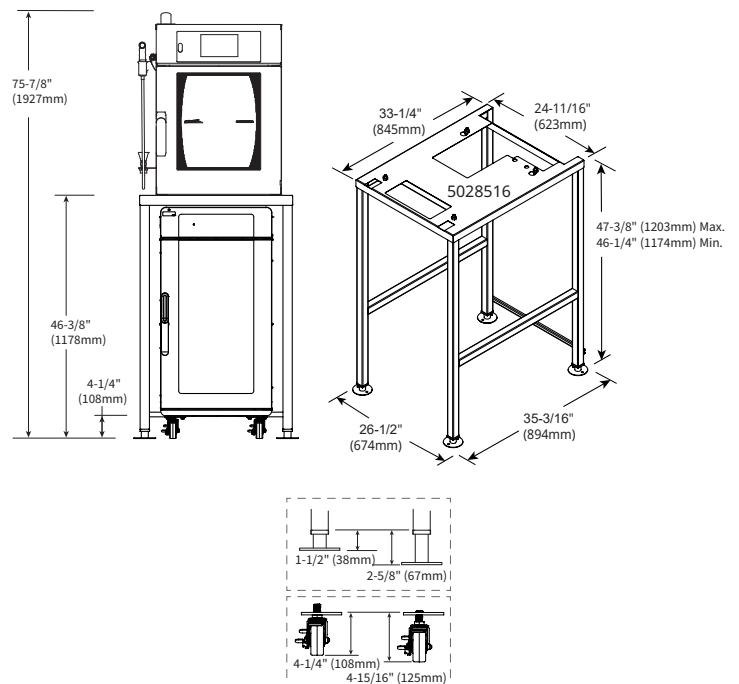
VMC-H on stand 5027834 over 500-S, 500-TH/II, or 500-TH/III



CTX4-10 on stand 5028514 over VMC-H3 or VMC-H3H



CTX4-10 on stand 5028516 over VMC-H4 or VMC-H4H



Dimensions shown are with adjustable feet and casters at minimum height.

CONTACT US

W164 N9221 Water Street | Menomonee Falls, Wisconsin 53051 | U.S.A.
 Phone: 262.251.3800 | 800.558.8744 U.S.A./Canada | Fax: 262.251.7067 | alto-shaam.com



**John
BOOS**
Since 1887

ITEM #: _____ QTY: _____
MODEL #: _____
PROJECT NAME: _____

011719

3601 S. Banker St. Effingham, IL 62401 • P.O. BOX 609 • Ph: (888) 431-2667 • Fax: (800) 433-2667

"E1S8" - 1 COMPARTMENT "E-SERIES" SINKS

W/ GALVANIZED LEGS



FEATURES:

- 18GA STAINLESS STEEL
- TYPE 300 STAINLESS STEEL WITH #4 POLISH, SATIN FINISH
- 12" AND 14" DEEP BOWLS
- ALL CORNERS, BOTH VERTICAL AND HORIZONTAL, COVED AT 3/4" RADIUS
- BOTTOMS OF BOWLS FORMED FOR DRAINAGE TO 3-1/2" DIAMETER DIE STAMPED OPENING
- FULL LENGTH 9-3/4" HIGH BOXED BACKSPLASH, WITH 2" RETURN TO WALL AT 45 DEGREE AND 1" TILE EDGE
- 1-1/8" FAUCET HOLES IN BACKSPLASH
- ALL OUTSIDE CORNERS OF ASSEMBLY ARE BULLNOSED TO PROVIDE SAFE, CLEAN, AND POLISHED EDGE
- STANDARD GALVANIZED LEGS 1-5/8" DIAMETER

CONSTRUCTION:

- TOP: STAINLESS STEEL SINKS ARE TIG WELDED, EXPOSED WELDS ARE POLISHED TO MATCH ADJACENT SURFACE
- BASE: GALVANIZED STEEL

MATERIAL:

- BOWLS & TOP: 18GA TYPE 300 STAINLESS STEEL WITH #4 POLISH, SATIN FINISH
- LEGS: 1-5/8" ROUND O.D. GALVANIZED STEEL
- GUSSETS: GALVANIZED STEEL
- FEET: 1" PLASTIC BULLET FEET

12" DEEP - 1 COMP SINK - 18GA

MODEL	BOWL SIZE (W ₁ X L ₁ X D)	QTY
E1S8-1620-12	20" X 16" X 12"	
E1S8-18-12	18" X 18" X 12"	

14" DEEP - 1 COMP SINK - 18GA

MODEL	BOWL SIZE (W ₁ X L ₁ X D)	QTY
E1S8-15-14	15" X 15" X 14"	
E1S8-1824-14	24" X 18" X 14"	
E1S8-24-14	24" X 24" X 14"	



E1S8-1824-14

Technical drawings of a stainless steel sink with dimensions and labels:

- Top View:** Shows the overall dimensions L (length) and W (width). The inner opening dimensions are L_1 and W_1 . A central drain hole is labeled $\text{Ø}3\frac{1}{2}"$. The depth of the sink body is labeled A .
- Front View (Left):** Shows the sink's profile. The top rim has a thickness of $5"$. The distance between the two mounting holes is $8"$. The mounting holes are labeled $\text{Ø}1\frac{1}{8}"$. The distance from the left edge to the first hole is labeled B . The legs are labeled $1\frac{5}{8}" \text{ RND } 16\text{GA GALV}$.
- Front View (Right):** Shows the sink's profile with dimensions for the height. The height from the sink roll to the top of the rim is $9\frac{3}{4}"$. The overall height is $43\frac{3}{4}"$. The distance from the sink roll to the top of the rim is also labeled $36"$. The bottom of the leg is labeled **ADJ PLASTIC BULLET**.

MODEL	L	W	L1	W1	A	B	WT (LBS)
E1S8-1620-12	21"	25-1/2"	16"	20"	12-15/16"	6-1/2"	36
E1S8-18-12	23"	23-1/5"	18"	18"	11-15/16"	7-1/2"	36

MODEL	L	W	L1	W1	A	B	WT (LBS)
E1S8-15-14	20"	20-1/2"	15"	15"	10-7/16"	6"	31
E1S8-1824-14	23"	29-1/2"	18"	24"	14-15/16"	7-1/2"	42
E1S8-24-14	29"	29-1/2"	24"	24"	14-15/16"	10-1/2"	48

John Boos & Co. is constantly engaged in a program of improving products and therefore reserves the right to change specifications without prior notice.



 Turbo air more durable, efficient, beautiful	4184 E. Conant St. Long Beach, CA 90808 Tel. 310-900-1000 Fax. 310-900-1077 www.turboairinc.com	
	Project:	
	Model #:	
	Item #:	
	Available W/H:	Qty:
	Approval:	
	AIA #:	SIS #:
	CSI Section 11400	

Solid Door Freezer

Reach-In Top Mount
M3 Series

Model : M3F24-1-N

FEATURES & BENEFITS

■ Self-Cleaning Condenser

The accumulation of dust in the condenser can cause the failure or breakdown of refrigerators. Refrigerators run normally until they reach a certain level of accumulation. At some point, when they are over the limit, their performance drops quickly resulting in damage to, or disposal of the stored products inside. The Self-Cleaning Condenser device keeps the condenser clean and prevents system failure by automatically brushing daily.

■ Digital temperature control & monitor system

- Keep food products safe by maintaining constant temperatures.
- Alarms that sound when doors are not sealed shut; protect against food spoilage that originates from cold air leaks.
- Early warning alarm program detects issues before malfunction occurs.
- Digital display allows for easy monitoring.
- Programs interpret the condition of refrigeration systems by self-diagnosis.
- Rapid cool-down function (Turbo Freeze).
- Smart defrost system will defrost as needed.
- Automatic evaporator fan motor delays.

■ Hydrocarbon refrigerants (R-290)

With innovative and eco-friendly technology, Turbo Air brings you hydrocarbon refrigerators designed to meet DOE's Energy Conservation Standards in 2017 and to use EPA's SNAP Program approved HC refrigerants. Hydrocarbon refrigerants do not deplete the ozone layer and have very low contribution to global warming (ODP-0, GWP-3).

■ Stainless steel exterior

The Turbo Air M3 freezer model boasts a stainless steel exterior (galvanized steel top, bottom and back) and AL interior with stainless steel floor. It guarantees the utmost in cleanliness and long product life. Sharp corners and edges have been rounded to reduce the risk of injury. The M3 adds a touch of style to the most refined setting.

■ Door pressure release device

Pressure relief doors are designed to eliminate vacuum pressure and allow easy, instant door opening.

■ Field reversible door hinge

■ LED interior lighting

■ Adjustable, heavy duty, PE (polyethylene) coated wire shelves

■ High-density polyurethane insulation

The entire cabinet structure and solid doors are foamed-in-place using high density, CFC free polyurethane insulation.

■ Top mount compressor

■ Freezer holds -10°F ~ 0°F for the best in frozen food preservation



Patented Self-Cleaning Condenser



This product is equipped with a fine mesh filter to the front of the condenser to catch dust, and a rotating brush that moves up and down daily to remove excess buildup outward and away.




ENERGY STAR®
Qualified

Model	Swing Door	CU./FT.	#of Shelves	HP	AMPS	Crated Weight (lbs.)	L x D* x H† (inches)
M3F24-1-N	1	21.6	3	3/8	4.4	280	28 3/4 x 30 3/4 x 78

Solid Door Freezer

Reach-In Top Mount
M3 Series

Model : M3F24-1-N

ELECTRICAL DATA	
Voltage	115/60/1
Plug Type	 NEMA 5-15P
Full Load Amperes	4.4
Compressor HP	3/8
Feed Wires with Ground	3
Cord Length (ft.)	9
Refrigerant	R-290
DIMENSIONAL DATA	
# of Doors	1
# of Racks Accepted	1
Net Capacity (cu. ft.)	21.6
Ext. Length Overall (in.)	28 3/4 (730mm)
Ext. Depth Overall (in.)*	30 3/4 (780mm)
Ext. Height Overall (in.)†	78 (1981mm)
Int. Length Overall (in.)	24 3/4 (629mm)
Int. Depth Overall (in.)	26 1/2 (675mm)
Int. Height Overall (in.)	60 5/8 (1539mm)
# of Shelves	3
Shelf Size (L x D) (in.)	24 x 23 1/2
Gross Weight (lbs.)	280

Design and specifications subject to change without notice.

Actual shipping weight may differ due to extra packing materials for product protection.

* Depth does not include 2" for rear condensate enclosure.

† Height does not include 5" for caster height.

■ WARRANTY : 3 Year Parts and Labor Warranty Additional 2 Year Warranty on Compressor

■ STANDARD FEATURES

- Anti-corrosion coated evaporator
- Self-contained system
- Standard 4" dia. swivel casters with locks on the front set
- Door locks standard
- Magnetic door gaskets
- Solid and sturdy grille design

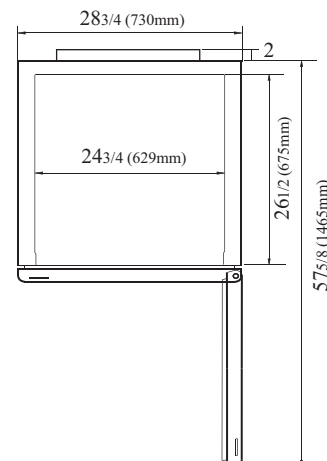
■ OPTIONAL ACCESSORIES

- 5" caster, 1/2" diameter & 13 TPI: M726500100 (non-brake), M726500200 (w/ brake)
- 6" stainless steel leg: 30221M0600
- Additional PE coated wire shelf: G2F0800100
- Half door bun tray rack: TSP-2224 (each holds up to six 18"L x 26"D sheet pans)
- Full door bun tray rack: TSP-2250 (each holds up to fifteen 18"L x 26"D sheet pans)

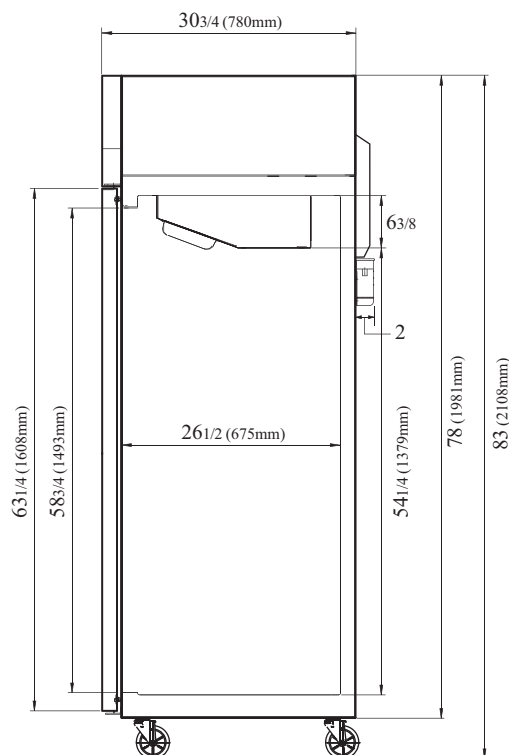
Ver.20210105

PLAN VIEW

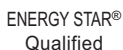
(unit : inch)



TOP VIEW



SIDE VIEW



- Turbo Air : 800-627-0032 ■ GK : 800-500-3519
- Warranty : 800-381-7770 ■ AC : 888-900-1002



Continued product development may necessitate specification changes without notice.



**John
BOOS**
Since 1887

ITEM #: _____ QTY: _____
MODEL #: _____
PROJECT NAME: _____

111418

3601 S. Banker St. Effingham, IL 62401 • P.O. BOX 609 • Ph: (888) 431-2667 • Fax: (800) 433-2667

"ST6R1.5-GSK" STAINLESS STEEL TOP WORK TABLES

16GA TOP W/ 1.5" RISER AND GALV LEGS AND ADJUSTABLE UNDERSHELF



FEATURES:

- 16 GAUGE STAINLESS STEEL TOP
- TYPE 300 STAINLESS STEEL WITH #4 POLISH, SATIN FINISH
- TOP IS SOUND DEADENED
- REINFORCED WITH 1" X 2" CHANNEL RUNNING LENGTH OF TABLE
- 1-1/2" STALLION EDGE ON FRONT AND 1-1/2" BACKSPLASH ON REAR WITH SIDE EDGES 90 DEGREE BEND DOWN FOR TABLE LINE-UP
- GALVANIZED BASE WITH ADJUSTABLE UNDERSHELF
- ADJUSTABLE BULLET FEET
- SHIPPED KNOCKED-DOWN, EASY-TO-ASSEMBLE
- NSF CERTIFIED



ST6R1.5-3048GSK

CONSTRUCTION:

- TOP: STAINLESS STEEL TOPS ARE TIG WELDED, EXPOSED WELDS ARE POLISHED TO MATCH ADJACENT SURFACE

MATERIAL:

- TOP: 16 GAUGE, TYPE 300 STAINLESS STEEL WITH #4 POLISH, SATIN FINISH
- SHELF: 18 GAUGE GALVANIZED STEEL, (36" WIDE TABLES, 16 GAUGE LOWER SHELF)
- LEGS: 1-5/8" ROUND O.D., 16 GAUGE TUBULAR GALVANIZED STEEL
- GUSSETS: GALVANIZED STEEL
- FEET: 1" ADJUSTABLE STAINLESS STEEL BULLET FEET



ADJUSTABLE SHELF

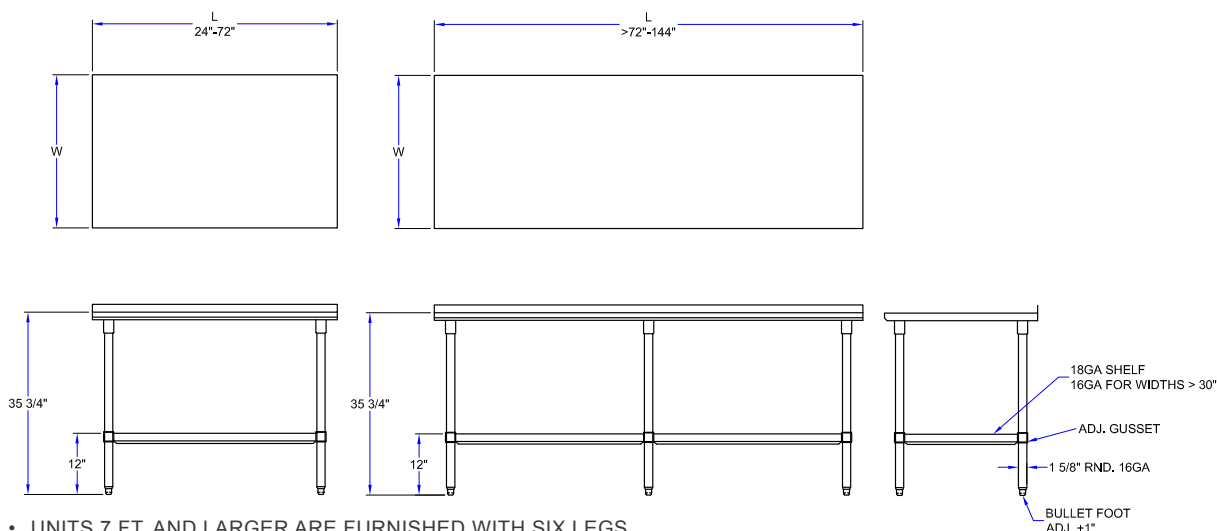
16 GAUGE TOP W/ ADJUSTABLE SHELF

24" WIDE	QTY	30" WIDE	QTY	36" WIDE	QTY
ST6R1.5-2424GSK		ST6R1.5-3024GSK		ST6R1.5-3624GSK	
ST6R1.5-2430GSK		ST6R1.5-3030GSK		ST6R1.5-3630GSK	
ST6R1.5-2436GSK		ST6R1.5-3036GSK		ST6R1.5-3636GSK	
ST6R1.5-2448GSK		ST6R1.5-3048GSK		ST6R1.5-3648GSK	
ST6R1.5-2460GSK		ST6R1.5-3060GSK		ST6R1.5-3660GSK	
ST6R1.5-2472GSK		ST6R1.5-3072GSK		ST6R1.5-3672GSK	
ST6R1.5-2484GSK		ST6R1.5-3084GSK		ST6R1.5-3684GSK	
ST6R1.5-2496GSK		ST6R1.5-3096GSK		ST6R1.5-3696GSK	
ST6R1.5-24108GSK		ST6R1.5-30108GSK		ST6R1.5-36108GSK	
ST6R1.5-24120GSK		ST6R1.5-30120GSK		ST6R1.5-36120GSK	
ST6R1.5-24132GSK		ST6R1.5-30132GSK		ST6R1.5-36132GSK	
ST6R1.5-24144GSK		ST6R1.5-30144GSK		ST6R1.5-36144GSK	

OPTIONAL ACCESSORIES

DESCRIPTION	MODEL #	QTY
DRAWER		
DRAWER LOCK		
CASTERS		
OVERSHELVES		
SINKS		
POT RACK		

DETAILED SPECIFICATIONS



- UNITS 7 FT. AND LARGER ARE FURNISHED WITH SIX LEGS.
- FINISHED SIZE OF UNDERSHELF.
SHELF LENGTH = LENGTH MINUS 4.875"
SHELF WIDTH = WIDTH MINUS 4.25

16 GAUGE TOP W/ ADJUSTABLE UNDERSHELF

LENGTH	24" WIDE	WT. (LBS)	30" WIDE	WT. (LBS)	36" WIDE	WT. (LBS)
24"	ST6R1.5-2424GSK	42	ST6R1.5-3024GSK	47	ST6R1.5-3624GSK	56
30"	ST6R1.5-2430GSK	47	ST6R1.5-3030GSK	53	ST6R1.5-3630GSK	66
36"	ST6R1.5-2436GSK	53	ST6R1.5-3036GSK	60	ST6R1.5-3636GSK	73
48"	ST6R1.5-2448GSK	65	ST6R1.5-3048GSK	74	ST6R1.5-3648GSK	90
60"	ST6R1.5-2460GSK	76	ST6R1.5-3060GSK	88	ST6R1.5-3660GSK	107
72"	ST6R1.5-2472GSK	88	ST6R1.5-3072GSK	101	ST6R1.5-3672GSK	126
84"	ST6R1.5-2484GSK	107	ST6R1.5-3084GSK	123	ST6R1.5-3684GSK	152
96"	ST6R1.5-2496GSK	118	ST6R1.5-3096GSK	136	ST6R1.5-3696GSK	170
108"	ST6R1.5-24108GSK	130	ST6R1.5-30108GSK	149	ST6R1.5-36108GSK	187
120"	ST6R1.5-24120GSK	140	ST6R1.5-30120GSK	163	ST6R1.5-36120GSK	204
132"	ST6R1.5-24132GSK	152	ST6R1.5-30132GSK	177	ST6R1.5-36132GSK	221
144"	ST6R1.5-24144GSK	164	ST6R1.5-30144GSK	191	ST6R1.5-36144GSK	238

MODEL # STRUCTURE

24 = WIDTH OF WORK SURFACE
1.5 = HT. OF RISER W/ TURNDOWN
R = RISER TOP WORK TABLE
6 = 16GA WORK SURFACE
ST = STAINLESS STEEL TOP

30 = LENGTH OF WORK SURFACE
GS = GALVANIZED LEGS & SHELF
K = K.D. W/ ADJUSTABLE BRACING

ST6R1.5-2430GSK

SOME UNITS SHIP UNASSEMBLED FOR REDUCED SHIPPING COST. ALL DIMENSIONS ARE TYPICAL. TOLERANCE +/- .500"

John Boos & Co. is constantly engaged in a program of improving products and therefore reserves the right to change specifications without prior notice.



Boos
locks

AQ AutoQuotes

3601 S. Banker St. • Effingham, IL 62401 • PO BOX 609 • quotes@johnboos.com

www.johnboos.com

111918

223

<div><div>REFRIGERATOR MANUFACTURER</div><div><div>Turbo</div><div>air</div></div><div>more durable, efficient, beautiful</div></div>	4184 E. Conant St. Long Beach, CA 90808 Tel. 310-900-1000 Fax. 310-900-1077 www.turboairinc.com	Project:	
		Model #:	
		Item #:	
		Available W/H:	Qty:
		Approval:	
		AIA #:	SIS #:
		CSI Section 11400	

Sandwich / Salad Unit

Food Prep Tables
M3 Series

Patented Self-Cleaning Condenser



This product is equipped with a fine mesh filter to the front of the condenser to catch dust, and a rotating brush that moves up and down daily to remove excess buildup outward and away.



Model : MST-28-N

FEATURES & BENEFITS

Self-Cleaning Condenser

The accumulation of dust in the condenser can cause the failure or breakdown of refrigerators. Refrigerators run normally until they reach a certain level of accumulation. At some point, when they are over the limit, their performance drops quickly resulting in damage to, or disposal of the stored products inside. The Self-Cleaning Condenser device keeps the condenser clean and prevents system failure by automatically brushing daily.

Digital temperature control & monitor system

Keep food products safe by maintaining constant temperatures. External digital display allows for easy monitoring.

Hydrocarbon refrigerants (R-290)

With innovative and eco-friendly technology, Turbo Air brings you hydrocarbon refrigerators designed to meet DOE's Energy Conservation Standards in 2017 and to use EPA's SNAP Program approved HC refrigerants. Hydrocarbon refrigerants do not deplete the ozone layer and have very low contribution to global warming (ODP-0, GWP-3).

Cold Bunker system

Our innovative forced air system allows cold air to flow all around the food pan area, covering not only underneath the pan, but also the front, top and the rear. This unique air flow creates a cold air-shield around the pan, which maintains the food temperature at under 41°F (NSF requirement) even when the lids are opened. In addition, the compartment isolates pans from the reach-in area to prevent food spillage.

Field reversible hinge

Stainless steel exterior

The Turbo Air M3 model boasts a stainless steel exterior (galvanized steel back and bottom). Interior is AL interior with stainless steel floor and ABS door liner. It guarantees the utmost in cleanliness and long product life. The M3 model adds a touch of style to the most refined setting.

High-density polyurethane insulation

The entire cabinet structure and solid doors are foamed-in-place using high density, CFC free polyurethane insulation.

Insulated pan cover

9-1/2" deep, 1/2" thick high-density Polyethylene cutting board included with convenient side rail

Adjustable, heavy duty, PE (polyethylene) coated wire shelves

LED interior lighting & fan control

Energy efficient LED lighting lights every corner, making items easy to find. Fan control function automatically shuts off the fan when the door is open, which prevents hot air from being drawn in, thus maintaining the cool inner temperature.

Refrigerator holds 33°F ~ 39°F for the best in food preservation




Model	Swing Doors	CU./FT.	#of Shelves	#of Pans	#of Hood	HP	AMPS	Crated Weight (lbs.)	L x D x H† (inches)
MST-28-N	1	7	1	8	1	1/5	3.8	198	27 1/2 x 30 x 37

Sandwich / Salad Unit

Food Prep Tables
M3 Series

Model : MST-28-N

ELECTRICAL DATA	
Voltage	115/60/1
Plug Type	 NEMA 5-15P
Full Load Amperes	3.8
Compressor HP	1/5
Cord Length (ft.)	9
Refrigerant	R-290
DIMENSIONAL DATA	
Ext. Length Overall (in.)	27 1/2 (698mm)
Ext. Depth Overall (in.) *	30 (762mm)
Ext. Height Overall (in.) †	37 (940mm)
# of Doors	1
# of Shelves	1
# of Pans	8
Net Capacity (cu. ft.)	7
Shelf Size (L x D) (in.)	22 1/2 x 17
Net Weight (lbs.)	181
Gross Weight (lbs.)	198

Design and specifications subject to change without notice.

Actual shipping weight may differ due to extra packing materials for product protection.

* Depth does not include 1" for rear spacers.

† Height does not include 5" for caster height.

■ WARRANTY : 3 Year Parts and Labor Warranty Additional 2 Year Warranty on Compressor

■ STANDARD FEATURES

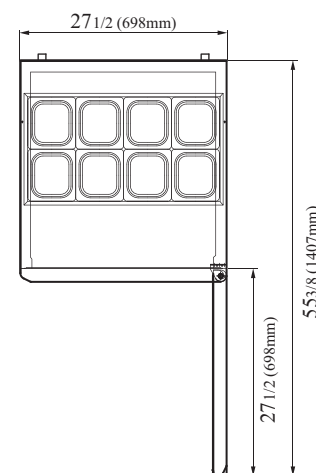
- Anti-corrosion coated evaporator
- Self-contained system
- Standard 4" dia. swivel casters with locks on the front set
- Standard 1/6 size, 4" deep condiment pans included

■ OPTIONAL ACCESSORIES

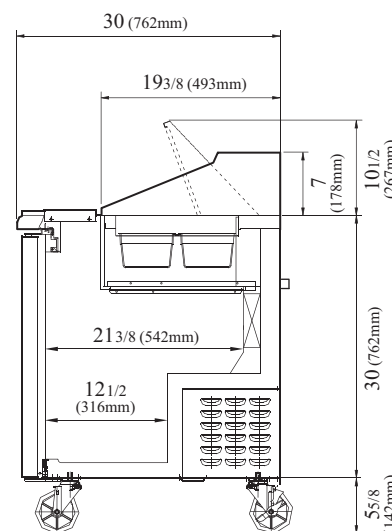
- 1" caster, 1/2" diameter & 13 TPI: S28R813660 (non-brake)
- 2.5" caster, 1/2" diameter & 13 TPI: 30265H0100 (non-brake), 30265H0200 (w/ brake)
- 5" caster, 1/2" diameter & 13 TPI: M726500100 (non-brake), M726500200 (w/ brake)
- Leveling leg, 1/2" - 13 TPI x 1.54": LFM1213566
- 6" ABS plastic leg: 30221M0200
- 6" stainless steel leg: 30221M0600
- Removable food cover: RCT-28
- Clear lid: CL-28
- Door lock: lead time applies. Please contact your sales representative for more details to order.

PLAN VIEW

(unit : inch)



TOP VIEW



SIDE VIEW

Ver.20210615



- Turbo Air : 800-627-0032 ■ GK : 800-500-3519
- Warranty : 800-381-7770 ■ AC : 888-900-1002



Continued product development may necessitate specification changes without notice.


INDIGO[®] NXT

iT0450 Ice Cube Machine

iT0450 Ice Cube Machine

Models

☐ IDT0450A ☐ IYT0450A ☐ IDT0450W ☐ IYT0450W


Indigo NXT Series iT0450
Ice Machine on D400 Bin

Designed for operators who know that ice is critical to their business, the Indigo NXT Series ice machine's preventative diagnostics continually monitor itself for reliable ice production. Improvements in cleanability and programmability make your ice machine easy to own and less expensive to operate.

- **New levels of Performance** – Showcasing an average of 9% lower energy consumption, up to 12% increase in ice production and a 19% reduction in condenser water usage and a 5% reduction in potable water usage. . This translates into lower cost of ownership over the life of your machine.
- **easyTouch[®] Display** - New icon based touch screen takes the guess work out of owning and operating an ice machine.
- **Programmable Ice Production** – Now its super easy to program your ice machine to be off at certain times of the day to save money with fluctuating electrical rates. Also programmable by daily ice production volume and night time programming..
- **Easy to Clean Foodzone** – Hinge front door swing out for easy access. Removable water-trough, distribution tube, curtain, water probe and water pump for fast and efficient cleaning. Selected components are made with AlphaSan[®] antimicrobial.
- **Intelligent Diagnostics** – Provides 24 hour preventative maintenance and diagnostic feedback for trouble free operation.
- **Acoustical Ice Sensing Probe** – Unique patented technology allows for reliable operation in challenging water conditions and environments
- **DuraTech[®] Exterior** – Provides superior corrosion resistant above stainless steel. Innovative clear-coat resists fingerprints and dirt making it easier to keep clean.
- Available **LuminIce[®] II Virus and Bacteria Inhibitor** – Controls viruses, bacteria, and yeast within the food zone to keep the ice machine cleaner longer. A new sanitation icon lets you know the operational status.
- **Active Sense**- insures consistent ice harvest in all environmental conditions. This software works in con junction with the acoustical ice sensing probe improving reliability and performance.

Ice Machine Electric

115/60/1 standard
(208-230/60/1 also available)

Minimum circuit ampacity:

Air-cooled: 115v : 11.9, 208-230v : 5.6
Water-cooled: 115v : 11.2, 208-230v : 5.3

Maximum fuse size:

Air Cooled: 20 amps
Water cooled & 208-230 V: 15 amps

Specifications

BTU Per Hour:

3,800 (average),
and 6,000 (peak)

Refrigerant:

R410A CFS - Free
Lowers global warming
by 48%

Operating Limits:

- Ambient Temperature Range:
40 to 110 F (4.4 to 43.3 C)
Water Temperature Range:
40 to 90 F (4.4 to 32.2 C)
- Potable Water Pressure:
Min. 20 psi (137.9 kPa)
Max. 80 psi (551.1 kPa)
- Condenser Water Pressure:
Min. 20 psi (137.9 kPa)
Max. 276 psi (1902.95 kPa)



Ice Shape



Half Dice
 $\frac{3}{8}" \times 1\frac{1}{8}" \times \frac{7}{8}"$
(.95 x 2.86 x 2.22 cm)



Dice
 $\frac{7}{8}" \times \frac{7}{8}" \times \frac{7}{8}"$
(2.22 x 2.22 x 2.22 cm)



2110 South 26th Street
Manitowoc, WI 54220

Tel: 1.920.682.0161
Fax: 1.920.683.7589

www.manitowocice.com





Indigo® NXT™ iT0450 Ice Cube Machine

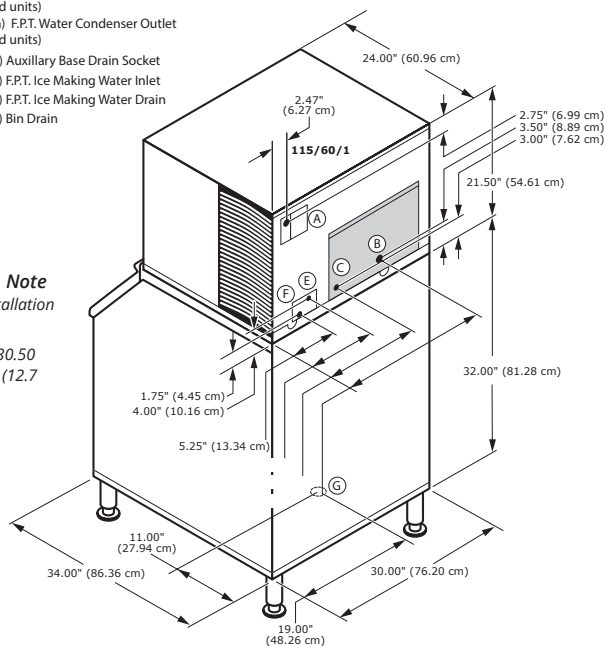
iT0450 on D-400 Storage Bin

- A Electrical Entrance (2) Options
- B 3/8" (0.95 cm) F.P.T. Water Condenser Inlet (water-cooled units)
- C 1/2" (1.27 cm) F.P.T. Water Condenser Outlet (water-cooled units)
- D 1/2" (1.27 cm) Auxiliary Base Drain Socket
- E 3/8" (0.95 cm) F.P.T. Ice Making Water Inlet
- F 1/2" (1.27 cm) F.P.T. Ice Making Water Drain
- G 3/4" (1.91 cm) Bin Drain

Installation Note

Minimum installation clearance:

Top/side: 8" (30.50 cm)
Back is 5" (12.7 cm)



Space-Saving Design



	iT0450 D-400	iT0450 D-570
Height	59.50" 151.13 cm	71.50" 181.61 cm
Width	30.00" 76.2 cm	30.00" 76.2 cm
Depth	34.00" 86.30 cm	34.00" 86.30 cm
Bin	365 lbs.	532 lbs.
Storage	165.7 kgs.	241.1 kgs.

Height includes adjustable bin legs 6.00" to 8.00", (15.24 to 20.32 cm) set at 6.00" (15.24 cm).
Bin capacity is based on 90% of the volume x 33 lbs/ft³ average density of ice.

Specifications

	Model	Ice Shape	Ice Production 24 Hours		Power Usage kWh/100 lbs. @90°F Air/70°F F	Potable Water Usage/100 lbs. 45.4 kgs. of Ice
			70°F Air/ 50°F Water	90°F Air/ 70°F Water		
AIR COOLED	IDT0450A	dice	470 lbs.	358 lbs.	5.63 ★	19 Gal.
			213 kgs	162 kgs		71.9 L
	IYT0450A	half-dice	490 lbs.	378 lbs.	5.52 ★	19 Gal.
			222 kgs	171 kgs		71.9 L
WATER COOLED	IDT0450W	dice	430 lbs.	360 lbs.	4.75	19 Gal.
			195 kgs	163 kgs		71.9 L
	IYT0450W	half-dice	470 lbs.	420 lbs.	4.20	19 Gal.
			213 kgs.	191 kgs		71.9 L

* Water-cooled Condenser Water Usage / 100 lbs. /45.4 kgs. Of Ice: 140 gal/ 530 L.

*Water-cooled models are excluded from ENERGY STAR qualification.

Order separately: Ice storage bin for all units



Accessories

**LuminIce® II
Virus and Bacteria
Inhibitor**
controls viruses and
bacteria in the ice
machine.



**External
Scoop holder**
protect the ice scoop
with the NSF approved
versatile scoop holder.



Arctic Pure® Plus
reduce sediments and
chlorine contaminants
down to .5 microns.
Use with a Pre-filter is
recommended.



iAuCS®
schedules and
performs routine ice
machine cleaning
automatically.



Welbilt reserves the right to make changes to the design or specifications without prior notice.

2110 South 26th Street
Manitowoc, WI 54220

Tel: 1.920.682.0161
Fax: 1.920.683.7589

www.manitowocice.com
6478B 05/2021





ICE MACHINE WARRANTY

Manitowoc Ice, Inc. (hereinafter referred to as the "COMPANY") warrants for a period of thirty-six months from the installation date (except as limited below) that new ice machines manufactured by the COMPANY shall be free of defects in material or workmanship under normal and proper use and maintenance as specified by the COMPANY and upon proper installation and start-up in accordance with the instruction manual supplied with the ice machine. The COMPANY'S warranty hereunder with respect to the compressor shall apply for an additional twenty-four months, excluding all labor charges, and with respect to the evaporator for an additional twenty-four months, including labor charges.

The obligation of the COMPANY under this warranty is limited to the repair or replacement of parts, components, or assemblies that in the opinion of the COMPANY are defective. This warranty is further limited to the cost of parts, components or assemblies and standard straight time labor charges at the servicing location.

Time and hourly rate schedules, as published from time to time by the COMPANY, apply to all service procedures. Additional expenses including without limitation, travel time, overtime premium, material cost, accessing or removal of the ice machine, or shipping are the responsibility of the owner, along with all maintenance, adjustments, cleaning, and ice purchases. Labor covered under this warranty must be performed by a COMPANY Contracted Service Representative or a refrigeration service agency as qualified and authorized by the COMPANY'S local Distributor. The COMPANY'S liability under this warranty shall in no event be greater than the actual purchase price paid by customer for the ice machine.

The foregoing warranty shall not apply to (1) any part or assembly that has been altered, modified, or changed; (2) any part or assembly that has been subjected to misuse, abuse, neglect, or accidents; (3) any ice machine that has been installed and/or maintained inconsistent with the technical instructions provided by the COMPANY; or (4) any ice machine initially installed more than five years from the serial number production date. This warranty shall not apply if the Ice Machine's refrigeration system is modified with a condenser, heat reclaim device, or parts and assemblies other than those manufactured by the COMPANY, unless the COMPANY approves these modifications for specific locations in writing.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES OR GUARANTEES OF ANY KIND, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

In no event shall the COMPANY be liable for any special, indirect, incidental or consequential damages. Upon the expiration of the warranty period, the COMPANY'S liability under this warranty shall terminate.

The foregoing warranty shall constitute the sole liability of the COMPANY and the exclusive remedy of the customer or user. To secure prompt and continuing warranty service, the warranty registration card or register on line within five (5) days from the installation date.

MANITOWOC ICE, INC.

2110 So. 26th St., P.O. Box 1720, Manitowoc, WI 54221-1720

Telephone: 920-682-0161 • Fax: 920-683-7585

Web Site - www.manitowocice.com

Form 80-0373-3 Rev. 01/02



LIMITED WARRANTY FOR ICE STORAGE BIN & DISPENSERS

LIMITED WARRANTY

Manitowoc Ice a division of Manitowoc FSG Operations, LLC, ("Company") warrants that new Ice Storage Bins or Dispensers sold by Company shall be free of defects in material or workmanship under normal and proper use and maintenance as specified by the Company and upon proper installation and start-up in accordance with the instruction manual supplied.

WHAT IS COVERED

- Parts and Labor for a period of three (3) years.
 - Accessory Ice Transport Carts for two (2) years parts and labor.
- The Ice Storage Bin / Dispenser warranty begins on the date of the original installation. This warranty shall not apply to any Ice Storage Bin or Dispenser initially installed more than five (5) years from the serial number production date.

The obligation of the Company under this warranty is limited to the repair or replacement of parts, components, or assemblies that in the sole opinion of the Company are defective. This warranty is further limited to the cost of parts, components or assemblies and standard straight time labor charges at the servicing location.

Time and hourly rate schedules, as published from time to time by the Company, apply to all service procedures. Additional expenses including without limitation, travel time, overtime premium, material cost, accessing or removal of the Ice Storage Bin / Dispenser, or shipping are the responsibility of the purchaser, along with all maintenance, adjustments, cleaning, and ice purchases. Labor covered under this warranty must be performed by an approved Company contracted Service Representative or a refrigeration service agency as qualified and authorized by the Company's local Distributor. The Company's liability under this warranty shall in no event be greater than the actual purchase price paid by purchaser for the Ice Storage Bin or Dispenser.

EXCLUSIONS FROM COVERAGE

- Repair or replacement of parts required because of misuse, improper care or storage, negligence, alteration, use of incompatible supplies or lack of specified maintenance shall be excluded.
- Normal maintenance items.
- Failures caused by adverse environmental, water conditions, or improper drainage.
- Improper or unauthorized repair.
- Any Ice Storage Bin / Dispenser that has been installed and/or maintained inconsistent with the instructions provided by the Company.
- Parts subject to damage beyond the control of Company, or to Ice Storage Bin's / Dispenser's which have been subject to accidents, damage in shipment, fire, floods, other hazards or acts of God that are beyond the control of the Company.
- This Limited Warranty shall not apply if the Ice Storage Bin / Dispenser is modified with parts and assemblies other than those manufactured by the Company, unless the Company approves these modifications for specific locations in writing prior to the commencement of such modification.

LIMITATIONS OF LIABILITY

The preceding paragraphs set forth the exclusive remedy for all claims based on failure of, or defect in, Ice Storage Bins or Dispensers sold hereunder, whether the failure or defect arises before or during the warranty period, and whether a claim, however instituted, is based on contract, indemnity, warranty, tort (including negligence), strict liability, implied by statute, common-law or otherwise, and Company and agents shall not be liable for any claims for personal injuries or consequential damages or loss, howsoever caused. Upon the expiration of the warranty period, all such liability shall terminate. THE FOREGOING WARRANTIES ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, WHETHER WRITTEN, ORAL, IMPLIED OR STATUTORY. NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE SHALL APPLY, COMPANY DOES NOT WARRANT ANY PRODUCTS OR SERVICES OF OTHERS.

REMEDIES

The liability of Company for breach of any warranty obligation hereunder is limited to: (i) the repair or replacement of the Ice Storage Bin or Dispenser on which the liability is based, or with respect to services, re-performance of the services; or (ii) at Company's option, the refund of the amount paid for said equipment or services. Any breach by Company with respect to any item or unit of equipment or services shall be deemed a breach with respect to that item or unit or service only.

WARRANTY CLAIM PROCEDURE

Customer shall be responsible to:

- Complete and return warranty registration card or register on line within five (5) days from the installation date.
- All warranty service must be performed by an approved Manitowoc contracted or authorized Service Representative. To schedule a service appointment contact your local Manitowoc Service Representative or visit us at www.manitowocice.com to find a Service Representative near you.

GOVERNING LAW

This Limited Warranty shall be governed by the laws of the state of Wisconsin, USA, excluding their conflicts of law principles. The United Nations Convention on Contracts for the International Sale of Goods is hereby excluded in its entirety from application to this Limited Warranty.

COMPLETE AND RETAIN FOR YOUR RECORD:

Distributor/Dealer _____

Model Number _____

Serial Number _____

Installation Date _____

Manitowoc Ice
2110 South 26th Street
P.O. Box 1720
Manitowoc, WI 54221-1720
Web site: www.manitowocice.com

HEAT&GLO

No one builds a better fire

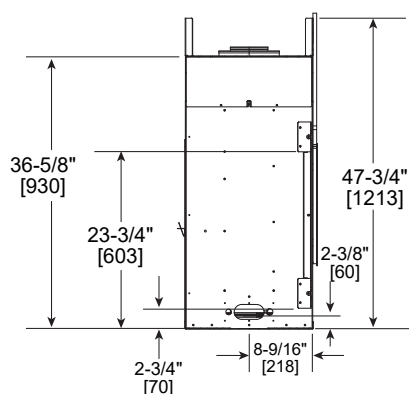
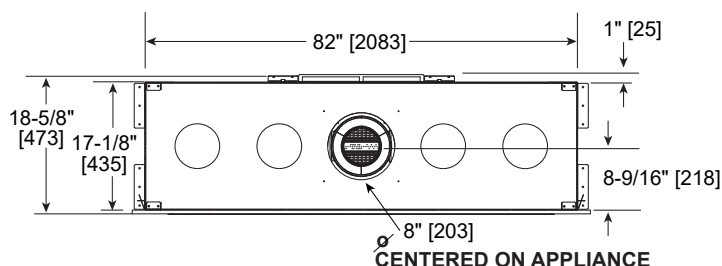
Please consult the manufacturer's installation manual for all details and requirements before making a final design layout decision.

MEZZO72

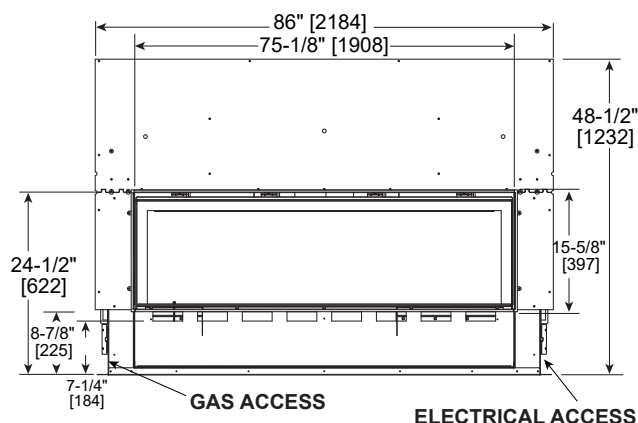
72" Direct Vent Gas Fireplace

MODEL	FRONT WIDTH		BACK WIDTH		HEIGHT		DEPTH		GLASS SIZE
MEZZO72	Actual	Framing	Actual	Framing	Actual	Framing	Actual	Framing	71-1/2 x 12-1/2
	82	84-1/4	82	84-1/4	47-3/4	48	17-1/8	18-1/4	

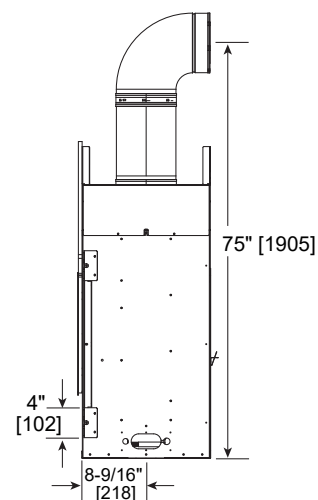
Top



Left



Front

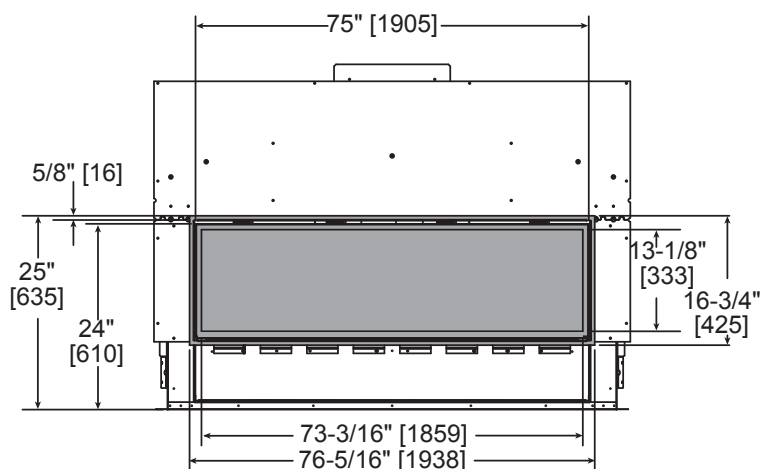


Right

BEFORE FRAMING, PLEASE NOTE:

A minimum of 30" of vertical venting is required before attaching any elbow to the appliance.

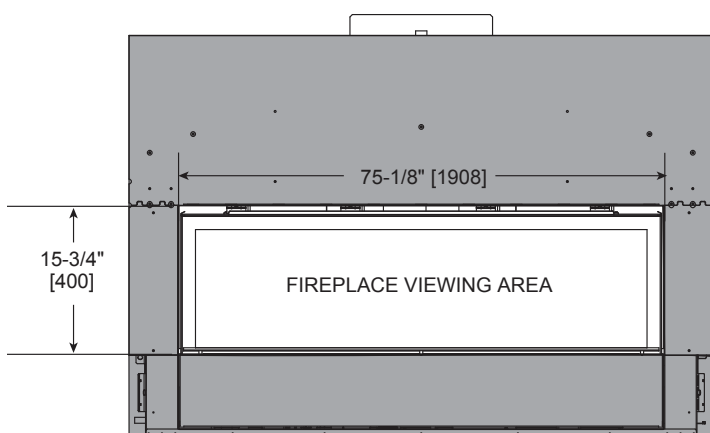
FRONT DIMENSIONS



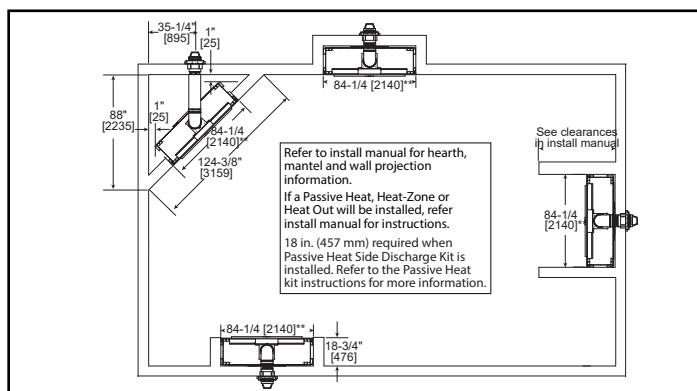
Clean Face Trim

- Rectangular holes on bottom of access panel should be covered.
- Approved for 0"-4" finishing material on inside fit method
- If finishing materials are 0-1" thick, the outer trim ring should be adjusted out so that the trim ring overlaps the finishing material. This is intended to provide the cleanest look.
- If finishing materials are 1-4" thick, install the trim ring all the way in and place finishing material over the trim ring.

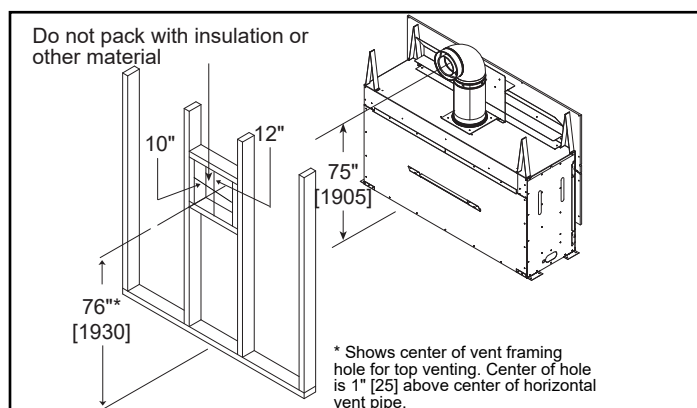
FINISHED OPENING DIMENSIONS

Inside Fit Method
(Clean Face Trim)

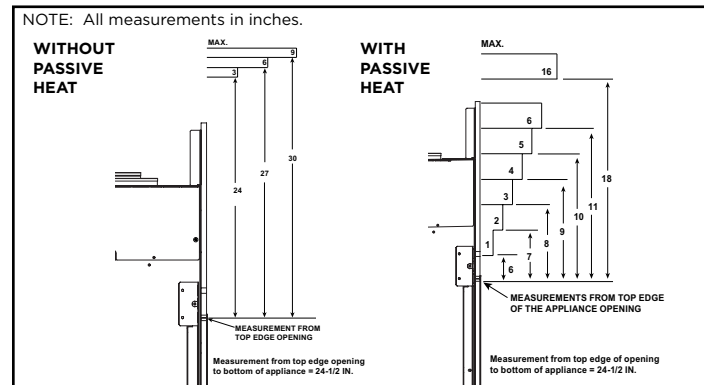
APPLIANCE LOCATION



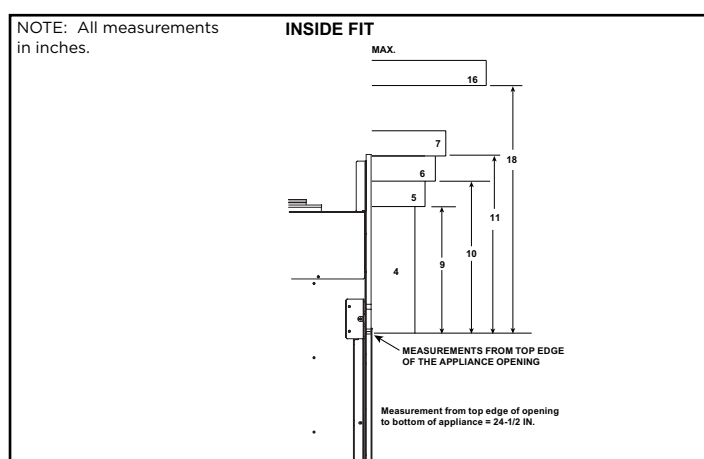
WALL PENETRATION



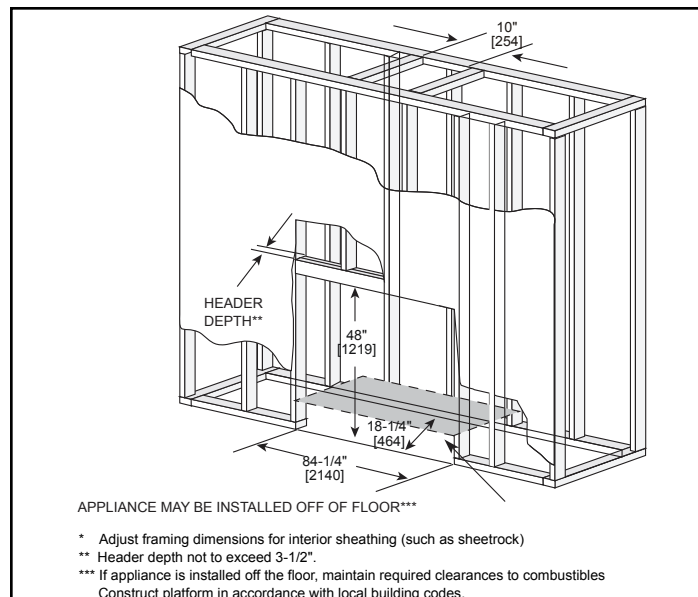
MANTEL PROJECTIONS - COMBUSTIBLE



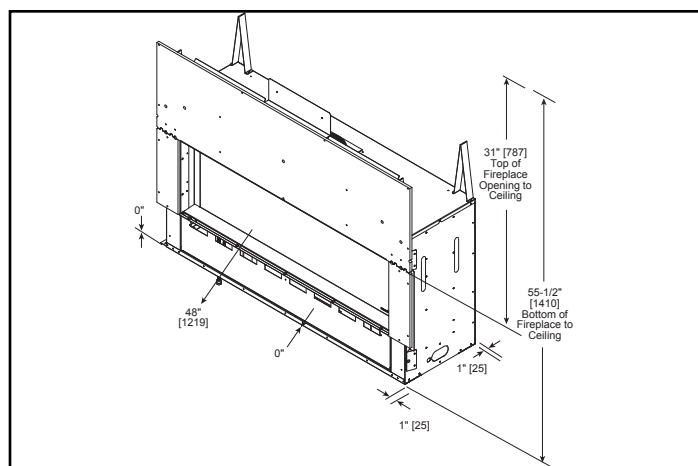
MANTEL PROJECTIONS - NON-COMBUSTIBLE



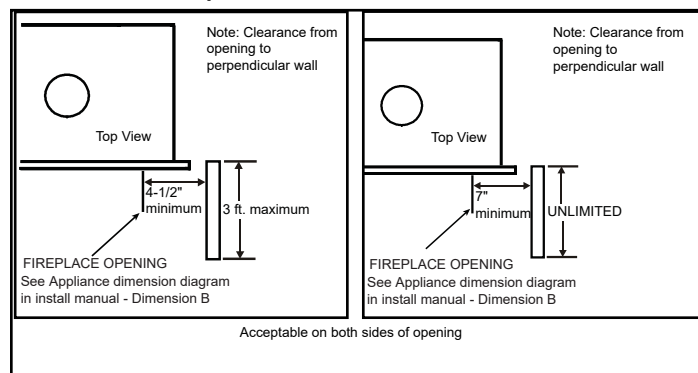
FRAMING DIMENSION



CLEARANCES TO COMBUSTIBLES



MANTEL LEG/WALL PROJECTIONS

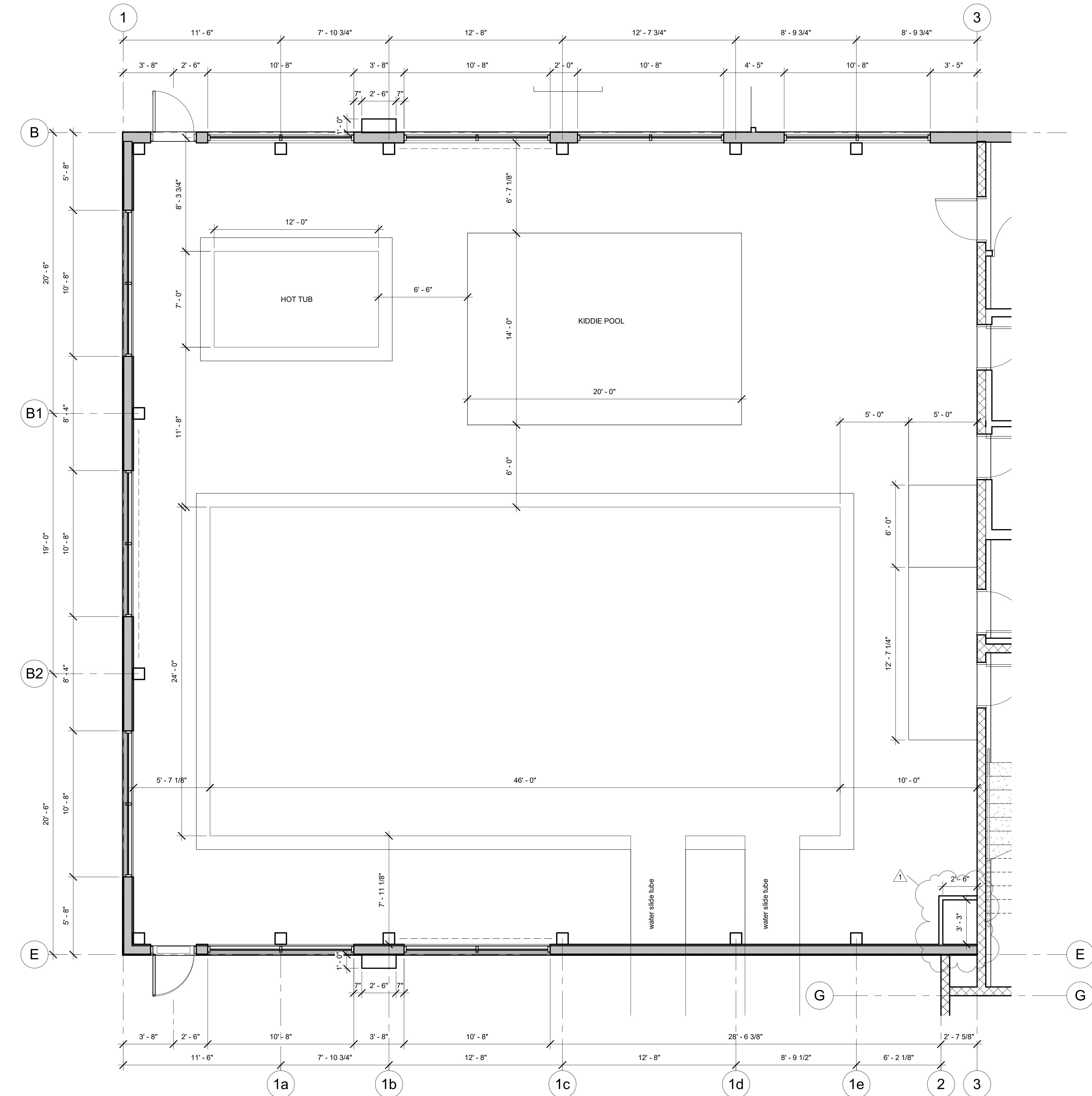


PRODUCT LISTING CODES

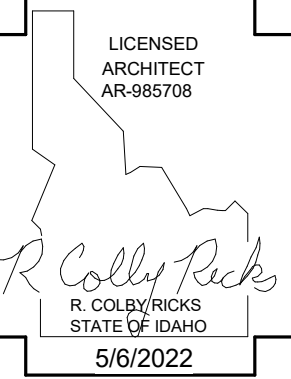
US	ANSI Z21.88-2017
CAN	CSA 2.33-2017
UL US LISTED	UL307B

Product information provided is not complete and is subject to change without notice. Product installation must adhere strictly to instructions accompanying product to avoid risk of fire and potential injury.

Additional information can be found online at www.heatnglo.com



1 DIM MAIN LEVEL FLOOR PLAN - Callout 1
1/4" = 1'-0"



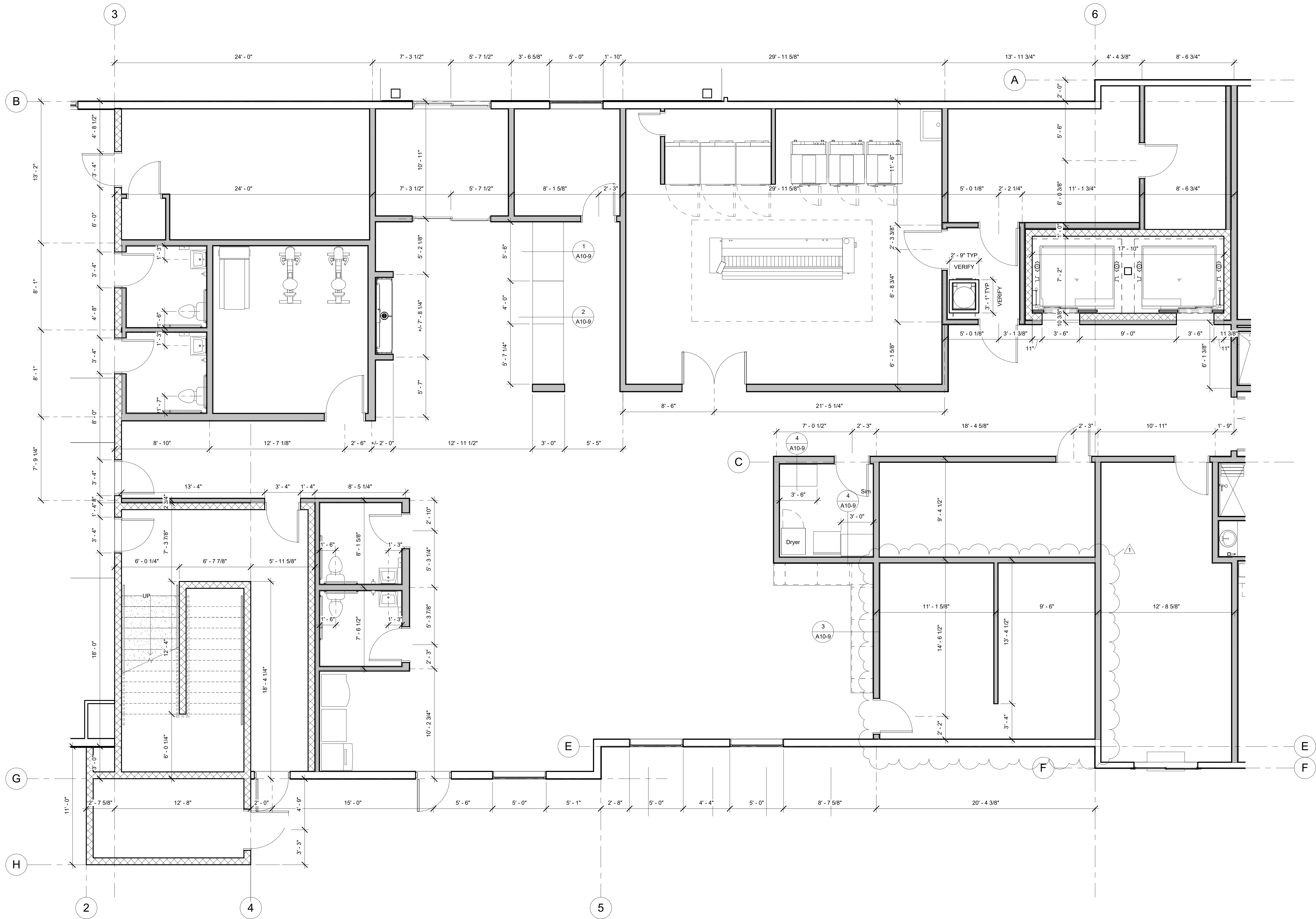
DATE	6-2-22	REV	1
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A NEW HOTEL FOR:
TERRA DEVELOPMENT LLC
TWIN FALLS, ID
MAIN DIM PLAN - CALLOUT 1

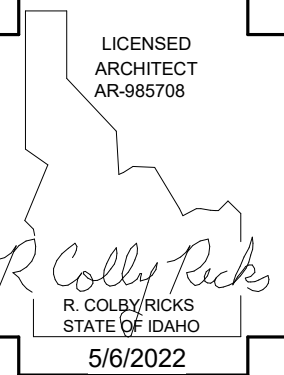
Laughlin Ricks Architecture
architecture/planning
134 3RD AVE. E. * Twin Falls, Idaho 83301
PHONE: (208) 736-8050

DATE:	5/6/2022
NM	RCR
Drawn	Checked

A2-6



1 DIM MAIN LEVEL FLOOR PLAN - Callout 2
1/4" = 1'-0"

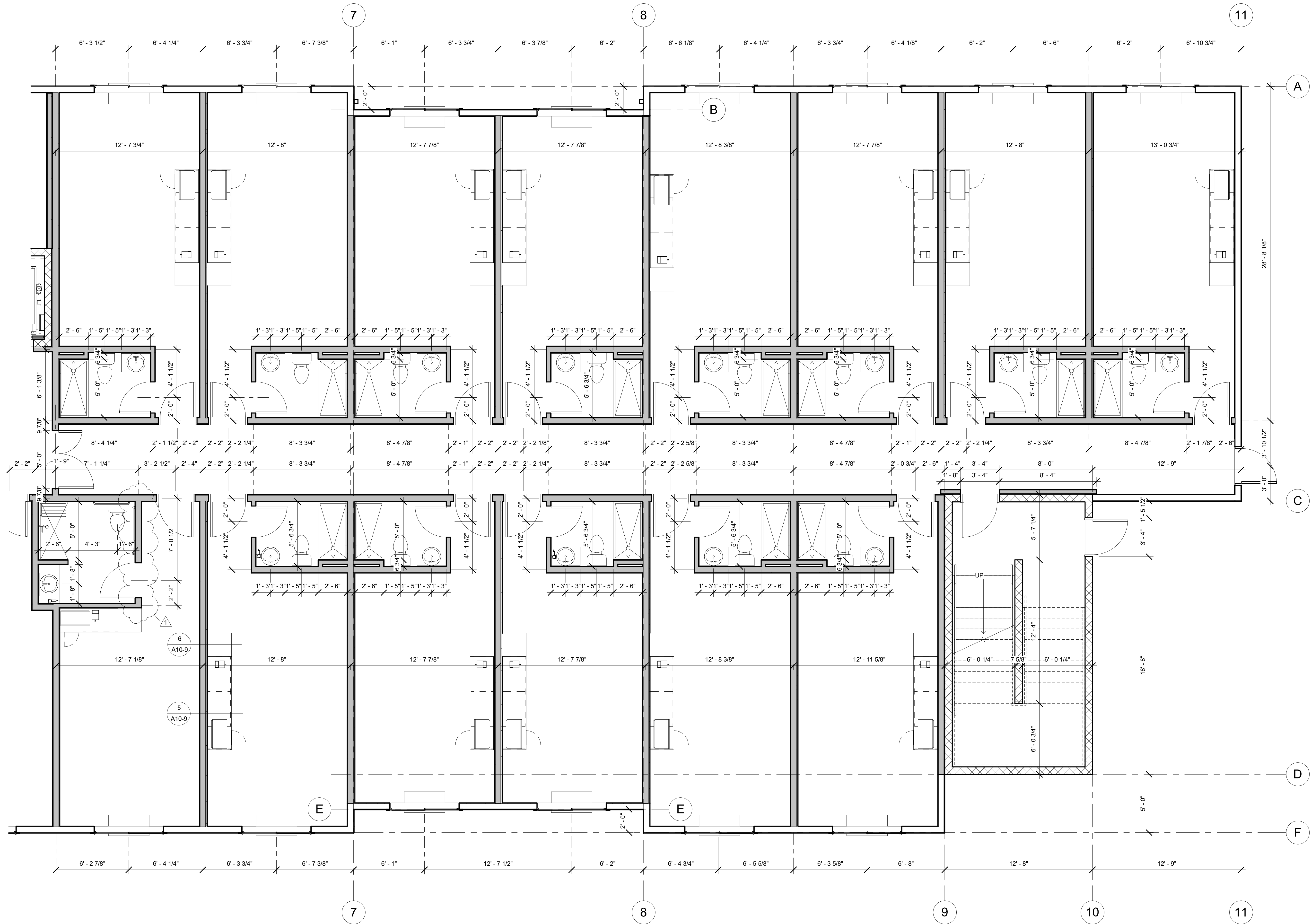


A NEW HOTEL FOR:
TERRA DEVELOPMENT LLC
TWIN FALLS, ID
MAIN DIM PLAN - CALLOUT 2

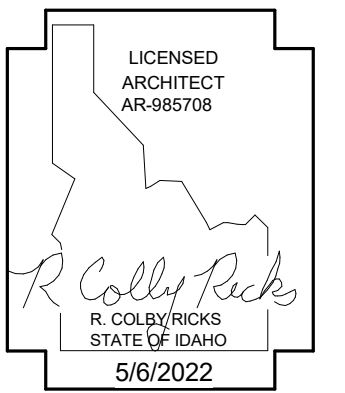
Laughlin Ricks Architecture
architecture/planning
134 3RD AVE. E. * Twin Falls, Idaho 83301
PHONE: (208) 736-8050

DATE: 5/6/2022
NM RCR
Drawn Checked

A2-7



1 DIM MAIN LEVEL FLOOR PLAN - Callout 3
1/4" = 1'-0"



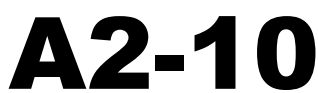
DATE: _____
NM: _____
Drawn: _____

A NEW HOTEL FOR:
TERRA DEVELOPMENT LLC
TWIN FALLS, ID
MAIN DIM PLAN - CALLOUT 3

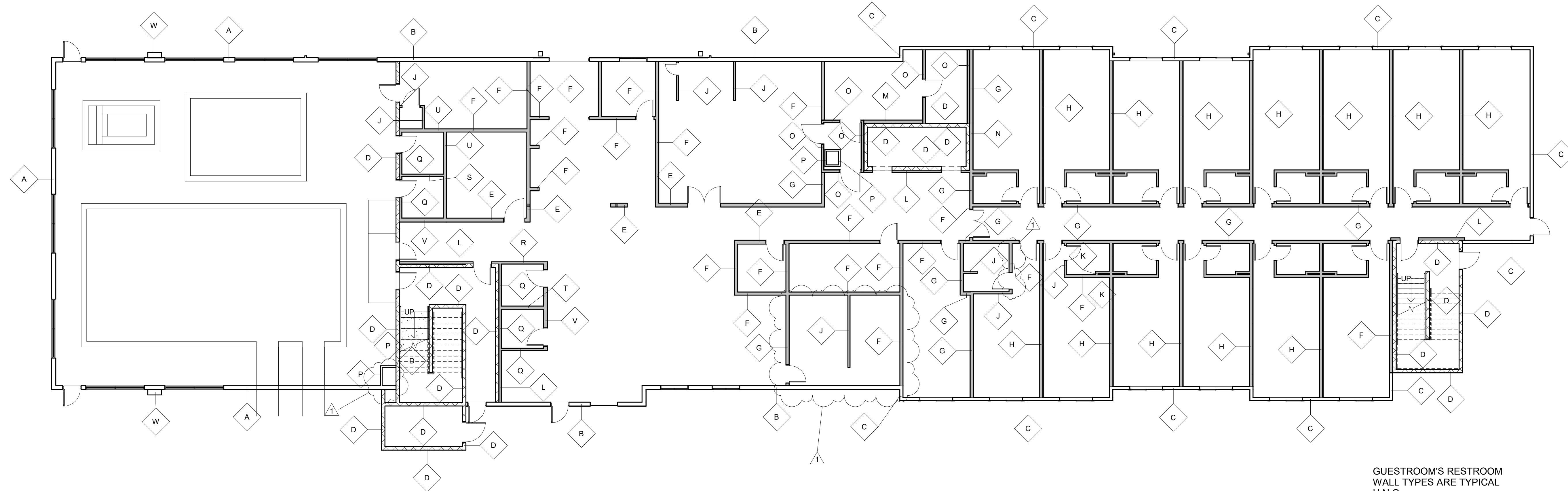
Laughlin Ricks Architecture
architecture/planning
134 3RD AVE. E. * Twin Falls, Idaho 83301
PHONE: (208) 736-8050

DATE: 5/6/2022
NM: RCR
Drawn: _____
Checked: _____

A2-8

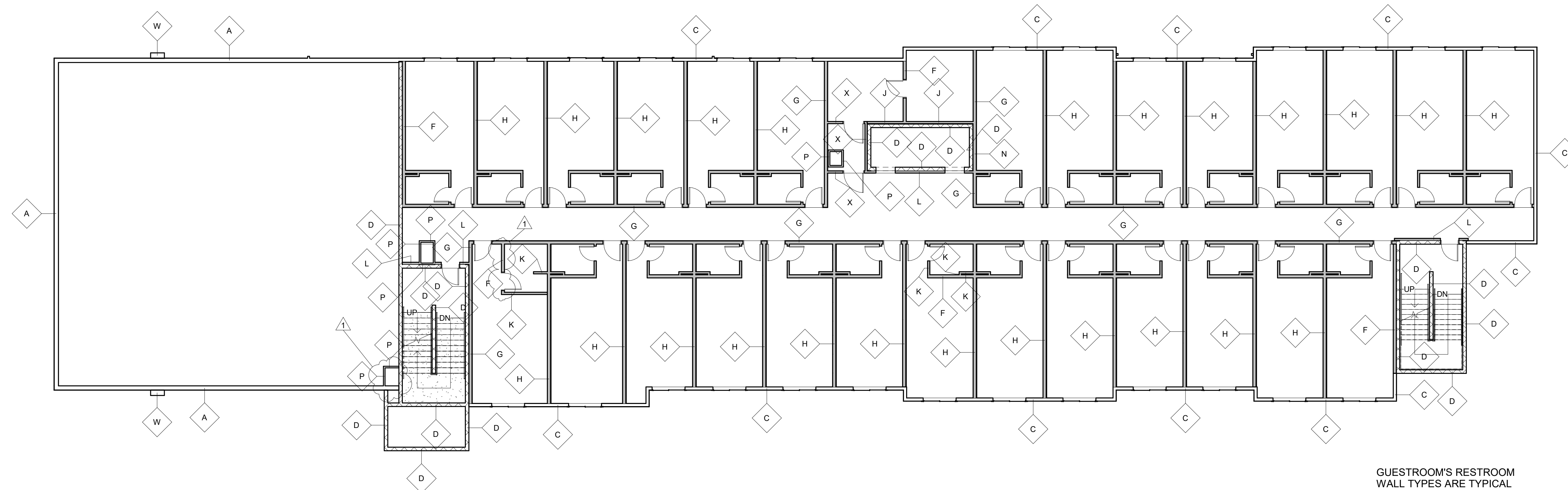






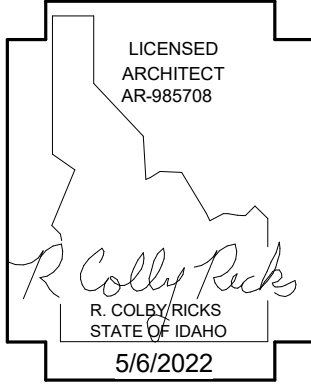
GUESTROOM'S RESTROOM
WALL TYPES ARE TYPICAL
U.N.O.

① MAIN LEVEL WALL TYPES
1" = 10'-0"



GUESTROOM'S RESTROOM
WALL TYPES ARE TYPICAL
U.N.O.

② 2ND LEVEL WALL TYPES
3/32" = 1'-0"



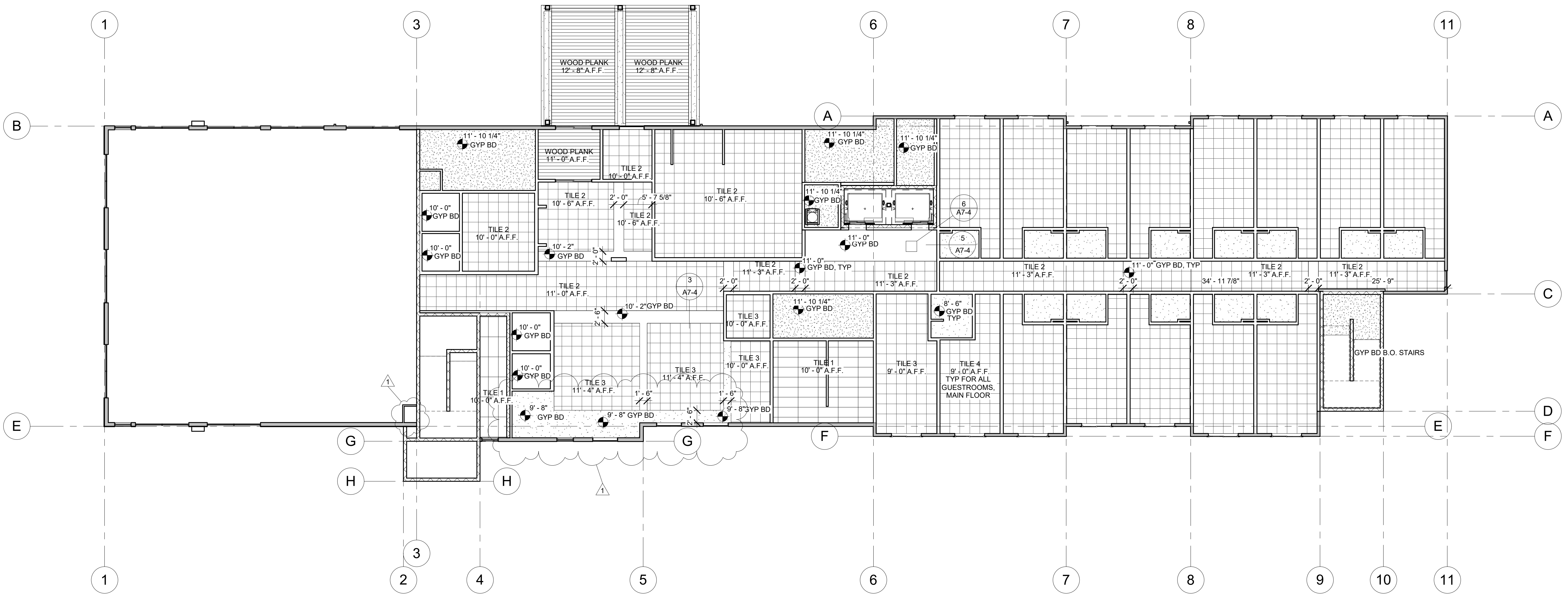
DATE	6-2-22	REV 1
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A NEW HOTEL FOR:
TERRA DEVELOPMENT LLC
TWIN FALLS, ID
MAIN FLOOR CEILING PLAN

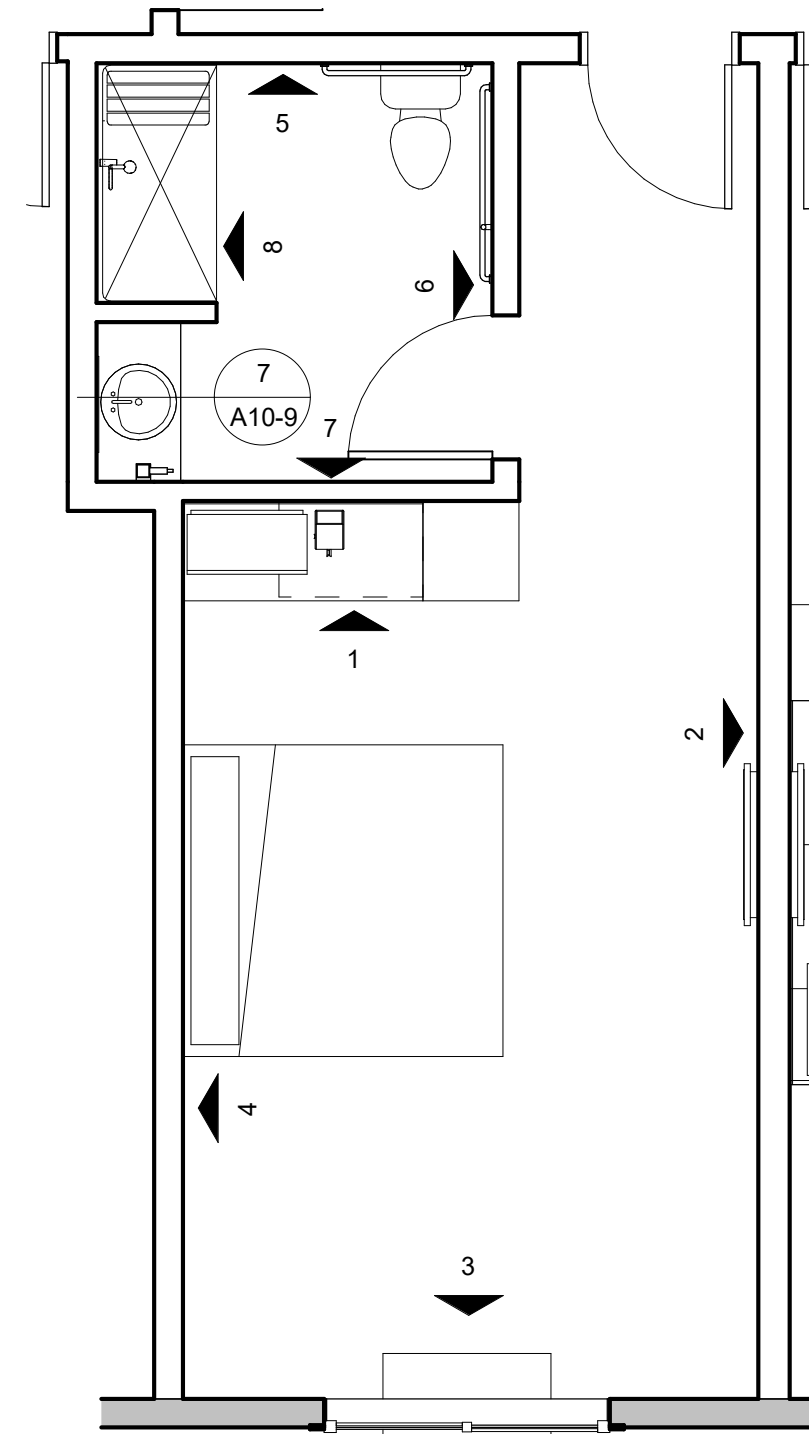
Laughlin Ricks Architecture
architecture/planning
134 3RD AVE. E. * Twin Falls, Idaho 83301
PHONE: (208) 736-8050

DATE:	5/6/2022
NM	RCR
Drawn	Checked

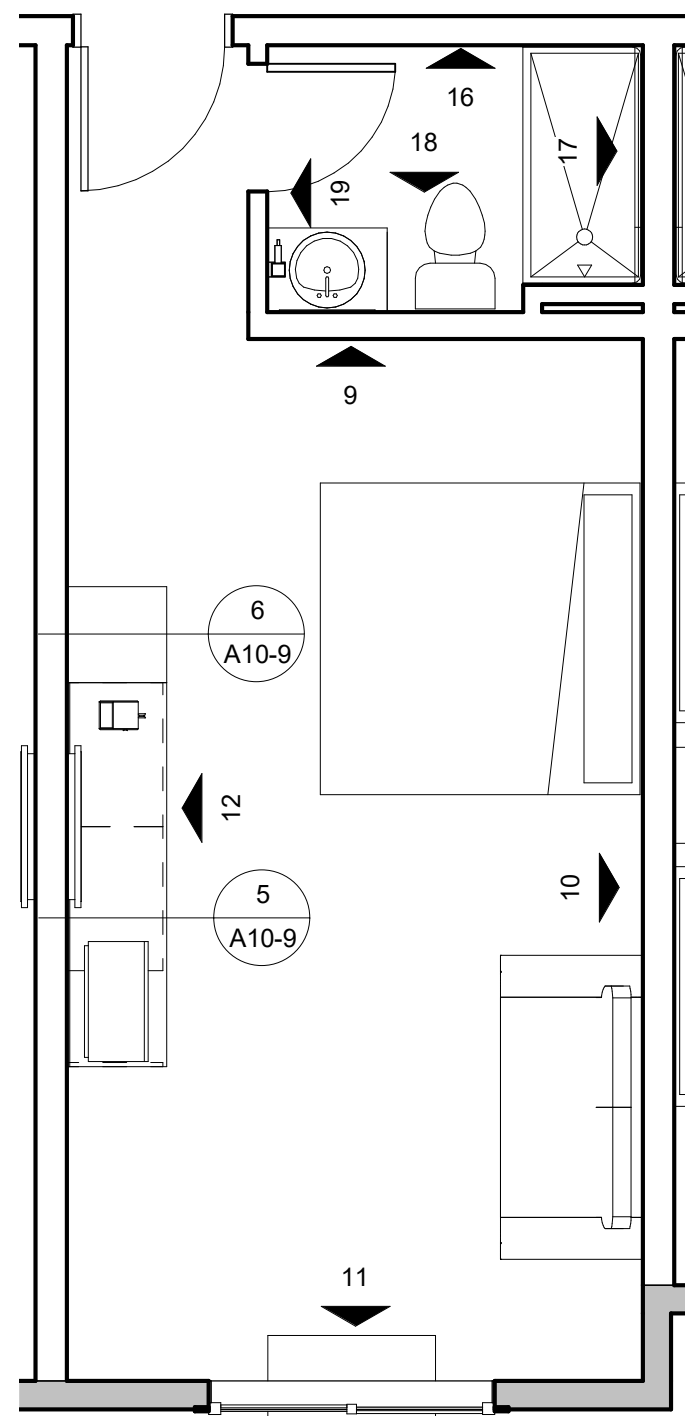
A7-0



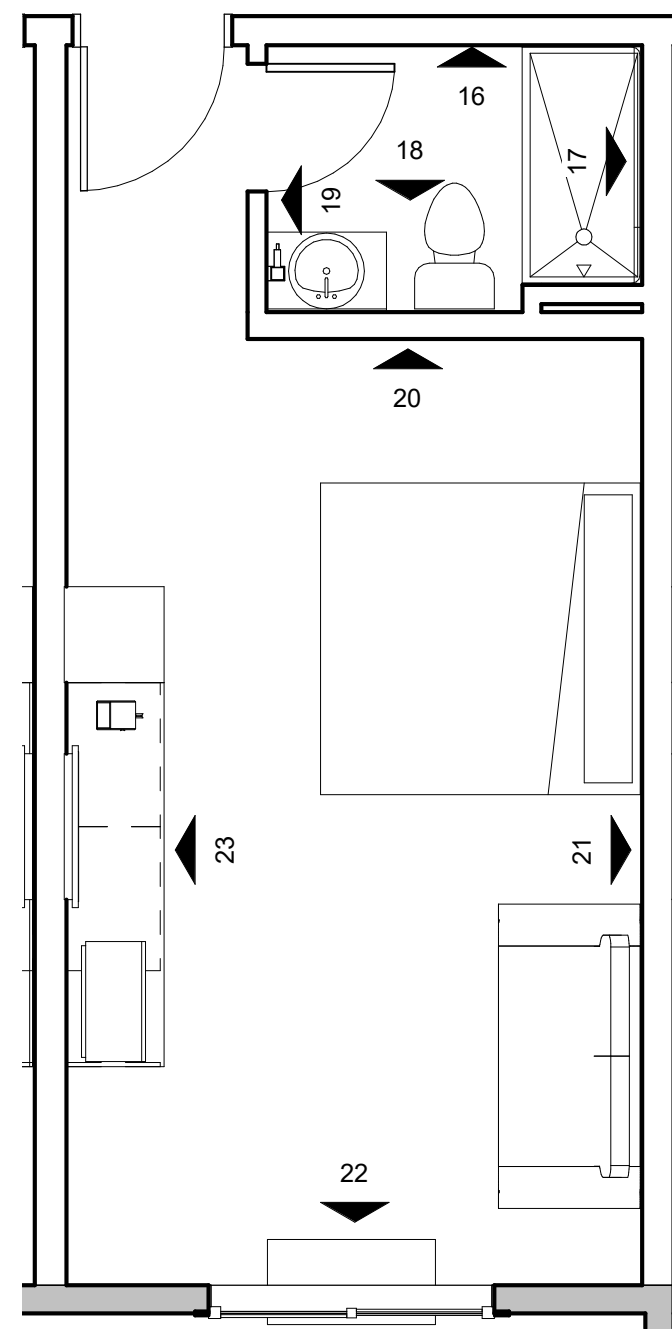
1 LEVEL 1 CEILING PLAN
3/32" = 1'-0"



A ADA ROOM 102
1/4" = 1'-0"



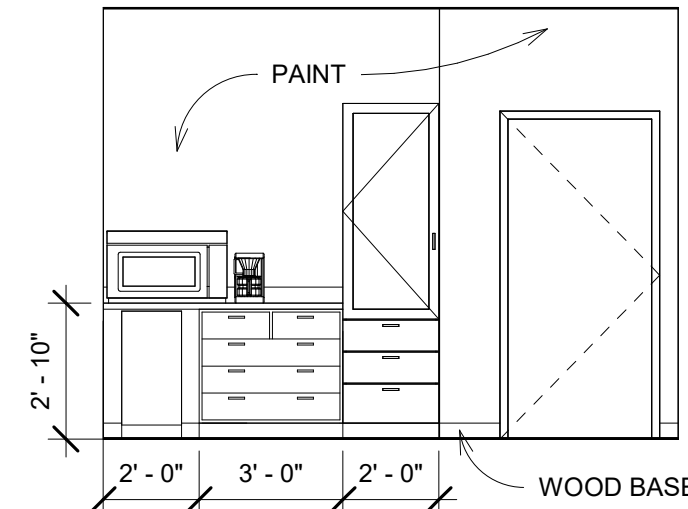
B LARGE GUESTROOM, TYP
1/4" = 1'-0"



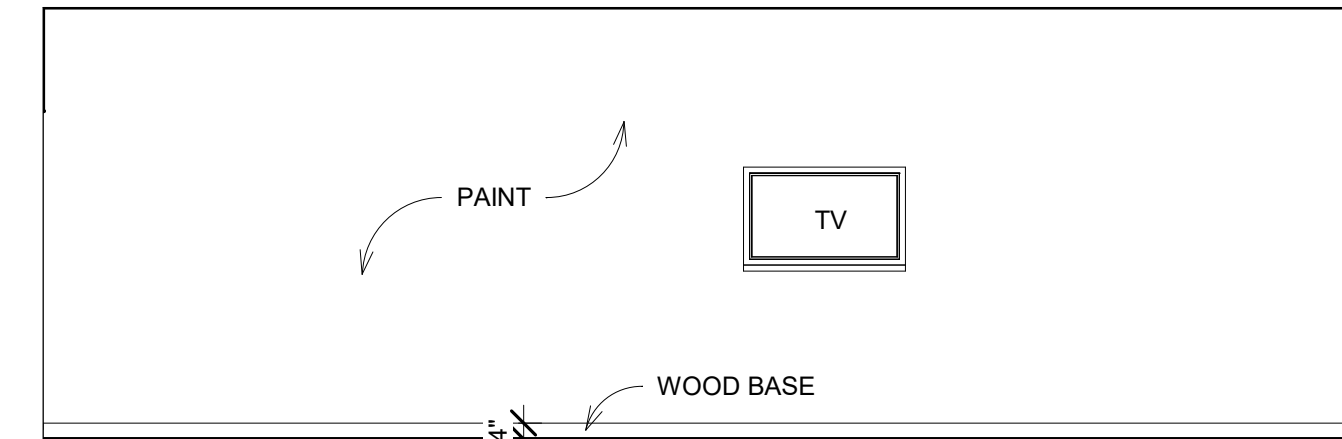
C SMALL GUESTROOM, TYP
1/4" = 1'-0"

- GENERAL ELEVATION NOTES:**
1. TYPICAL ELEVATIONS APPLY TO ALL SIMILAR ROOMS, LEFT & RIGHT. MIRROR/ROTATE TO ALIGN WITH EACH ROOM LAYOUT AS NEEDED.
 2. FURNITURE LAYOUT SUBJECT TO CHANGE BY OWNER.
- GENERAL ROOM NOTES:**
1. PROVIDE BLOCKING IN WALL TO MOUNT DRAPERY AND HARDWARE.
 2. BATHROOM CEILING TO BE FRAMED DOWN FROM RATED FLOOR/CEILING ASSEMBLY. REFER TO CEILING PLANS.
 3. OWNER SHALL PROVIDE IRON & IRONING BOARD, LOCATED IN WARDROBE.
 4. PROVIDE BLOCKING IN WALL FOR TV MOUNT, HEADBOARDS, MIRRORS, GRAB BARS, HAIR DRYER & OTHER FEATURES.
 5. BATHROOM ACCESSORIES SHALL BE OFCI. GRAB BARS SHALL BE PROVIDED BY GENERAL CONTRACTOR.
 6. BEDS, TV, MICROWAVE, COFFEE POT, REFRIGERATOR, HIDE-A-BED, TABLES, SOFAS ARE OFOI.

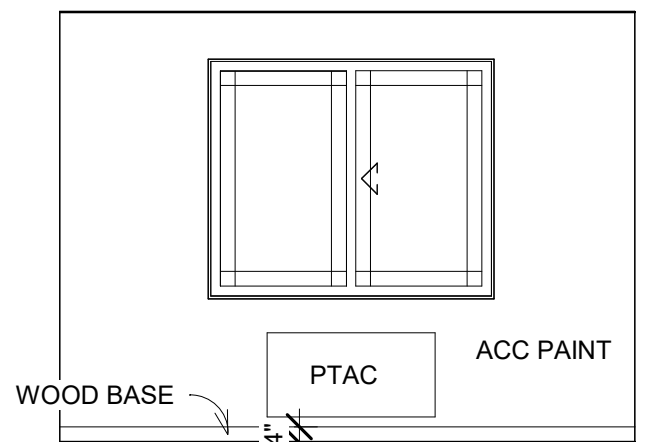
GUESTROOM GENERAL NOTES
1/4" = 1'-0"



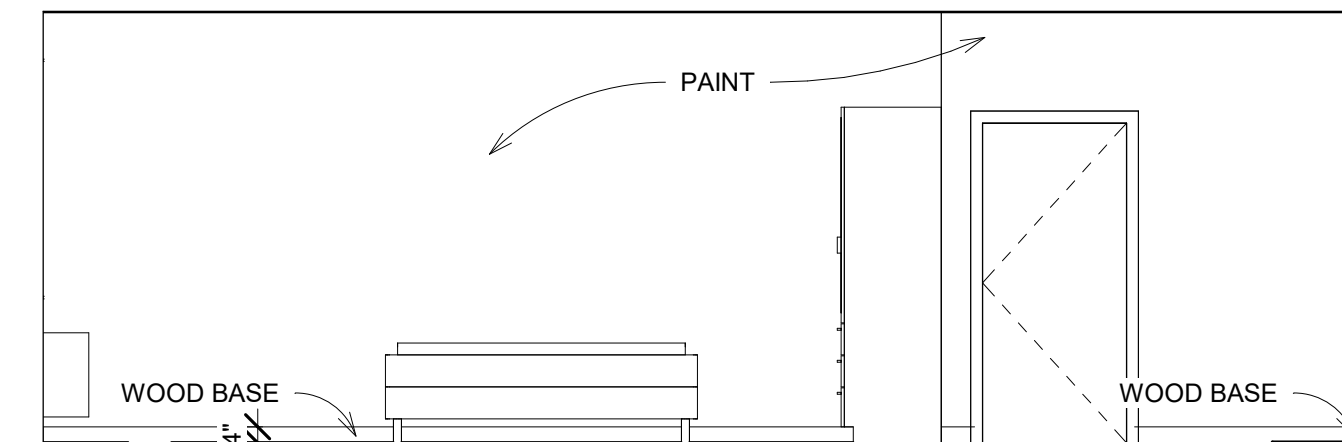
1 ADA ROOM 102 A
1/4" = 1'-0"



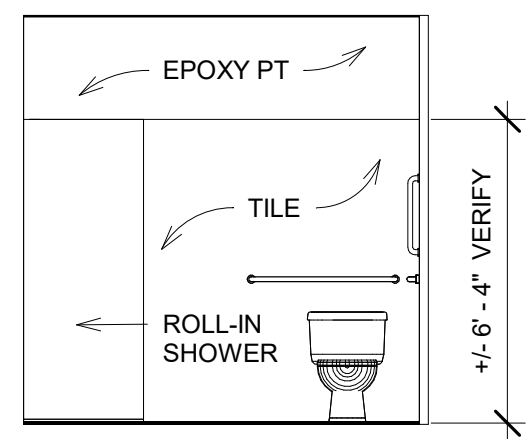
2 ADA ROOM 102 B
1/4" = 1'-0"



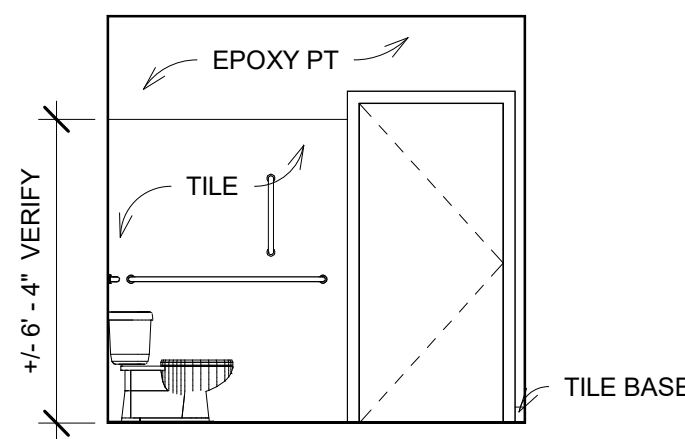
3 ADA ROOM 102 C
1/4" = 1'-0"



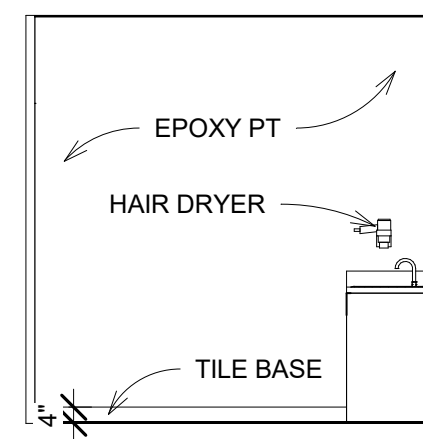
4 ADA ROOM 102 D
1/4" = 1'-0"



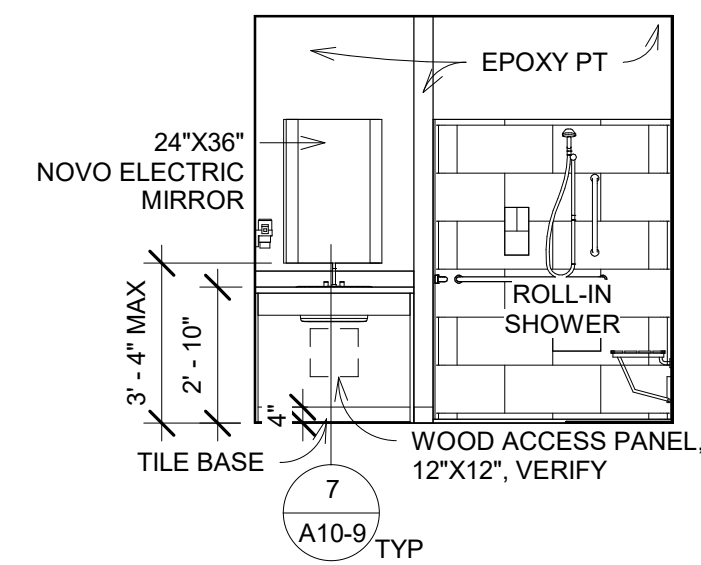
5 RR 102 A
1/4" = 1'-0"



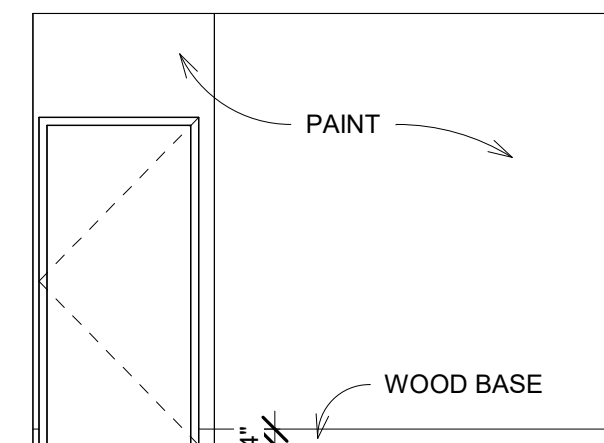
6 RR 102 B
1/4" = 1'-0"



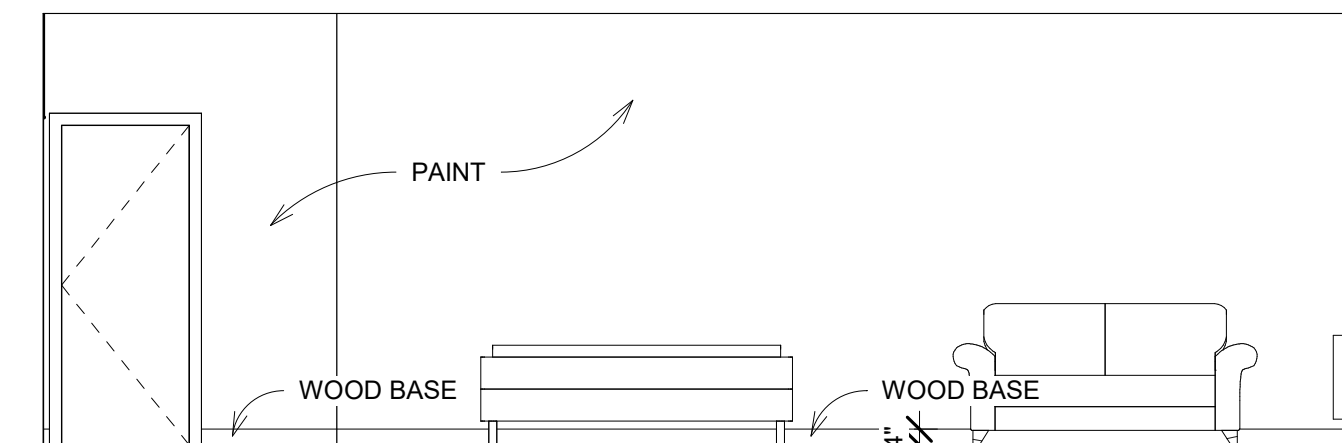
7 RR 102 C
1/4" = 1'-0"



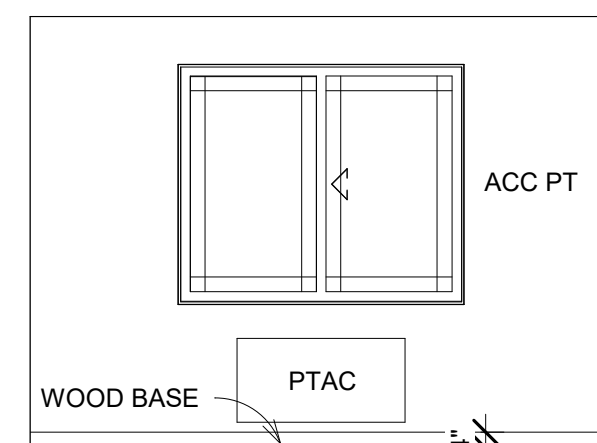
8 RR 102 D
1/4" = 1'-0"



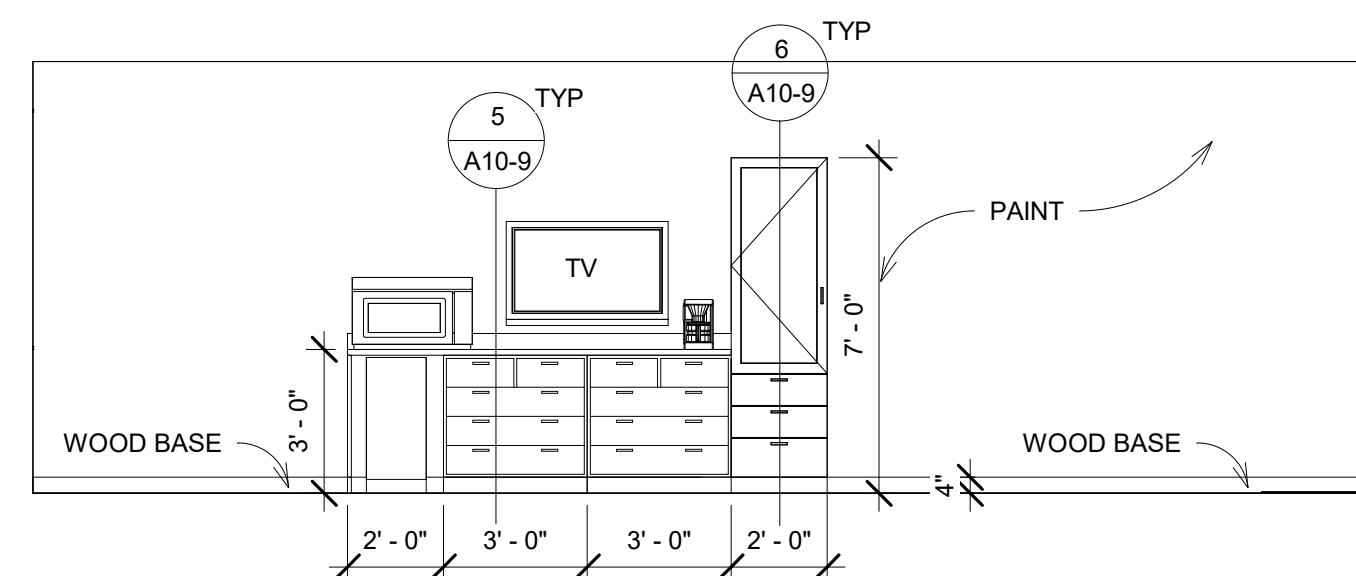
9 LARGE 1
1/4" = 1'-0"



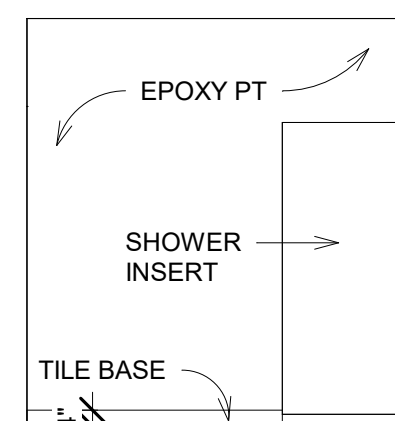
10 LARGE 2
1/4" = 1'-0"



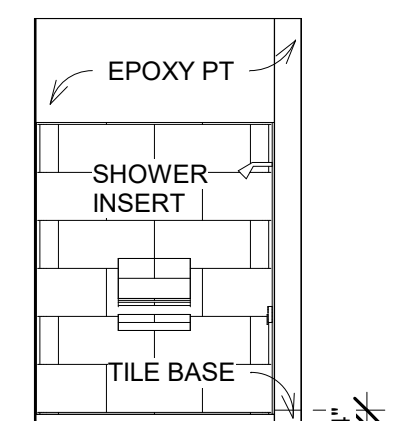
11 LARGE 3
1/4" = 1'-0"



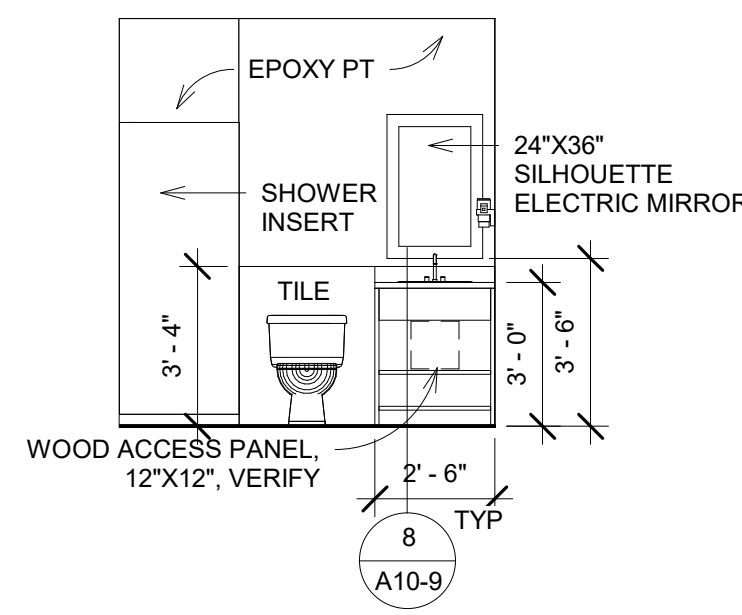
12 LARGE 4
1/4" = 1'-0"



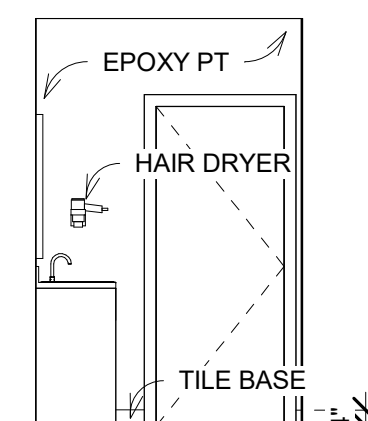
16 GUEST RR, TYP 1
1/4" = 1'-0"



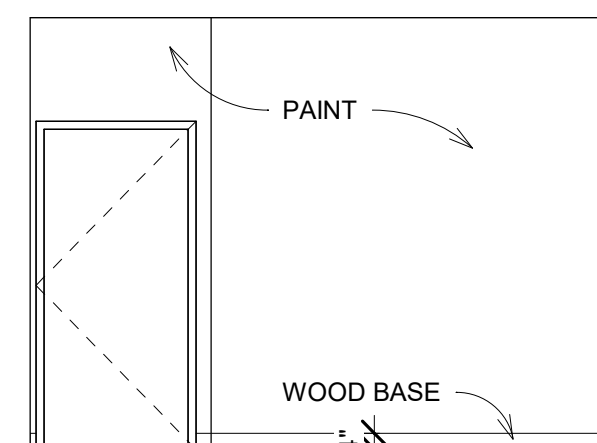
17 GUEST RR, TYP 2
1/4" = 1'-0"



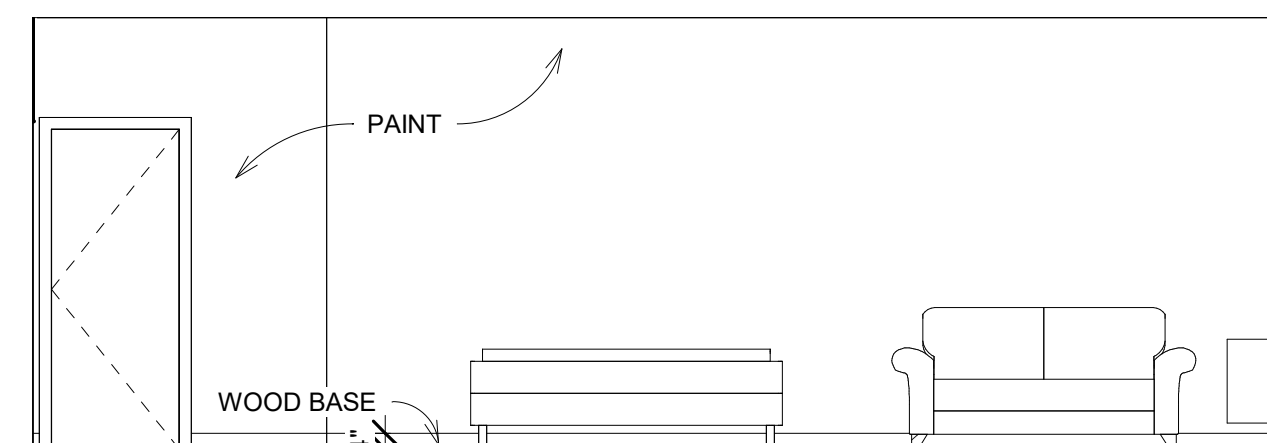
18 GUEST RR, TYP 3
1/4" = 1'-0"



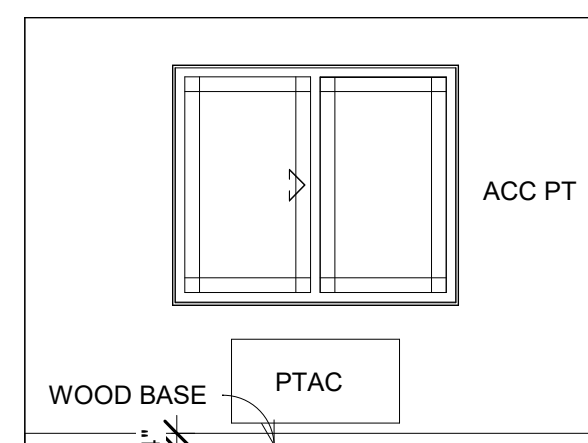
19 GUEST RR, TYP 4
1/4" = 1'-0"



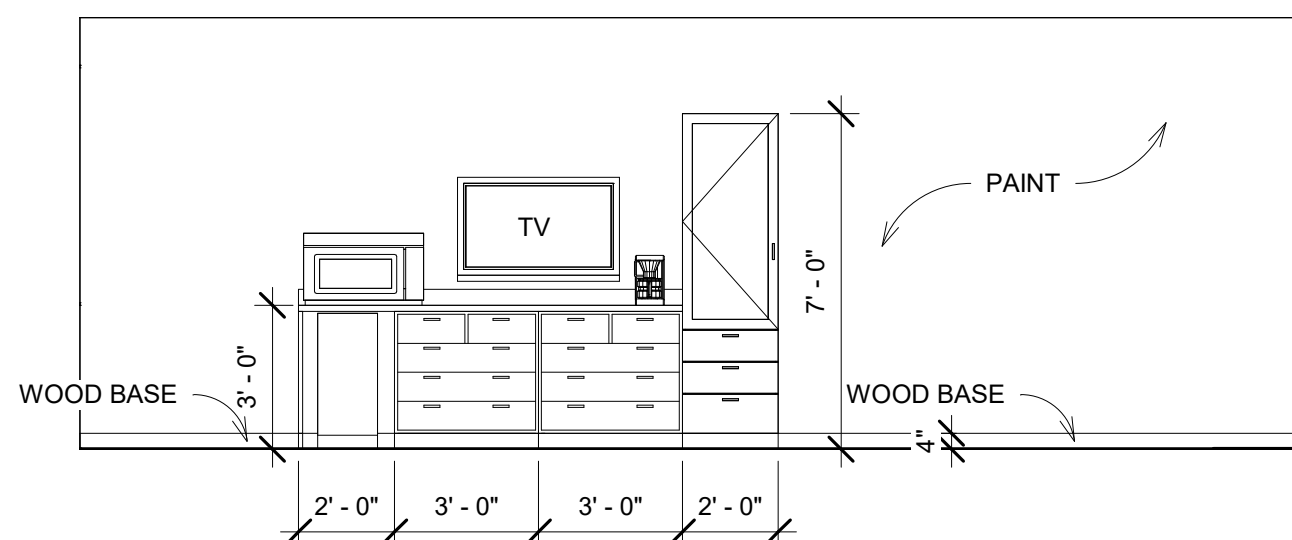
20 SMALL 1
1/4" = 1'-0"



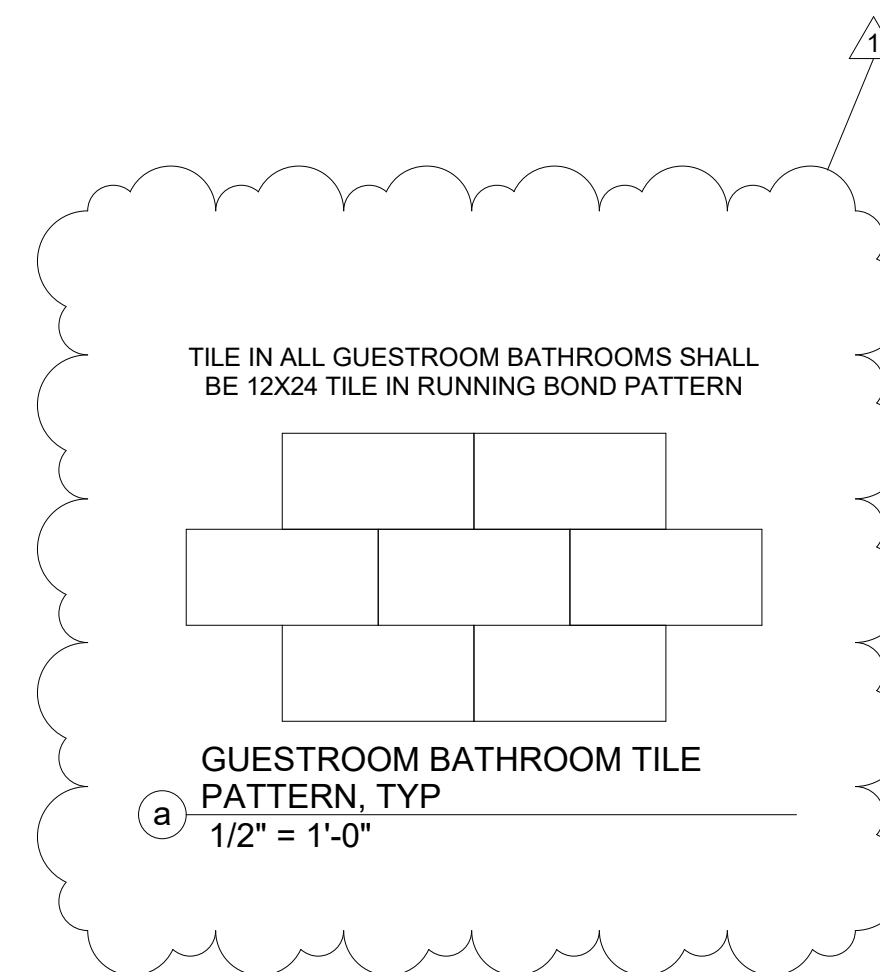
21 SMALL 2
1/4" = 1'-0"



22 SMALL 3
1/4" = 1'-0"



23 SMALL 4
1/4" = 1'-0"

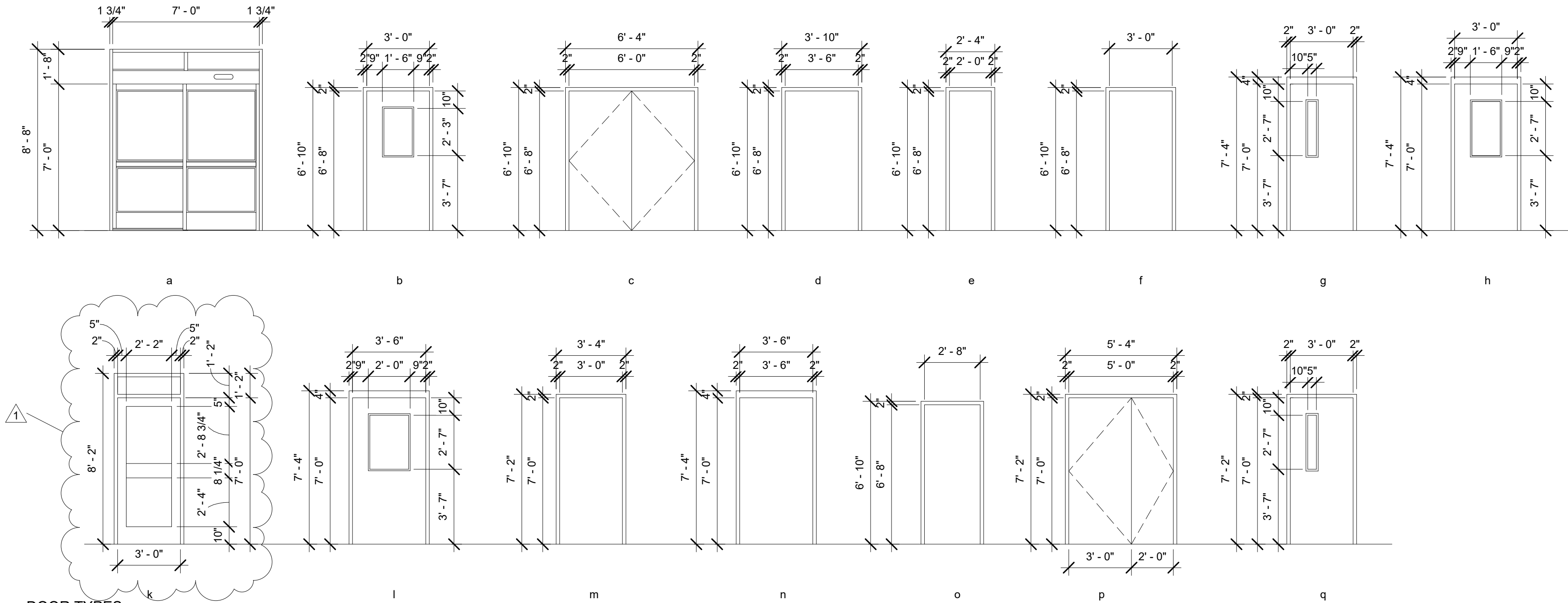


A NEW HOTEL FOR:
TERRA DEVELOPMENT LLC
TWIN FALLS, ID
ROOM CALLOUTS & ELEVATIONS

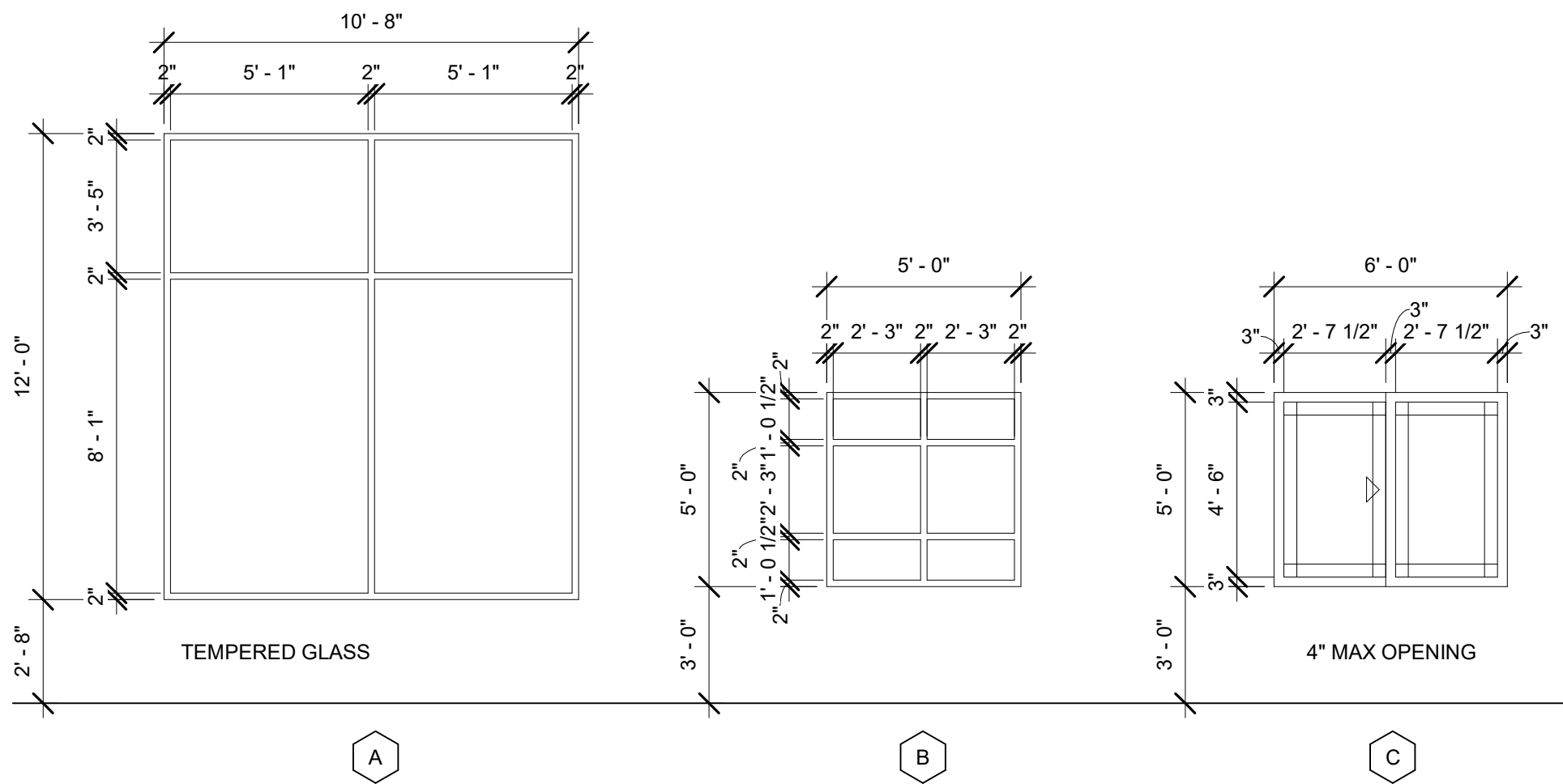
Laughlin Ricks Architecture
architecture/planning
134 3RD AVE. E. * Twin Falls, Idaho 83301
PHONE: (208) 736-8050

DATE: 5/6/2022
NM RCR
Drawn Checked

A8-0

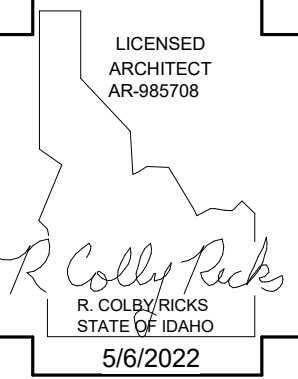


DOOR TYPES
1/4" = 1'-0"



EMERGENCY ESCAPE & RESUE OPENINGS ARE NOT REQUIRED IN R-1 OCCUPANCIES PER SECTION 1030
PROVIDE SYNTHETIC MARBLE SILLS AT ALL GUESTROOM WINDOWS

WINDOW TYPES
1/4" = 1'-0"

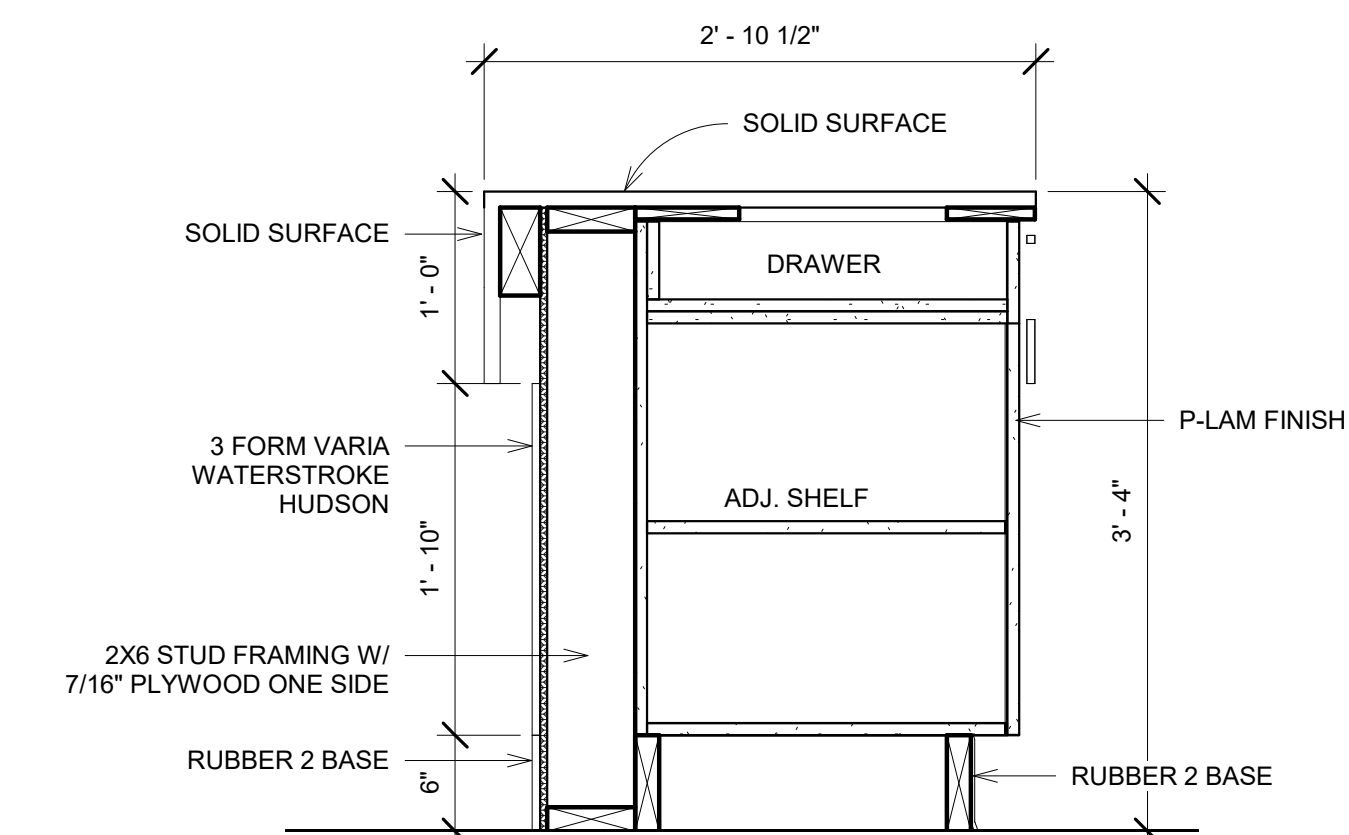


DATE	6-2-22	REV 1

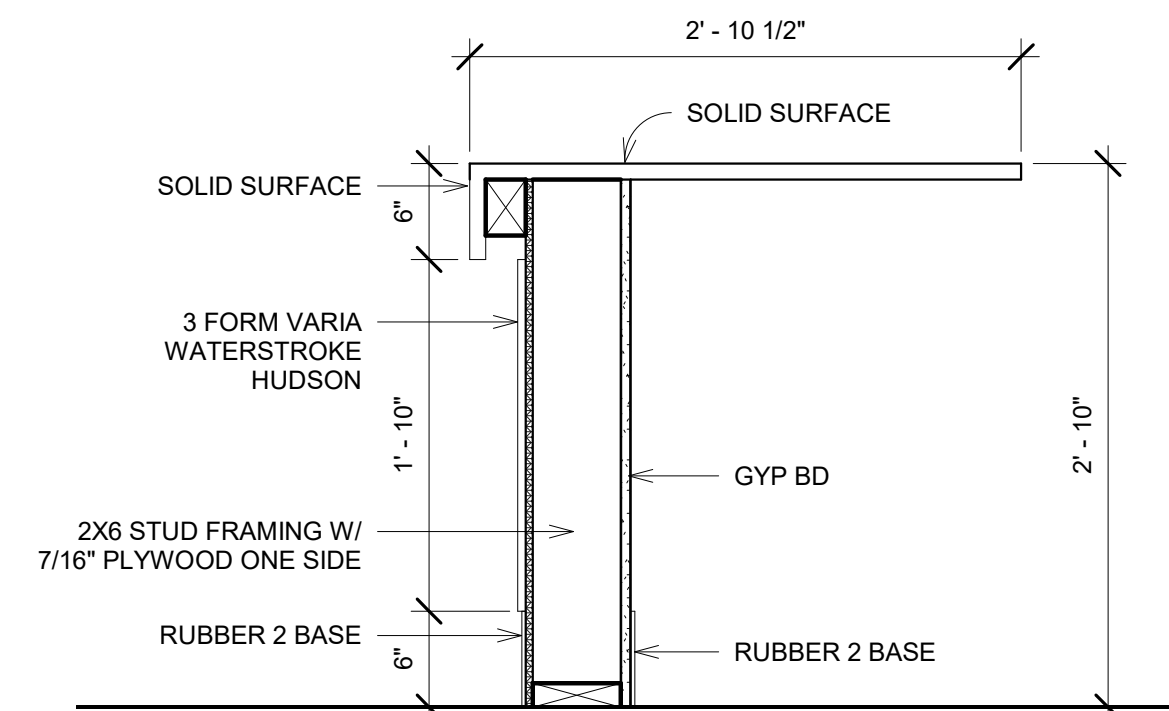
A NEW HOTEL FOR:
TERRA DEVELOPMENT LLC
TWIN FALLS, ID
DOOR & WINDOW TYPES

Laughlin Ricks Architecture
architecture/planning
134 3RD AVE. E. * Twin Falls, Idaho 83301
PHONE: (208) 736-8050

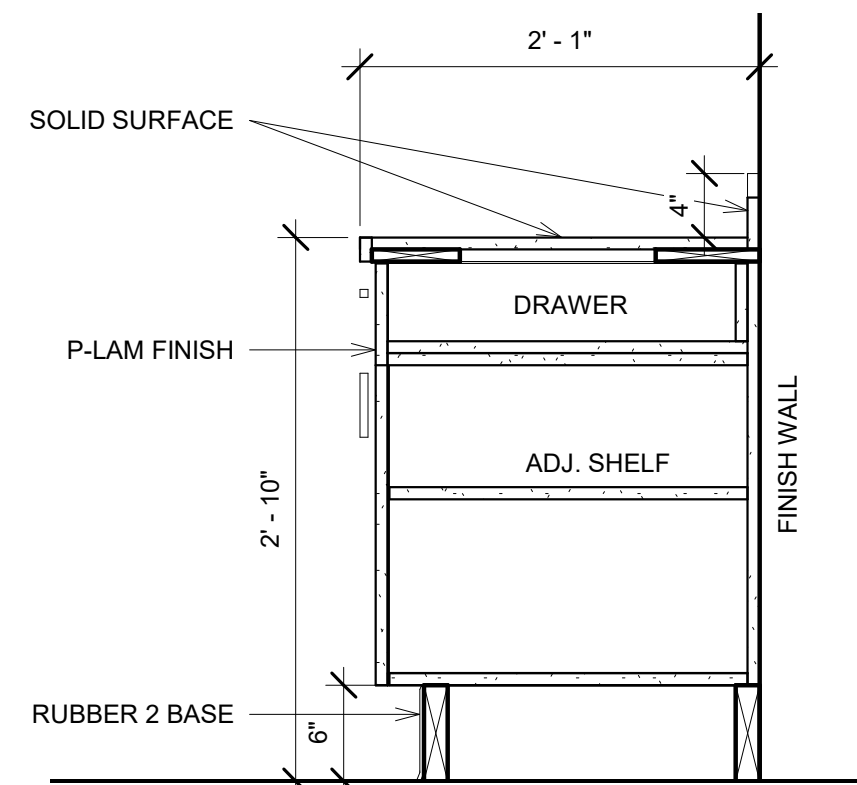
DATE:	5/6/2022
NM	RCR
Drawn	Checked



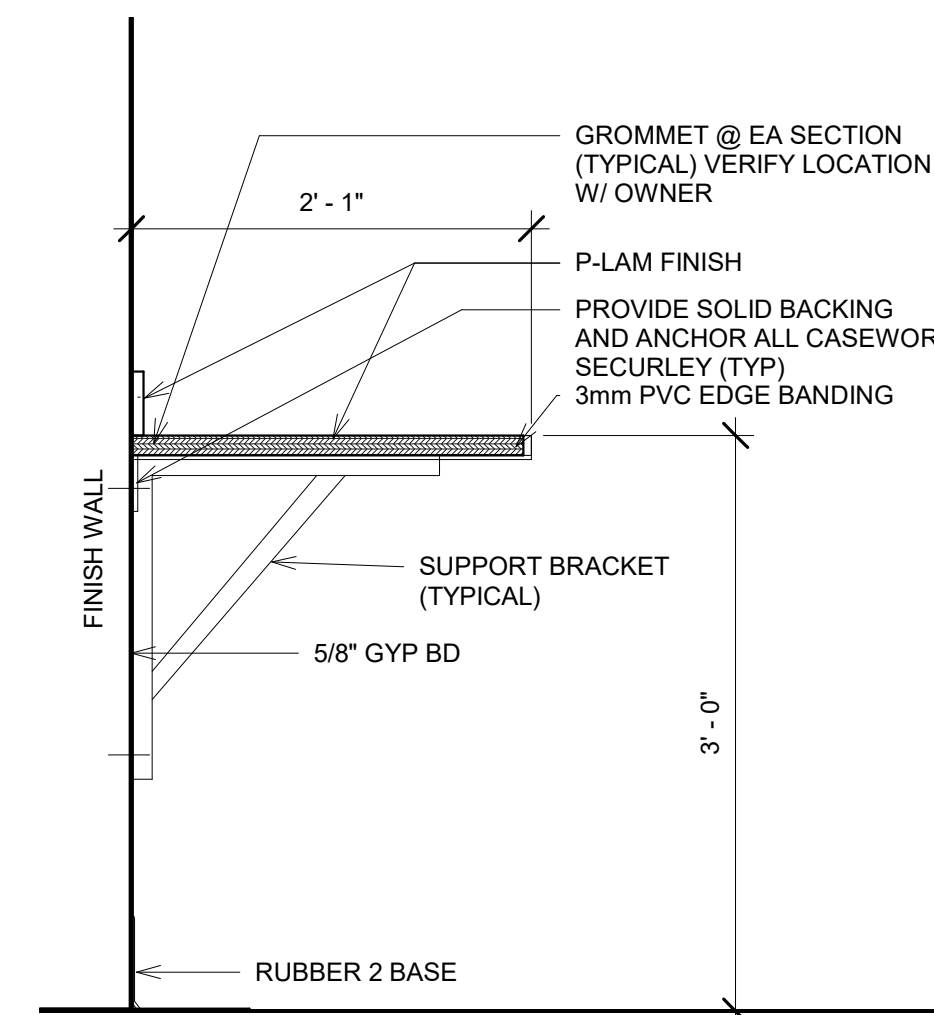
① RECEPTION CASEWORK HIGH
1" = 1'-0"



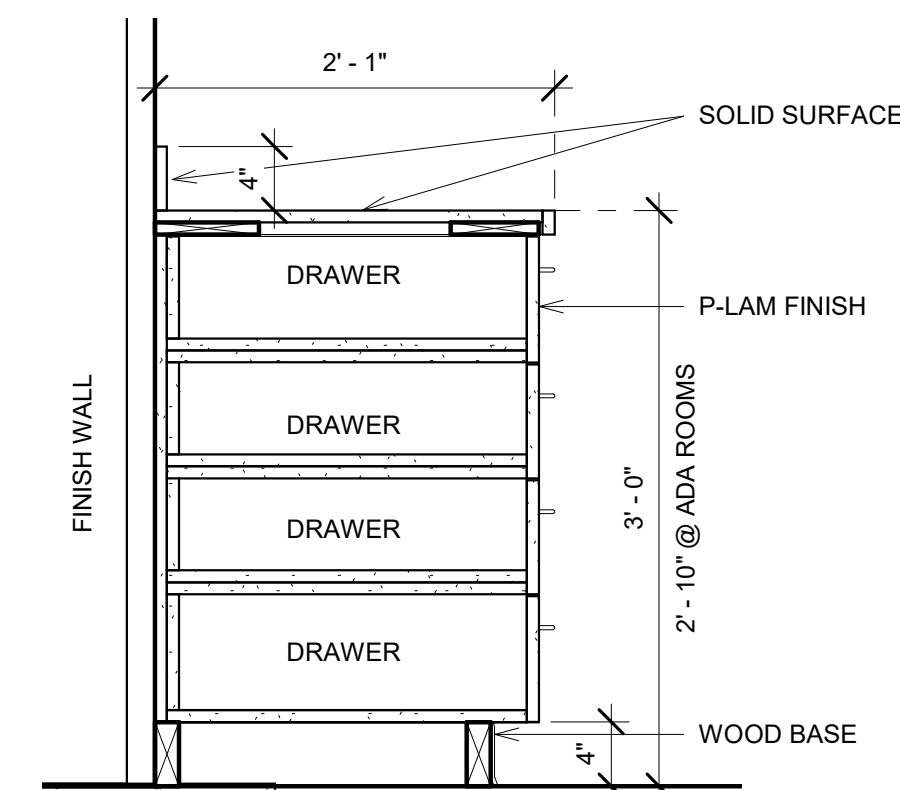
② RECEPTION CASEWORK LOW
1" = 1'-0"



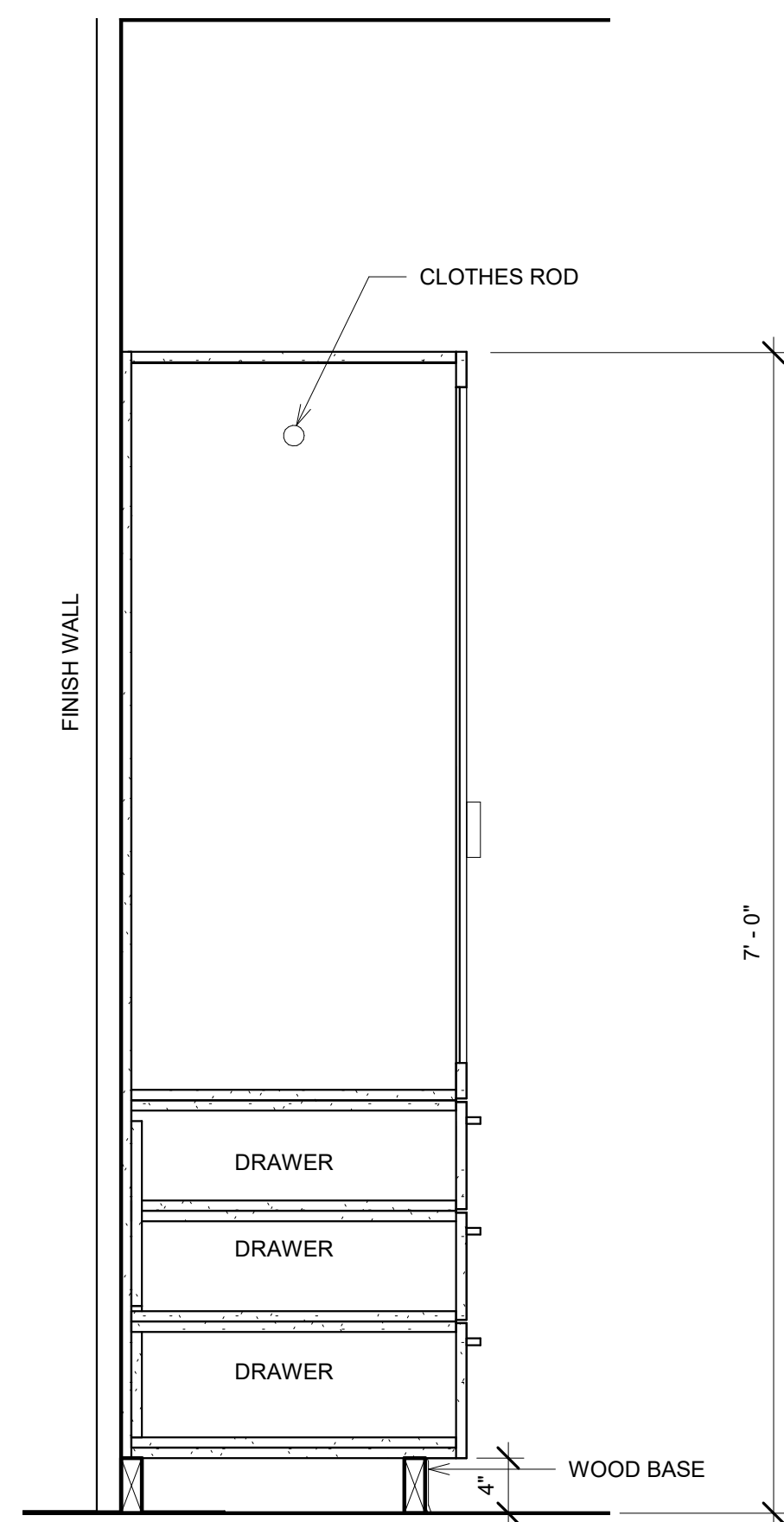
③ DINING COUNTER
1" = 1'-0"



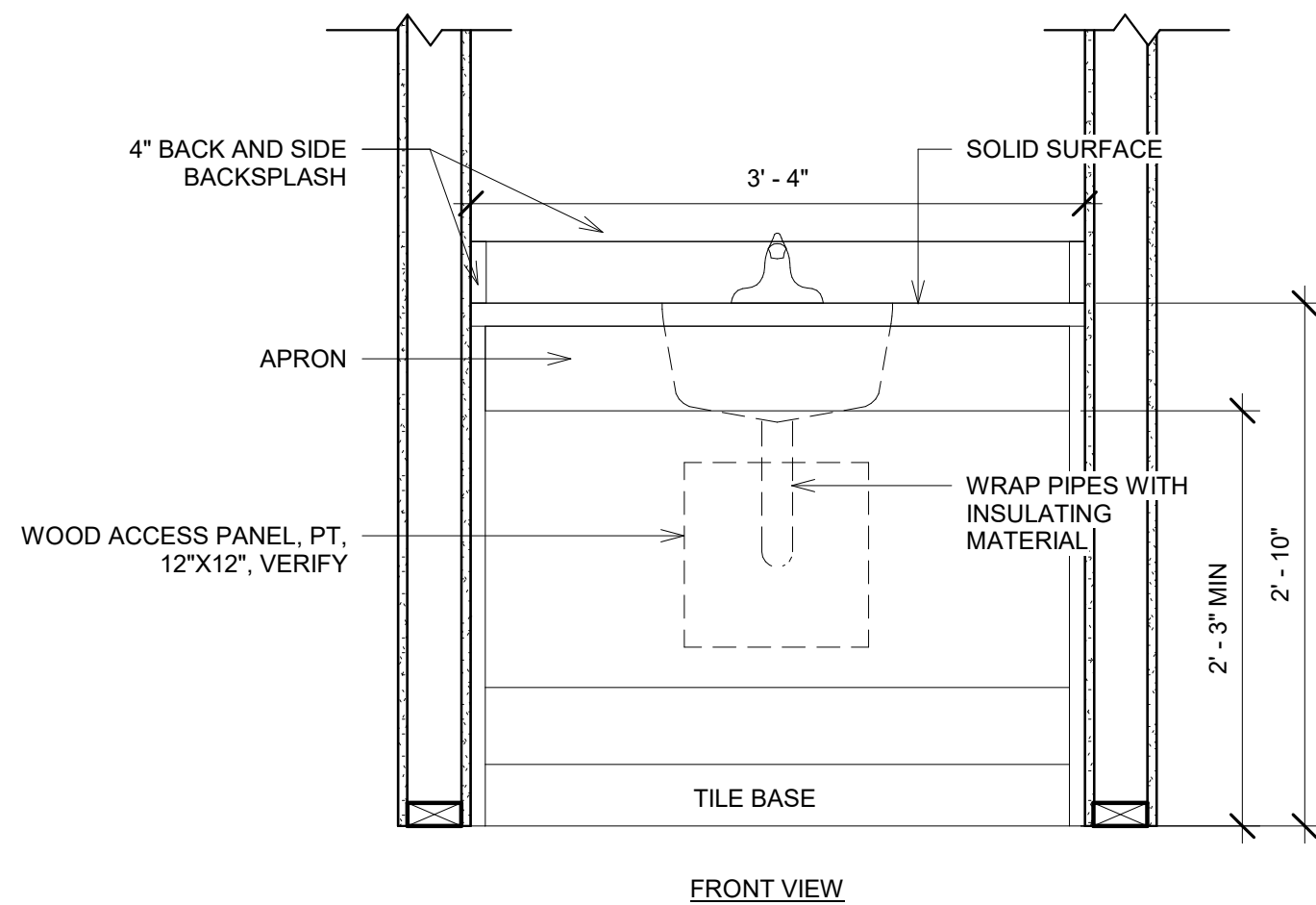
④ LAUNDRY CASEWORK
1" = 1'-0"



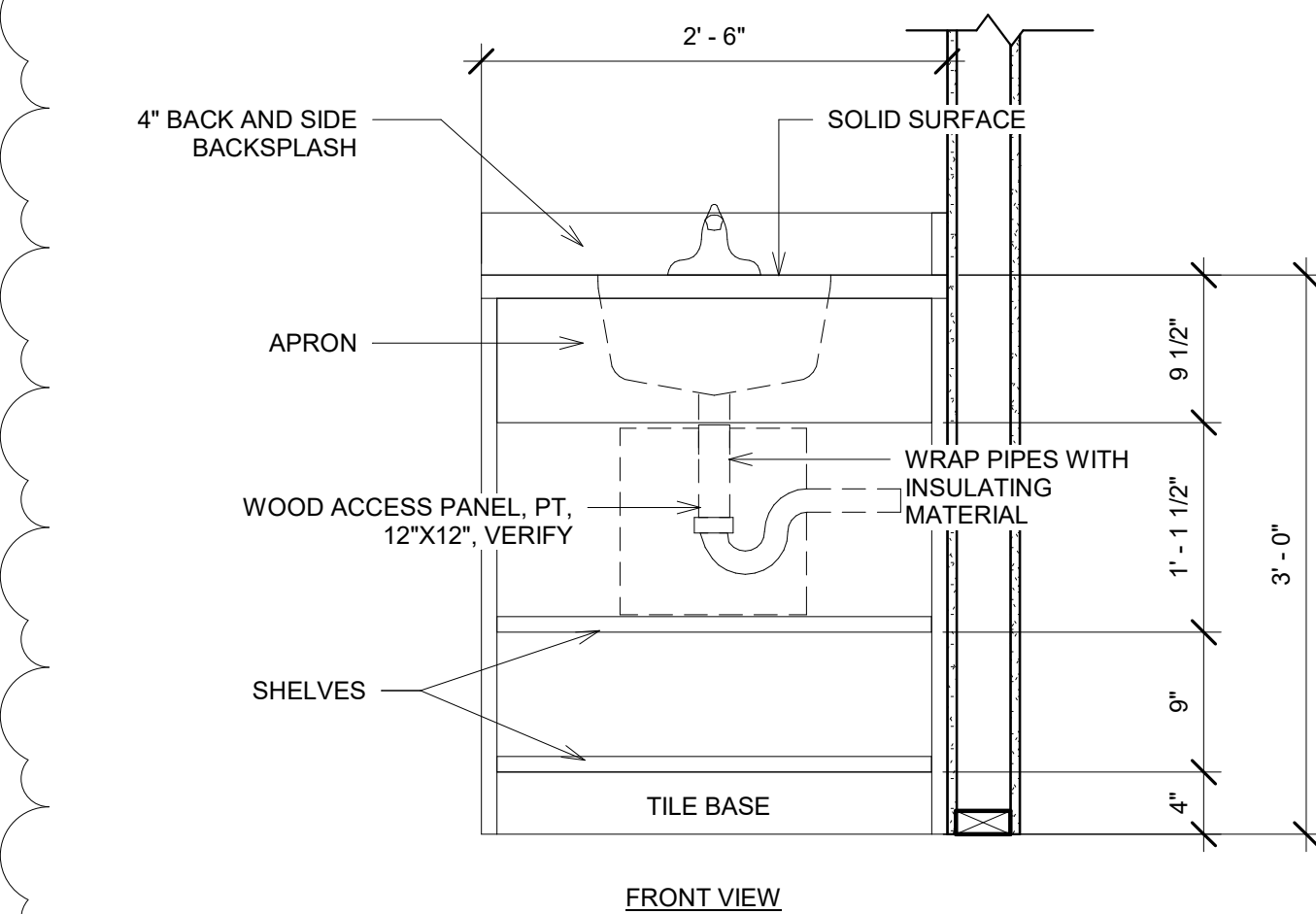
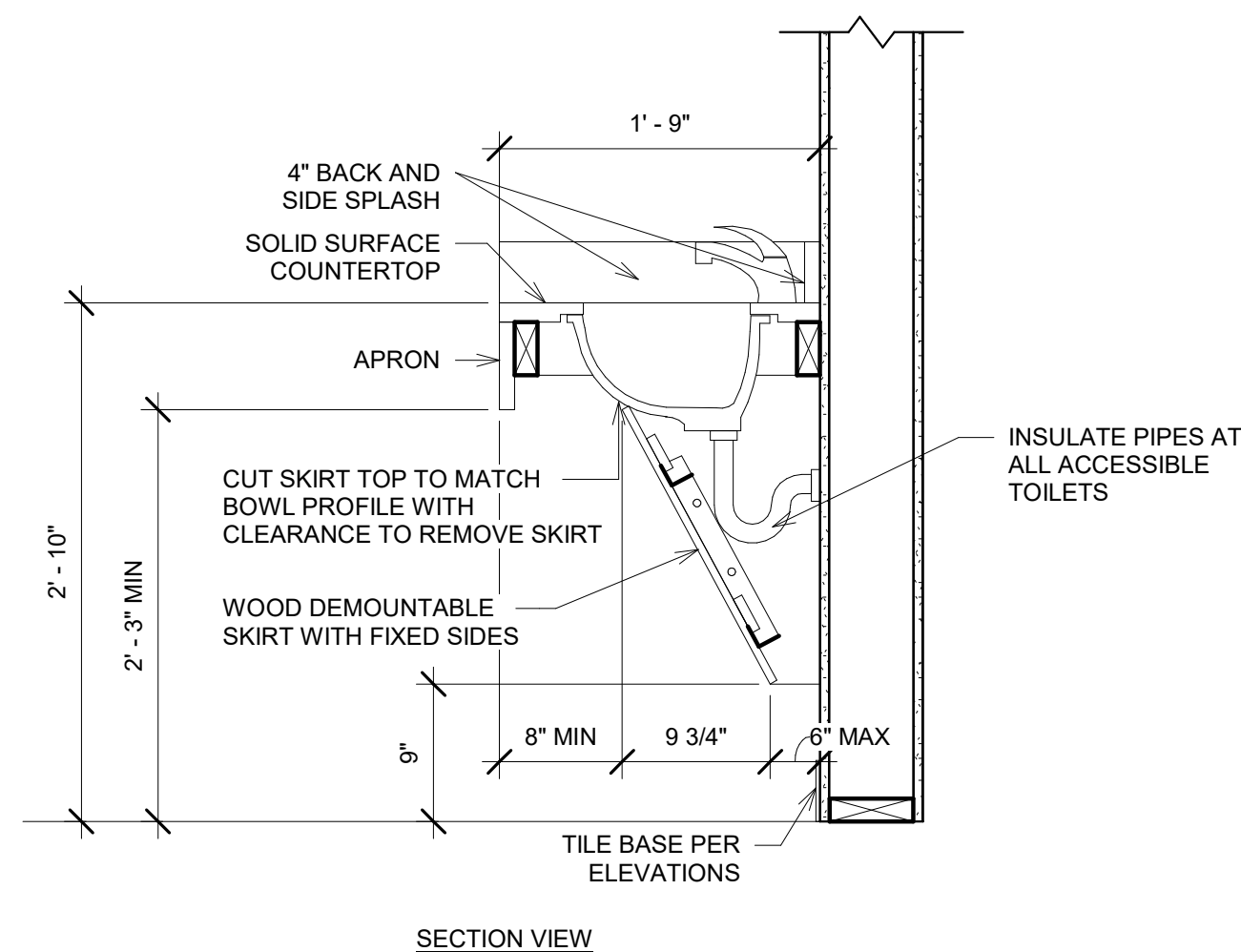
⑤ GUESTROOM CASEWORK DRAWERS
1" = 1'-0"



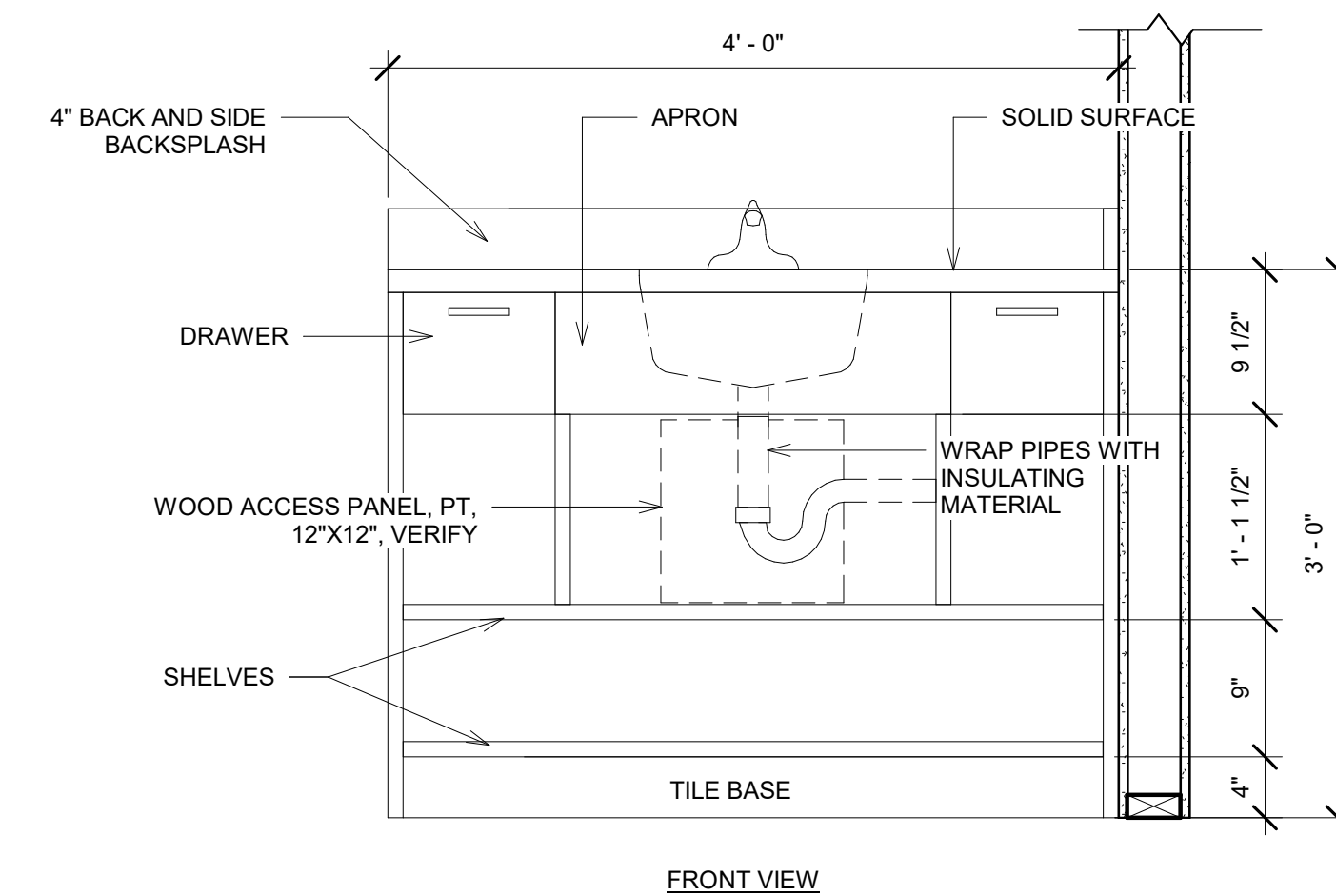
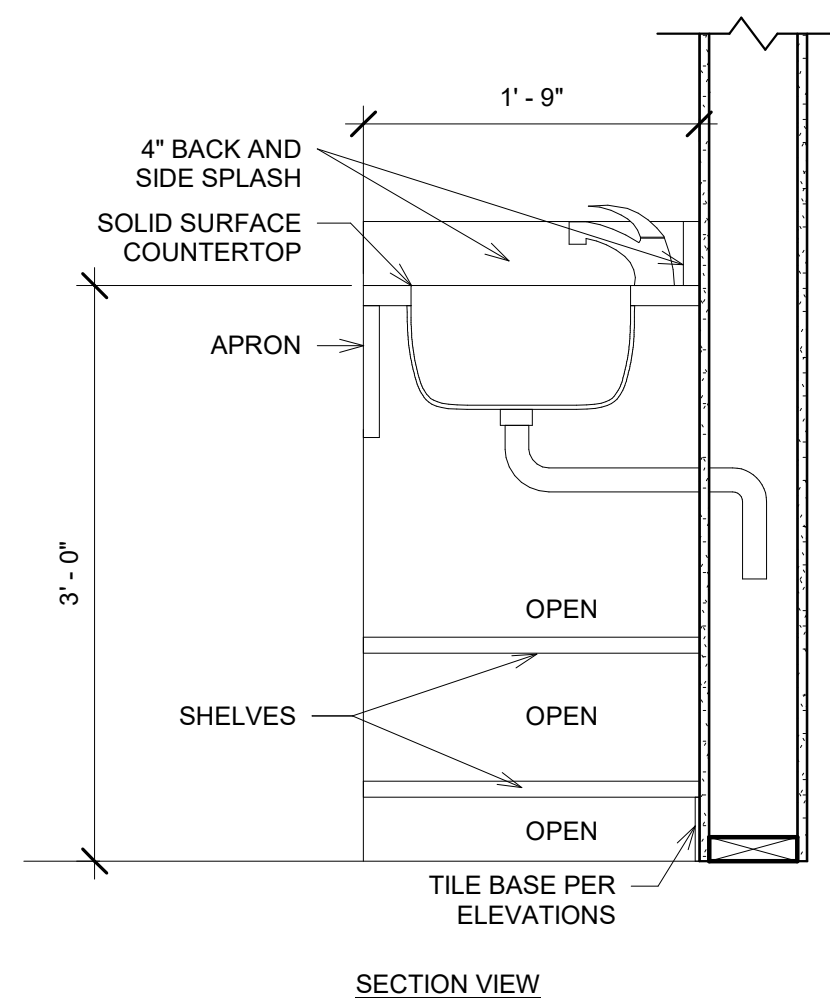
⑥ GUESTROOM CASEWORK CABINET
1" = 1'-0"



⑦ TYP ADA VANITY
1" = 1'-0"



⑧ TYP VANITY
1" = 1'-0"



⑨ FAMILY VANITY
1" = 1'-0"

