Technicon Design Group

**Date:** 10/03/2024
**Project Number:** 42-2899-23
**Project Name:** American Township Fire Department - New Station No. 1
**Intent:**

This Addendum provides modifications and clarifications To the Bid Documents dated **September 18, 2024**, Bidder shall ascertain prior to submitting its Bid Form that it has received all Addenda issued and shall acknowledge receipt of each Addendum on the Bid Form.

In the event of a conflict between the terms and provisions of this Addendum and the terms and provisions of the Bidding Documents, the terms and provisions of this Addendum shall control. In all other respects, the Bidding Documents shall remain unchanged and in full force and effect.

| Item | Additional Document | Cons. Doc. Reference | Description |
|---|---|---|---|
| **Specifications:** | | | |
| **1** | **Substitution Requested** | | **ADD AS AN APPROVED SUBSTITUTION:** MASA Extrudeck Canopy is an approved equal. **CLARIFICATION:** MASA, Mapes, Steel Stitch, and Skyscape Architectural Canopies are acceptable. All to have Kynar finish. Powder coating is not acceptable. |
| **2** | | **Specification Section 101400 Signage** | **DELETE Spec Section 101400 2.2.A.1:** Material: High-Grade Stainless Steel Alloy #304 and **INSERT:** Material: Flat Cut Metal painted Red (color) as noted on Keynote #39/A201 (Gemini Letters) in lieu of Spec Section per 2.2.A.1. |
| **3** | **Substitution Requested** | | **ADD AS AN APPROVED SUBSTITUTION:** Prefabricated aluminum roof access ladder (Kattsafe RL34) may be used as an option to steel fabricated roof access ladder as shown on drawings. Keynote 16/A101, Keynote 22/A121, Details 11 & 12/A121. |
| **4** | **Substitution Requested** | | **ADD AS AN APPROVED SUBSTITUTION:** Soffit panel FP10 from Dimensional Metals Inc. is acceptable. (Omit 2 beads shown on detail 1/A111 and provide smooth (flat) soffit without beads typical for all soffit panel manufacturers. |
| **Architectural:** | | | |
| **5** | **A201 Sketch** | **Sheet A201 Details 9 and 11** | **CLARIFICATION:** See the attached revised dumpster enclosure gate detail sketch. **REVISE:** 1.5" x 5.5" x .185" aluminum tube to 2" x 6" x .125" as shown on details 9/A201 and 11/A201 (see attached). |
| **6** | | **Sheet A/502 Details 2, 3, & 4** | **CLARIFICATION:** The electric digital sign will be furnished by the Owner and installed by the GC and EC. |

| Item | Additional Document | Cons. Doc. Reference | Description |
|---|---|---|---|
| **7** | | **Sheets A307 and A121** | **CLARIFICATION:** There are 2 different ladders included in this project. A307 Detail 15 Keynote 28 is to be an aluminum ladder, requested by the Owner. The steel ladder is detail 12/A121. Also see item #6 of this Addendum. |
| **Electrical:** | | | |
| **8** | | **Sheets EP401, EP402, and EP404** | **REVISE:** Additional volume control and speaker locations (see attached). |
| **9** | | | **CLARIFICATION:** The Owner's subcontractors are providing all cabling and wall plates. Raceways by EC. |
| **Mechanical / Plumbing:** | | | |
| **10** | | **Sheet M404** | **REVISE:** Buffer tank, expansion tank, and glycol feed system shall be centered over masonry wall below. |
| **11** | **Substitution Requested** | | **ADD AS AN APPROVED SUBSTITUTION:** Patterson Pump Company - Pumps models VIL & WILO are acceptable as noted in the mechanical schedules (see attached). |
| **12** | **Substitution Requested** | | **ADD AS AN APPROVEDF SUBSTITUTION:** RBI - Torus Boiler is acceptable as noted in the mechanical schedules (see attached). |
| **13** | **Substitution Requested** | | **ADD AS AN APPROVED SUBSTITUTION:** Patterson Pump Company - Expansion Tanks Model NLA-500 is acceptable as noted in the mechanical schedules (see attached). |
| **14** | **Substitution Requested** | | **ADD AS AN APPROVED SUBSTITUTION:** Patterson Pump Company - Air Separators Model TASS003 is acceptable as noted in the mechanical schedules (see attached). |
| **15** | **Substitution Requested** | | **ADD AS AN APPROVED SUBSTITUTION:** Niles Steel Tank - Hydraulic Separator/Buffer Tank Model SEP-30-075 is acceptable as noted in the mechanical details (see attached). |
| **16** | **Substitution Requested** | | **ADD AS AN APPROVED SUBSDTITUTION:** Beacon Morris - Gas Fired Unit Heaters Model BXF-250 is acceptable as noted in the mechanical schedules (see attached). |
| **End of Addendum #01** | | | |

Technicon Design Group

**Substitution Request Form**

Technicon Design Group
202 West Main Street, Suite 301, Ottawa, Ohio 45875
sandy@technicondesigngroup.com
Px 419.523.5323 Fx 419.523.9441

Drawing No.: a111 Drawing Name: a111

Spec. Section: Canopies Spec Name: Canopies

Article/Paragraph: _____ Specified Item: Canopies

Proposed Substitution: Masa extrudeck canopy

Manfacturer: MASA architectural canopies Model: Extrudeck

Submit with this form substantiating data to prove equal quality and performance to the basis of design or approved equals. Clearly mark manufacturer's literature to indicate equality in performance.

Does the Substitution affect dimensions shown on Drawings? Yes___ No X___ If yes, clearly indicate changes.

Will changes be required to the Contract Documents for the proper installation of the proposed product substitution. Yes____ No X. If Yes, attach data that indicates description of changes.

What affect does substitution have on other Contracts or other trades?

We are not spec. Canopy will be simular.

What affect does substitution have on the delivery and construction schedule?

Lead times avaliable upon request. Determined at time of order.

Differences between proposed substitution and specified item.

Not spec'd.

Manufacturer's warranties of proposed and specified items are Determined from sales team upon request.

Same:_____ Different:_____ Explain on an Attachment (Provide Warranty Information)

Company Submitting Request: MASA architectural canopies

Address: 3 Old Farmers Road | PO Box 422 | Long Valley, NJ 07853

Phone: 732.453.6120 Ext: 121 Email: salesupport@architecturalcanopies

Signature/Title: Mary Ellen Kendall sales support Date: 10-3-24

For use by Technicon Design Group

MUST HAVE KYNAR FINISH

_____ Accepted X Accepted as Noted

_____ Not Accepted _____ Received too Late

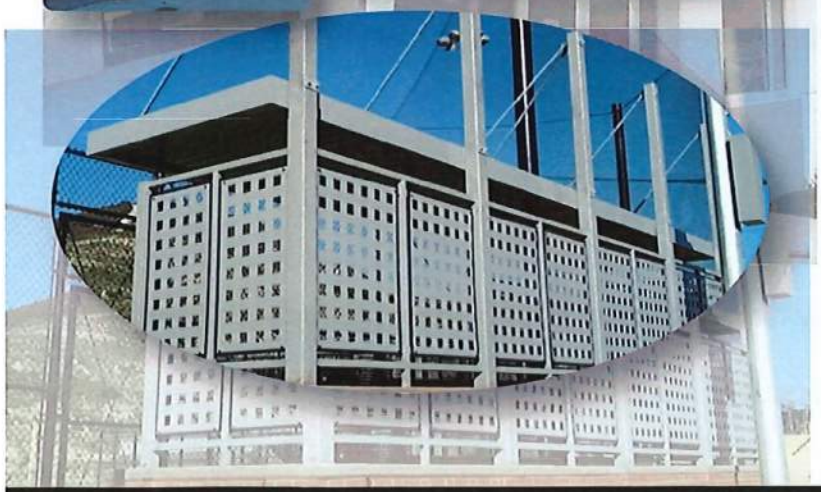
Signature/Title: Kevin Wischmeyer Date: 10-3-2024

**New Fire Station No. 1**
**American Township Fire Department**
**4239 Elida Road**
**Lima, Ohio 45807**

THIS PAGE WAS LEFT BLANK INTENTIONALLY

# Extrudeck® series

The gold-standard of extruded aluminum canopies

Extrudeck's® unique "J channel" water capture system makes this a functional yet attractive choice for any building. Its lightweight design provides protection from the elements and its easy hanger capability makes installation a snap. Extrudeck® is available pre-engineered in a wide variety of widths and lengths, a choice of finishing options will highlight your buildings facade.

## Features and Benefits:

- Unique built-in drainage system
- Superior durability and lightweight design
- A variety of mounting options:
  hanger rod, cantilever, post mount
- Pre-engineered
- Wide selection of fascia profiles, compliments any design
- Modular design and construction
- Weather protection
- Adjustable pitch
- Floating internal structure
- Surprisingly affordable

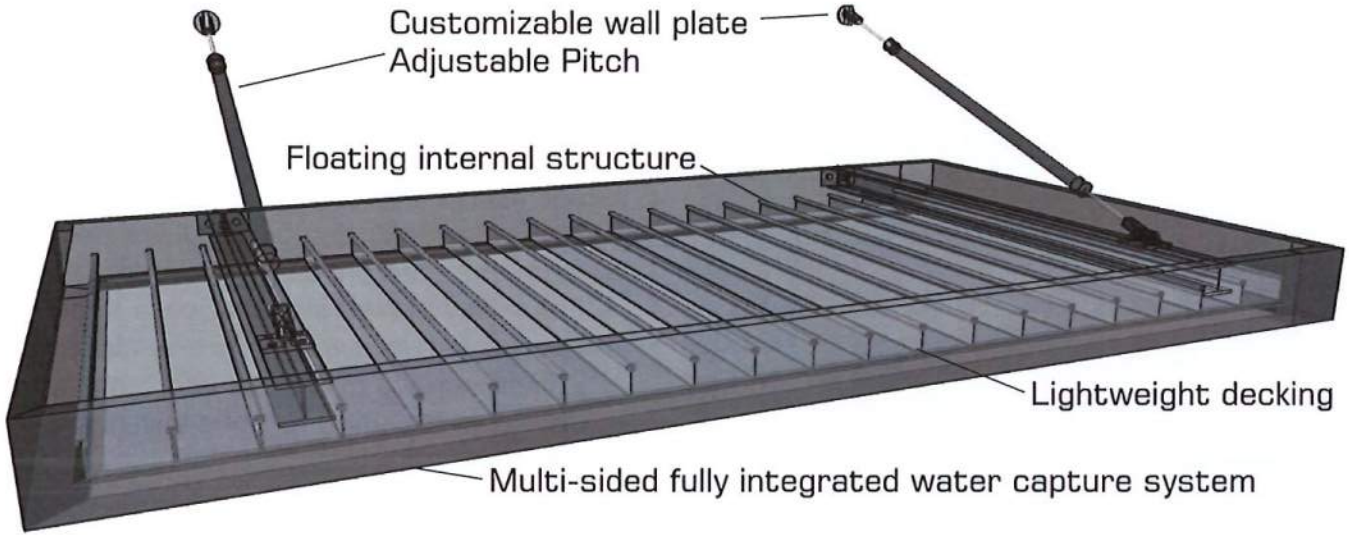
***MASA Architectural Canopies Ecoshade® and Extrudeck® systems can help you achieve LEED Credits.***

Innovative environmental control through creative design

MASA
ARCHITECTURAL CANOPIES

# Extrudeck® series

The gold-standard of extruded aluminum canopies




**Applications:** Doorways / Windows / Loading Docks / Walkways / Handicap ramps

## Technical Data:

- All extrusions meet criteria for ASTM B221 and ASTM B429
- All products are engineered to meet standards of ASCE for design loads
- All channel framing is .125 6063-T5 high strength extruded aluminum

**For PDF or AutoCAD Drawings go to: www.architecturalcanopies.com and click on downloads**

## Finishes:

- Standard finish super-durable Tiger Drylac Series 39 or 49 polyester resin based powder coating.

**Other Finishes Available:**

- Matthews/ppg Eurothane wet application
- Kynar Liquid Flouropolymer

Full color palettes are also available for download at **www.architecturalcanopies.com**

All finishes are AAMA rated for excellent outdoor durability

Contact your Authorized Dealer

ARCHITECTURAL CANOPIES

SECTION 101400 - SIGNAGE (REVISED)

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and General Provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this section.

1.2 SUMMARY

A. Signage of the following types:

1. Fabricated letters.

1.3 SUBMITTALS

A. Submittal Procedures: See Section 013300 “Submittal Procedures.”

B. Product Data: Manufacturer's illustrated product literature and specifications to be used, including:

1. Preparation instructions and recommendations.

2. Storage and handling requirements and recommendations.

3. Installation methods.

C. Shop Drawings: Submit detailed drawings of products and assemblies.

D. Selection Samples: For each finish product specified, a complete set of color chips representing manufacturer's full range of available colors and patterns.

1.4 QUALITY ASSURANCE

A. Sourcing: All signage shall be manufactured by one manufacturer.

B. Mock-Up: Provide a mock-up for evaluation of letter placement.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store products in manufacturer's unopened packaging bearing the brand name and manufacturer's identification until ready for installation.

B. Handle materials to avoid damage.

1.6 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

1.7 SEQUENCING

A. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

1.8 WARRANTY

A. Manufacturer's Warranty: Provide manufacturer's standard warranty against defects in materials and workmanship. Letters shall be guaranteed for the life of the business against defects.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Basis of Design: Gemini Inc.,

B. Requests for substitutions will be considered in accordance with provisions of Section 012500 “Substitution Procedures.”

2.2 FABRICATED LETTERS

A. Fabricated Letters: Signage shall be manufactured by Gemini Inc.

**1. Material: Flat Cut Metal painted Red (color) as noted on Keynote #39/A201 (Gemini Letters).**

B. Design:

1. Letter shall be font and size, as indicated on the drawings.

2. Fabricated letters shall be painted.

C. Fabrication:

1. Fabricated letters shall be between .080 inch to 0.125 inch (2 mm to 3 mm) thick with returns typically .063 (1.5 mm) thick.

2. Precision-guided lasers, routers, or jigsaw for cut letters, logos or shapes are acceptable.

3. Letter returns shall be cut to size based on the desired letter depth and bent to the contour of the cut faces to produce a hollow-backed letter with 90 degree angle edges and hand-soldered using a lead-free silver solder.

4. Welds shall be tested to withstand temperatures below -40 degree F (-38 degree C) and exceeding 350 degree F (177 degree C).

5. The edges of faces on letters and logos with thin lines of exposed stainless steel shall be buffed smooth on polished letters, or stroke sanded on satin letters to maintain consistency in appearance.

D. Mounting:

1. Mounting shall be templated designating stud locations required for mounting on substrate surface as indicated.

2. Brackets shall be soldered on the inside of the letters to receive threaded studs.

3. Standard fabricated letters shall use 3/16 inch (4.8 mm) aluminum studs.

2.3 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

2.4 PREPARATION

A. Clean surfaces thoroughly prior to installation.

2.5 INSTALLATION

A. Install in accordance with manufacturer's instructions and in proper relationship to adjacent construction.

2.6 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION 101400

THIS PAGE WAS LEFT BLANK INTENTIONALLY

**Technicon Design Group**

**Substitution Request Form**

Technicon Design Group
202 West Main Street, Suite 301, Ottawa, Ohio 45875
sandy@technicondesigngroup.com
Px 419.523.5323 Fx 419.523.9441

Drawing No.: A121, A301 Drawing Name: Roof Plan, Bldg Sections

Spec. Section: couldn't find spec for ladder Spec Name: couldn't find

Article/Paragraph: couldn't find Specified Item: fixed ladder (2 locations)

Proposed Substitution: Aluminum fixed ladder at hatch & on roof

Manfacturer: Kattsafe Model: RL34

Submit with this form substantiating data to prove equal quality and performance to the basis of design or approved equals. Clearly mark manufacturer's literature to indicate equality in performance.

Does the Substitution affect dimensions shown on Drawings? Yes___ No✓ If yes, clearly indicate changes.

Will changes be required to the Contract Documents for the proper installation of the proposed product substitution. Yes___ No✓. If Yes, attach data that indicates description of changes.

What affect does substitution have on other Contracts or other trades?

None

What affect does substitution have on the delivery and construction schedule?

None

Differences between proposed substitution and specified item.

aluminum ladder as opposed to steel, many advantages of aluminum

Manufacturer's warranties of proposed and specified items are:

Same: ✓ Different: ___ Explain on an Attachment (Provide Warranty Information)

Company Submitting Request: Engineered Systems

Address: 533 Old Harbor Ct. Dayton, OH 45458

Phone: 937-604-0377 Email: bryan@engineeredsys.com

Signature/Title: Bry J. Sta, sales rep Date: 9/27/24

For use by Technicon Design Group

___ Accepted ___ Accepted as Noted

___ Not Accepted ___ Received too Late

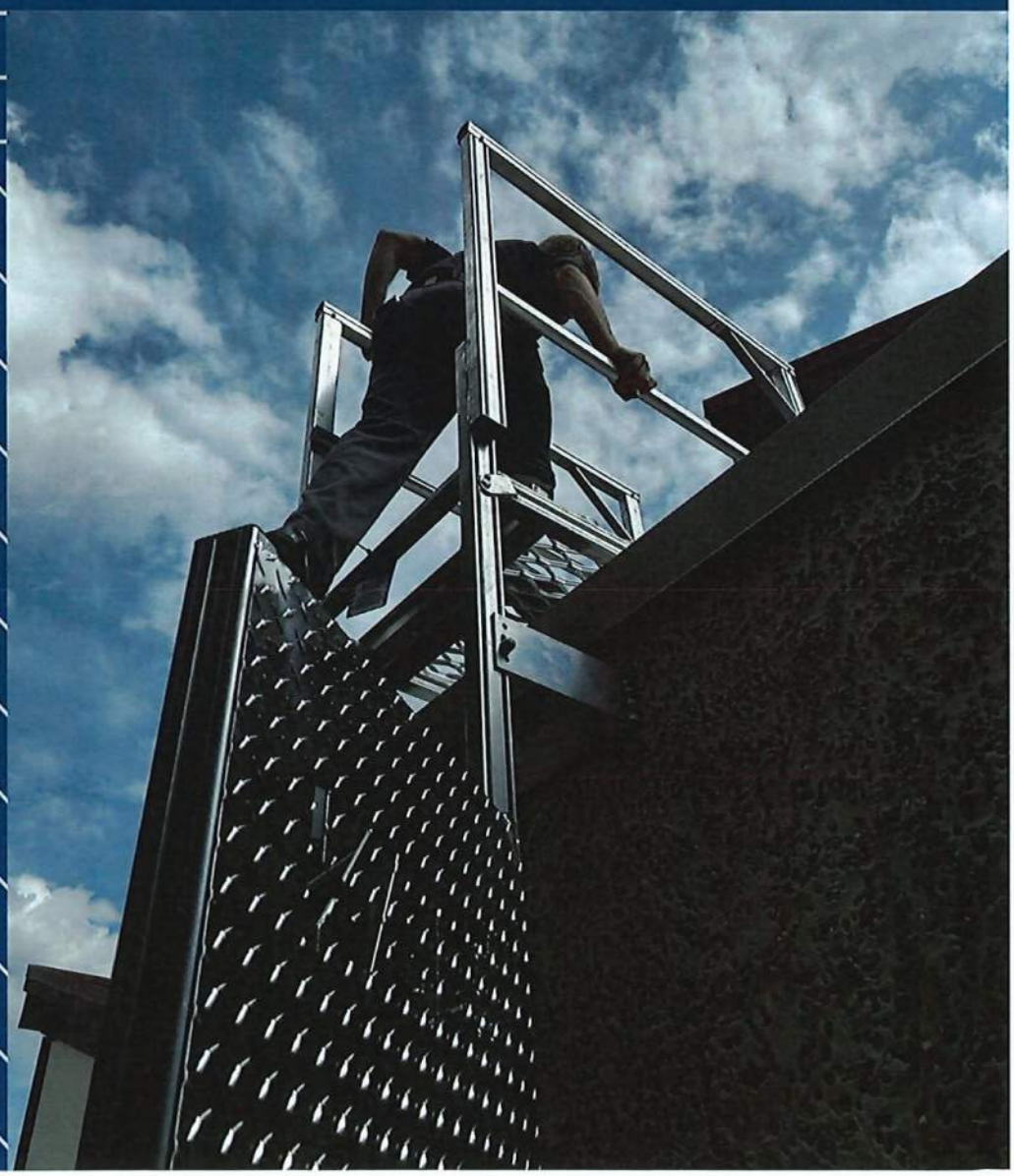
Signature/Title: Jillian Stadtschulte Date: 9/27/2024

**New Fire Station No. 1**
**American Township Fire Department**
**4239 Elida Road**
**Lima, Ohio 45807**

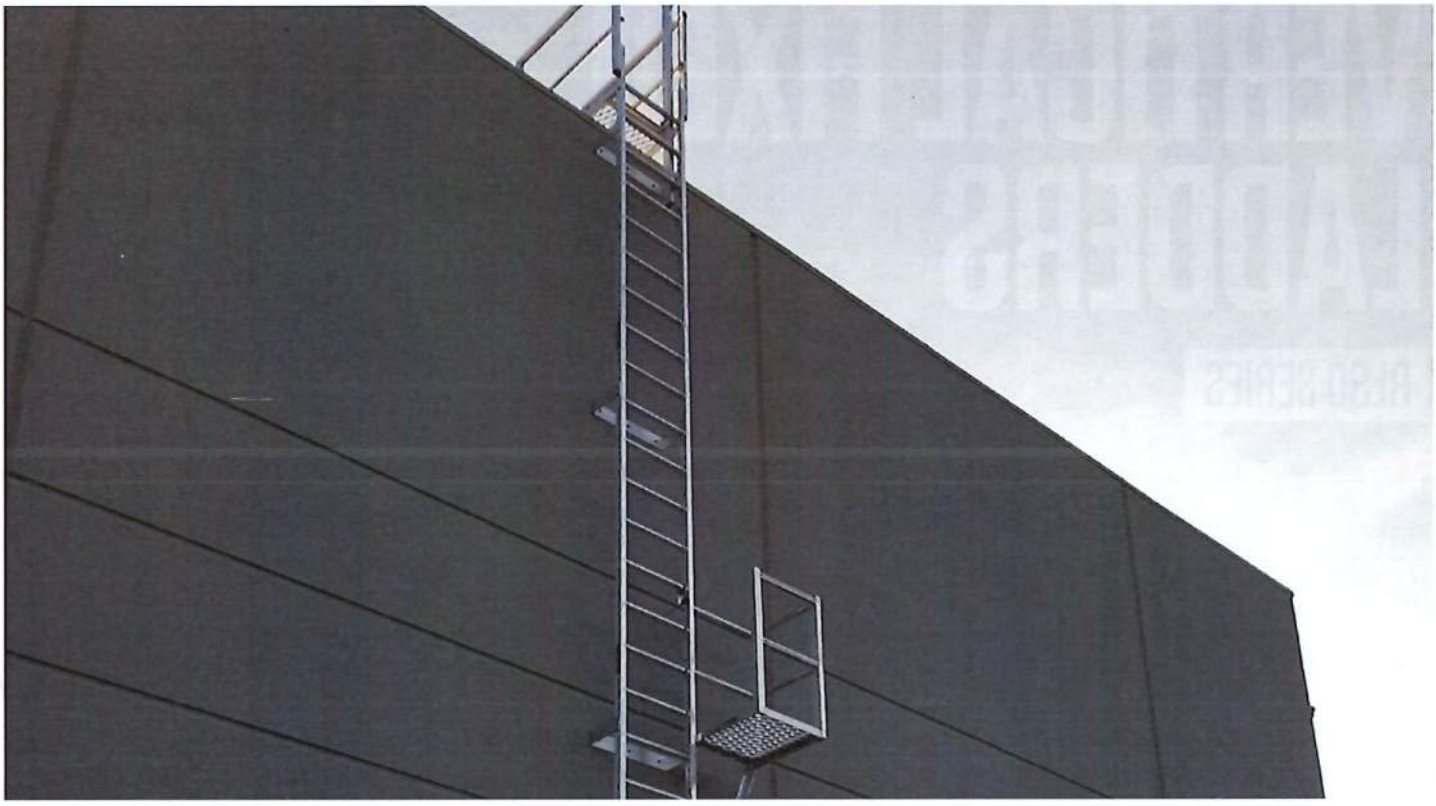
Kattsafe Height access and fall protection

# VERTICAL FIXED LADDERS

## RL30 SERIES



# PRODUCT OVERVIEW



RL30 series vertical fixed ladders allow for safe and simple access to heights. Manufactured of lightweight, high-strength aluminum, RL30 series ladders provide a permanent OSHA & ANSI compliant solution for accessing the walking-working surface. Heights 24ft and up can be safely accessed when combined with our Vertical Ladder Fall Arrest System. RL30 series ladders are available in multiple configurations and can be easily customized on-site to suit your application.

### Features

- Modular system
- Minimum lead time
- Flat pack shipping allows for easier handling & freight cost savings
- Quick and seamless on-site assembly
- Ergonomic rung design
- OSHA compliant

**RL31 grab rails**

**RL32 parapet platform**

**RL33 8ft walkway platform**

**RL34 8ft walkway platform**

**RL35 3ft walkway platform**

# TECHNICAL SPECIFICATION

### Material

- All components and accessories are manufactured from high grade 5000 and 6000 series structural aluminium. All fasteners are stainless steel.
- Finish: Mill finish standard. Power coating available

### Dimensions

- Overall ladder width: 23-3/4in (605mm)
- Distance between stiles: 20-5/8in (525mm)
- Distance between stiles at ladder head: 24in (610mm)
- Ladder stile: Aluminum extruded stile grade 6106-T6 - 2-1/4in x 1-1/2in x 1/8in
- Rung diameter: 1-1/4in SQ. 6106-T6 serrated rung
- Rung spacing: 12in (300mm)
- Stile extension above landing surface: 42in (1070mm)
- Minimum clearance behind ladder: 7in (200mm) (vertical position)
- Maximum clearance behind ladder before platform is required: 12in (305mm)
- Maximum distance between rest platforms: 150ft (45.7m)

### Weight

Ladder body sections: 6.4lb/40in (excludes fixing brackets and fixings)

### Working load limit

Unit shall support a 1000lb loading without failure and individual treads shall withstand a 1000lb loading without failure. Industrial rated, suited to high frequency usage. Support structure integrity, suitability, and fixing method to be assessed and determined by an engineer unless it is clear to a competent person prior to installation.

### Compliance

Kattsafe ladder systems are designed and manufactured to meet and exceed requirements of OSHA standard 1910.23, 1910.28, and CAL-OSHA 3277 as applicable.

### Product warranty

5 years from date of purchase subject to installation, use, and maintenance in accordance with manufacturer's specifications and recommendations. Failure to supply and/or install product in accordance with above standards and codes, specifications, and instructions voids complete system certification and/or warranty. Warranty documentation can be found at www.kattsafe.com.

Kattsafe Height access and fall protection

MAXIMUM SAFETY. MINIMUM FUSS.

# WARRANTY DOCUMENTATION

**LIMITED WARRANTY FOR KATTSAFE PRODUCTS & SYSTEMS (to the original purchaser)**

Date: _____ Ref No: _____

System Installer: _____

Contact Person: _____

Project Name: _____

Project Address: _____

Kattsafe warrants that for a period of 5 years from the date of final acceptance of the work, the product/s are free from all defects in materials or fabrication under normal use.

Kattsafe Safe Access and Fall Protection products are warranted against defects in workmanship or material, under normal use, to the original owner. Kattsafe will replace, at its option, any units subject to this 5-year limited warranty. This includes all Kattsafe branded products and associated brands.

Kattsafe products are designed to withstand normal wear and tear but are not indestructible and can be damaged by misuse. This limited warranty does not cover wear and tear, misuse, and/or abusive treatment. Misuse may include but is not limited to damage by vehicles, people, falling objects, acts of God, and using the product in any matter contrary to the warnings and instructions included with this product. This warranty does not apply to damage, abuse, misuse, maltreatment, abnormal stress or strain, harsh or adverse treatment, neglect, corrosive or harsh environments, and excessive use. This warranty does not apply to systems incorrectly installed (indifferent to the installation manual), incorrect layout design, or work done by a non-accredited Kattsafe installer.

This warranty does not apply to systems that have been installed using non-proprietary equipment. Kattsafe reserves the right to inspect a building prior to issuing the warranty, and/or to inspect and conduct tests as necessary at any time after a claim is made under this warranty.

This warranty is specifically for standard 'mill finish' products and does not cover custom powder-coated products. Kattsafe will match the warranty of the powder coater manufacturer which is typically 1-2 years. Contact Kattsafe to confirm the finished warranty prior to installation. Anodized products are covered by the standard limited warranty terms above.

Warranty claims must include all details and should be made to Kattsafe within 14 days of the appearance of the defect. Under no circumstances do we accept any liability for consequential loss.
Kattsafe requires this system to be checked at least every 12 months by a competent inspector in accordance with relevant OSHA regulations and manufacturers' guidelines. Kattsafe Active Fall Restraint or Arrest Products and Systems must be inspected on a 12-month basis (or 6 months for installations subject to harsh conditions). If this inspection is not performed, the warranty is void and all/increased liability will be the responsibility of the customer/end user.

3921 Perry Blvd
Whitestown IN 46075
USA

888 637 7872
sales@kattsafe.com
kattsafe.com

**TERMS AND CONDITIONS**

All warranty claims must be made in writing within 14 days of the appearance of the defect. Incorrect installation, incorrect layout design or work done by a non-accredited Kattsafe installer will void all warranty rights.

Systems that have been installed using non-proprietary equipment will void all warranties.
Systems/components that have not been maintained in accordance with the manufacturers and legislative requirements will void warranty.

Systems used by incompetent persons or use with non-compatible accessories i.e. Harness gear, lanyards, travelers, fall arrestors etc. will void warranty.

Systems/components used for purposes other than their intended use will void warranty.
General wear and tear is expected and will depend on the frequency of use and is not covered by the manufacturer's warranty.

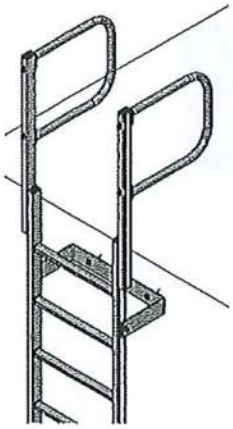
Kattsafe reserves the right to inspect a building prior to issuing of the warranty and/or to inspect and conduct tests as necessary at any time after a claim is made under this warranty.

To the extent permitted by law, this warranty shall be in lieu of any other warranty, express or implied, including but not limited to any implied warranty of merchantability or fitness for a particular purpose. The liability of Kattsafe under this warranty shall be limited solely to repair or replacement of the systems within the warranty period. Kattsafe shall not be liable, under any circumstances, for consequential or incidental damages, including but not limited to personal injury or labor costs. Under no circumstances will Kattsafe be responsible for any expense in connection with any repairs made by anyone other than Kattsafe, the manufacturer, or a Kattsafe professional.

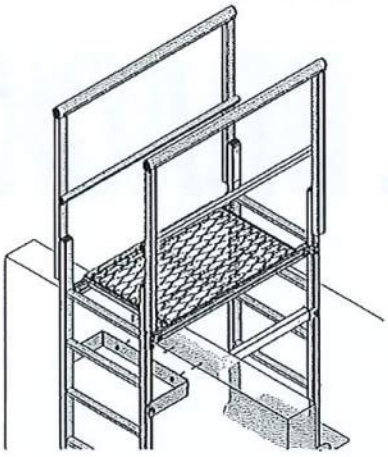
Please note the following exceptions:

- Kattsafe Warning Line Products and Systems 2 Years. (Flags and Cable have a 1-year warranty only)
- Kattsafe Fold Down Ladders 2 Years (Any moving parts have a 6month warranty only)
- Kattsafe Steel Weighted Bases have a 2-year warranty only.

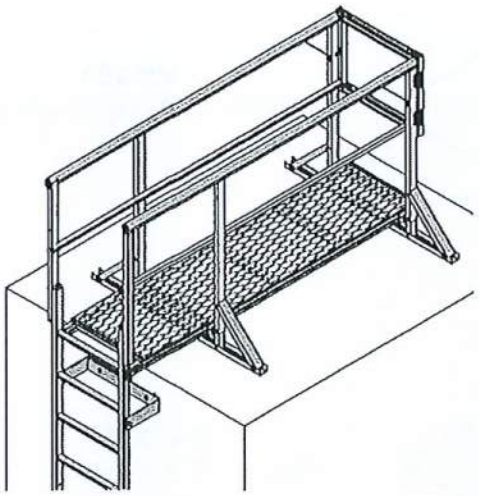
# RL30 SERIES LADDER CONFIGURATIONS



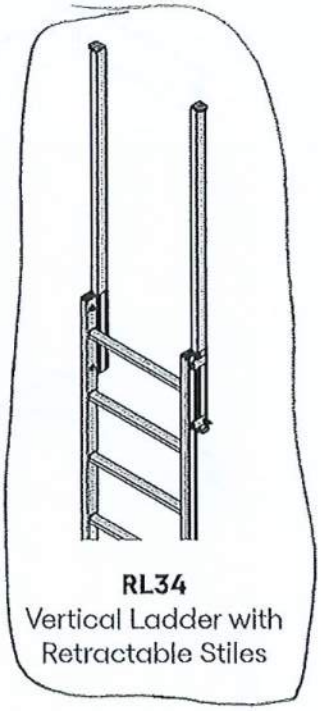
**RL31**
Vertical Ladder with Grab Rails



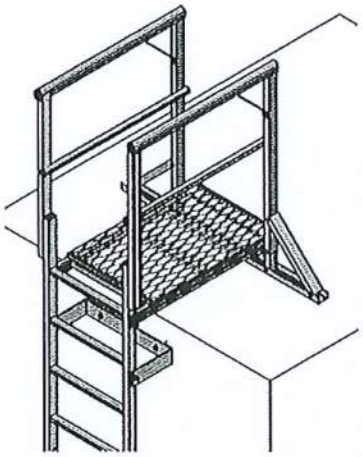
**RL32**
Vertical Ladder with Parapet Platform



**RL33**
Vertical Ladder with 8ft Walkway Platform



**RL34**
Vertical Ladder with Retractable Stiles



**RL35**
Vertical Ladder with 3ft Walkway Platform

Install the ladder heads as per the system ladder installation instructions that can be found on the specific pages below. Complete the steps on pages 4-21 before completing the ladder head installation steps

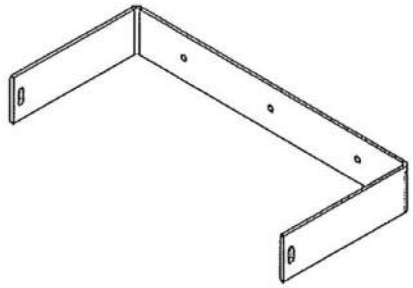
RL31 - Vertical Ladder with Guardrail - page (22)
RL32 - Vertical Ladder with Parapet Platform - page (25)
RL33 - Vertical Ladder with 8ft Walkway Platform - page (43)
RL34 - Vertical Ladder with Retractable Stiles - page (60)
RL35 - Vertical Ladder with 3ft Walkway Platform - page (65)

Kattsafe Height access and fall protection

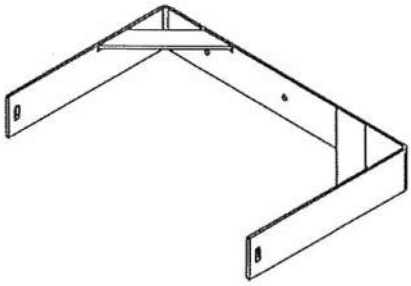
INSTALLATION MANUAL

# WALL BRACKETS

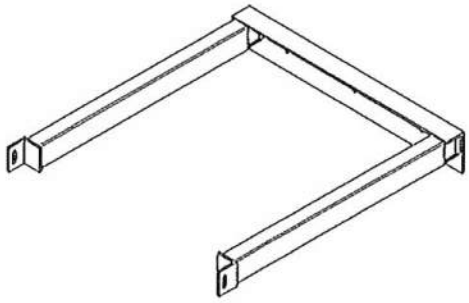
## LD421 SERIES



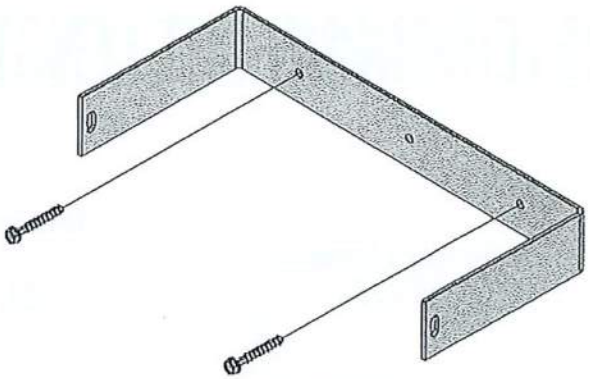
**LD421.280**
Standard Fixing Bracket

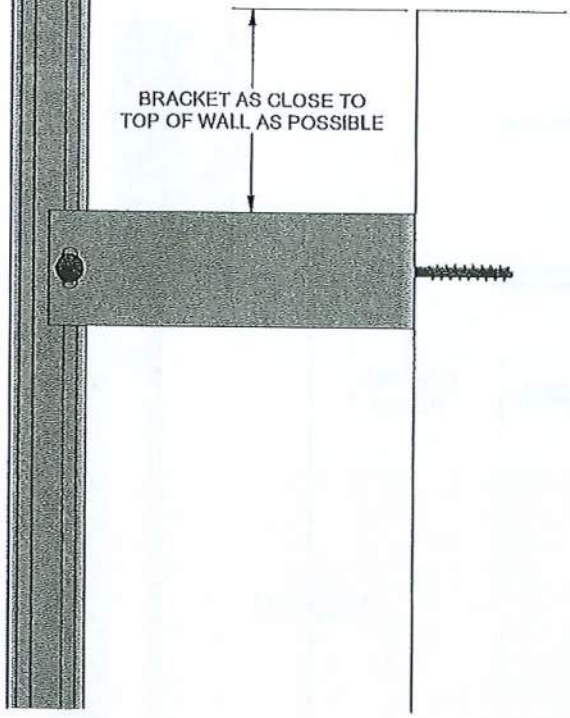


**LD421.400**
400mm 15-3/4 in Gusseted Fixing Bracket



**LD421.600**
Adjustable Fixing Bracket





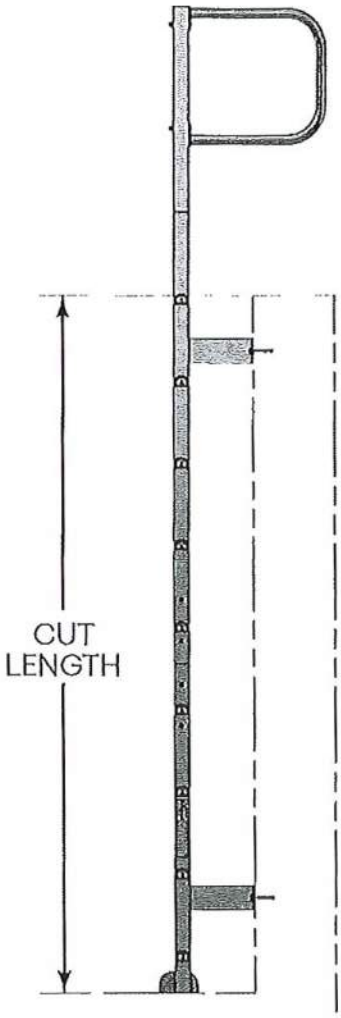

**1** Measure the height of the wall. Attach the ladder wall brackets to the wall with the recommended hardware. See separate installation sheets specific to mounting on various wall substrates.

**IMPORTANT NOTES:**

- The top bracket must be as close to the roof/walking-working surface as possible.
- Wall brackets should be spaced a maximum of 9ft apart (8ft recommended).
- There must be at least (1) wall bracket per ladder body.
- If your order includes the LD421.280S Off Floor Mount Bracket, then it must be installed at the base of the ladder. Ensure it is installed a maximum of 3ft off of the lower level.
- See specific installation sheet for wall hardware mounting kits.

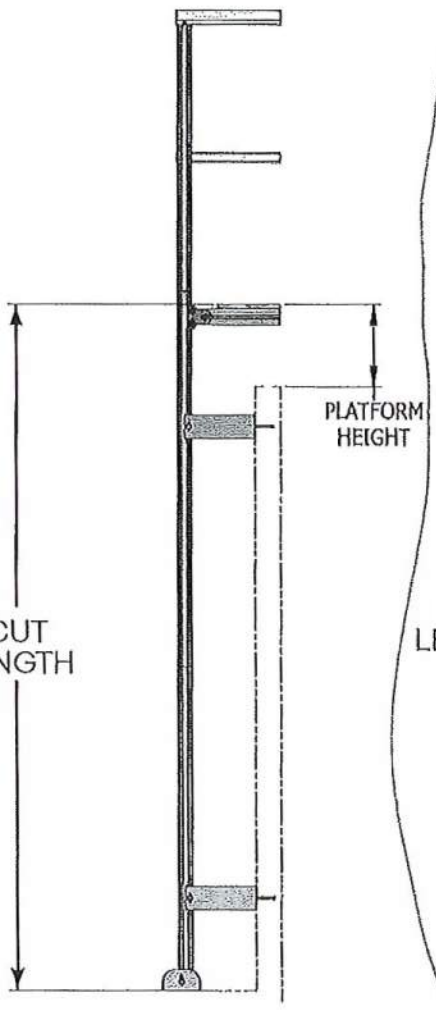
# DETERMINING CUT LENGTH

**Standard Ladders**
(RL31)




Measure from Lower Level to Upper Level

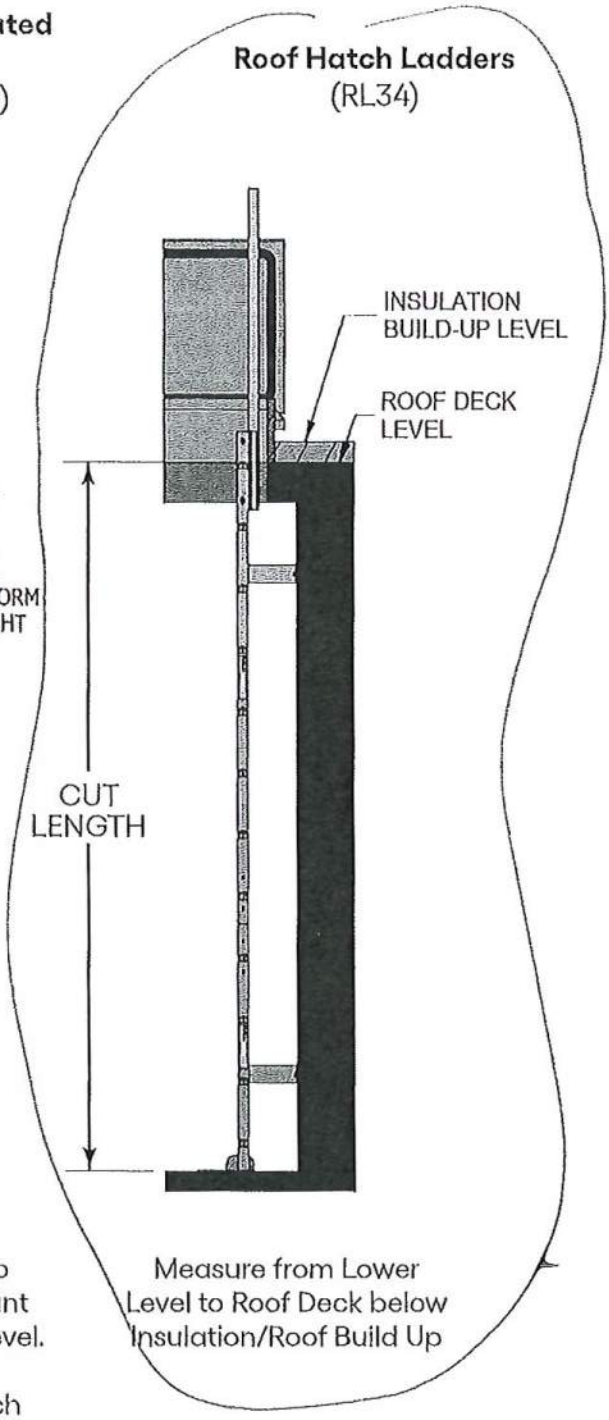
**Ladders with Integrated Walkway**
(RL32, RL33, RL35)



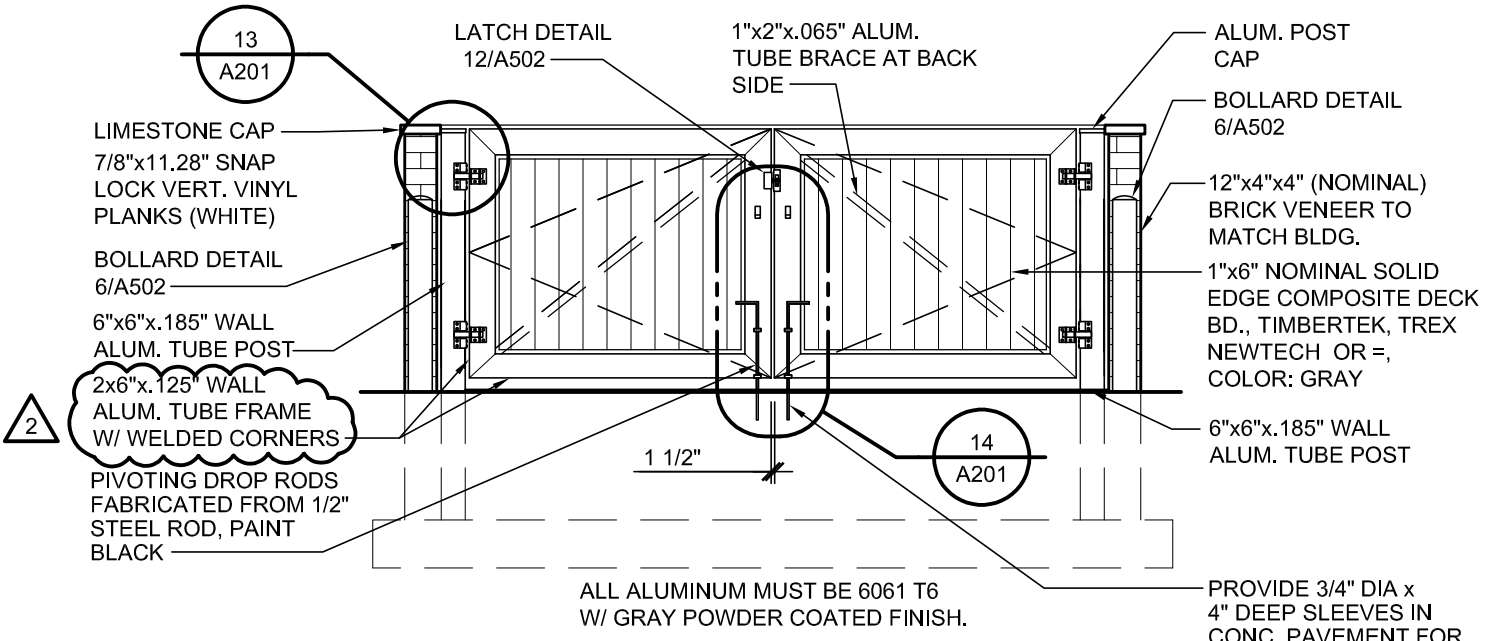

Measure from Lower Level to Upper Level, be sure to account for platform height off upper level.

Recommend allowing 2-3 inch clearance between parapet and underside of platform

**Roof Hatch Ladders**
(RL34)

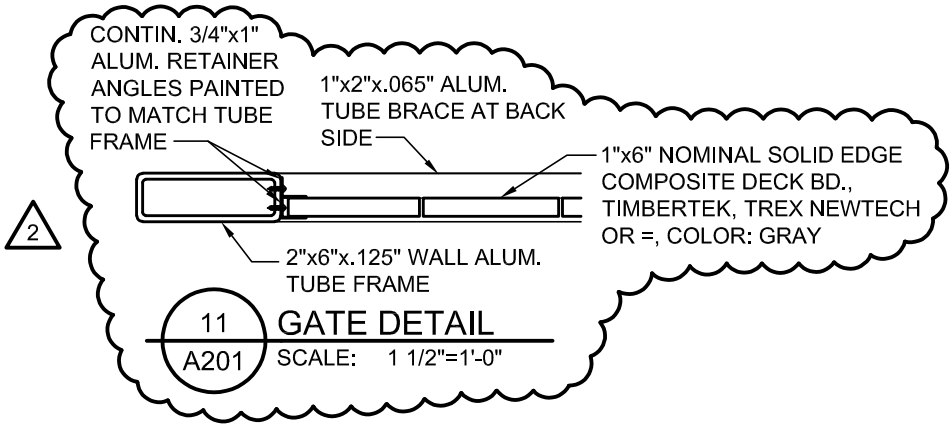



Measure from Lower Level to Roof Deck below Insulation/Roof Build Up




## 9 A201 DUMPSTER ENCLOSURE FRONT ELEVATION

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




## 11 A201 GATE DETAIL

SCALE: 1 1/2"=1'-0"

# NEW FIRE STATION #1
# AMERICAN TWP. F.D.
# 4239 ELIDA ROAD
# LIMA, OHIO 45807

Technicon Design Group

| | |
|---|---|
| DRAWN BY | KW |
| CHECKED | |
| DATE | 05-23 |
| SCALE | AS NOTED |
| JOB NO. | 48-2899-23 |

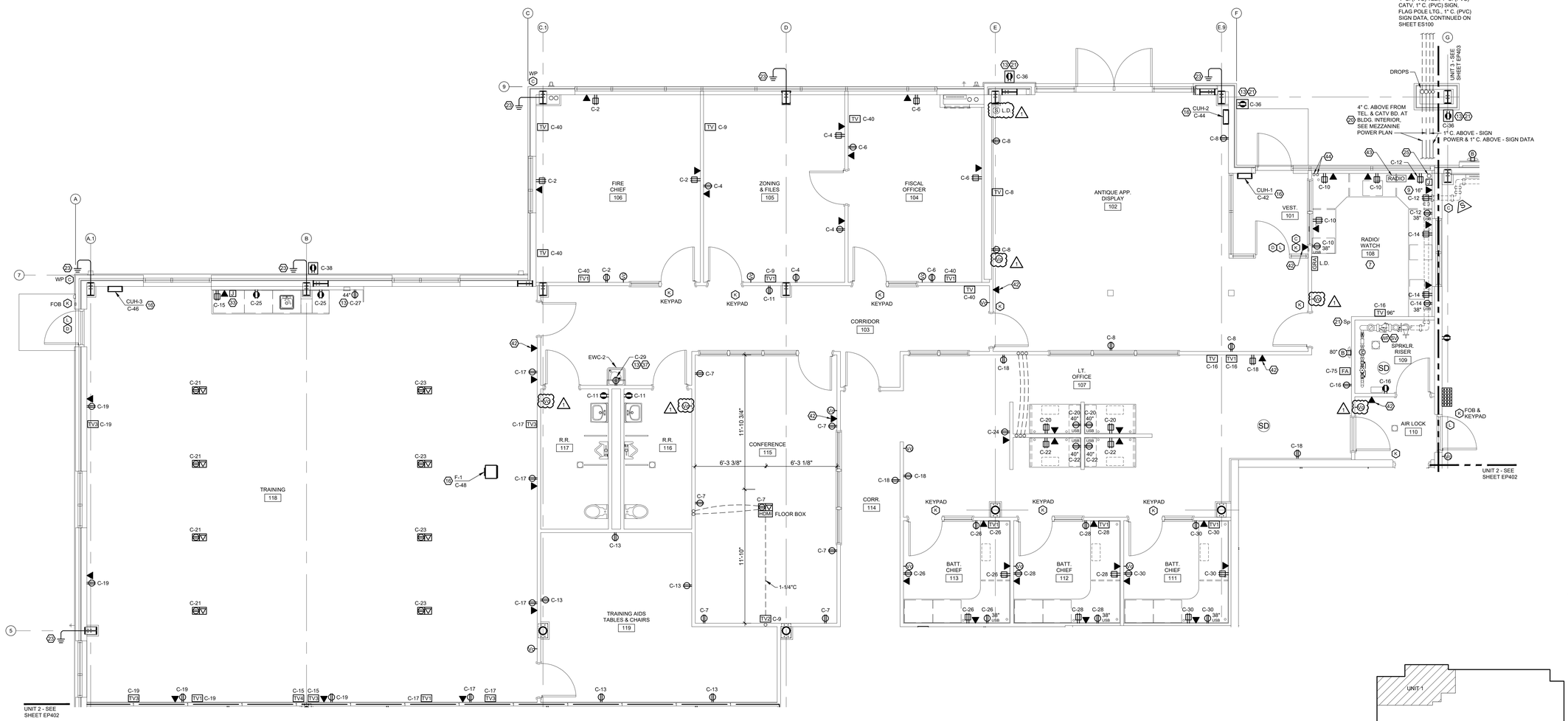
| PAGE | ISSUE DATE |
|---|---|
| A201 | 10-02-24 |
| | |
| | |
| | |
| | |

ADDENDUM
1

THIS IS NOT A SEALED DOCUMENT.
SEE REVIEWED DRAWINGS ON
FILE WITH THE AUTHORITY
HAVING JURISDICTION.
GILLIAN STECHSCHULTE
OHIO REGISTERED ARCHITECT NO.
LICENSE #ARC1516394
EXPIRATION DATE 12-31-25

## KEYNOTES - POWER PLANS

1. OVERHEAD DOOR OPERATOR 1/2 HP-208V 3ϕ.
2. FOUR-FOLD DOOR OPERATOR 3/4 HP-208V 3ϕ.
3. NATURAL GAS FUELED GENERATOR 120/208V, 3PH, 4W, ALSO SEE ONE-LINE DIAGRAM (1/E601).
4. INSTALL DUPLEX RECEPTACLES FLUSH AND ADJACENT TO HEADWALL CABINETRY - NOMINALLY 40" A.F.F. FIELD VERIFY EXACT LOCATION WITH ARCHITECT & G.C. PRIOR TO ROUGH-IN.
5. INSTALL POWER AND SYSTEMS RECEPTACLES IN CABINETRY - NOMINALLY 34" A.F.F. FIELD VERIFY EXACT LOCATION WITH ARCHITECT & G.C. PRIOR TO ROUGH-IN. SEE DETAIL 22/A501.
6. PLUGSTRIP - MTG. HT. & OVERALL LENGTH AS SHOWN ON PLANS, WITH SINGLE RECEPTACLES ON 6" CENTERS - FEED FROM DEDICATED GFCI BREAKER.
7. E.C. SHALL COORDINATE THE LOCATIONS OF DEVICES AND ALL WORK ASSOCIATED WITH OWNER PROVIDED INTERNET, INTERCOM/ TELEPHONE, ETC. WITH AMERICAN TWP. FIRE DEPARTMENT PERSONNEL PRIOR TO INSTALLATION. 120V CIRCUITS BY E.C.
8. 2 #14-3/4"C FOR GAS RANGE SHUNT TRIP BREAKER.
9. EMPTY 1" PVC U.G. RACEWAY, WITH PULL STRING, UP TO RADIO ANTENNA FOR WIRING BY OTHERS. PROVIDE DUAL GANG BOX 16" A.F.F. IN RADIO-102 AND SINGLE GANG RECESSED CAST WP BOX WITH GASKETED BLANK COVER AT EXTERIOR COLUMN, APPROX. 12 FEET AFG. VERIFY WITH RADIO VENDOR.
10. TWO EMPTY 4" CONDUIT SLEEVES WITH INSULATED BUSHINGS ON BOTH ENDS, THROUGH WALLS, FOR PHONE/DATA, SECURITY AND ALARM CABLING BY OTHERS.
11. 4 FT BY 8 FT FIRE RATED PLYWOOD TELEPHONE/DATA BACKBOARD. COORDINATE EXACT LOCATION WITH OWNER.
12. INSTALL FLEXIBLE CONDUIT FROM 2-GANG JUNCTION BOX, LOCATED ABOVE ACCESSIBLE CEILING, TO SURFACE MOUNTED SPEAKER. COORDINATE HOLE SIZE IN CONCRETE CEILING SYSTEM WITH MANUFACTURER'S SPECIFICATIONS AND SPEAKER INSTALLER.
13. GFCI PROTECTED RECEPTACLE. E.C. SHALL INSTALL GFCI CIRCUIT BREAKER IN PANEL.
14. LOW PROFILE CEILING FAN WITH FIVE BLADES, 42" DIA, WITH 120 VOLT THREE SPEED REVERSIBLE EXTRA QUIET MOTOR, 57 WATTS, INFRARED REMOTE CONTROLLER, WHITE FINISH, HUNTER #51059-WH OR EQUAL, BY E.C.
15. VEHICLE EXHAUST SYSTEM BY M.C. SEE MECHANICAL DRAWINGS FOR SPECIFICATIONS. E.C. SHALL FURNISH AND INSTALL DISCONNECT AND POWER FOR VEHICLE EXHAUST FAN AND VEHICLE EXHAUST CONTROL PANEL (POWER IS BROUGHT TO CONTROL PANEL AND CONTINUES TO FAN). COORDINATE ALL WORK WITH M.C. AND EQUIPMENT INSTALLATION INSTRUCTIONS PRIOR TO ROUGH-IN.
16. DISCONNECT SUPPLIED WITH MECHANICAL EQUIPMENT, BY M.C. SEE MECHANICAL DRAWINGS.
17. CEILING FAN. SEE MECHANICAL DRAWINGS AND COORDINATE INSTALLATION WITH M.C.
18. CORD REEL FURNISHED BY OWNER. SUPPORTS AND INSTALLATION BY E.C. TWISTLOCK RECEPTACLE AND MATCHING TWISTLOCK PLUG CAP BY E.C. COORDINATE LOCATION AND MOUNTING HEIGHT WITH LIGHTS, FANS, VEHICLE EXHAUST, ETC. DETAIL 1/ES01.
19. BACKSPLASH FINISH ON NORTH AND EAST WALLS INCLUDES 1/4" THICK MARBLE OR 20 GA. STAINLESS STEEL (S.S.) PANELS. ALL CUTTING OF PANELS FOR FIXTURES, DEVICES, AND SWITCHES SHALL BE PERFORMED BY THE GENERAL CONTRACTOR. COORDINATE ROUGH-IN BOX MOUNTING DEPTH W/ G.C. TO ALLOW FOR MARBLE WALL PANELS & S.S. SHEET.
20. TWO EMPTY 4"C WITH PULL STRINGS, CONTINUOUS UP TO TELEPHONE/DATA SERVICE BACKBOARD ON MEZZANINE, FOR CABLING BY OTHERS. PVC BELOW GRADE, BUT RGS ABOVE THE FIRST FLOOR LINE.
21. EXTERIOR WEATHER RESISTANT RECEPTACLES FOR SEASONAL "HOLIDAY LIGHTING" USE, CONTROLLED BY PILOT LIGHTED SWITCH IN RADIO/WATCH 108. PROVIDE WEATHERPROOF FLAP COVER AS SPECIFIED IN LEGEND. DEDICATED RECEPTACLE CIRCUIT SHALL BE PROVIDED WITH GFCI CIRCUIT BREAKER AT PANELBOARD.
22. TWO 3" CONDUITS ROUTED TO GROUND BOX FOR FUTURE STORAGE BUILDING. SEE ELECTRICAL SITE PLAN.
23. #2 CU. GROUND WIRE TO 3/4" DIA BY 10 FT COPPERWELD GROUND ROD DRIVEN INTO EARTH; SET TOP OF ROD 12" BELOW GRADE.
24. REMOTE PUSH BUTTON CONTROLS FOR SIX (6) OVERHEAD DOORS (TOP ROW, APPROX. 51" A.F.F.) AND REMOTE PUSH BUTTON CONTROLS FOR SIX (6) FOUR-FOLD DOORS (BOTTOM ROW, APPROX. 44" A.F.F.). PROVIDE CONTROL WIRING PER SUPPLIER'S APPROVED SHOP DRAWINGS.
25. STUB CONDUIT INTO ROOM 108 FOR DIGITAL MESSAGE SIGN (NEAR ROAD) .
26. PLUGSTRIP WITH RECEPTACLES ON 6" CENTERS, AT APPROX. 90" AFF FOR PHONE AND FLASHLIGHT CHARGING. COORDINATE EXACT LOCATIONS WITH LOCKER INSTALLATION.
27. KITCHEN HOOD WITH INTEGRAL LIGHTS. E.C. SHALL FURNISH & INSTALL PROVIDED SWITCHES FOR LIGHTS & FAN CONTROL AND INTERWIRE TO CONTROL PANEL KFCC PER INSTALLATION DRAWINGS. 6 #12 & #12GRD TO BRANCH CIRCUITS INDICATED FOR LIGHTS, FAN, CONTROLS. SEE MECHANICAL DRAWINGS.
28. VALVE BOX. SEE PLUMBING DRAWINGS.
29. LED SIGNAL RED / GREEN MOUNTED ON WALL, LEFT HAND OF OVERHEAD DOOR, AT APPROXIMATELY 7'-0". FURNISH LED SIGNAL DEVICE (MULTI-FAB MFE0022-Y OR EQUAL), CONDUIT AND WIRING. COORDINATE INSTALLATION WITH G.C. AND OVERHEAD DOOR SUPPLIER.
30. POWER CONDUITS PER SINGLE LINE DIAGRAM, PLUS: 1"C FOR CONTROLS, 1"C FOR REMOTE ANNUNCIATOR, AND 3/4"C WITH 2 #10 + #10G FOR BLOCK HEATER.
31. FURNISH AND INSTALL REQUIRED UNISTRUT AND ACCESSORIES TO MOUNT RECEPTACLE FOR GFS-1. COORDINATE LOCATION WITH M.C.
32. REMOTE PUSH BUTTON CONTROLS FOR SIX (6) FOUR-FOLD DOORS (TOP ROW, APPROX. 51" A.F.F.) AND REMOTE PUSH BUTTON CONTROLS FOR SIX (6) OVERHEAD DOORS (BOTTOM ROW, APPROX. 44" A.F.F.). PROVIDE CONTROL WIRING PER SUPPLIER'S APPROVED SHOP DRAWINGS.
33. PROVIDE 12" X 12" X 4" FLUSH PULL BOX WITH BLANK PLATE, WITH THREE 1-1/4"C CONDUITS TO ACCESSIBLE CEILING PLENUM WITH 90 DEGREE ELBOW AND INSULATED BUSHING. COORDINATE INSTALLATION WITH CABINET INSTALLER.
34. FURNISH AND INSTALL TWO (2) 60A DISCONNECTS FOR TWO (2) SEPARATE CIRCUITS. INSTALL PER NEC ARTICLE 424.19. COORDINATE WORK WITH M.C. AND EQUIPMENT INSTALLATION INSTRUCTIONS.
35. INDOOR UNIT IS POWERED FROM OUTDOOR UNIT. E.C. SHALL SUPPLY DISCONNECTING MEANS. SEE MECHANICAL DRAWINGS.
36. E.C. SHALL INSTALL POWER FOR DISHWASHER ACCORDING TO MANUFACTURER'S INSTRUCTIONS. E.C. SHALL FURNISH AND INSTALL FLEXIBLE CORD AND RECEPTACLE IN THE SPACE ADJACENT TO THE DISHWASHER, PER NEC ARTICLE 422.16(B)(2). APPLIANCES ARE SUPPLIED BY OWNER AND INSTALLED BY G.C. E.C. SHALL COORDINATE WORK WITH G.C.
37. COORDINATE WITH P.C. FOR LOCATION OF GFCI PROTECTED RECEPTACLE FOR EWC PER MANUFACTURER'S REQUIREMENTS.
38. FURNISH AND INSTALL TWO (2) SPARE 1" CONDUITS FROM PANEL TO ABOVE ACCESSIBLE CEILING FOR FUTURE CIRCUITS. CAP END OF CONDUIT ABOVE ACCESSIBLE CEILING.
39. CONTROL PANEL AND TOUCHSCREEN (CONTROLS) FOR FANS F-12 THRU F-17. SEE MECHANICAL DRAWINGS. FURNISH AND INSTALL WEATHERPROOF STAINLESS STEEL ENCLOSURE WITH HINGED ACCESS PANEL AND WINDOW. CONTROLS SHALL BE INSTALLED INSIDE ENCLOSURE. COORDINATE SIZE OF ENCLOSURE WITH CONTROLS AND POWER REQUIREMENTS OF CONTROLS.
40. WIRELESS ACCESS POINT MOUNTED ON WALL.
41. INSTALL 1 1/2" EMT CONDUIT FROM I.T. AREA 502 TO 1 1/2" LIQUIDTIGHT FLEXIBLE METAL CONDUIT, AT ROOF PURLIN, TO EXTERIOR RADIO ANTENNA. SEE DETAIL 12/A304. COORDINATE CONDUIT SIZE AND LOCATION WITH OWNER'S RADIO CONSULTANT PRIOR TO INSTALLING.
42. BOX AND CONDUIT FOR PHONE LOCATION (SEE SYMBOLS LEGEND). M.H. 48". COORDINATE LOCATION PRIOR TO ROUGH-IN.
43. APPROXIMATE LOCATION OF RADIO BASE, PROVIDED BY OWNER'S RADIO CONSULTANT.
44. TWO EMPTY 2" EMT CONDUIT WITH PULL STRINGS, CONTINUOUS UP TO TELEPHONE/DATA SERVICE BACKBOARD, FOR CABLING BY OTHERS.
45. AFCI PROTECTION FOR ALL 120V, SINGLE PHASE, 15A AND 20A BRANCH CIRCUITS SUPPLYING OUTLETS AND DEVICES PER NEC ARTICLE 210.12(B).
46. VOLUME CONTROL FOR EXTERIOR SPEAKER. INSTALL (ONE) 1" EMT CONDUIT TO EXTERIOR SPEAKER AND (ONE) 1" CONDUIT TO I.T. AREA 502.
47. VOLUME CONTROL FOR INTERIOR SPEAKERS IN APPARATUS 301. SEE DETAIL 8/E501 FOR CONDUIT ROUTING TO SPEAKERS AND VOLUME CONTROL IN APPARATUS 301.



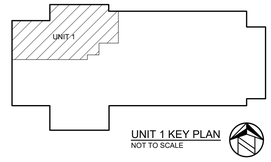

NOTE: CONTRACTOR SHALL INSTALL WIRING IN PLENUM PER NEC ARTICLE 300.22.

NOTE: E.C. TO COORDINATE ALL RECEPTACLE AND DATA LOCATIONS WITH OWNER PRIOR TO ROUGH-IN.

UNIT 1
ENLARGED POWER PLAN
SCALE: 1/4"=1'-0"

REFERENCE NORTH

TRUE NORTH




UNIT 1 KEY PLAN
NOT TO SCALE



Technicon Design Group
ARCHITECTURE , ENGINEERING , DESIGN
1800 N PERRY STREET, SUITE 102, OTTAWA, OH 45875 P:419.523.5323
www.technicondesigngroup.com

NEW FIRE STATION NO. 1
AMERICAN TOWNSHIP FIRE DEPT.
4239 ELIDA ROAD (STATE RT. 309)
LIMA, OHIO 45807



DO NOT SCALE FROM DRAWINGS. THE ARCHITECT/ENGINEER SHALL NOT BE RESPONSIBLE FOR ANY QUANTITIES OF MATERIALS AND LOCATIONS OF BUILDING COMPONENTS SCALED FROM THESE DRAWINGS.

ELECTRICAL
UNIT 1 ENLARGED POWER PLAN

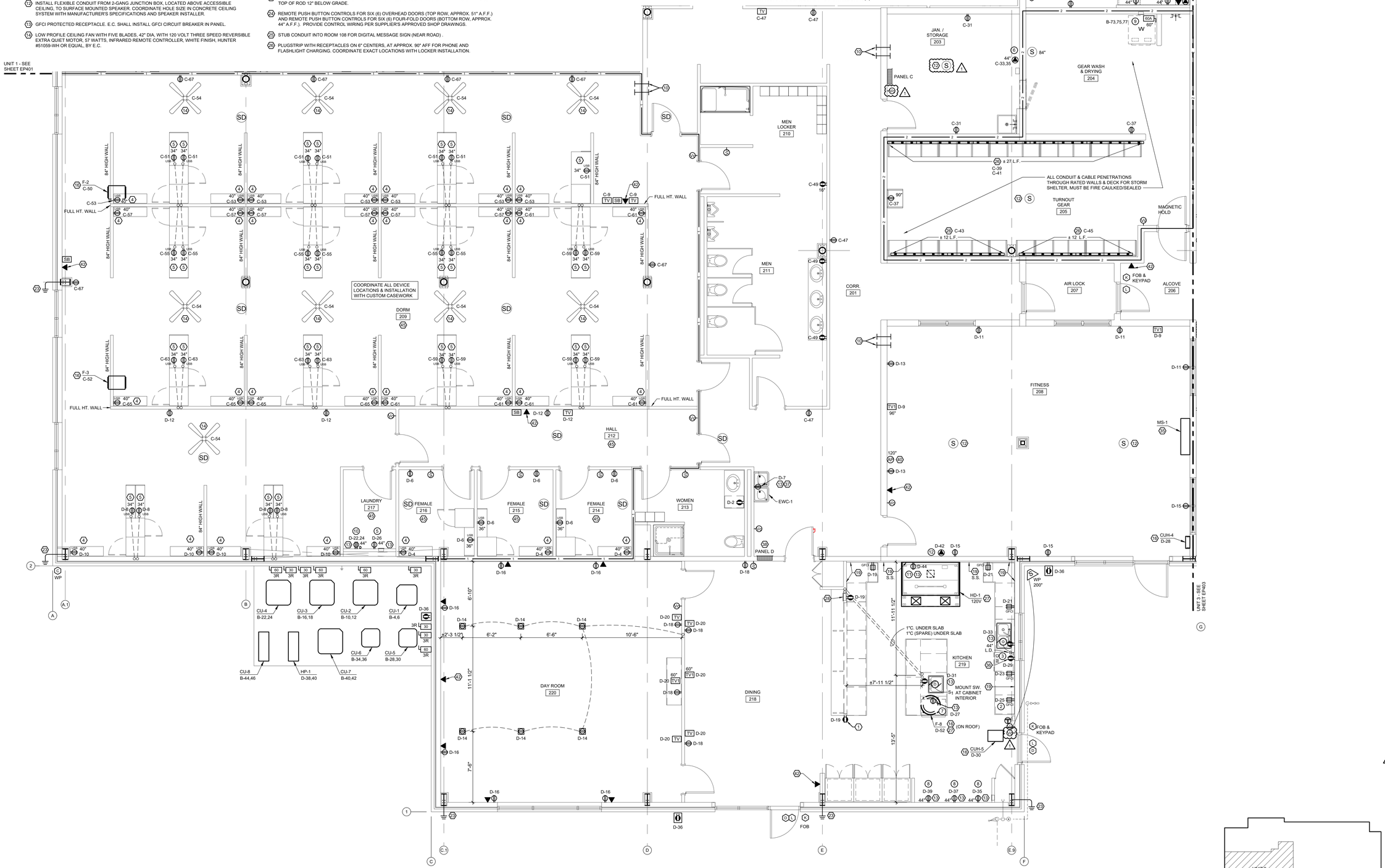
| ISSUED DATE |
|---|
| 02-28-24 FOR PERMITS |
| 08-26-24 OWNER FINAL REVIEW |
| 09-18-24 FOR BIDDING |
| 1 10-02-24 ADDENDUM #01 |

| | |
|---|---|
| DRAWN BY: | KW, JE |
| DATE: | 05-23 |
| PLOT SCALE: | 1:1 |
| JOB NO. | 48-2899-23 |

SHEET
EP401

## KEYNOTES - POWER PLANS

1. OVERHEAD DOOR OPERATOR 1/2 HP-208V 3ϕ.
2. FOUR-FOLD DOOR OPERATOR 3/4 HP-208V 3ϕ.
3. NATURAL GAS FUELED GENERATOR 120/208V, 3PH, 4W, ALSO SEE ONE-LINE DIAGRAM (1/E601).
4. INSTALL DUPLEX RECEPTACLES FLUSH AND ADJACENT TO HEADWALL CABINETRY - NOMINALLY 40" A.F.F. FIELD VERIFY EXACT LOCATION WITH ARCHITECT & G.C. PRIOR TO ROUGH-IN.
5. INSTALL POWER AND SYSTEMS RECEPTACLES IN CABINETRY - NOMINALLY 34" A.F.F. FIELD VERIFY EXACT LOCATION WITH ARCHITECT & G.C. PRIOR TO ROUGH-IN. SEE DETAIL 22/A501.
6. PLUGSTRIP - MTG. HT. & OVERALL LENGTH AS SHOWN ON PLANS, WITH SINGLE RECEPTACLES ON 6" CENTERS - FEED FROM DEDICATED GFCI BREAKER.
7. E.C. SHALL COORDINATE THE LOCATIONS OF DEVICES AND ALL WORK ASSOCIATED WITH OWNER PROVIDED INTERNET, INTERCOM/ TELEPHONE, ETC. WITH AMERICAN TWP. FIRE DEPARTMENT PERSONNEL PRIOR TO INSTALLATION. 120V CIRCUITS BY E.C.
8. 2 #14-3/4"C FOR GAS RANGE SHUNT TRIP BREAKER.
9. EMPTY 1" PVC U.G. RACEWAY, WITH PULL STRING, UP TO RADIO ANTENNA FOR WIRING BY OTHERS. PROVIDE DUAL GANG BOX 16" A.F.F. IN RADIO-102 AND SINGLE GANG RECESSED CAST W/P BOX WITH GASKETED BLANK COVER AT EXTERIOR COLUMN, APPROX. 12 FEET AFG. VERIFY WITH RADIO VENDOR.
10. TWO EMPTY 4" CONDUIT SLEEVES WITH INSULATED BUSHINGS ON BOTH ENDS, THROUGH WALLS, FOR PHONE/DATA, SECURITY AND ALARM CABLING BY OTHERS.
11. 4 FT BY 8 FT FIRE RATED PLYWOOD TELEPHONE/DATA BACKBOARD. COORDINATE EXACT LOCATION WITH OWNER.
12. INSTALL FLEXIBLE CONDUIT FROM 2-GANG JUNCTION BOX, LOCATED ABOVE ACCESSIBLE CEILING, TO SURFACE MOUNTED SPEAKER. COORDINATE HOLE SIZE IN CONCRETE CEILING SYSTEM WITH MANUFACTURER'S SPECIFICATIONS AND SPEAKER INSTALLER.
13. GFCI PROTECTED RECEPTACLE. E.C. SHALL INSTALL GFCI CIRCUIT BREAKER IN PANEL.
14. LOW PROFILE CEILING FAN WITH FIVE BLADES, 42" DIA, WITH 120 VOLT THREE SPEED REVERSIBLE EXTRA QUIET MOTOR, 57 WATTS, INFRARED REMOTE CONTROLLER, WHITE FINISH, HUNTER #51059-WH OR EQUAL, BY E.C.
15. VEHICLE EXHAUST SYSTEM BY M.C. SEE MECHANICAL DRAWINGS FOR SPECIFICATIONS. E.C. SHALL FURNISH AND INSTALL DISCONNECT AND POWER FOR VEHICLE EXHAUST FAN AND VEHICLE EXHAUST CONTROL PANEL (POWER IS BROUGHT TO CONTROL PANEL AND CONTINUES TO FAN). COORDINATE ALL WORK WITH M.C. AND EQUIPMENT INSTALLATION INSTRUCTIONS PRIOR TO ROUGH-IN.
16. DISCONNECT SUPPLIED WITH MECHANICAL EQUIPMENT, BY M.C. SEE MECHANICAL DRAWINGS.
17. CEILING FAN. SEE MECHANICAL DRAWINGS AND COORDINATE INSTALLATION WITH M.C.
18. CORD REEL FURNISHED BY OWNER. SUPPORTS AND INSTALLATION BY E.C. TWISTLOCK RECEPTACLE AND MATCHING TWISTLOCK PLUG CAP BY E.C. COORDINATE LOCATION AND MOUNTING HEIGHT WITH LIGHTS, FANS, VEHICLE EXHAUST, ETC. DETAIL 1/E501.
19. BACKSPLASH FINISH ON NORTH AND EAST WALLS INCLUDES 1/4" THICK MARBLE OR 20 GA. STAINLESS STEEL (S.S.) PANELS. ALL CUTTING OF PANELS FOR FIXTURES, DEVICES, AND SWITCHES SHALL BE PERFORMED BY THE GENERAL CONTRACTOR. COORDINATE ROUGH-IN BOX MOUNTING DEPTH W/ G.C. TO ALLOW FOR MARBLE WALL PANELS & S.S. SHEET.
20. TWO EMPTY 4"C WITH PULL STRINGS, CONTINUOUS UP TO TELEPHONE/DATA SERVICE BACKBOARD ON MEZZANINE, FOR CABLING BY OTHERS. PVC BELOW GRADE, BUT RGS ABOVE THE FIRST FLOOR LINE.
21. EXTERIOR WEATHER RESISTANT RECEPTACLES FOR SEASONAL "HOLIDAY LIGHTING" USE, CONTROLLED BY PILOT LIGHTED SWITCH IN RADIO/WATCH 108. PROVIDE WEATHERPROOF FLAP COVER AS SPECIFIED IN LEGEND. DEDICATED RECEPTACLE CIRCUIT SHALL BE PROVIDED WITH GFCI CIRCUIT BREAKER AT PANELBOARD.
22. TWO 3" CONDUITS ROUTED TO GROUND BOX FOR FUTURE STORAGE BUILDING. SEE ELECTRICAL SITE PLAN.
23. #2 CU. GROUND WIRE TO 3/4" DIA BY 10 FT COPPERWELD GROUND ROD DRIVEN INTO EARTH; SET TOP OF ROD 12" BELOW GRADE.
24. REMOTE PUSH BUTTON CONTROLS FOR SIX (6) OVERHEAD DOORS (TOP ROW, APPROX. 51" A.F.F.) AND REMOTE PUSH BUTTON CONTROLS FOR SIX (6) FOUR-FOLD DOORS (BOTTOM ROW, APPROX. 44" A.F.F.). PROVIDE CONTROL WIRING PER SUPPLIER'S APPROVED SHOP DRAWINGS.
25. STUB CONDUIT INTO ROOM 108 FOR DIGITAL MESSAGE SIGN (NEAR ROAD) .
26. PLUGSTRIP WITH RECEPTACLES ON 6" CENTERS, AT APPROX. 90° AFF FOR PHONE AND FLASHLIGHT CHARGING. COORDINATE EXACT LOCATIONS WITH LOCKER INSTALLATION.
27. KITCHEN HOOD WITH INTEGRAL LIGHTS. E.C. SHALL FURNISH & INSTALL PROVIDED SWITCHES FOR LIGHTS & FAN CONTROL AND INTERWIRE TO CONTROL PANEL KFCC PER INSTALLATION DRAWINGS. 6 #12 & #12GRD TO BRANCH CIRCUITS INDICATED FOR LIGHTS, FAN, CONTROLS. SEE MECHANICAL DRAWINGS.
28. VALVE BOX. SEE PLUMBING DRAWINGS.
29. LED SIGNAL RED / GREEN MOUNTED ON WALL, LEFT HAND OF OVERHEAD DOOR, AT APPROXIMATELY 7'-0". FURNISH LED SIGNAL DEVICE (MULTI-FAB MFE0022-Y OR EQUAL), CONDUIT AND WIRING. COORDINATE INSTALLATION WITH G.C. AND OVERHEAD DOOR SUPPLIER.
30. POWER CONDUITS PER SINGLE LINE DIAGRAM, PLUS: 1"C FOR CONTROLS, 1"C FOR REMOTE ANNUNCIATOR, AND 3/4"C WITH 2 #10 + #10G FOR BLOCK HEATER.
31. FURNISH AND INSTALL REQUIRED UNISTRUT AND ACCESSORIES TO MOUNT RECEPTACLE FOR GFS-1. COORDINATE LOCATION WITH M.C.
32. REMOTE PUSH BUTTON CONTROLS FOR SIX (6) FOUR-FOLD DOORS (TOP ROW, APPROX. 51" A.F.F.) AND REMOTE PUSH BUTTON CONTROLS FOR SIX (6) OVERHEAD DOORS (BOTTOM ROW, APPROX. 44" A.F.F.). PROVIDE CONTROL WIRING PER SUPPLIER'S APPROVED SHOP DRAWINGS.
33. PROVIDE 12" X 12" X 4" FLUSH PULL BOX WITH BLANK PLATE, WITH THREE 1-1/4"C CONDUITS TO ACCESSIBLE CEILING PLENUM WITH 90 DEGREE ELBOW AND INSULATED BUSHING. COORDINATE INSTALLATION WITH CABINET INSTALLER.
34. FURNISH AND INSTALL TWO (2) 60A DISCONNECTS FOR TWO (2) SEPARATE CIRCUITS. INSTALL PER NEC ARTICLE 424.19. COORDINATE WORK WITH M.C. AND EQUIPMENT INSTALLATION INSTRUCTIONS.
35. INDOOR UNIT IS POWERED FROM OUTDOOR UNIT. E.C. SHALL SUPPLY DISCONNECTING MEANS. SEE MECHANICAL DRAWINGS.
36. E.C. SHALL INSTALL POWER FOR DISHWASHER ACCORDING TO MANUFACTURER'S INSTRUCTIONS. E.C. SHALL FURNISH AND INSTALL FLEXIBLE CORD AND RECEPTACLE IN THE SPACE ADJACENT TO THE DISHWASHER, PER NEC ARTICLE 422.16(B)(2). APPLIANCES ARE SUPPLIED BY OWNER AND INSTALLED BY G.C. E.C. SHALL COORDINATE WORK WITH G.C.
37. COORDINATE WITH P.C. FOR LOCATION OF GFCI PROTECTED RECEPTACLE FOR EWC PER MANUFACTURER'S REQUIREMENTS.
38. FURNISH AND INSTALL TWO (2) SPARE 1" CONDUITS FROM PANEL TO ABOVE ACCESSIBLE CEILING FOR FUTURE CIRCUITS. CAP END OF CONDUIT ABOVE ACCESSIBLE CEILING.
39. CONTROL PANEL AND TOUCHSCREEN (CONTROLS) FOR FANS F-12 THR F-17. SEE MECHANICAL DRAWINGS. FURNISH AND INSTALL WEATHERPROOF STAINLESS STEEL ENCLOSURE WITH HINGED ACCESS PANEL AND WINDOW. CONTROLS SHALL BE INSTALLED INSIDE ENCLOSURE. COORDINATE SIZE OF ENCLOSURE WITH CONTROLS AND POWER REQUIREMENTS OF CONTROLS.
40. WIRELESS ACCESS POINT MOUNTED ON WALL.
41. INSTALL 1 1/2" EMT CONDUIT FROM I.T. AREA 502 TO 1 1/2" LIQUIDTIGHT FLEXIBLE METAL CONDUIT, AT ROOF PURLIN, TO EXTERIOR RADIO ANTENNA. SEE DETAIL 12/A304. COORDINATE CONDUIT SIZE AND LOCATION WITH OWNER'S RADIO CONSULTANT PRIOR TO INSTALLING.
42. BOX AND CONDUIT FOR PHONE LOCATION (SEE SYMBOLS LEGEND). M.H. 48". COORDINATE LOCATION PRIOR TO ROUGH-IN.
43. APPROXIMATE LOCATION OF RADIO BASE, PROVIDED BY OWNER'S RADIO CONSULTANT.
44. TWO EMPTY 2" EMT CONDUIT WITH PULL STRINGS, CONTINUOUS UP TO TELEPHONE/DATA SERVICE BACKBOARD, FOR CABLING BY OTHERS.
45. AFCI PROTECTION FOR ALL 120V, SINGLE PHASE 15A AND 20A BRANCH CIRCUITS SUPPLYING OUTLETS AND DEVICES PER NEC ARTICLE 210.12(B).
46. VOLUME CONTROL FOR EXTERIOR SPEAKER. INSTALL (ONE) 1" EMT CONDUIT TO EXTERIOR SPEAKER AND (ONE) 1" CONDUIT TO I.T. AREA 502.
47. VOLUME CONTROL FOR INTERIOR SPEAKERS IN APPARATUS 301. SEE DETAIL 8/E501 FOR CONDUIT ROUTING TO SPEAKERS AND VOLUME CONTROL IN APPARATUS 301.




NOTE: CONTRACTOR SHALL INSTALL WIRING IN PLENUM PER NEC ARTICLE 300.22.

NOTE: E.C. TO COORDINATE ALL RECEPTACLE AND DATA LOCATIONS WITH OWNER PRIOR TO ROUGH-IN.

UNIT 2
ENLARGED POWER PLAN
SCALE: 1/4"=1'-0"

REFERENCE NORTH

TRUE NORTH




UNIT 2 KEY PLAN
NOT TO SCALE


Technicon Design Group
ARCHITECTURE , ENGINEERING , DESIGN
1800 N PERRY STREET, SUITE 102, OTTAWA, OH 45875 P:419.523.5323
www.technicondesigngroup.com


THIS IS NOT A SEALED DOCUMENT. SEE REVIEWED DRAWINGS ON FILE AT JURISDICTION HAVING JURISDICTION.
GILLIAN STECKSCHULTE
OHIO LICENSED ARCHITECT NO. LICENSE #ARC0516594
EXPIRATION DATE 12-31-25

NEW FIRE STATION NO. 1
AMERICAN TOWNSHIP FIRE DEPT.
4239 ELIDA ROAD (STATE RT. 309)
LIMA, OHIO 45807



DO NOT SCALE FROM DRAWINGS. THE ARCHITECT/ENGINEER SHALL NOT BE RESPONSIBLE FOR ANY QUANTITIES OF MATERIALS AND LOCATIONS OF BUILDING COMPONENTS SCALED FROM THESE DRAWINGS.

ELECTRICAL
UNIT 2 ENLARGED POWER PLAN

| ISSUED DATE |
|---|
| 02-28-24 FOR PERMITS |
| 08-26-24 OWNER FINAL REVIEW |
| 09-18-24 FOR BIDDING |
| 1 10-02-24 ADDENDUM #01 |

| | |
|---|---|
| DRAWN BY: | KW, JE |
| DATE: | 05-23 |
| PLOT SCALE: | 1:1 |
| JOB NO. | 48-2899-23 |

SHEET
EP402

## EQUIPMENT POWER SCHEDULE

| MARK | DESCRIPTION | LOAD | | | MTG. | CONDUCTORS | | | VOLT | CONNECTION | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | AMPS | KW | HP | | NO. | PHASE | GND | | | |
| 1 | BREATHING AIR COMPRESSOR | | 15.0 | | 44" | 3 | #6 | #10 | 208V-3PH | 60" | 1,3 (1" C.) |
| 2 | COFFEE MAKER | 13.9 | 1.67 | | 44" | 2 | #12 | #12 | 120V-1PH | | 1 |
| 3 | DISHWASHER | 15.0 | | | L.D. | 2 | #12 | #12 | 120V-1PH | | 1 |
| 4 | HOSE/GEAR DRYER CABINET | 27.5 | 6.0 | | 44" | 4 | #8 | #10 | 208V-1PH | | 1,5 (3/4" C.) |
| 5 | CLOTHES WASHER | 9.5 | | | 44" | 2 | #12 | #12 | 120V-1PH | | 1 (15A MOCP) |
| 6 | ICE CUBE MAKER | 7.8 | .936 | | 44" | 2 | #12 | #12 | 208V-1PH | | 1,5 (15A MOCP) |
| 7 | MICROWAVE | 15.0 | 1.80 | | L.D. | 2 | #12 | #12 | 120V-1PH | | 1,4 |
| 8 | REFRIGERATOR | 6.0 | | | 44" | 2 | #12 | #12 | 120V-1PH | | 1 (QUANTITY: 3) |
| 9 | WASHER / EXTRACTOR | 38.0 | 13.5 | | 60" | 3 | #6 | #10 | 208V-3PH | 60" | 1,3 |
| 10 | CLOTHES DRYER | 24.0 | | | 44" | 3 | #10 | #10 | 120/208V-1PH | D | 1,5 (3/4" C. 30A MOCP |
| 11 | GAS RANGE & (2) CONVECT. OVENS | 10.0 | | | 44" | 2 | #12 | #12 | 120V-1PH | | 1 |
| 12 | ANSUL FIRE SUPPRESSION | 5.0 | | | L.D. | 2 | #12 | #12 | 120V-1PH | | 1 |
| 13 | GARBAGE DISPOSER | | | 3/4 | L.D. | 2 | #12 | #12 | 120V-1PH | S1 | 1,6 |
| 14 | NARCOTICS LOCKER | 0.60 | | | L.D. | 2 | #12 | #12 | 120V-1PH | | 1,2 (PROVIDE ▲ L.D.) |
| 15 | STATION AIR COMPRESSOR | 33.3-31.3 | | 7.5 | 44" | | | | 208V-230V-1PH | 60" | 1 |

NOTES LEGEND

1. FINAL EQUIPMENT CONNECTION REQUIREMENTS SHALL BE VERIFIED BY THE E.C. PRIOR TO ELECTRICL ROUGH-IN. VERIFY WIRE SIZE WITH EQUIPMENT SUPPLIER.

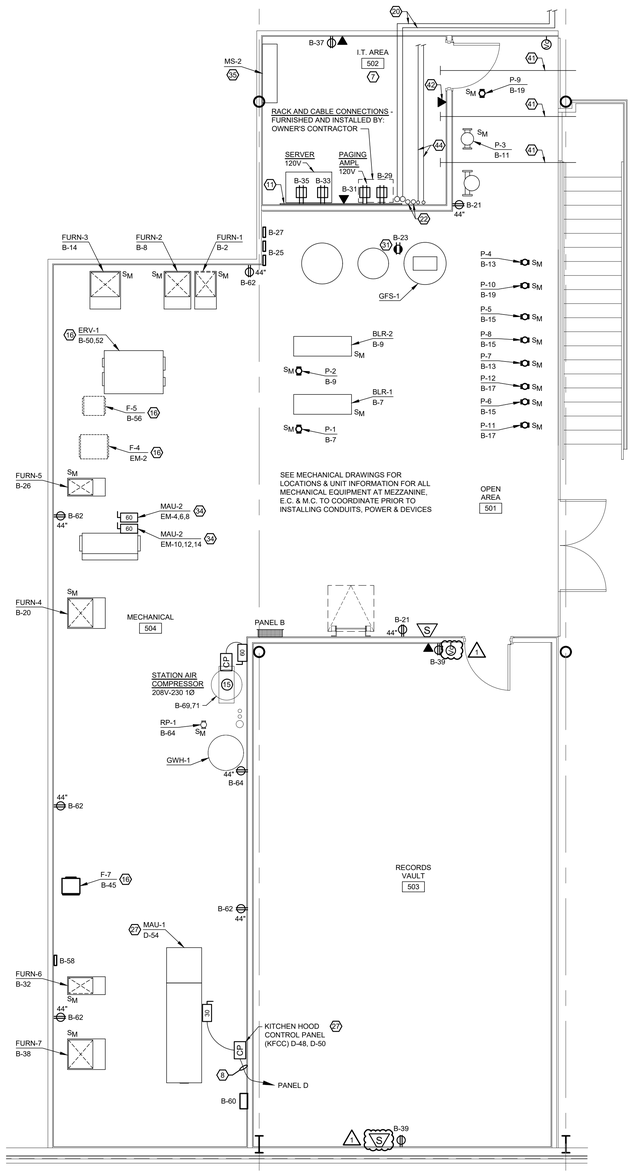
2. INSTALL ROUGH-IN AND DEVICE IN WALL MTD. CABINETRY, COORDINATE W/ G.C., OWNER & EQUIPMENT SUPPLIER.

3. FUSE EQUIPMENT DISCONNECT PER EQUIPMENT NAMEPLATE RATING.

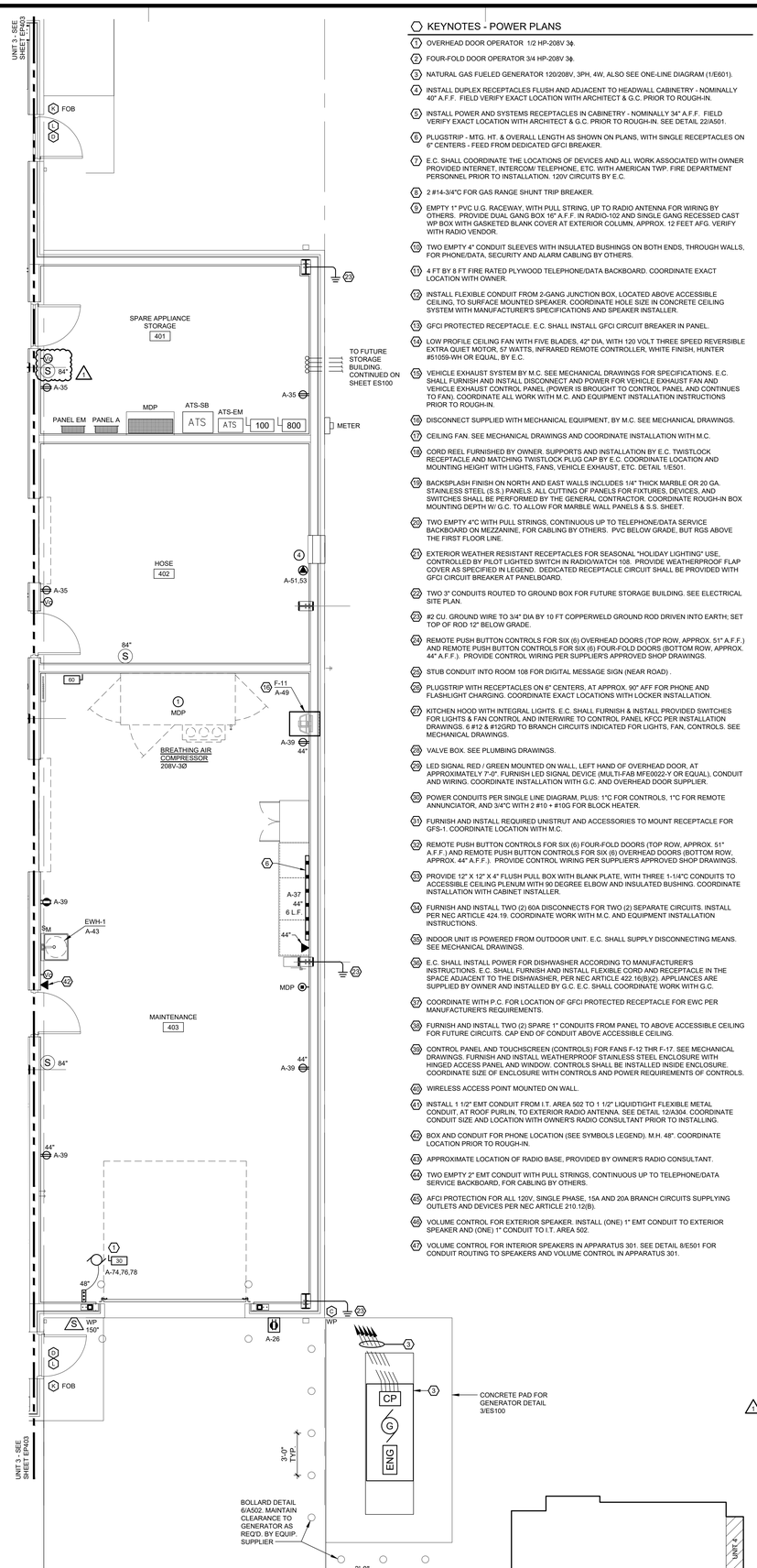
4. INSTALL ROUGH-IN AND DEVICE IN BASE CABINETRY. COORDINATE W/ G.C., OWNER & EQUIPMENT SUPPLIER. ALSO SEE DETAIL 8/A501.

5. EQUIPMENT RECEPTACLE, VERIFY NEMA CONFIGURATION WITH EQUIPMENT.

6. INSTALL SWITCH IN WALL ABOVE COUNTERTOP (44"). AT ISLAND SINK, INSTALL SWITCH AT INTERIOR OF BASE CABINET.




NOTE: E.C. TO COORDINATE ALL RECEPTACLE AND DATA LOCATIONS WITH OWNER PRIOR TO ROUGH-IN.




## KEYNOTES - POWER PLANS

1. OVERHEAD DOOR OPERATOR 1/2 HP-208V 3ϕ.
2. FOUR-FOLD DOOR OPERATOR 3/4 HP-208V 3ϕ.
3. NATURAL GAS FUELED GENERATOR 120/208V, 3PH, 4W, ALSO SEE ONE-LINE DIAGRAM (1/E601).
4. INSTALL DUPLEX RECEPTACLES FLUSH AND ADJACENT TO HEADWALL CABINETRY - NOMINALLY 40" A.F.F. FIELD VERIFY EXACT LOCATION WITH ARCHITECT & G.C. PRIOR TO ROUGH-IN.
5. INSTALL POWER AND SYSTEMS RECEPTACLES IN CABINETRY - NOMINALLY 34" A.F.F. FIELD VERIFY EXACT LOCATION WITH ARCHITECT & G.C. PRIOR TO ROUGH-IN. SEE DETAIL 22/A501.
6. PLUGSTRIP - MTG. HT. & OVERALL LENGTH AS SHOWN ON PLANS, WITH SINGLE RECEPTACLES ON 6" CENTERS - FEED FROM DEDICATED GFCI BREAKER.
7. E.C. SHALL COORDINATE THE LOCATIONS OF DEVICES AND ALL WORK ASSOCIATED WITH OWNER PROVIDED INTERNET, INTERCOM/ TELEPHONE, ETC. WITH AMERICAN TWP. FIRE DEPARTMENT PERSONNEL PRIOR TO INSTALLATION. 120V CIRCUITS BY E.C.
8. 2 #14-3/4"C FOR GAS RANGE SHUNT TRIP BREAKER.
9. EMPTY 1" PVC U.G. RACEWAY, WITH PULL STRING, UP TO RADIO ANTENNA FOR WIRING BY OTHERS. PROVIDE DUAL GANG BOX 16" A.F.F. IN RADIO-102 AND SINGLE GANG RECESSED CAST WP BOX WITH GASKETED BLANK COVER AT EXTERIOR COLUMN, APPROX. 12 FEET AFG. VERIFY WITH RADIO VENDOR.
10. TWO EMPTY 4" CONDUIT SLEEVES WITH INSULATED BUSHINGS ON BOTH ENDS, THROUGH WALLS, FOR PHONE/DATA, SECURITY AND ALARM CABLING BY OTHERS.
11. 4 FT BY 8 FT FIRE RATED PLYWOOD TELEPHONE/DATA BACKBOARD. COORDINATE EXACT LOCATION WITH OWNER.
12. INSTALL FLEXIBLE CONDUIT FROM 2-GANG JUNCTION BOX, LOCATED ABOVE ACCESSIBLE CEILING, TO SURFACE MOUNTED SPEAKER. COORDINATE HOLE SIZE IN CONCRETE CEILING SYSTEM WITH MANUFACTURER'S SPECIFICATIONS AND SPEAKER INSTALLER.
13. GFCI PROTECTED RECEPTACLE. E.C. SHALL INSTALL GFCI CIRCUIT BREAKER IN PANEL.
14. LOW PROFILE CEILING FAN WITH FIVE BLADES, 42" DIA, WITH 120 VOLT THREE SPEED REVERSIBLE EXTRA QUIET MOTOR, 57 WATTS, INFRARED REMOTE CONTROLLER, WHITE FINISH, HUNTER #51059-WH OR EQUAL, BY E.C.
15. VEHICLE EXHAUST SYSTEM BY M.C. SEE MECHANICAL DRAWINGS FOR SPECIFICATIONS. E.C. SHALL FURNISH AND INSTALL DISCONNECT AND POWER FOR VEHICLE EXHAUST FAN AND VEHICLE EXHAUST CONTROL PANEL (POWER IS BROUGHT TO CONTROL PANEL AND CONTINUES TO FAN). COORDINATE ALL WORK WITH M.C. AND EQUIPMENT INSTALLATION INSTRUCTIONS PRIOR TO ROUGH-IN.
16. DISCONNECT SUPPLIED WITH MECHANICAL EQUIPMENT, BY M.C. SEE MECHANICAL DRAWINGS.
17. CEILING FAN. SEE MECHANICAL DRAWINGS AND COORDINATE INSTALLATION WITH M.C.
18. CORD REEL FURNISHED BY OWNER. SUPPORTS AND INSTALLATION BY E.C. TWISTLOCK RECEPTACLE AND MATCHING TWISTLOCK PLUG CAP BY E.C. COORDINATE LOCATION AND MOUNTING HEIGHT WITH LIGHTS, FANS, VEHICLE EXHAUST, ETC. DETAIL 1/E501.
19. BACKSPLASH FINISH ON NORTH AND EAST WALLS INCLUDES 1/4" THICK MARBLE OR 20 GA. STAINLESS STEEL (S.S.) PANELS. ALL CUTTING OF PANELS FOR FIXTURES, DEVICES, AND SWITCHES SHALL BE PERFORMED BY THE GENERAL CONTRACTOR. COORDINATE ROUGH-IN BOX MOUNTING DEPTH W/ G.C. TO ALLOW FOR MARBLE WALL PANELS & S.S. SHEET.
20. TWO EMPTY 4"C WITH PULL STRINGS, CONTINUOUS UP TO TELEPHONE/DATA SERVICE BACKBOARD ON MEZZANINE, FOR CABLING BY OTHERS. PVC BELOW GRADE, BUT RGS ABOVE THE FIRST FLOOR LINE.
21. EXTERIOR WEATHER RESISTANT RECEPTACLES FOR SEASONAL "HOLIDAY LIGHTING" USE, CONTROLLED BY PILOT LIGHTED SWITCH IN RADIO/WATCH 106. PROVIDE WEATHERPROOF FLAP COVER AS SPECIFIED IN LEGEND. DEDICATED RECEPTACLE CIRCUIT SHALL BE PROVIDED WITH GFCI CIRCUIT BREAKER AT PANELBOARD.
22. TWO 3" CONDUITS ROUTED TO GROUND BOX FOR FUTURE STORAGE BUILDING. SEE ELECTRICAL SITE PLAN.
23. #2 CU. GROUND WIRE TO 3/4" DIA BY 10 FT COPPERWELD GROUND ROD DRIVEN INTO EARTH; SET TOP OF ROD 12" BELOW GRADE.
24. REMOTE PUSH BUTTON CONTROLS FOR SIX (6) OVERHEAD DOORS (TOP ROW; APPROX. 51" A.F.F.) AND REMOTE PUSH BUTTON CONTROLS FOR SIX (6) FOUR-FOLD DOORS (BOTTOM ROW, APPROX. 44" A.F.F.). PROVIDE CONTROL WIRING PER SUPPLIER'S APPROVED SHOP DRAWINGS.
25. STUB CONDUIT INTO ROOM 108 FOR DIGITAL MESSAGE SIGN (NEAR ROAD) .
26. PLUGSTRIP WITH RECEPTACLES ON 6" CENTERS, AT APPROX. 90" AFF FOR PHONE AND FLASHLIGHT CHARGING. COORDINATE EXACT LOCATIONS WITH LOCKER INSTALLATION.
27. KITCHEN HOOD WITH INTEGRAL LIGHTS. E.C. SHALL FURNISH & INSTALL PROVIDED SWITCHES FOR LIGHTS & FAN CONTROL AND INTERWIRE TO CONTROL PANEL KFCC PER INSTALLATION DRAWINGS. 6 #12 & #12GRD TO BRANCH CIRCUITS INDICATED FOR LIGHTS, FAN, CONTROLS. SEE MECHANICAL DRAWINGS.
28. VALVE BOX. SEE PLUMBING DRAWINGS.
29. LED SIGNAL RED / GREEN MOUNTED ON WALL, LEFT HAND OF OVERHEAD DOOR, AT APPROXIMATELY 7'-0". FURNISH LED SIGNAL DEVICE (MULTI-FAB MFE0022-Y OR EQUAL), CONDUIT AND WIRING. COORDINATE INSTALLATION WITH G.C. AND OVERHEAD DOOR SUPPLIER.
30. POWER CONDUITS PER SINGLE LINE DIAGRAM, PLUS: 1"C FOR CONTROLS, 1"C FOR REMOTE ANNUNCIATOR, AND 3/4"C WITH 2 #10 + #10G FOR BLOCK HEATER.
31. FURNISH AND INSTALL REQUIRED UNISTRUT AND ACCESSORIES TO MOUNT RECEPTACLE FOR GFS-1. COORDINATE LOCATION WITH M.C.
32. REMOTE PUSH BUTTON CONTROLS FOR SIX (6) FOUR-FOLD DOORS (TOP ROW, APPROX. 51" A.F.F.) AND REMOTE PUSH BUTTON CONTROLS FOR SIX (6) OVERHEAD DOORS (BOTTOM ROW, APPROX. 44" A.F.F.). PROVIDE CONTROL WIRING PER SUPPLIER'S APPROVED SHOP DRAWINGS.
33. PROVIDE 12" X 12" X 4" FLUSH PULL BOX WITH BLANK PLATE, WITH THREE 1-1/4"C CONDUITS TO ACCESSIBLE CEILING PLENUM WITH 90 DEGREE ELBOW AND INSULATED BUSHING. COORDINATE INSTALLATION WITH CABINET INSTALLER.
34. FURNISH AND INSTALL TWO (2) 60A DISCONNECTS FOR TWO (2) SEPARATE CIRCUITS. INSTALL PER NEC ARTICLE 424.19. COORDINATE WORK WITH M.C. AND EQUIPMENT INSTALLATION INSTRUCTIONS.
35. INDOOR UNIT IS POWERED FROM OUTDOOR UNIT. E.C. SHALL SUPPLY DISCONNECTING MEANS. SEE MECHANICAL DRAWINGS.
36. E.C. SHALL INSTALL POWER FOR DISHWASHER ACCORDING TO MANUFACTURER'S INSTRUCTIONS. E.C. SHALL FURNISH AND INSTALL FLEXIBLE CORD AND RECEPTACLE IN THE SPACE ADJACENT TO THE DISHWASHER, PER NEC ARTICLE 422.16(B)(2). APPLIANCES ARE SUPPLIED BY OWNER AND INSTALLED BY G.C. E.C. SHALL COORDINATE WORK WITH G.C.
37. COORDINATE WITH P.C. FOR LOCATION OF GFCI PROTECTED RECEPTACLE FOR EWC PER MANUFACTURER'S REQUIREMENTS.
38. FURNISH AND INSTALL TWO (2) SPARE 1" CONDUITS FROM PANEL TO ABOVE ACCESSIBLE CEILING FOR FUTURE CIRCUITS. CAP END OF CONDUIT ABOVE ACCESSIBLE CEILING.
39. CONTROL PANEL AND TOUCHSCREEN (CONTROLS) FOR FANS F-12 THR F-17. SEE MECHANICAL DRAWINGS. FURNISH AND INSTALL WEATHERPROOF STAINLESS STEEL ENCLOSURE WITH HINGED ACCESS PANEL AND WINDOW. CONTROLS SHALL BE INSTALLED INSIDE ENCLOSURE. COORDINATE SIZE OF ENCLOSURE WITH CONTROLS AND POWER REQUIREMENTS OF CONTROLS.
40. WIRELESS ACCESS POINT MOUNTED ON WALL.
41. INSTALL 1 1/2" EMT CONDUIT FROM I.T. AREA 502 TO 1 1/2" LIQUIDTIGHT FLEXIBLE METAL CONDUIT, AT ROOF PURLIN, TO EXTERIOR RADIO ANTENNA. SEE DETAIL 12/A304. COORDINATE CONDUIT SIZE AND LOCATION WITH OWNER'S RADIO CONSULTANT PRIOR TO INSTALLING.
42. BOX AND CONDUIT FOR PHONE LOCATION (SEE SYMBOLS LEGEND). M.H. 48". COORDINATE LOCATION PRIOR TO ROUGH-IN.
43. APPROXIMATE LOCATION OF RADIO BASE, PROVIDED BY OWNER'S RADIO CONSULTANT.
44. TWO EMPTY 2" EMT CONDUIT WITH PULL STRINGS, CONTINUOUS UP TO TELEPHONE/DATA SERVICE BACKBOARD, FOR CABLING BY OTHERS.
45. AFCI PROTECTION FOR ALL 120V, SINGLE PHASE, 15A AND 20A BRANCH CIRCUITS SUPPLYING OUTLETS AND DEVICES PER NEC ARTICLE 210.12(B).
46. VOLUME CONTROL FOR EXTERIOR SPEAKER. INSTALL (ONE) 1" EMT CONDUIT TO EXTERIOR SPEAKER AND (ONE) 1" CONDUIT TO I.T. AREA 502.
47. VOLUME CONTROL FOR INTERIOR SPEAKERS IN APPARATUS 301. SEE DETAIL 8/E501 FOR CONDUIT ROUTING TO SPEAKERS AND VOLUME CONTROL IN APPARATUS 301.


Technicon Design Group

ARCHITECTURE , ENGINEERING , DESIGN
1800 N PERRY STREET, SUITE 102, OTTAWA, OH 45875 P:419.523.5323
www.technicondesigngroup.com


THIS IS NOT A SEALED DOCUMENT. SEE REVIEWED DRAWINGS ON FILE AT THE JURISDICTIONAL HAVING JURISDICTION.
GILLIAN STECKSCHULTE
OHIO LICENSED ARCHITECT NO.
LICENSE #ARC16584
EXPIRATION DATE 12-31-25

NEW FIRE STATION NO. 1
AMERICAN TOWNSHIP FIRE DEPT.
4239 ELIDA ROAD (STATE RT. 309)
LIMA, OHIO 45807



DO NOT SCALE FROM DRAWINGS. THE ARCHITECT/ENGINEER SHALL NOT BE RESPONSIBLE FOR ANY QUANTITIES OF MATERIALS AND LOCATIONS OF BUILDING COMPONENTS SCALED FROM THESE DRAWINGS.

ELECTRICAL
UNIT 2 MEZZANINE POWER PLAN
UNIT 4 ENLARGED POWER PLAN

| ISSUED DATE |
|---|
| 02-28-24 FOR PERMITS |
| 06-26-24 OWNER FINAL REVIEW |
| 09-18-24 FOR BIDDING |
| 10-02-24 ADDENDUM #01 |

1

| | |
|---|---|
| DRAWN BY: | KW,JE |
| DATE: | 05-23 |
| PLOT SCALE: | 1:1 |
| JOB NO. | 48-2899-23 |

SHEET
EP404

**Technicon Design Group**

**Substitution Request Form**

Technicon Design Group
202 West Main Street, Suite 301, Ottawa, Ohio 45875
sandy@technicondesigngroup.com
Px 419.523.5323 Fx 419.523.9441

Drawing No.: M602 Drawing Name: MECHANICAL SCHEDULES

Spec. Section: Drawing M902 Spec Name: Pumps

Article/Paragraph: 43 Specified Item: Pumps

Proposed Substitution: Patterson Pump Company

Manfacturer: Patterson Pump Company Model: VIL & WILO

Submit with this form substantiating data to prove equal quality and performance to the basis of design or approved equals. Clearly mark manufacturer's literature to indicate equality in performance.

Does the Substitution affect dimensions shown on Drawings? Yes___ No X If yes, clearly indicate changes.

Will changes be required to the Contract Documents for the proper installation of the proposed product substitution. Yes___ No X. If Yes, attach data that indicates description of changes.

What affect does substitution have on other Contracts or other trades?

none

What affect does substitution have on the delivery and construction schedule?

none

Differences between proposed substitution and specified item.

amps vary slightly, selections attached for review

Manufacturer's warranties of proposed and specified items are:

Same: X Different: ___ Explain on an Attachment (Provide Warranty Information)

Company Submitting Request: Smith Boughan Inc.

Address: 777 S. Copus Rd, Lima Ohio 45805

Phone: 419-991-8040 Email: mmoudhoff@sbmech.com

Signature/Title: ___ Date: ___

For use by Technicon Design Group

✓ Accepted ___ Accepted as Noted

___ Not Accepted ___ Received too Late

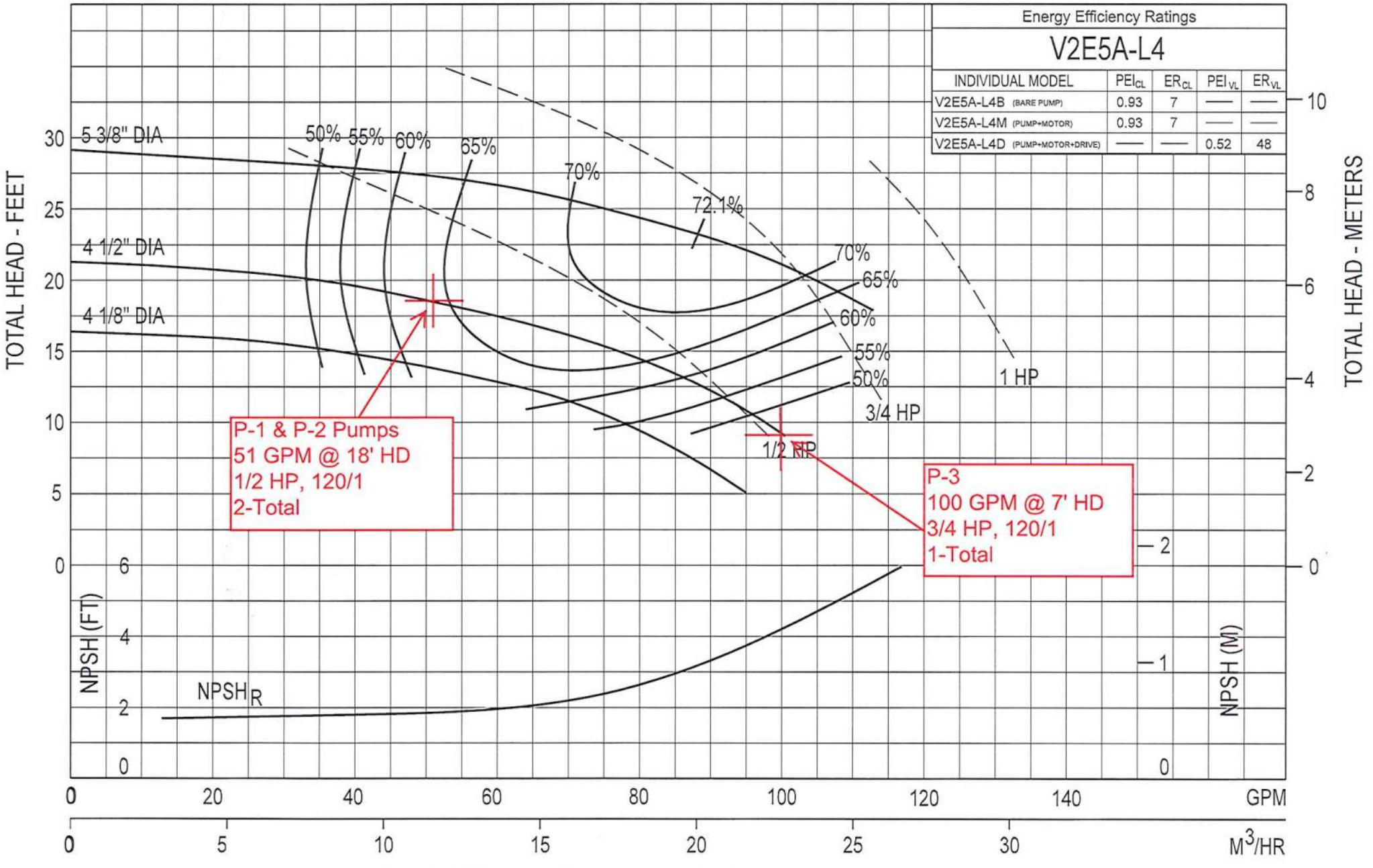
Signature/Title: [signature] Date: 9/30/24

American Township Fire Station #1

# Model: V2E5A-CS VIL | 1750 RPM

Curve No. A05-155025 | Impeller: D05-149255 | Size: 2x2x5.38

Patterson — The Pump People — A Gorman-Rupp Company




Patterson Pump Company 2129 Ayersville Road, Toccoa, GA 30577 | Tel: 706-886-2101 | Website: www.pattersonpumps.com

# TACO SELECTION TOOLS

BASIS OF DESIGN PUMP SELECTION FOR P-3. tHE OPERATING POINT ON THIS CURVE IS ALL THE WAY TO THE RIGHT SIMILAR TO THE PATTRESON PUMP SELECTION AND IS VERY CLOSSE TO THE OVERLOADING AT 1/2 HP

PUMP TYPE *(choose one)*

- O Oe Pumps (Pump+ECM Motor+VFD)
- O SelfSensing Variable Speed Pump
- ◉ Standard Pump
- O High Efficiency ECM

SEARCH *(Standard Pump)*

| | | |
|---|---|---|
| Design Flow | 100 | gpm |
| Design Head | 7 | ft |
| Min Eff | 0 | % |

OPTIONS *(Standard Pump)*

Select Fluid below or enter custom fluid options

Water @ 60 F

| RPM | Motor |
|---|---|
| 1760 | 60hz |
| Units | # of Pumps |
| US | 1 |

Thumbnail: Performance Cu ☐ Show NOL HPs Only

Choose Pumps *(Standard Pump)*

End Suction
- ☐ FI Frame Mounted
- ☐ CI Close Coupled

Vertical Inline
- ☐ KV Close Coupled
- ☐ KS Split Coupled

Horizontal Split Case
- ☐ TA, GT & HS

Vertical Split Case
- ☐ TC
- ☐ TS

Inline Circulators
- ☐ 2400 Series
- ☐ 1600 Series
- ☑ 1900 Series
- ☐ 100 Series
- ☐ 00 Series
- ☐ LoadMatch®

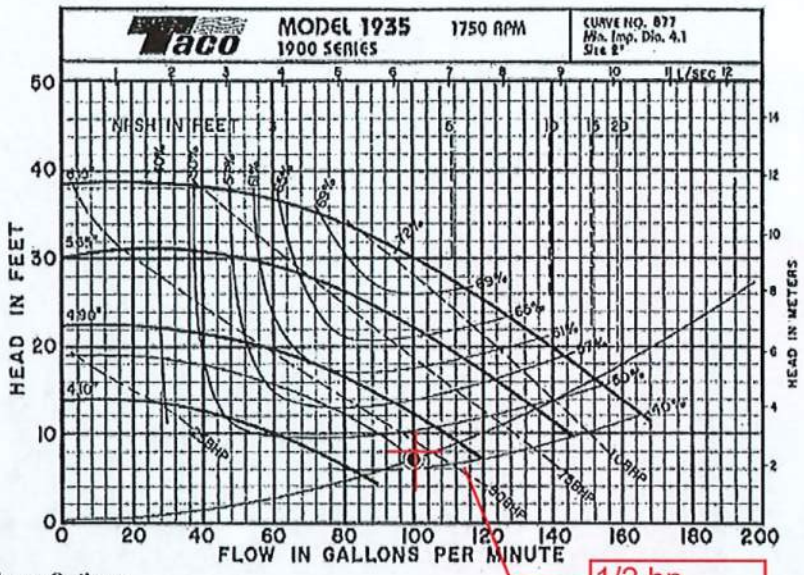
Search

*Looking for VT Pumps? Click here*
Are you having trouble with this app? Click here

Pump Details
*1935*

< back to curve details

Performance Curve

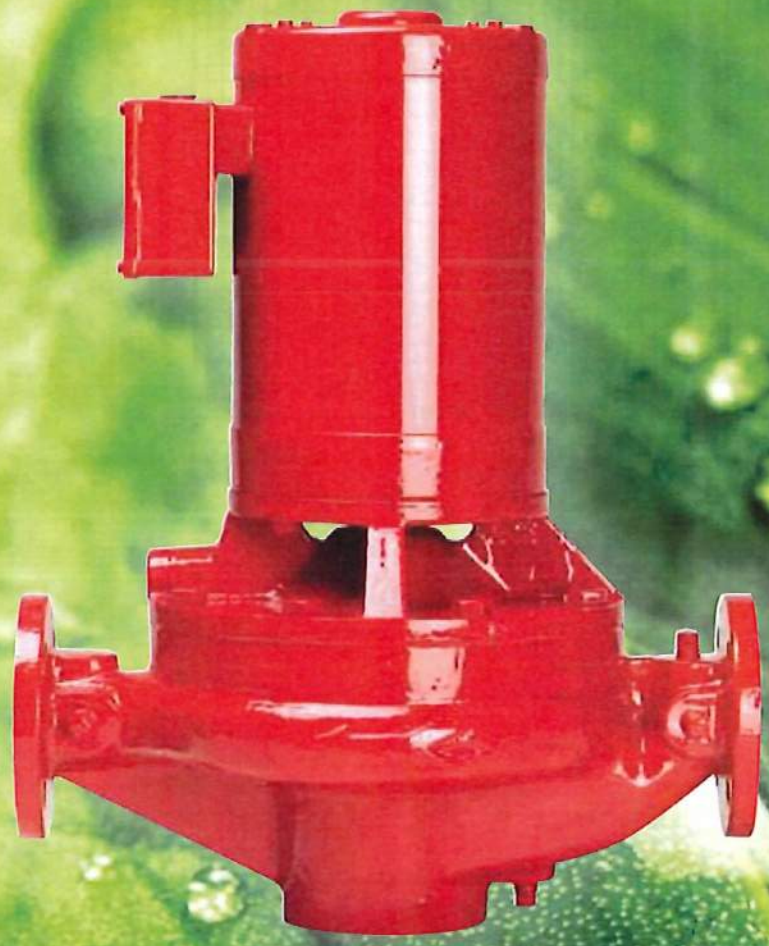



Curve Options:

- O System Curve — Deviation (+/- %):
- Static Head Feet
- O Variable Speed: — Number of speed curves:
- Maximum RPM: 1750
- Minimum RPM:
- Control Head: Feet
- O Alter point
- Flow GPM
- Head Feet

Re-generate Curve

# Vertical In-line HVAC Pumps



## Close-Coupled Configuration

Patterson EnviroFlo™ vertical in-line HVAC pumps, with a legacy of quality and durability, offer reliability and full flexibility to serve all applications and overcome constraints.

### BENEFITS

- High-efficiency design minimizes energy consumption
- Back pullout configuration for easy access and maintenance
- Gauge taps at the suction and discharge connections for complete monitoring flexibility
- Annular pressure reducing clearance with impeller balance holes to reduce axial thrust
- Precision-cast, dynamically balanced impeller minimizes vibration and maximizes bearing life
- Precision bearings and machining limit shaft deflection to only 0.002" at the seal face

### FEATURES

- Flows to 2,500 GPM, heads to 400' TDH
- Split coupling design above 5 HP optional
- Double suction impeller on largest sizes (12" and 14")
- Machined mounting support surface
- Standard case wear ring
- Grease-lubricated motor bearing
- Mechanical seal is standard in carbon vs. silicon carbide (optional: tungsten carbide) with seal flush lines
- Every pump hydrostatically pressure-tested
- Optional 250-lb discharge flanges and external seal flush lines available on many models
- Bronze fitted construction with bronze shaft sleeves standard; optional stainless steel shaft and stainless steel sleeve available

ENVIROFLO
HYDRONIC PUMPING SOLUTIONS

Pumping Technology for Tomorrow's World
Patterson

## SPECIFICATIONS: CLOSE-COUPLED

Pumps shall be high efficiency vertical in-line close-coupled design. The pumps shall be of the pullout design, single stage, and capable of being serviced without disturbing piping connections.

The pump volute case shall be class 30 cast iron. The pumps shall have case wear rings. The pumps shall be rated for a minimum of 175 psi working pressure (optional: 250 psi, many models). Casing shall have tapped holes on the suction and discharge to accommodate gauges, fittings, and drain ports.

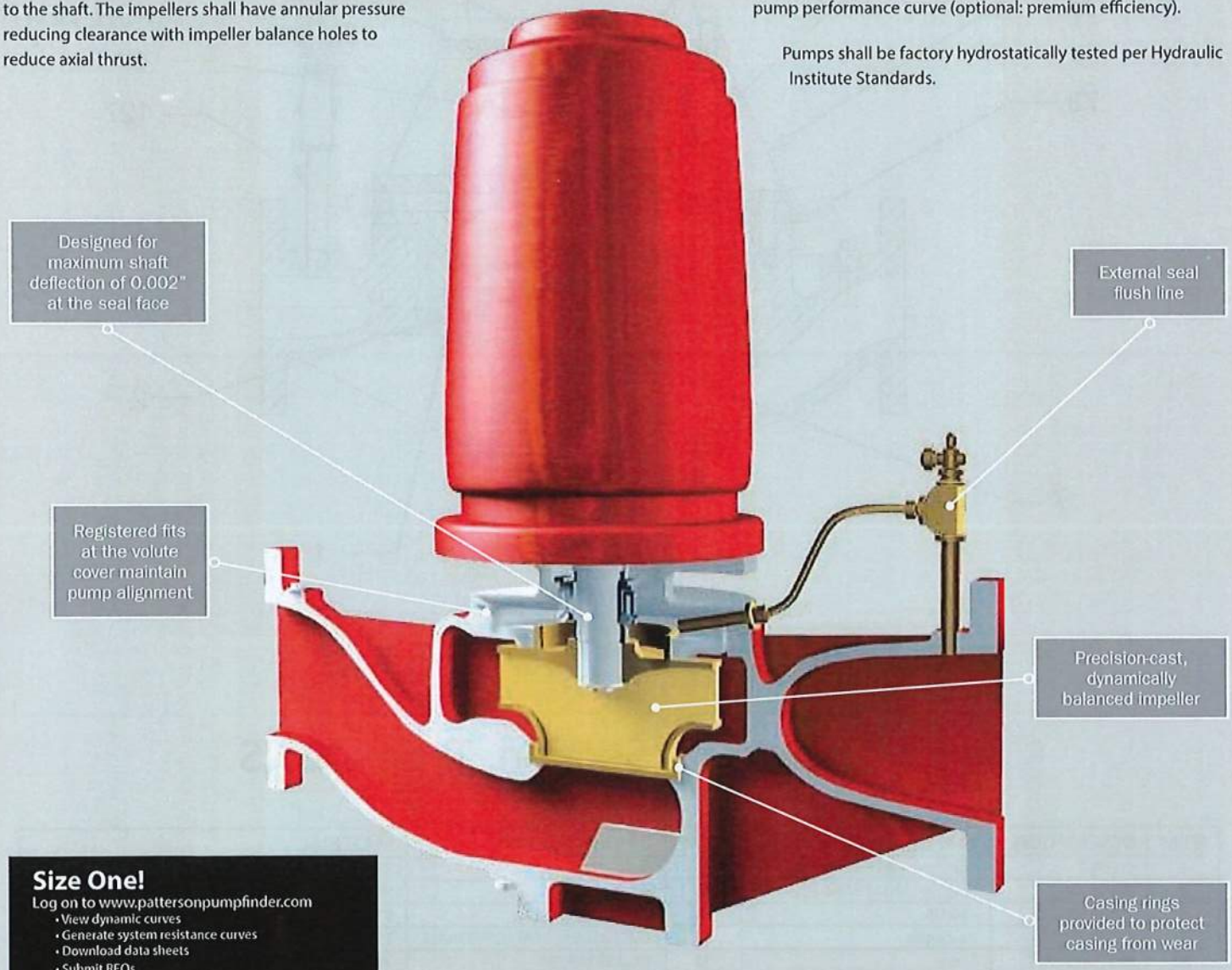
Impellers shall be precision-cast and dynamically balanced and shall be of the enclosed type, non-leaking brass and keyed to the shaft. The impellers shall have annular pressure reducing clearance with impeller balance holes to reduce axial thrust.

Pumps shall be designed for a maximum shaft deflection of 0.002" at the seal face.

The pumps shall have a replaceable bronze or stainless steel shaft sleeve and shall cover the liquid area under the seal. The pump shall have a mechanical seal type carbon vs. silicon carbide with seal water flush line (optional: tungsten carbide).

Motors shall be EPAC/Nema rated and shall be of the size, voltage, and enclosure (ODP/TEFC) as outlined in the plans and specifications. The motor shall be non-overloading throughout the entirety of the pump performance curve (optional: premium efficiency).

Pumps shall be factory hydrostatically tested per Hydraulic Institute Standards.





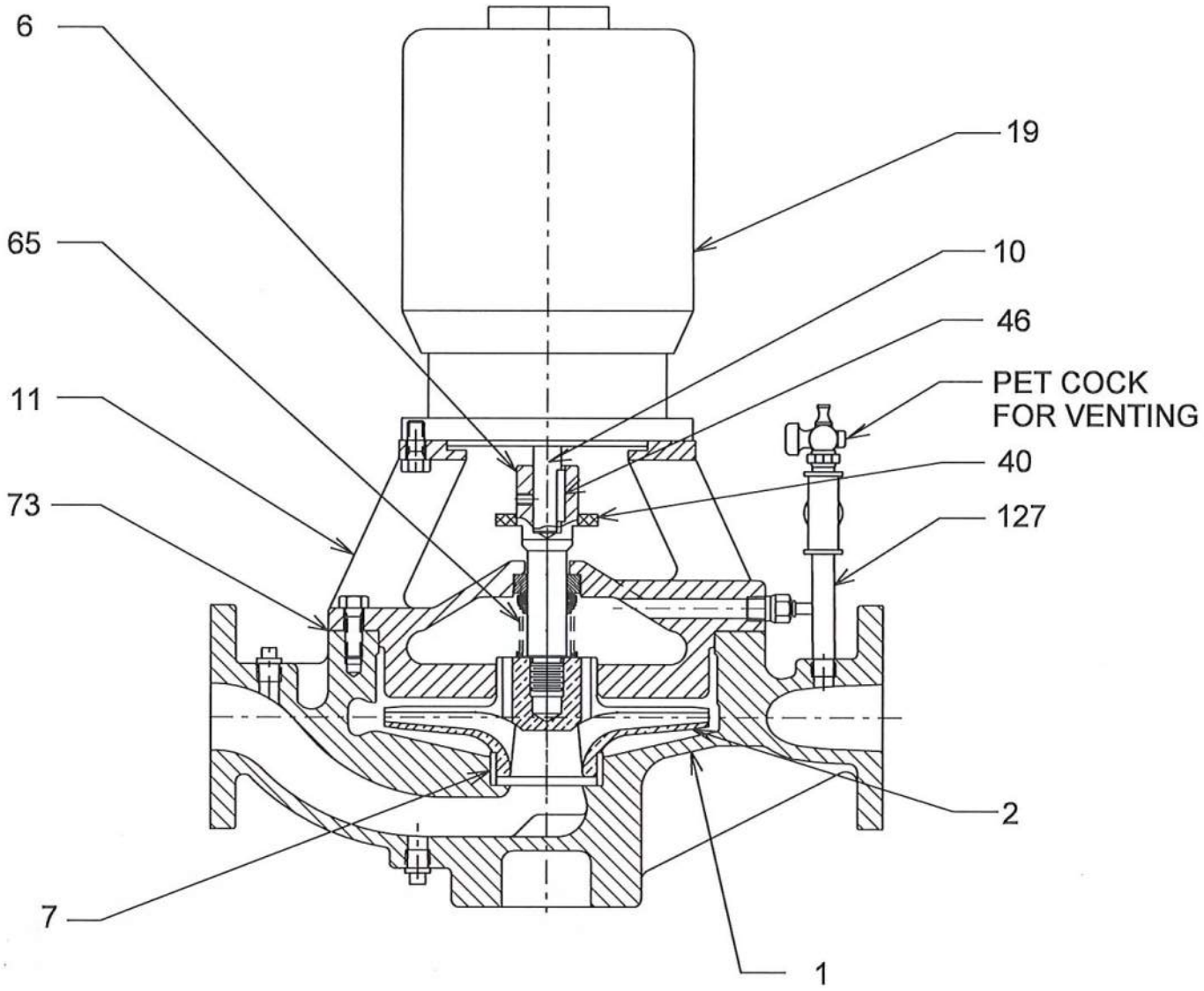

**PATTERSON PUMP COMPANY**
A Gorman-Rupp Company
Post Office Box 790 • Toccoa, Georgia 30577
(706) 886-2101
E-mail: marketing@pattersonpumps.com
www.enviroflopumps.com

Pumping Technology for Tomorrow's World

Patterson

710/460430

Member of Hydraulic Institute




# Typical Assembly Section, Type VIL-CS

| ITEM | DESCRIPTION | MATERIAL | ITEM | DESCRIPTION | MATERIAL |
|---|---|---|---|---|---|
| 1 | CASING | Cast Iron – ASTM A48-CL30 | 40 | DEFLECTOR | Nitrile |
| 2 | IMPELLER | Bronze – ASTM B584-875 | 46 | MOTOR KEY | Steel |
| 6 | PUMP SHAFT | 416 S.S. | 65 | MECHANICAL SEAL | 316 S.S. / Carbon VS. Silicon Carbide |
| 7 | CASING RING | Vesconite | 65 | MECHANICAL SEAL (OPTIONAL) | 316 S.S. / Tungsten Carbide VS. Tungsten Carbide |
| 10 | MOTOR SHAFT | Steel | 73 | GASKET WATER | Vellumoid |
| 11 | VOLUTE COVER | Cast Iron - ASTM A48-CL30 | 127 | WATER SEAL PIPING | Bronze/Rubber |
| 19 | MOTOR | Mfg. Std. | | | |

# Submittal Data Sheet

Pumps = P-4, P-5, P-6, P-7, P-8 & P11

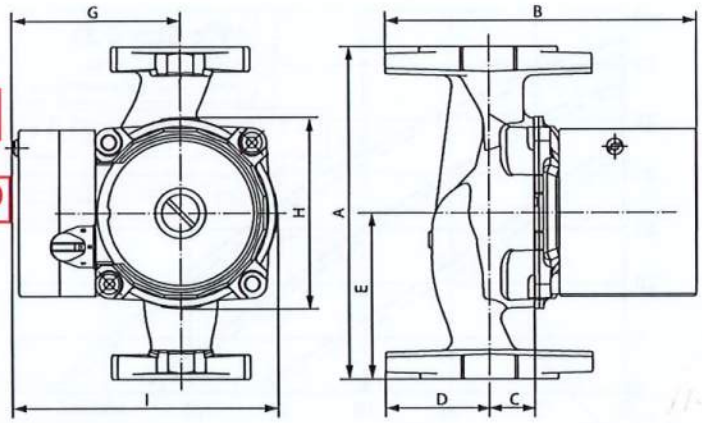
Wilo Star S 21 RFC Circulator Pump with Built-in Check Valve Submittal

wilo

## Star S 21 RFC

| | |
|---|---|
| Project: | American Township Fire Station No.1 |
| Engineer: | TDG - Technician Design Group |
| Contractor: | |
| Submitted By: | Date: |
| Approved By: | Date: |

| Tag # | Model # | Check Valve | Speed | Flow | Head | Phase | Voltage |
|---|---|---|---|---|---|---|---|
| See Above | Star S 21 RFC | Installed | (Select) | | | 1 | 115v |


### Applications

- Heating Systems
- Air-Conditioning
- Cooling Systems
- Water/Glycol up to 50%
- Solar Systems
- Geothermal Systems

### Materials of Construction

| | |
|---|---|
| Impeller | Engineered Composite (40% GF) |
| Shaft | Stainless Steel (X40 Cr13) AISI 420SS |
| Bearing | Metal Impregnated Carbon |
| Volute | Cast Iron |
| Pump Housing | Cast Iron with Installable Check Valve |
| Check Valve | Glass filled Noryl + EPDM rubber |

### Technical Data

| | |
|---|---|
| Max. Temp. Range | -14°F to 230°F (-10°C to 110°C) |
| Ambient Temp. | 104°F (40°C) |
| Electrical Connections | 1~115 |
| Max. Working Pressure | 140 PSI (10 Bar) |
| Min. Inlet Pressure 122°F (50°C) | 0.7 PSI (0.05 Bar) |
| Min. Inlet Pressure (203°F) | 4.4 PSI (0.3 Bar) |
| Min. Inlet Pressure (230°F) | 14.5 PSI (1 Bar) |

### Dimensions and Weights

| | Dimensions - Inches (mm) | | | | | | | | Weight lbs (kg) |
|---|---|---|---|---|---|---|---|---|---|
| Model | A | B | C | D | E | G | H | I | |
| Star S 21 RFC | $6^{3}/_{8}$ | $6^{3}/_{8}$ | $^{7}/_{8}$ | 2 | $3^{3}/_{16}$ | $3^{3}/_{16}$ | $3^{11}/_{16}$ | $5^{1}/_{16}$ | 6.5 |
| | (162) | (154) | (22) | (50) | (81) | (81) | (93.5) | (128) | (3.0) |

### Motor Data

| | Horsepower | Speed | Watts | FLA |
|---|---|---|---|---|
| Model | hp | RPM | W | A |
| Star S 21 RFC | $^{1}/_{25}$ | 1300-2700 | 56-110 | 0.52-0.92 |

Approval Stamp

# Submittal Data Sheet

Pumps = P-9, P-10 & P-12

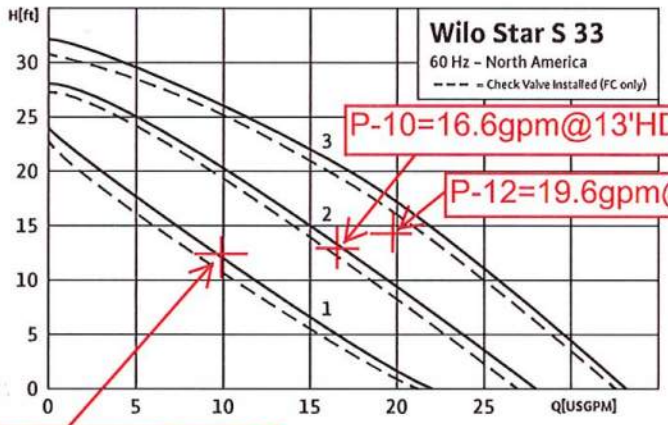
wilo

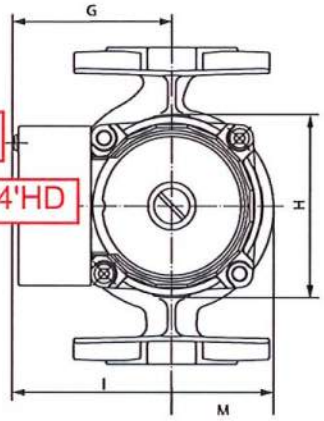
Wilo Star S 33 FC Circulator Pump with Built-in Check Valve Submittal

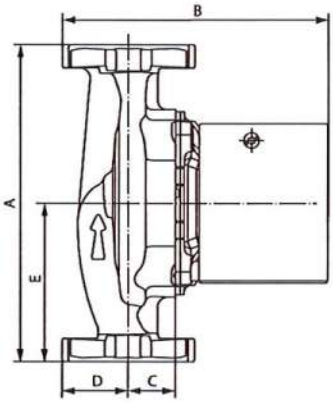
## Star S 33 FC

| | |
|---|---|
| Project: | American Township Fire Station No.1 |
| Engineer: | TDG - Technician Design Group |
| Contractor: | |
| Submitted By: | Date: |
| Approved By: | Date: |

| Tag # | Model # | Check Valve | Speed | Flow | Head | Phase | Voltage |
|---|---|---|---|---|---|---|---|
| See Above | Star S 33 FC | Installed | (Select) | | | 1 | |




### Applications

| | |
|---|---|
| • Heating Systems | • Air-Conditioning |
| • Cooling Systems | • Water/Glycol up to 50% |
| • Solar Systems | • Geothermal Systems |

### Materials of Construction

| | |
|---|---|
| Impeller | Engineered Composite (40% GF) |
| Shaft | Stainless Steel (X40 Cr13) AISI 420SS |
| Bearing | Metal Impregnated Carbon |
| Volute | Cast Iron with Installable Check Valve |
| Pump Housing | Cast Iron |
| Check Valve | Glass filled Noryl + EPDM rubber |

### Technical Data

| | |
|---|---|
| Max. Temp. Range | -14°F to 230°F (-10°C to 110°C) |
| Ambient Temp. | 104°F (40°C) |
| Electrical Connections | 1~115, 230 |
| Max. Working Pressure | 140 PSI (10 Bar) |
| Min. Inlet Pressure 122°F (50°C) | 0.7 PSI (0.05 Bar) |
| Min. Inlet Pressure (203°F) | 4.4 PSI (0.3 Bar) |
| Min. Inlet Pressure (230°F) | 14.5 PSI (1 Bar) |

### Dimensions and Weights

| | Dimensions - Inches (mm) | | | | | | | | Weight lbs (kg) |
|---|---|---|---|---|---|---|---|---|---|
| Model | A | B | C | D | E | G | H | I | |
| Star S 33 FC | $6^{3}/_{8}$ | 7 | $^{7}/_{8}$ | 2 | $3^{3}/_{16}$ | $3^{3}/_{16}$ | $3^{11}/_{16}$ | $5^{1}/_{16}$ | 11.0 |
| | (162) | (178) | (22) | (50) | (81) | (81) | (93.5) | (128) | (5.0) |

### Motor Data

| Model | Voltage | Horsepower hp | Speed RPM | Watts W | FLA A |
|---|---|---|---|---|---|
| Star S 33 FC | 1~115v | $^{1}/_{6}$ | 1300-2700 | 98-202 | 0.85-1.8 |
| | 1~230v | $^{1}/_{6}$ | 1300-2700 | 115-200 | 0.5-0.9 |

Approval Stamp

# Wilo Star
## Cast Iron Volute

### Features & Benefits

→ Rotating flange and installable check valve included on 'RFC' model
→ Reliable wet rotor technology
→ Quick connect wiring
→ Powerful starting torque
→ Ultra quiet
→ Installable hi-temp check

### Technical Data

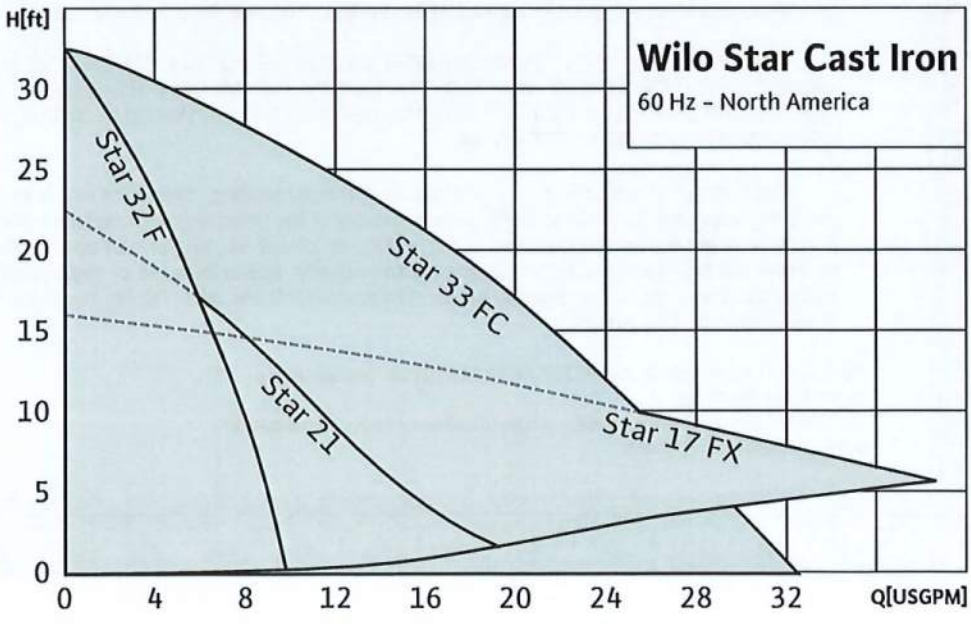
→ Max Temp Range: 14°F to 230°F (-10°C to 110°C)
→ Max Amb Temp: 104°F (40°C)
→ Electrical Connection: 1~115v
→ Star S 33 FC available in 1~115v, 230v
→ Max Working Pressure: 140 PSI (10 Bar)
→ Max Flow: 38 USGPM
→ Max Head: 33 feet

### Materials of Construction

→ Cast Iron Volute
→ Engineered Composite Impeller
→ Stainless Steel Shaft

Applications:

→ Hot Water Heating Systems
→ Cold Water
→ Air-Conditioning Systems
→ Water/Glycol concentrations up to 50%
→ Solar
→ Geothermal



# Patterson

## *Warranty*

Patterson Pump Company and Divisions of Patterson Pump Company ("Patterson") warrants, to the extent hereinafter set forth, each new piece of Patterson equipment to be free from defects in material and workmanship under the normal use and service for which it was intended if, and only if, it has been properly installed and operated.

Patterson's obligation under the warranty is limited to replacing or repairing, free of charge, F.O.B. point of manufacture, any defective part or parts of the equipment that were manufactured by Patterson and which are returned to Patterson at Toccoa, Georgia, provided that such part or parts are received at the Patterson factory not later than twelve (12) months after installation or eighteen (18) months after shipment whichever occurs first.

As to a part or parts such as engines, motors and accessories which are furnished by Patterson, but not manufactured by it, same will carry only the warranty of the manufacturer of such part or parts, and this shall be the limit of Patterson's liability with respect to such part or parts. Mechanical seals provided on commercial products (HVAC & Plumbing) are not covered by this warranty.

Purchaser must notify Patterson by registered or certified mail, return receipt requested, of a claimed breach of warranty within thirty (30) days after discovery thereof, but not later than the termination of the guarantee period hereinabove provided; otherwise, such claim shall be deemed waived.

Purchaser assumes all risk and liability whatsoever resulting from the use thereof, whether used singly or in combination with other equipment or machinery.

This warranty shall not apply to any Patterson Equipment, or parts thereof, which have been repaired or altered without Patterson's written consent, outside Patterson's factory, or which have been altered in any way so as in the judgement of Patterson, to affect adversely the performance or reliability of the Patterson equipment, or which have been subject to misuse, negligence or accident, or which have been operated under conditions more severe than, or otherwise exceeding, those set forth in the specifications for such equipment.

THIS WARRANTY IS FURNISHED EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE NOT OTHERWISE SET FORTH IN A WRITING SIGNED BY AN AUTHORIZED REPRESENTATIVE OF PATTERSON.

Patterson shall not be liable for any loss or damage resulting, directly or indirectly, from the use or loss of use of the equipment. Without limiting the generality of the foregoing, this exclusion from liability embraces the Purchaser's expenses for downtime or for making up downtime, and/or damage for which the purchaser may be liable to other persons, and/or damages to property, and/or injury to or death of any persons. Patterson neither assumes nor authorizes any person to assume for it any other liability in connection with the sale or use of the Patterson Equipment.

PATTERSON PUMP COMPANY / A Subsidiary of Gorman-Rupp
2129 Ayersville Road
Box 790 / Toccoa, Georgia 30577 (706) 886-2101 / FAX (706) 886-0023
www.pattersonpumps.com

**Technicon Design Group**

**Substitution Request Form**

Technicon Design Group
202 West Main Street, Suite 301, Ottawa, Ohio 45875
sandy@technicondesigngroup.com
Px 419.523.5323 Fx 419.523.9441

Drawing No.: M602 Drawing Name: MECHANICAL SCHEDULES

Spec. Section: Drawing M902 Spec Name: Boilers

Article/Paragraph: 46 Specified Item: Boilers

Proposed Substitution: RBI-Torus Boiler

Manfacturer: RBI Model: WB-0800

Submit with this form substantiating data to prove equal quality and performance to the basis of design or approved equals. Clearly mark manufacturer's literature to indicate equality in performance.

Does the Substitution affect dimensions shown on Drawings? Yes X No____ If yes, clearly indicate changes.
Boiler is 4" shorter than BOD & 1" wider than BOD, Air intake is 5" in lieu of 4" BOD
Will changes be required to the Contract Documents for the proper installation of the proposed product substitution. Yes____ No X. If Yes, attach data that indicates description of changes.

What affect does substitution have on other Contracts or other trades?
none

What affect does substitution have on the delivery and construction schedule?
none

Differences between proposed substitution and specified item.
Nothing, other than dimensions above

Manufacturer's warranties of proposed and specified items are:

Same: X Different: _____ Explain on an Attachment (Provide Warranty Information)

Company Submitting Request: Smith Boughan Inc.

Address: 777 S. Copus Rd, Lima Ohio 45805

Phone: 419-991-8040 Email: mnsudhoff@sbmech.com

Signature/Title: _____ Date: _____

For use by Technicon Design Group

✓ Accepted _____ Accepted as Noted

_____ Not Accepted _____ Received too Late

Signature/Title: [signature] Date: 9/30/24

**New Fire Station No. 1**
**American Township Fire Department**
**4239 Elida Road**
**Lima, Ohio 45807**

# TORUS 800

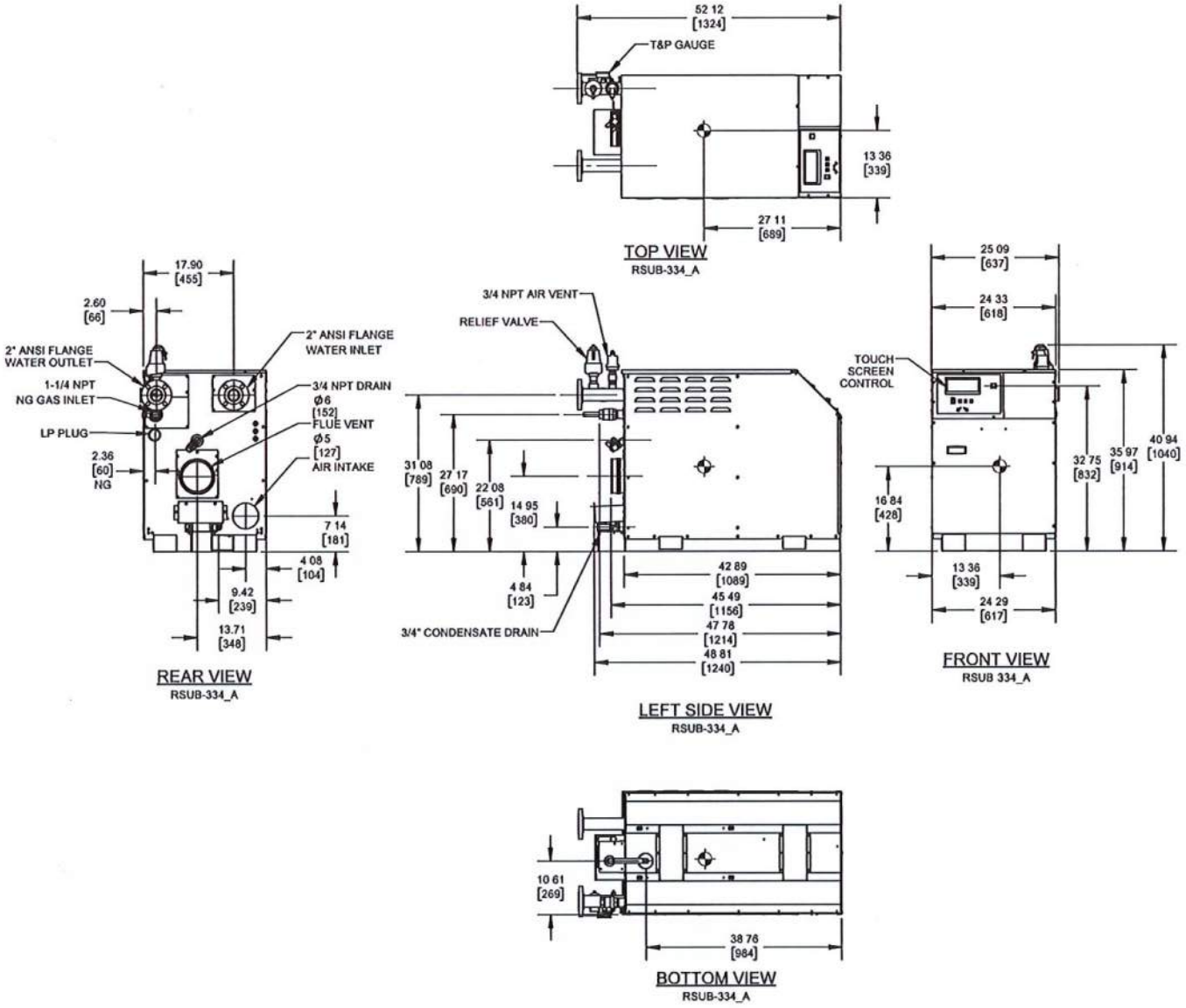
**Category II or Category IV Appliance**
(see Installation and Operation Manual for venting information)

**CODE OPTIONS**

| | |
|---|---|
| CSD-1 | FIRMWARE W/REMOTE TEST MANUAL RESET LWCO High and Low Gas Pressure Switches |

# INDOOR UNIT

TAG: BLR-1 & BLR-2




**Notes:**
1. Dimensions are approximate and should not be used to "rough-in" equipment.
2. Dimensions are subject to change without notice.
3. All dimensions are in inches (mm).
4. ⊕ Symbol indicates center of gravity.

## BOILER CERTIFIED RATINGS & CAPACITIES

| | | | |
|---|---|---|---|
| **Fuel Type** | Natural/Propane Gas | **Boiler FLA** | 12.0* |
| **Input BTU/hr.** | 800,000 / 234.45 kW | **Boiler HP** | 22.97 |
| **Output BTU/hr.** | 768,800 / 225.31 kW | **Min. Gas Pressure Required** | 4"W.C. |
| **Electrical Requirements** | 120 VAC/60 Hz/1PH | **Max. Gas Pressure Allowed** | 14" W.C. |
| | | **Operating Weight** | 523.71 lbs / 237.55 kg |

## BOILER TRIM & CONTROLS

| | | | |
|---|---|---|---|
| **Main Gas Valve** | Dungs MBC | **Air Switch** | Huba |
| **Firing Valve** | Apollo | **Flow Switch** | SIKA |
| **Ignition Control** | Fenwal | **Blocked Flue Switch** | Cleveland NS2 |
| **Operating Control** | HeatNet® | **Blower Motor** | Ametek |
| **High Limit** | Jumo | **L.W.C.O.** | 800 |
| **Main Ball Valve** | Apollo | **Relief Valve (WB)** | 3/4" x 3/4" set @ 50 psi |
| Pump contactor strongly recommended for water heater applications. | | **Relief Valve (WW)** | 1" x 1" set @ 125 psi |

## A.S.M.E.

| | | | |
|---|---|---|---|
| **ASME Sect IV Fire Side Htg Surface** | 60.90 Sq. Ft. / 5.65 Sq. M. | **Design Data** | Max. 160 psig & 210°F |
| | | **Water Volume** | 6.6 gal. / 24.98 Liters |
| **ASME Sect IV Water Side Htg Surface** | 55.12 Sq. Ft. / 5.12 Sq. M. | **pH Level** | 6.5-8.5 |

* Add circulator amps.

## BOILER TEMPERATURE RISE / PRESSURE DROP (Based on Full Input)

| 20°F / 11.1°C | | | | 30°F / 16.7°C | | | | 40°F / 22.2°C | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Flow Rate | | Pressure Drop | | Flow Rate | | Pressure Drop | | Flow Rate | | Pressure Drop | |
| GPM | L/s | Ft | kPa | GPM | L/s | Ft | kPa | GPM | L/s | Ft | kPa |
| 76.9 | 4.9 | 13.4 | 39.9 | 51.3 | 3.2 | 5.9 | 17.8 | 38.5 | 2.4 | 3.4 | 10.1 |

| Flow GPM (Boiler) | | Temp. Rise (°F) (Boiler**) | | Vent Length (Equiv. Ft.) | | Air Inlet Length (Equiv. Ft.) | |
|---|---|---|---|---|---|---|---|
| Min | Max | Min | Max | Min | Max | Min | Max |
| 38.5 | 76.9 | 20 | 40 | 6 | 100 | 0 | 100 |

** Min/Max delta t reflects boiler operation at full input. For applications requiring operation above/below these parameters please consult factory.

## WATER HEATER HOURLY RECOVERY CAPACITY (GPH & LPH)

| 40°F | 22°C | 60°F | 33°C | 80°F | 44°C | 100°F | 56°C | 120°F | 67°C | 140°F | 78°C |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2329 | 8803 | 1553 | 5869 | 1164 | 4402 | 932 | 3521 | 776 | 2934 | 665 | 2515 |

Water Heater Min Flow Rates

| Normal (4 to 12) gpg | | | | Hard (12 to 15) gpg | | | |
|---|---|---|---|---|---|---|---|
| Flow Rate | | Pressure Drop | | Flow Rate | | Pressure Drop | |
| gpm | L/s | Ft | kPa | gpm | L/s | Ft | kPa |
| 61.1 | 3.9 | 8.4 | 25.2 | 81.3 | 5.1 | 14.9 | 44.6 |

**REP FIRM** _____

**SUBMITTED BY** _____

**JOB NAME** _____

**ARCHITECT** _____

**ENGINEER** _____

**CONTRACTOR** _____

**DATE** _____

# TORUS 800

**Category II or Category IV Appliance**
(see Installation and Operation Manual for venting information)

RBI®
RELIABLE. BOLD. INNOVATIVE.

A Division of Mestek, Inc.
Westfield, MA 01085
(833) 265-5371

TRS-7

# TORUS®
## WATERTUBE

## CONDENSING COMMERCIAL BOILERS & WATER HEATERS

*300 – 4000 MBH*

HEATNET 3.0

RBI®

RELIABLE. BOLD. INNOVATIVE.

TORUS®
WATERTUBE

# Condensing Commercial Boilers & Water Heaters

Torus® watertube boilers and water heaters bring next level performance in a small compact footprint to today's applications.

The RBI tradition of high quality, performance equipment in a user-friendly design continues with Torus.

Incorporating all industry-proven components including HeatNet 3.0 touchscreen cascade control, Tru-Flow fuel/air coupling system with 10:1 turndown and capacities to 4000 MBH Torus has the solution for all commercial installations.

The Torus uses a pressure driven mixing system with no moving parts to provide a reliable 10:1 turndown, without lowering the CO2% while avoiding nuisance ignition lockouts.

1250 – 4000 MBH

Optional Rack System (300 – 1000)

*Efficiencies and turndown vary by size.

## Features and Benefits

- 300 – 4000 MBH
- +97.5 AHRI Certified*
- Energy Star Certified (Boiler Only 300 – 2000)
- Full Modulation (up to 10:1*)
- 4 Pass Double-Row Watertube Heat Exchanger (160 psi/ ASME (H & HLW) Stamp)
- 316L Stainless Steel
- Variable Volume, Full Flow and Primary/Secondary
- Sika Flow Switch (Flow Sensor Optional)
- HeatNet 3.0 Integrated Control Platform
- Touchscreen Programming and Diagnostics
- Modbus, LonWorks and BACnet BMS Integration
- Low NOx and CO
- Easy Maintenance and Installation
- Concentric Vent (Sidewall and Vertical 300 – 500 MBH)
- Category II and IV (up to 160') (100' 300 – 1000 / 160' 1250 – 4000)
- PVC/CPVC, Polypropylene and Stainless Steel Vent Approved
- Warranty (Heat Exchanger): 10-year Boiler; 5-year Water Heater
- NG/LP/Dual Fuel
- Outdoor Installation
- Top Inlet/Outlet Water Connections (Optional with Indoor Models 1250 – 4000 Only)

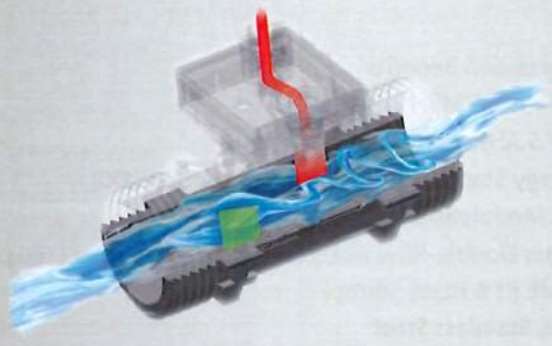
ENERGY STAR
Boiler Only
300 – 2000

AHRI CERTIFIED
C US
NSF/ANSI 372

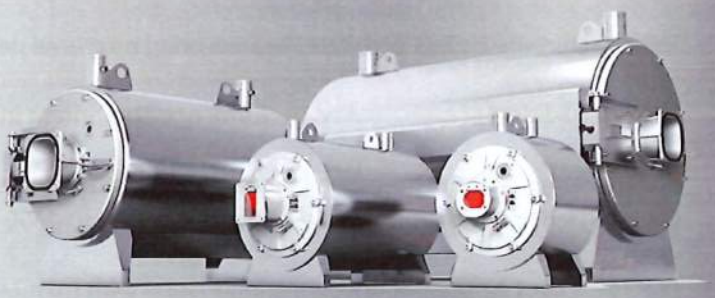
Torus heat exchangers are designed for optimum performance and durability. Made from an industrial quality 316L stainless steel Torus heat exchangers are reliable and robust while being very resistant to both thermal shock and acidic condensate.

A unique 4-pass design works in concert with a new multi-channel manifold and increased tube diameters resulting in ultra-high efficiency with very low pressure drop.

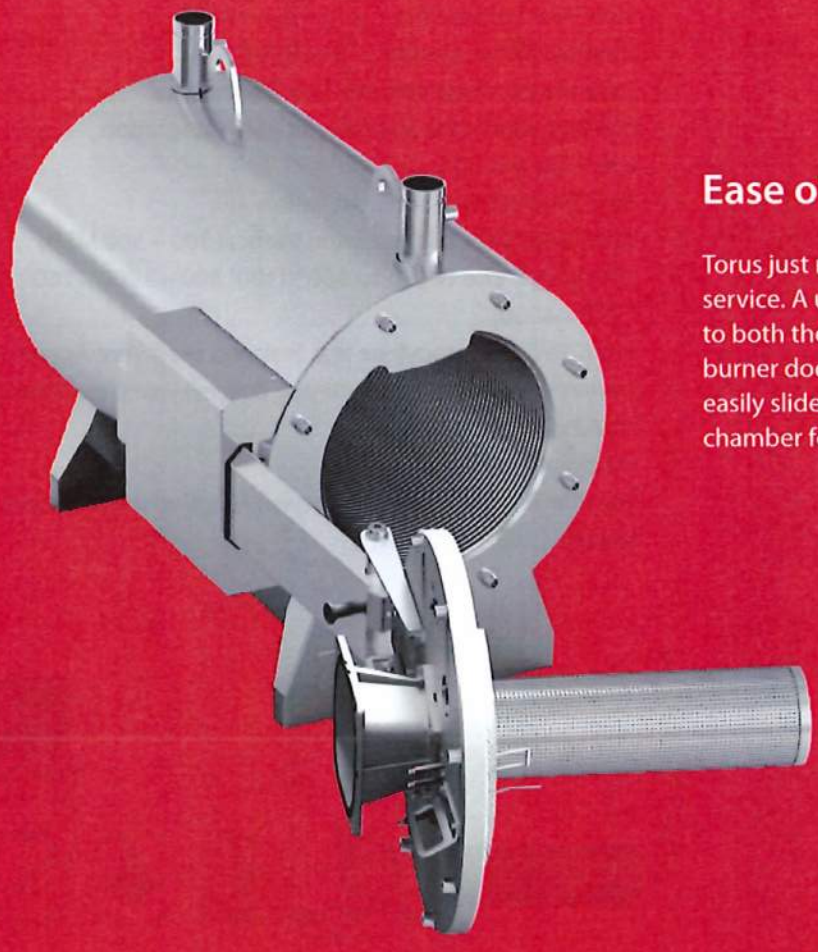
Torus heat exchangers are manufactured with an industrial quality 316L stainless steel through a process called tube hydroforming. Tube hydroforming allows the shaping of stainless steel tubes that are not only stronger and lighter but also have a higher quality surface than competitive heat exchangers maximizing both performance and durability in a compact design.



Hydroforming insures a uniform and consistent gap between the tubes facilitating consistent exhaust gas circulation and uniform heat transfer throughout the entire heat exchanger.



All Torus Series come standard with a Sika flow switch. Units are also available with an optional SIKA vortex flow sensor mounted in a by-pass configuration and mapped to indicate the boiler flow in (gpm). The SIKA flow sensor utilizes vortex technology which is then converted to an electrical signal sent directly to the HeatNet Boiler Management System for real time flow annunciation. The SIKA flow sensor is fully adjustable throughout the operating range.

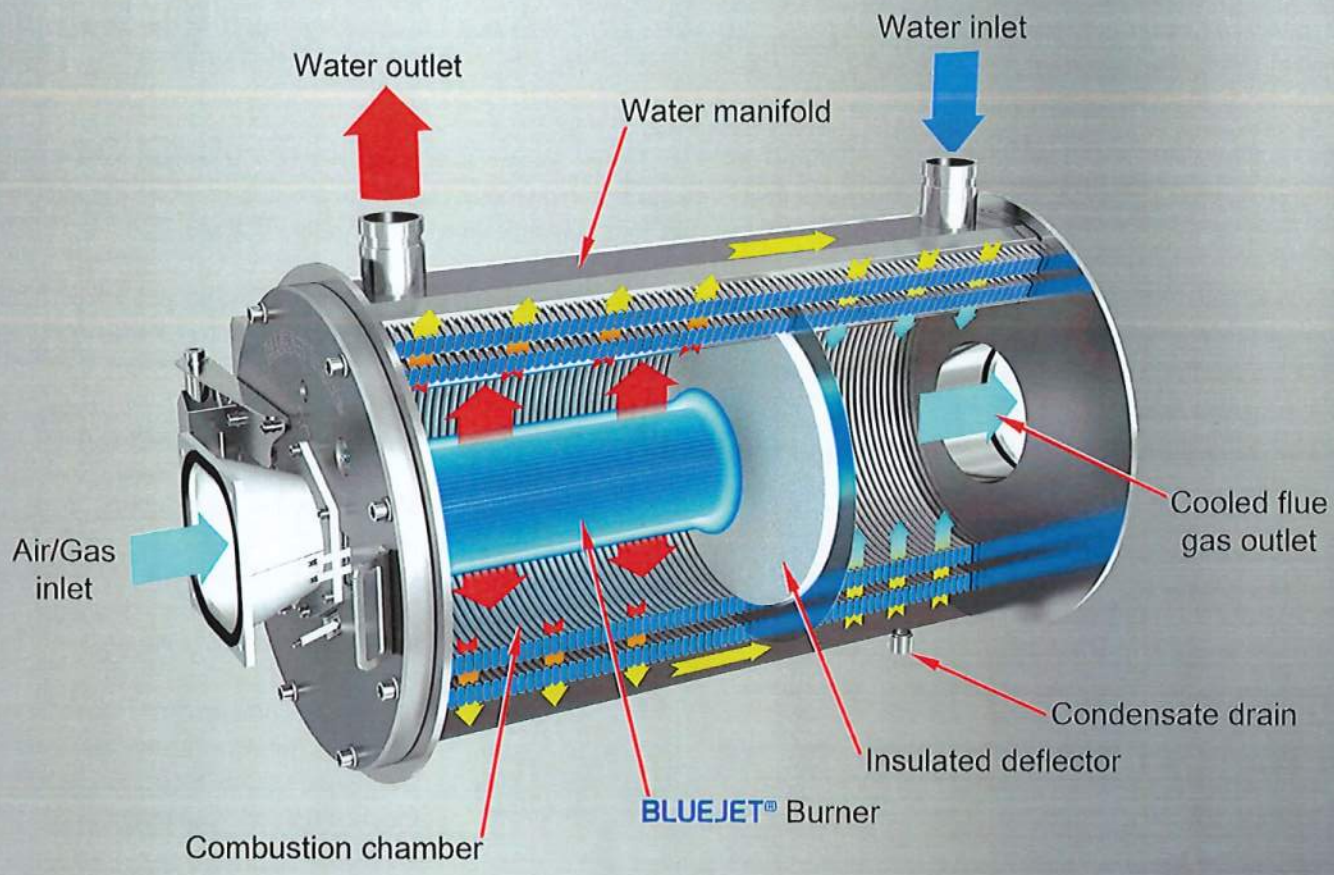


## Ease of Service

Torus just may be the easiest piece of equipment ever to service. A unique burner door system provides easy access to both the burner and heat exchanger tube bundle. All burner doors come with a slide and hinge mechanism that easily slides outwards offering full access to the combustion chamber for annual inspection and service.



RBI
RELIABLE. BOLD. INNOVATIVE.

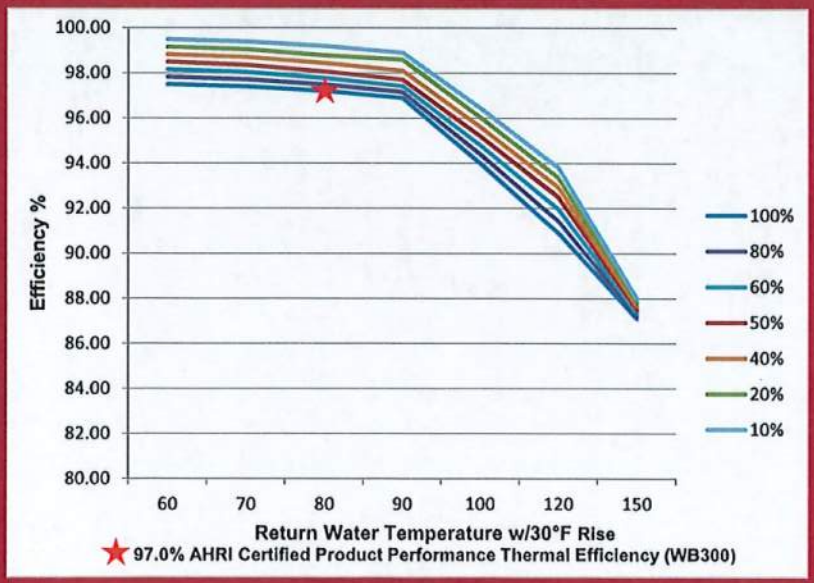



Torus' Bluejet® burner offers industry leading modulation capacity, flame retention and combustion quality. Whether natural gas or LP gas, BlueJet's low NOx design works in perfect concert with our Tru-Flow fuel/air system providing consistent reliable operation.

## 4-Pass Watertube Heat Exchanger

Torus heat exchangers use a 4-pass system for maximum efficiency. The unique path of water throughout the heat exchanger is designed to absorb as much heat energy as possible.

Pass 1: Return water passes through the first set of inner tubes absorbing residual heat energy.
Pass 2: Water passes through the exhaust gas chamber
Pass 3: Outer tubes of the combustion chamber
Pass 4: Supply water distribution final pass through the inner tubes of the combustion chamber

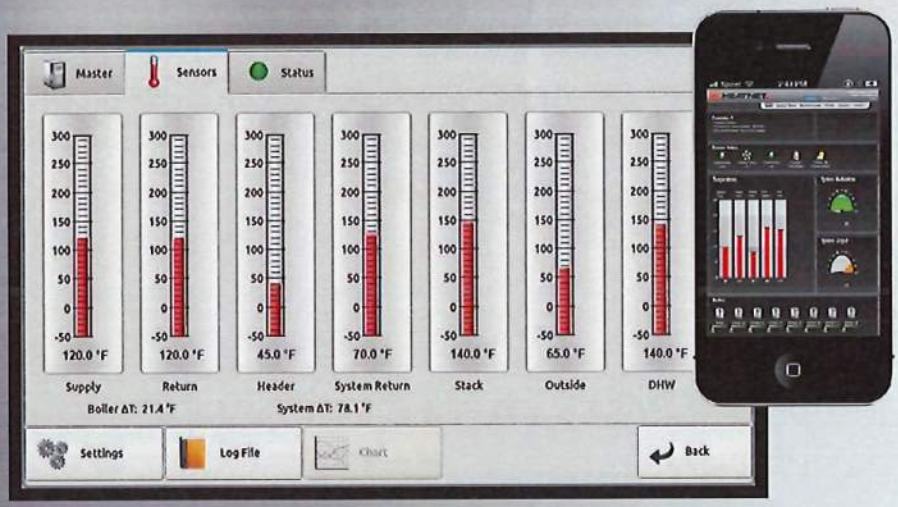


# HEATNET® 3.0

HeatNet.net

Every premium efficiency boiler manufactured by the Mestek Boiler Group is integrated with HeatNet 3.0˚ – an innovative, digital Boiler Management System that provides consistency and feedback through digital communication. By continuously monitoring several system characteristics, HeatNet 3.0 modulates boiler firing rates to maximize turndown ratios and maintain peak efficiency – no matter the load.

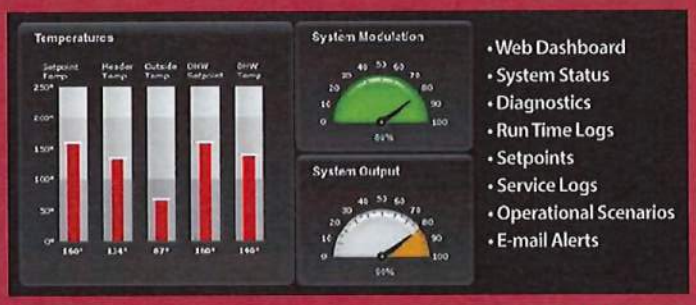
HeatNet 3.0 doesn't just benefit stand-alone boilers; it is a valuable and cost-saving tool in operating a multi-boiler Master/Member network of up to 16 boilers, including mixed-size units. By functioning as a boiler management system, HeatNet 3.0 can incorporate a mixture of condensing boilers and non-condensing boilers to eliminate costly third-party, wall-mounted boiler control platforms.




- Digital Touch Screen Programming
- Lead/Lag Cascade (16 Units)
- Mixed-Size Unit Communication
- Adaptive Modulation
- Circular Pump/VFD/Valve Control
- BMS Integration
- Freeze Protection & Delta T Monitoring
- Hybrid/base Load Capability
- Priority Boiler Control
- Domestic Hot Water Communication
- Web-Based Remote Monitoring/Dashboard
- Diagnostics and Troubleshooting
- Set Points
- Exclusive Remote Monitoring Capability with HeatNet Online

## HeatNet Online:
## Remote Monitoring, Boiler Performance Control & System Protection

HeatNet Online allows for real-time remote monitoring of boiler temperatures, limit circuit inputs, diagnostics and overall system performance.





### Building Dashboard
- Supports Multiple Systems
- "Live" Data Updated Every 60 Seconds
- Setpoint, Header, DHW Set, DHW (if enabled) Stack (if detected)
- System Modulation, System Output
- Visual Cues for Firing Boilers

### System History
- Visual Trending
  - Header Temp
  - Modulation
  - DHW Temp
  - Setpoints (Operating, DHW)
- "Zoom" Charting Scales from Hour to Minute Interval
- Log Entries
  - Full Log Event
    - Event Description
    - System Detail
  - No 1000 Log Limit

### Service Log History
- Individual Entries Can Be Stand Alone or Attached to Warnings, Faults
- File Upload
  - Allows Technicians to Upload Pictures From Phone
- Dynamic Link
  - Links to Product Specific Support Literature

TORUS® WATERTUBE

# Product Specification
## WB/WW 300 - 1000

| | 300 | 350 | 400 | 500 | 650 | 800 | 1000 |
|---|---|---|---|---|---|---|---|
| **Ratings and Capacities** | | | | | | | |
| Input BTU/HR - (WB/WW) | 300,000 | 349,000 | 399,000 | 500,000 | 650,000 | 800,000 | 999,000 |
| Output BTU/HR - Boiler - (WB) | 291,000 | 337,483 | 385,035 | 482,000 | 625,950 | 768,800 | 959,040 |
| AHRI Thermal Efficiency - Boiler (%) | 97 | 96.7 | 96.5 | 96.4 | 96.3 | 96.1 | 96 |
| Water Heater Hourly Recovery Capacity (GPH @ 60 deg f) | 588 | 677 | 782 | 960 | 1262 | 1553 | 1939 |
| Water Heater Hourly Recovery Capacity (GPH @ 100 deg f) | 353 | 406 | 469 | 576 | 757 | 932 | 1163 |
| Water Heater Hourly Recovery Capacity (GPH @ 140 deg f) | 252 | 290 | 335 | 412 | 541 | 665 | 831 |
| Turn Down (NG) | 8:1 | 9:1 | 10:1 | 10:1 | 10:1 | 10:1 | 10:1 |
| ~~Turn Down (LP)~~ | ~~8:1~~ | ~~8:1~~ | ~~8:1~~ | ~~8:1~~ | ~~8:1~~ | ~~8:1~~ | ~~8:1~~ |
| HP - Boiler | 8.69 | 10.08 | 11.50 | 14.40 | 18.70 | 22.97 | 28.65 |
| Fuel Type | NG/LP/Dual Fuel | NG/LP/Dual Fuel | NG/LP/Dual Fuel | NG/LP/Dual Fuel | NG/LP/Dual Fuel | NG/LP/Dual Fuel | NG/LP/Dual Fuel |
| Category | CAT II/IV | CAT II/IV | CAT II/IV | CAT II/IV | CAT II/IV | CAT II/IV | CAT II/IV |
| Water Volume (gal) | 3.8 | 3.8 | 3.8 | 4.2 | 5.6 | 6.6 | 8.1 |
| Design Data - (Max working Press - psig) | 160 | 160 | 160 | 160 | 160 | 160 | 160 |
| Min water pressure (psi) | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| ASME Sect IV Fireside Htg Surface (sq-ft) | 34.8 | 34.8 | 34.8 | 39.1 | 52.2 | 60.9 | 75.4 |
| ASME Sect IV Waterside Htg Surface (sq-ft) | 31.5 | 31.5 | 31.5 | 35.44 | 47.25 | 55.12 | 68.24 |
| Electrical (Standard) | 120V-1ph | 120V-1ph | 120V-1ph | 120V-1ph | 120V-1ph | 120V - 1ph | 120V - 1ph |
| FLA (amps) | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Min. Gas Pressure (w.c.) N/G | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| Min. Gas Pressure (w.c.) LP | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| Max. Gas Pressure (w.c.) | 14 | 14 | 14 | 14 | 14 | 14 | 14 |
| Max Vent (Equiv. ft) | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Max Combustion Air (Equiv. ft) | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| **Trim** | | | | | | | |
| Number of Relief Valves | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Relief Valve Pressure Rating (PSI) (WB/WW) | 50/125 | 50/125 | 50/125 | 50/125 | 50/125 | 50/125 | 50/125 |
| Inlet Water Connection (in) | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.5 |
| Outlet Water Connection (in) | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.5 |
| Gas Connection - NG (in) | 1" | 1" | 1" | 1" | 1-1/4" | 1-1/4" | 1-1/4" |
| Gas Connection - LP (in) | 3/4" | 3/4" | 3/4" | 3/4" | 3/4" | 3/4" | 3/4" |
| Vent Outlet Connection (in) | 4 | 4 | 4 | 4 | 6 | 6 | 6 |
| Standard Vent Material | PVC/CPVC | PVC/CPVC | PVC/CPVC | PVC/CPVC | PVC/CPVC | PVC/CPVC | PVC/CPVC |
| Optional Non Metallic Vent Material | SS/PP | SS/PP | SS/PP | SS/PP | SS/PP | SS/PP | SS/PP |
| Combustion Air Connection | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| **Dimensions** | | | | | | | |
| Height (in) | 40.94 | 40.94 | 40.94 | 40.94 | 40.94 | 40.94 | 41.69 |
| Width (in) | 25.09 | 25.09 | 25.09 | 25.09 | 25.09 | 25.09 | 25.36 |
| Depth (in) | 40.25 | 40.25 | 40.25 | 41.75 | 49.25 | 52.12 | 56.89 |
| Operating Weight (lbs.) | 407 | 407 | 407 | 426 | 486 | 524 | 607 |
| Shipping Weight (lbs.) | 519 | 519 | 519 | 537 | 598 | 635 | 746 |
| **Clearance Service/Combustible** | | | | | | | |
| Front (in) | 36/6 | 36/6 | 36/6 | 36/6 | 36/6 | 36/6 | 36/6 |
| Rear (in) | 24/6 | 24/6 | 24/6 | 24/6 | 24/6 | 24/6 | 24/6 |
| Right Side (in) | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 |
| Left Side (in) | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 | 1/1 |
| Top (in) | 30/6 | 30/6 | 30/6 | 30/6 | 30/6 | 30/6 | 30/6 |

RBI® RELIABLE. BOLD. INNOVATIVE.

## LIMITED WARRANTY

### Boilers/Water Heaters
### Industrial, Commercial and Other Non-Residential Use

The "Manufacturer" warrants to the original owner at the original installation site that the heat exchanger of the Industrial, commercial, and other Non-Residential Use Boiler (the "Product") will be free from defects in material or workmanship for ten (10) years from the date of installation. If upon examination by the Manufacturer the Product is shown to have a defect in material or workmanship during the warranty period, the Manufacturer will repair or replace, at its option, that part of the Product which is shown to be defective. All other RBI supplied Boilers/Water Heaters parts are warranted against defects in material and workmanship for one (1) year from date of installation or 18 months from date of shipment from RBI.

The "Manufacturer" warrants to the original owner at the original installation site that the heat exchanger of the Industrial, commercial, and other Non-Residential Use Water Heater (the "Product") will be free from defects in material or workmanship for five (5) years from the date of installation. If upon examination by the Manufacturer the Product is shown to have a defect in material or workmanship during the warranty period, the Manufacturer will repair or replace, at its option, that part of the Product which is shown to be defective. All other RBI supplied Boilers/Water Heaters parts are warranted against defects in material and workmanship for one (1) year from date of installation or 18 months from date of shipment from RBI.

This limited warranty does not apply:

(a) if the Product has been subjected to misuse or neglect, has been accidentally or intentionally damaged, has not been installed, maintained or operated in accordance with the furnished written instructions, or has been altered or modified in any way.
These include but not limited to:
- Excessive water hardness causing a lime build-up in the heat exchanger tubes is not a fault of the equipment and is not covered under the manufacturer's warranty.
- Excessive pitting and erosion on the inside of the heat exchanger tubes caused by high water velocity through the tubes and is not covered by the manufacturer's warranty. (See Installation Instructions for proper pump performance.
- Chemical corrosion, no corrosive chemical (freon, dry cleaning chemicals, degreasing liquids, chlorine or any chemicals that produce hydrochloric acid) can be present in the boiler room as it rapidly destroys the heating equipment and voids the warranty.
- All copper fin boilers should not operate with a return water temperature less than 110°F (atmospheric combustion, 125°F fan assist combustion). If a lower temperature is required, an external bypass should be installed to prevent condensation. The manufacturer's warranty does not cover damage done by condensation.

(b) to any expenses, including labor or material, incurred during removal or reinstallation of the the Product or parts thereof.

(c) to damage as a result of settlement, distortion, collapse, or cracking of any foundation area, beams or pipes surrounding the Product.

(d) to any workmanship of any installer of the Product; or to Products installed outside the continental United States or Canada.

This limited warranty is conditional upon:

(a) shipment, to the Manufacturer, of that part of the Product thought to be defective. Goods can only be returned with prior written approval from the Manufacturer. All returns must be freight prepaid.

(b) determination in the reasonable opinion of the Manufacturer that there exists a defect in material or workmanship.

Repair or replacement of any part under this Limited Warranty shall not extend the duration of the warranty with respect to such repaired or replaced part beyond the stated warranty period.

**THIS LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EITHER EXPRESS OR IMPLIED, AND ALL SUCH OTHER WARRANTIES, INCLUDING WITHOUT LIMITATION IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE HEREBY DISCLAIMED AND EXCLUDED FROM THIS LIMITED WARRANTY. IN NO EVENT SHALL THE MANUFACTURER BE LIABLE IN ANY WAY FOR ANY CONSEQUENTIAL, SPECIAL, OR INCIDENTAL DAMAGES OF ANY NATURE WHATSOEVER, OR FOR ANY AMOUNTS IN EXCESS OF THE SELLING PRICE OF THE PRODUCT OR ANY PARTS THEREOF FOUND TO BE DEFECTIVE. THIS LIMITED WARRANTY GIVES THE ORIGINAL OWNER OF THE PRODUCT SPECIFIC LEGAL RIGHTS. YOU MAY ALSO HAVE OTHER RIGHTS WHICH MAY VARY BY EACH JURISDICTION.**

RBI

260 North Elm Street • Westfield, MA 01085
Phone: (413) 568-9571 • Fax: (413) 568-9613

1300 Midway Blvd. • Mississauga, Ontario L5T 2G8 Canada
Phone: (905) 670-5888 • Fax: (905) 670-5782

Technicon Design Group

**Substitution Request Form**

Technicon Design Group
202 West Main Street, Suite 301, Ottawa, Ohio 45875
sandy@technicondesigngroup.com
Px 419.523.5323 Fx 419.523.9441

Drawing No.: M602 Drawing Name: MECHANICAL SCHEDULES

Spec. Section: Drawing M902 Spec Name: EXPANSION TANKS

Article/Paragraph: 40, K Specified Item: EXPANSION TANKS

Proposed Substitution: Patterson Pump Company

Manfacturer: Patterson Pump Company Model: ~~[illegible]~~ NLA-500

Submit with this form substantiating data to prove equal quality and performance to the basis of design or approved equals. Clearly mark manufacturer's literature to indicate equality in performance.

Does the Substitution affect dimensions shown on Drawings? Yes X No____ If yes, clearly indicate changes.
B&D = 24"ø x 69"-tall, Patterson is 30"ø x 51"-tall
Will changes be required to the Contract Documents for the proper installation of the proposed product substitution. Yes____ No X. If Yes, attach data that indicates description of changes.

What affect does substitution have on other Contracts or other trades?
none

What affect does substitution have on the delivery and construction schedule?
none

Differences between proposed substitution and specified item.
dimensions listed above

Manufacturer's warranties of proposed and specified items are:

Same: X Different: _____ Explain on an Attachment (Provide Warranty Information)

Company Submitting Request: Smith Boughan Inc.
Address: 777 S. Copus Rd, Lima Ohio 45805
Phone: 419-991-8040 Email: mnsudhoff@sbmech.com
Signature/Title: _____ Date: _____

For use by Technicon Design Group

✓ Accepted _____ Accepted as Noted

_____ Not Accepted _____ Received too Late

Signature/Title: Mt A [signature] Date: 9/30/24

A Gorman-Rupp Company

SUBMITTAL

# NLA-SERIES

## HYDRONIC EXPANSION TANKS

**Models:** NLA- 35 thru NLA-800L
**Submittal Sheet No.** A-1010A Date: 2/12

| | | | | |
|---|---|---|---|---|
| Job Name | American Twp Fire Station No.1 | Submitted By | | Date |
| Location | 4239 Elida Road | Approved By | | Date |
| | Lima, OH 45807 | Order No. | | Date |
| Engineer | TDG - Technician Design Group | Notes | | |
| Contractor | | | | |
| Sales Rep. | Spears Mechanical | | | |

### Description

Patterson NLA Tanks are ASME removable bladder type pre-charged expansion tanks. They are designed to absorb the expansion forces and control the pressure in heating/cooling systems. The system's expanded water (fully compatible with water/glycol mixtures) si contained in a full acceptance heavy-duty butyl bladder that prevents tank corrosion and waterlogging problems. All NLA expansion tanks can be installed vertically or horizontally.

### Construction

Shell: Carbon Steel
Bladder: Heavy Duty Butyl
System Connection: Carbon Steel

### Performance Limitations

Maximum Design Temperature: 240°F
Maximum Design Pressure: 125 PSIG*

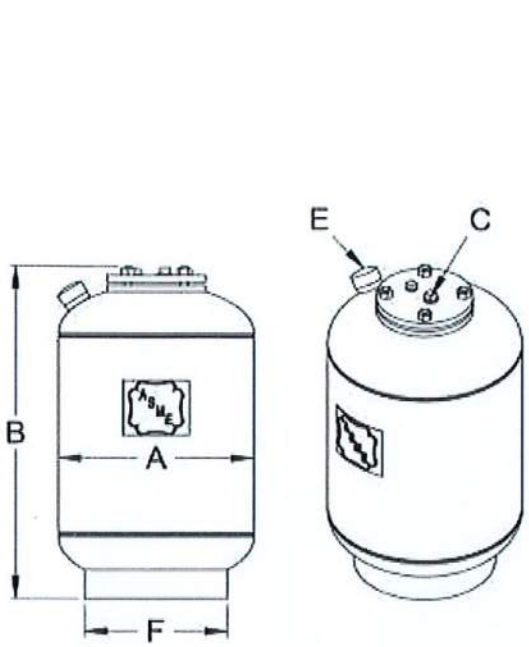
*200 & 250 PSIG available

| Model Number | Part Number | Tank Volume (Gallons) | Tagging Information | Quantity |
|---|---|---|---|---|
| NLA-35 | 22010035 | 10 | | |
| NLA-50 | 22010050 | 13 | | |
| NLA-85 | 22010085 | 23 | | |
| NLA-130 | 22010130 | 35 | | |
| NLA-200 | 22010200 | 53 | | |
| NLA-300 | 22010300 | 79 | | |
| NLA-400 | 22010400 | 106 | | |
| NLA-500 | 22010500 | 132 | EXP-1 | 1 |
| NLA-600 | 22010500 | 158 | | |
| NLA-800L | 22010805 | 211 | | |

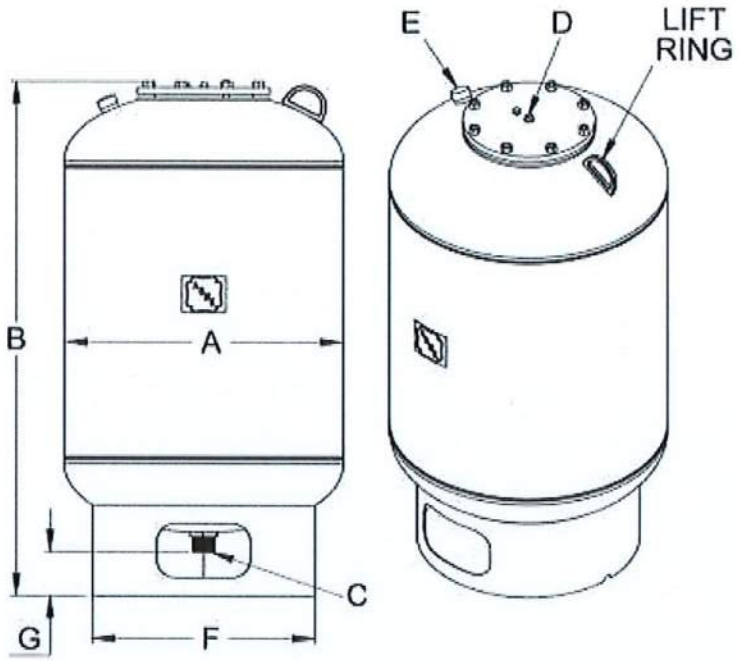
### Typical Specification

Furnish and install, as shown on plans, a _____ gallon _____" diameter X _____" (high) pre-charged steel expansion tank with heavy-duty butyl bladder. The tank shall have NPT system connections and a 0.302"-32 charging valve connection (standard tire valve) to facilitate the on-site charging of the tank to meet system requirements. The tank must be constructed in accordance with most recent addendum of Section VIII Division 1 of the ASME Boiler and Pressure Vessel Code.

Each tank shall be Patterson model number NLA-_____ or approved equal.




NLA-35 and NLA-50




NLA-85 thru NLA-800L

**Dimensions & Weights**

| Model Number | Dimensions in Inches | | | | | | | Approx. Ship Wt. (lbs) |
|---|---|---|---|---|---|---|---|---|
| | | | System Connection | | Charging Valve | | | |
| | A | B | C | D | E | F | G | |
| NLA-35 | 12 | 23 1/2 | 3/4 | - | | 10 | - | 40 |
| NLA-50 | 14 | 24 | | - | | 10 | - | 50 |
| NLA-85 | 16 | 37 | 1 | 1/2 | | 12 | 5 1/2 | 90 |
| NLA-130 | 20 | | | | | 16 | | 125 |
| NLA-200 | 24 | 43 | | | 0.302" - 32NC | 20 | | 210 |
| NLA-300 | | 55 | | | | | | 225 |
| NLA-400 | | 49 | 1 1/2 | 3/4 | | | 5 1/4 | 300 |
| NLA-500 | 30 | 57 | | | | 24 | | 335 |
| NLA-600 | | 65 | | | | | | 360 |
| NLA-800L | 32 | 76 | | | | 28 | | 475 |

**Notes**

- Tanks are factory pre-charged at 12 psi and field adjustable.
- California code-sight glass is available upon request.
- Both top and bottom connections (C and D) access the bladder.
- Available with mounting clips.

**Technicon Design Group**

**Substitution Request Form**

Technicon Design Group
202 West Main Street, Suite 301, Ottawa, Ohio 45875
sandy@technicondesigngroup.com
Px 419.523.5323 Fx 419.523.9441

Drawing No.: M602 Drawing Name: MECHANICAL SCHEDULES

Spec. Section: Drawing M902 Spec Name: AIR SEPARATORS

Article/Paragraph: 40, L Specified Item: AIR SEPARATORS

Proposed Substitution: Patterson Pump Company

Manfacturer: Patterson Pump Company Model: TAS3003

Submit with this form substantiating data to prove equal quality and performance to the basis of design or approved equals. Clearly mark manufacturer's literature to indicate equality in performance.

Does the Substitution affect dimensions shown on Drawings? Yes___ No X If yes, clearly indicate changes.

Will changes be required to the Contract Documents for the proper installation of the proposed product substitution. Yes___ No X. If Yes, attach data that indicates description of changes.

What affect does substitution have on other Contracts or other trades?

none

What affect does substitution have on the delivery and construction schedule?

none

Differences between proposed substitution and specified item.

none

Manufacturer's warranties of proposed and specified items are:

Same: X Different: _____ Explain on an Attachment (Provide Warranty Information)

Company Submitting Request: Smith Boughan Inc.

Address: 777 S. Copus Rd, Lima Ohio 45805

Phone: 419-991-8040 Email: m.sudhoff@sbmech.com

Signature/Title: _____ Date: _____

For use by Technicon Design Group

✓ Accepted _____ Accepted as Noted

_____ Not Accepted _____ Received too Late

Signature/Title: [signature] Date: 9/30/24

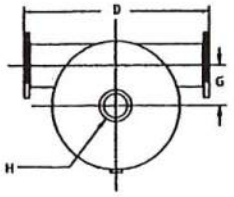
**New Fire Station No. 1**
**American Township Fire Department**
**4239 Elida Road**
**Lima, Ohio 45807**

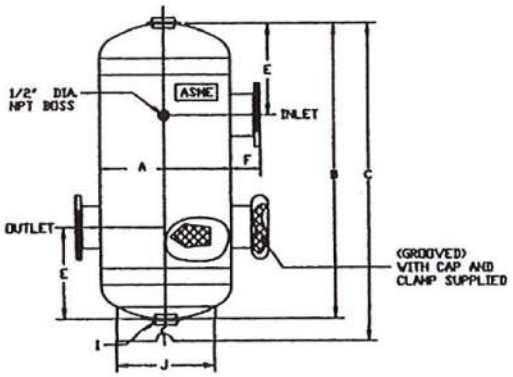
Patterson®
A Gorman-Rupp Company

# HVAC AIR SEPARATORS (Tangential Design)

## (with strainer)

- ASME Construction.
- 8" and under 150 P.S.I. working pressure
- 10" and larger 125 P.S.I.-working pressure
- MNPT inlet & outlet on 2" & 2 1/2"
- 3" and larger flanged inlet & outlet
- Grooved end connections available
- 30" and above units available upon request
- Standard units are skirt mounted for vertical floor installation
- Ceiling and seismic mount available upon request
- Quick access to strainer for maintenance




| PART NUMBER | INLET & OUTLET | A(IN.) | B(IN.) | C(IN.) | D(IN.) | E(IN.) | F(IN.) | G(IN.) | H(IN.) | I(IN.) | J(IN.) | WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TASS002 | 2" | 12 | 19 1/2 | 22 1/2 | 16 5/8 | 5 1/2 | 2 1/8 | 4 5/16 | 1 | 1 | 9 1/2 | 48 |
| TASS025 | 2 1/2" | 12 | 19 1/2 | 22 1/2 | 16 5/8 | 5 1/2 | 2 3/8 | 4 1/16 | 1 | 1 | 9 1/2 | 58 |
| AS-1 TASS003 | 3" | 12 | 19 1/2 | 22 1/2 | 19 3/4 | 5 3/4 | 2 1/2 | 3 3/4 | 1 | 1 | 9 1/2 | 70 |
| TASS004 | 4" | 14 | 29 | 32 | 21 3/4 | 9 1/8 | 2 1/2 | 4 1/4 | 1 1/2 | 1 1/2 | 11 1/2 | 108 |
| TASS005 | 5" | 14 | 29 | 32 | 21 3/4 | 9 1/8 | 2 1/2 | 3 3/4 | 1 1/2 | 1 1/2 | 11 1/2 | 136 |
| TASS006 | 6" | 20 | 41 | 44 | 28 | 13 1/4 | 2 1/2 | 6 1/4 | 1 1/2 | 1 1/2 | 18 | 236 |
| TASS008 | 8" | 20 | 41 | 44 | 28 | 13 1/4 | 3 | 5 3/16 | 1 1/2 | 1 1/2 | 18 | 356 |
| TASS010 | 10" | 30 | 58 | 60 1/2 | 41 | 19 | 3 1/2 | 9 1/8 | 2 | 2 | 24 | 660 |
| TASS012 | 12" | 30 | 58 | 60 1/2 | 41 | 19 | 3 1/2 | 8 1/8 | 2 | 2 | 24 | 870 |
| TASS140 | 14" | 36 | 75 1/2 | 80 | 46 3/8 | 22 | 3 1/2 | 10 3/16 | 2 | 2 | 30 | 1220 |
| TASS160 | 16" | 48 | 100 | 108 | 60 | 30 | 3 5/8 | 12 1/2 | 2 | 2 | 38 | 2700 |
| TASS180* | 18" | 54 | 116 | 124 | 66 | 33 | 3 5/8 | 13 5/8 | 2 | 2 1/2 | 44 | 3000 |
| TASS200* | 20" | 60 | 130 | 138 | 72 | 35 | 7 | 16 | 2 | 2 1/2 | 50 | 4000 |
| TASS240* | 24" | 72 | 152 | 160 | 84 | 40 | 8 | 19 | 2 | 2 1/2 | 62 | PLEASE CALL |

*** Non-Stock Items Larger sizes can be fabricated to meet your needs. Please contact us.**

**USE:** For removal of entrained air in hydronic and pumping systems.

**SPECIFICATION:**

Carbon Steel Construction
Primed Exterior
Optional Paint Top Coat and/or Epoxy finishes

Maximum Temperature 375° F
A.S.M.E. Section VIII, Division I, stamped with documentation

Available in carbon steel construction, 304/316 stainless steel construction and other alloy construction upon request.
***For automatic air removal, we recommend adding our high capacity air vent part #AR-075***
***Cast Iron Body and Cover with Stainless Steel Internal Float and Assembly***
Dimensions are subject to change without notice, please confirm actual dimensions with factory at time of order.

JOB NAME _____
LOCATION _____
_____
_____
CONTRACTOR _____
CONTRACTOR P.O. NO. _____

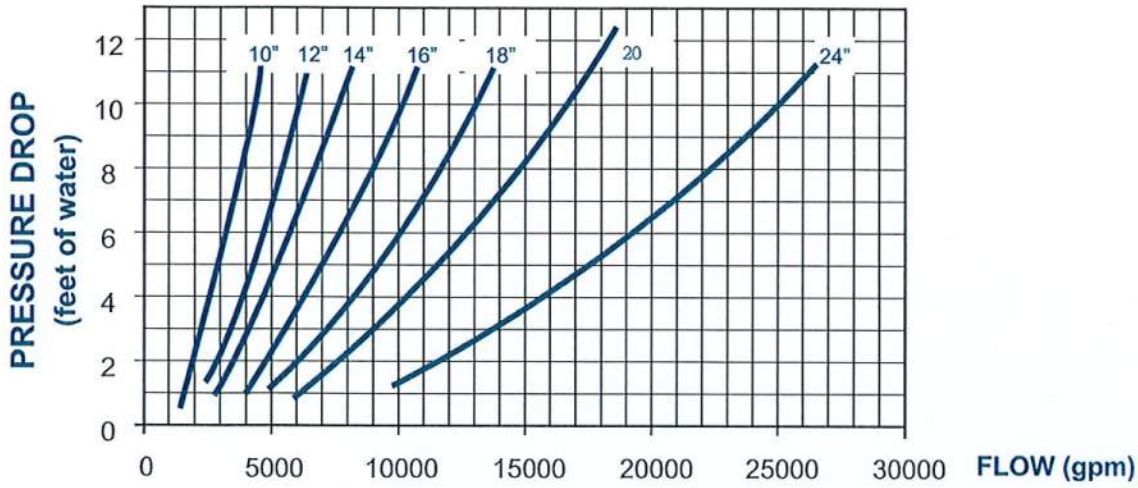
| ITEMS | QUANTITY |
|---|---|
| | |
| | |
| | |
| | |
| | |
| | |

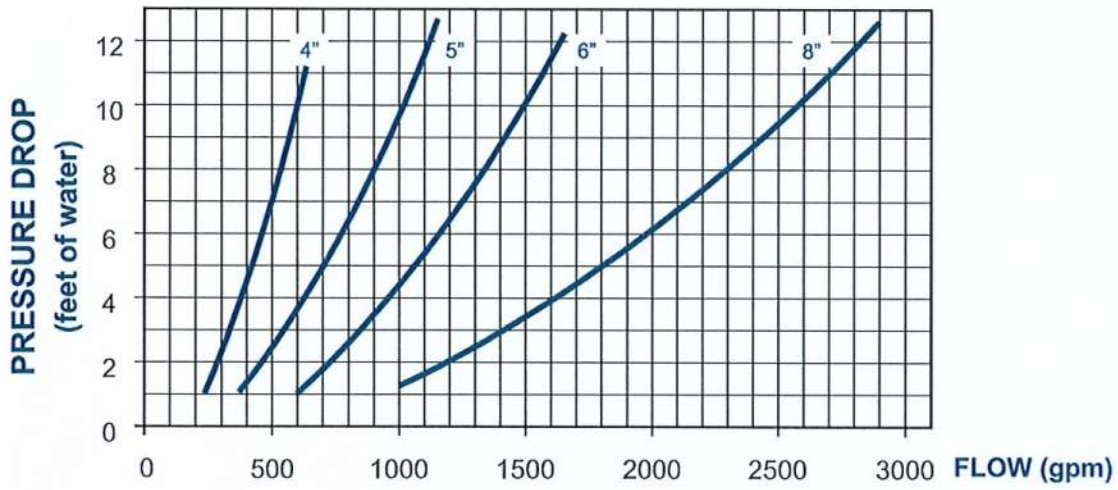
**PATTERSON PUMP COMPANY**
P.O. Box 790
Toccoa, GA 30577
PH: 706-886-2101
FAX: 706-886-0023
www.pattersonpumps.com
e-mail: sales@pattersonpums.com

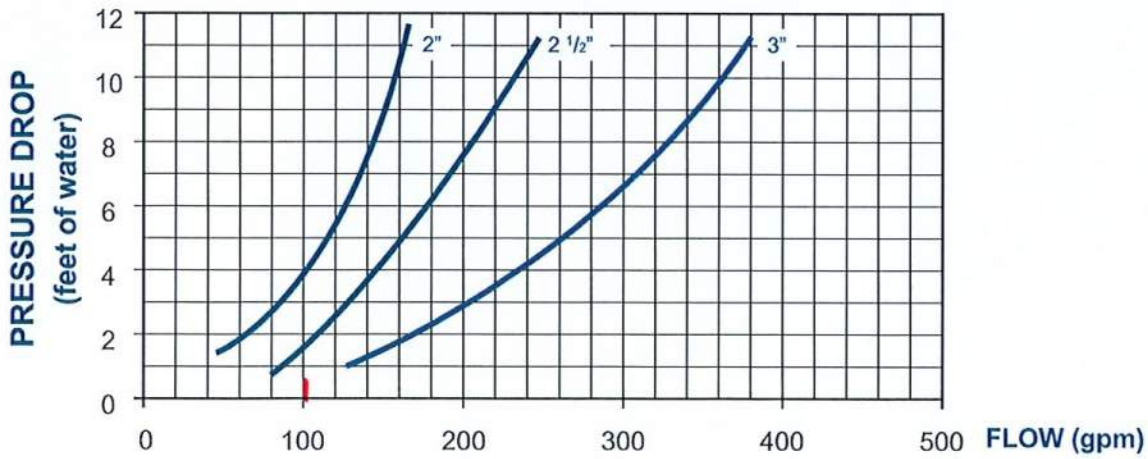
Patterson®
A Gorman-Rupp Company



# PRESSURE DROP CHART AIR SEPARATOR (with strainer)




PATTERSON PUMP COMPANY
P.O. Box 790
Toccoa, GA 30577
PH: 706-886-2101
FAX: 706-886-0023
www.pattersonpumps.com e-mail: sales@pattersonpumps.com

Technicon Design Group

**Substitution Request Form**

Technicon Design Group
202 West Main Street, Suite 301, Ottawa, Ohio 45875
sandy@technicondesigngroup.com
Px 419.523.5323 Fx 419.523.9441

Drawing No.: M501 Drawing Name: MECHANICAL DETAILS

Spec. Section: NA Spec Name: NA

Article/Paragraph: NA Specified Item: Hydraulic Separator / Buffer Tank

Proposed Substitution: Niles Steel Tank

Manfacturer: Niles Steel Tank Model: SEP-30-075

Submit with this form substantiating data to prove equal quality and performance to the basis of design or approved equals. Clearly mark manufacturer's literature to indicate equality in performance.

Does the Substitution affect dimensions shown on Drawings? Yes___ No_X_ If yes, clearly indicate changes.

Will changes be required to the Contract Documents for the proper installation of the proposed product substitution. Yes___ No_X_. If Yes, attach data that indicates description of changes.

What affect does substitution have on other Contracts or other trades?

none

What affect does substitution have on the delivery and construction schedule?

none.

Differences between proposed substitution and specified item.

none

Manufacturer's warranties of proposed and specified items are:

Same: X Different: _____ Explain on an Attachment (Provide Warranty Information)

Company Submitting Request: Smith Boughan Inc

Address: 777 S. Copus Rd, Lima Ohio 45805

Phone: 419-991-8040 Email: mnsudhoff@sbmech.com

Signature/Title: _____ Date: _____

For use by Technicon Design Group

✓ Accepted _____ Accepted as Noted

_____ Not Accepted _____ Received too Late

Signature/Title: [signature] Date: 9/30/2024

# MODEL # SEP-30-075

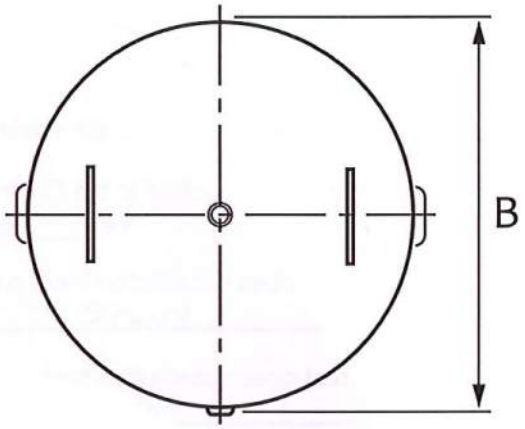
NST
NILES
STEEL
TANK
SINCE 1898

## Design Notes

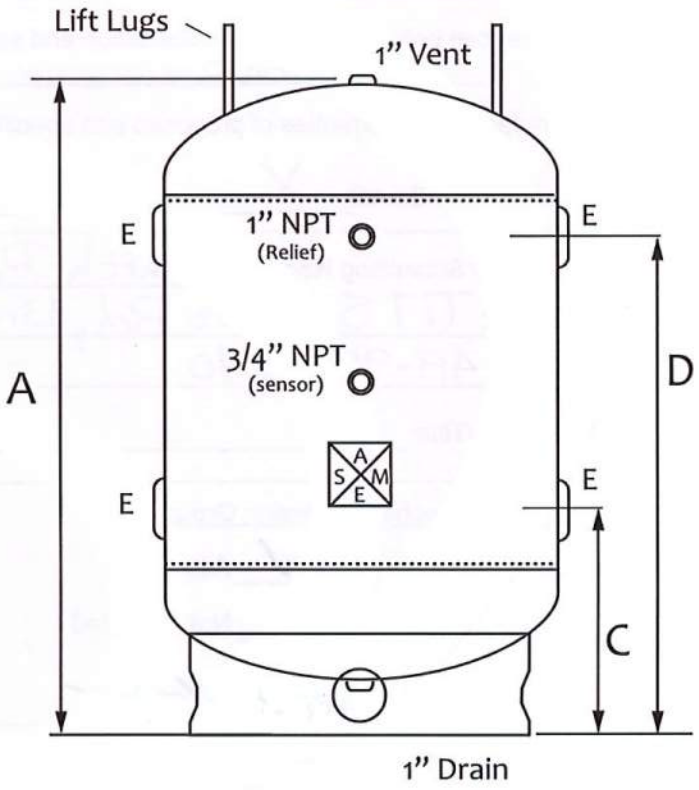
Code..... ASME Code Sec VIII Div 1
Design Pressure..... 125 psi
Test Pressure.....163 psi
Interior.....NA
Exterior.....Primed Painted
Supports.....4" Skirt
Capacity.....210 Gal.
Weight.....500 Lbs.

## Material Specifications

Heads..... Carbon Steel
Shell..... Carbon Steel
Couplings..... Carbon Steel
Flanges..... N/A
Pipe..... N/A
Manway..... N/A




| Mark | Dimension | Remark |
|---|---|---|
| A | 79" | Overall height |
| B | 30" | Diameter |
| C | 16.75" | Inlet/ Outlet |
| D | 67.25 | Inlet/ Outlet |
| E | 3" NPT | Circulation |
| G | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |




| NOTES | |
|---|---|
| PROJECT | |
| CUSTOMER | |
| SCALE | Not to Scale |
| DATE | |
| CUSTOMER P.O. # | |
| DRAWING Rev NO. | |

The Niles Steel Tank Hydraulic Separators are designed for 125 psi (150 optional). Standard sizes range from 120 gallon up to 860 actual gallons.
Custom sizes and additional fittings are available.


NILES STEEL TANK • 1701 TERMINAL ROAD • PO BOX 728 • NILES • MI • 49120
PHONE • 269-683-1910 FAX • 269-683-1953 WWW.nilesst.com

# HYDRAULIC SEPARATORS
# BUFFER TANK

NST
NILES
STEEL
TANK
SINCE 1898

## BARE
## R-16 TOPCOAT
## JACKETED & INSULATED
## 120 to 860 gallons

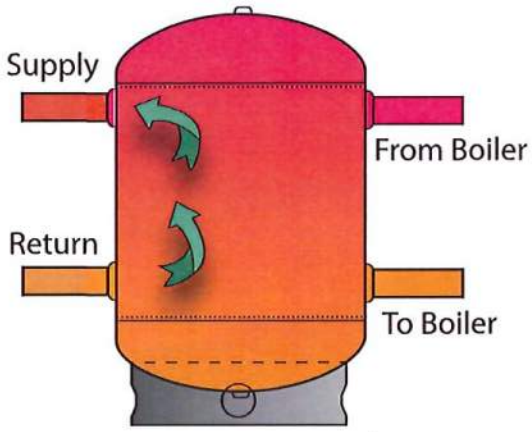
*Larger sizes available*

**Standard:**
ASME Sec. VIII, Div 1
125 psi
Bare tank
5 year warranty
4" base ring

NILES STEEL TANK • 1701 TERMINAL ROAD • PO BOX 728 • NILES • MI • 49120
PHONE • 269-683-1910 FAX • 269-683-1953 WWW.nilesst.com

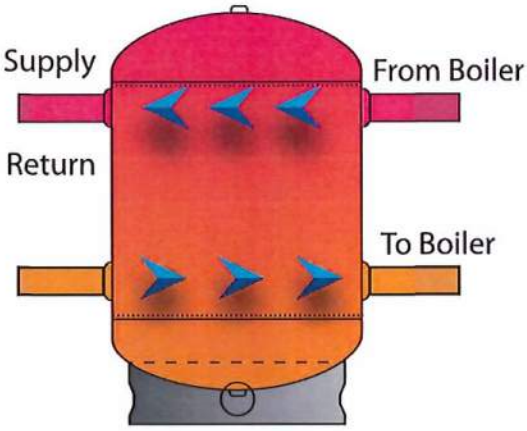
A SUBSIDIARY OF BRADFORD WHITE CORPORATION

The Niles Steel Tank Hydraulic Separator is designed to help reduce short cycling of a boiler system and separate building and boiler circulation. The NST Hydraulic Separator uses stored boiler water to buffer the system load when the boiler is producing more BTU's than what the building can handle. When the building has a minimal demand, it pulls from the tank allowing the boiler to "rest". The Hydraulic Separator is piped so the building flow is separate from the boiler flow, allowing independent circulation.

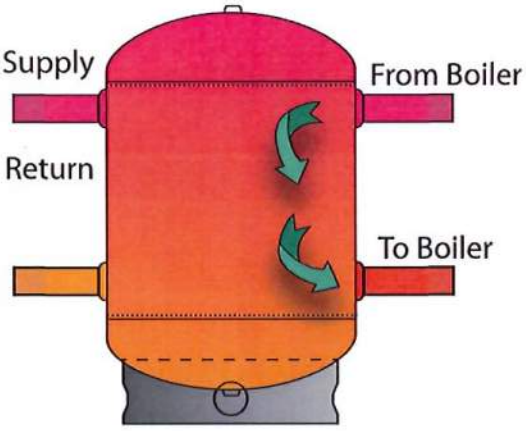



(Fig. A )
Circulation from building

The Hydraulic Separator acts as a decoupler allowing independent circulation in both building and boiler loops. When the building's hydronic system has a demand for heat, the buildings circulation pumps pull from the hydraulic separator (fig A.) until there is enough temperature drop in the tank to activate the boiler. When this occurs both boiler and buildings circulation pumps are activated allowing direct flow through the tank (Fig. B ). As the building demand is satisfied and it's circulation pumps are stopped, there is still a demand in the tank to return it to it's operating temperature (Fig. C ) . The boiler will continue to circulate and fire until the tanks temperature is satisfied.




(Fig. B )
Flow through circulation




(Fig. C )
Circulation from boiler

The Niles Steel Tank Hydraulic Separators are designed for 125 psi (150 optional).
Standard sizes range from 120 gallon up to 860 actual gallons.
Custom sizes and additional fittings are available.

NILES STEEL TANK • 1701 TERMINAL ROAD • PO BOX 728 • NILES • MI • 49120
PHONE • 269-683-1910 FAX • 269-683-1953 www.nilesst.com

Technicon Design Group

**Substitution Request Form**

Technicon Design Group
202 West Main Street, Suite 301, Ottawa, Ohio 45875
sandy@technicondesigngroup.com
Px 419.523.5323 Fx 419.523.9441

Drawing No.: M601 Drawing Name: MECHANICAL SCHEDULES

Spec. Section: M903 Spec Name: UNIT HEATER (GAS FIRED)

Article/Paragraph: 58 Specified Item: GAS FIRED UNIT HEATERS

Proposed Substitution: Beacon Morris

Manfacturer: Beacon Morris Model: BXF-250

Submit with this form substantiating data to prove equal quality and performance to the basis of design or approved equals. Clearly mark manufacturer's literature to indicate equality in performance.

Does the Substitution affect dimensions shown on Drawings? Yes___ No X If yes, clearly indicate changes.

Will changes be required to the Contract Documents for the proper installation of the proposed product substitution. Yes___ No X. If Yes, attach data that indicates description of changes.

What affect does substitution have on other Contracts or other trades?

none

What affect does substitution have on the delivery and construction schedule?

none

Differences between proposed substitution and specified item.

none

Manufacturer's warranties of proposed and specified items are:

Same: X Different: ___ Explain on an Attachment (Provide Warranty Information)

Company Submitting Request: Smith Boughan Inc.

Address: 777 S. Copus Rd, Lima Ohio 45805

Phone: 419-991-8040 Email: mnsudhoff@sbmech.com

Signature/Title: ___ Date: ___

For use by Technicon Design Group

✓ Accepted ___ Accepted as Noted

___ Not Accepted ___ Received too Late

Signature/Title: [signature] Date: 9/30/24

BTUC-14

Beacon Morris®


BH Series


BXF/BXC Series


BRT Series

# GAS-FIRED HEATING EQUIPMENT

- High Efficiency Unit Heaters
- Tubular Unit Heaters
- Duct Furnaces

MADE IN THE USA

# BEACON MORRIS "BXF" SERIES CONVERTIBLE VENTING TYPE TUBULAR PROPELLER UNIT HEATER

Intertek Intertek BXFS-1

## DESCRIPTION

The Beacon Morris "BXF" Series Convertible Venting Type Tubular Propeller Gas-Fired Unit Heater offers a highly efficient, extremely durable alternative to the traditional clam shell design. These propeller type units combine the latest tubular heat exchanger and in-shot burner technology with the quality and reliability you have come to know from Beacon Morris. Units are available in sizes 100 to 400 MBH and have been certified by ETL as providing 83% thermal (combustion) efficiency.

## CONVERTIBLE VENTING - STANDARD OR SEPARATED COMBUSTION

Notably, the Beacon Morris "BXF" unit heater is designed so it can be installed in either standard or separated combustion venting configurations without requiring modification to the unit itself. Located on the rear cover panel of each unit, combustion air inlet collars are left open in a standard combustion venting configuration. When set up for separated combustion, combustion air piping is connected to the inlet collars so that the burners, spark ignitor, and flue system are enclosed within the unit, allowing the entire combustion process to remain unaffected by the atmosphere in the space where the heater is located. Separated combustion venting configurations should be used where dusty, dirty or mildly corrosive conditions exist, or where high humidity or slightly negative pressures prevail.

## ADDITIONAL VENTING FLEXIBILITY

The Beacon Morris "BXF" unit heater is ETL certified in accordance with categories I and III venting requirements. This certification allows units to be vented both vertically and horizontally using either single wall or double wall venting materials. Available as an accessory option, Beacon Morris offers a Combustion Air Inlet Kit that allows for concentric venting of both combustion and exhaust air systems through one termination.

## TUBULAR HEAT EXCHANGER

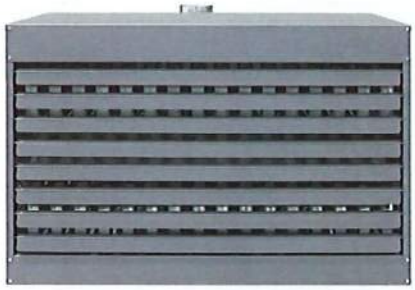
The Beacon Morris tubular heat exchanger has been designed to provide maximum and uniform heat transfer. The low pressure drop associated with this design enables heated air to be evenly distributed to the conditioned space. This curved, non-welded serpentine design experiences less thermally induced stress making it highly durable for significantly longer service life. All Beacon Morris tubular heat exchangers are constructed of heavy duty 20-gauge aluminized steel. Optional 409 stainless steel heat exchangers are also available.

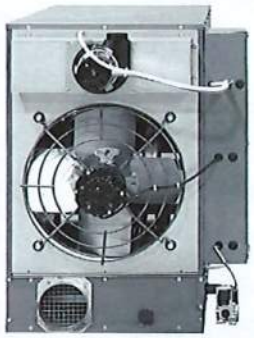
## DIRECT SPARK IGNITION SYSTEM & CONTROL ACCESSIBILITY

Beacon Morris "BXF" units utilize a direct spark pilotless ignition of the burner, providing fast heat delivery. This highly reliable and efficient ignition system incorporates an integrated electronic control board to regulate the system sequence of operation, including an externally mounted LED indicator for simple troubleshooting. Designed with the service person in mind, ignition and fan controls are located in one centrally located control panel.

## CAUTIONS

Combustion air and vent systems must be installed in accordance with current National Fuel Gas Code or Installation Code, Installation Code for Natural Gas Burning Appliances and Equipment (Canada) and any local and state codes. Units should not be installed where negative pressures are significant, where vapor containing chlorine or fluorine may be present or in any areas classified as "hazardous."





## STANDARD FEATURES

- Designed for either standard or separated combustion
- 20-gauge aluminized steel tubular heat exchanger
- 83% thermal efficiency
- ODP propeller motor (with overload protection)
- Power venter
- Combustion air pressure switch
- 20-gauge steel cabinetry with baked enamel finish
- Direct spark ignition system
- 115/24 volt control transformer
- 115/1/60 supply voltage
- Redundant single stage gas valve
- Rear access to in-shot burners
- Individually adjustable and removable horizontal louvers
- Complete fan guard
- Main control panel
- 10 year heat exchanger, flue collector and burner warranty

## OPTIONAL FEATURES

- Stainless steel heat exchanger, burners, and/or flue collector
- Two stage and various electronic modulation gas controls
- Discharge nozzles (30°, 60° & 90°)
- Combustion air inlet kits (allows concentric venting with horizontal or vertical termination)
- TE propeller motor
- Supply voltages: 208 & 230/1/60 and 208, 230, 460, 575/3/60

Beacon Morris
260 North Elm Street • Westfield, MA 01085
Tel: (413) 562-5423 Fax: (413) 572-3764
www.beacon-morris.com

08/19

**PROJECT:** _____

**UNIT TAG:** _____

# "BXF" CONVERTIBLE VENTING TUBULAR PROPELLER PERFORMANCE AND DIMENSIONAL DATA

UH-1,2,3,4

Intertek Intertek

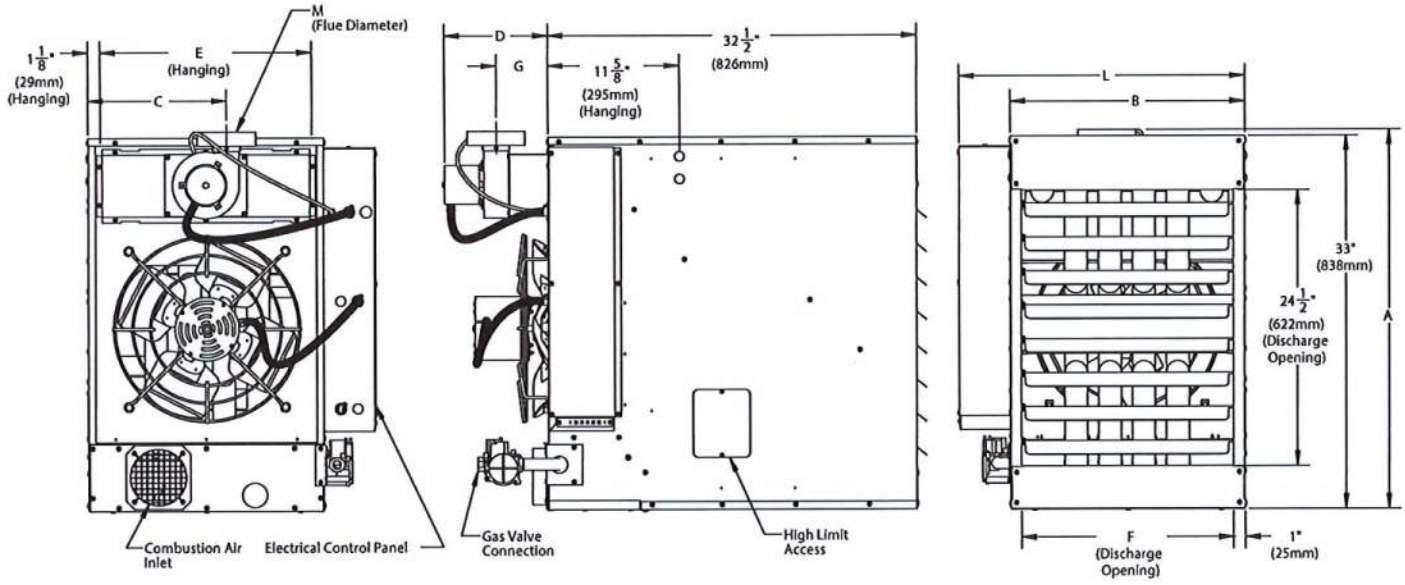
| Unit Capacity (MBH) | 100 | 125 | 150 | 175 | 200 | 250 | 300 | 350 | 400 |
|---|---|---|---|---|---|---|---|---|---|
| **PERFORMANCE DATA†** | | | | | | | | | |
| Input - BTU/Hr. | 100,000 | 125,000 | 150,000 | 175,000 | 200,000 | 250,000 | 300,000 | 350,000 | 400,000 |
| (kW) | (29.3) | (36.6) | (43.9) | (51.2) | (58.6) | (73.2) | (87.8) | (102.5) | (117.1) |
| Output - BTU/Hr. | 83,000 | 103,750 | 124,500 | 145,250 | 166,000 | 207,500 | 249,000 | 290,500 | 332,000 |
| (kW) | (24.3) | (30.4) | (36.4) | (42.5) | (48.6) | (60.7) | (72.9) | (85.1) | (97.2) |
| Thermal Efficiency - % | 83 | 83 | 83 | 83 | 83 | 83 | 83 | 83 | 83 |
| Free Air Delivery - CFM | 1,600 | 2,200 | 2,400 | 2,850 | 3,200 | 3,450 | 5,000 | 5,600 | 5,800 |
| (cu. m/s) | (0.756) | (1.039) | (1.133) | (1.346) | (1.511) | (1.629) | (2.361) | (2.644) | (2.738) |
| Air Temperature Rise -Deg. F | 47 | 42 | 47 | 46 | 47 | 54 | 45 | 47 | 51 |
| (Deg. C) | (26) | (23) | (26) | (26) | (26) | (30) | (24) | (26) | (28) |
| Full Load Amps at 120V | 6.4 | 6.9 | 6.9 | 8.0 | 8.0 | 8.0 | 11.6 | 13.8 | 13.8 |
| Min. Circuit Amps at 120V | 7.5 | 8.1 | 8.1 | 9.5 | 9.5 | 9.5 | 12.8 | 15.3 | 15.3 |
| **MOTOR DATA:** Motor HP | 1/10 | 1/4 | 1/4 | 1/3 | 1/3 | 1/3 | 1/4 (2) | 1/3 (2) | 1/3 (2) |
| Motor kW | (0.08) | (0.19) | (0.19) | (0.25) | (0.25) | (0.25) | (0.19) | (0.25) | (0.25) |
| Motor Type (ODP) | SP | PSC | PSC | PSC | PSC | PSC | PSC | PSC | PSC |
| RPM | 1,050 | 1,050 | 1,050 | 1,050 | 1,050 | 1,050 | 1,050 | 1,050 | 1,050 |
| Amps @ 115V | 4.2 | 4.7 | 4.7 | 5.8 | 5.8 | 5.8 | 9.4 | 11.6 | 11.6 |
| **DIMENSIONAL DATA - Inches (mm)** | | | | | | | | | |
| "A" Overall Height to Top of Flue | 33-3/4 | 33-3/4 | 33-3/4 | 33-3/4 | 33-3/4 | 33-3/4 | 34 | 34 | 34 |
| | (857) | (857) | (857) | (857) | (857) | (857) | (864) | (864) | (864) |
| "B" Jacket Width of Unit | 20-3/4 | 20-3/4 | 20-3/4 | 32-3/4 | 32-3/4 | 32-3/4 | 50-3/4 | 50-3/4 | 50-3/4 |
| | (527) | (527) | (527) | (831) | (831) | (831) | (1289) | (1289) | (1289) |
| "C" Width to CL Flue | 13-3/8 | 13-3/8 | 13-3/8 | 19-3/8 | 19-3/8 | 19-3/8 | 28-3/8 | 28-3/8 | 28-3/8 |
| | (340) | (340) | (340) | (492) | (492) | (492) | (721) | (721) | (721) |
| "D" Depth to Rear of Housing | 11 | 11 | 11 | 11 | 11 | 11 | 12-1/4 | 12-1/4 | 12-1/4 |
| | (279) | (279) | (279) | (279) | (279) | (279) | (311) | (311) | (311) |
| "E" Hanging Distance Width | 18-5/8 | 18-5/8 | 18-5/8 | 30-5/8 | 30-5/8 | 30-5/8 | 48-5/8 | 48-5/8 | 48-5/8 |
| | (473) | (473) | (473) | (778) | (778) | (778) | (1235) | (1235) | (1235) |
| "F" Discharge Opening Width | 18-3/4 | 18-3/4 | 18-3/4 | 30-3/4 | 30-3/4 | 30-3/4 | 48-3/4 | 48-3/4 | 48-3/4 |
| | (476) | (476) | (476) | (781) | (781) | (781) | (1238) | (1238) | (1238) |
| "G" Depth to CL Flue | 4-3/4 | 4-3/4 | 4-3/4 | 4-3/4 | 4-3/4 | 4-3/4 | 5-1/8 | 5-1/8 | 5-1/8 |
| | (121) | (121) | (121) | (121) | (121) | (121) | (130) | (130) | (130) |
| "L" Overall Unit Width | 25-1/4 | 25-1/4 | 25-1/4 | 37-1/4 | 37-1/4 | 37-1/4 | 55-1/4 | 55-1/4 | 55-1/4 |
| | (641) | (641) | (641) | (946) | (946) | (946) | (1403) | (1403) | (1403) |
| Combustion Air Inlet Dia. (Qty) - in | 5 | 5 | 5 | 5 | 5 | 5 | 5 (2) | 5 (2) | 5 (2) |
| (mm) | (127) | (127) | (127) | (127) | (127) | (127) | (127) | (127) | (127) |
| "M" Flue Size Diameter* - in | 5 | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 |
| (mm) | (127) | (127) | (127) | (127) | (127) | (127) | (152) | (152) | (152) |
| Gas Inlet, Natural Gas - in | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 3/4 | 3/4 | 3/4 | 3/4 |
| Gas Inlet, LP Gas - in | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 3/4 | 3/4 | 3/4 | 3/4 |
| Approximate Unit Weight - lb | 135 | 147 | 157 | 194 | 204 | 214 | 311 | 325 | 339 |
| (kg) | (61) | (67) | (71) | (88) | (93) | (97) | (141) | (147) | (154) |
| Approximate Ship Weight - lb | 175 | 187 | 197 | 244 | 254 | 264 | 371 | 385 | 399 |
| (kg) | (79) | (85) | (89) | (111) | (115) | (120) | (168) | (175) | (181) |

† Ratings shown are for unit installations at elevations between 0 and 2,000 ft (0 to 610m). For unit installations in U.S.A. above 2,000 ft. (610m), the unit input must be field derated 4% for each 1,000 ft. (305m) above sea level; refer to local codes, or in absence of local codes, refer to the latest edition of the National Fuel Gas Code, ANSI Standard Z223.1 (N.F.P.A. No. 54).

For installations in Canada, any reference to deration at altitudes in excess of 2,000 ft. (610m) are to be ignored. At altitudes of 2,000 ft. to 4,500 ft. (610 to 1372m), the unit must be field derated and be so marked in accordance with the ETL certification. See unit installation manual for field deration information.

* Flue collar is factory supplied with unit; to be field installed per included instructions.

** LEGEND: SP = SHADED POLE PSC = PERMANENT SPLIT CAPACITOR ODP = OPEN DRIP PROOF




Rear View Side View Front View

CAT-10364_A