INVITATION TO BID (ITB)

Sealed bids for the City of Key West **SWITCHGEAR ENCLOSURES & FUEL STATION**, addressed to the City of Key West, will be received at the Office of the City Clerk, City of Key West, 3126 Flagler Ave., Key West Florida, 33040 until **3:00 p.m.** local time, **March 13, 2013** and then will be publicly opened and read. Any bids received after the time and date specified, as determined by the precise time the package is stamped "Received by the City Clerk," will not be considered.

Please submit (3) originals and three (3) USB Drives with one single PDF file of the entire bid package on each USB Drive. Bid package is to be enclosed in a sealed envelope, clearly marked on the outside "**ITB 13-011: SWITCHGEAR ENCLOSURES & FUEL STATION**" addressed and delivered to the City Clerk at the address noted above.

The project proposes to construct concrete enclosures to house currently exposed electrical switchgear and transformer equipment on US Navy property at Truman Annex.

Drawings and Specifications may be obtained from Demand Star by Onvia. Please contact Demand Star at www.demandstar.com or call 1-800-711-1712.

A Mandatory Site Visit will be held at **10:00 a.m.** on **February 27, 2013** at: Truman Annex, Port Operations Security Entrance southwest of the NOAA Eco Discovery Facility. See Location Map in Part 3.

EACH BID MUST BE SUBMITTED ON THE PRESCRIBED FORM AND ACCOMPANIED BY BID SECURITY AS PRESCRIBED IN THE INSTRUCTIONS TO BIDDERS, PAYABLE TO THE CITY OF KEY WEST, FLORIDA, IN AN AMOUNT NOT LESS THAN FIVE (5) PERCENT OF THE AMOUNT BID.

THE BIDDER MUST BE A LICENSED CONTRACTOR BY THE STATE OF FLORIDA AND SUBMIT PROOF OF SUCH WITH THE BID.

The successful Bidder will be required to furnish the necessary additional bond(s) for the faithful performance of the Contract, as prescribed in the Bidding Documents.

All bid bonds, contract bonds, insurance contracts, and certificates of insurance shall be either executed by or countersigned by a licensed resident agent of the Surety or Insurance Company having his place of business in the State of Florida, and in all ways complying with the insurance laws of the State of Florida. Further, the said Surety or Insurance Company shall be duly licensed and qualified to do business in the State of Florida.

Before a Contract will be awarded for the work contemplated herein, the CITY will conduct such investigation as is necessary to determine the performance record and ability of the apparent low Bidder to perform the size and type of work, compliant with US Navy (NAVFAC) standards as specified under this Contract. Upon request, the Bidder shall

submit such information as deemed necessary by the CITY to evaluate the Bidder's qualifications. Such qualifications shall include but not be limited to the specific experience and credentials of the proposed Quality Control Program Manager (QCM), the proposed Site safety and health Officer (SSHO), and the proposed independent Construction Administration (CA) firm, as described elsewhere in this Invitation to Bid.

For information concerning the proposed work, or for appointment to visit the site of the proposed work, contact the designated Engineer by the General Services and Utilities Department of the City of Key West:

Terrence Justice
City of Key West – Engineering
3140 Flagler Ave.
Key West, FL 33040
tj028x@keywestcity.com

As stated above at the time of the bid submittal the Bidder must provide satisfactory documentation of State Licenses. The successful Bidder must also be able to satisfy the City Attorney as to such insurance coverage and legal requirements as may be demanded by the Bid in question.

The City may reject bids for any and/or all of the following reasons: (1) for budgetary reasons, (2) if the bidder misstates or conceals a material fact in its bid, (3) if the bid does not strictly conform to the law or is non-responsive to the bid requirements, (4) if the bid is conditional, or (5) if a change of circumstances occurs making the purpose of the bid unnecessary to the City. The City may also waive any minor formalities or irregularities in any bid, (6) if such waiver is in the best interest of the City, or (7) if, in the opinion of the City, any or all of the submitted and/or verified qualifications fail to meet the standards set forth in these ITB documents, taken as a whole.

Dated this __ day of _____ 2013.

CITY OF KEY WEST

By_____
Bob Vitas, City Manager

* * * * * *

INSTRUCTIONS TO BIDDERS

1. CONTRACT DOCUMENTS

A. FORMAT

The Contract Documents are divided into parts, divisions, and sections for convenient organization and reference. Generally, there has been no attempt to divide the Specification sections into work performed by the various building trades, work by separate subcontractors, or work required for separate facilities in the Project.

B. DOCUMENT INTERPRETATION

The separate sections contained within these Contract Documents are intended to be mutually cooperative and to provide all details reasonably required for the execution of the proposed work.

Should there be any doubt as to the meaning or intent of said Contract Documents, the Bidder should request of the Engineer, in writing (at least 6 working days prior to bid opening) an interpretation thereof. Any interpretation or change in said Contract Documents will be made only in writing, in the form of Addenda to the Documents which will be furnished to all registered holders of Contract Documents. Bidders shall submit with their Bid, or indicate receipt of, all Addenda. The Owner will not be responsible for any other explanation or interpretations of said Documents.

C. DRAWINGS

Details of construction are bound separately.

2. GENERAL DESCRIPTION OF THE PROJECT

A general description of the work to be done is contained in the Invitation to Bid. The scope is specified in applicable parts of these Contract Documents.

3. QUALIFICATION OF CONTRACTORS

The prospective Bidders must meet the statutorily prescribed requirements before award of Contract by the Owner.

Bidders must hold or obtain all licenses or certificates required by federal, state, or local statutes, or regulations in order to bid and perform the work specified herein.

4. BIDDER'S UNDERSTANDING

Each Bidder must inform himself of the conditions relating to the execution of the work, and it is assumed that he will inspect the site and make himself thoroughly familiar with all the Contract Documents. Failure to do so will not relieve the successful Bidder of his obligation to enter into a Contract and complete the contemplated work in strict accordance with the Contract Documents. It shall be the Bidder's obligation to verify for himself and to his complete satisfaction all information concerning site and subsurface conditions. Reference geotechnical report included in bid documents in Part 2, 00 73 00 (Attachment F).

The Owner will make available to prospective Bidders upon request and at the office of the Engineer, prior to bid opening, any information that he may have as to subsurface conditions and surface topography at the worksite, including such existing geotechnical reports as are available.

Information derived from inspection of topographic maps, geotechnical reports, or from Drawings showing location of utilities and structures will not in any way relieve the Contractor from any risk, or from properly examining the Site and making such additional investigations as he may elect, or from properly fulfilling all the terms of the Contract Documents.

Each Bidder shall inform himself of, and the Bidder awarded a Contract shall comply with, federal, state, and local laws, statutes, and ordinances relative to the execution of the work. This requirement includes, but is not limited to, applicable regulations concerning minimum wage rates, nondiscrimination in the employment of labor, protection of public and employee safety and health, environmental protection, the protection of natural resources, fire protection, burning and nonburning requirements, permits, fees, and similar subjects.

5. TYPE OF PROPOSAL

A. LUMP SUM

Bidders shall submit a Bid on lump sum basis as set forth in the Bid Form.

The Lump Sum Bid price shall include such amounts as the Bidder deems proper for overhead and profit on account of cash allowances, if any, named in the Contract Documents as provided in paragraph 11.02 of the General Conditions.

6. PREPARATION OF PROPOSALS

A. GENERAL

All blank spaces in the Bid form must be filled in for all schedules and associated parts, as required, preferably in BLACK ink. All price information shall be clearly shown in figures where required. No changes shall be made in the phraseology of the forms. **In case of discrepancy between unit prices and extended totals, unit prices shall prevail.**

Any Bid shall be deemed informal which contains omissions, erasures, alterations, or additions of any kind, or prices uncalled for, or in which any of the prices are obviously unbalanced, or which in any manner shall fail to conform to the conditions of the published Invitation to Bid.

Only one Bid from any individual, firm, partnership, or corporation, under the same or different names, will be considered. Should it appear to the Owner that any Bidder is interested in more than one Bid for work contemplated, all Bids in which such Bidder is interested will be rejected.

B. DESCRIPTION OF SUPPLIERS

The manufacturer name, trade name, brand name, or catalog number used in the Specifications is for the purpose of describing and establishing equipment that has been presented for this Project. The basis of design for this fencing project is the use of the Ameristar® Impasse™ Gauntlet™ Fence System. The City will consider substitutes for this project so long as the supplier can demonstrate their product is equal or exceeds the referenced Ameristar® product line.

The Bidder shall submit catalog cuts and applicable warranties for all materials and products proposed on this Project.

C. SIGNATURE

The Bidder shall sign his Bid in the blank space provided therefore. If Bidder is a corporation, the legal name of the corporation shall be set forth above, together with the signature of the officer or officers authorized to sign Contracts on behalf of the corporation. If Bidder is a partnership, the true name of the firm shall be set forth above, together with the signature of the partner or partners authorized to sign Contracts in behalf of the partnership. If signature is by an agent, other than an officer of a corporation or a member of a partnership, a notarized power-of-attorney must be on file with the Owner prior to opening of Bids or submitted with the Bid, otherwise the Bid will be regarded as not properly authorized.

D. SPECIAL BIDDING REQUIREMENTS

The Bidder's attention is brought to the hiring practices and licenses and permits of the City of Key West. These are defined in the addition to Article 39, Ordinances, Permits and Licenses, as set forth in the Supplementary Conditions.

The Bidder shall submit with his Bid experience records showing his experience, SSHO experience, CQM experience, and CA Firm experience and expertise in construction similar to this project. Contractor experience record shall provide at least five current or recent projects of similar work, preferably within Florida or the southeastern United States. For each project the following information shall be provided:

1. Description and location of work.
2. Contract amount.
3. Dates work was performed.
4. Owner.
5. Name of Owner's contact person and phone number.
6. Engineer.
7. Name of Engineer's contact person and phone number.

E. ATTACHMENTS

Bidder shall complete and submit the following forms with this bid:

1. Anti Kickback Affidavit.
2. Public Entity Crimes.
3. Key West Indemnification Form.
4. Disclosure of Lobbying Activities.
5. Non-Collusion Declaration and Compliance with 49 CFR §29.
6. Suspension and Debarment Certification.

F. PUBLIC ENTITY CRIMES

A person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a bid on a contract to provide any goods or services to a public entity, may not submit a bid on a contract with a public entity for the construction or repair of a public building or public work, may not submit bids on leases of real property to a public entity, may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity and may not transact business with any public entity in excess of the threshold amount provided in Section 287.017, for CATEGORY TWO for a period of 36 months from the date of being placed on the convicted vendor list."

G. ANTI-KICKBACK AFFIDAVIT

The Bidder shall submit a signed and notarized Anti-Kickback Affidavit with Bid on the form provided herein.

H. SECURITY/SITE ACCESS

The Bidders attention is directed to the requirement to obtain access to the site during construction. Since the site is located on a Navy Facility, access is controlled. The successful Bidder is responsible in obtaining access for personnel, subcontractors, and deliveries. All costs associated with this requirement are to be included in the Bid.

7. STATE AND LOCAL SALES AND USE TAXES

Unless the Supplementary Conditions contains a statement that the Owner is exempt from state sales tax on materials incorporated into the work due to the qualification of the work under this Contract, all state and local sales and use taxes, as required by the laws and statutes of the state and its political subdivisions, shall be paid by the Contractor. Prices quoted in the Bid shall include all nonexempt sales and use taxes, unless provision is made in the Bid form to separately itemize the tax.

8. LOCAL PREFERENCE

Under a competitive bid solicitation, when a responsive, responsible non-local business submits the lowest price bid, and the bid submitted by one or more responsive, responsible local businesses within five percent of the price submitted by the non-local business, then the local business with the apparent lowest bid offer may have the opportunity to submit an offer to match the price(s) offered by the lowest, qualified and responsive non-local bidder within three working days of the notice of the intent to award. If the lowest local bidder submits a bid that fully matches the lowest bid from the lowest bid from the lowest non-local bidder tendered previously, then the award shall be made to such local bidder. If the lowest local bidder declines or is unable to match the lowest non-local bid price(s), then the award shall be made to the non-local business.

9. SUBMISSION OF PROPOSALS

All Bids must be submitted not later than the time prescribed, at the place, and in the manner set forth in the Invitation to Bid. Bids must be made on the Bid forms provided herewith. The Bidder shall submit three (3) originals and **THREE (3) ELECTRONIC COPIES ON THREE (3) USB DRIVES WITH A SINGLE PDF FILE OF THE FULL PROPOSAL** and all required bonds, attachments, and forms.

Each Bid must be submitted in two sealed envelopes one within the other, so marked as to indicate the Bidder's name and its contents without being opened, and addressed

in conformance with the instructions in the Invitation to Bid. Each bid must be STAMPED AS RECEIVED on or before 3:00 PM March 13, 2013 or will not be considered.

10. MODIFICATION OR WITHDRAWAL OF PROPOSALS

Prior to the time and date designated for receipt of Bids, any Bid submitted may be withdrawn by notice to the party receiving Bids at the place designated for receipt of Bids. Such notice shall be in writing over the signature of the Bidder or by telegram. If by telegram, written confirmation over the signature of the Bidder shall be mailed and postmarked on or before the date and time set for receipt of Bids. No Bid may be withdrawn after the time scheduled for opening of Bids, unless the time specified in paragraph Award of Contract of these Instructions to Bidders shall have elapsed.

11. BID SECURITY

Bids must be accompanied by cash, a certified check, or cashier's check drawn on a bank in good standing, or a bid bond issued by a Surety authorized to issue such bonds in the state where the work is located, in the amount of 5 percent of the total amount of the Bid submitted. This bid security shall be given as a guarantee that the Bidder will not withdraw his Bid for a period of 60 days after bid opening, and that if awarded the Contract, the successful Bidder will execute the attached Contract and furnish properly executed Performance and Payment Bonds, each in the full amount of the Contract price within the time specified.

The Attorney-in-Fact who executes this bond in behalf of the Surety must attach a notarized copy of his power-of-attorney as evidence of his authority to bind the Surety on the date of execution of the bond. Where State Statute requires, certification by a resident agent shall also be provided.

If the Bidder elects to furnish a Bid Bond, he shall use the Bid Bond form bound herewith, or one conforming substantially thereto in form and content.

12. RETURN OF BID SECURITY

Within 15 days after the award of the Contract, the Owner will return the bid securities to all Bidders whose Bids are not to be further considered in awarding the Contract. Retained bid securities will be held until the Contract has been finally executed, after which all bid securities, other than Bidders' bonds and any guarantees which have been forfeited, will be returned to the respective Bidders whose Bids they accompanied.

13. AWARD OF CONTRACT

The award will be made under one Contract by the Owner on the basis of the Base Bid from the lowest, responsive, qualified, responsible Bidder. The Owner may

award entire Bid or selected line items based on the City's best interest and available funds at time of Award.

Within 60 calendar days after the opening of Bids, the Owner will accept one of the Bids or will act in accordance with the following paragraphs. The acceptance of the Bid will be by written notice of award, mailed to the office designated in the Bid, or delivered to the Bidder's representative. In the event of failure of the lowest responsive, responsible Bidder to sign the Contract and provide an acceptable Performance Bond, Payment Bond, insurance certificate(s) and evidence of holding required licenses and certificates, the Owner may award the Contract to the next lowest responsive, responsible Bidder. Such award, if made, will be made within 75 days after the opening of Bids.

The Owner reserves the right to accept or reject any or all Bids, and to waive any informalities and irregularities in said Bids.

14. EXECUTION OF CONTRACT

The successful Bidder shall, within 14 calendar days after receiving Notice of Award, sign and deliver to the Owner a Contract in the form hereto attached, together with the insurance certificate examples of the bonds as required in the Contract Documents and evidence of holding required licenses and certificates. Within 10 working days after receiving the signed Contract from the successful Bidder, the Owner's authorized agent will sign the Contract. Signature by both parties constitutes execution of the Contract.

15. CONTRACT BONDS

A. PERFORMANCE AND PAYMENT BONDS

The successful Bidder shall file with the Owner, at the time of delivery of the signed Contract, a Performance Bond and Payment Bond on the form bound herewith, each in the full amount of the Contract price in accordance with the requirements of Florida Statutes Section 255.05 or 713.23, as applicable, as security for the faithful performance of the Contract and the payment of all persons supplying labor and materials for the construction of the work, and to cover all guarantees against defective workmanship or materials, or both, during the warranty period following the date of final acceptance of the work by the Owner. The Surety furnishing this bond shall have a sound financial standing and a record of service satisfactory to the Owner, shall be authorized to do business in the State of Florida, and shall be listed on the current U.S. Department of Treasury Circular Number 570, or amendments thereto in the Federal Register, of acceptable Sureties for federal projects.

B. POWER-OF-ATTORNEY

The Attorney-in-Fact (Resident Agent in state which work is being performed) who executes this Performance and Payment Bond in behalf of the Surety must attach a notarized copy of his power-of-attorney as evidence of his authority to bind the Surety on the date of execution of the bond.

All Contracts, Performance and Payment Bonds, and respective powers-of-attorney will have the same date.

16. FAILURE TO EXECUTE CONTRACT AND FURNISH BOND

The Bidder who has a Contract awarded to him and who fails to promptly and properly execute the Contract or furnish the required Bonds shall forfeit the bid security that accompanied his bid, and the bid security shall be retained as liquidated damages by the Owner, and it is agreed that this said sum is a fair estimate of the amount of damages the Owner will sustain in case the Bidder fails to enter into a Contract or furnish the required Bonds. Bid security deposited in the form of cash, a certified check, or cashier's check shall be subject to the same requirement as a Bid Bond.

17. PERFORMANCE OF WORK BY CONTRACTOR

The Contractor shall perform on the site and with his own organization, labor equivalent to at least 40 percent of the total amount of the work to be performed under this Contract and materials. If, during the progress of the work hereunder, the Contractor requests a reduction of such percentage, and the Engineer determines that it would be to the client's advantage, the percentage of the labor required to be performed by the Contractor's own organization may be reduced; PROVIDED prior written approval of such reduction is obtained by the contractor from the Engineer.

Each Bidder must furnish with his Bid a list of the items that he will perform with his own forces and the estimated total cost of these items.

18. TIME OF COMPLETION

The time of completion of the work to be performed under this Contract is the essence of the Contract. Delays and extensions of time may be allowed in accordance with the provisions stated in the General Conditions. The time allowed for the completion of the work authorized is stated in the Bid.

19. Schedule Impacts that affect the bid

a. Cruise Ship operations at Outer Mole.

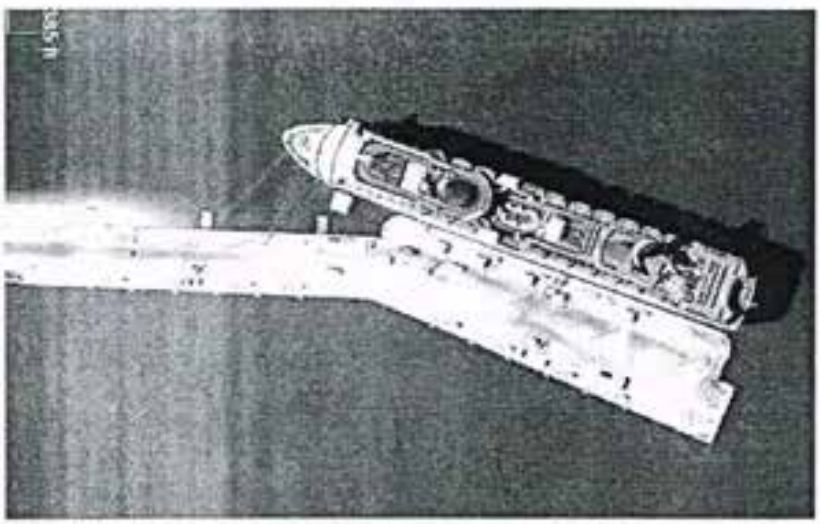
Contractor shall be required to maintain embarkation/debarkation traffic on the Outer Mole Pier at any time a cruise ship is docked and shall cause or create no impediments or delays to that traffic. The ability to continue the use the Outer Mole Pier by cruise ships is critical to the city. No impacts to the docking of cruise ships and the associated services, security, or passenger transportation will be allowed by this project. If contractor activity impacts a cruise ship docking event, the contractor will be charged the damages resulting from the lost revenue and will be taken from the funds allocated on this project. The average revenue for a docking event is $30,000.

Noise at the Mole Pier sites should not exceed 90 dBa when a cruise ship is at dock.

In developing their construction schedule and their bid, the contractor shall take into account the frequency of use of the Outer Mole Pier (OM). Cruise Ship frequency information can be obtained from

http://www.keywestcity.com/department/calendar.php

Contractor is advised that ships up to 1004 feet long and 130k gross tons required use of the outer mole. If a ship arrival time requires adjustment due to weather or mechanical problems, contractor will be given a 48 hour notice of the change.



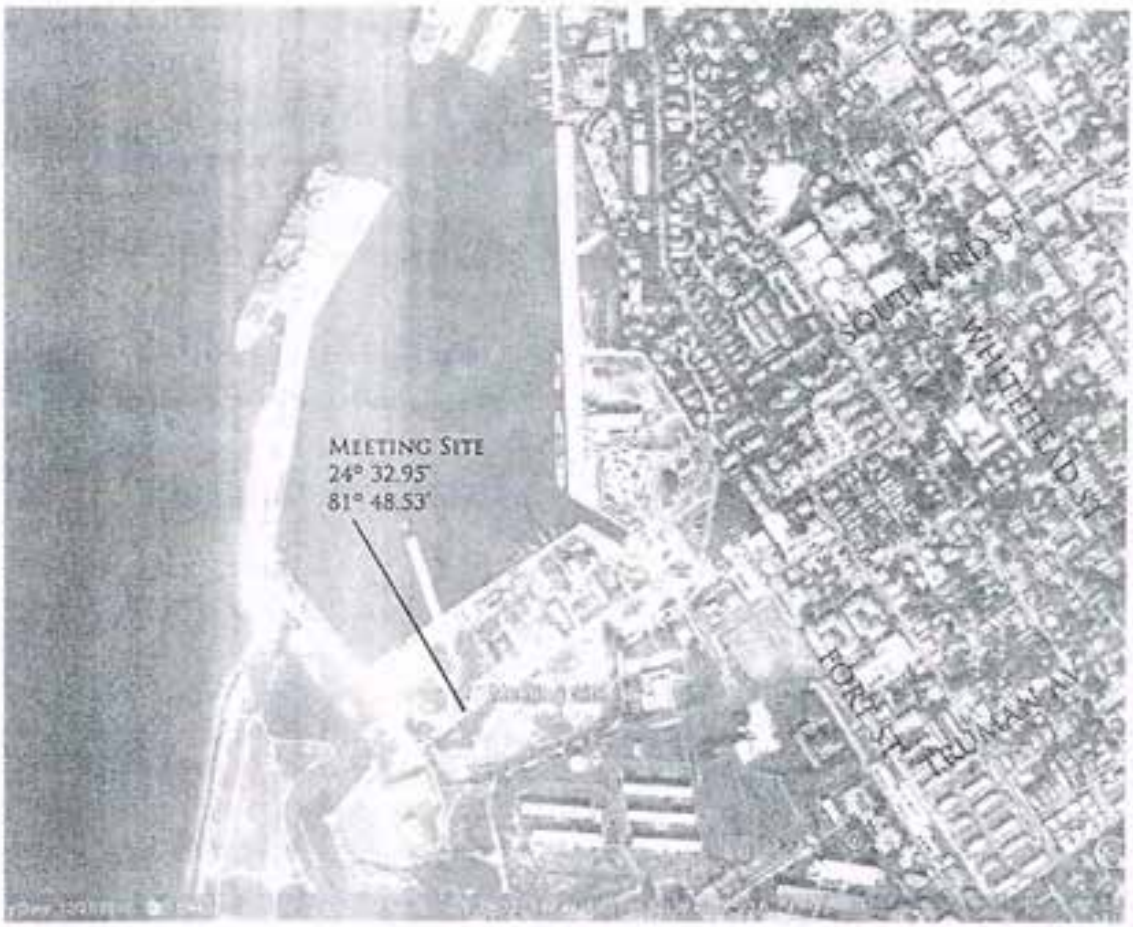
850 foot cruise ship at the Outer Mole Pier (OM)

b. OFFSHORE POWER BOAT RACES:

Early in November the Offshore Power Boat Races occur in Key West. The contractor will not be able to work at the site or access the site during the 9 days of staging and racing (Saturday November 2 through through Sunday 10, 2013). All work and staging areas shall be properly and thoroughly secured from public access.

20. MANDATORY SITE VISIT

An Mandatory Site Visit will be held at 10 AM on 27 February 2013. Contractors should arrive not later than 10:15, shall bring proper identification and be prepared to walk approximately 3,000 feet to the site and back. The meeting point for the site visit is the entrance gate to the Navy Mole Property.



21. ADDITIONAL REQUIREMENTS

Bidders are directed to Attachments D through F inclusive of the Supplementary Conditions for criteria relating to Safety Program, Quality Control Program, and independent Construction Administration requirements of this project.

22. BIDDERS' QUESTIONS

Bidders shall submit any and all questions regarding this bid in writing to.

Terrence Justice
City of Key West – Engineering
3140 Flagler Ave.
Key West, FL 33040
tjustice@keywestcity.com

All project and bid-related questions received before 5:00 pm Wednesday March 6, 2013 will be answered via issuance of an Addendum to the ITB package. Questions received after that time will not be responded to.

END OF SECTION

NOTE TO BIDDER: Use preferably BLACK ink for completing this Bid form.

BID FORM

To: The City of Key West

Address: 3140 Flagler Ave, Key West, Florida 33040

Project Title: Electrical Enclosures & Fuel Station

City of Key West Project No.: **ITB 13-011**

Bidder's contact for additional information on this Bid:

Company Name: Pedro Falcon Electrical Contractors, Inc.

Contact Name: Christian Brisson, as President

Telephone: (305) 872-2200, ext. 26

BIDDER'S DECLARATION AND UNDERSTANDING

The undersigned, hereinafter called the Bidder, declares that the only persons or parties interested in this Bid are those named herein, that this Bid is, in all respects, fair and without fraud, that it is made without collusion with any official of the Owner, and that the Bid is made without any connection or collusion with any person submitting another Bid on this Contract.

The Bidder further declares that he has carefully examined the Contract Documents for the construction of the project, that he has personally inspected the site, that he has satisfied himself as to the quantities involved, including materials and equipment, and conditions of work involved, including the fact that the description of the quantities of work and materials, as included herein, is brief and is intended only to indicate the general nature of the Work and to identify the said quantities with the detailed requirements of the Contract Documents, and that this Bid is made according to the provisions and under the terms of the Contract Documents, which Documents are hereby made a part of this Bid.

The Bidder further agrees, as evidenced by signing the Bid, that if awarded a Contract, the Florida Trench Safety Act and applicable trench safety standards will be complied with.

CONTRACT EXECUTION AND BONDS

The Bidder agrees that if this Bid is accepted, he will, within 10 days, not including Sundays and legal holidays, after Notice of Award, sign the Contract in the form annexed hereto, and will at that time, deliver to the Owner examples of the Performance Bond and Payment Bond required herein, and evidence of holding required licenses and certificates, and will, to the extent of his Bid, furnish all machinery, tools, apparatus, and other means of construction and do the Work and furnish all the materials necessary to complete all work as specified or indicated in the Contract Documents.

CERTIFICATES OF INSURANCE

Bidder agrees to furnish the Owner, before commencing the Work under this Contract, the certificates of insurance as specified in these Documents.

START OF CONSTRUCTION AND CONTRACT COMPLETION TIMES

The Bidder agrees to begin work within 10 calendar days after the date of the Notice to Proceed and to achieve Substantial Completion within 160 calendar days from the date when the Contract Times commence to run as provided in paragraph 2.03.A of the General Conditions, and Work will be completed and ready for final payment and acceptance in accordance with paragraph 14.07 of the General Conditions within 180 calendar days from the date when the Contract Times commence to run.

LIQUIDATED DAMAGES

In the event the Bidder is awarded the Contract, Owner and Bidder recognize that time is of the essence of this Agreement and that Owner will suffer financial loss if the Work is not completed within the times specified in paragraph Start of Construction and Contract Completion Times above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. Owner and Bidder also recognize the delays, expense, and difficulties involved in proving in a legal or other dispute resolution proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Bidder agree that as liquidated damages for delay (but not as a penalty) Bidder shall pay Owner **$500** per day for each day that expires after the time specified for substantial completion.

After Substantial Completion, if Bidder neglects, refuses, or fails to complete the remaining Work within the Contract Times or any Owner-granted extension thereof, Bidder shall pay Owner **$200** for each day that expires after the time specified in paragraph Start of Construction and Contract Completion Times, above for completion and readiness for final payment. Liquidated damages shall run concurrent.

Owner will recover such liquidated damages by deducting the amount owed from the final payment or any retainage held by Owner.

ADDENDA

The Bidder hereby acknowledges that he has received Addenda Nos. 1, 2, ____, ____, ____, (Bidder shall insert No. of each Addendum received) and agrees that all addenda issued are hereby made part of the Contract Documents, and the Bidder further agrees that his Bid(s) includes all impacts resulting from said addenda.

SALES AND USE TAXES

The Bidder agrees that all federal, state, and local sales and use taxes are included in the stated Bid Prices for the Work. Cash allowances DO NOT include any sales and use tax. Equipment allowance includes taxes as shown in Equipment Suppliers' Bid.

PUBLIC ENTITY CRIMES

"A person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a bid on a contract to provide any goods or services to a public entity, may not submit a bid on a contract with a public entity for the construction or repair of a public building or public work, may not submit bids on leases of real property to a public entity, may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity and may not transact business with any public entity in excess of the threshold amount provided in Section 287.017, for CATEGORY TWO for a period of 36 months from the date of being placed on the convicted vendor list."

COMBINED UNIT PRICE AND LUMP SUM WORK

The Bidder further proposes to accept as full payment for the Work proposed herein the amounts computed under the provisions of the Contract Documents. For unit price bid items, the estimate of quantities of work to be done is tabulated in the Proposal and, although stated with as much accuracy as possible, is approximate only and is assumed solely for the basis of calculation upon which the award of Contract shall be made. For lump sum bid items, it is expressly understood that the amounts are independent of the exact quantities involved. The Bidder agrees that the amounts for both unit price and lump sum work represent a true measure of labor and materials required to perform the Work, including all allowances for inspection, testing, overhead and profit for each type of work called for in these Contract Documents. The amounts shall be shown in both words and figures. In case of discrepancy, the amount shown in words shall govern.

Bid Form ITB 13-011

City of Key West Project: OM1301

Base Bid:

SW#1 through SW#3 Enclosures (inclusive)	(Lump Sum)	$1,078,102.00	(1)
Accident Prevention Plan (APP) Management	(Lump Sum)	50,100.00	(2)
Quality Control (QC) Program Management	(Lump Sum)	49,608.00	(3)
Construction Administration (CA) Program Management	(Lump Sum)	95,210.00	(4)

Total Bid: $1,273,020.00

(1)+(2)+(3)+(4)

One million two hundred seventy three thousand twenty **Dollars and** zero **Cents**

Total Bid Written in Words has precedence (Basis of Award)

All Bid Items Below are "Alternate Bid Items":

Alternate: SW#4 Enclosure (includes all site work within 100 feet of SW#4 Location)	(Lump Sum)	$406,989.00	(5)

Alternate Bid Items for SW#1 - SW#4

(Option # corresponds to Notes on Sheet A601 of Drawing Set)	Quan.	Meas.	Unit Cost	Ext.	
Alternate: Option 1. Stainless Steel Watertight Man-door 3'	12	ea.	$9,500.00	$114,000.00	(6)
Alternate: Option 2. Stainless Steel OH Coil Roll-up Door 12'0"	4	ea.	6,563.00	26,252.00	(7)
Alternate: Option 3. Aluminum Flood Panel for 3' Man-door	12	ea.	2,760.00	33,120.00	(8)
Alternate: Option 4. Aluminum Flood Panel for 12'0" Roll-up Door	4	ea.	4,985.00	19,940.00	(9)
Alternate: Option 5. Stainless Steel OH Coil Roll-up Door 10'0"	1	ea.	5,468.00	5,468.00	(10)
Alternate: Option 6. Aluminum Flood Panel for 10'0" Roll-up Door	1	ea.	4,543.00	4,543.00	(11)

Alternate Bid Items: Fueling Station

Alternate: Fueling Station: Site Work, Electrical, Fence, Concrete, Std. Tank	(Lump Sum)	$245,097.00	(12)
Alternate: Stainless Steel Option for 1000 Gal. Fuel Tank	(Lump Sum)	$ 21,274.00	(13)

SUBCONTRACTORS

The Bidder further proposes that the following subcontracting firms or businesses will be awarded subcontracts for the following portions of the Work in the event that the Bidder is awarded the Contract:

Barnes Alarm Systems, Inc.			
Name			
3201 Flagler Ave., Suite 503	Key West	FL	33040
Street	City	State	Zip
B & L Beneway, Inc.			
Name			
936 Crane Blvd.	Sugarloaf Key	FL	33042
Street	City	State	Zip
Florida Fence Corp.			
Name			
P O Box 227	Tavenier	FL	33070
Street	City	State	Zip
Bella Construction of Key West, Inc.			
Name			
111 US Highway 1, Box 110	Key West	FL	33040
Street	City	State	Zip
Bob Hilson & Co., Inc, 599 W. Mowry Drive	Homestead	FL	33030

Surety

Travelers Casualty & Surety Co. of America whose address is

One Tower Square	Hartford	CT	06813
Street	City	State	Zip

SUBCONTRACTORS

The Bidder further proposes that the following subcontracting firms or businesses will be awarded subcontracts for the following portions of the Work in the event that the Bidder is awarded the Contract:

Environmental Archaeological Solutions, LLC
Name

3720 Davie Blvd.	Ft. Lauderdale	FL	33312
Street	City	State	Zip

Envirosafe Enterprises, Inc.
Name

901 Twelfth Street	Clermont	FL	34711
Street	City	State	Zip

Epoxy Incorporated
Name

4855 Distribution Ct., Ste. 7	Orlando	FL	32822
Street	City	State	Zip

Tailored Foam of Florida, Inc.
Name

3900 St. Johns Parkway	Sanford	FL 32771	
Street	City	State	Zip

Surety

Travelers Casualty & Surety Co. of America whose address is

One Tower Square	Hartford	CT	06813
Street	City	State	Zip

Bidder

The name of the Bidder submitting this Bid is Pedro Falcon Electrical Contractors, Inc.

_____ doing business at

31160 Avenue C	Big Pine Key	FL	33043
Street	City	State	Zip

which is the address to which all communications concerned with this Bid and with the Contract shall be sent.

The names of the principal officers of the corporation submitting this Bid, or of the partnership, or of all persons interested in this Bid as principals are as follows:

Christian Brisson, as President _____

_____ _____

_____ _____

If Sole Proprietor or Partnership

IN WITNESS hereto the undersigned has set his (its) hand this ___ day of _____ 20___.

_____
Signature of Bidder

_____
Title

If Corporation

IN WITNESS WHEREOF the undersigned corporation has caused this instrument to be executed and its seal affixed by its duly authorized officers this 13 day of March, 2013

(SEAL)

Pedro Falcon Electrical Contractors, Inc.
Name of Corporation

By: _____

Title: Christian Brisson, as President

Attest: _____
Secretary, Christian Brisson

END OF SECTION

FLORIDA BID BOND

BOND NO. Bid Bond

AMOUNT: $ 5% of Amount Bid

KNOW ALL MEN BY THESE PRESENTS, that PEDRO FALCON ELECTRICAL CONTRACTORS, INC.

hereinafter called the Contractor (Principal), and Travelers Casualty and Surety Company of America

a corporation duly organized and existing under and by virtue of the laws of the State of Connecticut Florida, hereinafter called the Surety, and authorized to transact business within the State of Florida, as Surety, are held and firmly bound unto The City of Key West as Owner

(Obligee), in the sum of: Five Percent of Amount Bid

DOLLARS ($ 5% of Amount Bid), for the payment for which we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS BOND IS SUCH THAT:

WHEREAS, the Principal is herewith submitting his or its Bid Proposal for **ITB 13-011 SWITCHGEAR ENCLOSURES & FUEL STATION.**

WHEREAS, the Principal contemplates submitting or has submitted a bid to the Obligee for the furnishing of all labor, materials (except those to be specifically furnished by the Owner), equipment, machinery, tools, apparatus, means of transportation for, and the performance of the work covered in the Proposal and the detailed Drawings and Specifications, entitled:

Switchgear Enclosures & Fuel Station

WHEREAS, it was a condition precedent to the submission of said bid that a cashier's check, certified check, or bid bond in the amount of 5 percent of the base bid be submitted with said bid as a guarantee that the Bidder would, if awarded the Contract, enter into a written Contract with the Owner for the performance of said Contract, within 10 working days after written notice having been given of the award of the Contract.

NOW, THEREFORE, the conditions of this obligation are such that if the Principal within 14 consecutive calendar days after written notice of such acceptance, enters into a written Contract with the Obligee and furnishes the Performance and Payment Bonds, each in an amount equal to 100 percent of the awarded base bid, satisfactory to the Owner, then this obligation shall be void; otherwise the sum herein stated shall be due and payable to the Obligee and the Surety herein agrees to pay said sum immediately upon demand of the Obligee in good and lawful money of the United States of America, as liquidated damages for failure thereof of said Principal.

Signed and sealed this 13th day of March, 2013

Pedro Falcon Electrical Contractors, Inc.
Principal

By: _____
Christian Brisson, as President

Travelers Casualty and Surety Company of America
Surety

By: _____
Attorney-In-Fact Charles J. Nielson

END OF SECTION

TRAVELERS

POWER OF ATTORNEY

Farmington Casualty Company
Fidelity and Guaranty Insurance Company
Fidelity and Guaranty Insurance Underwriters, Inc.
St. Paul Fire and Marine Insurance Company
St. Paul Guardian Insurance Company

St. Paul Mercury Insurance Company
Travelers Casualty and Surety Company
Travelers Casualty and Surety Company of America
United States Fidelity and Guaranty Company

Attorney-In Fact No. 222181 **Certificate No.** 004930013

KNOW ALL MEN BY THESE PRESENTS: That St. Paul Fire and Marine Insurance Company, St. Paul Guardian Insurance Company and St. Paul Mercury Insurance Company are corporations duly organized under the laws of the State of Minnesota, that Farmington Casualty Company, Travelers Casualty and Surety Company, and Travelers Casualty and Surety Company of America are corporations duly organized under the laws of the State of Connecticut, that United States Fidelity and Guaranty Company is a corporation duly organized under the laws of the State of Maryland, that Fidelity and Guaranty Insurance Company is a corporation duly organized under the laws of the State of Iowa, and that Fidelity and Guaranty Insurance Underwriters, Inc., is a corporation duly organized under the laws of the State of Wisconsin (herein collectively called the "Companies"), and that the Companies do hereby make, constitute and appoint

Charles D. Nielson, Charles J. Nielson, Mary C. Aceves, David R. Hoover, Gicelle Pajon, Olga Iglesias, Gloria McClure, and Arthur Colley

of the City of Miami Lakes, State of Florida, their true and lawful Attorney(s)-in-Fact, each in their separate capacity if more than one is named above, to sign, execute, seal and acknowledge any and all bonds, recognizances, conditional undertakings and other writings obligatory in the nature thereof on behalf of the Companies in their business of guaranteeing the fidelity of persons, guaranteeing the performance of contracts and executing or guaranteeing bonds and undertakings required or permitted in any actions or proceedings allowed by law.

IN WITNESS WHEREOF, the Companies have caused this instrument to be signed and their corporate seals to be hereto affixed, this 20th day of June, 2012.

Farmington Casualty Company
Fidelity and Guaranty Insurance Company
Fidelity and Guaranty Insurance Underwriters, Inc.
St. Paul Fire and Marine Insurance Company
St. Paul Guardian Insurance Company

St. Paul Mercury Insurance Company
Travelers Casualty and Surety Company
Travelers Casualty and Surety Company of America
United States Fidelity and Guaranty Company

State of Connecticut
City of Hartford ss.

By: _____
George W. Thompson, Senior Vice President

On this the 20th day of June, 2012, before me personally appeared George W. Thompson, who acknowledged himself to be the Senior Vice President of Farmington Casualty Company, Fidelity and Guaranty Insurance Company, Fidelity and Guaranty Insurance Underwriters, Inc., St. Paul Fire and Marine Insurance Company, St. Paul Guardian Insurance Company, St. Paul Mercury Insurance Company, Travelers Casualty and Surety Company, Travelers Casualty and Surety Company of America, and United States Fidelity and Guaranty Company, and that he, as such, being authorized so to do, executed the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

In Witness Whereof, I hereunto set my hand and official seal.
My Commission expires the 30th day of June, 2016.

MARIE C. TETREAULT NOTARY PUBLIC CONNECTICUT

_____
Marie C. Tetreault, Notary Public

58440-6-11Printed in U.S.A.

WARNING: THIS POWER OF ATTORNEY IS INVALID WITHOUT THE RED BORDER

ANTI-KICKBACK AFFIDAVIT

STATE OF FLORIDA)
: SS
COUNTY OF MONROE)

I, the undersigned hereby duly sworn, depose and say that no portion of the sum herein bid will be paid to any employees of the City of Key West as a commission, kickback, reward or gift, directly or indirectly by me or any member of my firm or by an officer of the corporation.

By: _____
Christian Brisson, as President
Pedro Falcon Electrical Contractors, Inc.

Sworn and subscribed before me this
13 day of March, 2013

_____
NOTARY PUBLIC, State of Florida
at Large

Notary Public State of Florida
Laura A Sturgeon
My Commission EE109001
Expires 10/09/2015

My Commission Expires: _____

END OF SECTION

SWORN STATEMENT UNDER SECTION 287.133(3)(A)
FLORIDA STATUTES, ON PUBLIC ENTITY CRIMES

THIS FORM MUST BE SIGNED IN THE PRESENCE OF A NOTARY PUBLIC OR OTHER OFFICER AUTHORIZED TO ADMINISTER OATHS.

1. This sworn statement is submitted with Bid or Proposal for Switchgear Enclosure & Fuel Station (ITB 13-011)

2. This sworn statement is submitted by Pedro Falcon Electrical Contractors, Inc.
(name of entity submitting sworn statement)

whose business address is 31160 Avenue C, Big Pine Key, FL 33043

_____ and (if applicable) its Federal Employer

Identification Number (FEIN) is 59-2550231

(If the entity has no FEIN, include the Social Security Number of the individual signing this

sworn statement NA

3. My name is Christian Brisson
(please print name of individual signing)

and my relationship to the entity named above is Director, President, Secretary of corporation

4. I understand that a "public entity crime" as defined in Paragraph 287.133(1)(g), Florida Statutes, means a violation of any state or federal law by a person with respect to and directly related to the transaction of business with any public entity or with an agency or political subdivision of any other state or with the United States, including but not limited to, any bid or contract for goods or services to be provided to any public or an agency or political subdivision of any other state or of the United States and involving antitrust, fraud, theft, bribery, collusion, racketeering, conspiracy, material misrepresentation.

5. I understand that "convicted" or "conviction" as defined in Paragraph 287.133(1)(b), Florida Statutes, means a finding of guilt or a conviction of a public entity crime, with or without an adjudication guilt, in any federal or state trial court of record relating to charges brought by indictment information after July 1, 1989, as a result of a jury verdict, nonjury trial, or entry of a plea of guilty or nolo contendere.

6. I understand that an "affiliate" as defined in Paragraph 287.133(1)(a), Florida Statutes, means

   1. A predecessor or successor of a person convicted of a public entity crime; or

   2. An entity under the control of any natural person who is active in the management of the entity and who has been convicted of a public entity crime. The term "affiliate" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in the management of an affiliate. The ownership by one person of shares constituting controlling interest in another person, or a pooling of equipment or income among persons when not for fair market value under an arm's length agreement, shall be a prima facie case that one person controls another person. A person who knowingly enters into a joint venture with a person who has been convicted of a public entity crime in Florida during the preceding 36 months shall be considered an affiliate.

7. I understand that a "person" as defined in Paragraph 287.133(1)(8), Florida Statutes, means any natural person or entity organized under the laws of any state or of the United States with the legal power to enter into a binding contract and which bids or applies to bid on contracts for the provision of goods or services let by a public entity, or which otherwise transacts or applies to transact business with public entity. The term "person" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in management of an entity.

8. Based on information and belief, the statement which I have marked below is true in relation to the entity submitting this sworn statement. (Please indicate which statement applies).

X Neither the entity submitting this sworn statement, nor any officers, directors, executives, partners, shareholders, employees, members, or agents who are active in management of the entity, nor any affiliate of the entity have been charged with and convicted of a public entity crime subsequent to July 1, 1989, AND (Please indicate which additional statement applies.)

_____ There has been a proceeding concerning the conviction before a hearing of the State of Florida, Division of Administrative Hearings. The final order entered by the hearing officer did not place the person or affiliate on the convicted vendor list. (Please attach a copy of the final order.)

_____ The person or affiliate was placed on the convicted vendor list. There has been a subsequent proceeding before a hearing officer of the State of Florida, Division of Administrative Hearings. The final order entered by the hearing officer determined that it was in the public interest to remove the person or affiliate from the convicted vendor list. (Please attach a copy of the final order.)

_____ The person or affiliate has not been put on the convicted vendor list. (Please describe any action taken by or pending with the Department of General Services.)

(signature)

March 13, 2012
(date)

STATE OF FLORIDA

COUNTY OF MONROE

PERSONALLY APPEARED BEFORE ME, the undersigned authority,

Christian Brisson who, after first being sworn by me, affixed his/her
(name of individual signing)

signature in the space provided above on this 13 of March, 2013

My commission expires:

NOTARY PUBLIC

Notary Public State of Florida
Laura A Sturgeon
My Commission EE109001
Expires 10/09/2015

PUBLIC ENTITY CRIMES
00 43 17 - 2

FEBRUARY 14, 2013

CONTRACTOR Insurance/Indemnity Requirements

Insurance

CONTRACTOR is to secure, pay for, and file with the City of Key West, prior to commencing any work under the Contract, all certificates for Workers' Compensation, Public Liability, and Property Damage Liability Insurance and such other insurance coverages as may be required by specifications and addenda thereto, in at least the following minimum amounts with specification amounts to prevail if greater than minimum amounts indicated. Notwithstanding any other provision of the Contract, the **CONTRACTOR** shall provide the minimum limits of liability insurance coverages as follows:

Auto Liability	$1,000,000	Combined Single Limit
General Liability	$2,000,000	Aggregate (Per Project)
	$2,000,000	Products Aggregate
	$1,000,000	Any One Occurrence
	$1,000,000	Personal Injury
	$ 300,000	Fire Damage/Legal
Additional Umbrella Liability	$2,000,000	Occurrence/Aggregate

CONTRACTOR shall furnish an original Certificate of Insurance indicating, and such policy providing coverage to, City of Key West named as "Additional Insured" on **PRIMARY** and **NON CONTRIBUTORY** basis utilizing an ISO standard endorsement at **least as broad as CG 2010 (11/85) or its Equivalent, (COMBINATION OF CG 20 10 07 04 and CG 20 37 07 04, providing coverage for completed operations is acceptable)** INCLUDING A "**Waiver of Subrogation**" clause in favor of City of Key West on all policies. **CONTRACTOR** will maintain the General Liability and Umbrella Liability insurance coverages summarized above with coverage continuing in full force including the "additional insured" endorsement until at least 3 years beyond completion and delivery of the work contracted herein.

Notwithstanding any other provision of the Contract, the **CONTRACTOR** shall maintain complete Workers' Compensation coverage for each and every employee, principal, officer, representative, or agent of the **CONTRACTOR** who is performing any labor, services, or material under the Contract. Further, **CONTRACTOR** shall additionally maintain the following minimum limits of coverage:

Bodily Injury Each Accident	$1,000,000
Bodily Injury by Disease Each Employee	$1,000,000
Bodily Injury by Disease Policy Limit	$1,000,000

If the work is being done on or near a navigable waterway, **CONTRACTOR's** Workers' Compensation policy shall be endorsed to provide **USL&H** Act **(WC 00 01 06 A)** and **Jones Act (WC 00 02 01 A)** coverage if specified by the City of Key West. **CONTRACTOR** shall provide the City of Key West with a Certificate of Insurance verifying compliance with the workman's compensation coverage as set forth herein and shall provide as often as required by the City of Key West such certification which shall also show the insurance company, policy number, effective and expiration date, and the limits of workman's compensation coverage under each policy.

CONTRACTOR's insurance policies shall be endorsed to give 30 days' written notice to the City of Key West in the event of cancellation or material change, using form CG 0 24, or its equivalent.

Certificates of Insurance submitted to the City of Key West will not be accepted without copies of the endorsements being requested. This includes additional insured endorsements, cancellation/material change notice endorsements, and waivers of subrogation. Copies of USL&H Act and Jones Act endorsements will also be required if necessary. **PLEASE ADVISE YOUR INSURANCE AGENT ACCORDINGLY.**

CONTRACTOR will comply with any and all safety regulations required by any agency or regulatory body including but not limited to OSHA. **CONTRACTOR** will notify City of Key West immediately by telephone at (305) 809-3811 of any accident or injury to anyone that occurs on the jobsite and is related to any of the work being performed by the **CONTRACTOR.**

ACORD. CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME:	
	PHONE (A/C, No, Ext):	FAX (A/C, No):
	E-MAIL ADDRESS:	
	INSURER(S) AFFORDING COVERAGE	NAIC #
INSURED: Contractor Sample	INSURER A:	
	INSURER B:	
	INSURER C:	
	INSURER D:	
	INSURER E:	
	INSURER F:	

COVERAGES CERTIFICATE NUMBER: REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
	GENERAL LIABILITY						EACH OCCURRENCE	$1,000,000
	X COMMERCIAL GENERAL LIABILITY						DAMAGE TO RENTED PREMISES (Ea occurrence)	$300,000
	CLAIMS-MADE X OCCUR	X	X				MED EXP (Any one person)	$
							PERSONAL & ADV INJURY	$1,000,000
							GENERAL AGGREGATE	$2,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						PRODUCTS - COMP/OP AGG	$2,000,000
	POLICY X PRO-JECT LOC							$
	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident)	$1,000,000
	X ANY AUTO						BODILY INJURY (Per person)	$
	ALL OWNED AUTOS / SCHEDULED AUTOS	X	X				BODILY INJURY (Per accident)	$
	X HIRED AUTOS / X NON-OWNED AUTOS						PROPERTY DAMAGE (Per accident)	$
								$
	X UMBRELLA LIAB X OCCUR						EACH OCCURRENCE	$,000,000
	EXCESS LIAB CLAIMS-MADE	X	X				AGGREGATE	$,000,000
	DED X RETENTION $							$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY						X WC STATU-TORY LIMITS / OTH-ER	
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y / N N	N/A	X			E.L. EACH ACCIDENT	$1,000,000
							E.L. DISEASE - EA EMPLOYEE	$1,000,000
							E.L. DISEASE - POLICY LIMIT	$1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

CERTIFICATE HOLDER

City of Key West
P.O. Box 1409
Key West, FL 33041-1409

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

POLICY NUMBER:

COMMERCIAL GENERAL LIABILITY
CG 20 10 07 04

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

ADDITIONAL INSURED – OWNERS, LESSEES OR CONTRACTORS – SCHEDULED PERSON OR ORGANIZATION

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

SCHEDULE

Name Of Additional Insured Person(s) Or Organization(s):	Location(s) Of Covered Operations
Information required to complete this Schedule, if not shown above, will be shown in the Declarations.	

A. Section II – Who Is An Insured is amended to include as an additional insured the person(s) or organization(s) shown in the Schedule, but only with respect to liability for "bodily injury", "property damage" or "personal and advertising injury" caused, in whole or in part, by:

1. Your acts or omissions; or
2. The acts or omissions of those acting on your behalf;

in the performance of your ongoing operations for the additional insured(s) at the location(s) designated above.

B. With respect to the insurance afforded to these additional insureds, the following additional exclusions apply:

This insurance does not apply to "bodily injury" or "property damage" occurring after:

1. All work, including materials, parts or equipment furnished in connection with such work, on the project (other than service, maintenance or repairs) to be performed by or on behalf of the additional insured(s) at the location of the covered operations has been completed; or
2. That portion of "your work" out of which the injury or damage arises has been put to its intended use by any person or organization other than another contractor or subcontractor engaged in performing operations for a principal as a part of the same project.

POLICY NUMBER:

COMMERCIAL GENERAL LIABILITY
CG 20 37 07 04

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

ADDITIONAL INSURED – OWNERS, LESSEES OR CONTRACTORS – COMPLETED OPERATIONS

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

SCHEDULE

Name Of Additional Insured Person(s) Or Organization(s):	Location And Description Of Completed Operations
Information required to complete this Schedule, if not shown above, will be shown in the Declarations.	

Section II – Who Is An Insured is amended to include as an additional insured the person(s) or organization(s) shown in the Schedule, but only with respect to liability for "bodily injury" or "property damage" caused, in whole or in part, by "your work" at the location designated and described in the schedule of this endorsement performed for that additional insured and included in the "products-completed operations hazard".

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

EARLIER NOTICE OF CANCELLATION PROVIDED BY US

Number of Days Notice 30

For any statutorily permitted reason other than nonpayment of premium, the number of days required for notice of cancellation is increased to the number of days shown in the Schedule above.

If this policy is cancelled by us we will send the Named Insured and any party listed in the following schedule notice of cancellation based on the number of days notice shown above.

Schedule

Name of Person or Organization

Mailing Address

POLICY NUMBER:

COMMERCIAL GENERAL LIABILITY
CG 24 04 05 09

WAIVER OF TRANSFER OF RIGHTS OF RECOVERY AGAINST OTHERS TO US

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART
PRODUCTS/COMPLETED OPERATIONS LIABILITY COVERAGE PART

SCHEDULE

Name Of Person Or Organization:
Information required to complete this Schedule, if not shown above, will be shown in the Declarations.

The following is added to Paragraph **8. Transfer Of Rights Of Recovery Against Others To Us** of **Section IV – Conditions:**

We waive any right of recovery we may have against the person or organization shown in the Schedule above because of payments we make for injury or damage arising out of your ongoing operations or "your work" done under a contract with that person or organization and included in the "products-completed operations hazard". This waiver applies only to the person or organization shown in the Schedule above.

WAIVER OF OUR RIGHT TO RECOVER FROM OTHERS ENDORSEMENT

We have the right to recover our payments from anyone liable for an injury covered by this policy. We will not enforce our right against the person or organization named in the Schedule. (This agreement applies only to the extent that you perform work under a written contract that requires you to obtain this agreement from us.)

This agreement shall not operate directly or indirectly to benefit anyone not named in the Schedule.

Schedule

This endorsement changes the policy to which it is attached and is effective on the date issued unless otherwise stated.

(The information below is required only when this endorsement is issued subsequent to preparation of the policy.)

Endorsement Effective Policy No. Endorsement No.
Insured Premium

Insurance Company Countersigned by_____

CITY OF KEY WEST INDEMNIFICATION FORM

To the fullest extent permitted by law, the CONTRACTOR expressly agrees to indemnify and hold harmless the City of Key West, their officers, directors, agents and employees *(herein called the "indemnitees") from liabilities, damages, losses and costs, including but not limited to, reasonable attorney's fees and court costs, such legal expenses to include costs incurred in establishing the indemnification and other rights agreed to in this Paragraph, to persons or property, to the extent caused by the negligence, recklessness, or intentional wrongful misconduct of the CONTRACTOR, its Subcontractors or persons employed or utilized by them in the performance of the Contract. Claims by indemnitees for indemnification shall be limited to the amount of CONTRACTOR's insurance or $1 million per occurrence, whichever is greater. The parties acknowledge that the amount of the indemnity required hereunder bears a reasonable commercial relationship to the Contract and it is part of the project specifications or the bid documents, if any.

The indemnification obligations under the Contract shall not be restricted in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for the CONTRACTOR under Workers' Compensation acts, disability benefits acts, or other employee benefits acts, and shall extend to and include any actions brought by or in the name of any employee of the CONTRACTOR or of any third party to whom CONTRACTOR may subcontract a part or all of the Work. This indemnification shall continue beyond the date of completion of the work.

CONTRACTOR: Pedro Falcon Electrical Contractors, Inc.

SEAL:

31160 Avenue C, Big Pine Key, FL 33043
Address

Signature

Christian Brisson
Print Name

as President
Title

PLEASE NOTE: This document will be executed if Pedro Falcon Electrical Contractors, Inc. is the successfully bidder.

DATE: March 13, 2013

LOCAL VENDOR CERTIFICATION PURSUANT TO CKW ORDINANCE 09-22 SECTION 2-798

The undersigned, as a duly authorized representative of the vendor listed herein, certifies to the best of his/her knowledge and belief, that the vendor meets the definition of a "Local Business." For purposes of this section, "local business" shall mean a business which:

a. Principle address as registered with the FL Department of State located within 30 miles of the boundaries of the city, listed with the chief licensing official as having a business tax receipt with its principle address within 30 miles of the boundaries of the city for at least one year immediately prior to the issuance of the solicitation.

b. Maintains a workforce of at least 50 percent of its employees from the city or within 30 miles of its boundaries.

c. Having paid all current license taxes and any other fees due the city at least 24 hours prior to the publication of the call for bids or request for proposals.

- Not a local vendor pursuant to Ordinance 09-22 Section 2-798
- Qualifies as a local vendor pursuant to Ordinance 09-22 Section 2-798

If you qualify, please complete the following in support of the self certification & submit copies of your County and City business licenses. Failure to provide the information requested will result in denial of certification as a local business.

Business Name Pedro Falcon Electrical Contractors, Inc. Phone: (305) 872-2200

Current Local Address: 31160 Ave. C, Big Pine Key, FL 33043 Fax: (305) 872-2219
(P.O Box numbers may not be used to establish status)

Length of time at this address 20 years

Signature of Authorized Representative — March 13, 2013 Date

STATE OF FLORIDA
COUNTY OF MONROE

The foregoing instrument was acknowledged before me this 13 day of March, 20 13.
By Christian Brisson, as President, of Pedro Falcon Electrical Contractors, Inc.
(Name of officer or agent, title of officer or agent) (Name of corporation acknowledging)
or has produced NA as identification
(type of identification)

Signature of Notary
Laura A. Sturgeon
Print, Type or Stamp Name of Notary

Title or Rank

Return Completed form with
Supporting documents to:
City of Key West Purchasing

Notary Public State of Florida
Laura A Sturgeon
My Commission EE109001
Expires 10/09/2015

2012 / 2013
MONROE COUNTY BUSINESS TAX RECEIPT
EXPIRES SEPTEMBER 30, 2013

RECEIPT# 30140-9801

Business Name: PEDRO FALCON ELECTRICAL CONTRACTORS INC

Owner Name: PEDRO FALCON, CHRISTIAN N BRISSON QU
Mailing Address: 31160 AVE C
BIG PINE KEY, FL 33043

Business Location: 31160 AVE C
BIG PINE KEY, FL 33043
Business Phone: 305-872-2200
Business Type: CONTRACTORS (GENERAL/ELECTRICAL 3RD QUALIFIER STATE LIC EC13003416)

Rooms	Seats	Employees	Machines	Stalls
		10		

STATE LICENSE: EC0001491/CG

For Vending Business Only
Number of Machines: Vending Type:

Tax Amount	Transfer Fee	Sub-Total	Penalty	Prior Years	Collection Cost	Total Paid
25.00	0.00	25.00	0.00	0.00	0.00	25.00

Paid 108-11-00008384 09/11/2012 25.00

THIS RECEIPT MUST BE POSTED CONSPICUOUSLY IN YOUR PLACE OF BUSINESS

THIS BECOMES A TAX RECEIPT WHEN VALIDATED

Danise D. Henriquez, CFC, Tax Collector
PO Box 1129, Key West, FL 33041

THIS IS ONLY A TAX. YOU MUST MEET ALL COUNTY AND/OR MUNICIPALITY PLANNING AND ZONING REQUIREMENTS.

CITY OF KEY WEST, FLORIDA

Business Tax Receipt

This Document is a business tax receipt
Holder must meet all City zoning and use provisions.
P.O. Box 1409, Key West, Florida 33040 (305) 809-3955

Business Name	PEDRO FALCON ELECTRICAL (CGC) CtlNbr:**0017630**
Location Addr	31160 AVE C
Lic NBR/Class	**13-00021608** CONTRACTOR - CERT GENERAL CONTRACTOR
Issue Date:	September 11, 2012 **Expiration Date**:September 30, 2013
License Fee	$309.75
Add. Charges	$0.00
Penalty	$0.00
Total	$309.75

Comments:

This document must be prominently displayed.

PEDRO FALCON ELECTRICAL CONTRA

PEDRO FALCON ELECTRICAL (CGC)
31160 AVE C

BIG PINE KEY FL 33043

Over: [illegible] Type: OC Drawer: 1
Date: 9/13/12 54 Receipt no: 109216
2013 21688
[illegible] LIC [illegible] 1 $309.75
Trans number: 2823885
[illegible] 37393 $309.75

Trans date: 9/13/12 Time: 8:47:20

CITY OF KEY WEST, FLORIDA

Business Tax Receipt

This Document is a business tax receipt
Holder must meet all City zoning and use provisions.
P.O. Box 1409, Key West, Florida 33040 (305) 809-3955

Business Name	PEDRO FALCON ELECTRICAL CONTR CtlNbr:**0004028**
Location Addr	31160 AVE C FALCON BLDG
Lic NBR/Class	**13-00004033** CONTRACTOR - CERT ELECTRICAL
Issue Date:	September 11, 2012 **Expiration Date**:September 30, 2013
License Fee	$309.75
Add. Charges	$0.00
Penalty	$0.00
Total	$309.75

Comments:

This document must be prominently displayed.

PEDRON FALCON ELECTRICAL CONTR

PEDRO FALCON ELECTRICAL CONTR
31160 AVENUE C

BIG PINE KEY FL 33043

Over: [illegible] Type: OC Drawer: 1
Date: 9/13/12 54 Receipt no: 109219
2013 4833
[illegible] LIC [illegible] 1 $309.75
Trans number: 2823888
[illegible] 37392 $309.75

Trans date: 9/13/12 Time: 8:48:24

BIDDER'S CHECKLIST

(Note: The purpose of this checklist is to serve as a reminder of major items to be addressed in submitting a bid and is not intended to be all inclusive. It does not alleviate the Bidder from the responsibility of becoming familiar with all aspects of the Contract Documents and proper completion and submission of his bid.)

1.	All Contract Documents thoroughly read and understood.	[✓]
2.	All blank spaces in Bid Form filled in, using black ink.	[✓]
3.	Total and unit prices added correctly.	[✓]
4.	Addenda acknowledged.	[✓]
5.	Mandatory Site Visit Attended.	[✓]
6.	Subcontractors are named as indicated in the Proposal.	[✓]
7.	Experience record included (see also Item 22).	[✓]
8.	Bid signed by authorized officer.	[✓]
9.	Bid Bond completed and executed, including power-of-attorney dated the same date as Bid Bond.	[✓]
10.	Bidder familiar with federal, state, and local laws, ordinances, rules and regulations affecting performance of the work.	[✓]
5.	Bidder, if successful, able to obtain and/or demonstrate possession of required licenses and certificates within (10) ten calendar days after receiving a Notice of Award.	[✓]
6.	Bid submitted intact with the volume containing the Bidding Requirements, Contract Forms, Conditions of the Contract, three (3) copies and four (4) USB drives containing a single complete PDF file.	[✓]
7.	Bid Documents submitted in sealed envelope and addressed and labeled in conformance with the instructions in the Invitation to Bid.	[✓]
14.	Bidder must provide satisfactory documentation of State Licenses	[✓]
15.	Anti-Kickback Affidavit.	[✓]
16.	Public Entity Crimes.	[✓]
17.	Local Vendor Certification.	[✓]
18.	Disclosure of Lobbying Activities.	[✓]
19.	Non-Collusion Declaration and Compliance.	[✓]
20.	Suspension and Debarment Certification.	[✓]
21.	Declaration of Compliance 2-799 Equal Benefits for Domestic Partners	[✓]

22. Catalog cuts for …

    a. Fuel Tank, [✓]
    b. Fuel Hose Reel [✓]
    c. Doors [✓]
    d. Flood Panels [✓]
    e. HVAC Equipment [✓]

23. Experience and Credentials of …

    a. SSHO [✓]
    b. QCM [✓]
    c. CA Firm [✓]

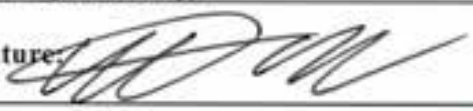
DISCLOSURE OF LOBBYING ACTIVITIES

Complete this form to disclose lobbying activities pursuant to 31 U.S.C. 1352
(See reverse for public burden disclosure.)

1. **Type of Federal Action:**	2. **Status of Federal Action:**	3. **Report Type:**
[a] Contract w/City of Key West a. contract b. grant c. cooperative agreement d. loan e. loan guarantee f. loan insurance	[a] a. bid/offer/application b. initial award c. post-award Bid submitted to the City of Key West, FL	[ ] TO BE AWARDED a. initial filing b. material change **For Material Change Only:** year_____ quarter_____ date of last report_____

4. **Name and Address of Reporting Entity:**	5. **If Reporting Entity in No. 4 is Subawardee, Enter Name and Address of Prime:**
[x] Prime [ ] Subawardee Tier _____, *if known:* Pedro Falcon Electrical Contractors, Inc. 31160 Avenue C Big Pine Key, FL 33043 **Congressional District,** *if known:*	NA **Congressional District,** *if known:*
6. **Federal Department/Agency:** Unknown: Bid and contract is with the City of Key West, FL	7. **Federal Program Name/Description:** Unknown CFDA Number, *if applicable:* _____
8. **Federal Action Number,** *if known:* Unknown	9. **Award Amount,** *if known:* $ Unknown, bid submitted 03/13/2013. Will not know contract amount due to alternates and what the City of Key West decides to award.

10. a. Name and Address of Lobbying Entity *(if individual, last name, first name, MI):*	b. Individuals Performing Services *(including address if different from No. 10a) (last name, first name, MI):*
None	NA
(attach Continuation Sheet(s) SF-LLLA, if necessary)	

11. Information requested through this form is authorized by title 31 U.S.C. section 1352. This disclosure of lobbying activities is a material representation of fact upon which reliance was placed by the tier above when this transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be reported to Congress semi-annually and will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.	**Signature:**  **Print Name:** Christian Brisson **Title:** as President **Telephone No.:** (305) 972-2200, ext. 26 **Date:** March 13, 2013
Federal Use Only:	Authorized for Local Reproduction Standard Form – LLL (Rev 7 – 97)

FORM DEP 55-221 (01/01)

INSTRUCTIONS FOR COMPLETION OF SF-LLL, DISCLOSURE OF LOBBYING ACTIVITIES

This disclosure form shall be completed by the reporting entity, whether subawardee or prime Federal recipient, at the initiation or receipt of a covered Federal action, or a material change to a previous filing, pursuant to title 31 U.S.C. section 1352. The filing of a form is required for each payment or agreement to make payment to any lobbying entity for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with a covered Federal action. Complete all items that apply for both the initial filing and material change report. Refer to the implementing guidance published by the Office of Management and Budget for additional information.

1. Identify the type of covered Federal action for which lobbying activity is and/or has been secured to influence the outcome of a covered Federal action.

2. Identify the status of the covered Federal action.

3. Identify the appropriate classification of this report. If this is a follow up report caused by a material change to the information previously reported, enter the year and quarter in which the change occurred. Enter the date of the last previously submitted report by the reporting entity for this covered Federal action.

4. Enter the full name, address, city, state and zip code of the reporting entity. Include Congressional District, if known. Check the appropriate classification of the reporting entity that designates if it is or expects to be, a prime or subaward recipient. Identify the tier of the subawardee, e.g., the first subawardee of the prime is the 1st tier. Subawards include but are not limited to subcontracts, subgrants and contract awards under grants.

5. If the organization filing the report in item 4 checks "Subawardee", then enter the full name, address, city, state and zip code of the prime Federal recipient. Include Congressional District, if known.

6. Enter the name of the Federal agency making the award or loan commitment. Include at least one organizational level below agency name, if known. For example, Department of Transportation, United States Coast Guard.

7. Enter the Federal program name or description for the covered Federal action (item 1). If known, enter the full Catalog of Federal Domestic Assistance (CFDA) number for grants, cooperative agreements, loans, and loan commitments.

8. Enter the most appropriate Federal identifying number available for the Federal action identified in item 1 (e.g., Request for Proposal (RFP) number; Invitation for Bid (IFB) number; grant announcement number; the contract, grant, or loan award number; the application/proposal control number assigned by the Federal agency). Include prefixes, e.g., "RFP-DE-90-001."

9. For a covered Federal action where there has been an award or loan commitment by the Federal agency, enter the Federal amount of the award/loan commitment for the prime entity identified in item 4 or 5.

10. (a) Enter the full name, address, city, state and zip code of the lobbying entity engaged by the reporting entity identified in item 4 to influence the covered Federal action.

    (b) Enter the full names of the individual(s) performing services, and include full address if different from 10 (a). Enter Last Name, First Name, and Middle Initial (MI).

11. The certifying official shall sign and date the form, print his/her name, title and telephone number.

Form DEP 55-221 (01/01)

NON-COLLUSION DECLARATION AND COMPLIANCE WITH 49 CFR §29.

ITEM/SEGMENT NO.: ITB #: 13-011
F.A.P. NO.:
PARCEL NO.:
COUNTY OF:
BID LETTING OF: Switchgear Enclosure & Fuel Station

I, Christian Brisson (NAME), hereby declare that I am President (TITLE) of Pedro Falcon Electrical Contractors, Inc. (FIRM) Of Big Pine Key, Florida 33043 (CITY AND STATE) and that I am the person responsible within my firm for the final decision as to the price(s) and amount of this Bid on this Project.

I further declare that:

1. The prices(s) and amount of this bid have been arrived at independently, without consultation, communication or agreement, for the purpose of restricting competition with any other contractor, bidder or potential bidder.

2. Neither the price(s) nor the amount of this bid have been disclosed to any other firm or person who is a bidder or potential bidder on this project, and will not be so disclosed prior to the bid opening.

3. No attempt has been made or will be made to solicit, cause or induce any other firm or person to refrain from bidding on this project, or to submit a bid higher than the bid of this firm, or any intentionally high or non-competitive bid or other form of complementary bid.

4. The bid of my firm is made in good faith and not pursuant to any agreement or discussion with, or inducement from, any firm or person to submit a complementary bid.

5. My firm has not offered or entered into a subcontract or agreement regarding the purchase of materials or services from any firm or person, or offered, promised or paid cash or anything of value to any firm or person, whether in connection with this or any other project, in consideration for an agreement or promise by any firm or person to refrain from bidding or to submit a complementary bid on this project.

6. My firm has not accepted or been promised any subcontract or agreement regarding the sale of materials or services to any firm or person, and has not been promised or paid cash or anything of value by any firm or person, whether in connection with this or any other project, in consideration for my firm's submitting a complementary bid, or agreeing to do so, on this project.

7. I have made a diligent inquiry of all members, officers, employees, and agents of my firm with responsibilities relating to the preparation, approval or submission of my firm's bid on this project and have been advised by each of them that he or she has not participated in any communication, consultation, discussion, agreement, collusion, act or other conduct inconsistent with any of the statements and representations made in this Declaration.

8. As required by Section 337.165, Florida Statutes, the firm has fully informed the City of Key West in writing of all convictions of the firm, its affiliates (as defined in Section 337.165(l)(a),

Florida Statutes), and all directors, officers, and employees of the firm and its affiliates for violation of state or federal antitrust laws with respect to a public contract or for violation of any state or federal law involving fraud, bribery, collusion, conspiracy or material misrepresentation with respect to a public contract. This includes disclosure of the names of current employees of the firm or affiliates who were convicted of contract crimes while in the employ of another company.

9. I certify that, except as noted below, neither my firm nor any person associated therewith in the capacity of owner, partner, director, officer, principal, investigator, project director, manager, auditor, and/or position involving the administration of Federal funds:

(a) is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions, as defined in 49 CFR §29.110(a), by any Federal department or agency;

(b) has within a three-year period preceding this certification been convicted of or had a civil judgment rendered against him or her for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a Federal, State or local government transaction or public contract; violation of Federal or State antitrust statutes; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements or receiving stolen property;

(c) is presently indicted for or otherwise criminally or civilly charged by a Federal, State or local governmental entity with commission of any of the offenses enumerated in paragraph 9(b) of this certification; and

(d) has within a three-year period preceding this certification had one or more Federal, State or local government public transactions terminated for cause or default..

10. I(We), certify that I(We), shall not knowingly enter into any transaction with any subcontractor, material supplier, or vendor who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this contract by any Federal Agency unless authorized by the Department.

Where I am unable to declare or certify as to any of the statements contained in the above stated paragraphs numbered (1) through (10), I have provided an explanation in the "Exceptions" portion below or by attached separate sheet.

EXCEPTIONS: NONE

(Any exception listed above will not necessarily result in denial of award, but will be considered in determining bidder responsibility. For any exception noted, indicate to whom it applies, initiating agency and dates of agency action.

Providing false information may result in criminal prosecution and/or administrative sanctions.)

I declare under penalty of perjury that the foregoing is true and correct.

CONTRACTOR: (Seal)
Pedro Falcon Electrical Contractors, Inc.

BY: Christian Brisson, as President
NAME AND TITLE PRINTED

BY:
SIGNATURE

WITNESS:

WITNESS:

Executed on this 13 day of March, 2013

FAILURE TO FULLY COMPLETE AND EXECUTE THIS DOCUMENT MAY RESULT IN THE BID BEING DECLARED NONRESPONSIVE

FLORIDA TRENCH SAFETY ACT COMPLIANCE
Trench Excavation Safety System and Shoring

CERTIFICATION

All excavation, trenching, and related sheeting, bracing, etc. on this project shall conform to the requirements of the Florida Trench Safety Act (90-96, CS/SB 2626), which incorporates by reference, OSHA's excavation safety standards, 29 CFR 1926.650 Subpart P including all subsequent revisions or updates to the these standards.

By submission of this bid and subsequent execution of this Contract, the undersigned certifies compliance with the above mentioned standards and further stipulates that all costs associated with this compliance are detailed below as well as included in their lump sum bid amount.

Summary of Costs:

Trench Safety Measure	Units	Quantity	Unit Cost	Extended Cost
A. Slope Bank	LF	560	$5.00	$2,800.00
B. Shoring	LS	1	$3,000.00	$3,000.00

Signature

March 13, 2013
Date

STATE OF FLORIDA

COUNTY OF MONROE

PERSONALLY APPEARED BEFORE ME, the undersigned authority,

Christian Brisson, who, after first being sworn by me affixed his /her signature in the space,

provided above on the 13 day of March, 2013.

Laura A Sturgeon
Notary Public (Seal)

MY COMMISSION EXPIRES:

Notary Public State of Florida
Laura A Sturgeon
My Commission EE109001
Expires 10/09/2015

SUSPENSION AND DEBARMENT CERTIFICATION

CERTIFICATION REGARDING DEBARMENTS, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION-LOWER TIER FEDERALLY FUNDED TRANSACTIONS

1. The undersigned hereby certifies that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

2. The undersigned also certifies that it and its principals:
(a) Have not within a three-year period preceding this certification been convicted of or had a civil judgment rendered
against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State anti-trust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property.
(b) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph 2.(a) of this Certification; and
(c) Have not within a three-year period preceding this certification had one or more public transactions (Federal, State or local) terminated for cause or default.

3. Where the undersigned is unable to certify to any of the statements in this certification, an explanation shall be attached to this certification.

Dated this March 13 day of, 2013.
By _____
Authorized Signature/Contractor

Christian Brisson, as President
Typed Name/Title

Pedro Falcon Electrical Contractors, Inc.
Contractor's Firm Name

31160 Avenue C
Street Address

Building, Suite Number

Big Pine Key, FL 33043
City/State/Zip Code

(305) 872-2200
Area Code/Telephone Number

To:

City of Key West
3140 Flagler Ave.
Key West, FL 33040

RE: Equal Benefits Compliance Declaration
Reference: City of Key West Ordinance 2-799

Company: Pedro Falcon Electrical Contractors, Inc.

Address: 31160 Avenue C
Big Pine Key, FL 33043

Phone: (305) 872-2200

Pursuant to City Ordinance Section 2-799, Requirements for City Contractors to Provide Equal Benefits for Domestic Partners, Pedro Falcon Electrical Contractors, Inc. makes the following declaration:

Pedro Falcon Electrical Contractors, Inc. makes all benefits available on an equal basis to its employees with spouses and its employees with domestic partners, and to the spouses and domestic partners of employees, in all locations where work on the contracts with the City of Key West is performed, except where Federal Law dictates otherwise. Benefits affected by such regulations include, but may not be limited to, family medical leave, Flexible Spending Accounts, and Health Savings Accounts. Further, the IRS dictates which of these benefits may be taxable.

Please contact Christian Brisson at (305) 872-2200 with any questions regarding this declaration.

I declare under penalty of perjury under the laws of the State of Florida that the foregoing is true and correct and that I am authorized to bind this entity contractually.

Signature of Authorized Person

March 13, 2013
Date

Christian Brisson, as President
Printed Name of Authorized Person

STATE OF FLORIDA

DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION

ELECTRICAL CONTRACTORS LICENSING BOARD (850) 487-1395
1940 NORTH MONROE STREET
TALLAHASSEE FL 32399-0783

ALLSBROOK, ROBERT DAVID
PEDRO FALCON ELECTRICAL CONTRACTORS INC
1515 NARCISSUS AVE
BIG PINE KEY FL 33043

Congratulations! With this license you become one of the nearly one million Floridians licensed by the Department of Business and Professional Regulation. Our professionals and businesses range from architects to yacht brokers, from boxers to barbeque restaurants, and they keep Florida's economy strong.

Every day we work to improve the way we do business in order to serve you better For information about our services, please log onto **www.myfloridalicense.com**. There you can find more information about our divisions and the regulations that impact you, subscribe to department newsletters and learn more about the Department's initiatives.

Our mission at the Department is: License Efficiently, Regulate Fairly. We constantly strive to serve you better so that you can serve your customers. Thank you for doing business in Florida, and congratulations on your new license!

STATE OF FLORIDA AC# 6366372
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION

EC13003416 09/14/12 120126522

CERTIFIED ELECTRICAL CONTRACTOR
ALLSBROOK, ROBERT DAVID
PEDRO FALCON ELECTRICAL CONTRACT

IS CERTIFIED under the provisions of Ch.489 FS
Expiration date: AUG 31, 2014 L12091400486

DETACH HERE

THIS DOCUMENT HAS A COLORED BACKGROUND • MICROPRINTING • LINEMARK™ PATENTED PAPER

AC# 6366372

STATE OF FLORIDA

DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION
ELECTRICAL CONTRACTORS LICENSING BOARD

SEQ# L12091400486

DATE	BATCH NUMBER	LICENSE NBR
09/14/2012	120126522	EC13003416

The ELECTRICAL CONTRACTOR
Named below IS CERTIFIED
Under the provisions of Chapter 489 FS.
Expiration date: AUG 31, 2014

ALLSBROOK, ROBERT DAVID
PEDRO FALCON ELECTRICAL CONTRACTORS INC
31160 AVENUE C
BIG PINE KEY FL 33043

RICK SCOTT
GOVERNOR

KEN LAWSON
SECRETARY

DISPLAY AS REQUIRED BY LAW

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AC# 6222080

STATE OF FLORIDA

DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION
CONSTRUCTION INDUSTRY LICENSING BOARD

SEQ# L12072300878

DATE	BATCH NUMBER	LICENSE NBR
07/23/2012	110436753	CGC1507617

The GENERAL CONTRACTOR
Named below IS CERTIFIED
Under the provisions of Chapter 489 FS
Expiration date: AUG 31, 2014

BRISSON, CHRISTIAN NORMAND
PEDRO FALCON ELECTRICAL CONTRACTORS INC
31160 AVENUE C
BIG PINE KEY FL 33043

RICK SCOTT
GOVERNOR

KEN LAWSON
SECRETARY

DISPLAY AS REQUIRED BY LAW

Past Performance/Experience

Project:	**Replace Fuel Pump House & Fillstand Equipment**
Contract No.:	N62467-06-D-0119, TO 0009
Contract Amount:	$3,957,384.00
Dates of Performance:	May 2008 – June 2009
Location:	Boca Chica, NAS, Key West
Owner and POC:	US Department of Navy, DoD Jeanette Sweeting (305) 293-3863
Engineer and POC:	D/B, Hanson Professional Services Robert Knoedler, (561) 471-9370

Brief Summary of Work:

An active and occupied site which required significant coordination and management skills in order to keep the fuel flowing and the jets flying. Construct new CMU 1500 SF jet fuel pump house which included the foundation, bathroom, shower, control room, pump room and transformer. Three new pumps, 600 gallon per minute with new controls and piping; demo of old pump house, pumps, controls, piping including abatement of asbestos and lead paint. At associated fuel fill station provided new dispensers and control with state of the art safety features, 2 fill stands, new paving, sidewalks, approach slabs and curbing to better accommodate fuel tankers.

Project:	**Conch Key Fire Station #17**
Contract No.:	None
Contract Amount:	$1,845,829.17
Dates of Performance:	November 2011 – Present
Location:	Conch Key, FL
Owner and POC:	Monroe Co. Board of Co. Commissioners Jerry Barnett, (305) 292-4416
Engineer and POC:	William P. Horn Architect PA William Horn, (305) 296-8302

Brief Summary of Work:

Renovation of the existing structure with some demolition and the construction of a new adjoining two story structure next to the existing one story structure. Construct a fully functional Fire Station with all systems required

for operation, including but not limited to: Complete HVAC, electrical and plumbing, concrete, storm water retention, Fire Alarm, vehicle exhaust removal system, phones and informational system wiring.

Project:	**TCTS Building, A4082, HVAC & Interior Repairs**
Contract No.:	N62467-06-D-0119, TO 0014
Contract Amount:	$629,457.61
Dates of Performance:	November 2010 - December 2011
Location:	Boca Chica, NAS, Key West
Owner and POC:	US Department of Navy, DoD Jeanette Sweeting (305) 293-3863
Engineer and POC:	Reynolds, Smith and Hills, Inc. (904) 256-2500

Brief Summary of Work:

Renovation of occupied interior spaces: Removal of existing Leibert AH units, repairs to existing HVAC equipment, installation of new backup HVAC units for the core building areas. Power supplies and backups, new carpet, cut interior SOG and install new trenches for communication cables, install state of the art vertical folding room partitions, new walls, paint, lighting, doors, sound walls, acoustical ceilings, paint, and new furniture.

Project:	**D/B-Construction Warehouse #3**
Contract No.:	FA4814-09-d-0015, TO 0010
Contract Amount:	$1,125,020.00
Dates of Performance:	September 2011 – October 2012
Location:	MacDill Air Force Base, Tampa, FL
Owner and POC:	United States Air Force Susan Jackson, (813) 828-2835
Engineer and POC:	IAP Worldwide Services, Inc. Richard E. Sloop, (813) 828-5159

Brief Summary of Work:

New 4500 square foot pre-engineered facility which included demo, site preparation, restrooms, mechanical plumbing and electrical, foundation, HVAC, fire protection, communications systems, roadway, and permitting for storm water.

Project:	**Renovations of Monroe Co. Courthouse**
Contract No.:	None
Contract Amount:	$1,300,105.38
Dates of Performance:	August 2011 – Present
Location:	Marathon, FL
Owner and POC:	Monroe Co. Board of Co. Commissioners Jerry Barnett, (305) 292-4416
Engineer and POC:	mbi/k2m Anthony Samo, (305) 292-7722

Brief Summary of Work:

Exceptionally active and occupied site where security must be maintained at all times included the judge's chambers, Courtroom #1 and #2, HVAC design, Fire Alarm, abatement, electrical, painting, flooring tile and carpet, plumbing, millwork, doors/windows, installation of a manufactured courtroom and foundation, storm and wastewater system.

Project:	**D/B MWR Marina Repair, Phase I**
Contract No.:	N62467-06-D-0119 Task Order 0001
Contract Amount:	$665,890.07
Dates of Performance:	August 2006 – May 2007
Location:	Boca Chica Marina, NAS, Key West
Owner and POC:	US Department of Navy, DoD Jeanette Sweeting (305) 293-3863
Engineer and POC:	SE NAVFAC Engineering Command (904) 542-6660

Brief Summary of Work:

The Boca Chica Marina had extensive damage after Hurricane Wilma. All the utility pedestals, conduits, and conductors for the electrical distribution of the marina piers had to be removed and replaced with new. PFEC designed and replaced all the electrical distribution using barge and small watercraft. New PVC conduits were installed under the piers using stainless steel hardware. New conductors were pulled and terminated at each

pedestal. There were over 60 slips to be repaired. PFEC also had to repair the water piping and reconnect to the new pedestals. Also part of this contract was to remove and replace all of the fire alarm system using remote type King Fisher Transmitter panels for each pier. PFEC was the prime contractor and self-performed all of the electrical work.

Project:	**Repair Marine Operations Facility**
Contract No.:	N62467-03-D-0090 Task Order KB02
Contract Amount:	$1,950,746.00
Dates of Performance:	May 2007 – August 2008
Location:	Trumbo Point, NAS, Key West
Owner and POC:	US Department of Navy, DoD Sauer, Inc. Paul Craddock (305) 684-8710
Engineer and POC:	VOA, (407) 425-2500

Brief Summary of Work:

The Marine Operations Facility project was to replace existing old Naval Operations Facility with complete new building and infrastructure. PFEC furnished and installed a 15kv four way medium voltage switch, three 13.8 KV primary pad mount transformers on pedestals above flood plain, complete 480 volt, 208 volt distribution switchgear with surge protection, seven (7) 480 volt and seven (7) 208 volt ship to shore power stations, communication stations with all associated conductors and terminations. The project was on Pier D1 of the USCG Station Sector Key West. Outages for medium voltage terminations were carefully coordinated with the Govt. The Prime Contractor received an outstanding evaluation on the project.

Project:	**D/B Joint Interagency Task Force South (JIATF) Generator**
Contract No.:	N66001-03-D-5002 Task Order 0078
Contract Amount:	$3,645,618.00
Dates of Performance:	September 2007 – March 2009
Location:	Truman Annex, NAS, Key West
Owner and POC:	DoD Lori Balla (305) 293-5821
Engineer and POC:	Joven Valenzvela, Manny Garcia (561) 471-9370

Brief Summary of Work:

JIATF South Command required additional and more reliable back-up power for all of their facilities in order to sustain mission capabilities in the event of a power failure. PFEC was hired to design and modify the electrical distribution for all of the four (4) main buildings. The final design for the electrical distribution consisted of (2) two each 1.5 Megawatt Caterpillar Generators with 13.8 KV output to keep the wire sizes as small as possible and to keep the cost down and within the projects budget. The new system also included new 750KVA pad mount transformers on platforms above flood plain, multiple 6-way medium voltage cable junction enclosures, main utility re-closers, multiple 15KV pad mount one way switches, overhead termination, complete automatic control system to provide power to all four buildings in case of normal power failure. The electrical distribution had sections overhead, underground, and inside the buildings. PFEC also had to design and install the concrete structure and enclosure for the generators, 12,000 gallon fuel tanks, transformer, controls, etc. The completed system gave JIATF South enough power for all building HVAC, lighting, UPS for a seamless transition between normal and generator power without compromising mission capability. The project was completed while all buildings were occupied and in use with full mission status. PFEC was the Prime Contractor and self-performed all of the work on this project.

Project:	**D/B JIATF Power Re-distribution**
Contract No.:	W912PX-10-C-0015, 0002
Contract Amount:	$1,412,321.51
Dates of Performance:	September 2010 – September 2011
Location:	Truman Annex, NAS, Key West
Owner and POC:	DoD Sharon Keenan (305) 293-5689
Engineer and POC:	D/B: Pedro Falcon Electrical Contractors, Inc.; Hanson Professional Services (R. Knoedler) (561) 471-9370; Lower Keys Engineering (305) 872-0272; Van & Smith (Bob Hobson) (813) 871-9466

Brief Summary of Work:

Reconfigure diesel generators, load bank test, replace electrical service for Building 291, replace critical system control and monitoring, increase the capacity of Building 289, and redistribute the existing power within the infrastructure to meet the electrical requirements. Replace 750 kVA transformers with 1000 kVA transformer, replace failing power transfer system, demolition of existing infrastructure, relocate Building 290 transformer and reconfigure Building 290 chiller plant electrical systems. Installation of an additional 80 ton chiller for Building 289 to increase the capacity of Building 289 electrical systems and the installation of temporary feeds and removal of the chiller pad.

Project:	**Repairs to Switchgear at Mole Pier**
Contract No.:	N62467-06-D-0119 Task Order 0004
Contract Amount:	$698,111.00
Dates of Performance:	September 2006 – June 2007
Location:	Mole Pier, Key West
Owner and POC:	US Department of Navy, DoD Jeanette Sweeting (305) 293-3863
Engineer and POC:	No engineer of record: URS issued as-builts, PWD, FEAD, NAS, Key West (305) 293-2983

Brief Summary of Work:

At the Mole Pier in Key West we refurbish the stainless steel high voltage electrical cabinets, cleaned-up cables and terminals, test, calibrate, repaired the control equipment which included 1600 and 3200 amp breakers, replaced the limit switch, replaced the dry type transformers and replaced the overcurrent relays.

March 12, 2013

Mr. Christian Brisson
Pedro Falcon Electrical Contractors, Inc.
31160 Ave C
Big Pine Key, FL 33043

SOLARIA
ARCHITECTURE
ENGINEERING
PLANNING

SUB: Proposal & Quote for Construction Administration Services ITB# 13-011

Dear Mr. Brisson:

SOLARIA is pleased to present the attached proposal, information and quote per your request to provide Construction Administration/Owner's Representation Services for the subject project.

As presented in the attached material, SOLARIA is a fully qualified and licensed architectural and engineering firm headquartered in Marathon, FL. SOLARIA maintains a full time office and staff in a Key West office as well. Our locations and proximity make it efficient for SOLARIA to provide the requested CA services for this project.

SOLARIA is corporately and financially independent from your firm or any others that may be involved in the project. We are professionally independent of any manufacturers, suppliers or installers of any type of equipment or materials that may be used on this or any other similar construction project.

As an architectural and engineering company SOLARIA is regularly engaged in the design, permitting, construction and project management of projects similar to those to be executed on this project. Although SOLARIA in its present corporate form has been in existence since 2009, the principals (undersigned and Mr. Dennis Beebe, RA) have combined more than 60 years of related experience similar to that of this project. SOLARIA is licensed as an architecture and engineering company in the state of Florida, as are its principals. Each of SOLARIA's offices carries occupational licenses to conduct business appropriately.

For this project, the undersigned will act as the Construction Administration Manager and will have responsible charge to provide the services required to the project directly or through direction of other SOLARIA staff accordingly assigned for the specific services or tasks required.

SOLARIA most relevant qualifying experience is a project for the Department of Homeland Security. The company provided full design, permitting, bidding, and CA services as summarized in the attached project pull page. That project was executed in compliance with the federal design and construction guidelines for energy efficiency, green/sustainable design & construction, recycling, reuse, construction practices in environmentally sensitive areas, and safety & health requirements. SOLAIRA is familiar with EM 385-1-1, and although the DHS project did not require the direct application of EM 385-1-1 because it was not an ACoE project, the construction safety and health requirements of the DHS project were substantially similar.

SOLARIA also provided CA services (among a much longer list of other services) for a HUD funded 110 unit work force housing project in Key Largo. Construction on this project was completed in April 2012.

However SOLARIA's CA services continue through the one year warranty period with a final inspection and project close out to be conducted April 18, 2013. Again, EM 385-1-1 did not apply directly, the HUD and OSHA requirements applicable are substantially similar. The scale of this HUD project is substantially larger than the project at hand. But again, the construction methods and systems are similar.

The undersigned does not hold a current certificate for NAVFAC/Corps "Construction Quality Management for Contractors" (Course #784). SOLARIA agrees to engage the undersigned in this course at the earliest opportunity after notice of award to properly support the project as required.

Although SOLARIA was asked to provide our proposal and quote with a very short lead time, we trust that you will find our response complete and compliant. Please do not hesitate to contact the undersigned if you have any questions or need further clarification.

Sincerely,

Steven Grasley, PE #73110
President, Director of Engineering

Solaria Design & Consulting, Co.

SOLARIA
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ENGINEERING
PLANNING

Executive Summary

SOLARIA Design & Consulting Co. (SOLARIA) is a full service architecture, engineering and planning company. SOLARIA was formed in late 2008 and incorporated in 2009 under the realized value and goal of capitalizing on the strong synergies between the skills and experiences of its founders. Architecture, engineering, and planning are tightly linked on almost every project, making the formation of SOLARIA a natural evolution of the established working relationships between the founders. Principals with SOLARIA have been involved in planning, design and construction throughout Florida, the Florida Keys and Key West for over 30 years.

With all specific skills and resources in one company, SOLARIA provides a powerful combination of services that offer efficiency, timely communication, quick turnaround, and cost savings to clients. For projects located in the Keys and south Florida, SOLARIA offers local understanding of the cultural, historic and environmental resources as a result of SOLARIA's years of experience throughout Monroe County and Key West. SOLARIA understands the uniqueness of the Florida Keys and the importance of detailed knowledge and experience of living and working in the Florida Keys and Key West. We understand the challenges of executing projects in the Keys intimately through our staff's decades of experience in planning, designing, permitting and construction oversight of projects throughout the Keys.

SOLARIA is headquartered in Marathon Florida in the heart of the Florida Keys with another full time office in Key West. SOLARIA has previously established offices and long term staff in Key Largo and Orlando as project workloads made these branches logical.

The staff at SOLARIA is comprised of registered architects, licensed professional engineers, licensed engineering interns as well as technical and administrative support staff. We utilize state of the art computer based design tools and produce all design work in industry standard formats with leading edge CAD software.

SOLARIA offers the full range of architecture, engineering and planning services for small to large projects. With integrated technical resources under one roof we are especially adept at medium size campus style projects that otherwise would require integration and coordination of a number of more specialized design professionals. Site planning, horizontal & utility design, as well as the full range of vertical construction design services, are all in house making SOLARIA a one-stop-shop for medium scale developments. SOLARIA's staff especially enjoys the challenges involved in mixed use projects that may incorporate various levels of residential, resort/hospitality, and light commercial design in a single project.

SOLARIA maintains relationships with a range of specialty consultants such as surveyors, landscape architects, environmental/biological consultants, traffic engineers, and geotechnical engineers to name just a few specialties that can be called on as needed.

Our experience is broad. The primary geographic area of our work is the Keys. But we are currently engaged in projects in Miami-Dade and Broward counties, as well as in Lee County and Hillsboro counties. We are regularly engaged in projects anywhere in Florida. Our mobility is enhanced with the in

house ability to fly to remote locations with qualified private pilots on staff. We have worked projects in the Bahamas, throughout the Caribbean, Texas, Georgia, Michigan, Wisconsin, Pennsylvania, New York and Massachusetts.

Engineering Services

SOLARIA's business has been dominated by engineering work since 2010. SOLARIA executes more engineering related projects than any other service offering in terms of volume. We offer a wide range of engineering services as listed below:

ELECTRICAL ENGINEERING

- Power distribution system design – small developments, island power, specialty applications
- Utility service design & sizing
- Loads analysis
- Photovoltaic (solar) system design – grid tied, off-grid, utility scale, site scale, hybrid
- Residential & commercial load calculations, service & distribution design, panel sizing/schedules/specifications
- Residential & commercial electrical systems – conventional electrical plans including lighting & control, telephone, home automation, computer networking, video, entertainment systems, specialty communications
- Uninterruptable Power Systems (UPS) – designs & specifications for specific applications, subsystems, or complete buildings
- Motor systems – motor sizing, drives, controls, monitoring
- Custom control systems – automation, process control, monitoring, safety systems
- Wind & hydro power systems design
- Low voltage systems
- DC systems – power generation, power conversion (DC-DC, inverters) , battery systems, controls
- Galvanic corrosion analysis, control, and design

STRUCTURAL ENGINEERING

- Structural analysis & design – wood and timber specialization (including heavy timber, LVL, glulam and engineered lumber), reinforced concrete, masonry, aluminum, steel
- Loads analysis according to ASCE 7-10 – general, wind, hydrostatic & hydrodynamic, snow, ice with a specialty in high wind zone analysis and design
- SIPs (Structural Insulated Panel) design – total buildings or components such as roofs, walls, and floor systems
- Framing plans for residential or commercial including "advanced framing"
- Foundations – conventional for residential & light commercial including slabs on grade
- Specialty foundations – timber, pile, screw pile, auger, capped, blended
- Cistern system design – site built, tank installation & anchoring
- Trusses and frame design including towers
- Component design – anchoring, doors, supports, hold downs

MECHANICAL ENGINEERING

- HVAC system sizing and design – conventional, geothermal, direct expansion & chilled water, specializing in small system chilled water less than 5 tons
- Energy calculations – EnergyGauge USA for residential or commercial applications
- Solar hot water systems – domestic hot water, pool systems, specialty applications, commercial & residential
- Refrigeration system sizing and design
- Rainwater harvesting systems – gutters, piping, storage systems & cisterns (all types & materials), filtration & treatment, distribution
- Thermodynamic & heat transfer systems design
- Corrosion resistant design – design for high corrosion environments, corrosion control, materials selection, design detailing for structural or general applications
- Plumbing, piping and pumping systems – including tanks & cisterns
- Structural components – members, fasteners, welds, parts – steel, aluminum, wood, composites

CIVIL ENGINEERING

- Site design including grading, paving, drainage, access, and storm water management
- Utilities sizing & design – water, waste water, gray water, electric, phone, cable TV
- Advanced On-site Waste Water Treatment Systems – residential, small residential development
- Specialty site systems – fluids transport & handling, integrated site systems
- Construction support & project management

GENERAL ENGINEERING

- Bid package development and bid process management
- Project management
- Owner's representation
- Construction administration or construction oversight and support
- Inspections – Construction, pre/post purchase, general investigtations
- Permitting support
- Damage assessment & mitigation

SOLARIA's business approach is not to be the highest price, or the lowest. Our objective is to give our clients value and the right solution for the challenges at hand. We look forward to working with you on your project. Please do not hesitate to contact us for further consideration.

Sincerely,

Steven Grasley, PE #73110
President, Director of Engineering

Steven S. Grasley, PE

S O L A R I A Design & Consulting Co.
(305) 289-7980
e-mail: steven@solariadesign.com

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About:

Mr. Grasley is President of SOLARIA (2008-present), and is an experienced technical executive with a broad range of high technology background from design engineering to corporate marketing management and general management, including expatriate assignments in the Asia-Pacific region. Mr. Grasley has a demonstrated track record of technical expertise, business management, multifunctional leadership and high impact, business process improvement. Mr. Grasley is a knowledgeable, high energy, team leader with infectious enthusiasm and a unique ability to simplify and solve complex problems with a diligent customer focus.

Mr. Grasley's intimate understanding of the local market for various types of engineering in the Florida Keys led to establishing an engineering design & consulting practice. Subsequently this practice merged into Solaria which provides full service architecture, engineering, and planning. As the president, Mr. Grasley leads all aspects of the company's development and growth. Mr. Grasley is the principal technical leader for all engineering within the company. Personal depth in electrical engineering, renewable energy and sustainable systems has established SOLARIA as a leader in green development before doing so was popular. As a result the company is a leader in design for solar, advanced HVAC, rainwater harvesting, advanced waste treatment, as well as high performance MEP & advanced structural design. Years of top corporate experience has facilitated pulling the best practices into SOLARIA offering experience and guidance to SOLARIA's growing staff in providing cost effective development services. Mr. Grasley personally provides the backbone of engineering skill for the company with a broad range of technical experience over many years.

Mr. Grasley has provided engineering project management and construction oversight for commercial, residential, governmental, institutional, and recreational projects throughout the Florida Keys and South Florida since 2001. Prior to SOLARIA Mr. Grasley worked in senior leadership and engineering capacities (including Manager, Director, and Vice President) for large corporations such as Procter and Gamble, General Electric Company, and Allied Signal.

Professional Licensure:

FL Professional Engineer: #73110
NY Professional Engineer: Issued 1986 (exp)

Education

Wharton School of Business, Philadelphia, PA
Degree: MBA Studies

Renssellaer Polytechnic Institute, Troy, NY
Degree: Master of Science in Mechanical Engineering (Hon)

Syracuse University, Syracuse, NY
Degree: Master of Science in Electrical Engineering
GPA 3.9

Marquette University, Milwaukee, WI
Degree: Bachelor's of Science in Electrical Engineering, Cum Laude
Cum Laude Graduate, GPA 3.67

Past Experience

Chill Towels International, LLC - Key West, FL — President 2007-2008
High risk startup that has recently gone national.

Marine Bank - Marathon, FL — Project Manager 2006-2007
Short term position to design and build 7 new branches around the state of Florida.

SALT Service, Inc. - Marathon, FL — Owner/Vice President/General Manager 2001-2006
Acquired local technology company that was heavily burdened by debt. Grew the company to a stable position and sold ownership interest to pursue other ventures.

AlliedSignal Aerospace *(now known as Honeywell Aerospace)* — 1991-1998
Held a variety of high level leadership positions in this world leading aerospace company.

Marketing, Sales & Service - Torrance, CA	Vice President, Marketing	1997-1998
	Vice President, Office of Continuous Improvement	1996-1997
Commercial Avionics Systems - Redmond, WA	Director - Operational Excellence	1994-1996
Air Transport Avionics - Fort Lauderdale, FL	Senior Radar Product Line Manager	1991-1994

General Electric Company — 1983-1991
Held a variety of high technology and leadership positions including internationally.

General Electric Technical Services - Singapore	Director - Bus Develop, SE Asia	1987-1990
Aerospace Electronic Systems - Utica, NY	Senior Manager - Radar Programs	1990-1991
	Marketing Manager - Multimode Radar Systems	1986-1987
	Radar Project Engineer & Technical Coordinator	1985-1986
	Radar Systems Engineer	1984-1985
	Digital Design Engineer	1983-1984
	RF Design Engineer	1983

Procter & Gamble Paper Products Division - Green Bay, WI — 1980 - 1983
Held positions of increasing responsibility including Electrical and Instrumentation Maintenance Manager, Quality Control Engineering Manager, Digital Machine Control Engineer, Process Control Engineer.

Professional Memberships

American Society of Civil Engineers (ASCE)/Architectural Engineering
American Society of Mechanical Engineers (ASME)
American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE)
Florida Engineering Society (FES)
Institute of Electrical and Electronics Engineers (IEEE)
Malcolm Baldridge Examiner
6σ Champion for Operational Excellence

Other Affiliations

Former Chairman, Green Living and Energy Education (GLEE) (501-3(c) non-profit)
Experimental Aircraft Association (EAA)
Private Pilot, Single Engine Land Instrument Rated

Centennial Bank Operations Center & Dept. of Homeland Security Build-Out

Marathon, FL

SOLARIA
ARCHITECTURE
ENGINEERING
PLANNING

Owner
Centennial Bank

Client Contact
Teresa Condas, President
305-676-3002

Completion Date
DHS Build-Out – 2011
Original Construction - 2007

Construction Cost
Original - $3.0 Million
Build-Out - $450K

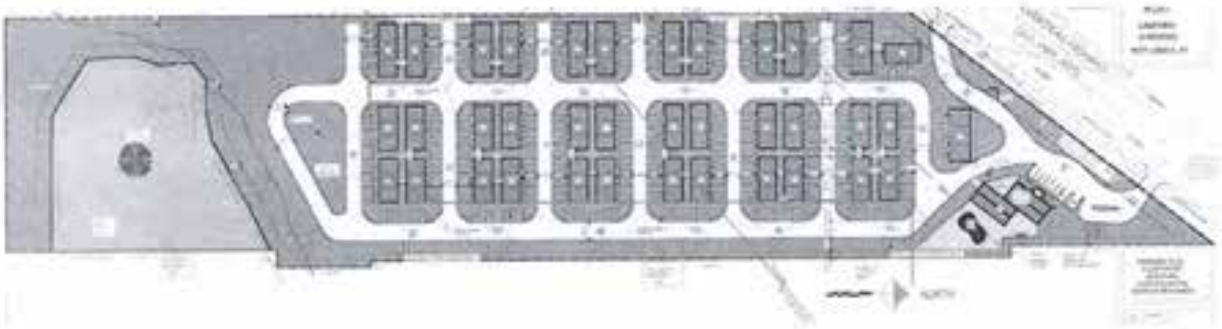
Original Construction 2007: New 15,000 sf mixed use office and affordable housing development. This was the first new commercial construction in Monroe County since NROGO that included affordable housing in the same structure. Solaria personnel were involved throughout the project in both design and construction project management capacities. The building is an advanced concrete frame with CMU infill. Five affordable apartments occupy the top floor with a 5,000 sf office level on the second floor. Covered parking is offered on the ground floor. "Green" features were included throughout the project. Notable are the advanced, high SEER zoned A/C systems with energy recovery ventilation; propane driers in the apartments; on demand-hot water systems throughout; advanced lighting systems. This building is regularly highlighted as one of the best examples of new commercial and mixed use construction in the Marathon area.

DHS Build-Out 2011: The second floor office space was reconfigured for a marine patrol unit according to DHS design guidelines by SOLARIA in 2010/11. Design and construction were completed according to federal design guidelines. SOLARIA was selected based on of our intimate knowledge of the building at original design & construction. The office space was reconfigured and hardened for security. Advanced IT & security systems were added. The ground floor was converted to provide secure parking and access. SOLARIA provided all design/permitting/bidding and Construction Administration services according to the federal CA guidelines for the Owner and DHS client. The project was completed on time and within budget.

Solaria provided: Architecture & Interior Design, MEPS Eng'g, Orig Const PM, Build-Out Design, Permitting, Bidding, and CA.

Keys Lake Villas

Key Largo, FL



SOLARIA
ARCHITECTURE
ENGINEERING
PLANNING

Owner
LeCese Development Corp

Client Contact
Chad Hochuli
407-645-3167

Completion Date
2012

Construction Cost
$25,000,000.00

The Key Lake Villas apartment complex is a 110 unit HUD funded development to provide work force housing in the upper Keys.

Solaria Services Provided include:

- Land Use Planning Services
- Conceptual designs for the site
- Final construction plans including:
- Paving, grading, and drainage
- Site geometry
- Site underground utilities (phone, cable, electric)
- Unit architecture for modular manufacturing
- All design from schematic design through construction documents for a 4,000 sf multi-use clubhouse, pool deck, pool equipment
- Site lighting

Coordination of the following design:

- Landscape architecture
- Potable water
- Sanitary sewer
- Irrigation

Permitting through the following agencies

- County
- SFWMD
- FKAA
- FDEP
- FDOT
- ACOE
- KLWTD

Construction Administration – As the Architect/Engineer of Record, HUD regulations required SOLARIA to provide CA for all aspects of the construction which lasted slightly over 12 months.

Challenges of the project included navigating the entire project design through the Federal HUD process for funding, providing a portion of the stormwater treatment in underground storage, on-site wetland restoration/mitigation with the creation of a conservation easement, and development within a designated FEMA floodplain area.

State of Florida
Department of State

I certify from the records of this office that SOLARIA DESIGN & CONSULTING CO. is a corporation organized under the laws of the State of Florida, filed on February 17, 2009, effective February 17, 2009.

The document number of this corporation is P09000014948.

I further certify that said corporation has paid all fees due this office through December 31, 2013, that its most recent annual report/uniform business report was filed on January 11, 2013, and its status is active.

I further certify that said corporation has not filed Articles of Dissolution.

Given under my hand and the Great Seal of the State of Florida at Tallahassee, the Capital, this is the Eleventh day of January, 2013

Ken Detzner

Secretary of State

Authentication ID: CC3879901077

To authenticate this certificate,visit the following site,enter this ID, and then follow the instructions displayed.

https://efile.sunbiz.org/certauthver.html

State of Florida
Board of Professional Engineers
2639 North Monroe Street, Suite B-112
Tallahassee, FL 32303-5268

Solario Design & Consulting Co
3000 OVERSEAS HIIGHWAY
MARATHON, FL 33050

Each licensee is solely responsible for notifying the Florida Board of Professional Engineers in writing the licensee's current address.

Name changes require legal documentation showing name change. An original, a certified copy, or a duplicate of an original or certified copy of a document which shows the legal name change will be accepted unless there is a question about the authenticity of the document raised on its face, or because the genuineness of the document is uncertain, or because of another matter related to the application.

At least 90 days prior to the expiration date shown on this license, a notice of renewal will be sent to your last known address. If you have not yet received your notice 60 days prior to the expiration date, please call (850) 521-0500, or write, Florida Board of Professional Engineers, 2639 North Monroe Street, Suite B-112,Tallahassee, FL 32303-5268 or e-mail: board@fbpe.org. Our website address is http://www.fbpe.org.

State of Florida

Board of Professional Engineers

Attests that

Solaria Design & Consulting Co

is authorized under the provisions of Section 471.023, Florida Statutes, to offer engineering services to the public through a Professional Engineer, duly licensed under Chapter 471, Florida Statutes.

Expiration: 2/28/2015
Audit No: 228201500775

Certificate of Authorization

CA Lic. No: 28784

State of Florida

Board of Professional Engineers

Attests that

Steven Scott Grasley, P.E.

Is licensed as a Professional Engineer under Chapter 471, Florida Statutes

Expiration: 2/28/2015

Audit No: 228201508551

P.E. Lic. No:
73110

STATE OF FLORIDA
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION

BOARD OF ARCHITECTURE & INTERIOR DESIGN
1940 NORTH MONROE STREET
TALLAHASSEE FL 32399-0783

(850) 487-1395

SOLARIA DESIGN & CONSULTING CO
3000 OVERSEAS HIGHWAY
MARATHON FL 33050

Congratulations! With this license you become one of the nearly one million Floridians licensed by the Department of Business and Professional Regulation. Our professionals and businesses range from architects to yacht brokers, from boxers to barbeque restaurants, and they keep Florida's economy strong.

Every day we work to improve the way we do business in order to serve you better. For information about our services, please log onto **www.myfloridalicense.com**. There you can find more information about our divisions and the regulations that impact you, subscribe to department newsletters and learn more about the Department's initiatives.

Our mission at the Department is: License Efficiently, Regulate Fairly. We constantly strive to serve you better so that you can serve your customers. Thank you for doing business in Florida, and congratulations on your new license!

STATE OF FLORIDA
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION

AA26001807 ISSUED: 01/10/2013

ARCHITECT CORPORATION
SOLARIA DESIGN & CONSULTING CO

IS CERTIFIED under the provisions of Ch.481 FS.
Expiration date: FEB 28, 2015 L1301100001079

The Department of State is leading the commemoration of Florida's 500th anniversary in 2013. For more information, please go to www.VivaFlorida.org.

DETACH HERE

STATE OF FLORIDA
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION
BOARD OF ARCHITECTURE & INTERIOR DESIGN

LICENSE NUMBER	
AA26001807	

The ARCHITECT CORPORATION
Named below IS CERTIFIED
Under the provisions of Chapter 481 FS.
Expiration date: FEB 28, 2015

SOLARIA DESIGN & CONSULTING CO
3000 OVERSEAS HIGHWAY
MARATHON FL 33050

VIVA FLORIDA

RICK SCOTT
GOVERNOR

ISSUED: 01/10/2013 SEQ # L1301100001079
DISPLAY AS REQUIRED BY LAW

KEN LAWSON
SECRETARY

STATE OF FLORIDA
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION
BOARD OF ARCHITECTURE & INTERIOR DESIGN

LICENSE NUMBER
AR0010806

The ARCHITECT
Named below IS LICENSED
Under the provisions of Chapter 481 FS.
Expiration date: FEB 28, 2015

BEEBE, DENNIS ALLAN
925 TRUMAN AVE
KEY WEST FL 33040

VIVA FLORIDA 500

RICK SCOTT
GOVERNOR

ISSUED: 02/12/2013 SEQ # L1302120000557
DISPLAY AS REQUIRED BY LAW

KEN LAWSON
SECRETARY

2012 / 2013
MONROE COUNTY BUSINESS TAX RECEIPT
EXPIRES SEPTEMBER 30, 2013

RECEIPT# 47161-101681

Business Name: SOLARIA DESIGN & CONSULTING

Owner Name: STEVE GRASLEY
Mailing Address: 3000 OVERSEAS HWY
MARTHON, FL 33050

Business Location: 3000 OVERSEAS HWY
MARATHON, FL 33050
Business Phone: 305-289-7980
Business Type: MISCELLANEOUS SERVICE (architectural design)

Rooms	Seats	Employees	Machines	Stalls
		3		

For Vending Business Only						
Number of Machines:				Vending Type:		
Tax Amount	Transfer Fee	Sub-Total	Penalty	Prior Years	Collection Cost	Total Paid
22.00	0.00	22.00	0.00	0.00	0.00	22.00

Paid 000-11-00002991 08/31/2012 22.00

THIS RECEIPT MUST BE POSTED CONSPICUOUSLY IN YOUR PLACE OF BUSINESS

THIS BECOMES A TAX RECEIPT WHEN VALIDATED

Danise D. Henriquez, CFC, Tax Collector
PO Box 1129, Key West, FL 33041

THIS IS ONLY A TAX. YOU MUST MEET ALL COUNTY AND/OR MUNICIPALITY PLANNING AND ZONING REQUIREMENTS.

OP ID: IM

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 02/04/2013

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Morris & Reynolds Inc. 14821 South Dixie Highway Miami, FL 33176 Robert D. Reynolds Phone: 305-238-1000 Fax: 305-255-9643	CONTACT NAME: PHONE (A/C, No, Ext): FAX (A/C, No): E-MAIL ADDRESS: PRODUCER CUSTOMER ID #: SOLARIA
INSURED Solaria Design & Consulting Co Mr. Steven Grasley 3000 Overseas Highway Marathon, FL 33050	INSURER(S) AFFORDING COVERAGE — NAIC # INSURER A : Hartford Casualty Insurance — 29424 INSURER B : Sentinel Insurance Company Ltd — 11000 INSURER C : RLI Insurance Company — 13056 INSURER D : INSURER E : INSURER F :

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	GENERAL LIABILITY X COMMERCIAL GENERAL LIABILITY CLAIMS-MADE X OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: POLICY PRO-JECT LOC	X	X	21SBMZJ7741	07/15/2012	07/15/2013	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ 2,000,000 $ 300,000 $ 10,000 $ 2,000,000 $ 4,000,000 $ 4,000,000
B	AUTOMOBILE LIABILITY X ANY AUTO ALL OWNED AUTOS SCHEDULED AUTOS HIRED AUTOS NON-OWNED AUTOS			21UECNE4502DV	07/15/2012	07/15/2013	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ 1,000,000
	UMBRELLA LIAB OCCUR EXCESS LIAB CLAIMS-MADE DEDUCTIBLE RETENTION $						EACH OCCURRENCE AGGREGATE	
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y / N (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	N / A					WC STATU-TORY LIMITS / OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	
C	Professional Liab			RDP0007546	07/15/2012	07/15/2013	Per Claim Aggregate	1,000,000 2,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

City of Marathon is listed as additional insured with respects to General Liability as required by written contract. A Wavier of Subgrogation applies with respects to General Liablity coverage as required by written contract. General Liability coverage is on a primary and non contibutory basis.

CERTIFICATE HOLDER

City of Marathon
9805 Overseas Highway
Marathon, FL 33050

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Pedro Falcon
Electrical & General Contractors, Inc.

James Mosomillo Jr.

Superintendent/Quality Control Manager/
Site Safety and Health Officer

James Mosomillo Jr. has over 30 years of experience in the construction industry. In his position as Superintendent, Jimmy is accomplished in all aspect of project supervision & coordination; problem solving and decision making. Jimmy has achieved a reputation as an effective team coordinator with a consistent track record in delivering projects "on time and under budget". He maintains the interface between the Owner, subcontractors, and direct construction personnel. He is responsible for the review and coordination of the scope of work activities with sub-contractors and employees. In selected cases he is also responsible for Quality Control and adherence to the QC Plan.

Pedro Falcon Electrical Contractors, Inc. projects include:

- ***Conch Key Fire Station # 17- Monroe County, Conch Key, FL; Renovation and Addition to existing Fire Station building***
- ***TCTS Bldg A4082 HVAC & Interior Repair, Naval Air Station, Key West FL Remove & Replace HVAC system, Install Skyfold Room Partition, Provide & Install Seven Work Stations with additional electrical outlets, Relocate Fire Alarm Strobes.***
- ***Jacksonville Bryan Simpson Federal Courthouse, Jacksonville FL*** **Extensive foundation, sidewalk and garage entrance repair**
- ***Naval Air Station, Key West FL*** **Install Security Steel Doorway**
- ***East Martello Building - Monroe County, Key West, FL*** **Public Bathroom Renovation**

Other Representative Projects Include:

- ***Lake Osprey Village Shopping Center, Sarasota FL*** **New 23 store shopping Center**
- ***Clear Channel Radio, Venice FL*** **Construct 580 ft Radio Tower,**
- ***Surgery Center of Key West, Key West FL*** **Convert metal building into state of the art Surgery Center**
- ***The Meadows of Key West, Key West FL*** **Construction of 8 high end condominiums**
- ***Public Storage, Miami FL*** **Construct 125,000 sq ft multi story building, including elevators, out buildings machinery and refrigeration systems.**

EDUCATION

A.S./Electrical Engineering
State University of New York,
Farmingdale NY, 1977

PROFESSIONAL REGISTRATIONS AND CERTIFICATIONS

U.S. Army Corp of Engineers,
Construction Quality Management for Contractors Certificate
OSHA 10 & 30 Hr. Safety Certification
Certification - Red Cross CPR/AED
Certification – Red Cross Standard First Aid
Certificate – Fall Protection
Certificate – Forklift Safety

PREVIOUS EXPERIENCE

Dooleymack Constructors – Commercial Superintendent, shopping center, renovation office space, 580 ft radio tower, surgery center, high end condos

Mike Carter Construction – Commercial Superintendent; office building, renovation furniture store, multi-story storage building

L.P.A.C – Co Owner, Commercial Superintendent / Estimator; design & installation of HVAC systems

Ice cool Mechanical Corp. – Owner / Operator; commercial refrigeration & air conditioning specializing in production plants & industrial facilities

James Mosomillo Electric Inc. – Owner / Operator; commercial wiring & refrigeration systems

Certificate of Completion

Presented to:

JAMES MOSOMILLO

On 5/18/2011, JAMES MOSOMILLO successfully completed the OSHA 30 Hour Outreach Training for the Construction Industry.

OSHA TRAINING INSTITUTE EDUCATION CENTER

USF UNIVERSITY OF SOUTH FLORIDA

American Safety Council

OSHA Authorized Trainer

As an OSHA authorized trainer I certify that I have conducted this OSHA outreach training class in accordance with OSHA Outreach Training Program requirements. I will document this class to my authorizing OSHA training organization. Upon successful receipt of my documentation, I will provide each student their completion card within 30 days of the end of the class.

U.S. ARMY CORPS OF ENGINEERS

PROFESSIONAL DEVELOPMENT SUPPORT CENTER
HUNTSVILLE, ALABAMA

CERTIFICATE

James Mosomillo, Jr.

has completed the Corps of Engineers Training Course

CONSTRUCTION QUALITY MANAGEMENT FOR CONTRACTORS

(STATE OF FLORIDA, Construction Industry Licensing Board COURSE # 0001674, Provider #0001330)
(12 CEHs of 16 CEH requirement, 1 CEH for Business Practices (site safety, workman's comp., financing CEHs not included)
(STATE OF FLORIDA, Board of Architecture and Interior Design COURSE # AR.04.579 - 17 Hours - Level of Instruction - Advanced)

is awarded continuing education credits as
*indicated for **16** hours of organized instruction*

IACET
Certified Provider #1990X
1.3 CEUs

Registered Provider #009
38 LUs

P/E
Registered Provider
13 PDHs

Given at Palm Beach Gardens (Location) By Jacksonville District (Instructional District) January 5th & 6th, 2011 (Date)

Walter "Doug" Wood
CESAJ-CD-W (Facilitator) (561) 472-3500

THIS CERTIFICATE EXPIRES FIVE YEARS FROM DATE OF ISSUE

Chief, USACE Professional Development Support Center

Pedro Falcon
Electrical & General Contractors, Inc.

EDUCATION

Florida Atlantic University :
Approved Program for Construction Safety, Florida Institute of Safety & Construction 1999

Construction Management Certificate Program, Florida Institute of Safety & Construction 2000

Professional Safety Management Accreditation, Florida Institute of Safety & Construction 2001

PROFESSIONAL REGISTRATIONS AND CERTIFICATIONS

EM 385-1-1 Safety & Health Requirements Manual Training
OSHA -500 Construction Industry Safety Trainer
OSHA -501 General Industry Safety Trainer
OSHA -510 Construction Industry Standards
OSHA -511 General Industry Standards
OSHA -311 Fall Arrest Systems
OSHA -301 Excavation, Trenching, & Soil Mechanics
HAZWOPER – 40 hour
Marine Barge & Water Safety
ATV Certified
252 Module 3 BP Oil Spill Post Emergency Response Training

PREVIOUS EXPERIENCE

EMR, Mobile, AL – Safety Lead Deep Water Horizon Incident

KM Plaza Construction Services, Miami, FL – Superintendent, Safety Officer, Project Manager

Pucuda Leading Edge Safety Systems, Miami, FL – Vice President of Operations

Pavarini Construction Company, Miami, FL – Corporate Safety Director, Job Site Estimator, Project Manager, Superintendent

Victor D. DeWitt

Site Safety and Health Officer

Victor D. DeWitt has over 20 years of construction & safety experience. Extensive experience with risk management and jobsite safety including JHA, site safety plan, and safety meetings. Projects have included high –rise condominiums, hotels, and universities. Expertise in coordinating all safety aspects of a project from start to finish, directing and motivating staff to accomplish desired goals. Experience in complete project life cycle.

- **Site Safety Officer, Central Mole Pier Bulkhead 497 Repairs, City of Key West, FL**
- **Site Safety Officer, Digital Airport Surveillance Radar Installation Site, Naval Air Station Key West FL;** Delivery & Installation of Tower Steel, Electronic Equipment, Antennae Pedestal, Radar Equipment, Primary Fuel Line installation, Remote Site DASR Equipment.
- **Safety Lead, Deep Water Horizon Incident;** HazMat Clean Up 44miles of Beaches & five marinas, Writing JSA, Site Specific Safety Plans, Conducting Safety Meetings, handle inspections & audits for OSHA, EPA, US DHS, Coast Guard, INOSH & Government HSE, Implement action list for results of audits to oversee resolution of exceptions.
- **Superintendent & Safety Officer The W Hotel;** Oversee personnel, building systems, inspections, site safety orientation, site safety plan, safety meetings, site audits, & start up at luxury high-rise condo / hotel.
- **Vice President Leading Edge Safety Systems;** Evaluated jobsite hazardous exposures, technical assistance on safety netting installations, training key personnel for division installations, coordinated & oversaw installation projects.
- **Corporate Safety Director;** Created corporate safety manual & program, evaluated & managed multiple jobsite safety programs, audited multiple jobsites for safety hazards & executed corrections, responsible for project risk management, accident investigations, coordination of all insurance claims from General Liability & Workmen's Compensation.
- **Job Site Estimator / Project Manager;** Reviewed & processed revisions & executed change orders for 38 story 75 million dollar luxury condominium.

California State University Dominquez Hills

Region IX OSHA Training Institute Education Center

College of Extended & International Education

Certifies That

VICTOR DEWITT

HAS DILIGENTLY AND WITH MERIT COMPLETED TRAINING IN

EM 385-1-1 Safety & Health Requirements Manual (2008)

16 Hours

1.6 CEUs
2.34 CM Points

Margaret F. Gordon

Dean
College of Extended and International Learning
California State University, Dominguez Hills

Director
OSHA Training Institute Education Center
California State University, Dominguez Hills

Completion Date: 8/19/2011

envirosafe™

ABOVE-GROUND FUEL SYSTEMS

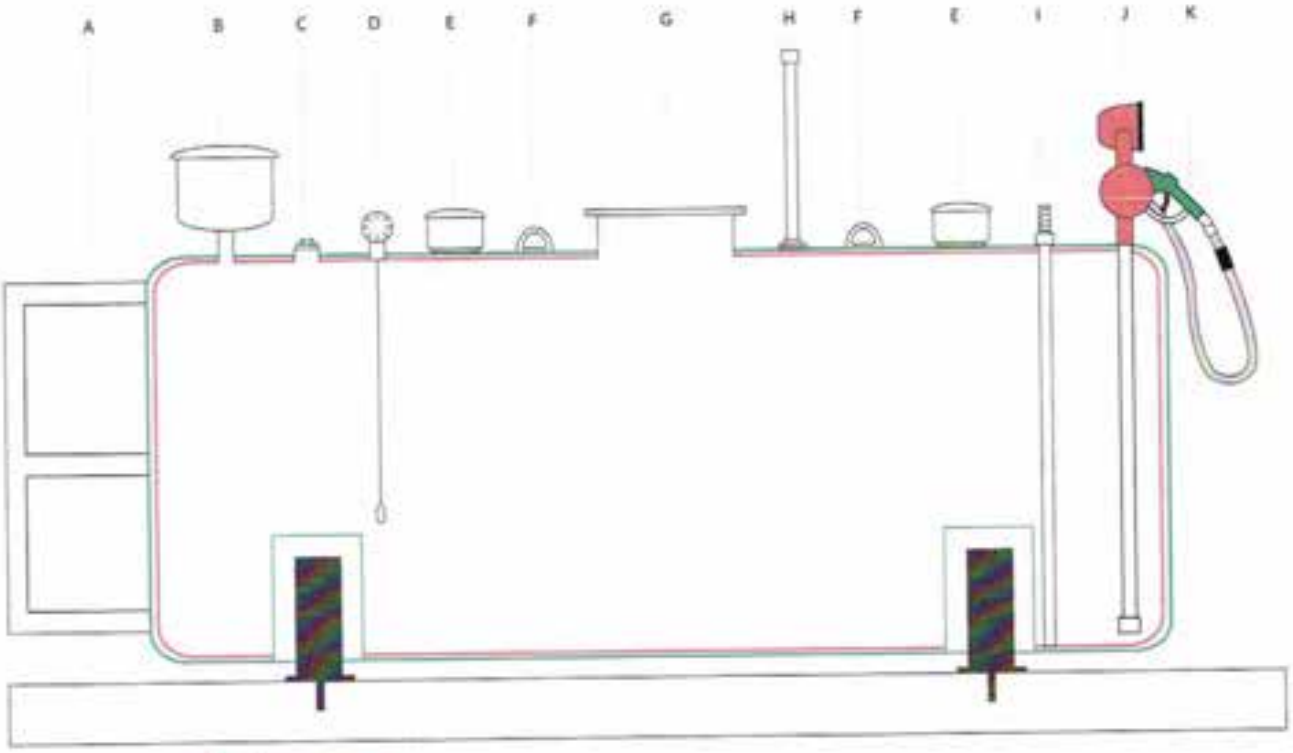
Small Fleet

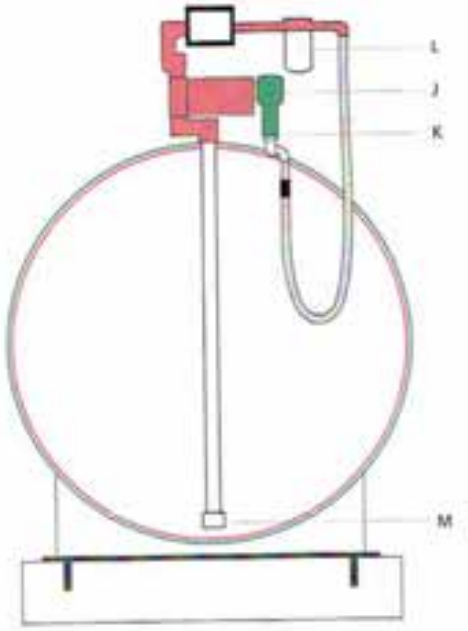
Proposed Specifications

- UL 2080 Listed "Fire Resistant" Tank
- UL 2085 Listed "Protected" Tank
- Both the Inner & Outer steel tanks are built to UL Standards
- Uniform Fire Code (UFC - Article 79 as a "Protected" Tank
- UL 2244 Aboveground Flammable Liquid Tank System
- National Fire Protection Association (NFPA) 30 & 30A
- International Fire Code (IFC), 2000 Chapter 34
- Ballistics Protection per UFC Article 79, & per UL 2085
- Impact Protection per UFC Article 79, & per UL 2085
- California Air Resources Board (CARB) testing requirements for on emissions
- Steel Tank Institute (STI) standard F841 for Thermally Insulated Aboveground Storage Tanks

Flameshield Specifications

- Tested two-hour fire resistance
- Complies with NFPA 30A fire-resistance tank requirements
- Tested by Southwest Research Institute to SwRI 17-04
- Double-Wall tanks have fully monitorable interstitial space for leak detection





A - Ladder
B - 7.5 Gallon Overspill w/ Lockable Cap
C - 2" Manual Monitoring Port
D - Morrison Bros 818 Clock Gauge w/ SS Float
E - 6" 8 oz Emergency Vent Male w/ O-Ring
F - Lifting Lug
G - 18" Manway for easy inner tank accessibility
H - 2" Stack Vent
I - Kreuger Interstitial Leak Gauge
J - Fill-Rite FR 711VA Pump 1" Assembly Meter
K - 3/4" Automatic Shut-Off Nozzle, Swivel, Breakaway and 12' x 3/4" Hose
L - Cimtek Fuel Filter w/ Filter Housing
M - Drop Tube with Foot Valve

— = Secondary Tank
— = Primary Tank

Additional Information

- If pump is mounted on side of tank or end of tank, pressure relief valve, anti-syphon valve and mounting bracket are required.

- 500 - 1,000 Gallon includes step, 1,500 - up Gallon includes ladder

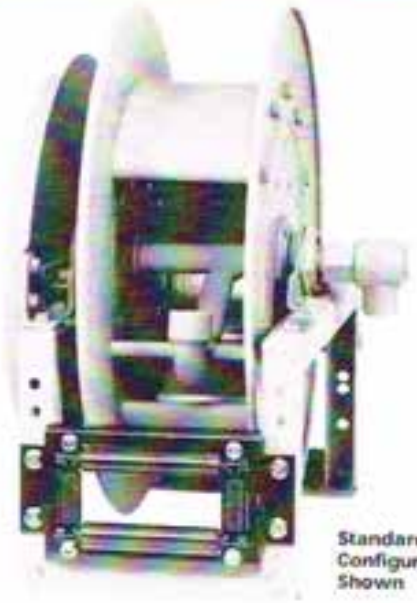
*Layout of systems may change depending on dimensions and/or capacity

STI Steel Tank Institute

UL

FLAMESHIELD
Steel Tank Institute

PEI MEMBER



Standard Configuration Shown

800

SPRING REWIND REELS

To handle 3/4" or 1" I.D. hose.

- *Rollformed channel frame for heavy-duty applications.*
- *Non sparking ratchet assembly.*
- *Declutching arbor to prevent damage from reverse winding.*
- *Standard inlet 90° balanced pressure swivel joint 1" female NPT threads.*
- *Standard outlet 1" female NPT threads.*
- *Pressures to 1000 psi (69 bar).*
- *Temperatures from -40° F to +250° F (-40° C to +121° C).*
- *Consult factory for other pressures & temps.*
- *4-way roller assembly.*
- *Constant Tension is available – consult factory.*

For:

- **Fuel Dispensing** (Consult Factory)
- **Waste Oil Evacuation**
- **Air/Water**

Parts Drawing – ISO 42

Model Number	Hose Capacity feet (I)			Approx. Weight lb. (kg)		Standard Roller Assy	Reel Dimensions*** in. (mm)									
	I.D. (in) (I.D. (mm))	3/4" 19	1" 25	NET	SHIP		A	B	C	D	E	F	G	H	X	Y
	O.D. (in) (O.D. (mm))	1-9/32" 33	1-9/16" 40													
818-23-241		50 15	25 8	87 39	122 55	R206	11.25 286	6 152	10.5 267	23.25 591	24.38 619	15.5 394	23.88 607	12.5 318	6.5 165	20.25 514
816-25-268		60 18	35 11	96 44	131 59	R204	9.25 235	4 102	10.5 267	25 635	26.12 663	13.5 343	25.88 657	13.5 343	4.5 114	22 559
818-25-268		70 21	50 15	102 46	137 62	R206	11.25 286	6 152	10.5 267	25 635	26.12 663	15.5 394	25.88 657	13.5 343	6.5 165	22 559
820-25-26-10.5A		85 25	75 23	131 59	166 75	R308	13.25 337	8 203	10.5 267	25 635	27 686	18.25 464	25.88 657	13.5 343	8.5 216	22 559
820-30-31-10.5A		– –	100 30	137 62	172 78	R308	13.25 337	8 203	10.5 267	28.5 724	30.5 775	18.25 464	31.38 797	17 432	8.5 216	25.5 648
820-30-31-15.5A		100 30	– –	145 66	180 82	R308	13.25 337	8 203	15.5 394	28.5 724	30.5 775	18.25 464	31.38 797	17 432	8.5 216	25.5 648

Notes:

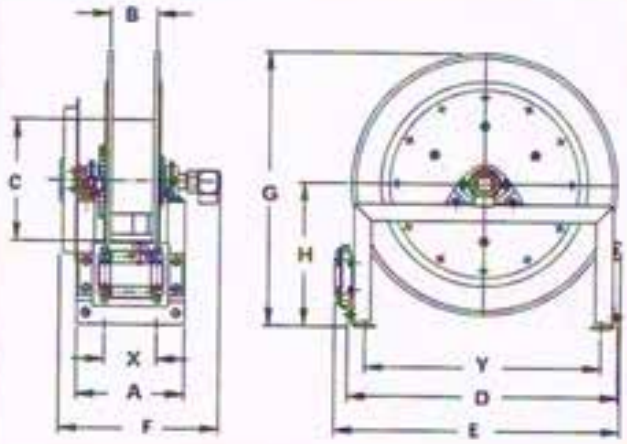
1. Specifications subject to change.
2. Reels models and capacities shown are for standard drag applications; for vertical lift applications consult factory.
3. Other sizes, from standard components, available on request.
4. **Finish:** refer to Page 4.
5. **Be sure to check dimensions and weights prior to ordering.**

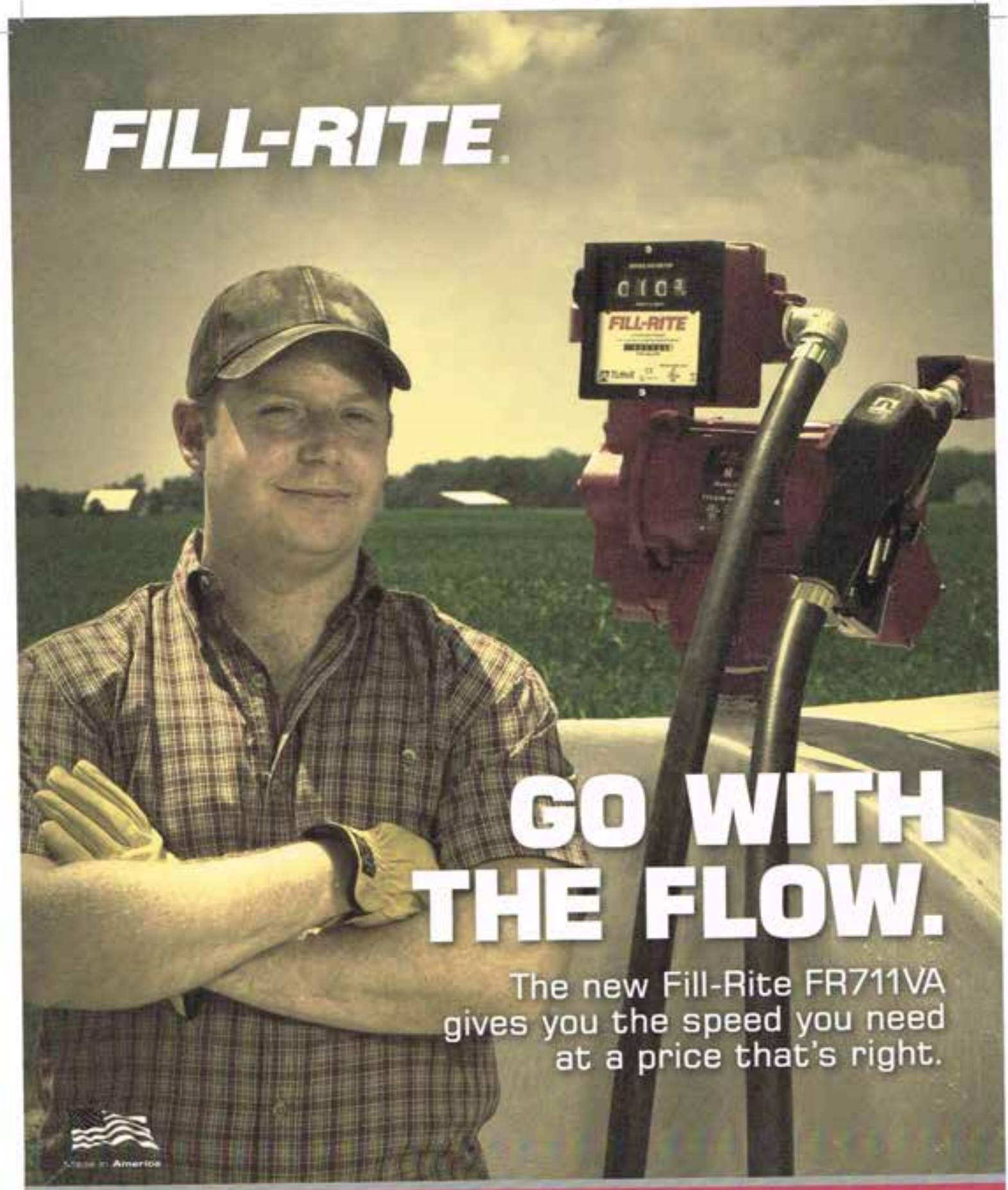
NOTICE: A Flexible Connector must be used between the inlet pipe and the inlet swivel joint.

* Dimensional weight may apply when shipped as a parcel package (via FedEx or UPS Ground).

*** x,y indicate mounting holes. See page 2.

Available Roller Positions




FILL-RITE.
FILL-RITE
GO WITH
THE FLOW.
The new Fill-Rite FR711VA
gives you the speed you need
at a price that's right.

At Tuthill Transfer Systems, our goal is to provide you with the finest in equipment to suit your particular needs and with the best value for your hard-earned dollar.

It's with that goal in mind that we introduce the Fill-Rite FR711VA, a new pump system that provides — with a very modest additional investment — up to a 25-percent flow-rate increase over our Fill-Rite FR701VA system.

Your big vehicles and other equipment — bulldozers, graders, combines — with larger tanks always seem to be thirsty, so you need the ability to refuel quickly. The faster the better because, after all, time is money.

How do we do it? At first glance, our new FR711VA system is similar to our trusty FR701VA, which has a 3/4" hose, manual nozzle, and 800 Series meter.

With our new FR711VA, there are some distinct differences that begin at the pump discharge point. The FR711VA features a full 1" hose, an Ultra Hi-Flow nozzle, and a 900 Series meter. The result? Up to a 25-percent increase in flow rate.

Call us to learn more about the new Fill-Rite FR711VA—and how you can get the speed you need at a price that fits your budget.

FR711V DETAILS

- 1" outlet
- 800 Series Meter
- 1" x 18' hose
- 1" Ultra Hi-Flow diesel nozzle
- 15 gpm flow rate
- 25 psi discharge pressure

700 SERIES FEATURES

- Explosion-proof UL/cUL listed 1/3 hp motor (115 vAC-60Hz) with sealed bearings
- Heavy-duty switch, thermal overload protection and junction box
- Carbon vanes and stainless steel cam reduce wear and repair expense
- Integral check valve with pressure relief on outlet side reduces pressure drop and improves vertical lift
- Easily removable strainer
- Automatic bypass valve
- 2" threaded base for tank openings
- Raingroof

CONFIGURATIONS

- FR710VN—115V AC pump with 1" outlet (pump only)
- FR711VA—115V AC pump with 800 Series liter meter, 1" outlet, 1" Ultra Hi-Flow diesel nozzle, and 1"x18' hose
- 801MK300V—Metal kit for Series 700 pumps
- 801LMK300V—Lever version of the meter kit for Series 700 pump

Tuthill

Tuthill Transfer Systems | 8825 Aviation Drive | Fort Wayne, Indiana 46809 P (260) 747-7524 F (260) 747-3155

CHEMPRIME 3001

CORROSION RESISTANT EPOXY PRIMER

DESCRIPTION

CHEMPRIME 3001 is a voc-compliant, high-performance epoxy primer. It adheres strongly to surface prepared steel and concrete. It provides excellent barrier protection against corrosion. It has high chemical resistance making it suitable for use in aggressive environments. This product is ideal for steel fabricators requiring a high-performance, corrosion-resistant primer with good handling and recoat features.

CHEMPRIME 3001 may be topcoated using CHEMTHANE 3107 or CHEMTHANE 3300. This primer is easy to apply using a brush, roller, conventional or airless spray equipment.

This product complies with Mil Spec 24441 as a primer and intermediate coat.

TYPICAL PROPERTIES

Solids, by volume	58%
Solids, by weight	74%
VOC (supplied and sprayable)	3.2 lbs/mixed gallon
Color Availability	Light Gray
Mix Ratio, by volume	4:1
Weight per mixed gallon	11.8 lbs/gallon (5.3 kg/gallon)
Theoretical Coverage	930 sq. ft. per gallon per mil (86 sq. m/gal per mil)
Primer Requirement	None Required
Application Temperature Range	45°F - 120°F (7°C - 49°C)
Recommended Thickness	4-8 mils dft (0.1 - 0.2mm)
Sag Resistance	9+ wet mils (0.22mm)
Pot Life	2+ hours @ 77°F (25°C)
Adhesion to Steel	Excellent
Adhesion to Concrete	Excellent
Chemical Resistance	Excellent
Accelerated Weathering	Will discolor & chalk
Salt Fog Spray	> 2500 hours (ASTM B117-85)
Gloss	Flat

CURE TIMES

Touch to the Cure	60 minutes @ 77°F (25°C)
Print Free	6-8 hours @ 77°F (25°C)
Ultimate Cure	7 days @ 77°F (25°C)
Time to Recoat	After 4 hours, before 7 days @ 77°F (25°C)

PACKAGING, STORAGE & SHELF LIFE

CHEMPRIME 3001 is supplied in 5-gallon kits: 4-gallon Part A, 1-gallon Part B.

Keep containers tightly sealed until ready for use. Store material at temperatures between 50-80°F (10-27°C) in a dry well ventilated area. Do not store near ignition source.

Ensure that material does not freeze. Material has a minimum shelf life of 12 months after the date of manufacture if properly stored.

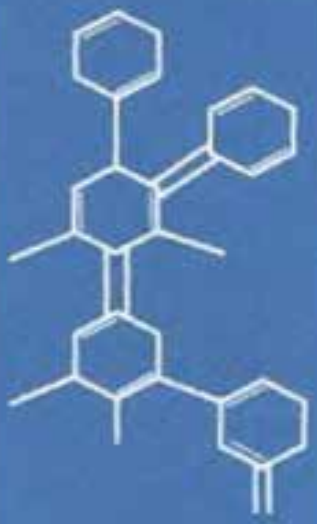
SAFETY PRECAUTIONS

CHEMPRIME 3001 IS FOR INDUSTRIAL USE ONLY. Avoid contact with eyes, and skin; do not inhale or ingest. When working with this material wear goggles, rubber gloves and a respirator. When spraying in a confined area, also wear a fresh air hood and make provision for forced ventilation. Refer to MSDS regarding individual components.

revised: 9-04

DATA

Technical



CHEMLINE

Chemline Incorporated
9351 Natural Bridge Rd
St. Louis, Missouri 63115 USA
T: 314.664.2230
F: 314.664.1355
E: info@chemline.net
www.chemline.net

CHEMPRIME 3001

revised: 9-04

APPLICATION GUIDELINES

Consult with a CHEMLINE Representative for detailed application instructions. For best results, **The substrate must be dry and free from dust, oil and grease.** The substrate surface temperature should be a minimum of 5 F above the dew point of ambient air. Abrasive blast substrate surface using steel grit or sand. **Steel surfaces should be cleaned to a minimum commercial blast with a minimum angular profile of 1.5 mils.** Clean concrete surfaces by removing all surface laitance and exposing sound concrete.

Combine Parts A and B in a ratio of 4:1 by volume. Power mix Parts A and B together until uniform. Material may be used immediately. Thinning is usually not required but may be done with MEK or Xylol.

CHEMPRIME 3001 is applied using a brush, roller or spray application equipment. Best results have been obtained using a 30:1 (or higher) single component airless spray pump, a .015 or .017 spray tip and fluid pressures ranging from 2200-3000 psi (airless). Filters 60-100 mesh. Apply in an even, uniform manner making sure recesses and edges are thoroughly coated. It is recommended that a 'stripe' coat be first applied to weld seams and edges to ensure good coverage. A minimum thickness of 2 mils dft must cover the 'peaks' of the blast profile for proper corrosion protection. Flush pump thoroughly immediately after use with MEK or Xylol.

WARRANTY

CHEMLINE warrants this product to be free of defects in material and workmanship. CHEMLINE's sole obligation and Buyer's exclusive remedy in connection with the products shall be limited, at CHEMLINE's option, to either replace the products not conforming to this Warranty or credit to Buyer's account in the invoiced amount of the nonconforming products. Any claim under this Warranty must be made by the Buyer to CHEMLINE in writing within (5) days of Buyer's discovery of the claimed defect, but in no event later than the expiration of the applicable shelf life, or one year from the delivery date, whichever is earlier. Buyer's failure to notify CHEMLINE of such nonconformance as required herein shall bar Buyer from recovery under this Warranty.

CHEMLINE makes no other warranties whether express, implied, or statutory, such as warranties of merchantability or fitness for a particular purpose, shall apply. In no event shall CHEMLINE be liable for consequential or incidental damages.

Any recommendations or suggestion relating to the use of the products made by CHEMLINE, whether in its technical literature, or in response to specific inquiry, or otherwise, is based on data believed to be reliable; however, the products and information are intended for use by buyers having requisite skill and know-how in the industry, and therefore it is for Buyer to satisfy itself of the suitability of the products for its own particular use and it shall be deemed that Buyer has done so, at its sole discretion and risk. Variation in environment, changes in procedures of use, or extrapolation of data may cause unsatisfactory results.

LIMITATION OF LIABILITY

CHEMLINE's liability on any claim of any kind, including claims based upon CHEMLINE's negligence or strict liability, for any loss or damage arising out of, connected with, or resulting from the use of the products, shall in no case exceed the purchase price allocable to the products or part thereof which give rise to the claim. In no event shall CHEMLINE be liable for consequential or incidental damages.

CHEMLINE INCORPORATED
5151 NATURAL BRIDGE ROAD
ST. LOUIS, MO • 63115 • USA
T: 314-664-2230 • F: 314-664-1355
www.chemline.net

CHEMTHANE 3300

ACRYLIC POLYURETHANE COATING FOR HIGH PERFORMANCE FINISH

DESCRIPTION

CHEMTHANE 3300 is a high-solids, voc conforming finish coat that consists of a pigmented acrylic enamel and a polyisocyanate hardener. This product cures to form an extremely durable finish having outstanding gloss and color retention. Cured films have excellent resistance to acids, alkalis, humidity and salts. This product should be applied directly over one of our epoxy or moisture cure urethane primers.

TYPICAL PROPERTIES

Solids, by volume	58%
Solids, by weight	68%
VOC (supplied and sprayable)	2.8 lbs/mixed gallon
Mix Ratio	1:3
Weight per mixed gallon	8.4 lbs/gallon (3.8 kg/gallon)
Theoretical Coverage	898 sq. ft. per gallon per mil
Recommended Thickness	2-3 mils dft (0.05mm)
Primer Requirement	Required
Application Temperature Range	32°F - 140°F (0°C - 60°C)
Sag Resistance	5-6 wet mils (0.15mm)
Pot Life	2 hours @ 77°F (25°C)
Application Temperature Range	35°F - 120°F (7°C - 49°C)
Hardness	2 H (ASTM D 3363-74)
Impact Strength	Direct: 140 in lbs, Reverse: 80 in lbs.
Flexibility	2 mils bent over 1/8" mandrel
Abrasion Resistance	110 mg (CS17 wheel,1kg,1000 cycles)
Accelerated Weathering (QUV-A Bulb)	Excellent
Salt Fog Spray	> 1000 hours (ASTM B117-85)
Gloss	90+ (60° meter)
Colors	White, Black and others on request

CURE TIMES

Cure to the Touch	2 hours @ 77°F (25°C)
Cure to Handle	12-18 hours @ 77°F (25°C)
Ultimate Cure	7 days @ 77°F (25°C)
Time to Recoat	Within 24 hours of initial application

PACKAGING, STORAGE & SHELF LIFE

CHEMTHANE 3300 is supplied in 4-gallon kits: 1-gallon Part A, 3-gallons Part B and Accelerator (optional). We package this product 24 kits (96 gallons) per pallet.

Keep containers tightly sealed until ready for use to prevent atmospheric moisture from contaminating material. Store material at temperatures between 50-80°F (10-27°C) in a dry well ventilated area. Do not store near ignition source.

Ensure that material does not freeze. Material has a minimum shelf life of 6 months after the date of manufacture if properly stored.

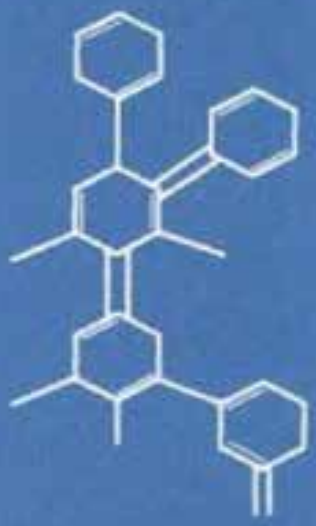
SAFETY PRECAUTIONS

CHEMTHANE 3300 IS FOR INDUSTRIAL USE ONLY. Avoid contact with eyes, and skin; do not inhale or ingest. When working with this material wear goggles, rubber gloves and a respirator. When spraying in a confined area, also wear a fresh air hood and make provision for forced ventilation. Refer to MSDS regarding individual components.

revised: 9-04

DATA

Technical



CHEMLINE

Chemline Incorporated
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www.chemline.net

CHEMTHANE 3300

revised: 9-04

APPLICATION GUIDELINES

Consult with a CHEMLINE Representative for detailed application instructions. Newly primed surfaces should be clean and dry. If contaminated, detergent wash then let dry. Previously painted surfaces should have all loose paint removed and the edges feathered. Prime bare spots with CHEMPRIME products.

Add entire 1-gallon **Part A** (clear Hardener) to 3-gallons **Part B** (pigmented enamel). **IMPORTANT:** Be sure to empty all resin from Part A into Part B or this coating will not cure properly. Power mix for 5 minutes. Material may be used immediately. Thinning is usually not required but may be done with MEK or Xylol.

CHEMTHANE 3300 is applied using a brush, roller or spray application equipment. Best results have been obtained using a 30:1 (or higher) single component airless spray pump, a .015 spray tip and fluid pressures ranging from 1700 psi–2400 psi (117 - 165 bar) (airless). Filters 60-100 mesh. Apply in an even, uniform manner making sure recesses and edges are thoroughly coated. It is recommended that a 'stripe' coat be first applied to weld seams and edges to ensure good coverage. Flush pump thoroughly immediately after use with MEK or Xylol.

WARRANTY

CHEMLINE warrants this product to be free of defects in material and workmanship. CHEMLINE's sole obligation and Buyer's exclusive remedy in connection with the products shall be limited, at CHEMLINE's option, to either replace the products not conforming to this Warranty or credit to Buyer's account in the invoiced amount of the nonconforming products. Any claim under this Warranty must be made by the Buyer to CHEMLINE in writing within (5) days of Buyer's discovery of the claimed defect, but in no event later than the expiration of the applicable shelf life, or one year from the delivery date, whichever is earlier. Buyer's failure to notify CHEMLINE of such nonconformance as required herein shall bar Buyer from recovery under this Warranty.

CHEMLINE makes no other warranties whether express, implied, or statutory, such as warranties of merchantability or fitness for a particular purpose, shall apply. In no event shall CHEMLINE be liable for consequential or incidental damages.

Any recommendations or suggestion relating to the use of the products made by CHEMLINE, whether in its technical literature, or in response to specific inquiry, or otherwise, is based on data believed to be reliable; however, the products and information are intended for use by buyers having requisite skill and know-how in the industry, and therefore it is for Buyer to satisfy itself of the suitability of the products for its own particular use and it shall be deemed that Buyer has done so, at its sole discretion and risk. Variation in environment, changes in procedures of use, or extrapolation of data may cause unsatisfactory results.

LIMITATION OF LIABILITY

CHEMLINE's liability on any claim of any kind, including claims based upon CHEMLINE's negligence or strict liability, for any loss or damage arising out of, connected with, or resulting from the use of the products, shall in no case exceed the purchase price allocable to the products or part thereof which give rise to the claim. In no event shall CHEMLINE be liable for consequential or incidental damages.

CHEMLINE INCORPORATED
5151 NATURAL BRIDGE ROAD
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www.chemline.net

HUSKY SAFE-T-BREAK® VALVES

FOR TRUCK AND HIGH VOLUME FUELING

All Husky Safe-T-Breaks® stop the flow of fuel on both sides of the separation.

All Husky Safe-T-Breaks® have passed the demanding U.L. test requirements on separations without leaking or failing.

Husky Model 2276 Reconnectable Safe-T-Break®

- Model 2276 is reconnectable and retains U.L. listing after reconnecting.
- Internal pressure balancing chamber prevents "line shock" nuisance separations.
- Separates at less than 200 lbs. pull force which minimizes "backlash" force of separations, reducing damage to equipment.

Husky Model 5812 Non-reconnectable Safe-T-Break®

- Model 5812 is light-weight and disposable.
- Features same instant-closing duel poppet check valve design as the Model 2276.
- Separates at less than 300 lbs. pull force.

Husky Model 6301 Non-reconnectable Safe-T-Break®

- Model 6301 has an internal pressure balancing chamber that prevents "line shock" nuisance separations.
- Unit is lightweight and disposable.
- Separates at less than 225 lbs. pull force.

Model 2276

Model 5812
(shown without guard)

Model 6301

SPECIFYING INFORMATION

Model Number	Description	Length In. (cm.)	Weight Lbs. (kg.)
2276	1" F x 1" F Reconnectable	4.83 (12.3)	.71 (.32)
5812	1" F x 1" F Non-reconnectable	4.83 (12.3)	.71 (.32)
6301	1" F x 1" F Non-reconnectable	4.79 (12.2)	.54 (.25)

CONSTRUCTION

Model 2276	
Body	Aluminum
Seals	Viton® (Florocarbon)
Springs	Stainless Steel
Threads	1" NPT
Stainless steel load and latch spring reverse mechanism. Hardened stainless steel latch ring and balls.	

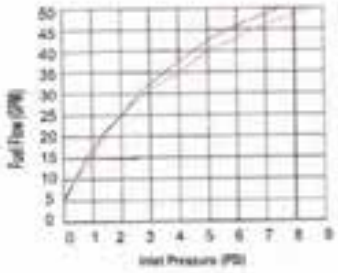
Model 5812	
Body	Aluminum
Seals	Viton® (Florocarbon)
Threads	1" NPT

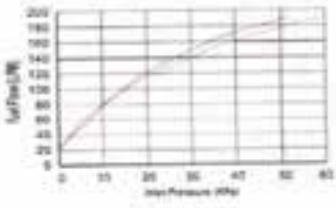
Model 6301	
Body	Aluminum
Seals	Viton® (Florocarbon)
Threads	1" NPT
Hardened stainless steel ball.	

PATENTS AND LISTINGS

Patent Number: 4,827,977

Listings: cULus





HUSKY SAFE-T-BREAK® VALVES
FOR TRUCK AND HIGH VOLUME FUELING

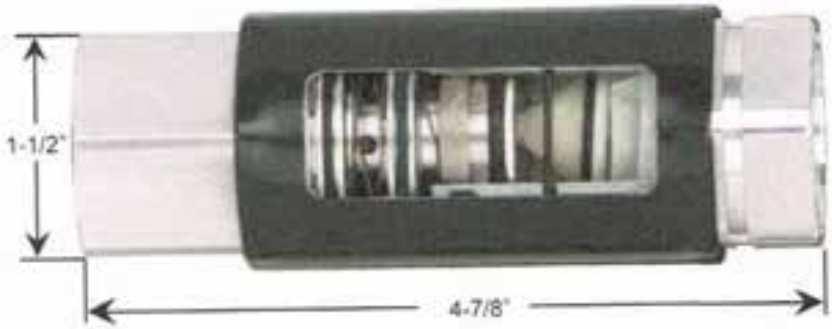
- ACCESSORIES
- DIMENSIONS

ACCESORIES

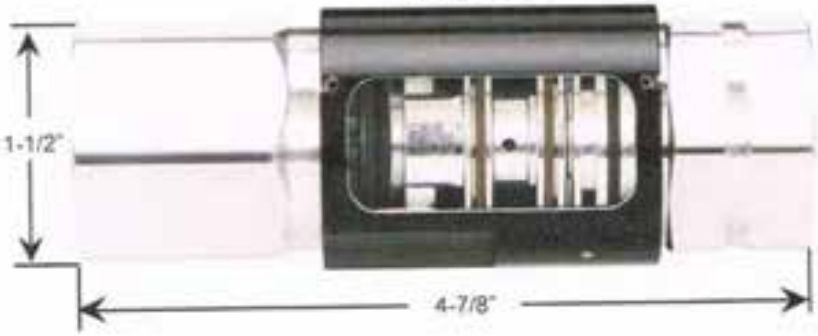
Model No.	Use with	Description
2277	2276, 5812 & 6301	1" M x 1" M Whip Hose
3098	2276, 5812 & 6301	Scuff Guard

Model 5812

Model 2276



Model 6301



2325 Husky Way • Pacific, MO 63069 • (800) 325-3558 • Fax (636) 825-7300 • www.husky.com • sales@husky.com

HUSKY SWIVELS

FOR TRUCK AND HIGH VOLUME FUELING

Husky Models 0087, 0095:

- Multi-plane, full 360° spherical rotation for easy nozzle movement.
- High flow rate due to laminar flow design.
- Compact for easy handling.
- Double O-ring seals at each swivel joint provide long life and low (-40°) temperature performance.
- Compatible with fuels containing alcohol.
- High strength step shoulder bearing diameters and impact absorbing stops.

Model 4860 offers advanced features for high flow fueling

- Same features as Models 0087 and 0095, plus:
- Model 4860 is ideal for use with high flow nozzles, and flow rates up to 100 GPM.
- Raised stainless steel ball bearings provide easy joint movement, greatly improving ease of swivel when used on higher pressure systems.
- 75% less back pressure; unit is lightweight and compact.

SPECIFYING INFORMATION

Model Number	Description	Weight Lbs. (kg.)
0087	1"M x 1"F	.93 (.42)
0095	1"M x 1"F (70°)	.75 (.34)
4860	1"M x 1"F	1.08 (.49)

CONSTRUCTION

Body	High Aluminum Zinc Alloy	0087, 0095
Inlet Body	Aluminum	4860
Outlet Body	Zinc	4860
Swivel Nut	Zinc Plated Steel	4860
Inner O-Ring	Fluorosilicone	All
Outer O-Ring	Viton® (Fluorocarbon)	All
Threads	1" NPT, BSP 1" NPT	0087, 0095 4860

PATENTS AND LISTINGS

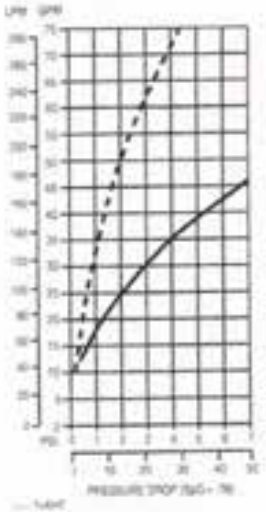
Patent No.	4,615,547
Listings	U.L. U.L.C.

Viton® is a registered trademark of DuPont Dow Elastomers.

Model 0095

Model 4860

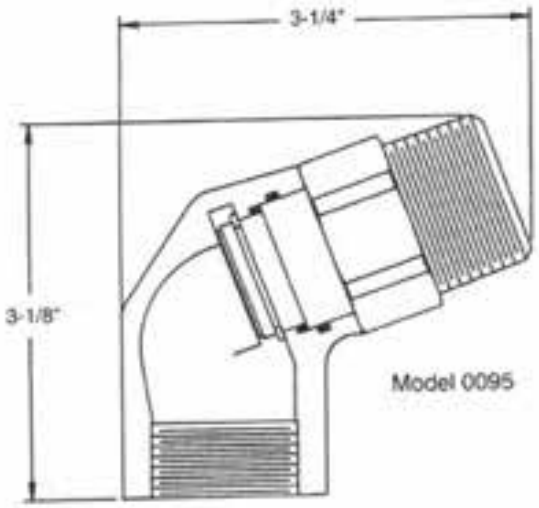
Model 0087



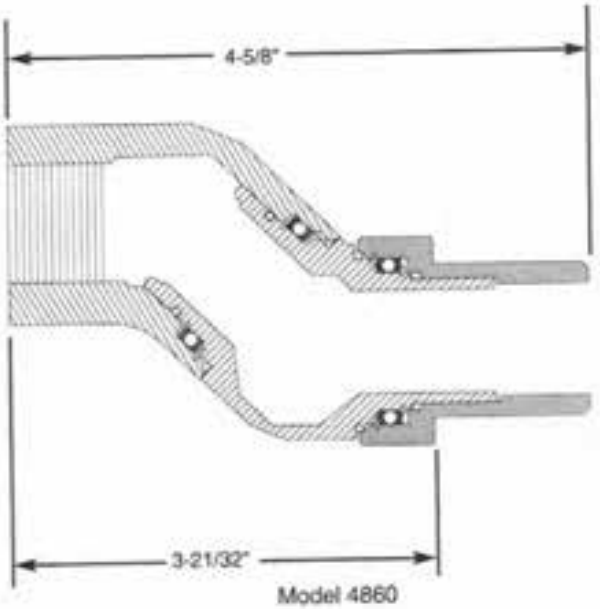
— Models 0087, 0095
- - - Model 4860

HUSKY SWIVELS

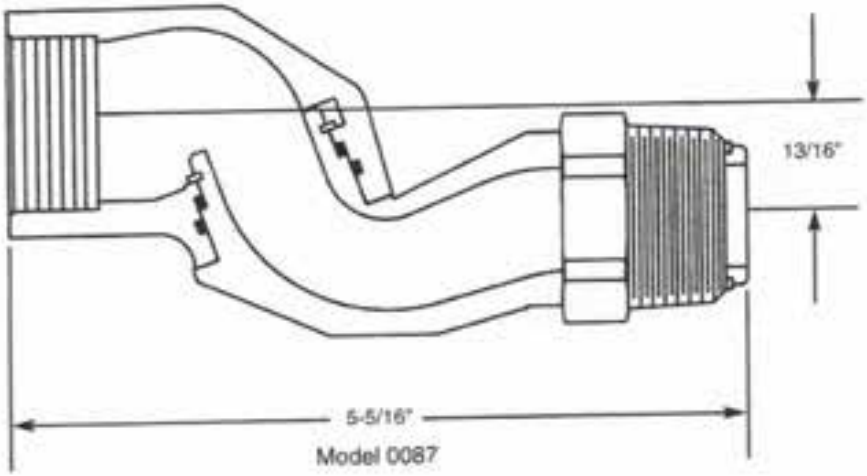
FOR TRUCK AND HIGH VOLUME FUELING



Model 0095



Model 4860



Model 0087

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KRUEGER SENTRY GAUGE

The Leak Gauge—Type K

Price Book Page 6 *http://www.ksentry.com/leak.htm*

Calibration: Consists of 3 pieces. Outer plastic piece, inner plastic piece, and a piece of paper in between. Optional glass inner piece is available.

Red Lock Nut: HDPE Plastic. Also available in aluminum or PVC.

Bushing: Aluminum bushing, can be 2", 1.5". Special package allows for a Stainless Steel Bushing also.

Internal Rods: Standard construction is aluminum rods. There are no other options for this gauge due to floatation.

76" and smaller Polypropylene Float
77" and taller Poly Coated Cork Float

Part Number—
K-(size opening)-(total length)-(list options)
Sample—K-2-48-Guard

What it is:

Top mounted liquid leak gauge that can measure from 6 inches to 170 inches in depth. Bushing size can be 2" or 1.5". Gauges are custom made in house to fit your tank. This gauge is designed to monitor either the interstitial space of a double wall containment system, or it can mount into an external monitoring pipe.
http://www.ksentry.com/leak.htm

Additional Options:

Audible Alarm Accessory: This add on feature can turn your mechanical visual gauge into an audible leak detection alarm. *(price book page 8)*
http://www.ksentry.com/alarm.htm

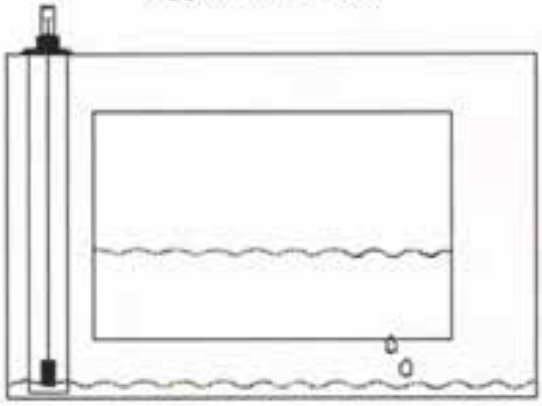
Gauge Guard: A cover that protects the exposed plastic components on top of the gauge. - http://www.ksentry.com/replace.htm

Material Choices and Limitations:

Standard choices are listed on picture to the left.

Due to floatation, this gauge does not have many material options. The leak gauge is rarely exposed to the liquid. If it is not compatible and it is exposed, the gauge must be replaced afterward.

Application Photo:



Krueger Sentry Gauge
1873 Siesta Lane
Green Bay, WI 54313

http://www.ksentry.com

KRUEGER SENTRY GAUGE

Contact us for more info or a loca distributor:
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Email: info@ksentry.com

KRUEGER SENTRY GAUGE

The Leak Gauge—Type K

Price Book Page 6 *http://www.ksentry.com/leak.htm*

Model	Calibration	Indicator	Lock Nut	Bushing	Internal Rods	Union	Floats	Gasket
Standard (6"-76")	Cellulose Acetate-Plastic	HDPE	HDPE	Aluminum	Aluminum-1/8"	Plated Nickel—1/8"	Polypropylene	Nitrile
Standard (6"-144")	Cellulose Acetate-Plastic	HDPE	HDPE	Aluminum	Aluminum—3/16"	Brass—3/16"	Poly coated cork	Nitrile
Options available for all of above	**GLC** -Glass internal, plastic external		**ALN**-Aluminum Lock Nut					**VTN**—Viton

- Sample Part Number—K-2-76-GLC

Other Options Available on the Type K Gauge

Price Book Page 6

Level Gauge Accessory	Description	Web Link
At-A-Glance Alarm	Audible Hi or Lo Level Alarm Accessory. Retrofits right to gauge. 110 decibel alarm. 9volt lithium battery.	http://www.ksentry.com/alarm.htm
Gauge Guard Aluminum or PVC	Durable sleeve that covers the plastic components on top of the gauge. Extend the life of the exposed parts of the gauge, and protect it from physical damage.	http://www.ksentry.com/replace.htm

Krueger Sentry Gauge
1873 Siesta Lane
Green Bay, WI 54313

http://www.ksentry.com

KRUEGER SENTRY GAUGE

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Email: info@ksentry.com

Morrison Bros. Co.

www.morbros.com

Fig. 2446" Emergency Vent

Specification Sheet

UL Listed Emergency vent (pressure relief only) used on aboveground storage tanks, as a code requirement, to help prevent the tank from becoming over-pressurized and possibly rupturing if ever exposed to fire. Vent must be used in conjunction with a "normal vent." Correct application of this vent requires proper vent size and selection for the tank system in order to meet the specific venting capacity.

Conformance Including: NFPA 30, 30a, UL 142, UL 2244, API 2000 and PEI RP200.
Additional References: NFPA 30, UL 142, Morrison Venting Guide

6" Fig. 244

SPECIFICATION OPTIONS:

I.D. NUMBER	A	B	C	D	E	F	G	DIA	HT	WT.
244M--0200 AV	6	246.13	M	8	I	BR	AL	7.9	6.5	19.5
244OM-0200 AV	6	246.13	M	8	I	O	AL	7.9	6.4	19.5
244OMI0200 AV	6	246.13	M	8	I	O	I	7.9	6.4	27.8
244M--0400 AV	6	246.13	M	16	I	BR	AL	8.1	7.8	35
244OM--0400 AV	6	246.13	M	16	I	O	AL	8.1	7.7	35
244OMI0400 AV	6	246.13	M	16	I	O	I	8.1	7.7	43.3
244---0200 AV	6	246.13		8	I	BR	AL	7.9	4.5	15.5
244O--0200 AV	6	246.13		8	I	O	AL	7.9	4.2	15.5
244OI-0200 AV	6	246.13		8	I	O	I	7.9	4.2	20.6
244---0400 AV	6	246.13		16	I	BR	AL	8.1	5.7	33.2
244O--0400 AV	6	246.13		16	I	O	AL	8.1	5.6	33.2
244OI-0400 AV	6	246.13		16	I	O	I	8.1	5.6	38.3
244OH-0400 AV	6	298.75		8	I	O	AL	8.5	4.7	21.5
244OH-0600 AV	6	298.75		16	I	O	AL	8.6	5.9	41.4
244OMH0400 AV	6	298.75	M	8	I	O	AL	8.5	6.6	23.0
244OMH0600 AV	6	298.75	M	16	I	O	AL	8.6	7.8	42.9
244OF-0050 AV	6	298.75	F	8	I	O	AL	11	3.9	24.8
244OF-0075 AV	6	298.75	F	16	I	O	AL	11	5	44.2

CHART KEY:
A—Size: 6"
B—Venting Capacity/CFH (in 1000's)
C—Mounting Connection: Female N.P.T. (BLANK); Male N.P.T.(M); Flanged (F)
D—Pressure Settings: 8, 10, 16 oz/in^2. Pressure Required to Open Vent.
E—Cover: Cast Iron Painted (I); Aluminum (AL); Optional Iron Powder Coated (Consult Factory for Details); Bolt: Steel-Zinc Plated
F—Seat Material: Brass (BR) or Viton O-Ring (O)
G—Body Material: Aluminum (AL) or Iron (I)
Diameter—Dimension Across Vent
Height—Dimension From Base to Top When Closed
Weight—Shipping Weight

WARNING: DO NOT FILL OR UNLOAD FUEL FROM A STORAGE TANK UNLESS IT IS CERTAIN THAT THE TANK VENTS WILL OPERATE PROPERLY. Morrison tank vents are designed only for use on shop fabricated atmospheric tanks which have been built and tested in accordance with UL 142, NFPA 30 & 30A, and API 650 and in accordance with all applicable local, state, and federal laws. In normal operation, dust and debris can accumulate in vent openings and block air passages. Certain atmospheric conditions such as a sudden drop in temperature, below freezing temperatures, and freezing rain can cause moisture to enter the vent and freeze which can restrict internal movement of vent mechanisms and block air passages. All storage tank vent air passages must be completely free of restriction and all vent mechanisms must have free movement in order to insure proper operation. Any restriction of airflow can cause excessive pressure or vacuum to build up in the storage tank, which can result in structural damage to the tank, fuel spillage, property damage, fire, injury, and death. Monthly inspection, and immediate inspection during freezing conditions, by someone familiar with the proper operation of storage tank vents, is required to insure venting devices are functioning properly before filling or unloading a tank.

Morrison Bros. Co.
Established 1855

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563.583.5701 (tel) • 800.553.4840 • 563.583.5028 (fax)
www.morbros.com

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Morrison Bros. Co.
Fig. 818 Clock Gauge
Specification Sheet

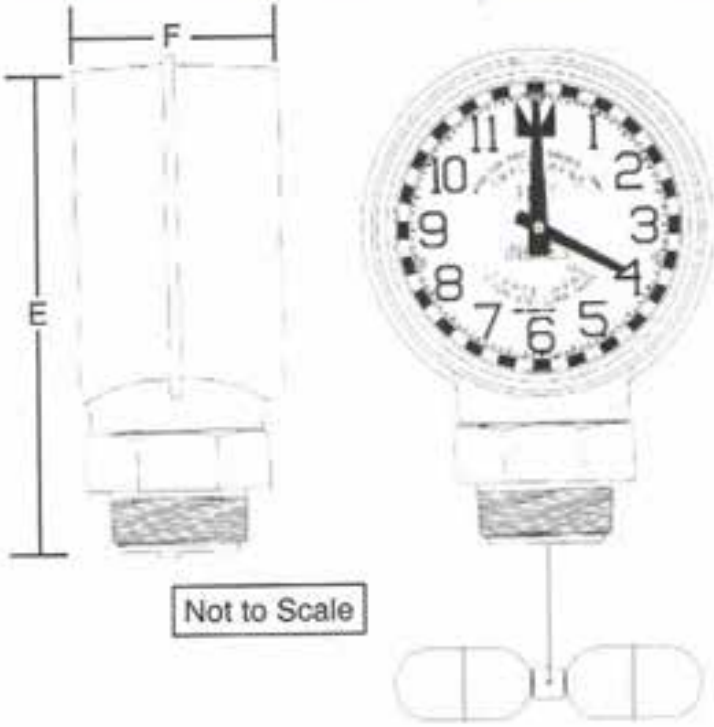

Fig. 818

The Morrison Fig. 818 Clock Gauge is used for measuring liquid level in aboveground storage tanks. Readout format is on a standard 12 hour clock face. Small hand represents feet and the large hand inches. Gauge can be read up to 20-30 ft. away to within 1/8". Maximum measurement capability is 12 feet. The gauge can be rotated 360° after mounting.

Patent # 5144836

SPECIFICATION / DETAIL OPTIONS

A—Overfill Alarm: Yes/No
B—Body Connection: Male (M), Female (F)
C—Float Device: Standard 2" Float (2") or No Float (NO)
(An optional 0400 AG drop tube float is also available)
D—Face Plate: Standard (S), Metric (M), Floating Suction (I)
E—Height: (Inches)
F—Width: (Inches)
G—Clock Diameter: (Inches)
H—Shipping Weight: (Lbs)
I—Body: Aluminum with 2" NPT or BSP (Metric) Connection

Float*: Stainless Steel; Cable: Stainless Steel

I.D. NUMBER	A	B	C	D	E	F	G	H	I
818F-0100 AG	N	F	2"	S	9.62	3.48	6.06	4.5	NPT
818MEF0100 AG	N	F	2"	M	9.62	3.48	6.06	4.5	NPT
818---0100 AG	N	M	2"	S	8.42	3.48	6.06	4.5	NPT
818MET0100 AG	N	M	2"	M	8.42	3.48	6.06	4.5	NPT
818I-0000 AG	N	M	NO	I	8.42	3.48	6.06	4	NPT
818MEB0100 AG	N	M	2"	M	8.42	3.48	6.06	4.5	BSP

Face Plate Options:

Standard Face Plate

Floating Suction Face Plate

Metric Face Plate

Morrison Bros. Co.
Established 1855

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563.583.5701 (tel) • 800.553.4840 • 563.583.5028 (fax)
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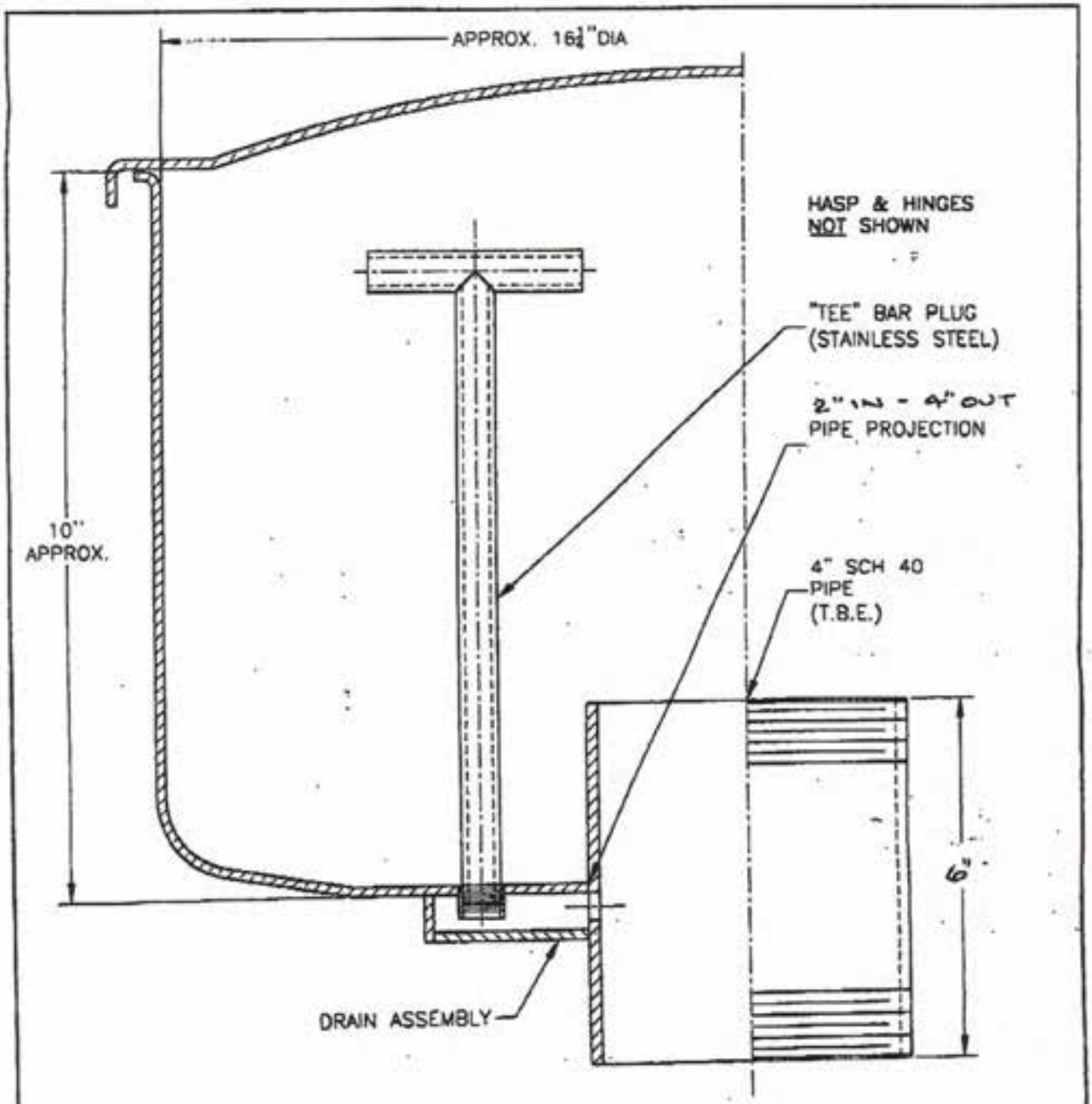


CROSS SECTIONAL VEIW

ALL MAJOR MATERIAL IS ALUMINUM

REV	DATE	BY	DESCRIPTION
-	-	-	-

P.O. BOX 83
EDEN, WI 53019
(414) 313-3650

DWN BY: CAK
DATE: 01/19/00

MALO, Inc.

TITLE: 7-1/2 GALLON O'SPILL BOWL
MODEL No: AL7.5-P4/6D

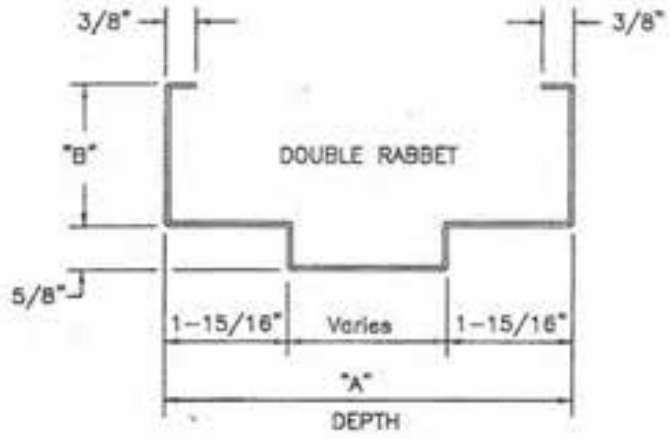
A-SIZE SHEET

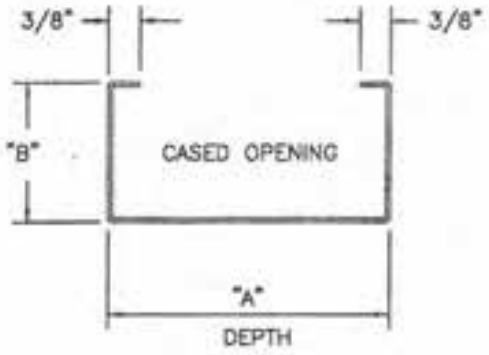
DRG. AL7.5-P4/6D

F19-1

STAINLESS-TECH
SERIES SQ AND SC STAINLESS STEEL FRAMES

FOR 1-3/4" THICK DOORS
STANDARD WALL APPLICATION, HANDED





5 3/4"

DEPTHS	Dim A
DOUBLE RABBET	4-5/8" THRU 12"
CASED OPENING	4-5/8" THRU 12"

FACES	Dim B
JAMB	2" ONLY
HEAD	2" AND 4"

INSIDE

OUTSIDE

"KS" = KEY SIDE

6/1/01

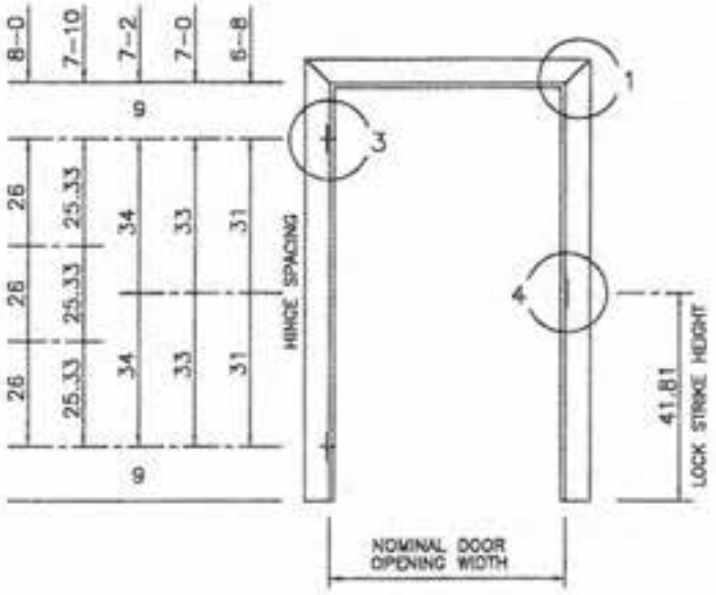
TECH-DATA

SERIES SQ AND SC STAINLESS-TECH FRAMES

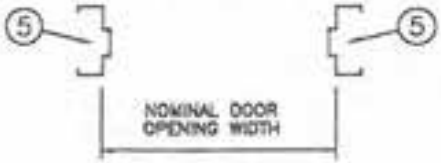
F19-2

Hardware locations shown match Ceco standard doors.

VERTICAL SECTION



TYPICAL ELEVATION

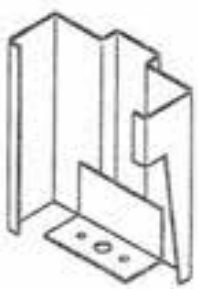


HORIZONTAL SECTION

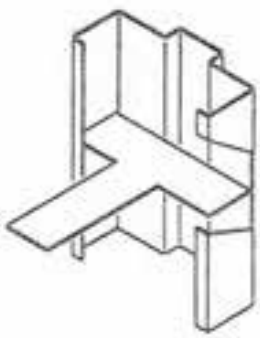
(Conversion: 1" = 25.4 mm, e.g., 1-3/4" = 44.45 mm)

JAMB ANCHOR QUANTITIES	3 PER JAMB FOR HEIGHTS UP TO 7-2 AND ONE FLOOR ANCHOR 4 PER JAMB FOR HEIGHTS FROM 7-3 THRU 9-0 AND ONE FLOOR ANCHOR ONE ADDITIONAL JAMB ANCHOR FOR EACH ADDITIONAL TWO FEET IN HEIGHT OR FRACTION THEREOF ONE ADDITIONAL JAMB ANCHOR IN LIEU OF FLOOR ANCHOR FOR EO AND WS TYPE CONDITIONS

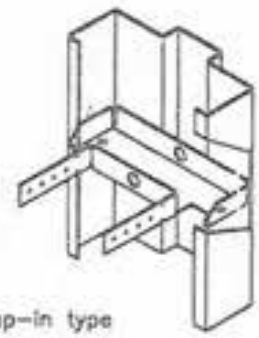
STANDARD FLOOR ANCHOR (5)



MASONRY "T" ANCHOR (5)



UNIVERSAL ANCHOR (5)



Snap-in type

8/1/01

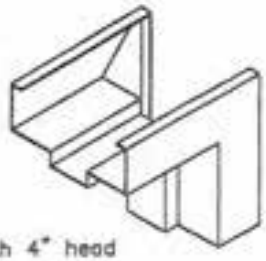
Ceco Door Products

TECH-DATA

SERIES SQ AND SC STAINLESS-TECH FRAMES

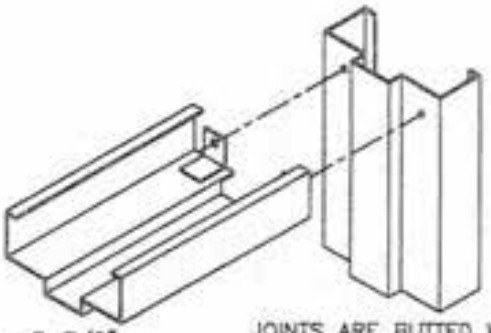
WELDED CORNERS – STANDARD ①

CORNER JOINTS ARE MITERED, STAINLESS WELDED, AND GROUND SMOOTH.



Available with 4" head

MECHANICALLY FASTENED CORNERS – OPTIONAL (STANDARD ON 304–8) ①

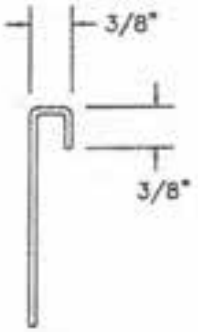


Up thru 3–7/8" head

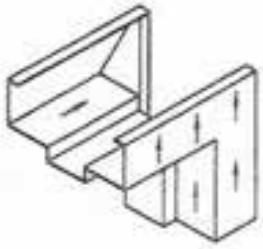
JOINTS ARE BUTTED WITH VISIBLE SEAM AND MECHANICALLY FASTENED.

OPTIONAL BACKBEND ②

SB SERIES
BEFORE DRYWALL APPLICATION



DIRECTION OF STANDARD #4 SATIN GRAIN



STANDARD GRAIN RUNS VERTICALLY ON FRAME FACE AND JAMBS – HORIZONTALLY ALONG LENGTH OF HEAD

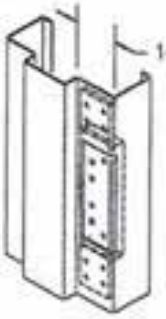
HINGE PREPARATION ③

4–1/2" x .134 or .180
5" x .146 or .190

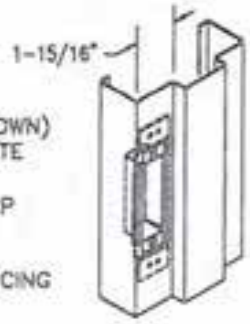
ANSI A156.7 TEMPLATE

STAINLESS STEEL REINFORCING

BACKSET: 5/16"



LOCK STRIKE PREPARATION ④



UNIVERSAL (4–7/8") (SHOWN)
ANSI A115.1 & 2 TEMPLATE

ALSO AVAILABLE WITH PREP FOR 2–3/4" "T" STRIKE

STAINLESS STEEL REINFORCING

F19-4

PRODUCT SPECIFICATIONS:

Stainless steel door frames shall be as provided by Ceco Door Products, USA. They shall conform to the Steel Door Institute guide specification, ANSI A250.8-1998 (see chart below for performance classifications); ANSI/ASTM A167 Stainless Steel and Heat Resisting Chromium - Nickel Steel Plate, Sheet & Strip; and NAAMM Metal Finish Manual.

Series SQ and SC Stainless Steel Frames for 1-3/4" doors are formed from commercial quality stainless steel conforming to ANSI/ASTM 167.

3 piece door frames in 304-4 and 316-4 are shipped welded. 3 piece door frames in 304-8 are mechanically fastened. Integral door stops are 5/8" high. Double rabbet or cased opening profiles are sized to suit wall applications. Elevations conform with approved Ceco shop drawings. Jamb anchors are available for new masonry, wood stud, metal stud or existing opening wall conditions (indicate which). Floor anchors or extra jamb anchors are provided to anchor sill.

Hardware Provisions: Frames are handed. Hinge jambs are mortised for 4-1/2" or 5" high, standard or heavy weight hinges (specify which). Stainless steel hinge reinforcements are welded in place and are drilled and tapped for fasteners in accordance with ANSI A156.7. The strike jamb is prepared for 4-7/8" universal strike in accordance with ANSI A115.1 & 2. Preparations for other mechanical and electronic locks and strikes are also available. Optional hardware reinforcement (e.g. closer/holder) is 12 gage steel welded in place (designate hardware). 3 door mutes are provided per strike jamb and two (2) for double swing heads.

Finish: Standard finish is the 304-4 satin (similar to hardware finish US32D or BMHA 630). Options are 304-8 (similar to hardware finish US32 or BMHA 629). 316-4 high corrosive resistant (similar to hardware finish US32D or BMHA 630).

STANDARD SIZES
NOMINAL DOOR OPENING

WIDTH		HEIGHT
SINGLE	DOUBLE	
2'-0"	4'-0"	
2'-4"	4'-8"	
2'-6"	5'-0"	6'-8"
2'-8"	5'-4"	7'-0"
2'-10"	5'-8"	7'-2"
3'-0"	6'-0"	7'-10"
3'-4"	6'-8"	8'-0"
3'-6"	7'-0"	
3'-8"	7'-4"	
3'-10"	7'-8"	
4'-0"	8'-0"	

FIRE DOORS

LABELING AGENCIES:

- UNDERWRITERS LABORATORY

TEST: UL10B, ASTM E-152

- RATING:
  20 MIN. THRU 3 HRS.
- MAXIMUM SIZE:
  40 x 80 (SINGLE)
  80 x 80 (PAIR)

Not all ratings are available in all sizes, designs and

MATERIAL

DOOR FACE SHEETS	GRADE	STAINLESS STEEL TYPE	
		304-4	304 and 316 - Other Finishes
16 Gage Stainless Steel	Standard Duty	STD	Optional - See Available Finishes Below
14 Gage Stainless Steel	Heavy Duty	STD	
12 Gage Stainless Steel	Extra Heavy Duty	STD	

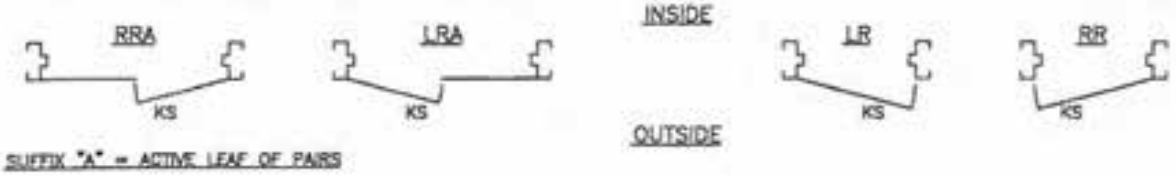
STAINLESS STEEL ALLOY

Type 304
Standard

Type 316
High Corrosive Resistance
Optional

STAINLESS STEEL FINISH

2B	MILL
4	SATIN/HAIRLINE
6	DULL SATIN
8	MIRROR/POLISHED
ND	NON-DIRECTIONAL (ANGEL HAIR)
RD	RANDOM SWIRL



SUFFIX "A" = ACTIVE LEAF OF PAIRS

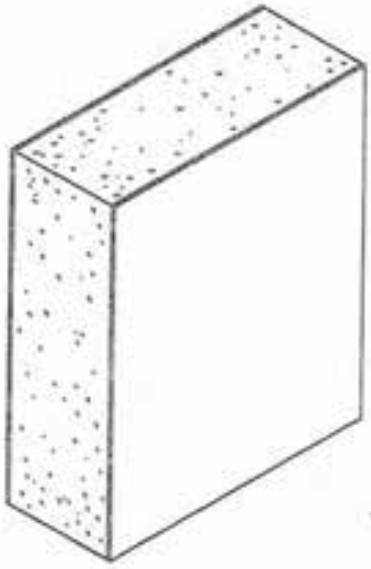
5/1/01

Ceco Door Products

D3A-1

1-3/4" IMPERIAL MAXIM (IU) 14 GAGE STEEL

POLYURETHANE FOAM CORE, SEAMLESS, CUSTOM TYPE
BEVELED LOCK EDGE, HANDED



Designed to Take Extreme People Punishment, Insulated ...

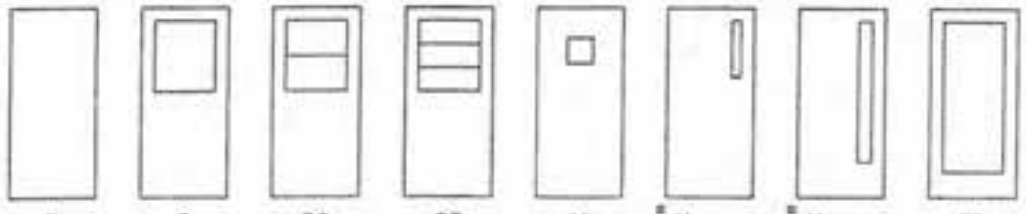
Foamed-in-Place Polyurethane core fills entire cavity. Core is chemically bonded to all interior surfaces. High impact resistance. Excellent insulation Characteristics. Heavy weight hinge preparations.

Suggested Use:

Interior or Exterior ...
Primary Schools
Middle Schools/High Schools
Mental Health Care Facilities
Rehabilitation Centers
College/Universities
Vocational Training Centers

FLUSH DESIGNS

* NARROW LITE TRIM KITS ARE AVAILABLE IN 6" AND 8" WIDTHS AND 36" TO 60" HEIGHTS IN 4" INCREMENTS.



10/1/01

TECH-DATA

IMPERIAL MAXIM DOORS

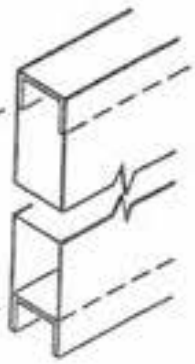
03A-3

① STEEL TOP AND BOTTOM CHANNELS ✓

WELDED TO DOOR

FLUSH TOP CHANNEL

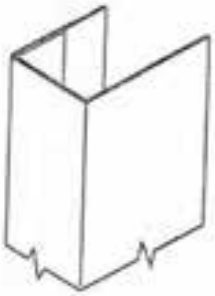
INVERTED BOTTOM CHANNEL



② VERTICAL EDGES

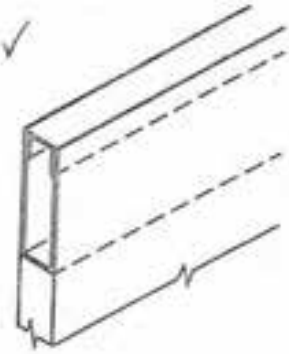
SEAMLESS VERTICAL EDGES

CONTINUOUS SEAM WELDED FULL HEIGHT AND GROUND SMOOTH



③ CLOSER REINFORCEMENT (OPTIONAL) ✓

12 GAGE STEEL CHANNEL 16" LONG

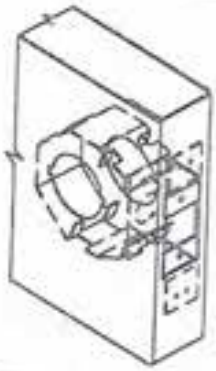


④ LOCK PREPARATION GOV. 160/161 CYLINDRICAL TYPE

(LC1)

(ANSI A115.2)

2-3/4" BACKSET



LOCK EDGE IS BEVELED 1/8" in 2" (1:16)

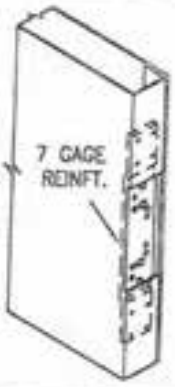
⑤ HINGE PREPARATION ✓

4-1/2 OR 5 IN. HIGH, STANDARD OR HEAVY WEIGHT, FULL MORTISE HINGES

HINGE EDGE IS HANDED AND NOT BEVELED.

7 GAGE REINF.

ANSI A156.7 TEMPLATE

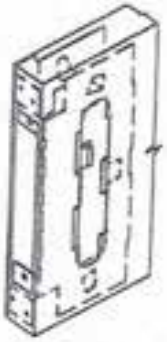


⑥ LOCK PREPARATION GOV. 86-4 MORTISE TYPE ✓

(LM1) (ANSI A115.1) 2-3/4" BACKSET

(LM0) SIMILAR TO DETAIL LESS FACE CUTOUT

(LP0) SIMILAR TO DETAIL LESS ALL CUTOUTS AND REINFORCEMENT



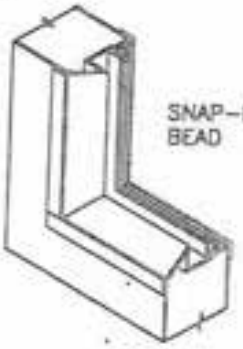
⑧ GLAZING TRIM 4831

FOR STANDARD FLUSH DOORS

ALUMINUM

SNAP-IN BEAD

3/8" WIDE GLAZING POCKET



⑧ GLAZING TRIM SlimTrim

FOR ALL FIRE DOORS

3/8" WIDE GLAZING POCKET

STEEL

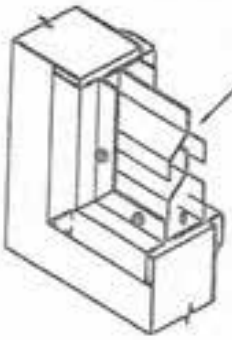
LISTED

⑨ LOUVER 4634 (APPLIED)

FIXED SLAT TYPE

FREE AIR AREA APPROX. 43%

STEEL



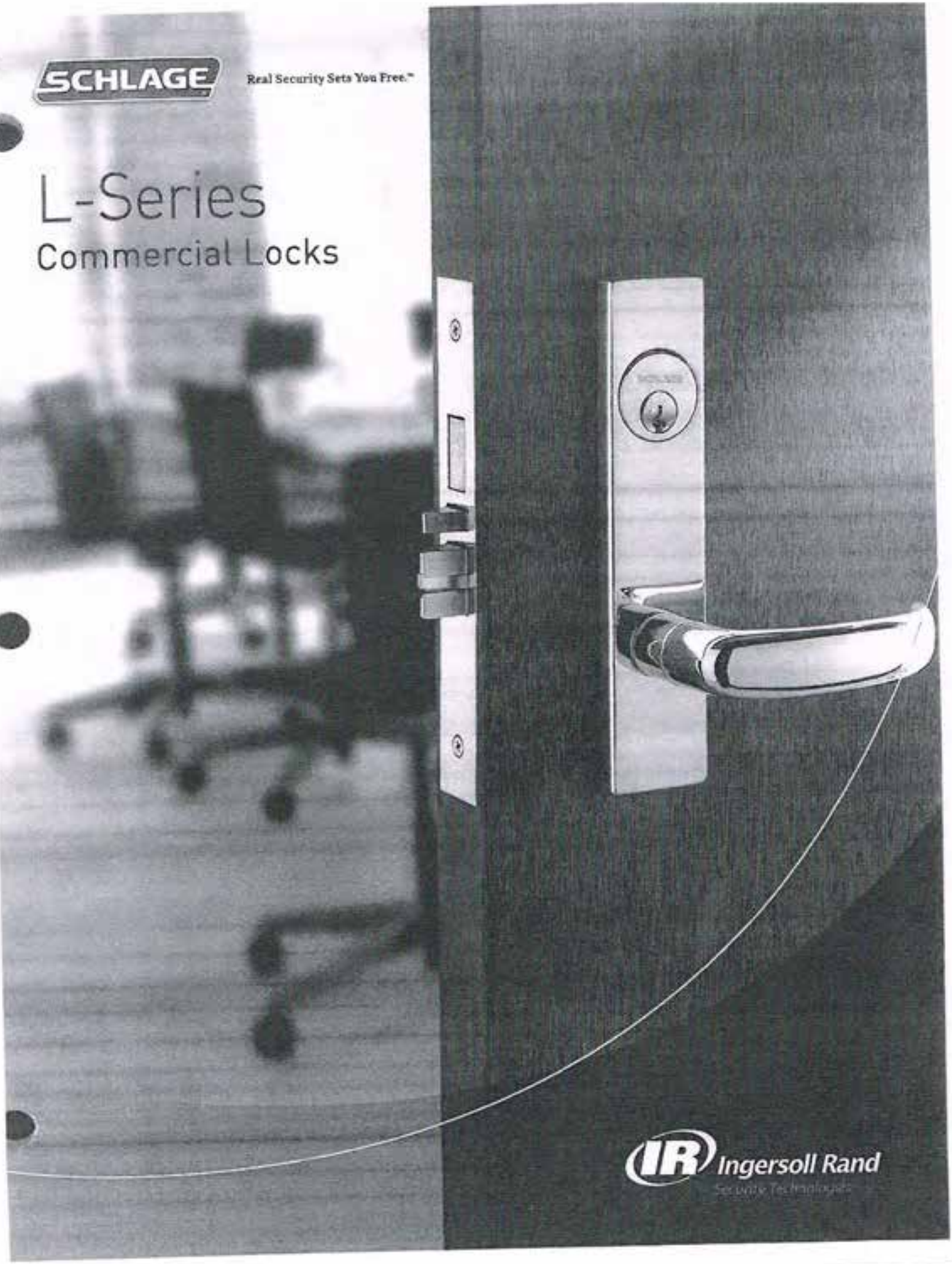
6/1/01

Ceco Door Products

SCHLAGE

Real Security Sets You Free.™

L-Series
Commercial Locks



Ingersoll Rand
Security Technologies

Escutcheons and Roses

Choose from three types of escutcheon and four rose sizes to add tough, durable performance to your lockset.

Escutcheons

L Full Face
Material: Cold-forged brass, bronze or stainless steel
Finishes: 605, 606, 612, 613, 619, 625, 626, 629, 630
Size: 8" x 1 ¾" x 7/16"
(203 mm x 44 mm x 11mm)

L Concealed
Material: Cold-forged brass, bronze or stainless steel
Finishes: 605, 606, 612, 613, 619, 625, 626, 629, 630
Size: 8" x 1 ¾" x 7/16" (203 mm x 44 mm x 11 mm)

N Escutcheon
Material: Heavy wrought reinforced brass, bronze or stainless steel
Finishes: 605, 606, 612, 613, 619, 625, 626, 629, 630
Size: 8" x 2 9/16" x 7/16"
(203 mm x 65 mm x 11 mm)

Roses

A Wrought Rose
2 1/8" (54 mm) diameter
Available for use on L-Series knob and lever designs.
Order by letter designation corresponding to the design and diameter desired.

B Wrought Rose
2 9/16" (65 mm) diameter
Available for use on L-Series knob and lever designs.
Order by letter designation corresponding to the design and diameter desired.

Avanti (AVA)
2 5/8" (67 mm) diameter
Available for use on L-Series knob and lever designs.
Order by letter designation corresponding to the design and diameter desired.

Merano (MER)
2 5/8" (67 mm) diameter
Available for use on L-Series knob and lever designs.
Order by letter designation corresponding to the design and diameter desired.

Finish Key


605
Bright Brass


606
Satin Brass


609
Antique Brass


610
Bright Brass - Lacquered


611
Bright Bronze


612
Satin Bronze


613
Oil-rubbed Bronze


616
Antique Silver

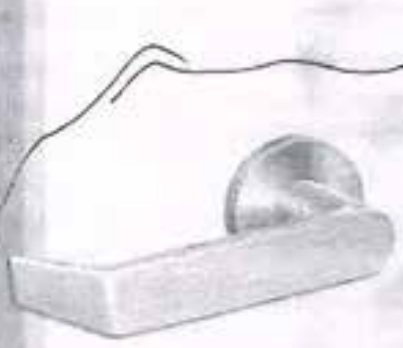

619
Satin Nickel


625
Bright Chromium Plated


626
Satin Chromium Plated


629
Bright Stainless Steel


630
Satin Stainless Steel



06
Material: Forged brass, bronze and cast stainless steel. **Finishes:** 605, 606, 609, 610, 611, 612, 613, 616, 619, 625, 626, 629, 630

07
Material: Forged brass, bronze and cast stainless steel. **Finishes:** 605, 606, 609, 610, 611, 612, 613, 616, 619, 625, 626, 629, 630

12
Materials: Forged brass, bronze and cast stainless steel. **Finishes:** 605, 606, 609, 610, 611, 612, 613, 616, 619, 625, 626, 629, 630. Specify door hand

Lock Functions | Single Cylinder Non-Deadbolt Functions

Schlage **ANSI**

L9050 **F04**
LV9050
Office and Inner Entry Lock
Latchbolt retracted by knob/lever from either side unless outside is made inoperative by key outside or by turning inside thumbturn. When outside is locked, latchbolt is retracted by key outside or by knob/lever inside. Outside knob/lever remains locked until thumbturn is returned to vertical or unlocked by key. Auxiliary latch deadlocks latchbolt when door is closed. Inside lever is always free for immediate egress.

L9056
LV9056
L9050 with Automatic Unlocking
Latchbolt retracted by knob/lever from either side unless outside is made inoperative by key outside or by rotating inside thumbturn. Outside knob/lever unlocked by key outside or thumbturn. Rotating inside knob/lever simultaneously retracts latchbolt and unlocks outside knob/lever. Auxiliary latch deadlocks latchbolt when door is closed. Inside lever is always free for immediate egress. (Previously XL11-776)

L9070 **F05**
LV9070
Classroom Lock
Latchbolt retracted by knob/lever from either side unless outside is locked by key. Unlocked from outside by key. Inside knob/lever always free for immediate exit. Auxiliary latch deadlocks latchbolt when door is closed. Inside lever is always free for immediate egress.

L9076 **F06**
LV9076
Classroom Holdback Lock
Latchbolt retracted by knob/lever from either side unless outside is locked by key. When locked, latchbolt retracted by key outside or knob/lever inside. Auxiliary latch deadlocks latchbolt when door is closed. Depress inside knob/lever and turn key 360° for holdback feature. Inside lever is always free for immediate egress.

L9080 **F07**
LV9080
Storeroom Lock
Latchbolt retracted by key outside or by knob/lever inside. Outside knob/lever always inoperative. Auxiliary latch deadlocks latchbolt when door is closed. Inside lever is always free for immediate egress.

L9080EL
LV9080EL
Electrically Locked (Fail Safe)
Outside knob/lever continuously locked by 24VAC or DC. Latchbolt retracted by key outside or by knob/lever inside. Switch or power failure allows outside knob/lever to retract latchbolt. Auxiliary latch deadlocks latchbolt when door is closed. Inside knob/lever always free for immediate exit. Inside lever is always free for immediate egress.

Schlage **ANSI**

L9080EU
LV9080EU
Electrically Unlocked (Fail Secure)
Outside knob/lever unlocked by 24VAC or DC. Latchbolt retracted by keyoutside or knob/lever inside. Auxiliarylatch deadlocks latchbolt when door is closed. Inside knob/lever always free for immediate exit. Inside lever is always free for immediate egress.

L9080EL-RX
L9080EU-RX
Request to Exit (RX) Electrified Lock
Same as L9080ELand L9080EU functions. In addition, a micro switch positioned inside the lock case monitors the retractor crank, and is actuated when rotation of the inside or outside knob/lever rotates the retractor hub. The switch signals the use of that opening to security systems, allowing a non-disruptive means of immediate egress. Specify per L283-059 for normally closed contacts (default). Specify L283-125 for normally open contacts. Inside lever is always free for immediate egress. (Previously XL11-807)

Lock Functions | Single Cylinder Deadbolt Functions

Schlage **ANSI**

L9453 **F20**
LV9453
Entrance Lock
Latchbolt retracted by knob/lever from either side unless outside is locked by 20°rotation of thumbturn. Deadbolt thrown or retracted by 90° rotation of thumbturn. When locked, key outside or knob/lever inside retracts deadbolt and latchbolt simultaneously. Outside knob/lever remains locked until thumbturn is restored to vertical position. Throwing deadbolt automatically locks outside knob/lever. Auxiliary latch deadlocks latchbolt when door is closed. Inside lever is always free for immediate egress.

L9456 **F13**
LV9456
Corridor Lock *ALTERNATE*
Latchbolt retracted by knob/lever from either side. Deadbolt thrown or retracted by key outside or inside thumbturn. Throwing deadbolt locks outside knob/lever. Turning inside knob/lever simultaneously retracts deadbolt and latchbolt and unlocks outside knob/lever. Inside lever is always free for immediate egress.

L9465
Closet/Storeroom Lock
Latchbolt retracted by knob/lever from either side. Deadbolt thrown or retracted by key outside.

L9473 **F21**
Dormitory/Bedroom Lock
Latchbolt retracted by knob/lever from either side. Deadbolt thrown or retracted by key outside or thumbturn inside.

L9480
LV9480
Storeroom Lock With Deadbolt
Latchbolt retracted by key outside or by lever or knob inside. Outside knob/lever always fixed. Deadbolt thrown or retracted by key outside or thumbturn inside. Turning inside knob/lever simultaneously retracts both deadbolt and latchbolt. Auxiliary latch deadlocks latchbolt when door is closed. Inside lever is always free for immediate egress. (Previously XL11-591)

L9485
LV9485
Prison Function Lock
Latch retracted by key outside or knob inside. Outside knob always free spinning. Deadbolt only thrown or retracted by guard's key. Inside knob becomes fixed when deadbolt is thrown. Prisoner's key only retracts latchbolt. Furnished standard with tamper resistant Torx® screws. Specify per XL11-557.

Schlage **ANSI**

L9485
LV9485
Hotel or Restroom Lock
Latchbolt retracted by key outside or by knob/lever inside. Outside knob/lever always fixed. Deadbolt thrown or retracted by inside thumbturn. When deadbolt is thrown, all keys become inoperative except emergency or display keys. Turning inside knob/lever retracts both deadbolt and latchbolt simultaneously. Auxiliary latch deadlocks latchbolt when door is closed. Inside lever is always free for immediate egress.

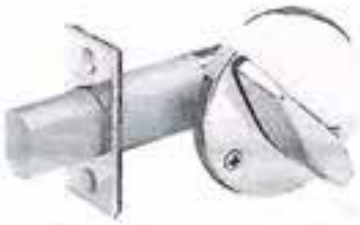
L9486 **F15**
LV9486
Hotel or Restroom Lock with "Do Not Disturb" Indicator
Latchbolt retracted by key outside or by knob/lever inside. Outside knob/lever always fixed. Deadbolt thrown or retracted by inside thumbturn. When deadbolt is thrown, "DO NOT DISTURB" plate is displayed. All keys become inoperative except emergency or display keys. Turning inside knob/lever retracts both deadbolt and latchbolt simultaneously. Auxiliary latch deadlocks latchbolt when door is closed. Inside lever is always free for immediate egress.

L9486 x L583-375
LV9486 x L583-375
L9486 with "Occupied" Indicator
Latchbolt retracted by key outside or by knob/lever inside. Outside knob/lever always fixed. Deadbolt thrown or retracted by inside thumbturn. When deadbolt is thrown, "OCCUPIED" plate is displayed and all keys become inoperative except emergency keys. Turning inside knob/lever simultaneously retracts both deadbolt and latchbolt. Auxiliary latch deadlocks latchbolt when door is closed. (Previously XL11-580) Inside lever is always free for immediate egress.

L9496
Privacy with "Occupied" Indicator
Knob/lever retracts latchbolt from either side. Deadbolt thrown or retracted by key outside (retraction by key required in the event of an emergency) or inside thumbturn. Throwing deadbolt locks outside knob/lever and displays "OCCUPIED" plate. Rotating inside knob/lever simultaneously retracts both deadbolt and latchbolt and unlocks outside knob/lever. Inside lever is always free for immediate egress. (Previously XL11-585)

B600/700/800-Series Finishes & Functions

613



605

625

626

B600-SERIES

Schlage's toughest heavy duty Grade 1 commercial deadlock. Furnished with conventional cylinder standard.
Also available with full size interchangeable core cylinder or small format interchangeable core (SFIC) cylinder.

Requires 2⅛" (55mm) prep. UL10B listing standard for *auxiliary* lock on A Label fire doors.

B700-SERIES

Same lock as B600-Series but furnished with Primus Controlled Access cylinder for patented key control, geographical exclusivity and resistance to picking and impressioning. Also available with Primus interchangeable core cylinder.

B800-SERIES

Same lock as B700-Series but Primus high security cylinder is UL437 Listed to resist drilling and other forms of physical attack. Not available in interchangeable core.

Finishes

605 Bright Brass
606 Satin Brass
609 Antique Brass
612 Satin Bronze
613 Oil Rubbed Bronze
619 Satin Nickel
625 Bright Chromium Plated
626 Satin Chromium Plated

Functions

ANSI A156.5 BORED DEADBOLT LOCKS

	Single Cylinder Deadlock	Double Cylinder Deadlock	Cylinder x Plate Deadlock	Classroom Deadlock	Cylinder Only Deadlock	Thumbturn Only Deadlock
Schlage	B660P B750P B860P	B662P* B762P* B862P*	B661P B761P B861P	B663P B763P B863P	B664P B764P B864P	B680
ANSI	E2151 Deadbolt thrown or retracted by key outside or thumbturn inside.	E2141 Deadbolt thrown or retracted by key either side.	E2161 Deadbolt thrown or retracted by key outside. Blank plate with exposed screws inside.	E2171 Deadbolt thrown only by key outside; retracted by key outside or thumbturn inside.	E2101 Deadbolt thrown or retracted by key one side. No trim on other side.	E2191 Deadbolt thrown or retracted by thumbturn inside. No outside trim.

B660, B661, B662, B663 available with full size or small format IC cylinders.

B760, B761, B762, B763 available with Primus full size IC cylinders.

**Caution: Double cylinder locks on doors that are used for exits are a safety hazard in times of emergency. Schlage does not recommend double cylinder locks in these situations. Installation should comply with local life safety codes.*

Full Size Interchangeable Core

Schlage® figure-8 interchangeable core (IC) locksets allow immediate rekeying at the door simply by using the special *control key* to replace the core in seconds.

B600/700-SERIES
Finishes: 605, 606, 609, 612, 613, 625, 626

B250-SERIES
Finishes: 605, 613, 626

BC100-SERIES
Finishes: 605, 609, 612, 613, 625, 626

Available in BC100, B250, B600 and B700-Series, full size interchangeable cores can be integrated into any 5 or 6-pin Schlage key with no adverse affects on keying capacity.

To order complete locks with full size cores, change suffix from P to R. Example: BC160R, B250RD, B662R. To order locks *less core*, change suffix to J. To order with full size *construction core*, change suffix to T.

Full Size Interchangeable Cores and Housings

Number	Description
23-030	Conventional core (CONSTRUCTION)
20-740	Primus core
B220-203	BC100-Series outside housing less core
B220-201*	BC162 inside housing less core
22-061	B250-Series outside housing less core
22-062	B252 inside housing less core
B610-027	B600/700-Series outside housing less core
B610-028*	B662/762 inside housing less core

* Inside housing has no finish. Order finished faceplate B610-031 separately.

Cores available 606 and 626 finish only. Housings available in the same finishes as corresponding complete locks.

Everest C123 keyway standard.

Small Format Interchangeable Core (SFIC)

Available in BC100 and B600-Series, the small format IC option is designed for Schlage Everest B Family restricted keyway cores and is also completely compatible with Best®, Falcon, etc. small format cores.

To order complete locks with Everest B Family *restricted keyway cores*, change product suffix from P to GD and provide letter of authorization from end user. Example: B660GD. To order locks *less core*, change suffix to BD.
To order with *keyed brass construction cores*, change suffix to HD. To order with *disposable plastic construction cores*, change suffix to BDC.

Small Format Core

Disposable Construction Core

Number	Description
80-036	7-Pin uncombinated Everest B Family restricted keyways
80-037	7-Pin combinated Everest B Family restricted keyways
80-043	6-pin uncombinated Falcon / Best keyways
80-033	7-pin uncombinated Falcon / Best keyways
M204-152	Disposable plastic construction core
B610-282	BC100, B600/700-Series outside housing less core
B610-281*	BC162, B662/772 inside housing less core and faceplate

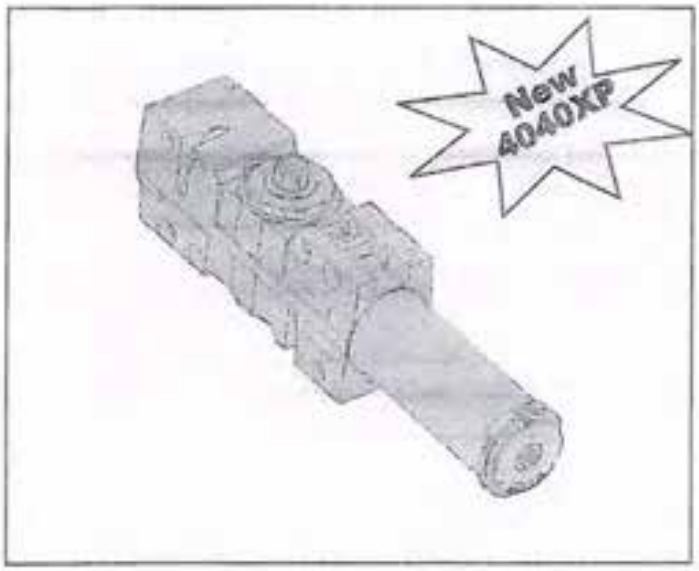
* Inside housing has no finish. Order finished faceplate B610-014 separately.

Cores available 606 and 626 finish only. Housings available in the same finishes as corresponding complete locks.

80-033 and 80-043 cores are available in Best A, D, E, F, G, H, J, K, L, and M keyways. Specify keyway by suffixing "B" to keyway letter, e.g. "AB".

80-036 and 80-037 restricted keyway cores require a letter of authorization from the end user. Schlage assigns the keyway when establishing new Everest restricted key systems.

FEATURES



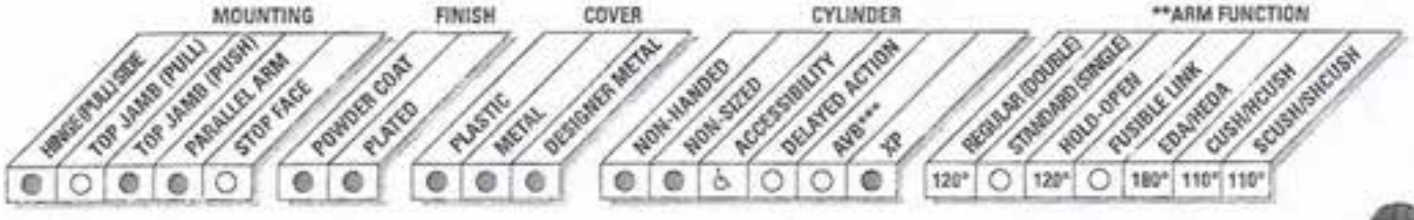
New 4040XP

The new 4040XP is LCN's most durable heavy duty closer designed for the most demanding, high use and abuse applications.

- 44% increased bearing load capacity
- Strongest pinion ever- at 3/4" journal diameter
- Widest bearing ever- at 5/8"
- Stronger pinion teeth
- New V-shield™ seal with 20% longer life
- XP = eXtra Protection in real world applications
- Cast Iron
- Forged Steel Arm
- Double Heat Treated Steel Pinion
- All Weather Fluid
- Non-Handed
- LCN® Fast™ Power Adjust
- Fast & Accurate Installation
- UL & cUL Listed
- Tested and certified under ANSI Standard A156.4, grade one

- **NEW 4040XP** closer shipped with **EDA arm**, standard plastic cover, and self reaming and tapping screws.
- Non-sized cylinder is adjustable for interior doors to 5'0" and exterior doors to 4'0".
- Closer mounts parallel arm (EDA arm) on either right or left swinging doors.
- Optional hinge side and top jamb mount with optional regular arm.
- Closers to meet ADA requirements. See 4040XP Series page 49.
- Standard or optional custom powder coat finish.
- Optional plated finish on metal cover, arm and fasteners.
- Optional SRI primer for installations in corrosive conditions is available with powder coat only.
- Optional designer series metal cover
- UL and cUL listed for self-closing doors without hold-open.
- 4040XP can be used with all 4041 accessories. See pages 45-47 for options.

The 4040 Series includes the **LCN. FAST™ Power Adjust,** *a revolutionary visual indicator for Spring Power Adjustment.*



● *Available*
○ *Not available*

♿ *Closer available with less than 5.0 lbs. opening force on 36" door.*
***Maximum opening/hold-open point with standard template.*
**** Advanced Variable Backcheck*

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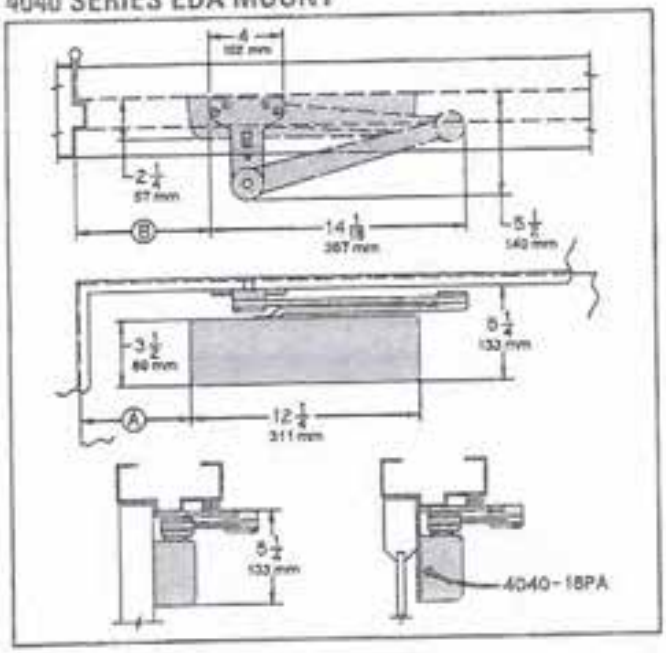
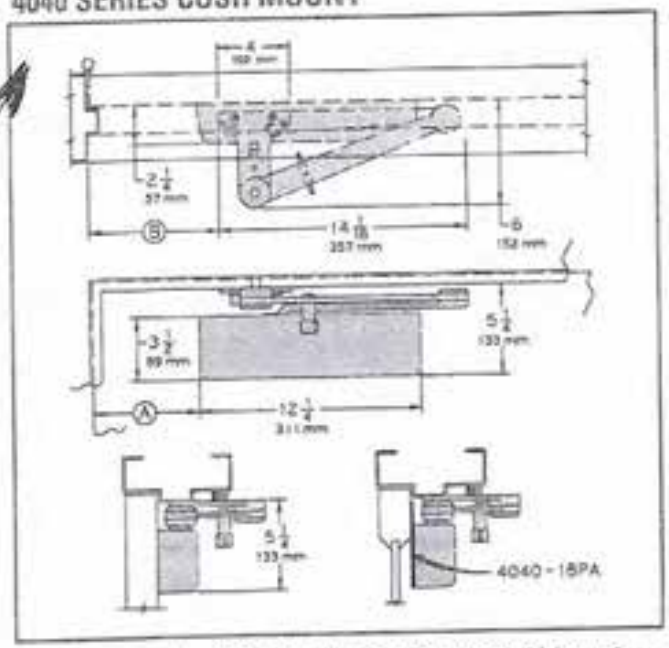
3/07

Mounting details are the same as 4040 Series REGULAR or HOLD-OPEN except as listed below. 4040 Series closers ordered with EDA or CUSH arms include 4040-201 FIFTH HOLE SPACER to support the shoe.

4040 SERIES EDA MOUNT



4040 SERIES CUSH MOUNT



- **Clearance** for 4040-62EDA is 5 1/2" (140 mm) from door face. 6" (152 mm) for CUSH.
- **Head Frame** flush or rabetted requires CUSH FLUSH PANEL ADAPTER, 4040-419.
- **CUSH ARM** requires SHOE SUPPORT, 4040-30 for fifth screw anchorage for narrow frames.
- **Delayed Action** (not available on 4040XP) Add suffix "DEL" to selected cylinder (eg. 4041 DEL). Delays closing from maximum opening to; 115° with 180° template. 95° with 110° template. 85° with 100° template. 75° with 90° template. Delay time adjustable up to approximately 1 minute.

MAXIMUM OPENING

EDA arm can be templated for points at: 110°,
Ⓐ = 6 3/8" (162 mm)
Ⓑ = 7 3/4" (197 mm)
or 180°.
Ⓐ = 2 7/8" (73 mm)
Ⓑ = 4 1/4" (108 mm)
Hold-open points up to maximum opening with HEDA arm.

CUSH arms can be templated for opening/hold-open point at:
85°,
Ⓐ = 7 15/16" (202 mm)
Ⓑ = 9 1/8" (232 mm)
90°,
Ⓐ = 7 3/16" (183 mm)
Ⓑ = 8 1/2" (216 mm)
100°,
Ⓐ = 6 1/16" (154 mm)
Ⓑ = 7 1/4" (184 mm)
or 110°.
Ⓐ = 5 1/16" (129 mm)
Ⓑ = 6 3/8" (162 mm)

Spring Cush dead stop points are approximately 5° more than templated stop point. Hold open at templated stop points.

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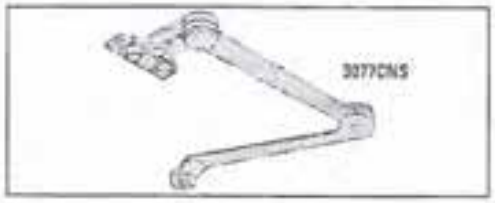
ARMS cont.

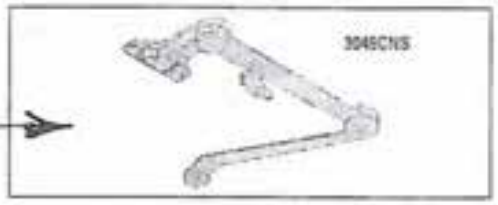
CUSH-N-STOP® ARM, 4040-3077CNS
Optional, non-handed parallel arm features solid forged steel main arm and forearm with stop in soffit shoe.

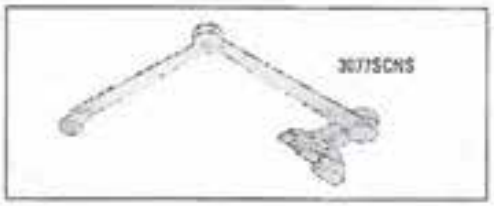
HCUSH ARM, 4040-3049CNS
Provides hold-open function with templated stop/hold-open points. Handle controls hold-open function.

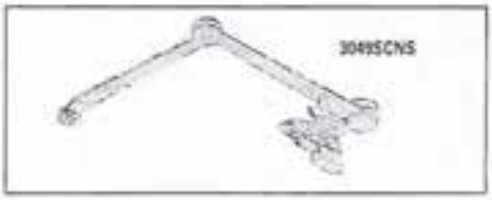
SPRING CUSH ARM, 4040-3077SCNS
Optional, non-handed parallel arm for abusive applications features solid forged steel main arm and forearm with spring loaded stop in the soffit shoe.

SPRING HCUSH ARM, 4040-3049SCNS
Optional, non-handed parallel arm for abusive applications features solid forged steel main arm and forearm with spring loaded stop in the soffit shoe. Handle controls hold-open function.









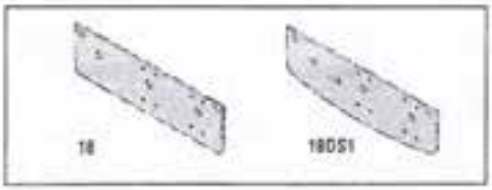
INSTALLATION ACCESSORIES

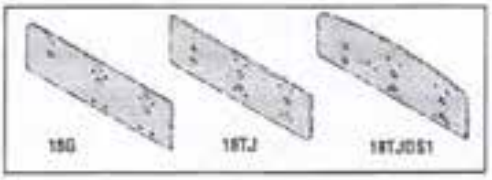
PLATE, 4040-18/4040-18DS1
Required for hinge side mount where top rail is less than 3 3/4" (95 mm). Plate requires minimum 2" (51 mm) minimum top rail. With Designer Series metal cover, use PLATE, 4040-18DS1

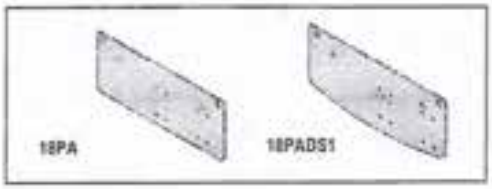
PLATE, 4040-18G
Locates top jamb mounted closer flush with top of head frame face in flush ceiling condition. Plate requires 1 3/4" (44 mm) minimum head frame.

PLATE, 4040-18TJ/4040-18TJDS1
Centers top jamb mounted closer vertically on head frame where face is less than 3 1/2" (89 mm). Plate requires 1 3/4" (44 mm) minimum head frame. With Designer Series metal cover, use PLATE, 4040-18TJDS1

PLATE, 4040-18PA/4040-18PADS1
Required for parallel arm mounting where top rail is less than 5 1/2" (140 mm), measured from the stop. Plate requires 2" (51 mm) minimum top rail. With Designer Series metal cover, use PLATE, 4040-18PADS1







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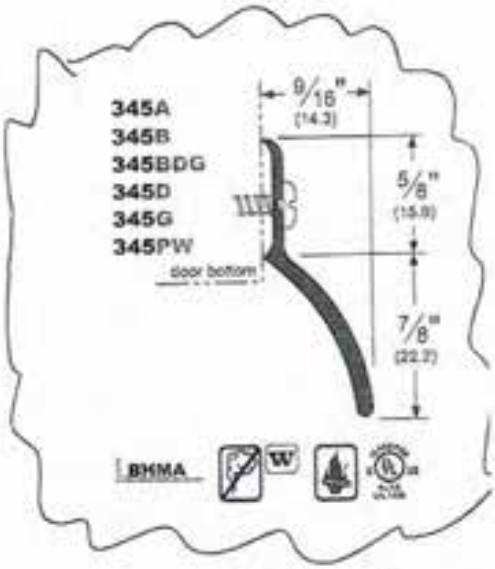
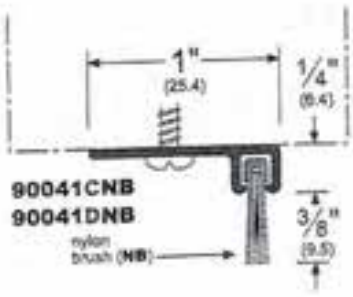
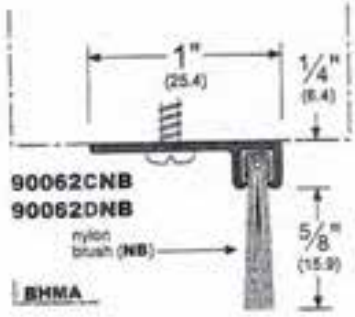
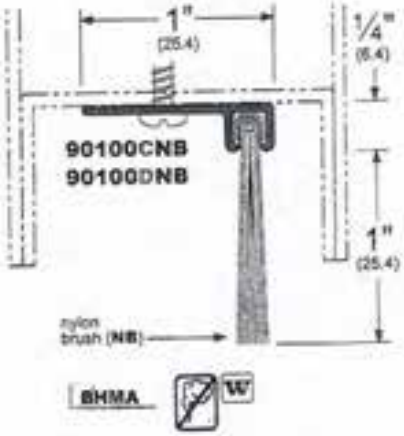
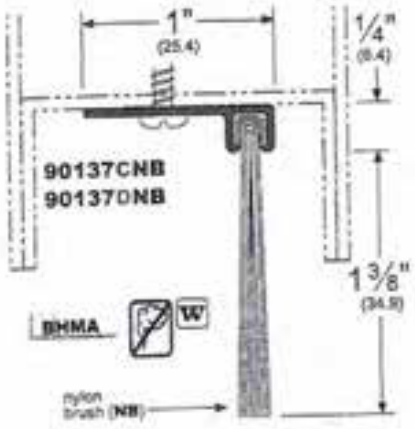










Finish Designations: *(pages 100-101)*

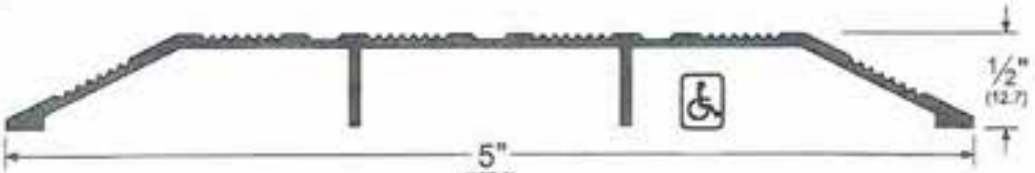
A	mill finish aluminum	PB	painted dark bronze aluminum
B	mill finish extruded bronze (brass)	PG	painted gold aluminum
BDG	bright-dip gold anodized aluminum	PW	painted white aluminum
C	clear anodized aluminum	SS	see individual part for finish
D	dark bronze anodized aluminum	SN	satin nickel anodized aluminum
G	gold anodized aluminum	W	wood – solid unfinished oak
PA	painted aluminum		

Please refer to the listings under each product for stocked finishes. See page 7 for a complete list of all Pemko stocked and non-stocked finishes. Consult the factory for the price and availability of non-stocked finishes.

Finish Designations: (pages 14-17)

A	mill finish aluminum
B	mill finish extruded bronze (brass)
BDG	bright-dip gold anodized aluminum
D	dark bronze anodized aluminum
G	gold anodized aluminum
SN	satin nickel anodized aluminum

Please refer to the listings under each product for stocked finishes. See page 7 for a complete list of all Pemko stocked and non-stocked finishes. Consult the factory for the price and availability of non-stocked finishes.



1710A **1710D**

171A **171B** **171BDG**
171D **171G** **171SN**

BHMA

POSITIVE PRESSURE

172A **172B** **172D** **172G** **172SN**

BHMA

POSITIVE PRESSURE

176A **176B** **176D** **176G**

BHMA

POSITIVE PRESSURE

2548A **2548D** **2548G**

BHMA

POSITIVE PRESSURE

254X4B

BHMA

POSITIVE PRESSURE

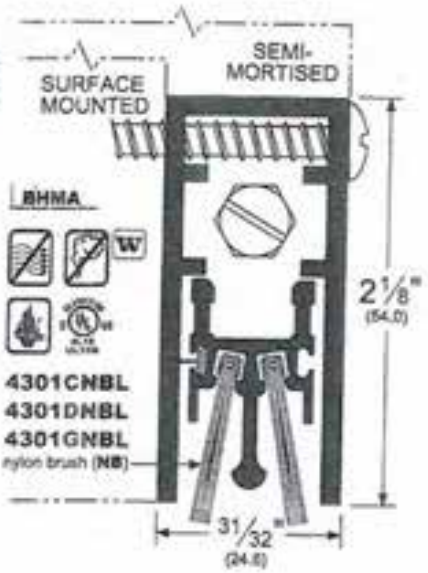
2549A **2549D** **2549G**

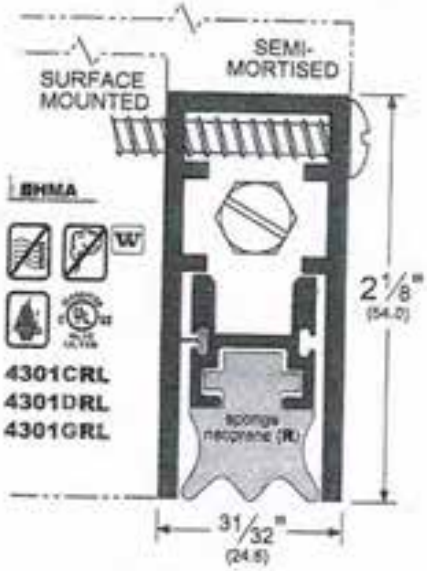
BHMA

POSITIVE PRESSURE

▷ Automatic Door Bottoms – *Non-Handed Surface and Semi-Mortise Models*

- When ordering, please specify if the automatic door bottom is for a semi-mortise application so that shorter screws can be provided.



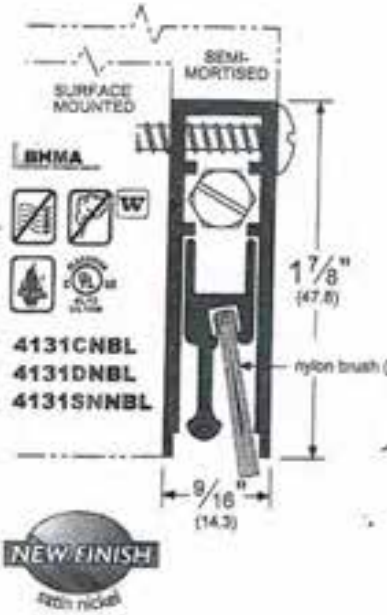


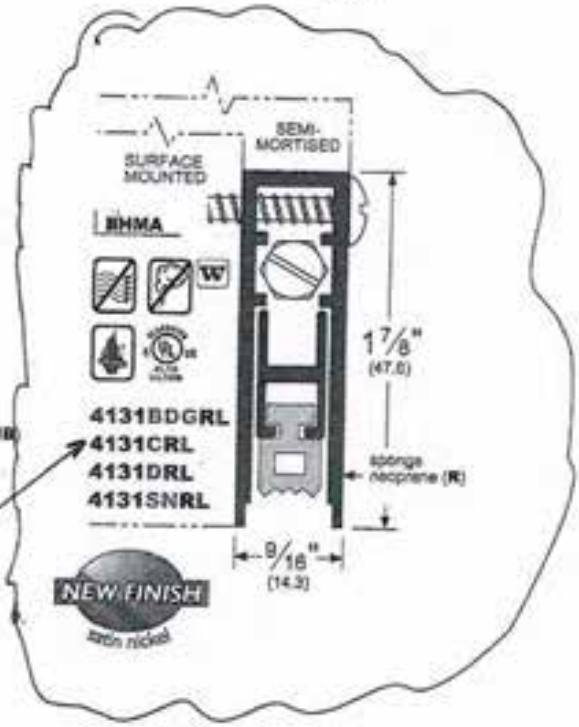
▲ Alternate insert for **4301**

Finish Designations: (page 95)

BDG	bright-dip gold anodized aluminum
C	clear anodized aluminum
D	dark bronze anodized aluminum
G	gold anodized aluminum

Please refer to the listings under each product for stocked finishes. See page 7 for a complete list of all Pemko stocked and non-stocked finishes. Consult the factory for the price and availability of non-stocked finishes.





▲ Alternate insert for **4131**

▲ Alternate insert for **4131**

▷ End Plates (4301 and 4131 Models)

- Black nylon end plates are provided with all **4301** and **4131** models to protect the mechanism and to give a clean aesthetic appearance.
- Plunger end plate prevents the plunger adjustment from rotating.
- End plates keep debris out of the mechanism. Do no tighten with power tool.

CORNELL

Thermiser® Insulated Doors

Model ESD20

Practical Design Applications for Security and Temperature Control

- Industry
- Distribution
- Healthcare
- Transportation
- Retail
- Utilities
- Education
- Hospitality/Public Space

Benefits

- Cornell can manufacture and ship most standard Thermiser® doors in one to two weeks.
- 15/16" thick insulated slat, R-value 8.0, STC 27.
- Powder coated guides and end plate brackets are standard.
- Insulated extruded aluminum bottom bar.
- Perimeter weather stripping including lintel brush seal is standard.
- Size Flexibility - each unit is built to exact opening size requirements.
- Compact Storage - curtain stores in an overhead coil that is totally supported by the side guides.
- Low Life Cycle Cost - rugged construction and commercial quality materials assure long life.
- Maintenance - little to none.
- Repairs - job records are retained and parts are readily available.

Available Options

- 1 or 2 way vision windows
- Cylinder or slide bolt locking
- Bottom bar sensing edge for motorized units
- Project specific wind load
- Operator covers for exterior mounted units or exposed operators below 8'-0" high

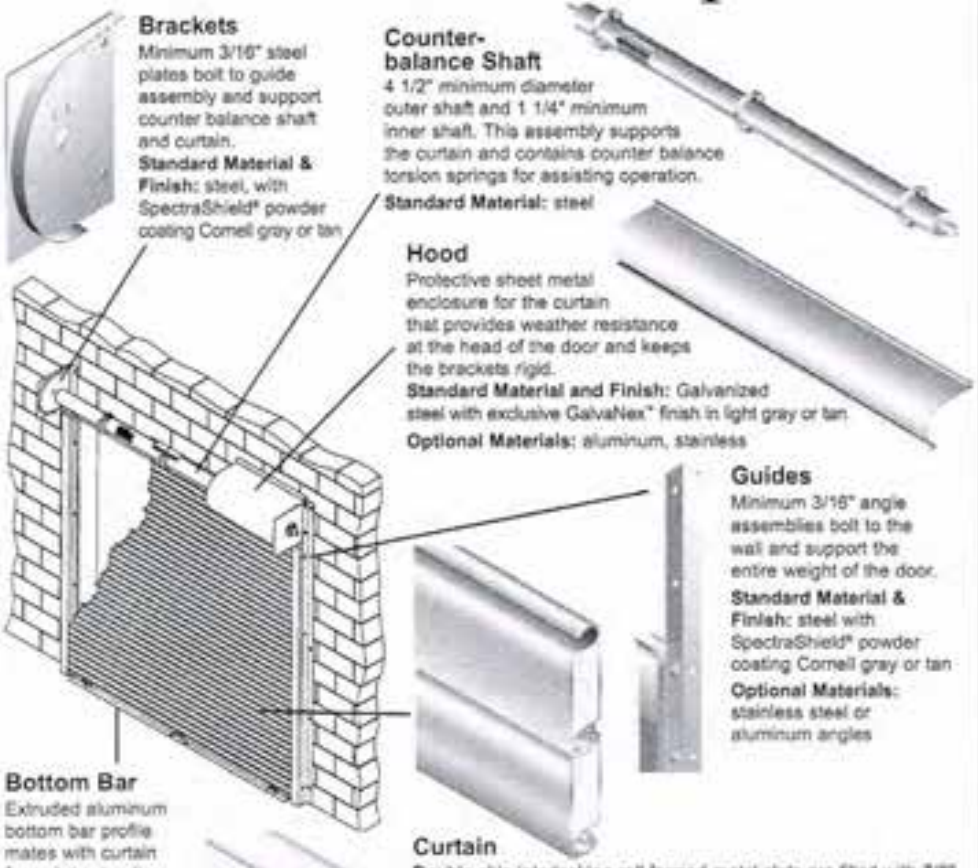
Thermiser doors pay for themselves* in 17 to 23 months depending on climatic zone.

Zone	Winter Savings	Summer Savings	Total Savings	Payback Years
1	$545	$149	$694	1.4
2	$409	$223	$632	1.5
3	$273	$297	$570	1.7
4	$136	$372	$508	1.9

Thermiser doors help to keep buildings warm in winter and cool in summer.

*Savings based on upgrading to a Thermiser Door from a WeatherGard

Thermiser® Door Components



Brackets
Minimum 3/16" steel plates bolt to guide assembly and support counter balance shaft and curtain.
Standard Material & Finish: steel, with SpectraShield® powder coating Cornell gray or tan

Counter-balance Shaft
4 1/2" minimum diameter outer shaft and 1 1/4" minimum inner shaft. This assembly supports the curtain and contains counter balance torsion springs for assisting operation.
Standard Material: steel

Hood
Protective sheet metal enclosure for the curtain that provides weather resistance at the head of the door and keeps the brackets rigid.
Standard Material and Finish: Galvanized steel with exclusive GalvaNex™ finish in light gray or tan
Optional Materials: aluminum, stainless

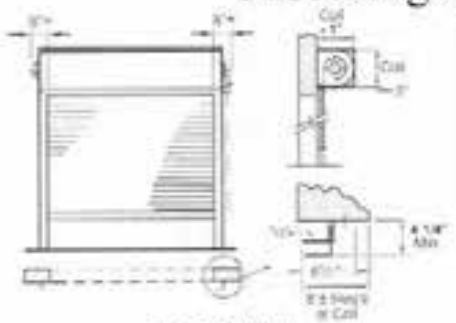
Guides
Minimum 3/16" angle assemblies bolt to the wall and support the entire weight of the door.
Standard Material & Finish: steel with SpectraShield® powder coating Cornell gray or tan
Optional Materials: stainless steel or aluminum angles

Bottom Bar
Extruded aluminum bottom bar profile mates with curtain face slat extending insulation to the floor. Equipped with weather seal. Lock mechanisms available.
Standard Material & Finish: mill finish extruded aluminum
Optional Materials: steel or stainless steel angles

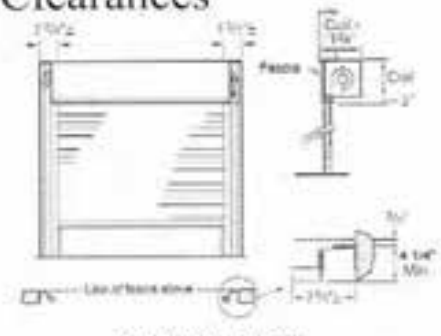
Curtain
Double skin interlocking roll formed metal slats are filled with 7/8" thick closed cell pressure foamed in place urethane insulation and have a Flame Spread Index of 0 and a Smoke Developed Index of 10 as tested per ASTM E84. Curtain assembly materials meet the foam plastic insulation requirements of the 2006 IBC® , section 2603. Insulating process is CFC free with an Ozone Depletion Potential (ODP) rating of zero. The slat has an R-value of 8.0 (U-factor of 0.125) as calculated using the ASHRAE Handbook of Fundamentals. Nylon endlocks are riveted to ends of alternate slats to maintain slat alignment, prevent wear and eliminate metal to metal contact between curtain edge and guides providing smooth, quiet operation.
Exterior skin available in: 24, 22, 20 and 18 gauge galvanized steel with exclusive GalvaNex™ finish in light gray; 22 gauge stainless steel, #4 finish; 18 gauge aluminum in mill, clear or color anodized.
Interior skin available in: 24 gauge galvanized steel with exclusive GalvaNex™ finish in light gray, 22 gauge available with 22 gauge exterior skin; 22 gauge stainless steel, #4 finish; 18 gauge aluminum in mill, clear or color anodized.
Standard Material & Finish: Galvanized steel with exclusive GalvaNex™ finish in light gray or tan
Optional Materials: aluminum, stainless steel

Operation
Hand chain, hand crank and motors are available. Doors operate by rotating the shaft gear end. The opposite end of the shaft applies spring tension and is equipped with a spring adjusting wheel.

Mounting & Clearances



Face of Wall
Maintains clearance of full opening, minimal exposed components.



Between Jambs
Mounts within the opening, fascia (front hood closure piece) required.

Thermiser doors are available to 30' W x 30' H standard construction. Large openings to 38' W, 40' H consult factory.

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50% Recycled Paper

Sound Transmission Control

A Thermiser can cut transmission of sound by 37% vs. non-insulated rolling doors. Hospitals, schools and universities are just some examples of applications where Thermisers are used for decreasing sound transmission. The STC (Sound Transmission Class) rating for Thermisers is 27 as tested per ASTM E90, based on testing a complete, operable door assembly. STC 32 Superimposed / double insulated curtain assemblies also available tested per ASTM E90, based testing a complete, operable door assembly.

Special Applications

- Specified Wind Load - doors can be configured to withstand the full range of specific wind load requirements. Performance validated through third party testing.
- High Cycle Construction - for doors expected to operate more than 20 cycles per day.
- Combination Doors - combines two different curtains on the same opening. Typically a Thermiser insulated door is used in conjunction with either a ScreenGard™ door or an open design rolling grille.
- Sloping or Irregular Sills - special bottom bar designs can meet odd floor conditions including slopes, curbs or rails.
- Pass Doors - a hollow metal man door and hinged frame within a Thermiser curtain.
- Removable Guide Mullions - for wide openings that require full access on a limited basis.

Optional Finishes

- Galvanized steel with exclusive GalvaNex™ finish in white
- Aluminum in mill, clear or color anodized
- Stainless steel, 300 series #4 finish
- Hot-dip galvanizing on steel components
- Powder coat finish in selected color
- Zinc Rich Gray corrosion resistant powder coating

SpectraShield® Powder Coat Finish

Cornell's SpectraShield® Powder Coat Finish in a choice of over 200 colors adds durability and aesthetic value. Surface preparation and the coating process produces a smooth, long lasting finish at controlled costs.

CORNELL
SAFE AND SECURE
An ISO 9001:2000 Registered Company

Crestwood Industrial Park
Mountaintop, PA 18707
TEL 800.233.8366 • FAX 800.526.0841
Architect & Design Support: Ext. 551
Website: www.cornelliron.com
Email: ADS@cornelliron.com

PS DOORS
FLOOD PROTECTION GROUP

OPERATIONS & MAINTENANCE MANUAL

PEDESTRIAN FLOOD DOOR
MODEL: PD-520

To Contact PS DOORS:

By Mail: PS DOORS
Industrial Door Group
1150 S. 48th Street
Grand Forks, ND 58201

By Fax: 1-701-746-8340

By Phone: Phone 1-701-746-4519
Toll Free 1-877-446-1519

By Email: 4psinfo@psdoors.com

Hours of Operation: 8:00 am to 5:00 pm (Central Standard Time); Monday thru Friday

Drawing No.: _____

Revision: 091911

Date: 10/1/10

Manufactured By:
PS DOORS
1150 S. 48th Street
Grand Forks, ND 58201

www.psdoors.com

If you need to contact Customer Service

Please complete the following information and retain for future reference:

Serial Number:* _____

Purchase Date: _____

PS DOORS Job Number: _____

Contractor: _____

Project Name: _____

* The serial number is located on the hinge edge of the PD-520 Pedestrian Flood Door.

For Customer Service

By Mail: PS DOORS
Flood Protection Group
1150 S. 48th Street
Grand Forks, ND 58201

By Fax: 1-701-746-8340

By Phone: Phone 1-701-746-4519
Toll Free 1-877-448-1519

By Email: 4psinfo@psdoors.com

Hours of Operation: 8:00 am to 5:00 pm (Central Standard Time), Monday thru Friday

Complication and Publication Notice

This manual has been complied and published covering the latest product descriptions and specifications.

The contents of this manual and the specifications of this product are subject to change without notice.

PS DOORS reserves the right to make changes without notice in the specifications and materials contained herein and shall not be responsible for any damages (including consequential) caused by reliance on the materials presented, including but not limited to typographical and other errors relating to the publication.

LIMITED WARRANTY

PS DOORS warrants this product and components to be free from defects in material and workmanship for a period of one (1) year from date of shipment. If within the term of this warranty, if any Pedestrian Flood Door or component is found to be defective upon inspection by an authorized PS DOORS representative, PS DOORS will replace or repair, at PS DOORS' discretion, any part found to be defective. Any field labor charges incurred are the sole responsibility of the customer.

To make a claim under this warranty, contact PS DOORS at the address shown below.

PS DOORS
Attention: Warranty
1150 S. 48th Street
Grand Forks, ND 58201

Toll Free: 800-284-0623
Phone: 701-746-4519
Fax: 701-746-8340
E-mail: 4psinfo@psdoors.com

Unauthorized modification of or to this product voids the PS DOORS Limited Warranty. Accordingly, you can expect any request for warranty repair to be charged to you, if the product requires service after unauthorized modification. Authorized modifications, received in writing from PS DOORS, as long as the modification is accomplished in strict accordance with PS DOORS' instructions, does not void warranty. To request product modifications contact PS DOORS, 1150 S. 48th Street, Grand Forks, ND 58201, phone 800-284-0623, email: 4psinfo@psdoors.com.

PS DOORS SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES.

All other warranty's, express or implied including any warranty of merchantability, are expressly excluded. Some states do not allow the exclusion or
limitation of consequential or incidental damages, so the above limitation or exclusion may not apply to you.

WARRANTY DOES NOT APPLY TO ANY DAMAGE OR DETERIORATION CAUSED BY MODIFICATION, ABUSE, APPLIED PAINT FAILURE OR FAILURE TO PROVIDE REASONABLE AND NECESSARY MAINTENANCE.

This warranty gives you specific legal rights, and you may also have other rights, which vary, from state to state.

Exclusions:

Seal and/or Gasketing are considered a "wear-item" and are not covered under this warranty.

PS DOORS
MANUFACTURING DIVISION

IMPORTANT! ACTION REQUIRED!

In order to Validate your Warranty the following information must be completed and returned to PS DOORS, failure to completely fill out this information, or to return information to PS DOORS may void warranty.

WARRANTY REGISTRATION

Owner Name: _____ Product: _____

Company: _____ Model: _____

Address: _____ Serial Number(s): _____

City: _____ Date Installed: _____

State/Province: _____ Postal Code: _____

Country: _____

Please answer the following questions:

1. *Has the installed product been tested?* ____ *Yes* ____ *No*
2. *Test Witnessed by, Name:* _____ *Date:* _____
3. *Product Initial Inspection by, Name:* _____ *Date:* _____

Warranty Registration must be returned to:

- *Fax: 701-746-8340*
- *Email: 4psinfo@psdoors.com*
- *Mail: PS DOORS*
  1150 S. 48th Street
  Grand Forks, ND 58201

Warranty Registration information will be used for activation of product warranty only.

Safety precautions

We use the following icons throughout the Operations & Maintenance Manual.

DANGER Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderated injury.

NOTICE Indicates manufacture's statement of additional information.

IMPORTANT! Indicates a required action.

CRITICAL Indicates a vital component to product performance.

PEDESTRIAN FLOOD DOOR; Model PD-520

The PD-520 is a specially designed pedestrian door capable of providing flood protection can handle flooding conditions. The PD-520 is always in place, giving you 24/7 flood protection, while still allowing access to your facility on a daily basis.

Please keep these instructions for later reference and read them before attempting any maintenance or operation of the product.

NOTICE ADDITIONAL INFORMATION

1. No additional allowances have been included for hydrodynamic loads, debris impact loads or wave loads, unless specifically detailed in additional documentation provided.
2. All water pressure loads, impact loads, and operating loads are transferred to the building structure. Building structure design, capacity to accept loads from flood barriers, and evaluation of loads to structure is by others.
3. PS DOORS recommends that the owner implement an regular maintenance program to inspect the gaskets and doors. This program may require the replacement of gaskets; touch up painting and accounting for of all the latching devices.
4. If the water height exceeds the level of any door penetrations or water protective design height, leakage will occur.
5. This product is equipped with compressible seals, which are not dependant on inflation devices.
6. PS DOORS recommends a flood preparedness plan be developed, trained on, and implemented to be activated during times of potential flooding conditions.
7. PS DOORS AND/OR ITS RESPECTIVE SUPPLIERS MAY MAKE IMPROVEMENTS AND/OR CHANGES IN THE PRODUCT(S) OR SERVICE(S) OFFERED AND/OR THE PROGRAM(S) AT ANY TIME WITHOUT NOTICE.

IMPORTANT! **Read entire Operations & Maintenance Manual to become familiar with the product.**

NOTICE This product is a flood protective barrier. The effectiveness of the product is directly related to the proper installation and maintenance of this product. Failure to properly maintain this product ***will*** affect performance.

Product Description

The PS DOORS Pedestrian Flood Door, Model PD-520 is to be constructed in accordance with PS DOORS' standard design, specification, and fabrication methods for Custom Flood Barriers.

The following components, in accordance with description provided, are included:

1. **Flood Door Panel:** To be fabricated as a welded steel structural frame, and sheeted both sides with flat sheeting welded in place. Flood door panel to be designed for maximum water height of 36 inches above Finished Floor Elevation (FFE). All loads transferred to adjacent structure. This design is subject to a uniformly increasing fluid pressure (hydrostatic pressure loading of water at 62.5 pcf) with a 2:1 design safety factor based on material yield strengths.
2. **Flood Door Frame:** To be of PS DOORS' design, for field installation on existing structure and/or embedded within structure. Frame members to be fabricated from structural shapes and formed members. Field grouting is required.
3. **Gaskets:** To be factory mounted to the flood door frame. Gaskets to be compressible rubber type, field replaceable.
4. **Flood Barrier Door Panel and Frame Finish:** Finish on all exposed surfaces to be one (1) shop coat of manufacturer's standard shop primer (S-W Kemflash Primer E61-R-26), and two (2) coats of Standard Industrial Enamel (S-W Industrial and Marine Coatings B54 Series) applied in accordance with manufacturer recommendations and instructions. (Note: Touch up of finish will be required as scratches will occur during shipment, handling, and installation).
5. **Latching Hardware:** To be Corbin Russwin N655-626 Panic Bar (Interior, Dry Side) and N610 Classroom function Lever Handle with Lock (Exterior latch, Wet Side).
6. **Door Closer:** To be model LCN4111-689 door closer. Finish to be Satin Aluminum.
7. **Installation Hardware:** PS DOORS includes all sealants, water-stop, anchors, and hardware necessary for installation, hinging, latching and retaining flood doors as designed. Note: Anchors are engineered for load design and shall not be changed without factory authorization.
8. **Labeling:** Each flood door and frame will be individually identified for matched installation. Factory provides Warning Placards and Maintenance Record labels.
9. **Warranty:** PS DOORS warrants this product and components to be free from manufacturing defects for a period of one (1) year from date of shipment.

The following information is available upon request:

- Structural Calculations: A copy of PS DOORS' design calculations by a qualified engineer, to verify the flood barrier's ability to withstand the design loading, is available upon request.

The following optional services are available upon request:

- Optional: Registered professional engineer stamped calculations from within the state or territory where the building will be constructed or substantially improved are available at additional cost.

PS DOORS AND/OR ITS RESPECTIVE SUPPLIERS MAY MAKE IMPROVEMENTS AND/OR CHANGES IN THE PRODUCT(S) OR SERVICE(S) OFFERED AND/OR THE PROGRAM(S) AT ANY TIME WITHOUT NOTICE.

IMPORTANT! **Read entire Operations and Maintenance Manual to become familiar with the product.**

NOTICE This product is a flood protective barrier. The effectiveness of the product is directly related to the proper installation and maintenance of this product. Failure to properly maintain this product ***will*** affect performance.

1. GENERAL INFORMATION

This manual contains information regarding operation and maintenance of custom water resistant flood barrier assemblies.

This product is manufactured to specific guidelines. Unauthorized alteration in any way will result in voiding Factory Warranty, and may cause product to fail.

2. OPERATION GUIDELINES

The following procedures and information are supplied for the operation of the PD-520 Series Hinged Flood Door assemblies. Operation in a manner other than intended could result in damage or less than acceptable performance at time of need, for which the manufacturer will not be held responsible.

This product has been tested to withstand hydrostatic water pressure to an elevation of not more than 36 inches above the base of the door assembly. This design has tested to allow a minimum amount of leakage. Always plan for potential leakage and condensation that can occur during flooding conditions.

3. SAFETY PRECAUTIONS

- Ensure opening is clear of all obstructions through the entire travel of the door during operation of door panels.
- Use the handle / grab bars when contacting panel, staying clear of pinch points.
- Do not force panels or components if they do not operate freely.
- If removing panels or hardware for maintenance, consult documents for panel weights, and use appropriate hoisting equipment. Protect all gaskets and hardware. Always consult original factory drawings for all installation dimensions, details, hardware, and specifications.

4. OPERATION UNDER NORMAL CONDITIONS

Under normal (non-flooding) conditions, the PD-520 operates as a normal swing door.

- **Lever Handle:** To operate the lever handle, turn lever handle downward approximately 45 degrees to release the latch mechanism. Pull door toward you and swing door to an open position far enough to provide a clear path to pass through the door opening. Once through the door opening move away from the door panel allowing the door closer to return the door panel to the closed position.
- **Panic Device:** To operate the panic device, firmly push the panic bar fully to its stopping position to release the latch mechanism. Push the door away from you and swing door to an open position far enough to provide a clear path to pass through the door opening. Once through the

NOTICE Unauthorized modification of this product voids the PS DOORS Limited Product Warranty. Accordingly, you can expect any request for warranty repair to be charged to you, if it requires service after modification. Authorized modifications, received in writing from PS DOORS, as long as the modification is accomplished strictly in accordance with PS DOORS' instructions, does not void warranty. To request product modifications contact PS DOORS.

WARNING The flood protective barrier panel is heavy, verify panel weights and use appropriate lifting procedures and equipment.

CAUTION When operating door keep clear of pinch points at the latching mechanism, hinge locations, and out of the travel of the door panel at all times.

Door will attempt to close at all times.

4. OPERATION UNDER NORMAL CONDITIONS *(Continued)*

door opening move away from the door panel allowing the door closer to return the door panel to the closed position.

- **Door Closer:** Although no physical interaction with the door closer is required to operate the door, it is important to be aware that the door closer will attempt to close the door once the latch mechanism has been released. Once through the door opening move away from the door panel allowing the door closer to return the door panel to the closed position.

- **Latching Mechanism:** Typically, no physical interaction with the latching mechanism is necessary, as long as it is properly adjusted *(see latching installation and adjustment documentation)*. Depending upon the environmental conditions present *(refer to Maintenance and Inspection Section)*, the door may not completely latch and may require a person to physically push/pull the door to engage the latch.

CRITICAL PD-520 Flood Protective Barrier must be latched to engage flood protective seals.

5. OPERATION UNDER FLOODING CONDITIONS

- **Pre-flooding or Potential Flooding Conditions:**
  - At a minimum, conduct Inspection and Maintenance activities as described in this Operations & Maintenance Manual.
  - Ensure PD-520 Pedestrian Flood door is closed and latched.
  - Routinely verify that the PD-520 Pedestrian Flood door remains closed and latched.

NOTICE PS DOORS recommends all facilities subject to flooding conditions, and employ any type of flood protection have a **Flood Preparedness Plan** in place for activation prior to, or in times of flooding conditions.

- **Flooding Conditions Present:**
  - Ensure PD-520 Pedestrian Flood doors is <u>not</u> opened at any time when flooding conditions are present.
  - If feasible, check PD-520 Pedestrian Flood door for leakage or condensation accumulation.

WARNING! THIS IS A FLOOD PROTECTION DOOR. NEVER OPEN DURING ANY FLOODING CONDITIONS AS WATER LEAKAGE WILL OCCUR AND YOU MAY NOT BE ABLE TO RECLOSE DOOR.

- **Post-flooding Conditions:**
  - At a minimum, conduct Inspection and Maintenance activities as described in the Operations & Maintenance Manual.

6. INSPECTION AND MAINTENANCE

- **Sills, Frames, and Embedded items:**
  - Inspect items for damage and misalignment. Adjust, repair, or replace as needed, to meet original design tolerances.
  - Check all embedded connections, making sure they meet original design standards *(refer to original product drawings)*.

IMPORTANT! Consult drawings before replacing fasteners, as most have specific design load requirements.

- **Fasteners and mechanical connections:**
  - All fasteners must be in place and adjusted to their original design standards. Replace any damaged components *(refer to original product drawings)*.

- **Sealants and Water-stops:**
  - Inspect all sealants used on frames and connections to insure their effectiveness. Replace any cracked, loose, or otherwise non-performing sealants.
  - Use only factory approved products *(consult approved products list)*.

6. INSPECTION AND MAINTENANCE *(Continued)*

- **Gasketing:** Check all gaskets around perimeter of opening.
  - Inspect for gasket and corner splice damage, and for continuous adhesion to the attached surface.
  - Visually inspect all gaskets for proper positioning and compression.
  - Replace or repair if damage or deterioration to gaskets has occurred.
  - Use only factory approved materials *(consult manufacturer for original design standards)*.
  - Use only factory approved installation guidelines *(refer to Gasket Replacement Instructions)*.

- **Latching:**
  - Operate all latching hardware to ensure smooth, uninhibited movement of all mechanical components.
  - Close door and check latches for proper engagement. If gaskets are not properly positioned and properly compressed, unlatch door panel and adjust latching accordingly *(refer to original product drawings)*.
  - Insure that door closers (or other hardware) are installed and adjusted so as to not interfere with proper door closing, latching, and continued gasket compression.

- **Lubrication:**
  - Periodically lubricate hardware and other components according to manufacturer's *instructions (refer to applicable hardware guides)*.

- **Finishes:**
  - Inspect and clean finishes periodically.
  - Touch up repair finishes, or refinish as necessary to protect the structural integrity of the product.

- **Labels and Placards:**
  - Inspect all labels and placards. Replace any labels and placards which are unreadable *(refer to Label and Placard Placement instructions)*.

- **Housekeeping:**
  - Clean sill and jambs of any debris and keep the area clean throughout the operating area of the door.

CRITICAL Gaskets and sealing surfaces are a critical component of the flood protective barrier performance.

CRITICAL Gaskets are a critical component of the flood protective barrier performance and must meet minimum compression tolerances in the latched position.

QUESTIONS? **Contact the PS DOORS at 1-877-446-1519 or 1-701-746-4519.**

INSPECTION & MAINTENANCE LOG

CRITICAL Periodic Inspection and Maintenance Required.

Date Purchased: _____

Product: _____

Model Number: _____

Serial Number: _____

Door Identifier / Number: _____

Location: _____

DATE INSPECTED	INSPECTED BY *(Print & Sign)*	INSPECTION ITEMS NOTED	CORRECTIVE ACTION	CORRECTED BY *(Print & Sign)*

PRODUCT AND INSTALLATION DRAWING

NOTES

DESIGN CRITERIA

Bill Of Materials - For 1 Opening

Item No.	Part No.	Description	Qty.
1		Welded Frame Assy	1
2		Door Panel	1
3	500782	Continuous Hinge	1
4	502113	Jamb Gasket - Rubber Extrusion	As Req'd
5	502114	Sill Gasket - Rubber Extrusion	As Req'd
6		Sill Gasket Retainer	As Req'd
7	500888	Corbin Russwin Exit Device ED6200	1
8	500889	Corbin Russwin Key in Lever M999	1
9	500543	Corbin Russwin Closer DC6210	1
10	500897	3/8"x3" FPH Sleeve Anchor - Jamb	As Req'd
11	500876	3/8"x3" FPH Sleeve Anchor - Threshold	As Req'd
12		Foam Backer Rod	As Req'd
13	500507	Sheet Paste Type E 10 oz.	As Req'd
14	500569	Sealant, Urethane 1 comp.	As Req'd

CUSTOMER COLOR SELECTION:	SW PAINT CODE	SW COLOR NAME
PLEASE SELECT FINISH PAINT COLOR FROM STANDARD SHERWIN-WILLIAMS INDUSTRIAL ENAMEL COLOR CHART COLOR CHART CAN BE VIEWED AT: http://www2.sherwin.com/industrial/coatings-all/product1.html		PRIME ONLY

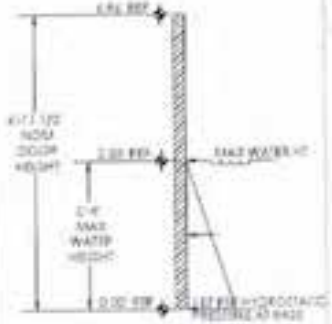
NOTES:

DRAWINGS WILL NOT BE CONSIDERED "APPROVED" UNTIL A FINISH PAINT COLOR IS SELECTED

PS DOORS NEEDS TO RECEIVE APPROVED DRAWINGS BACK BY 5/23/08 TO STAY ON SCHEDULE

ONCE APPROVED, FABRICATION WILL BE BASED ON THE DIMENSIONS AND INFORMATION CONTAINED IN THIS DRAWING. VERIFY THAT ACTUAL FIELD CONDITIONS AT EACH OPENING MATCH WHAT IS DEPICTED IN THIS DRAWING, AND WILL PERMIT PROPER INSTALLATION OF THE FLOOD SHIELDS.

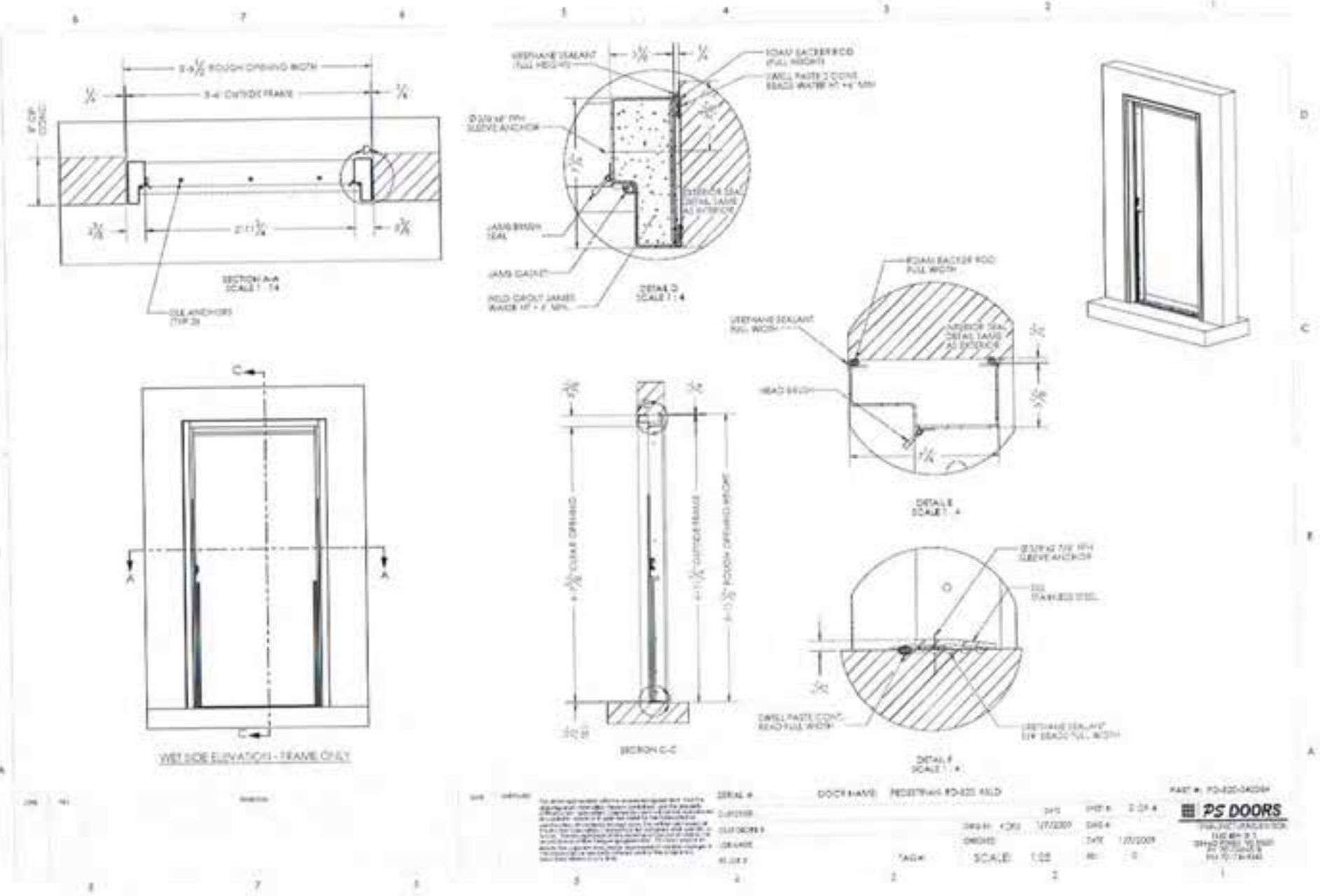
ALL DESIGNS SUBJECT TO FINAL ENGINEERING REVIEW



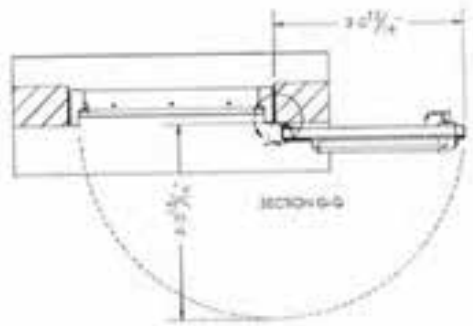
CONSTRUCTION COPY

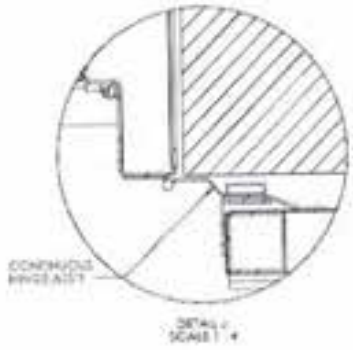
PS DOORS

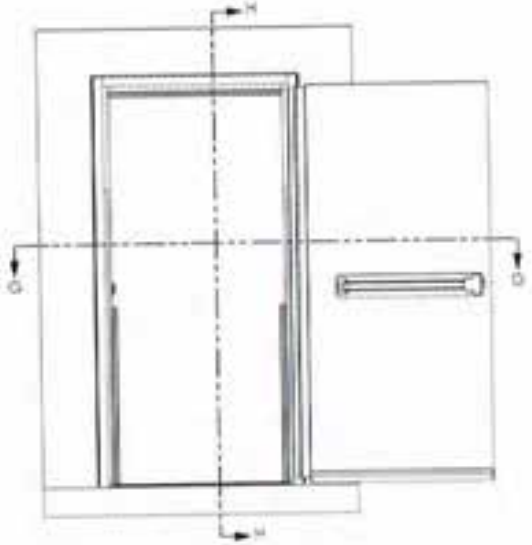
PRODUCT AND INSTALLATION DRAWING

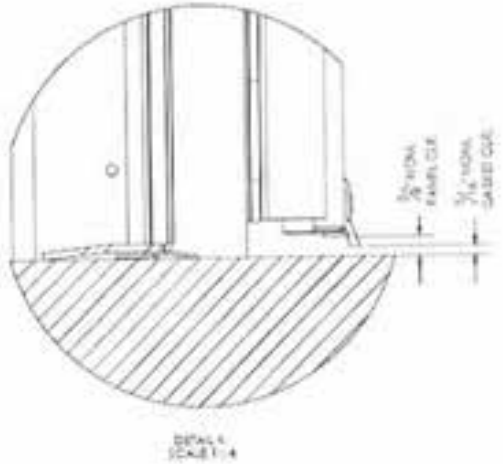


PRODUCT AND INSTALLATION DRAWING









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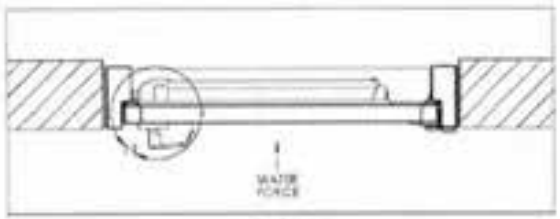
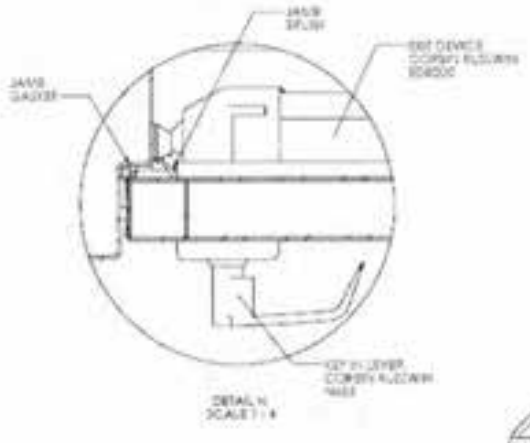
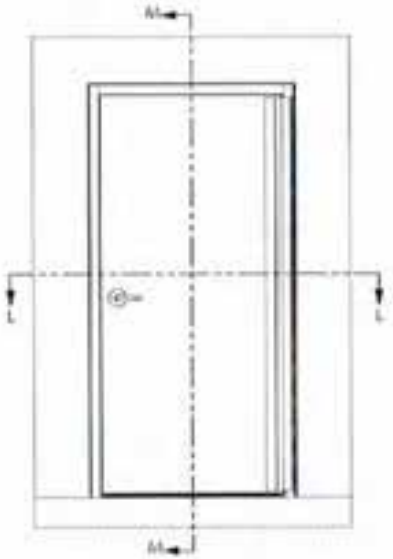
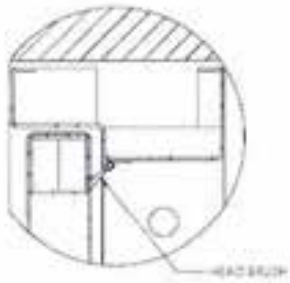
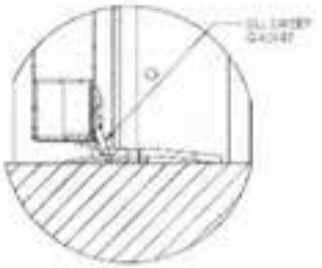






WET SIDE ELEVATION - DOOR CLOSED






L-103
BLOWER AND
L-102

ARCHITECTURE METALS

GENERAL NOTES:

Design	1,2,3,4
Specifications	5,6,7,8,
9,10,11,12,13,14,15,16,17,19	
Installation	5,6,8,9,
10,12	
Surface Preparation	9,10,11,12

INDEX:

SAMPLE DWG

ARCHITECTURE METALS
5500 MILITARY TRAIL
SUITE 22–220
JUPITER, FL 33458
561–630–0020
FAX 561–744–2755

TITLE: City of Vero Beach

DATE: 10.3.07 Drawn by: TDO

GENERAL NOTES:

1. The structural design of these Removable Flood Panels is generic and has been designed for hydrostatic hydrodynamic and impact debris flood loads with water pressures corresponding to 3'–0", 4'–0" and 5'–0" maximum water height and flow speed of 5 ft/sec. up to 8 ft/sec. in order to certify minimum required flood elevation to top of Flood Panels.
2. It shall be determined, on a job by job basis, the required Panel height and flow speed for the design of Removable Flood Panels, based on FEMA's criteria (See Note #3) as well as per ASCE 24–98 Standard. Installation and construction of these Flood Panels for use within flood hazard areas shall be in accordance with the American Society of Civil Engineers Flood Resistant Design and Construction Standard SEI/ASCE 24–98.
3. Design criteria has been based on Sections 1612 of the 2000 Edition of the International Building Code, the corresponding provisions of ASCE 24–98, FEMA flood proofing non–residential structures manual FEMA 102, and FEMA Technical Bulletin 3–93. Design flood loads have been determined in accordance with Section 5.3 of ASCE 7–98. Design wind loads have been determined in accordance with Section 6 of ASCE 7–98 for 130, 140 and 146 mph Basic Wind Speed, in accordance with Section 1609 of the International Building Code.
4. Panels are only to be installed on a "X" or AE" Flood Zone. This condition shall be verified and this engineer shall be notified if not complied with.
5. Flood Panels shall not be installed within areas where ice flows or ice jams occur.
6. In order to certify flood elevation, Flood Panels shall be tested for water infiltration in accordance with FEMA 102 manual for flood proofing of non–residential structures, specifications Section 8, Page 70.
7. Flood Panel manufacturer to install and use gaskets and approved sealants following all the recommendations and specifications of the manufacturers respectively.
8. Flood Panel manufacturer to verify all dimensions, wall and floor conditions at site before proceeding with the work, and shall notify this engineer if any discrepancy is found that would alter the structural design of these Flood Panels.
9. Existing slabs and walls adjacent to opening where Flood Panel is to be installed shall be given a surface treatment by means of water proof sealer before flood Panel is installed. Surface must be smooth, square, plumb and level.
10. Existing slabs and walls adjacent to openings where Flood Panels are to be installed shall be structurally designed by engineer of record, to sustain the same hydrostatic, hydrodynamic and impact pressures that correspond to maximum water elevation above finished floor at top of Panel , based on criteria mentioned on Note #3.
11. Drop–in and calk–in anchors embedded into concrete for removable diagonal brace installation, as well as at bottom angle of Panels shall be covered with a nylon cap or similar device to protect their inside hold from dust, so that machine screws can easily be installed at time of flood warning.
12. Separation of Panel to window/door shall be measured from back of Panel to window/door including any knob, handle, or protruding device, and shall be 2" minimum.
13. All aluminum extrusions to be 6063–T6 alloy, except that 2"x4"x1/4" and top tubes shall be 6061–T6 alloy.
14. All sheet metal screws shall be as manufactured by ITW/Buildex "TEK Screws", and to be made of non–corrosive material.
15. All bolts to be galvanized steel ASTM A–307 designation or 304 Series Stainless Steel.
16. All aluminum skin to be 5052–H32 or 3004–H34 alloy.
17. Screws and anchors' heads shall be fully covered with Elastomeric Sealant Paint as "Roof Mastic" or equal, or be of water resistant design (rubber washers). All silicone sealants to be Dow 995 or equal type.
18. All gaskets installed shall be ½" thick dense 20 durometer rubber.
19. All welding to conform to the American Welding Society AWS D1.2. 1998 Regulations. Use certified welders. Use ER–5356 Electrodes.
20. The engineer is not responsible for construction safety at site which is the Flood Panel Manufacturer's responsibility. Flood Panel Manufacturer to be responsible for providing the tenant with proper instructions for the installation of these Flood Panels.
21. These drawings are generic in nature but may be supported by application specific engineering. The supporting engineering may dictate some changes which will be reflected on the final "application specific" drawings, for a specific project.
22. Surfaces against which the sealing gasket presses must be built "paper–smooth" to prevent excessive water extrusion, beyond that allowed by requirements. All surfaces must be plumb, square and level.
23. Responsibility for filing the building "Flood Proofing Certificate" is the responsibility of the owner's architect and/or engineer and not of Architecture Metals.

General Notes

ARCHITECTURE METALS
FLOOD PANEL
SHOP DRAWINGS

No.	Revision/Issue	Date
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ARCHITECTURE METALS
5500 MILITARY TRAIL
STE 22–220
JUPITER, FL 33458
561–630–0020

CITY OF VERO BEACH

Project	Sheet
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Scale: NTS	

WWTP SCHEDULE PAGE 1 OF 2

Opening ID	Rough Opening		Max panel size		Mounting Details				# of panels per opening	Brace Requirements				
	Width	Height	Width	Height	Left	Right	Bottom	Top		# of braces required	Brace Dimension	Brace details	Brace anchor plate size	Anchor plate details
BLD H-1-1 (105A)	8'-0"	N/A	9'-0"	3'-0"	2/D3	2/D3	F/D1	E/D2	1	0				
BLD H-1-2 (106A)	8'-0"	N/A	9'-0"	3'-0"	2/D3	2/D3	F/D1	E/D2	1	0				
BLD H-1-3 (107A)	8'-0"	N/A	9'-0"	3'-0"	2/D3	2/D3	F/D1	E/D2	1	0				
BLD H-2-1 (H101)	3'-3½"	N/A	4'-4"	3'-0"	2/D3	2/D3	F/D1	E/D2	1	0				
BLD H-2-2 (H102)	3'-3½"	N/A	4'-4"	3'-0"	2/D3	2/D3	F/D1	E/D2	1	0				
BLD H-2-3 (H103)	3'-3½"	N/A	4'-4"	3'-0"	2/D3	2/D3	F/D1	E/D2	1	0				
BLD H-2-4 (H104)	3'-3½"	N/A	4'-4"	3'-0"	2/D3	2/D3	F/D1	E/D2	1	0				
BLD H-2-5 (H105)	3'-3½"	N/A	4'-4"	3'-0"	2/D3	2/D3	F/D1	E/D2	1	0				
BLD H-2-6 (H106)	3'-3½"	N/A	4'-4"	3'-0"	2/D3	2/D3	F/D1	E/D2	1	0				
BLD H-2-7 (H107)	3'-3½"	N/A	4'-4"	3'-0"	2/D3	2/D3	F/D1	E/D2	1	0				
BLD L-1-1 (L104)	6'-3½"	N/A	7'-4"	3'-0"	2/D3	2/D3	F/D1	E/D2	1	0				
BLD L-1-2 (L103A)	6'-3½"	N/A	7'-4"	3'-0"	2/D3	2/D3	F/D1	E/D2	1	0				
BLD L-2-2 (103B)	3'-3"	N/A	4'-3"	3'-0"	2/D3	2/D3	F/D1	E/D2	1	0				
BLD L-2-3 (L102)	3'-3"	N/A	4'-3"	3'-0"	2/D3	2/D3	F/D1	E/D2	1	0				
BLD J-1-1 (J102A)	9'-10½"	N/A	10'-11"	3'-0"	2/D3	2/D3	F/D1	E/D2	1	0				
BLD J-1-2 (J102B)	9'-10½"	N/A	10'-11"	3'-0"	2/D3	2/D3	F/D1	E/D2	1	0				
BLD J-1-3 (J102C)	9'-10½"	N/A	10'-11"	3'-0"	2/D3	2/D3	F/D1	E/D2	1	0				
BLD J-1-4 (J104E)	9'-10½"	N/A	10'-11"	3'-0"	2/D3	2/D3	F/D1	E/D2	1	0				
BLD J-1-5 (J104F)	9'-10½"	N/A	10'-11"	3'-0"	2/D3	2/D3	F/D1	E/D2	1	0				
BLD J-2-1 (J101)	3'-3½"	N/A	4'-4"	3'-0"	3/D3	3/D3	F1/D2	E/D2	1	0				
BLD J-2-2 (J102)	3'-3½"	N/A	4'-4"	3'-0"	3/D3	3/D3	F1/D2	E/D2	1	0				

General Notes

ARCHITECTURE METALS
FLOOD PANEL
SHOP DRAWINGS

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CITY OF VERO BEACH WWTP

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WWTP SCHEDULE PAGE 2 OF 2

Opening ID	Rough Opening		Max panel size		Mounting Details				# of panels per opening	Brace Requirements				
	Width	Height	Width	Height	Left	Right	Bottom	Top		# of braces required	Brace Dimension	Brace details	Brace anchor plate size	Anchor plate details
BLD J-2-3 (J104A)	3'-3½"	N/A	4'-4"	3'-0"	2/D3	2/D3	F/D1	E/D2	1	0				
BLD J-2-4 (J104B)	3'-3½"	N/A	4'-4"	3'-0"	2/D3	2/D3	F/D1	E/D2	1	0				
BLD G (102A)	8'-11"	N/A	9'-11"	3'-0"	4/D3	4/D3	F/D1	E/D2	1	0				
BLD G (102B)	8'-11"	N/A	9'-11"	3'-0"	4/D3	4/D3	F/D1	E/D2	1	0				
BLD G (101)	8'-11"	N/A	9'-11"	3'-0"	4/D3	4/D3	F/D1	E/D2	1	0				
BLD G (103W)	6'-0"	N/A	7'-0"	3'-0"	3/D3	3/D3	2/D1	E/D2	1	0				
BLD F (102N)	6'-0"	N/A	7'-0"	3'-0"	2/D3	2/D3	F/D1	E/D2	1	0				
BLD F (104S)	6'-0"	N/A	7'-0"	3'-0"	2/D3	2/D3	F/D1	E/D2	1	0				
BLD F (102) LOUVER	4'-0"	N/A	5'-0"	3'-0"	2/D3	2/D3	1/D1	E/D2	1	0				
BLD F (102A) LOUVER	1'-0"	N/A	2'-0"	3'-0"	3/D3	3/D3	2/D1	E/D2	1	0				
BLD F (102B) LOUVER	1'-0"	N/A	2'-0"	3'-0"	3/D3	3/D3	2/D1	E/D2	1	0				
BLD F (101)	3'-0"	N/A	4'-0"	3'-0"	2/D3	2/D3	F/D1	E/D2	1	0				
BLD F (101) LOUVER	2'-0"	N/A	3'-0"	3'-0"	3/D3	3/D3	2/D1	E/D2	1	0				

General Notes

ARCHITECTURE METALS
FLOOD PANEL
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POWER PLANT SCHEDULE PAGE 1 OF 1

Opening ID	Rough Opening		Max panel size		Mounting Details				# of panels per opening	Brace Requirements				
	Width	Height	Width	Height	Left	Right	Bottom	Top		# of braces required	Brace Dimension	Brace details	Brace anchor plate size	Anchor plate details
ELECT SHOP EAST	9'-0"	N/A	10'-0"	3'-0"	4/D3	4/D3	L/D1	E/D2	1	1	2"X2"X⅛"	J,K/D5	2"X2"X6"X¼"	R/D8
UNIT 3 EAST	9'-0"	N/A	10'-0"	3'-0"	4/D3	4/D3	L/D1	E/D2	1	1	2"X2"X⅛"	J,K/D5	2"X2"X6"X¼"	R/D8
UNIT 4 FD FAN ROOM	9'-0"	N/A	10'-0"	3'-0"	4/D3	4/D3	L/D1	E/D2	1	1	2"X2"X⅛"	J,K/D5	2"X2"X6"X¼"	R/D8
UNIT 5 EAST	9'-0"	N/A	10'-0"	3'-0"	4/D3	4/D3	L/D1	E/D2	1	1	2"X2"X⅛"	J,K/D5	2"X2"X6"X¼"	R/D8
EAST BOAT HOUSE RU DR	9'-0"	N/A	10'-0"	3'-0"	4/D3	4/D3	L/D1	E/D2	1	1	2"X2"X⅛"	J,K/D5	2"X2"X6"X¼"	R/D8
UNIT 1 EAST	11'-0"	N/A	12'-0"	3'-0"	4/D3	4/D3	L/D1	E/D2	1	1	2"X2"X⅛"	J,K/D5	2"X2"X6"X¼"	R/D8
UNIT 5 WEST	11'-0"	N/A	12'-0"	3'-0"	4/D3	4/D3	L/D1	E/D2	1	1	2"X2"X⅛"	J,K/D5	2"X2"X6"X¼"	R/D8

General Notes

ARCHITECTURE METALS
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SHOP DRAWINGS

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CITY OF VERO BEACH
POWER PLANT

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Scale: NTS	

RECREATION DEPARTMENT SCHEDULE PAGE 1 OF 1

Opening ID	Rough Opening		Max panel size		Mounting Details				# of panels per opening	Brace Requirements				
	Width	Height	Width	Height	Left	Right	Bottom	Top		# of braces required	Brace Dimension	Brace details	Brace anchor plate size	Anchor plate details
DOOR 1 WEST	11'-7"	N/A	12'-7"	2'-0"	2/D3	2/D3	F/D1	E/D2	1	0				
DOOR 3 WEST	11'-7"	N/A	12'-7"	2'-0"	2/D3	2/D3	F/D1	E/D2	1	0				
DOOR 4 WEST	11'-7"	N/A	12'-7"	2'-0"	2/D3	2/D3	F/D1	E/D2	1	0				
DOOR 2 WEST	11'-8"	N/A	12'-8"	2'-0"	2/D3	2/D3	F/D1	E/D2	1	0				
DOOR 5 WEST	11'-8"	N/A	12'-8"	2'-0"	2/D3	2/D3	F/D1	E/D2	1	0				
NE DOOR	10'-11"	N/A	11'-11"	2'-0"	2/D3	2/D3	F/D1	E/D2	1	0				
SE DOOR	6'-4"	N/A	6'-8"	2'-0"	3/D3	4/D3	F1/D2	E/D2	1	0				
STORAGE ROOM SOUTH	3'-10½"	N/A	4'-9"	2'-6"	3/D3	3/D3	F1/D2	E/D2	1	0				
ICE ROOM SOUTH	5'-1½"	N/A	6'-0"	2'-6"	3/D3	3/D3	F1/D2	E/D2	1	0				
MAIN ENT SOUTH	9'-1"	N/A	10'-1"	2'-6"	3/D3	3/D3	F1/D2	E/D2	1	0				
SW ENTRANCE	7'-0"	N/A	7'-10"	2'-6"	3/D3	3/D3	F1/D2	E/D2	1	0				
NW ENTRANCE	7'-0"	N/A	7'-10"	2'-6"	3/D3	3/D3	F1/D2	E/D2	1	0				
NE ENTRANCE	7'-0"	N/A	7'-10"	2'-6"	3/D3	3/D3	F1/D2	E/D2	1	0				

General Notes

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CITY OF VERO
BEACH
REC DEPT

Date 10-11-07
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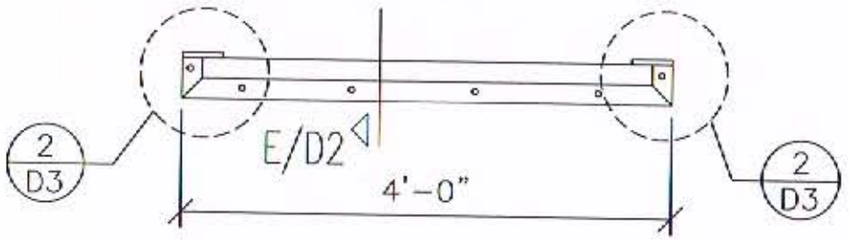
Scale NTS

Plan



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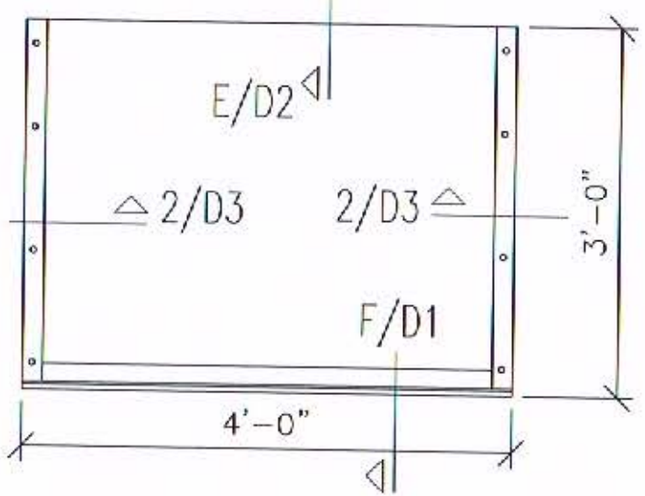

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General Notes

ARCHITECTURE METALS
FLOOD PANEL
SHOP DRAWINGS

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CITY OF VERO
BEACH
WWTP

Date	Sheet
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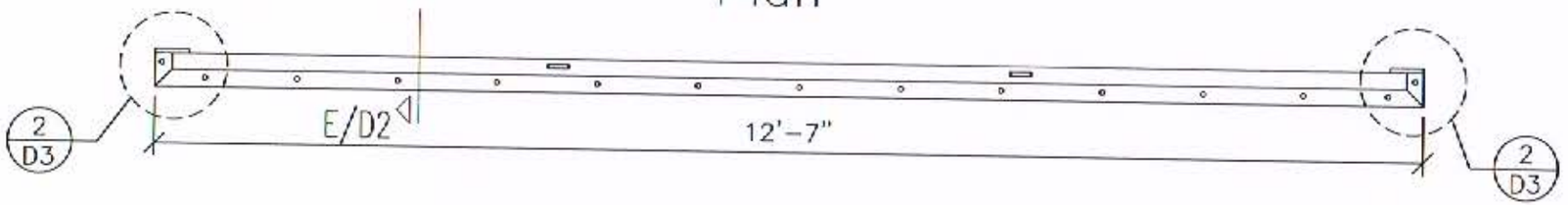
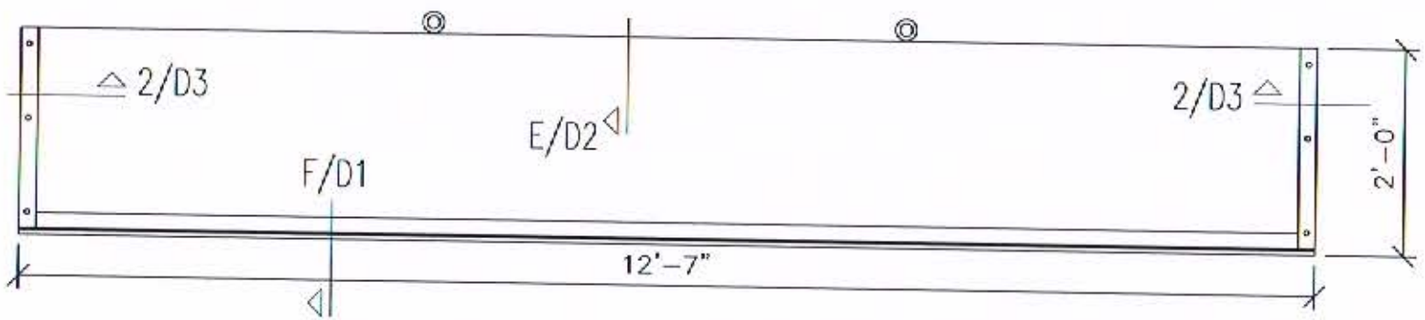
Scale: NTS	

Plan



Elevation



DOOR 1 WEST, DOOR 3 WEST
DOOR 4 WEST

General Notes

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SHOP DRAWINGS

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CITY OF VERO
BEACH
REC DEPT
BETHAL CREEK

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10-11-07	A17
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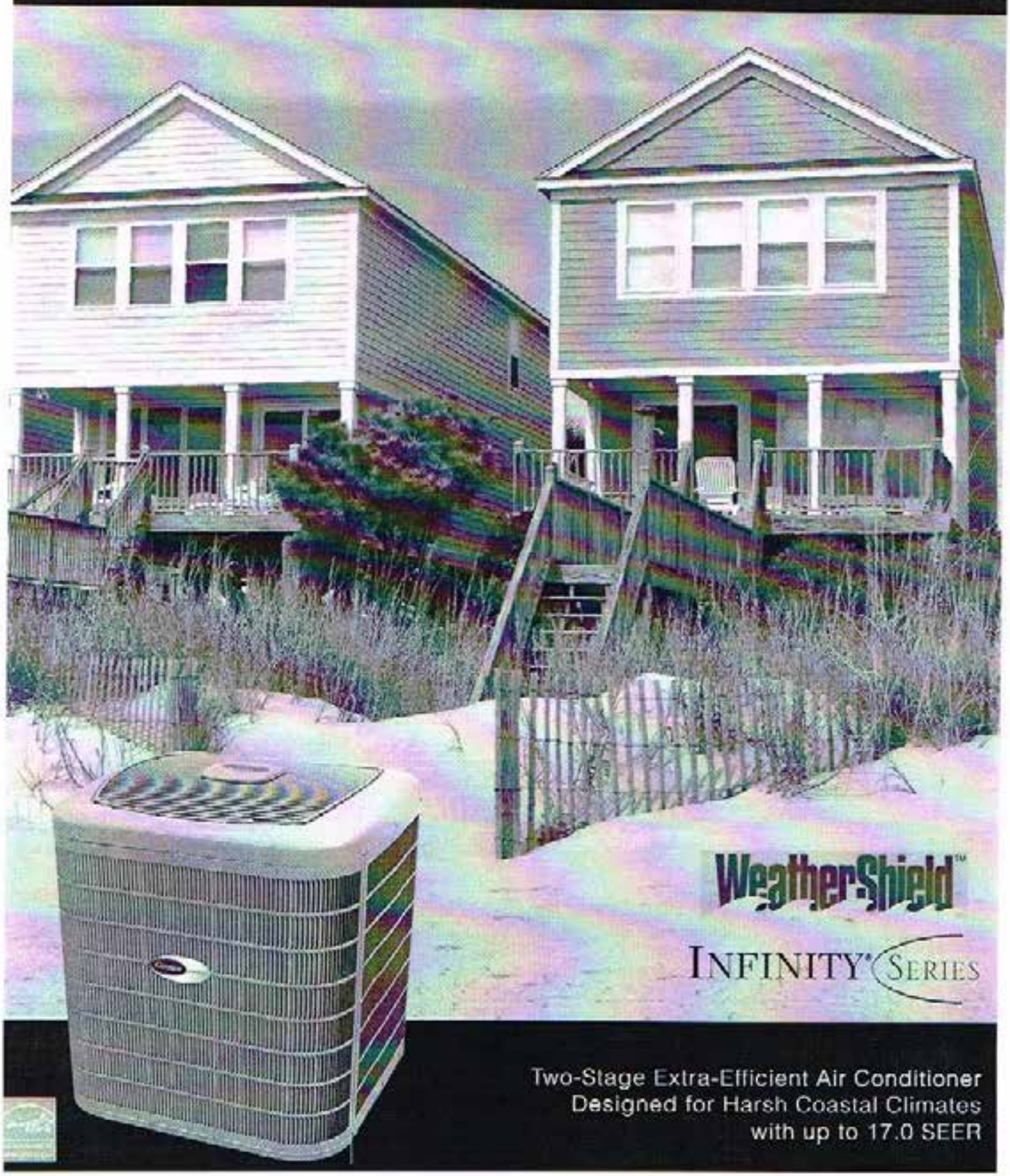
Infinity® 17

Air Conditioner

Carrier®

turn to the experts



Two-Stage Extra-Efficient Air Conditioner
Designed for Harsh Coastal Climates
with up to 17.0 SEER

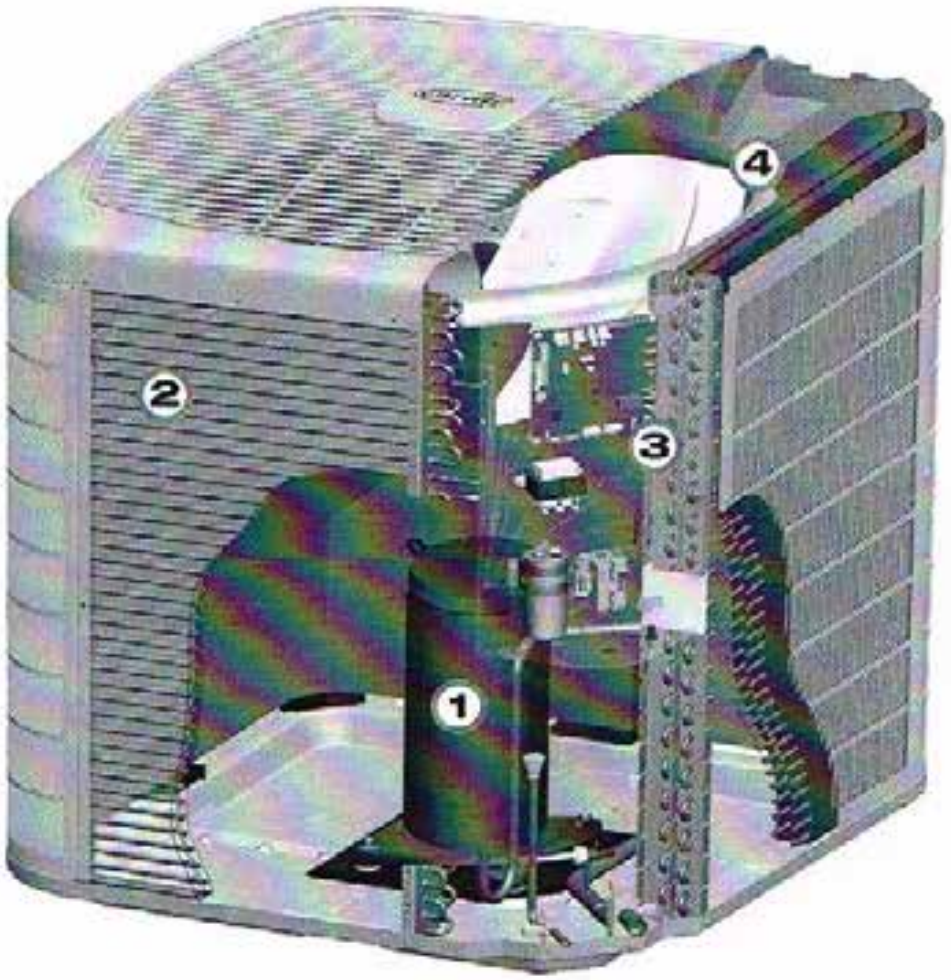
Innovation and the Environment

Over 100 years ago, a humble but determined engineer solved one of mankind's most elusive challenges by controlling the indoor environment. A leading engineer of his day, Dr. Willis Carrier would file more than 80 patents over the course of his career. His genius would enable incredible advancements in health care, manufacturing processes, food preservation, art and historical conservation, indoor comfort and much more.

Carrier's foresight changed the world forever and paved the way for over a century of once-impossible innovations. Yet in addition to being an accomplished inventor, he was also an avid outdoorsman. Carrier recognized the power and beauty of the natural environment. This appreciation of our world and its resources continues to guide Carrier Corporation today. We will never rest on our accomplishments, but instead consistently look for ways to improve our products, our environment and our world.

The Infinity® 17 air conditioner substantiates our commitment to your comfort, delivering environmentally sound, energy-efficient cooling in coastal areas.

Leaders in Technology



Testing by Carrier® engineers has shown the Infinity 17 air conditioner's coil to last longer than a standard coil in harsh coastal conditions.

3

As an ENERGY STAR® partner, Carrier Corporation has determined that the Infinity® 17 air conditioner meets ENERGY STAR guidelines for energy efficiency.

Proper sizing and installation of equipment is critical to achieve optimal performance. Split system air conditioners and heat pumps must be matched with appropriate coil components to meet ENERGY STAR criteria. Ask your dealer for details or visit www.energystar.gov.

1 Extra-Consistent Comfort

Standard systems can mindlessly blast cooled air at one speed before shutting off, which can lead to widely fluctuating temperatures. The Infinity® 17 air conditioner with two-stage scroll compressor, when properly matched with a Carrier® compatible indoor unit, runs on low-stage up to 80% of the time to maintain consistent comfort. Two-stage operation also contributes to reduced energy usage, helping achieve up to 17.0 SEER cooling efficiency.

2 Environmentally Sound Refrigerant

Carrier led the industry by incorporating non-ozone-depleting Puron® refrigerant into air conditioners back in 1996. Millions of Puron refrigerant units in operation today are a testament to the reliability, durability and enduring quality of these products.

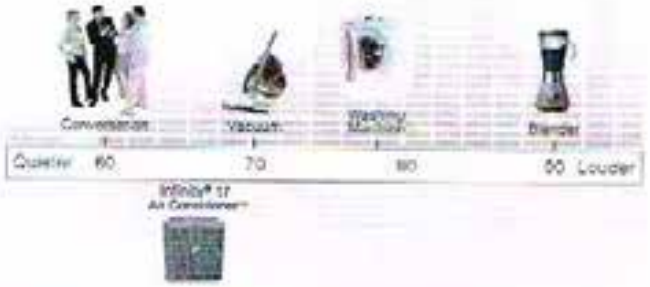
3 Enhanced Comfort and Peace of Mind

By combining the intuitive Infinity® control with the Infinity control board in the air conditioner itself, Carrier puts enhanced comfort at your fingertips. When installed as part of a complete Infinity system, you control temperature schedules, heating, cooling, humidification, dehumidification, fan speeds and more, all from one easy-to-use control on the wall in your home. This system monitors air conditioner functions, makes adjustments to maximize performance and provides maintenance reminders on the Infinity control.

4 Quiet Operation

The Infinity® 17 air conditioner quietly cools your home with sound levels as low as 66 dBA. Our exclusive Silencer System III™ technology features a silencer top, integrated fan motor, forward-swept fan blades, compressor vibration isolator plate, sound hood and split-post compressor grommets to help deliver quiet operation by maximizing airflow and minimizing vibration.

Comparison Sound Ratings
(decibels)



5 Uncompromising Quality

ArmorPlate™ coil coating protects the outdoor coil fin from harsh salt air. A specially formulated epoxy is permanently bonded to the coil surfaces preventing the destructive galvanic corrosion that is common in coastal areas.

** Per standard rating as described by ARI 270 dBA in cooling mode.
Other sound levels, monogroup for comparison. As published at
http://www.consumer.nrdc.org/SiteCollectionDocuments/Booklet_2up.pdf

It's About Your Comfort

The Carrier® Infinity® 17 air conditioner represents years of design, development and testing with one goal in mind – making you more comfortable. We have taken the lead in creating new technologies that deliver the comfort and efficiency you deserve while staying ahead of industry trends and global initiatives.

All year long, humidity affects the temperature at which you feel most comfortable. That's why Carrier® Ideal Humidity System® technology plays such an important role in your comfort. When you add the Infinity® control, Carrier humidifier and Infinity furnace or fan coil to the Infinity 17 air conditioner, Ideal Humidity System technology gives you enhanced control over humidity levels for greater comfort even when your system isn't calling for heating or cooling.* You'll feel cooler at higher temperatures in the summer and warmer at lower temperatures in the winter.

IdealHumidity.

Carrier gives you ultimate command of comfort, performance and energy savings when you include an Infinity® control and Infinity variable-speed furnace or fan coil to create an Infinity system. A complete Infinity system provides unprecedented control of not only temperature, but also humidity, dehumidification, fan speed, weekly comfort schedules and more. This smart system can even monitor operation and maintenance items and provide service reminders such as when it's time to change the filter.

INFINITY™ SYSTEM

Puron® refrigerant is environmentally sound and won't deplete the ozone layer. Carrier® systems with Puron refrigerant set the standard for environmentally sound air conditioner and heat pump performance well ahead of industry competitors. Today, Carrier air conditioners and heat pumps using Puron refrigerant show exceptional reliability and are a testament to our industry leadership.

Puron.

* Ideal Humidity System technology continually monitors indoor humidity, indoor temperature and outdoor temperature, and has the ability to turn on your comfort system just for dehumidification in the cooling season or humidification in the heating season.

Uncompromising Quality

You don't lead an industry for more than 100 years by accident. Carrier has maintained its position and reputation through diligent, uncompromising quality control at every stage of a product's life – from concept to completion. Proven to last longer than standard air conditioner coils, Infinity® 17 air conditioner coils with ArmorPlate™ coating are the perfect choice for homeowners living in coastal areas. Once our product is installed at your home, you can be confident that durable construction and built-in reliability features ensure your comfort for years to come.

- Dual paint coverage: Coverage on all exposed sheet metal delivers additional protection against harsh coastal conditions. The Carrier® dual paint system applies a special protective coating on both the front and back of the metal cabinet to shield it from rust, both inside and out.
- Built-in reliability: Forward-swept fan blades enhance performance and maximize sound reduction. Smart electronics that monitor system operation and a compressor-protecting filter drier help keep critical components operating at their best.
- Durability: WeatherArmor Ultra™ protection shields the outdoor unit from hail, errant soccer balls, lawn equipment and other hazards. Our combination of a galvanized steel cabinet, louvered coil guard and baked-on powder paint provides superior rust protection.

WeatherShield™

Limited Warranty

10 YEAR LIMITED WARRANTY

To the original owner, the Carrier® Infinity® 17 air conditioner is covered by a 10-year parts limited warranty upon timely registration. The limited warranty period is five years if not registered within 90 days of installation. Carrier is so confident in the reliability of this unit that we are also offering a five year parts limited warranty on seacoast corrosion. Jurisdictions where warranty benefits cannot be conditioned on registration will receive the registered limited warranty period. See warranty certificate at carrier.com for complete details and restrictions. Be sure to ask your Carrier dealer about optional labor warranties.

What Efficiency Means to You

Air conditioners are powered by electricity. You can compare efficiencies of different air conditioner models by checking the SEER (Seasonal Energy Efficiency Ratio) ratings, available through your Carrier dealer or manufacturer web sites. The published ratings provide a standardized method for comparing how much cooling performance you get for the electricity you use.

Using these ratings is a lot like miles per gallon for your car – the higher the number, the more efficient the product and the greater potential for savings. Actual air conditioner performance will vary based on the age and condition of your home, personal comfort preferences, weather patterns in your area and much more.

So when you are comparing air conditioners, be sure to look at the SEER ratings before you make your decision.

Energy-Efficient Air Conditioner Designed with Your Comfort in Mind

Greater Operational Efficiency

The Infinity® 17 air conditioner offers plenty of potential for annual savings while providing extra-comfortable cooling. When compared to a standard efficiency air conditioner (13.0 SEER), you can save up to $74 a year in cooling costs.†† And, if you are replacing an older, less efficient model, the savings can be even more significant.

††Values based on AHRI method for estimated operating cost using U.S. average cooling hours in 2011.

UP TO 17.0 SEER RATING

The Infinity® 17 air conditioner offers energy efficiency of up to 17.0 SEER to provide reduced energy usage and environmental impact.

Carrier® Systems for Unmatched Performance in Every Season

Willis Carrier's meticulous attention to quality and detail led to a major culture shift in the way we live indoors. More than a century later, Carrier Corporation operates with a unique willingness to develop new technology, the confidence to revise proven designs and the ability to deliver results with every new installation.

Part of that equation is our nationwide network of experts you can turn to for all of your indoor comfort needs. Your local Carrier dealer is well equipped to evaluate your home – everything from size, window placement, ductwork, venting and other structural specifics – and create a customized system designed around your lifestyle. So when it's time to make a choice for your family's comfort, make the best decision you'll ever make – Carrier – and let the experts do the rest.

A. Air Conditioner
B. Gas Furnace
C. Evaporator Coil
D. Air Purifier
E. Ventilator
F. Humidifier
G. Zoning
H. UV Lamp
I. Infinity Control

The Total Indoor Comfort System

Infinity® Air Conditioner provides reliable, high-efficiency cooling for long-lasting comfort and energy savings.

Infinity Gas Furnace provides reliable, high-efficiency heating for long-lasting comfort and energy savings.

Evaporator Coil is matched with the proper outdoor unit to provide top cooling efficiency and years of reliable service.

Infinity Air Purifier improves air quality by capturing and killing airborne bacteria and viruses and other irritating airborne pollutants in your home.

Ventilator combines fresh outdoor air with conditioned indoor air for improved air quality and maximum efficiency – great for today's tightly constructed home.

Humidifier replenishes moisture to dry air.

Zoning sets different temperatures for up to eight different areas of your home for truly customized comfort and enhanced utility savings.

UV Lamp inhibits the growth of contaminants on the indoor coil, leaving your home with cleaner, fresher indoor air.

Infinity Control is more than just a thermostat. It's your interface to the Infinity System that allows you to control temperature, humidity, air quality, fan speed and ventilation.

part 24VBT1*C
Carrier Corporation 3/2012 01-804-081-05

Carrier® ENERGUIDE

c UL us

AHRI CERTIFIED

Always look for these symbols. The air conditioner listed provides efficiency, performance, efficiency and capacity.

Always Ask For FACTORY AUTHORIZED PARTS

www.carrier.com 1-800-CARRIER

Carrier®
turn to the experts

24ANB7C**
Infinity® 17 2–Stage Air Conditioner with Puron® Refrigerant for Coastal Applications 2 to 5 Nominal Tons

Carrier
turn to the experts

Product Data

WeatherShield INFINITY SERIES

Carrier's Air Conditioners with Puron® refrigerant provide a collection of features unmatched by any other family of equipment. The 24ANB7 has been designed utilizing Carrier's Puron refrigerant. The environmentally sound refrigerant allows you to make a responsible decision in the protection of the earth's ozone layer.

This product has been designed and manufactured to meet Energy Star® criteria for energy efficiency when matched with appropriate coil components. Refer to the combination ratings in the Product Data for system combinations that meet Energy Star® guidelines.

NOTE: Ratings contained in this document are subject to change at any time. Always refer to the AHRI directory (www.ahridirectory.org) for the most up-to-date ratings information.

INDUSTRY LEADING FEATURES / BENEFITS

Efficiency

- 14 - 18 SEER / 11.5 - 13.7 EER
- Microtube Technology™ refrigeration system

Sound

- Sound level as low as 69 dBA
- Quiet mount split post compressor grommets
- Forward-swept condenser fan blade
- Compressor sound hood
- Laminated steel compressor mounting plate
- 8 pole PSC ball bearing outdoor condenser fan motor

Comfort

- System supports Infinity™ Control or standard 2-stage thermostat controls

Reliability

- Puron® refrigerant - environmentally sound, won't deplete the ozone layer and low lifetime service cost.
- Front-seating service valves
- 2-stage scroll compressor
- Internal pressure relief valve
- Internal thermal overload
- Low pressure switch
- High pressure switch
- Filter drier
- Crankcase Heater standard

Controls and Diagnostics

- Infinity™ control or 2-stage thermostat
- Utility Interface Connection

Durability

WeatherArmor Ultra™ protection package:

- Solid, Durable sheet metal construction
- Steel louver coil guard
- 2-Sided, baked-on, complete coverage, powder paint

WeatherShield Condenser Coil

- Aluminum fin material is pre-coated on both sides with a corrosion protective epoxy phenolic coating.

ArmorPlate™ Condenser Coil

- Aluminum fin material is pre-coated on both sides with a corrosion protective epoxy phenolic thermoset coating.
- Industry leading standard coastal warranty coverage

Applications

- Long-line - up to 250 feet (76.2 m) total equivalent length.

MODEL NUMBER NOMENCLATURE

1	2	3	4	5	6	7	8	9	10	11	12	13
N	N	A	A	A/N	N	N	N	A/N	A/N	A/N	N	N
2	4	A	N	B	7	3	6	C	0	0	3	0
Product Series 24=AC	Product Family A=RCS AC	Tier N = Infinity	Major Series B=Puron	SEER 7=17 SEER Nominal		Cooling Capacity		Variations C=Coastal	Open 0=Not Defined	Open 0=Not Defined	Voltage 3=208/230-1	Minor Series 0, 1, 2...

24ANB7C

Puron

Use of the AHRI Certified TM Mark indicates a manufacturer's participation in the program. For verification of certification for individual products, go to www.ahridirectory.org.

ISO 9001 GMI•GAI Global

ENERGY STAR

This product has been designed and manufactured to meet Energy Star criteria for energy efficiency when matched with appropriate coil components. However, proper refrigerant charge and proper air flow are critical to achieve rated capacity and efficiency. Installation of this product which fails to use manufacturing refrigerant charging and air flow instructions. Failure to confirm proper charge and air flow may reduce energy efficiency and shorten equipment life.

IdealHumidity

WeatherShield

STANDARD FEATURES

FEATURES	Unit Size = Voltage, Series			
	24-30	36-30	48-30	60-30
ArmorPlate™ Fins	X	X	X	X
Inner and Outer Sheet Metal Surfaces Coated with Baked on Powder Paint	X	X	X	X
Puron Refrigerant	X	X	X	X
Maximum SEER Rating*	17.0	18.0	17.5	16.8
2-Stage Scroll Compressor	X	X	X	X
Crankcase Heater w/Temperature Switch	X	X	X	X
Low Ambient Capability to 0°F (-17.8°C) w/Infinity Control	X	X	X	X
Enhanced Diagnostics w/Infinity Control	X	X	X	X
Utility Interface Connection	X	X	X	X
Louvered Coil Guard	X	X	X	X
Field Installed Filter Drier	X	X	X	X
Front Seating Service Valves	X	X	X	X
Internal Pressure Relief Valve	X	X	X	X
Internal Thermal Overload	X	X	X	X
Long Line capability	X	X	X	X
Low Pressure Switch	X	X	X	X
High Pressure Switch	X	X	X	X
Sound Blanket	X	X	X	X

X = Standard
* With approved combinations

REFRIGERANT PIPING LENGTH LIMITATIONS

Liquid Line Sizing and Maximum Total Equivalent Lengths† for Cooling Only Systems with Puron® Refrigerant:

The maximum allowable length of a residential split system depends on the liquid line diameter and vertical separation between indoor and outdoor units.

See Table below for liquid line sizing and maximum lengths :

Maximum Total Equivalent Length
Outdoor Unit BELOW Indoor Unit

Size	Liquid Line Connection	Liquid Line Diam. w/TXV	AC with Puron Refrigerant Maximum Total Equivalent Length†: Outdoor unit BELOW Indoor Vertical Separation ft (m)								
			0–9 (0–1.5)	9–10 (1.6–3.0)	11–20 (3.4–6.1)	21–30 (6.4–9.1)	31–40 (9.4–12.2)	41–50 (12.5–15.2)	51–60 (15.5–18.5)	61–70 (18.8–21.3)	71–80 (21.6–24.4)
024 AC with Puron	3/8	1/4	70	75	75	50	90	--	--	--	--
		5/16	250*	250*	250*	250*	250*	229*	175	125	100
		3/8	250*	250*	250*	250*	250*	250*	250*	250*	250*
036 AC with Puron	3/8	5/16	175	150	150	100	100	100	75	--	--
		3/8	250*	250*	250*	250*	250*	250*	250*	250*	250*
048 AC with Puron	3/8	3/8	250*	250*	250*	250*	250*	250*	230	180	--
060 AC with Puron	3/8	3/8	200*	250*	250*	225*	190	150	110	--	--

* Maximum actual length not to exceed 200 ft (61 m)

† Total equivalent length accounts for losses due to elbows or fitting. See the Long Line Guideline for details.

-- = outside acceptable range

24ANB7C

Maximum Total Equivalent Length
Outdoor Unit ABOVE Indoor Unit

Size	Liquid Line Connection	Liquid Line Diam. w/TXV	AC with Puron Refrigerant Maximum Total Equivalent Length†: Outdoor unit ABOVE Indoor Vertical Separation ft (m)							
			25 (7.6)	26–50 (7.9–15.2)	51–75 (15.5–22.8)	76–100 (23.2–30.5)	101–125 (30.8–38.1)	126–150 (38.4–45.7)	151–175 (46.0–53.3)	176–200 (53.6–61.0)
024 AC with Puron	3/8	1/4	100	125	175	200	225*	250*	250*	250*
		5/16	250*	250*	250*	250*	250*	250*	250*	250*
		3/8	250*	250*	250*	250*	250*	250*	250*	250*
036 AC with Puron	3/8	5/16	225*	250*	250*	250*	250*	250*	250*	250*
		3/8	250*	250*	250*	250*	250*	250*	250*	250*
048 AC with Puron	3/8	3/8	250*	250*	250*	250*	250*	250*	250*	250*
060 AC with Puron	3/8	3/8	250*	250*	250*	250*	250*	250*	250*	250*

* Maximum actual length not to exceed 200 ft (61 m)

† Total equivalent length accounts for losses due to elbows or fitting. See the Long Line Guideline for details.

REFRIGERANT CHARGE ADJUSTMENTS

Liquid Line Size	Puron Charge oz/ft (g/m)
3/8	0.60 (17.74) (Factory charge for lineset = 9 oz / 266.16 g)
5/16	0.40 (11.83)
1/4	0.27 (7.98)

Units are factory charged for 15 ft (4.6 m) of 3/8" liquid line. The factory charge for 3/8" lineset 9 oz.(266.16 g). When using other length or diameter liquid lines, charge adjustments are required per the chart above.

Charging Formula:

[(Lineset oz/ft x total length) – (factory charge for lineset)] = charge adjustment

Example 1: System has 15 ft of line set using existing 1/4" liquid line. What charge adjustment is required?

Formula: (.27 oz/ft x 15ft) – (9 oz) = (-4.95) oz.

Net result is to remove 4.95 oz of refrigerant from the system

Example 2: System has 45 ft of existing 5/16" liquid line. What is the charge adjustment?

Formula: (.40 oz/ft. x 45ft) – (9 oz.) = 9 oz.

Net result is to add 9 oz of refrigerant to the system

LONG LINE APPLICATIONS

An application is considered Long Line, when the refrigerant level in the system requires the use of accessories to maintain acceptable refrigerant management for systems reliability. See Accessory Usage Guideline table for required accessories. Defining a system as long line depends on the liquid line diameter, actual length of the tubing, and vertical separation between the indoor and outdoor units.

For Air Conditioner systems, the chart below shows when an application is considered Long Line.

AC WITH PURON® REFRIGERANT LONG LINE DESCRIPTION ft (m)
Beyond these lengths, long line accessories are required

Liquid Line Size	Units On Same Level	Outdoor Below Indoor	Outdoor Above Indoor
1/4	No accessories needed within allowed lengths	No accessories needed within allowed lengths	175 (53.3)
5/16	120 (36.6)	50 (15.2) vertical or 120 (36.6) total	120 (36.6)
3/8	80 (24.4)	35 (10.7) vertical or 80 (24.4) total	80 (24.4)

Note: See Long Line Guideline for details

VAPOR LINE SIZING AND COOLING CAPACITY LOSS

Acceptable vapor line diameters provide adequate oil return to the compressor while avoiding excessive capacity loss. The suction line diameters shown in the chart below are acceptable for AC systems with Puron refrigerant.

Vapor Line Sizing and Cooling Capacity Losses — Puron® Refrigerant 2-Stage Air Conditioner Applications

Unit Nominal Size (Btuh)	Maximum Liquid Line Diameters (in. OD)	Vapor Line Diameters (in.) OD	Cooling Capacity Loss (%) Total Equivalent Line Length ft. (m)							
			26–50 (7.9–15.2)	51–80 (15.5–24.4)	81–100 (24.7–30.5)	101–125 (30.8–38.1)	126–150 (38.4–45.7)	151–175 (46.0–53.3)	176–200 (53.6–60.9)	201–225 (61.3–68.6)	226–250 (68.9–76.2)
024 2-Stage Puron AC	3/8	5/8	0	1	1	2	3	3	4	4	5
		3/4	0	0	0	0	1	1	1	1	1
036 2-Stage Puron AC	3/8	5/8	1	2	4	5	6	7	9	10	11
		3/4	0	0	1	1	2	2	3	3	4
		7/8	0	0	0	0	1	1	1	1	2
048 2-Stage Puron AC	3/8	3/4	1	2	2	3	4	5	6	7	7
		7/8	0	1	1	2	3	4	3	3	3
		1-1/8	0	0	—	—	—	—	—	—	—
060 2-Stage Puron AC	3/8	3/4	1	2	4	5	6	7	9	10	11
		7/8	0	1	2	2	3	4	4	5	6
		1-1/8	0	0	0	1	1	1	1	1	1

Applications in this area may be long line and may have height restrictions. See the Residential Piping and Long Line Guideline.
— Applications in this area are not recommended due to insufficient oil return

PHYSICAL DATA

UNIT SIZE – VOLTAGE, SERIES	24–30	36–30	48–30	60–30
Operating Weight lb (kg)	223 (101)	274 (124)	299 (135)	391 (178)
Shipping Weight lb (kg)	274 (124)	309 (140)	341 (155)	397 (180)
Compressor Type	2-Stage Scroll			
REFRIGERANT	Puron® (R-410A)			
Control	TXV (Puron® Hard Shutoff)			
Charge lb (kg)	6.63 (3.01)	10.83 (4.91)	11.63 (5.27)	15.13 (6.86)
COND FAN	Propeller Type, Direct Drive			
Air Discharge	Vertical			
Air Qty (CFM)	3000	3930	4650	4800
Motor HP	1/10	1/8	1/4	1/4
Motor RPM	800	800	800	800
COND COIL				
Face Area (sq ft)	21.56	21.56	25.15	30.19
Fins per in.	25	20	20	20
Rows	1	2	2	2
Circuits	5	7	7	8
VALVE CONNECT. (in. ID)				
Vapor	3/4	7/8	7/8	7/8
Liquid	3/8			
REFRIGERANT TUBES (in. OD)				
Rated Vapor*	3/4	7/8	1-1/8	1-1/8
Liquid	3/8			

*Units are rated with 25 ft (7.6 m) of lineset length. See Vapor Line Sizing and Cooling Capacity Loss table when using other sizes and lengths of lineset.

ELECTRICAL DATA

Unit Size – Voltage, Series	V/PH	OPER VOLTS*		COMPR		FAN	MCA	MIN WIRE SIZE†	MIN WIRE SIZE†	MAX LENGTH ft. (m)‡	MAX LENGTH ft. (m)‡	MAX FUSE** or CKT BRK AMPS
		MIN	MAX	RLA	LRA	FLA		60° C	75° C	60° C	75° C	
24–30	208/230	197	253	10.3	52.0	0.7	13.6	14.00	14.00	58 (17.7)	55 (16.8)	20
36–30	208/230			16.7	82.0	0.9	21.9	12.00	12.00	57 (17.4)	54 (16.5)	35
48–30	208/230			21.2	96.0	1.3	27.8	10.00	10.00	71 (21.8)	68 (20.7)	40
60–30	208/230			25.6	118.0	1.3	33.1	8.00	10.00	103 (31.4)	65 (19.8)	50

* Permissible limits of the voltage range at which the unit will operate satisfactorily

† If wire is applied at ambient greater than 30°C, consult table 310–16 of the NEC (NFPA 70). The ampacity of non–metallic–sheathed cable (NM), trade name ROMEX, shall be that of 60°C conditions, per the NEC (NFPA 70) Article 336–26. If other than uncoated (no–plated), 60 or 75°C insulation, copper wire (solid wire for 10 AWG or smaller, stranded wire for larger than 10 AWG) is used, consult applicable tables of the NEC (NFPA 70).

‡ Length shown is as measured one way along wire path between unit and service panel for voltage drop not to exceed 2%.

** Time–Delay fuse.

FLA – Full Load Amps

LRA – Locked Rotor Amps

MCA – Minimum Circuit Amps

RLA – Rated Load Amps

NOTE: Control circuit is 24–V on all units and requires external power source. Copper wire must be used from service disconnect to unit. All motors/compressors contain internal overload protection.

Complies with 2010 requirements of ASHRAE Standards 90.1

A-WEIGHTED SOUND POWER (dBA)

Unit Size – Voltage, Series	Standard Rating (dBA)	Typical Octave Band Spectrum (dBA, without tone adjustment)						
		125	250	500	1000	2000	4000	8000
24–30	70–low stage	50.5	56.5	65.0	64.5	61.0	57.0	50.5
	71–high stage	54.5	58.0	65.5	65.0	62.5	58.0	55.5
36–30	69–low stage	55.0	61.0	64.0	63.5	60.0	54.5	49.5
	71–high stage	55.5	60.5	64.5	66.0	60.0	55.5	52.0
48–30	72–low stage	54.5	63.5	65.5	66.5	60.5	57.5	51.5
	72–high stage	55.0	63.5	65.5	66.0	60.0	56.0	54.0
60–30	72–low stage	60.0	65.5	66.5	66.5	60.5	58.0	51.5
	72–high stage	60.0	63.5	64.5	65.0	60.0	57.5	52.0

NOTE: Tested in accordance with AHRI Standard 270–2008. (Not listed with AHRI).

CHARGING SUBCOOLING (TXV-TYPE EXPANSION DEVICE)

UNIT SIZE–VOLTAGE, SERIES	REQUIRED SUBCOOLING °F (°C)
24–30	8 (4.4)
36–30	13 (7.2)
48–30	11 (6.1)
60–30	12 (6.7)

ACCESSORY CONTROLS

PART NUMBER	DESCRIPTION
SYSTXCCUID01–V	Infinity Control Deluxe 7–Day Programmable (4–Wire User Interface w/ multiple functionality)
SYSTXCCUIZ01–V	Infinity Control Deluxe Zoning 7–Day Programmable (Wall–mounted control for a multi–zone system. w/ multiple functionality)
SYSTXCCUID01–B	Infinity Control Deluxe 7–Day Programmable (Wall–mounted system control.)
SYSTXCCUIZ01–B	Infinity Control Deluxe Zoning 7–Day Programmable (Wall–mounted control for a multi–zone system.)
SYSTXCC4ZC01	Infinity 4–Zone Damper Control Module (Wall–mounted control for a four–zone system.)
SYSTXCCSMS01	Infinity Smart Sensor (Optional wall control used to monitor temperature and/or fan control in an individual zone.)
SYSTXCCRRS01	Infinity Remote Room Sensor (Monitors temperature in an individual zone.)
SYSTXCCRCT01 or SYSTXCCRWF01	Infinity System Remote Access Module (Hardware for wireless access and control via Internet.)
SYSTXCCNIM01	Infinity Network Interface Module (Connects Heat Recovery and Energy Recovery Ventilators on non–zoning applications.)

ACCESSORIES

ORDER NUMBER	DESCRIPTION	24–30	36–30	48–30	60–30
KSAHS2301AAA	HARD START KIT	X			
KSAHS3401AAA	HARD START KIT		X		
KSAHS2501AAA	HARD START KIT			X	
KSAHS2601AAA	HARD START KIT				X
KSASF0101AAA	SUPPORT FEET	X	X	X	X
KSATX00301PUR	TXV PURON HSO	X			
KSATX00301PUR	TXV PURON HSO		X		
KSATX00401PUR	TXV PURON HSO			X	
KSATX00501PUR	TXV PURON HSO				X

x = Accessory

ACCESSORY USAGE GUIDELINE

ACCESSORY	REQUIRED FOR LOW–AMBIENT COOLING APPLICATIONS (Below 55°F/12.8°C)	REQUIRED FOR LONG LINE APPLICATIONS*	REQUIRED FOR SEA COAST APPLICATIONS (Within 2 miles/3.22 km)
Compressor Start Assist Kit	No	Yes	No
Crankcase Heater	Yes (standard on some units)	Yes (standard on some units)	No
Evaporator Freeze Protection	Standard with Infinity Control	No	No
Liquid–Line Solenoid Valve	No	No	No
Low–Ambient Control	Standard with Infinity Control	No	No
Puron Refrigerant Balance Port Hard–ShutOff TXV	Yes†	Yes†	Yes†
Support Feet	Recommended	No	Recommended
Winter Start Control	Standard with Infinity Control	No	No

* For tubing set lengths between 80 and 200 ft. (24.38 and 60.96 m) horizontal or 35 ft. (10.7 m) vertical differential (total equivalent length), refer to the Long Line Guideline– Air Conditioners and Heat Pumps using Puron® Refrigerant.

† Required on all indoor units. Standard on all new Puron refrigerant fan coils and furnace coils.

Accessory Description and Usage (Listed Alphabetically)

1. Compressor Start Assist - Capacitor and Relay

Start capacitor and relay gives a "hard" boost to compressor motor at each start up.

Usage Guideline:

Not required on this unit since compressor always starts unloaded.

Available if required by local codes.

2. Crankcase Heater

An electric resistance heater which mounts to the base of the compressor to keep the lubricant warm during off cycles. Improves compressor lubrication on restart and minimizes the chance of liquid slugging.

Usage Guideline:

Required in low ambient cooling applications.

Required in long line applications.

Suggested in all commercial applications.

3. Support Feet

Four stick-on plastic feet that raise the unit 4 in. (101.6 mm) above the mounting pad. This allows sand, dirt, and other debris to be flushed from the unit base, minimizing corrosion.

Usage Guideline:

Suggested in the following applications:

Coastal installations.

Windy areas or where debris is normally circulating.

Rooftop installations.

For improved sound ratings.

4. Thermostatic Expansion Valve (TXV)

A modulating flow-control valve which meters refrigerant liquid flow rate into the evaporator in response to the superheat of the refrigerant gas leaving the evaporator.

Kit includes valve, adapter tubes, and external equalizer tube. Hard shut off types are available.

NOTE: When using a hard shut off TXV with single phase reciprocating compressors, a Compressor Start Assist Capacitor and Relay is required.

Usage Guideline:

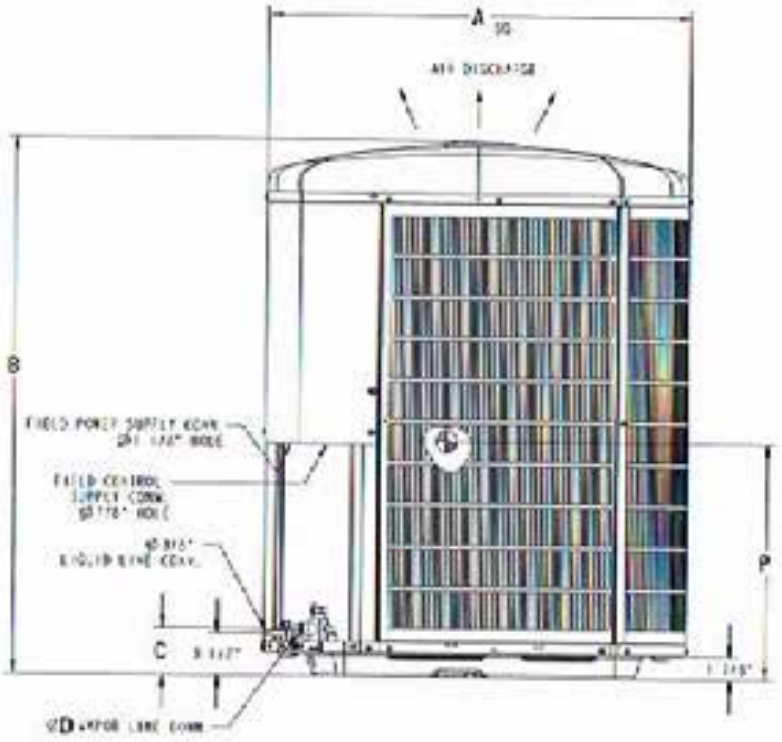
Required to achieve AHRI ratings in certain equipment combinations. Refer to combination ratings.

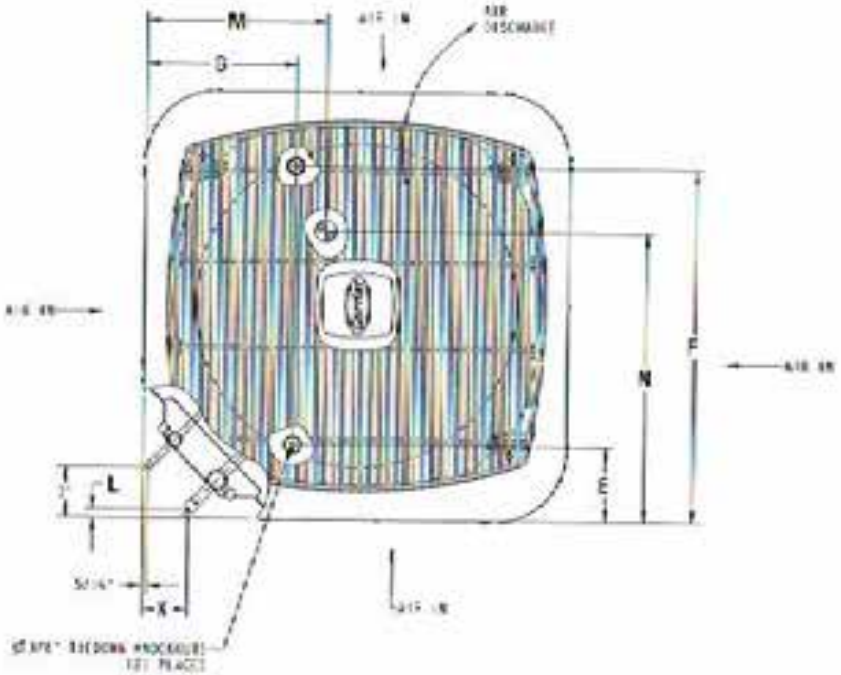
Hard shut off TXV or LLS required in air conditioner long line applications.

DIMENSIONS - ENGLISH

UNIT	SERIES	ELECTRICAL CHARACTERISTICS				A	B	C	D	E	F	G	X	L	M	N	P	OPERATING WEIGHT (lbs)	SHIPPING WEIGHT (lbs)	SHIPPING DIMENSIONS (L x W x H)
24ANB7C	0	K	0	0	0	31 5/16"	33 3/8"	3 9/16"	5/8"	6 9/16"	24 13/16"	8 1/8"	2 13/16"	1 1/2"	38 3/4"	35 3/4"	40 3/16"	223	239	32 5/16" x 35 1/2" x 41 1/8"
24ANB8C	0	K	0	0	0	31 5/16"	33 3/8"	3 9/16"	5/8"	6 9/16"	24 13/16"	8 1/8"	2 13/16"	5/8"	45 3/4"	42 3/4"	85"	234	309	32 5/16" x 35 1/2" x 41 1/8"
24ANB9C	0	K	0	0	0	37"	40 5/8"	3 9/16"	5/8"	6 9/16"	28 7/16"	8 1/8"	2 13/16"	5/8"	47 3/4"	44 1/2"	48 3/16"	255	341	38 1/16" x 39 1/4" x 46 1/8"
24ANB6C	0	K	0	0	0	37"	40 7/16"	3 9/16"	5/8"	6 9/16"	28 7/16"	8 1/8"	2 13/16"	5/8"	61 1/16"	58 1/4"	58"	308	397	38 1/16" x 53 1/4" x 49 5/16"
		208-230-1-60	230-1-60	208/230-3-60	460-3-60															

K = 7ES
0 = 8D





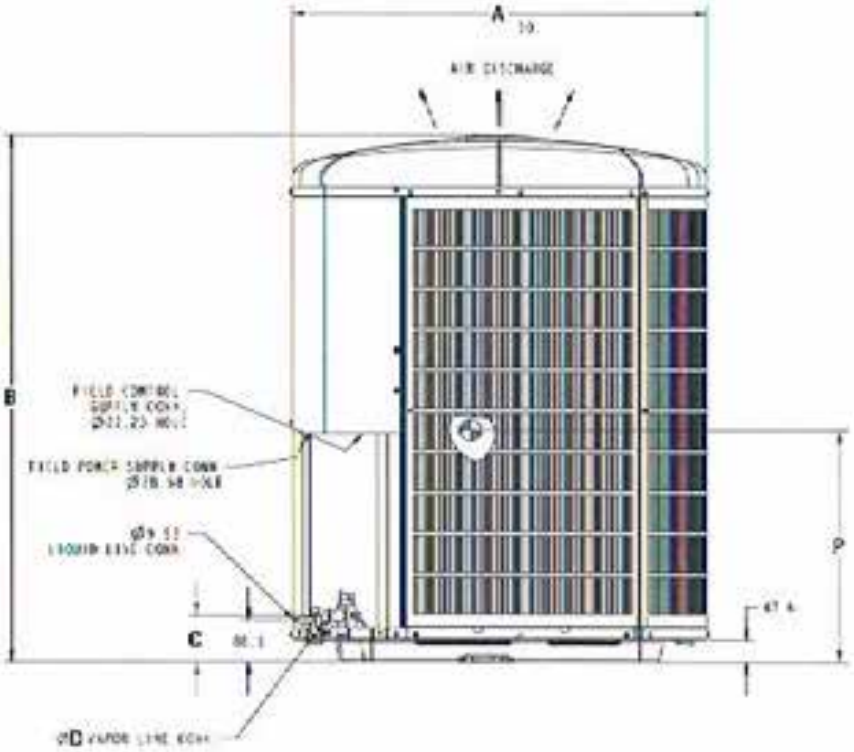
UNIT SIZE	MINIMUN MOUNTING PAD DIMENSIONS
24	31 1/2" x 31 1/2"
48	35" x 35"

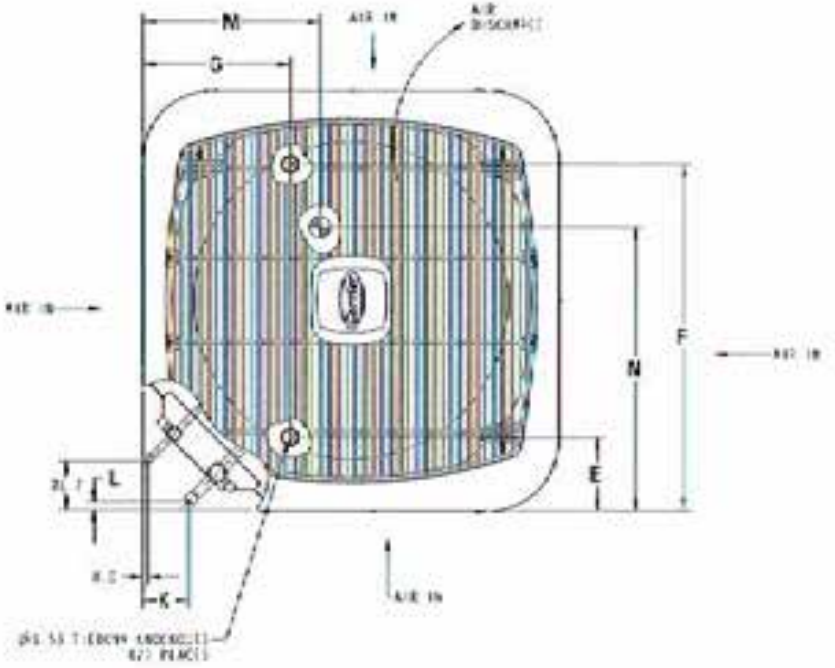
DIMENSIONS - SI

UNIT	SERIES	ELECTRICAL CHARACTERISTICS				A	B	C	D	E	F	G	K	L	M	N	P	OPERATING WEIGHT [Kg]	SHIPPING WEIGHT [Kg]	SHIPPING DIMENSIONS (L x W x H)
24ANB724C	1	8	0	8	0	792.5	1009.8	95.6	19.1	118.1	128.5	231.8	78.9	42.8	412.8	418.1	825.5	169	179	871.2 X 938.2 X 1032.2
24ANB736C	1	8	0	8	0	792.5	1009.8	97.9	22.2	118.1	128.8	231.8	78.5	86.3	251.4	412.8	857.2	174	191	871.2 X 938.2 X 1032.2
24ANB748C	1	8	0	8	0	889.8	1092.5	97.9	22.2	118.1	122.8	231.8	78.5	86.3	410.9	419.1	874.3	183	199	974.7 X 938.7 X 1032.2
24ANB760C	1	8	0	8	0	889.8	1295.8	97.9	22.2	118.1	122.8	231.8	78.5	86.3	418.2	425.9	533.4	198	214	974.7 X 938.7 X 1545.7

208-230-1-60
230-1-60
208/230-3-60
460-3-60

X : 815
0 : 40

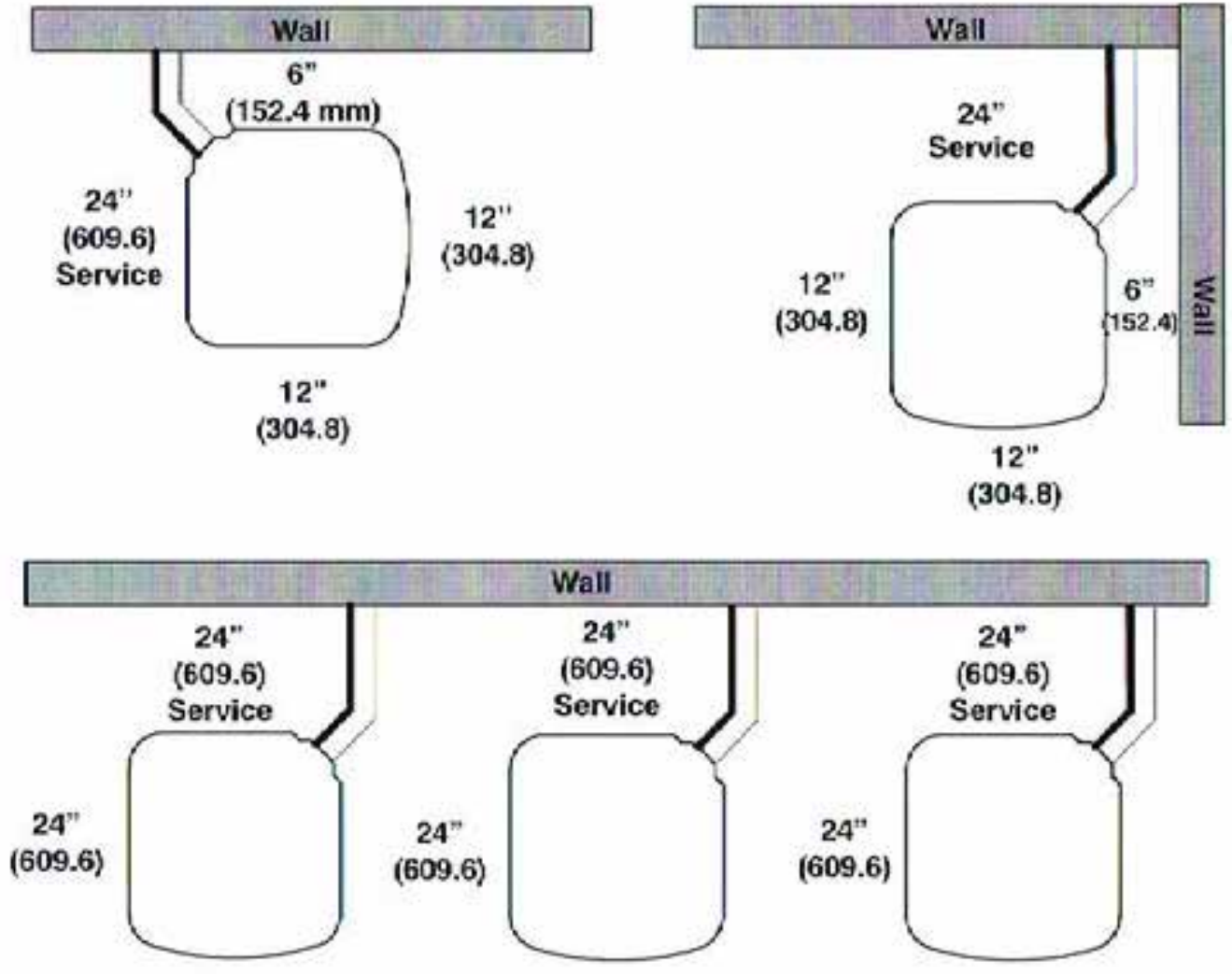




UNIT SIZE	MINIMUM MOUNTING PAD DIMENSIONS
24,30	889 X 889
36,48,60	889 X 889

CLEARANCES

Clearances (various examples)



Note: Numbers in ( ) = mm

IMPORTANT: When installing multiple units in an alcove, roof well, or partially enclosed area, ensure there is adequate ventilation to prevent re-circulation of discharge air.

A23633

TESTED AHRI COMBINATION RATINGS

NOTE: Ratings contained in this document are subject to change at any time.

For AHRI ratings certificates, please refer to the AHRI directory www.ahridirectory.org
Additional ratings and system combinations can be accessed via the Carrier database at:
http://cactaxcredits.info/carrier-ratings/ac_ratings_srch.php
Equipment performance calculator can be accessed at: http://rpmoh.wrightsoft.com/

Model Number	Indoor Coil Model Number	Furnace Model Number	AHRI Standard Ratings – Cooling				
			Cooling Capacity	EER	SEER	ID CFM	
						High	Low
24ANB724C**30	CNPV*4217A**	58PH*045–08	24,000	13.1	16.0	715	585
24ANB736C**30	FV4CNB006		37,000	13.7	17.7	1080	840
24ANB748C**30	CAP**4817A** + TDR		46,000	12.5	14.5	1400	1120
24ANB760C**30	CNPH*6124A**	58PH*110–20	58,000	13.0	18.5	1675	1245

* AHRI = Air Conditioning, Heating & Refrigeration Institute
EER — Energy Efficiency Ratio
SEER — Seasonal Energy Efficiency Ratio
TDR — Time-Delay Relay. In most cases, only 1 method should be used to achieve TDR function. Using more than 1 method in a system may cause degradation in performance. Use either the accessory Time-Delay Relay KAATD0101TDR or a furnace equipped with TDR. Most Carrier furnaces are equipped with TDR.

NOTES:
1. Ratings are net values reflecting the effects of circulating fan motor heat. Supplemental electric heat is not included.
2. Tested outdoor/indoor combinations have been tested in accordance with DOE test procedures for central air conditioners. Ratings for other combinations are determined under DOE computer simulation procedures.
3. Determine actual CFM values obtainable for your system by referring to fan performance data in fan coil or furnace coil literature.
4. Do not apply with capillary tube coils as performance and reliability are affected.

FV4C
Performance™ Series Fan Coil
Sizes 002 Thru 006

Carrier
Turn to the Experts

Product Data

PREMIUM ENVIRONMENTALLY SOUND FAN COIL

The FV4C is the premium air handler combining the proven technology of Carrier fan coils with environmentally sound Puron® refrigerant. The FV4C achieves an operational advantage when the ECM (Electronically Commutated Motor) is combined with a Carrier Performance™ heat pump with Puron® refrigerant.

With attention to quiet, efficient, and comfortable operation, Carrier has developed a new benchmark for superior indoor comfort and control. ArmorCoat™ provides a tin plating of the indoor coil's copper hairpins. This creates a barrier between the corrosion-causing elements and the coil.

Carrier's heat pump and air conditioning systems now feature Puron® refrigerant (R-410A), the chlorine-free refrigerant that is the future for the residential heating and cooling industry. The FV4C using Puron® refrigerant maximizes performance for environmentally sound systems. In addition to environmental safety, these systems are 30 to 40% more efficient than standard heating and cooling systems, thereby combining excellence in efficiency and environmental safety.

The FV4C provides these benefits due to Carrier's command of ECM technology. These motors are extremely efficient at all speeds, and enable the FV4C to operate at the correct speed to deliver airflow precisely, ensuring proper performance across a wide range of duct static pressures. This adaptive efficiency also makes installation quality easier to achieve for today's demanding homeowner.

Carrier's command of ECM technology may be most evident in the comfort advantages that ECM can deliver. Operation set up steps on the Easy Select™ Board provide the installing technician with alternatives to maximize comfort and efficiency. For true indoor comfort, the homeowner can achieve command of both temperature and humidity in cooling and heating modes.

Another feature which sets the FV4C apart is the factory-installed TXV, which enhances efficiency and provides compressor protecting operation at all recommended conditions. Grooved copper tubing, louvered aluminum fins, and the large face areas of the FV4C refrigerant coils also provide superior efficiency, for high SEER and HSPF performance. Carrier leads the way in condensate control, a hallmark of these multipoise fan coils. All of these featured components are protected within a rugged, prepainted metal cabinet lined with super thick, high density insulation. For neat, high quality installations the unit exterior features sweat refrigerant connections for simple leak free performance, and multiple electrical entry for both high and low voltage service.

For superior technology and unmatched comfort, the environmentally sound and efficient FV4C can't be beat.

FEATURES

FV4C

Environmentally Sound Refrigerant Technology

- Puron®, chlorine-free non-ozone depleting refrigerant
- Thermostatic Expansion Valve (TXV) designed to maximize performance with Puron® refrigerant

Energy Efficient Operation

- Electronically Commutating Motor (ECM) operates efficiently at all speeds
- Maximizes efficiency of heating and cooling systems
- Ultra low power consumption during fan only operation

Indoor Weather Control

- Warm, comfortable heating air temperatures
- Unmatched humidity control, especially with Carrier's Thermidistat™ Control

Airflow and Sound Technology

- Diffuser air discharge section for high airflow efficiency and quiet, smooth operation
- High duct static capability
- Unique cabinet design that meets new stringent regulations for air leakage. Meets requirements of a 2% cabinet leakage rate when tested at 1.0 inches of static pressure

Condensate Control and Disposal Technology

- Minimal standing waterless microbial growth for improved IAQ and reduced condensate line clogging and related condensate leakage
- Condensate fittings relocated away from turbulent airflow patterns at the blower entrance for improved condensate control performance
- Overflow feature for slope coil units allows condensate to exit the unit without damage to product under clogged primary and secondary line conditions
- Tested for condensate disposal at conditions much more severe than those required by AHRI
- Primary and secondary drain connections to comply with HUD
- All pans constructed of an injection molded glass-filled polycarbonate engineered resin material, with brass drain connections.
- High density, super thick cabinetry insulation with vapor barrier
- Pre-painted galvanized sheet metal cabinet

Heat Transfer Technology

- Grooved copper tubing
- Lanced sine wave aluminum fins
- Discreet refined counter-flow refrigerant circuitry
- Bi-flow hard shut-off TXV metering device
- ArmorCoat™ coil protection available

Quality Assisting, Ease of Installation and Service Features

- All units multipoise
- Provision made for suspending from roof or ceiling joints
- Modular cabinet on 003 thru 006 units
- Sweat connections for leak free service
- Multiple electrical entry for application flexibility (high and low voltage)
- Low voltage terminal strip, to safely hold connections within the cabinet
- Inspection plate on A-coil models for quick coil cleanliness inspection
- Cabinet construction features innovations designed to prevent cabinet sweating

Controls and Electrical Features

- Easy Select™ Board to maximize comfort, efficiency, and safe heater airflow operation
- Easy plug connection provided for quick installation of accessory heater packages
- 40VA 208/230v transformer
- Replaceable 5-amp blade-type auto fuse protects against transformer secondary short

Filter Features

- Factory supplied filter
- Cleanable polyester filter media
- Filter "springs" out for easy access - no tools required
- Newly improved filter rack area - filter door insulation added for an improved air seal

MODEL NUMBER NOMENCLATURE

1	2	3	4	5	6	7	8	9	10	11	12
F	V	4	C	N	B	0	0	3	0	0	0

Product
F = Fan Coil

Type
V = Puron® Refrigerant

Position
4 = Multipoise

Series
C

Electrical
N = 208/230v, 1ph – 60 Hz

Cabinet/Insulation
B = Modular
F = Single piece

Capacity
002 = 18 – 36,000
003 = 24 – 42,000
005 = 30 – 48,000
006 = 30 – 60,000

Heating Size
T00 = ArmorCoat™
000 = No Heat
005 = 5 kW
075 = 7.5 kW
008 = 8 kW
010 = 10 kW
011 = 11 kW
015 = 15 kW

FV4C

Puron

ARI PERFORMANCE CERTIFIED

ARI PERFORMANCE CERTIFIED

CERTIFICATION APPLIES ONLY WHEN THE COMPLETE SYSTEM IS LISTED WITH ARI

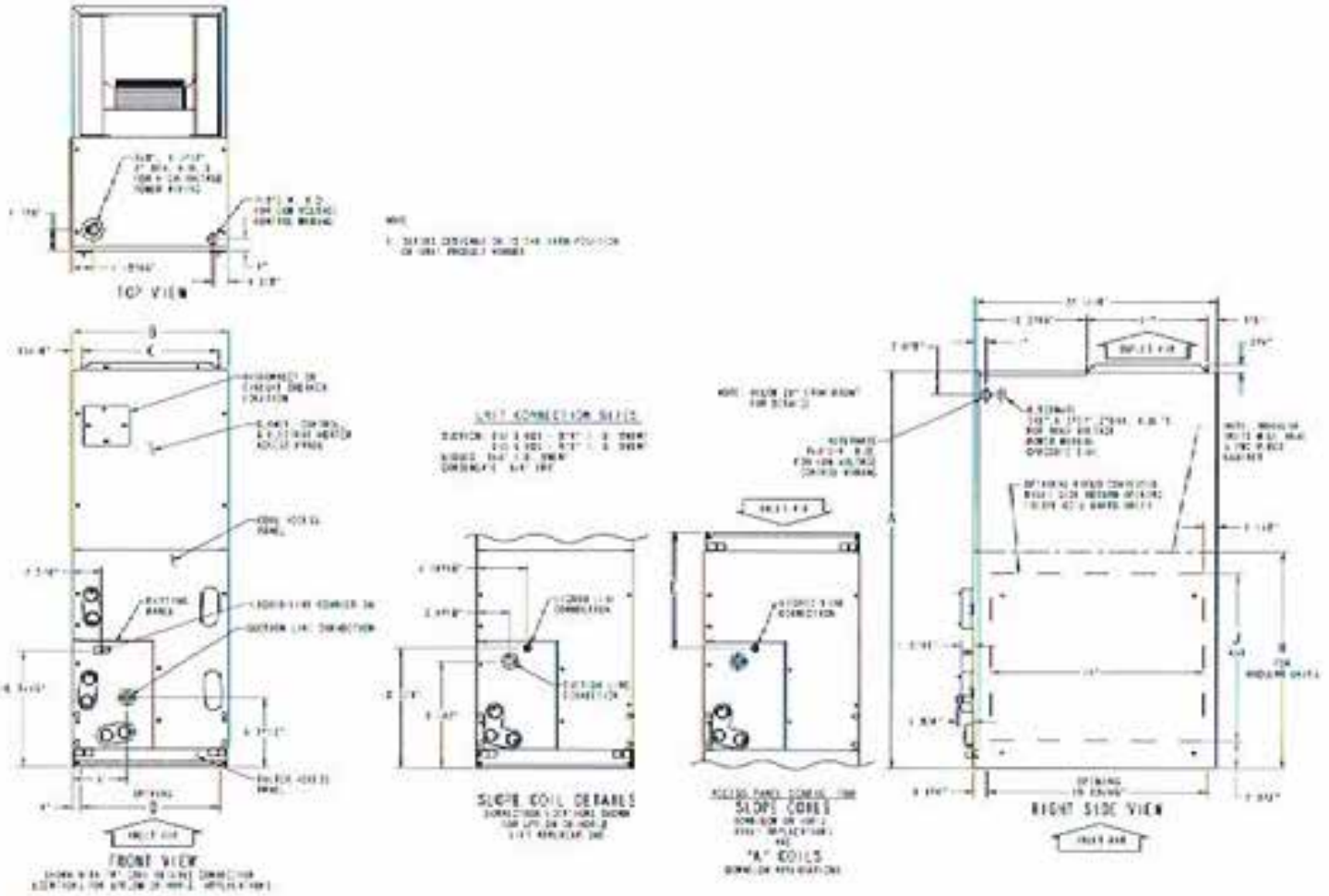
c UL us

ISO 9001:2000 QMI REGISTERED

ArmorCoat

SPECIFICATIONS

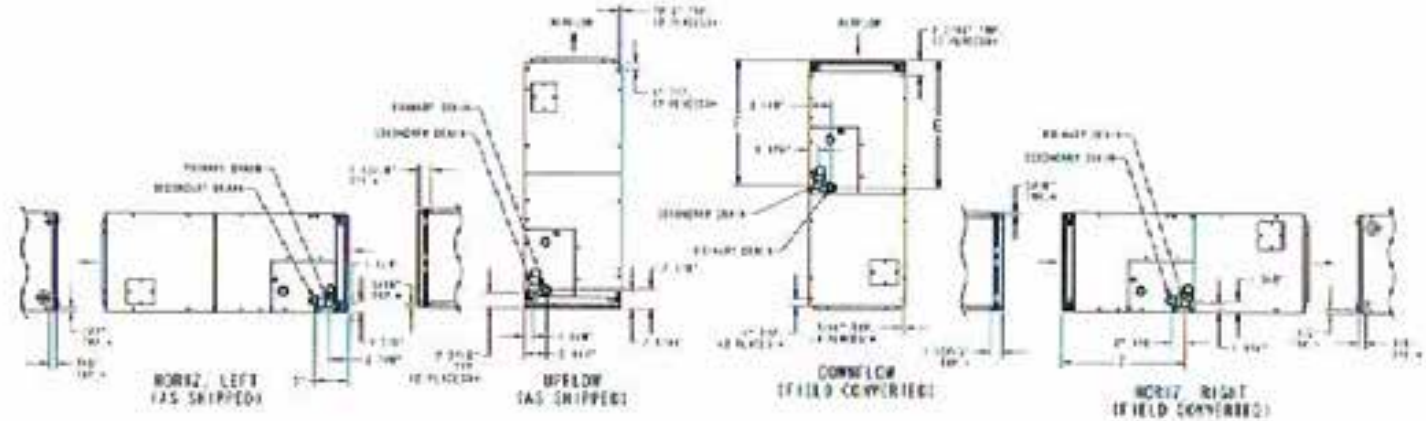
MODEL FV4C	002	003	005	006
COIL				
Refrigerant Metering Device	Puron® Refrigerant (R-410A)			
TXV Size	2 Ton	3 Ton	4 Ton	
Rows/Fins Per In.	3 / 14.5			
Face Area (Sq Ft)	3.46		5.93	7.42
Configuration	A	Slope	A	
BLOWER & MOTOR				
Air Discharge	Upflow, Downflow, Horizontal			
CFM (Nominal Clg/Htg)	525 / 470 700 / 630 875 / 785 1050 / 945	700 / 630 875 / 785 1050 / 945 1225 / 1100	875 / 785 1050 / 945 1225 / 1100 1400 / 1260	1050 / 945 1225 / 1100 1400 / 1260 1750 / 1575
Motor HP (ECM)	1/2			3/4
FILTER CLEANABLE				
21 – 1/2" (546 mm) by	16 – 3/8" (417 mm)	19 – 7/8" (505 mm)		23 – 5/16" (585 mm)
CABINET CONFIGURATION OPTIONS				
	1 Piece	1 Piece or Modular		Modular



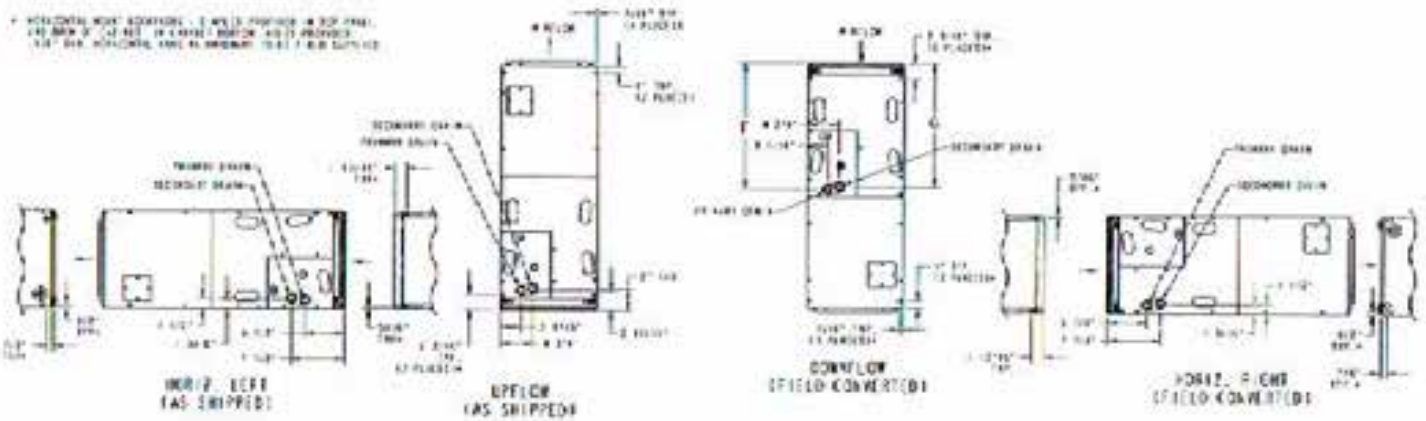
DIMENSIONS

UNIT SIZE	A		B		C		D		E		H		J	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
FV4CNB003	53-7/16	1357	21-1/8	537	19-1/4	489	19-1/8	486	19-3/16	487	28-5/16	735	19	483
FV4CNB005	53-7/16	1357	21-1/8	537	19-1/4	489	19-1/8	486	19-3/16	487	28-5/16	735	—	—
FV4CNB006	59-3/16	1503	24-11/16	627	22-3/4	578	22-11/16	576	25-1/4	642	34-1/16	865	—	—
FV4CNF002	42-11/16	1084	17-5/8	448	15-3/4	400	15-5/8	397	10-3/4	273	—	—	—	—
FV4CNF003	53-7/16	1357	21-1/8	537	19-1/4	489	19-1/8	486	19-3/16	487	—	—	19	483
FV4CNF005	53-7/16	1357	21-1/8	537	19-1/4	489	19-1/8	486	19-1/2	495	—	—	—	—

SLOPE COIL



A-COIL



DIMENSIONS

UNIT SIZE	F		G		COIL TYPE	SHIPPING WEIGHT	
	in	mm	in	mm		lb	kg
FV4CNB003	26–15/16	684	27–1/2	699	SLOPE	150	68
FV4CNB005	26–15/16	684	27–1/2	699	A	172	78
FV4CNB006	32–15/16	837	32–5/8	829	A	207	94
FV4CNF002	18–9/16	471	18–1/4	464	A	135	61
FV4CNF003	26–15/16	684	27–1/2	699	SLOPE	150	68
FV4CNF005	27–1/4	692	26–15/16	684	A	172	78

PERFORMANCE DATA

FV4C ADVANCED FAN COIL AIRFLOW DELIVERY CHART (CFM)

UNIT SIZE	OUTDOOR UNIT CAPACITY	OPERATING MODE: SINGLE—SPEED APPLICATION		TWO—SPEED APPLICATION				FAN ONLY		
				High Speed		Low Speed				
		Nominal A/C Cooling	A/C Cooling Dehumidity	Nominal A/C Cooling	A/C Cooling Dehumidity	Nominal A/C Cooling	A/C Cooling Dehumidity	Lo	Med	High
002	018	525	420	—	—	—	—	350	420	525
	024	700	560	700	560	560	450	350	560	700
	030	875	700	—	—	—	—	440	700	875
	036	1050	840	1050	840	840	670	525	840	1050
003	024	700	560	700	560	560	450	415	560	700
	030	875	700	—	—	—	—	440	700	875
	036	1050	840	1050	840	840	670	525	840	1050
	042	1225	980	—	—	—	—	610	980	1225
005	030	875	700	—	—	—	—	440	700	875
	036	1050	840	1050	840	840	670	525	840	1050
	042	1225	980	—	—	—	—	610	980	1225
	048	1400	1120	1400	1120	1120	895	700	1120	1400
006	036	1050	840	1050	840	840	670	540	840	1050
	042	1225	980	—	—	—	—	610	980	1225
	048	1400	1120	1400	1120	1120	895	700	1120	1400
	060	1750	1400	1750	1400	1400	1120	875	1400	1750

NOTES:

1. The above airflows result with the AC, HP CFM ADJUST select jumper set on NOM.
2. Air flow can be adjusted +15% or −10% by selecting HI or LO respectively for all modes except fan only.
3. Dry coil at 230 volts and with 10kW heater and filter installed.
4. Airflows shown are at standard air conditions.

*Consult ARI ratings before matching outdoor unit with FV4C fan coil.

FV4C ADVANCED FAN COIL AIRFLOW DELIVERY CHART (CFM)

UNIT SIZE	OUTDOOR UNIT CAPACITY	OPERATING MODE: SINGLE—SPEED APPLICATION		TWO—SPEED APPLICATION				FAN ONLY		
				High Speed		Low Speed				
		Heat Pump Comfort	Heat Pump Efficiency	Heat Pump Comfort	Heat Pump Efficiency	Heat Pump Comfort	Heat Pump Efficiency	Lo	Med	High
002	018	470	525	—	—	—	—	350	380	470
	024	630	700	630	700	505	560	350	505	630
	030	785	875	—	—	—	—	390	630	785
	036	945	1050	945	1050	755	840	470	755	945
003	024	630	700	630	700	415	560	415	505	630
	030	785	875	—	—	—	—	415	630	785
	036	945	1050	945	1050	755	840	470	755	945
	042	1100	1225	—	—	—	—	550	880	1100
005	030	785	875	—	—	—	—	425	630	785
	036	945	1050	945	1050	755	840	470	755	945
	042	1100	1225	—	—	—	—	550	880	1100
	048	1260	1400	1260	1400	1010	1120	630	1010	1260
006	036	945	1050	945	1050	755	840	540	755	945
	042	1100	1225	—	—	—	—	550	880	1100
	048	1260	1400	1260	1400	1010	1120	630	1010	1260
	060	1575	1750	1575	1750	1260	1400	785	1260	1575

NOTES:

1. The above airflows result with the AC, HP CFM ADJUST select jumper set on NOM.
2. Air flow can be adjusted +15% or −10% by selecting HI or LO respectively for all modes except fan only.
3. Dry coil at 230 volts and with 10kW heater and filter installed.
4. Airflows shown are at standard air conditions.

PERFORMANCE DATA (cont)

AIRFLOW DELIVERY CHART (CFM) — ELECTRIC HEATING MODES

FAN UNIT SIZE	OUTDOOR UNIT CAPACITY BTUH	ELECTRIC HEATER kW RANGE											
		0–5			0–10			0–15			0–20		
		Lo	Nom	High	Lo	Nom	High	Lo	Nom	High	Lo	Nom	High
002	18,000	625	625	625	675	675	–	–	–	–	–	–	–
	24,000	650	725	835	–	725	835	875	875	875	–	–	–
	30,000	815	905	1040	–	905	1040	900	900	1040	1100	1100	1100
	36,000	980	1085	1250	980	1085	1250	980	1085	1250	1100	1100	1250
003	24,000	675	725	835	875	875	–	–	–	–	–	–	–
	30,000	815	905	1040	875	905	1040	1100	1100	1100	–	–	–
	36,000	980	1085	1250	980	1085	1250	1100	1100	1250	1225	1225	1250
	42,000	1140	1270	1460	1140	1270	1460	1140	1270	1460	1225	1270	1460

FAN UNIT SIZE	OUTDOOR UNIT CAPACITY BTUH	ELECTRIC HEATER kW RANGE											
		0–10			0–15			0–20			0–30		
		Lo	Nom	High	Lo	Nom	High	Lo	Nom	High	Lo	Nom	High
005	30,000	975	975	1040	1100	1100	1100	–	–	–	–	–	–
	36,000	980	1085	1250	1100	1100	1250	1250	1250	1250	–	–	–
	42,000	1140	1270	1460	1140	1270	1460	1250	1270	1460	–	–	–
	48,000	1305	1450	1665	1305	1450	1665	1305	1450	1665	1500	1500	1665
006	36,000	1100	1100	1250	1350	1350	1350	–	–	–	–	–	–
	42,000	1140	1270	1460	1350	1350	1460	1525	1525	1525	–	–	–
	48,000	1305	1450	1665	1350	1450	1665	1525	1525	1665	1750	1750	1750
	60,000	1630	1810	2085	1630	1810	2085	1630	1810	2085	1750	1810	2085

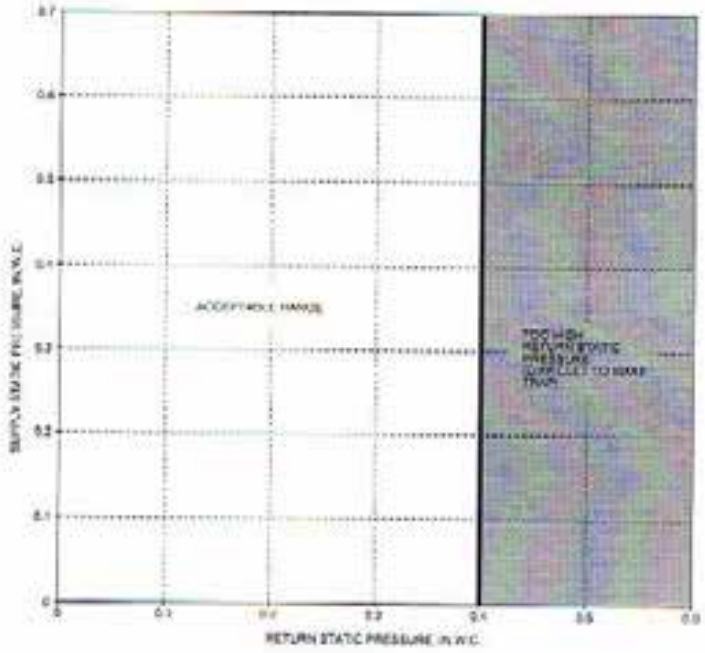
NOTE: Lo, NOM, and HI refer to AC. HP CFM ADJUST selection.
– Airflow not recommended for heater/system size.

MINIMUM CFM FOR ELECTRIC HEATER APPLICATION

FAN COIL UNIT	HEAT PUMP UNIT SIZE	CFM HEATER SIZE kW				
		5	8, 9, 10	15	18, 20	24, 30
002	Heater Only	625	625	725	875	—
	018	625	625	—	—	—
	024	650	725	875	—	—
	030	800	875	875	1040	—
	036	970	970	970	1040	—
003	Heater Only	675	700	1050	1050	—
	024	675	875	—	—	—
	030	800	875	1100	—	—
	036	975	975	1100	1225	—
	042	1125	1125	1125	1225	—
005	Heater Only	675	700	1050	1050	1400
	018	800	875	1100	—	—
	036	975	975	1100	1225	—
	042	1125	1125	1125	1225	—
	048	1305	1305	1305	1305	1400
006	Heater Only	1050	1050	1050	1050	1750
	018	1100	1100	1350	1350	—
	042	1125	1125	1350	1350	—
	048	1300	1300	1350	1465	1750
	060	1625	1625	1625	1750	1750

NOTES:
1. Heater Only—Air conditioner with electric heater application.
2. These airflows are minimum acceptable airflows as UL listed. Actual airflow delivered will be per airflow delivery chart for Electric Heating Modes.

PERFORMANCE DATA (cont)



A02090

ACCEPTABLE DUCT CONDITIONS

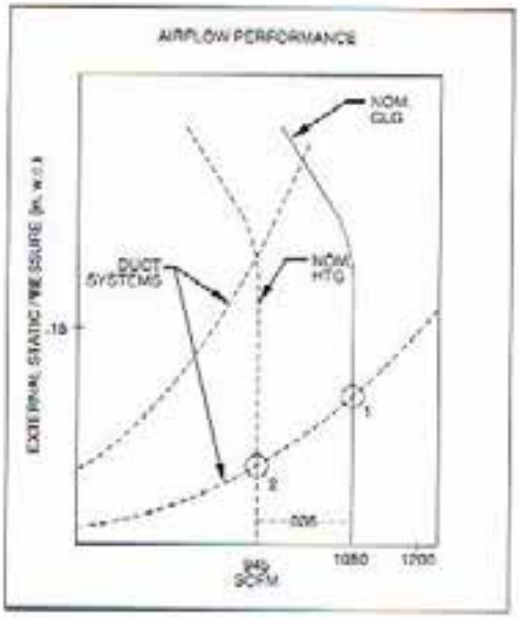
For satisfactory operation (specifically making dry secondary trap), subject fan coils must be installed with duct systems which fall within the "Acceptable Range" illustrated above.

The airflow performance charts for the FV4C fan coil depict nominal airflow delivery for heating and cooling mode operation versus duct system static pressure drop. Cooling mode operation is shown as solid vertical lines for all 4 system size selections. Heating mode operation for the 4 system size selections are shown as dashed vertical lines.

The dotted curved lines are static pressure drop characteristics for several fixed-duct systems. These lines can be used to predict the system static pressure drop at any airflow given the actual drop at 1 known point.

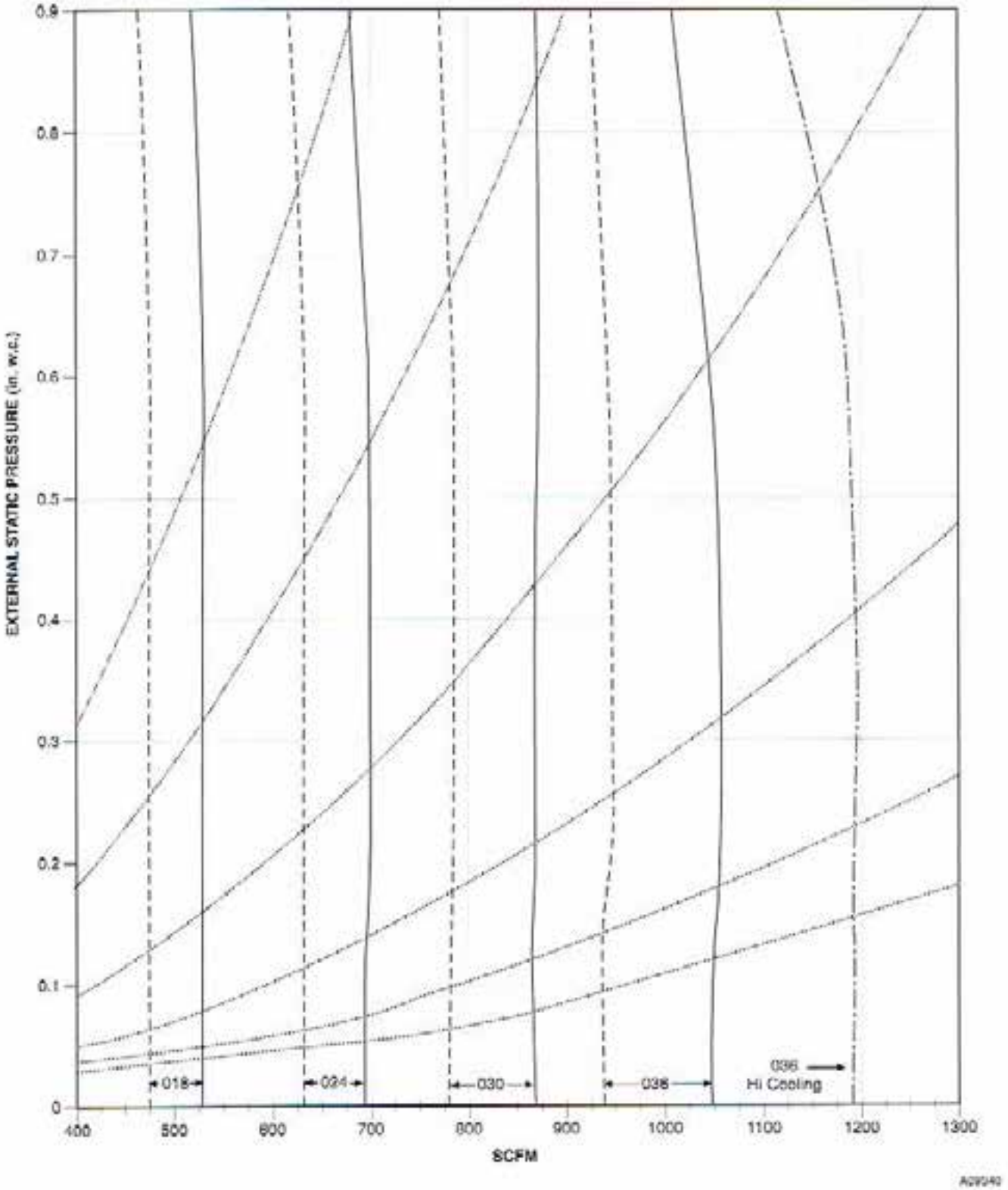
For example, a duct system is designed for 0.15 in. water column (in. w.c.) drop at 1200 CFM. The FV4CNF005 operating at nominal cooling airflow would deliver 1050 CFM with a duct system drop of 0.11 in. w.c.. (See point 1.) On the same duct system, the FV4CNF005 operating at nominal heating airflow would deliver 945 CFM with a duct system drop of 0.09 in. w.c. (See point 2.)

This example is but one of many possible duct system designs. The FV4CNF005 will deliver the above airflows against much higher static pressures.



A00330

AIRFLOW PERFORMANCE



FV4CNF002

Nominal Cooling and Heat Pump Efficiency airflow for each size selection. Airflow can be adjusted +10% to −10%.

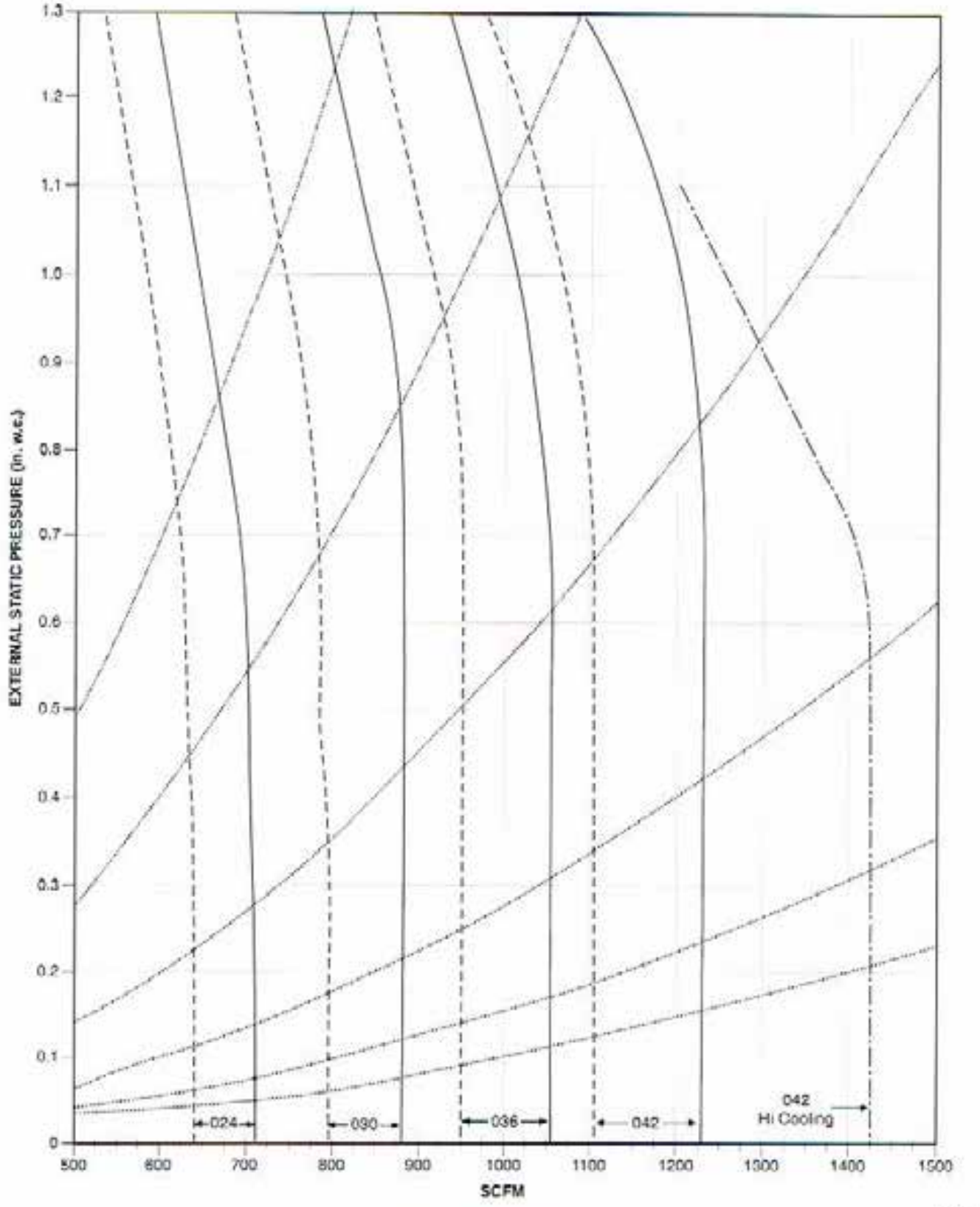
Nominal Heat Pump Comfort airflow for each size selection. Airflow can be adjusted +15% to −10%.

Maximum cooling airflow for largest size selection. Adjusted +15% from nominal.

Fixed Duct Systems (See description under Acceptable Duct Conditions.)

FV4C

AIRFLOW PERFORMANCE

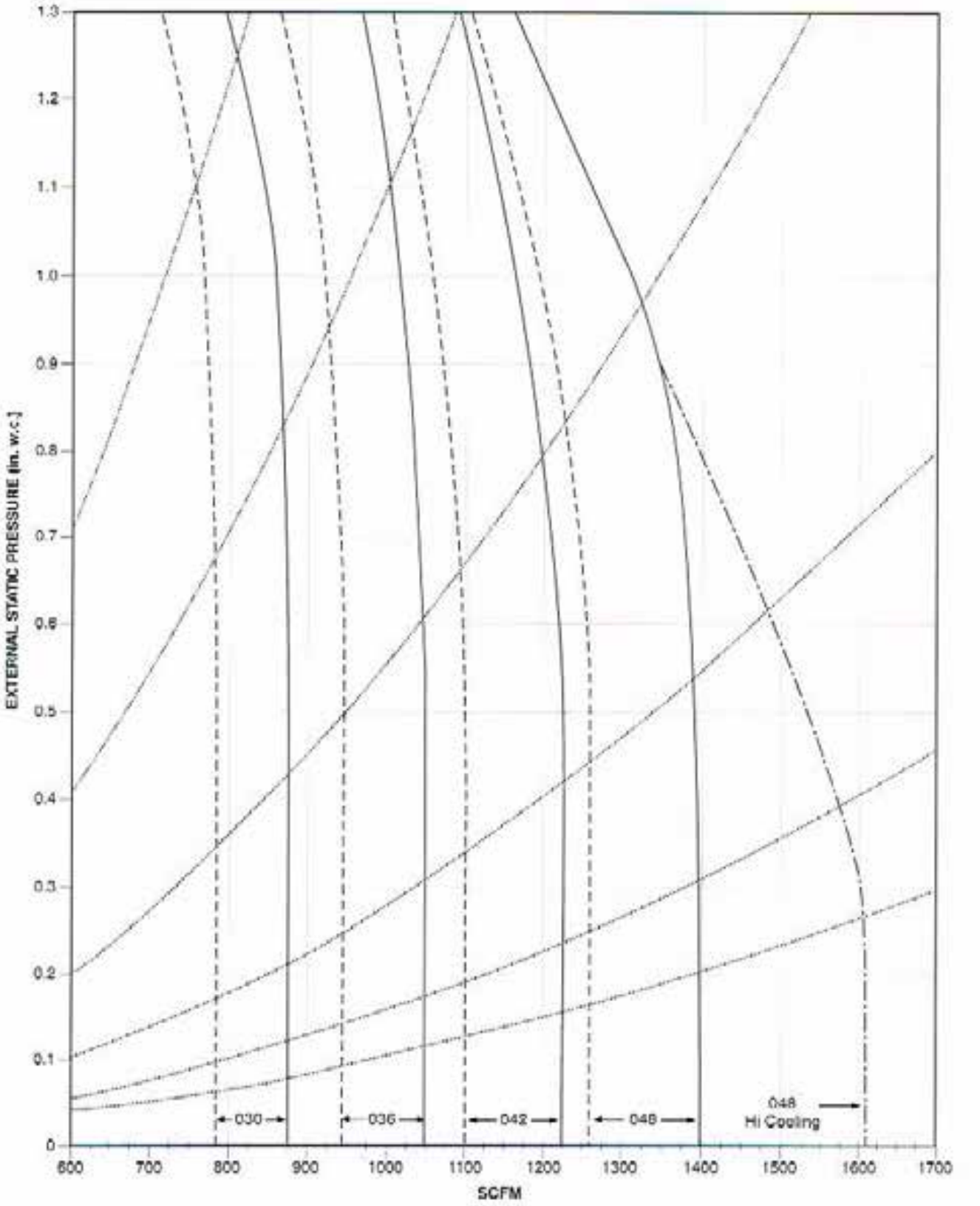


A003e1

FV4CN(B,F)003

——— Nominal Cooling and Heat Pump Efficiency airflow for each size selection. Airflow can be adjusted +15% to −10%.
– – – – Nominal Heat Pump Comfort airflow for each size selection. Airflow can be adjusted +15% to −10%.
– · – · Maximum cooling airflow for largest size selection. Adjusted +15% from nominal.
· · · · · · Fixed Duct Systems (See description under Acceptable Duct Conditions.)

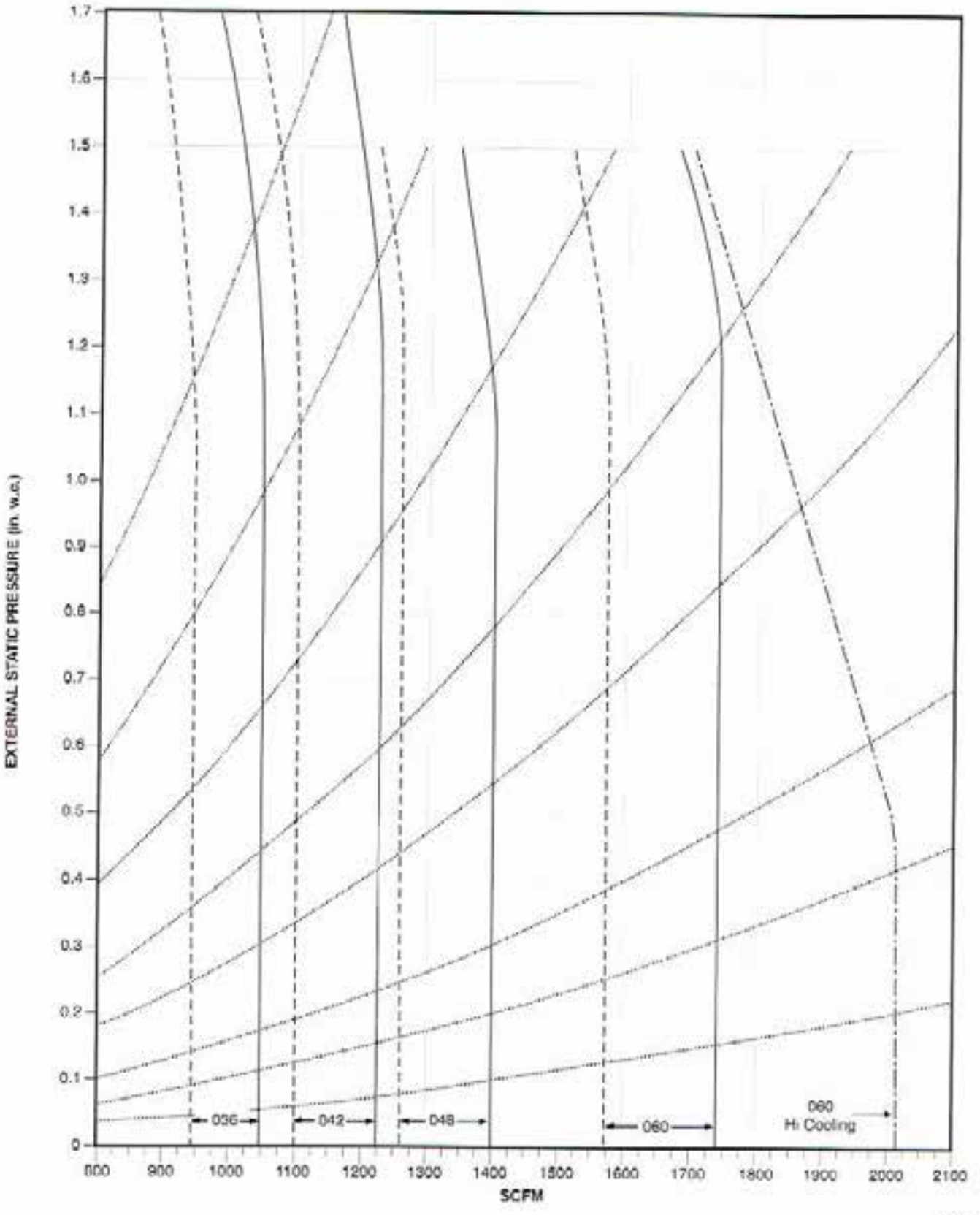
AIRFLOW PERFORMANCE



FV4CN(B,F)005

——— Nominal Cooling and Heat Pump Efficiency airflow for each size selection. Airflow can be adjusted +15% to −10%.
– – – – Nominal Heat Pump Comfort airflow for each size selection. Airflow can be adjusted +15% to −10%.
– – – Maximum cooling airflow for largest size selection. Adjusted +15% from nominal.
····· Field Duct Systems (See description under Acceptable Duct Conditions.)

AIRFLOW PERFORMANCE



FV4CNB006

Nominal Cooling and Heat Pump Efficiency airflow for **each size selection.** Airflow can be adjusted +15% to −10%.
Nominal Heat Pump Comfort airflow for each size selection. Airflow can be adjusted +15% to −10%.
Maximum cooling airflow for largest size selection. Adjusted +15% from nominal.
Fixed Duct Systems (See description under Acceptable Duct Conditions.)

PERFORMANCE DATA (cont)

COOLING CAPACITIES (MBtuh)

UNIT SIZE	EVAP COIL AIR Cfm / BF	SATURATED TEMPERATURE LEAVING EVAPORATOR (°F / °C)														
		35 / 2			40 / 4			45 / 7			50 / 10			55 / 13		
		Evaporator Air — Entering Wet-Bulb Temperature														
		72°F 22°C	67°F 19°C	62°F 17°C	72°F 22°C	67°F 19°C	62°F 17°C	72°F 22°C	67°F 19°C	62°F 17°C	72°F 22°C	67°F 19°C	62°F 17°C	72°F 22°C	67°F 19°C	62°F 17°C
002	500	40	32	20	36	28	22	32	24	16	27	19	14	21	15	11
	0.04															
	650	50	40	32	45	39	27	39	30	22	33	24	18	26	17	14
	0.07															
	875	65	49	38	53	43	32	46	35	27	39	29	22	31	20	16
	0.10															
	1000	62	51	41	56	45	35	50	38	30	42	30	24	33	22	20
	0.11															
	1250	67	55	45	61	49	39	54	42	33	46	34	28	37	25	24
	0.13															
003	900	59	49	38	53	42	32	46	35	24	39	27	20	30	16	16
	0.05															
	1000	66	56	45	61	49	37	54	41	29	45	32	25	35	22	20
	0.22															
	1200	75	62	49	68	54	42	60	45	34	50	36	29	40	25	23
	0.25															
	1400	80	67	54	73	59	46	64	49	38	54	39	32	43	28	27
	0.27															
005	750	91	40	29	55	43	33	48	37	27	41	29	20	33	21	17
	0.04															
	950	74	60	46	67	53	40	59	46	33	50	35	25	39	24	21
	0.06															
	1150	88	72	57	79	63	48	69	52	38	58	41	31	44	29	25
	0.07															
	1500	108	84	66	92	73	56	81	61	46	67	49	39	52	34	31
	0.10															
	1750	110	86	71	99	78	60	86	65	48	72	51	42	56	37	33
	0.11															
006	1050	77	62	50	69	55	43	61	47	35	52	36	27	41	27	22
	0.01															
	1300	100	82	65	90	71	55	79	60	46	66	47	37	49	32	27
	0.02															
	1750	117	96	77	106	84	65	93	71	53	79	56	45	60	40	34
	0.04															
	2050	126	103	83	114	91	71	99	76	59	84	60	50	65	44	39
	0.05															
	2300	133	108	87	119	95	75	105	80	63	88	63	54	70	47	42
	0.06															

BF = Bypass Factor

■ – Sensible Heat Capacity (1000 Btuh)

□ – Gross Cooling Capacity (1000 Btuh)

NOTES:

1. Contact manufacturer for cooling capacities at conditions other than shown in table.
2. Formulas:

   Leaving db = entering db $-\frac{\text{sensible heat cap.}}{1.09 \times \text{CFM}}$

   Leaving wb = wb corresponding to enthalpy of air leaving coil (h_{lwb})

   $h_{lwb} = h_{ewb} - \frac{\text{total capacity (Btuh)}}{4.5 \times \text{CFM}}$

   where h_{ewb} = enthalpy of air entering coil. Direct interpolation is permissible. Do not extrapolate.
3. SHC is based on 80°F db temperature of air entering coil. Below 80°F db, subtract (Correction Factor x CFM) from SHC. Above 80°F db, add (Correction Factor x CFM) to SHC.
4. Bypass Factor = 0 indicates no psychometric solution. Use bypass factor of next lower EWB for approximation.

Interpolation is permissible.

Correction Factor = 1.00 x (1 – BF) x (db – 80)

SHC CORRECTION FACTOR

BYPASS FACTOR	ENTERING AIR DRY-BULB TEMPERATURE °F (°C)					
	79 (26)	78 (26)	77 (25)	76 (24)	75 (24)	Under 75 (24)
	81 (27)	82 (28)	83 (28)	84 (29)	85 (29)	Over 85
	Correction Factor					
0.10	.008	1.96	2.94	3.92	4.91	Use formula shown below
0.20	0.87	1.74	2.62	3.49	4.36	
0.30	0.76	1.53	2.29	3.06	3.82	

FV4C

PERFORMANCE DATA (cont)

ESTIMATED SOUND POWER LEVEL (dBA)*

UNIT SIZE	CONDITIONS		OCTAVE BAND CENTER FREQUENCY						
	CFM	ESP	63	125	250	500	1000	2000	4000
FV-002	400	0.25	63.0	59.0	55.0	52.0	50.0	48.0	44.0
	600	0.25	64.7	60.7	56.7	53.7	51.7	49.7	45.7
	800	0.25	66.0	62.0	58.0	55.0	53.0	51.0	47.0
	1000	0.25	67.0	63.0	59.0	56.0	54.0	52.0	48.0
	1200	0.25	67.8	63.8	59.8	56.8	54.8	52.8	48.8
	1400	0.25	68.4	64.4	60.4	57.4	55.4	53.4	49.4
FV-003	400	0.25	63.0	59.0	55.0	52.0	50.0	48.0	44.0
	600	0.25	64.7	60.7	56.7	53.7	51.7	49.7	45.7
	800	0.25	66.0	62.0	58.0	55.0	53.0	51.0	47.0
	1000	0.25	67.0	63.0	59.0	56.0	54.0	52.0	48.0
	1200	0.25	67.8	63.8	59.8	56.8	54.8	52.8	48.8
	1400	0.25	68.4	64.4	60.4	57.4	55.4	53.4	49.4
	636	0.25	65.0	61.0	57.0	54.0	52.0	50.0	46.0
FV-005	400	0.25	63.0	59.0	55.0	52.0	50.0	48.0	44.0
	600	0.25	64.7	60.7	56.7	53.7	51.7	49.7	45.7
	800	0.25	66.0	62.0	58.0	55.0	53.0	51.0	47.0
	1000	0.25	67.0	63.0	59.0	56.0	54.0	52.0	48.0
	1200	0.25	67.8	63.8	59.8	56.8	54.8	52.8	48.8
	1400	0.25	68.4	64.4	60.4	57.4	55.4	53.4	49.4
	1600	0.25	69.0	65.0	61.0	58.0	56.0	54.0	50.0
FV-006	600	0.25	64.7	60.7	56.7	53.7	51.7	49.7	45.7
	800	0.25	66.0	62.0	58.0	55.0	53.0	51.0	47.0
	1000	0.25	67.0	63.0	59.0	56.0	54.0	52.0	48.0
	1200	0.25	67.8	63.8	59.8	56.8	54.8	52.8	48.8
	1400	0.25	68.4	64.4	60.4	57.4	55.4	53.4	49.4
	1600	0.25	69.0	65.0	61.0	58.0	56.0	54.0	50.0
	1800	0.25	69.5	65.5	61.5	58.5	56.5	54.5	50.5
	2000	0.25	70.0	66.0	62.0	59.0	57.0	55.0	51.0
	2150	0.25	70.3	66.3	62.3	59.3	57.3	55.3	51.3

* Estimated sound power levels have been derived using the method described in the 1987 ASHRAE Systems & Applications Handbook, chapter 52, p. 52.7.

CFM – Cubic Ft Per Minute

ESP – External Static Pressure (in. w.c.)

RPM – Revolutions Per Minute

AIRFLOW PERFORMANCE CORRECTION FACTORS

HEATER kW	ELEMENTS	STATIC PRESSURE CORRECTION (in. wc)	
		Sizes 002–005	Size 006
0	0	+.02	+.03
5	1	+.01	+.02
8, 10	2	0	0
9, 15	3	–.02	–.03
20	4	–.04	–.06
18, 24, 30	6	–.06	–.10

The FV4C airflow performance table was developed using fan coils with 10–kW electric heaters (2 elements) in the units. For fan coils with heaters made up of a different number of elements, the external available static at a given CFM from the table may be corrected by adding or subtracting pressure. Use table for this correction.

FACTORY-INSTALLED FILTER STATIC PRESSURE DROP (in. wc)

UNIT SIZE	CFM								
	400	600	800	1000	1200	1400	1600	1800	2000
002	0.020	0.044	0.048	0.072	0.100	—	—	—	—
003	—	0.020	0.035	0.051	0.070	0.092	—	—	—
005	—	—	0.035	0.051	0.070	0.092	0.120	—	—
006	—	—	—	0.038	0.053	0.070	0.086	0.105	0.133

AIR DELIVERY PERFORMANCE CORRECTION COMPONENT PRESSURE DROP (IN. WC) AT INDICATED AIRFLOW (DRY TO WET COIL)

UNIT SIZE	CFM										
	600	700	800	900	1000	1100	1200	1300	1400	1500	1600
002	0.012	0.016	0.022	0.028	0.034	0.040	0.049	—	—	—	—
003	—	0.026	0.034	0.042	0.052	0.060	0.075	0.083	0.091	0.006	0.110
005	—	0.006	0.008	0.010	0.012	0.015	0.017	0.020	0.023	0.027	0.030
	CFM										
	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100
006	0.013	0.016	0.018	0.020	0.023	0.027	0.030	0.034	0.039	0.044	0.048

UNITS WITHOUT ELECTRICAL HEAT

UNIT SIZE	VOLTS–PHASE	FLA	MIN CKT AMPS	BRANCH CIRCUIT	
				Min Wire Size Awg*	Fuse/Ckt Bkr Amps
002	208/230–1	4.3	5.4	14	15
003	208/230–1	4.3	5.4	14	15
005	208/230–1	4.3	5.4	14	15
006	208/230–1	6.8	8.5	14	15

FV4C

* Use copper wire only to connect unit. If other than uncoated (non–plated) 75°C copper wire (solid wire for 10 AWG and smaller, stranded wire for larger than 10 AWG) is used consult applicable tables of the National Electric Code (ANSI/NFPA 70).

NOTE: If branch circuit wire length exceeds 100 ft, consult NEC 210–19a to determine maximum wire length. Use 2% voltage drop.

FLA — Full Load Amps

ELECTRIC HEATERS

HEATER PART NO.	kW @ 240V	VOLTS/ PHASE	STAGES (kW OPERATING)	INTERNAL CIRCUIT PROTECTION	FAN COIL SIZE USED WITH	HEATING CAP. @ 230V‡	INTELLIGENT HEAT CAPABLE†† (kW OPERATING)
KFCEH0501N05	5	230/1	5	None	All	15,700	—
KFCEH0801N08	8	230/1	8	None	All	25,100	—
KFCEH0901N10	10	230/1	10	None	All	31,400	—
KFCEH3001F15	15	230/1	5, 15	Fuses**	All	47,100	5, 10, 15
KFCEH3201F20	20	230/1	5, 20	Fuses**	All	62,800	5, 10, 15, 20
KFCEH2901N09	9	230/1*	3, 9	None	All	28,300	3, 6, 9
KFCEH1501315	15	230/3	5, 15	None	All	47,100	—
KFCEH2001318	18	230/3	6, 12, 18	None	All	56,500	—
KFCEH3401F24	24	230/3†	8, 16, 24	Fuses	005, 006	78,500	8, 16, 24
KFCEH3501F30	30	230/3†	10, 20, 30	Fuses	005, 006	94,300	10, 20, 30
KFCEH2401C05	5	230/1	5	Ckt Bkr	All	15,700	—
KFCEH2501C08	8	230/1	8	Ckt Bkr	All	25,100	—
KFCEH2601C10	10	230/1	10	Ckt Bkr	All	31,400	—
KFCEH3101C15	15	230/1	5, 15	Ckt Bkr	All	47,100	5, 10, 15
KFCEH3301C20	20	230/1	5, 20	Ckt Bkr	All	62,800	5, 10, 15, 20

* Field convertible to 3 phase.

† These heaters field convertible to single phase.

‡ Blower motor heat not included.

** Single point wiring kit required for these heaters in Canada.

†† Heaters designated with kW Operating Values are Intelligent Heat capable when used with corporate 7–speed programmable thermostat, Thermidistat™ Control, or Comfort Zone II.

ELECTRIC HEATER INTERNAL PROTECTION

HEATER kW	FUSES QTY/SIZE	CKT BKR QTY/SIZE*
5	—	1/60
8	—	1/60
9	—	—
10	—	1/60
15	2/30, 2/60	2/60
15	—	—
18	—	—
20	4/60	2/60
24	6/60	—
30	6/60	—

* All circuit breakers are 2 pole.

ACCESSORY ELECTRIC HEATER ELECTRICAL DATA

HEATER PART NO.	kW		PHASE	INTERNAL CIRCUIT FACTORY-INSTALLED	HEATER AMPS 208/230V			BRANCH CIRCUIT											
								Min Ampacity 208/230V**			Min Wire Size (AWG) 208/230V††			Min Gnd Wire Size 208/230V			Max Fuse/Ckt Brkr Amps 208/230V			Max Wire Length 208/230V (FT)‡‡		
	240V	208V			Single Circuit	Dual Circuit		Single Circuit	Dual Circuit		Single Circuit	Dual Circuit		Single Circuit	Dual Circuit		Single Circuit	Dual Circuit		Single Circuit	Dual Circuit	
						L1,L2	L3,L4		L1,L2	L3,L4		L1,L2	L3,L4		L1,L2	L3,L4		L1,L2	L3,L4		L1,L2	L3,L4
KFCEH040[illegible]	8	6.8	1	None	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—
KFCEH040[illegible]†	8	6.8	1	None	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—
KFCEH040[illegible]‡	8	6.8	3	None	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—
KFCEH040[illegible]†	8	6.8	1	Circuit Breaker	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—
KFCEH040[illegible]‡	8	6.8	3	Circuit Breaker	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—
KFCEH060[illegible]	12	10.2	1	None	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—
KFCEH060[illegible]	12	10.2	3	None	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—
KFCEH060[illegible]†	12	10.2	1	None	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—
KFCEH060[illegible]‡	12	10.2	3	None	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—
KFCEH060[illegible]	12	10.2	1	Circuit Breaker	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—
KFCEH060[illegible]‡	12	10.2	3	Circuit Breaker	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—
KFCEH080[illegible]	16	13.6	1	None	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—
KFCEH080[illegible]†	16	13.6	3	None	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—
KFCEH080[illegible]‡	16	13.6	1	Circuit Breaker	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—
KFCEH080[illegible]‡	16	13.6	3	Circuit Breaker	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—
KFCEH100[illegible]	20	17.0	1	None	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
KFCEH100[illegible]‡	20	17.0	3	None	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
KFCEH100[illegible]†	20	17.0	1	Circuit Breaker	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—
KFCEH100[illegible]‡	20	17.0	3	Circuit Breaker	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—
KFCEH150[illegible]†	30	25.5	1	None	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—
KFCEH150[illegible]‡	30	25.5	3	None	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—	—

FIELD MULTIPOINT WIRING OF 24- AND 30-kW SINGLE PHASE

HEATER PART NO.	kW		PHASE	HEATER AMPS 208/230V			MIN AMPACITY 208/230V**			MIN WIRE SIZE (AWG) 208/230V††			MIN GND WIRE SIZE 208/230V	MAX FUSE/CKT BKR AMPS 208/230V			MAX WIRE LENGTH 208/230V (FT)‡‡		
	240V	208V		L1,L2	L3,L4	L5,L6	L1,L2	L3,L4	L5,L6	L1,L2	L3,L4	L5,L6		L1,L2	L3,L4	L5,L6	L1,L2	L3,L4	L5,L6
KFCEH040[illegible]	24	20.5	1	28.8/32.0	28.8/32.0	28.8/32.0	44.2/49.5	36.2/40.0	36.2/40.0	6/6	6/6	8/8	10/10	60/60	50/60	50/60	50/60	75/75	75/75
KFCEH060[illegible]	36	32.5	1	36.2/40.0	36.2/40.0	50.2/40.0	53.5/59.5	45.3/50.0	45.3/50.0	6/6	6/6	8/8	10/10	80/80	60/60	60/60	75/85	65/70	65/70

* Heaters are Intelli-zone capable when used with the FV fan coil and Comfort Zone II™ or Infinity Control™.

† Field convertible to 1 phase, single or multiple supply circuit.

‡ Field convertible to 3 phase.

** Includes blower motor amps of largest fan coil used with heater.

†† Copper wire must be used. If other than uncoated (non-plated), 75°C copper wire (solid wire for 10 AWG and smaller, stranded wire for larger than 10 AWG) is used, consult applicable tables of the National Electric Code (ANSI/NFPA 70).

‡‡ Length shown is as measured 1 way along wire path between unit and service panel for a voltage drop not to exceed 2%.

NOTES:

1. For fan coil sizes 018–037.
2. For fan coil sizes 042–061 and all FE, FK and FV models.
3. Single circuit application of F15 and F20 heaters requires single-point wiring kit accessory.

ACCESSORIES

	ITEM	ACCESSORY PART NO.*	FAN COIL SIZE USED WITH
1.	Disconnect Kit	KFADK0201DSC	Cooling controls and heaters 3- through 10-kW
2.	Downflow Base Kit	KFACB0201CFB	002
		KFACB0301CFB	003, 005
		KFACB0401CFB	006
3.	Downflow Conversion Kit	KFADC0201SLP	003
		KFADC0401ACL	002, 005, 006
4.	Single-Point Wiring Kit	KFASP0101SPK	Only with 15- and 20-kW Fused Heaters
5.	Filter Kit (12 Pack)	KFAFK0212MED	002
		KFAFK0312LRG	003, 005
		KFAFK0412XXL	006
6.	Fan Coil Filter Cabinet (Fan Coil Filter Media)	FNCCABCC0017 (FILCCFNC0017)	002
		FNCCABCC0021 (FILCCFNC0021)	003, 005
		FNCCABCC0024 (FILCCFNC0024)	006
7.	Infinity™ Air Purifier (Infinity™ Purifier Replacement Cartridge)	GAPABXCC1620 (GAPCCCAR1620)	002
		GAPABXCC2020 (GAPCCCAR2020)	003, 005
		GAPABXCC2420 (GAPCCCAR2420)	006
8.	PVC Condensate Trap Kit (50 pack)	KFAET0150ETK	All
9.	Air Cleaner 240-volt Conversion Kit	KEAVC0201240	All
10.	Downflow/Horizontal Conversion Gasket Kit	KFAHD0101SLP	All
11.	Airflow Sensor Kit (Air Cleaner)	KEAAC0101AAA	All
12.	ECM Motor Tool	KFASD0301VSP	All
13.	Horizontal Water Management Kit (25 pack)	KFAHC0125AAA	All

* Factory authorized and listed, field installed.

Accessory Kits Description Suggested and Required Use

1. **Disconnect Kit**
   The kit is used to disconnect electrical power to the fan coil so service or maintenance may be performed safely.
   SUGGESTED USE: Units for 3- through 10-kW electric resistance heaters and cooling controls.

2. **Downflow Base Kit**
   This kit is designed to provide a 1-in. (25MM) minimum clearance between unit discharge plenum, ductwork, and combustible materials. It also provides a gap-free seal with the floor.
   REQUIRED USE: This kit must be used whenever fan coils are used in downflow applications.

3. **Downflow Conversion Kit**
   Fan coils are shipped from the factory for upflow or horizontal-left applications. Downflow conversion kits provide proper condensate water drainage and support for the coil when used in downflow applications. Separate kits are available for slope coils and A-coils.
   REQUIRED USE: This kit must be used whenever fan coils are used in downflow applications.

4. **Single Point Wiring Kit**
   The single point wiring kit acts as a jumper between L1 and L3 lugs, and between the L2 and L4 lugs. This allows the installer to run 2 heavy-gauge, high-voltage wires into the fan coil rather than 4 light-gauge, high-voltage wires.
   SUGGESTED USE: Fan coils with 15- and 20-kW fused heaters only.

5. **Filter Kit (12 pack)**
   The kit consists of 12 fan coil framed filters. These filters collect large dust particles from the return air entering the fan coil and prevents them from collecting on the coil. This process helps to keep the coil clean, which increases heat transfer and, in turn, the efficiency of the system.
   SUGGESTED USE: To replace filters in fan coils.
   REQUIRED USE: All units unless a filter grille is used.

6. **Fan Coil Filter Cabinet**
   This cabinet is mounted to the fan coil on the return air end and designed to slip over the outer fan coil casing. The cabinets are insulated using the same insulation as production fan coils. They are designed for the removal of particulates from indoor air using FILCCFNC00(14, 17, 21, 24) media filter cartridges. These fan coil media filter cartridge kits are designed for the removal of particles from indoor air. The cartridge is installed in the return air duct next to the air handler or further upstream.
   SUGGESTED USE: All fan coils.

7. **Infinity™ Air Purifier**
   The Infinity Air Purifier wires directly to fan coil and requires no duct transitions with Carrier units. These purifiers both capture and kill airborne viruses, bacteria, mold spores, and allergens. It comes with an airflow sensor. Maintenance is limited to replacement of the purification cartridge, GAPCCAR (1620/2020 or 2420), and inspection/brush cleaning of the ionization array.
   SUGGESTED USE: All fan coils.

8. **Condensate Drain Trap Kit**
   This kit consists of 50 PVC condensate traps. Each trap is pre-formed and ready for field installation. This deep trap helps the system make and hold proper condensate flow even during blower initiation.
   SUGGESTED USE: All fan coils.

9. **Air Cleaner 240-volt Conversion Kit**
   The AIRA electronic air cleaner comes ready for 115-v operation.
   REQUIRED USE: This kit is required when running 240-volt circuit to air cleaner.
10. **Downflow/Horizontal Conversion Gasket Kit**
    This kit provides the proper gasketing of units when applied in either a downflow (FE4A or FE5A) or horizontal (FE4A only) application.
    REQUIRED USE: Fan coils in either downflow or horizontal applications.
11. **Airflow Sensor Kit (Air Cleaner)**
    The AIRA electronic air cleaner comes ready for 115-v operation
    REQUIRED USE: This kit is required whenever an electronic air cleaner is used.
12. **ECM Motor Test Kit**
    Operates variable speed blower at several speeds independent of circuit board and wiring harness.
13. **Horizontal Water Management Kit**
    This kit provides proper installation of fan coils under conditions of high static pressure and high relative humidity.
    SUGGESTED USE: All fan coils.

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