

SECTION 00 11 13

ADVERTISEMENT FOR BIDS

REDFORD UNION MECHANICAL/ELECTRICAL IMPROVEMENTS PROJECT

HIGH SCHOOL
17711 KINLOCH
REDFORD, MICHIGAN 48240

MACGOWAN ELEMENTARY
18255 KINLOCH
REDFORD, MICHIGAN 48240

STUCKEY CENTER
26000 FARGO
REDFORD, MICHIGAN 48240

Redford Union School District will receive single prime sealed bids for Redford Union Mechanical/Electrical Improvements Project until 12:00 p.m. local time on May 2, 2013 at the Central Office Conference Room, 19990 Beech Daly Road, Redford, Michigan 48240, at which time and place all bids will be publicly opened and read aloud.

Bidding documents, including the Proposal Form, Drawings and Specifications, will be on file at the Offices of the Architect, Wold Architects and Engineers, 333 West Seventh Street, Suite 320, Royal Oak, Michigan 48067, (248) 284-0611; at the following Plan Rooms: CAM, 43636 Woodward Avenue, Bloomfield Hills, MI 48302; MHC/Repro Max, 36060 Industrial Road, Detroit, Michigan 48150; and Reed Construction Reports electronic plan room at www.reedpr.com; bidding documents may be viewed online also from Plan Well at www.e-arc.com by clicking on the PlanWell icon, then the Public Plan Room icon, select Redford Union Mechanical/Electrical Improvements.

This project includes: Boiler, central plant, and controls replacements, site lighting, exit signs, and electrical upgrades at three buildings. Also including steam to hot water conversion at the High School and alternate work to replace domestic hot water heating systems.

American Reprographics Company, 1009 West Maple Road, Clawson, MI 48017 (248) 288-5600, facsimile (248) 288-1198, will provide complete sets of the Bidding Documents to prospective bidders and subcontractors. The copies will be available about April 16, 2013. Both a deposit check in the amount of \$25 and a non-refundable check in the amount of \$25 made out to "Redford Union School District " for each set ordered are required. The following information must accompany the deposit: Company name, mailing address, street address, phone and facsimile numbers and type of bidder (i.e. General, Mechanical or Electrical Subcontractor to General, or other). A refund of \$25 will be sent to prime contractors who submit a bid to the Owner and subcontractors for each set (including addenda) returned to American Reprographics Company in good condition within ten (10) calendar days of the award date, subject to the conditions of AIA Document A701. Refunds will not be given if the plans are returned to the Architect's Office. Contractor's may also order electronic sets for a non-refundable deposit check in the amount of \$25.

Make proposals on the bid forms supplied in the Project Manual. No oral, telegraphic or telephonic proposals or modifications will be considered. Submit with each bid, a certified check or acceptable bidder's bond payable to Redford Union School District in an amount equal to five percent (5%) of the total bid. The successful bidder will be required to furnish satisfactory Labor and Material Payment Bond, and Performance Bond.

All Bids shall be accompanied by a sworn and notarized statement disclosing any familial relationship that exists between the owner(s) or any employee of the bidder and any member of the Board of Education or the superintendent of the School District. The Board of Education **will not** accept a bid that does not include a sworn and notarized familial relationship disclosure statement.

All Bids shall be accompanied by the sworn and notarized statement certifying that the bidder is not an Iran Linked Business as required by the Iran Economic Sanctions Act of 2012, Public Act 517. The Board of Education **will not** accept a bid that does not include a sworn and notarized certification that the bidder is not an Iran Linked Business.

Bids may not be withdrawn within thirty (30) days after the scheduled time of opening bids, without the consent of the Owner. The Owner reserves the right to accept any bid or to reject any or all bids, or parts of such bids, and waive informalities or irregularities in bidding.

A voluntary pre-bid meeting will be held on April 23, 2014 at 3:00 p.m. starting at Redford Union High School, 17711 Kinloch, Redford, Michigan 48240.

The Owner requires Substantial Completion of the project as follows: Building-Wide Improvements August 30, 2013
Improvements in Boiler Rooms October 4, 2013

Board of Education
REDFORD UNION SCHOOLS

SECTION 00 21 13

INSTRUCTIONS TO BIDDERS

The Instructions to Bidders, AIA Document A701, 1997 is attached hereto.

END OF SECTION 00 21 13



AIA[®] Document A701[™] – 1997

Instructions to Bidders

for the following PROJECT:

(Name and location or address):

Redford Union Mechanical/Electrical
Improvements Project

High School
17711 Kinloch
Redford, Michigan 48240

Macgowan Elementary
18255 Kinloch
Redford, Michigan 48240

Stuckey Center
26000 Fargo
Redford, Michigan 48240

THE OWNER:

(Name and address):

Redford Union Schools
19990 Beech Daly Road
Redford, Michigan 48240

THE ARCHITECT:

(Name and address):

Wold Architects and Engineers
202 East 3rd Street, Suite 200
Royal Oak, Michigan 48067

TABLE OF ARTICLES

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2	BIDDER'S REPRESENTATIONS
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ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

7 PERFORMANCE BOND AND PAYMENT BOND

8 FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR

ARTICLE 1 DEFINITIONS

§ 1.1 Bidding Documents include the Bidding Requirements and the proposed Contract Documents. The Bidding Requirements consist of the Advertisement or Invitation to Bid, Instructions to Bidders, Supplementary Instructions to Bidders, the bid form, and other sample bidding and contract forms. The proposed Contract Documents consist of the form of Agreement between the Owner and Contractor, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications and all Addenda issued prior to execution of the Contract.

§ 1.2 Definitions set forth in the General Conditions of the Contract for Construction, AIA Document A201, or in other Contract Documents are applicable to the Bidding Documents.

§ 1.3 Addenda are written or graphic instruments issued by the Architect prior to the execution of the Contract which modify or interpret the Bidding Documents by additions, deletions, clarifications or corrections.

§ 1.4 A Bid is a complete and properly executed proposal to do the Work for the sums stipulated therein, submitted in accordance with the Bidding Documents.

§ 1.5 The Base Bid is the sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents as the base, to which Work may be added or from which Work may be deleted for sums stated in Alternate Bids.

§ 1.6 An Alternate Bid (or Alternate) is an amount stated in the Bid to be added to or deducted from the amount of the Base Bid if the corresponding change in the Work, as described in the Bidding Documents, is accepted.

§ 1.7 A Unit Price is an amount stated in the Bid as a price per unit of measurement for materials, equipment or services or a portion of the Work as described in the Bidding Documents.

§ 1.8 A Bidder is a person or entity who submits a Bid and who meets the requirements set forth in the Bidding Documents. **"A bidder is defined as the "bidding entity," i.e. the corporation, partnership or other entity in whose name a bid is submitted. Experience qualifications required of "the bidder" will refer, first, to the bidding entity rather than the experience, either individual or aggregate, of the individuals who make up the company. The experience of key personnel (the persons assigned as Project Manager and Project Superintendent) will also be considered in the process of evaluating the bidding entity."**

§ 1.9 A Sub-bidder is a person or entity who submits a bid to a Bidder for materials, equipment or labor for a portion of the Work.

ARTICLE 2 BIDDER'S REPRESENTATIONS

§ 2.1 The Bidder by making a Bid represents that:

§ 2.1.1 The Bidder has read and understands the Bidding Documents or Contract Documents, to the extent that such documentation relates to the Work for which the Bid is submitted, and for other portions of the Project, if any, being bid concurrently or presently under construction.

§ 2.1.2 The Bid is made in compliance with the Bidding Documents.

§ 2.1.3 The Bidder has visited the site, become familiar with local conditions under which the Work is to be performed and has correlated the Bidder's personal observations with the requirements of the proposed Contract Documents.

§ 2.1.4 The Bid is based upon the materials, equipment and systems required by the Bidding Documents without exception.

ARTICLE 3 BIDDING DOCUMENTS

§ 3.1 COPIES

§ 3.1.1 Bidders may obtain complete sets of the Bidding Documents from the issuing office designated in the Advertisement or Invitation to Bid in the number and for the deposit sum, if any, stated therein. The deposit will be refunded to Bidders who submit a bona fide Bid and return the Bidding Documents in good condition within ten days after receipt of Bids. The cost of replacement of missing or damaged documents will be deducted from the deposit. A Bidder receiving a Contract award may retain the Bidding Documents and the Bidder's deposit will be refunded **when**

the Architect's Office receives notification from the contractor holding a contract with the Owner within the time limits specified on the advertisement for bids.

§ 3.1.2 Bidding Documents will not be issued directly to Sub-bidders unless specifically offered in the Advertisement or Invitation to Bid, or in supplementary instructions to bidders.

§ 3.1.3 Bidders shall use complete sets of Bidding Documents in preparing Bids; neither the Owner nor Architect assumes responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

§ 3.1.4 The Owner and Architect may make copies of the Bidding Documents available on the above terms for the purpose of obtaining Bids on the Work. No license or grant of use is conferred by issuance of copies of the Bidding Documents.

§ 3.2 INTERPRETATION OR CORRECTION OF BIDDING DOCUMENTS

§ 3.2.1 The Bidder shall carefully study and compare the Bidding Documents with each other, and with other work being bid concurrently or presently under construction to the extent that it relates to the Work for which the Bid is submitted, shall examine the site and local conditions, and shall at once report to the Architect errors, inconsistencies or ambiguities discovered.

§ 3.2.2 Bidders and Sub-bidders requiring clarification or interpretation of the Bidding Documents shall make a written request which shall reach the Architect at least seven days prior to the date for receipt of Bids.

§ 3.2.3 Interpretations, corrections and changes of the Bidding Documents will be made by Addendum. Interpretations, corrections and changes of the Bidding Documents made in any other manner will not be binding, and Bidders shall not rely upon them.

§ 3.3 SUBSTITUTIONS

§ 3.3.1 The materials, products and equipment described in the Bidding Documents establish a standard of required function, dimension, appearance and quality to be met by any proposed substitution.

§ 3.3.2 No substitution will be considered prior to receipt of Bids unless written request for approval has been received by the Architect at least ten days prior to the date for receipt of Bids. Such requests shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed substitution including drawings, performance and test data, and other information necessary for an evaluation. A statement setting forth changes in other materials, equipment or other portions of the Work, including changes in the work of other contracts that incorporation of the proposed substitution would require, shall be included. The burden of proof of the merit of the proposed substitution is upon the proposer. The Architect's decision of approval or disapproval of a proposed substitution shall be final.

§ 3.3.3 If the Architect approves a proposed substitution prior to receipt of Bids, such approval will be set forth in an Addendum. Bidders shall not rely upon approvals made in any other manner.

§ 3.3.4 No substitutions will be considered after the Contract award unless specifically provided for in the Contract Documents.

§ 3.3.5 Where the Contractor chooses to use an item approved by request but other than one shown on the details or specified, he shall be responsible for the coordination of any necessary changes in other work, and shall bear the cost of such changes.

§ 3.4 ADDENDA

§ 3.4.1 Addenda will be transmitted to all who are known by the issuing office to have received a complete set of Bidding Documents.

§ 3.4.2 Copies of Addenda will be made available for inspection wherever Bidding Documents are on file for that purpose.

§ 3.4.3 Addenda will be issued no later than four days prior to the date for receipt of Bids except an Addendum withdrawing the request for Bids or one which includes postponement of the date for receipt of Bids.

§ 3.4.4 Each Bidder shall ascertain prior to submitting a Bid that the Bidder has received all Addenda issued, and the Bidder shall acknowledge their receipt in the Bid.

ARTICLE 4 BIDDING PROCEDURES

§ 4.1 PREPARATION OF BIDS

§ 4.1.1 Bids shall be submitted in duplicate on the forms included with the Bidding Documents as produced by Wold Architects and Engineers, 202 East Third Street, Suite 200, Royal Oak, Michigan 48067.

§ 4.1.2 All blanks on the bid form shall be legibly executed in a non-erasable medium.

§ 4.1.3 Sums shall be expressed in both words and figures. In case of discrepancy, the amount written in words shall govern.

§ 4.1.4 Interlineations, alterations and erasures must be initialed by the signer of the Bid.

§ 4.1.5 All requested Alternates shall be bid. If no change in the Base Bid is required, enter "No Change."

§ 4.1.6 Where two or more Bids for designated portions of the Work have been requested, the Bidder may, without forfeiture of the bid security, state the Bidder's refusal to accept award of less than the combination of Bids stipulated by the Bidder. The Bidder shall make no additional stipulations on the bid form nor qualify the Bid in any other manner.

§ 4.1.7 Each copy of the Bid shall state the legal name of the Bidder and the nature of legal form of the Bidder. The Bidder shall provide evidence of legal authority to perform within the jurisdiction of the Work. Each copy shall be signed by the person or persons legally authorized to bind the Bidder to a contract. A Bid by a corporation shall further give the state of incorporation and have the corporate seal affixed. A Bid submitted by an agent shall have a current power of attorney attached certifying the agent's authority to bind the Bidder.

§ 4.1.8 All Bids shall be accompanied by a sworn and notarized statement disclosing any familial relationship that exists between the Owner(s) or any employee of the bidder and any member of the Board of Education or the Superintendent of the School District. The Board of Education will not accept a bid that does not include a sworn and notarized familial relationship disclosure statement.

§ 4.2 BID SECURITY

§ 4.2.1 No bid will be considered, unless it is accompanied by a certified check or acceptable Bid Bond payable without condition to the Owner in an amount equal to five percent (5%) of the total bid. The certified check or Bid Bond which must accompany each bid is required as a guarantee that the bidder will enter into a contract with the Owner for the work described in the proposal and furnish a performance and payment bond and certificates of insurance as specified after notice by the Owner or Architect that contracts have been awarded to him and are ready for execution.

§ 4.2.2 If a surety bond is required, it shall be written on AIA Document A310, Bid Bond, unless otherwise provided in the Bidding Documents, and the attorney-in-fact who executes the bond on behalf of the surety shall affix to the bond a certified and current copy of the power of attorney.

§ 4.2.3 The Owner will have the right to retain the bid security of the three lowest Bidders to whom an award is being considered until either (a) the Contract has been executed and bonds, if required, have been furnished, or (b) the specified time has elapsed so that Bids may be withdrawn or (c) all Bids have been rejected. **The Bid Security of other bidders will be returned by the Owner within a reasonable time after the opening of bids.**

§ 4.3 SUBMISSION OF BIDS

§ 4.3.1 All copies of the Bid, the bid security, if any, and any other documents required to be submitted with the Bid shall be enclosed in a sealed opaque envelope. The envelope shall be addressed to the party receiving the Bids and shall be identified with the Project name, the Bidder's name and address and, if applicable, the designated portion of the Work for which the Bid is submitted. If the Bid is sent by mail, the sealed envelope shall be enclosed in a separate mailing envelope with the notation "SEALED BID ENCLOSED" on the face thereof.

§ 4.3.2 Bids shall be deposited at the designated location prior to the time and date for receipt of Bids. Bids received after the time and date for receipt of Bids will be returned unopened.

§ 4.3.3 The Bidder shall assume full responsibility for timely delivery at the location designated for receipt of Bids.

§ 4.3.4 Oral, telephonic, telegraphic, facsimile or other electronically transmitted bids will not be considered.

§ 4.4 MODIFICATION OR WITHDRAWAL OF BID

§ 4.4.1 A Bid may not be modified, withdrawn or canceled by the Bidder for a period of thirty (30) days following the time and date designated for the receipt of Bids, and each Bidder so agrees in submitting a Bid.

§ 4.4.2 Prior to the time and date designated for receipt of Bids, a Bid submitted may be modified or 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. Written confirmation over the signature of the Bidder shall be received, and date- and time-stamped by the receiving party on or before the date and time set for receipt of Bids. A change shall be so worded as not to reveal the amount of the original Bid.

§ 4.4.3 Withdrawn Bids may be resubmitted up to the date and time designated for the receipt of Bids provided that they are then fully in conformance with these Instructions to Bidders.

§ 4.4.4 Bid security, if required, shall be in an amount sufficient for the Bid as resubmitted.

ARTICLE 5 CONSIDERATION OF BIDS

§ 5.1 OPENING OF BIDS

At the discretion of the Owner, if stipulated in the Advertisement or Invitation to Bid, the properly identified Bids received on time will be publicly opened and will be read aloud. An abstract of the Bids may be made available to Bidders.

§ 5.2 REJECTION OF BIDS

The Owner shall have the right to reject any or all Bids. A Bid not accompanied by a required bid security or by other data required by the Bidding Documents, or a Bid which is in any way incomplete or irregular is subject to rejection.

§ 5.3 ACCEPTANCE OF BID (AWARD)

§ 5.3.1 It is the intent of the Owner to award a Contract to the lowest qualified Bidder provided the Bid has been submitted in accordance with the requirements of the Bidding Documents and does not exceed the funds available. The Owner shall have the right to waive informalities and irregularities in a Bid received and to accept the Bid which, in the Owner's judgment, is in the Owner's own best interests.

§ 5.3.2 The Owner shall have the right to accept Alternates in any order or combination, unless otherwise specifically provided in the Bidding Documents, and to determine the low Bidder on the basis of the sum of the Base Bid and Alternates accepted.

ARTICLE 6 POST-BID INFORMATION

§ 6.1 CONTRACTOR'S QUALIFICATION STATEMENT

Bidders to whom award of a Contract is under consideration shall submit to the Architect, upon request, a properly executed AIA Document A305, Contractor's Qualification Statement, unless such a Statement has been previously required and submitted as a prerequisite to the issuance of Bidding Documents.

§ 6.2 OWNER'S FINANCIAL CAPABILITY

The Owner shall, at the request of the Bidder to whom award of a Contract is under consideration and no later than seven days prior to the expiration of the time for withdrawal of Bids, furnish to the Bidder reasonable evidence that financial arrangements have been made to fulfill the Owner's obligations under the Contract. Unless such reasonable evidence is furnished, the Bidder will not be required to execute the Agreement between the Owner and Contractor.

§ 6.3 SUBMITTALS

§ 6.3.1 The Bidder shall, as soon as practicable or as stipulated in the Bidding Documents, after notification of selection for the award of a Contract, furnish to the Owner through the Architect in writing:

- .1 a designation of the Work to be performed with the Bidder's own forces;
- .2 names of the manufacturers, products, and the suppliers of principal items or systems of materials and equipment proposed for the Work; and
- .3 names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for the principal portions of the Work.

§ 6.3.2 The Bidder will be required to establish to the satisfaction of the Architect and Owner the reliability and responsibility of the persons or entities proposed to furnish and perform the Work described in the Bidding Documents.

§ 6.3.3 Prior to the execution of the Contract, the Architect will notify the Bidder in writing if either the Owner or Architect, after due investigation, has reasonable objection to a person or entity proposed by the Bidder. If the Owner or Architect has reasonable objection to a proposed person or entity, the Bidder may, at the Bidder's option, (1) withdraw the Bid or (2) submit an acceptable substitute person or entity with an adjustment in the Base Bid or Alternate Bid to cover the difference in cost occasioned by such substitution. The Owner may accept the adjusted bid price or disqualify the Bidder. In the event of either withdrawal or disqualification, bid security will not be forfeited.

§ 6.3.4 Persons and entities proposed by the Bidder and to whom the Owner and Architect have made no reasonable objection must be used on the Work for which they were proposed and shall not be changed except with the written consent of the Owner and Architect.

ARTICLE 7 PERFORMANCE BOND AND PAYMENT BOND

§ 7.1 BOND REQUIREMENTS

§ 7.1.1 Refer to Section 00 73 00 General Conditions of the Contract for Construction for Bond requirements.

(Paragraphs deleted)

ARTICLE 8 FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR

Unless otherwise required in the Bidding Documents, the Agreement for the Work will be written on AIA Document A101, Standard Form of Agreement Between Owner and Contractor Where the Basis of Payment Is a Stipulated Sum.

SECTION 00 31 32

VENTILATION SURVEY – REDFORD UNION HIGH SCHOOL

REDFORD UNION MECHANICAL/ELECTICAL IMPROVEMENTS PROJECT

PART 1: GENERAL

1.01 SCOPE

- A. The information on existing ventilation systems was obtained primarily for use in preparing the mechanical design. However, each Contractor shall draw their own conclusions there from. No responsibility is assumed by the Owner or the Architect for subsoil quality or conditions.

1.02 INVESTIGATIONS

- A. A ventilation survey has been made and reports prepared by Enviro-Aire/Total Balance Co., Inc., Job No. 11-56-2410
- B. The locations of the mechanical units are described in the report and shown on the Mechanical Drawings.
- C. A copy of the survey, as well as data obtained pertaining to the original cut-sheets have been attached to this Section.

1.03 CONDITIONS

- A. Information is provided in good faith solely for the purpose of placing each Bidder in receipt of information available to the Owner, and each Bidder is responsible for any conclusions which he draws there from, since the Owner does not guarantee the accuracy or completeness of information obtained herein.
- B. Each Bidder is expected to make their own investigations, to examine the site and record of the Owner's investigations, and then decide for themselves the character of materials to be encountered. Prior to bidding, bidders may conduct their own surveys but such subsurface investigations shall be performed only under arrangements approved in advance by the Architect and Owner.

END OF SECTION 00 31 32

Enviro-Aire / TOTAL BALANCE Co., Inc.

SUMMARY OF BALANCING REPORTS
N.E.B.B. CERTIFIED

PROJECT: *REDFORD UNION HIGH SCHOOL*
LOCATION: *VENTILATION SURVEY*
REDFORD, ME.

ARCHITECT: *—*

ENGINEER: *WOLD*

CONTRACTOR: *—*

TESTS WERE EVALUATED BY:

TESTS WERE PERFORMED BY: *J. GUILLETTE*

OUR JOB NO. *11-SC-2410*

INDEX NUMBER	SYSTEM DESCRIPTION	
SUM	<i>FIELD SUMMARY.</i>	<i>12-P.</i>
1	<i>HV-1</i>	<i>1-P.</i>
2	<i>HV-2</i>	<i>2-P.</i>
3	<i>HV-3</i>	<i>3-P.</i>
4	<i>HV-4</i>	<i>1-P.</i>
5	<i>HV-5</i>	<i>1-P.</i>
6	<i>HV-6</i>	<i>2-P.</i>
7	<i>HV-7</i>	<i>1-P.</i>
8		
9		
10		
11		
12		

REDFORD UNION H.S.
VENTILATION SURVEY

FIELD SUMMARY

HV-1: • UNIT NOT RUNNING AT TIME OF TESTING.
AIR FLOWS COULD NOT BE OBTAINED.

HV-3: • DRIVE BELTS ARE LOOSE AND SLIPPING.
NO MORE MOTOR ADJUSTMENT LEFT.
• ELECTRICAL COVER MISSING ON MOTOR.
• FAN IS MAKING ALOT OF NOISE, POSSIBLE
BAD FAN BEARINGS.

HV-4: • UNIT NOT RUNNING AT TIME OF TESTING,
AIR FLOWS COULD NOT BE OBTAINED.
• DRIVE BELT IS MISSING.
• TORN FLEX DUCT CONNECTOR AT FAN DISCHARGE.
• FAN WHEEL LOCKED UP AND WON'T SPIN.
• MOTOR DOES NOT SPIN FREELY.

HV-5: • UNIT NOT RUNNING AT TIME OF TESTING,
AIR FLOWS COULD NOT BE OBTAINED.
• OUTSIDE AIR AND RETURN AIR DAMPER LINKAGES
ARE DISCONNECTED.
• SHEAVES ARE RUSTED OVER AND DOES NOT
APPEAR TO HAVE RUN IN SOME TIME.

SUBJECT: _____

Job No. 11-50-2410
Date 5/2/11
By J.G.
Sheet No. 2 of 2

REDFORD UNION H.S.

FIELD SUMMARY CONT'

- HV-6:
- TORN FLEX DUCT CONNECTOR @ FAN DISCHARGE
 - MISSING ONE DRIVE BELT.
 - CRACKED BUSHING AND FAN SHEAVE.
 - MOTOR SHEAVE BADLY WORN.
 - FAN WAS TESTED @ 45Hz OUTPUT AS VFD AS FOUND. AN ATTEMPT TO TEST FAN AT 60Hz WAS CONDUCTED DUE TO MISSING BELT AND CRACKED BUSHING. CALCULATED FLOW AT 60Hz WITH MINORAL BELT SLIPPAGE = 11,672 CFM @ 248 FRPM.
- HV-7:
- UNIT NOT RUNNING AT TIME OF TESTING. AIR FLOWS COULD NOT BE OBTAINED.

Air Handling Equipment Test Data Sheet

Building: REDFORD UNION H.S.

System: EXISTING HV-1

Index: /

Page: /

Date: 5/7/11

Fan Number	<u>HV-1</u>				Service	<u>GARLS LOCKER.</u>				
Location	<u>GARLS LOCKER. WEST</u>				Interlocked Equipment	<u>NONE</u>				
	Design Data		Test Results		Testing Data					
Total CFM	<u>SURVEY ONLY</u>		*		Fan Static Pressures					
Minimum O.A.	↓		*		Fan Suction	*	Fan Disch.	**		
T.Sp./E.Sp.	↓		* *		Component Pressure Drops					
Fan RPM	↓		*		Pre-Filter	H.E.F.	Clg. Coil	Htg. Coil	Final Filter	
Brake Hspwr.	↓		*		*	—	—	*	—	
Test Condition Configuration	R.A. Damper	O.A. Damper	Rel. Damper	Vortex/ VFD	Other Pressure Drops					
	<u>NONE</u>	<u>100%</u>	—	—	—	—	—	—	—	

Additional Field Testing Data

Fan Data				Motor Data			
Manufacturer	<u>AMERICAN BLOWER</u>			Mtr. Manuf.	<u>DAYTON</u>		
Model No.	<u>SIZE: 1V10</u>			H.P./Amps	<u>1/2</u>	<u>2.0</u>	
Type / Size	—			Ph./Cy./Volt	<u>3</u>	<u>60</u>	<u>208/220</u>
Class/Ser.No.	— C			Frame/RPM	<u>NOT LISTED</u>		<u>1725</u>
Drive Data				S.F./P.F./Eff.	<u>1.0</u>	<u>NOT LISTED.</u>	
	Fan	fixed	Motor	Electrical Test Data			
Sheave Size	<u>7/4" O.D.</u>		<u>VP 4" O.D</u>	Ph. 1	Ph. 2	Ph. 3	
Shaft Size	<u>1 3/16"</u>		<u>5/8"</u>	Oper. Amps	*	*	*
Belt Size	<u>1-4L550</u>			Oper. Volts	*	*	*
Ctr. to Ctr.	<u>19 1/2"</u>			O'load Size	—	<u>THERM. PROTECTED</u>	
Motor Adj.	Plus:	<u>3"</u>	Minus:	<u>0</u>			

Notes / Schematics

* = UNIT NOT RUNNING.
 ** = NO EXTERNAL DISCHARGE DUCT.



Air Handling Equipment Test Data Sheet

Building: REDFORD UNION H.S.

System: EXISTING HV-2

Index: 2

Page: 1

Date: 5/7/11

Fan Number	<u>HV-2</u>				Service	<u>Boys-Swim Locker.</u>								
Location	<u>Boys Swim Locker</u>				Interlocked Equipment	<u>None</u>								
Design Data			Test Results		Testing Data									
Total CFM	<u>Survey Only</u>		<u>255</u>		Fan Static Pressures									
Minimum O.A.	↓		<u>255</u>		Fan Suction	<u>-.27"</u>	Fan Disch.	<u>*</u>						
T.Sp./E.Sp.	↓		<u>.27"</u>		Component Pressure Drops									
Fan RPM	↓		<u>607</u>		Pre-Filter	<u>.011"</u>	H.E.F.	<u>-</u>	Clg. Coil	<u>-</u>	Htg. Coil	<u>.234"</u>	Final Filter	<u>-</u>
Brake Hspwr.	↓		<u>.364</u>		Other Pressure Drops									
Test Condition Configuration	R.A. Damper	O.A. Damper	Rel. Damper	Vortex/ VFD										
	<u>None</u>	<u>100%</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	

Additional Field Testing Data

Fan Data					Motor Data				
Manufacturer	<u>AMERICAN BLOWER</u>				Mtr. Manuf.	<u>LEESON</u>			
Model No.	<u>SIZE: 1V10</u>				H.P./Amps	<u>1/2</u>	<u>2.0-2.2</u>		
Type / Size	<u>-</u>				Ph./Cy./Volt	<u>3</u>	<u>60</u>	<u>208-230</u>	
Class/Ser.No.	<u>-</u>				Frame/RPM	<u>LS56</u>		<u>1725</u>	
Drive Data					S.F./P.F./Eff.	<u>1.25</u>	<u>68</u>	<u>75</u>	
	Fan	fixed	Motor	<u>MIN.</u>	Electrical Test Data				
Sheave Size	<u>7 1/4" O.D.</u>		<u>VP 3 3/4" O.D.</u>		Ph. 1	Ph. 2	Ph. 3		
Shaft Size	<u>1 3/16"</u>		<u>5/8"</u>		Oper. Amps	<u>1.5</u>	<u>1.5</u>	<u>1.5</u>	<u>±5</u>
Belt Size	<u>1-4LS60</u>				Oper. Volts	<u>245</u>	<u>245</u>	<u>246</u>	<u>245-33</u>
Ctr. to Ctr.	<u>20 1/4"</u>				O'load Size	<u>-</u>			
Motor Adj.	Plus:	<u>1 1/2"</u>	Minus:	<u>1"</u>	<u>THERM. PROTECTED</u>				

Notes / Schematics

* NO EXTERNAL DISCHARGE DUCT.



Enviro-Aire, Inc.

FACE  Velocity Sheet

Volume CFM	Velocity FPM	Design Data			Overall Area	K Factor	(AK) Corrected Free Area	Actual Test Data				Volume		
		Opening Size	H	W				Max	Min	Avg				
245	---	13"	11 1/2"	1.04	0	1.04	13	14	15	16	17	18	19	20
Test Equipment: Shortridge Velgrid or Rotating Vane Anemometer														
Test Location: FAN DISCHARGE.														
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														
13														
14														
15														

Remarks:

Building: Redford Union H.S.

System: AV-2

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Air Handling Equipment Test Data Sheet

Building: REDFORD UNION H.S.

System: EXISTING HV-3

Index: 3

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Date: 5/2/11

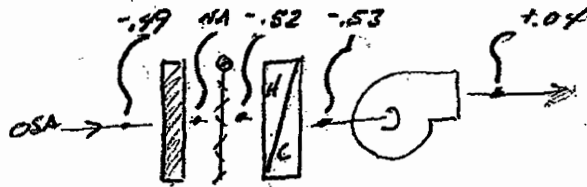
Fan Number	<u>HV-3</u>				Service	<u>—</u>			
Location	<u>BOILER ROOM</u>				Interlocked Equipment	<u>None</u>			
	Design Data		Test Results		Testing Data				
Total CFM	<u>SURVEY ONLY</u>		<u>798</u>		Fan Static Pressures				
Minimum O.A.			<u>798</u>		Fan Suction	<u>- .53"</u>	Fan Disch.	<u>+ .04</u>	
T.Sp./E.Sp.			<u>.57"</u>	<u>—</u>	Component Pressure Drops				
Fan RPM			<u>480</u>		Pre-Filter	H.E.F.	Clg. Coil	Htg. Coil	Final Filter
Brake Hspwr.	<u>✓</u>		<u>1.13</u>		<u>*.03</u>	<u>—</u>	<u>—</u>	<u>.01"</u>	<u>—</u>
Test Condition Configuration	R.A. Damper	O.A. Damper	Rel. Damper	Vortex/ VFD	Other Pressure Drops				
	<u>None</u>	<u>100%</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>

Additional Field Testing Data

Fan Data				Motor Data			
Manufacturer	<u>AMERICAN STANDARD</u>			Mtr. Manuf.	<u>RELANCE</u> <u>382</u>		
Model No.	<u>SIZE: 1V18</u>			H.P./Amps	<u>1.5</u>	<u>4.2 - 2.1</u>	
Type / Size	<u>—</u>	<u>—</u>		Ph./Cy./Volt	<u>3</u>	<u>60</u>	<u>230/460</u>
Class/Ser.No.	<u>—</u>	<u>11</u>		Frame/RPM	<u>FC145T</u>		<u>1730</u>
Drive Data				Electrical Test Data			
	Fan	fixed	Motor		Ph. 1	Ph. 2	Ph. 3
Sheave Size	<u>1 1/2" (2-GRAND)</u>		<u>2VP50</u>				
Shaft Size	<u>1 1/8"</u>		<u>7/8"</u>	Oper. Amps	<u>2.9</u>	<u>2.9</u>	<u>3.1</u>
Belt Size	<u>2 - AP79</u>			Oper. Volts	<u>245</u>	<u>246</u>	<u>247</u>
Ctr. to Ctr.	<u>25 1/2"</u>			O'load Size	<u>A.B. 125 (5.74 AMPS)</u>		
Motor Adj.	Plus:	<u>0"</u>	Minus:	<u>4"</u>			

Notes / Schematics

✓ PRESSURE LOSS INCLUDES BOTH DAMPER AND FILTER.
BELTS ARE LOOSE AND SLIPPING, NO MORE MOTOR ADJUST LEFT.
ELECTRICAL COVER MISSING ON MOTOR.
FAN MAKING A LOT OF NOISE, NO ACCESS TO INSPECT FAN.



Enviro-Aire, Inc.

FACE Velocity Sheet

Design Data				Actual Test Data																					
Volume	Velocity	Duct Size:		Overall Area	K Factor	(AK) Corrected Free Area	Velocity Readings			Volume															
CFM	FPM	H	W				Max	Min	Avg.																
—	—	16 1/2'	29'	3.32	0.5	3.32			240	798	DUCT AT INTAKE 1600.														
Test Equipment:		Shortridge Velgrid or Rotating Vane Anemometer																							
		Test Location																							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20						
ADD 279																									
2																									
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12																									
13																									
14																									
15																									

Remarks:

Building: Reynolds Union H.S.

System: AV-3

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Air Handling Equipment Test Data Sheet

Building: REDFORD UNION H.S.

System: EXISTING HV-4

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Date: 5/7/11

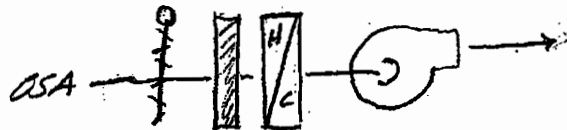
Fan Number	<u>HV-4</u>				Service	<u>—</u>			
Location	<u>BOILER ROOM</u>				Interlocked Equipment	<u>NONE</u>			
Design Data		Test Results		Testing Data					
Total CFM	<u>SURVEY ONLY</u>		*		Fan Static Pressures				
Minimum O.A.	↓		*		Fan Suction	*	Fan Disch.	*	
T.Sp./E.Sp.	↓		*	*	Component Pressure Drops				
Fan RPM	↓		*		Pre-Filter	H.E.F.	Clg. Coil	Htg. Coil	Final Filter
Brake Hspwr.	↓		*		*	—	—	*	—
Test Condition Configuration	R.A. Damper	O.A. Damper	Rel. Damper	Vortex/ VFD	Other Pressure Drops				
	<u>NONE</u>	<u>100%</u>	—	—	—	—	—	—	—

Additional Field Testing Data

Fan Data				Motor Data			
Manufacturer	<u>AMERICAN BLOWER</u>			Mtr. Manuf.	<u>G.E.</u>		
Model No.	<u>1VID</u>			H.P./Amps	<u>1/2</u>	<u>1.9 / 1.95</u>	
Type / Size	—			Ph./Cy./Volt	<u>60</u>		<u>208-230 / 460</u>
Class/Ser.No.	<u>— C</u>			Frame/RPM	<u>56</u>	<u>1725</u>	
Drive Data				S.F./P.F./Eff.	<u>1.25</u>	<u>NOT LISTED</u>	
	Fan	fixed	Motor	Electrical Test Data			
			<u>MED</u>		Ph. 1	Ph. 2	Ph. 3
Sheave Size	<u>7 1/4" O.D.</u>		<u>1V240</u>	Oper. Amps	*	*	*
Shaft Size	<u>1/8"</u>		<u>5/8</u>	Oper. Volts	*	*	*
Belt Size	<u>MISSING</u>			O'load Size	<u>— THERM. PROTECTED</u>		
Ctr. to Ctr.	<u>19 1/4"</u>						
Motor Adj.	Plus:	<u>2"</u>	Minus:	<u>1/2"</u>			

Notes / Schematics

* = UNIT NOT RUNNING
 DRIVE BELTS MISSING
 TORN FLEX DUCT CONNECTOR AT FAN DISCHARGE.
 FAN WHEEL LOCKED UP
 MOTOR DOES NOT SPIN FREELY.



Air Handling Equipment Test Data Sheet

Building: REDFORD UNION H.S.

System: EXISTING HV-5

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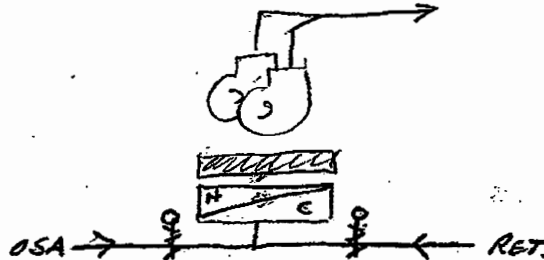
Fan Number	<u>HV-5</u>				Service				
Location	<u>UPPER LEVEL</u>				Interlocked Equipment	<u>—</u>			
	Design Data		Test Results		Testing Data				
Total CFM	<u>SURVEY ONLY</u>		*		Fan Static Pressures				
Minimum O.A.	↓		*		Fan Suction	*	Fan Disch.	* *	
T.Sp./E.Sp.	↓		* *		Component Pressure Drops				
Fan RPM	↓		*		Pre-Filter	H.E.F.	Clg. Coil	Htg. Coil	Final Filter
Brake Hspwr.	↓		*		*	—	—	*	—
Test Condition Configuration	R.A. Damper	O.A. Damper	Rel. Damper	Vortex/ VFD	Other Pressure Drops				
	<u>100%</u>	<u>0%</u>	—	—	—	—	—	—	—

Additional Field Testing Data

Fan Data				Motor Data			
Manufacturer	<u>AMERICAN BLOWER</u>			Mtr. Manuf.	<u>G.E.</u>		
Model No.	<u>2V12</u>			H.P./Amps	<u>1/2</u>	<u>4.8/24</u>	
Type / Size	<u>2 FANS</u>			Ph./Cy./Volt	<u>3</u>	<u>60</u>	<u>208-220</u> <u>440</u>
Class/Ser.No.	—			Frame/RPM	<u>184</u>		<u>1730</u>
Drive Data				S.F./P.F./Eff.	<u>1.2</u> <u>Not LISTED</u>		
	Fan	fixed	Motor	Electrical Test Data			
			<u>MFD</u>		Ph. 1	Ph. 2	Ph. 3
Sheave Size	<u>AR 104</u>		<u>1VM 50</u>	Oper. Amps	*	*	*
Shaft Size			<u>7/8"</u>	Oper. Volts	*	*	*
Belt Size	<u>1- AP67</u>			O'load Size	<u>—</u> <u>THERM. PROTECTED</u>		
Ctr. to Ctr.	<u>23 1/4</u>						
Motor Adj.	Plus:	<u>0</u>	Minus:	<u>3"</u>			

Notes / Schematics

- * = UNIT NOT RUNNING.
- OUTSIDE AIR AND RETURN AIR DAMPER LINKAGES DISCONNECTED
- SHEAVES RUSTED, DOES NOT APPEAR TO HAVE RUN IN A LONG TIME.



Air Handling Equipment Test Data Sheet

Building: REDFORD UNION H.S.
 System: EXISTING HV-6

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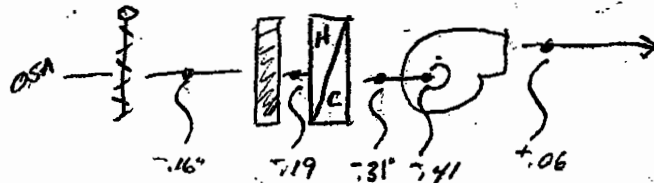
Fan Number	<u>HV-6</u>			Service	<u>SWIMMING POOL</u>			
Location	<u>UPPER LEVEL</u>			Interlocked Equipment	<u>NONE</u>			
	Design Data		Test Results		Testing Data			
Total CFM	<u>SURVEY ONLY</u>		<u>7766</u>		Fan Static Pressures			
Minimum O.A.	↓		<u>7766</u>		Fan Suction	<u>-.41</u>	Fan Disch.	<u>+06</u>
T.Sp./E.Sp.	↓		<u>.47</u>		Component Pressure Drops			
Fan RPM	↓		<u>165</u>		Pre-Filter	<u>H.E.F.</u>	Clg. Coil	Htg. Coil
Brake Hspwr.	↓		<u>4.94</u>		<u>.03"</u>	<u>-</u>	<u>-</u>	<u>.12"</u>
Test Condition Configuration	R.A. Damper	O.A. Damper	Rel. Damper	Vortex/VFD	Other Pressure Drops			
	<u>NONE</u>	<u>100%</u>	<u>-</u>	<u>45Hz</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>

Additional Field Testing Data

Fan Data				Motor Data			
Manufacturer	<u>AMERICAN BLOWER</u>			Mtr. Manuf.	<u>LEESON</u>		
Model No.	<u>SIZE: 440</u>			H.P./Amps	<u>7.5</u>	<u>21-20/10</u>	
Type / Size	<u>-</u>			Ph./Cy./Volt	<u>3</u>	<u>60</u>	<u>208-230/460</u>
Class/Ser.No.	<u>- 440-25</u>			Frame/RPM	<u>213T</u>	<u>1750</u>	
Drive Data				Electrical Test Data			
	Fan	fixed	Motor		Ph. 1	Ph. 2	Ph. 3
Sheave Size	<u>30 1/2" D. (3-GROOVE)</u>		<u>4 1/4" D. (3-GROOVE)</u>	Oper. Amps	<u>12.6</u>	<u>12.4</u>	<u>12.2</u>
Shaft Size	<u>SFG 2 3/16"</u>		<u>1 3/8"</u>	Oper. Volts	<u>244</u>	<u>244</u>	<u>245</u>
Belt Size	<u>2 - B136</u>			O'load Size	<u>VFD</u>	<u>INT. PROTECTED</u>	
Ctr. to Ctr.	<u>40 1/2</u>						
Motor Adj.	Plus:	<u>1"</u>	Minus:	<u>3"</u>			

Notes / Schematics

TORN FLEX DUCT CONNECTOR AT FAN DISCHARGE
2 OUT OF 3 BELTS INSTALLED.
CRACKED BUSHING ON FAN PULLEY
MOTOR SHEAVE BADLY WORN. BELTS ARE SLIPPING.
MOTOR RPM = 1335
CALCULATED FLOW @ 60HZ w/ MINOR BELT SLIPAGE = 11,672 CFM @ 248 RPM



248

CASE 186 FRPM

248
 11/6
 08/1
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Air Handling Equipment Test Data Sheet

Building: REDFORD UNION H.S.

System: EXISTING HV-7

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Date: 5/7/11

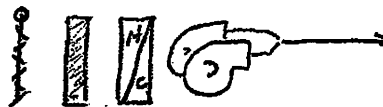
Fan Number	<u>HV-7</u>			Service	<u>POOL LOFT</u>				
Location	<u>SPORTS STORAGE</u>			Interlocked Equipment	<u>NONE</u>				
	Design Data		Test Results		Testing Data				
Total CFM	<u>SURVEY ONLY</u>		*		Fan Static Pressures				
Minimum O.A.	↓		*		Fan Suction	*	Fan Disch.	*	
T.Sp./E.Sp.	↓		*	*	Component Pressure Drops				
Fan RPM	↓		*		Pre-Filter	H.E.F.	Clg. Coil	Htg. Coil	Final Filter
Brake Hspwr.	↓		*		-	*	-		-
Test Condition Configuration	R.A. Damper	O.A. Damper	Rel. Damper	Vortex/ VFD	Other Pressure Drops				
	<u>100%</u>	<u>Ø</u>	<u>-</u>	<u>-</u>	-	-	-	-	-

Additional Field Testing Data

Fan Data				Motor Data			
Manufacturer	<u>AMERICAN BLOWER</u>			Mtr. Manuf.	<u>G.E.</u>		
Model No.	<u>SIZE: 2V12</u>			H.P./Amps	<u>1.0</u>	<u>3.6</u>	
Type / Size	<u>(2) FANS</u>			Ph./Cy./Volt	<u>3</u>	<u>60</u>	<u>208-220</u>
Class/Ser.No.	<u>- C</u>			Frame/RPM	<u>182</u>	<u>1730</u>	
Drive Data				S.F./P.F./Eff.	<u>1.25</u>	<u>NOT LISTED.</u>	
	Fan	fixed	Motor	Electrical Test Data			
			<u>MIN.</u>		Ph. 1	Ph. 2	Ph. 3
Sheave Size	<u>10 1/2" O.D.</u>		<u>VP 5.0" O.D.</u>	Oper. Amps	*	*	*
Shaft Size	<u>1 3/16"</u>		<u>7/8"</u>	Oper. Volts	*	*	*
Belt Size	<u>1" FHP V-BELT 20</u>			O'load Size	-	<u>THERM PROTECTED</u>	
Ctr. to Ctr.	<u>22 1/2"</u>						
Motor Adj.	Plus:	<u>1 1/2"</u>	Minus:	<u>1 1/2"</u>			

Notes / Schematics

* = UNIT NOT RUNNING.



AMERICAN SIROCCO FAN • SERIES 81 • CLASS I AND II

SERIES 81
CLASS I AND II

440 SIROCCO FAN

SINGLE INLET
SINGLE WIDTH

OUTLET { 48 1/2" x 34 1/2" Outside
Area 11,400 sq. ft. Inside

WHEEL { 44" diameter
11.52 ft. circumference

INLET { 50" diameter Outside
Area 13,499 sq. ft. Inside

CLASS I RATING BLACK ON WHITE
CLASS II RATING BLACK ON BLUE

WHEEL PERIPHERAL VELOCITY
11.52 X R.P.M. = F.P.M.

CFM	Outlet Velocity	Outlet Velocity Pressure	1/4" S.P.		3/8" S.P.		1/2" S.P.		5/8" S.P.		3/4" S.P.		7/8" S.P.		1" S.P.		1 1/4" S.P.		1 1/2" S.P.			
			RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
9120	800	.040	116	.57	139	.81	161	1.21	180	1.66	197	2.18	213	2.79	227	3.17	254	4.24	282	5.03	308	6.36
10260	900	.061	119	.66	141	.83	161	1.21	180	1.66	197	2.18	213	2.79	227	3.17	254	4.24	282	5.03	308	6.36
11400	1000	.068	121	.81	142	1.08	162	1.36	181	1.87	197	2.18	213	2.79	227	3.17	254	4.24	282	5.03	308	6.36
12540	1100	.076	124	.96	145	1.25	164	1.62	181	1.87	197	2.18	213	2.79	227	3.17	254	4.24	282	5.03	308	6.36
13680	1200	.090	127	1.15	147	1.43	165	1.75	182	2.08	198	2.42	213	2.79	227	3.17	254	4.24	282	5.03	308	6.36
14820	1300	.106	130	1.36	151	1.63	169	1.99	184	2.33	200	2.70	214	3.09	228	3.47	254	4.24	282	5.03	308	6.36
15960	1400	.123	134	1.57	153	1.90	171	2.24	187	2.60	201	2.99	216	3.39	229	3.79	255	4.65	283	5.89	311	7.38
17100	1500	.141	139	1.87	156	2.20	173	2.51	190	2.91	203	3.32	218	3.74	231	4.15	256	5.03	279	6.36	317	8.01
18240	1600	.160	145	2.18	160	2.42	177	2.85	193	3.26	205	3.68	219	4.09	232	4.56	257	5.42	280	6.36	317	8.01
19380	1700	.181	151	2.57	164	2.85	180	3.26	198	3.63	209	4.08	222	4.50	234	4.98	258	5.89	281	6.36	317	8.01
20520	1800	.203	156	2.97	169	3.27	183	3.69	199	4.05	211	4.51	225	4.92	236	5.44	259	6.38	282	7.38	317	8.01
21660	1900	.226	163	3.38	173	3.62	187	4.12	201	4.53	214	4.98	228	5.41	239	5.95	251	6.89	283	8.01	317	8.01
22800	2000	.250	169	3.82	179	4.21	191	4.60	204	5.05	218	5.47	231	5.95	242	6.47	253	7.51	285	8.01	317	8.01
23940	2100	.274	174	4.33	185	4.81	196	5.18	206	5.59	220	6.18	234	6.60	245	7.05	267	8.14	287	9.28	317	8.01
25080	2200	.303	179	4.86	191	5.44	201	5.77	212	6.20	222	6.78	236	7.11	249	7.69	270	8.80	290	9.28	317	8.01
26220	2300	.331	185	5.42	198	6.07	208	6.48	217	6.84	227	7.32	239	7.77	251	8.35	273	9.47	293	10.64	317	8.01
27360	2400	.360	191	6.05	204	6.71	213	7.25	222	7.60	231	8.07	242	8.59	254	9.19	276	10.22	295	11.35	317	8.01
28500	2500	.391	196	6.71	209	7.35	219	8.07	227	8.35	236	8.84	246	9.41	257	10.05	279	11.01	299	12.24	317	8.01
29640	2600	.423	200	7.40	214	8.04	225	8.59	234	9.16	241	9.71	251	10.25	260	10.91	282	11.86	301	13.13	317	8.01
30780	2700	.456	205	8.17	220	8.93	231	9.74	240	10.19	247	10.68	255	11.15	264	11.79	285	12.77	304	14.12	317	8.01
31820	2800	.490	210	9.01	226	9.83	236	10.59	245	11.22	253	11.65	260	12.04	269	12.67	287	13.92	308	15.09	317	8.01
33060	2900	.526	215	9.93	231	10.79	242	11.53	251	12.37	258	12.73	266	13.19	274	13.73	290	15.07	311	16.31	317	8.01
34200	3000	.563	220	10.88	236	11.80	248	12.55	257	13.09	264	13.59	272	14.49	279	14.87	294	16.24	313	17.60	317	8.01
35340	3100	.601	225	11.91	240	12.79	254	13.67	263	14.76	270	15.09	277	15.82	285	16.06	299	17.48	303	18.87	320	20.02
36480	3200	.640	230	12.98	245	13.82	259	14.91	268	15.61	276	16.28	283	17.17	290	17.48	303	18.87	303	20.02	320	20.02
37620	3300	.681	235	14.12	250	14.94	265	16.12	274	16.85	283	17.55	290	18.51	295	18.97	308	20.12	324	21.21	324	21.21
38760	3400	.723	240	15.31	256	16.21	271	17.33	280	18.08	289	18.96	295	19.84	302	20.64	312	21.35	327	22.68	324	21.21
39900	3500	.766	245	16.56	261	17.55	275	18.53	285	19.42	294	20.39	301	21.29	308	22.04	318	22.08	332	24.28	324	21.21
41040	3600	.810	249	18.08	266	18.90	279	19.87	290	20.92	299	21.86	307	22.74	313	23.68	324	24.65	338	26.03	324	21.21
42180	3700	.856	254	19.30	271	20.47	284	21.44	296	22.41	303	23.36	312	24.20	319	25.40	330	26.94	343	27.79	324	21.21
43320	3800	.903	258	21.84	276	22.04	289	23.01	301	23.90	310	25.01	317	25.77	326	27.04	337	28.68	348	29.61	324	21.21
44460	3900	.951	262	24.83	281	23.61	294	24.70	306	25.55	316	26.92	323	27.62	331	28.76	344	30.85	353	31.37	324	21.21
45600	4000	1.000	267	27.82	286	25.43	299	26.17	311	27.19	320	28.68	329	29.36	337	30.63	349	32.35	358	33.17	324	21.21

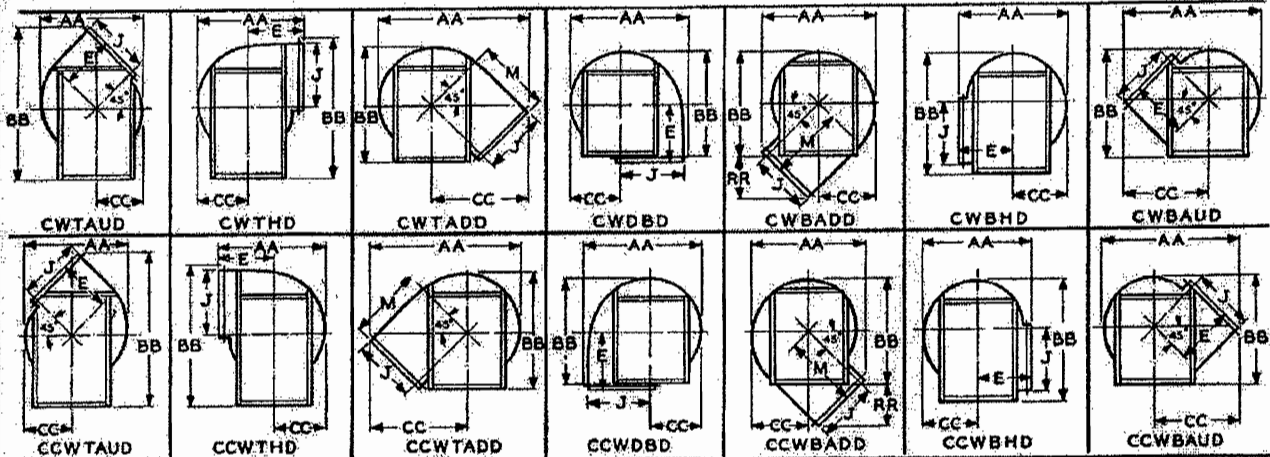
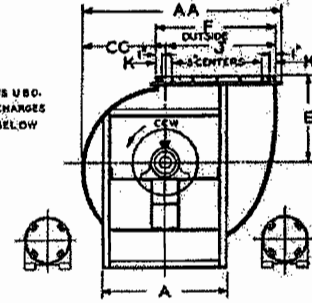
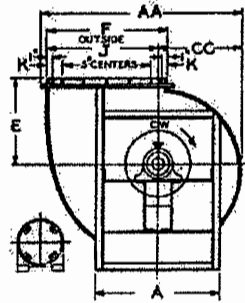
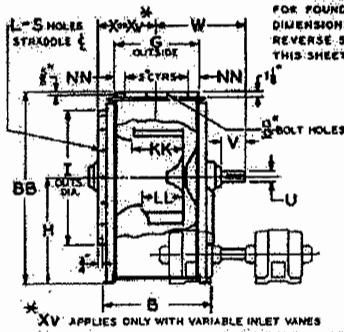
RD-4011-T, and T₂

SEE PAGE 18 FOR GENERAL NOTES.

440 81-SW



AMERICAN SIROCCO FAN SERIES 81



Fan Size	U	KEYWAY	Up Blast Discharge				Top Angular Up Discharge				Top Horizontal Discharge				Top Angular Down Discharge				Down Blast Discharge				Bottom Angular Down Discharge			
			AA	BB	CC	H	AA	BB	CC	H	AA	BB	CC	H	AA	BB	CC	H	AA	BB	CC	H	AA	BB	CC	H
397	1 3/4	3/4 x 1/2	73 3/4	64 1/4	30 3/4	36	64 3/4	80 3/4	28 3/4	36	62 3/4	78 3/4	32 3/4	32	90 3/4	68 3/4	58 3/4	32	73 3/4	61 3/4	30 3/4	27 3/4	65 3/4	50 3/4	80 3/4	28
440	2 1/4	3/4 x 1/2	81	72 1/4	33 3/4	30 3/4	71 3/4	85 1/4	31 3/4	30 3/4	70 3/4	83 3/4	37 3/4	35 3/4	89 3/4	75 3/4	64 3/4	35 3/4	81	69 3/4	33 3/4	31 3/4	72 3/4	62 3/4	40 3/4	27 3/4
486	3 1/4	3/4 x 1/2	89 3/4	79 3/4	36 3/4	43 3/4	79	105 3/4	34 3/4	43 3/4	72 3/4	91 3/4	41 3/4	39	100	83 3/4	70 3/4	39	89 3/4	78 3/4	36 3/4	35	79 3/4	68 3/4	44 3/4	30
537	3 3/4	3/4 x 1/2	98 3/4	88	40 3/4	48	87 3/4	110 3/4	38 3/4	48	83 3/4	100 3/4	49 3/4	43	119 3/4	92	78 3/4	43	89 3/4	84 3/4	40 3/4	38 3/4	87 3/4	74 3/4	49	32
593	2 1/4	3/4 x 3/8	108 3/4	96	45	52 3/4	99 3/4	127 3/4	42 3/4	52 3/4	93 3/4	110 3/4	50 3/4	47	131 3/4	101 3/4	84 3/4	47	108 3/4	92 3/4	45	42 3/4	95 3/4	82 3/4	54 3/4	25 3/4
657	2 3/4	3/4 x 3/8	120 3/4	105 3/4	49 3/4	58	107 3/4	140 3/4	47 3/4	58	109 3/4	122 3/4	55 3/4	52	145 3/4	112	92 3/4	52	120 3/4	101 3/4	49 3/4	48	105 3/4	91 3/4	60	30 3/4
726	3 3/4	3/4 x 3/8	132 3/4	117	55	64	118 3/4	155 3/4	52 3/4	64	114 3/4	135 3/4	61 3/4	57 3/4	159 3/4	123 3/4	101 3/4	57 3/4	132 3/4	113 3/4	55	51 3/4	118 3/4	100 3/4	64 3/4	42 3/4

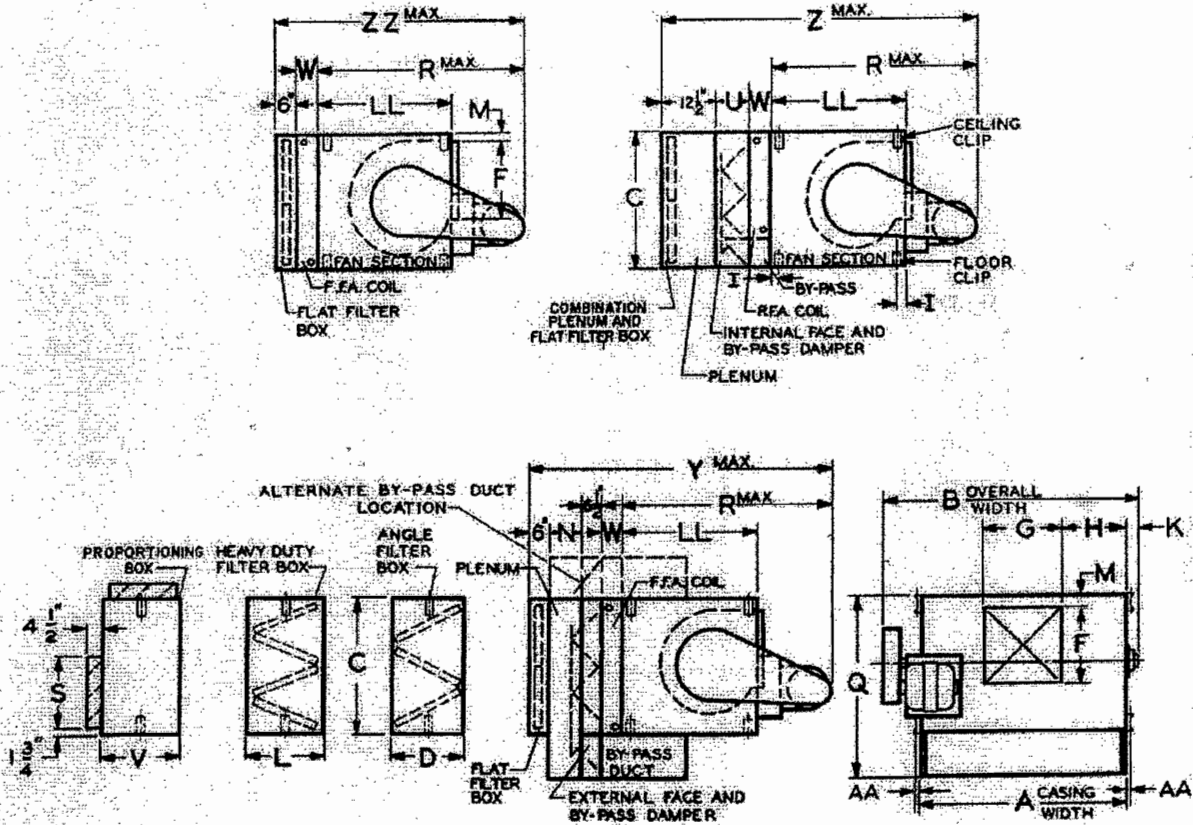
Fan Size	Bottom Horizontal Discharge				Bottom Angular Up Discharge				KK	LL	NN	RR	A	B	E	F	G	I	J	K	L	M	S	V	W	X	Xv
	AA	BB	CC	H	AA	BB	CC	H																			
397	62 3/4	74 3/4	33 3/4	44	81 3/4	68	50 3/4	30 3/4	28 3/4	14 3/4	2 3/4	23 3/4	49 3/4	28 3/4	43 3/4	21 3/4	45 3/4	42	4 3/4	15	40 3/4	3 3/4	6	27 3/4	30 3/4	30 3/4	
440	70 3/4	81 3/4	37 3/4	48 3/4	91 3/4	74 3/4	58 3/4	43	25	16 3/4	2 3/4	30 3/4	51	23	49 3/4	24 3/4	50	40 3/4	4 3/4	10	44 3/4	3 3/4	7	31 3/4	22 3/4	33 3/4	
486	77 3/4	90 3/4	41 3/4	53 3/4	100 3/4	82 3/4	61 3/4	47 3/4	27 3/4	17 3/4	4 3/4	40 3/4	56 3/4	26 3/4	53 3/4	25 3/4	55 3/4	43 3/4	5 3/4	16	48	3 3/4	8	25	24 3/4	35 3/4	
537	85 3/4	99 3/4	45 3/4	59	111 3/4	90 3/4	68 3/4	52	30 3/4	19 3/4	3 3/4	44 3/4	63 3/4	40	58 3/4	28 3/4	60 3/4	49 3/4	6 3/4	18	52	3 3/4	9	28	26 3/4	38 3/4	
593	93 3/4	110	50 3/4	65	123 3/4	100 3/4	76	57 3/4	33 3/4	21 3/4	3 3/4	48 3/4	70 3/4	49 3/4	64 3/4	32 3/4	65 3/4	52 3/4	7 3/4	18	60 3/4	3 3/4	10	31 3/4	29 3/4	41 3/4	
657	103 3/4	121 3/4	55 3/4	71 3/4	135	111 3/4	83 3/4	64	37 3/4	23 3/4	3 3/4	53 3/4	77 3/4	47 3/4	71 3/4	32	72 3/4	59 3/4	8 3/4	20	62	3 3/4	11	34 3/4	32 3/4	47 3/4	
726	114 3/4	131	61 3/4	79	148 3/4	122 3/4	91 3/4	70	41 3/4	25 3/4	3 3/4	58 3/4	84 3/4	53	78 3/4	37 3/4	79 3/4	67 3/4	9 3/4	24	67 3/4	3 3/4	12	38 3/4	34 3/4	51 3/4	

SUPERSEDES SECTION 1A & 3A PAGE 523 ISSUE 2

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**DIMENSIONS
TYPE V**

**HEATING AND VENTILATING UNIT
(HORIZONTAL)**



ALL DIMENSIONS ARE IN INCHES—CERTIFIED DRAWINGS WILL BE FURNISHED ON REQUEST

UNIT SIZE	A	B	C	D	F	R	H	I	K	L	M	N	Q	R	S	U	V	W	Y	Z	AA	LL	ZZ
1V9	41 $\frac{1}{2}$	68 $\frac{3}{8}$	12 $\frac{3}{8}$	18	10 $\frac{1}{2}$	11 $\frac{1}{2}$	14 $\frac{1}{2}$	1 $\frac{1}{2}$	2 $\frac{1}{2}$	22	1 $\frac{1}{2}$	6 $\frac{1}{2}$	27 $\frac{1}{2}$	24 $\frac{1}{2}$	7 $\frac{1}{2}$	10	10 $\frac{1}{2}$	6 $\frac{1}{2}$	62	65 $\frac{1}{2}$	1 $\frac{1}{2}$	17 $\frac{1}{2}$	49
1V12	44 $\frac{1}{2}$	55 $\frac{3}{8}$	23 $\frac{1}{8}$	18 $\frac{1}{2}$	14 $\frac{1}{2}$	15 $\frac{1}{2}$	14 $\frac{1}{2}$	1 $\frac{1}{2}$	3 $\frac{1}{2}$	18 $\frac{1}{2}$	1 $\frac{1}{2}$	6 $\frac{1}{2}$	33 $\frac{1}{2}$	31 $\frac{1}{2}$	12 $\frac{1}{2}$	10	16 $\frac{1}{2}$	6 $\frac{1}{2}$	70 $\frac{1}{2}$	73 $\frac{1}{2}$	1 $\frac{1}{2}$	23 $\frac{1}{2}$	57 $\frac{1}{2}$
1V15	53 $\frac{1}{2}$	64 $\frac{3}{8}$	28 $\frac{1}{8}$	21	18 $\frac{1}{2}$	18 $\frac{1}{2}$	17 $\frac{1}{2}$	1 $\frac{1}{2}$	3 $\frac{1}{2}$	21	1 $\frac{1}{2}$	6 $\frac{1}{2}$	40 $\frac{1}{2}$	37 $\frac{1}{2}$	12 $\frac{1}{2}$	10	16 $\frac{1}{2}$	6 $\frac{1}{2}$	75 $\frac{1}{2}$	79 $\frac{1}{2}$	1 $\frac{1}{2}$	28 $\frac{1}{2}$	62 $\frac{1}{2}$
1V18	59 $\frac{1}{2}$	70 $\frac{3}{8}$	34 $\frac{1}{8}$	18 $\frac{1}{2}$	22 $\frac{1}{2}$	21 $\frac{1}{2}$	21 $\frac{1}{2}$	1 $\frac{1}{2}$	4 $\frac{1}{2}$	24 $\frac{1}{2}$	1 $\frac{1}{2}$	6 $\frac{1}{2}$	46 $\frac{1}{2}$	44 $\frac{1}{2}$	12 $\frac{1}{2}$	10	16 $\frac{1}{2}$	6 $\frac{1}{2}$	82 $\frac{1}{2}$	86 $\frac{1}{2}$	1 $\frac{1}{2}$	34 $\frac{1}{2}$	69 $\frac{1}{2}$

NOTE: F.F.A. Denotes Full Face Area Coil.
R.F.A. Denotes Reduced Face Area Coil.

Parts can be rearranged to meet varying job requirements

FAN CAPACITIES

STANDARD AIR—70° FAHRENHEIT

29.92 Inches Barometer

SIZE UNIT	CFM	OUT-LET VELOCITY	1/8" SP		1/4" SP		3/8" SP		1/2" SP		5/8" SP		3/4" SP		1" SP		1 1/4" SP		1 1/2" SP			
			RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
HV-1 HV-2 HV-8 1V10	985	1000	418	0.05	527	0.08	619	0.11	707	0.14	787	0.17	864	0.22	932	0.25	994	0.29	1111	0.37	1216	0.46
	1180	1200	458	0.08	555	0.12	639	0.14	717	0.18	793	0.21	865	0.26	933	0.30	996	0.33	1112	0.42	1217	0.53
	1380	1400	498	0.11	589	0.15	668	0.19	740	0.22	807	0.26	872	0.30	937	0.34	999	0.39	1114	0.48	1219	0.60
	1580	1600	543	0.16	626	0.20	701	0.24	772	0.27	834	0.32	893	0.36	951	0.40	1007	0.45	1118	0.55	1222	0.66
	1770	1800	588	0.21	667	0.25	737	0.31	800	0.35	863	0.39	919	0.44	975	0.48	1026	0.53	1128	0.64	1226	0.76
2V9	1450	1000	488	0.07	614	0.12	720	0.16	826	0.20	918	0.26	1004	0.31	1089	0.37	1162	0.42	1298	0.55	1421	0.68
	1740	1200	534	0.11	646	0.17	746	0.21	837	0.26	924	0.31	1007	0.38	1080	0.43	1163	0.49	1299	0.62	1422	0.78
	2030	1400	581	0.16	686	0.22	778	0.27	864	0.33	942	0.38	1018	0.44	1093	0.51	1165	0.56	1301	0.71	1423	0.87
	2320	1600	634	0.22	730	0.28	817	0.35	900	0.41	971	0.47	1041	0.54	1110	0.60	1174	0.66	1304	0.81	1425	0.97
	2610	1800	685	0.30	779	0.36	859	0.44	934	0.51	1007	0.57	1071	0.64	1138	0.72	1196	0.77	1315	0.94	1428	1.12
2V10	1970	1000	418	0.11	527	0.16	619	0.21	707	0.27	787	0.34	864	0.43	932	0.50	994	0.58	1111	0.74	1216	0.93
	2360	1200	458	0.16	555	0.22	639	0.28	717	0.35	793	0.42	865	0.50	933	0.59	996	0.67	1112	0.83	1217	1.05
	2760	1400	498	0.21	589	0.30	668	0.37	740	0.44	807	0.51	872	0.59	937	0.69	999	0.78	1114	0.95	1219	1.19
	3160	1600	543	0.31	626	0.39	701	0.47	772	0.55	834	0.63	893	0.71	951	0.81	1007	0.90	1118	1.11	1222	1.32
	3540	1800	588	0.41	667	0.49	737	0.60	800	0.69	863	0.77	919	0.87	975	0.97	1026	1.06	1128	1.28	1226	1.52
HV-5 HV-7 2V12	2540	1000	366	0.13	461	0.20	540	0.27	620	0.35	689	0.44	755	0.54	816	0.63	870	0.75	973	0.96	1064	1.19
	3050	1200	400	0.20	485	0.28	560	0.36	628	0.45	694	0.55	756	0.64	817	0.75	871	0.85	974	1.08	1065	1.35
	3560	1400	436	0.28	515	0.38	584	0.47	649	0.56	707	0.66	764	0.76	820	0.88	873	0.99	975	1.23	1067	1.63
	4060	1600	476	0.38	549	0.50	613	0.61	675	0.71	730	0.81	782	0.92	832	1.04	881	1.16	977	1.42	1069	1.70
	4570	1800	514	0.52	584	0.64	645	0.77	700	0.89	755	1.00	804	1.11	853	1.23	898	1.38	986	1.64	1072	1.96
2V15	3920	1000	293	0.21	368	0.31	433	0.42	495	0.55	553	0.68	605	0.84	653	0.99	697	1.16	776	1.48	853	1.83
	4700	1200	321	0.30	387	0.44	447	0.56	503	0.69	555	0.84	606	0.99	654	1.16	698	1.31	779	1.84	854	2.09
	5490	1400	348	0.43	412	0.60	467	0.73	518	0.86	568	1.02	611	1.18	658	1.36	700	1.52	780	1.89	855	2.35
	6270	1600	380	0.59	439	0.78	490	0.94	540	1.09	583	1.26	625	1.42	665	1.60	705	1.79	782	2.19	856	2.63
	7060	1800	412	0.80	468	0.98	516	1.19	560	1.37	603	1.54	642	1.71	682	1.90	716	2.12	790	2.54	858	3.02
2V18	5560	1000	244	0.30	307	0.45	361	0.61	413	0.80	460	0.99	504	1.22	544	1.43	580	1.67	647	2.14	709	2.65
	6790	1200	267	0.44	323	0.64	374	0.81	419	1.02	463	1.23	505	1.43	545	1.68	581	1.91	648	2.38	710	3.02
	7920	1400	291	0.62	344	0.87	390	1.06	432	1.26	471	1.48	510	1.72	547	1.97	583	2.22	650	2.76	711	3.40
	9060	1600	317	0.86	366	1.13	409	1.36	450	1.59	487	1.82	521	2.06	556	2.34	588	2.60	652	3.19	713	3.83
	10190	1800	343	1.17	380	1.43	431	1.74	468	2.00	504	2.24	537	2.49	569	2.77	599	3.10	658	3.69	716	4.39
3V18	8490	1000	244	0.45	307	0.67	361	0.92	413	1.20	460	1.48	504	1.84	544	2.15	580	2.50	647	3.20	709	2.65
	10190	1200	267	0.67	323	0.96	374	1.20	419	1.53	463	1.84	505	2.15	545	2.52	581	2.87	648	3.57	710	4.53
	11890	1400	291	0.83	344	1.30	390	1.59	432	1.88	471	2.22	510	2.57	547	2.86	583	3.33	650	4.13	711	5.10
	13580	1600	317	1.29	366	1.69	409	2.05	450	2.38	487	2.73	521	3.09	556	3.51	588	3.90	652	4.79	713	5.74
	15280	1800	343	1.75	390	2.14	431	2.60	468	3.00	504	3.37	537	3.72	569	4.16	599	4.65	658	5.63	716	6.59

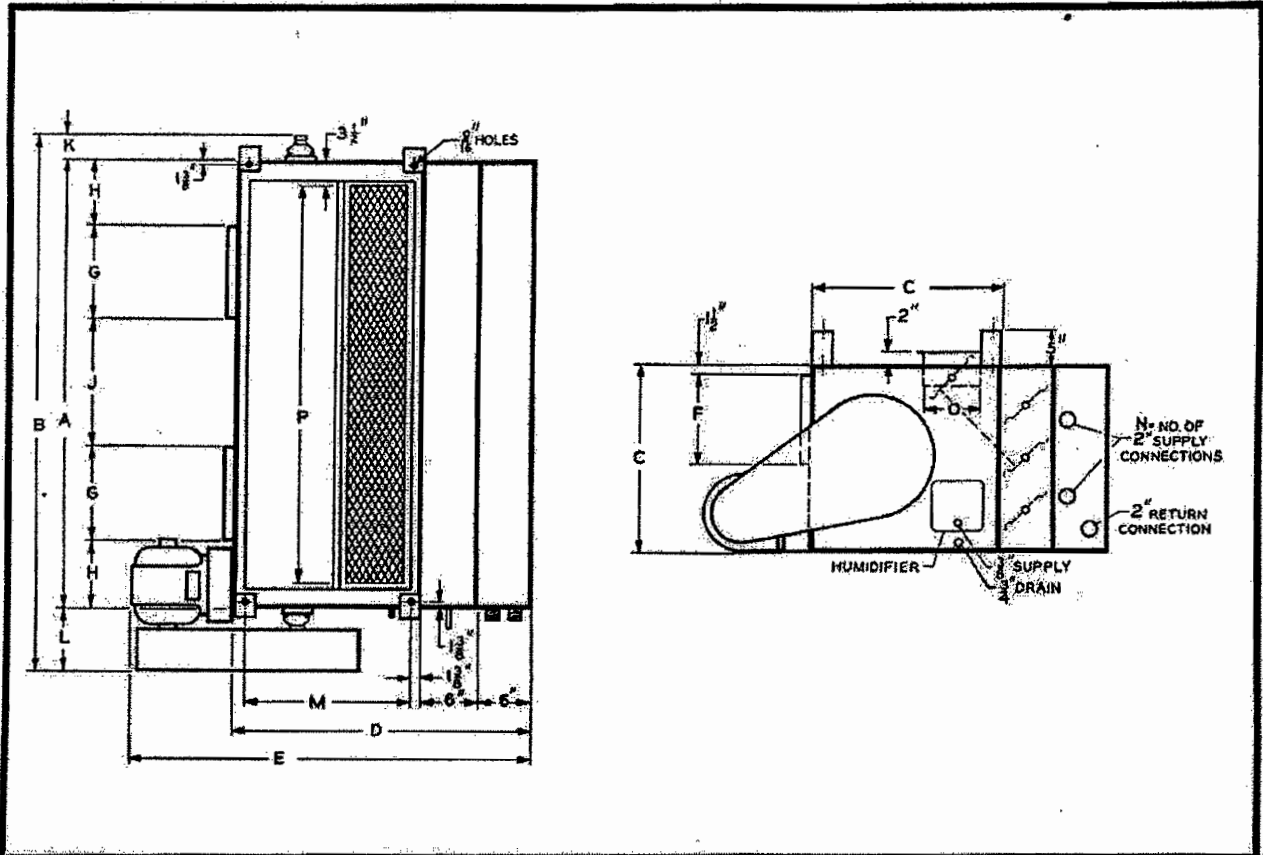
CFM=cubic feet of air per minute measured at 70° F. and 29.92" barometer. SP=static pressure in inches water gauge. Outlet velocity is measured in feet per minute. RPM=revolutions per minute. BHP=brake horsepower.

NUMBER FANS—WHEEL DIAMETER—OUTLET AREA

SIZE UNIT	1V10	2V9	2V10	2V12	2V15	2V18	3V18
Number of Fans	1	2	2	2	2	2	3
Wheel Diameter	10 1/2"	9"	10 1/2"	12"	15"	18"	18"
Outlet Area—Sq. Ft.	0.985	1.45	1.97	2.54	3.92	5.66	8.49

HORIZONTAL SUSPENDED

ARRANGEMENT C



ALL DIMENSIONS ARE IN INCHES.
CERTIFIED DRAWINGS WILL BE FURNISHED ON REQUEST.
*1V10 HAS ONE FAN AND 3V18 HAS THREE FANS.

SIZE UNIT	ALL DIMENSIONS ARE IN INCHES. CERTIFIED DRAWINGS WILL BE FURNISHED ON REQUEST. *1V10 HAS ONE FAN AND 3V18 HAS THREE FANS.																APPROX. SHIPPING WT., LBS.		
	WITHOUT DAMPERS		WITH DAMPERS														WITH-OUT DAMPERS	WITH DAMPERS	
	A	B	C	D	E	D	E	F	G	H	J	K	L	M	N	O	P		
1V10*	32	43½	25¾	31¾	50¾	37¾	56¾	11½	12¾	9¾	2½	8	23	1	8	25	480	580
2V9	46¾	58¼	22¾	28¾	47¾	34¾	53¾	8¾	10¾	8¾	12½	3½	8	20¾	1	8	39¾	570	700
2V10	53¼	64¾	25¾	31¾	50¾	37¾	56¾	11½	12¾	9¾	14	3½	8	23	1	8	46¾	680	830
2V12	60	71½	28½	34½	55	40½	61	12¾	14½	7¾	15½	3½	8	25¾	1	8	53	750	940
2V15	75¾	90	32¾	38¾	59¾	44¾	65¾	15¾	18¾	9¾	18¾	4¼	10	29¾	1	11	68¾	1070	1320
2V18	83¼	97½	41	47	68	53	75	18¾	21¾	8¾	18¾	4¼	10	38¼	2	12	76¼	1490	1790
3V18*	120	131½	41	47	71	53	77	18¾	21¾	9	18¾	11½	38¼	2	12	113	1850	2240

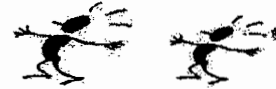


Engineered Fan Services, Inc.

P.O. Box 700212, Plymouth, Michigan 48170

Phone: (734) 453-2597

Fax: (734) 453-3093



Attn: Engineering Service Companies

Subject: American Blower/American Standard Fan & Blower Equipment

We are aware that the facility you are performing services for has or may have an assortment of fans, blowers and related air-handling equipment previously manufactured by the old American Blower Corporation.

You may be aware that American Blower was a longtime division of the American Standard group. In 1981, American Standard divested itself from that particular air-handling business and discontinued, sold off or abandoned many of the American Blower products to the point that it has become very difficult or impossible to locate a source of supply for this old equipment — **this is where we come in...**

I would like to take this opportunity to formally introduce and recommend our company — **Engineered Fan Services, Inc.**, as a source to assist you when **questions or problems** arise with the air-handling equipment manufactured under both the American Blower and American Standard nameplates.

Engineered Fan Services, Inc. was established in 1987. We have the product line knowledge and experience (35 years) to assist in the procurement of many line items (**parts and complete units**) previously manufactured by them. In addition to product, we are able to furnish **catalog data, parts lists** and **technical information** for most of this equipment. Generally, the information required in order for us to assist you can be obtained from the **stamped data** on the nameplate which is normally affixed to the unit.

It would be greatly appreciated if you would advise others at your facility about our ability to assist with the services mentioned above. We look forward to hearing from you.

734 Fax (734) 453-3093	734 Tel (734) 453-2597
EFS	ENGINEERED FAN SERVICES, INC. P.O. BOX 700212 PLYMOUTH, MI 48170-0944
EDWARD PAMULA FAN APPLICATION, PARTS AND SERVICE CONSULTANT	
SPECIALIZING IN AMERICAN BLOWER / AMERICAN STANDARD AFTER MARKET, INDUSTRIAL & COMMERCIAL INSTALLATIONS	

With Regards,
Ed Pamula

SECTION 00 41 13

BID FORM

BID PROPOSAL FOR: REDFORD UNION MECHANICAL/ELECTRICAL IMPROVEMENTS PROJECT

**HIGH SCHOOL
17711 KINLOCH
REDFORD, MICHIGAN 48240**

**MACGOWAN ELEMENTARY
18255 KINLOCH
REDFORD, MICHIGAN 48240**

**STUCKEY CENTER
26000 FARGO
REDFORD, MICHIGAN 48240**

BID TO: Redford Union School District
Central Office Conference Room
19990 Beech Daly Road
Redford, Michigan 48240

BID FROM: _____

We have examined the Contract Documents for the proposed Redford Union Mechanical/Electrical Improvements Project as prepared by Wold Architects and Engineers, Royal Oak, Michigan, and the conditions affecting the work.

In accordance therewith the undersigned proposes to furnish all labor and materials for Construction as set forth in the Contract Documents, including Addenda Nos. _____ issued thereto.

1. Accompanying this proposal is a Bid Security for all work, required to be furnished by Contract Documents, the same being subject to forfeiture in the event of default by the undersigned.
2. I agree to complete the Project, provided a contract is executed within 30 calendar days, by:

Building-Wide Improvements August 30, 2013
Improvements in Boiler Rooms October 4, 2013
3. I understand the Owner reserves the right to reject any or all bids, and it is agreed that this bid may not be withdrawn for a period of thirty (30) days from the opening thereof.

A. Base Bid

1. The Bidder agrees to perform all work including General, Mechanical and Electrical Construction for the Base Bid Sum of:

_____ Dollars \$

B. Alternates

1. The Bidder agrees to add to or deduct from the Base Bid Sum the following amounts to perform the alternate work described in Section 01 23 00, including all associated costs.

a. Alternate No. 1 High School Domestic Water Heater

Add/Deduct _____ Dollars \$ _____

b. Alternate No. 2 Stuckey Center Domestic Water Heaters

Add/Deduct _____ Dollars \$ _____

c. Alternate No. 3 Grooved Mechanical Couplings

Add/Deduct _____ Dollars \$ _____

DATE _____

FIRM NAME _____

OFFICIAL ADDRESS _____

TELEPHONE NUMBER (____) _____

FAX NUMBER (____) _____

BY _____

TITLE _____

END OF SECTION 00 41 13

SECTION 00 41 15

FAMILIAL AFFIDAVIT OF BIDDER

The undersigned, the owner or authorized officer of _____ (the "Bidder"), pursuant to the familial disclosure requirement provided in the Redford Union Schools advertisement for construction bids, hereby represent and warrant, except as provided below, that no familial relationships exist between the owner(s) or any employee of _____ (the "Bidder") and any member of the Board of Education of the School District or the Superintendent of the School District.

List any Familial Relationships:

BIDDER:

By: _____

Its: _____

STATE OF MICHIGAN)
)ss.
COUNTY OF _____)

This instrument was acknowledged before me on the _____ day of _____, 2013, by _____.

), Notary Public

) County, Michigan

My Commission Expires: _____

Acting in the County of: _____

END OF SECTION 00 41 15

SECTION 00 41 16

NON-IRAN LINKED BUSINESS CERTIFICATION

The undersigned, the owner or authorized officer of _____ (the "Bidder"), pursuant to the Iran Economic Sanction Act of 2012, Public Act 517, provided in the Redford Union School District advertisement for construction bids, hereby represent and warrant, that the Bidder is not an Iran Linked Business.

The Act defines an Iran Linked Business as: 1) a person engaging in investment activities in the energy sector of Iran, including a person that provides oil or liquefied natural gas tankers or products used to construct or maintain pipelines used to transport oil or liquefied natural gas for the energy sector of Iran; or 2) a financial institution that extends credit to another person, if that person will use the credit to engage in investment activities in the energy sector of Iran.

If the public entity determines, using credible information available to the public, that a person or entity has submitted a false certification, the public entity must provide written notice to the person or entity of its determination and of its intent not to enter into or renew the contract. The notice must include information on how to contest the determination. The notice must also specify that the individual or entity may become eligible for future contracts with the public entity if the activities that caused it to be an Iran Linked Business are ceased.

BIDDER:

By: _____

Its: _____

STATE OF MICHIGAN)
)ss.
COUNTY OF _____)

This instrument was acknowledged before me on the _____ day of _____, 2013, by _____.

_____, Notary Public
_____ County, Michigan

My Commission Expires: _____

Acting in the County of: _____

END OF SECTION 00 41 16

SECTION 00 45 13

BIDDERS QUALIFICATION

The Contractor's Qualification Statement, AIA Document A305, 1986 is attached hereto.

END OF SECTION 00 45 13



AIA[®] Document A305[™] – 1986

Contractor's Qualification Statement

The Undersigned certifies under oath that the information provided herein is true and sufficiently complete so as not to be misleading.

SUBMITTED TO: Redford Union Schools

ADDRESS: 19990 Beech Daly Road
Redford, Michigan 48240

SUBMITTED BY:

NAME:

ADDRESS:

PRINCIPAL OFFICE:

- Corporation
- Partnership
- Individual
- Joint Venture
- Other

NAME OF PROJECT: *(if applicable)*
Redford Union Mechanical/Electrical
Improvements Project

High School
17711 Kinloch
Redford, Michigan 48240

Macgowan Elementary
18255 Kinloch
Redford, Michigan 48240

Stuckey Center
26000 Fargo
Redford, Michigan 48240

TYPE OF WORK: *(file separate form for each Classification of Work)*

- General Construction
- HVAC
- Electrical
- Plumbing

ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

This form is approved and recommended by the American Institute of Architects (AIA) and The Associated General Contractors of America (AGC) for use in evaluating the qualifications of contractors. No endorsement of the submitting party or verification of the information is made by AIA or AGC.

[] Other: *(Specify)*

§ 1 ORGANIZATION

§ 1.1 How many years has your organization been in business as a Contractor?

§ 1.2 How many years has your organization been in business under its present business name?

§ 1.2.1 Under what other or former names has your organization operated?

§ 1.3 If your organization is a corporation, answer the following:

§ 1.3.1 Date of incorporation:

§ 1.3.2 State of incorporation:

§ 1.3.3 President's name:

§ 1.3.4 Vice-president's name(s)

§ 1.3.5 Secretary's name:

§ 1.3.6 Treasurer's name:

§ 1.4 If your organization is a partnership, answer the following:

§ 1.4.1 Date of organization:

§ 1.4.2 Type of partnership (if applicable):

§ 1.4.3 Name(s) of general partner(s)

§ 1.5 If your organization is individually owned, answer the following:

§ 1.5.1 Date of organization:

§ 1.5.2 Name of owner:

§ 1.6 If the form of your organization is other than those listed above, describe it and name the principals:

§ 2 LICENSING

§ 2.1 List jurisdictions and trade categories in which your organization is legally qualified to do business, and indicate registration or license numbers, if applicable.

§ 2.2 List jurisdictions in which your organization's partnership or trade name is filed.

§ 3 EXPERIENCE

§ 3.1 List the categories of work that your organization normally performs with its own forces.

§ 3.2 Claims and Suits. (If the answer to any of the questions below is yes, please attach details.)

§ 3.2.1 Has your organization ever failed to complete any work awarded to it?

§ 3.2.2 Are there any judgments, claims, arbitration proceedings or suits pending or outstanding against your organization or its officers?

§ 3.2.3 Has your organization filed any law suits or requested arbitration with regard to construction contracts within the last five years?

§ 3.3 Within the last five years, has any officer or principal of your organization ever been an officer or principal of another organization when it failed to complete a construction contract? (If the answer is yes, please attach details.)

§ 3.4 On a separate sheet, list major construction projects your organization has in progress, giving the name of project, owner, architect, contract amount, percent complete and scheduled completion date.

§ 3.4.1 State total worth of work in progress and under contract:

§ 3.5 On a separate sheet, list the major projects your organization has completed in the past five years, giving the name of project, owner, architect, contract amount, date of completion and percentage of the cost of the work performed with your own forces.

§ 3.5.1 State average annual amount of construction work performed during the past five years:

§ 3.6 On a separate sheet, list the construction experience and present commitments of the key individuals of your organization.

§ 4 REFERENCES

§ 4.1 Trade References:

§ 4.2 Bank References:

§ 4.3 Surety:

§ 4.3.1 Name of bonding company:

§ 4.3.2 Name and address of agent:

§ 5 FINANCING

§ 5.1 Financial Statement.

§ 5.1.1 Attach a financial statement, preferably audited, including your organization's latest balance sheet and income statement showing the following items:

Current Assets (e.g., cash, joint venture accounts, accounts receivable, notes receivable, accrued income, deposits, materials inventory and prepaid expenses);

Net Fixed Assets;

Other Assets;

Current Liabilities (e.g., accounts payable, notes payable, accrued expenses, provision for income taxes, advances, accrued salaries and accrued payroll taxes);

Other Liabilities (e.g., capital, capital stock, authorized and outstanding shares par values, earned surplus and retained earnings).

§ 5.1.2 Name and address of firm preparing attached financial statement, and date thereof:

§ 5.1.3 Is the attached financial statement for the identical organization named on page one?

§ 5.1.4 If not, explain the relationship and financial responsibility of the organization whose financial statement is provided (e.g., parent-subsidiary).

§ 5.2 Will the organization whose financial statement is attached act as guarantor of the contract for construction?

§ 6 SIGNATURE

§ 6.1 Dated at this day of

Name of Organization:

By:

Title:

§ 6.2

M being duly sworn deposes and says that the information provided herein is true and sufficiently complete so as not to be misleading.

Subscribed and sworn before me this day of

Notary Public:

My Commission Expires: