

# KD ENGINEERING co.

**MECHANICAL ENGINEERS AND TECHNOLOGISTS**

3735 MYRTLE STREET, BURNABY, B.C. V5C 4E7

## TESTING AND BALANCING ANALYSIS REPORT

**PROJECT:** BCIT - NE08 "Welding Shop System Survey"

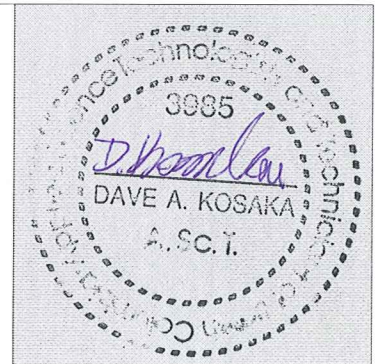
**ARCHITECT:** --- --- ---

**ENGINEER:** --- --- ---

**CLIENT:** B.C.I.T. Accounts Payable

**Certification:**

THE FLUID DISTRIBUTION SYSTEMS REFERENCED IN THIS REPORT HAVE BEEN TESTED AND BALANCED WITH RESPECT TO THE REQUIREMENTS OF THE SPECIFICATIONS. THE RESULTS OF THE SITE TESTS AND ADJUSTMENTS ARE TABULATED WITHIN THIS DOCUMENT.



**KD PROJECT #:** 1110450

**BY:** Dave Kosaka, AScT.

**DATE:** April 4, 2011

**APPROVED BY:**

  
A. TATTO, AScT.

FIELD NOTES

PROJECT: BCIT NE08 Welding Shop System Survey

DATE: April 4, 2011

1. XMUA-1/2/3: Exhaust fans were sped up to maximum motor amperage rating and/or maximum sheave selection.
2. XMUA-5: Exhaust fan was sped up to deliver the original specified design cfm.

# AIR MOVING EQUIPMENT DATA

BCIT NE08 WELDING SHOP SYSTEM SURVEY

PAGE 1 OF 3

DATE: 04/04/2011

REVISION:

TECH: DK

## TESTING AND BALANCING ANALYSIS REPORT

Unit Identification:

Project Number: 1110450

REV: A Date: 25/05/2004

Template Type: Imperial (CFM & in.w.g.)

Template Name: AMOV

K.D. ENGINEERING Co.

TAG	XMUA-1 (SUPPLY)	XMUA-1 (EXHAUST)	XMUA-2 (SUPPLY)
LOCATION	ROOFTOP	ROOFTOP	ROOFTOP
AREA/SYSTEM SERVED	ARC WELDING AREA	ARC WELDING AREA	ARC WELDING AREA
UNIT MAKE	ENG-AIR	ENG-AIR	ENG-AIR
UNIT MODEL	HE402 HMCO	HE402 HMCO	HE501 HMCO
SERIAL NUMBER	8915 MUA1	A29104-1	8915 MUA2
FAN MAKE	LAU	CHICAGO	LAU
FAN MODEL	36/30	36AFDWDI	36/50

Operating Data:

	SPECIFIED	ACTUAL	SPECIFIED	ACTUAL	SPECIFIED	ACTUAL
TOTAL FLOW (CFM)	37620 (*2)	37500 (*2)	36000 (*1)	32600 (*3)	50160 (*2)	47300 (*2)
TOTAL STATIC PRESSURE (in.w.g.)		1.30		4.15		1.37
SUCTION PRESSURE (in.w.g.)		-1.05		-3.90		1.17
DISCHARGE PRESSURE (in.w.g.)		+0.25		+0.25		+0.20
OUTDOOR AIR (%)		100%		---		100%
RETURN AIR (%)		---		---		---
RELIEF AIR (%)		---		---		---

Drive Data:

FAN SHEAVE	4B25.0 QE	5B11.0R	5B9.4 SF
MOTOR SHEAVE	4B64 SD	5B64SK	5TB54
BELT(s)	(4) B136	(5) B124	(5) B124
FAN RPM	455	1045	1005
VP SHEAVE/BLADE ANGLE	FIXED	FIXED	FIXED

Motor Data:

MAKE	ALPAK	ALPAK	ALPAK
SIZE (HP)	30.0	40.0	40.0
MOTOR RPM	1740	1765	1765
VOLTAGE/PHASE	460 / 3	460 / 3	460 / 3
AMPERAGE - NAMEPLATE	36.5	49.5	49.5
AMPERAGE - ACTUAL	22.5 / 22.7 / 23.0	47.0 / 47.0 / 46.0	40.6 / 39.3 / 39.2
FRAME	D286T	D324T	D324T

\* Flow Specified/Determined by: (1)Mechanical Schedule, (2)Inlet/Outlet Total, (3)Pitot Tube Traverse(s), (4) Performance Curve/Chart, (5)Velometer/Anemometer Traverse(s) N/Av = Not Applicable, N/Av = Not Available, N/Av = Not Accessible, D.D. = Direct Driven Fan

# AIR MOVING EQUIPMENT DATA

BCIT NE08 WELDING SHOP SYSTEM SURVEY

PAGE 2 OF 3

DATE: 04/04/2011

REVISION:

TECH: DK

## TESTING AND BALANCING ANALYSIS REPORT

Unit Identification:

Project Number: 1110450

REV: A Date: 25/05/2004

Template Type: Imperial (CFM & in.w.g.)

Template Name: AMOV

K.D. ENGINEERING Co.

TAG	XMUA-2 (EXHAUST)	XMUA-3 (SUPPLY)	XMUA-3 (EXHAUST)
LOCATION	ROOFTOP	ROOFTOP	ROOFTOP
AREA/SYSTEM SERVED	ARC WELDING AREA	ARC WELDING AREA	ARC WELDING AREA
UNIT MAKE	ENG-AIR	ENG-AIR	ENG-AIR
UNIT MODEL	HE501 HMCO	HE402 HMCO	HE402 HMCO
SERIAL NUMBER	A29104-2	8915 MUA3	A29104-3
FAN MAKE	CHICAGO	LAU	CHICAGO
FAN MODEL	40AFDIDW	36/30	36/30

Operating Data:

	SPECIFIED	ACTUAL	SPECIFIED	ACTUAL	SPECIFIED	ACTUAL
TOTAL FLOW (CFM)	48000 (*1)	45800 (*3)	37620 (*2)	35600 (*2)	36000 (*1)	34200 (*3)
TOTAL STATIC PRESSURE (in.w.g.)		4.70		1.40		4.05
SUCTION PRESSURE (in.w.g.)		- 4.45		- 1.18		- 3.80
DISCHARGE PRESSURE (in.w.g.)		+ 0.25		+ 0.22		+0.25
OUTDOOR AIR (%)		---		100%		---
RETURN AIR (%)		---		---		---
RELIEF AIR (%)		---		---		---

Drive Data:

FAN SHEAVE	5B13.6SK	4B25.0 E	5B13.6 SF
MOTOR SHEAVE	5B74SF	4B64 SD	5B74 SF
BELT(s)	(5) B142	(4) B136	(5) B128
FAN RPM	960	440	960
VP SHEAVE/BLADE ANGLE	FIXED	FIXED	FIXED

Motor Data:

MAKE	ALPAK	ALPAK	ALPAK
SIZE (HP)	50.0	30.0	40.0
MOTOR RPM	1765	1740	1765
VOLTAGE/PHASE	460 / 3	460 / 3	460 / 3
AMPERAGE - NAMEPLATE	60.0	36.5	49.5
AMPERAGE - ACTUAL	61.8 / 60.0 / 60.7	24.2 / 24.8 / 24.4	42.0 / 41.0 / 40.0
FRAME	364T	D286T	D324T

\* Flow Specified/Determined by: (1)Mechanical Schedule, (2)Inlet/Outlet Total, (3)Pitot Tube Traverse(s), (4) Performance Curve/Chart, (5)Velometer/Anemometer Traverse(s) N/Av = Not Applicable, N/Av = Not Available, N/Av = Not Accessible, D.D. = Direct Driven Fan

# AIR MOVING EQUIPMENT DATA

BCIT NE08 WELDING SHOP SYSTEM SURVEY

PAGE 3 OF 3

DATE: 04/04/2011

REVISION:

TECH: DK

## TESTING AND BALANCING ANALYSIS REPORT

Unit Identification:

Project Number: 1110450

REV: A Date: 25/05/2004

Template Type: Imperial (CFM & in.w.g.)

Template Name: AMOV

K.D. ENGINEERING Co.

TAG	XMUA-5 (SUPPLY)	XMUA-5 (EXHAUST)	
LOCATION	ROOFTOP	ROOFTOP	
AREA/SYSTEM SERVED	SHOP AREA	OXY-ACETYLENE WELDING AREA	
UNIT MAKE	ENG-AIR	ENG-AIR	
UNIT MODEL	HE301 HMCO	HE301 HMCO	
SERIAL NUMBER	8915 MUA5	A29104-5	
FAN MAKE	LAU	CHICAGO	
FAN MODEL	30/30	33AF DIDW	

Operating Data:

	SPECIFIED	ACTUAL	SPECIFIED	ACTUAL	SPECIFIED	ACTUAL
TOTAL FLOW (CFM)	25020 (*2)	21800 (*3)	16000 (*2)	16160 (*3)		
TOTAL STATIC PRESSURE (in.w.g.)		1.47		3.00		
SUCTION PRESSURE (in.w.g.)		- 1.07		- 2.80		
DISCHARGE PRESSURE (in.w.g.)		+ 0.40		+ 0.20		
OUTDOOR AIR (%)		100%		---		
RETURN AIR (%)		---		---		
RELIEF AIR (%)				---		

Drive Data:

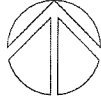
FAN SHEAVE	3B18.4 SK	2B20.0 SF	
MOTOR SHEAVE	3B52 SD	2B94SK	
BELT(s)	(3) B112	(2) B131	
FAN RPM	500	855	
VP SHEAVE/BLADE ANGLE	FIXED	FIXED	

Motor Data:

MAKE	ALPAK	BALDOR	
SIZE (HP)	20.0	20.0	
MOTOR RPM	1735	1735	
VOLTAGE/PHASE	460 / 3	460 / 3	
AMPERAGE - NAMEPLATE	24.0	24.0	
AMPERAGE - ACTUAL	14.2 / 14.4 / 14.6	13.6 / 13.6 / 13.0	
FRAME	D256T	D256T	

\* Flow Specified/Determined by: (1)Mechanical Schedule, (2)Inlet/Outlet Total, (3)Pitot Tube Traverse(s), (4) Performance Curve/Chart, (5)Velometer/Anemometer Traverse(s) N/Av = Not Applicable, N/Av = Not Available, N/Av = Not Accessible, D.D. = Direct Driven Fan

NORTH:



PROJECT:

**BCIT - NE08  
WELDING SHOP EXHAUST SURVEY**

DRAWING:

**BALANCING SCHEMATIC  
LOW - LEVEL**

REV. NOTES DATE

SCALE: N.T.S.

DRAWN: J.A.

DATE: APRIL 4, 2011

APPR:

SEAL:

K.D. PROJ. NO.:

**1110450**

DWG. NO. 1 of 1 REV.

**LEGEND**

- SUPPLY AIR FLOW RATE-ACTUAL (CFM)
- SUPPLY AIR FLOW RATE-DESIGN (CFM)
- SUPPLY AIR DIFFUSER
- EXHAUST AIR GRILLE
- EXHAUST AIR FLOW RATE-ACTUAL (CFM)
- EXHAUST AIR FLOW RATE-DESIGN (CFM)
- SUPPLY AIR DUCT
- EXHAUST AIR DUCT

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