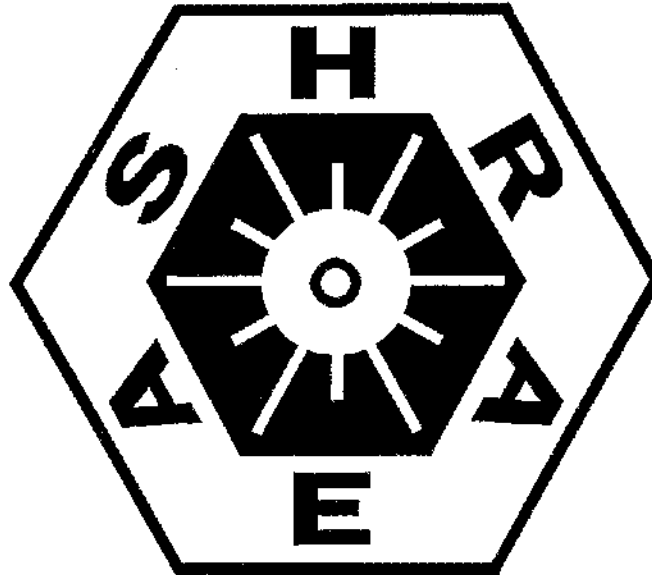


1999-2000 Year End Report

Hampton Roads Chapter



**Chapter's Regional Conference 2000
Region III
Baltimore, Maryland
October 5 – 7, 2000**

Delegate: Kelly S. Mason

Alternate: Timothy A. Patterson

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Section One

Chapter Summary Report

**ASHRAE CRC SUMMARY REPORT
(BASED ON SOCIETY YEAR 1999-2000 PAOE)**

REGION III

CHAPTER HAMPTON ROADS CHAPTER NO 027

CRC LOCATION: BALTIMORE STATE/PROVIDENCE MD

CRC BUSINESS SESSION DATE: OCTOBER, 6 2000

1. MEMBERSHIP PROMOTION

	PREVIOUS YEAR (1998-1999)	CURRENT YEAR* (1999-2000)
NUMBER OF AREA-ASSIGNED MEMBERS	<u>169</u>	<u>186</u>
NUMBER OF CHAPTER DUES-PAYING MEMBERS (MUST BE SOCIETY MEMBER)	<u>123</u>	<u>140</u>
NUMBER OF NEW MEMBERS TO DATE	<u>31</u>	<u>36</u>
NUMBER OF MEMBERS DELINQUENT TO DATE / PERCENTAGE	<u>17</u>	<u>17</u>
NUMBER OF ADVANCEMENTS	<u>1</u>	<u>1</u>
NUMBER OF MEMBERSHIP PROMOTION NIGHTS	<u>2</u>	<u>2</u>
NUMBER OF STUDENT MEMBER UPGRADES	<u>4</u>	<u>1</u>
NUMBER OF CHAPTER MENTORING ACTIVITIES	<u>N/A</u>	<u>0</u>

2. STUDENT ACTIVITIES

	PREVIOUS YEAR (1998-1999)	CURRENT YEAR* (1999-2000)
NUMBER OF DOLLARS CONTRIBUTED TO STUDENT ACTIVITIES	<u>2135</u>	<u>2300</u>
NUMBER OF NEW STUDENT MEMBERS	<u>9</u>	<u>7</u>
NUMBER OF K-12 STUDENT ACTIVITIES IN WHICH ONE OR MORE CHAPTER MEMBERS (OTHER THAN FACULTY ADVISOR) PARTICIPATES INCLUDING SHADOW DAYS, PROGRAMS, TOURS OR PRESENTATIONS TO CLASSES OR STUDENT GROUPS ABOUT ENGINEERING AND/OR RELATED TECHNOLOGIES	<u>6</u>	<u>3</u>
NUMBER OF POST HIGH SCHOOL STUDENT ACTIVITIES IN WHICH ONE OR MORE CHAPTER MEMBERS (OTHER THAN FACULTY ADVISOR) PARTICIPATES INCLUDING SHADOW DAYS, PROGRAMS, TOURS OR PRESENTATIONS TO CLASSES OR STUDENT GROUPS ABOUT ENGINEERING AND/OR RELATED TECHNOLOGIES	<u>N/A</u>	<u>3</u>
NUMBER OF TEACH-INS PER CLASS OR TO A ORGANIZED STUDENT GROUP	<u>0</u>	<u>2</u>
NUMBER OF ACTIVE STUDENT BRANCHES IN WHICH THE FACULTY ADVISOR IS A CHAPTER MEMBER	<u>2</u>	<u>2</u>

CRC SUMMARY REPORTING FORM FOR SPRING AND FALL CRCs – 2000

3. TECHNICAL, ENERGY AND GOVERNMENT ACTIVITIES

	PREVIOUS YEAR (1998-1999)	CURRENT YEAR* (1999-2000)
NUMBER OF CHAPTER TECHNOLOGY AWARD ENTRIES INTO CHAPTER COMPETITION	<u>1</u>	<u>0</u>
NUMBER OF TECHNOLOGY AWARD ENTRIES INTO REGIONAL COMPETITION	<u>1</u>	<u>0</u>
NUMBER OF CHAPTER TECHNOLOGY AWARDED ENTRIES INTO SOCIETY COMPETITION	<u>0</u>	<u>0</u>
NUMBER OF GOVERNMENT AFFAIRS AWARD ENTRIES INTO REGIONAL COMPETITION	<u>0</u>	<u>0</u>
NUMBER OF PRESENTATIONS ON HVAC&R TECHNOLOGY TO A PROFESSIONAL OR BUSINESS GROUP	<u>11</u>	<u>11</u>
NUMBER OF PRESENTATIONS BY AN ASHRAE TECHNICAL COMMITTEE (TC) MEMBER TO THE LOCAL CHAPTER OR PROFESSIONAL ORGANIZATION	<u>N/A</u>	<u>0</u>

4. RESEARCH PROMOTION/FUND RAISING

	PREVIOUS YEAR (1998-1999)	CURRENT YEAR* (1999-2000)
GOAL	\$ <u>8,000</u>	\$ <u>4,985</u>
TOTAL DOLLARS CONTRIBUTED	\$ <u>4,985</u>	\$ <u>5,440</u>
NUMBER OF CONTRIBUTIONS EQUALING PRIOR YEAR RESULTS	\$ <u>31</u>	\$ <u>39</u>
PERCENTAGE OF DOLLARS COLLECTED OF ABOVE PRIOR YEAR RESULTS	\$ <u>104.5%</u>	\$ <u>108.4%</u>
DOLLARS COLLECTED TO ACHIEVE "HIGH FIVE AWARD" (RECOGNIZES CHAPTERS CONSISTENT ACHIEVEMENT)	\$ _____	\$ <u>11,488</u>
DOLLARS COLLECTED TO ACHIEVE "NEW HIGH FIVE AWARD" (RECOGNIZES CHAPTER CHAIRS ACHIEVEMENT)	\$ _____	\$ <u>4,986</u>
DOLLARS COLLECTED TO REACH "CHALLENGE GOAL"	\$ _____	\$ <u>12,062</u>
DOLLARS COLLECTED TO REACH "FULL CIRCLE"	\$ _____	\$ <u>1,100</u>
NUMBER OF RESEARCH PROMOTION NIGHTS OR PROGRAM MEETINGS	<u>2</u>	<u>2</u>

5. REFRIGERATION

	PREVIOUS YEAR (1998-1999)	CURRENT YEAR* (1999-2000)
NUMBER OF HOURS OF CHAPTER TECHNICAL SESSIONS, TECHNICAL SEMINARS, PROGRAMS OR TOURS ON REFRIGERATION	<u>10</u>	<u>5</u>
NUMBER OF REFRIGERATION PRESENTATIONS TO AN OUTSIDE ORGANIZATION	<u>2</u>	<u>3</u>
NUMBER OF REFRIGERATION COURSES FOR CONTINUING EDUCATION	<u>3</u>	<u>1</u>

6. CHAPTER HISTORY

	PREVIOUS YEAR (1998-1999)	CURRENT YEAR* (1999-2000)
CHAPTER HISTORICAL DISPLAY AT CRC	<u>YES</u>	<u>YES</u>
RECEIPT OF SOCIETY GOLD RIBBON AWARD	<u>NO</u>	<u>YES</u>
NUMBER OF LEADERSHIP RECALL INTERVIEWS	<u>2</u>	<u>0</u>
NUMBER OF ARCHIVES INDEXED AND MAINTAINED	<u>1</u>	<u>1</u>

CRC SUMMARY REPORTING FORM FOR SPRING AND FALL CRCs – 2000

7. CHAPTER PROGRAM ACTIVITIES

	PREVIOUS YEAR (1998-1999)	CURRENT YEAR* (1999-2000)
NUMBER OF HOURS OF CHAPTER TECHNICAL SESSIONS, TECHNICAL SEMINARS, PROGRAMS OR TOURS	<u>8.5</u>	<u>4.5</u>
NUMBER OF HVAC&R COURSES FOR CONTINUING EDUCATION (EXCEPT REFRIGERATION)	<u>0</u>	<u>0</u>
CHAPTER MONTHLY MEETING ATTENDANCE (AVERAGE)	<u>34.5</u>	<u>44.1</u>
NUMBER OF PROGRAMS PRESENTED BY A CONSULTING ENGINEER	<u>1</u>	<u>1</u>
NUMBER OF SOCIAL EVENTS HELD SEPARATE FROM A TECHNICAL PROGRAM SUCH AS GOLF TOURNAMENTS, CHRISTMAS PARTY, PICNICS, ETC.	<u>1</u>	<u>1</u>

8. FINANCES

	PREVIOUS YEAR (1998-1999)	CURRENT YEAR* (1999-2000)
RESERVE FUNDS	\$ <u>37,162.48</u>	\$ <u>35,528.44</u>
CURRENT BALANCE	\$ <u>4,596.77</u>	\$ <u>5,270.49</u>
CHAPTER DUES	\$ <u>30.00</u>	\$ <u>30.00</u>
MEMBER COST OF MEALS	\$ <u>18.00</u>	\$ <u>18.00</u>
GUEST COST OF MEALS	\$ <u>20.00</u>	\$ <u>20.00</u>

PACKAGE PLAN? NO

GIVE DETAILS: _____

DESCRIPTION OF OTHER SOURCES OF INCOME:

1. ANNUAL GOLF OUTING
2. 50/50 RAFFLE AT EACH MONTHLY MEETING
3. SOCIAL SPONSORSHIPS FOR MONTHLY MEETINGS

DESCRIPTION OF SPECIAL PROJECTS OR PROGRAMS FUNDED:

SCHOLARSHIPS PROGRAM WHICH AWARDS SCHOLARSHIPS TO STUDENTS AT
OLD DOMINION UNIVERSITY AND TIDEWATER COMMUNITY COLLEGE.

CRC SUMMARY REPORTING FORM FOR SPRING AND FALL CRCs – 2000

9. CRC MOTIONS (ATTACH TO REPORT USING APPROPRIATE FORM)

10. CHAPTER PROBLEMS

1. GETTING THE MEMBERS MORE INVLOVED WITH THE BOARD, COMMITTEES, AND ACTIVITIES.

11. CHAPTER INNOVATIONS AND SUGGESTIONS

12. PAOE POINTS

	PREVIOUS YEAR (1998-1999)	CURRENT YEAR* (1999-2000)
MEMBERSHIP PROMOTION	<u>1489</u>	<u>1657</u>
CHAPTER PROGRAMS	<u>775</u>	<u>525</u>
RESEARCH PROMOTION	<u>253</u>	<u>470</u>
STUDENT ACTIVITIES	<u>500</u>	<u>500</u>
HISTORICAL ACTIVITIES	<u>200</u>	<u>350</u>
TECHNICAL, ENERGY & GOVERNMENT ACTIVITIES	<u>500</u>	<u>500</u>
REFRIGERATION	<u>700</u>	<u>700</u>
CRC ATTENDANCE	<u>(PRES ACT . 400)</u>	<u>150</u>
TOTAL	<u>5117</u>	<u>4852</u>

ATTACHMENTS:

1. CRC ACTION ITEMS (MOTIONS)
2. CHAPTER INFORMATION QUESTIONNAIRE** - 2000-2001
3. CHAPTER PRESIDENT'S MBOs
4. BEST NEWSLETTER (OPTIONAL)
5. SPECIAL SEMINAR PROGRAM (OPTIONAL)
6. CHAPTER ROSTER (OPTIONAL)
7. PRODUCT DIRECTORY (OPTIONAL)

SIGNED: _____

CHAPTER PRESIDENT

**FOR FALL CRCs THE CHAPTER INFORMATION QUESTIONNAIRE WILL COVER THE CURRENT SOCIETY YEAR.

**FOR SPRING CRCs THE CHAPTER INFORMATION QUESTIONNAIRE WILL COVER THE UPCOMING SOCIETY YEAR.

Section Two

Chapter Information Questionnaire

MANUAL FOR CHAPTER OPERATIONS - 1999

ASHRAE CHAPTER INFORMATION QUESTIONNAIRE

Complete and mail to Headquarters, ASHRAE, 1791 Tullie Circle, N.E., Atlanta, Georgia, 30329, Telephone: (404) 636-8400, with a copy to your Regional Chair, no later than June 1. Addresses should be the same as used for other Society mailings, including your Journal, Handbook and miscellaneous mailings. Please notify Headquarters and Regional Chair promptly of questionnaire changes.

CHAPTER OFFICERS must not use nicknames; must include area code when listing phone numbers and must list member number (#). CHAPTER OFFICERS MUST BE MEMBERS OF SOCIETY IN GOOD STANDING WITH THE GRADE OF ASSOCIATE MEMBER OR HIGHER.

CHAPTER HAMPTON ROADS # 027 REGION III SOCIETY YEAR* 1999
(* For Spring CRCs Society Year indicates Society year beginning July 1. For Fall CRCs Society Year indicates the current year.)

MEETING DATES FOR THE UPCOMING SOCIETY FISCAL YEAR

July	---	October	13	January	12	April	12
August	---	November	10	February	9	May	5
September	8	December	8	March	8	June	---

Regular Meeting Location Lake Wright Hotel, Norfolk, VA

PRESIDENT

Name Kelvin S. (Kelly) Mason # 5025152
Address 1109 Rockland Terrace
Chesapeake, VA 23322

Business Name Hobbs and Associates, Inc.
Business # (757) 468-8800
FAX # 468-1034 E-MAIL # _____

TREASURER

Name James F. Szabo # 5134078
Address 129 Mack Jones Road
Moyock, NC 27958

Business Name CEGG Associates
Business # (757) 499-4562
FAX # 473-1967 E-MAIL # jszabo@ceggllc.com

PRESIDENT-ELECT

Name Timothy A. Patterson # 5097483
Address 1517 Wakefield Drive
Virginia Beach, VA 23455

Business Name CEGG Associates
Business # (757) 499-4562
FAX # 473-1967 E-MAIL # cegg@norfolk.infi.net

CHAPTER BOARD OF GOVERNORS

Name Scott W. Kattwinkel, P.E. # 2038287
Address 6330 Newtown Road - Suite 400
Norfolk, VA 23502

Business Name Vansant & Gusler, Inc.
Business # (757) 461-6757
FAX # 461-8516 E-MAIL # engineer@infi.net

VICE PRESIDENT

Name William H. Lakin, P.E. # 5107137
Address 839 Lipton Drive
Newport News, VA 23608

Business Name Infinity Design Group
Business # (757) 877-9833
FAX # 989-5915 E-MAIL # idg@exis.net

Name Daniel C. Pettway # 3031241
Address 1416 Birch Leaf Road
Chesapeake, VA 23320

Business Name Virginia Refrigeration Supplies
Business # (757) 853-7441
FAX # 855-4389 E-MAIL # d.c.pettway@worldnet.att.net

SECRETARY

Name Scott D. Almond # 5148964
Address 1728 Virginia Beach Boulevard - Suite 118
Virginia Beach, VA 23454

Business Name Thermo-Trol Corporation
Business # (757) 428-4646
FAX # 428-4030 E-MAIL # AnejoShot@aol.com

Name John C. Say # 0649364
Address 1221 Crooked Stick Crossing
Chesapeake, VA 23320

Business Name CEGG Associates
Business # (757) 499-4562
FAX # 473-1967 E-MAIL # cegg@norfolk.infi.net

MANUAL FOR CHAPTER OPERATIONS - 1999

BOARD OF GOVERNORS, (cont.)

Name _____ # _____
Address _____

Business Name _____
Business # (757) _____
FAX # _____ E-MAIL # _____

CRC DELEGATE

Name Scott W. Kattwinkel, P.E. # 2038287
Address 6330 Newtown Road - Suite 400
Norfolk, VA 23502
Business Name Vansant & Gusler, Inc.
Business # (757) 461-6757
FAX # 461-8516 E-MAIL # engineer@infi.net

CRC ALTERNATE

Name Kelyin S. (Kelly) Mason # 5025152
Address 1109 Rockland Terrace
Chesapeake, VA 23322
Business Name Hobbs and Associates, Inc.
Business # (757) 468-8800
FAX # 468-1034 E-MAIL # _____

MEMBERSHIP PROMOTION COMMITTEE CHAIR

Name Ted Ambrose # 2008549
Address 825 A Greenbrier Circle
Chesapeake, VA 23320
Business Name Hickman - Ambrose
Business # (757) 420-3595
FAX # 424-1940 E-MAIL # _____

STUDENT ACTIVITIES COMMITTEE CHAIR

Name James L. Francis # 2038287
Address 182 Carnegie Drive
Newport News, VA 23608
Business Name Newport News Shipbuilding
Business # (757) 688-1780
FAX # 688-0566 E-MAIL # franciswyo@aol.com

CHAPTER PROGRAMS COMMITTEE CHAIR

Name William H. Lakin, P.E. # 5107137
Address 839 Lipton Drive
Newport News, VA 23608
Business Name Infinity Design Group
Business # (757) 877-9833
FAX # 989-5915 E-MAIL # ldg@exis.net

HISTORIAN

Name Melanie Page # 5145530
Address 1504 Kelvin Court
Virginia Beach, VA 23454
Business Name Johnson Controls, Inc.
Business # (757) 852-3168
FAX # _____ E-MAIL # melanie.s.page2jci.com

REFRIGERATION COMMITTEE CHAIR

Name James L. Carver # 5016127
Address 3302 Croft Street
Norfolk, VA 23513
Business Name Webb Technologies
Business # (757) 855-3006
FAX # 855-9576 E-MAIL # icerebel@aol.com

RESEARCH PROMOTION COMM. CHAIR

Name Nancy Mitchell-Veeck # 5165578
Address 4762 Post Oak Drive
Virginia Beach, VA 23464
Business Name Damuth Trane
Business # (757) 558-0200
FAX # 558-9715 E-MAIL # njmitchell@Trane.com

TECHNICAL, ENERGY & GOVERNMENT ACTIVITIES COMMITTEE CHAIR

Name W. C. (Bill) Watts # _____
Address 5100 East Virginia Beach Boulevard
Norfolk, VA 23502
Business Name Virginia Natural Gas
Business # (757) 466-5551
FAX # 455-5339 E-MAIL # willis.c.watts@vng.cng.com

NEWSLETTER EDITOR

Name Scott D. Almond # 5148964
Address 1728 Virginia Beach Boulevard - Suite 118
Virginia Beach, VA 23454
Business Name Thermo-Trol Corporation
Business # (757) 428-4646
FAX # 428-4030 E-MAIL # AnejoShot@aol.com

OTHER

Name _____ # _____
Address _____
Business Name _____
Business # () _____
FAX # _____ E-MAIL # _____

Section Three

Overview and Committee Highlights

Hampton Roads Chapter

Overview and Committee Highlights

Overview

This was an outstanding year for the Hampton Roads Chapter. Taking second place out of 12 Chapters was a real honor for the chapter. We exceeded Par in all eight categories and scored the maximum in half of the categories with a limit.

Financially our Scholarship and operating funds lost approximately \$ 960.00, but only due to a small loss in the Scholarship fund.

This was a year that the programs really told the story. The wide variety of exciting speakers, presentations and tour gave us an increase in average attendance of almost 30%.

Below are more detailed descriptions of the various activities of the Hampton Roads Chapter for this past year.

Membership Promotion

Membership promotion had a very good year. We increased our area assigned members by 17. We decreased the delinquency percentage slightly. We increased our PAOE points by 168 for a total of 1657, which placed us 4th in the region.

Student Activities

Student activities for the Hampton Roads Chapter have again exceeded the PAOE maximum. Jim Francis has continued his work with two local colleges giving back his time and effort to those who wish to enter the HVAC & R field. The chapter contributed \$ 2,300.00 to the student branches, which includes a \$ 1,000.00 scholarship at Old Dominion University and two \$ 500.00 scholarships at Tidewater Community College. The PAOE point totals don't show that Hampton Roads excelled over most chapters, however we feel Jims work puts him and the Hampton Roads Chapter at the top of the list.

TEGA

TEGA had another excellent year. All of its points coming from presentations by the local chapter members gave us more than enough points to exceed the maximum PAOE of 500. This gives us a tie for 1st place with 3 other chapters

Research Promotion

Research Promotion had a great year increasing its total contribution for the third year straight. Nancy Mitchell had her work cut out for her, but she succeeded in collecting all monies required to receive the full circle award. It had been several years since Hampton Roads received this award. Nancy's work seems to have our chapter back on track to many more successful Research Promotion Campaigns. The PAOE point's total of 470 placed us 7th in the region. Nancy's efforts have landed her a spot as a board member for the new year.

Refrigeration

Jimmy Carver continued his hard work for refrigeration with another award winning performance. His points total exceeded the maximum for PAOE, which ties his for 1st place with three other chapters. As refrigeration leaves the PAOE program Hampton Roads will miss what has been a powerhouse category for over a decade. We wish Jimmy Carver success in his continuing refrigeration efforts.

History

This is the first year that we have had a dedicated committee member for History. Melanie Page did a great job taking over for Jimmy Carver. She increased our PAOE by 150 points for a total of 350 points, which ties us for 2nd place with three other chapters. Melanie plans to continue her efforts this coming year in history and will strive to get maximum points.

Chapter Programs

Bill Lakin had the best year I can remember for Chapter Programs. His efforts were above and beyond what could be expected of a committee member. The attached attendance worksheet shows the effect his work had on the chapter's participation in the monthly meetings. It will be very hard to beat the average meeting attendance from this year. The PAOE points have us listed in 9th place with 525 points. I think we have made a few errors when submitting points for this category. Please see Section Six for the listing of chapter programs.

Web Page

Bill Lakin also did a fabulous job of getting a web site for the Hampton Roads Chapter. The site gives all important information about the entire year's program schedule as well as detailed meeting information for the upcoming meetings. It has many direct links to email for the board & committee members and industry related sites. Our web site is at hrcashrea.com. Thanks for your effort Bill.

ASHRAE

Hampton Roads Chapter

ATTENDANCE WORKSHEET

MONTH:	Final Report		DIFFERENCE
	1998 / 1999	1999 / 2000	
SEPTEMBER:	43	53	10+
OCTOBER:	34 (77)	38 (91)	4+ (14)
NOVEMBER:	30 (107)	55 (146)	25+ (39)
DECEMBER:	37 (144)	34 (180)	3- (36)
JANUARY:	33 (177)	52 (232)	19+ (55)
FEBUARY:	27 (204)	28 (260)	1+ (56)
MARCH:	43 (247)	58 (318)	15 (71)
APRIL:	29 (276)	35 (353)	6 (77)
<u>MAY (GOLF):</u>	<u>114 (SEE NOTES)</u>	<u>110+ (see notes)</u>	<u>*</u>
TOTAL:	276 PEOPLE	353 PEOPLE YTD	-
AVERAGE:	34.5 PEOPLE	44.1 PEOPLE	

NOTES:

- GOLF ATTENDANCE IN NOT INCULDED IN TOTAL.
- NUMBERS IN (PARENTHESES) ARE YEAR TO DATE.
- WILLIAM H. LAKIN, PE PROGRAM CHAIRMAN.
- MARK HERSHMAN, RVC – PROGRAMS, REGION III.



Section Four

Financial Report for Chapter and Annual Golf Tournament

09/11/00

Hampton Roads ASHRAE
Balance Sheet
As of August 31, 2000

	<u>Aug 31, '00</u>
ASSETS	
Current Assets	
Checking/Savings	
Crestar Checking - 204127637	5,270.49
Total Checking/Savings	<u>5,270.49</u>
Total Current Assets	<u>5,270.49</u>
TOTAL ASSETS	<u><u>5,270.49</u></u>
LIABILITIES & EQUITY	
Equity	
Opening Bal Equity	5,230.54
Retained Earnings	-2,395.05
Net Income	<u>2,435.00</u>
Total Equity	<u>5,270.49</u>
TOTAL LIABILITIES & EQUITY	<u><u>5,270.49</u></u>

09/11/00

Hampton Roads ASHRAE
Profit and Loss
August 31, 1999 through September 1, 2000

	<u>Aug 31, '99 - Sep 1, '00</u>
Ordinary Income/Expense	
Income	
50 / 50 Raffle	200.00
Golf Tournament	10,620.00
Meeting Income	5,823.50
Membership Dues	3,875.00
Miscellaneous Income	164.64
Research & Promotion	-104.39
Total Income	<u>20,578.75</u>
Expense	
Bank Service Charges	30.00
Bar Refurbishment	445.54
CRC Registration	336.83
Flowers	35.35
Golf Expense	7,835.63
Miscellaneous	467.79
Monthly Meetings	7,473.77
Reimbursement	
CRC - Reimbursement	85.00
Total Reimbursement	<u>85.00</u>
Reproductions	923.73
Student Meeting Expense	167.82
Student Scholarship	2,000.00
Total Expense	<u>19,801.46</u>
Net Ordinary Income	<u>777.29</u>
Net Income	<u><u>777.29</u></u>

Hampton Roads ASHRAE Transactions by Date August 31, 1999 through September 1, 2000

Type	Date	Num	Name	Memo	Account	Class	Clr	Spft	Amount
Aug 31, '99 - Sep 1, '00									
Deposit	9/7/1999				Crestar Checking - 2...		X	Membership D...	390.00
Check	9/8/1999	1147	Michael Lacy		Crestar Checking - 2...		X	Student Schola...	-500.00
Check	9/8/1999	1148	Kevin Witherspoon		Crestar Checking - 2...		X	Student Schola...	-500.00
Check	9/8/1999	1149	Mark Wilson		Crestar Checking - 2...		X	Student Schola...	-1,000.00
Check	9/8/1999	1150	James Szabo	Sept. Meeting	Crestar Checking - 2...		X	Bar Refurbish...	-109.54
Check	9/8/1999	1151	Scott Kattwinkel	Sept. Meeting	Crestar Checking - 2...		X	CRC - Refinbur...	-85.00
Check	9/8/1999	1152	Scott Almond	Sept. Meeting	Crestar Checking - 2...		X	Reproductions	-108.82
Check	9/8/1999	1154	Lake Wright	Sept. Meeting	Crestar Checking - 2...		X	Monthly Meetin...	-1,051.94
Deposit	9/9/1999			Johnson Cont...	Crestar Checking - 2...		X	Meeting Income	830.00
Deposit	9/9/1999				Crestar Checking - 2...		X	50 / 50 Raffel	23.00
Deposit	9/27/1999				Crestar Checking - 2...		X	Golf Tournament	375.00
Check	10/13/1999	1155	James Szabo	Oct. Meeting	Crestar Checking - 2...		X	Membership D...	1,610.00
Check	10/13/1999	1156	Scott Almond	Oct. Meeting	Crestar Checking - 2...		X	Bar Refurbish...	-43.43
Check	10/13/1999	1157	Scott Almond	Travel	Crestar Checking - 2...		X	Reproductions	-110.00
Check	10/13/1999	1158	Lake Wright	Oct. Meeting	Crestar Checking - 2...		X	CRC Registrati...	-336.83
Deposit	11/4/1999			October	Crestar Checking - 2...		X	Monthly Meetin...	-829.82
Deposit	11/4/1999			Oct. Meeting	Crestar Checking - 2...		X	Meeting Income	626.00
Deposit	11/4/1999			Oct. Meeting	Crestar Checking - 2...		X	Membership D...	360.00
Check	11/10/1999	1159	James Szabo	Nov. Meeting	Crestar Checking - 2...		X	50 / 50 Raffel	23.00
Check	11/10/1999	1160	Scott Almond	Nov. Meeting	Crestar Checking - 2...		X	Bar Refurbish...	-57.90
Check	11/10/1999	1161	Lake Wright	Nov. Meeting	Crestar Checking - 2...		X	Reproductions	-130.00
Check	11/10/1999	1163	Nancy Mitchell	Reimbursement	Crestar Checking - 2...		X	Monthly Meetin...	-1,255.04
Check	11/10/1999	1164	Carmelias	Dec. Meeting ...	Crestar Checking - 2...		X	Reasearch & P...	-17.93
Deposit	11/30/1999			November	Crestar Checking - 2...		X	Monthly Meetin...	-143.00
Deposit	11/30/1999			Nov. Meeting	Crestar Checking - 2...		X	Meeting Income	973.00
Deposit	11/30/1999			Nov. Meeting	Crestar Checking - 2...		X	Membership D...	530.00
Deposit	12/6/1999			Not Sure for ...	Crestar Checking - 2...		X	50 / 50 Raffel	33.00
Check	12/8/1999	1162	Carmelias	Dec. Meeting	Crestar Checking - 2...		X	Miscellaneous I...	164.64
Check	1/12/2000	1165	James Francis	Reimbursement	Crestar Checking - 2...		X	Monthly Meetin...	-755.07
Check	1/12/2000	1166	Nancy Mitchell	Web Site Star...	Crestar Checking - 2...		X	Student Meetin...	-67.75
Check	1/12/2000	1167	William H. Lakin	Dec. & Jan. M...	Crestar Checking - 2...		X	Miscellaneous	-21.12
Check	1/12/2000	1169	Scott Almond	Jan. Meeting	Crestar Checking - 2...		X	Reproductions	-467.79
Check	1/12/2000	1170	James Szabo	Jan. Meeting	Crestar Checking - 2...		X	Bar Refurbish...	-23.79
Check	1/12/2000	1171	Lake Wright	Jan. Meeting	Crestar Checking - 2...		X	Monthly Meetin...	-928.05
Deposit	1/27/2000			Dec. Meeting	Crestar Checking - 2...		X	Meeting Income	540.00
Deposit	1/27/2000			Jan. Meeting	Crestar Checking - 2...		X	Meeting Income	751.00
Deposit	1/27/2000			January	Crestar Checking - 2...		X	Membership D...	360.00
Deposit	1/27/2000			December	Crestar Checking - 2...		X	Membership D...	210.00
Deposit	1/27/2000			Dec.Meeting	Crestar Checking - 2...		X	50 / 50 Raffel	23.00
Deposit	1/27/2000			Jan. Meeting	Crestar Checking - 2...		X	50 / 50 Raffel	35.00
Deposit	1/31/2000			Bank Charge	Crestar Checking - 2...		X	Bank Service C...	-10.00
Check	2/16/2000	1172	William H. Lakin	Eval. Sheets	Crestar Checking - 2...		X	Reproductions	-5.02
Check	2/16/2000	1174	James Szabo	Feb. Meeting	Crestar Checking - 2...		X	Bar Refurbish...	-84.08
Check	2/16/2000	1175	Lake Wright	Feb. Meeting	Crestar Checking - 2...		X	Monthly Meetin...	-696.72
Check	2/22/2000	1176	Cypress Creek	Deposit-2000...	Crestar Checking - 2...		X	Golf Expense	-600.00
Deposit	2/28/2000			Feb. Meeting	Crestar Checking - 2...		X	Meeting Income	526.00

Hampton Roads ASHRAE Transactions by Date August 31, 1999 through September 1, 2000

Type	Date	Num	Name	Memo	Account	Class	Ctr	Split	Amount
Deposit	2/28/2000			Feb. Meeting	Crestar Checking - 2...		X	50 / 50 Raffel	15.00
Check	3/8/2000	1177	James Szabo	Feb. Meeting	Crestar Checking - 2...		X	Bar Refurbish...	-51.59
Check	3/8/2000	1178	Scott Almond	March Meetings	Crestar Checking - 2...		X	Reproductions	-236.89
Check	3/8/2000	1179	Kelly Mason	March Meetings	Crestar Checking - 2...		X	Flowers	-35.35
Check	3/8/2000	1180	Nancy Mitchell	Reimbursement	Crestar Checking - 2...		X	Research & P...	-65.34
Check	3/8/2000	1181	Harlan Krepcik	TCC	Crestar Checking - 2...		X	Student Meetin...	-17.48
Check	3/8/2000	1182	Lake Wright	March Meeting	Crestar Checking - 2...		X	Monthly Meetin...	-1,090.01
Deposit	3/10/2000			March Meeting	Crestar Checking - 2...		X	Meeting Income	925.00
Deposit	3/10/2000			March Meeting	Crestar Checking - 2...		X	50 / 50 Raffel	25.50
Check	3/31/2000			Bank Charge	Crestar Checking - 2...		X	Bank Service C...	-10.00
Check	4/12/2000	1183	Tim Patterson	Golf Mailing	Crestar Checking - 2...		X	Golf Expense	-62.70
Check	4/12/2000	1184	James Szabo	April Meeting	Crestar Checking - 2...		X	Bar Refurbish...	-75.21
Check	4/12/2000	1185	Scott Almond	April Meetings	Crestar Checking - 2...		X	Reproductions	-110.00
Check	4/12/2000	1186	Lake Wright	April Meeting	Crestar Checking - 2...		X	Monthly Meetin...	-723.12
Check	4/12/2000	1187	Harlan Krepcik	TCC	Crestar Checking - 2...		X	Student Meetin...	-82.59
Check	4/28/2000			Bank Charges	Crestar Checking - 2...		X	Bank Service C...	-10.00
Check	5/2/2000	1188	CEGG Associates	Awards	Crestar Checking - 2...		X	Golf Expense	-384.66
Deposit	5/2/2000			April Meeting	Crestar Checking - 2...		X	Meeting Income	652.50
Deposit	5/2/2000			April Meeting	Crestar Checking - 2...		X	Membership D...	235.00
Deposit	5/2/2000			April Meeting	Crestar Checking - 2...		X	50 / 50 Raffel	22.50
Deposit	5/2/2000			2000 Tourna...	Crestar Checking - 2...		X	Golf Tournament	7,990.00
Check	5/3/2000	1189	CEGG Associates	Prizes	Crestar Checking - 2...		X	Golf Expense	-346.97
Check	5/3/2000	1190	Tim Patterson	Prizes	Crestar Checking - 2...		X	Golf Expense	-166.06
Check	5/5/2000	1192	Cypress Creek	2000 Tourna...	Crestar Checking - 2...		X	Golf Expense	-6,275.24
Deposit	7/3/2000			May & June	Crestar Checking - 2...		X	Membership D...	180.00
Deposit	7/3/2000			2000 Tourna...	Crestar Checking - 2...		X	Golf Tournament	2,150.00
Deposit	8/16/2000			2000 Tourna...	Crestar Checking - 2...		X	Golf Tournament	105.00

Aug 31, '99 - Sep 1, '00

FINANCIAL SUMMARY

2000 ASHRAE GOLF TOURNAMENT
HAMPTON ROADS CHAPTER
AT CYPRESS CREEK GOLF COURSE

EXPENSES

GOLF - COURSE COST	\$ 6,875.00
TROPHIES	\$ 385.00
INSCRIPTION ON TROPHIES	\$ 22.00
CHAPTER HOLE SPONSORSHIP	\$ 50.00
PRIZES	\$ 663.00

Total to Cypress Creek \$ 7,995.00

INCOME

GOLF - ENTRY FEES	\$ 9,490.00
HOLE SPONSORS	\$ 675.00
PRIZE & GIFT SPONSORS	\$ 555.00
MULLIGANS	\$ 150.00

Total to Cypress Creek \$ 10,870.00

NET PROFIT \$ 2,875.00

Section Five

Sample Chapter Newsletter

ASHRAE MONITOR

Hampton Roads Chapter

November 1999

RESEARCH PROMOTION NIGHT #1

Who: Members, Prospective members and all interested HVAC&R Associates

Date: November 10, 1999

Place: Lake Wright Inn - Cape Charles Room,
6280 North Hampton Blvd., Norfolk, Virginia

Menu: Tossed salad, London Broil complemented by chef's selection of potatoes, garden vegetables, rolls, dessert, coffee and iced tea.

Cost: Members \$18.00, Guests \$20.00, Students - FREE

Events: 5:15-5:45 p.m. - Board Meeting
5:45-6:15 p.m. - Social
6:15-6:45 p.m. - Dinner
6:45-7:00 p.m. - Business Meeting
7:00-8:30 p.m. - Program

Reservations: Please confirm your reservations via fax using the attached reservation form before Noon, Monday November 8th.

Today's Thought

Believe, learn, and keep
calling. It only takes time
when I ask questions.

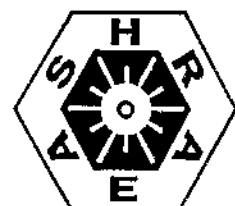
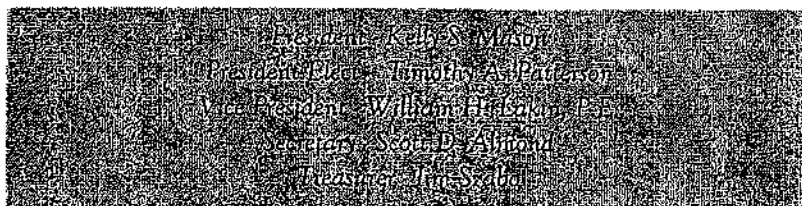
Tom Hottel

Technical Discussion of Noise Control Products

Tim Norviel has a degree in Mechanical Engineering from Ohio University. He is the Northeast Regional Sales Manager - Airside for The Trane Company. Tim has experience in a wide range of air handling applications and acoustics. He is a member of both ASHRAE and ASME.

Dwight Landry has a degree in Civil Engineering from Nicholls State University. He currently is the Sales Representative for the southern region for BRD Noise and Vibration Control, Inc. Dwight has

continued on page 2



Chapter cannot act on behalf of the Society.

In this Issue:

This Month's Program
Meeting Schedule

Page 1
Page 4

The President's Pen
Research Promtion

Page 2
Page 3

Student's Activities
Meeting Fax Back

Page 4
Page 5

continued from page 1

16 years experience in Acoustics, specializing in noise and vibration for all market segments (industrial, HVAC, architectural, OEM and environmental). Dwight is a current member of the Acoustic Society of America, the Acoustic Society of North Carolina and ASHRAE.

The presentation will discuss subjects such as the descriptions and uses of absorbers, barriers, composites, damping, flow control and electronic (noise cancellation) products.



Research and Promotion

This month's meeting is Research Promotion Night #1. Research Promotion finished the 1998-1999 year at \$4,985.00. Our 1999-2000 goal is \$8,000.00. Donors will be recognized at this meeting so please plan to attend. Thanks to all of you that participated and let's try to make the upcoming year even more successful!



From the Presidents Pen

The Hampton Roads chapter has continued the very successful start of its millennium year with an excellent showing at our October meeting. For those of you who were unable to attend the meeting, you missed a good one. The meeting was Membership Promotion Night #1 and the program was on Kitchen Ventilation Systems.

The Regional Vice Chairman for Membership Promotion, Dan Pettway, was on hand for this Membership Promotion Night. He spoke about the importance of ASHRAE and how as member we can make a difference.

Richard Catan with Halton Company put on an excellent program on Kitchen Ventilation Systems. His main focus was on what ASHRAE T.C.5.10 was doing to create a standard for Kitchen Ventilation. This program was a great example to show where your ASHRAE Research dollars are spent.

Speaking of ASHRAE Research, November's meeting is Research Promotion Night # 1. We will have our Research Promotion Chairman, Nancy Mitchell, on hand to answer any questions you may have and accept any donation you would like to make. Please remember that

ASHRAE Research is the back bone of the society and that all of us need to contribute to keep the great publications and information available to us.

Please show your support by attending this months meeting.

Thanks,

Kelly S. Mason
President



TEGA

Any member or associate member who has made a presentation on any HVAC topic to approximately 10 people or more, please contact Bill Watts at 466-5551, or e-mail at Willis-C.Watts@VNG.com. The Chapter needs a minimum of 4 more presentations to meet par for our 1999 TEGA PAOE goals.



HAMPTON ROADS CHAPTER
RESEARCH INVESTORS
1998 - 1999

Investor of \$1000 to \$2,499
Virginia Power Energy Efficiency Division

Investors of \$250 to \$499
D.E. Kirby
Damuth Trane
Southern Kinetics Inc.
TLA Inc.
Virginia Air Balance & Control Corporation
Virginia Natural Gas
Warwick Plumbing & Heating

Investors of \$100 to \$249

<i>Bowman Foster & Associates</i>	<i>Kelvin Scott Mason</i>
<i>Clark Nexson Inc.</i>	<i>Nancy Mitchell</i>
<i>Richard D. De Roche</i>	<i>Ronald D. Foster</i>
<i>Daniel Carleton Pettway</i>	<i>James V. Powell</i>
<i>James Leland Francis</i>	<i>Shultz & James Inc.</i>
<i>Scott W. Kattwinkel</i>	<i>Hobart Speegle Jr.</i>
<i>Renison W. Tisdale Jr.</i>	<i>William Lakin</i>
<i>Matthew J. Thompson Consulting Engineers</i>	

Investors less than \$100

<i>John W. Abernathy</i>	<i>Ronald N. Jensen</i>
<i>Thomas B. Carpenter</i>	<i>Michael F. Meyerpeter</i>
<i>Lauritz P. Comminaki</i>	<i>Rudolph Stegmann</i>
<i>Thermo-Trol Corporation of Tidewater</i>	<i>William A. Cox</i>
<i>Tidewater Air Filter Fabrication</i>	<i>John C. Gallop IV</i>
<i>Hampton Roads ASHRAE Chapter</i>	<i>Alan Charles Veeck</i>
<i>Hayes Seay Mattern & Mattern</i>	



Student Activities

Thanks to Calvin Gallup of Automatic Equipment Sales and Scott Gallbraith of ODU's Energy Assessment Center for taking the time to present HVAC topics to ODU's student chapter. If you are interested in speaking to either the TCC or ODU student chapters, call Mark Wilson at 686-9504, or Skip Krepcik at 558-3315.



Social Sponsorship

If you or your organization would like to be the Sponsor of the meeting social, please contact our Chapter Treasurer, Mr. Jim Szabo at (757) 499-4562. Your generous donation of \$50.00 will be used to offset the cost of the Social. In return, we will acknowledge the social sponsor at the meeting and in the preceding ASHRAE monitor. Let your colleges, clients and friends know of your support for our local chapter.

ASHRAE 1999 - 2000 Meeting Schedule

Student Night

Engineering & Construction Considerations for TABS

Jim Rudiger & Gary Strickland

September 8, 1999

Past Presidents' Night

The Construction Industry - A Cash Flow Nightmare

Athens Robbins
Philip Forbes
Brian Bacon

January 12, 2000

Membership Night #1

Kitchen Ventilation

Rich Catan

October 13, 1999

Membership Night #2

Demand Control Ventilation

Geoffrey Bridges

February 9, 2000

Research Promotion #1

Engineering and Construction Considerations for Noise and Vibrations

Dwight Landry & Tim Norviel

November 10, 1999

Research Promotion #2

Integrated Design

Don Larsson & Linda Pressler

March 8, 2000

Plant Tour

NASA - NTF

Olin Jerrit

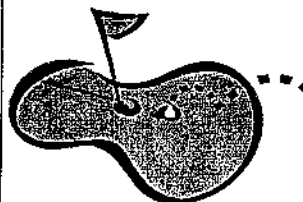
December 8, 1999

"R" for Refrigeration

Technical Impacting the HVAC Industry

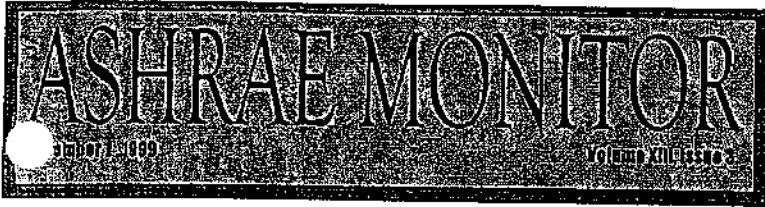
J. E. Cox, P.E., Ph.D.

April 12, 2000



Hampton Roads Chapter ASHRAE Annual Scholarship Fund Benefit Golf Tournament

May 2000



c/o Thermo-Trol Systems
1728 Virginia Beach Blvd. Suite 118
Virginia Beach, Virginia 23454

Mailing
Address
Goes
Here



To: Hampton Roads Chapter , ASHRAE
Fax: (757) 989-5915

I Will Be Attending the November 11th Meeting. My e-mail address is _____

For meeting reservations please fax this page to Hampton Roads Chapter, ASHRAE or contact Bill Lakin at (757) 877-9833.

Deadline for reservations and cancellations: Monday, November 8 - Noon.
Late cancellations and "no shows" will be billed to the appropriate individuals.

Cost: Members \$18.00, Guests \$20.00 and Students -- \$8.00

This FAX will confirm my reservation for the dinner meeting and program for the above date.
This FAX will also confirm the reservations for the following members/guests indicated below:

1. Name on Label (cross out if not attending) 3. _____

2. _____ 4. _____

Section Six

1999 / 2000 Chapter Programs

1999 / 2000 Chapter Programs

**September 8, 1999
Student Night**

“Design Considerations relating to
Test, Adjusting & Balance of HVAC Systems”
Presented by Jim Rudiger, founder of Virginia Air Balance and Control Corp.
and Gary Strickland, President, Testing Specialties, Inc

**October 13, 1999
Membership Promotion Night #1**

Advances in Commercial Kitchen Ventilation
ASHRAE Funded Research Getting Results
Presented by Richard Catan, National Sales Manager, Halton Company

**November 10, 1999
Research Promotion Night #1**

Technical Discussion of Noise Control Products
Presented by Tim Norviel, Northeast Regional Sales Manager, Trane Company

**December 8, 1999
Plant Tour**

Tour - 7' x 10' Wind Tunnel at NASA / Langley research Center
Please see the attached Tour notes.

**January 12, 2000
Past President's Night**

The Construction Industry – A Cash Flow Nightmare
Presented by CPA Athena Robbins, Partner at Carmines, Robbins & Co, PC
Lawyer, Philip Forbes IV, PC – **Collection Agent**, Brian Bacon, VP of
Commonwealth Information Services

February 16, 2000
Membership Promotion Night #2

Demand Control Ventilation
Presented by Geoff Bridges, Honeywell

March 8, 2000
Research Promotion Night # 2

Lessons Learned from Designing and Constructing a Sustainable Building
Presented by Linda Pressler, AIA, Architect, Clark Nexen, Al Matson, System
Designer, Clark Nexen, Frank Dennis PE, Mechanical Engineer, Clark Nexen

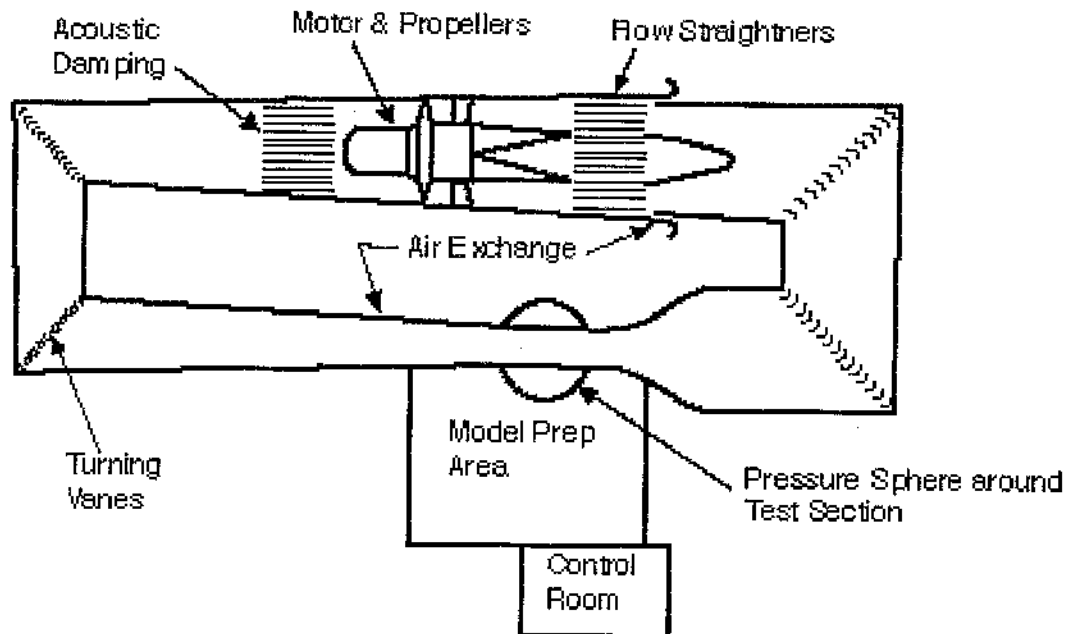
April 12, 2000
R for Refrigeration Night

Technical Issues Impacting the HVAC & R Industry
Presented by Dr. Jim Cox, Director of Governmental Affairs, ASHRAE

7 x 10 Tour Notes

Wind tunnels are measurement tools used to evaluate the performance of aircraft and aircraft components without having to actually build an aircraft. These measurements can predict lift, drag, and control characteristics. Thus, it is possible to more safely and cheaply design and build an efficient, fast, and safe aircraft that can perform the mission for which it was intended.

The 7 x 10 Foot High Speed Tunnel is one of the tunnels at Langley which has been used to make such measurements. The schematic shown below is an overhead view showing the tunnel layout.



Construction of the 7 x 10 High Speed Tunnel was begun in 1944 and the tunnel was operated from 1945 to 1993. The 7 x 10 High Speed Tunnel is a closed single-return atmospheric wind tunnel. The air speed available in the test chamber can be continuously varied from Mach 0.07 to 0.9 (about 50 to 630 miles/hour). The air speed is varied by controlling the rotating speed of the motor (and propeller). The motor is a 14000 horsepower, wound-rotor induction electric motor that can be varied from 0 to 485 rpm.. The propeller assembly that moves the air was rebuilt after a failure in 1987. The new blades were fabricated in the shops here at NASA Langley Research Center. Each of the 18 laminated wooden blades is made from Sitka spruce with no knots. Sitka was chosen because of its density, strength, and ease of fabrication. In the schematic shown above, the air circulated clockwise around the tunnel. When you walk into the test section, the air would come from your right.

The primary scaling parameter for relating wind tunnel results to full-scale aircraft is the Reynolds Number:

$$Re = \frac{\rho v l}{\mu}$$

where Re = Reynolds Number
(no units)
 ρ = density
(mass/unit volume)
 v = velocity
(distance/unit time)
 l = length

μ = viscosity
(A measure of the
resistance experienced
when two plates separated
by a fluid slide over each
other)

As an example, consider a wing in a wind tunnel at a Reynolds Number of 1 million and an angle of attack of 28 degrees. Assume that the flow over the top of the wing is found to separate (producing a "stall") at this condition. Then, you could reasonably expect the flow to separate for a full-sized wing operating at the same Reynolds Number and angle of attack.

The tunnel has full-width openings, indicated by the "Air Exchange" label in the drawing above, which provide a continuous exchange of up to 10% of the tunnel volume with atmospheric air. The rate of the exchange-air flow can be regulated by remotely operating the variable air intake flaps. This air exchange helps to stabilize the temperature in the facility during testing, thus providing a stable Reynolds Number.

The "pressure sphere" around the test section is connected, via a 6-foot diameter duct at the top, to an air pump. This arrangement allowed the boundary layer (a region of slower-flowing air near the test section walls) to be sucked off through slots in the ceiling and floor of the test section. With boundary layer suction, Mach @ 1.05 can be achieved. These slots were covered in 1967 and the flow in the tunnel cannot presently reach supersonic velocity. As presently configured, the maximum velocity is Mach = 0.90.

The facility is designed to support experiments relating to aircraft and associated components operating in atmospheric air. A wide range of subsonic aerodynamic studies have been conducted in the facility. These include aircraft take-off, cruising, and landing, and special studies relating to the generation, detection, and suppression of local and trailing vortices.

Various methods of taking data are used in the facility. These include:

(1) force data using electrical strain gauge balances, (2) pressure data with electrical pressure transducers, and an Electronic Scanning Pressure System linked to a computer, (3) flow visualization using oil, smoke, colored water flow, focusing schlieren system, and a Laser Vapor Screen Flow Visualization System.

The data acquired from the tests was displayed at the facility and transmitted to remote computer systems. The computer output can be used to control the model positioning system. This feedback enhances the range and speed of the data evaluation process.

Model prep room

The light switch for the room is beside the "key switch" behind the door as you enter the room. A number of models may be seen in the model preparation area. Those sitting on display stands on the floor were tested in the tunnel. The white model with the red pen marks was used by Dr. Dick Whitcomb in evaluating the Area Rule concept. This concept lowers the wave drag associated with shock waves as an aircraft operates near Mach = 1.0. By lowering this drag, aircraft operate more efficiently. One example of the application of this concept is the redesign of the F102. The original F102 was not capable of supersonic flight.

When it was redesigned to incorporate the area rule, supersonic flight was possible. This redesign became the F106, the delta-wing interceptor that was stationed here at Langley Air Force Base for many years.

Another model has brass strips in the top or bottom wing surface. The holes in the strips are connected by tubes to electronic sensors to record the pressure distribution on the model surfaces during testing.

Models from other tunnels are also displayed. Those suspended overhead were "free-flight" models that were tested in our 30 x 60 Foot Tunnel on the "East Side". They are the F22, a new "stealth" fighter for the Air Force; the HL-20, a small crew module for transatmospheric flight; and the F16XL, a delta-wing modification of the Air Force fighter.

In the tunnel

The tunnel light switch is the "key switch" on the wall behind the door as you enter the model prep room from the control room. The switches to open and close the tunnel door are beside the door.

Walk to the front of the test section and look at the turning vanes in the corner. Their purpose is to keep the air well distributed across the tunnel.

There is a screen at the entrance of the test section. Its purpose is to reduce the scale of any turbulence as the flow enters the test section.

In the test section, a generic delta-wing model is mounted on a "sting". The sting is pivoted to provide a changeable angle of attack during testing. There are two force balances in the model: one in the main body, and another between the main body and the changeable nose section.

Continuing down the tunnel, pass the slots that can allow air to enter the tunnel, through the next two sets of turning vanes, to a view of the fan.

Ahead are the acoustical baffles. Their purpose is to damp pressure pulses that are created as the fan blades pass near the motor support structure or flow-straightening vanes downstream of the fan. These pulses propagate to the test section and show up as noise on the pressure measurements unless dampened. To demonstrate the effectiveness of the baffles, clap your hands as the group walks through the baffles. The hand clapping can be heard on the other side, but it is greatly reduced. Remember that the ear responds logarithmically (not linearly) to pressure pulses, so the energy reduction is greater than is apparent.

The fan blades are a good photo opportunity if anyone has a camera with a flash.

To enter the tunnel:

- Turn on tunnel lights with the "key switch".
- Turn on light in "personnel in tunnel" sign.
- Lower the access door by holding down the "open" switch.

To close the tunnel:

- Sound the horn (red button), **LISTEN, MAKE SURE ALL ARE OUT.**
- Turn off "personnel in tunnel" sign.
- Raise the access door by holding down the "close" switch.
- Turn off the tunnel lights with the "key switch".