CONTENTS

Call for Te	chnical Leadership by W. Stephen Comstock	1
Technical	Leadership: Commitment in a Changing World by Robert E. Smylie	4
Summarie	s of Technical Sessions, Symposiums, Forums and Seminars	7
Host Cháp	oter: Dallas	28
TECHNIC	AL PAPERS	
2381	Field Evaluation of High Temperature Infrared Space Heating Systems by J.E. Janssen	31
2382	An Experimental Determination of Shading Coefficients for Selected Insulating Reflective Glasses and Draperies by C.A. Morrison, J.M. Wheeler, Jr., and E.A. Farber	38
2383	Thermal Comfort Measurements by Th. Lund Madsen	60
2384	Effect of Cool Environments on Local Thermal Sensation, Discomfort and Clothing Selection by R.R. Gonzalez and Y. Nishi.	76
2385	The Prediction of Thermal Insulation Values of Garments from the Physical Data of Their Fabrics by N.Z. Azer	87
2386	System Load Characteristics and Estimation of Annual Heat Loads for Laboratory Animal Facilities by R.L. Gorton, J.E. Woods and E.L. Besch	107
2387	Effects of a Prolonged Heat Wave on a General Population Sample by K.J. Helsing and R.E. Markush	113
2388	Studies on Exterior Wall Air Tightness and Air infiltration of Tall Buildings by G.T. Tamura and C.Y. Shaw	122
2389	Retrofitting University Buildings for Energy Conservation by C.F. Sepsy and R.H. Fuller	135
2390	Indirect Evaporative Cooling Systems by M.J. Wooldridge, H.L. Chapman and D. Pescod	146
2391	Measurement of Particle Size in Gas Streams by J.R. Lawter, P.L. Levins and A.L. Benson	156
2392 °	Expansion Joints for Low-Temperature Above-Ground Water Piping Systems by R.R. Gilpin and M.G. Faulkner	164
2393	Development of an Anechoic Termination Design for an In-Duct Fan Sound Test Facility by G.H. Myers	172
2394	Noise Control for Air-Conditioning Systems Installed in Boston Symphony Hall and the Philadelphia Academy of Music by J.A. Curtis, R.M. Hoover and R.S. Jones.	. 184
2395	Failure Analysis of a Welding Exhaust System by C.E. Dorgan and D.S. Ermer	194
2396	Influence of Initial Turbulence Intensity on the Development of Plane Air-Curtain Jets by N.Q. Van and R.H. Howell	208
2397	Application of Laminar Flow Design Principles in the Hospital Surgical Suite by M.A. Weber	229
2398	Pressure Loss in High Velocity Flat Oval Duct Fittings by J.R. Smith II and J.W. Jones	244
2399	Freezing Processes Between Two Concentric Pipes with a Constant Heating Temperature at the Inner Wall by Sui Lin.	256
2400	A Fresh Look at the Calculation of Performance of Cooling Towers by A. Whillier	269
2401	Estimating Heats of Mixing by C.C. Li	283
2402	Experimental Heat and Mass Transfer Data for Condensing Flow in a Parallel Plate Heat Exchanger by D.R. Tree and W.A. Helmer	289
SYMPOSI	UM PAPERS	
DA-76-1	SUMMARY OF THE WORK OF THE ASHRAE TASK GROUP ON ENERGY REQUIREMENTS OF CALCULATING ENERGY USE OF BUILDINGS	
	Procedure Employed by the ASHRAE Task Group for the Determination of Heating and Cooling Loads for Building Energy Analysis by T. Kusuda	305 315 323 332 340
DA-76-2	INNOVATIONS OF THE HEAT PUMP CYCLE	
-	Ingredients for Energy Conservation — Water-Cooled Luminaires by E.C. Dowless	349 357 364 372

DA-76-3	UNITARY AIR CONDITIONERS AND HEAT PUMPS ON 208-VOLT SYSTEMS	
	208-Volt Systems and American National Standard C84.1 by H.E. Campbell and N.R. Schultz	389 395 401 405 411
DA-76-4	ENERGY CONSERVATION IN SINGLE-FAMILY RESIDENTIAL BUILDINGS	
	Residential Energy Requirements and Opportunities for Energy Conservation by J.W. Jones and B.J.	
-	Hendrix Energy Budget, Parametic and Life-Cycle Studies of Single-Family Residential Structures by H.M.	417
	Bernstein, J.E. Reed and T. Alereza	435 446
DA-76-5	CURRENT CONSIDERATIONS IN RATING OF REFRIGERANT-TO-AIR HEAT TRANSFER EQUIPMENT	
	Certification Program for Forced-Circulation Air-Cooling and Air-Heating Coils by R.J. Evans	463 467 474 487
DA-76-6	INSTRUMENTATION AND TESTING AND BALANCING	
	Water System Instrumentation by J.R. Mannion	505 520 526
DA-76-7	CURRENT CONCEPTS IN CHILLED WATER DISTRIBUTION SYSTEMS	
ŕ	A Computer Program to Simulate the Flow Rates, Temperatures and Pressures of a Central Chilled Water System by W.F. Stoecker, S.R. Richter, G.E. Higges and A.R. Baker	539 548 554 566
DA-76-8	HOW TO CONSERVE ENERGY WITHOUT LOSING YOUR COOL	
• •	The Air Washer — An Old Tool Sharpened by New Ideas by R.B. Crossland	577 584
,	Factory Air Conditioning — New Design Approach and Case Study by J.A. Reese, R.M. Van Becelaere and A.K. Gupta Evaporative Cooling in Industry by S.B. Robertson	600 608
DA-76-9	THE USE OF COMPUTERS FOR SOLAR HEATING AND COOLING OF BUILDINGS	
	TRNSYS — A Transient Simulation Program by S.A. Klein, W.A. Beckman and J.A. Duffie	623 634 644 664
DA-76-10	ENERGY CONSERVATION THROUGH IMPROVED FENESTRATION TREATMENT	
	Acrylic Plastic Glazing: Properties, Characteristics and Engineering Data by W.C. Burkhardt	683
	Energy Conservation Through the Use of Exterior Shading of Fenestration by W.B. Ewing and J.I. Yellott	703
	Calculation of Thermal Radiative Properties of Glass by C.K. Hsieh Analysis of Double-Draped Fenestration Configurations by C.W. Pennington, C.A. Morrison and H.A. Ingley III.	734 742
DA-76-11	ACOUSTICS UPDATE 1976	
	Acoustical Standards and Related Measurements on Air Conditioners and Refrigerators by H.J. Naake. Prediction Techniques for Room Air Conditioner Noise by R.S. Norman	755 768 778 786
DA-76-12	SOLAR ENERGY AT WORK IN BUILDING HEATING AND COOLING	
	Nocturnal Cooling and Solar Heating with Water Ponds and Movable Insulation by P.W. Niles, K.L. Haggard and H.R. Hay	793
•	Haggard and H.R. Hay The ASHRAE Monograph on Applications of Solar Energy for Heating and Cooling Buildings by R.C. Jordan and B.Y.H. Liu	808
	Design Application Using Solar Energy to Control the Environment in a Major Office Building by R.C.	
	Basford	814 825 835
DA-76-13	FIELD PERFORMANCE MEASUREMENTS OF FAN SYSTEMS	
	A Guide to the Measurement of Fan System Performance in the Field by R.G. Stevenson	851 861

	Detailed Considerations of Procedures Calculations, and Equipment Used in Field Performance Measurements of Fan Systems by R.C. Myers	868 883
DA-76-14	AUGMENTATION OF TWO-PHASE HEAT TRANSFER	
	Survey and Augmentation of Two-Phase Heat Transfer by A.E. Bergles Boiling Augmentation with Structured Surfaces by J.C. Corman and M.H. McLaughlin Experimental Study of Horizontal In-Tube Condensation by J.H. Royal and A.E. Bergles Augmentation of Steady-State and Transient Two-Phase Heat Transfer Using Mechanical Acceleration by N.A. Macken and F.W. Paul.	891 906 919 932
DA-76-15	ABSORPTION MACHINE DESIGN TO MEET SOLAR COOLING OF BUILDING OBJECTIVES	
	The Use of Commercially Available Absorption Units on Solar-Powered Cooling Systems by J.M. Porter Relationship Between Heat Source Temperature, Heat Sink Temperature and Coefficient of Performance for Solar-Powered Absorption Air Conditioners by E.P. Whitlow	943 950 959 966 975
DA-76-16	ENERGY RECOVERY APPLICATIONS	
DA-70-10	Application of a Recirculated Liquid Sorbent Air-To-Air Enthalpy Exchange System by W.C. Griffiths The Coil Energy Recovery Loop by J.B. Custer	
DA-76-17	AIR FLOW AROUND BUILDINGS	
	Contamination of Air Intakes from Roof Exhaust Vents by D.J. Wilson	1039 1044
DA-76-18	MULTI-STORY OFFICE BUILDINGS — DECENTRALIZED OR CENTRALIZED SYSTEMS?	
	Energy Characteristics of Central and Unitary Systems by W.S. Ostrander Unitary Equipment for the Perimeter by J.E. Entwistle Centralized or Decentralized Fan Rooms for Large Buildings by D.E. Ross The Decentralized Heat Pump Approach by J.F. Miller	1082 1094
DA-76-19	CENTRIFUGAL PUMPS: PACKING AND MECHANICAL SEALS	2
	Mechanical Seals — Why Make It Confusing? by R.E. Rockwood	1122
DA-76-20	MECHANICAL VENTILATION — ITS APPLICATION AND CONTROL FOR ENERGY CONSERVATION	
	Impact of ASHRAE Ventilation Standard 63-73 on Energy Use by J.E. Woods Mechanical Ventilation System Design Features by F.H. Kohloss. Control of Ventilation Air in Energy Efficient Systems by H. Nordeen. Control of Ventilation to Conserve Energy While Maintaining Acceptable Indoor Air Quality by T. Kusuda.	1154 1160
SOCIETY	BUSINESS:	
ASHRAE I ASHRAE I Honors an	Members Past Meetings nternational Associates id Awards	1182 1182 1183

The following items will appear in Volume 82, Part 2:
Officers, Directors, Committeemen, Staff
Chapter Officers 1976-77
ASHRAE Technical Committees and Task Groups
ASHRAE Standard Project Committees
ASHRAE Intersociety Representatives
Society Presidents
Fellows
In Memoriam
ASHRAE Code of Ethics