scout

INPUT FORMS

3379166

GARD, INC.

A SUBSIDIARY OF
GATX CORPORATION

From the Collection of
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Scout

THE COMPUTER PROGRAM FOR FACILITY/HVAC DESIGN AND ENERGY ANALYSIS

INPUT FORMS

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SCOUT INPUT FORMS

This booklet contains self-instructional forms for preparing input data for the SCOUT energy analysis program series (see Figure 1). The input forms are divided into the following sets:

- RESPONSE FACTOR PROGRAM (RESFAC)
- LOAD ANALYSIS PROGRAM (LAP)
- LOAD ANALYSIS PROGRAM WITH SHADOW ANALYSIS (LAPS)
- TEMPERATURE ANALYSIS PROGRAM (TAP)
- SYSTEMS ANALYSIS PROGRAM (SAP)
- COST ANALYSIS PROGRAM (CAP)

Detailed instructions for the use of these input forms can be found in the SCOUT User's Manual. However, the experienced user will be able to prepare input data without requiring the User's Manual, since many notes are provided on the forms.

Analysis of particular problems will require the use of several copies of some input forms. For example, a 10-space building will require 10 copies of Input Form LA-10. Tables 1-6 give the user some guidance on input form quantity requirements. Figures 2-6 illustrate program card input requirements via a flow chart.

The following items are called to the user's attention concerning the use of these input forms:

1) Forms are 8-1/2 x 11 inch in size to facilitate easy insertion into project files and reports.
2) In most instances, the data has been blocked into 5 or 10 column fields to allow for keypunching via a program card.
3) To allow for easy recognition of data to be punched, use a bright colored pen or pencil to fill in forms.

4) Columns 71-80 (with a few exceptions) have been set aside for optional card indexing. Recommended index sequencing has been added to each card. This is optional and can be omitted if desired. It is for user convenience only. Computer ignores any data punched in these columns.

5) Not all input data is required for each problem. Instructions on input forms and illustrated in Figures 2-6 guide user as to when data can be ignored. Cards always required are noted by an "R" at the extreme right of card.

6) Unless otherwise noted, all input data are real numbers requiring a decimal point. Such numbers can be entered anywhere within the specified field. However, for ease of keypunching data should start in first column of each field.

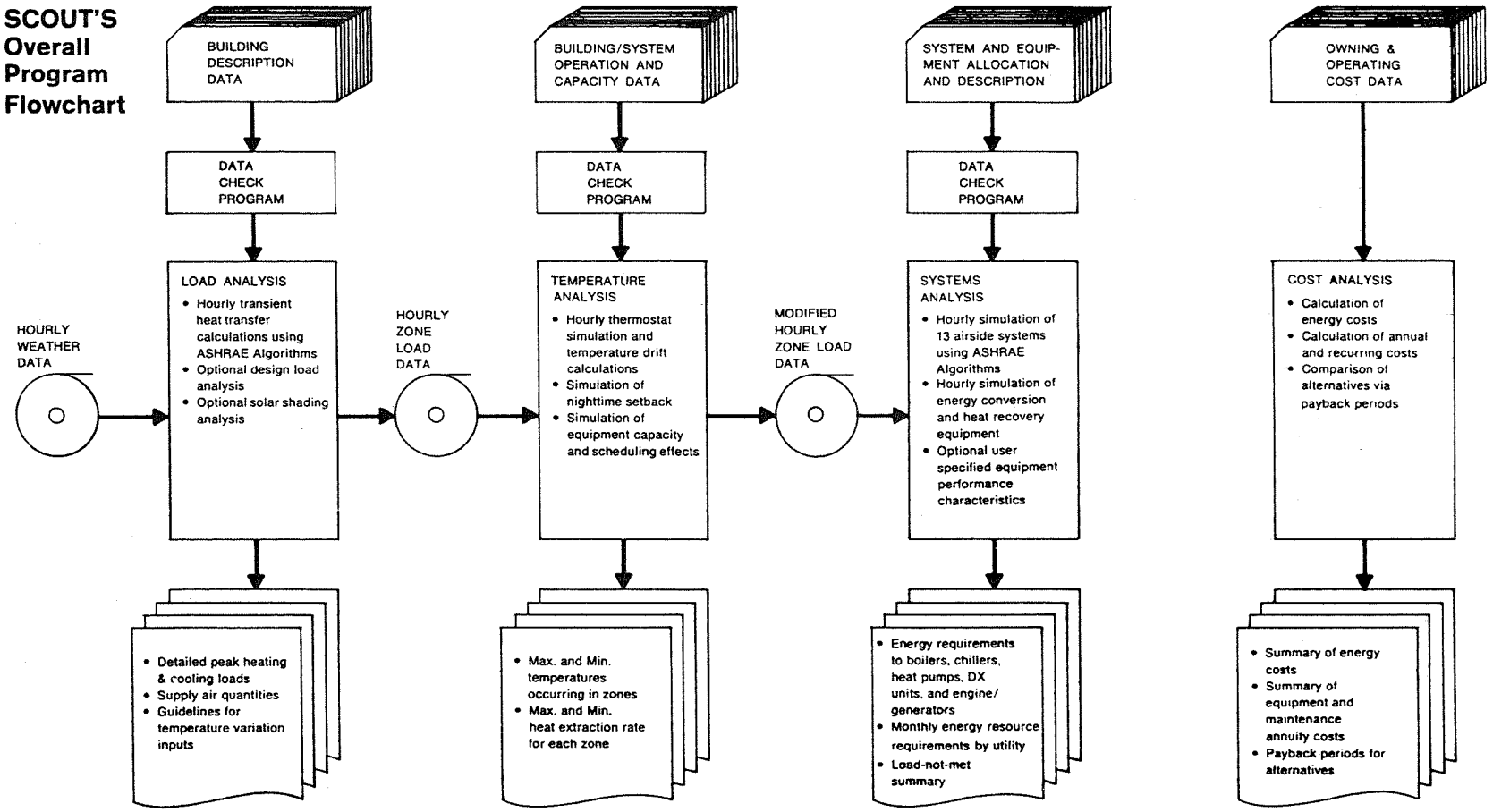
SCOUT'S Overall Program Flowchart
BUILDING DESCRIPTION DATA
BUILDING/SYSTEM OPERATION AND CAPACITY DATA
SYSTEM AND EQUIPMENT ALLOCATION AND DESCRIPTION
OWNING & OPERATING COST DATA
DATA CHECK PROGRAM
DATA CHECK PROGRAM
DATA CHECK PROGRAM
HOURLY WEATHER DATA
LOAD ANALYSIS
• Hourly transient heat transfer calculations using ASHRAE Algorithms
• Optional design load analysis
• Optional solar shading analysis
HOURLY ZONE LOAD DATA
TEMPERATURE ANALYSIS
• Hourly thermostat simulation and temperature drift calculations
• Simulation of nighttime setback
• Simulation of equipment capacity and scheduling effects
MODIFIED HOURLY ZONE LOAD DATA
SYSTEMS ANALYSIS
• Hourly simulation of 13 airside systems using ASHRAE Algorithms
• Hourly simulation of energy conversion and heat recovery equipment
• Optional user specified equipment performance characteristics
COST ANALYSIS
• Calculation of energy costs
• Calculation of annual and recurring costs
• Comparison of alternatives via payback periods
• Detailed peak heating & cooling loads
• Supply air quantities
• Guidelines for temperature variation inputs
• Max. and Min. temperatures occurring in zones
• Max. and Min. heat extraction rate for each zone
• Energy requirements to boilers, chillers, heat pumps, DX units, and engine/generators
• Monthly energy resource requirements by utility
• Load-not-met summary
• Summary of energy costs
• Summary of equipment and maintenance annuity costs
• Payback periods for alternatives

Figure 1

TABLE 1

RESPONSE FACTOR PROGRAM

INPUT FORM REQUIREMENTS

INPUT FORM NO.	NUMBER OF TIMES USED	COMMENTS
RF-01	1 required for each response factor surface defined.	

TABLE 2

LOAD ANALYSIS PROGRAM

INPUT FORM REQUIREMENTS

INPUT FORM NO.	NUMBER OF TIMES USED	COMMENTS
LA-01	1 required.	
LA-02	1 required.	
LA-03	1 required.	
LA-04	1 required typically.	If more than 1 non-standard response factor surface is used, additional forms are required.
LA-05	1 required typically.	If more than 25 delayed heat transfer surfaces are used, additional forms are required.
LA-06	1 required typically.	If more than 25 quick heat transfer surfaces are used, additional forms are required.
LA-07	1 required typically.	If more than 25 glazed surfaces are used, additional forms are required.
LA-08	1 required typically.	If more than 20 internal heat transfer surfaces are used, additional forms are required.
LA-09	1 required typically.	If more than 10 underground walls or floors are used, additional forms are required.
LA-10	1 required per space.	Typically, a space is defined as a Thermal zone .

TABLE 3

LOAD ANALYSIS PROGRAM (WITH SHADOWS)

INPUT FORM REQUIREMENTS

INPUT FORM NO.	NUMBER OF TIMES USED	COMMENTS
LA/S-01	1 required.	
LA/S-02	1 required.	
LA/S-03	1 required.	
LA/S-04	1 required per common shading surface.	Use additional ADDED SHADING, CONTINUATION forms as required.
LA/S-05	1 required typically.	If more than 1 non-standard response factor surface is used, additional forms are required.
LA/S-06	1 required per delayed heat transfer surface.	Use additional ADDED SHADING, CONTINUATION forms as required.
LA/S-07	1 required.	
LA/S-08	1 required per quick heat transfer surface.	Use additional ADDED SHADING, CONTINUATION forms as required.
LA/S-09	1 required.	
LA/S-10	1 required per glazed surface.	Use additional ADDED SHADING, CONTINUATION forms as required.
LA/S-11	1 required.	
LA/S-12	1 required typically.	If more than 20 internal heat transfer surfaces are used, additional forms are required.
LA/S-13	1 required typically.	If more than 10 underground walls or floors are used, additional forms are required.
LA/S-14	1 required per space.	Typically, a space is defined as a Thermal zone.

TABLE 4

TEMPERATURE ANALYSIS PROGRAM

INPUT FORM REQUIREMENTS

INPUT FORM NO.	NUMBER OF TIMES USED	COMMENTS
TV-01	1 required.	
TV-02	1 required typically.	If user-defined floor types is greater than 1, additional forms are required. Normally user will choose to use built-in default values, however.
TV-03	None typically.	If user-defined ceiling or furnishing types is greater than 0, this form(s) is required. Normally user will choose use built-in default values, however.
TV-04	1 required per space.	
TV-05	1 required per thermostat schedule.	
TV-06	1 required typically.	If more than 25 spaces are used, additional forms are required.

TABLE 5

SYSTEMS ANALYSIS PROGRAM

INPUT FORM REQUIREMENTS

INPUT FORM NO.	NUMBER OF TIMES USED	COMMENTS
SA-01	1 required.	
SA-02	1 required typically.	If number of ventilation schedules equals 0, this form not required.
SA-03	1 set required per distribution system.	Special SA-03 forms have been prepared for each of 13 type distribution systems.
SA-04		If a distribution system has more than 25 spaces, additional forms are required.
SA-05	1 required.	
SA-06	1 required.	
SA-07	1 required per heat pump system or DX packaged system.	If no DX or heat pump systems are used, this form is not required.

TABLE 6

COST ANALYSIS PROGRAM

INPUT FORM REQUIREMENT

INPUT FORM NO.	NUMBER OF TIMES USED	COMMENTS
CA-01	1 required.	
CA-02	1 set required per energy category.	
CA-03	1 required per energy application.	
CA-04	1 required typically.	If more than 3 equipment categories are used, additional forms are required.
CA-05	1 required.	

NOTE: Repeat sets of CA-02, CA-03 and CA-04 for each case considered.

RESPONSE FACTOR PROGRAM

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RESPONSE FACTOR PROGRAM

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INPUT FORM RF-01

GENERAL NOTES

1. Unless otherwise noted, all input data are real numbers requiring a decimal point. The program is designed to by-pass unneeded portions of input as indicated by notes.
2. Input cards required to execute the program are noted by an "R" at their extreme right.

DEFINITION OF RESPONSE FACTOR SURFACES

No. of Response Factor Surfaces To be Analyzed	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
	R 1 R

RESPONSE FACTOR
SURFACE No. _____ LABEL _____

NOTE: Repeat card set R2 and R3 number of times indicated on card type R1.

Number Of Layers (1. - 10.)	Do Not Include Outside Air Film As a Layer	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
		R 2 R

LAYER NO.	Thickness (FT.)	Thermal Conductivity (BTU/HR-SQ.FT.-F)	Density (LB/CU.FT)	Specific Heat (BTU/LB.-F)	Thermal Resistivity (HR.-SQ.FT.-F/BTU)	Label (Alphanumeric)	Card Index
	1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
1							R 3 R
2							
3							
4							
5							
6							
7							
8							
9							
10							

NOTES: 1. Order of layers should be from outside surface to inside air film.
2. For layers which have no thermal mass(ie.,air space) leave columns 1-40 blank, and fill in only columns 41-70 .
3. For layers which have thermal mass, leave columns 41-50 blank.

LOAD ANALYSIS PROGRAM

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INPUT FORM LA-01

GENERAL NOTES

1. Unless otherwise noted, all input data are real numbers requiring a decimal point. The program is designed to by-pass unneeded portions of input as indicated by notes.
2. Input cards required to execute the program are noted by an "R" at their extreme right.

JOB IDENTIFICATION

(Alpha-numeric data may be entered on card types L1 through L5.)

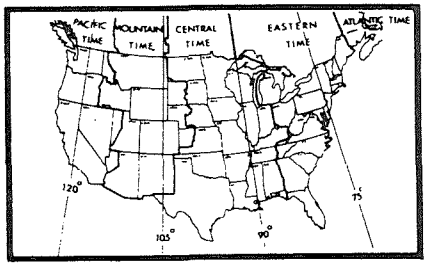
IDENTIFICATION OF ID TERMS	Card Index
FACILITY NAME	L 1 R
FACILITY LOCATION	L 2 R
USER ID	L 3 R
PROJECT NUMBER	L 4 R
DATE	L 5 R

GEOGRAPHIC PARAMETERS

Latitude (DEG)	Longitude (DEG)	Time Zone Number	Clearness Number (summer)	Clearness Number (winter)	Bldg. Azimuth Angle (DEG)	Card Index
						L 6 R

JOB CONTROL PARAMETERS

Job Processing Code(CODE)	Ventilation Air Rate (cfm/sq.ft.)	Estimated Total Fan Pressure (in.H_2O)	Zone Cold Air Supply Temp. - Option 1 (^oF)	Zone Cold Air Supply Temp. - Option 2 (^oF)	Zone Hot Air Supply Temp. - Option 1 (^oF)	Zone Hot Air Supply Temp. - Option 2 (^oF)	Card Index
							L 7 R



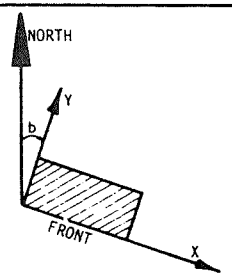
TIME ZONES IN THE UNITED STATES

TIME ZONE NUMBERS IN U.S. FOR STANDARD TIME

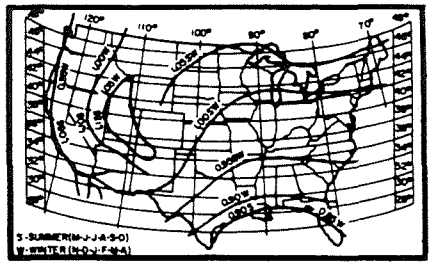
TIME ZONE	NUMBER
Atlantic	4.0
Eastern	5.0
Central	6.0
Mountain	7.0
Pacific	8.0

JOB PROCESSING CODE

1.0 - Design Load Analysis only
2.0 - Design Load & Hourly Load Analysis
3.0 - Hourly Load Analysis Only.



Building Azimuth Angle (b)



CLEARNESS NUMBERS OF NON-INDUSTRIAL ATMOSPHERE IN UNITED STATES

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INPUT FORM LA-02

DESIGN LOAD ANALYSIS PARAMETERS (IF CODE = 3., do not include cards type L8A, L8B and L8C.)

Altitude Above Sea Level (FT)	DESIGN MONTHS M A M J J A S O N D	In Columns 11-20, enter 1 for each month to be included in Design Load Analysis. If all are left blank, all 10 months will be used.	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
			L 8 A

SUMMER DESIGN DAY CONDITIONS (Enter July/August weather conditions - These are adjusted by program for other cooling months.

Max. D.B Temperature (^{o}F)	Daily D.B Temperature Range (^{o}F)	Dew Point Temperature (^{o}F)	Windspeed (MPH)	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
				L 8 B

WINTER DESIGN DAY CONDITIONS (Enter December weather conditions)

Minimum D.B Temperature (^{o}F)	Daily D.B Temperature Range (^{o}F)	Dew Point Temperature (^{o}F)	Windspeed (MPH)	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
				L 8 C

HOURLY LOAD ANALYSIS PARAMETERS (IF CODE = 1., do not include card type L9.)

Weather Year	First Month Of Analysis (1-12)	Length of Study (Days; 1-365)	Estimated Initial Outside Surface Temperature (^{o}F)	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
				L 9

SCHEDULED PRINTOUTS (Hourly listing of weather and space load data)

Number of Printouts (0-12)	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
	L 1 0 R

PRINTOUT NO.	Start Date (Month/Day)	Stop Date (Month/Day)	Repeat card L10A as many times as indicated on card L10. Fill in all columns indicated. Enter zeros if necessary. NO DECIMAL POINT REQUIRED.	Card Index
	1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
1	/ /	/ /		L 1 0 A
2	/ /	/ /		
3	/ /	/ /		
4	/ /	/ /		
5	/ /	/ /		
6	/ /	/ /		
7	/ /	/ /		
8	/ /	/ /		
9	/ /	/ /		
10	/ /	/ /		
11	/ /	/ /		
12	/ /	/ /		

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LOAD ANALYSIS PROGRAM

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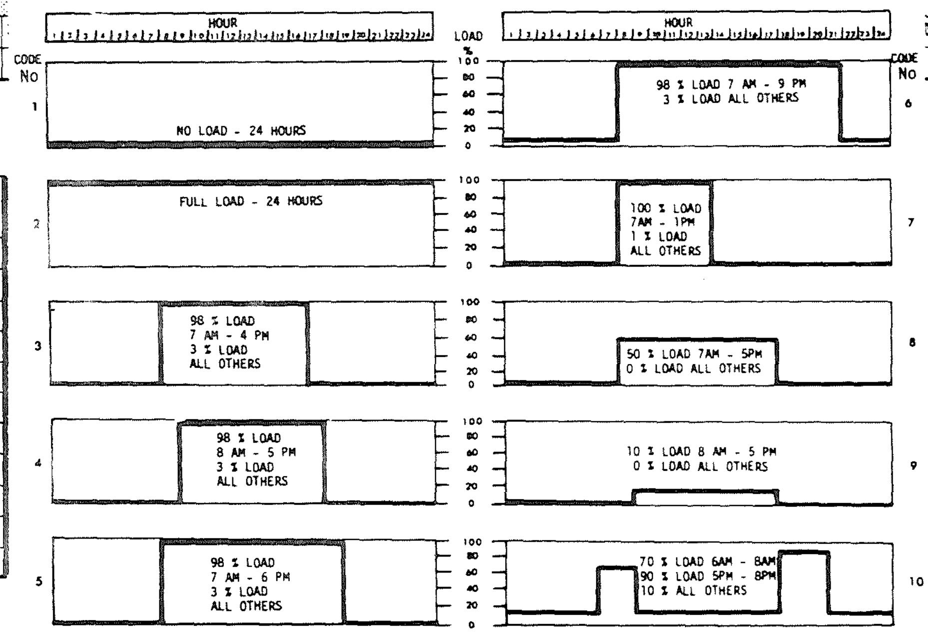
INPUT FORM LA-03

SCHEDULES

No. Operating Schedules (1-10)																													
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30

STANDARD TWENTY-FOUR HOUR PROFILES



Card Index										
71	72	73	74	75	76	77	78	79	80	
L	1	1								R

OPERATING SCHEDULE DEFINITION

OPERATING SCHEDULE NO.	SUN. (1-20)					WEEK DAY (1-20)					SAT. (1-20)					HOLIDAY (1-20)					LABEL (ALPHA-NUMERIC)									
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1																														
2																														
3																														
4																														
5																														
6																														
7																														
8																														
9																														
10																														

Card Index										
71	72	73	74	75	76	77	78	79	80	
L	1	1	A							R

NON-STANDARD TWENTY-FOUR HOUR PROFILES

CODE NO.	1 AM			2 AM			3 AM			4 AM			5 AM			6 AM			7 AM			8 AM			9 AM			10 AM			11 AM			12 NOON			1 PM			2 PM			3 PM			4 PM			5 PM			6 PM			7 PM			8 PM			9 PM			10 PM			11 PM			12 MID-NIGHT			Card Index							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
11																																																																									L	1	1	B				
12																																																																																
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INPUT FORM LA-04

RESPONSE FACTOR SURFACES

Total No. Of Response Factor Surface Types	No. Of Standard Surface Types To Be Used	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	71 72 73 74 75 76 77 78 79 80
		L 1 3 R

STANDARD RESPONSE FACTOR SURFACES

NOTE: REPEAT CARD TYPE L13A NUMBER OF TIMES INDICATED ON CARD TYPE L13, COLUMNS 11-20.

Standard Surface Code (1. - 16.)	Label (Alphanumeric)	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	71 72 73 74 75 76 77 78 79 80
		L 1 3 A

CODE	TYPE	LAYER DESCRIPTION
1	Wall	Wood Drop Siding 3/4" Sheating Board 4" Air Space 1/2" Gypsum Board Inside Air
2	Wall	Wood Drop Siding 3/4" Sheating Board 4" Fiberglass Insulation 1/2" Gypsum Board Inside Air
3	Wall	4" Face Brick 1/2" Air Space 3/4" sheating Board 4" Fiberglass Insulation 1/2" Gypsum Board Inside Air
4	Wall	8" Concrete Block Inside Air
5	Wall	12" Solid Concrete Inside Air
6	Wall	12" Concrete Block 2" Air Space 1/2" Gypsum Board Inside Air
7	Wall	4" Face Brick 2" Air Space 6" Concrete Block Inside Air
8	Wall	4" Face Brick 2" Air Space 6" Concrete Block 2" Fiberglass Insulation 1/2" gypsum Board Inside Air
9	Wall	Sheet Metal 2" Dense Insulation Sheet Metal Inside Metal
10	Wall	Metal Sliding 1" Dense Insulation 8" Concrete Block Air Space 1/2" Gypsum Board Inside Air
11	Roof	Built-up Coating-1/2" Stone Built-up Coating-3/8" Felt 2" Fiberglass Insulation Metal Pan Inside Air
12	Roof	Built-up Coating-1/2" Stone Built-up Coating-3/8" Felt 3" Cellular Glass Metal Pan Inside Air
13	Roof	Built-up Coating-1/2" Stone Built-up Coating-3/8" Felt 3" Cellular Glass Metal Pan Ceiling Air Space Acoustical Tile Inside Air
14	Roof	Built-up Coating-1/2" Stone Built-up Coating-3/8" Felt 2" Cellular Glass 4" L.W. Concrete Metal Pan Ceiling Air Space Acoustical Tile Inside Air
15	Roof	Sheet Metal 6" Fiberglass Gypsum Board Inside Air
16	Roof	Asphalt Shingle(Pitched Roof) 1/2" Plywood Sheating Attic Air Space 6" Insulation Gypsum Board Inside Air

NON-STANDARD RESPONSE FACTOR SURFACES

NOTE: 1. REPEAT CARD SETS L13B THRU L13D FOR EACH DIFF. NON-STD. CONSTRUCTION TYPE.
2. USE RESPONSE FACTOR PROGRAM TO GENERATE CARD TYPES L13C AND L13D.
3. SURFACE CODES 17-25 RESERVED FOR ADD. STD. SURFACES TO BE ADDED LATER.

Non-standard Surface Code (26. and up)	Label (Alphanumeric)	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	71 72 73 74 75 76 77 78 79 80
		L 1 3 B

No. time Respon-se Grps	Common Ratio	Card Index
1 2 3	4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	71 72 73 74 75 76 77 78 79 80
		L 1 3 C

↑ Integer number, right justify with no decimal point

TIME RESPONSE GROUPS

	X	Y	Z	Card Index
	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60	71 72 73 74 75 76 77 78 79 80
1				L 1 3 D
2				
3				
4				
5				

↓ 100 MAX

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INPUT FORM LA-05

DELAYED SURFACES

No. Delayed Surfaces	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
	L 1 4 R

NOTE: REPEAT CARD TYPE L14A FOR EACH DELAYED SURFACE.

	Similar Surface Index	SIMILAR SURFACE PROPERTIES: Surface Absorptivity	Surface Roughness Index	Response Factor Code	Ground Reflectivity	Surface Area (SQ.FT.)	Azimuth Angle (DEG)	Tilt Angle (DEG)	Infil. Flow Coeff.	Label (Alphanumeric)	Card Index
	1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20	21 22 23 24 25	26 27 28 29 30 31 32 33 34 35	36 37 38 39 40	41 42 43 44 45	46 47 48 49 50	51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
1											L 1 4 A
2											
3											
4											
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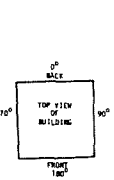
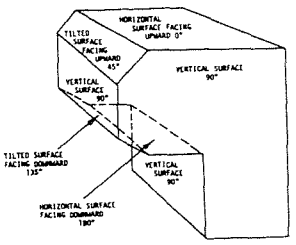
22											
23											
24											
25											

NOTES:

1. Similar surface feature can be used when a reference surface described previously has identical surface properties.
2. When using similar surface feature if any surface parameters (except for Azimuth and Tilt angles) are left blank, values entered for reference surface will be used automatically.
3. Azimuth and Tilt angles must always be entered.
4. Infiltration flow coefficient required only when using crack infiltration.



SURFACE AZIMUTH ANGLE



SURFACE TILT ANGLE

CODE FOR EXTERIOR SURFACE FINISH

CODE	SURFACE FINISH	EXAMPLE: WALL	EXAMPLE: ROOF
1	Rough	• Stucco	• Wood Shingles • Built-up Roof with Stones
2		• Brick • Plaster	
3		• Concrete	• Asphalt Shingles
4		• Clear Pine	
5		• Smooth Plaster • Metal	• Metal
6	Smooth	• Glass • Paint on Pine	

Increasing Smoothness

GATX
GARD, INC.

SCOUT

LOAD ANALYSIS PROGRAM

job name	
date	PAGE ____ OF ____

INPUT FORM LA-06

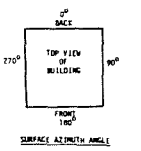
No. Quick Surfaces	Card Index
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
	L 1 5 R

NOTE: REPEAT CARD TYPE L15A FOR EACH QUICK SURFACE.

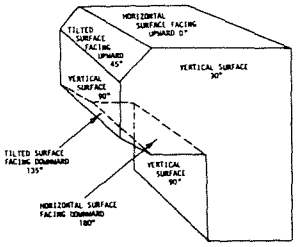
INDEX NO.	Similar Surface Index	SIMILAR SURFACE PROPERTIES: Surface Absorptivity	SIMILAR SURFACE PROPERTIES: Surface Roughness Index	SIMILAR SURFACE PROPERTIES: U-Factor	Ground Reflectivity	Surface Area (SQ.FT.)	Azimuth Angle (DEG.)	Tilt Angle (DEG.)	Infil. Flow Coeff.	Surface Perimeter (FT)	Label (Alphanumeric)	Card Index
	1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20	21 22 23 24 25	26 27 28 29 30 31 32 33 34 35	36 37 38 39 40	41 42 43 44 45	46 47 48 49 50	51 52 53 54 55	56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
1												L 1 5 A
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												

NOTES:

1. Similar surface feature can be used when a reference surface described previously has identical surface properties.
2. When using similar surface feature, if any surface parameters (Except for azimuth and tilt angles) are left blank, values entered for reference surface will be used automatically.
3. Azimuth angle must always be entered.
4. Infiltration flow coefficient and perimeter are required only when using crack infiltration.



SURFACE AZIMUTH ANGLE



SURFACE TILT ANGLE

CODE FOR EXTERIOR SURFACE FINISH

CODE	SURFACE FINISH	EXAMPLE: WALL	EXAMPLE: ROOF
1	Rough	• Stucco	• Wood Shingles • Built-up Roof with Stones
2		• Brick • Plaster	
3		• Concrete	• Asphalt Shingles
4		• Clear Pine	
5		• Smooth Plaster • Metal	• Metal
6	Smooth	• Glass • Paint on Pine	

Increasing Smoothness

GATX
GARD, INC.

SCOUT
LOAD ANALYSIS PROGRAM

job name	
date	PAGE ____ OF ____

INPUT FORM LA-07

GLAZED SURFACES

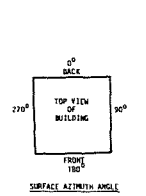
No. Glazed Surfaces	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
	L 1 6 R

NOTE: REPEAT CARD TYPE L16A FOR EACH GLAZED SURFACE.

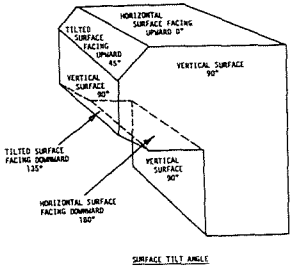
Similar Surface Index	SIMILAR SURFACE PROPERTIES: Glass Code	SIMILAR SURFACE PROPERTIES: No. Panes	SIMILAR SURFACE PROPERTIES: Shade Coeff.	Ground Reflectivity	Surface Area (SQ.FT.)	Azimuth Angle (DEG.)	Tilt Angle (DEG)	Win/Sky Factor	Win/Gnd Factor	Infil. Flow Coeff.	Surface Perimeter (FT)	Label (Alphanumeric)	Card Index
1 2 3 4 5	6 7 8 9 10	11 12 13 14 15 16 17 18 19 20		21 22 23 24 25	26 27 28 29 30 31 32 33 34 35	36 37 38 39 40	41 42 43 44 45	46 47 48 49 50	51 52 53 54 55	56 57 58 59 60	61 62 63 64 65	66 67 68 69 70 71 72 73 74 75	76 77 78 79 80
													L 1 6 A

NOTES:

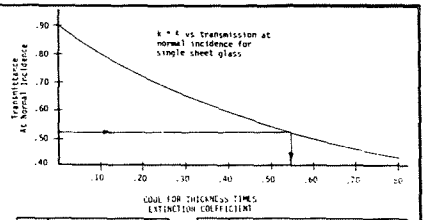
1. Similar surface feature can be used when a reference surface described previously has identical surface properties.
2. When using similar surface feature, if any surface parameters(Except for azimuth and tilt angles) are left blank, values entered for reference surface will be used automatically.
3. Azimuth angle must always be entered.
4. Infiltration flow coefficient and perimeter are required only when using crack infiltration.



SURFACE AZIMUTH ANGLE



SURFACE TILT ANGLE



CODE	MEANING
1	1/8" sheet
2	k * t = 0.10
3	k * t = 0.15
4	k * t = 0.20

CODE	MEANING
5	k * t = [illegible]
6	k * t = [illegible]
7	90 transparent [illegible]
8	k * t = 1.30

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SCOUT
LOAD ANALYSIS PROGRAM

job name	
date	PAGE ____ OF ____

INPUT FORM LA-08

INTERNAL SURFACES

No. Internal Heat Transfer Surfaces		Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
		L 1 7

R

(If there are no internal surfaces, skip card type L17A.)

Index No.	Surface Area	Heat Transfer Coefficient (BTU/HR-^{o}F-FT^{2})	ADJOINING SPACES: Space 1	ADJOINING SPACES: Space 2	Label (Alphanumeric)		Card Index
	1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
1							L 1 7 A
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

(Heat transfer coefficient should include air film on both sides.)

GATX
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SCOUT
LOAD ANALYSIS PROGRAM

job name	
date	PAGE ____ OF ____

INPUT FORM LA—09

UNDERGROUND SURFACES

UNDERGROUND WALLS

No. Underground Walls	Card Index
1 2 3 4 5 6 7 8 9 10	71 72 73 74 75 76 77 78 79 80
	L 1 8 R

(If no underground walls are required, skip card type L18A.)

INDEX NO.	Wall Area	Heat Trans. Coeff. (BTU/HR-^{o}F-FT^{2})	Label (Alphanumeric)	Card Index
	1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40	71 72 73 74 75 76 77 78 79 80
1				L 1 8 A
2				
3				
4				
5				
6				
7				
8				
9				
10				

UNDERGROUND FLOORS

No. Underground Floors	Card Index
1 2 3 4 5 6 7 8 9 10	71 72 73 74 75 76 77 78 79 80
	L 1 9 R

(If no underground floors are required, skip card type L19A.)

INDEX NO.	Floor Area	Heat Transf. Coeff. (BTU/HR-^{o}F-FT^{2})	Label (Alphanumeric)	Card Index
	1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40	71 72 73 74 75 76 77 78 79 80
1				L 1 9 A
2				
3				
4				
5				
6				
7				
8				
9				
10				

(Heat transfer coefficient should include inside air film. Exterior surface temperature is set equal to ground temperature.)

GROUND TEMPERATURE (^{o}F) (If no underground walls or floors are required, skip card type L20.)

Jan. / July	Feb. / August	March / September	April / October	May / November	June / December	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	71 72 73 74 75 76 77 78 79 80
						L 2 0
						L 2 0

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SCOUT
LOAD ANALYSIS PROGRAM

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date	PAGE ____ OF ____

INPUT FORM LA -10

SPACES

Number of Spaces	Card Index
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
	L 2 1 R

NOTE: CARD TYPE L21 SHOULD APPEAR ONLY ONCE.

SPACE DESCRIPTION

SPACE NO. _____ LABEL _____

NOTE: REPEAT THIS INPUT FORM FOR EACH SPACE.

Space Floor Area (FT^2)	Space Volume (FT^3)	Weight of Floor (LB/FT^2)	Space Temperature (^oF)	Include in bldg load? (0=NO, 1=YES)	Is space a plenum?	Label (Alphanumeric)	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45	46 47 48 49 50	51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
							L 2 1 A R

No. People at Peak	People Activity Level (BTU/HR) (S+L)	Operating Schedule No.	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	71 72 73 74 75 76 77 78 79 80
			L 2 1 B R

Type of Light Fixture (1. - 4.)	Fraction of Light Heat to Space	Lighting Load ($WATTS/FT^2$)	Lighting Load (KW)	Operating Schedule No.	LIGHT FIXTURE CODE	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	1. Not vented 2. Vented to ret. air 3. Vented to sup. & ret. air 4. Incandescent	71 72 73 74 75 76 77 78 79 80
						L 2 1 C R

Miscellaneous Electrical and thermal loads ($WATTS/FT^2$)	(KW)	(BTU/HR-Sensible)	(BTU/HR-Latent)	Operating Schedule No.	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
					L 2 1 D R

Type of Infiltration Analysis (0.-2.)	Infiltration Rate (No. of Air Changes)	Height above (-) or below Neutral Zone (FT)	Space Exhaust Air (CFM)	INFILTRATION CODE	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	0. None 1. Air change method (columns 11-20 req'd) 2. Crack method (columns 21-40 req'd)	71 72 73 74 75 76 77 78 79 80
					L 2 1 E R

No. Delayed Surfaces	No. Quick Surfaces	No. Glazed Surfaces	No. Internal Surfaces	No. Underground Walls	No. Underground Floors	No. Additional Identical Spaces	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
							L 2 1 F R

INDICES OF SPACE SURFACES

- Begin new card for each surface type.
- If a surface type is not included, skip that card index type.

- Delayed _____ L21G
- Quick _____ L21H
- Glazed _____ L21I
- Internal _____ L21J
- Underground Walls _____ L21K
- Underground Floors _____ L21L

Card Index
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

LOAD ANALYSIS PROGRAM
(WITH SHADOW ANALYSIS)

GATX
GARD, INC.

SCOUT

LOAD ANALYSIS PROGRAM
(WITH SHADOWS)

job name	
date	PAGE ____ OF ____

INPUT FORM LA/S-01

GENERAL NOTES

1. Unless otherwise noted, all input data are real numbers requiring a decimal point. The program is designed to by-pass unneeded portions of input as indicated by notes.
2. Input cards required to execute the program are noted by an "R" at their extreme right.

JOB IDENTIFICATION

(Alpha-numeric data may be entered on card types L1 through L5.)

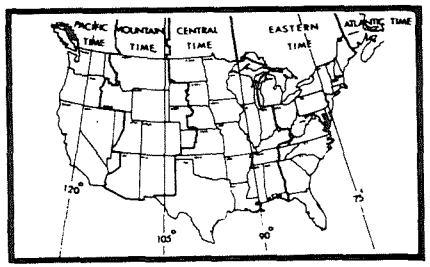
IDENTIFICATION OF ID TERMS	Card Index
FACILITY NAME	L 1 R
FACILITY LOCATION	L 2 R
USER ID	L 3 R
PROJECT NUMBER	L 4 R
DATE	L 5 R

GEOGRAPHIC PARAMETERS

Latitude (DEG)	Longitude (DEG)	Time Zone Number	Clearness Number (summer)	Clearness Number (winter)	Bldg. Azimuth Angle (DEG)		Card Index
							L 6 R

JOB CONTROL PARAMETERS

Job Processing Code(CODE)	Ventilation Air Rate (cfm/sq.ft.)	Estimated Total Fan Pressure (in.H_2O)	Zone Cold Air Supply Temp. - Option 1 (^oF)	Zone Cold Air Supply Temp. - Option 2 (^oF)	Zone Hot Air Supply Temp. - Option 1 (^oF)	Zone Hot Air Supply Temp. - Option 2 (^oF)	Card Index
							L 7 R



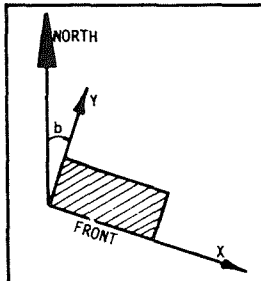
TIME ZONES IN THE UNITED STATES

TIME ZONE NUMBERS IN U.S. FOR STANDARD TIME

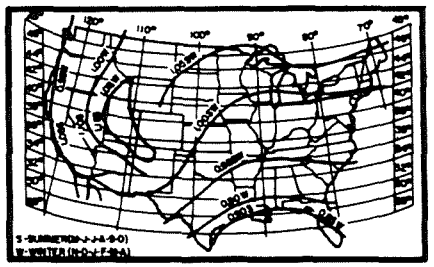
TIME ZONE	NUMBER
Atlantic	4.0
Eastern	5.0
Central	6.0
Mountain	7.0
Pacific	8.0

JOB PROCESSING CODE

1.0 - Design Load Analysis only
2.0 - Design Load & Hourly Load Analysis
3.0 - Hourly Load Analysis Only.



Building Azimuth Angle (b)



CLEARNESS NUMBERS OF NON-INDUSTRIAL ATMOSPHERE IN UNITED STATES

GATX
GARD, INC.

SCOUT

LOAD ANALYSIS PROGRAM
(WITH SHADOWS)

job name	
date	PAGE ____ OF ____

INPUT FORM LA/S-02

DESIGN LOAD ANALYSIS PARAMETERS (IF CODE = 3, do not include cards type L8A, L8B and L8C.)

Altitude Above Sea Level (FT)	DESIGN MONTHS (M A M J J A S O N D)	In Columns 11-20, enter 1 for each month to be included in Design Load Analysis. If all are left blank, all 10 months will be used.	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
			L 8 A

SUMMER DESIGN DAY CONDITIONS (Enter July/August weather conditions - These are adjusted by program for other cooling months.

Max. D.B Temperature (^{O}F)	Daily D.B Temperature Range (^{O}F)	Dew Point Temperature (^{O}F)	Windspeed (MPH)	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
				L 8 B

WINTER DESIGN DAY CONDITIONS (Enter December weather conditions)

Minimum D.B Temperature (^{O}F)	Daily D.B Temperature Range (^{O}F)	Dew Point Temperature (^{O}F)	Windspeed (MPH)	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
				L 8 C

HOURLY LOAD ANALYSIS PARAMETERS (IF CODE = 1, do not include card type L9.)

Weather Year	First Month Of Analysis (1-12)	Length of Study (Days; 1-365)	Estimated Initial Outside Surface Temperature (^{O}F)	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
				L 9

SCHEDULED PRINTOUTS (Hourly listing of weather and space load data)

Number of Printouts (0-12)	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80
	L 1 0 R

PRINTOUT NO.	Start Date (Month/Day)	Stop Date (Month/Day)	Repeat card L10A as many times as indicated on card L10. Fill in all columns indicated. Enter zeros if necessary. NO DECIMAL POINT REQUIRED.	Card Index
	1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
1	/	/		L 1 0 A
2	/	/		
3	/	/		
4	/	/		
5	/	/		
6	/	/		
7	/	/		
8	/	/		
9	/	/		
10	/	/		
11	/	/		
12	/	/		

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SCOUT

LOAD ANALYSIS PROGRAM
(WITH SHADOWS)

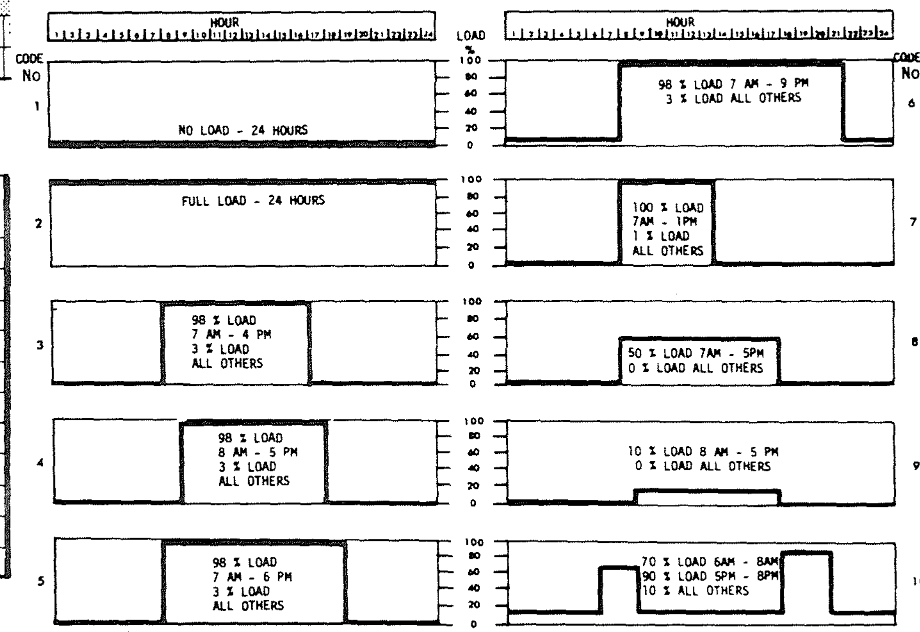
job name	
date	PAGE ____ OF ____

INPUT FORM LA/S-03

SCHEDULES

No. Operating Schedules (1-10)		Card Index	
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	71 72 73 74 75 76 77 78 79 80	
		L 1 1	R

STANDARD TWENTY-FOUR HOUR PROFILES



OPERATING SCHEDULE DEFINITION

OPERATING SCHEDULE NO.	SUN. (1-20)	WEEK DAY (1-20)	SAT. (1-20)	HOLIDAY (1-20)	LABEL (ALPHA-NUMERIC)	Card Index	
	1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	71 72 73 74 75 76 77 78 79 80	
1						L 1 1 A	R
2							
3							
4							
5							
6							
7							
8							
9							
10							

NON-STANDARD TWENTY-FOUR HOUR PROFILES

CODE NO.	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 NOON	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM	12 MID-NIGHT	Card Index
	1 2 3	4 5 6	7 8 9	10 11 12	13 14 15	16 17 18	19 20 21	22 23 24	25 26 27	28 29 30	31 32 33	34 35 36	37 38 39	40 41 42	43 44 45	46 47 48	49 50 51	52 53 54	55 56 57	58 59 60	61 62 63	64 65 66	67 68 69	70 71 72	73 74 75 76 77 78 79 80
11																									L 1 1 B
12																									
13																									
14																									
15																									
16																									
17																									
18																									
19																									
20																									

GATX
GARD, INC.

SCOUT

LOAD ANALYSIS PROGRAM
(WITH SHADOWS)

job name	
date	PAGE ____ OF ____

INPUT FORM LA /S-04

COMMON SHADING SURFACES

NOTE: REPEAT THIS FORM FOR EACH COMMON SHADING SURFACE. CARD L12 REQUIRED ONLY ONCE.

No. Common Shading Surfaces		Card Index
1 2 3 4 5 6 7 8 9 10	11–70	71 72 73 74 75 76 77 78 79 80
		L 1 2

R

DEFINITION OF COMMON SHADING SURFACES (If there are no common shading surfaces, do not include card type L12A and L12B.)

COMMON SHADING
SURFACE NO.________ LABEL______________

No. Vertices	Transmittance 0. (Opaque) to 1. (Clear)	Label (Alphanumeric)		Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31–70	71 72 73 74 75 76 77 78 79 80
				L 1 2 A

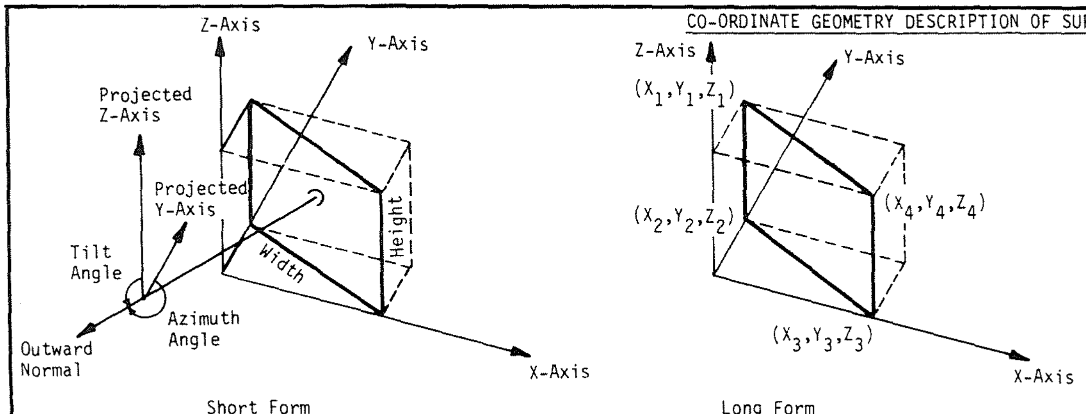
SHORT FORM (columns 1–70)

LONG FORM (columns 1–30)

VERTICE COORDINATES (FEET) X	VERTICE COORDINATES (FEET) Y	VERTICE COORDINATES (FEET) Z	Height (FT)	Width (FT)	Surface Azimuth (DEG)	Tilt Angle (DEG)	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
							L 1 2 B

(If more L12B cards are required, use an Added Shading Continuation Form.)

CO-ORDINATE GEOMETRY DESCRIPTION OF SURFACES



NOTES:

1. SHORT FORM - All columns apply (1-70). Number of Vertices equals 1.0. X,Y,Z coordinates refer to location of lower left hand corner of rectangular surface when viewed from building exterior.
2. LONG FORM - Use columns 1-30 only. Repeat card type L12B for each vertex of surface.
3. This technique applies to delayed, quick and glazed surfaces also.

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LOAD ANALYSIS PROGRAM
(WITH SHADOWS)

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INPUT FORM LA/S-05

RESPONSE FACTOR SURFACES

Total No. Of Response Factor Surface Types	No. Of Standard Surface Types To Be Used

Card Index: L 1 3 R

STANDARD RESPONSE FACTOR SURFACES

NOTE: REPEAT CARD TYPE L13A NUMBER OF TIMES INDICATED ON CARD TYPE L13, COLUMNS 11-20.

Standard Surface Code (1. - 16.)	Label (Alphanumeric)

Card Index: L 1 3 A

CODE	TYPE	LAYER DESCRIPTION
1	Wall	Wood Drop Siding 3/4" Sheating Board 4" Air Space 1/2" Gypsum Board Inside Air
2	Wall	Wood Drop Siding 3/4" Sheating Board 4" Fiberglass Insulation 1/2" Gypsum Board Inside Air
3	Wall	4" Face Brick 1/2" Air Space 3/4" sheating Board 4" Fiberglass Insulation 1/2" Gypsum Board Inside Air
4	Wall	8" Concrete Block Inside Air
5	Wall	12" Solid Concrete Inside Air
6	Wall	12" Concrete Block 2" Air Space 1/2" Gypsum Board Inside Air
7	Wall	4" Face Brick 2" Air Space 6" Concrete Block Inside Air
8	Wall	4" Face Brick 2" Air Space 6" Concrete Block 2" Fiberglass Insulation 1/2" gypsum Board Inside Air
9	Wall	Sheet Metal 2" Dense Insulation Sheet Metal Inside Metal
10	Wall	Metal Sliding 1" Dense Insulation 8" Concrete Block Air Space 1/2" Gypsum Board Inside Air
11	Roof	Built-up Coating-1/2" Stone Built-up Coating-3/8" Felt 2" Fiberglass Insulation Metal Pan Inside Air
12	Roof	Built-up Coating-1/2" Stone Built-up Coating-3/8" Felt 3" Cellular Glass Metal Pan Inside Air
13	Roof	Built-up Coating-1/2" Stone Built-up Coating-3/8" Felt 3" Cellular Glass Metal Pan Ceiling Air Space Acoustical Tile Inside Air
14	Roof	Built-up Coating-1/2" Stone Built-up Coating-3/8" Felt 2" Cellular Glass 4" L.W. Concrete Metal Pan Ceiling Air Space Acoustical Tile Inside Air
15	Roof	Sheet Metal 6" Fiberglass Gypsum Board Inside Air
16	Roof	Asphalt Shingle(Pitched Roof) 1/2" Plywood Sheating Attic Air Space 6" Insulation Gypsum Board Inside Air

NON-STANDARD RESPONSE FACTOR SURFACES

NOTE: 1. REPEAT CARD SETS L13B THRU L13D FOR EACH DIFF. NON-STD. CONSTRUCTION TYPE.
2. USE RESPONSE FACTOR PROGRAM TO GENERATE CARD TYPES L13C AND L13D.
3. SURFACE CODES 17-25 RESERVED FOR ADD. STD. SURFACES TO BE ADDED LATER.

Non-standard Surface Code (26. and up)	Label (Alphanumeric)

Card Index: L 1 3 B

No. time Respon-se Grps	Common Ratio

Card Index: L 1 3 C

Integer number, right justify with no decimal point

TIME RESPONSE GROUPS

X	Y	Z

Card Index: L 1 3 D

100 MAX

DELAYED HEAT TRANSFER SURFACES

No. Delayed Surfaces

Card Index: L 1 4 R

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INPUT FORM LA/S-06

DELAYED SURFACES
NOTE: REPEAT THIS INPUT FORM FOR EACH DELAYED SURFACE.

DELAYED
SURFACE No. _____ LABEL _____

Surface Exterior Absorptivity	Ground Reflectivity Facing Surface	Infiltration Flow Coefficient	Label (Alphanumberic)		Card Index
1-10	11-20	21-30	31-50	51-70	71-80
					L 1 4 A

No. Vertices in Surfaces	No.Divisions Along Width Dimension For Shade Analysis	No.Division Along Height Dimension For Shade Analysis	No.Common Shading Surfaces Excluded	No. Shading Surfaces Added to Surface	Surface Roughness Index (See Form 07)	Response Factor Surface Code	Card Index
1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80
							L 1 4 B

DELAYED SURFACE GEOMETRY
(May be long form or short form. See notes at the bottom of Input Form LA/S-04. If surface shading is not considered, use short form and leave X, Y, Z coordinates blank. Program will then automatically locate surface at origin with proper tilt and azimuth angles.)

LONG FORM — SHORT FORM

VERTICE COORDINATES (FEET)			Height (FEET)	Width (FEET)	Azimuth Angle (DEG)	Tilt Angle (DEG)	Card Index
X	Y	Z					
1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80
							L 1 4 C

COMMON SHADING SURFACES EXCLUDED (If all or none are excluded, skip,card type L14D.)

Indices of Common Shading Surfaces Excluded (Index is defined by order of appearance on Input Form LA/S-04.)	Card Index
1-70	71-80
	L 1 4 D

ADDED SHADING SURFACES (If there are no added shading surfaces, skip card types L14E and F. Card type L14F may be long form or short form.)

No. Vertices	Transmittance 0. (Opaque) to 1. (Clear)	Label (Alphanumeric)		Card Index
1-10	11-20	21-30	31-70	71-80
				L 1 4 E

VERTICE COORDINATES (FEET)			Height (FEET)	Width (FEET)	Azimuth Angle (DEG)	Tilt Angle (DEG)	Card Index
X	Y	Z					
1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80
							L 1 4 F

(If additional card types L14E and F are required, use ADDED SHADING CONTINUATION FORM)

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INPUT FORM LA/S-07

DELAYED SURFACE PICTURES

No. Delayed Surface Pictures	Card Index
1 2 3 4 5 6 7 8 9 10	71 72 73 74 75 76 77 78 79 80
	L 1 4 G

DELAYED SURFACE PICTURE DEFINITION (If no delayed surface pictures are required, skip card type L14H.)

Month (1-12)	Hour of Day (1-24)	Delayed Surface Index	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	71 72 73 74 75 76 77 78 79 80
			L 1 4 H

CODE FOR EXTERIOR SURFACE FINISH

CODE	SURFACE FINISH	EXAMPLE	
		WALL	ROOF
1	Rough	• Stucco	• Wood Shingles • Built-up Roof with Stones
2		• Brick • Plaster	
3		• Concrete	• Asphalt Shingles
4		• Clear Pine	
5		• Smooth Plaster • Metal	• Metal
6	Smooth	• Glass • Paint on Pine	

Increasing Smoothness

QUICK HEAT TRANSFER SURFACES

No. Quick Surfaces	Card Index
1 2 3 4 5 6 7 8 9 10	71 72 73 74 75 76 77 78 79 80
	L 1 5

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INPUT FORM LA/S-08

QUICK SURFACES
NOTE: REPEAT THIS INPUT FORM FOR EACH QUICK SURFACE.

QUICK
SURFACE No._____ LABEL _____

Surface Exterior Absorptivity	Ground Reflectivity Facing Surface	Heat Transfer Coefficient (BTU/HR.F.FT²)	Infiltration Flow Coefficient	Label (Alphanumeric)		Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
						L 1 5 A

No. Vertices In Surfaces	No. Divisions Along Width Dimension For Shade Analysis	No. Divisions Along Height Dimension For Shade Analysis	No. Common Shading Surfaces Excluded	No. Shading Surfaces Added To Surface	Surface Roughness Index (see Form 07)		Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
							L 1 5 B

(Heat transfer coefficient should not include exterior air film.)

QUICK SURFACE GEOMETRY
(May be long or short form. See notes at bottom of input form LA/S-04. If surface shading is not considered, use short form and leave X,Y,Z coordinate blank. Program will then automatically locate surface at origin with proper tilt and azimuth angles.)

LONG FORM

SHORT FORM

VERTICE COORDINATES (FEET) X	VERTICE COORDINATES (FEET) Y	VERTICE COORDINATES (FEET) Z	Height (FEET)	Width (FEET)	Azimuth Angle (DEG)	Tilt Angle (DEG)	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
							L 1 5 C

COMMON SHADING SURFACES EXCLUDED (If none or all excluded, skip card type L15D.)

Indices of Common Shading Surfaces Excluded (Index is defined by order of appearance on input form LA/S-04.)	Card Index
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
	L 1 5 D

ADDED SHADING SURFACES (If there are no added shading surfaces, skip card types L15E and L15F. Card type L15F may be long or short form.)

No. Vertices	Transmittance 0. (Opaque) to 1. (Clear)	Label (Alphanumeric)		Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
				L 1 5 E

VERTICE COORDINATES (FEET) X	VERTICE COORDINATES (FEET) Y	VERTICE COORDINATES (FEET) Z	Height (FEET)	Width (FEET)	Azimuth Angle (DEG)	Tilt Angle (DEG)	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
							L 1 5 F

(If additional card types L14E and F are required, use ADDED SHADING CONTINUATION FORM.)

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(WITH SHADOWS)

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INPUT FORM LA/S-09

QUICK SURFACE PICTURES

No. Quick Surface Pictures	Card Index
1 2 3 4 5 6 7 8 9 10	71 72 73 74 75 76 77 78 79 80
	L 1 5 G

QUICK SURFACE PICTURE DEFINITION (If no quick surface pictures are required, skip card type L15H.)

Month (1-12)	Hour of Day (1-24)	Quick Surface Index	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	71 72 73 74 75 76 77 78 79 80
			L 1 5 H

GLAZED HEAT TRANSFER SURFACES

No. Glazed Surfaces	Card Index
1 2 3 4 5 6 7 8 9 10	71 72 73 74 75 76 77 78 79 80
	L 1 6 R

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(WITH SHADOWS)

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INPUT FORM LA/S-10

GLAZED SURFACES

GLAZED
SURFACE NO. _____ LABEL _____

NOTE: REPEAT THIS INPUT FORM FOR EACH GLAZED SURFACE

Shading Coefficient	Window/sky Form Factor	Window/Ground Form Factor	Ground Reflectivity	Setback (INCHES)	Border (INCHES)	Infiltration Flow Coefficient	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
							L 1 6 A

No. Vertices In surface	No. Divisions Along Width Dimension For Shade Analysis	No. Divisions Along Height Dimension For Shade Analysis	No. Common Shading Surfaces Excluded	No. Shading Surfaces Added to surface	No. Panes of Glass (1.-2.)	Window type Index (See Form 11)	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
							L 1 6 B

GLAZED SURFACE GEOMETRY

(May be long form or short form. See notes at the bottom of input form LA/S-04. If surface shading is not considered, use short form and leave X,Y,Z coordinate blank. Program will then automatically locate surface at origin with proper tilt and azimuth angles.)

SHORT FORM

LONG FORM

VERTICE COORDINATES (FEET) X	VERTICE COORDINATES (FEET) Y	VERTICE COORDINATES (FEET) Z	Height (FEET)	Width (FEET)	Azimuth Angle (DEG)	Tilt Angle (DEG)	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
							L 1 6 C

COMMON SHADING SURFACES EXCLUDED (If none or all are excluded, skip card type L16D)

Indices of shading surfaces excluded (Index is defined by order of appearance on Input Form LA/S-04.)	Card Index
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
	L 1 6 D

ADDED SHADING SURFACES (If there are no added shading surfaces, skip card types L16E and F. Card type L16F may be long or short form.)

No. Vertices	Transmittance 0. (Opaque) to 1. (Clear)	Label (Alphanumeric)		Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
				L 1 6 E

VERTICE CO-ORDINATES (FEET) X	VERTICE CO-ORDINATES (FEET) Y	VERTICE CO-ORDINATES (FEET) Z	Height(FEET)	Width (FEET)	Azimuth Angle (DEG)	Tilt Angle (DEG)	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
							L 1 6 F

(If additional card types L16E and F are required use ADDED SHADING CONTINUATION FORM.)

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INPUT FORM LA/S-11

GLAZED SURFACE PICTURES

No. Glazed Surface Pictures	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
		L 1 6 G

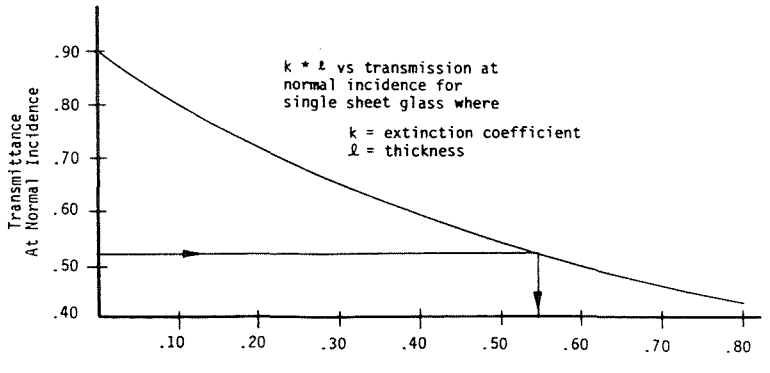
GLAZED SURFACE PICTURE DEFINITION (If no glazed surface picture are required skip card type L16H.)

Month (1-12)	Hour of Day (1-24)	Glazed Surface Index	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
			L 1 6 H

WINDOW INDEX TYPE CODE

CODE	MEANING
1	1/8" sheet
2	k * ℓ = 0.10
3	k * ℓ = 0.15
4	k * ℓ = 0.20

CODE	MEANING
5	k * ℓ = 0.40
6	k * ℓ = 0.60
7	50% transparent H.A. plate
8	k * ℓ = 1.00



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INPUT FORM LA/S-12

INTERNAL SURFACES

No. Internal Heat Transfer Surfaces																																																																						Card Index										
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	
																																																																						L	1	7								R

(If there are no internal surfaces, skip card type L17A.)

Index No.	Surface Area										Heat Transfer Coefficient (BTU/HR-$^{\circ}$F-FT^2)										ADJOINING SPACES: Space 1										ADJOINING SPACES: Space 2										Label (Alphanumeric)																															Card Index									
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
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(Heat transfer coefficient should include air film on both sides.)

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INPUT FORM LA/S-13

UNDERGROUND SURFACES

UNDERGROUND WALLS

No. Underground Walls	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
	L 1 8 R

(If no underground walls are required, skip card type L18A.)

INDEX NO.	Wall Area	Heat Trans. Coeff. (BTU/HR-^{o}F-FT^{2})	Label (Alphanumeric)	Card Index
	1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
1				L 1 8 A
2				
3				
4				
5				
6				
7				
8				
9				
10				

UNDERGROUND FLOORS

No. Underground Floors	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
	L 1 9 R

(If no underground floors are required, skip card type L19A.)

INDEX NO.	Floor Area	Heat Transf. Coeff. (BTU/HR-^{o}F-FT^{2})	Label (Alphanumeric)	Card Index
	1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
1				L 1 9 A
2				
3				
4				
5				
6				
7				
8				
9				
10				

(Heat transfer coefficient should include inside air film. Exterior surface temperature is set equal to ground temperature.)

GROUND TEMPERATURE (^{o}F) (If no underground walls or floors are required, skip card type L20.)

Jan./July	Feb./August	March/September	April/October	May/November	June/December	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
						L 2 0

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INPUT FORM LA/S-14

SPACES

Number of Spaces	Card Index
1 2 3 4 5 6 7 8 9 10	71 72 73 74 75 76 77 78 79 80
	L 2 1 R

NOTE: CARD TYPE L21 SHOULD APPEAR ONLY ONCE.

SPACE DESCRIPTION

SPACE NO._____ LABEL_____

NOTE: REPEAT THIS INPUT FORM FOR EACH SPACE.

Space Floor Area (FT^2)	Space Volume (FT^3)	Weight of Floor (LB/FT^2)	Space Temperature (^oF)	Include in bldg load? (0=NO, 1=YES)	Is space a plenum?	Label (Alphanumeric)	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45	46 47 48 49 50	51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
							L 2 1 A R

No. People at Peak	People Activity Level (BTU/HR) (S+L)	Operating Schedule No.	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	71 72 73 74 75 76 77 78 79 80
			L 2 1 B R

Type of Light Fixture (1. - 4.)	Fraction of Light Heat to Space	Lighting Load ($WATTS/FT^2$)	Lighting Load (KW)	Operating Schedule No.	LIGHT FIXTURE CODE	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	1. Not vented 2. Vented to ret. air 3. Vented to sup. & ret. air 4. Incandescent	71 72 73 74 75 76 77 78 79 80
						L 2 1 C R

Miscellaneous Electrical and thermal loads ($WATTS/FT^2$)	(KW)	(BTU/HR-Sensible)	(BTU/HR-Latent)	Operating Schedule No.	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	71 72 73 74 75 76 77 78 79 80
					L 2 1 D R

Type of Infiltration Analysis (0.-2.)	Infiltration Rate (No. of Air Changes)	Height above (-) or below Neutral Zone (FT)	Space Exhaust Air (CFM)	INFILTRATION CODE	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	0. None 1. Air change method (columns 11-20 req'd) 2. Crack method (columns 21-40 req'd)	71 72 73 74 75 76 77 78 79 80
					L 2 1 E R

No. Delayed Surfaces	No. Quick Surfaces	No. Glazed Surfaces	No. Internal Surfaces	No. Underground Walls	No. Underground Floors	No. Additional Identical Spaces	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
							L 2 1 F R

INDICES OF SPACE SURFACES

- Begin new card for each surface type.
- If a surface type is not included, skip that card index type.

- Delayed _____ L21G
- Quick _____ L21H
- Glazed _____ L21I
- Internal _____ L21J
- Underground Walls _____ L21K
- Underground Floors _____ L21L

Card Index
71 72 73 74 75 76 77 78 79 80

GATX
GARD, INC.

SCOUT

LOAD ANALYSIS PROGRAM
(WITH SHADOWS)

job name	
date	PAGE ___ OF ___

ADDED SHADING, CONTINUATION

DEFINITION OF SHADING SURFACES

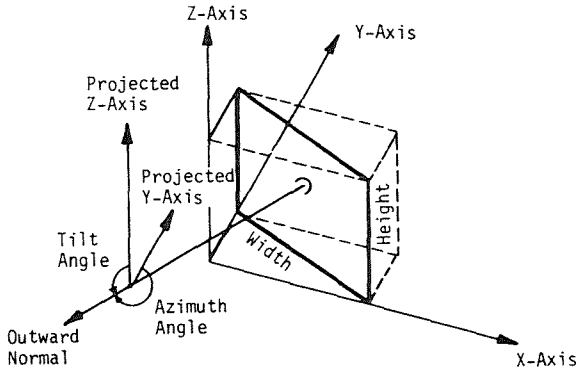
SHADING
SURFACE NO._____ LABEL_____

No. Vertices	Transmittance 0. (Opaque) to 1. (Clear)	Label (Alpha - Numeric)		Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80

SHORT FORM

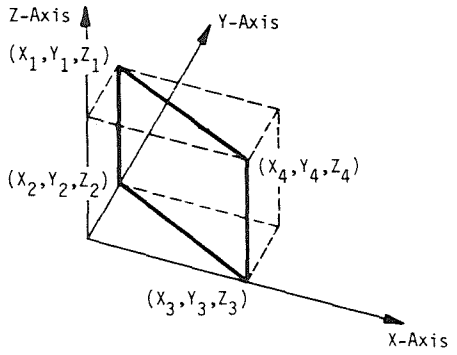
LONG FORM

VERTICE COORDINATES (FEET)			Height (FT)	Width (FT)	Surface Azimuth (DEG)	Tilt Angle (DEG)	Card Index
X	Y	Z					
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80



Short Form

CO-ORDINATE GEOMETRY DESCRIPTION OF SURFACES



Long Form

NOTES:

1. SHORT FORM - All columns apply (1-70). Number of Vertices equals 1.0. X,Y,Z coordinates refer to location of lower left hand corner of rectangular surface when viewed from building exterior.

2. LONG FORM - Use columns 1-30 only. Repeat for each vertex of surface.

TEMPERATURE ANALYSIS PROGRAM

GATX
GARD, INC.

SCOUT

TEMPERATURE ANALYSIS PROGRAM

job name	
date	PAGE ____ OF ____

INPUT FORM TV-01

GENERAL NOTES:

1. Unless otherwise noted, all input data are real numbers, requiring a decimal point. The program is designed to by-pass unneeded portions of input as indicated by notes.
2. Input cards required to execute the program are noted by an "R" at their extreme right.

Job Description Data (Alphanumeric)	Card Index
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
	V 1 R

SPECIAL HOURLY PRINTOUT

Number of Print Periods (0-12)	Number of Zones on input Tape		Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
			V 2 R

Start Printing Date (Month/Day)	Stop Printing Date (Month/Day)	Repeat Card V3 as many times as indicated on Card V2 (skip Card V3 if no special printouts desired).	Card Index
1 2 3 4 5	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
/	/		V 3
/	/		
/	/		
/	/		
/	/		
/	/		
/	/		
/	/		
/	/		
/	/		
/	/		

NOTE: FILL IN ALL INDICATED COLUMNS, ENTER ZERO IF NECESSARY. NO DECIMAL POINT REQUIRED.

BOILER/CHILLER SCHEDULING

Boiler/Chiller Operation Schedule Index		Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
		V 4 R

Chiller/Boiler Index Code

1.0 = Yes, Card V5 is required.
0.0 = No, Skip to Card V6, program assumes equipment continuously available.

Boiler Shutdown Date (Month/Day)	Boiler Startup Date (Month/Day)	Chiller Startup Date (Month/Day)	Chiller Shutdown Date (Month/Day)		Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
/	/	/	/		V 5

NOTE: FILL IN ALL INDICATED COLUMNS, ENTER ZERO IF NECESSARY. NO DECIMAL POINT REQUIRED.

GATX
GARD, INC.

SCOUT

TEMPERATURE ANALYSIS PROGRAM

job name	
date	PAGE ____ OF ____

INPUT FORM TV-02

Number of User-Defined Floor Types (1-10)	Number of User-Defined Ceiling Types (11-20)	Number of User-Defined Furnishing Types (21-30)	(31-70)	Card Index (71-80)
				V 6

NOTES:
1. If number of user-defined floor types = 0.0, skip Cards V7 and V8. Program will use built-in default values which are a function of weight-of-floor entered for each space as part of load program input data.
2. If number of user-defined ceiling types = 0.0, skip Cards V9 and V10. Program will use built-in default values which are a function of weight-of-floor entered for each space as part of load program input data.
3. If number of user-defined furnishing types = 0.0, skip Cards V11 and V12. Program will use built-in default values which are a function of weight-of-furnishings entered for each space on Card V13.

OPTIONAL FLOOR RESPONSE FACTOR DATA

(If number of user-defined floor types = 0.0, skip Cards V7 and V8.
Otherwise use response factor program to generate Cards V7 and V8.)

OPTIONAL FLOOR INDEX NO. _____ LABEL _____ (Index sequentially starting with 1)

No Time Response Grps (1-3)	Common Ratio (4-23)	(24-70)	Card Index (71-80)
			V 7

INTEGER NUMBER, RIGTH JUSTIFY WITH NO DECIMAL POINT

Time Response Groups X (1-20)	Y (21-40)	Z (41-60)	(61-70)	Card Index (71-80)
1				V 8
2				
3				
4				
5				
6				
7				
8				
9				
10				

100 Max.

GATX
GARD, INC.

SCOUT

TEMPERATURE ANALYSIS PROGRAM

job name	
date	PAGE ____ OF ____

INPUT FORM TV-03

OPTIONAL CEILING RESPONSE FACTOR DATA (If number of user-defined ceiling types = 0.0, skip Cards V9 and V10. Otherwise use response factor program to generate Cards V9 and V10.)

OPTIONAL CEILING INDEX NO. _____ LABEL _____ (Index sequentially starting with 1)

No Time Response Grps	Common Ratio		Card Index
1 2 3	4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
			V 9

_____ INTEGER NUMBER, RIGTH JUSTIFY WITH NO DECIMAL POINT.

	Time Response Groups				Card Index
	X	Y	Z		
	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
1					V 1 0
2					
3					
4					
5					
6					
7					
8					
9					
10					

100 Max.

OPTIONAL FURNISHING RESPONSE FACTOR DATA (If number of user-defined furnishing types = 0.0, skip Cards V11 and V12. Otherwise use response factor program to generate Cards V11 and V12.)

OPTIONAL FURNISHING INDEX NO. _____ LABEL _____ (Index sequentially starting with 1)

No Time Response Grps	Common Ratio		Card Index
1 2 3	4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
			V 1 1

_____ INTEGER NUMBER, RIGTH JUSTIFY WITH NO DECIMAL POINT.

	Time Response Groups				Card Index
	X	Y	Z		
	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
1					V 1 2
2					
3					
4					
5					
6					
7					
8					
9					
10					

100 Max.

GATX
GARD, INC.

SCOUT

TEMPERATURE ANALYSIS PROGRAM

job name	
date	PAGE ____ OF ____

INPUT FORM TV-04

SPACE DESCRIPTION DATA

SPACE NO._____ LABEL_____

NOTE: REPEAT THIS INPUT FORM FOR EACH SPACE.

Number of User-Defined Floors in Space (0-3)	Number of User-Defined Ceilings in Space (0-3)	Number of User-Defined Furnishings in Space (0-1)	Weight-of-Furnishings in Space (lbs/sq ft)		Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
					V 1 3 R

NOTE: 1. To use floor default values set number of user-defined floors = 0.0 and skip Card V14.
2. To use ceiling default values set number of user-defined ceilings = 0.0 and skip Card V15.
3. To use furnishing default values set number of user-defined furnishings = 0.0, skip Card V16, and enter value for weight-of-furnishings.

OPTIONAL FLOOR DATA (If number of user-defined floors = 0.0, skip Card V14.)

Floor No. 1		Floor No. 2		Floor No. 3			Card Index
Response Factor Index	Area (sq. ft.)	Response Factor Index	Area (sq. ft.)	Response Factor Index	Area (sq. ft.)		
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
							V 1 4

OPTIONAL CEILING DATA (If number of user-defined ceilings = 0.0, skip Card V15.)

Ceiling No. 1		Ceiling No. 2		Ceiling No. 3			Card Index
Response Factor Index	Area (sq. ft.)	Response Factor Index	Area (sq. ft.)	Response Factor Index	Area (sq. ft.)		
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
							V 1 5

OPTIONAL FURNISHING DATA (If number of user-defined furnishings = 0.0, skip Card V16.)

Furnishing No. 1			Card Index
Response Factor Index	Area (sq. ft.)		
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
			V 1 6

GATX
GARD, INC.

SCOUT

TEMPERATURE ANALYSIS PROGRAM

job name	
date	PAGE ____ OF ____

INPUT FORM TV-05

THERMOSTAT SCHEDULES

NOTE: REPEAT THIS FORM FOR EACH THERMOSTAT SCHEDULE. CARD V17 REQUIRED ONLY ONCE.

Number of Thermostat Schedules (1-5)	CARD INDEX
1 2 3 4 5 6 7 8 9 10	71 72 73 74 75 76 77 78 79 80
	V 1 7 R

THERMOSTAT SCHEDULE NO._____ LABEL_____

WEEK DAY SCHEDULE

Thermostat Type (0,1,2)	High Limit of Throttling Range (°F)	Low Limit of Throttling Range (°F)	Thermostat Type (0,1,2)	High Limit of Throttling Range (°F)	Low Limit of Throttling Range (°F)		CARD INDEX
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
							V 1 8

HOUR OF DAY: 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23 — 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24

NOTE: ALL CARD TYPES V18 INDICATED ABOVE ARE REQUIRED INPUT DATA.

WEEKEND AND HOLIDAY SCHEDULE

Thermostat Type (0,1,2)	High Limit of Throttling Range (°F)	Low Limit of Throttling Range (°F)	Thermostat Type (0,1,2)	High Limit of Throttling Range (°F)	Low Limit of Throttling Range (°F)		INDEX CARD
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
							V 1 8

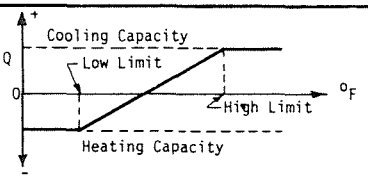
HOUR OF DAY: 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23 — 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24

NOTE: ALL CARD TYPES V18 INDICATED ABOVE ARE REQUIRED INPUT DATA.

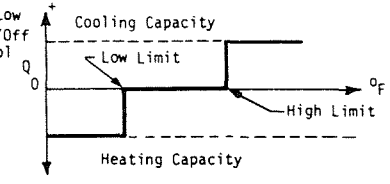
THERMOSTAT TYPES

0.0 No thermostat in space, temperature allowed to float.

1.0 Linear or Proportional Control



2.0 High/Low or On/Off Control



GATX
GARD, INC.

SCOUT

TEMPERATURE ANALYSIS PROGRAM

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date	PAGE ____ OF ____

INPUT FORM TV -06

SPACE DESCRIPTION DATA

REQUIRED FOR CONDITIONED SPACE — REQUIRED FOR PLENUM SPACE

Space No.	Thermostat Schedule Index: Wi. (1-2)	Sp. (3-4)	Su. (5-6)	Fa. (7-8)	(9-10)	Heating Capacity (BTU/HR) (11-20)	Cooling Capacity (BTU/HR) (21-30)	Plenum Space (0=NO,1=Yes) (31-35)	Space No. Below Plenum (36-40)	Plenum Airflow (CFM) (41-50)	Weekday Fan Schedule: Hour On * (51-55)	Weekday Fan Schedule: Hour Off * (56-60)	Weekend Fan Schedule: Hour On * (61-65)	Weekend Fan Schedule: Hour Off * (66-70)	CARD INDEX (71-80)
1															V 1 9
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18															
19															
20															
21															
22															
23															
24															
25															

If space does not have any temperature control at all, then enter a "00" to simulate floating temperature conditions. Do not use decimal points. Fill in all columns indicated. Right justify by using zeros if necessary.

* Varies from 1 to 24.

SYSTEM ANALYSIS PROGRAM

GATX
GARD, INC.

SCOUT

SYSTEMS ANALYSIS PROGRAM

job name

date | PAGE ____ OF ____

INPUT FORM SA - 01

Description of Run (Alpha-Numeric)	Card Index
	S 1

JOB CONTROL PARAMETERS

Begin Analysis Month/Day	End Analysis Month/Day	Number of Hourly Print Periods	Number of Reset Schedules	Number of Operating Schedule Types	Number of Zones On Input Tape		Card Index
/	/						S 2

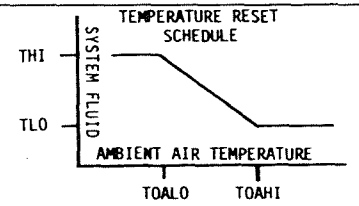
Number of Energy Distribution Systems		Number of DX and Heat Pump Types	Number of process Loads		Card Index
					S 3

HOURLY PRINT PERIODS (If number of hourly print periods=0., skip card type S-4)

	Begin Print Month/Day	Finish Print Month/Day	Print-1 (Weather & Hourly Loads) 0.=Off/1.=On	Print-2 (System Data) 0.=Off/1.=On	Print-3 (Component Data) 0.=Off/1.=On		Card Index
1	/	/					S 4
2	/	/					
3	/	/					
4	/	/					
5	/	/					
6	/	/					
7	/	/					
8	/	/					
9	/	/					
10	/	/					
11	/	/					
12	/	/					
13	/	/					
14	/	/					

TEMPERATURE RESET SCHEDULES (If number of reset schedules=0.,skip card type S-5)

Reset Schedule No.	Low Outside Air Temp.(°F) (TOALO)	High Outside Air Temp.(°F) (TOAHI)	Low System Fluid Temp.(°F) (TLO)	High System Fluid Temp.(°F) (THI)	Schedule Label (Alpha-Numeric)	Card Index
1						S 5
2						
3						
4						
5						



GATX
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SYSTEMS ANALYSIS PROGRAM

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date	PAGE ____ OF ____

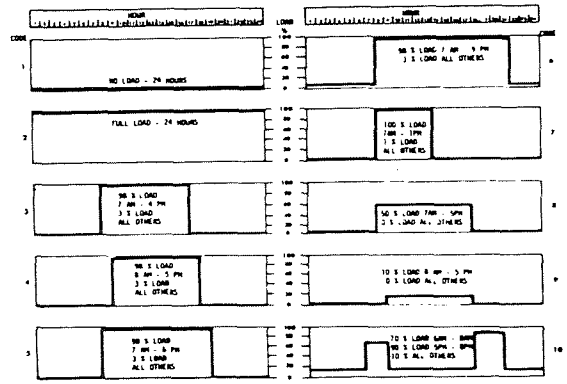
INPUT FORM SA-02

OPERATING SCHEDULES (If number of operating schedule types=0., skip this sheet)

OPERATING SCHEDULE NO.	Sun. (1.-20.)	Weekday (1.-20.)	Sat. (1.-20.)	Holiday (1.-20.)	Label (Alpha-Numeric)		Card Index	
	1 2 3 4 5	6 7 8 9 10	11 12 13 14 15	16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31	70 71 72 73 74 75 76 77 78 79 80	
1							S 6 A	R
2								
3								
4								
5								
6								
7								
8								
9								
10								

(Operating schedules are applied to ventilation and process load scheduling.)

STANDARD TWENTY-FOUR HOUR PROFILES



NON-STANDARD TWENTY-FOUR HOUR PROFILES

INDEX NO.	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 NOON	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM	12 MID-NIGHT	Card Index
	1 2 3	4 5 6	7 8 9	10 11 12	13 14 15	16 17 18	19 20 21	22 23 24	25 26 27	28 29 30	31 32 33	34 35 36	37 38 39	40 41 42	43 44 45	46 47 48	49 50 51	52 53 54	55 56 57	58 59 60	61 62 63	64 65 66	67 68 69	70 71 72	73 74 75 76 77 78 79 80
11																									S 6 B
12																									
13																									
14																									
15																									
16																									
17																									
18																									
19																									
20																									

GATX
GARD, INC.

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SYSTEMS ANALYSIS PROGRAM

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date	PAGE ____ OF ____

INPUT FORM SA-03

ENERGY DISTRIBUTION SYSTEM DATA SYSTEM NO: _____ SYSTEM TYPE: SZFB

Type of Distribution System (1-10)	No. Zones on System (11-20)	Relative Humidity Set Point (%) (21-30)	Fixed or Min. Outside Air (SCFM) (31-40)	Mixed Air Option (41-50)	Variable Volume Fan Control Type (51-60)	(61-70)	Card Index (71-80)
							S 7 A R

TEMPERATURE CONTROL MODES: Hot Deck or AHU Discharge (1-10)	TEMPERATURE CONTROL MODES: Cold Deck (11-20)	TOTAL FAN PRESSURES (IN.H2O): Supply (21-30)	Return (31-40)	Exhaust (41-50)	Variable Volume Reheat Coil Option (51-60)	Variable Volume Box Min. Air (%) (61-70)	Card Index (71-80)
							S 7 B R

FIXED AIR TEMPERATURES (°F): Hot Deck or AHU Discharge (1-10)	FIXED AIR TEMPERATURES (°F): Cold Deck (11-20)	TEMPERATURE RESET SCHEDULE NUMBERS: Hot Deck Schedule or AHU Discharge Schedule (21-30)	Cold Deck Schedule (31-40)	Baseboard Radiation Schedule (41-50)	Two-Pipe H.W Schedule (51-60)	Induction Unit Induced/Primary Air Ratio (61-70)	Card Index (71-80)
							S 7 C R

Two-pipe Fan-Coil Changeover Temp.(°F) (1-10)	2-Pipe ind.change-over or flr. panel shutoff temp. (°F) (11-20)	Two-pipe System Water Volume (GALS) (21-30)	Floor Heating Panel Location (31-40)	Floor Heating Panel Area Covered (FT²) (41-50)	Exposed Perimeter (Lin.FT.) (51-60)	(61-70)	Card Index (71-80)
							S 7 D R

Fan System Shut-off Code (1-10)	Ventilation Schedule Operating No. (11-20)	HEAT RECOVERY DEVICE EFFICIENCY: Sensible Heat (21-30)	Latent Heat (31-40)	DX or Heat Pump Index No. (41-50)	(51-70)	Card Index (71-80)
						S 7 E R

DISTRIBUTION SYSTEM TYPES

1. Single Zone Fan System With Face And By-Pass Dampers.
2. Multi-Zone Fan System.
3. Dual Duct Fan System.
4. Single Zone Fan System With Sub-Zone Reheat.
5. Unit Ventilator.
6. Unit Heater.
7. Floor Panel Heating.
8. Two-Pipe Fancoil System.
9. Four-Pipe Fancoil System.
10. Two-Pipe Induction Unit Fan System.
11. Four-Pipe Induction Unit Fan System.
12. Variable Volume Fan System With Optional Reheat.
13. Constant Volume Reheat Fan System.

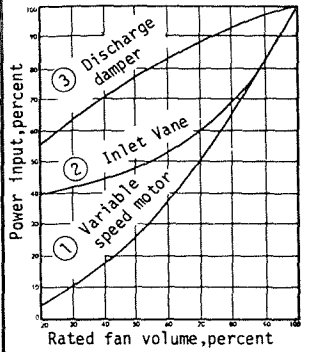
MIXED AIR OPTION CODE

1. Fixed Percent Outside Air.
2. Enth.Temp.Econo.Control.
3. Temp.Econo.Control.

TEMPERATURE CONTROL MODES

1.= Predefined constant temp.
2.= Determined by zone with coldest supply air reqmt.
3.= Reset as per reset schedule
6.= Determined by zone with warmest supply air reqmt.

VARIABLE VOLUME FAN CONTROL CODE



VARIABLE VOLUME REHEAT COIL OPTION CODE

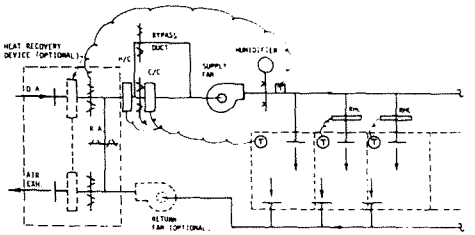
0.= No coil after vav box.
1.= Reheat coil after vav box.

FLOOR HEATING PANEL LOCATION CODE

1.= Slab on grade
2.= Intermediate floor slab.

FAN SYSTEM SHUT-OFF CODE

0.= Fan always runs
1.= Fan may be shut-off/baseboard heating may be on.
2.= Fan and baseboard heating may be shut-off.
3.= Fan always shut off, baseboard heating may be on.



GATX
GARD, INC.

SCOUT

SYSTEMS ANALYSIS PROGRAM

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date	PAGE ____ OF ____

INPUT FORM SA-03

ENERGY DISTRIBUTION SYSTEM DATA SYSTEM NO: _____ SYSTEM TYPE: MZS

Type of Distribution System	No. Zones on System	Relative Humidity Set Point (%)	Fixed or Min. Outside Air (SCFM)	Mixed Air Option	Variable Volume Fan Control Type		Card Index
2							S 7 A R

TEMPERATURE CONTROL MODES		TOTAL FAN PRESSURES (IN.H_2O)			Variable Volume Reheat Coil Option	Variable Volume Box Min. Air (%)	Card Index
Hot Deck AHU Discharge	Cold Deck	Supply	Return	Exhaust			S 7 B R

FIXED AIR TEMPERATURES (°F)		TEMPERATURE RESET SCHEDULE INDICES				Induction Unit Induced/Primary Air Ratio	Card Index
Hot Deck AHU Discharge	Cold Deck	Hot Deck Schedule or AHU Discharge Schedule	Cold Deck Schedule	Baseboard Radiation Schedule	Two-Pipe H & W Schedule		S 7 C R

Two-pipe Fan-Coil Changeover Temp.(°F)	2-Pipe ind.change-over or flr. panel shutoff temp. (°F)	Two-pipe System Water Volume (GALS)	Floor Heating Panel Location	Floor Heating Panel Area Covered (FT^2)	Exposed Perimeter (Lin.FT.)		Card Index
							S 7 D R

Fan System Shut-off Code	Ventilation Schedule Operating No.	HEAT RECOVERY DEVICE EFFICIENCY		DX or Heat Pump Index No.			Card Index
		Sensible Heat	Latent Heat				S 7 E R

DISTRIBUTION SYSTEM TYPES

1. Single Zone Fan System With Face And By-Pass Dampers.
2. Multi-Zone Fan System.
3. Dual Duct Fan System.
4. Single Zone Fan System With Sub-Zone Reheat.
5. Unit Ventilator.
6. Unit Heater.
7. Floor Panel Heating.
8. Two-Pipe Fancoil System.
9. Four-Pipe Fancoil System.
10. Two-Pipe Induction Unit Fan System.
11. Four-Pipe Induction Unit Fan System.
12. Variable Volume Fan System With Optional Reheat.
13. Constant Volume Reheat Fan System.

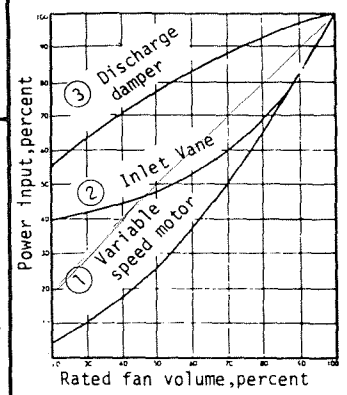
MIXED AIR OPTION CODE

1. Fixed Percent Outside Air.
2. Enth.Temp.Econo.Control.
3. Temp.Econo.Control.

TEMPERATURE CONTROL MODES

1.= Predefined constant temp.
2.= Determined by zone with coldest supply air reqmt.
3.= Reset as per reset schedule
6.= Determined by zone with warmest supply air reqmt.

VARIABLE VOLUME FAN CONTROL CODE



VARIABLE VOLUME REHEAT COIL OPTION CODE

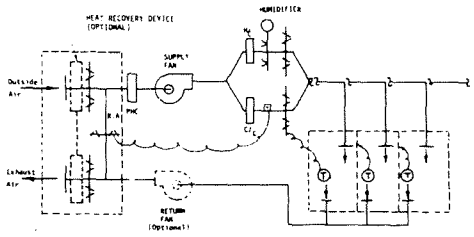
0.= No coil after vav box.
1.= Reheat coil after vav box.

FLOOR HEATING PANEL LOCATION CODE

1.= Slab on grade
2.= Intermediate floor slab.

FAN SYSTEM SHUT-OFF CODE

0.= Fan always runs
1.= Fan may be shut-off/baseboard heating may be on.
2.= Fan and baseboard heating may be shut-off.
3.= Fan always shut off, baseboard heating may be on.



GATX
GARD, INC.

SCOUT

SYSTEMS ANALYSIS PROGRAM

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ENERGY DISTRIBUTION SYSTEM DATA SYSTEM NO: _____ SYSTEM TYPE: DDS

Type of Distribution System	No. Zones on System	Relative Humidity Set Point (R.H)	Fixed or Min. Outside Air (SCFM)	Mixed Air Option	Variable Volume Fan Control Type		Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
3 .							S 7 A R

TEMPERATURE CONTROL MODES		TOTAL FAN PRESSURES ($IN.H_2O$)			Variable Volume Reheat Coil Option	Variable Volume Box Min. Air (%)	Card Index
Hot Deck or AHU Discharge	Cold Deck	Supply	Return	Exhaust			
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
							S 7 B R

FIXED AIR TEMPERATURES (^oF)		TEMPERATURE RESET SCHEDULE INDICES				Induction Unit Induced/Primary Air Ratio	Card Index
Hot Deck or AHU Discharge	Cold Deck	Hot Deck Schedule or AHU Discharge Schedule	Cold Deck Schedule	Baseboard Radiation Schedule	Two-Pipe H.E Schedule		
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
							S 7 C R

Two-pipe Fan-Coil Changeover Temp.(^oF)	2-Pipe ind.change-over or flr. panel shutoff temp. (^oF)	Two-pipe System Water Volume (GALS)	Floor Heating Panel Location	Floor Heating Panel Area Covered (FT^2)	Exposed Perimeter (Lin.FT.)		Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
							S 7 D R

Fan System Shut-off Code	Ventilation Schedule Operating No.	HEAT RECOVERY DEVICE EFFICIENCY		DX or Heat Pump Index No.		Card Index
		Sensible Heat	Latent Heat			
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
						S 7 E R

DISTRIBUTION SYSTEM TYPES

1. Single Zone Fan System With Face And By-Pass Dampers.
2. Multi-Zone Fan System.
3. Dual Duct Fan System.
4. Single Zone Fan System With Sub-Zone Reheat.
5. Unit Ventilator.
6. Unit Heater.
7. Floor Panel Heating.
8. Two-Pipe Fancoil System.
9. Four-Pipe Fancoil System.
10. Two-Pipe Induction Unit Fan System.
11. Four-Pipe Induction Unit Fan System.
12. Variable Volume Fan System With Optional Reheat.
13. Constant Volume Reheat Fan System.

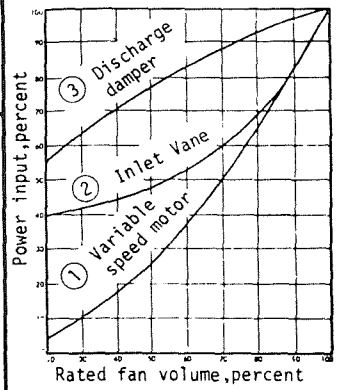
MIXED AIR OPTION CODE

1. Fixed Percent Outside Air.
2. Enth.Temp.Econo.Control.
3. Temp.Econo.Control.

TEMPERATURE CONTROL MODES

1.= Predefined constant temp.
2.= Determined by zone with coldest supply air reqmt.
3.= Reset as per reset schedule
6.= Determined by zone with warmest supply air reqmt.

VARIABLE VOLUME FAN CONTROL CODE



VARIABLE VOLUME REHEAT COIL OPTION CODE

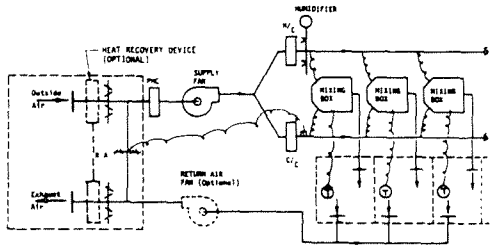
0.= No coil after vav box.
1.= Reheat coil after vav box.

FLOOR HEATING PANEL LOCATION CODE

1.= Slab on grade
2.= Intermediate floor slab.

FAN SYSTEM SHUT-OFF CODE

0.= Fan always runs
1.= Fan may be shut-off/baseboard heating may be on.
2.= Fan and baseboard heating may be shut-off.
3.= Fan always shut off, baseboard heating may be on.



GATX
GARD, INC.

SCOUT

SYSTEMS ANALYSIS PROGRAM

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INPUT FORM SA-03

ENERGY DISTRIBUTION SYSTEM DATA SYSTEM NO: _____ SYSTEM TYPE: SZRH

Type of Distribution System (1-10)	No. Zones on System (11-20)	Relative Humidity Set Point (R.H) (21-30)	Fixed or Min. Outside Air (SCFM) (31-40)	Mixed Air Option (41-50)	Variable Volume Fan Control Type (51-60)		Card Index (71-80)
4.							S 7 A R

TEMPERATURE CONTROL MODES: Hot Deck or AHU Discharge (1-10)	TEMPERATURE CONTROL MODES: Cold Deck (11-20)	TOTAL FAN PRESSURES (IN.H2O): Supply (21-30)	TOTAL FAN PRESSURES (IN.H2O): Return (31-40)	TOTAL FAN PRESSURES (IN.H2O): Exhaust (41-50)	Variable Volume Reheat Coil Option (51-60)	Variable Volume Box Min. Air (%) (61-70)	Card Index (71-80)
							S 7 B R

FIXED AIR TEMPERATURES (°F): Hot Deck or AHU Discharge (1-10)	FIXED AIR TEMPERATURES (°F): Cold Deck (11-20)	TEMPERATURE RESET SCHEDULE INDICES: Hot Deck Schedule or AHU Discharge Schedule (21-30)	TEMPERATURE RESET SCHEDULE INDICES: Cold Deck Schedule (31-40)	TEMPERATURE RESET SCHEDULE INDICES: Baseboard Radiation Schedule (41-50)	Two-Pipe H.W Schedule (51-60)	Induction Unit Induced/Primary Air Ratio (61-70)	Card Index (71-80)
							S 7 C R

Two-pipe Fan-Coil Changeover Temp (°F) (1-10)	2-Pipe ind.change-over or flr. panel shutoff temp. (°F) (11-20)	Two-pipe System Water Volume (GALS) (21-30)	Floor Heating Panel Location (31-40)	Floor Heating Panel Area Covered (FT²) (41-50)	Exposed Perimeter (Lin.FT.) (51-60)		Card Index (71-80)
							S 7 D R

Fan System Shut-off Code (1-10)	Ventilation Schedule Operating No. (11-20)	HEAT RECOVERY DEVICE EFFICIENCY: Sensible Heat (21-30)	HEAT RECOVERY DEVICE EFFICIENCY: Latent Heat (31-40)	DX or Heat Pump Index No. (41-50)			Card Index (71-80)
							S 7 E R

DISTRIBUTION SYSTEM TYPES

1. Single Zone Fan System With Face And By-Pass Dampers.
2. Multi-Zone Fan System.
3. Dual Duct Fan System.
4. Single Zone Fan System With Sub-Zone Reheat.
5. Unit Ventilator.
6. Unit Heater.
7. Floor Panel Heating.
8. Two-Pipe Fancoil System.
9. Four-Pipe Fancoil System.
10. Two-Pipe Induction Unit Fan System.
11. Four-Pipe Induction Unit Fan System.
12. Variable Volume Fan System With Optional Reheat.
13. Constant Volume Reheat Fan System.

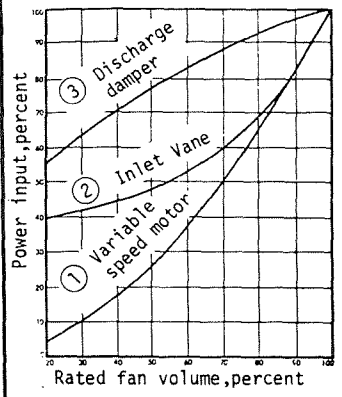
MIXED AIR OPTION CODE

1. Fixed Percent Outside Air.
2. Enth. Temp. Econo. Control.
3. Temp. Econo. Control.

TEMPERATURE CONTROL MODES

1.= Predefined constant temp.
2.= Determined by zone with coldest supply air reqmt.
3.= Reset as per reset schedule
6.= Determined by zone with warmest supply air reqmt.

VARIABLE VOLUME FAN CONTROL CODE



VARIABLE VOLUME REHEAT COIL OPTION CODE

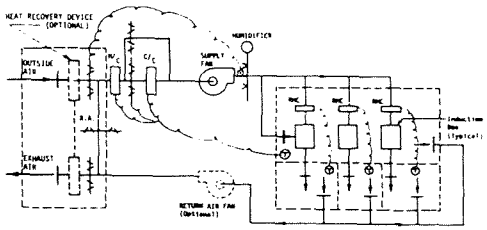
0.= No coil after vav box.
1.= Reheat coil after vav box.

FLOOR HEATING PANEL LOCATION CODE

1.= Slab on grade
2.= Intermediate floor slab.

FAN SYSTEM SHUT-OFF CODE

0.= Fan always runs
1.= Fan may be shut-off/baseboard heating may be on.
2.= Fan and baseboard heating may be shut-off.
3.= Fan always shut off, baseboard heating may be on.



GARD, INC.

SCOUT

SYSTEMS ANALYSIS PROGRAM

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INPUT FORM SA-03

ENERGY DISTRIBUTION SYSTEM DATA SYSTEM NO: _____ SYSTEM TYPE: UVT

Type of Distribution System	No. Zones on System	Relative Humidity Set Point (R.H)	Fixed or Min. Outside Air (SCFM)	Mixed Air Option	Variable Volume Fan Control Type		Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
5 .							S 7 A R

TEMPERATURE CONTROL MODES		TOTAL FAN PRESSURES (IN.H_2O)			Variable Volume Reheat Coil Option	Variable Volume Box Min. Air (%)	Card Index
Hot Deck or AHU Discharge	Cold Deck	Supply	Return	Exhaust			
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
							S 7 B R

FIXED AIR TEMPERATURES (°F)		TEMPERATURE RESET SCHEDULE INDICES				Induction Unit Induced/Primary Air Ratio	Card Index
Hot Deck or AHU Discharge	Cold Deck	Hot Deck Schedule or AHU Discharge Schedule	Cold Deck Schedule	Baseboard Radiation Schedule	Two-Pipe H.E Schedule		
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
							S 7 C R

Two-pipe Fan-Coil Changeover Temp.(°F)	2-Pipe ind.change-over or flr. panel shutoff temp. (°F)	Two-pipe System Water Volume (GALS)	Floor Heating Panel Location	Floor Heating Panel Area Covered (FT^2)	Exposed Perimeter (Lin.FT.)		Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
							S 7 D R

Fan System Shut-off Code	Ventilation Schedule Operating No.	HEAT RECOVERY DEVICE EFFICIENCY		DX or Heat Pump Index No.		Card Index
		Sensible Heat	Latent Heat			
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
						S 7 E R

DISTRIBUTION SYSTEM TYPES

1. Single Zone Fan System With Face And By-Pass Dampers.
2. Multi-Zone Fan System.
3. Dual Duct Fan System.
4. Single Zone Fan System With Sub-Zone Reheat.
5. Unit Ventilator.
6. Unit Heater.
7. Floor Panel Heating.
8. Two-Pipe Fancoil System.
9. Four-Pipe Fancoil System.
10. Two-Pipe Induction Unit Fan System.
11. Four-Pipe Induction Unit Fan System.
12. Variable Volume Fan System With Optional Reheat.
13. Constant Volume Reheat Fan System.

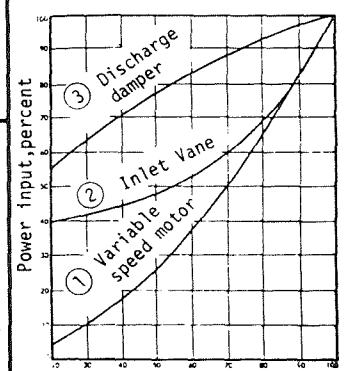
MIXED AIR OPTION CODE

1. Fixed Percent Outside Air.
2. Enth.Temp.Econo.Control.
3. Temp.Econo.Control.

TEMPERATURE CONTROL MODES

1.= Predefined constant temp.
2.= Determined by zone with coldest supply air reqmt.
3.= Reset as per reset schedule
6.= Determined by zone with warmest supply air reqmt.

VARIABLE VOLUME FAN CONTROL CODE



VARIABLE VOLUME REHEAT COIL OPTION CODE

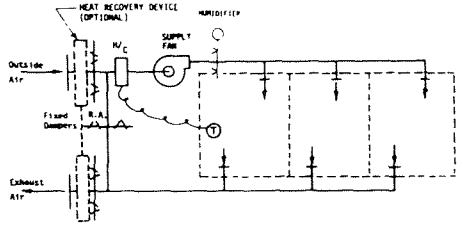
0.= No coil after vav box.
1.= Reheat coil after vav box.

FLOOR HEATING PANEL LOCATION CODE

1.= Slab on grade
2.= Intermediate floor slab.

FAN SYSTEM SHUT-OFF CODE

0.= Fan always runs
1.= Fan may be shut-off/baseboard heating may be on.
2.= Fan and baseboard heating may be shut-off.
3.= Fan always shut off, baseboard heating may be on.



GATX
GARD, INC.

SCOUT

SYSTEMS ANALYSIS PROGRAM

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ENERGY DISTRIBUTION SYSTEM DATA SYSTEM NO: _____ SYSTEM TYPE: UHT

Type of Distribution System	No. Zones on System	Relative Humidity Set Point (R.H)	Fixed or Min. Outside Air (SCFM)	Mixed Air Option	Variable Volume Fan Control Type		Card Index
6							S 7 A R

TEMPERATURE CONTROL MODES		TOTAL FAN PRESSURES (IN H_2O)			Variable Volume Reheat Coil Option	Variable Volume Box Min. Air (%)	Card Index
Hot Deck or AHU Discharge	Cold Deck	Supply	Return	Exhaust			S 7 B R

FIXED AIR TEMPERATURES (°F)		TEMPERATURE RESET SCHEDULE INDICES				Induction Unit Induced/Primary Air Ratio	Card Index
Hot Deck or AHU Discharge	Cold Deck	Hot Deck Schedule or AHU Discharge Schedule	Cold Deck Schedule	Baseboard Radiation Schedule	Two-Pipe H.W Schedule		S 7 C R

Two-pipe Fan-Coil Changeover Temp. (°F)	2-Pipe ind. changeover or flr. panel shutoff temp. (°F)	Two-pipe System Water Volume (GALS)	Floor Heating Panel Location	Floor Heating Panel Area Covered (FT^2)	Exposed Perimeter (Lin.FT.)		Card Index
							S 7 D R

Fan System Shut-off Code	Ventilation Schedule Operating No.	HEAT RECOVERY DEVICE EFFICIENCY		DX or Heat Pump Index No.			Card Index
		Sensible Heat	Latent Heat				S 7 E R

DISTRIBUTION SYSTEM TYPES

1. Single Zone Fan System With Face And By-Pass Dampers.
2. Multi-Zone Fan System.
3. Dual Duct Fan System.
4. Single Zone Fan System With Sub-Zone Reheat.
5. Unit Ventilator.
6. Unit Heater.
7. Floor Panel Heating.
8. Two-Pipe Fancoil System.
9. Four-Pipe Fancoil System.
10. Two-Pipe Induction Unit Fan System.
11. Four-Pipe Induction Unit Fan System.
12. Variable Volume Fan System With Optional Reheat.
13. Constant Volume Reheat Fan System.

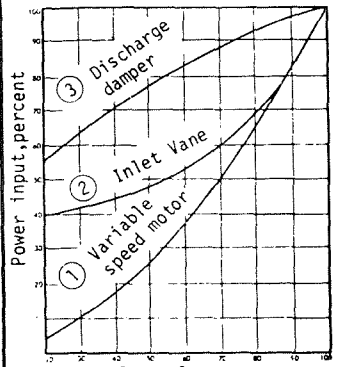
MIXED AIR OPTION CODE

1. Fixed Percent Outside Air.
2. Enth.Temp.Econo.Control.
3. Temp.Econo.Control.

TEMPERATURE CONTROL MODES

1.= Predefined constant temp.
2.= Determined by zone with coldest supply air reqmt.
3.= Reset as per reset schedule
6.= Determined by zone with warmest supply air reqmt.

VARIABLE VOLUME FAN CONTROL CODE



VARIABLE VOLUME REHEAT COIL OPTION CODE

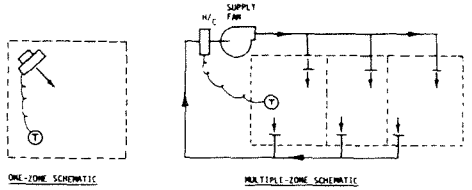
0.= No coil after vav box.
1.= Reheat coil after vav box.

FLOOR HEATING PANEL LOCATION CODE

1.= Slab on grade
2.= Intermediate floor slab.

FAN SYSTEM SHUT-OFF CODE

0.= Fan always runs
1.= Fan may be shut-off/baseboard heating may be on.
2.= Fan and baseboard heating may be shut-off.
3.= Fan always shut off, baseboard heating may be on.



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GARD, INC.

SCOUT

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ENERGY DISTRIBUTION SYSTEM DATA SYSTEM NO: _____ SYSTEM TYPE: FPH

Type of Distribution System	No. Zones on System	Relative Humidity Set Point (R.H)	Fixed or Min. Outside Air (SCFM)	Mixed Air Option	Variable Volume Fan Control Type		Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
7 .							S 7 A R

TEMPERATURE CONTROL MODES		TOTAL FAN PRESSURES (IN H_2O)			Variable Volume Reheat Coil Option	Variable Volume Box Min. Air (%)	Card Index
Hot Deck or AHU Discharge	Cold Deck	Supply	Return	Exhaust			
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
							S 7 B R

FIXED AIR TEMPERATURES (°F)		TEMPERATURE RESET SCHEDULE INDICES				Induction Unit Induced/Primary Air Ratio	Card Index
Hot Deck or AHU Discharge	Cold Deck	Hot Deck Schedule or AHU Discharge Schedule	Cold Deck Schedule	Baseboard Radiation Schedule	Two-Pipe H.W Schedule		
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
							S 7 C R

Two-pipe Fan-Coil Changeover Temp. (°F)	2-Pipe ind.change-over or flr. panel shutoff temp. (°F)	Two-pipe System Water Volume (GALS)	Floor Heating Panel Location	Floor Heating Panel Area Covered (FT^2)	Exposed Perimeter (Lin.FT.)		Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
							S 7 D R

Fan System Shut-off Code	Ventilation Schedule Operating No.	HEAT RECOVERY DEVICE EFFICIENCY		DX or Heat Pump Index No.		Card Index
		Sensible Heat	Latent Heat			
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
						S 7 E R

DISTRIBUTION SYSTEM TYPES

1. Single Zone Fan System With Face And By-Pass Dampers.
2. Multi-Zone Fan System.
3. Dual Duct Fan System.
4. Single Zone Fan System With Sub-Zone Reheat.
5. Unit Ventilator.
6. Unit Heater.
7. Floor Panel Heating.
8. Two-Pipe Fancoil System.
9. Four-Pipe Fancoil System.
10. Two-Pipe Induction Unit Fan System.
11. Four-Pipe Induction Unit Fan System.
12. Variable Volume Fan System With Optional Reheat.
13. Constant Volume Reheat Fan System.

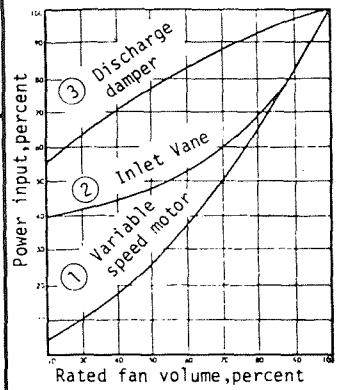
MIXED AIR OPTION CODE

1. Fixed Percent Outside Air.
2. Enth.Temp.Econo.Control.
3. Temp.Econo.Control.

TEMPERATURE CONTROL MODES

1.= Predefined constant temp.
2.= Determined by zone with coldest supply air reqmt.
3.= Reset as per reset schedule
6.= Determined by zone with warmest supply air reqmt.

VARIABLE VOLUME FAN CONTROL CODE



VARIABLE VOLUME REHEAT COIL OPTION CODE

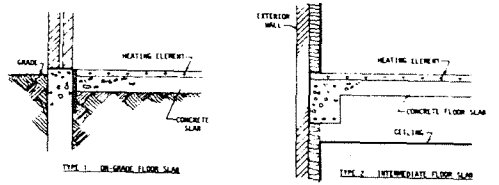
0.= No coil after vav box.
1.= Reheat coil after vav box.

FLOOR HEATING PANEL LOCATION CODE

1.= Slab on grade
2.= Intermediate floor slab.

FAN SYSTEM SHUT-OFF CODE

0.= Fan always runs
1.= Fan may be shut-off/baseboard heating may be on.
2.= Fan and baseboard heating may be shut-off.
3.= Fan always shut off, baseboard heating may be on.



GATX
GARD, INC.

SCOUT

SYSTEMS ANALYSIS PROGRAM

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INPUT FORM SA-03

ENERGY DISTRIBUTION SYSTEM DATA SYSTEM NO: _____ SYSTEM TYPE: 2PFC

Type of Distribution System	No. Zones on System	Relative Humidity Set Point (R.H)	Fixed or Min. Outside Air (SCFM)	Mixed Air Option	Variable Volume Fan Control Type		Card Index
8.							S 7 A R

TEMPERATURE CONTROL MODES: Hot Deck or AHU Discharge	TEMPERATURE CONTROL MODES: Cold Deck	TOTAL FAN PRESSURES (IN.H_2O): Supply	TOTAL FAN PRESSURES (IN.H_2O): Return	TOTAL FAN PRESSURES (IN.H_2O): Exhaust	Variable Volume Reheat Coil Option	Variable Volume Box Min. Air (%)	Card Index
							S 7 B R

FIXED AIR TEMPERATURES (^oF): Hot Deck or AHU Discharge	FIXED AIR TEMPERATURES (^oF): Cold Deck	TEMPERATURE RESET SCHEDULE INDICES: Hot Deck Schedule or AHU Discharge Schedule	TEMPERATURE RESET SCHEDULE INDICES: Cold Deck Schedule	TEMPERATURE RESET SCHEDULE INDICES: Baseboard Radiation Schedule	TEMPERATURE RESET SCHEDULE INDICES: Two-Pipe H.W Schedule	Induction Unit Induced/Primary Air Ratio	Card Index
							S 7 C R

Two-pipe Fan-Coil Changeover Temp.(^oF)	2-Pipe ind.change-over or flr. panel shutoff temp. (^oF)	Two-pipe System Water Volume (GALS)	Floor Heating Panel Location	Floor Heating Panel Area Covered (FT^2)	Exposed Perimeter (Lin.FT.)		Card Index
							S 7 D R

Fan System Shut-off Code	Ventilation Schedule Operating No.	HEAT RECOVERY DEVICE EFFICIENCY: Sensible Heat	HEAT RECOVERY DEVICE EFFICIENCY: Latent Heat	DX or Heat Pump Index No.			Card Index
							S 7 E R

DISTRIBUTION SYSTEM TYPES

1. Single Zone Fan System With Face And By-Pass Dampers.
2. Multi-Zone Fan System.
3. Dual Duct Fan System.
4. Single Zone Fan System With Sub-Zone Reheat.
5. Unit Ventilator.
6. Unit Heater.
7. Floor Panel Heating.
8. Two-Pipe Fancoil System.
9. Four-Pipe Fancoil System.
10. Two-Pipe Induction Unit Fan System.
11. Four-Pipe Induction Unit Fan System.
12. Variable Volume Fan System With Optional Reheat.
13. Constant Volume Reheat Fan System.

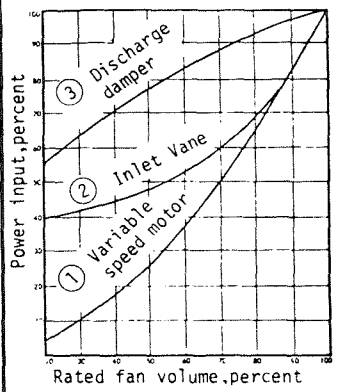
MIXED AIR OPTION CODE

1. Fixed Percent Outside Air.
2. Enth.Temp.Econo.Control.
3. Temp.Econo.Control.

TEMPERATURE CONTROL MODES

1.= Predefined constant temp.
2.= Determined by zone with coldest supply air reqmt.
3.= Reset as per reset schedule
6.= Determined by zone with warmest supply air reqmt.

VARIABLE VOLUME FAN CONTROL CODE



VARIABLE VOLUME REHEAT COIL OPTION CODE

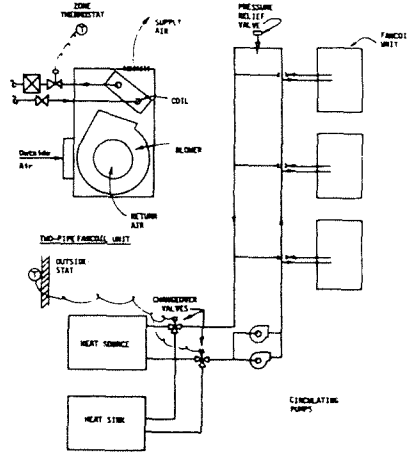
0.= No coil after vav box.
1.= Reheat coil after vav box.

FLOOR HEATING PANEL LOCATION CODE

1.= Slab on grade
2.= Intermediate floor slab.

FAN SYSTEM SHUT-OFF CODE

0.= Fan always runs
1.= Fan may be shut-off/baseboard heating may be on.
2.= Fan and baseboard heating may be shut-off.
3.= Fan always shut off, baseboard heating may be on.



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SCOUT

SYSTEMS ANALYSIS PROGRAM

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ENERGY DISTRIBUTION SYSTEM DATA SYSTEM NO: _____ SYSTEM TYPE: 4PFC

Type of Distribution System	No. Zones on System	Relative Humidity Set Point (R.H)	Fixed or Min. Outside Air (SCFM)	Mixed Air Option	Variable Volume Fan Control Type		Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
9 .							S 7 A R

TEMPERATURE CONTROL MODES		TOTAL FAN PRESSURES (IN H_2O)			Variable Volume Reheat Coil Option	Variable Volume Box Min. Air (%)	Card Index
Hot Deck or AHU Discharge	Cold Deck	Supply	Return	Exhaust			
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
							S 7 B R

FIXED AIR TEMPERATURES (°F)		TEMPERATURE RESET SCHEDULE INDICES				Induction Unit Induced/Primary Air Ratio	Card Index
Hot Deck or AHU Discharge	Cold Deck	Hot Deck Schedule or AHU Discharge Schedule	Cold Deck Schedule	Baseboard Radiation Schedule	Two-Pipe H.W Schedule		
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
							S 7 C R

Two-pipe Fan-Coil Changeover Temp.(°F)	2-Pipe ind.change-over or flr. panel shutoff temp. (°F)	Two-pipe System Water Volume (GALS)	Floor Heating Panel Location	Floor Heating Panel Area Covered (FT^2)	Exposed Perimeter (Lin.FT.)		Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
							S 7 D R

Fan System Shut-off Code	Ventilation Schedule Operating No.	HEAT RECOVERY DEVICE EFFICIENCY		DX or Heat Pump Index No.		Card Index
		Sensible Heat	Latent Heat			
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
						S 7 E R

DISTRIBUTION SYSTEM TYPES

1. Single Zone Fan System With Face And By-Pass Dampers.
2. Multi-Zone Fan System.
3. Dual Duct Fan System.
4. Single Zone Fan System With Sub-Zone Reheat.
5. Unit Ventilator.
6. Unit Heater.
7. Floor Panel Heating.
8. Two-Pipe Fancoil System.
9. Four-Pipe Fancoil System.
10. Two-Pipe Induction Unit Fan System.
11. Four-Pipe Induction Unit Fan System.
12. Variable Volume Fan System With Optional Reheat.
13. Constant Volume Reheat Fan System.

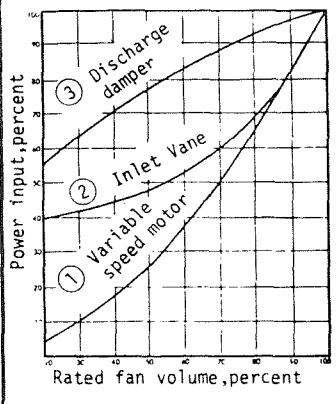
MIXED AIR OPTION CODE

1. Fixed Percent Outside Air.
2. Enth.Temp.Econo.Control.
3. Temp.Econo.Control.

TEMPERATURE CONTROL MODES

1.= Predefined constant temp.
2.= Determined by zone with coldest supply air reqmt.
3.= Reset as per reset schedule
6.= Determined by zone with warmest supply air reqmt.

VARIABLE VOLUME FAN CONTROL CODE



VARIABLE VOLUME REHEAT COIL OPTION CODE

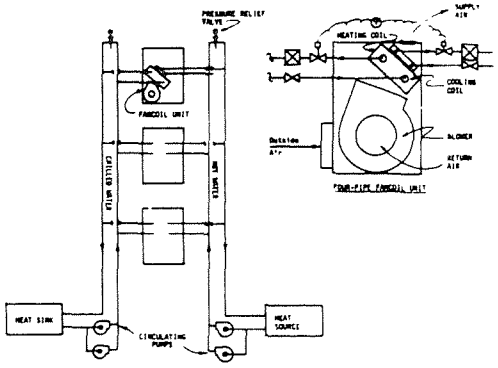
0.= No coil after vav box.
1.= Reheat coil after vav box.

FLOOR HEATING PANEL LOCATION CODE

1.= Slab on grade
2.= Intermediate floor slab.

FAN SYSTEM SHUT-OFF CODE

0.= Fan always runs
1.= Fan may be shut-off/baseboard heating may be on.
2.= Fan and baseboard heating may be shut-off.
3.= Fan always shut off, baseboard heating may be on.



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GARD, INC.

SCOUT

SYSTEMS ANALYSIS PROGRAM

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ENERGY DISTRIBUTION SYSTEM DATA SYSTEM NO: _____ SYSTEM TYPE: 2PIU

Type of Distribution System	No. Zones on System	Relative Humidity Set Point (R.H)	Fixed or Min. Outside Air (SCFM)	Mixed Air Option	Variable Volume Fan Control Type		Card Index
10.							S 7 A R

TEMPERATURE CONTROL MODES		TOTAL FAN PRESSURES (IN.H_2O)			Variable Volume Reheat Coil Option	Variable Volume Box Min. Air (%)	Card Index
Hot Deck or AHU Discharge	Cold Deck	Supply	Return	Exhaust			S 7 B R

FIXED AIR TEMPERATURES (°F)		TEMPERATURE RESET SCHEDULE INDICES				Induction Unit Induced/Primary Air Ratio	Card Index
Hot Deck or AHU Discharge	Cold Deck	Hot Deck Schedule or AHU Discharge Schedule	Cold Deck Schedule	Baseboard Radiation Schedule	Two-Pipe H.W Schedule		S 7 C R

Two-pipe Fan-Coil Changeover Temp.(°F)	2-Pipe ind.change-over or flr. panel shutoff temp. (°F)	Two-pipe System Water Volume (GALS)	Floor Heating Panel Location	Floor Heating Panel Area Covered (FT^2)	Exposed Perimeter (Lin.FT.)		Card Index
							S 7 D R

Fan System Shut-off Code	Ventilation Schedule Operating No.	HEAT RECOVERY DEVICE EFFICIENCY		DX or Heat Pump Index No.		Card Index
		Sensible Heat	Latent Heat			S 7 E R

DISTRIBUTION SYSTEM TYPES

1. Single Zone Fan System With Face And By-Pass Dampers.
2. Multi-Zone Fan System.
3. Dual Duct Fan System.
4. Single Zone Fan System With Sub-Zone Reheat.
5. Unit Ventilator.
6. Unit Heater.
7. Floor Panel Heating.
8. Two-Pipe Fancoil System.
9. Four-Pipe Fancoil System.
10. Two-Pipe Induction Unit Fan System.
11. Four-Pipe Induction Unit Fan System.
12. Variable Volume Fan System With Optional Reheat.
13. Constant Volume Reheat Fan System.

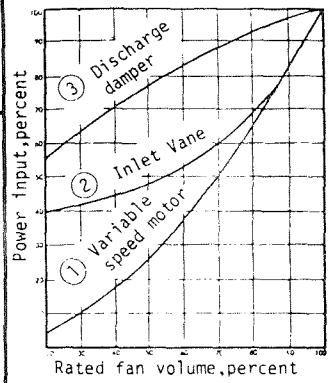
MIXED AIR OPTION CODE

1. Fixed Percent Outside Air.
2. Enth.Temp.Econo.Control.
3. Temp.Econo.Control.

TEMPERATURE CONTROL MODES

1.= Predefined constant temp.
2.= Determined by zone with coldest supply air reqmt.
3.= Reset as per reset schedule
6.= Determined by zone with warmest supply air reqmt.

VARIABLE VOLUME FAN CONTROL CODE



VARIABLE VOLUME REHEAT COIL OPTION CODE

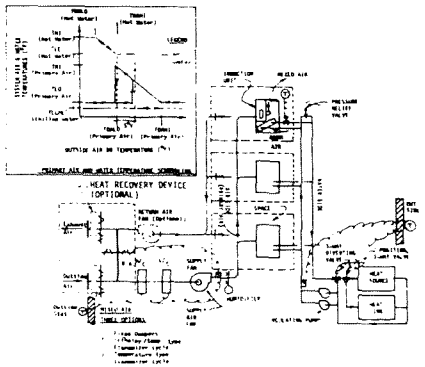
0.= No coil after vav box.
1.= Reheat coil after vav box.

FLOOR HEATING PANEL LOCATION CODE

1.= Slab on grade
2.= Intermediate floor slab.

FAN SYSTEM SHUT-OFF CODE

0.= Fan always runs
1.= Fan may be shut-off/baseboard heating may be on.
2.= Fan and baseboard heating may be shut-off.
3.= Fan always shut off, baseboard heating may be on.



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GARD, INC.

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SYSTEMS ANALYSIS PROGRAM

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ENERGY DISTRIBUTION SYSTEM DATA SYSTEM NO: _____ SYSTEM TYPE: 4PIU

Type of Distribution System	No. Zones on System	Relative Humidity Set Point (R.H)	Fixed or Min. Outside Air (SCFM)	Mixed Air Option	Variable Volume Fan Control Type		Card Index
1 1 .							S 7 A R

TEMPERATURE CONTROL MODES		TOTAL FAN PRESSURES (IN.H2O)			Variable Volume Reheat Coil Option	Variable Volume Box Min. Air (%)	Card Index
Hot Deck or AHU Discharge	Cold Deck	Supply	Return	Exhaust			
							S 7 B R

FIXED AIR TEMPERATURES (°F)		TEMPERATURE RESET SCHEDULE INDICES				Induction Unit Induced/Primary Air Ratio	Card Index
Hot Deck or AHU Discharge	Cold Deck	Hot Deck Schedule or AHU Discharge Schedule	Cold Deck Schedule	Baseboard Radiation Schedule	Two-Pipe H.W Schedule		
							S 7 C R

Two-pipe Fan-Coil Changeover Temp.(°F)	2-Pipe ind.change-over or flr. panel shutoff temp. (°F)	Two-pipe System Water Volume (GALS)	Floor Heating Panel Location	Floor Heating Panel Area Covered (FT²)	Exposed Perimeter (Lin.FT.)		Card Index
							S 7 D R

Fan System Shut-off Code	Ventilation Schedule Operating No.	HEAT RECOVERY DEVICE EFFICIENCY		DX or Heat Pump Index No.			Card Index
		Sensible Heat	Latent Heat				S 7 E R

DISTRIBUTION SYSTEM TYPES

1. Single Zone Fan System With Face And By-Pass Dampers.
2. Multi-Zone Fan System.
3. Dual Duct Fan System.
4. Single Zone Fan System With Sub-Zone Reheat.
5. Unit Ventilator.
6. Unit Heater.
7. Floor Panel Heating.
8. Two-Pipe Fancoil System.
9. Four-Pipe Fancoil System.
10. Two-Pipe Induction Unit Fan System.
11. Four-Pipe Induction Unit Fan System.
12. Variable Volume Fan System With Optional Reheat.
13. Constant Volume Reheat Fan System.

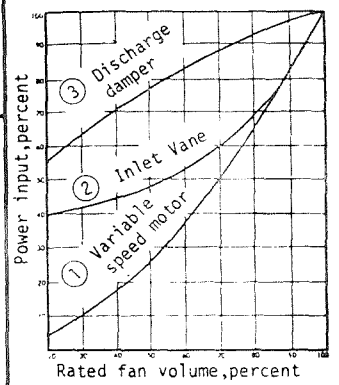
MIXED AIR OPTION CODE

1. Fixed Percent Outside Air.
2. Enth.Temp.Econo.Control.
3. Temp.Econo.Control.

TEMPERATURE CONTROL MODES

1.= Predefined constant temp.
2.= Determined by zone with coldest supply air reqmt.
3.= Reset as per reset schedule
6.= Determined by zone with warmest supply air reqmt.

VARIABLE VOLUME FAN CONTROL CODE



VARIABLE VOLUME REHEAT COIL OPTION CODE

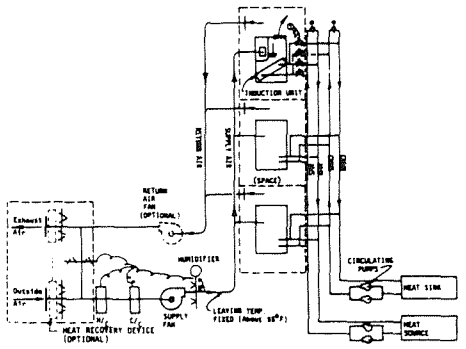
0.= No coil after vav box.
1.= Reheat coil after vav box.

FLOOR HEATING PANEL LOCATION CODE

1.= Slab on grade
2.= Intermediate floor slab.

FAN SYSTEM SHUT-OFF CODE

0.= Fan always runs
1.= Fan may be shut-off/baseboard heating may be on.
2.= Fan and baseboard heating may be shut-off.
3.= Fan always shut off, baseboard heating may be on.



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SCOUT

SYSTEMS ANALYSIS PROGRAM

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ENERGY DISTRIBUTION SYSTEM DATA SYSTEM NO: _____ SYSTEM TYPE: VAVS

Type of Distribution System	No. Zones on System	Relative Humidity Set Point (R.H)	Fixed or Min. Outside Air (SCFM)	Mixed Air Option	Variable Volume Fan Control Type		Card Index
1 2 .							S 7 A R

TEMPERATURE CONTROL MODES		TOTAL FAN PRESSURES (IN.H_2O)			Variable Volume Reheat Coil Option	Variable Volume Box Min. Air (%)	Card Index
Hot Deck or AHU Discharge	Cold Deck	Supply	Return	Exhaust			
							S 7 B R

FIXED AIR TEMPERATURES (°F)		TEMPERATURE RESET SCHEDULE INDICES				Induction Unit Induced/Primary Air Ratio	Card Index
Hot Deck or AHU Discharge	Cold Deck	Hot Deck Schedule or AHU Discharge Schedule	Cold Deck Schedule	Baseboard Radiation Schedule	Two-Pipe H.W Schedule		
							S 7 C R

Two-pipe Fan-Coil Changeover Temp.(°F)	2-Pipe ind.change-over or flr. panel shutoff temp. (°F)	Two-pipe System Water Volume (GALS)	Floor Heating Panel Location	Floor Heating Panel Area Covered (FT^2)	Exposed Perimeter (Lin.FT.)		Card Index
							S 7 D R

Fan System Shut-off Code	Ventilation Schedule Operating No.	HEAT RECOVERY DEVICE EFFICIENCY		DX or Heat Pump Index No.		Card Index
		Sensible Heat	Latent Heat			S 7 E R

DISTRIBUTION SYSTEM TYPES

1. Single Zone Fan System With Face And By-Pass Dampers.
2. Multi-Zone Fan System.
3. Dual Duct Fan System.
4. Single Zone Fan System With Sub-Zone Reheat.
5. Unit Ventilator.
6. Unit Heater.
7. Floor Panel Heating.
8. Two-Pipe Fancoil System.
9. Four-Pipe Fancoil System.
10. Two-Pipe Induction Unit Fan System.
11. Four-Pipe Induction Unit Fan System.
12. Variable Volume Fan System With Optional Reheat.
13. Constant Volume Reheat Fan System.

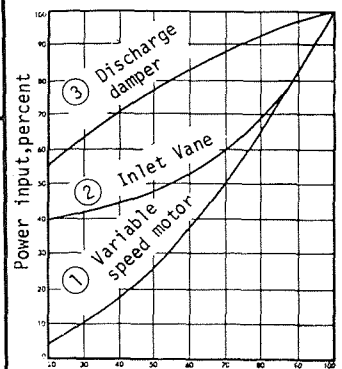
MIXED AIR OPTION CODE

1. Fixed Percent Outside Air.
2. Enth.Temp.Econo.Control.
3. Temp.Econo.Control.

TEMPERATURE CONTROL MODES

1.= Predefined constant temp.
2.= Determined by zone with coldest supply air reqmt.
3.= Reset as per reset schedule
6.= Determined by zone with warmest supply air reqmt.

VARIABLE VOLUME FAN CONTROL CODE



VARIABLE VOLUME REHEAT COIL OPTION CODE

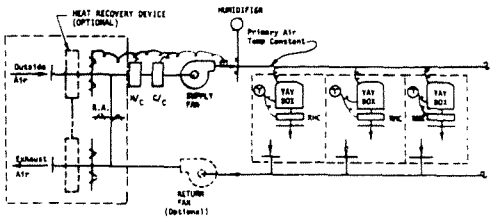
0.= No coil after vav box.
1.= Reheat coil after vav box.

FLOOR HEATING PANEL LOCATION CODE

1.= Slab on grade
2.= Intermediate floor slab.

FAN SYSTEM SHUT-OFF CODE

0.= Fan always runs
1.= Fan may be shut-off/baseboard heating may be on.
2.= Fan and baseboard heating may be shut-off.
3.= Fan always shut off, baseboard heating may be on.



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ENERGY DISTRIBUTION SYSTEM DATA SYSTEM NO: _____ SYSTEM TYPE: RHFS

Type of Distribution System	No. Zones on System	Relative Humidity Set Point (R.H)	Fixed or Min. Outside Air (SCFM)	Mixed Air Option	Variable Volume Fan Control Type		Card Index
13.							S 7 A R

TEMPERATURE CONTROL MODES		TOTAL FAN PRESSURES (IN.H_2O)			Variable Volume Reheat Coil Option	Variable Volume Box Min. Air (%)	Card Index
Hot Deck or AHU Discharge	Cold Deck	Supply	Return	Exhaust			S 7 B R

FIXED AIR TEMPERATURES (°F)		TEMPERATURE RESET SCHEDULE INDICES				Induction Unit Induced/Primary Air Ratio	Card Index
Hot Deck or AHU Discharge	Cold Deck	Hot Deck Schedule or AHU Discharge Schedule	Cold Deck Schedule	Baseboard Radiation Schedule	Two-Pipe H.W Schedule		S 7 C R

Two-pipe Fan-Coil Changeover Temp (°F)	2-Pipe ind.Change-over or flr. panel shutoff temp. (°F)	Two-pipe System Water Volume (GALS)	Floor Heating Panel Location	Floor Heating Panel Area Covered (Ft^2)	Exposed Perimeter (Lin.Ft.)		Card Index
							S 7 D R

Fan System Shut-off Code	Ventilation Schedule Operating No.	HEAT RECOVERY DEVICE EFFICIENCY		DX or Heat Pump Index No.		Card Index
		Sensible Heat	Latent Heat			S 7 E R

DISTRIBUTION SYSTEM TYPES

1. Single Zone Fan System With Face And By-Pass Dampers.
2. Multi-Zone Fan System.
3. Dual Duct Fan System.
4. Single Zone Fan System With Sub-Zone Reheat.
5. Unit Ventilator.
6. Unit Heater.
7. Floor Panel Heating.
8. Two-Pipe Fancoil System.
9. Four-Pipe Fancoil System.
10. Two-Pipe Induction Unit Fan System.
11. Four-Pipe Induction Unit Fan System.
12. Variable Volume Fan System With Optional Reheat.
13. Constant Volume Reheat Fan System.

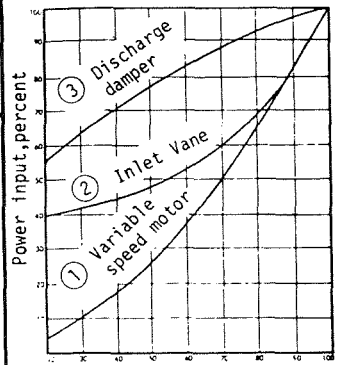
MIXED AIR OPTION CODE

1. Fixed Percent Outside Air.
2. Enth.Temp.Econo.Control.
3. Temp.Econo.Control.

TEMPERATURE CONTROL MODES

1.= Predefined constant temp.
2.= Determined by zone with coldest supply air reqmt.
3.= Reset as per reset schedule
6.= Determined by zone with warmest supply air reqmt.

VARIABLE VOLUME FAN CONTROL CODE



VARIABLE VOLUME REHEAT COIL OPTION CODE

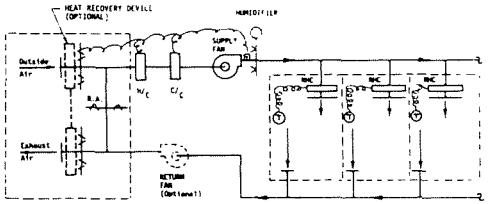
0.= No coil after vav box.
1.= Reheat coil after vav box.

FLOOR HEATING PANEL LOCATION CODE

1.= Slab on grade
2.= Intermediate floor slab.

FAN SYSTEM SHUT-OFF CODE

0.= Fan always runs
1.= Fan may be shut-off/baseboard heating may be on.
2.= Fan and baseboard heating may be shut-off.
3.= Fan always shut off, baseboard heating may be on.



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ENERGY DISTRIBUTION SYSTEM DATA SYSTEM NO: _____ SYSTEM TYPE: BASEBOARD HEATING

Type of Distribution System	No. Zones on System	Relative Humidity Set Point (R.H)	Fixed or Min. Outside Air (SCFM)	Mixed Air Option	Variable Volume Fan Control Type		Card Index
1.							S 7 A R

TEMPERATURE CONTROL MODES		TOTAL FAN PRESSURES (IN H_2O)			Variable Volume Reheat Coil Option	Variable Volume Box Min. Air (%)	Card Index
Hot Deck or AHU Discharge	Cold Deck	Supply	Return	Exhaust			S 7 B R

FIXED AIR TEMPERATURES (°F)		TEMPERATURE RESET SCHEDULE INDICES				Induction Unit Induced/Primary Air Ratio	Card Index
Hot Deck or AHU Discharge	Cold Deck	Hot Deck Schedule or AHU Discharge Schedule	Cold Deck Schedule	Baseboard Radiation Schedule	Two-Pipe H.W Schedule		S 7 C R

Two-pipe Fan-Coil Changeover Temp.(°F)	2-Pipe ind.change-over or flr. panel shutoff temp. (°F)	Two-pipe System Water Volume (GALS)	Floor Heating Panel Location	Floor Heating Panel Area Covered (FT^2)	Exposed Perimeter (Lin.FT.)		Card Index
							S 7 D R

Fan System Shut-off Code	Ventilation Schedule Operating No.	HEAT RECOVERY DEVICE EFFICIENCY		DX or Heat Pump Index No.			Card Index
		Sensible Heat	Latent Heat				S 7 E R
3.							

DISTRIBUTION SYSTEM TYPES

1. Single Zone Fan System With Face And By-Pass Dampers.
2. Multi-Zone Fan System.
3. Dual Duct Fan System.
4. Single Zone Fan System With Sub-Zone Reheat.
5. Unit Ventilator.
6. Unit Heater.
7. Floor Panel Heating.
8. Two-Pipe Fancoil System.
9. Four-Pipe Fancoil System.
10. Two-Pipe Induction Unit Fan System.
11. Four-Pipe Induction Unit Fan System.
12. Variable Volume Fan System With Optional Reheat.
13. Constant Volume Reheat Fan System.

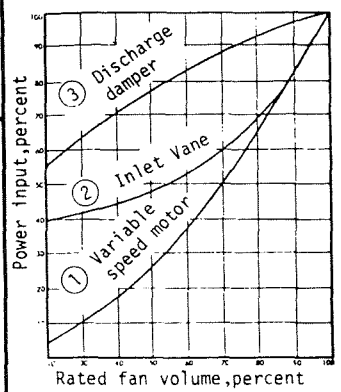
MIXED AIR OPTION CODE

1. Fixed Percent Outside Air.
2. Enth.Temp.Econo.Control.
3. Temp.Econo.Control.

TEMPERATURE CONTROL MODES

1.= Predefined constant temp.
2.= Determined by zone with coldest supply air reqmt.
3.= Reset as per reset schedule
6.= Determined by zone with warmest supply air reqmt.

VARIABLE VOLUME FAN CONTROL CODE



VARIABLE VOLUME REHEAT COIL OPTION CODE

0.= No coil after vav box.
1.= Reheat coil after vav box.

FLOOR HEATING PANEL LOCATION CODE

1.= Slab on grade
2.= Intermediate floor slab.

FAN SYSTEM SHUT-OFF CODE

0.= Fan always runs
1.= Fan may be shut-off/baseboard heating may be on.
2.= Fan and baseboard heating may be shut-off.
3.= Fan always shut off, baseboard heating may be on.

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GARD, INC.

SCOUT

SYSTEMS ANALYSIS PROGRAM

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INPUT FORM SA-04

SZFB SZRH VAVS
MZS 2PIU RHFS
DDS 4PIU

SPACE DATA SYSTEM NO: _____ SYSTEM NAME:

SYSTEM SPACE NO.	Load Program Space Number	Space Multiplication Factor	Supply Air (SCFM) (Optional)	Constant Volume Exhaust air (SCFM)	BASEBOARD RADIATION: Heat Output at std. Conditions(BTU/HR-FT)*	BASEBOARD RADIATION: Active Length(LinFT)	Load Program Plenum Space No.	Card Index And Space Label
	1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
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R Space Humidistat Located In System Space #1

* Standard Conditions: 65°F entering air temperature and 215°F average water temperature.

GATX
GARD, INC.

SCOUT

SYSTEMS ANALYSIS PROGRAM

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INPUT FORM SA-04

SPACE DATA SYSTEM NO: _____ SYSTEM NAME: 2PFC 4PFC

SYSTEM SPACE NO.	Load Program Space Number	Space Multiplication Factor	Supply Air (SCFM) (Optional)	Constant Volume Exhaust air (SCFM)	BASEBOARD RADIATION: Heat Output at std. Conditions(BTU/HR-FT)*	BASEBOARD RADIATION: Active Length(LinFT)	Load Program Plenum Space No.	Card Index And Space Label
	1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
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Space Humidistat Located In System Space #1

* Standard Conditions: 65°F entering air temperature and 215°F average water temperature.

GATX
GARD, INC.

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SPACE DATA SYSTEM NO: _____ SYSTEM NAME: FPH

INPUT FORM SA-04

SYSTEM SPACE NO.	Load Program Space Number (1-10)	Space Multiplication Factor (11-20)	Supply Air (SCFM) (Optional) (21-30)	Constant Volume Exhaust air (SCFM) (31-40)	BASEBOARD RADIATION: Heat Output at std. Conditions (BTU/HR-FT)* (41-50)	BASEBOARD RADIATION: Active Length (LinFT) (51-60)	Load Program Plenum Space No. (61-70)	Card Index And Space Label (71-80)
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Space Humidistat Located In System Space # 1

* Standard Conditions: 65°F entering air temperature and 215°F average water temperature.

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GARD, INC.

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SPACE DATA SYSTEM NO: _____ SYSTEM NAME: UVT

INPUT FORM SA-04

SYSTEM SPACE NO.	Load Program Space Number (1-10)	Space Multiplication Factor (11-20)	Supply Air (SCFM) (Optional) (21-30)	Constant Volume Exhaust air (SCFM) (31-40)	BASEBOARD RADIATION: Heat Output at std. Conditions(BTU/HR-FT)* (41-50)	BASEBOARD RADIATION: Active Length(LinFT) (51-60)	Load Program Plenum Space No. (61-70)	Card Index And Space Label (71-80)
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Space Humidistat Located In System Space #1

* Standard Conditions: 65°F entering air temperature and 215°F average water temperature.

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SCOUT

SYSTEMS ANALYSIS PROGRAM

job name	
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SPACE DATA SYSTEM NO: _____ SYSTEM NAME: UHT

INPUT FORM SA-04

SYSTEM SPACE NO.	Load Program Space Number (1-10)	Space Multiplication Factor (11-20)	Supply Air (SCFM) (Optional) (21-30)	Constant Volume Exhaust air (SCFM) (31-40)	BASEBOARD RADIATION: Heat Output at std. Conditions (BTU/HR-FT)* (41-50)	BASEBOARD RADIATION: Active Length (inFT) (51-60)	Load Program Plenum Space No. (61-70)	Card Index And Space Label (71-80)
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Space Humidistat Located In System Space #1

* Standard Conditions: 65°F entering air temperature and 215°F average water temperature.

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INPUT FORM SA-04

SPACE DATA SYSTEM NO: _____ SYSTEM NAME: BASEBOARD HEATING

SYSTEM SPACE NO.	Load Program Space Number	Space Multiplication Factor	Supply Air (SCFM) (Optional)	Constant Volume Exhaust air (SCFM)	BASEBOARD RADIATION: Heat Output at std. Conditions(BTU/HR-FT)*	BASEBOARD RADIATION: Active Length(LinFT)	Load Program Plenum Space No.	Card Index And Space Label
	1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
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R → Space Humidistat Located In System Space #1

* Standard Conditions: 65°F entering air temperature and 215°F average water temperature.

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INPUT FORM SA-05

PRIMARY EQUIPMENT DESCRIPTION (REPEAT CARD TYPE S9 FOR EACH PRIMARY EQUIPMENT COMBINATION.)

System Identification (Alpha-Numeric)	COOLING EQUIPMENT: Chiller Type	COOLING EQUIPMENT: Source of Chiller Energy	HEATING EQUIPMENT: Source of General Heating Energy	HEATING EQUIPMENT: Source of Reheat Coil Energy	ON-SITE POWER GENERATION: Number of Engine/Generator Sets	ON-SITE POWER GENERATION: Type of Engine/Generator Set	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
							S 9 R

BOILERS

Number of Boilers	Size of each Boiler (MBH)	Seasonal Heating Start-up Month/Day *	Seasonal Heating Shut-down Month/Day *	Heating Value Heating Oil(BTU/GAL)	Boiler Performance Type	Boiler Peak Efficiency (%)	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
		/	/				S 1 0 R

* Applies to Boilers and Heat pump heating

CHILLERS

Number of Chillers	Size of each Chiller(TONS)	Seasonal Cooling Start-up Month/Day **	Seasonal Cooling Shut-down Month/Day **	Min. Part Load Chiller Cut-off(%)	Chilled Water Set Point Temp.(°F)	Cooling Tower Water Low Limit Temp.(°F)	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
		/	/				S 1 1 R

** Applies to Chillers, DX, and Heat pump cooling.

PUMP HEADS

Total Boiler Water Pump Head(FT)	Total Chilled Water Pump Head (FT)	Total Condenser Water Pump Head(FT)		Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
				S 1 2 R

CHILLER TYPE CODE

1. = Reciprocating
2. = Hermetic Centrifugal
3. = Open Centrifugal
4. = Steam Absorption
5. = Centrifugal/Steam Turbine

CHILLER ENERGY CODE

0. = From Steam Boiler
3. = Purchased Steam
4. = Electricity

GENERAL HEATING ENERGY CODE

1. = Gas
2. = Heating Oil
3. = Purchased Steam
4. = Electric

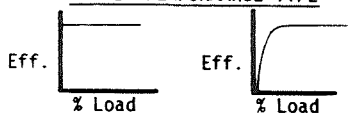
REHEAT COIL ENERGY CODE

0. = Same as Boiler
4. = Electric

ENGINE/GENERATOR SET TYPES CODE

0. = None
1. = Diesel
2. = Gas

BOILER PERFORMANCE TYPE



1.= Constant

2.= Ohio State curve

NOTES:

1. If number of E/G sets =0., it will be calculated by the program.
2. Boiler seasonal start-up and shut-down schedule applies to heat pump operation, also.
3. Chiller seasonal start-up and shut-down schedule applies to DX and heat pump cooling operation, also.

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INPUT FORM SA - 06

MISCELLANEOUS

External Lighting Power (KW)	Fan & Pump Motor Efficiency (%)	Heating Value Diesel Fuel(BTU/GAL)	Peak Base Power Requirement of Bldg. (KW) *	BOILER ** AUXILIARIES(HP)		Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
						S 1 3 R

* Required for engine/generator sizing. If blank and engine/generators are used, peak value will be calculated from load tape.

** Boiler auxiliaries operate unless turned off by Heating seasonal Shut-down term(Card S-10). If -1.0 is entered, Boiler auxiliaries will be sized by the program.

STEAM & STEAM TURBINES

GENERAL HEATING PURCHASED STEAM		CHILLER ENTERING STEAM*		STEAM TURBINE	PROCESS ENTERING STEAM		Card Index
Steam Pressure(PSIG)	Temperature(^{O}F)	Entering Steam Pressure(PSIG)	Entering Temp.(^{O}F)	Speed (RPM)	Steam Pressure(PSIG)	Temperature(F^{O})	
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
							S 1 4 R

* Refers to either Absorption Chiller or Steam Turbine driven Centrifugal Chiller.

FLOOR PANEL HEATING SYSTEMS

Type of Floor Covering	Floor Insulation Conductance (BTU/HR-^{O}F - FT^{2})	Floor Insulation Thickness (FT)		Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
				S 1 5 R

TYPE OF FLOOR COVERING CODE

1.= Bare Concrete
2.= Tile
3.= Carpeting

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SYSTEMS ANALYSIS PROGRAM

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INPUT FORM SA-07

DX/Heat Pump Index No_____

NOTES:
- Repeat this sheet for each DX or heat pump type.
- Omit this sheet if number of DX and heat pump types(on card type S-3)=0.

DX AND HEAT PUMP DESIGN CHARACTERISTICS.

Required for heat pumps only

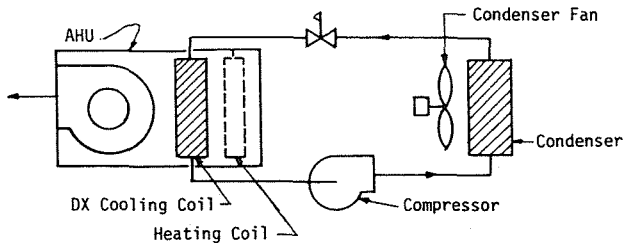
Unit Type Index	Design Cooling Capacity (MBH)	Design Cooling Power (KW)	No. Cooling Performance Data Points	Design Heating Capacity (MBH)	Design Heating Power (KW)	No. Heating Performance Data Points	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
							S 1 6 A R

COOLING PERFORMANCE DATA

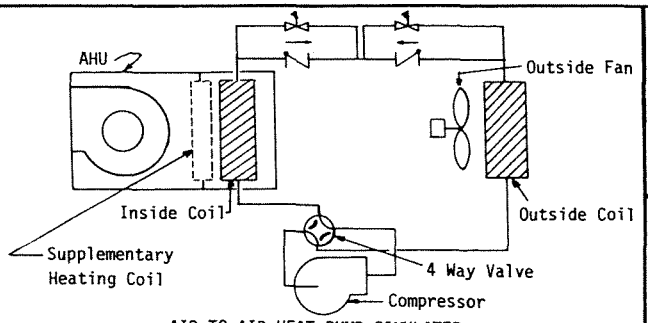
Ambient Reference Temp. (^{o}F)	Percent Design Cooling Capacity At Ref. Temp.	Percent Design Cooling Power At Ref. Temp.		Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
				S 1 6 B

HEATING PERFORMANCE DATA (FOR HEAT PUMPS ONLY)

Ambient Reference Temp. (^{o}F)	Percent Design Heating Capacity At Ref. Temp.	Percent Design Heating Power At Ref. Temp.		Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
				S 1 6 C



AIR-TO-AIR DX UNIT SIMULATED



AIR-TO-AIR HEAT PUMP SIMULATED

NOTE: Include compressor, outside fan, and defrosting cycle power in defining heating and cooling power requirements.

UNIT TYPE CODE

1.=DX Unit
2.=Heat Pump Unit

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INPUT FORM SA-08

PROCESS LOADS

	Peak Load (*)	Energy Source Code	Operating Schedule Number	Label (Alpha - Numeric)		Card Index
	1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
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* Peak load energy units defined by energy source code used.

ENERGY SOURCE CODE DEFINITION

CODE	UNITS	DESCRIPTION
0	MBH	Indirect Process (Load to Boiler)
1	MBH	Gas
2	MBH	Heating Oil
3	MBH	Steam
4	KW	Electric

COST ANALYSIS PROGRAM

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INPUT FORM CA-01

GENERAL NOTES

1. Unless otherwise noted, all input data are real numbers, requiring a decimal point. The program is designed to by-pass unneeded portions of input as indicated by notes.
2. Input cards required to execute the program are noted by an "R" at their extreme right.

JOB IDENTIFICATION

(Alpha-numeric data may be entered on card types C1 through C5.)

IDENTIFICATION OF ID TERMS
FACILITY NAME
FACILITY LOCATION
USER ID
PROJECT NUMBER
DATE

Card Index: C 1 R; C 2 R; C 3 R; C 4 R; C 5 R

BUILDING LIFE AND COST ESCALATION FACTORS

Building Life (Yrs.)(1-60)	Annual Interest Rate (%)	Annual Increase Of Labor Cost (%)	Annual Increase Of Material Cost(%)	Annual Increase Of Floor Space Cost(%)	Annual Increase Of Energy Cost (%)	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80
						C 6 R

CASE STUDIES

No. Cases To Be Analyzed (1-5)	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80
	C 7 R

NOTE: REPEAT CARD TYPES C8 THROUGH C10B FOR EACH CASE TO BE ANALYZED.

GATX
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INPUT FORM CA-02

CASE NO._____LABEL_____

Case Description Data (Alphanumeric)	Card Index
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
	C 8 R

No. Energy Catagories(1-10)	No. Equipment Catagories(1-12)		Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
			C 9 R

ENERGY CATAGORY NO._____LABEL_____
(Repeat card types C9A through C9G for each energy catagory.)

Energy Type (Alphanumeric)		Consumption Units		Demand Units		No. Of Rate Schedules (1-2)	No. Of Applications (1-5)		Card Index
1 2 3 4 5 6 7 8 9 10 11 12	13 14 15 16 17 18 19 20	21 22 23 24 25 26	27 28 29 30	31 32 33 34 35 36	37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
									C 9 A R

RATE SCHEDULE NO._____ LABEL_____
Note: 1.See input form CA-03 for illustration of utility rate breakpoints and types.
2.Omit card types C9C and C9D if not required.

Rate No.	No. Break-Points	Cons(1) or Dem(2)	Breakpoint 1		Breakpoint 2		Breakpoint 3		Breakpoint 4		Card Index
			Quantity	$/Unit	Quantity	$/Unit	Quantity	$/Unit	Quantity	$/Unit	
1 2 3 4	5 6 7	8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25	26 27 28 29 30 31 32 33 34 35	36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55	56 57 58 59 60 61 62 63 64 65	66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
											C 9 B R

	Breakpoint 5		Breakpoint 6		Breakpoint 7		Breakpoint 8		Card Index
	Quantity	$/Unit	Quantity	$/Unit	Quantity	$/Unit	Quantity	$/Unit	
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25	26 27 28 29 30 31 32 33 34 35	36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55	56 57 58 59 60 61 62 63 64 65	66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
									C 9 C

	Breakpoint 9		Breakpoint 10			Card Index
	Quantity	$/Unit	Quantity	$/Unit		
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20 21 22 23 24 25		26 27 28 29 30 31 32 33 34 35 36 37 38 39 40		41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
						C 9 D

RATE SCHEDULE NO._____LABEL_____

Rate No.	No. Break-Points	Cons(1) or Dem(2)	Breakpoint 1		Breakpoint 2		Breakpoint 3		Breakpoint 4		Card Index
			Quantity	$/Unit	Quantity	$/Unit	Quantity	$/Unit	Quantity	$/Unit	
1 2 3 4	5 6 7	8 9 10	11 12 13 14 15 16 17 18 19 20 21	22 23 24 25	26 27 28 29 30 31 32 33 34 35	36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55	56 57 58 59 60 61 62 63 64 65	66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
											C 9 B

	Breakpoint 5		Breakpoint 6		Breakponit 7		Breakpoint 8		Card Index
	Quantity	$/Unit	Quantity	$/Unit	Quantity	$/Unit	Quantity	$/Unit	
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20 21	22 23 24 25	26 27 28 29 30 31 32 33 34 35	36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55	56 57 58 59 60 61 62 63 64 65	66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
									C 9 C

	Breakpoint 9		Breakpoint 10			Card Index
	Quantity	$/Unit	Quantity	$/Unit		
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20 21	22 23 24 25	26 27 28 29 30 31 32 33 34 35 36	37 38 39 40	41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
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COST ANALYSIS PROGRAM

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CASE NO._____ CONTINUED

INPUT FORM CA-03

ENERGY APPLICATION NO._____ LABEL_____

NOTE: REPEAT THIS FORM FOR EACH ENERGY APPLICATION.

Energy Use Label (Alphanumeric)	Consumption Basis (1-3)	Consumption Rate No. (See Card C9B)	Demand Basis (1-3)	Demand Rate No. (See Card C9B)	Card Index
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
					C 9 E R

MONTHLY CONSUMPTION DATA

	January	February	March	April	May	June	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
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	July	August	September	October	November	December	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
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MONTHLY DEMAND DATA(Skip if not required)

	January	February	March	April	May	June	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
							C 9 F

	July	August	September	October	November	December	Card Index
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
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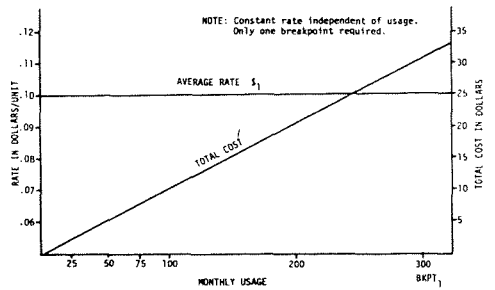
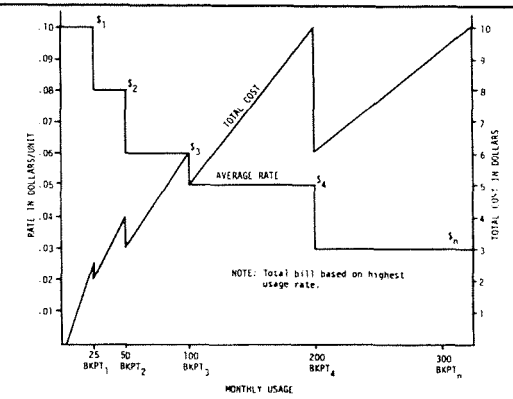
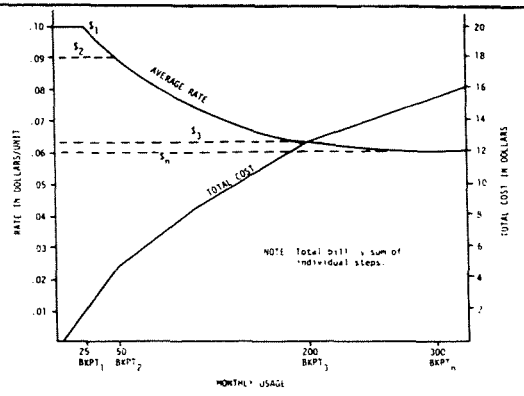
1.= STRAIGHT LINE BASIS



2.= STEP BASIS



3.= BLOCK BASIS



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CASE NO. _____ CONTINUED

EQUIPMENT CATAGORIES
NOTE: REPEAT CARD TYPES C10A AND C10B FOR EACH EQUIPMENT CATAGORY SPECIFIED ON CARD TYPE C9.

EQUIPMENT CATAGORY NO._____

Equipment Label (Alphanumeric)	Installed Cost ($)	Expected Life (Yrs.)	Salvage Value? (0.=No, 1.=Yes)	Major Overhaul Period (Yrs.)	Card Index
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
					C 1 0 A

ANNUAL MAINTENANCE		MAJOR OVERHAUL		Occupied Floor Space Cost($)		Card Index
Labor ($)	Material($)	Labor($)	Material($)			
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
						C 1 0 B

EQUIPMENT CATAGORY NO._____

Equipment Label (Alphanumeric)	Installed Cost ($)	Expected Life (Yrs.)	Salvage Value? (0.=No, 1.=Yes)	Major Overhaul Period (Yrs.)	Card Index
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
					C 1 0 A

ANNUAL MAINTENANCE		MAJOR OVERHAUL		Occupied Floor Space Cost($)		Card Index
Labor ($)	Material($)	Labor($)	Material($)			
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
						C 1 0 B

EQUIPMENT CATAGORY NO._____

Equipment Label (Alphanumeric)	Installed Cost ($)	Expected Life (Yrs.)	Salvage Value? (0.=No., 1.=Yes)	Major Overhaul Period (Yrs.)	Card Index
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
					C 1 0 A

ANNUAL MAINTENANCE		MAJOR OVERHAUL		Occupied Floor Space Cost ($)		Card Index
Labor ($)	Material($)	Labor($)	Material($)			
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
						C 1 0 B

EQUIPMENT CATAGORY NO._____

Equipment Label (Alphanumeric)	Installed Cost ($)	Expected Life (Yrs.)	Salvage Value? (0.=No.,1.=Yes)	Major Overhaul Period (Yrs.)	Card Index
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60	61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
					C 1 0 A

ANNUAL MAINTENANCE		MAJOR OVERHAUL		Occupied Floor Space Cost ($)		Card Index
Labor ($)	Material ($)	Labor ($)	Material($)			
1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30	31 32 33 34 35 36 37 38 39 40	41 42 43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
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CASH FLOW COMPARISONS
NOTE: REPEAT CARD TYPE C11 FOR EACH COMPARISON DESIRED(MAXIMUM=20)

COMPARISON NO.	Base Case No.(1-5)	Compared To Case No.(1-5)		Card Index
	1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20	21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71 72 73 74 75 76 77 78 79 80
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