

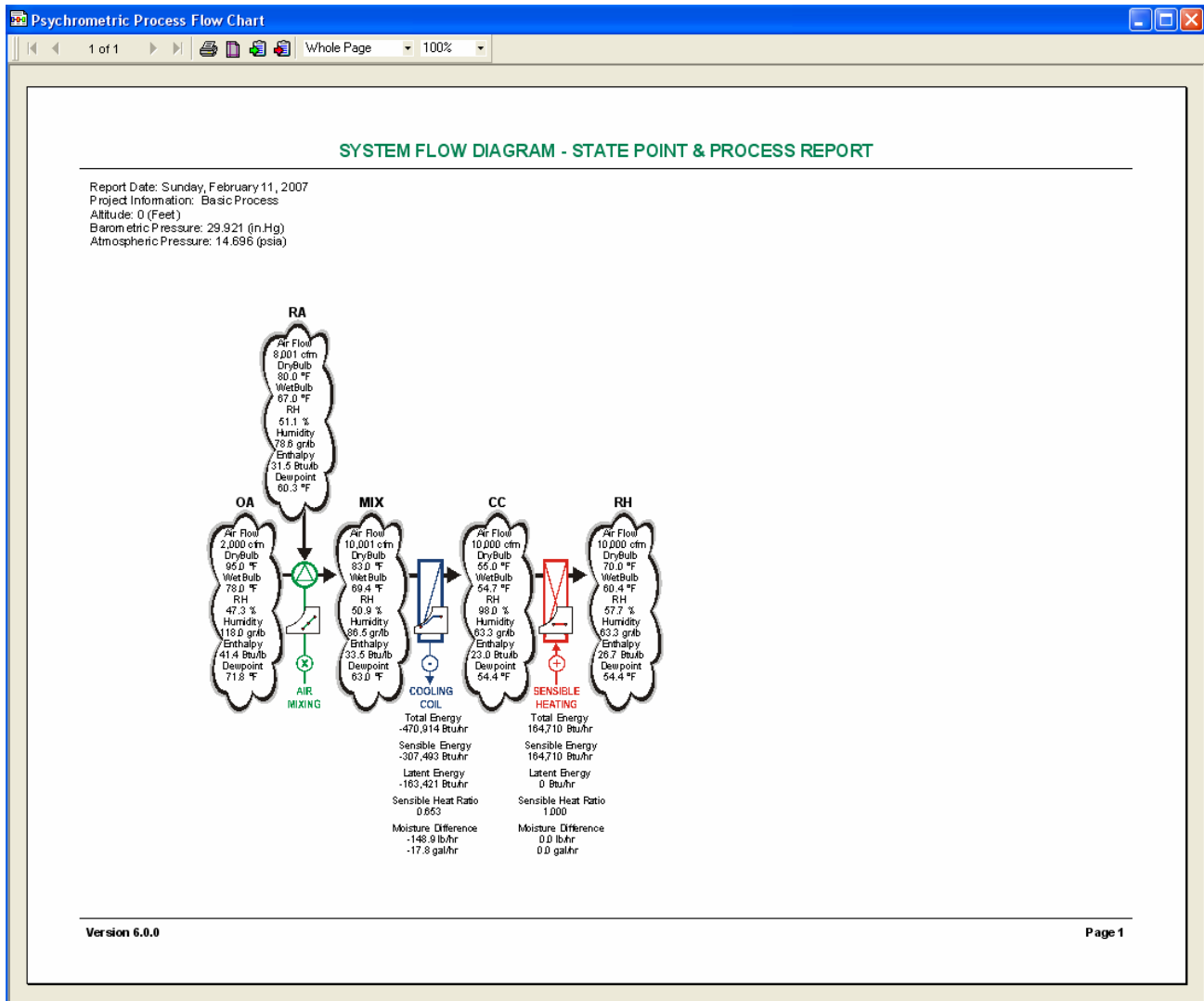


PROGRAM FEATURES

NEW VERSION 6 FEATURES!

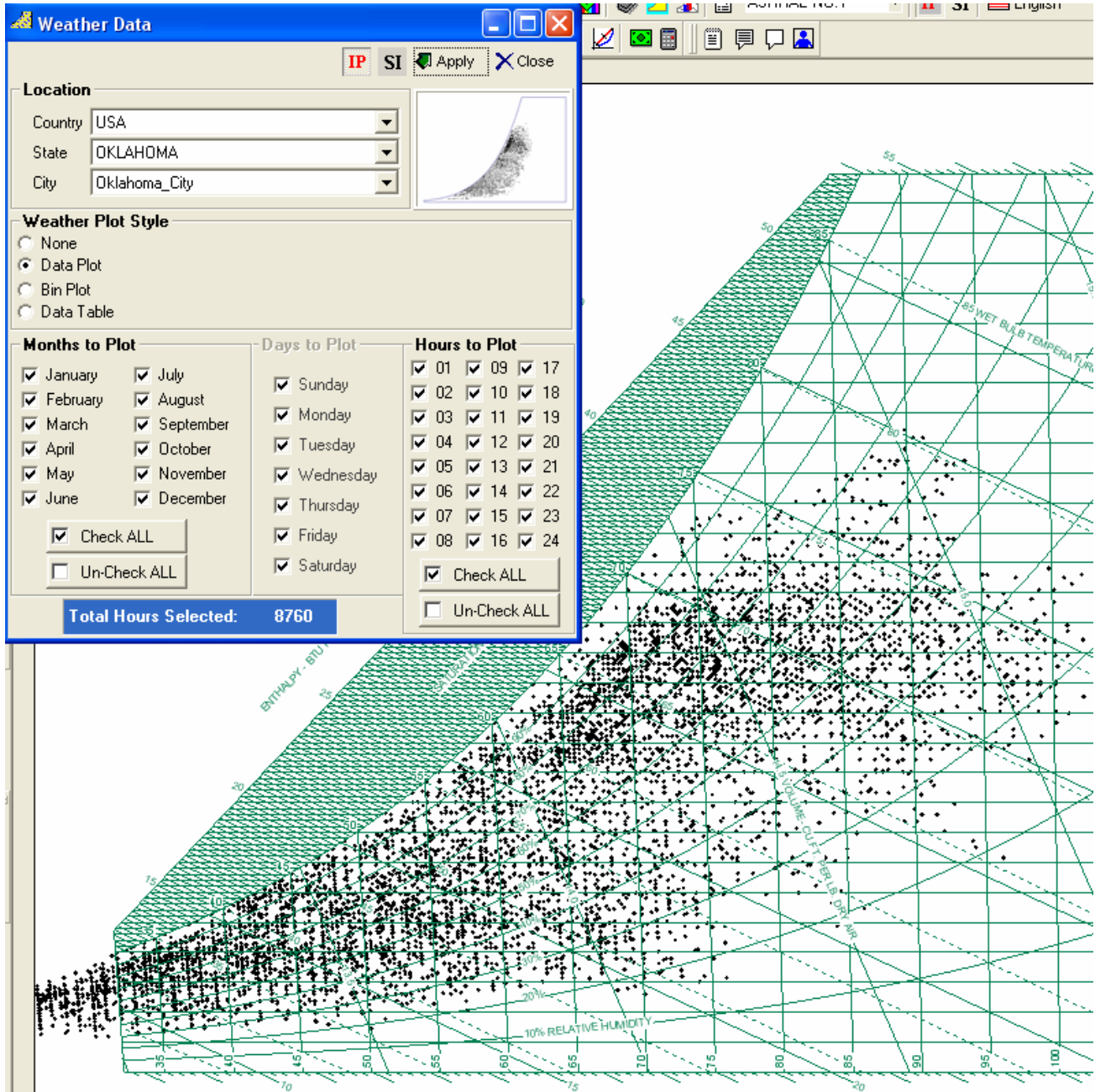
NEW Auto Flow Chart Diagram!

Now you can get a Complete Flow Diagram Schematic with all Process and Thermo-Physical properties with One-Button-Click! Flow diagram and/or data can be copied with One-Button-Click to the clipboard for pasting into your reports and presentations!



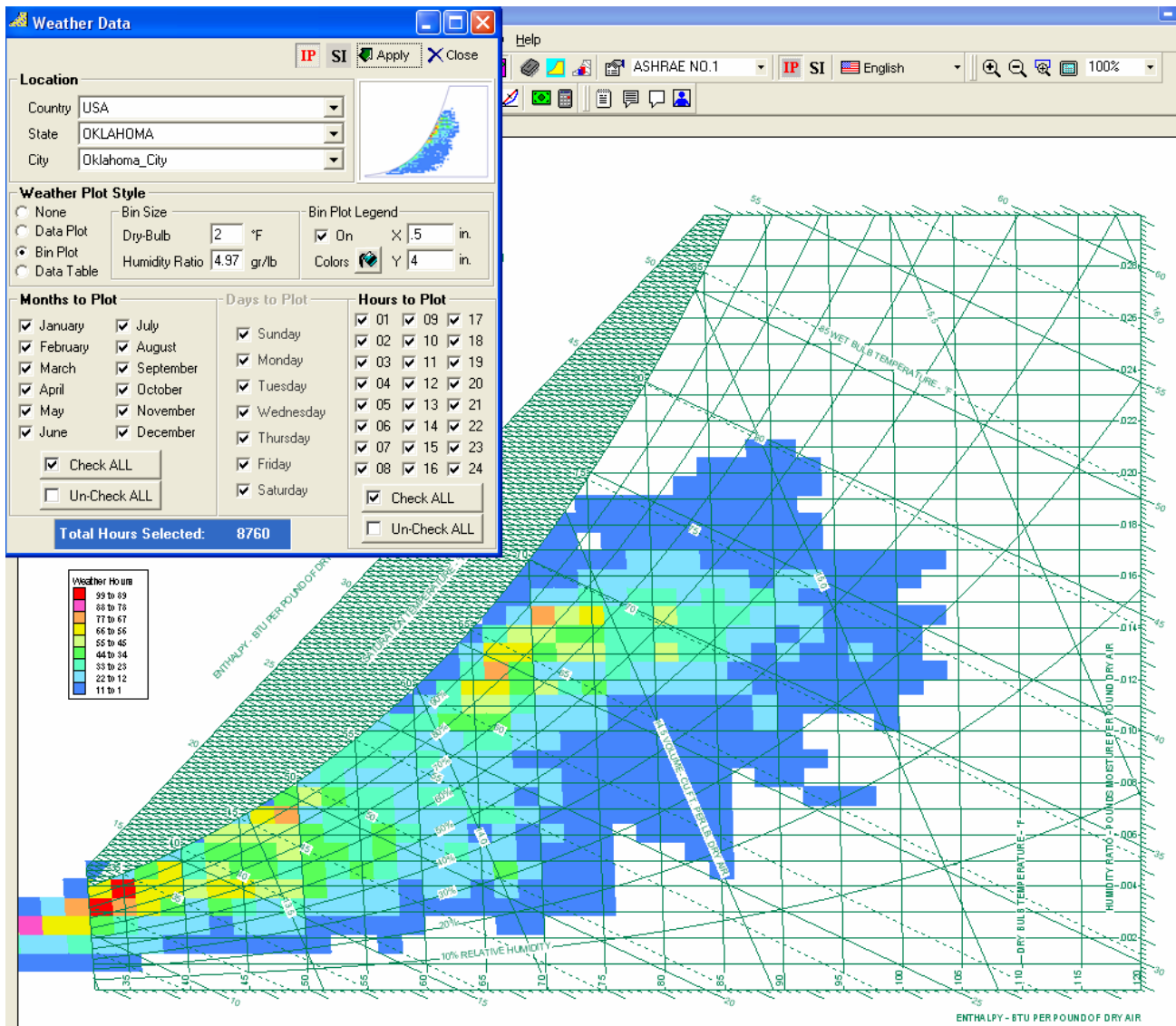
NEW Weather Data Plotting with Complete Global Weather Files!!

Now you can see the weather data plotted right on the chart with one click!!



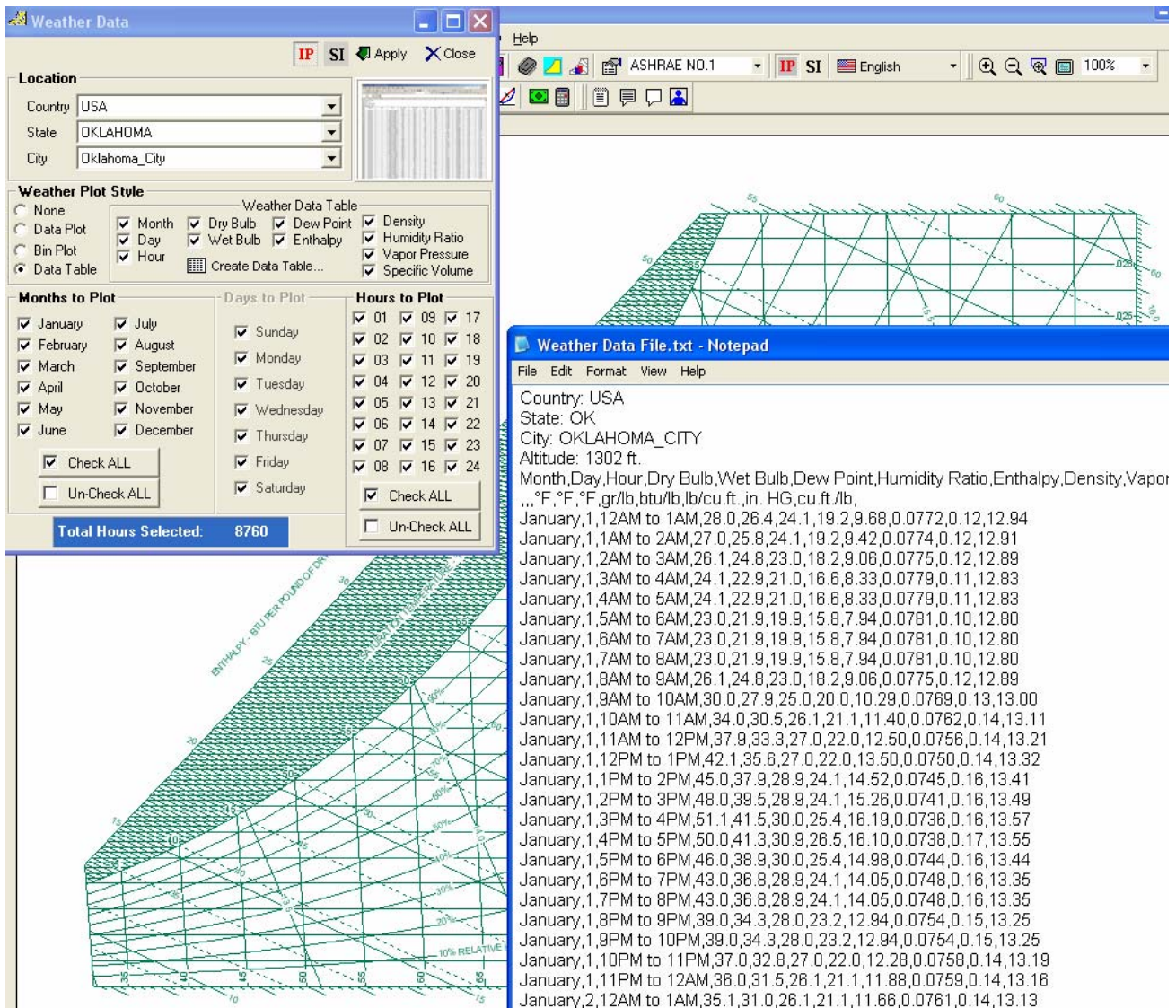
NEW Weather Bin Shade Plotting with Complete Control!!

Now you can display Bin Weather data right on the chart and specify the bin size and colors!!...even displays a bin legend that you can locate where you want!!



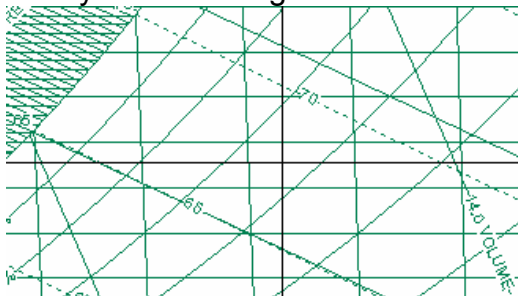
NEW Global Weather Data Table Access!!...CREATE YOUR OWN BIN TABLES!!

Now you have access to world-wide weather data at your fingertips!!...create a complete weather data file that you can modify, import to Excel, etc. with One-Click!!

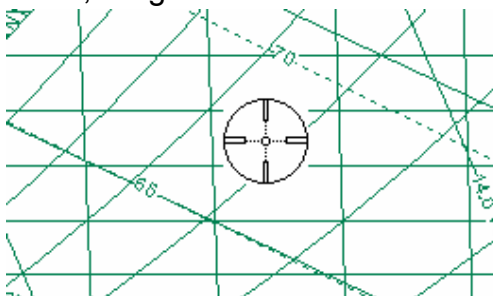


NEW Mouse Icon Control!!

Now you can change the mouse icon to Arrow, Target or Cross-Hair!!



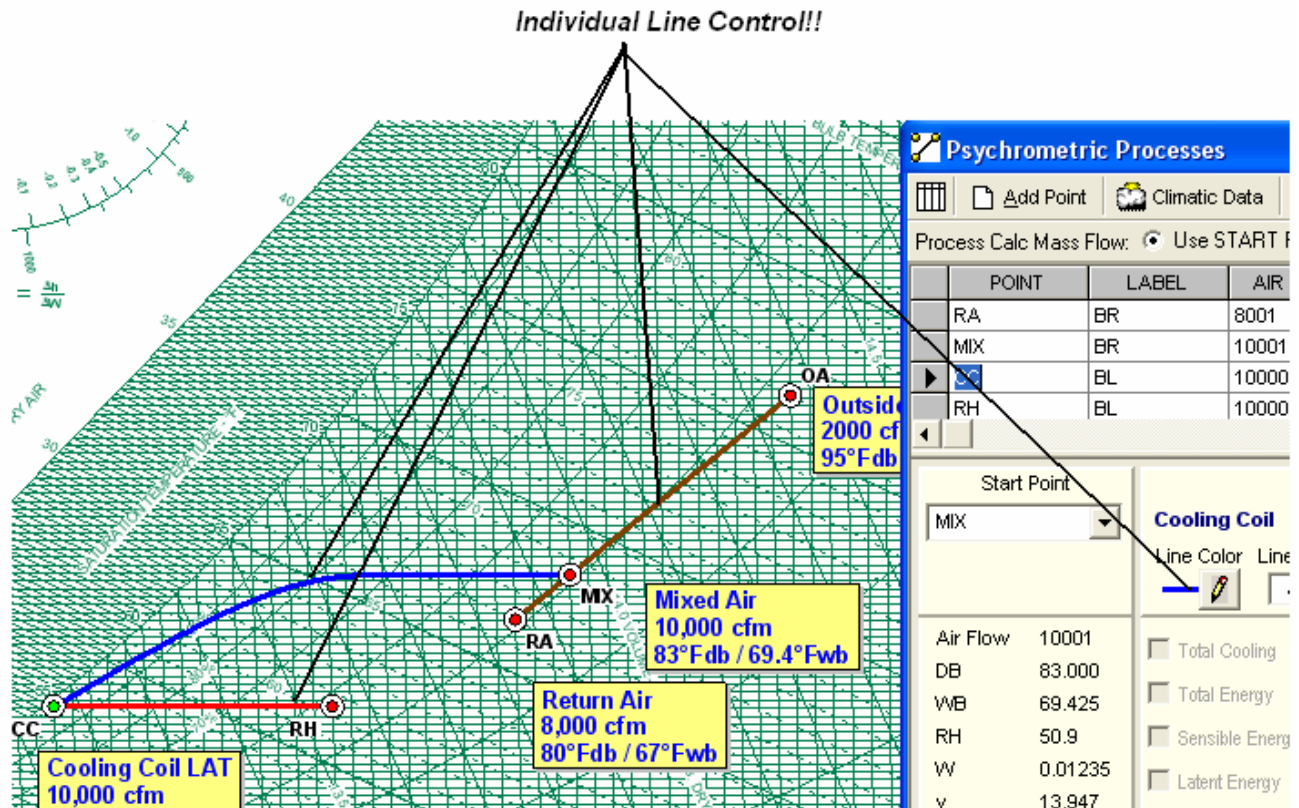
Cross-Hair Mouse (just like CAD!!)



Or Target Style!!

NEW Individual Process Line Color Control!

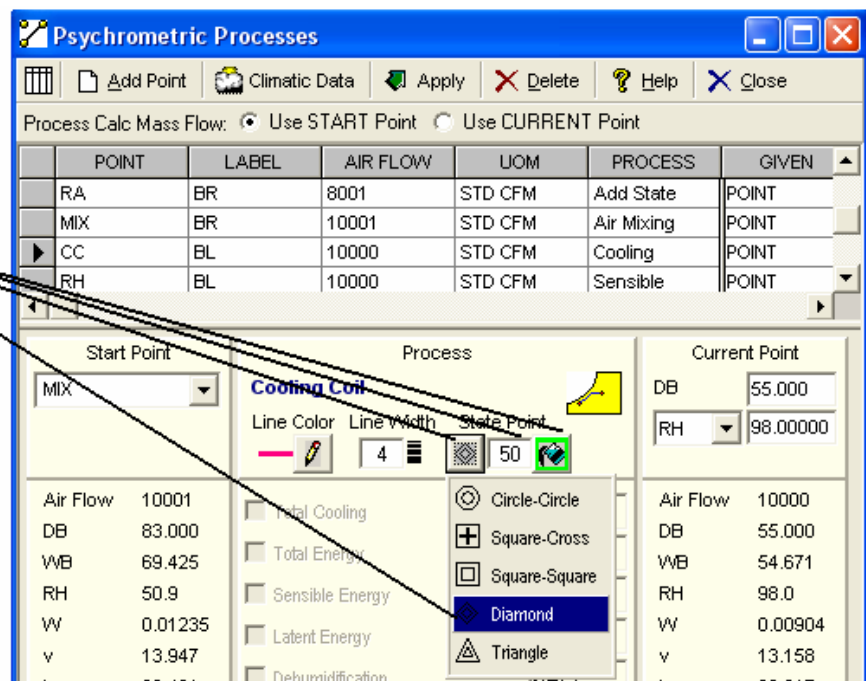
Now you can control the color and thickness of EACH Individual Process Line!!



NEW Individual Point Color, Shape and Size Control!

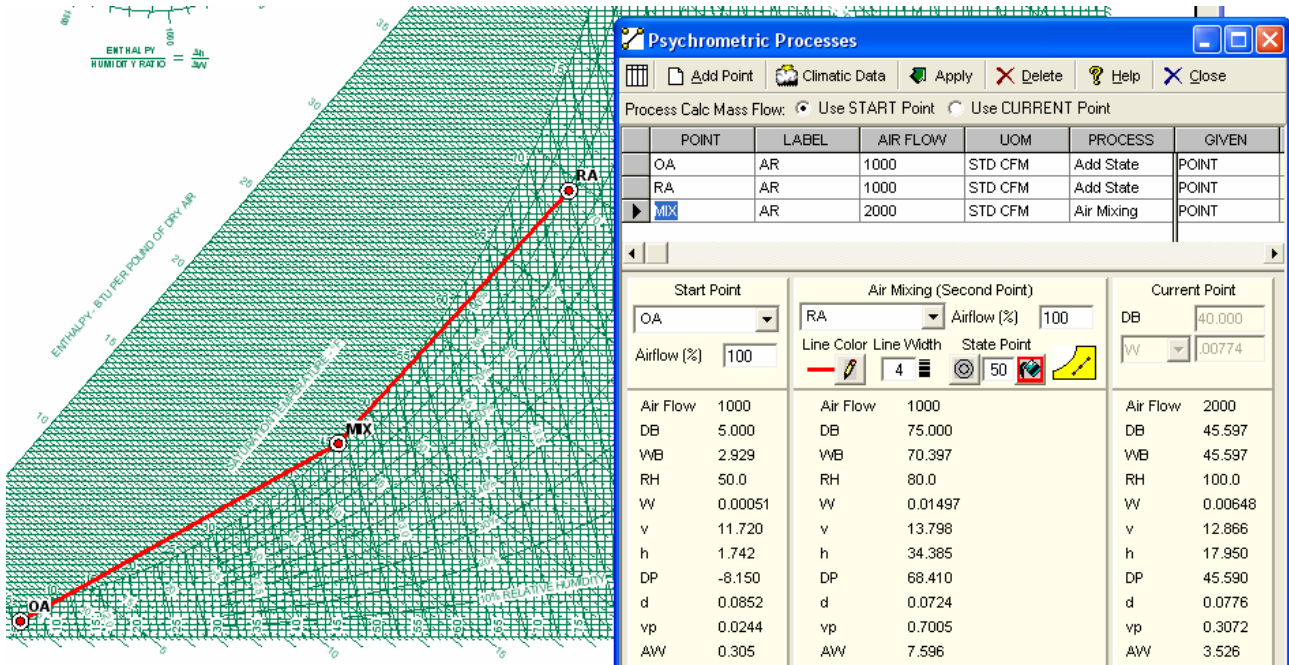
Now you can control the icon, color and size of EACH Individual State Point!!

Individual Point Icon, Color and Size Control!!



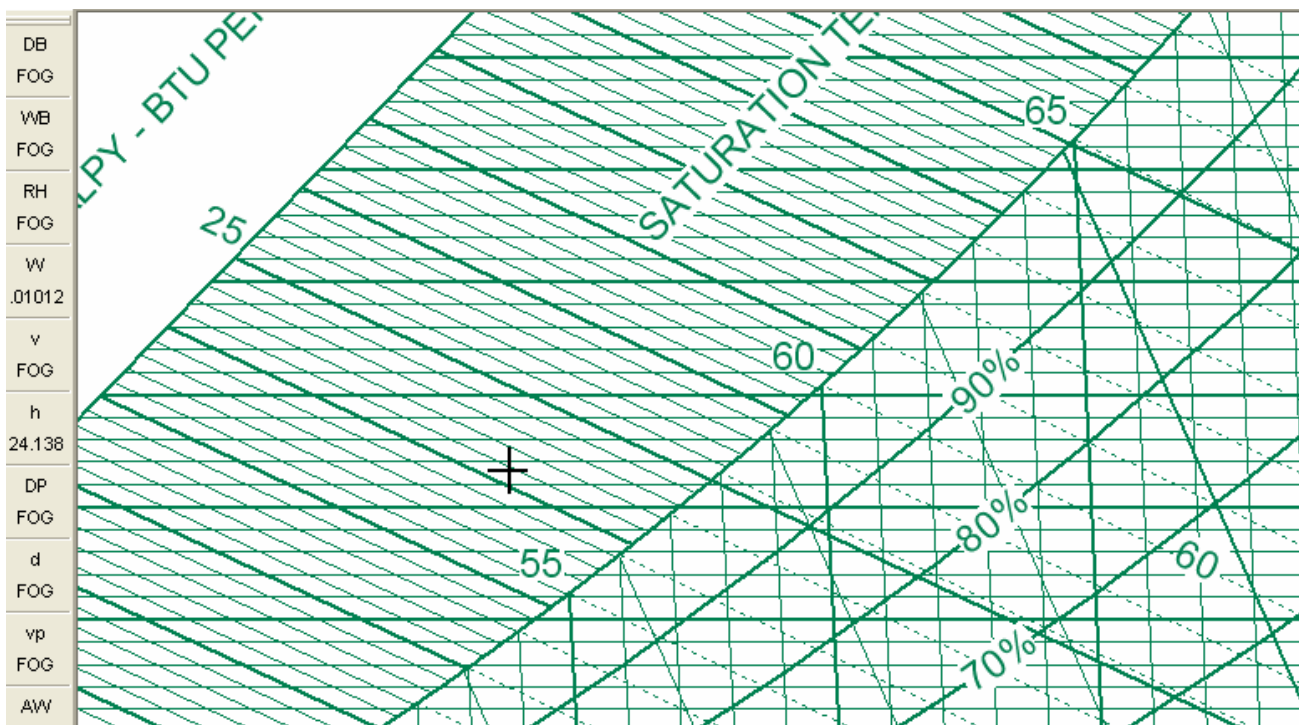
NEW Winter "V" Air Mixing Capability!

Now you can plot mixing processes that cross the saturation line!!



NEW Fog Region Property Display!!

Now you can read fog region properties!!



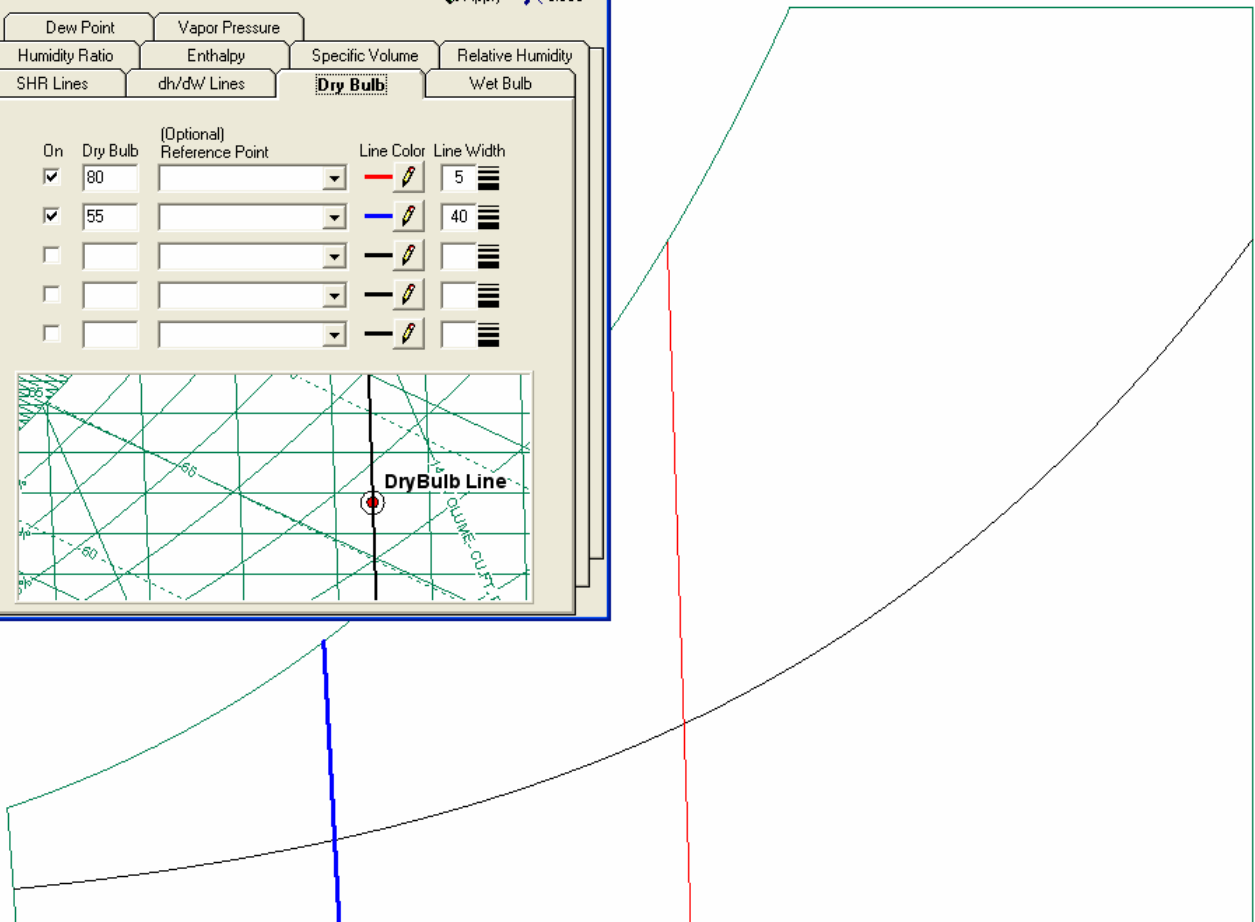
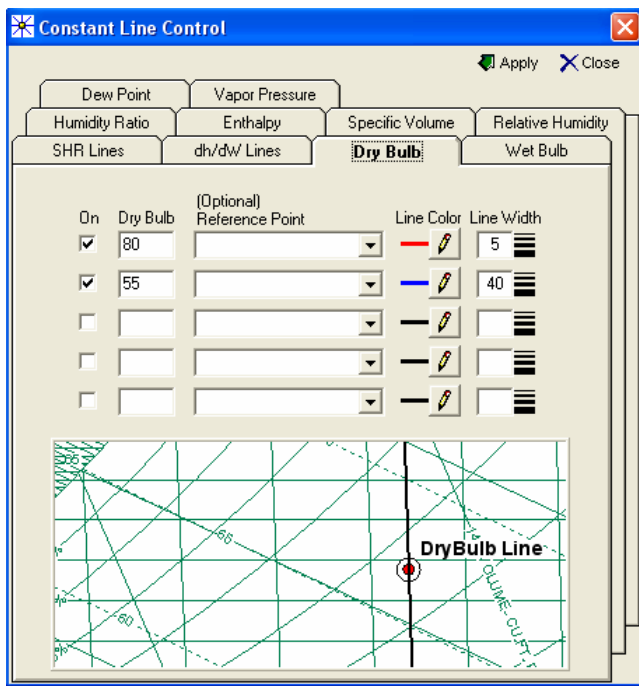
NEW Humidity Ratio Unit of Measure Control!!

Now you can select the Humidity Ratio units displayed on the chart and used in Psychrometric Analysis with one button click!!




NEW Constant h, WB, HR, DB, VP, DP, SHR & dW/dh Line Control!!




Now you can specify exact individual property lines to be displayed!!



NEW Complete Thermal Comfort Calculator!!


Now you can perform thermal comfort modeling calculations on the fly!!



Thermal Comfort Calculator

IP

SI


Print


Close

Environmental Conditions

Air Temperature
°F

MRT
☒ Link with Air
°F

Air Velocity
ft/min

Relative Humidity
%

☒ Summer
☐ Winter

Activity

User Defined

Metabolic Rate
met

Clothing

User Defined

Clothing level
clo

Other Details

External Work

met

Turbulence Intensity

%

Mean Mo. Outdoor Temp

°C

Exposure Time

min

Barometric Pressure

torr

Weight

kg

Surface Area

sq.m

Results

ET*
°F

SET*
°F

TSENS

DISC

PMV

PPD
%

PD
%


PS
%

TS
Nuetral

Tnuetral
°F (Humphreys)

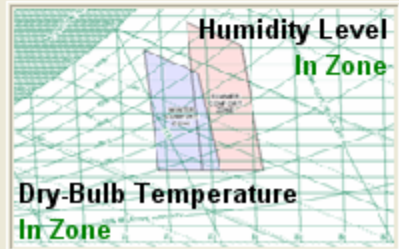
Tnuetral
°F (Auliciems)

Comfortable



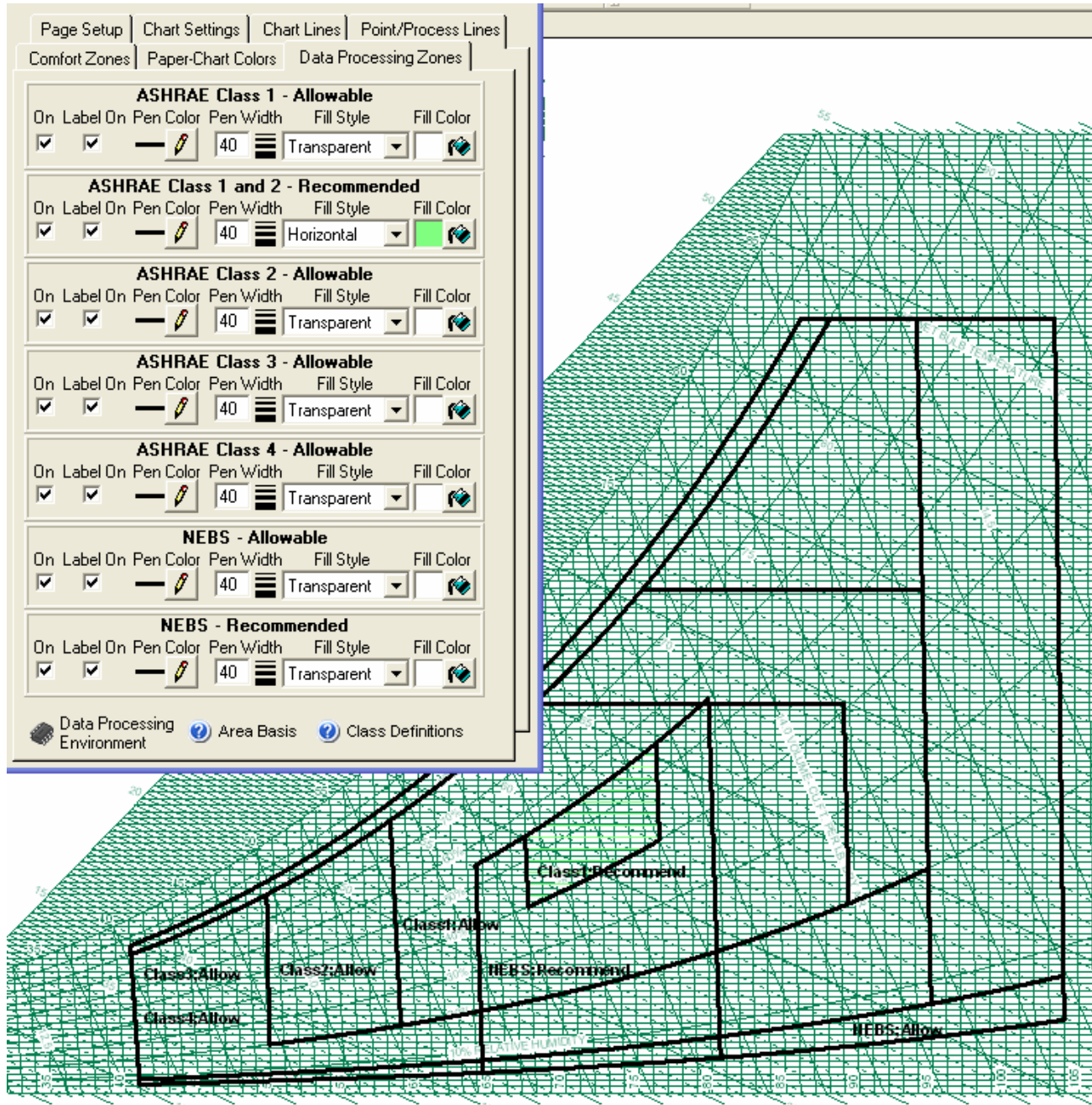
Comfort Zone Calculation

Summer Comfort



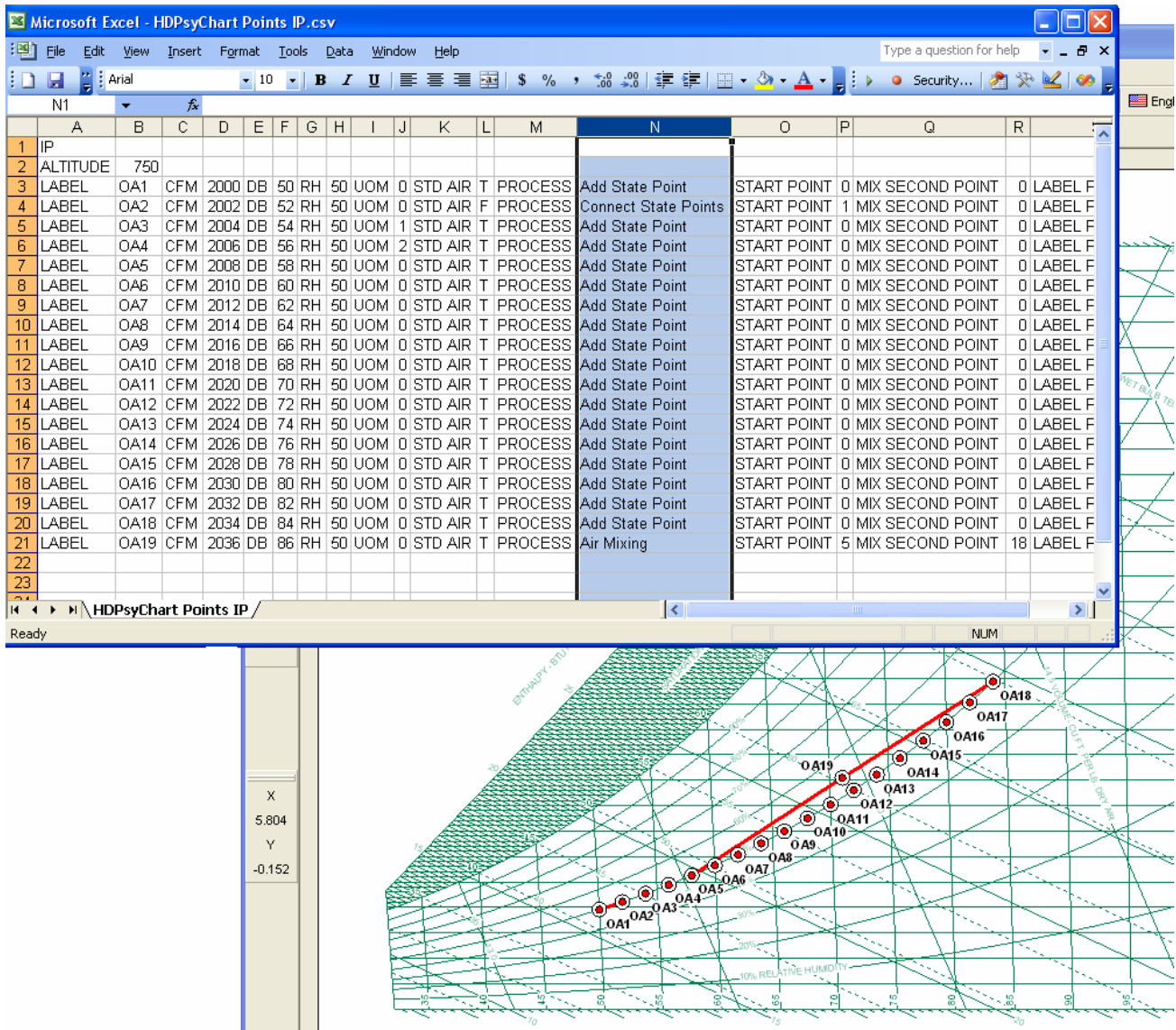
NEW ASHRAE Class 1 through 4 Datacenter Zones (allowed & recommended) and NEBS Datacenter Zones (allowed & recommended)!!

Now you can display the Data Processing Environment regions right on the psychrometric chart!!!!the regions are calculated and are displayed dynamically with elevation!!!



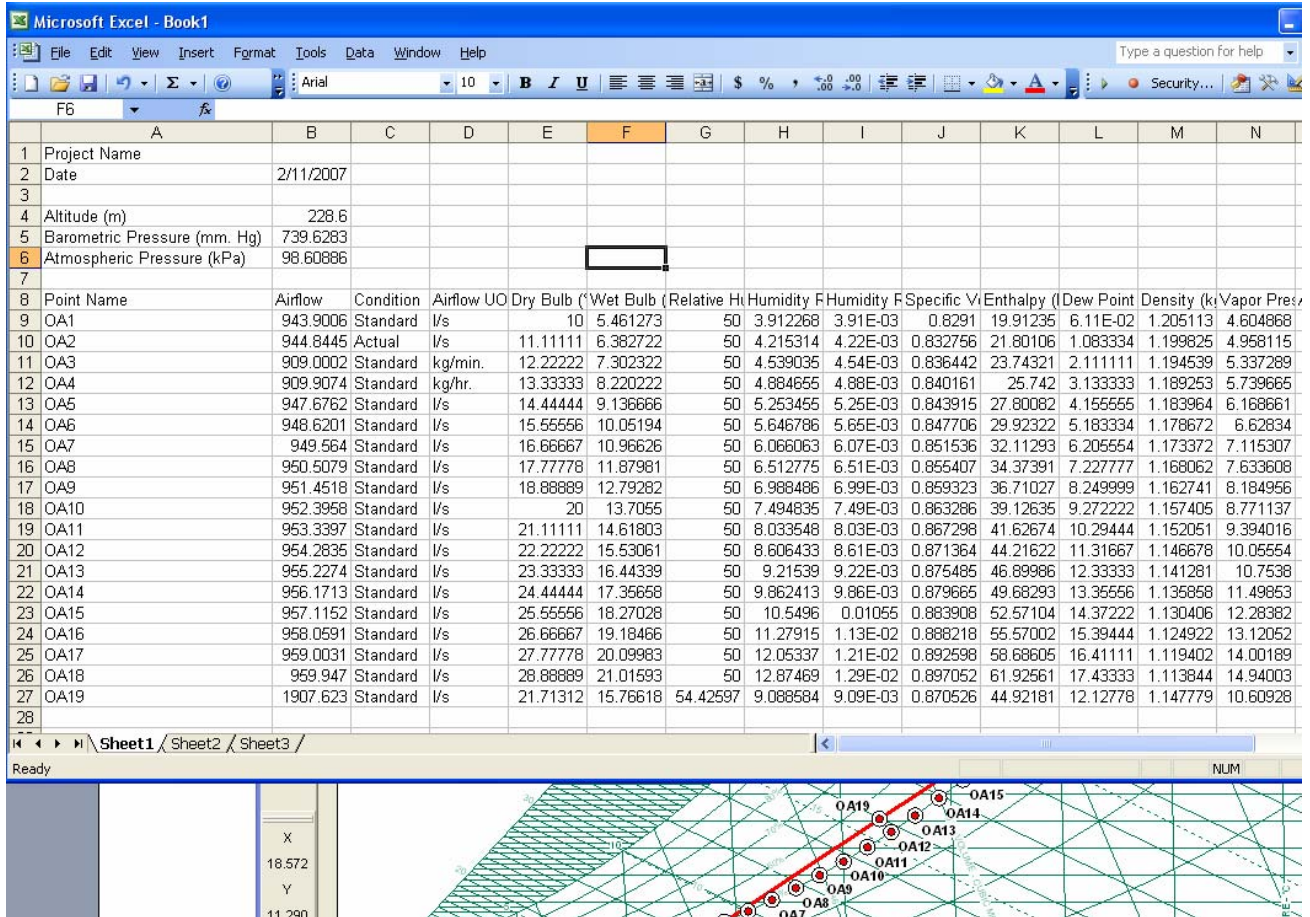
NEW Process Control added to Data Import Function!!

Now when you're importing data text or Excel spreadsheet data, you can specify processes with the data!!



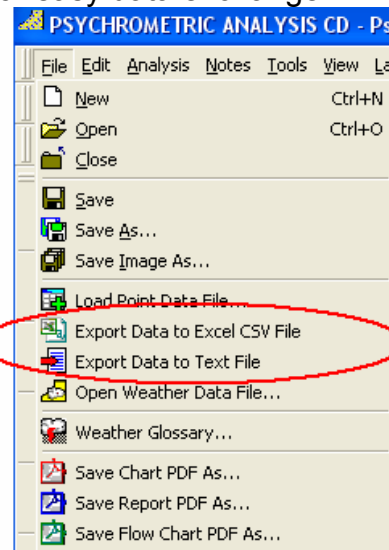
NEW SI units added to text file & Excel Data Exchange!!

Now when you're exporting data text or Excel spreadsheet data, you can export out in SI units of measure!!

**NEW export Data in EITHER *.txt format or *.csv format!!**

Now you can export your psychrometric analysis data in either text file (*.txt) format or an Excel friendly comma delimited format (*.csv) for easy data exchange!!

Export Data as TXT or CSV file!!



NEW Outdoor Air Estimator UPDATED to Standard 62-2004!!

Now you can quickly and easily obtain updated values from Table-16 from ASHRAE Standard 62-2004 with associated Notes and Air Classifications!!

Outside Air Estimator - RE: ASHRAE Standard 62-2004

Application Group: **Educational Facilities**

Specific Application: **Media center**

cfm per Person: **10** cfm per sq.ft.: **0.12**

No. of People: **22** Area (sq.ft.): **7500**

People OA Rate: **220** Area OA Rate: **900**

TOTAL Suggested Fresh Airflow (cfm): 1120

AIR CLASS
Air Class = 1
[Class Definition](#)

NOTES
For high school and college libraries, use values shown for Public Spaces - Library.

GENERAL NOTES

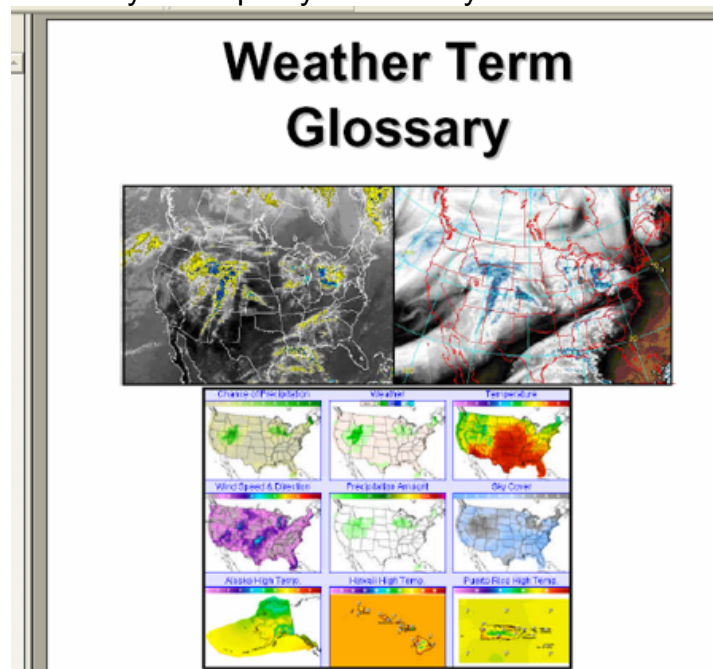
(1.) Related Requirements: The rates in this program are based on all other applicable requirements of ASHRAE Standard 62-2004 being met.

(2.) Smoking: This program applies to no-smoking areas. Rates for smoking-permitted spaces must be determined using other methods. See ASHRAE Standard 62-2004, Section 6.2.9 for ventilation requirements in smoking areas.

(3.) Air Density: Volumetric airflow rates are based on an air density of 0.075 lbda/ft³ (1.2 kgda/m³), which corresponds to dry air at a barometric pressure of 1 atm (101.3 kPa) and an air temperature of 70°F (21°C). Rates may be adjusted for actual density but such adjustment is not required for compliance with

NEW Weather Term Glossary!!

Now you can quickly and easily look up any almost any weather term or phrase in seconds!!



NEW Wind Chill Factor Calculator!!

Now you wind chill and frost bite times are at your fingertips and can be calculated in seconds!!

Wind Chill Calculator

Calculate Chart FAQ IP SI Print

Temperature and Wind Condition

Temperature: -10 °F

Wind: 45 mph

Wind Chill and Frostbite Time

Wind Chill: -44 °F

Frostbite Time: 10 minutes

NEW Climatic Data PRINTING Capability Added!!

Instead of just viewing design data or adding it to your psychrometric system, now you can print all the design data for your location as well!!

Print Close

☒ COOLING USA 1,302 Elevation, feet ☒ English (IP)

☒ HEATING Oklahoma 35.40 North Latitude ☐ Metric (SI)

☒ WIND Oklahoma City, Will Rogers Airport 97.60 West Longitude

SUMMER COOLING				Evaporation			Dehumidification		
	DB °F	MWB °F	°F db	WB °F	MDB °F	°F db	DP °F	MDB °F	°F db
0.4%	99	74	99.14	77	91	91.04	73	83	83.12
1%	96	74	96.26	76	90	90.32	72	82	82.04
2%	94	73	93.56	75	89	89.24	71	81	81.32

Extr. Annual Max. DB °F 103 Std. Dev. °F 3 Mean Daily Range DB °F 21

WINTER HEATING				Coldest Month		Extreme Annual Daily	
	DB °F	RH %	°F db	WS mph	MCDB °F	DB °F	Std. Dev. °F
99.6%	9	50	9.32	0.4%	29	33	4
99%	15	50	14.72	1%	26	37	5

WIND

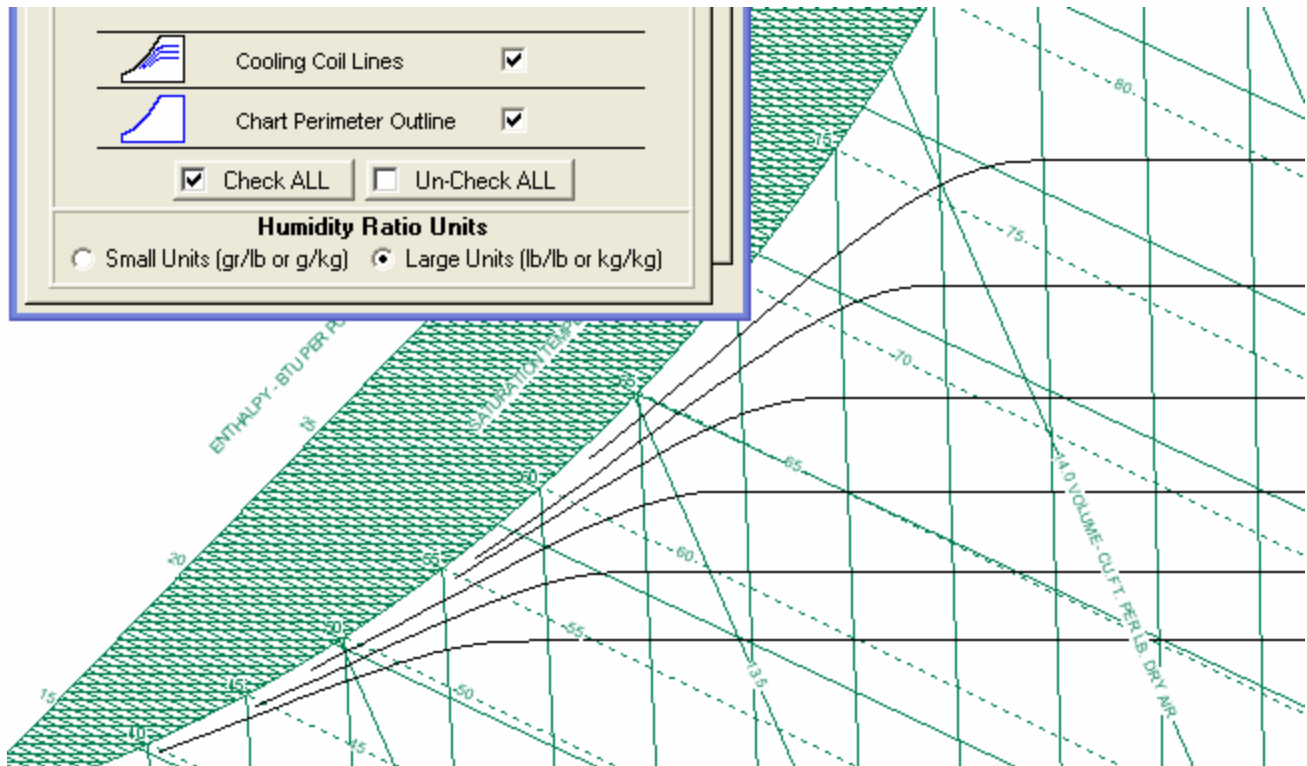
Coincident with 0.4% DB (cooling) MCWS 13 mph PWD 180 deg.

Coincident with 99.6% DB (heating) MCWS 15 mph PWD 360 deg.

Extreme Wind Speed 1% 29 mph 2.5% 25 mph 5% 23 mph

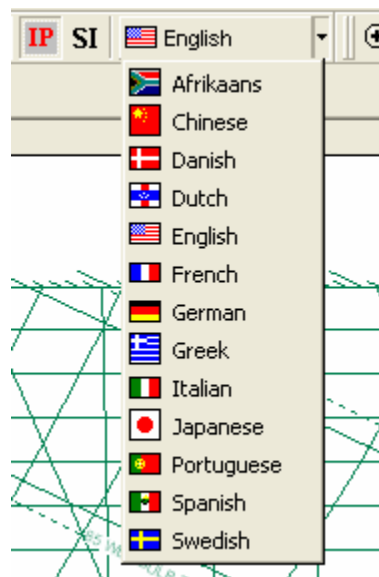
NEW Cooling Coil Performance Line Control!!

Now you can display cooling coil modeled curves right on the psychrometric chart!!



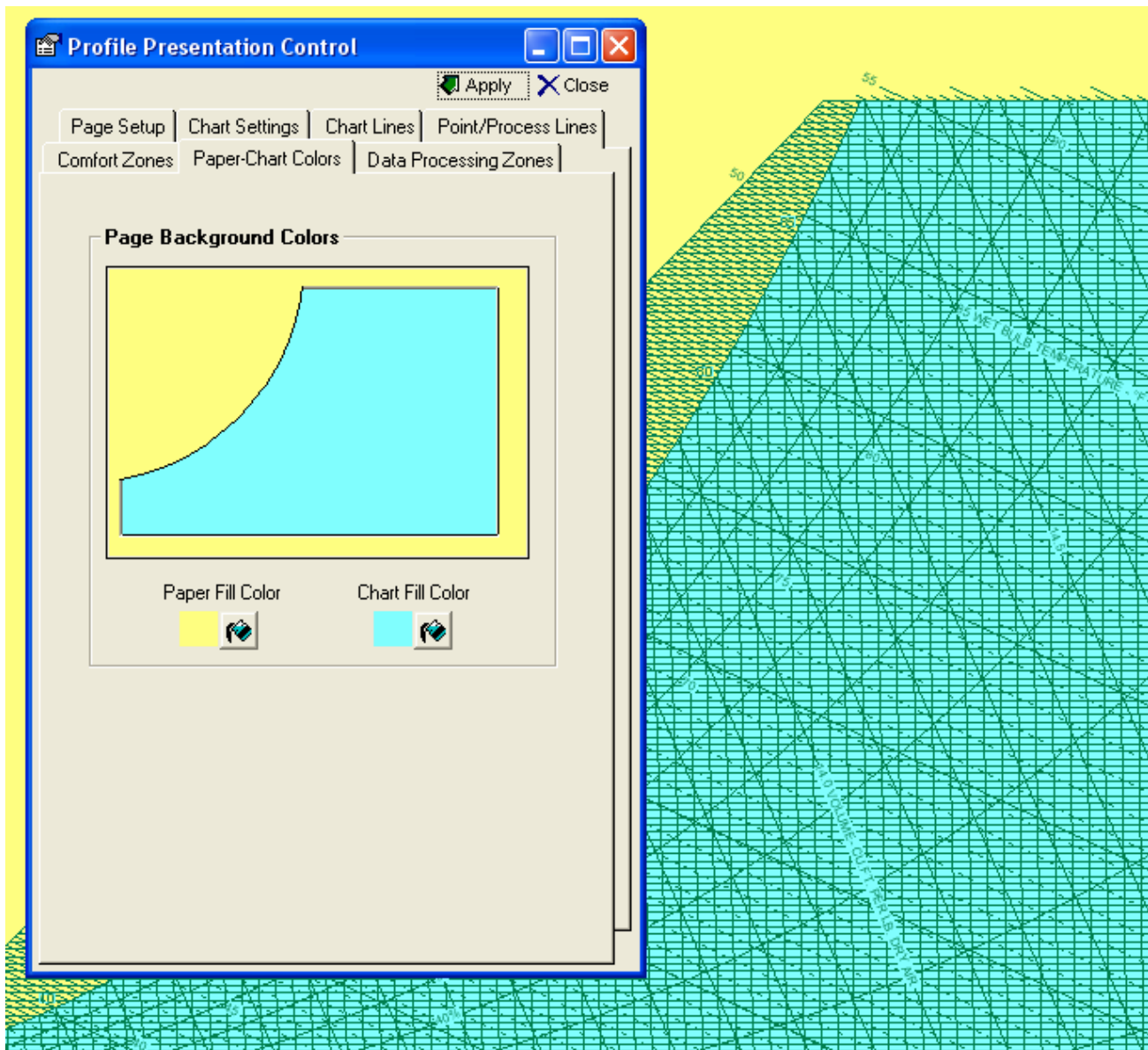
NEW Greek, Japanese and Dutch Languages Added!!

Now Psychrometric Analysis supports (13) Languages!!



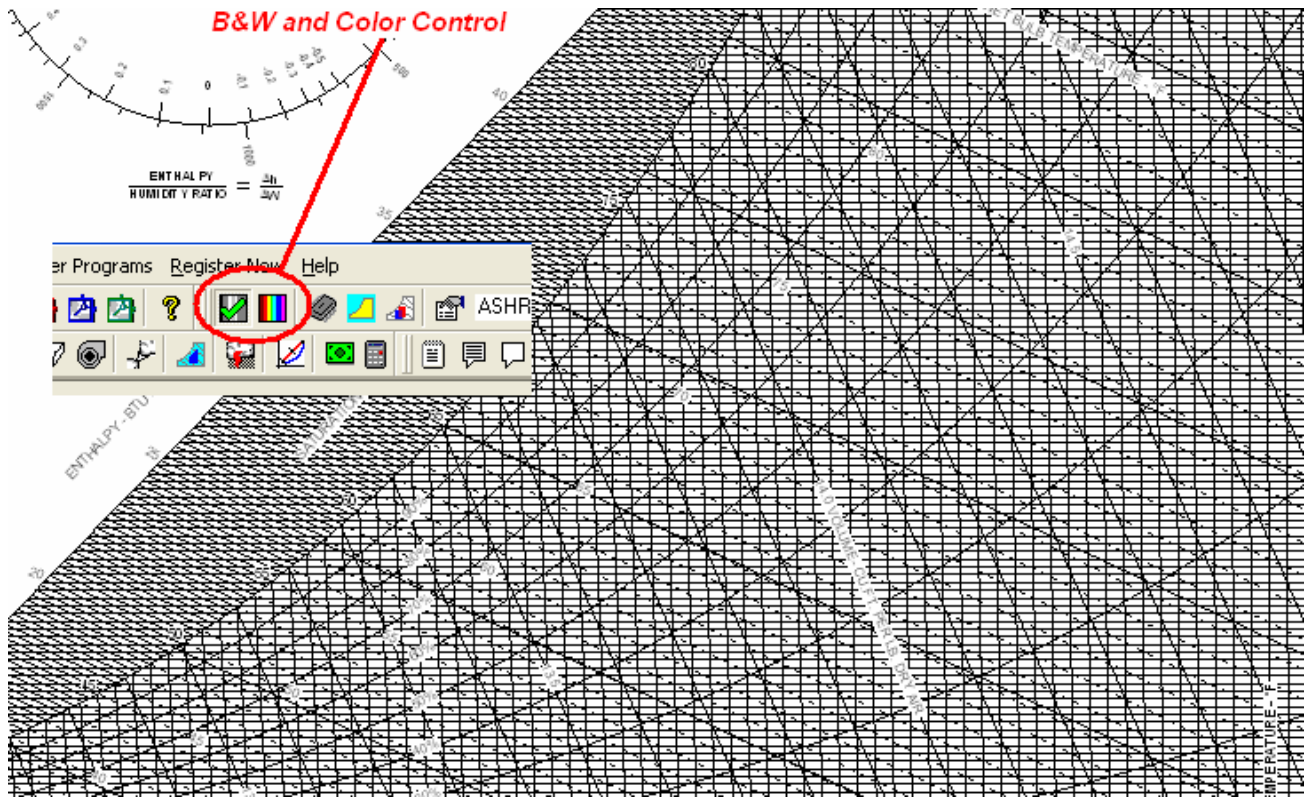
NEW Page and Chart Area Color Control!!

Now you can customize the appearance of the psychrometric chart and select virtually any color for the page and chart area!!



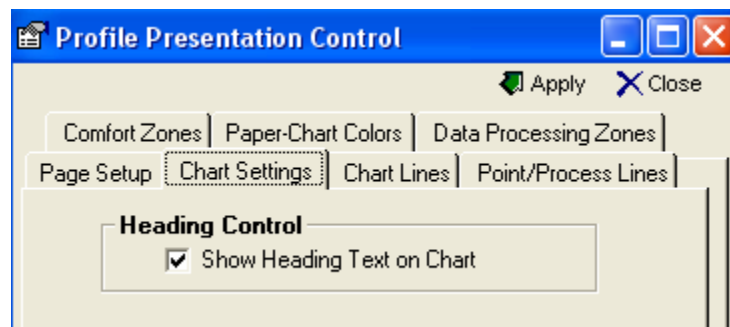
NEW Black & White <=> Color Display & Print Control!!

Now you can select Black and White only or Color display!!



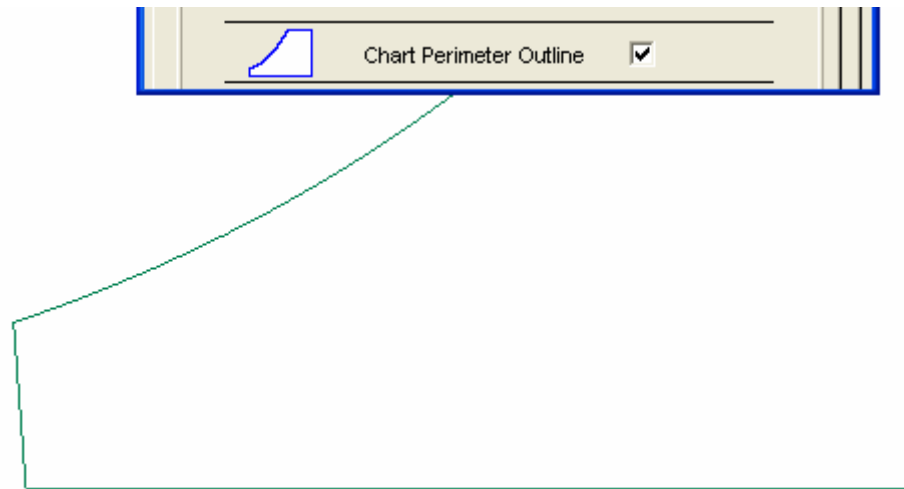
NEW Heading On/Off Control!!!

Now you can turn Headings On or Off!!



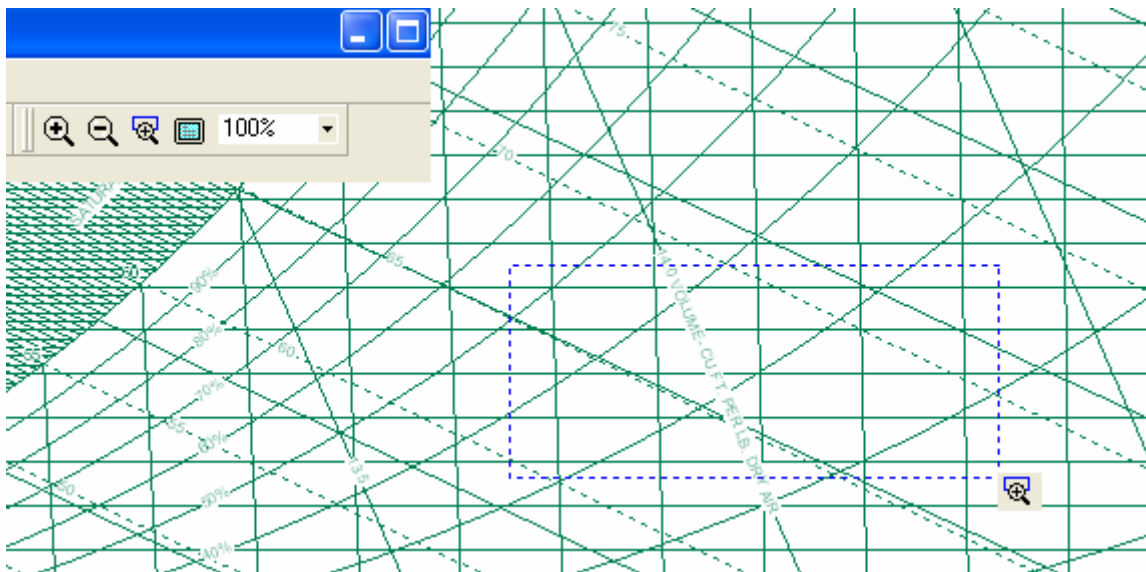
NEW Psychrometric Chart Outline Control!!

Now you can turn the Chart Outline On or Off!!



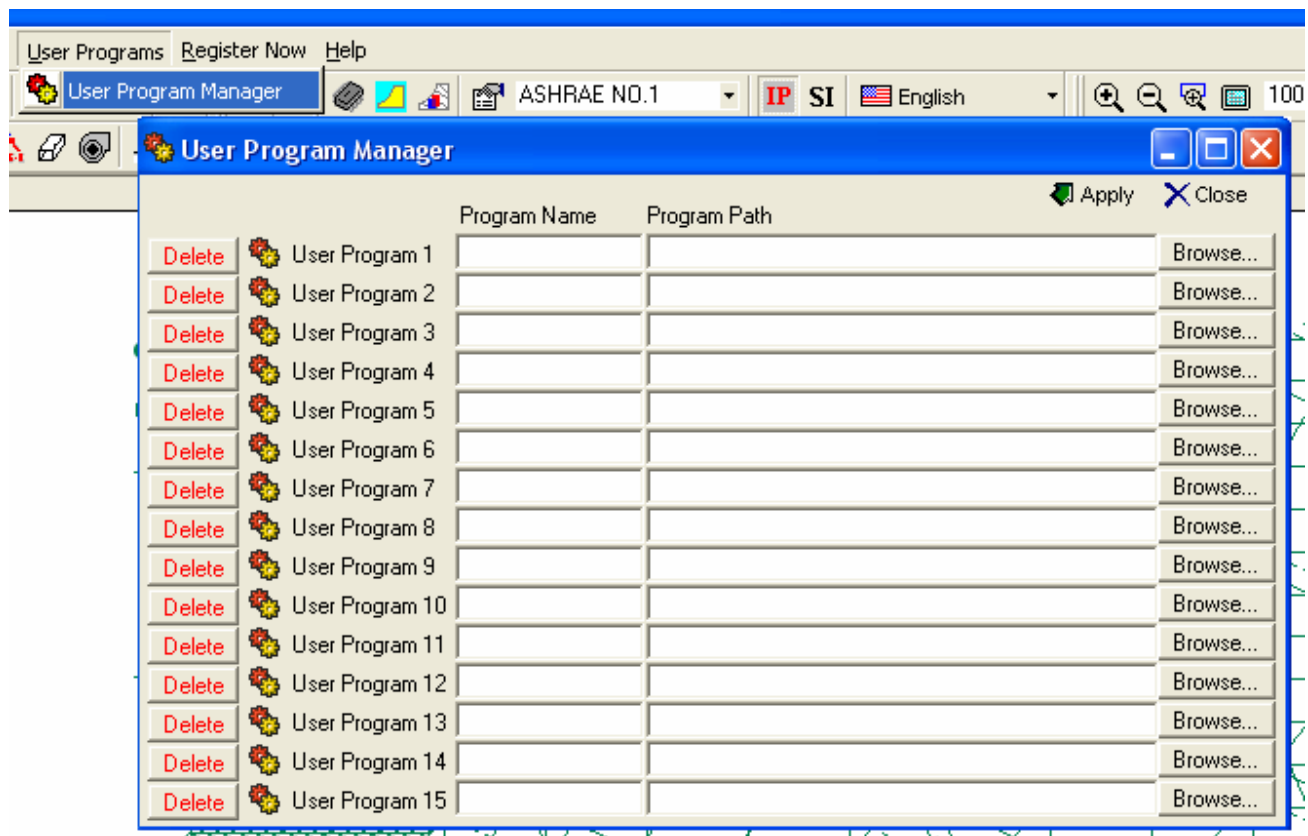
NEW Zoom Window Control!!

Now you can Zoom using a Window to specify where you want to Zoom!!



NEW Ability to add user defined "ToolBox" Programs under menu item tools!!

Now you can ADD your other Engineering Tools to the Psychrometric Analysis menu so you can access them easily and quickly!!



NEW Single & Double Interpolation and Extrapolation Calculator!!

Now single and even double Interpolation and Extrapolation is performed easily and quickly!!

Interpolate Calculator

Print Close

CALCULATE

☐ Single
 ☒ Double

☒ Interpolation
 ☐ Extrapolation

☒ Linear Analysis

Series 1
 Value: 2000
 X1: 2 Y1: 1 X: 3 Y: 2 X2: 4 Y2: 3

Series Mid
 Value: 2250
 X: 3 Y: 2 X: 4 Y: 3 X: 5 Y: 4

Series 2
 Value: 2500
 X1: 4 Y1: 3 X: 5 Y: 4 X2: 6 Y2: 5

NEW Fan Law Calculator!!

Now when you're estimating fan motor heat for an unknown condition, you can quickly calculate the new power and heat required!!

Fan Law Calculator

CALCULATE IP SI Print Close

☒ Current Fan Performance

Airflow: 10000 cfm
 Static Pressure: 2.50 in. WC
 Power: 8.4 bhp
 Speed: 1150 rpm
 Pulley Size: 12 in.

☒ New Fan Performance

☒ Airflow: 12000 cfm
☐ Static Pressure: 3.60 in. WC
☐ Power: 14.5 bhp
☐ Speed: 1380 rpm
☐ Pulley Size: 10.0 in.

NEW Duct Sizing Calculator!!

Now when you need to estimate duct design static pressures for fan performance, required motor power and motor heat, you can use this tool to quickly determine duct pressure drops!!

Duct Designer

CALCULATE **IP** **SI** **Print** **Close**

Air Condition

Airflow cfm

☒ STD Air ☐ ACTUAL Air

Density lb/cu.ft.

Duct Material

Roughness Factor ft

Rectangular Duct

Side 1 in. Side 2 in. Duct Length ft

Equal Diameter in. Area sq.ft. Velocity ft/min

Pressure Drop in.WC/100ft Total Pressure Drop in.WC

Round Duct

Diameter in. Duct Length ft

Area sq.ft. Velocity ft/min

Pressure Drop in.WC/100ft Total Pressure Drop in.WC

Oval Duct

Side 1 in. Side 2 in. Duct Length ft

Equal Diameter in. Area sq.ft. Velocity ft/min

Pressure Drop in.WC/100ft Total Pressure Drop in.WC

NEW Financial Loan / Payment Calculator!!

Great for when you need to quickly estimate a payment or generate an amortization table!

LoanCalc

Loan Amount

160000

Percent Down

10

%

Maximum Years

30

Minimum Years

30

Max Interest Rate

8.0

%

Min Interest Rate

4.0

%

Show Payments

Copy

Show Amortization Table

Print

Payment	Principal Paid	Interest Paid
\$1,174.02		
1	\$107.35	\$1,066.67
2	\$108.07	\$1,065.95
3	\$108.79	\$1,065.23
4	\$109.51	\$1,064.51
5	\$110.24	\$1,063.78
6	\$110.98	\$1,063.04
7	\$111.72	\$1,062.30
8	\$112.46	\$1,061.56
9	\$113.21	\$1,060.81
10	\$113.97	\$1,060.05



PROGRAM FEATURES

OTHER PROFESSIONAL EDITION FEATURES!

Complete state point and process report with the ability to copy EITHER the report IMAGE or the DATA to the clipboard so you can paste it right into your proposals, presentations or the data into spreadsheets!!

STATE POINT & PROCESS REPORT

Report Date: Saturday, June 12, 2004
 Project Information:
 Altitude: 0 (Feet)
 Barometric Pressure: 29.921 (in.Hg)
 Atmospheric Pressure: 14.696 (psia)

Prepared By: Robert Hanna
 Company: Hands Down Software
 Phone: (405) 844-6314
 Fax: (405) 844-6314
 email: sales@handsdownsoftware.com

1. RA

STATE POINT DATA

Air Flow (Standard) (cfm)	Dry Bulb (°F)	Wet Bulb (°F)	Relative Humidity (%)	Humidity Ratio (lb/lb)	Specific Volume (cu.ft./lb)	Enthalpy (Btu/lb)	Dew Point (°F)	Density (lb/cu.ft.)	Vapor Pressure (in.Hg)	Absolute Humidity (grains/ft.)
1.000	75.000	63.940	55.0	0.01022	13.696	29.181	57.7592	0.0729	0.4817	5.222

2. DH

STATE POINT DATA

Air Flow (Standard) (cfm)	Dry Bulb (°F)	Wet Bulb (°F)	Relative Humidity (%)	Humidity Ratio (lb/lb)	Specific Volume (cu.ft./lb)	Enthalpy (Btu/lb)	Dew Point (°F)	Density (lb/cu.ft.)	Vapor Pressure (in.Hg)	Absolute Humidity (grains/ft.)
1.000	90.000	63.940	22.8	0.00676	14.003	29.057	45.7887	0.0713	0.3216	3.390

Process: Desiccant Dehumidification

Start Point Name	Total Energy (Btu/hr)	Sensible Energy (Btu/hr)	Latent Energy (Btu/hr)	Dehumid- fication (lb/hr)	Sensible Heat Ratio	Enthalpy/ Humidity Ratio (Btu/lb / lb/lb)	Sensible Energy Per Dehumidification (Btu/lb)
RA	-514	16,403	-16,917	-15.5	-31.912	33	-1.0511

3. SC

STATE POINT DATA

Air Flow (Standard) (cfm)	Dry Bulb (°F)	Wet Bulb (°F)	Relative Humidity (%)	Humidity Ratio (lb/lb)	Specific Volume (cu.ft./lb)	Enthalpy (Btu/lb)	Dew Point (°F)	Density (lb/cu.ft.)	Vapor Pressure (in.Hg)	Absolute Humidity (grains/ft.)
1.000	85.000	60.449	77.4	0.01022	13.439	28.735	57.7592	0.0743	0.4517	5.322

Process: Sensible Cooling

Start Point Name	Total Cooling (tons)	Total Energy (Btu/hr)	Sensible Energy (Btu/hr)	Latent Energy (Btu/hr)	Moisture Difference (lb/hr)	Sensible Heat Ratio	Enthalpy/ Humidity Ratio (Btu/lb / lb/lb)
RA	-0.9	-11,905	-11,905	0	0.0	1.000	N/A

4. SH

STATE POINT DATA

Air Flow (Standard) (cfm)	Dry Bulb (°F)	Wet Bulb (°F)	Relative Humidity (%)	Humidity Ratio (lb/lb)	Specific Volume (cu.ft./lb)	Enthalpy (Btu/lb)	Dew Point (°F)	Density (lb/cu.ft.)	Vapor Pressure (in.Hg)	Absolute Humidity (grains/ft.)
1.000	90.000	66.746	33.8	0.01022	14.019	32.649	57.7592	0.0710	0.4517	5.080

Process: Sensible Heating

Start Point Name	Total Heating (tons)	Total Energy (Btu/hr)	Sensible Energy (Btu/hr)	Latent Energy (Btu/hr)	Moisture Difference (lb/hr)	Sensible Heat Ratio	Enthalpy/ Humidity Ratio (Btu/lb / lb/lb)
RA	1.4	16,506	16,506	0	0.0	1.000	N/A

5. CC

STATE POINT DATA

Air Flow (Standard) (cfm)	Dry Bulb (°F)	Wet Bulb (°F)	Relative Humidity (%)	Humidity Ratio (lb/lb)	Specific Volume (cu.ft./lb)	Enthalpy (Btu/lb)	Dew Point (°F)	Density (lb/cu.ft.)	Vapor Pressure (in.Hg)	Absolute Humidity (grains/ft.)
1.000	55.000	54.800	98.8	0.00912	13.160	23.097	54.6642	0.0759	0.4306	4.850

Process: Cooling Coil

Start Point Name	Total Cooling (tons)	Total Energy (Btu/hr)	Sensible Energy (Btu/hr)	Latent Energy (Btu/hr)	Dehumidification (lb/hr)	Sensible Heat Ratio	Enthalpy/ Humidity Ratio (Btu/lb / lb/lb)
RA	-2.3	-27,379	-21,065	-6,414	-4.9	0.802	5.533

6. EC

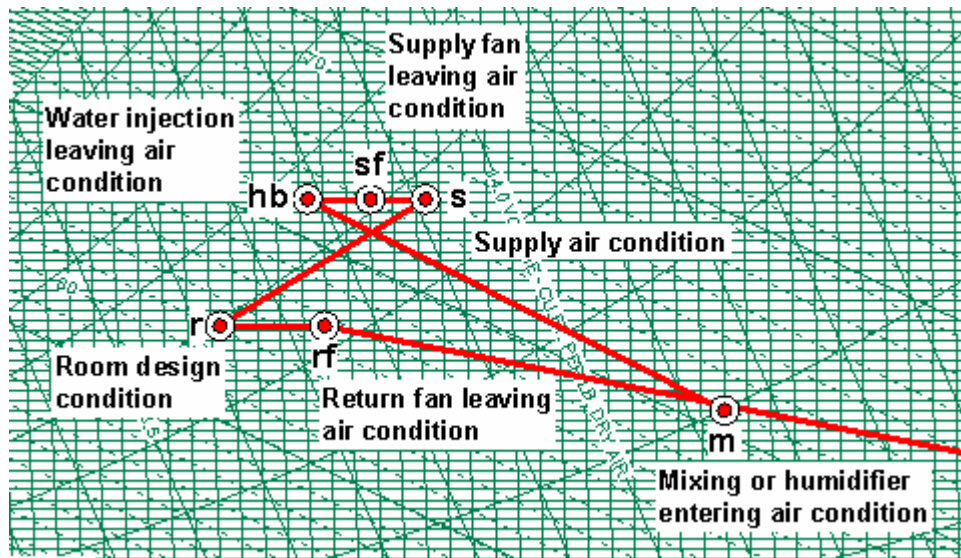
STATE POINT DATA

Air Flow (Standard) (cfm)	Dry Bulb (°F)	Wet Bulb (°F)	Relative Humidity (%)	Humidity Ratio (lb/lb)	Specific Volume (cu.ft./lb)	Enthalpy (Btu/lb)	Dew Point (°F)	Density (lb/cu.ft.)	Vapor Pressure (in.Hg)	Absolute Humidity (grains/ft.)
1.000	85.000	63.940	94.5	0.01025	13.488	29.256	63.9862	0.0741	0.5885	6.500

Process: Evaporative Cooling

Version 5.0.0
Page 1

Complete project information and note capabilities!! Notes are individually controlled allowing for font, color, border, background, etc to all be specific to each note. Complete Drag-n-drop functionality as well as new-edit-delete note management!!



User information and auto note display capability!! User information is added only once and is automatically available for displaying on both the chart and/or the state point and process report!!

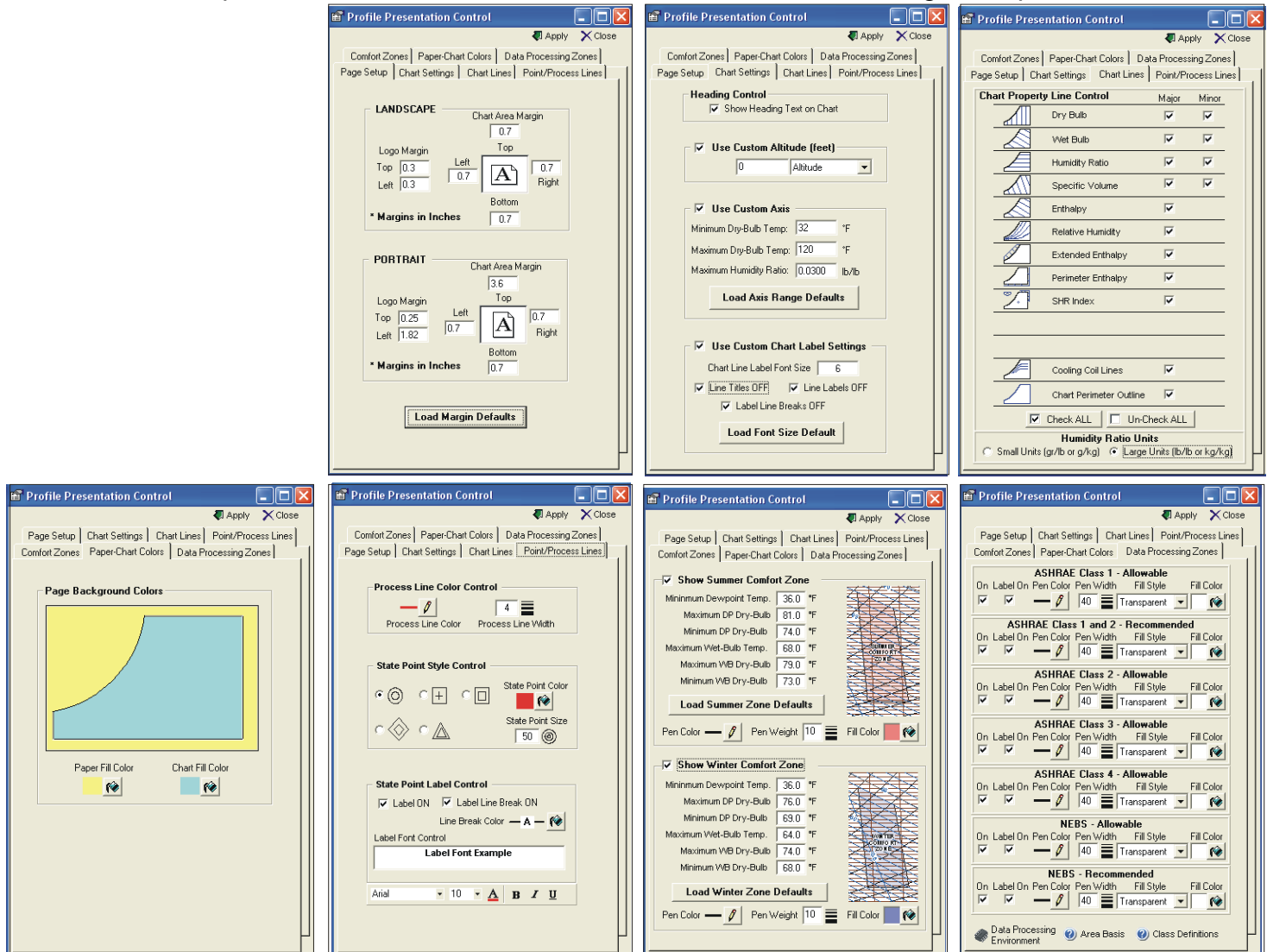
User Information

☐ Always ADD to Projects on Open
 ☒ Show on report

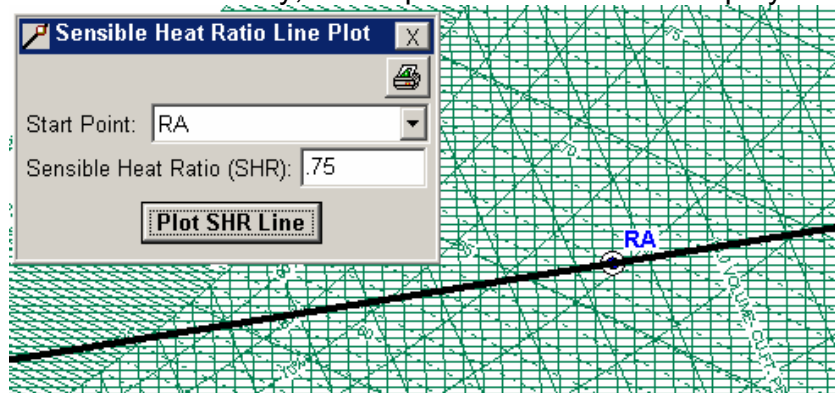
User Name : Robert Hanna
 Company Name : Hands Down Software
 Telephone No. : (405) 844-6314
 Fax No. : (405) 844-6314
 email address : sales@handsdownsoftware.com

Prepared By:
 Name: Robert Hanna
 Company: Hands Down Software
 Tel: (405) 844-6314
 Fax: (405) 844-6314
 email: sales@handsdownsoftware.com
 Date: 6/12/2004

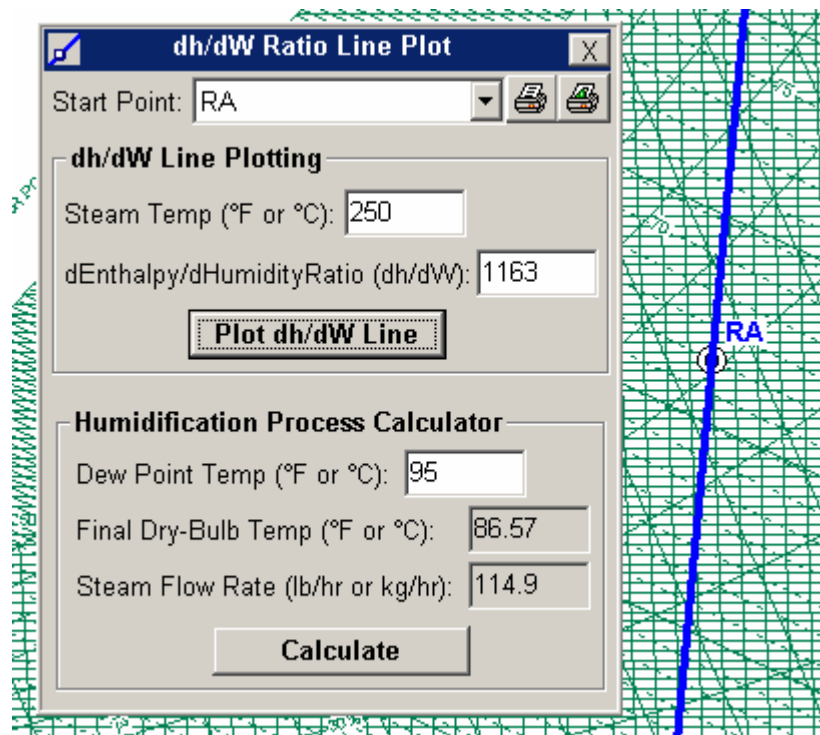
Complete Chart control including virtually any Altitude or Pressure, Dry-Bulb and Humidity Ratio Axis Limit Control, turning Lines ON & OFF, Process line color and width, state point icon and size, state point label font control, Comfort & Data Center Zones, Page Setup and more!!



Sensible Heat Ratio Line Plotting is available with one simple button click!! Type the desired SHR and click the button and instantly, the requested SHR line is displayed on the chart!!



Humidification Delta-Enthalpy / Delta-Humidity Ratio Line Plotting is available with one simple button click!! Steam Flow rate is automatically calculated based on desired Final Dew Point Temperature!!



Complete State-Point and System Process Analysis capable. Process modeling includes AIR MIXING, COOLING COIL, EVAPORATIVE COOLING, DESICCANT DEHUMIDIFICATION, HUMIDIFICATION and SENSIBLE HEATING & COOLING!! All processes can either have END POINT specified, CALCULATING PROCESS DATA or PROCESS DATA specified, CALCULATING END POINT result!

Psychrometric Processes

Apply Add Point Climatic Data... Delete Print Help

	POINT	LABEL	AIR FLOW	UOM	PROCESS	GIVEN
	RA	AR	1000	STD	Add State Point	POINT
	DH	AR	1000	STD	Desiccant Dehumidify	POINT
	SC	AR	1000	STD	Sensible Cooling	POINT
	SH	AR	1000	STD	Sensible Heating	ENERGY
	CC	AR	1000	STD	Cooling Coil	POINT
	EC	AR	1000	STD	Evaporative Cooling	POINT
	HH	AR	1000	STD	Humidification and Heating	POINT
	CS	AR	1000	STD	Connect State Points	POINT
	MIX	AR	2000	STD	Air Mixing	POINT

Start Point		Process		Current Point	
RA		Sensible Heating		DB 89.999	
				WV 0.010217	
Air Flow	1000	<input type="checkbox"/> Total Heating	1.4	Air Flow	1000
DB	75.000	<input type="checkbox"/> Total Energy	16,506	DB	89.999
WB	63.940	<input checked="" type="checkbox"/> Sensible Energy	16,506	WB	68.746
RH	55.0	<input type="checkbox"/> Latent Energy	0	RH	33.8
W	0.01022	<input type="checkbox"/> Moisture Difference	0.0	W	0.01022
v	13.695	<input type="checkbox"/> Sensible Heat Ratio	1.000	v	14.079
h	29.181	<input type="checkbox"/> Enthalpy/ Humidity Ratio	N/A	h	32.849
DP	57.759			DP	57.759
d	0.0738			d	0.0718
vp	0.4817			vp	0.4817
AW	5.222			AW	5.080

All Charts, state-points and process data are converted automatically between **IP and/or SI** with the click of a button!!

PSYCHROMETRIC CHART

Normal Temperature

I-P Units

SEA LEVEL

BAROMETRIC PRESSURE: 29.921 in. HG



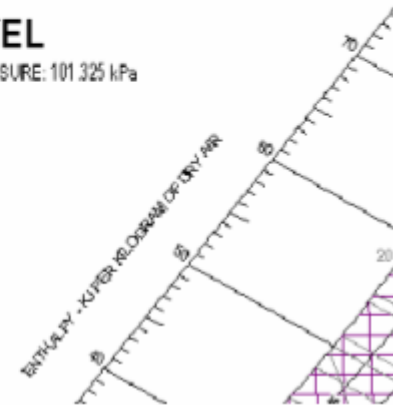
PSYCHROMETRIC CHART

Normal Temperature

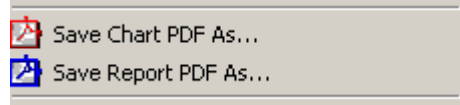
SI Units

SEA LEVEL

BAROMETRIC PRESSURE: 101.325 kPa



Ability to export chart and reports out in PDF format automatically!!



Automatically convert between **(10) different Languages** just by Clicking a button!!



PSYCHROMETRIC DIAGRAMME

La Température Normale
SI Unités

NIVEAU DE LA MER

PRESSION BAROMÉTRIQUE: 101.325 kPa



PSYCHROMETRIC CARTA

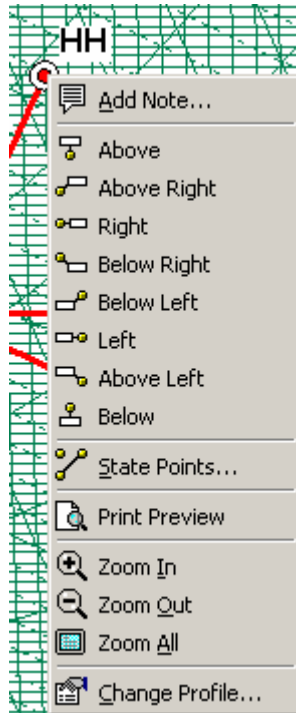
Temperatura Normal
SI Unidades

NIVEL DEL MAR

PRESIÓN BAROMÉTRICA: 101.325 kPa



Right-Click Pop-Up menus allow for easy control of the chart whether it's moving state-point labels or managing chart notes!! Left Double-Click automatically ZOOMS-IN and Right Double-Click automatically ZOOMS-OUT. Hold the left button down and Drag allows you FULL PANNING of the chart!!



Complete Psychrometric Calculator with File-Open-Save capabilities and outputs in either IP or SI units!!

Psychrometric Calculator - New Project

Altitude: 0
 Barometric Pressure: 29.921
 Atmospheric Pressure: 14.696

Dry Bulb Temp: 55
 Wet Bulb Temp: 54.8
 Relative Humidity: 98.784
 Humidity Ratio: 0.00912
 Specific Volume: 13.1600
 Enthalpy: 23.0967
 Dew Point Temp: 54.664
 Density: 0.076687
 Vapor Pressure: 0.43061
 Abs. Humidity: 0.00069
 Parts Per Million by Weight: 9,117
 Parts Per Million by Volume: 14,658

Description	Dry Bulb (°F)	Wet Bulb (°F)	Relative Humidity (%)	Humidity Ratio (gr/lb)	Humidity Ratio (lb/lb)	Specific Volume (cu.ft./lb)	Enthalpy (Btu/lb)	Dew Point (°F)	Density (lb/cu.ft.)	Vapor Pressure (in. Hg)	Abs. Humidity (gr)
OA	95.000	78.000	47.294	0.01688	0.00000	14.3564	41.3955	71.800	0.070850	0.78631	
RA	80.000	67.000	51.140	0.01123	0.00000	13.8453	31.5098	60.347	0.073047	0.52840	
CC	55.000	54.800	98.784	0.00912	0.00000	13.1600	23.0967	54.664	0.076687	0.43061	

Complete Climatic Outside Air Design Data for over 1,000 cities throughout the WORLD for **either IP or SI units!!**

Climatic Data - ASHRAE 1997 Fundamentals

☒ **COOLING** USA 676 Elevation, Feet
 ☒ **HEATING** Oklahoma 36.2 North Latitude
 ☒ **WIND** Tulsa 95.9 West Longitude
 ☒ English (IP)
 ☐ Metric (SI)

SUMMER DB		MWB	°F wb	WB	MDB	°F db	DP	MDB	°F db
COOLING	°F	°F		°F	°F		°F	°F	
0.4%	100	76	76.00	79	92	92.00	76	87	87.00
1%	97	76	76.00	78	92	92.00	74	85	85.00
2%	94	75	75.00	77	90	90.00	73	84	84.00

Average Annual Max. DB °F 103
 Std. Dev. °F 4
 Mean Daily Range DB °F 19

WINTER DB

HEATING °F RH %

 99.6% 9 50 6.72

 99% 14 50 11.23

Coldest Month

 0.4% 24 46

 1% 22 40

WS MCDB

 mph °F

Average Annual Min.

 DB Std. Dev.

 °F °F

WIND

 Coincident with 0.4% DB (cooling) MCWS 12 mph PWD 180 deg.

 Coincident with 99.6% DB (heating) MCWS 11 mph PWD 360 deg.

 Annual Design Values 1% 25 mph 2% 23 mph 5% 21 mph

Complete Cooling Coil Leaving air condition calculator!!! Automatically calculate the Leaving air temperature or the airflow for cooling coils!!

Coil Leaving Air Condition Calculator

Calculate Apply Print Close

Room (Zone) RA			Load Data (select any two)		
Airflow	10,000	SCFM	<input checked="" type="checkbox"/> Total Heat	375000	Btu/hr
Dry-Bulb Temp	80.00	°F	<input type="checkbox"/> Sensible Heat	270000	Btu/hr
Humidity Ratio	0.01123	lb/lb	<input type="checkbox"/> Latent Heat	105000	Btu/hr
Enthalpy	31.51	Btu/lb	<input checked="" type="checkbox"/> SHR	.72	Qs/Qt
Leaving Coil CC			Leaving Coil Condition Apply		
<input checked="" type="radio"/> Airflow (use)	10,000	SCFM	Airflow	10,000	SCFM
<input type="radio"/> Dry-Bulb (use)	55.00	°F	Dry-Bulb Temp	55.414	°F
Humidity Ratio	0.00904	lb/lb	Humidity Ratio	0.00910	lb/lb
Enthalpy	23.02	Btu/lb	Enthalpy	23.18	Btu/lb

Coil Leaving Air Condition Calculator

Calculate Apply Print Close

Room (Zone) RA			Load Data (select any two)		
Airflow	10,000	SCFM	<input checked="" type="checkbox"/> Total Heat	375000	Btu/hr
Dry-Bulb Temp	80.00	°F	<input type="checkbox"/> Sensible Heat	270000	Btu/hr
Humidity Ratio	0.01123	lb/lb	<input type="checkbox"/> Latent Heat	105000	Btu/hr
Enthalpy	31.51	Btu/lb	<input checked="" type="checkbox"/> SHR	.72	Qs/Qt
Leaving Coil CC			Leaving Coil Condition Apply		
<input type="radio"/> Airflow (use)	10,000	SCFM	Airflow	9,812	SCFM
<input checked="" type="radio"/> Dry-Bulb (use)	55.00	°F	Dry-Bulb Temp	55.00	°F
Humidity Ratio	0.00904	lb/lb	Humidity Ratio	0.00904	lb/lb
Enthalpy	23.02	Btu/lb	Enthalpy	23.02	Btu/lb

Integral Air Collection Calculator!! Simply click on the combo box drop downs and select the state points desired for collection, and with one “Calculate =>” button click, your system collection point is automatically displayed, available to be added to your system, chart and report!!

Air Collection Calculator

Print Close

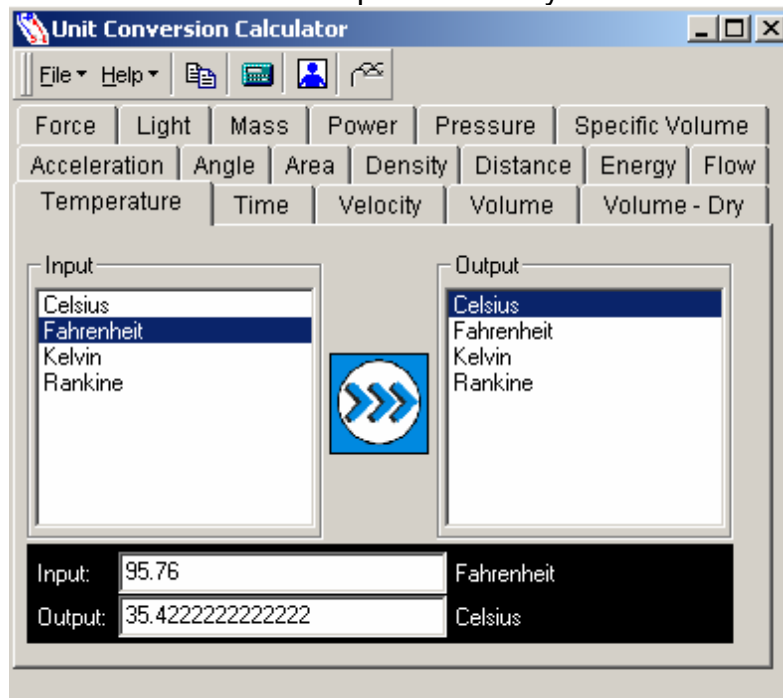
Selected Point	Label	Airflow	Dry-Bulb Temp	Humidity Ratio	Enthalpy
Selected Point 1	RA	1,000 SCFM	75.00 °F	0.01022 lb/lb	29.18 Btu/lb
Selected Point 2	DH	1,000 SCFM	90.00 °F	0.00678 lb/lb	29.07 Btu/lb
Selected Point 3	CC	1,000 SCFM	55.00 °F	0.00912 lb/lb	23.10 Btu/lb
Selected Point 4	EC	1,000 SCFM	65.00 °F	0.01253 lb/lb	29.26 Btu/lb
Selected Point 5	CS	1,000 SCFM	70.00 °F	0.00200 lb/lb	18.98 Btu/lb

Calculate =>

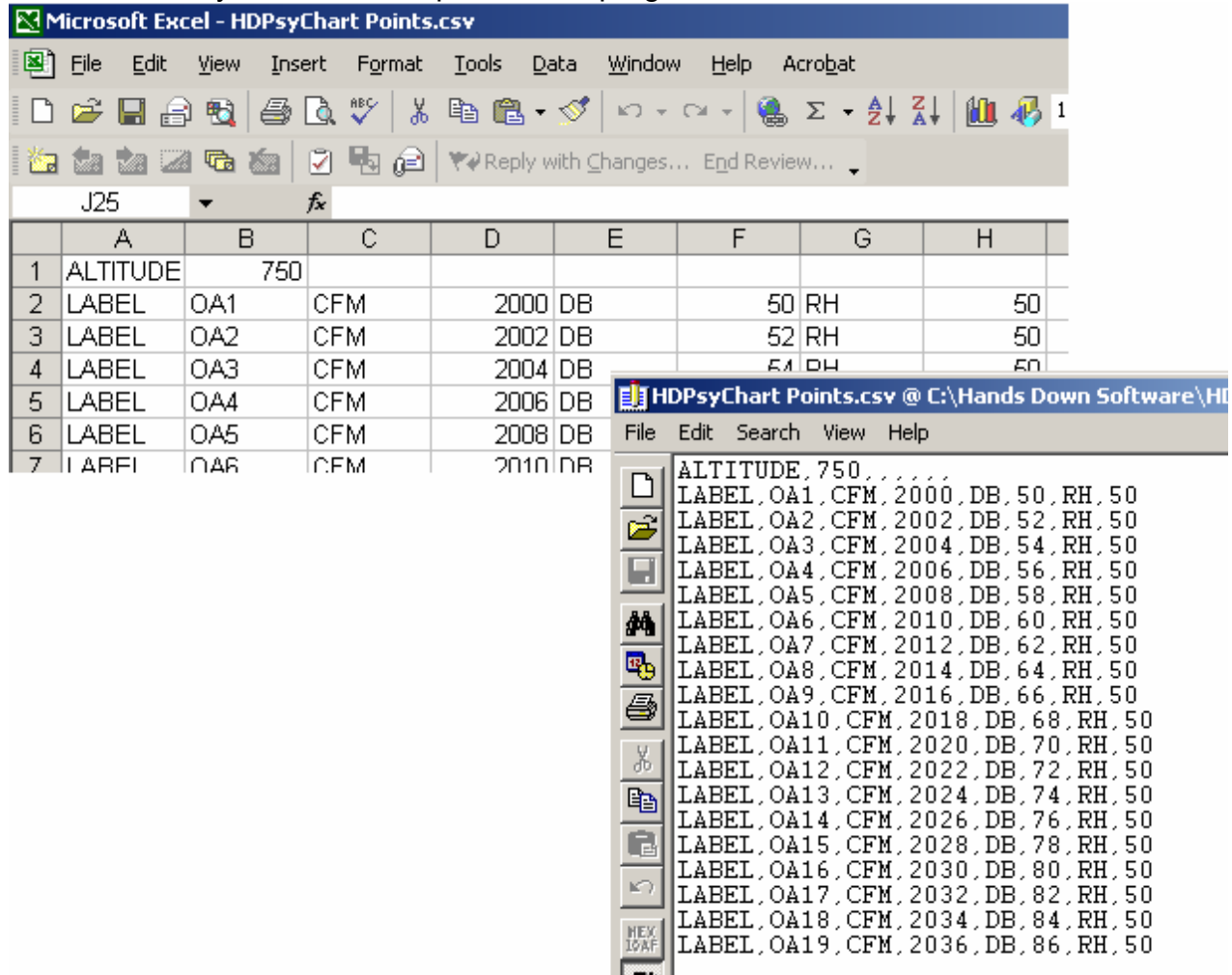
Apply Point to Chart

Collection Point	Label	Airflow	Dry-Bulb Temp	Humidity Ratio	Enthalpy
Collection Point	Point Label Here	5,000 SCFM	71.00 °F	0.00813 lb/lb	25.92 Btu/lb

Complete unit of conversion calculator for quick and easy IP<>SI unit conversions!!



Complete Data Exchange Capabilities!! You can export data, charts and reports either by Edit-Copy copying to the clip board, or by automatically exporting out to a PDF file!! Importing of Data is accomplished with comma delimited “.csv” files which can easily be generated with any text editor or spreadsheet program such as Microsoft Excel!!!



The screenshot displays a Microsoft Excel spreadsheet titled "HDPsyChart Points.csv". The spreadsheet contains data for 19 points (OA1 to OA19) with columns for ALTITUDE, LABEL, OA#, CFM, DB, and RH. The data is as follows:

	ALTITUDE	LABEL	OA#	CFM	DB	RH
1	750					
2		OA1	CFM	2000	DB	50 RH
3		OA2	CFM	2002	DB	52 RH
4		OA3	CFM	2004	DB	54 RH
5		OA4	CFM	2006	DB	56 RH
6		OA5	CFM	2008	DB	58 RH
7		OA6	CFM	2010	DB	60 RH
8		OA7	CFM	2012	DB	62 RH
9		OA8	CFM	2014	DB	64 RH
10		OA9	CFM	2016	DB	66 RH
11		OA10	CFM	2018	DB	68 RH
12		OA11	CFM	2020	DB	70 RH
13		OA12	CFM	2022	DB	72 RH
14		OA13	CFM	2024	DB	74 RH
15		OA14	CFM	2026	DB	76 RH
16		OA15	CFM	2028	DB	78 RH
17		OA16	CFM	2030	DB	80 RH
18		OA17	CFM	2032	DB	82 RH
19		OA18	CFM	2034	DB	84 RH
20		OA19	CFM	2036	DB	86 RH

Below the spreadsheet, a preview of the HDPsyChart software interface is shown, displaying the same data points plotted on a psychrometric chart. The points are labeled OA1 through OA19, showing a clear upward trend in both dry-bulb temperature and humidity ratio.

Motor heat calculation is one button click away!! Simply type in the motor size (power) and the efficiency and instantly get the resulting sensible heat generated by the motor along with the corresponding temperature rise!!

Given Data		
Airflow	15000	cfm
Motor Size	10	hp
Efficiency	91.4	%

Sensible Air Heating		
Sensible Heat	27835	Btu/hr
Approx Temp Rise	1.71	*F

Complete Steam Property Calculator in both IP and SI units of measure!!!

Temperature	325	*F
Absolute Pressure	96.3000	psi
Absolute Pressure	196.0688	in.Hg

Specific Volume - vf	0.01771	cu.ft./lb
Specific Volume - vfg	4.598	cu.ft./lb
Specific Volume - vg	4.616	cu.ft./lb

Specific Enthalpy - hf	295.64	Btu/lb
Specific Enthalpy - hfg	891.47	Btu/lb
Specific Enthalpy - hg	1187.10	Btu/lb

Specific Entropy - sf	0.4706	Btu/lb *F
Specific Entropy - sfg	1.1361	Btu/lb *F
Specific Entropy - sg	1.6067	Btu/lb *F



VERSION AND RELEASE HISTORY

VERSION 6 – NEW FEATURES (Release Jan-2007)

NEW PROCESS ANALYSIS CAPABILITIES

- New Auto Flow Chart Diagram
- New Individual Process Line Color Control
- New Individual Point Color, Shape and Size Control
- New Winter "V" Air Mixing Capability with Condensation
- New Fog Region Property Display
- Constant h, WB, HR, DB Line Control

NEW TOOLS

- New Complete Thermal Comfort Calculator
- New Weather Data Plotting with Complete Global Weather Files
- New Weather Bin Shade Plotting with Complete Control
- New Global Weather Data Table Access
- New Weather Term Glossary
- New Wind Chill Factor Calculator
- New Climatic Data Printing Capability Added
- New Outside Air Estimator UPDATED to ASHRAE Standard 62-2004

NEW PRESENTATION CONTROL

- New Humidity Ratio Unit of Measure Control
- New Mouse Cross-Hair (Like CAD!!) or Target Control
- New Cooling Coil Performance Line Control
- New Page Color Control
- New Chart Area Color Control
- New ASHRAE Class 1 through 4 Datacenter Zones (allowed & recommended)
- New NEBS Datacenter Zones (allowed & recommended)
- New Black & White \Leftrightarrow Color Display & Print Control
- New Heading On/Off Control
- New Outline On/Off Control
- New Zoom Window Control

NEW TOOLBOX ANALYSIS

- New Ability to add user defined "ToolBox" Programs under menu item tools
- New Single & Double Interpolation Calculator
- New Fan Law Calculator
- New Duct Sizing Calculator
- New Loan Calculator

NEW ADDITIONAL CAPABILITIES

- New High Pressure Capability up to 100 PSI
- New Auto-Altitude Change with Climatic Location Selection
- New Fog Region Thermo-Physical Property Display

NEW LANGUAGES

- Now with (13) Different Languages on Charts and Reports with one button click
- New Greek Language

- *New Japanese Language*
- *New Dutch Language*
- *Improved Italian Language Updated*

NEW DATA EXCHANGE

- *New REAL-TIME Data Monitoring Capability*
- *New Process Control added to Data Import Function*
- *New Complete Weather Data Export to Excel or Text File*
- *SI units added to text file & Excel Data Exchange*
- *New Export-As Excel *.csv File*
- *New Export-As Notepad *.txt File*

NEW NOTES

- *Improved Note Control Update*

VERSION 5 – FEATURES (Release Jan-2005)

NEW PRESENTATION CONTROL

- *New Custom Axis Range Control*
- *New Chart Altitude or Pressure Control*
- *New Lines ON/OFF Control*
- *New Process Line Color & Width Control*
- *New State Point Icon, Size Control, Color & Label Control*
- *New Comfort Zone Area Plotting*
- *New User information Saved/Displayed on Charts & Reports*
- *New Page Setup Control*

NEW PROCESS ANALYSIS CAPABILITIES

- *New Sensible Heat Ratio Line Plotting*
- *New Humidification Delta-Enthalpy / Delta-Humidity Ratio Line Plotting*
- *New Partial Mixing of Airstreams Allows for Component Mixing Bypass*
- *New Cooling Coil Leaving Air Calculator / Auto-Plotting*
- *New Organized Toolbar Menu Setup*

NEW TOOLS

- *New Air Collection Calculator with Auto-Plotting*
- *New Integral IP<=>SI Unit of Measure Calculator*
- *New Fresh Air Estimator Updated to 62-2001*
- *New Motor Heat Calculator*
- *New Steam Property Calculator*

NEW ADDITIONAL CAPABILITIES

- *New Easy Auto-Create / Export PDF Files of Charts & Reports*

NEW LANGUAGES

- *Now (10) Languages including CHINESE*

NEW DATA EXCHANGE

- *New Complete Data Exchange Capabilities*

NEW NOTES

- *New Add/Edit/Delete Note Control with Drag-Drop Positioning*
- *New Project Information Control Displayed on Chart & Report*

VERSION 4 – FEATURES (Release Jan-2003)

NEW PRESENTATION CONTROL

- *New State Point and Process Report*
- *New Universal IP \Leftrightarrow SI Unit Control*

NEW PROCESS ANALYSIS CAPABILITIES

- *New Air Mixing Process*
- *New Cooling Coil Process (with REAL Cooling Coil Curves!)*
- *New Desiccant Dehumidification Process*
- *New Sensible Heating Process*
- *New Heating & Humidification Process*
- *New Evaporative Cooling Process*
- *New Sensible Only Cooling Process*

NEW TOOLS

- *New Stand Alone Psychrometric Calculator*
- *New Stand Alone World-Wide Climatic Data*
- *New Stand Alone Outside Air Calculator based on ASHRAE Standard 62-89*

NEW ADDITIONAL CAPABILITIES

- *New State Point Label Positioning Control*
- *New Zoom & Pan Control*
- *New Mouse-Move Thermo-Physical Property Display*

NEW LANGUAGES

- *New (7) Different Languages on Charts & Reports with one-button click*

NEW DATA EXCHANGE

- *New Ability to Copy Chart to Clipboard*
- *New Ability to Copy Report to Clipboard*