



2022 ENGINEER SUMMIT

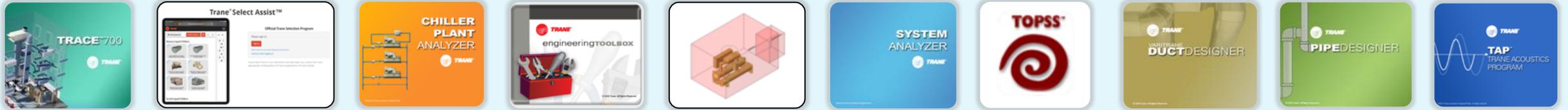
Improve Productivity with
Software Tools

TRACE[®] 3D Plus / Trane[®] Design Assist[™] / myPLV[™]

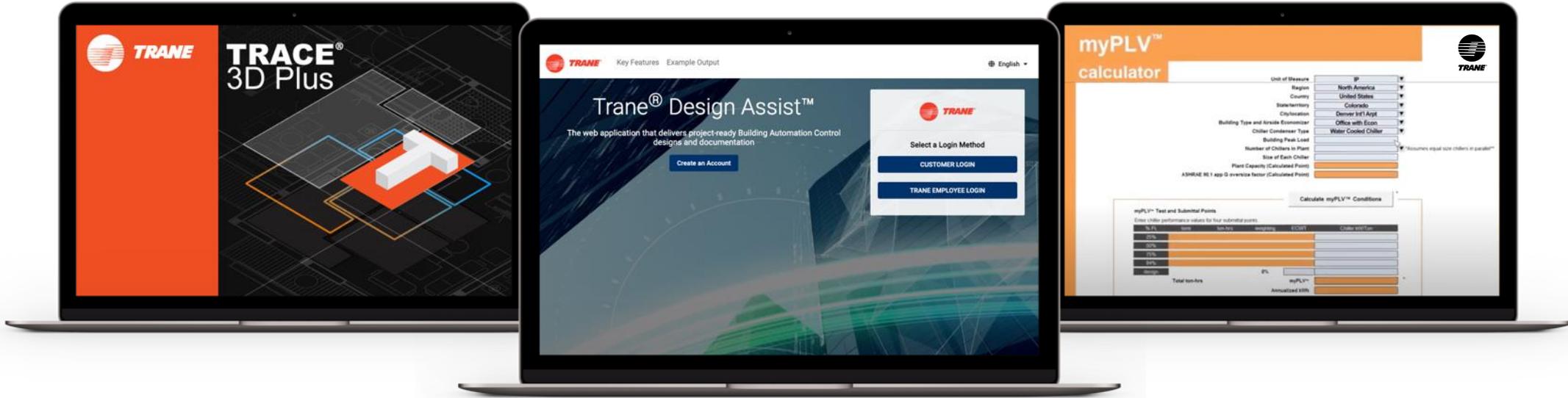
Trane is here to help!



For more than 50 years Trane has been developing software to help design, build and maintain better buildings.



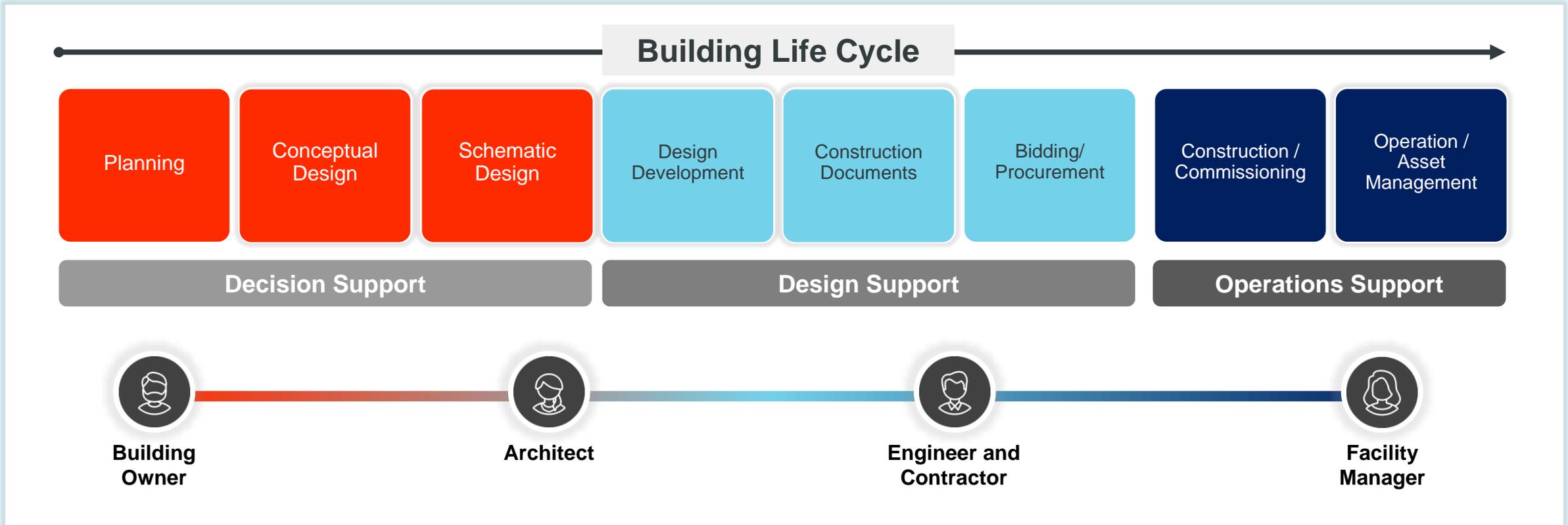
Today we will be focusing on three...



Trane tools improve productivity!



TRACE® 3D Plus, Trane® Design Assist™ and myPLV™ can help within multiple stages of the building life cycle!





TRANE

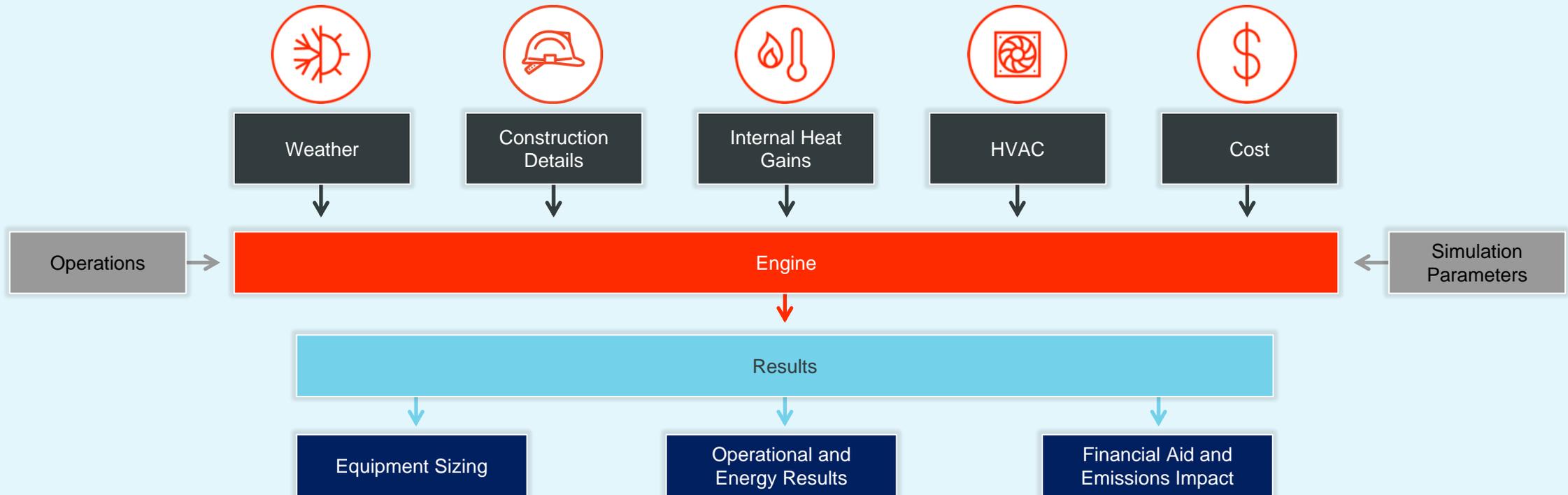
TRACE[®] 3D Plus

Overview

What is TRACE[®] 3D Plus?



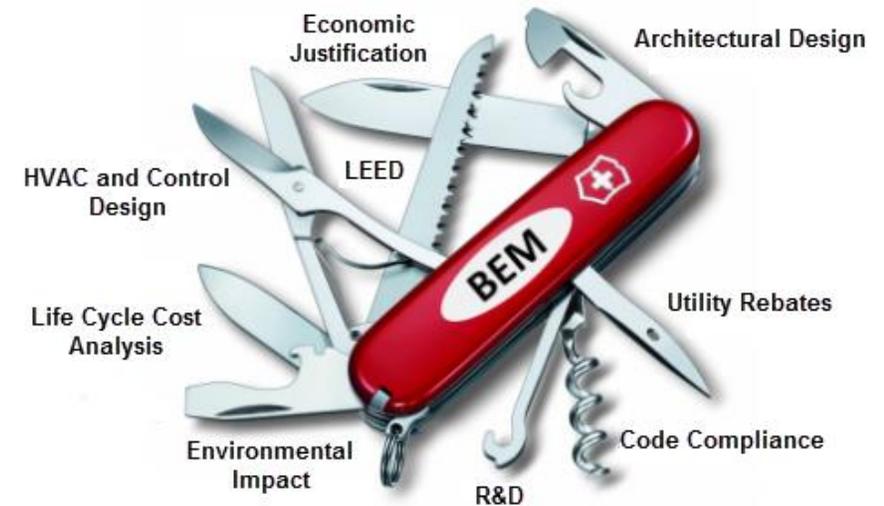
- Trane Air Conditioning Economics
- Virtual physics-based replica of a building using EnergyPlus
- Subscription based platform including support



Where Can TRACE® 3D Plus Help?



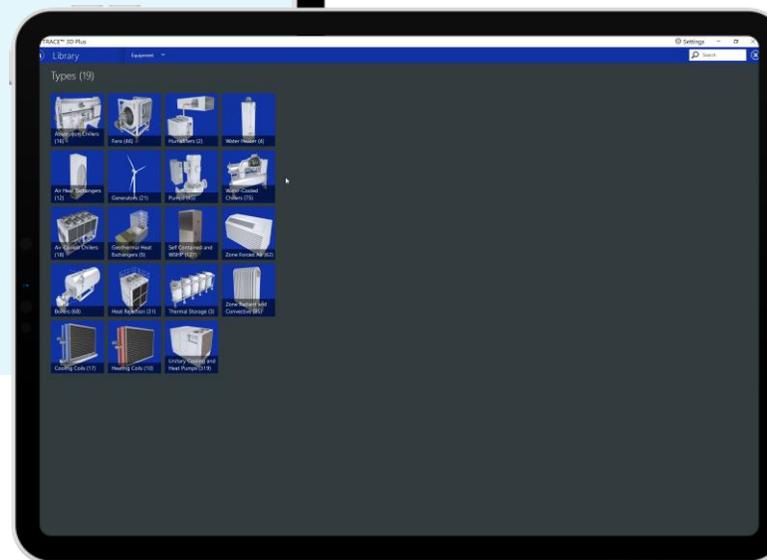
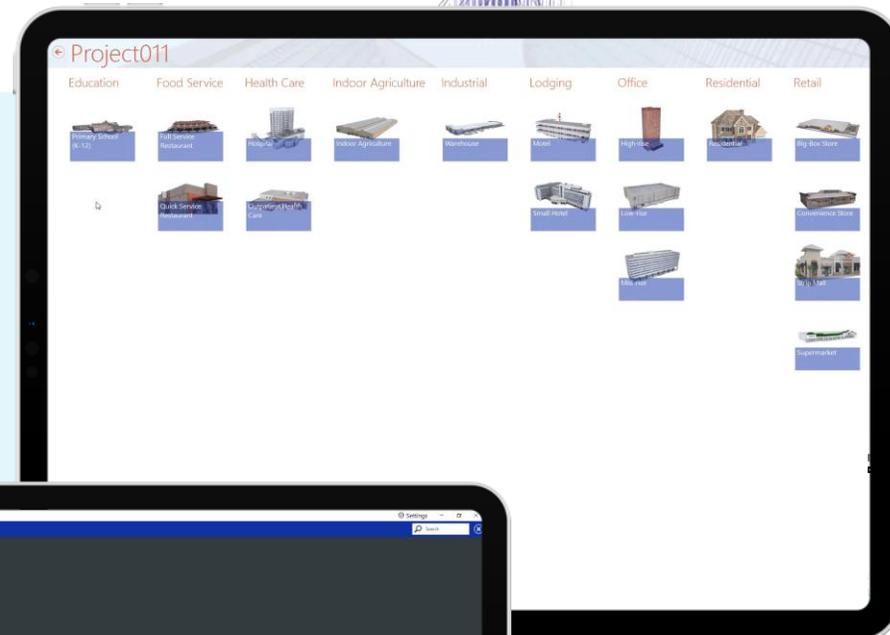
- Quick early/conceptual stage analysis
- Accurate equipment sizing
- Code compliance or building ratings
- Energy, life cycle cost or utility optimization/rebates
- Carbon footprint, emissions and renewal energy analysis
- Monetization of retrofit/renovations



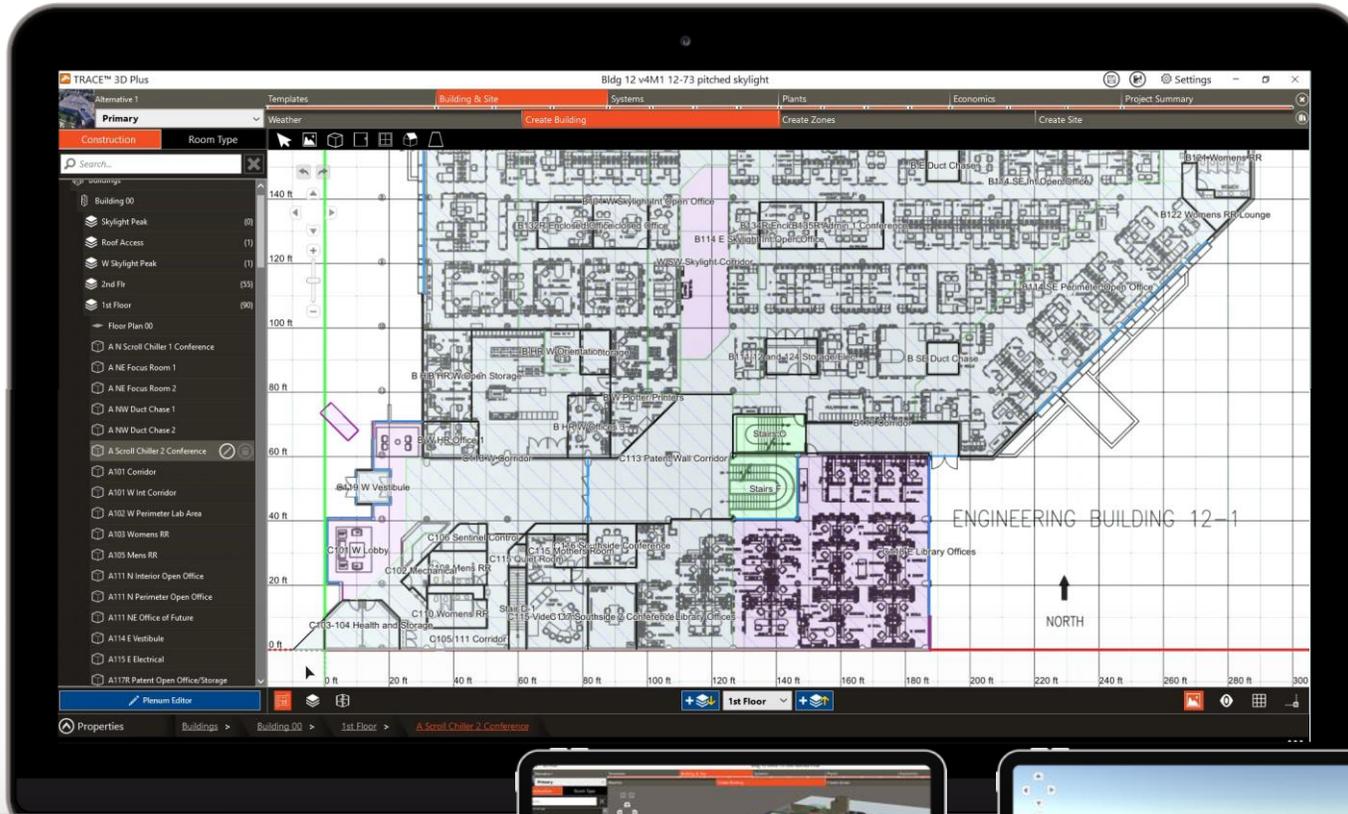
Conceptual or Schematic Design – Efficiency



- Pre-configured building themes
- Thousands of pre-loaded and scalable libraries
- Simple, quick building wizard
- Industry standard defaults
- Built-in intelligence and validation
- Quickly compare up to 20 alternatives
- Great for “ballpark” EUI or utility costs



Design Development - Scalability



- Import or trace over building geometry
- Seamless load design integration
- Customize building themes, templates and libraries
- Quickly apply mass model changes
- Compare up to 20 alternatives
- Simulate alternatives simultaneously using the cloud



Recent updates you may not be aware of!



Improved simulation speed



Auto-sizing of cooling supply air temperature



Central W/GSHPs



Expanded undo/redo



Expanded checksums reports



Zoom to room



Improvements to load design reports and gbXML import

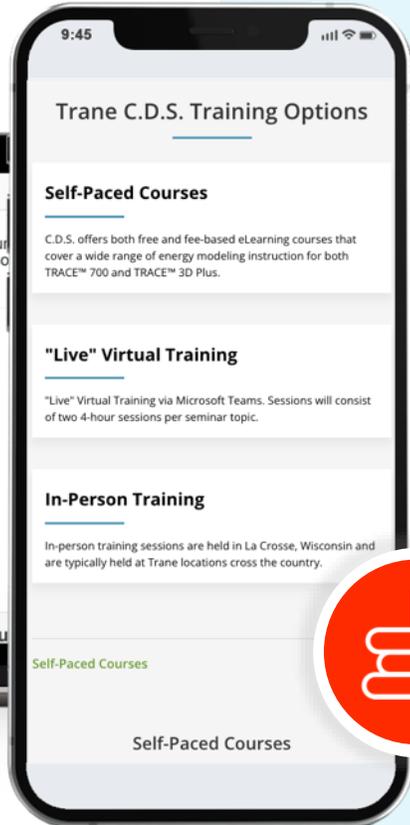
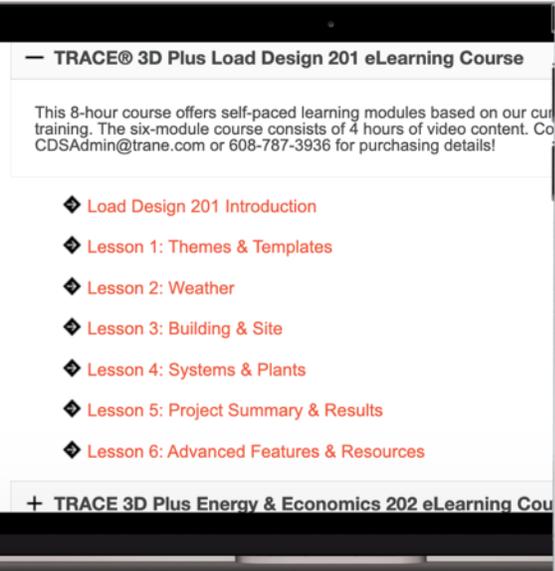
Version 5 just released!

New in
v5

- ASHRAE® 170 support
- New Load/Airflows report
- Spreadsheet capabilities
- Title 24 and ASHRAE® 90.1-2019 libraries
- Latent sizing options
- Improved air transfer model
- Export to LightStanza (Daylighting)
- Expanded heat recovery features
- Improved performance
- Silent installation option

And more!

Training and Support Options



Standard curriculum with flexible options

- Load Design
- Energy and Economics



Active subscriptions include world-class support

- Email
- Phone with screen sharing
- Comprehensive web-based knowledge center
- Engineers with years of industry experience



TRANE

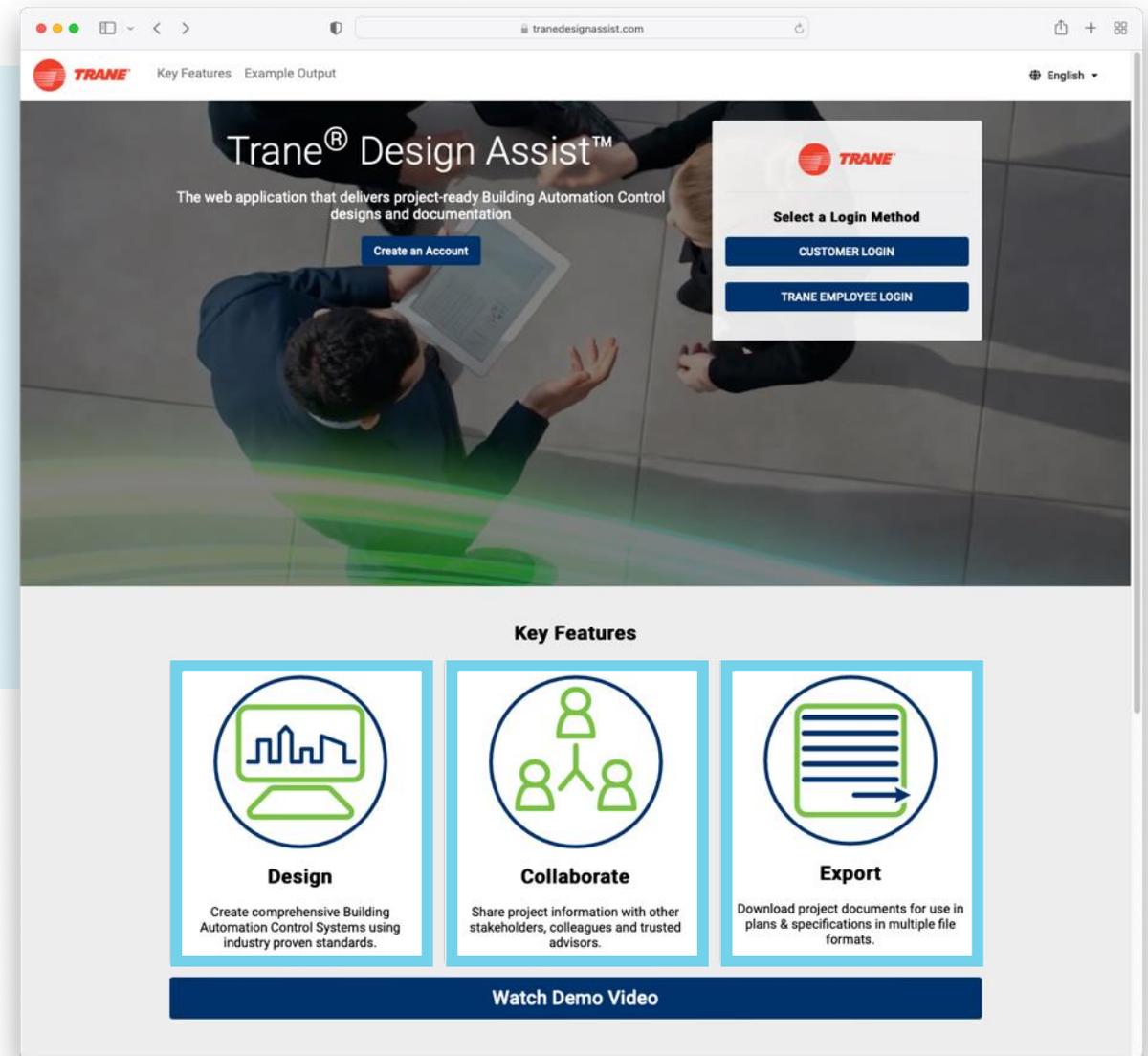
Trane[®] Design Assist[™]

Overview

What is Trane® Design Assist™?



- Project designs and documentation for Building Automation Systems
- Web-based resource
- Manufacturer agnostic designs
- Complimentary, no licenses or fees



Where Can Trane® Design Assist™ Help?



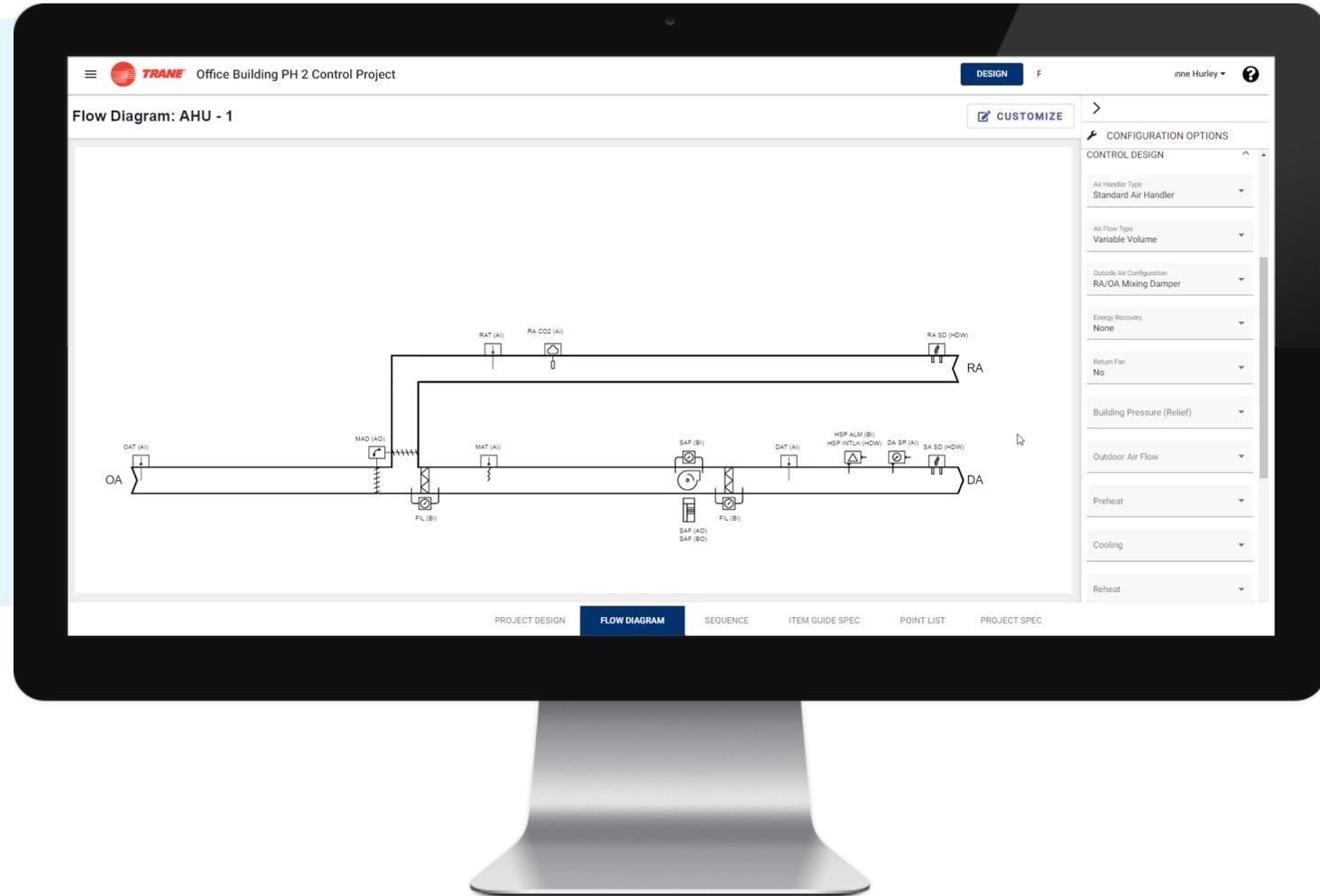
- Streamlined workflow
- Jumpstart design efficiencies
- Industry standards and proven / leading strategies
- Self-service access to:
 - Project Layouts
 - Flow Diagrams
 - Sequence of Operations
 - Points List
 - Project Guide Specifications



Schematic & Design Development – Reliability



- Build scalable project designs faster
- Consistencies within using Systems approach
- Flexibility in configuration options
- Customization features
- Saves times and prevents omissions



Design Development – Collaboration



- Share projects with other stakeholders, colleagues and trusted advisors
- Enhance productivity through increased communication
- Network sharing with other subject matter experts
- Faster problem solving and decision making
- Overall project delivery is accelerated

The screenshot shows a 'Share Project' dialog box with an 'Email' input field, an 'ADD' button, and a table of users. The table has columns for Name, Email, Allow Copy, and Delete. Below the table are 'SAVE' and 'CANCEL' buttons.

Name	Email	Allow Copy	Delete
User 1	User1@email.com	<input checked="" type="checkbox"/>	×
User 2	User2@email.com	<input type="checkbox"/>	×
User 3	User3@email.com	<input checked="" type="checkbox"/>	×



Building
Owner

Consulting
Engineer

Contractors

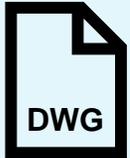
Trane AM

Other

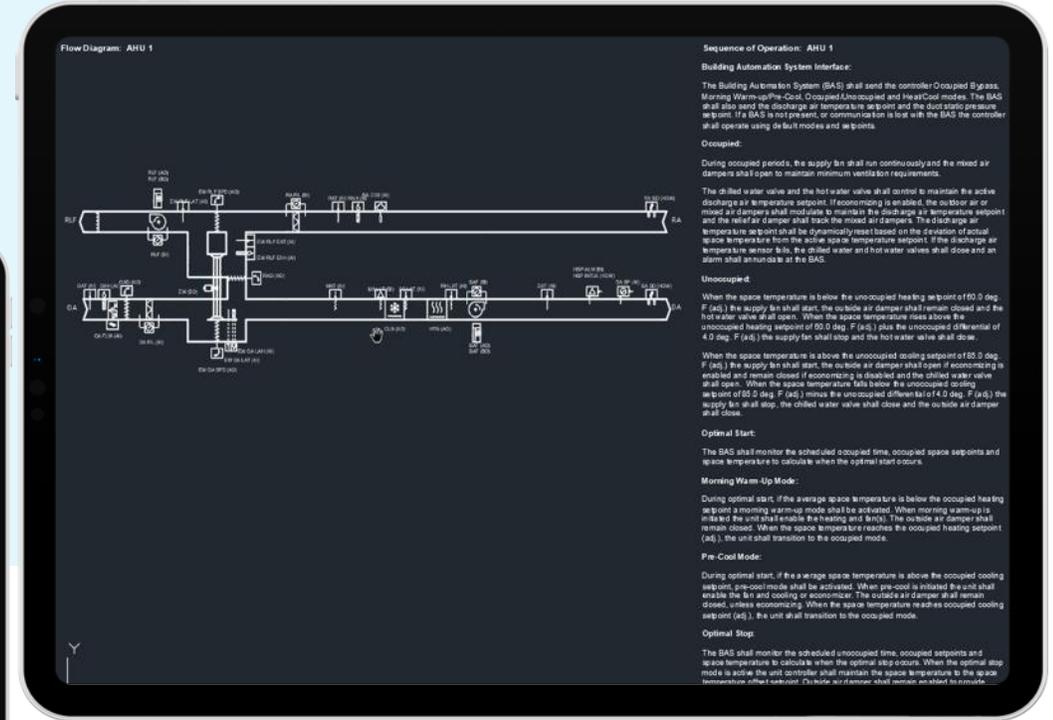
Construction Documents – Accessibility



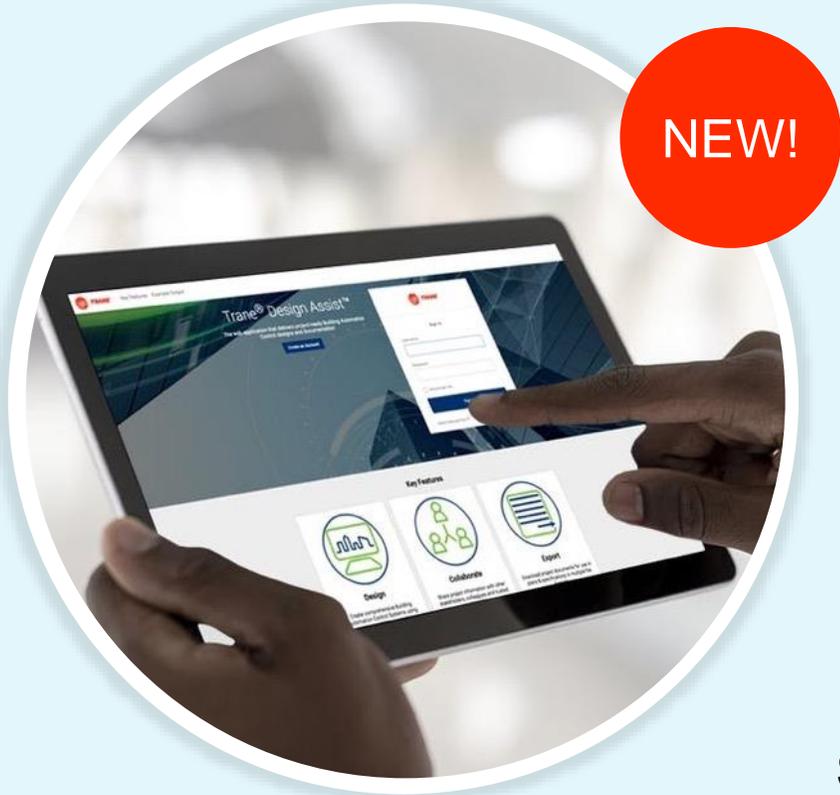
- Synchronized drawings and specifications
- Consistent and professional formats
- Expedited delivery of construction ready documents
- Supported file types:



Points List: AHU 1	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
System Point Description	POINTS															ALARMS
	GRAPHIC	ANALOG HARDWARE INPUT (AI)	BINARY HARDWARE INPUT (BI)	ANALOG HARDWARE OUTPUT (AO)	BINARY HARDWARE OUTPUT (BO)	SOFTWARE POINT (SFT)	HARDWARE INTERLOCK (HWI)	WIRELESS (WLS)	NETWORK (NET)	HIGH ANALOG LIMIT	LOW ANALOG LIMIT	BINARY	LATCH DIAGNOSTIC	SENSOR FAIL	COMMUNICATION FAIL	
1 COOLING COIL LEAVING TEMPERATURE	X	X														
2 CC LAT																
3 COOLING OUTPUT COMMAND				X												
4 CLG																
5 DISCHARGE AIR TEMPERATURE	X	X								X	X				X	
6 DAT																
7 DISCHARGE AIR STATIC PRESSURE LOCAL	X	X								X				X	X	
8 EA SP						X										
9 ENERGY WHEEL COMMAND																
10 EW																
11 ENERGY WHEEL ENTERING RELIEF AIR HUMIDITY	X	X														X
12 EW RLF EAH																
13 ENERGY WHEEL ENTERING RELIEF AIR TEMPERATURE	X	X														X
14 EW RLF EAT																
15 ENERGY WHEEL LEAVING OUTDOOR AIR HUMIDITY	X	X														X
16 EW OA LAH																
17 ENERGY WHEEL LEAVING OUTDOOR AIR TEMPERATURE	X	X														X
18 EW OA LAT																
19 ENERGY WHEEL LEAVING RELIEF AIR TEMPERATURE	X	X														X
20 EW RLF LAT																
21 ENERGY WHEEL OUTDOOR AIR BYPASS DAMPER COMMAND	X			X												
22 EW OA BPD																
23 ENERGY WHEEL RELIEF-SIDE BYPASS DAMPER COMMAND	X			X												
24 EW RLF BPD																
25 FILTER STATUS	X	X											X			
26 FIL																
27 HEATING OUTPUT COMMAND																
28 MTG	X	X														
29 HIGH STATIC ALARM														X	X	
30 HSP ALM	X	X														
31 HIGH STATIC ALARM INTERLOCK								X								
32 HSP INTLK																
33 NOISE AIR LOW TEMPERATURE CUTOFF ALARM																X
34 N.A.L.T.																



So what's new in Trane® Design Assist™?



Multi Language Support
(Spanish, French Canadian and Portuguese)



Legend Key and Flow Shape Library additions



“Typical for” item associations



System Design Library additions

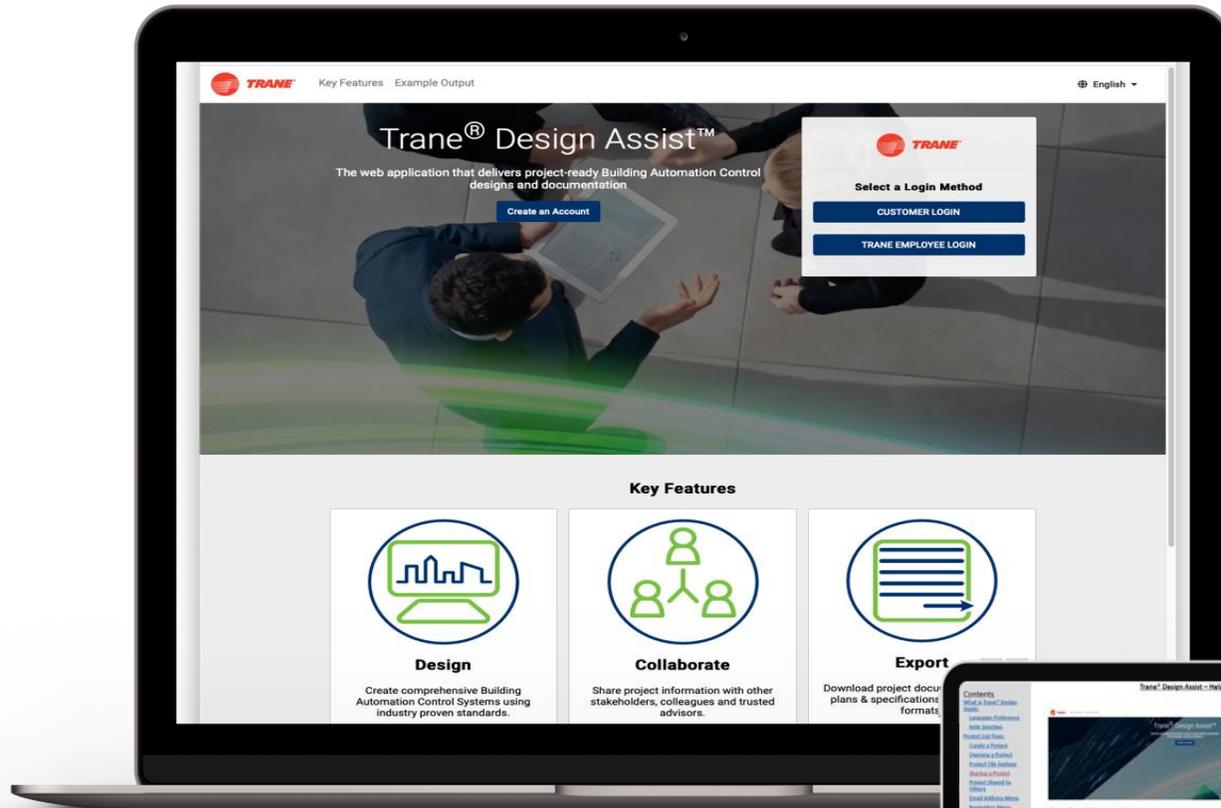


Design Canvas Riser Layouts

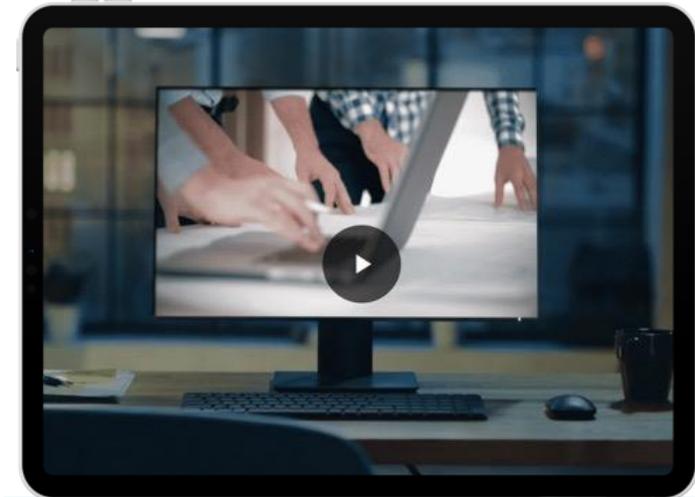


Project Guide Specifications

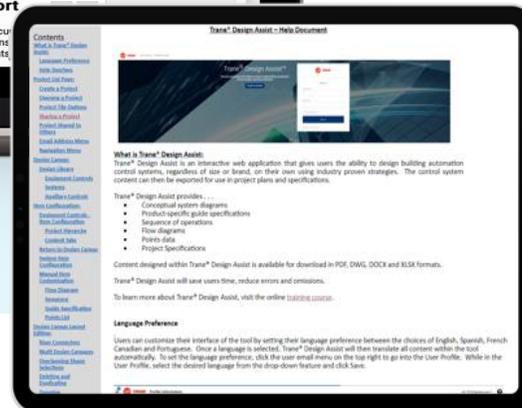
Training and Support Options



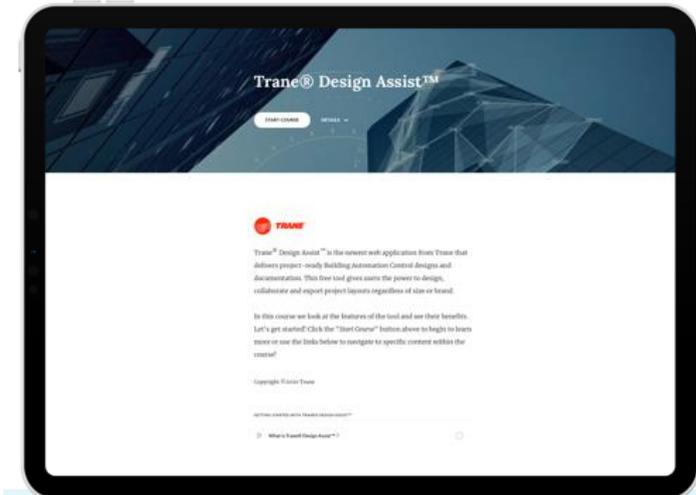
Access Trane® Design Assist™ at <https://tranedesignassist.com>



[Introducing Trane® Design Assist™ Video](#)



[In Tool Help Document](#)



[Trane Design Assist Training Course](#)



TRANE®

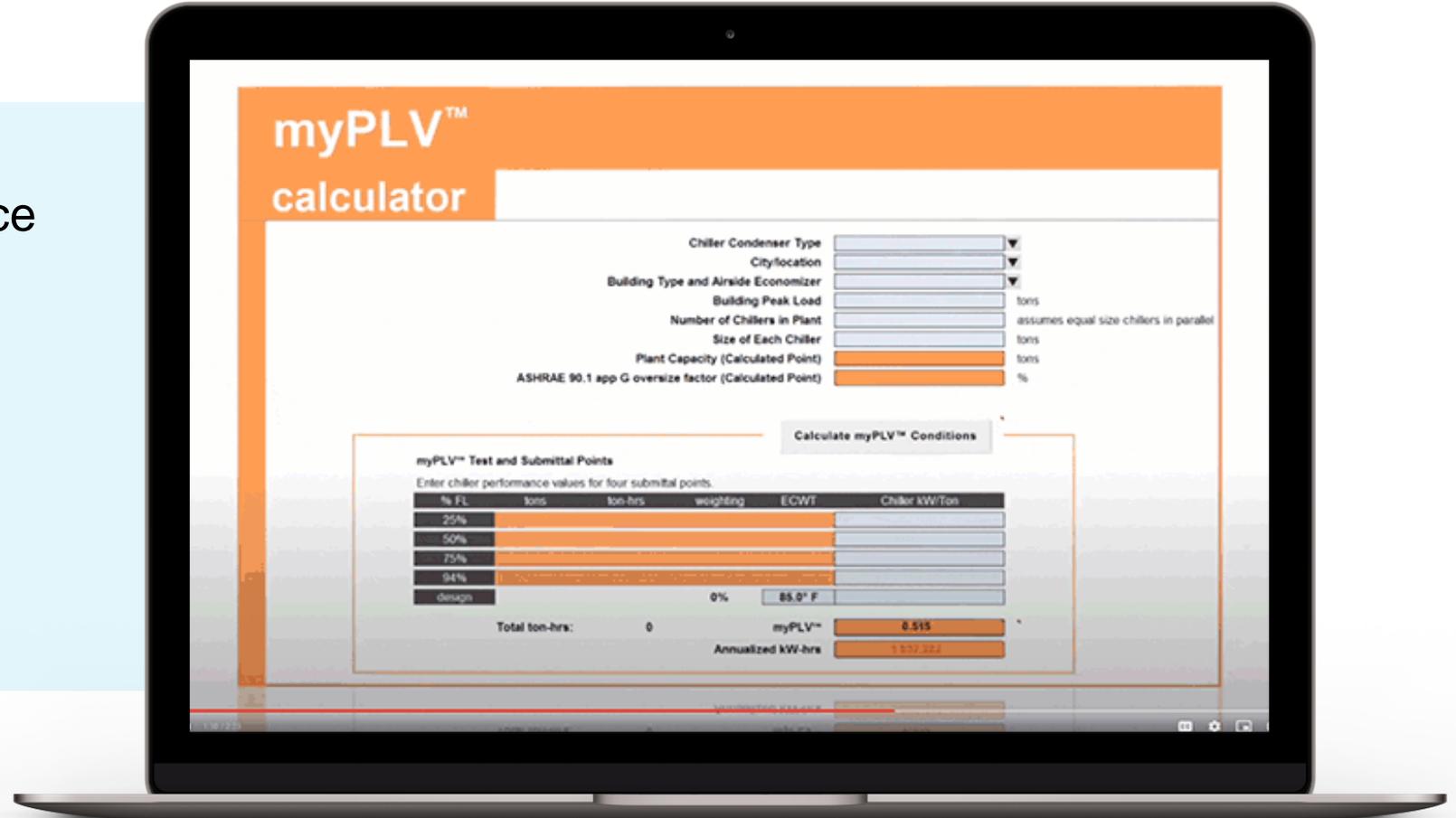
myPLV™

Overview

What is myPLV™?



- Excel-based chiller performance evaluation tool
- Industry-validated data
- Manufacturer agnostic
- Complimentary, no licenses or fees



Where Can myPLV™ Help?



- Determine optimized condenser conditions
- Compare energy usage of various chillers
- Calculates real word operating conditions based on your:
 - Chiller plant layout
 - Location
 - Building type
 - Cooling tower control

Unit of Measure	IP
Region	North America
Country	United States
State/territory	Tennessee (TN)
City/location	Memphis (3A)
Building Type and Airside Economizer	Office with Econ
Chiller Condenser Type	Water Cooled Chiller
Building Peak Load	500 tons
Number of Chillers in Plant	2
Size of Each Chiller	300 tons
Plant Capacity (Calculated Point)	600 tons
ASHRAE 90.1 app G oversize factor (Calculated Point)	20%

Figure 3. Cooling tower design inputs

Design

Tower Full Load Design Performance - Tower Wet-Bulb Approach (°F)	5.0
Outdoor ambient Wet Bulb at design conditions (°F)	80.0

Control

Tower Control Method (°F)	Fixed Tower Approach
Tower Approach Setpoint (°F)	7.0

Schematic & Design Development – Reliability



- Simplified alternative for chiller performance evaluation
- Quickly optimize condenser flowrate
- Project specific operating conditions
- Flexibility in plant configuration
- Energy Plus load profiles

Balanced - 3 gpm/ton sized pipes; reselected towers, pump and chillers (same cost chillers)

	Optimized vs 3 GPM/Ton
Optimized Flow (gpm/ton)	2.00
Annualized System Total (kW/ton)	0.5461
Plant Demand Peak (kW)	6750.1
First Cost Savings (\$)	\$354,623
Annual Energy Savings (%)	4.8%
Annual Electrical Cost Savings (\$)	\$31,345

Select Scenario for myPLV bid forms

So what's new in myPLV™?



NEW!

Enter Tower Selection Conditions at 3 gpm/ton

Run Flow Optimizer

Tower Selection Conditions at 3 gpm/ton

Design Wet-Bulb from Weather Zone Data, 0.4% humid (°F)	78.0
Maximum Wet-Bulb from Weather Zone Data (°F)	79.6
Design Wet-Bulb (°F)	78.0
Tower Design Approach (°F)	7.0
Chiller Design Entering Condenser Water Temperature (°F)	85.0
Condenser Pump Design Pressure Rise (ft. H2O)	90.0



SI and IP Units
(Spanish, French Canadian
and Portuguese)



Air- and
Water-cooled
Chillers



Exportable
Bid Form



Condenser
Flow Optimizer



Electric Consumption
& Demand Charges

What about current industry trends?



Decarbonization of Buildings

TRACE 3D Plus

- Analyze Impact of Renewables' Energy Contributions (PV, Wind etc.)
- Quantify and Compare Site or Source Emissions (CO₂, NO_x, SO₂, etc.)
- Compare Greenhouse Carbon Footprint/Equivalence
- Understand, Quantify and Compare Source Energy Usage



Electrification Renewables Energy Efficiency Systems

Trane Design Assist

- Assemble Energy Efficient sequences of operations & overall control strategies
- Layout heating, heat pump and heat recovery solutions
- Implement BAS Systems to help go all electric and avoid higher utility bills or equipment inefficiencies
- Improve building sustainability through simple and convenient control



TRANE

Resources and Support

Where can you learn more?

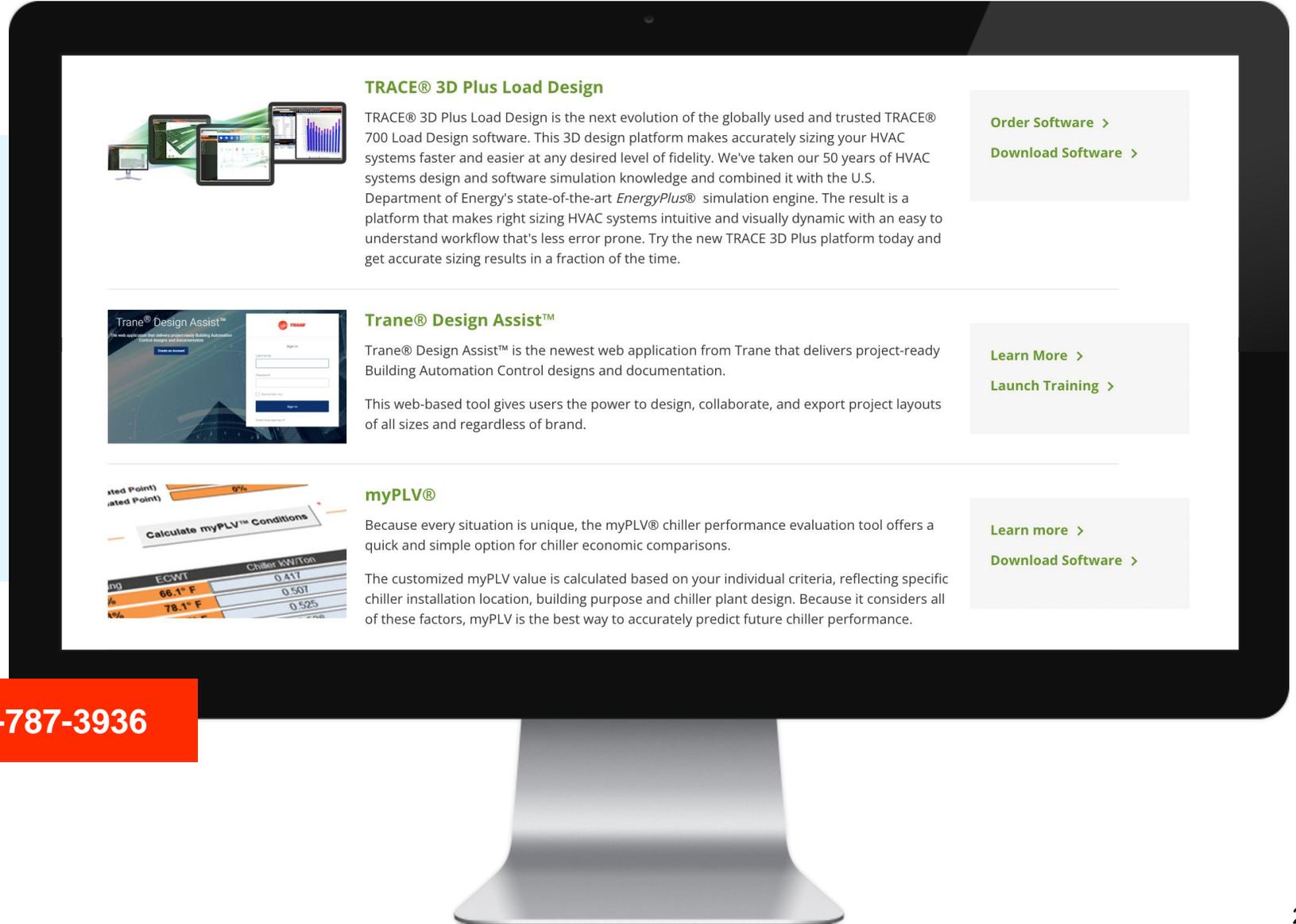


To learn more about our tools go to www.tranecds.com

Visit our e-commerce website at <https://shop.trane.com>

Contact via e-mail at cdsadmin@trane.com or tdasupport@trane.com

or call us at 608-787-3936





Thank you!

Any Questions?



Please Scan the QR Code to complete the Presentation Survey