



## TRACE™ 3D Plus

Elevate your building design and analysis process.

**TRACE 3D Plus supports the way you work, establishing a seamless project process from planning stages through energy and economic analysis. It enables faster project creation and more in-depth modeling. System and plant configurations are highly customizable and accurate. You can plot 24-hour profiles for comprehensive energy storage and usage analysis, providing a more detailed understanding of your customer's energy consumption patterns.**

Building owners often have multiple goals for their buildings: to be cost effective, comfortable and sustainable, along with requirements specific to their industry or business. Expectations and regulations for buildings are ever-evolving, and so are the choices engineers have for achieving them. TRACE 3D Plus features options that support the electrification of heating loads and enhance overall energy efficiency.

TRACE 3D Plus is based on the industry-recognized U.S. Department of Energy EnergyPlus® engine with embedded Trane expertise supporting your work and guiding decisions at every step. Whether you've been designing HVAC systems for decades or are new to the field, TRACE 3D Plus provides an integrated, beginning-to-end experience that helps complete your projects more efficiently. When you need help navigating the complexities, TRACE 3D Plus makes it easier to be your professional best.



### ✓ Dive in and get started.

- Shorten the learning curve with the intuitive user interface.
- See and validate the architectural design in 2D or 3D views.
- Make calculations faster and more accurately with design enhancements that enable a smoother workflow and more precise outputs, catering to a broader range of project requirements.

### ✓ Get organized.

The guided workflow closely aligns with today's common construction project processes. Move from project plan to load design to energy and economic analysis — all within a single project file.

### ✓ Tackle carbon reduction.

Create models to estimate the decarbonization impacts of various design options. Test concepts for all electric HVAC vs. conventional approaches that use fossil fuel heating.



### Greater modeling accuracy.

In conjunction with the EnergyPlus® engine and access to Trane® system expertise, TRACE™ 3D Plus provides an unparalleled support team that allows users to trust system and plant fidelity while customizing configurations.



### Make better-informed decisions.

Test up to 16 system design alternatives with a single set of inputs. Compare the options for various outcomes including loads, energy use, carbon footprint, cost, and other client KPIs.



### Green Building Modeling.

TRACE 3D Plus supports ASHRAE® Standards 90.1, 170, and 62.1 ventilation rate procedures. An intricate Standards Wizard tool is also available for LEED modeling of energy efficiency. The software stays current with ongoing updates based on industry standards and regulations.



### Call the experts.

Trane's dedicated Customer Direct Service (CDS) team is available to answer your questions and offer modeling assistance.

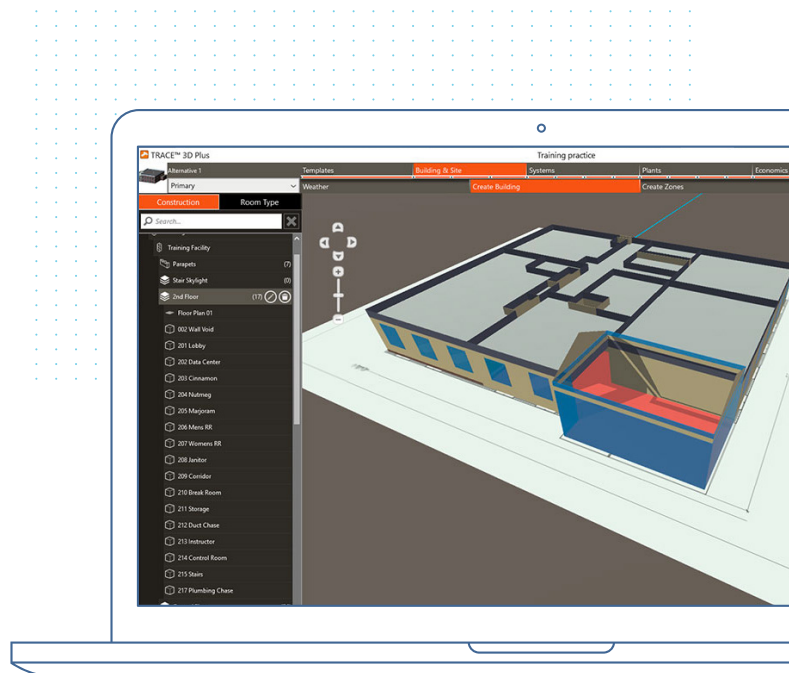
## Phase 1: Project Setup

### Streamlined processes get projects off to a strong start.

Establishing a strong project file is critical to project success. It establishes a base that helps reduce frustrations and leads to better project outcomes. TRACE 3D Plus workflows and approval processes make it easier to share information and collaborate.

### Digital setup assistance saves you hours of time.

- Import floor plans directly from CAD using Green Building™ XML (gbXML) or import floor plans and trace over them using TRACE 3D Plus drawing tools.
- Multiple pre-configured building themes and thousands of pre-loaded and scalable libraries and templates are big time savers. Start by selecting the theme and template that most closely resemble the rooms in your project. Then simply adjust them to match your building.
- The Zone Multiplier feature eliminates much of the upfront repetitive work. Replicate like-floors in minutes to reduce setup time.



### Highlights

- ✓ Start strong using building-type themes
- ✓ Work efficiently using robust templates for various constructions, internal loads and ventilation requirements
- ✓ Make mass changes faster using the Plenum and Spreadsheet editors

**Zone Cooling and Heating Loads by Component**

**ZONE\_Zn-101 Parsley**

Conditions at Time of Space Cooling Peak						Conditions at Time of Space Heating Peak					
Peak Time (Mo/D/Hi)						Peak Time (Mo/D/Hi)					
Outside DB / WB / RH						Outside DB / WB / RH					
Zone DB / RH / HR						Zone DB / RH / HR					
Supply Air Dry Bulb Temp						Supply Air Dry Bulb Temp					
Roof	0	0	0	0	0	Roof	0	0	0	0	0
Other Roof	0	0	0	0	0	Other Roof	0	0	0	0	0
Door	2,370	1,673	0	4,043	23.7	Door	-1,474	0	0	0	0
Wall	0	0	0	0	0	Wall	0	0	0	0	0
Below-Grade Wall	0	1,029	0	1,029	5.0	Below-Grade Wall	0	0	0	0	0
Other Wall	0	0	0	0	0	Other Wall	0	0	0	0	0
Partition	0	-137	0	-137	-1.2	Partition	0	0	0	0	0
Exterior Floor	0	0	0	0	0	Exterior Floor	0	0	0	0	0
Interior Floor	0	0	0	0	0	Interior Floor	0	0	0	0	0
Slab	0	491	0	491	2.9	Slab	0	0	0	0	0
Other Floor	0	0	0	0	0	Other Floor	0	0	0	0	0
Infiltration	0	0	0	0	0	Infiltration	0	0	0	0	0
<b>Envelope Subtotal</b>	<b>2,370</b>	<b>2,996</b>	<b>0</b>	<b>5,366</b>	<b>28.5</b>	<b>Envelope Subtotal</b>	<b>-1,474</b>	<b>-509</b>	<b>0</b>	<b>0</b>	<b>0</b>
People	1,459	1,594	1,702	4,755	28.5	People	0	0	0	0	0
Lights	796	1,193	0	1,989	11.7	Lights	0	0	0	0	0
Miscellaneous Loads	1,427	919	0	2,346	13.7	Miscellaneous Loads	0	0	0	0	0
<b>Internal Subtotal</b>	<b>3,682</b>	<b>3,806</b>	<b>1,702</b>	<b>9,163</b>	<b>-</b>	<b>Internal Subtotal</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
RA (A) Other	0	0	0	0	0.0	RA (A) Other	0	0	0	0	0
DOA Direct to Zone	0	0	3,114	3,122	19.3	DOA Direct to Zone	0	0	0	0	0
Ceiling	0	-1,339	0	-1,339	-7.8	Ceiling	0	0	0	0	0
Refrigeration	0	0	0	0	0.0	Refrigeration	0	0	0	0	0
Service Water	0	0	0	0	0.0	Service Water	0	0	0	0	0
HVAC Equipment Losses	0	0	0	0	0.0	HVAC Equipment Losses	0	0	0	0	0
Adj Air Transfer Heat	0	0	0	0	0.0	Adj Air Transfer Heat	0	0	0	0	0
Sizing Factor Correction	0	0	0	0	0.0	Sizing Factor Correction	0	0	0	0	0
Time Delay Correction	0	-189	0	-189	-1.1	Time Delay Correction	0	0	0	0	0
<b>Grand Total</b>	<b>6,050</b>	<b>5,274</b>	<b>4,816</b>	<b>16,151</b>	<b>100.0</b>	<b>Grand Total</b>	<b>-1,474</b>	<b>-977</b>	<b>0</b>	<b>0</b>	<b>0</b>
RA Sensible (Lights)	914	0	0	914	-	RA Sensible (Lights)	0	0	0	0	0

## Phase 2: Load Design

Go beyond the basic calculations faster.

In TRACE™ 3D Plus, complex HVAC thermal load analysis and calculations involving multiple data points are completely automated. TRACE 3D Plus gives you the tools and time to test theories, compare different system types and experiment with architectural design adjustments. Dependable modeling accuracy provides the proof you need to feel more confident in specifying a greater variety of equipment technologies and system types.

Ultimately, TRACE 3D Plus helps you present the best solution for the building and the owner's needs.

- Automated, accurate calculations enable you to focus more on applying your own design expertise.
- By adding your previously customized designs to the standard library, they become easily accessible for reference and replication in future buildings.
- Easily apply design information to specifications, design documentation and estimating.
- Auto-size max flow rates for demand loads, HVAC systems, plants, and more.

### Highlights

- ✓ Distribute bid and construction documents directly from the system
- ✓ Access robust libraries for airside systems, chillers, rooftop units and more
- ✓ Select designs for systems and plants which are easily configured and customizable
- ✓ Improvements in Auto-Calculation of Supply Air temperatures and in Multiple Zone VAV Systems

## Phase 3: Energy and Economic Analysis

Faster simulation calculations.

Trane's expertise in sustainable buildings is built into TRACE 3D which leads you into the future of zero carbon buildings.

- Step-by-step guided wizard experience for buildings pursuing LEED certification and ASHRAE® 90.1 streamlines the amount of work that's involved. As building codes and standards change, Trane keeps the TRACE software up to date.
- Understand your best options for energy efficiency and renewable energy.
- Model complex utility rates and meters including real-time rates.
- Visualize data down to the time step in tremendous detail for hundreds of selected variables for improved user experience.

### Highlights

- ✓ Check for unmet hours and LEED requirements
- ✓ Run calculations and comparisons for up to 16 alternatives
- ✓ Perform lifecycle cost analysis (LCCA) and return on investments (ROI)
- ✓ Reduce simulation time with new methodologies now available for Load Design, Load and Energy, or Energy only



## FAQs

### Can TRACE 3D Plus be used for LEED projects?

Yes, TRACE 3D Plus can be used to model LEED projects. The program has a built-in Standards Wizard that will simplify the changes that need to be made to create a baseline alternative. The Standards Wizard includes a checklist of items for wizard consideration and a checklist of items for users to check and input manually. For more information: [Standards Wizard](#).

### How do I share library members with my team?

Local library members can be both imported and exported as a single file between devices and users. These files can contain custom schedules, themes, templates, and airflows. For more information, please see this detailed guide: [Importing and Exporting Libraries to and from a TRACE TRL File](#).

### What typical reports should we be referring to?

A variety of reports are available from Room Heating and Cooling Loads to an ASHRAE 62.1 Summary along with System component summary reports that can be exported in other forms. Please reference this document that gives a breakdown of common reports in the program: [Beginner's Guide to Reports](#) - Short subset of report information for problem solving.



## Customer Direct Service

Offering much more than a typical software support center, our Customer Direct Service (CDS) is staffed by engineers, product owners and developers. We're here to provide engineering support throughout the project. Our collaborative support spans from troubleshooting application use to helping with specifying challenges. And, by using the searchable library of support documentation, the answer you need might be right at your fingertips.

Questions? Please contact C.D.S. at [cdshelp@trane.com](mailto:cdshelp@trane.com) or call **608-787-3926** between the hours of 8 AM - 5 PM CST / 9 AM - 6 PM EST Monday through Thursday and 8 AM - 4 PM CST / 9 AM - 5 PM EST on Friday. For training inquiries, email [cdstraining@trane.com](mailto:cdstraining@trane.com) for scheduling.



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