

Energy Code Support Program
SHUMS CODA ASSOCIATES

MANUAL J TOP ITEMS FOR REPORT

The following information is required to accurately perform a Manual J heating and cooling load calculation. This document identifies the necessary information and explains where each item can be found in reports generated by three ACCA-approved software programs: **Elite, Wrightsoft,** and **CoolCalc.**

ACCA Approved Manual J software (8-14-2026):

- Wrightsoft Right-J8,
- Elite RHVAC,
- Adtek Acculoads,
- Florida Solar Energy Center's EnergyGauge,
- Carmelsoft HVAC ResLoad-J,
- Avenir MJ8 Editions of HeatCAD and LoopCAD,
- Cool Calc Manual J,
- Conduit Tec
- Amply Energy Zero Homes

Location

All projects must start with their identified location, so we can make sure the design reflects local conditions. Not all jurisdictions are listed in the software, it's important to understand what options are available for the designer working through the Manual J process. Location near the jurisdiction can be used, and if this is a common practice for an AHJ many will indicate what neighboring location is required for design purposes. Some software allows the location to be entered manually. If this happens, often the input will show on the report in bold.

Elite:

Project Report- Design Data, Location

Wrightsoft:

Building Analysis- Entire House, Design Conditions

CoolCalc:

Cover or Summary Page, Outdoor Design Conditions, Weather station

Elevation

Elevation will have an important impact on the size of mechanical equipment because of the density of the air and the humidity. These characteristics impact heating and cooling design later in the process.

Elite:

Project Report- Design Data, Elevation

Wrightsoft:

Building Analysis- Entire House, Design Conditions, Elevation

CoolCalc:

Cover or Summary Page, Outdoor Design Conditions, Elevation

Orientation of Front Door

The orientation of the building defines the cardinal direction of each wall and their components. Orientation allows the Manual J to estimate heating and cooling loads that account for the amount of light and heat enters the building, making the calculation more accurate.

Elite:

Project Report- Design Data, Building Orientation

Wrightsoft:

Loads for Multiple Orientation – Entire House

CoolCalc:

The report doesn't specifically show this information.

Outdoor Dry Bulb Temperatures

The temperatures established for the winter and summer dry bulb temperatures is established in Table 1A of ACCA Manual J, or established by the State/local jurisdiction from local climate data from weather stations, airports, or recorded data.

Elite:

Project Report- Design Data, Winter Outdoor Dry Bulb

Project Report- Design Data, Summer Outdoor Dry Bulb

Wrightsoft:

Building Analysis- Entire House, Design Conditions, Outdoor, Dry bulb- Heating

Building Analysis- Entire House, Design Conditions, Outdoor, Dry bulb- Cooling

CoolCalc:

Cover or Summary Page, Outdoor Design Conditions, Winter Outdoor F

Cover or Summary Page, Outdoor Design Conditions, Summer Outdoor F

Indoor Design Temperatures

The indoor design temperatures are established by the energy code and residential code for 72 ° for winter and 75 ° for summer, which do differ from the design temperature set by ACCA Manual J for 70 ° for winter and 75 ° for summer. If the temperatures have not been amended by a local jurisdiction, they will be 72 ° for winter and 75 ° for summer.

Elite:

Project Report- Design Data, Winter Indoor Dry Bulb
Project Report- Design Data, Summer Indoor Dry Bulb

Wrightsoft:

Building Analysis- Entire House, Design Conditions, Indoor, Indoor temperature- Heating
Building Analysis- Entire House, Design Conditions, Indoor, Indoor temperature – Cooling

CoolCalc:

Cover or Summary Page, Outdoor Design Conditions, Winter Indoor F
Cover or Summary Page, Outdoor Design Conditions, Summer Indoor F

Wet Bulb Temperature (Summer)

The summer wet bulb temperature is another design item that is typically set by the AHJ and published as design criteria. If that information is not available, Table 1A of ACCA Manual J can provide a code referenced alternative.

Design Conditions under Outdoor Wet bulb either heating or cooling or Design Data Outdoor Wet Bulb Summer

Elite:

Project Report- Design Data, Summer Outdoor Wet Bulb

Wrightsoft:

Building Analysis- Entire House, Design Conditions, Outdoor, Wet bulb - Cooling

CoolCalc:

The report doesn’t specifically show this as a category. It would be verified by the Design Grains representing the correct value. - Building Analysis- Entire House, Design Conditions, Design Grains

Indoor Relative Humidity

These are values set by ACCA Manual J to ensure consistent design parameters. These should be 30% for winter/heating and 50% for summer/cooling respectively.

Elite:

Project Report- Design Data, Winter Indoor Relative Humidity (Indoor Re. Hum)

Project Report- Design Data, Summer Indoor Relative Humidity (Indoor Re. Hum)

Wrightsoft:

Building Analysis- Entire House, Design Conditions, Indoor, Relative humidity- Heating

Building Analysis- Entire House, Design Conditions, Indoor, Relative humidity – Cooling

CoolCalc:

Cover or Summary Page, Outdoor Design Conditions, Cooling RH

Construction Descriptions

The construction descriptions are the actual construction of the building. These are usually done in a narrative description format (i.e. wood framed wall, 16” o.c. with R-13 cavity insulation and R-10 exterior insulation). This is the meat and potatoes of the review. These values should match what the designs are on the plans and energy compliance report, if one is provided. They should be accurate not only for construction method but also the total areas that contribute to the building thermal envelope. These are listed in section of the report listed as:

Roof/ceiling
- Construction type
- Insulation R-values
- Radiant barrier, if included in design
- Roof color and material
- Total area

Above grade walls
- Construction type
- Insulation R-values
- Total area

Below grade walls
- Construction type
- Insulation R-values
- Total area

Floors
- Construction type
- Insulation R-values
- Total area

Slab on Grade
- Construction type
- Insulation R-value
- Insulation distance
- Total area

Windows/Skylights
- U-factor
- Solar Heat Gain Coefficient
- Shading/blinds
- Over hangs
- Direction window faces
- Total area

Opaque Doors
- U-value
- Total area

Elite:
Total Building Summary Loads, Component Description
Wrightsoft:
Component Constructions -Entire House, Construction descriptions
CoolCalc:
Component Loads or Detailed Load Analysis

Infiltration Method

This item refers to determining how much air leakage the building will experience. This assumption has a significant impact on the loads because it's basically assuming how much unconditioned air can make its way into the building. This can be calculated specifically using a Detailed Method, assumed using standard values as a Simplified Method, or specifically tested. Most projects use the Simplified option for determining the infiltration option.

Elite:

Miscellaneous Report, Outside Air Data, Infiltration Specified

Wrightsoft:

Building Analysis- Entire House, Design Conditions, Infiltration, Method

CoolCalc:

Component Loads, Infiltration, Leakage Category

Construction Quality

This item refers to standard assumptions for the tightness of the construction, based on the simplified method. For new construction it should list semi-tight or tight.

Elite:

Miscellaneous Report, Outside Air Data, Construction

Wrightsoft:

Building Analysis- Entire House, Design Conditions, Infiltration, Construction quality

CoolCalc:

Component Loads (Building Details), Infiltration, Leakage Category

Ventilation

This providing a value for the amount of ventilation provided for the building.

Elite:

Miscellaneous Report, Outside Air Data, Total Building Ventilation

Wrightsoft:

Project Summary- Entire House, Design Information, Heating Summary, Central vent

Project Summary- Entire House, Design Information, Sensible Cooling Equipment Load Size, Central vent

Project Summary- Entire House, Design Information, Latent Cooling Equipment Load Size, Central vent

CoolCalc:

Component Loads (Building Details), Ventilation

Number of Occupants

ACCA Manual J requires this number to always be the number of bedrooms plus one.

Elite:

Total Building Summary Loads, Component Description, Subtotal for structure, People

Wrightsoft:

Detailed Room by Room for the Entire House, Internal gains, Occupants (line 13)

CoolCalc:

Component Loads (Building Details), Occupants

Duct Loads (inside or outside the thermal envelope)

This demonstrates if the ducts are inside or outside of the thermal envelope. If there is a 0 or very small number, it means the ducts are located inside the thermal envelope.

Elite:

Total Building Summary Loads, Component Description, Subtotal for structure, Ductwork

Wrightsoft:

Detailed Room by Room for the Entire House, Duct loads (line 15)

CoolCalc:

Component Loads (Building Details), Ducts

Equipment/Appliance Loads

This shows the cooling needs from appliances we use daily. For example, dryers, ovens, cook tops will add heat to the building from their use, and therefore get factored into the cooling load.

Elite:

Total Building Summary Loads, Component Description, Subtotal for structure, Equipment

Wrightsoft:

Detailed Room by Room for the Entire House, Internal gains, Appliance/other (line 13)

CoolCalc:

Component Loads (Building Details), Appliances – or Detailed Load Analysis, Internal Gains, Internal Equipment Loads

TEXAS ENERGY CODE SUPPORT PROGRAM RESOURCES

https://www.shumscoda.com/code-compliance-and-adoption/texas/

- Breakdown of Manual J (Document)
- Breakdown of Manual J (Video)
- Breakdown of Manual S
- Breakdown of Manual D
- Manual J Design Criteria
- Designer's Guide to Manual J
- Designer's Guide to Manual S
- Designer's Guide to Manual D
- Manual J Terminology
- Manual S Terminology
- Manual D Terminology

DESIGNER SPECIFIC RESOURCES:

Wrightsoft Setup Basics for Designers- Manual J

https://www.minnesotaenergycodesupport.org/technical-resources

Elite RHVAC Online - Help

https://www.elitesoftapps.com/ro/help/index.html?welcome.htm

Elite Software – Trial version

https://www.elitesoft.com/web/hvacr/elite_rhvacw_info.html

CoolCalc User's Guide

https://docs.coolcalc.com/user-guide/MJ8/overview.html

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MANUAL J TOP ITEMS CHECK LIST

- □ Correct location
- □ Elevation
- □ Orientation of front door
- □ Outdoor dry bulb temperatures
- □ Indoor design temperatures
- □ Wet bulb temperature
- □ Indoor relative humidity
- □ Construction descriptions

(These match the plans and any energy reports provided)

- □ Roof/ceiling
- □ Above grade walls
- □ Below grade walls
- □ Floors
- □ Slab on Grade
- □ Windows/Skylights
- □ Doors

- □ Infiltration method
- □ Construction quality
- □ Ventilation
- □ Number of occupants
- □ Duct loads (Inside or outside the thermal envelope)
- □ Equipment/appliance loads