



ELKHART COUNTY BUILDING DEPARTMENT

Planning and Development - Public Services Building
4230 Elkhart Road, Goshen, Indiana 46526
Tel: 574-971-4678 Fax: 574-971-4578
www.elkhartcountyindiana.com



Residential Energy Code Submittal Requirements

The Indiana Department of Homeland Security has adopted the Indiana 2012 Energy Code effective April 5th, 2012. Please refer to the original document for specific details: <http://www.in.gov/legislative/iac/20120201-IR-675110084FRA.xml.pdf>

The 2012 Indiana Energy Code contains specific design energy requirements for all residential projects. There are three (3) design paths:

- Option #1: Prescriptive path as outlined in IRC Chapter 11
- Option #2: Total UA Alternative path (trade-off) as outlined in IRC section N1102.1.3 & IECC 402.1.4
- Option #3: Simulated Performance Alternative (Performance) path as outlined in IECC section 405

Note: All three options have similar requirements for submittal documents to meet the code requirements including:

- Building envelope information
- A Manual J equipment design in accordance with the IRC section M1401.3
- A Manual D duct design in accordance with the IRC section M1601.1

Option #1: Prescriptive Path

The Prescriptive Path requirements for the building envelope are found in Chapter 11 of the 2009 IRC. Northern Indiana is located in Climate Zone 5, as shown in Figure & Table N1102.1. All prescriptive information shall be taken from the various tables using Zone 5 requirements.

The Prescriptive Building Envelope submittal shall include, at the minimum, the following information on the submitted plans.

- Address of the building (this is a site specific submittal)
- Define/ delineate your Building Thermal Envelope
- Insulation materials; R values denoted for each individual area (wall, ceiling, floor over garage, etc.)
- Crawl space insulation for structural floors and other crawl space areas. (Specify whether the foundation wall or the structural floor system is to be insulated. See requirements of section N1102.2.9)
- Fenestration U factors 402.3
- Duct sealing and insulation. 403.2
- Manual J, specific to the site
- Manual D duct design, specific to the building
- Lighting equipment 404.1
- Specific insulation 402.2

Option #2: Total UA Alternative Path

The total UA alternative path option of showing compliance is found in section N1102.1.3 of the IRC and section 402.1.4 of the IECC. This method is commonly known by users of RESCHECK. The 2009 current version of RESCHECK is available from the Department of Energy. (Older versions can not be used to show compliance with the 2009 IRC and IECC.)

<http://www.energycodes.gov/rescheck/>

Note: The Building Plans must clearly define and delineate the building thermal envelope.

RESCHECK submittal must include the following information:

- Site specific address (including City):
- Conditioned floor area
- Insulation Type
- R-value for all areas
- Specify location where the insulation is being used (attic, floor over unconditioned space, walls, floors over air space, etc.) This information must be specific. Merely listing "Wall 1, Wall 2, etc.", will not provide sufficient information to the Building Department.
- Specify whether continuous or cavity insulation.
- Using Orientation: "unspecified" is not an acceptable description of a wall, window, or door location. Please specify one of the following orientations: "Front, Back, Left, or Right" and include the square footage of the wall, window, or door on each orientation.
- Fenestration U -Factors
- Accurate square footage measurements are critical.

The 2012 Indiana Energy Code requires a site specific submittal.

Additional required details are listed below:

- Duct sealing and insulation.
- Manual J, specific to the site.

Option #3: Simulated Performance Alternative (Performance) Path

The Simulated Performance Alternative Path is described in Section 405 of the 2009 IECC.

This path still requires mandatory compliance with the following:

- Air leakage (402.4)
- Maximum fenestration U factor (402.5)
- SHGC (402.5)
- Systems (403) requirements.

The Performance Path method of compliance requires the submittal of energy compliance documents but has the additional task of on site inspections to be performed by a 'RESNET Certified Rater' and an Energy Compliance Certificate submitted prior to the Final Building Inspection.

The Building Envelope compliance document (provided by RESNET Certified Rater) shall provide, at the minimum, the following information on the submitted plans:

- Site specific address
- The Energy Code Inspection Checklist (generated by REMRATE) documenting the building component characteristics of the proposed design. (Insulation type and values and location, U value and SHGC of fenestrations)
- Square footage shall use the following; "Square footage-method for calculating, ANSI Z765-2003"
- Mechanical systems
- Name of the individual completing the compliance report
- Name and version of the compliance software tool

Note: It is very important that the insulation values be detailed as to the specific area and the required R-value for that particular area. Listing as R-19/30 for floors, walls or similar is not acceptable.

Other details are required as listed below:

- Duct sealing and insulation.
- Manual J specific to the site
- Manual D duct design specific to the building

Manual J Submittal Information

All three compliance paths outlined above require the submittal of a Manual J at the time of plan/permit application submittal. The Manual J is a site specific submittal. Manual J documents may be calculated using one of the three ACCA accredited programs. Currently, these are limited to Wrightsoft, Nitec, and Elite.

The specific prescriptive design criteria to be used for Elkhart County Manual J entries are as follows:

Elevation:	827 ft. (Goshen Airport)
Latitude:	41.58 degrees north
Winter heating 99% Dry Bulb:	1° outdoor
Summer Cooling 1% dry bulb:	89°
Coincident wet bulb:	73
Design Grains difference at 50% RH:	34
Daily Range:	Medium (M) (Goshen Airport)
Relative Humidity:	40% Winter and 50% Summer
Indoor Design temperatures:	
Heating:	72°
Cooling:	75°
Heating Temperature Difference (HTD):	71°
Cooling Temperature Difference (CTD):	14°

SHGC: While not required per table 402.1.1 of the IECC the SHGC is still required data for Manual J.

SHGC should be taken directly from sticker on glass.

If not known, either use default as per table 102.1.3(3) of the IECC or equation $SHGC = .87 \times SC$ (shading Coefficient) under 19-23 of Manual J.

Altitude Correction Factor (ACF): Site specific to elevation (See Address Wizard)

Wind Velocity Values are 15 mph for heating and 7.5 mph for cooling

All Manual J submittals shall list the specific mechanical equipment to be used and should include A/C.

All Manual J submittals shall match the building envelope compliance information regarding square footage of the building, U values and R values, and shall represent the orientation of the building in a North, South, East, West direction.

Manual J submittals for radiant floor heating systems shall include a manifold layout summary showing tubing size, length of tubing, and tube loop spacing for each zone and each room.

General Information

In order to insure inspectors have all required data, all Product Informational Stickers, Tags and Labeling will be left in place until inspection has been completed. (Examples: window stickers, water heaters, exterior doors, insulation, etc.)

It is the responsibility of the homeowner/ builder to be compliant to current code requirements.