



**SMART ENERGY LOAN
Project Eligibility Criteria**

Energy Efficiency: The project design includes measures designed to meet energy efficiency standards based on the City of Plano’s developed standards as listed below: ***represents permit required**

ENERGY EFFICIENCY MEASURES (2018 IECC VERSION)

Category	Measure	Minimum Efficiency/Certification Requirements
Air Sealing and Ventilation	Air Sealing	Air exchange rate for structure envelope shall not be less than the rate described in the 2018 IECC TABLE R405.5.2(1)
	Duct Sealing	Mastic /UL181A, B, B-FX, C, H, M r P tapes shall be used to make duct joints substantially airtight (2018 IRC, M1601.4.1). Installation requirements must comply with duct tightness verified by Post Construction Test per 2018 IECC, R403.3.2
Insulation	Attic*	R-38 minimum required in open attic areas Full height uncompressed R-30 shall be deemed in compliance at the eaves and at cathedral/vaulted ceilings (2018 IECC, TABLE R402.1.2). Attic access hatches and doors shall be weather-stripped and insulated with similar R values as adjacent surfaces (2018 IECC, R402.2.4)
	Wall*	R- 20 or 13+5 minimum for Collin & Denton County (warm, moist, humid) (2018 IECC TABLE R402.1.2).
	Floor (over unconditioned space) *	R-19 minimum (2018 IECC TABLE R402.1.2).
	Ducts*	R-8, in attics; all other ducts shall be insulated to R-6 (2018 IECC R403.3.1)
Space Heating and Cooling	High Efficiency Furnace*	Equipment sizing shall comply with ACC/ Manual S and Manual J. Electric furnace shall comply with UL1995 (2018 IRC and 2018 IECC)

	Ground Source Heat Pump*	Heat pumps shall comply with 2018 IRC M1403.1. Electric heat pumps shall comply with UL1995.
	Radiant Heating	Radiant heating shall comply with 2018 IRC, M1406 and chapters 34 through 43 (equipment).
	Central A/C*	Must meet federal minimum efficiency based on location. Table R405.5.2(1) (2018 IECC)
	Programmable Thermostats	7-daymodels (2018 IECC, R403.1.1).
Water Heating	Demand/tankless*	Must meet federal minimum efficiency based on location. Table R405.5.2(1) (2018 IECC)
	High efficiency natural gas storage*	Must meet federal minimum efficiency based on location. Table R405.5.2(1) (2018 IECC)
Lighting	Fixtures, ballasts*	Use CFL or LED throughout home
	Timers, sensors	Outdoor flood lights on sensors.
Day Lighting	Light shelves/ solar tubes*	If new windows are installed, see windows, Doors & Skylight section below.
	Solar screens	Min. 90% heat blockage.
Windows, Doors & Skylights	Exterior windows and glass doors	Replacements and newly created windows and doors: Windows: U- Factor of 0.35 or less, SHGC .25 or Glazed Doors: Max 45% glazing, U- factor of 0.35 or less, double glazed. (2015 IECC)
	Insulating exterior doors*	Non-glazed doors: Steel doors insulated - - U-Factor 0.60 or less Wood doors: U-Factor 0.50 or less (2015 IECC).
	Skylights*	Upgrades only, not new skylights. Skylight U-Factor as per 2018 IECC.
Reflective Roof	Metal or asphalt*	Reflective shingles. Must be Energy Star listed. Min. Class C rating.
Pool Equipment	High efficiency pool circulating pump*	Pool heaters with accessible on-off switch and timer that controls both heater and pump (2018 IECC).
	Manual or Automatic pool cover*	Cover required on heated pools (2018 IECC)
	Air source heat pump*	Shall meet 4.0 COP, AHRI 1160 (2018 IECC).
Landscaping	Focused on heating/cooling	Ex: plant deciduous trees on south side of house. Consider future shading as trees grow.

RENEWABLE ENERGY MEASURES (2018 IECC Version)		
Solar Hot Water	Rooftop*	Must be rated by the Solar Rating & Certification Corporation (For Code requirements see 2018 IMC 1402).
	Pool*	Must be rated by the Solar Rating & Certification Corporation (For Code requirements see 2018 IMC).
	Hot tub*	Solar rating & Certification Corporation: (For code requirements see 2018 IMC).
Solar / Photovoltaics	Roof or Ground Mounted System*	UL listed equipment (For installation requirements see 2014 NEC)
Small Wind Turbines	Ground mounted or roof mounted*	UL listed equipment and meet 2014 NEC.
Fireplaces	High efficiency fireplaces & fireplace inserts*	Only retrofits of existing fireplaces are eligible; not newly constructed fireplaces. Min efficiency 75% Gasket equipped doors and outdoor combustion air (2018 IECC) and UL listed equipment.

The project design does not dedicate more than 20% of the project's total budget toward any non-energy efficiency design measures that are necessary to install energy efficiency measures.

Acceptable Measures: Acceptable energy efficiency design measures are any measures identified by City's program standards, RESNET General Energy Audit or contractor during a qualifying home energy assessment and presented to the participant during a home energy advisor consultation session.

A program prerequisite for all funded Smart Energy Loan projects will be the completion of identified Whole-house Energy Efficiency Package and a RESNET General Energy Audit Improvement Analysis Report. The Report will identify the home's baseline rating and assist in prioritizing completing projects based on energy efficiency improvement, return on investment and existing equipment condition.

Whole-house Energy Efficiency Package consists of:

- Minimum of sealing ducts, windows, doors and wall penetrations
- HVAC tune-up
- Attic insulation of at least R=38; insulating/sealing recessed lights in ceilings
- Installation of at least 50% CFL light bulbs
- Insulating water heater tanks.

In addition, the home will need to demonstrate .36 reduction in ACH (as measured by 2018 IECC, 405.5.2 (1)). Some projects can be excluded from the Whole-house Package prerequisite, through achieving a HERS Index of 125 or below (if built on or before 2000) or below 101 (if built after 2000) or if the systems are for an emergency replacement (as noted below).

Other common acceptable measures:

- Minor repairs to walls, windows and/or doors to reach minimum air leak required
- Attic ventilation to meet 2018 IRC R806.1
- Exterior wall insulation
- HVAC Energy Efficiency Verification Inspection & Correction
- Energy Monitoring/Management system (programmable thermostats)
- Solar screens and Daylighting Systems
- Replacing lighting with CFL "pin-base" fixtures
- Hot Water Heating Systems (solar, tankless or higher efficiency storage tanks)*
- HVAC Replacement* (ARI** energy efficiency rating of 14 SEER or higher and completed Manual J Calculation (ACCA***), include variable speed motors may be required
- Replacement of heat pumps* (ARI* energy efficiency rating of 14 SEER & a HSPF**** of 8.2)
- Geothermal Heating & Cooling system
- Encapsulating Roof line and/or Attic area
- Window Replacement (Energy Star rated or better)
- Replacement of household appliances (must be Energy Star and/or WaterSense labeled)
- Pool equipment (variable speed motors and solar based systems)

* Are eligible as individual items under emergency replacement conditions

** American Refrigeration Institute

*** Air Conditioning Contractors of American

**** Heating Seasonal Performance Factor

All funded \$SMART applications must achieve at least a 20% energy efficiency improvement (or at least a HERS rating of 85 or better) prior to funding the installation of any of the following on-site renewable or energy generation systems.

- Solar Photovoltaic Arrays
- Small wind turbine

Acceptable Projects: Acceptable projects must be completed by contractors approved by the City, must meet all program reporting requirements and must submit to quality assurance inspection prior to job completion. City shall ensure that all participants, energy contractors, and any subcontractors hired as a result of this Agreement are in compliance with all applicable requirements of the American Recovery & Reinvestment Act. City shall ensure that the project complies with Section 106 of the National Historic Preservation Act.

Ineligible Projects:

- As determined by the City of Plano upon review of an energy audit report completed by a Certified Energy Auditor
- Structural and cosmetic repairs & products not directly related to completing the energy efficiency projects