



A Guide to the Residential Green and Energy Efficient Addendum

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INTRODUCTION

Target Audience

The target audience for the *Residential Green and Energy Efficient Addendum* and this guide includes appraisers, real estate agents, energy and green raters, lenders, builders, the secondary mortgage market, and green/energy organizations.

Purpose

The *Residential Green and Energy Efficient Addendum* is gaining market share as a tool to communicate the high performance features of a home. The Addendum is an extension of the new construction builder's specification sheet and the Uniform Residential Appraisal Report (URAR) Form, Fannie Mae Form 1004/Freddie Mac Form 70, used by the mortgage lending industry. The Addendum is mapped to the Real Estate Standards Organization (RESO) to allow the data to be transferred to the MLS.

The Addendum may be used as the existing homeowner's "brag sheet" or description of hidden features that are often overlooked by real estate professionals when documentation like the Addendum is not available. Many new construction specifications do not communicate the high performance features in a meaningful way to appraisers, real estate agents, or the lending world. Completing the Addendum on existing, proposed, or new construction structures and giving it to all parties involved in the transaction, including attaching it to the MLS to enhance marketing, is important. If this data were readily available to all parties, it would result in a smoother transaction, better marketing, and a more credible appraised value. At the time of the mortgage loan application, the borrower should give the loan officer the completed Addendum to notify the lender that an appraiser with "knowledge and/or competency" is necessary.

This guide will aid the target audience in completing the Addendum in a meaningful way by explaining how each section applies to the valuation and marketing of the property. While the Addendum does not address value or cost new, it does affect how an appraiser might use facts to apply a cost new and implement a meaningful comparable sales search to arrive at a market value

conclusion. The Appraisal Institute published *Residential Green Valuation Tools*, a text on valuing these homes that specifically discusses methods and techniques of valuing energy efficiency and green features and solar photovoltaic (PV) systems.¹

Location of the Addendum

The most recent publication of the Addendum is 820.05, available in PDF format at no charge on the Appraisal Institute’s website.² Many appraisal software companies have the form available for appraisers to populate. Other users such as energy raters, green certifying organizations, and solar PV companies may secure a license to autopopulate the Addendum by contacting the Appraisal Institute. The *820.05 Residential Green and Energy Efficient Addendum [Detailed Instructions](#)* document should be used along with this guide.³ The detailed instructions list each item on the Addendum on a line-by-line basis and provide a description of each listed feature. This guide, on the other hand, addresses the use of each section of the Addendum to the appraiser, agent, and lender.

Who Should Complete the Addendum?

The Addendum should be completed by the person with the most knowledge of what is “behind the walls” of the property. This may include the builder, energy or green rater, architect, solar installer, or a combination of these professionals. Appraisers can complete the Addendum if they have all the necessary documentation and adequate knowledge of the project. In most cases, appraisers are not provided with enough documentation to allow them to complete the Addendum. If a full HERS report, Building Professional Institute (BPI) report, and/or full green scoring sheet is provided to the appraiser, the Addendum can be completed in less than 30 minutes.

The Addendum allows for multiple professionals to complete it. A signature line appears at the end of each page of the Addendum and should be signed by the person completing that particular page. The appraiser should include the

1
2
3

completed Addendum in the appraisal report to supplement the current mortgage

lending appraisal form (the URAR form), which does not accommodate new high performance building science. Appraisal standards require appraisers to address the features that are relevant to the property type. Without the detail found in the Addendum, appraisers must write extensive text addendums to identify the features not found on the URAR form.

Certifying Organizations

Certifying organizations are encouraged to provide information on their certifying program along with this document to their contractors and raters who may be completing the Addendum. It is important for the real estate market and professionals to have a clear understanding of the certifying standards, the levels of certification, the market area, and the right website(s) and person(s) to contact. Having a database of certified homes accessible to real estate professionals is a step forward in moving the market to a better understanding of one's brand. *However, the Appraisal Institute does not endorse, promote, or recommend any certifying organization.* This Guide is made available for the general users of appraisal services and professionals involved in building, rating, marketing, or documenting high performance homes.

Autopopulation

Autopopulation of the Addendum by energy raters is an important step forward for the real estate community. If the raters' software has a script to autopopulate the Addendum, autopopulation is quick and easy. Autopopulation of the MLS is another important step forward for the real estate community to ensure that the green fields are populated correctly. Accurate information in the MLS reduces agent and appraiser liability and offers buyers and sellers a better platform for buying and selling real estate.


Additional Resource

A brochure titled *Appraised Value and Energy Efficiency: Getting it Right* is available on the Appraisal Institute's website.⁴ This brochure provides links to resources on secondary mortgage market guidelines for appraisals of energy efficient and green features. The brochure addresses what builders can do and how buyers can ensure appraiser competency. The brochure also provides a sample letter that should be completed and given to the lender at the time of mortgage application highlighting the special features that require an appraiser with specialized knowledge.

The secondary mortgage market selling guidelines require lenders to hire appraisers with requisite knowledge/competency in this property type. However, if the borrower does not identify the property as a green property when making the loan application, they will most likely hire the next person on the lender's appraiser rotation list.

4

INTRODUCTION TO THE ADDENDUM

 <p>Appraisal Institute Empowering your future</p> <p>AI Reports® Form 820.05*</p>	Client File #:		Appraisal File #:	
	Residential Green and Energy Efficient Addendum			
	Client:			
	Subject Property:			
	City:		State:	Zip:
<p>Additional resources to aid in the valuation of green properties and the completion of this form can be found at http://www.appraisalinstitute.org/education/green_energy_addendum.aspx</p>				
<p>The appraiser hereby certifies that the information provided within this addendum:</p> <ul style="list-style-type: none"> • has been considered in the appraiser’s development of the appraisal of the subject property only for the client and intended user(s) identified in the appraisal report and only for the intended use stated in the report. • is not provided by the appraiser for any other purpose and should not be relied upon by parties other than those identified by the appraiser as the client or intended user(s) in the report. • is the result of the appraiser’s routine inspection of and inquiries about the subject property’s green and energy efficient features. Extraordinary assumption: Data provided herein is assumed to be accurate and if found to be in error could alter the appraiser’s opinions or conclusions. • is not made as a representation or as a warranty as to the efficiency, quality, function, operability, reliability or cost savings of the reported items or of the subject property in general, and this addendum should not be relied upon for such assessments. <p>Green Building: The practice of creating structures and using processes that are environmentally responsible and resource-efficient throughout a building’s lifecycle from siting to design, construction, operation, maintenance, renovation, and deconstruction. This practice expands and complements the classic building design concerns of economy, utility, durability, and comfort (US EPA). High Performance building and green building are often used interchangeably.</p> <p>Six Elements of Green Building: A green building has attributes that fall into the six elements of green building known as (1) site, (2) water, (3) energy, (4) materials, (5) indoor environmental quality, and (6) maintenance and operation. The energy and water elements are the most measurable elements of green or high performance housing. Appraisers need savings amounts to develop an income approach to support energy efficient contributory value.</p>				

The definition of green building provided in the Addendum is very similar to the definition of energy efficient improvements used by Fannie Mae in their *Selling Guide* and shown in Exhibit 1. These two definitions point toward the new building science addressed in the Addendum.

Energy Efficient Improvements

An energy-efficient property is one that uses resource-effective design, materials, building systems, and site orientation to conserve nonrenewable fuels.

Special energy-saving items must be recognized in the appraisal process and noted on the appraisal report form. For example, when completing the appraisal report (Form 1004), special energy-efficient items are to be addressed in the Improvements section in the Additional features field. The nature of these items and their contribution to value will vary throughout the country because of climactic conditions, differences in utility costs, and overall market reaction to the cost of the feature. Some examples of special energy-efficient features may include, but are not limited to, energy efficient ratings or certifications, programmable thermostats, solar photovoltaic systems, low-e windows, insulated ducts, and tank-less water heaters.

Appraisers must compare energy-efficient features of the subject property to those of comparable properties in the Sales Comparison Approach adjustment grid. If the appraiser’s analysis determines that an adjustment is warranted based on the market reaction to such item(s), the adjustment must be included in the adjustment grid.

Solar panels that are leased from or owned by a third party under a power purchase agreement or other similar arrangement are to be considered personal property items and are not included in the appraised value of the property. See [B2-3-04, Special Property Eligibility Considerations \(02/23/2016\)](#), for additional eligibility requirements for properties with solar panels.

Source: *Selling Guide: Fannie Mae Single Family* (Washington, DC: Fannie Mae, December 19, 2017), Part B, Subpart B-4, Chapter B4-1, Section B4-1.3-05, p. 556, <http://www.fanniemae.com/content/guide/sel121917.pdf>.

**IDENTIFICATION OF PROPERTY AND PERSON POPULATING
ADDENDUM**

A section for identification of the property address appears at the top of each page of the Addendum. The person completing the Addendum should include the address of the property on each completed page. The appraiser may add the client’s name and file number at the top or insert it without changes and comment on its origin and relevance to the appraisal process.

Client:		Client File #:	
Subject Property:		Appraisal File #:	

The bottom of each page of the Addendum includes a section that should be completed by the person populating that page. Include the full name, professional title (homeowner, builder, third-party verifier, architect, etc.), and date completed.

Completed by: _____ Title: _____ Date: _____
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OBJECTIVE OF ADDENDUM

The objective of this Addendum is to standardize the communication of the high performing features of residential properties. Identifying the features not found on the appraisal form provides a basis for comparable selection and analysis of the features. Builders, contractors, homeowners, and third party verifiers are encouraged to complete this Addendum and present to appraisers, agents, lenders, and homeowners. Complete the pages that apply to the property appraised and provide to appraiser prior to the completion of an appraisal. Provide the Addendum to the lender at the time of loan application to assist them in understanding the property type so an appraiser with sufficient knowledge of this property type will be engaged to provide an appraisal to meet secondary mortgage market guidelines.

The objective statement appears at the bottom of pages 2 and 4 of the Addendum. The objective of the Addendum is to standardize the communication of the high performing features of residential properties. Identifying the features that are not described on the URAR form provides a basis for comparable selection and analysis of the features.

- Builders, contractors, homeowners, and third-party verifiers are encouraged to complete this Addendum and present it to appraisers, agents, lenders, and homeowners. Appraisers typically do not have sufficient information to complete this Addendum without builder, contractor, or third-party verifier documentation.
- Attach the completed document to the *MLS listing* to provide sufficient detail on sales and listings to assist buyers, appraisers, and real estate agents in understanding the high performance features of the property.

- Complete the pages that apply to the property appraised and provide it to the appraiser prior to the completion of the appraisal.
- Provide the Addendum to the *lender* at the time of loan application to assist the lender in understanding the property type so that an appraiser with sufficient knowledge of this property type will be engaged to provide an appraisal to meet the secondary mortgage market guidelines.

PART I. THIRD-PARTY VERIFICATIONS

THIRD-PARTY VERIFICATIONS (See types defined in glossary).		
The following verified items are considered within the appraisal analysis of the subject property:		
Green Certification Certifications attest that the home meets certain minimum thresholds.	Environmental Protection Agency (EPA):	<input type="checkbox"/> Indoor airPLUS <input type="checkbox"/> WaterSense <input type="checkbox"/> ENERGY STAR
	Energy Department (DOE):	<input type="checkbox"/> Zero Energy Ready Home (ZERH)
	Home Innovation Research Labs NGBS Home Remodel:	
	Home Innovation Research Labs NGBS New Home:	<input type="checkbox"/> Bronze <input type="checkbox"/> Silver <input type="checkbox"/> Gold <input type="checkbox"/> Emerald
	Living Building Challenge (LBC):	<input type="checkbox"/> Living Building Certified <input type="checkbox"/> Petal Certification
	Passivhaus Standard:	<input type="checkbox"/> PHI Low Energy <input type="checkbox"/> EnerPhit <input type="checkbox"/> Passive House
	Passive House Institute US:	<input type="checkbox"/> PHIUS+ 2015
	USGBC LEED:	<input type="checkbox"/> Certified <input type="checkbox"/> Silver <input type="checkbox"/> Gold <input type="checkbox"/> Platinum
	Other:	
	Date Verified: __/__/__	Green Certification Version: ____ Organization URL: _____

Instructions for Completion

Only national verification programs are listed on this part of the Addendum because they are more prominent. Because more than 100 certifying organizations exist, it would be impossible to list them all. If your verification program is not listed, include it under the *other* category.

Date Verified, Certification Version, and Organization's Website Address

The date verified, certification version, and organization's website address (link) should be included for all applicable programs. Providing the website link allows the underwriter, appraiser, home buyer, and agent to easily research the program.

Above Valid Only If Checked

Verification reviewed on site or attached to the Addendum is important to understanding the reliability of the data. This section answers the question of how the information was verified by the person completing this section. Verifying organizations provide certificates and/or scoring sheets (a “paper trail”) for the properties verified. It is important for appraisers and real estate agents to know the data source and, if possible, provide the supporting documents. Some verifying organizations have databases that provide this information. If this is the case, include the weblink to verify the accuracy of the rating. Appraisers and real estate agents are reluctant to call a structure energy efficient or green without documents to verify this claim.

Relevance to the Appraiser and Real Estate Agent

The third-party verified documents show that the property has been built to a higher standard than the local building code. Real estate appraisers and agents have liability concerns that this important documentation can resolve. Appraisers and real estate agents are not building scientists and rely on the work of other professionals to answer questions outside their areas of practice.

Real estate agents should attach the Addendum and supporting documentation to the MLS as well as populate the green fields to allow potential buyers the ability to find homes with green features. Marketing the green features is necessary if the seller expects to sell the property for a premium over similar homes without green features. Appraisers use the MLS attachments in making comparable selections and in some cases adjustments to sales that have different features. If your MLS removes attachments after the listing status changes to “sold,” work to change this rule because appraisers use sales at least one year after the date of sale. If the attachments have been removed, some very important information about the sale has been removed from the appraiser data set. The information in the Addendum is not available from any other public source.

Relevance to the Lender

The lender has an underwriting requirement to review appraisals that are used to document mortgage loans. When an appraiser describes a home as being green or energy efficient, completes the Addendum, and attaches supporting documents, it helps the underwriter understand the analysis. An energy efficient or green property may have sold for more than similar properties and may be valued higher than similar properties without the energy efficient or green features. The energy and green features are often missing in the MLS and public records, and the Addendum may be the only place the appraiser will find the details to explain and understand why one property is worth more than another.

Relevance to the Property Owner

The property owner should keep the Addendum and supporting documents with their “brag sheet” for marketing, future refinancing, or future buyers who cannot see the building science behind the walls that provides benefits to the occupants (such as lower utility costs, comfort, and a safer, healthier home). A home with verified documentation reduces the potential “greenwashing” that often happens. When properties are called energy efficient or green and they do not meet the high-performing standards a truly energy efficient or green home meets, it affects sales prices and appraised values.

PART II. ENERGY LABEL

Energy Label Labels disclose the state of the home's energy assets.	RESNET's HERS Rating (0 to 150): _____ <input type="checkbox"/> Sampling Rating <input type="checkbox"/> Projected Rating <input type="checkbox"/> Confirmed Rating	Estimated energy savings for this home: \$____/year ____ cKWh rate dated __/__/__ <i>Energy Savings includes electricity, heating & Cooling.</i> <i>Score below 100 indicates energy costs are expected to be lower than average code-built home. HERS Index Report occupancy estimates energy cost based on number of bedrooms plus one. Only a "confirmed rating" is diagnostically tested.</i>
	DOE's Home Energy Score Score (1 to 10): _____ <input type="checkbox"/> Official Score <input type="checkbox"/> Unofficial Score	Estimated energy savings for this home: \$____/year ____ cKWh rate dated __/__/__ <i>Energy Savings includes electricity, heating & Cooling.</i> <i>Score above five indicates energy costs are expected to be lower than average local home. Home Energy Score estimates energy cost based on state average energy rates and the home's energy features.</i>
	Other Energy Score: Range (____ to ____): _____	Estimated energy savings: \$____/year ____ c kWh rate dated __/__/__ Describe energy label system: _____
	Date Verified: __/__/____	Score or Rating Version: _____ Organization URL: <input type="checkbox"/> www.resnet.us/ <input type="checkbox"/> www.homeenergyscore.gov <input type="checkbox"/> Other: _____

Importance of Parts II and III

Parts II and III of the Addendum describe building features and energy ratings that measure building efficiency and may even result in significant energy cost savings. Energy is measurable. When the savings can be estimated using a proven method, the value of the savings can be developed using the income capitalization approach.

Instructions for Completion

Energy labels measure the efficiency of a structure and provide a way to compare homes and estimate energy costs and savings. The two types of ratings listed—The Residential Energy Services Network’s (RESNET’s) Home Energy Rating System (HERS) and the US Department of Energy’s (DOE’s) Home Energy Score—are the most commonly recognized ratings in the United States. The rating information should be based on a report by a trained third-party rater. Review the Addendum Glossary for more details on the types of HERS Ratings that may be used. When using a rating other than HERS or the Home Energy Score, complete only the “Other Energy Score” range on the Addendum, provide the annual estimated energy savings and the kilowatt hour rate as of the date of the rating, and describe the label system. The label system refers to the organization or company rating the property. It is helpful to include a website address where more information can be obtained about the rating. (For instance, is the rating diagnostically tested or is it a review of the assets?)

Energy Savings

The energy savings highlighted in red is extremely important data necessary to develop an income capitalization approach to valuing the energy efficiency of the home. The income capitalization approach to valuing this feature should always be used with a second appraisal method, such as the cost new less all forms of loss and/or paired-data analyses. If this information is provided, it gives appraisers data to develop value when energy efficient comparable sales are not available.

Above Valid Only If Checked

In the “Above Valid Only If Checked” section of Part II, indicate if the energy rating report was reviewed on site or if the verification is attached to the Addendum. If the latter box is checked, this indicates that the energy rating report (in its entirety) is attached to the Addendum. Another source that can be used for verifying the energy rating is a searchable database such as the HERS database (see the following paragraph). If this is the source of the rating, address this in the Comments Section at the bottom of page 2 of the Addendum. If the appraiser has the support documents and details of construction, they may be the one completing this part of the Addendum. If a rater, builder, or homeowner completes this information, the appraiser will want to have knowledge of how they verified the information. It is always best to attach supporting documents.

HERS Rating

The HERS Rating can be verified by anyone through the HERS public database.⁵ This database only includes confirmed ratings and does not allow downloading of the full report. A confirmed rating is one that has been diagnostically tested using a blower door. The full HERS Report should be attached to the Addendum to give the user support for the rating. Review the Addendum Glossary to understand the different types of HERS Ratings. Appraisers valuing homes from plans and specifications should be provided with a projected rating, and the appraisal will be made subject to the final rating upon completion. If the appraiser does not have the projected rating at the time of appraisal, it is unlikely that the energy efficient features will be valued higher than those of code-built homes.

Home Energy Score

The DOE’s Home Energy Score is for existing homes only and will not be found in proposed construction. Once a home is built, a trained assessor can develop a Home Energy Score for it. There are two types of Home Energy Scores, described as follows. The type of score should be properly identified and the full report attached to the Addendum.

⁵ <http://www.resnet.us/public-access-to-resnet-national-registry>

The Two Types of Home Energy Scores

1. An *official score* is one done on an existing home, is based on the actual house characteristics, and can be created only by a qualified assessor. There are three official score sub-types:
 - The *initial score*
 - The *final score* after improvements are made
 - The *corrected score* if the assessor makes a mistake during data entry or data collection for an initial or final score
2. An *unofficial score* is used primarily for administrative purposes. There are four unofficial score sub-types:
 - *QA score*: A second score done to verify the official score
 - *Mentor score*: A second score done with an official score that shows that an assessor has been trained
 - *Alternative EEM score*: If the assessor would like to provide a score with customized recommendations, they must enter a “what-if” unofficial scenario.
 - *Test score*: Used if someone wants to test a scenario or run “what-if” scenarios. This score is primarily used by rookie assessors getting used to the interface.

There will also be one more unofficial score type to handle houses that are under construction. These can only be made official if the assessor returns to the house to re-score it.

Other Energy Scores

Some states or regions have an energy score or rating that applies to their geographical area only. A few scores are listed below.

Energy Rating Index (ERI)

ERI ratings are typically found on new construction building permits. In some states, the ERI is synonymous with the HERS Rating. The ERI is an optional compliance path, incorporated in the International Energy Conservation Code (IECC) since 2015. To date, 15 states and over 300 local jurisdictions have adopted the ERI as an energy code compliance option. The American National Standards Institute (ANSI)/RESNET/International Code Council (ICC) Standard 301 serves as

the basis for the ERI. The 2015 and 2018 IECC specify a target ERI for each climate zone. Like the HERS Score, a score of 100 is equal to a house built to the 2006 IECC. Each point lower than 100 represents 1% more efficiency than the 2006 IECC.

Alaska AkWarm© Rating

Alaska uses the AkWarm© energy rating modeling software for energy ratings. AkWarm© uses a points system like that used in the Lower 48 states. However Alaska's scale is the opposite of the Lower 48 states' HERS Ratings in that a higher score represents a more efficient home. Points are grouped under star levels. To date, Alaska's version of HERS has six stars, with the most number of stars being the most energy efficient rating. Access to the database is open for searching for the Alaska AkWarm© energy rating by address, and it provides estimated energy costs in today's dollars.⁶

Title 24

Title 24 is a California HERS Rating that can only be done by a California Building Performance Contractor. The scale is like the RESNET HERS, with 0 being the most efficient and 100 being the rating of a reference home.⁷

Energy Performance Score (EPS)

The Energy Trust of Oregon EPS program generates a metric that is used to publicize home performance for new and existing homes. An EPS for new homes is still used in Oregon and now in Vancouver, Washington, and volumes are growing. A home's EPS is shown on an energy scale that ranges from 0 to 200+ and is based on the home energy use of natural gas, electricity, or energy generated from an installed renewable system.⁸

⁶ <https://akrebate.ahfc.us/AkAppraisals.aspx>

⁷ <http://www.energy.ca.gov/HERS/background.html>

⁸ http://www.energytrust.org/wp-content/uploads/2016/10/enh_tp_eps_certificate_sample.pdf

Relevance to the Appraiser

The relevance of the energy score and energy efficient features is best understood by reviewing Fannie Mae's *Selling Guide*. Appraisers *must* describe the energy features of the home and compare them to the comparable sales used in the analysis. If adjustments are warranted and supported, they should be made. The excerpt from Fannie Mae shown in Exhibit 1 (on p. 7 of this document) describes the obligation appraisers have when valuing energy efficient homes.

Appraisal Standards

Appraisers must identify characteristics that are relevant to the type and definition of market value and the intended use of the appraisal. These items include locational, physical, legal, and economic attributes of the property. The market is interested in energy efficient homes for the economic attributes they provide in terms of lower energy savings and the physical comfort they give through better indoor air quality and more even temperatures.

These standards also recognize that social change affects appraisal theory and practice. It is evident that the market's desires are changing, and people expect homes that are more energy efficient and healthier, safer places to live. Building codes are more strict in terms of energy efficient standards than they were in the past. Increasing interest in energy efficiency, zero energy homes, and homes that use renewables points to a social change that the appraiser must be ready to analyze and describe. This section of the Addendum is most valuable in helping the appraiser meet the secondary mortgage market guidelines and appraisal standards.

Providing a measurement of the energy efficiency of a home allows the appraiser to rate the structure's efficiency more accurately. Appraisers cannot see behind the walls of a building and are not building scientists; therefore, having this rating will help the appraiser develop cost new computations and provide an estimated energy savings that can be used in developing a present value of the energy savings over a given period. In markets where energy efficient homes may not be prevalent, current sales of similar homes may not be available. When sales are not available to measure the market's reaction to the energy efficiency, the appraiser may use other applicable approaches.

It is strongly suggested that more than one approach be used when developing adjustments for energy savings. Exhibits 2 and 3 provide sample language that may be used on the URAR Form.

Exhibit 2 Sample Language for the URAR Form–Improvement Section

Additional features (special energy efficient items, etc.) The Residential Green and Energy Efficient Addendum included in this report describes the energy and green features that make this home a high performance property.

Exhibit 3 Sample Language for the URAR Form–Sales Comparison Section

High Performance House			
Address			
Proximity to Subject			
Sale Price	\$ 225,000		
Sale Price/Gross Liv. Area	\$ 125.00	sq. ft.	
Data Source(s)	Inspection		
Verification Source(s)	RGEEA		
VALUE ADJUSTMENTS	DESCRIPTION		
Sale or Financing Concessions			
Date of Sale/Time			
Location	N;Res;		
Leasehold/Fee Simple	Fee Simple		
Site	18,000 SF		
View	N;Res;		
Design (Style)	DT2;Colonial		
Quality of Construction	Q3		
Actual Age	5		
Condition	c2		
Above Grade	Total	Bdrms.	Baths
Room Count	6	3	2.1
Gross Living Area	1800 sq. ft.		
Basement & Finished Rooms Below Grade	0SF		
Functional Utility	Average		
Heating/Cooling	Hi Eff/Central		
Energy Efficient Items	HERS 47-RGEEA		
Garage/Carport	2ga		
Porch/Patio/Deck	Deck,Porch		
Green Certification	NGBS Bronze		
Net Adjustment (Total)			
Adjusted Sale Price of Comparables			

SALES COMPARISON APPROACH

This is the area where energy efficient and/or green features will be found. If an adjustment is warranted, it will be found on one of these lines rather than on every line.

It is impossible for appraisers to support an adjustment for each green or energy efficient feature because the market is not that precise, and the data is not detailed enough to develop contributory values per feature. The HERS Rating includes all the components that make a structure energy efficient. Where the adjustment is placed on the sales grid is not as relevant to producing a credible opinion as how detailed the support for the adjustment is. Adjustments are only applied to sales that do not have the same energy efficient features.

Ideally, the appraiser would know the energy ratings for the comparable sales. Knowing the year built will provide a reasonable understanding of the energy standard it met if it were built to code with no energy upgrades above the code. The appraiser should search the address of each comparable in the [RESNET.US registry](http://www.resnet.us) to verify their HERS Ratings.⁹ The database only includes ratings from July 2012 and later. If a specific address is not in the database, this doesn't mean that the home isn't energy efficient, but it does suggest that further research should be done to verify the energy efficiency. This is an example of the longer amount of time that is often involved in valuing energy efficient or green homes.

Relevance to the Real Estate Agent

Parts II and III of the Addendum are important to real estate agents and should be used in marketing homes with energy efficient features. The definition of *market value* assumes a knowledgeable buyer and a knowledgeable seller. If an agent does not market the efficiencies and their benefits to the property, how can a buyer understand why a home should sell for more than a similar house without these features? The Addendum and important energy rating reports should be attached to the MLS listing. The energy rating score should be converted to a JPG file and shown in the photograph gallery of the MLS. It is important for the MLS to keep the attachments to the listing once the status has changed to "sold." These attachments are extremely valuable to appraisers when deciding on the comparability of sales. The first few lines of the description of the property in the MLS listing should

⁹ <http://www.resnet.us/public-access-to-resnet-national-registry>

describe the energy and green features of the home. An example of a good MLS description of a high performance home is shown in Exhibit 4.

Exhibit 4 **MLS Description of a High Performance Home**

You will love this comfortable, environmentally friendly, & energy efficient (low energy bills) TH, with stunning panoramic city views. Abundant natural light through expansive windows and center sky light, indoor air exchange for better quality air for a healthier environment; 10' high ceilings, open floor plan, private garden terrace, expansive partially covered top deck, Bamboo flooring, Gorgeous custom kitchen with Quartz and Stainless, High Efficiency Heating and AC, Lighted hand rails & Japanese rain chain, home gym---included, etc. Walk Score of 75 – easy walk to shops and restaurants on the South Side, see attached AI Res. Green & EE Addendum.

Relevance to the Lender

This section of the Addendum provides the lender’s underwriter with solid support for the energy efficient ratings and potential contributory value developed by the appraiser.

PART III. VERIFIED ENERGY IMPROVEMENTS

Verified Energy Improvements <small>Only include improvements with verified documentation.</small>	Explain energy-related improvements: Cost of improvements: \$_____		
	Date Verified: ____/____/____	Certificate of Efficiency Improvements Version: _____ Organization URL: <input type="checkbox"/> Other: _____ <input type="checkbox"/> energystar.gov/homeperformance	ABOVE VALID ONLY IF CHECKED: <input type="checkbox"/> Verification reviewed on site <input type="checkbox"/> Verification attached to this report

Instructions for Completion

Existing homes often have energy efficient upgrades, and certificates may be provided to verify the improvements. In the white section of Part III that directs the person completing the Addendum to *explain energy-related improvements*, the

upgrades that have been made should be listed. If more space is needed, carry the description over to the Comments section at the end of Part IV or attach a list of improvements. Include the cost of the improvements listed, including labor and materials, to allow appraisers to use a cost approach to value the energy efficient features.

Date Verified

Include the date the completed improvements were verified.

Certificate of Efficiency Improvements Version

Some energy programs have versions that change as the building code changes. If the program certifying the improvements does not have a version, leave this section blank. Include the certifying organization name and website address.

Above Valid Only If Checked

In the last box of Part III, indicate whether the improvements have been certified and documentation has been reviewed at the property or if the verification is attached to the Addendum. If the improvements have not been certified by a third party, list the improvements and explain how their installation was verified.

Relevance to the Appraiser

A trend toward retrofitting existing homes to a higher standard with green and energy efficient features will occur in all markets at some point. When documentation is available to describe the upgrades and their benefits, this section will be valuable to appraisers in describing the features and benefits with confidence. Having documentation of the savings amount is also important on retrofits to allow the appraiser to use more than one method to analyze the contributory value of the energy efficient features. Without this documentation, it will be difficult for the appraiser to attribute value to energy and green features in markets where sales are not readily available. Appraisers should look in the electrical box for stickers that might suggest updates were done. Homeowners often

forget to report upgrades that are not visible. The 2012 IECC requires a sticker in the electrical box.

Relevance to the Real Estate Agent

When existing homes have been retrofitted with energy efficient and green features, this must be made known to the real estate agent when the home is listed for sale. The agent can use this documentation to populate the green fields and make proper descriptive comments on the upgrades. If the upgrades are not marketed, it is unlikely that a buyer would see the home as being more valuable than a similar home without these features. The agent should look in the electrical box for stickers that might show that updates were done. If a certificate for the upgrades is available, upload it as a JPG in the MLS photograph gallery.

Relevance to the Lender

Existing homes that have energy or green upgrades are overlooked by the real estate industry unless some way of verifying the upgrades is provided. When an appraiser attributes value to energy upgrades made in an older home, support must be provided to verify the upgrades and their benefits to allow the underwriter to accept the analysis.

The two certificates shown in Exhibit 5 are from the Illinois Home Performance with Energy Star Program. If an existing home has been upgraded to meet a program standard and verification of the work has been provided, include it in the MLS marketing and provide it to the appraiser. Most green or energy certifying programs for existing homes provide certificates verifying the status of the work completed.

Utility companies have a variety of weatherization and energy efficient upgrade programs, and they provide certificates for the completed work. It is important to know the local market offerings to understand the standards to be certified through the utility program.

Exhibit 5 Sample Certificates for Existing Homes with Energy and/or Green Retrofits



Gold

Certificate of Completion

www.IllinoisHomePerformance.org

Home address:
123 W. Sample
Sample, IL 60000

Contractor:
Good Business

Program provider:
Illinois Utility

Work completed on*:
7/15/17

*Certificate issued 11/2/2017 by the Midwest Energy Efficiency Alliance (MEEA) based solely on the reporting by or estimates of contractor. A minimum of 15% energy reduction is required to receive a Certificate of Completion. See reverse.

This home has achieved a superior level of energy reduction after completing the following energy upgrades:

- ✔ Air sealing performed reducing total air leakage rate by 35%
- ✔ Attic insulation improved to R-49
- ✔ R-19 insulation installed in walls
- ✔ Energy efficient HVAC system installed


Will Baker
Director of Programs, Midwest Energy Efficiency Alliance






This program is funded by ComEd, Nicor Gas, Peoples Gas and North Shore Gas in compliance with Illinois law.



Silver

Certificate of Completion

www.IllinoisHomePerformance.org

Home address:
123 Sample Street
Sample, IL 60000

Contractor:
C&R Renovations

Program provider:
Provider Name

Work completed on*:
7/15/2017

*Certificate issued 8/7/2017 by the Midwest Energy Efficiency Alliance (MEEA) based solely on the reporting by or estimates of contractor. A minimum of 15% is required to receive a Certificate of Completion. See reverse.

This home has achieved an estimated total energy reduction of at least 15%* after the following home energy upgrades:

- ✔ Air sealing performed reducing total air leakage rate by 35%
- ✔ Attic insulation improved to R-49
- ✔ R-19 insulation installed in walls


Will Baker
Director of Programs, Midwest Energy Efficiency Alliance






This program is funded by ComEd, Nicor Gas, Peoples Gas and North Shore Gas in compliance with Illinois law.

PART IV. EFFICIENCY FEATURES (WATER, ENERGY, AND ENVIRONMENTAL)

EFFICIENCY FEATURES (Water, Energy, and Environmental. See types defined in glossary).				
The following items are considered within the appraisal analysis of the subject property:				
Insulation	<input type="checkbox"/> Fiberglass Blown-In <input type="checkbox"/> Foam Insulation <input type="checkbox"/> Cellulose <input type="checkbox"/> Fiberglass Batt Insulation <input type="checkbox"/> R-Value ___ Wall ___ Ceiling <input type="checkbox"/> Other (Describe): _____			
Building Envelope	Envelope Tightness: _____ Unit: <input type="checkbox"/> _CFM25 <input type="checkbox"/> _CFM50 <input type="checkbox"/> _ACH50 <input type="checkbox"/> _ACH natural Instructions: Insert the rating as a number that could be 0.5 to 7ACH50 or higher. The lower the number, the more air tight the envelope. Building Codes for area show maximum Envelope Tightness allowed based on the climate zone. Not all areas have adopted a building code. http://bcap-energy.org/			
Windows	<input type="checkbox"/> ENERGY STAR® <input type="checkbox"/> Low E <input type="checkbox"/> High Impact <input type="checkbox"/> Storm <input type="checkbox"/> Double Pane <input type="checkbox"/> Tinted <input type="checkbox"/> Solar Shades <input type="checkbox"/> Triple Pane			
Day Lighting	<input type="checkbox"/> # Of Skylights: _____ <input type="checkbox"/> # Of Solar Tubes: _____ <input type="checkbox"/> Other (Describe): _____ (% Of lighting LEDs): _____			
ENERGY STAR® Appliances	ENERGY STAR®: <input type="checkbox"/> Dishwasher <input type="checkbox"/> Refrigerator <input type="checkbox"/> Washer/Dryer <input type="checkbox"/> Other: _____ Energy Source: <input type="checkbox"/> Propane <input type="checkbox"/> Electric <input type="checkbox"/> Natural Gas <input type="checkbox"/> Other: _____ <div style="border: 1px solid red; padding: 2px;"> Note: ENERGY STAR® appliances do not result in an ENERGY STAR® Home. </div>			
Water Heater	<input type="checkbox"/> ENERGY STAR® Size: _____ gallons <input type="checkbox"/> Solar (next page) <input type="checkbox"/> Heat Pump <input type="checkbox"/> Coil <input type="checkbox"/> Tankless			
HVAC & Related Equipment Describe in comments area.	<input type="checkbox"/> High Efficiency HVAC SEER: _____ Efficiency Rating: _____% AFUE* _____% *Annual Fuel-Utilization Efficiency	<input type="checkbox"/> Heat Pump Efficiency Rating: _____ COP: _____ HSPF: _____ SEER: _____ EER: _____	Thermostat/Controllers? <input type="checkbox"/> Yes <input type="checkbox"/> No Programmable Thermostat? <input type="checkbox"/> Yes <input type="checkbox"/> No Auxiliary heat source? <input type="checkbox"/> Yes <input type="checkbox"/> No Radiant Floor Heat? <input type="checkbox"/> Yes <input type="checkbox"/> No <div style="border: 1px solid red; padding: 2px;"> Geothermal? <input type="checkbox"/> Yes <input type="checkbox"/> No </div> Electric Vehicle Ready? (car charger) <input type="checkbox"/> Yes <input type="checkbox"/> No	
Indoor Environmental Quality	<input type="checkbox"/> Energy (ERV) or Heat Recovery Ventilator (HRV) <input type="checkbox"/> Other Measured Whole-House Ventilation Device (See glossary) <input type="checkbox"/> Humidity Monitoring Device installed		<input type="checkbox"/> Non Toxic Pest Control <input type="checkbox"/> Radon System: <input type="checkbox"/> Active <input type="checkbox"/> Passive	
Water Efficiency	<input type="checkbox"/> Reclaimed Water System (Describe): _____ <input type="checkbox"/> Greywater reuse system <input type="checkbox"/> Water Saving Fixtures		<input type="checkbox"/> Rain Barrels Used in Irrigation Cistern size: _____ gallons Location of cistern: _____	
Utility Costs	Annual Utility Cost: \$ _____/year, based on: ___/___/___ to ___/___/___ (full year). Includes (check all that apply): <input type="checkbox"/> Electric <input type="checkbox"/> Heating <input type="checkbox"/> Water <input type="checkbox"/> Other: _____		# Of Occupants: _____	
Comments Include source for information provided in this section.	If a property is built green but not formally certified, it still deserves proper description and analysis to value the features. The market analysis is of the structure's physical, economic, and locational attributes and not an analysis of its label alone. Provide additional information that illustrates how this property exceeds local building code. This document is intended for new construction or existing homes that have been retrofit to include higher energy or green features.			

Instructions for Completion

As previously mentioned, the Appraisal Institute published detailed instructions for completing the Addendum, 820.05 Residential Green and Energy Efficient Detailed Instructions. These instructions provide line-by-line explanations of the items found in the Addendum.¹⁰

As noted in the first red box in Part IV of the Addendum, Energy Star appliances do not make a house an Energy Star home.

Geothermal heating and cooling sources (as shown in the second red box) are also defined as ground source heat pumps (GSHPs). If a GSHP or air source heat pump (ASHP) exists, note this in the Comments section. Air source and ground source systems will likely have significantly different costs, depending on where in the country they are installed.

An explanation of why it is important for the appraiser to list the relevant details appears in the Comments section of Part IV. It is also helpful to add comments on the local building code and how the structure exceeds the code. Appraisers are not expected to know building codes to the same degree as builders and raters. The appraiser or real estate agent who is new to high performance properties needs to have more explanation to be able to understand what makes a property higher performing than other, similar homes built to code. This allows appraisers to understand the importance of comparable choice and helps agents explain why a high performing house may be listed at a higher value than a comparable code-built house. Below, a good example of wording that would be simple and meaningful to the non-builder/rater is outlined in red.

¹⁰

<p>Comments Include source for information provided in this section.</p>	<p>If a property is built green but not formally certified, it still deserves proper description and analysis to value the features. The market analysis is of the structure's physical, economic, and locational attributes and not an analysis of its label alone. Provide additional information that illustrates how this property exceeds local building code. This document is intended for new construction or existing homes that have been retrofitted to include higher energy or green features.</p> <div style="border: 2px solid red; padding: 5px; margin: 10px 0;"> <p>The local building code is 2009 IECC. This structure is built to a higher standard than the 2009 IECC and is 32% more energy efficient than the local building code. The HERS Rating for this same house only built to the 2009 IECC standards in this market would be 77 at this location and this structure has a HERS Rating of 45. This house has an estimated energy savings of \$850 annually as a result of the upgrades. The savings is documented in the attached HERS Report.</p> </div>
---	---

A HERS Rater can provide a HERS Rating for the same structure at the same location built to code, as well as the actual HERS Rating based on the details included in the Addendum. Better valuation, listing, marketing, and buying decisions could be made if this information were readily available to real estate professionals and the general market. Knowledge is the key to better decisions.

Relevance to the Appraiser

Another important detail of Part IV is the *utility disclosure* for proposed construction, new construction, or existing homes. Proposed construction can obtain a projected HERS Rating that will give an estimated energy cost. *When a projected HERS Rating is given, the appraiser should make the appraisal subject to the final or confirmed rating upon completion of the house.* The HERS Report provides the estimated energy savings based on the occupancy of one person per bedroom plus one and the typical energy user. If the number of occupants varies from that envisioned in the rating, the savings amount would differ. Occupant behavior will affect utility costs, and the HERS Rating provides standardization by taking the features and standard occupancy into consideration. The HERS Rating provides a reasonable measurement for comparing a structure's energy efficiency. The appraiser can use this rating in establishing the efficient and contributory value of the energy savings.

Relevance to the Real Estate Agent

If filled out properly, Part IV of the Addendum can provide good details that may be put into the MLS listing for marketing purposes. If the Addendum is attached to the

MLS listing, the potential buyer will have a good understanding of what makes the home energy efficient. A study conducted on Pearl-certified homes showed that marketing that included the Addendum and relevant certificates in the MLS photograph gallery and described the features using words buyers understood sold for better sale price premiums.¹¹ A second study recently published by Build It Green showed the same importance of maximizing the marketing of these types of homes.¹²

Relevance to the Lender

Underwriters who review an appraisal that incorporates the Addendum will have a good understanding of what makes the home energy efficient. This type of detail is not provided for most code-built houses. The description of the energy features is required by appraisal standards and secondary mortgage market guidelines. Wording from the Fannie Mae *Selling Guide* that illustrates the importance of describing the energy features is shown in Exhibit 1 (p. 7).

¹¹ <https://pearlcertification.com/>

¹² <https://builditgreen.org/component/content/article?layout=edit&id=206>

PART V. SOLAR PANELS

Solar Panels			
The following items are considered within the appraisal analysis of the subject property:			
Solar Photovoltaic (Electric) System			
Type of Ownership 103	Array #1	Array #2 (if applicable)	
	<input type="checkbox"/> Leased <input checked="" type="checkbox"/> Owned <input type="checkbox"/> * Solar Loan with UCC Filing <input type="checkbox"/> Power Purchase Agreement (PPA) <div style="border: 2px solid red; padding: 2px;">If solar loan has UCC Filing, it is considered personal property and should not be included in market value.</div>	<input type="checkbox"/> Leased <input type="checkbox"/> Owned <input type="checkbox"/> Solar Loan <input type="checkbox"/> UCC Filing <input type="checkbox"/> Power Purchase Agreement (PPA)	
Panel Specifications	System Size: <u>11.660</u> kW (1kW = 1000 Watts) Age of Panels: <u>2</u> years Energy Production: <u>16,104</u> kWh Source of Energy Production Estimate: <u>Monitoring Portal</u> Manufacturer: <u>Canadian Solar</u> Warranty on Panels: <u>25</u> years	System Size: _____ kW (1kW = 1000 Watts) Age of Panels: _____ years Energy Production: _____ kWh Source of Energy Production Estimate: _____ Manufacturer: _____ Warranty on Panels: _____ years	
Array Placement Affects energy production. *Orientation	Location (roof, ground, etc.): <u>Roof</u> <input checked="" type="checkbox"/> Fixed Mount <input type="checkbox"/> Tracking Mount Tilt / Slope: <u>26.6</u> *Azimuth: <u>145</u>	Location (roof, ground, etc.): __ Tilt / Slope: _____ Azimuth: _____ Orientation (direction panels face): _____	
Inverter Specifications	Number of Inverters per Array: <u>28 Micro</u> Age: <u>2</u> years Wattage: <u>10,150</u> watts Manufacturer: <u>Solar Edge</u> Warranty Term: <u>20</u> years	Number of Inverters per Array: ____ Age: _____ years Wattage: _____ watts Manufacturer: _____ Warranty Term: _____ years	
Energy Storing Batteries 119	Battery Type: <input type="checkbox"/> Lithium---ion <input type="checkbox"/> Lithium---ion Polymer <input type="checkbox"/> Lead Acid <input type="checkbox"/> Lead Calcium <input type="checkbox"/> AGM <input type="checkbox"/> GEL Manufacturer: _____ Storage Capacity: _____ kWh Warranty Term: _____ years Battery age: _____		
Name of Utility Company:	XYZ Utility Company	Charge / kWh from Utility	\$ <u>0.126</u> / kWh

Instructions for Completion

It is extremely important to complete the section of the Addendum that addresses solar photovoltaics (PV) with accuracy. If there is more than one array involved, the details of each array need to be described unless all arrays have the same azimuth/orientation and are the same age. The azimuth or direction the panels face can materially affect the energy produced and, as a result, the value conclusions. Age is another important factor that can affect the energy production. Solar PV installations require building permits that often provide information needed to complete this section. Another good resource for finding maps and databases for solar power is the *Field Guide to Solar PV Energy Features*.¹³

Relevance to the Appraiser

The appraiser must have accurate information on the appraisal property and all comparables that also have solar PV installed. Simply counting the number of panels will not provide an accurate estimate of the system size or production. Solar panels vary in wattage. It is not unusual for a home to have panels that vary in age as well. Systems with energy-storing batteries can store energy to use when the sun is not shining or pull from the battery when peak utility use rates are highest. While batteries are not as prevalent in residential use, this is a growing trend that will continue as innovation improves and prices decrease. Energy-storing batteries can help the grid deal with peak time uses.

PV Value

PV Value is a discounted cash flow (income capitalization approach) to valuing the energy produced. The solar PV system inputs on this form are necessary to use this program.¹⁴

Ei Value

Ei Value is a similar application-based program that will be replacing PV Value in the near future. Ei Value has more data points than PV Value.¹⁵ To illustrate, data

¹³ <https://sites.google.com/site/appraisinghpbuildings/key-topics/solar>

¹⁴ <http://www.pvvalue.com>

¹⁵ <https://eivalue.com/>

from the previously shown completed Part IV of the Addendum is applied in the income capitalization approach using Ei Value, as shown in Exhibit 6.

Exhibit 6 Income Capitalization Approach Using Ei Value

Income Approach Method Energy Value DCF		
Utility Rate	Solar Resource	O & M Expense
Utility Rate Source: User Provided	System Size: 11.66 kW	O&M Model: Inverter Replacement Cost
Utility Company: -	Module Warranty: 25 yrs	Inverter Size: 10.15 kW
Utility Tariff: -	System Age: 1 yr	Inverter Age: 1 yr
Utility Rate: 12.60¢/kWh	Remaining Life: 24	Inverter Warranty: 20 yrs
	System Loss: 14%	Inverter Replaced: NO
	Degradation Rate: 0.5%	Inverter Replacement Cycle: 20 yrs
Effective Rate: 12.60¢/kWh	Array Tilt: 5/12 22.6°	Inverter Replacement Cost: 55.00¢/watt
Escalation Rate Type: EIA State	Array Azimuth: 145°	Annual Expense: -
Escalation Rate: 1.59% CAGR	Est. kWh Source: PVWatts v5	Yearly Gross Expense: 55.00¢/watt
Extra Comments: The cost and income approaches form a tight range.	Annual Est. kWh(s): 16,966	O&M Expense (future): \$5,582.50
	Actual kWh Source: -	O&M Discount Rate: 5.02%
	Annual Actual kWh(s): -	O&M Expense (discounted): \$2,201.67

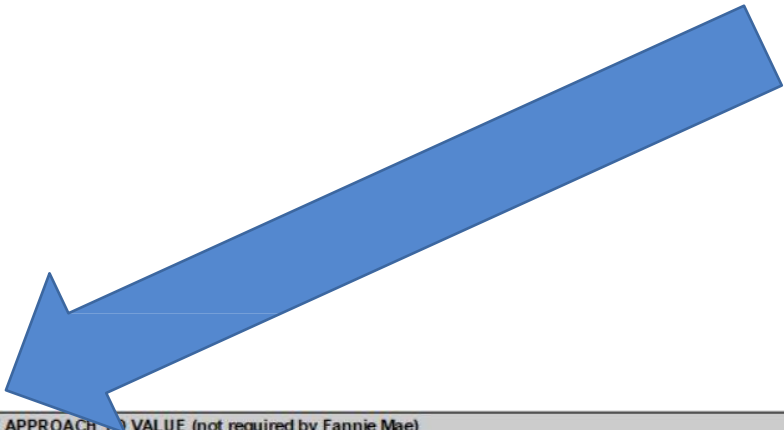
The data provided in Exhibit 6 is not the complete worksheet. Rather, it is the description section that appraisers must input to develop an income capitalization approach to value solar PV.

Inaccurate descriptions will result in errors in the valuation. An appraiser needs the same information on the comparables’ solar PV systems as well. For instance, a 5-kW solar PV system will produce more than a 3-kW system. If the MLS only reports solar panels and the agent does not have the necessary details noted here, the appraiser must do extensive research to produce a credible analysis. Exhibit 7 provides sample language to use on the URAR form.

Exhibit 7 Sample Language for URAR Form – Improvement Section

Additional features (special energy efficient items, etc.) The Residential Green and Energy Efficient Addendum included in this report describes the energy and green features that make this home a high performance property.

High Performance Home	
Address	
Proximity to Subject	
Sale Price	\$ 295,000
Sale Price/Gross Liv. Area	\$ 160.76 sq. ft.
Data Source(s)	
Verification Source(s)	
VALUE ADJUSTMENTS	DESCRIPTION
Sale or Financing Concessions	
Date of Sale/Time	
Location	N;Res;
Leasehold/Fee Simple	Fee Simple
Site	12000 sf
View	N;Res;
Design (Style)	DT2;Colonial
Quality of Construction	Q3
Actual Age	~5
Condition	C3
Above Grade	Total Bdrms Baths
Room Count	7 4 2.1
Gross Living Area	1,835 sq. ft.
Basement & Finished Rooms Below Grade	0sf
Functional Utility	Average
Heating/Cooling	FWA/Central
Energy Efficient Items	HERS 45
Garage/Carport	2ga
Porch/Patio/Deck	Cov and Screen
Other Features	5 kW Solar PV



COST APPROACH VALUE (not required by Fannie Mae)	
Provide adequate information for the lender/client to replicate the below cost figures and calculations.	
Support for the opinion of site value (summary of comparable land sales or other methods for estimating site value) Site value is based on the following sales: Lot 203 sold at \$25,000; Lot 182 sold at \$27,000; and Lot 115 sold at \$24,000 this year. All three sales are similar in size, shape, and orientation. The subject site is valued at \$26,000 because Lots 203 and 182 are the most recent sales in the same development.	
ESTIMATED <input type="checkbox"/> REPRODUCTION OR <input checked="" type="checkbox"/> REPLACEMENT COST NEW	OPINION OF SITE VALUE = \$ 26,000
Source of cost data: National Cost Svcs	Dwelling 1,835 Sq. Ft. @ \$ 120.00 = \$ 220,200
Quality rating from cost service: Good Effective date of cost data: Current	Sq. Ft. @ \$ = \$
Comments on Cost Approach (gross living area calculations, depreciation, etc.)	Porches 9,500
The green section of the cost service is the source for this approach. The site improvements include a concrete drive, landscaping, sidewalk, and utility connections. The solar photovoltaic (PV) system is valued based on the Ei Value discounted cash flow program. The income approach to valuing the solar PV is attached to this report. This amount is applied in the sales comparison approach for sales without solar PV.	Garage/Carport 435 Sq. Ft. @ \$ 45.00 = \$ 19,575
	Total Estimate of Cost-New = \$ 249,275
	Less Physical Functional External
	Depreciation \$10 = \$ (10)
	Depreciated Cost of Improvements = \$ 249,265
	"As-is" Value of Site Improvements = \$ 8,000
	"As is" Value of solar PV = \$ 12,000
Estimated Remaining Economic Life (HUD and VA only) 45 Years	INDICATED VALUE BY COST APPROACH = \$ 295,300

In the cost approach, solar PV value is based on the income capitalization and cost approaches. Appraisers should also develop paired data analysis if their

market has sufficient sales to develop more than one pair. The income capitalization approach should never be used alone.

Relevance to the Real Estate Agent

Agents need the same solar details contained in the Addendum to maximize marketing and sale price. The details help the appraiser in valuing houses with solar systems. Without this detail on all the sales, it becomes very difficult to develop value in an appraisal. Too often the MLS listing only indicates that solar power is present, and whether the solar power takes the form of a solar thermal water heating or solar PV system is left unclear. Without the details in the Addendum, a potential buyer cannot realize or research the benefits of the solar system. The Ei Value software allows real estate agents to register and work through the income capitalization approach to estimate a listing price. Once the solar PV description is verified and the Ei Value is developed, the worksheet can be attached to the MLS. This worksheet and the solar portion of the Addendum can be useful in marketing and assisting potential buyers in understanding the financial benefits of solar PV.

It is very important that agents identify energy-storing batteries in the MLS. Batteries are a costly feature and allow energy to be stored for use when the sun is not shining or during peak usage times when rates are higher. Some markets experience blackouts, which motivates property owners to install batteries. Having an MLS field for energy-storing batteries is important to allow appraisers to analyze the market data. A solar system with energy-storing batteries costs more and offers more benefits. Until sales data can be analyzed to confirm how the market reacts in terms of sales prices, estimating the value of solar features will continue to be a problem for appraisers and lenders.

The *Field Guide to Solar PV Energy Features* is available at <https://sites.google.com/site/appraisinghpbuildings/key-topics/solar>.

Relevance to the Lender

The loan officer should be aware if the property being mortgaged has a solar PV system, which will alert the loan officer to hire an appraiser with knowledge of solar. The details included on this page of the Addendum would allow the underwriter to understand the property's solar system and just how much energy it produces to offset the cost of energy to the borrower. It will also alert the lender to a leased system or one that is a power purchase agreement arrangement. Lenders have differing guidelines for owned systems versus non-owned systems. Knowing this up front can make the loan transaction flow much more smoothly.

PART VI. SOLAR THERMAL WATER HEATING SYSTEM

Solar Thermal Water Heating System			
Type of System	Active: <input type="checkbox"/> Direct Passive: <input type="checkbox"/> Integral collector	<input type="checkbox"/> Indirect <input type="checkbox"/> Thermo-syphon	Storage Tank Size Gallons: _____
Collector Type	<input type="checkbox"/> Flat-Plat <input type="checkbox"/> Integral <input type="checkbox"/> Evacuated-Tube Solar		System Age Years: _____
Back-Up System	<input type="checkbox"/> Conventional Water Heater <input type="checkbox"/> Tankless On Demand <input type="checkbox"/> Tankless Heat Pump		Warranty Term
Solar Energy Factor (SEF)	*Rating ranges 1 to 11. Higher number is more efficient.		Manufacturer

Instructions for Completion

The details of the solar thermal watering heating system should be described in Part VI of the Addendum. The details can be obtained from the label on the tank, the warranty, the purchase papers, or the property owner.

Relevance to the Appraiser

The appraiser needs the details of this high performing mechanical system because water heating accounts for 13% of the energy use in a home.¹⁶ The HERS Rating incorporates this efficiency. The secondary mortgage market, Fannie Mae, Freddie Mac, and FHA/HUD require a back-up system in order for the home to qualify for a

¹⁶US Energy Information Administration, *Residential Energy Consumption Survey 2005*, <http://www.eia.gov/consumption/residential/data/2005/index.php?view=microdata>.

mortgage. Some solar systems have a built-in, back-up heating unit, or a conventional water heater is installed as a back-up.

Relevance to the Real Estate Agent

Water heating details are helpful in marketing. If the water is heated with solar power, the agent should be aware if a back-up system may be required when the new buyer applies for a mortgage.

Relevance to the Lender

If this section of the Addendum is adequately completed, the underwriter will have good descriptions to understand why the appraisal may or may not have considered an adjustment for this feature. A report that simply states that solar water heating is present is not descriptive enough for the reader to understand the benefits of having a solar thermal water heating system.

PART VII. SOLAR COMMENTS

<p>Comments Discuss incentives available for new panels, condition of current panels, and any maintenance issues. If leased, provide the lease terms.</p>	<p>Discuss source of information and define other renewable energy sources, such as wind, hydropower, biomass power, etc.</p> <div style="border: 2px solid red; padding: 10px; margin: 10px 0;"> <p>The owner reported the solar PV was owned and that there was no loan on the system. They report it was paid for with cash at the time of installation. An extraordinary assumption is made assuming the ownership information is as reported by the owner and if it were found to be untrue, it could materially affect the value conclusions and require another analysis at an additional fee. (Personal property versus real estate may change.)</p> </div> <p>Note: Leased solar PV systems and Power Purchase Agreements should not be included in the value of the real property as these systems generally are considered personal property. If a system is a lease or a PPA the terms must be provided to the appraiser for analysis. Appraisers must analyze the effect any of the terms of the lease or PPA have on the price buyers are willing to pay for the property.</p>
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Instructions for Completion

This section of the Addendum is included to identify how the ownership of the solar system was verified. Only owned systems free of Uniform Commercial Code

(UCC) filings can be included in market value. When the property owner secures a solar loan that holds the system for collateral for the loan, the lender attaches a lien to identify the lender's legal interest in the collateral by filing a UCC-1 financing statement. Any assumptions made regarding the solar PV description should be recorded in this box.

Relevance to the Appraiser

The appraiser applies the extraordinary assumption noted in the sample language used in this Comments section. The comments regarding the lease and power purchase agreements are there to clarify what can be included in the market value of the real property. It is also helpful information for the underwriter.

Relevance to the Real Estate Agent

The comments in this section may be relevant to a potential buyer and to their lending institution. Completing this part of the Addendum and making it an attachment to the MLS will maximize marketing and be helpful to appraisers. This page may be the only one that applies to the property and should be attached to the MLS.

Relevance to the Lender

The comments in this section provide clarity as to the solar system's ownership status and how it was verified.

PART VIII. LOCATION-SITE

Location - Site			
The following items are considered within the appraisal analysis of the subject property:			
Walk Score	Score: _____	Source: <input type="checkbox"/> http://www.walkscore.com <input type="checkbox"/> Other: _____	
Public Transportation	<input type="checkbox"/> Bus Distance: _____ Blocks	<input type="checkbox"/> Train: Distance: _____ Blocks	<input type="checkbox"/> Subway Distance: _____ Blocks
Site	Orientation (front faces):		Landscaping:
	<input type="checkbox"/> East / West	<input type="checkbox"/> North / South	<input type="checkbox"/> Water Efficient <input type="checkbox"/> Natural <input type="checkbox"/> Pond/Lake on site <input type="checkbox"/> Rain Garden
Comments			

Instructions for Completion

The Walk Score and public transportation information (Transit Score) are easily found at the Walk Score website noted in Part VIII of the Addendum. If a home is close to public transportation and most services, occupants may not need a car. If an occupant does not need a car, the household budget need not include automobile expenses and there may be more cash to pay the mortgage or rent. Websites that advertise homes may provide their Walk Scores, Transit Scores, and Bike Scores. This is more important to buyers in some markets than others.

The landscaping features contribute to the water efficiencies of the site. The orientation is an important part of the site of a green building and is taken into consideration when designing a structure. Some may prefer a site where the rear of the house faces the south to accommodate the placement of solar panels or for swimming pool heating. The Comments section is where other features not shown in the check box section can be described. For example, some areas have certification for landscaping that is environmentally friendly and uses less water. If this applies, describe the certification and attach it to the Addendum.

Relevance to the Appraiser

The Walk Score website provides information about the site location. As the market becomes more aware of the scores, these scores may become more useful in buying

decisions. Proximity to schools, employment, and services are appraisal considerations if the market differentiates sales prices based on this feature.

Relevance to the Real Estate Agent

Agents can use these scores when their buyers are seeking homes that are close to services. Understanding these scores is important in order to explain them to the buyers. Since the websites promoting residential home sales provide these scores, buyers will also expect agents to be aware of them.

Relevance to the Lender

The lender has access to the Walk Score and may use this information in decision-making for the reasons described in the previous “Relevance to the Appraiser” section.

PART IX. INCENTIVES—AMOUNT OF INCENTIVE AND TERMS

Incentives – Amount of Incentive and Terms	
The following items are considered within the appraised value of the subject property and based on effective date of value.	
Federal	Solar Photovoltaic Systems – 30% Investment Tax Credit
State	
Local	Utility company offers up to \$1,500 for high performance air conditioning unit of 19 SEER
Comments	Incentives offset cost and should be reported and described in the cost approach section of the report. Clearly identify the incentives that offset the gross cost of construction to meet appraisal standards. Incentives are typically not a sales concession in sales comparison approach since they do not transfer with the property and are not paid by the seller. Incentives are typically for a specified period and only those available as of the date of value should be addressed in the appraisal process. Incentives may be available to offset repairs or deferred maintenance items as well. Incentives, rebates, and tax credits for most U.S. properties can be found at www.dsireusa.org

* Note: The efficiency of air conditioners is often rated by the seasonal energy efficiency ratio (SEER).

Instructions for Completion

Part IX of the Addendum asks about incentives or rebates that are currently available to offset the cost of construction. The website noted in this Comments section is a comprehensive site to research. The feature that is available for a rebate or incentive should be indicated on the proper line, showing who is paying the incentive and providing the amount of the incentive.

Relevance to the Appraiser

Incentives and rebates are for a given period or allotment of funds and do not pass to a second buyer. The seller does not give these incentives to incentivize the buyer to pay more; therefore, they are not a sales comparison concession. Incentives and rebates are given by a utility company or government agency and are an offset to cost new. The amount of the incentive/rebate should be shown, and whether the appraiser has already considered the rebate in the cost approach should be indicated. State how this has been handled in the cost approach so that lenders will avoid using the cost figure for insurance purposes. An insurance replacement cost would not deduct the incentives or rebates because they are temporary. If the structure were destroyed, the incentive may not be available at that time.

Relevance to the Real Estate Agent

The agent might find an incentive or rebate to repair or replace a feature in a home to maximize the sale price or result in a quicker sale. Houses sell quicker and often for better prices when repairs or replacements are done before listing them for sale. Agents can help their potential sellers maximize marketing by showing them ways to offset the cost to make the improvements.

Relevance to the Lender

The underwriter will be reviewing the report for appraisal standards compliance. Appraisal standards require appraisers to identify any incentives, concessions, or rebates involved. By providing the link where the details are found, the underwriter can easily follow the steps the appraiser took to verify the details.

QUESTIONS AND ANSWERS

The following questions and answers were the basis for writing this guide:

1. What are the correct standards for collecting data: a physical inspection, data from a trusted third party, or a statement from a homeowner or contractor?

Appraisers prefer a trusted third-party report and will physically inspect the property to view items that are readily available. Appraisers are not trained to verify insulation or window ratings and must rely on reports from a trusted source for those.

2. Provide clarification on the “Verification reviewed on site” check box. Does this indicate that verification was done by the appraiser, or can it indicate that verification was done by a third party as well?

This statement is primarily for the appraiser who is completing the Addendum; however, it could also apply to third-party completion. Checking that on-site verification has occurred implies that you do not have a full copy of the report.

3. Provide guidance on filling out some of the fields in the Addendum. What is the best way to fill out information if you have details on insulation in several areas of the home (such as R-values and type for attic, wall, and foundation)?

If the insulation details will not fit in the fill-in-the-blank or check box section, put them in the Comments section. It is helpful to show what code was required to illustrate how the improvement exceeds the code.

4. How does the appraiser treat an Addendum populated by a third party? Should the appraiser simply use that party’s Addendum or transcribe the information onto his or her own copy of the Addendum?

The appraiser should have sufficient knowledge of the property’s features through education, experience, or self-study to read the Addendum completed by a third-party and deem it credible. If there are areas the appraiser does not agree with or understand, the appraiser should first talk with the person who completed the form or someone with knowledge of the property. If the

appraiser does not agree with an item or rating, the appraiser can discuss the item and the reason for not agreeing with the details in the Addendum within the appraisal report. The appraiser can accept the Addendum in the format given and include it in the appraisal report. Even a form completed by hand is acceptable, but this would make it more difficult if not impossible for a database to pick up the details.

5. When a third party fills out the Addendum, who should be listed as the client?
The client section is only meant for the appraiser's use.

6. Why doesn't the Addendum include value?

It is impossible to break down the contributory value of all the house components. The Addendum was developed to describe the energy and green features used in high performance houses and standardize the terms used. New building science and technical terms can be very confusing to the entire real estate industry. Imagine how difficult the public finds it to understand the technical terms. Standardizing the terms and mapping them to the Real Estate Standards Organization (RESO) allows computer software to autopopulate data in the future. Mapping these terms to the Mortgage Industry Standards (MISMO) allows the secondary market to extract the data from the Addendum when it is uploaded in the appraisal. Currently, the secondary market does not have these features on the appraisal form or coded in the Uniform Appraisal Dataset (UAD).

7. How long does it usually take to complete the Addendum?

If the property's plans, specifications, and full energy report are available, the Addendum can be completed in 15 to 30 minutes.

8. Does the appraiser have to include the Addendum in the appraisal report?

The appraiser decides what documents should be included in the appraisal report. It is more expeditious for the appraiser to include a completed Addendum rather than try to meet appraisal standards by typing the details in a text addendum. By including the Addendum, the appraiser also has a basis

for analyzing the energy efficiency of the structure. Simply stating that a property is energy efficient and giving value to energy would be less convincing when the details of the efficiencies are not included.

9. Is it true that lenders and appraisal management companies (AMCs) do not allow the Addendum to be included in the appraisal report?

We have heard feedback that a few AMCs asked appraisers to remove the Addendum, but that is rare. In most cases, this type of circumstance can be an opportunity to educate and explain why the Addendum is included. The Addendum may be new to some AMCs; if they are reminded that appraisal standards and secondary mortgage market guidelines require appraisers to describe these features, they will usually retract their request.

10. Is it true that the appraiser must give value to the energy features if the Addendum is provided?

The Addendum does not guarantee that value will be provided for energy or green features. Appraisers must analyze their market data and support any value attributed to these features. By providing no value or indicating zero value, appraisers certify that they have analyzed that feature and have the necessary support for such a value indication.

11. Should the Addendum be completed on proposed construction? If so, how do you complete the energy rating section if the structure has not been built yet?

Yes, the appraiser typically appraises proposed construction from plans and specifications. If a projected HERS Rating is included with the Addendum, it provides the appraiser the supporting data and estimates they need to value the energy efficiency. Without a projected HERS Rating, the appraiser will not have the energy savings amount to use in valuation or in choosing comparables. Too often, specifications do not detail the energy efficient features in a way that is meaningful to the appraiser like the Addendum does. The appraiser will make the appraisal subject to a final inspection. If the projected HERS and the confirmed HERS Ratings are very different, the appraiser may need to do a reevaluation.

Note: If the included web links are no longer in place, do an internet search using the document title to find the new document location. The links were last tested in May 2018.

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