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Southeastern Mortgage Advisory Council Annual Conference

April 2017

The MAP guide specifies the required review and underwriting duties for the Lender

It is the duty of the lender to:	Guidance
"*Review and evaluate the EPA Portfolio Manager forms (SEDI or SEP)*"	Ensure the SEDI or SEP scores are reasonable
"when an energy audit is prepared …, assure that the preparer is properly qualified"	SEP and ASHRAE Level II Energy Audits must be prepared by a qualified professional, such as: • AEE Certified Energy Manager (CEM) • AEE Certified Energy Auditor (CEA) • BPI Multifamily Building Analyst (MFBA) • RESNET Home Energy Rating System (HERS) Rater • ASHRAE High Performance Building Design Professional (HPBDP)
"assess the credentials of the auditor and the reasonableness of projected utility consumption savings"	
"assess the accuracy of the needs assessor's or energy auditor's report of utilities ... and rates charged"	Ensure the utility rates and projected savings are reasonable
"calculate and incorporate in underwriting 75 percent of documented utility cost savings"	

Source: 2016 MAP Guide Appendix 5 Section G

First, what is an ENERGY STAR Score and how is it calculated?

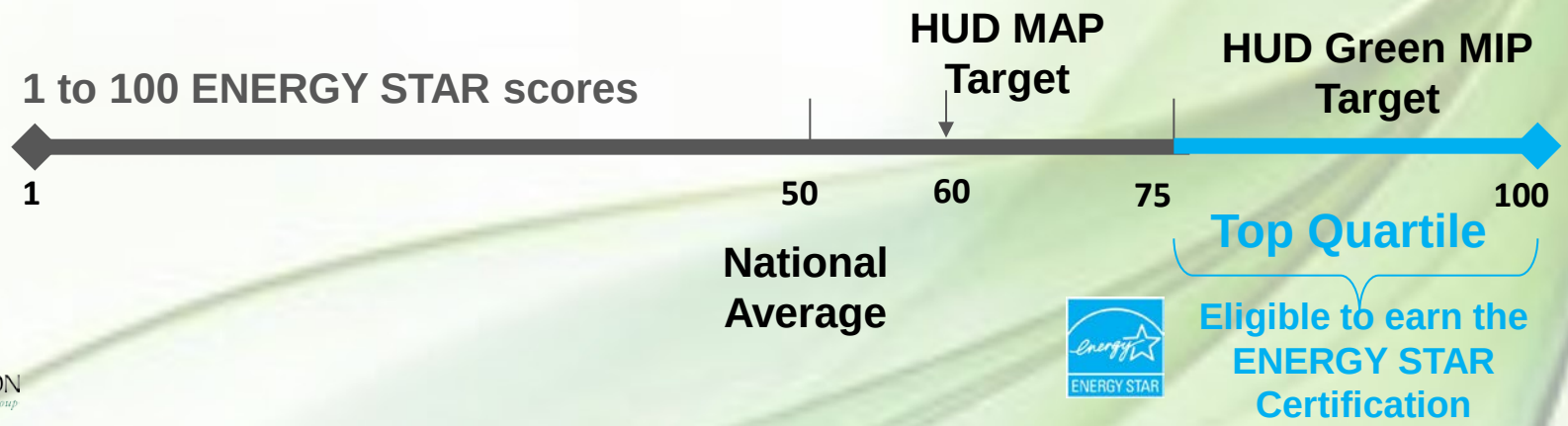
What is an ENERGY STAR Score?

- ENERGY STAR Score is a benchmark score to assess energy performance
- Used to assess existing performance or expected performance of a building design
- Multifamily scores are based at the property level and cover multiple buildings including parking and amenities
- ENERGY STAR Score is not an ENERGY STAR Certification

How is the score built?

- Property data and full 12-months of energy data is entered into ENERGY STAR Portfolio Manager
- Portfolio Manager computes the actual source energy use intensity (EUI) (kBTU/sqft)
- Portfolio Manager uses a regression model to predicted a source-EUI based on
  - Unit Density (Units/sqft)
  - Bedrooms / Unit
  - Low or Mid/High-Rise
  - Climate (HDD/CDD)
- ENERGY STAR score is assigned based on the ratio of actual to predicted source EUIs

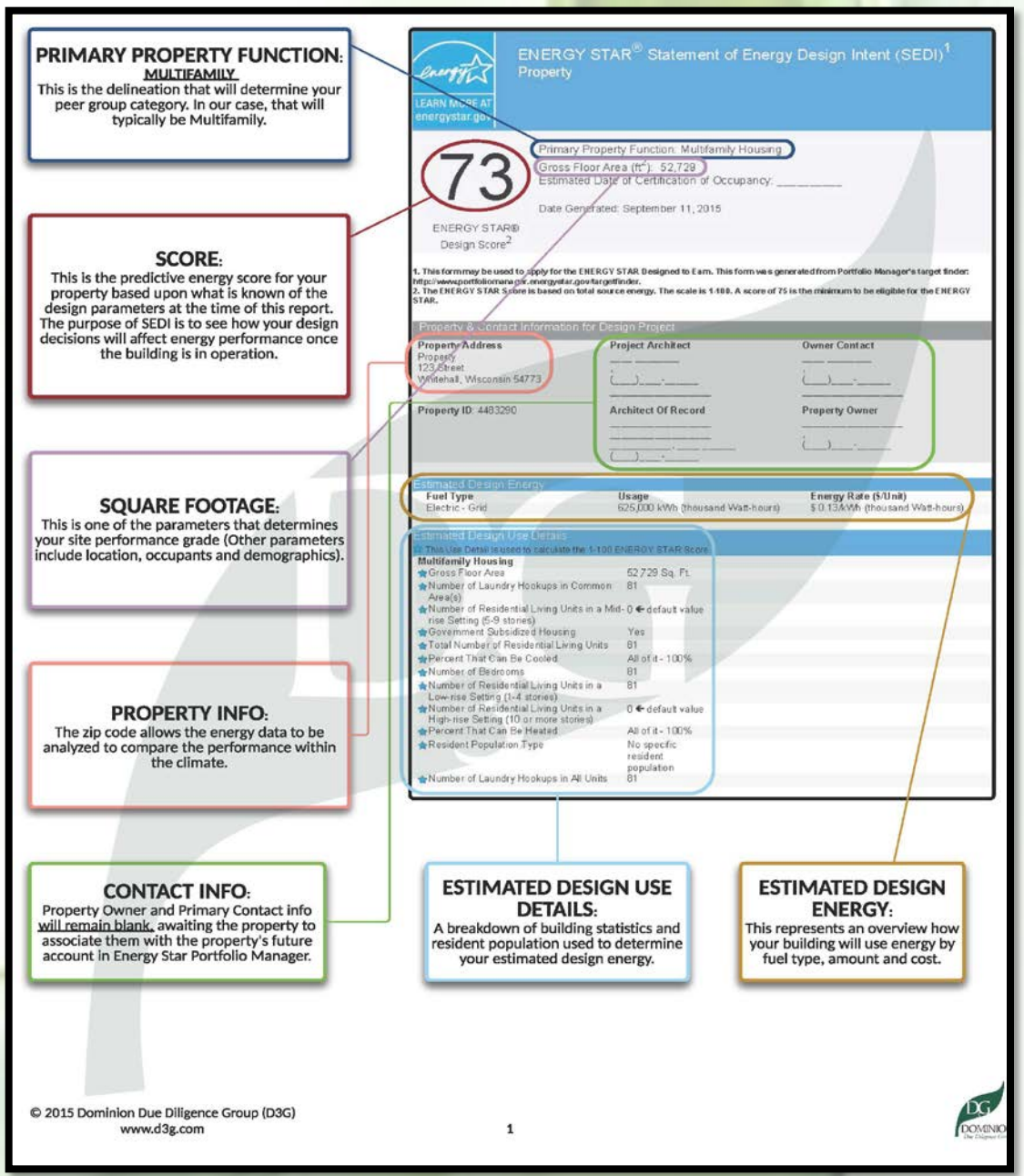
What does the score mean?



Statement of Energy Design Intent (SEDI) = Energy Benchmark of the Building/Property Design

- **Projection of future energy use, post completion of construction or energy retrofit**
- **Requires energy modeling by experienced, accredited professionals using approved modeling tools**
- **Score is only as accurate as the data input, including defined design parameters and proficiency and experience of the energy modeler**

All HUD NC and GR must have a SEDI with a score of 60 or more



Experienced, accredited modelers will ensure robust and appropriately conservative modeling

Example of how differences in modeling can impact property energy use

Modeling Parameter	Change/Explanation	Impact on Forecasted Energy Use
Complete inclusion of Multifamily amenities (e.g. heated pools), common space (clubhouse), corridors, exterior lighting, etc	Examples: Missing the common space lighting, heating/cooling or systems such as ventilation, elevators or pools	Risk of missing up to 20% of the total property energy use
Unit Selection (Bottom/Middle/Top)	Middle floor units have conditioned space above and below and thus are more energy efficient. (4% different in this scenario)	A 3-story building that was modeled with just the middle floor unit would appear to be 2.7% more efficient than a model that more accurately reflected the difference between the levels
Construction Process (infiltration rates)	Aggressive modelers may assume that the air infiltration rates are uniformly better than averages. A conservative approach assumes 0.35 air changes per hour(ACH) but a more aggressive model could claim a 0.20ACH	Aggressive assumption forecasts 2.7% less energy use
Construction Process: Insulation Installation	Changing from a grade-3 installation to a grade-1 installation	More aggressive assumption forecasts 1.2% less energy use
Occupant Behavior (Temperature Set-points)	EPA suggests set points of 70 for Heating and 75 for Cooling. Even slightly more aggressive assumptions adjusting the set-points by 2 degrees to 68 for heating and 77 for cooling	More aggressive assumption forecasts 3.2% less energy use

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Source: Analysis to demonstrate some parameters and modeling assumptions can affect an energy forecast. To avoid cherry-picking extremes this is based on an above-code Multifamily property in Virginia which represents a moderate climate

Red Flags and Reasonable Tests for reviewing SEDI report

Review for Completeness and Reasonableness

- **Incorporate all energy used which includes amenities (e.g. heated pools), common space (clubhouse), corridors, exterior lighting, etc**
- **Sufficient number of units modeled**
- **Infiltration rates should not be less than 0.28 ACH-NAT without explanation**
- **Tenant HVAC setpoints should be realistic 70 for Heating and 75 for Cooling**
- **Specifications of higher-efficiency HVAC equipment as well Energy Star appliances and lighting**

Eligibility

- **ENERGY STAR benchmarking for Multifamily Housing is only available to properties with**
  - 20 units or more (per campus, not per building)
  - In case of townhome/apt communities (townhome units must represent less than 50% of the total units the property)

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Do any of these scores seem unreasonable?

Low-rise Garden Style South East	Mid-rise Mid-West	Low-rise Garden Style North East
14 low-rise buildings 240 dwelling units 260,000 sqft	1 buildings 150 dwelling units 110,000 sqft	13 buildings 150 dwelling units 160,000 sqft
2,005 HDD 1,389 CDD	5,900 HDD 440 CDD	5,800 HDD 290 CDD
Walls: R-13 Batt Ceiling: R-30 Batt	Walls: R-20 Cellulose Ceiling: R-30 Rigid	Walls: R-21 Batt Ceiling: R-50 Blown
HVAC: 14.5 SEER/8.2 HSPF Heat Pump	HVAC: 14 SEER/8.2 HSPF Heat Pump	Heat: Natural Gas 97% AFUE AC: 17 SEER
DHW: 50 gal 0.95 EF	DHW: 40 gal 0.95 EF	DHW: 40 gal 0.95 EF
CFL/LED Lighting	LED Lighting	CFL/LED Lighting
All Appliances Energy Star	All Appliances Energy Star	All Appliances Energy Star
SEDI Score 86	**SEDI Score 84**	**SEDI Score 87**

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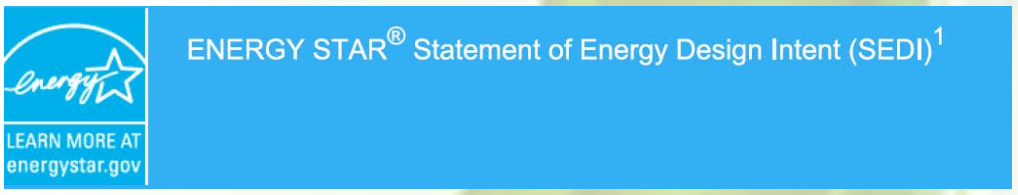
To qualify for the Green MIP, project teams can leverage the energy modeling process to identify the most cost-effective approaches to achieve a SEDI score of 75+

Case Study:
- **18 low-rise garden style buildings**
- **380 dwelling units**
- **South Region (~3,200 HDD, ~900 CDD)**



Original Design	Improved Design	Additional Options
R-38 Fiberglass Batt insulation at top-floor ceiling	R-49 Blown Insulation (air-sealing/Grade 1)	High Performance Windows and additional air sealing
HVAC 14.5 SEER / 8.2 HSPF	HVAC 16 SEER / 9+ HSPF	Incorporate Natural Gas
Few Energy Star Appliances	All Appliances Energy Star	Additional LED Lighting
Portfolio Manager SEDI Score 72	**Portfolio Manager SEDI Score 78**	**Portfolio Manager SEDI Score 80+**

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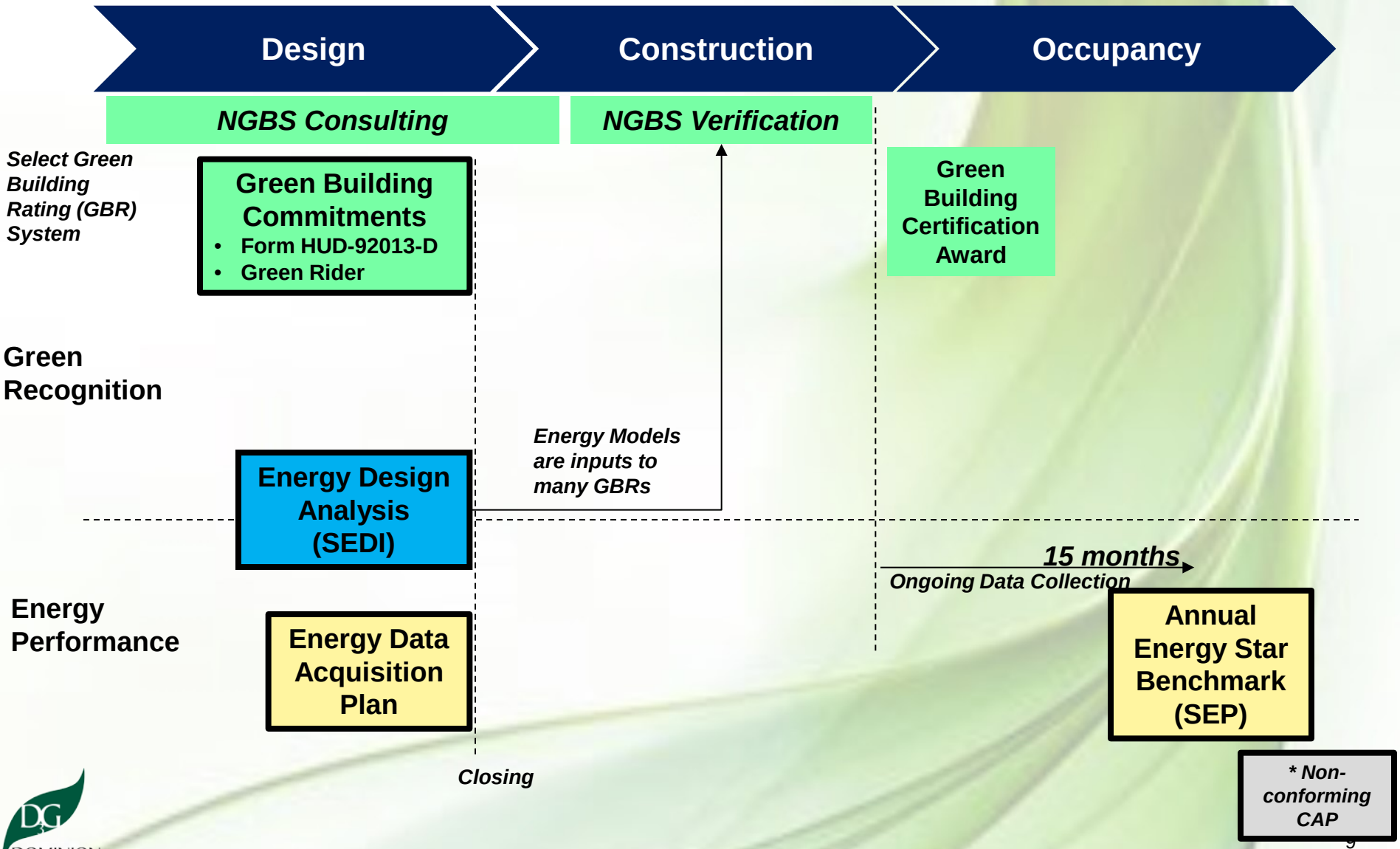
The Green MIP requirements align with the design construction process

221(d)(4) NC or Gut Rehab example



Appendix

MAP CNA e-Tool and Green MIP program require several green reports

Program	Class	MAP with CNA e-Tool	Green MIP
220, 221, 231, 241(a)	New Construction & Gut Rehab	**ARCH/COST** **SEDI** *Score must be ≥60*	**SEDI** *Score must be ≥ 75* **Green Building Cert** **Annual SEP Benchmark**
	Substantial Rehab	**CNA** **SEP** *If <60 then* **Energy Audit** *Must include cost beneficial EEMs*	**Green Building Cert** **Annual SEP Benchmark**
223, 241(a)	Repairs, Replacements, Alterations, or No Repairs	**CNA** **SEP** *If <60 then* **Energy Audit** *EEM implementation not required*	**Green Building Cert** **Annual SEP Benchmark**

SEP: Statement of Energy Performance
SEDI: Statement of Energy Design Intent

Note: Energy Audits may be required for all Existing Buildings that have retrofits and pursue the Green MIP

Green Building Certification by FHA Scope

HUD Protocol	Description	HUD Green Building Rating (GBR) Standards	GBR Timing	Benchmarking / Reporting Timing	D3G's Recommended Approach
221d4-NC	NC and Gut Rehab	Energy Star High Rise or Home LEED Home/LO/Mid Rise or High Rise Green Point Rated New Home MF Passive House Enterprise Green Communities Earthcraft House or Multifamily Earth Advantage National Green Building Standard Living Building Challenge	Substantial Completion + 3 months	Sustaining Occupancy + 15 months, then annual	Select GBR and embed GBR in design process Complete Statement of Energy Design Intent (SEDI) to ensure energy-efficiency design
221d4-SR	SubRehab (> $15000/unit or two or more building systems replaced)	Enterprise Green Communities Earthcraft House or Multifamily Earth Advantage National Green Building Standard Living Building Challenge Green Point Rated Existing Home-MF Whole Building EnerPHit	Substantial Completion + 3 months	Sustaining Occupancy + 15 months, then annual	Select GBR and embed GBR in design process Complete SEDI to ensure energy-efficiency design
223f (Repairs > 223-a7 limits)	Modest Renovations (>$1500/unit)	Enterprise Green Communities Earthcraft House or Multifamily Earth Advantage National Green Building Standard Living Building Challenge Green Point Rated Existing Home-MF Whole Building EnerPHit	Completion of Repairs + 3 months	Completion of Repairs + 15 months, then annual	Evaluate proposed renovations to assess if the renovations are sufficent to improve the energy-efficiency by 15% and track toward energy star performance of 75. If renovation plan is sufficient, select GBR, produce a SEDI pre-renovation and post-renovation to demonstrate energy savings
223f (Repairs < 223-a7 limits)	Minor Renovations (<$1500/unit)	Green Point Rated Existing Home-MF Whole Building Energy Star Existing Buildings LEED for Existing (EBOM)	Completion of Repairs + 3 months	Completion of Repairs + 15 months, then annual	Complete a Statement of Energy Performance (SEP) on sampled data; If likely to reach a score of 75 then pursue 100% of data to puruse the Energy Star EB certification. If score is >=75 secure PE to validate the property and submit Energy Star documentation
223-a7 (no retrofits)	No Renovations	Green Point Rated Existing Home-MF Whole Building Energy Star Existing Buildings LEED for Existing (EBOM)	With/before Firm Application	Endorsement + 15 months, then annual	Complete a SEP on sampled data; If likely to reach a score of 75 then pursue 100% of data to puruse the Energy Star EB certification. If score is >=75 secure PE to validate the property and submit Energy Star documentation

Note: HUD will consider other applicable green building rating systems

Source: Green MIP Reduction Notice

Green MIP requirements at closing commit the project to obtain the green certification and to conduct annual energy benchmarking

- **<u>Form HUD-92013-D:</u> Owner's Certification and Acknowledgement for Program Obligation For Broadly Affordable, Affordable, Green/Energy Efficient Multifamily Housing Mortgage Insurance Premiums**

- **<u>Statement of Energy Design Intent (SEDI)</u> showing EPA Portfolio Manager score or 75 or higher**

- **Evidence of green building certification in drawings and schedules**
  - Green Building scoring spreadsheet
  - Required milestones for the green building standard incorporated into the construction schedule (e.g. onsite verification)

- **<u>Green Rider:</u> Borrower's Obligation to Maintain Project's Energy Performance as Consideration for MIP Reduction**

- **<u>Energy Data Acquisition Plan</u> demonstrates the owner's plan to obtain energy data and complete annual Statement of Energy Performance (SEP) benchmarking in EPA Portfolio Manager**

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The Energy Modeling report should document assumptions and recommendations with the SEDI report

D3G Report/Recommendations

*Property Description	
Apartment Buildings	2
Dwelling Units	200
Gross Square Footage	207,386

Building Envelope		
Component	*As Designed	**Energy Efficiency Upgrade
Foundation	R-10 Slab Edge	R-10 Under Slab
Exterior Walls	R-13 Fiberglass Batt	Blown Insulation - Grade I Install
Windows	U 0.45/S 0.40	Energy Star
Entry Door	Steel Poly	Energy Star
Ceiling/Roof	R-38 Blown Insulation - Grade I Install	R-49 Blown Insulation - Grade I Install

Mechanical Systems		
Component	*As Designed	**Energy Efficiency Upgrade
HVAC	14.5 SEER/8.2 HSPF	16 SEER/9 HSPF
Duct System	R-6 (conditioned space) R-8 (unconditioned space)	Locate duct system in conditioned space
DHW	0.95 EF	Energy Star DHW
Kitchen Appliances	Energy Star	Exceed Energy Star
Laundry Appliances	Non Energy Star	Energy Star
Interior Lighting	Non Energy Star	Energy Star
Exterior Lighting	Non Energy Star	Energy Star
Parking Lighting	Non Energy Star	Energy Star

Performance Goals	
Component	*As Designed
Air Infiltration	0.35 ACH N
Duct Leakage	8% Total, 5% To the outside

*Inputs used in SEDI score
**Additional ways to improve SEDI score

Portfolio Manager Report (SEDI Score)

ENERGY STAR® Statement of Energy Design Intent (SEDI)[1]

LEARN MORE AT energystar.gov

65

ENERGY STAR® Design Score[2]

Primary Property Type: Multifamily Housing
Gross Floor Area (ft^2): 207,386
Estimated Date of Certification of Occupancy: _____

Date Generated: June 13, 2016

1, This form may be used to apply for the ENERGY STAR Designed to Earn, This form was generated from Portfolio Manager's target finder: http://www.portfoliomanager.energystar.gov/targetfinder.
2, The ENERGY STAR Score is based on total source energy, The scale is 1-100, A score of 75 is the minimum to be eligible for the ENERGY STAR.

Property & Contact Information for Design Project

Property Address	Project Architect	Owner Contact
	_____	_____
	(___)___-____	(___)___-____
Property ID: 5010881	Architect Of Record	Property Owner
	_____	_____
	_____, _____	(___)___-____
	(___)___-____	

Estimated Design Energy

Fuel Type	Usage	Energy Rate ($/Unit)
Electric - Grid	8,033 MBtu (million Btu)	Not Provided

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