Minnesota Overlay and Guide to the 2011 Enterprise Green Communities Criteria™

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This information will be made available in alternative format upon request.

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Chapter 1 - Overview

To create homes that are durable, healthy and efficient, Minnesota Housing and its funding partners, the Greater Minnesota Housing Fund and the Family Housing Fund, created this updated Minnesota Overlay and Guide (MN Overlay). Unless specifically noted otherwise, all projects receiving Housing Tax Credit (HTC) allocation or other capital improvement funding from Minnesota Housing must meet all requirements of the 2011 Enterprise Green Communities Criteria as amended by this MN Overlay.

This MN Overlay is subject to periodic revisions and updates. The last revised date is posted on the cover of the document.

Enterprise Green Communities Criteria (EGCC) is also subject to periodic revisions and updates. Development teams should verify they are working with the most current version of Enterprise's documents including, but not limited to, Criteria, addendums, workbooks, etc. Find the latest versions (of 2011 EGCC) and clarifications at: www.EnterpriseCommunity.org/green or http://www.enterprisecommunity.com/solutions-and-innovation/enterprise-green-communities/criteria

If a newer version of this document is released after the Initial Selection of Financing for a project, the Development team may use the EGCC version and Overlay version current at that time. As of this current MN Overlay, Minnesota Housing **has not adopted the 2015 version** of Enterprise Green Communities Criteria.

Chapter 2 - Definitions

2.01 Definitions of Project Type as set by Funding Source

Multifamily (MF) is defined as any project or Dwelling Unit (DU) where the occupant(s) are renters and do not own the property. Multifamily projects may include single family homes, duplexes, townhomes, buildings with elevators, multi-storied buildings, etc., and are generally administered by Minnesota Housing's Multifamily Division. Contact Minnesota Housing's Staff Architects for clarifications if needed. Staff Architect contact information is available on our Building Standards page.

Single Family (SF) is defined as single family homes, duplexes and townhomes where the occupant owns the dwelling and the project is administered through Minnesota Housing's Single Family Division.

2.02 Definitions of Construction Type

DELETE the *Definitions of Construction Type* on page 6 (of the 2011 EGCC) and replace with the following definitions:

A **Substantial Rehab** (or Gut Rehab) is defined as a project that includes the replacement and/or improvement of all the major systems of the building, including its envelope. The building envelope is defined as the air barrier and thermal barrier separating exterior from interior space. For Substantial Rehab projects, this could include either

- Removing materials down to the studs or structural masonry on one side of the exterior walls and subsequently improving the building envelope to meet the whole-building energy performance levels for the project type, or
- Creating a new thermal and air barrier around the building that allows the project to meet Enterprise Green Communities Criteria whole-building energy performance levels.

Note: This Substantial Rehab definition is unchanged from the original, however it's included in this overlay to allow a clear understanding of its use with the new Moderate Rehab definition.

A **Moderate Rehab** is defined as a project that does not include all major systems and building envelope work as described for Substantial Rehab nor has it been approved by Minnesota Housing as a Limited Scope Rehab.

Chapter 3 - Acronyms and Abbreviations

Impact Fund: Minnesota Housing's Single Family Community Homeownership Impact Fund

EGCC: Enterprise Green Community Criteria (2011 version unless noted otherwise)

Certification Workbook: A Microsoft Office Excel document from Enterprise Green Communities which includes Worksheet "tabs" for the Intended Methods Worksheet and Compliance Report Worksheet

CRW: Compliance Report Worksheet

HTC: Housing Tax Credits

IMW: Intended Methods Worksheet

MN Overlay: Minnesota Overlay to the Enterprise Green Communities Criteria

NSP: Neighborhood Stabilization Program (Single Family)

RLP: Rehabilitation Loan Program (Single Family)

Rehab: Rehabilitation

Chapter 4 - Certification by Enterprise Green Communities

Enterprise certification **is not required** for projects receiving Housing Tax Credits (HTC) or other Minnesota Housing funding. However, Minnesota Housing encourages all new construction and substantial rehab developments to seek certification. If the development team is required by others to certify their project or if the team voluntarily decides to pursue Enterprise certification, Minnesota Housing should be notified in writing of this intent. Submittal requirements are simplified for projects pursuing Enterprise certification; see Chapter 6 *Submittals* for details.

Enterprise should be consulted early in the process if a certification path is pursued. Revisions to the EGCC as outlined in this overlay and guide are minimum requirements for Minnesota Housing funded projects and may not meet all requirements required for Enterprise certification.

Chapter 5 - How to Use This Document

This Minnesota Overlay and Guide to the 2011 EGCC (MN Overlay) applies to all Multifamily (MF) and Single Family (SF) new construction, substantial/gut rehab, and moderate rehab projects requesting and receiving Minnesota Housing financing. It's designed to be used in conjunction with the 2011 EGCC (available on the Enterprise website). The items listed within this MN Overlay modify or replace the corresponding item of the 2011 EGCC.

The 2011 EGCC and this MN Overlay are applied in different ways.

- The EGCC is applied based on the structure type (Single Family, Low-rise Multifamily, and Mid/High-rise Multifamily).
- It's also based on Minnesota Housing's definition of Multifamily (MF) and Single Family (SF) funded projects.
  - Single Family funded projects shall meet all requirements under SF for applicable criteria.
  - Multifamily funded projects shall meet all requirements under the MF for applicable criteria.

Minimum Criteria

"Mandatory" Criteria and "Optional" (points) Criteria are required for Minnesota Housing funded MF and SF projects per Table 5.01.

Table 5.01 Mandatory and Optional Criteria

Construction Type	Required Mandatory Criteria	Required Optional (points) Criteria	Certification
Multifamily (MF)			
MF New Construction	Yes	Yes, at least (35)	Encouraged, but not required.
MF Substantial Rehab	Yes [1, 2]	Yes, at least (15)[4]	Encouraged, but not required.
MF Moderate Rehab	Yes [1,2,] See Table 5.02	Yes, at least (15)[4]	Encouraged, but not required.
Single Family (SF)			
SF New Construction	Yes	No[5]	Encouraged, but not required.
SF (All acquisition/ rehab)	Yes 1,[2, 3,] See Table 5.02	No	Encouraged, but not required.

Table 5.01 Footnotes:

1. Any improvements made at the time of construction are required to comply with the corresponding "Mandatory" Criteria, except when the Criteria specifically denote "New Construction only." For example, compliance is required for new finishes, replacement of equipment, building components, mechanical systems, electrical systems, assembly of components, and other if replacement is in the project's scope of work.
2. Existing equipment, plumbing fixtures, and/or appliances that remain (not improved) are exempt from meeting New Construction requirements. Exception, see Criteria 4.1 of this Overlay for specific age and efficiency requirements for existing plumbing fixtures.
3. For SF Acquisition/Rehab under the NSP and RLP programs, refer to the applicable program procedural manual for rehab requirements.

4. In addition to the "Mandatory" Criteria, fifteen (15) "Optional" points are required. Thirty (30) "Optional" points are strongly encouraged.
5. Although not required (35) "Optional" points are strongly encouraged. To effectively identify and encourage sustainability, a technical assistance (TA) meeting shall be conducted with the Owner, Builder (if selected), and a Minnesota Housing Staff Architect via teleconference or via face-to-face meeting if identified by Minnesota Housing as useful for the project. This TA meeting shall take place after selection/ award of funding, yet prior to finalized bidding and construction to affectively incorporate strategies, where applicable.

Table 5.02 Minimum Mandatory Criteria for MF & SF Acquisition/ Mod Rehab

Criteria No.	2011 Enterprise Green Communities Criteria	MF Moderate Rehab	SF Impact Fund Acquisition/ Mod Rehab
1.1a	Green Development Plan: Integration Meeting(s)	Yes	Yes
1.1b	Green Development Plan: Criteria Documentation	Yes	Yes
3.1	Environmental Remediation	Yes	Yes
4.1	Water-Conserving Fixtures	Yes	Yes
5.1c	Building Performance Standard: Rehab 3 Stories or less	Yes	Yes
5.1d	Building Performance Standard: Rehab 4 Stories or more	Yes	N/A
5.5	Lighting	Yes	Yes
7.6b	Ventilation	Yes	No
7.8	Combustion Equipment: IF natural draft equipment is present in individual dwelling units	Yes	Yes
7.11	Radon Mitigation	Yes	Yes
7.15	Lead-Safe Work Practices	Yes	Yes
8.1	Building Maintenance Manual	Yes	No
8.2	Resident Manual	Yes	Yes
8.3	Resident and Property Manager Orientation	Yes	Yes

Chapter 6 - Submittals

Table 6.01 Multifamily and Single Family Submittals and Documentation

All items indicated as "Yes" must be submitted to Minnesota Housing. Items indicated as "File" should not be submitted, but should be kept on file with the Administrator per footnote #1.

Documentation Requirement	Multifamily Phase				Single Family Phase			
	Initial Application	Intake Meeting	Loan Commitment/ Loan Closing	End of Const.	Impact Fund Initial Application	Impact Fund Post-Board Approval	Impact Fund End of Construction	Non-Impact Fund/ Other Programs
Impact Fund 2011 Enterprise Green Communities Criteria Checklist					Yes[3]			
Intended Methods Worksheet in an electronic Excel format OR documented commitment to Certify through Enterprise	Yes		Yes			Yes		
Enterprise Waiver Request	Yes[2]					Yes[2]		
Water Efficiency Improvement Plan (Criterion 4.1)		Yes[2]				File[1,2]		
Energy Efficiency Improvement Plan (SF Criterion 5.1b)						File[1,2]		
Blower Door Test			Yes[6]			File[1,2]	File[1,2]	
Energy Star Thermal Enclosure System Checklist			Yes[6]			File[1,2]		
HERS Rating Report/ Energy Model Energy Star for Homes			Yes[6]			File[1,2]		
5.1b Energy Model and other LEED for Homes MF Midrise Alt Compliance Path Submittals if applicable			Yes[6]					
Criteria 5.1c & 5.1d Prescriptive Path Requirements Summary & 3rd Party Verification of insulation levels			Yes[6]					
Integrated Design Meeting/ Charrette documentation			Yes				File[1]	
5.1 Compliance As-built Energy Model, LEED for Homes MF Midrise Alt Compliance Path Submittals, proof of Energy Star MFHR Certification, and/ or proof of Green Communities Certification.				Yes[6]				
Criteria 5.1c & 5.1d Prescriptive Path Post-construction infrared blower door testing Post-construction duct leakage testing				Yes[6]				
Compliance Report Worksheet form electronic PDF (8 ½ "x14" horizontal format) with signatures AND an electronic Excel format version				Yes			File[1]	
Home Energy Rating Certificate				Yes[6]			File[1,4,6]	
See applicable Single Family program procedural manual								Yes

Table 6.01 Footnotes:

1. Documents shall not be submitted unless requested by Minnesota Housing. The Administrator will retain this document in a project file for compliance.
2. Only required if applicable.
3. For SF Impact fund, the applicant may submit the "Intended Methods Worksheet" in Lieu of the "Impact Fund 2011 Enterprise Green Communities Checklist".
4. Single Family New Construction and Single Family Substantial Acquisition/ Rehab only.
5. For projects voluntarily seeking certification through Enterprise, documentation of registration on Enterprise's Web Portal, including compliance of all mandatory items and optional points achieved, and documentation of final Enterprise certification, may be used in lieu of the Intended Methods Worksheet.
6. For MF, see performance or prescriptive path with in Criteria 5.1 (a, b, c, or d) for applicable energy performance. For SF, see Criteria 5.1a or c.

6.02 Single Family Impact Fund

The Impact Fund "2011 Enterprise Green Communities Criteria Checklist" is available for download at Single Family Community Homeownership Impact Fund webpage.

6.03 Enterprise Green Communities Criteria Certification

If seeking EGCC Certification, provide:

- The Enterprise "Proof of Registration" or "Prebuild Approval Notification" forms prior to:
  - Loan Commitment for End Loans
  - Loan Closing for Construction Loans
  - Submittal of 100% Plan Review Contract Documents for Housing Tax Credit (HTC) Only projects
- The "Evidence of Enterprise Certification" at:
  - End of Construction
  - Prior to IRS 8609 Form submittal for HTC only projects

Chapter 7 – Instructions

For projects voluntarily seeking certification through Enterprise, the following instructions **do not** apply. These instructions are only for projects completing the Intended Methods Worksheet and Compliance Report Worksheet submittal documents.

1. For the **Initial Application phase**, all MF developments (and optional for SF developments for the Impact Fund) seeking funding from Minnesota Housing should download the Certification Workbook at http://www.mngreencommunities.org/publications/ or at the Minnesota Housing Building Standards web page.
2. Once the **Certification Workbook** is accessed:
    a. Open the Certification Workbook (Microsoft Excel spreadsheet) and save on your computer.
    b. Start on the "Project Overview" tab on the bottom of the spreadsheet.
    c. Complete the top portion, including project name, address, etc. This information automatically updates on the other tabs.
3. **Intended Methods Worksheet**. For Minnesota Housing Initial Application Phase (or Post-Board Approval Phase for the Impact Fund), go to the "Intended Methods" tab on the bottom of the spreadsheet.
    a. Complete the pull-down menus and other input information as applicable to your project.
    b. The third column "If necessary, provide additional information or explanation of alternative approach to meeting this measure" should be completed and used to describe a more detailed explanation of the intended method to comply with the Criteria. The pull-down menu items under "How Criterion will be implemented" must be supplemented with a more detailed explanation.
    c. Optional Criteria points should be entered in the pull-down "Intended Points" column. The points will automatically tabulate a subtotal by section and a project total at the end.
    d. Once complete, insert electronic signatures and submit a Microsoft Excel (.xls) format version.
4. Updated **Intended Methods Worksheet**. For Minnesota Housing Loan Commitment/Closing Phase:
    a. Re-open the Certification Workbook previously saved on your computer. Create another document by doing a "Save As" for this phase.
    b. Go to the "Intended Methods" tab. Update the Criteria as needed to align with the plans and specifications.
    c. The "Criteria Documentation" column should be completed with specification sections and plans sheet numbers included as applicable.
    d. Once complete, insert electronic signatures and submit:
        i. A PDF version in a horizontal, 8 ½" x 14" legal size format, and
        ii. A Microsoft Excel (.xls) format version.
5. **Compliance Report Worksheet**. For Minnesota Housing End of Construction Phase:
    a. Re-open the Microsoft Excel spreadsheet Certification Workbook previously saved on your computer. Create another document by doing a "Save As" for this phase.

b. Go to the “Compliance Report” tab. Update the criteria as needed to align with as-built conditions. Also, update the “If necessary explain how the project deviated from the intended optional points laid out on the Intended Methods worksheet” section.

c. Go to the “Cost Development” tab. Complete the “Green Communities Cost Development Worksheet.”

6. Once complete, insert electronic signatures and submit:

   a. A PDF version in a horizontal, 8 ½” x 14” legal size format, and

   b. A Microsoft Excel (.xls) format version.

Chapter 8 – Other Information

8.01 Exemptions and Waivers

Compliance with specific Criteria may be waived if the borrower/developer/architect can demonstrate that the Criteria creates a tangible hardship or is inadvisable for a specific project. Alternate means of meeting specific Criteria intent will also be considered, if applicable. Waiver requests should be submitted to Minnesota Housing on an Enterprise Waiver Request Form available on the Minnesota Housing Building Standards web page.

8.02 Conflicting Requirements

The most restrictive requirement applies when requirements outlined in this document conflict with other local, state or federal requirements (codes, ordinances, regulations, standards, etc.). Such conflicts should be coordinated with the local building official, zoning administrator, fire marshal, or other entity with jurisdiction in said area.

8.03 Combined New Construction and Rehab

Where a single project/site includes a new building and a rehab building, a separate "Intended Methods Worksheet" must be provided for each construction type. Under this condition, the following applies:

1. The Optional points are limited to a minimum of (15) for each.
2. For non-residential new construction buildings (i.e. community buildings), compliance with Criteria 5.1a must have an "As-Designed" HERS Index equal to or less than the "Energy Star HERS Index of Referenced Design Home" with Size Adjustment Factor.
3. Optional points under Criteria 5.2 can only be claimed for the new construction building and based upon the difference between the "HERS Index Target (with Size Adjustment Factor) and the "As-Designed" HERS Index.

8.04 Energy Raters and Auditors

If an Energy Star Rater, Field Inspector, or Energy Auditor is required, such individual and/or entity must be a Third Party Provider and cannot be associated with the architect, design engineer, borrower, owner, contractor, or any other entity with an identity of interest.

> **Clarification: Rater vs. Auditor.** An Energy Rater and/or HERS Rater is a RESNET Certified individual. The Department of Energy's ENERGY STAR programs requires an Energy Rater/ HERS Rater to be RESNET Certified. An Energy Auditor is not necessarily a certified rater, but does have experience in energy auditing. An Energy Auditor cannot provide services for ENERGY STAR, but they can do an energy audit and create an Energy Efficiency Improvement Plan.

8.05 Resources and Links

For Technical Assistance:

- Minnesota Housing Documents and Staff Architect Contact Information: Minnesota Housing Building Standards web page
- Minnesota Green Communities: http://mngreencommunities.org/
- Enterprise Green Communities: www.EnterpriseCommunity.org/green

Contractor Directories:

- Energy Rater in Minnesota: http://www.energystar.gov/index.cfm?fuseaction=estar_partner_list.showPartnerSearch

- RESNET Home Energy Raters: http://www.resnet.us/directory/search/searchtype/auditor/zip/mn/trade_id/89/slug/home-energy-raters-hers-raters/page/1
- ENERGY STAR certified HVAC contractors check both the ACCA and Advanced Energy listings: http://www.advancedenergy.org/hvac/members.php and http://www.acca.org/qa/directory/new-homes
- Minnesota Department of Health Radon Mitigation Contractors: http://www.health.state.mn.us/divs/eh/indoorair/radon/mitigation.html

Technical Resources:

- AARST-ANSI Radon Measurement and Mitigation EPA Protocols: http://www.aarst.org/bookstore.shtml
- Building Performance Institute (BPI): http://www.bpi.org/
- Minnesota Building Performance Association Website for finding Minnesota raters and auditors: http://mbpa.us/
- Minnesota Weatherization Field Guide: http://mn.gov/commerce/energy/images/Weatherization-Field-Guide.pdf
- Minnesota Weatherization Policy Manual: http://mn.gov/commerce/energy/service-providers/For-WAP-Providers/Weatherization-Manual.jsp
- Radon in Minnesota Homes: http://www.health.state.mn.us/divs/eh/indoorair/radon/index.html
- Radon Technical Assistance:

  Minnesota Department of Health
  Indoor Environments & Radiation Section, Indoor Air Unit
  PO Box 64975
  St. Paul, MN 55164-0975
  Phone: 651-201-4601 or 800-798-9050
  Fax: 651-201-4606 / TTY: 651-201-5797
  http://www.radon.com/sub/mn/
- RESNET: http://www.resnet.us/

Chapter 9 - Overlay to Criteria

The following revisions, additions, and/or clarifications to the 2011 EGCC shall be applied to Minnesota Housing funded projects including those receiving HTC only allocations:

Section 2: Location + Neighborhood Fabric

Criteria 2.12: Access to Fresh, Local Foods (Optional/6 points)

Available for all projects. If using Option 3:

MODIFY: REQUIREMENTS as follows:

REQUIREMENTS
Multifamily (MF) and Single Family (SF)
Option 3: Proximity to Farmers Market.

DELETE: The second sentence, "Farmers market vendors may sell only items grown within 150 mile of the project site."

Section 3: Site Improvements

Criteria 3.1: Environmental Remediation (Mandatory)

DELETE: REQUIREMENTS and replace with modified text as follows:

REQUIREMENTS
Multifamily (MF)
All multifamily projects must follow Minnesota Housing's Multifamily (MF) Environmental Standards.

Single Family (SF)

1. All single family projects: Shall conduct a Phase I Environmental Site Assessment (ESA) if any and/or all of the following conditions apply:
    a. Sites with five or more units where there has been a change in land use from industrial, commercial, institutional or agricultural to residential;
    b. For new construction, where each individual residence/dwelling unit is not connected to a city water supply;
    c. For rehab, where the unit is neither connected to city water supply or an existing active well;
    d. Where required as a condition of acquisition/purchase.
2. Exception: Developments of five or more new units on previous residential land uses are exempt from the conducting a Phase I ESA.

Section 4: Water Conservation

Criteria 4.1: Water Conserving Fixtures (Mandatory)

For all projects:

Under REQUIREMENTS, **DELETE**: the last sentence which states "Substantial and Moderate Rehab projects must replace or retrofit all fixtures to meet flow rates above."

ADD: In its place, the following text:

Multifamily (MF)
New Construction and Substantial Rehab:
Provide new water-conserving fixtures as per the Criteria. No Overlay.

Moderate Rehab:
If an Effective Remaining Life (ERL) of any plumbing fixture is **less than 7 years**, these fixture(s) shall be replaced or retrofitted to comply with the Criteria.

If the ERL of any plumbing fixture is **7 years or more**, it shall be the Owner's option to complete one of the following Options:

1. Option 1: Provide a Water Efficiency Improvement Plan which identifies all plumbing fixtures proposed to remain. Generate a list of prioritized cost effective improvements which essentially becomes the "work scope". Implement the improvements which provide a cost benefit of two years or less. This plan should be developed after the funding has been awarded. The "Plan" shall include the following data:
    a. Assess water consumption of existing fixtures using a sample protocol of 5% or one per different unit type (whichever is greater):
        i. Toilets dated before 1994 or toilets without a printed gpf equal to or less than 1.6 gpf shall be replaced.
        ii. Conduct a Flow Rate Test for showerheads, bathroom faucets, and kitchen faucets. Turn on the fixture at its normal position. Place a container under the fixture and collect the water for 30 seconds. Measure the quantity of water in the container in gallons (e.g. 1.3 gallons), multiply that amount by two to get the gpm rate (e.g. 1.3 gallons x 2 = 2.6)
2. Option 2: Replace all fixtures to comply with the 2011 EGCC Criteria.

Single Family (SF)

1. New Construction and Substantial Rehab: No Overlay. Provide new water-conserving fixtures as per the Criteria.
2. Acquisition/ Moderate Rehab:

    Follow the Criteria Overlay as noted above for Multifamily Moderate Rehab. The Effective Remaining Life shall be field verified to confirm the age of each fixture. All dwelling units and all fixtures shall have the manufacture date and flow rate verified. Disregard the 5% sample protocol.

Section 5: Energy Efficiency

General Notes applicable to Multifamily Criteria 5.1

It is acceptable to use one pathway for the initial application phase and switch to another pathway after funds are awarded. In that event, the work scope must be re-evaluated and redefined based upon the recommendations and findings of the pathway used. Changes in scope are subject to approval by Minnesota Housing.

Criteria 5.1a: Building Performance Standard (Mandatory)

New Construction: Single family and multifamily buildings, three stories or fewer

MODIFY: REQUIREMENTS to add the following text:

At the time of this publication, Enterprise acknowledges that Minnesota may not have a sufficient number of Heating Ventilating and Air Conditioning (HVAC) Contractors certified by the Air Conditioner Contractors of America (ACCA) and Advanced Energy. This is a requirement of ENERGY STAR Qualified Homes (Version 3.0). If a sufficient number of ACCA/Advanced Energy certified HVAC contractors are not available in Minnesota when a project is in the process of ENERGY STAR Certification, Enterprise and Minnesota Housing **will not** require these contractors to be ACCA/Advanced Energy certified. Projects will still be required to meet all other requirements under ENERGY STAR Qualified Homes 3.0 (or current Version), including the checklists.

Multifamily (MF)

1. If following the "Performance Path" for a building with multiple units and common systems, energy modeling may ignore all common area spaces and apply the common system efficiency ratings to the typical unit's system efficiencies.
2. Under the "Prescriptive Path", it is acceptable when using common systems not addressed in the ENERGY STAR Qualified Homes 3.0 (or current Version), to use systems identified in the Prescriptive Path of ENERGY STAR Multifamily High Rise Guidelines (MFHR)

Single Family (SF)

No Overlay. New construction single family homes shall comply with the EGCC criterion.

Criteria 5.1b: Building Performance Standard (Mandatory)

New Construction: Multifamily buildings, four stories or more

Multifamily (MF) Only

ADD: the following CLARIFICATION

Buildings with or without heated garages shall meet ES MFHR Mandatory Requirements with an energy performance at least 15% better than ASHRAE 90.1-2010.

All buildings under this criterion **must** use a Performance Pathway with Energy Model as described herein which best matches their building type. ES MFHR **does not** have a Prescriptive Method for ASHRAE 90.1-2010. See the EPA's Energy Star website for ES MFHR approved energy model software.

MODIFY: the current criteria REQUIREMENTS to read:

Buildings Four Stories or more must follow one of the following Compliance Paths for compliance:

1. **Buildings Four Stories or more <u>WITH</u> Heated Garages;** are not eligible for ES MFHR Certification or EGGC Certification, therefore these buildings shall submit the following directly to Minnesota Housing:
   - **Step I: Prebuild**
     - Follow the ES MFHR performance path and submit a Preliminary Enterprise Green Communities *Energy Performance Report Form*, or other Minnesota Housing approved report completed by an Energy Design professional. The report shall demonstrate that the project is designed to the standards of Energy Star MFHR performance pathway and will perform at least 15% better than ASHRAE 90.1-2010.
       - At a minimum the report should include:
         - General Information
         - Building Modeled Energy Consumption
         - Building Modeled Costs
         - Energy Improvements
       - The report is strongly encouraged to include a process to determine cost effective energy reduction methods. Measures (or bundles) with a payback of 10 years of less shall be selected and included in the final building design.
   - **During Construction**
     - For verification of targeted energy results, follow the *LEED for Homes Multifamily Midrise Alternative Compliance Path* (available at 2011 Enterprise Green Communities Criteria Updates web page) which includes:
       - *Energy and Atmosphere Prerequisite 1 – LEED for Homes Multifamily Mid-Rise*
         - Limit Duct Air Leakage
         - Fundamental Commissioning of Central HVAC Systems
         - Construction Document Specifications
     - *LEED for Homes Multi-Family Mid-Rise Thermal Enclosure Inspection Checklist*
   - **Step II: Post-build**
     - Follow the ES MFHR performance path and submit a revised post-construction Enterprise Green Communities *Energy Performance Report Form*, or other Minnesota Housing approved report completed by an Energy Design professional. The report shall demonstrate that the project has achieved a performance level at least 15% better than ASHRAE 90.1-2010.
     - Provide a letter confirming that the LEED for Homes Multifamily Midrise Alternative Compliance Path protocols were followed signed by a design professional of the project team. Include performance percentage better than ASHRAE 90.1-2010, duct leakage results, commissioning report results, etc.
     - Provide A completed copy of the *LEED for Homes Multi-Family Mid-Rise Thermal Enclosure Inspection Checklist.*

2. **Buildings Four Stories or more <u>WITHOUT</u> Heated Garages;** may be eligible for ES MFHR Certification and EGCC Certification. Therefore compliance with 5.1b shall be demonstrated via one of the following pathways:
   - **Pathway 1 – ES MFHR Certification**
     - Under this pathway Minnesota Housing shall be notified of intent to certify through ES MFHR at the application phase. ES MFHR shall be engaged and proof of

registration with ES MFHR shall be provided. Submit compliance demonstrated with an ES MFHR Certification Certificate after construction completion.

- **Pathway 2 – EGCC Certification**
  - Under this pathway Minnesota Housing shall be notified of intent to certify through EGGC at the application phase. EGCC shall be engaged and compliance demonstrated with an EGCC Certification after construction completion.
- **Pathway 3 - Minnesota Housing Submission**
  - Under this pathway, neither ES MFHR nor EGCC are engaged and the project will not be certified. Instead the project shall follow the submission requirements to Minnesota Housing noted in the "Buildings 4 Stories or more WITH Heated Garages" of this criteria overlay (above).

3. **Buildings Four Stories or more WITH or WITHOUT heated garages**, in which all units have their own heating, cooling and hot water heating systems that are separate from other units, may choose to comply with Criterion 5.1a but shall meet the requirements of Energy Star New Homes (current applicable version in Minnesota).

EGCC Certification Exception. For projects seeking EGCC Certification, the Alternative Compliance Pathway for Criteria 5.1b is available at 2011 Enterprise Green Communities Criteria Updates web page.

Heated Underground Garages Prerequisites
New construction properties with heated underground garages (including heated garage above grade with conditioned space above) must include the following prerequisites strategies:

- Insulate the ceiling of the garage/ floor of first level to meet ASHRAE 55-2004
- Reduce garage temperature set point to 40 degrees Fahrenheit
- CO & NOx Detection
- Other applicable code requirements

RECOMMENDATIONS
ADD: the following:

The following are suggested strategies for optimizing building performance for all types of buildings with heated garages):

- Where possible, design the ramp entrance/exit such that exterior ice melting systems are not required
- Exceed code required control of garage lighting with occupancy sensors
- Separately meter the garage heating, lighting, and snowmelt systems
- Variable Speed MUA/ Exhaust fans combined with staged control based on a number of CO sensors activated
- Sensible heat recovery from miscellaneous building systems

ADD: the following:

General Notes applicable to Multifamily Criteria 5.1c & 5.1d
Development teams are encouraged to complete a **walk-through audit** when developing application budgets in order ensure required energy efficiency; ventilation and combustion safety requirements can meet Criteria requirements.

Criteria 5.1c: Building Performance Standard (Mandatory)

Substantial and Moderate-Rehab: Single-family and multifamily, three stories or fewer

MODIFY: REQUIREMENTS to add the following text:

Multifamily (MF)

1. Substantial and Gut Rehab: No Overlay. Projects shall meet the requirements of the Criteria as written.
2. Moderate Rehab projects shall meet the requirements by following the Performance, Prescriptive **or** Project-Specific pathway:

   Performance Pathway for Three stories or fewer, built before 1980: Achieve a Home Energy Rating System (HERS) Index of 100 or less. Follow the Criteria "RECOMMENDATIONS" for testing and for a HERS Certificate. If mechanical equipment is being replaced, it shall be per the *Enterprise Building Performance Standard 5.1c: Guidelines for Moderate and Substantial Rehab Projects Addendum* available online at: Green Communities Criteria web site.

   Performance Pathway for Three stories or fewer, built after 1980: Follow Criteria Requirements and Recommendations. No Overlay. Demonstrate HERS Index of 85 or less through energy modeling that generates a Home Energy Rating certificate.

   Prescriptive Pathway:

   When using this Prescriptive Pathway, demonstrating energy performance in terms of a HERS index is not required.

   If mechanical equipment is being replaced, it shall be per the *Enterprise Building Performance Standard 5.1c: Guidelines for Moderate and Substantial Rehab Projects Addendum* online at: Green Communities Criteria web site.

   To comply with Criterion 5.1c using this pathway, disclose to Minnesota Housing (prior to Loan Commitment) that this is the pathway the project team is pursuing as well as information regarding impacts to scope of work.

   Under this pathway, properties shall meet the following prescriptive pathway standards, as applicable:

   a. Pitched-roof attics with enough space to allow access shall meet the following insulation and attic bypass air sealing requirements:

      1. Conduct third-party verification of existing insulation levels. Verification shall be performed by an individual certified by the Building Performance Institute (BPI), an individual certified by RESNET, a licensed architect, a licensed professional engineer, or other qualified individual approved by Minnesota Housing.
      2. Follow the *BPI Building Analyst Standards (refer to Technical Resources in Chapter 8)* when checking insulation levels. Use Typical Insulation R0Value (page 7), which assumes the following:
         i. R3.7/inch for blown cellulose
         ii. R3.0/inch for un-faced, unmarked batt insulation
      3. Insulate attics to a minimum code R-Value of R49 as follows:
         i. In electronically-heated properties with existing insulation less than R39.

ii. In gas-heated properties with existing insulation less than R30.

iii. Additional insulation and air sealing is not required in existing attics with insulation at or above these thresholds

4. Conduct attic bypass air sealing when insulation is required to be added. Bypass is defined as any building air leakage pathway between conditioned and unconditioned areas. Attic bypass locations include, but are not limited to chimney chases, combustion/soil stack chases, open wall tops, dropped ceilings, open plumbing walls, beneath knee walls, around ductwork, electrical work and attic access points. Attic bypasses shall be sealed in such a manner that the movement of air is "Essentially Stopped". "Essentially Stopped" means that air leakage will not be detected by an infrared scan when the house (or dwelling unit) is depressurized at 25 Pacals. Materials used for bypass sealing are determined by the size and location of the bypass. These materials include high quality caulking (with 20-year life span), polyethylene rod stock, spray foam, gypsum board, sheet metal, extruded polystyrene insulation, and densely packed insulation.

5. Verify any new attic bypass air sealing with post-construction visual inspection, infrared scan, and blower door test to ensure proper air sealing. Testing shall be as follows:

i. Test one in four (1:4) upper level units after air sealing is complete.

ii. If any tests fail, all upper level units shall be tested.

iii. The test shall consist of an infrared camera scan performed with the unit depressurized to 25 Pacals with respect to the outdoors.

iv. The cubic feet per minute (CFM) 25 does not need to be recorded.

v. Any failures shall be reported to Minnesota Housing and re-tested once correction has been completed.

vi. A failure is any bypass which is not "Essentially Stopped".

b. HVAC shall meet the following post-construction requirements:

1. Ductwork carrying conditioned air in pitched roof attics with enough space to allow access shall comply with the following requirements:

i. Insulate and air seal return and supply ductwork in compliance with ASHRAE 90.1-2010, Or to a minimum R-Value of R8. Confirm air sealing with duct leakage testing showing less than 8 CFM to the outside 100 sq. ft. of conditioned space.

ii. HVAC ductwork serving only common space, use only the common space to determine leakage.

iii. Insulate and air seal exhaust ductwork.

c. Exterior walls with a wall cavity of 3.5" or greater, AND with no existing insulation:

1. Insulate walls to capacity. Insulation voids must be less than 5% of insulated area or the voids must be corrected. Verify insulation installation with infrared camera.

2. Occupied buildings with masonry at all exterior walls are excluded from this requirement.

d. Equipment or systems shall meet the following post-construction requirements:

1. Hot Water Boiler space Heating System: Install outdoor air reset controls to automatically adjust supply water temperature.
2. Exposed Boiler Pipes: Shall be insulated in compliance with ASHRAE 90.1-2010
3. Domestic hot water boiler and space heating boiler system tune-ups: Confirm completion within the past 5 years if any boiler units are to remain in the building.
4. Forced air system tune-ups: Confirm completion within the past 2 years if any forced air units are to remain in the building
5. New Air Handlers: Air conditioners, furnaces, and other models with air handlers installed as part of the scope of work shall have Electrically Commutated Motors (ECM's) if available.
6. Provide insulated covers for existing or new through-wall air conditioner (AC) sleeves. The covers shall fit the AC sleeves and AC units properly and seal tightly to the wall.

Project Specific Strategy: Project teams may request pre-approval of an alternative, project-specific strategy. If pre-approval is granted, the plan must demonstrate an approach that will provide sufficient assessment and implementation of energy improvements. Proposals must include details on the intent and rationale for an alternative approach and shall be subject to final approval by Minnesota Housing

Single Family (SF)

1. For all Acquisition/ Substantial and Acquisition/ Moderate Rehab, create and implement an Energy Efficiency Improvement Plan containing the following:
    a. Generate a list of prioritized cost effective improvements for the entire building(s) based upon the sampling data from an energy audit. The *Minnesota Weatherization Field Guide* (Chapter 2.1.1) is a resource for assessing existing buildings and their energy infiltration weaknesses.
    b. Implement those improvements into the work scope that provide a cost benefit and good return on investment. Consult Minnesota Housing for guidance, if needed, for an acceptable return on investment pay-back period (Ten years or less return on investment recommended).
    c. Cost benefit analysis can be performed by using established software or through a manual assessment.
    d. At the end of construction, provide a post-renovation inspection and conduct a blower door test to confirm infiltration improvements.
2. If replacing heating, cooling, ventilation and/ or domestic hot water equipment, install ENERGY STAR rated mechanical systems that comply with the Department of Energy (DOE) ENERGY STAR Qualified Homes 3.0 (or current Version) requirements: http://www.energystar.gov/index.cfm?c=bldrs_lenders_raters.nh_v3_guidelines

MODIFY: RATIONALE to add the following text:

Utility cost for low-income families can account for 19.5% of household budget (EPA national average 2001). The intent is to maximize financial benefit of energy efficiency and weatherization efforts in moderate renovation projects without adverse impact on home durability, indoor air quality and

existing mechanical equipment. Working with a weatherization expert (single family) on a plan tailored to the specific conditions of each home/ unit will help maximize energy savings and ensure health and safety of residents. Check with local utility for rebates or programs that may help off-set the cost of weatherization and new system/ component.

Resources and Links: See Chapter 8 of this Overlay and Guide

Criteria 5.1d: Building Performance Standard (Mandatory)

Substantial and Moderate Rehab: Multifamily, four stories or more

MODIFY: REQUIREMENTS to add the following text:

Multifamily (MF)

1. Substantial/Gut Rehab: Shall meet the requirements of the Criteria with no Overlay.
2. Moderate Rehab projects shall meet the requirements of this Criteria through one of the following pathways:
   a. Performance Pathway: No Overlay. Follow the Criteria as written by demonstrating energy performance equivalent to ASHRAE 90.1-2010 through energy modeling.
   b. Or, Prescriptive Pathway: Follow the Prescriptive Pathway identified for Criteria 5.1c in this overlay.
   c. Or, Project Specific Strategy identified for Criteria 5.1c in this overlay.

Single Family (SF)

Not Applicable.

Criteria 5.5a: Efficient Lighting: Interior

OMIT: in its entirety and replace with Criteria 5.5 below.

Criteria 5.5b: Efficient Lighting: Common Areas and Emergency Lighting

OMIT: in its entirety and replace with Criteria 5.5 below.

Criteria 5.5c: Efficient Lighting: Exterior

OMIT: in its entirety and replace with Criteria 5.5 below.

Criteria 5.5: Lighting (Mandatory)

MF and applicable SF

ADD: this Criteria to replace 5.5a, 5.5b, and 5.5c (this is an excerpt from the 2015 version of Enterprise Green Communities Criteria)

REQUIREMENTS

GENERAL

For all permanently installed lighting fixtures, install high efficacy lighting (including compact fluorescent bulbs, LEDs, and T-8 or smaller diameter linear fluorescents) with an efficacy of at least 40 to 60 lumens per watt.

Recessed light fixtures (recessed cans): If recessed light fixtures are used anywhere in the project, install ballasted compact fluorescent fixtures or ENERGY STAR qualified LED lamps. All recessed light fixtures must be Insulation Contact Air-Tight (ICAT) models.

COMMON AREA LIGHTING
Non-apartment building spaces must be ballasted compact fluorescents and/or LED bulbs and be controlled by occupancy sensors or automatic bi-level lighting controls.

EMERGENCY LIGHTING
Any new exit signs shall consume 5 watts or less. Fixtures located above stairwell doors and other forms of egress shall contain a battery backup feature. Photo luminescent exit signs may be used.

EXTERIOR LIGHTING
100% of outdoor lighting must use fluorescent and/or LED bulbs, and lamps must be ENERGY STAR certified when that certification is available for the product category.

All exterior lighting must be Dark Sky approved "Friendly Fixture" and have motion sensor controls, integrative photovoltaic cells, photo sensors, or astronomic time-clock operation.

Note: Exterior emergency lighting and lighting required by code for health and safety purposes are exempt.

RATIONALE
Energy reductions through efficient lighting products contribute to lower utility costs and lower greenhouse gas emissions. Dedicated and screw-based CFL's and linear fluorescent lighting as well as LED lights are an energy efficient alternative to standard incandescent and T-12 fluorescent lighting. Automatic lighting controls can significantly reduce lighting energy use. Battery back-up in emergency lighting features allow for ease of egress during power black-outs.

RECOMMENDATIONS
- Consider incorporating daylighting practices throughout your project. Include controlled admission of natural light as well as a daylight-responsive lighting control system.
- Review ENERGY STAR product and design information regarding fixture and bulb selection and design.
- Incorporate stairwell skylights as a multi-purpose design feature, providing light, egress, and ventilation.
- Install occupancy sensors in closets and rooms that will only be occupied intermittently. If installed in restrooms, position occupancy sensors to recognize the presence of someone in a toilet stall.
- Ensure stairway lighting is consistent with or better than building corridor lighting to encourage use
- Design outdoor lighting to eliminate light trespass from the project site and to minimize impact on nocturnal environments.
- Design outdoor lighting to meet IES guidelines (Lighting for Exterior Environments, IESNA publication, RP-33-1999)

RESOURCES
- For more information on lighting design and product selection: www.energystar.gov/lighting

- The Lighting Research Center: www.lrc.rpi.edu/
  This university-based, independent lighting research and education group provides objective and timely information about lighting technologies and applications, and about human response to light.
- Whole Building Design Guide, Daylighting: http://www.wbdg.org/resources/daylighting.php
- Lamp Recycle lists locations were fluorescent lamps and ballasts may be taken for recycling: www.lamprecycle.org
- Illuminating Engineering Society of North America's Recommended Practice Manual: Lighting for Exterior Environments includes lighting design guidelines
- International Dark-Sky Association (IDA) is a recognized authority on light pollution. Information on Dark-Sky approved fixtures can be found online at: www.darksky.org/outdoorlighting

Criteria 5.6a: Electricity Meter (Mandatory)

ADD: this Clarification and Exception

This Mandatory Criteria **is not** required in supportive housing buildings where tenants are prohibited from paying for their own electricity.

Section 7: Healthy Living Environment

Criteria 7.2: Environmentally Preferable Flooring (Mandatory)

If project scope includes provisions of flooring

MODIFY: REQUIREMENTS – Prohibited Locations to add the following exceptions:

For all **Multifamily** and **Single Family** new construction, substantial rehab and moderate rehab projects, the following Exceptions to the "Prohibited Locations" shall apply:

1. Ground-Connected Concrete Slabs: Approved carpet may be installed on ground-connected concrete slabs if there is evidence of a properly installed vapor barrier present beneath the concrete slab where the carpet is installed. This exception is allowed at non-basement locations where the finish grade is lower than all sides of the concrete slab; **Or**,
2. Basements: Approved carpet tile (not adhered to the floor) may be installed on below grade (full or partial basements) ground-connected concrete slabs if there is a functioning drain tile system that is connected to a functioning sump pump or gravity fed outlet; **Or**,
3. Capillary Break and Vapor Barrier Assembly: If approved by MN Housing, carpet may be installed at ground-connected (concrete slab on grade) floors if a properly installed capillary break and vapor barrier assembly is provided between the (concrete) slab and the carpet. Products made up of a dimpled, heavy-duty plastic membrane may be considered; Or,
4. Poly-film Test Confirms no Moister Present: If approved by Minnesota Housing, carpet may be installed at ground connected floors if a Poly-film test per ASTM D4263 Test Method of Indicating Moisture in Concrete by the Plastic Sheet Method is conducted on the existing, untreated concrete subfloor with no evidence of vapor. This test may also be used after the installation of a moisture control system if approved by Minnesota Housing. In order to meet the conditions of the Poly-film

Test, Carpet Tile must be used. Roll or Sheet products are not allowed. The "Poly-film" test must be provided by a third party, independent testing agency with the results sent to Minnesota Housing.

Notes:

- "Approved carpet or carpet tile" shall meet the Carpet and Rug Institute's Green Label or Green Label Plus certification for carpet, pad, and carpet adhesives.
- Avoid carpet pads or adhered carpet at ground-connected floors.
- The exceptions noted here do not apply if there is a history of flooding, foundation seepage, leaking, or moisture within an existing basement or ground-connected concrete slab.

Criteria 7.6b: Ventilation (Mandatory per this Overlay, earns 5 Optional points)

Moderate Rehab

Multifamily (MF)
MODIFY: REQUIREMENTS to include the following added paragraph:

Abandoned Ventilation System: If an abandoned mechanical ventilation system exists, it shall be investigated and re-commissioned with educational systems developed at the time of rehabilitation.

1. Process shall include:
    a. Identify cause of failure by determining if it was:
        i. Mechanical malfunction – system broken,
        ii. Human error – maintenance failure, override, or system shut-off
    b. Identify response
        i. Restore, replace, repair, and/ or re-commission systems(s)
        ii. Require manuals and education for management and maintenance staff
        iii. Include tenant education in resident manual and orientation (Criteria item 8.2)

Criteria 7.8: Combustion Equipment (Mandatory)

For projects with combustion equipment

New Construction and Substantial Rehab: No Overlay.

Moderate Rehab: Multifamily (MF) & Single Family (SF): IF combustion equipment is located in individual dwelling units

ADD: The following paragraph shall be inserted after the last "Requirements" paragraph.

If modifications are made to properties which may negatively affect the safe operation of in-unit, existing natural draft combustion equipment (such as building envelope, kitchen exhaust, bath exhaust, etc…) the work scope shall include:

1. Replacement of all existing in-unit space and water heating natural draft combustion equipment with new power-vented or closed (sealed) combustion equipment;
2. Or, if existing natural draft combustion equipment will remain, the development team shall provide a combustion action plan with post-construction testing and a remediation plan in the event testing reveals unsafe CO levels to ensure combustion safety. Pre-construction testing using a sampling of units is recommended to help guide the work scope.

a. Combustion Safety Requirements/ Testing Protocols shall be per:
    i. RESNET Guidelines for Combustion Safety and Developing Work Orders;
    ii. Or, BPI Combustion Safety Test Procedure for Vented Appliances.

DELETE: the existing second paragraph and replace with the following new paragraph:

CO alarms shall be installed at all New Construction, Substantial Rehab, and Moderate Rehab properties as required to meet Minnesota State Statute.

Criteria 7.11: Radon Mitigation (Mandatory)

New Construction and Substantial Rehab

DELETE: All REQUIREMENTS and replace with the following:

Multifamily (MF)

Radon Mitigation for all MF New Construction, Substantial Rehab, and Moderate Rehab properties shall follow Minnesota Housing's Environmental Standards for Radon Mitigation.

Single Family (SF)

Note: All Radon Testing/ Measurements shall be provided by a person certified by the National Radon Proficiency Program (NRPP) or the National Radon Safety Board (NRSB)

1. New Construction. At a minimum, install a **Passive** sub-slab depressurization system as noted in the Criteria and as required by the Minnesota State Building Code for single family new construction. Although not required, we encourage an **Active** system to meet the Minnesota Department of Health Gold Standard for new construction.
2. Rehab (without envelope improvement). Radon testing shall be conducted in accordance with item number 4. Testing (as noted below). If the radon testing results in a reading of 4 pCi/L or more, a mitigation system shall be installed in accordance with item number 5. Radon Mitigation (as noted below).
3. Rehab (with envelope improvements). Radon testing shall be conducted in accordance with item number 4. Testing (as noted below). If the radon testing results in a reading of 4 pCi/L or more a mitigation system shall be installed in accordance with item number 5. Radon Mitigation (as noted below).
    a. When to Test:
        i. Prior to construction. Early detection of the presence of radon above the EPA recommendations action level of 4 pCi/L could result in a more cost-effective rehab if the work scope identifies and addresses mitigation measures early in the development of the project; Or,
        ii. After construction. Rather than testing prior construction, it's acceptable to include a Passive system in the scope of work without testing. After construction is complete, but before occupancy, test for radon and activate the system if needed.
4. Testing. The lowest livable level shall be tested when the project is complete (and prior to occupancy) following the ANSI-AARST testing protocol using a continuous radon monitor or simultaneous testing using two short-term test devices that are approved by the American Association of Radon Scientist and Technologist (AARST) National Radon Proficiency Program (NRPP); or National Radon Safety Board (NRSB). Testing should

always be conducted in the lowest livable level and by devices approved by the AARST-NRPP.

5. Radon Mitigation. In homes where a radon mitigation system is installed, the mitigation system shall meet the following requirements:

   a. The system shall be installed by a nationally certified radon contractor or radon mitigation service provider listed on the Minnesota Department of Health's website. Mitigation work must meet the requirements of the ASTM E2121 "Standard Practice of Installing Radon Mitigation Systems in Existing Low-Rise Residential Buildings" standard.

   b. Where mitigation is performed, a post-test shall be provided to verify that radon levels are below 4 pCi/L.

   c. Test results shall be provided to the homeowner along with supplemental information on radon as specified in ASTM E2121 Section 7.7.

6. Exterior System. An exterior Radon mitigation system is not allowed.

Resources and Links: See Chapter 8 of this Overlay and Guide

Criteria 7.15: Lead-Safe Work Practices (Mandatory)

DELETE: REQUIREMENTS and RECOMMENDATIONS sub-items and replace with the following text:

REQUIREMENTS

Multifamily (MF)

For MF rehabilitation, refer to the Minnesota Housing Lead-Based Paint Policy on the website under Environmental Standards. See also the *Design and Construction Standards Supplement for Federally Funded Projects* located in Chapter 9 of Minnesota Housing's Rental Housing Design/ Construction Standards available on the Minnesota Housing Building Standards web page.

Single Family (SF)

For SF rehabilitation, refer to the Minnesota Housing *Lead Based Paint Guidebook* (For Applicable Homes Division Programs).