

PROPOSED

HASTINGS-ON-HUDSON GREEN BUILDING CODE

Part 1: General Provisions

1.1: INTENT

The Village of Hastings-on-Hudson is committed to enhancing the public welfare and ensuring that further development in the Village is consistent with the Village of Hastings-on-Hudson's desire to create a more sustainable community. It is our intent that this Hastings-on-Hudson Green Building Code minimizes short-term and long-term negative impacts on the environment, reduces greenhouse gas emissions to mitigate the impacts of climate change, and provides owners and occupants with economic benefits from energy and water savings, use of renewable energy sources and sustainable building products and practices.

This Hastings-on-Hudson Green Building Code includes a combination of mandatory and additional/alternative requirements, which address a variety of project types and sizes as described below. While this code is applicable only to projects already requiring a building permit from the Village, it is also intended to provide guidance and ideas for consideration in all other projects, including those undertaken by the Hastings-on-Hudson School District. This Code applies to both residential and commercial buildings.

1.2: APPLICABILITY

This code applies only to projects requiring a building permit from the Village in accordance with § 295-100 of the Code of the Village of Hastings-on-Hudson.

1.2(a) - Part 2 Provisions - Non-Residential Buildings, Multifamily Residential Buildings and Residential Developments.

1. New Construction

The provisions of Part 2 of this Code shall apply to all construction, movement, replacement, removal and demolition that require a building permit from the Village of every building or structure or any appurtenances connected or attached to such buildings or structures.

A. Exceptions:

(i) Detached one-and two-family dwellings and multiple single-family dwellings (townhouses) consisting of three or fewer units not more than three stories in height above grade with separate means of egress and their accessory structures shall comply with Part 3. However, this exception shall not apply to such dwellings where two or more of such dwellings are to be constructed on or after the effective date of this Code:

- (a) on the same lot;
- (b) on adjacent lots owned or developed by the same person or related entity; or
- (c) as part of the same development.

These dwellings shall comply with Part 2.

(ii) Agricultural buildings, including barns, sheds, poultry houses and other buildings and equipment on the premises used directly and solely for agricultural purposes.

(iii) Construction trailers used as a temporary office for the purpose of monitoring construction at a construction site.

2. Existing Buildings

The provisions of Part 2 shall apply to the Alteration, Addition and Relocation of existing buildings, as those terms are defined in Section 1.3 below, that require a building permit from the Village. Projects that involve more than one classification of work (such as Alterations, Additions, etc.) must comply with the requirements of each classification.

A. Exceptions

(i) Detached one-and two-family dwellings and multiple single-family dwellings (townhouses) consisting of three or fewer units not more than three stories in height above grade with separate means of egress and their accessory structures shall comply with Part 3. However, this exception shall not apply to such dwellings where two or more of such dwellings are to be constructed on or after the effective date of this Code:

- (a) on the same lot;
- (b) on adjacent lots owned or developed by the same person or related entity; or
- (c) as part of the same development.

These dwellings shall comply with Part 2.

(ii) Agricultural buildings, including barns, sheds, poultry houses and other buildings and equipment on the premises used directly and solely for agricultural purposes.

(iii) Construction trailers used as a temporary office for the purpose of monitoring construction at a construction site.

B. An Addition to a building or structure shall comply with Part 2 without requiring the existing building or structure to comply with the requirements of this Code, unless otherwise specified herein. Where an Addition impacts the existing building or structure, the impacted portion of the existing building or structure shall comply with this code.

C. This section does not apply to Work Areas that involve Repair.

1.2 (b): Part 3 Provisions – One and Two Family Residential Buildings and Townhouses Consisting of Three or Fewer Units

1. New Construction

The provisions of Part 3 shall apply to all construction, movement, enlargement, replacement, location, removal and demolition that requires a building permit from the Village, of detached one- and two-family dwellings and townhouses consisting of three or fewer units not more than three stories above-grade in height with a separate means of egress and their accessory structures and one-family dwellings converted to bed and breakfast dwellings.

2. Existing Buildings

A. The provisions of Part 3 shall apply to Alterations, Additions and Relocations that require a building permit from the Village, of existing detached one- and two-family dwellings and townhouses consisting of three or fewer units not more than three stories above-grade in height with a separate means of egress and their accessory structures and one-family dwellings converted to bed and breakfast dwellings. Projects that involve more than one classification of work (such as Repair, Alterations, Additions, etc.) must comply with the requirements of each classification.

B. An Addition to a building or structure shall comply with Part 3 without requiring the existing building or structure to comply with the requirements of this Code, unless otherwise specified herein. Where an Addition impacts the existing building or structure, the impacted portion of the existing building or structure shall comply with this code.

C. This section does not apply to Work Areas that involve Repair.

1.3 **DEFINITIONS**

“Applicable Projects” shall mean all projects identified in Part 1.2 above.

“Additions” shall mean an extension or increase in floor area, number of stories, or height of a building or structure.

“Alterations” shall mean any construction or renovation to an existing structure other than a Repair or Addition, the reconfiguration of space, the addition or elimination of any door or window, the reconfiguration or extension of any system, or the installation of any additional equipment where the Work Area exceeds the lesser of 1,000 square feet or 50 percent of the aggregate area of the individual unit.

“Baseline Building” shall mean a computer representation of a hypothetical design based on the proposed building project. This representation is used as the basis for calculating the baseline building performance for rating above-standard design. The model is based on a building that is otherwise identical to the proposed building but is designed to meet, but not exceed, the energy efficiency specifications in ANSI/ASHRAE/IESNA Standard 90.1-2007, Appendix G.

“Building Department” shall mean the Building Department of the Village of Hastings-on-Hudson, New York.

“Building Inspector” shall mean the Building Inspector of the Village of Hastings-on-Hudson, New York.

“CSI Divisions 2 through 10” shall mean Construction Specifications Institute’s MasterFormat 2012, including any future amendments and revisions as they become effective.

“Efficient Framing” shall mean optimizing use of framing materials by limiting waste factor to 10% or less, and /or by using framing efficient measures, such as pre-cut framing packages, open-web floor trusses, structurally insulated panels (SIP), spacing of wall studs, ceiling joists, floor joists, and roof rafters greater than 16” o.c., 2-stud corners, ladder blocking or drywell clips, and sizing of headers for actual loads.

“EnergyStar” shall mean guidelines for energy efficiency developed by the United States Environmental Protection Agency (“EPA”) and the United States Department of Energy, including any future amendments and revisions as they become effective.

“Greywater” shall mean wastewater discharged from lavatories, bathtubs, showers, clothes washers, and laundry sinks, as defined by the International Plumbing Code (“IPC”).

“Green Building Code,” “Green Code,” or “Code” shall mean this Hastings-on-Hudson, NY Green Building Code.

“Greenfield Sites” shall mean those sites that have not been previously developed or graded and remain in a natural state.

“Green/Vegetative Roofs” shall mean roofs that are partially or fully covered by vegetation, used to manage water runoff and provide additional insulation in the winter and cooling in the summer.

“Invasive Plants” shall mean an alien species whose introduction does, or is likely to, cause economic or environmental harm or harm to human health. A list of Invasive Plants is maintained and distributed by the Building Department.

“Low Slope Roof” shall mean roofing with slopes at or less than 3 in 12, composed of a continuous waterproof membrane.

“Native Plants” or “Indigenous Species” shall mean plants that are indigenous to the locality or cultivars of Native Plants that are adapted to the local climate and are not considered Invasive Species or Noxious Weed.” A list of Native Plants is maintained and distributed by the Building Department.

“New Construction” shall mean construction, movement, enlargement, replacement, location, removal and demolition.

“NYSECCC” shall mean the 2010 New York State Uniform Fire and Building and Energy Conservation Construction Code including any future amendments and revisions as they become effective.

“Open Grid Paving System” shall mean a paving material that has an open grid structure to allow water to pass through the material and into the earth below.

“Passive Solar Heating Strategies” shall mean the collection and distribution of solar energy for heat in the winter, without the use of mechanical and electrical devices. Elements to be considered in passive solar design include southern orientation of windows, glazing type, thermal mass, thermal insulation and shading devices.

“Previously Developed Areas” shall mean those areas that previously contained buildings, roadways, parking lots or were graded or altered by direct human activities.

“Recycled Content Materials” shall mean materials with recycled content such that the sum of post-consumer recycled content plus one half of the pre-consumer content constitutes at least 10% (based on cost) of the total value of the materials.

“Repair” shall mean the restoration to good or sound condition of any part of an existing building for the purpose of its maintenance, including the patching, restoration or replacement of damaged materials, elements, equipment or fixtures for the purpose of maintaining such components in good or sound condition with respect to existing loads or performance requirements.

“Sensible Heat” shall mean heat exchanged by a system that has as its sole effect a change in temperature.

“Steep Slope Roof” shall mean a water-shedding roofing with slopes greater than 3 in 12, typically composed of many overlapping units; not a continuous waterproof membrane.

“Solar Reflective Index” or “SRI” shall mean the measure of the constructed surface’s ability to reflect solar heat as shown by a small temperature rise. SRI is defined so that a standard black surface (reflectance of 0.05, emittance of 0.90) is 0 and a standard white surface (reflectance 0.80, emittance 0.90) is 100. To calculate the SRI for a given material, obtain the reflectance value and emittance value for the material. SRI is calculated according to ASTM E 1980. Reflectance is measured according to ASTM E 903, ASTM E 1918, or ASTM C 1549. Emittance is measured according to ASTM E 408 or ASTM C 1371.

“Village” shall mean the Village of Hastings-on-Hudson, Westchester County, New York.

“Work Area” shall mean that portion or portions of a building consisting of all reconfigured spaces, excluding portions of the building where incidental work entailed by the intended work must be performed and portions of the building where work not initially intended by the owner is specifically required by this code.

1.4 PROPOSAL CHECKLIST

Along with the submittal of a building permit application to the Village, applicants for all applicable Projects shall submit a notarized Proposal Checklist to the Building Department on the form provided by the Village. The Proposal Checklist includes, but is not limited to, a description of the Applicable Project, a plan for compliance with Parts 2.5 or 3.5 of this Code, whichever is applicable, and a determination of the project’s Work Area.

1.5 CONFLICTS WITH OTHER LAWS

Should any conflicts or ambiguities exist between this Green Building Code and other applicable Village requirements, the more stringent, as determined by the Building Inspector, shall apply.

1.6 EXEMPTIONS AND APPEALS

1.6(a): Hardship or Infeasibility. If an applicant believes that circumstances exist that make it a hardship or infeasible to meet one or more of the requirements of this Code, the applicant may apply for an exemption or partial exemption as set forth below. The burden is on the applicant to show hardship or infeasibility. The Building Inspector will either grant or deny the request for an exemption or partial exemption.

(1) Factors to consider in determining whether hardship or infeasibility exist include, but are not limited to: availability of green building materials and technologies, compatibility of green building requirements with other government requirements and building standards, availability of markets for materials to be recycled, and preserving the historical integrity of the building.

(2) "Hardship" means some verifiable level of difficulty or adversity arising from the factors identified in § 1.6(a)(1) or other circumstances beyond the control of the applicant, by which the applicant cannot reasonably comply with the requirements of this Code.

(3) "Infeasible" means the existence of verifiable obstacles arising from the factors identified in § 1.6(a)(1) or other circumstances beyond the control of the applicant that render the applicant incapable of complying with the requirements of this Code.

(4) Application. The applicant may apply for an exemption at the time of submission of the Proposal Checklist required in § 1.4 of this Code. The applicant shall indicate the provisions for which it is applying for an exemption and explain the circumstances that make it a hardship or infeasible to fully comply with this Code.

(5) Granting of Exemption. If an exemption is granted, the applicant shall be required to comply with this Code in all other respects.

(6) Denial of Exemption. If the Building Inspector determines that it is not a hardship or infeasible for the applicant to meet the requirements of this Code, he or she shall so notify the applicant in writing with a statement of reasons for the denial.

1.6(c) Appeals. Upon denial of an exemption, an applicant may appeal to the Board of Trustees by filing a written notice of such appeal with the Village Clerk within 30 days from the date of notice of refusal by the Building Inspector.

PART 2: REQUIREMENTS FOR NON-RESIDENTIAL BUILDINGS, MULTI-FAMILY RESIDENTIAL BUILDINGS AND RESIDENTIAL DEVELOPMENTS

All projects identified in Part 1.2(a) shall be subject to Part 2 requirements unless otherwise specified.

2.1 SITE IMPROVEMENTS

2.1(a): Natural Resources Study: Prepare a Natural Resources Study on the form provided by the Village, for all projects that include any new landscaping, paving, or impact on stormwater quantity or where there is an increase to the footprint of the structure. The Natural Resources Study shall be prepared prior to, and coordinated with, any other Village approval processes such as site plan approval, general construction approval, steep slopes and view preservation. The Natural Resources Study shall show the following: solar orientation; potential solar access for active or passive collection; designated trees as defined in Chapter 273-2 of the Hastings-on-Hudson Code; contours or spot elevations, native and other planting areas; wetlands; water bodies; rock outcroppings; and other distinguishing features applicable to the specific site. The Natural Resources Survey shall identify all existing features to be preserved as the site is developed.

2.1(b): Site Development – Protect and Restore Habitat:

1. Greenfield Sites. Limit all Greenfield Site disturbances to the following parameters:

- (i) 30 feet (9 meters) beyond the building perimeter and parking garages;
and
- (ii) 10 feet (3 meters) beyond surface walkways, patios and surface.

2. Previously Developed Areas. Restore or protect a minimum of 50% of the Previously Developed Area (excluding the building footprint) or 20% of the total Previously Developed Area (including building footprint), whichever is greater, with Native Plants. Projects may include vegetated roof surface in this calculation if the plants utilized are Native Plants.

2.1(c): Stormwater Control: For all land disturbances of greater than 500 square feet but less than 10,000 square feet, all new runoff must be contained on-Site through the installation of one or more of the following methods: 1) vegetated swales; 2) on-site rain garden; 3) dry well; 4) rainwater cistern; 5) Landscaping; or 6) other project determined to be acceptable to the Building Inspector. Chapter 250 of the Hastings-on-Hudson Code applies to all land disturbances of greater than 10,000 square feet.

2.1(d) Heat Island – Non-Roof: For any new or replacement site hardscape (including roads, driveways, sidewalks, courtyards, and parking areas) use any combination of the following strategies for at least 50% of the site hardscape:

1. Provide shade from the existing tree canopy or within 5 years of tree landscape installation. Tree landscaping must be in place at the time of occupancy;
2. Provide shade from structures covered by solar panels that produce energy used to offset nonrenewable resource use;
3. Use hardscape materials with an SRI of at least 0.29; or
4. Use an Open Grid Paving System that is at least 50% pervious.

2.1(e) Irrigation:

When new irrigation systems are to be installed, use high-efficiency equipment (i.e. trickle or drip irrigation) and/or climate-based controllers or other control techniques determined to be acceptable to the Building Inspector.

2.1(f) Invasive Plants: With respect to projects identified in 1.2(a)(1) only, all existing Invasive Plants on the site shall be removed.

2.1(g) Plant Materials: Any new plants utilized shall be non-invasive and shall include a minimum of 30% Native Plants for planted areas under 100 sf and 75% Native Plants for planted areas 100 sf or over.

2.1(h) Bicycle Racks: For any new construction or any Addition or Alteration to an existing building that increases the parking requirements for such building, provide secure bicycle racks for 5% or more of the estimated number of building users at peak periods, but in no event shall there be less than one rack that can accommodate at least two bicycles.

2.1(i) Electric Vehicles and Plug-in Hybrid-Electric Vehicles: For any new construction or any Addition or Alteration of an existing building that increases the parking requirements for such building, provide electrical infrastructure to support installation of charging stations for 20% of required parking spaces; install charging stations as and when requested by building occupants. In no event shall there be less than one charging station installed.

2.1(j) Light Trespass: For all new exterior lighting to be installed, prevent light spillage upward or beyond the site boundaries by using one of the following Lighting Zones as it applies to the Applicable Project. Justification shall be provided to the Building

Inspector for the selected Lighting Zone. Exceptions for safety or security lighting will be considered by the Building Inspector:

1. LZ2: Low (primarily residential zones, neighborhood business districts, light industrial areas with limited nighttime use and residential mixed-use areas). Design exterior lighting so that all site and building-mounted luminaires produce a maximum initial illuminance value no greater than 0.10 horizontal and vertical footcandles (1.0 horizontal and vertical lux) at the project boundary and no greater than 0.01 horizontal footcandles (0.1 horizontal lux) 10 feet (3 meters) beyond the project boundary. Document that no more than 2% of the total initial designed fixture lumens (sum total of all fixtures on site) are emitted at an angle of 90 degrees or higher from nadir (straight down); or

2. LZ3: Medium (commercial/ industrial, and high-density residential). Design exterior lighting so that all site and building-mounted luminaires produce a maximum initial illuminance value no greater than 0.20 horizontal and vertical footcandles (2.0 horizontal and vertical lux) at the project boundary and no greater than 0.01 horizontal footcandles (0.1 horizontal lux) 15 feet (4.5 meters) beyond the site. Document that no more than 5% of the total initial designed fixture lumens (sum total of all fixtures on site) are emitted at an angle of 90 degrees or higher from nadir (straight down).

2.2 ENERGY

2.2(a): Energy Utilization Equipment

1. **Exterior Lighting.** Lighting controls for all exterior lighting shall comply with Section 9.4.1.3 of ANSI/ASHRAE/IESNA Standard 90.1-2007, without amendments.

2. **High Efficiency Heating Equipment.** All new and replacement boilers and furnaces shall be condensing boilers or furnaces with a minimum annual fuel utilization efficiency ("AFUE") of at least 87% for oil burning and 92% for natural gas burning boilers and furnaces. For residential units subject to this Part, where individual units maintain their own boiler or furnace, each such new or replacement boiler or furnace shall be condensing boilers or furnaces with a minimum AFUE of at least 87% for oil burning and 92% for natural gas burning boilers and furnaces.

3. **High Efficiency Cooling Equipment.** All new or replacement cooling equipment shall have a seasonal energy efficiency ration ("SEER") of at least 16.

4. **Fixtures and Appliances:** All new or replacement appliances governed by Energy Star, such as but not limited to, dishwashers, refrigerators, freezers, washing machines, water heaters and room air conditioners, shall be compliant with Energy Star.

2.2(b): Energy Use Controls

1. **Electronic Thermostat**: Control all heating and cooling systems with a programmable thermostat that allows for a variety of time-of-day and seasonal settings.

2. **Whole Building Switch**: Install a master whole building switch to control applicable circuits and outlets (such as lights and major appliances) in economy mode when the structure is not occupied. For residential projects subject to this Part, a whole building switch shall be installed in each residential unit. With respect to projects identified in Parts 1.2(a)(2) (Additions and Alterations), this section only applies when a new main electric panel is being installed.

3. **Zoned Heating and Cooling**: New construction and Additions in excess of 1000 square feet shall have zoned controls for heating and cooling.

2.2(c): Energy Use Monitoring

1. **Energy Monitor Dashboard**: Install an Energy Monitor Dashboard to provide a reading of the energy use for the entire structure either via a central monitoring system or via submonitors if submeters are provided. This section does not apply to residential structures subject to this Part. This section also does not apply to Additions and Alterations unless a new heating, ventilation, and air conditioning ("HVAC") system is installed that serves the entire structure.

2. **Fundamental Commissioning of Building Energy Systems**: For projects over 25,000 square feet, an independent expert must be hired to certify that the project's energy-related systems are installed, calibrated and perform according to the approved plans.

2.3 INTERIOR WATER USE

2.3(a) Toilets and Urinals: For installation or replacement of any toilets or urinals, install either low flush toilets equal to or less than 1.28 gallons per flush ("gpf") or dual-flush toilets where the low flush feature is no more than 1.28 gpf.

2.3(b) Showers: Whenever any shower heads are newly installed or replaced, install shower heads that can be adjusted to supply either 1.0 or 1.5 gallons per minute

2.4 MATERIALS AND INDOOR ENVIRONMENTAL QUALITY

2.4(a) Volatile Organic Compounds (VOCs): Paints, coatings, and primers, applied to interior surfaces, shall not exceed the following VOC content limits (as established by Green Seal Standard GC-11, Paints, First Addition, 1993):

Flat Paint: 50g/L flat

Non-Flat Paint: 150g/L non-flat

Clear wood finishes, floor coatings, stains, sealers, and shellacs, applied to interior surfaces, shall not exceed the following VOC content limits (as established by South Coast Air Quality Management District Rule 1113, Architectural Coatings, 2004):

Varnish: 350g/L

Laquer: 550g/L

Shellac: 750 g/L clear, 550 g/L pigmented

Sealers: 275 g/L waterproofing, 275 g/L sanding, 250 g/L all others

All carpet adhesive shall not exceed a VOC content limit of 50g/L

All composite materials shall contain no added urea formaldehyde.

2.4(b) Roofing Materials: All new roofing materials used shall have an SRI of at least 0.78 for Low Slope Roofs and an SRI of at least 0.29 for Steep Slope Roofs. Vegetated ("green") roof areas that cover at least 50% of the roof will satisfy this provision. This Section does not apply to Additions and Alterations if new roofing materials are to be matched in roof type or color to existing roof areas.

2.4(c) Construction Waste Management: A minimum of 25% of construction waste shall be diverted from the landfill and incinerator. Submit a report to the Building Inspector substantiating compliance with this subpart.

2.5 PART 2 ADDITIONAL REQUIREMENTS:

2.5(a) Applicability: In addition to the requirements set forth in Parts 2.1 through 2.4 above, for all New Construction and Additions and Alterations in excess of the lesser of 1000 square feet or 50% of the aggregate area of the individual unit, at least five (5) points from the options set forth in this section must be obtained.

1. **Rainwater Harvesting:** Design and install a rainwater harvesting and storage system sized to hold water from a one inch rainfall event (0.62 gallons per square foot of roof area) to be used for landscape irrigation or indoor water use. **(1 point)**

2. **Greywater Harvesting:** Design and install a greywater reuse system for landscape irrigation or indoor water use collected from one of the following: clothes washer, showers, some combination of faucets and other sources estimated to exceed 5,000 gallons per year. **(1 point)**

3. **Construction Waste Management**: Increase the diversion from landfills and/or incinerators above the mandatory requirement set forth in Section 2.4.c. to a minimum of 50% of construction waste. A report shall be submitted to the Building Inspector to substantiate the diversion. **(1 point)**

4. **Economy of Wood Construction Framing**: For residential structures subject to this Part that are larger than 1000 sf, reduce use of wood materials by Efficient Framing. A report shall be submitted to the Building Inspector to substantiate compliance. **(1 Point)**

5. **Whole Building Energy Simulation**: For new buildings and renovations with less than 50% fenestration, demonstrate through a computer analysis software determined to be acceptable to the Building Inspector, a percentage improvement in total energy performance compared to the Baseline Building.

Minimum Improvement of as follows:

New Buildings - 15% - **2 Points**; 25% - **3 Points**; 35% - **4 Points**

Existing Building Renovations - 12% - **2 Points**; 20% - **3 Points**; 25% - **4 Points**

6. **Primary Geothermal Heating and Cooling Systems**: Install a geothermal heating and cooling system that provides a minimum of 80% of the required space heating and space cooling energy. A calculation shall be submitted to Building Inspector to support performance claim. **(3 points)**

7. **Heat Recovery Ventilation**: Install a system that recovers a minimum of 40% of the Sensible Heat in the air such as a heat-recovery ventilator (HRV) or Energy-recovery ventilator (ERV). Ventilation equipment does not have to recover latent heat (moisture). **(1 Point)**

8. **Solar Electricity (Photovoltaics)**: Install a photovoltaic array to provide a minimum of 50% of year-round electricity. A calculation shall be submitted to Building Inspector to support performance claim. **(3 points)**

9. **Passive Solar Heating Strategies**: For projects larger than 1000 square feet, utilize Passive Solar Heating Strategies that save a minimum of 50% of the yearly heating energy requirements compared to a conventional, code-compliant building. A calculation shall be submitted to the Building Inspector to support passive performance claim including effects of winter shading, impact of trees and surrounding structures. **(2 points if impacts only Addition or Alteration, 3 points if impacts entire structure)**

10. **Solar Hot Water**: Install a solar hot water system to provide a minimum of 40% of year-round hot water. A calculation shall be submitted to Building Inspector to support performance claim. **(2 points)**

11. **High Efficiency Cooling System:** Install cooling equipment with a SEER of greater than 16. **(1 point)**

12. **Green/Vegetated Roofs:** Install Green/Vegetated Roofs for a minimum of 50% of the roof area. **(2 Points)**

13. **Perimeter Daylighting:** Install automatic daylight sensing and dimming controls capable of reducing light output and corresponding electrical power in the building perimeter by a minimum of 60% when useful daylight is available. To qualify for perimeter daylighting a minimum of 75% of all perimeter zone floor area within 15 feet of the exterior window walls of the building must be controlled to achieve this point. **(1 point)**

14. **Interior Daylighting:** Install automatic daylight sensing and dimming controls to reduce light output in interior areas/zones of buildings more than 15 feet away from an exterior window wall. To qualify for interior zone daylighting, a minimum of 30% of interior areas/zones must be equipped with dimming controls capable of reducing light output and corresponding electrical power by a minimum of 60% when useful daylight is available. **(1 point)**

15. **Light Emitting Diodes ("LEDs"):** Utilize LEDs for at least 75% of the light fixtures. **(1 point)**

16. **Recycled Content:** Utilize Recycled Content Materials for between 10% and 19.99% (by cost) of all building materials and finishes. A report shall be submitted to the Building Inspector to substantiate compliance. **(1 point)**. Utilize Recycled Content Materials for 20% or greater (by cost) of all building materials and finishes. A report shall be submitted to the Building Inspector to substantiate compliance. **(2 points)**

17. **Salvaged or Reused Materials:** Utilize salvaged, refurbished, or reused materials such that the sum of these materials constitutes at least 5%, based on cost, of the total value of materials on the project. A report shall be submitted to the Building Inspector to substantiate compliance. **(1 point)**. Utilize salvaged, refurbished, or reused materials such that the sum of these materials constitutes at least 10%, based on cost, of the total value of materials on the project. A report shall be submitted to the Building Inspector to substantiate compliance. **(2 points)**

18. **Local Materials:** Utilize building materials or products that have been extracted, harvested or recovered, as well as manufactured, within 500 miles of the site for a minimum of 10% (based on cost) of the total materials value. **(1 point)**

19. **Certified Wood:** Use a minimum of 50% of wood-based materials and products that are certified by Forest Steward Council's (FSC) for wood building components. These components include, but are not limited to, structural framing,

general dimensional framing, flooring, sub-flooring, wood doors, and finishes. A report shall be submitted to the building Inspector to substantiate compliance. **(1 point)**

20. **Rapidly Renewable Materials**: Use rapidly renewable materials made from plants that are typically harvested within a ten-year cycle or shorter, for at least 2.5%, based on cost, of the total value of materials and products used in the project. A report shall be submitted to the building Inspector to substantiate compliance. **(1 point)**

21. **Other Green Measure(s)**: Sustainability measures not listed may be proposed to receive up to a maximum of 3 points, subject to approval of the Building Inspector.

PART 3: One and Two Family Residential Buildings and Townhouses Consisting of Three or Fewer Units

3.1: SITE IMPROVEMENTS

3.1(a) Natural Resources Survey. Prepare a Natural Resources Study on the form provided by the Village, for all projects that include any new landscaping, paving, or impact on stormwater quantity or where there is an increase to the footprint of the structure. The Natural Resources Study shall be prepared prior to, and coordinated with, any other Village approval processes such as site plan approval, general construction approval, steep slopes and view preservation. The Natural Resources Study shall show the following: solar orientation; potential solar access for active or passive collection; designated trees as defined in Chapter 273-2 of the Hastings-on-Hudson Code; contours or spot elevations, native and other planting areas; wetlands; water bodies; rock outcroppings; and other distinguishing features applicable to the specific site. The Natural Resources Survey shall identify all existing features to be preserved as the site is developed.

3.1(b) Site Development – Protect and Restore Habitat.

1. Greenfield Sites. Limit all Greenfield Site disturbances to the following parameters:

(i) 30 feet (9 meters) beyond the building perimeter and parking garages;
and

(ii) 10 feet (3 meters) beyond surface walkways, patios and surface.

2. Previously Developed Areas. Restore or protect a minimum of 50% of the Previously Developed Area (excluding the building footprint) or 20% of the total Previously Developed Area (including building footprint), whichever is greater, with Native Plants. Projects may include vegetated roof surface in this calculation if the plants utilized are Native Plants.

3.1(c) Stormwater Control: For all land disturbances of greater than 500 square feet but less than 10,000 square feet, all new runoff must be contained on-Site through the installation of one or more of the following methods: 1) vegetated swales; 2) on-site rain garden; 3) dry well; 4) rainwater cistern; 5) Landscaping; or 6) other project determined to be acceptable to the Building Inspector. Chapter 250 of the Hastings-on-Hudson Code applies to all land disturbances of greater than 10,000 square feet.

3.1(d) Heat Island – Non-Roof: For any new or replacement site hardscape (including roads, driveways, sidewalks, courtyards, and parking areas) use any combination of the following strategies for at least 50% of the site hardscape:

1. Provide shade from the existing tree canopy or within 5 years of tree landscape installation. Tree landscaping must be in place at the time of occupancy;
2. Provide shade from structures covered by solar panels that produce energy used to offset nonrenewable resource use;
3. Use hardscape materials with an SRI of at least 0.29; or
4. Use an Open Grid Paving System that is at least 50% pervious.

3.1(e) Irrigation: When new irrigation systems are to be installed, use high-efficiency equipment (i.e. trickle or drip irrigation) and/or climate-based controllers or other control techniques determined to be acceptable to the Building Inspector.

3.1(f) Invasive Plants: With respect to projects identified in 1.2(b)(1) only, all existing Invasive Plants on the site shall be removed.

3.1(g) Plant Materials: Any new plants utilized shall be non-invasive and shall include a minimum of 30% Native Plants for planted areas under 100 sf and 75% Native Plants for planted areas 100 sf or over.

3.1(h) Light Trespass: For all new exterior lighting to be installed, prevent light spillage upward or beyond the site boundaries.

3.2 ENERGY

3.2(a): Energy Utilization Equipment

1. **Exterior Lighting.** Lighting controls for all exterior lighting shall comply with Section 9.4.1.3 of ANSI/ASHRAE/IESNA Standard 90.1-2007, without amendments.

2. **High Efficiency Heating Equipment.** All new and replacement boilers and furnaces shall be condensing boilers or furnaces with a minimum annual fuel utilization efficiency ("AFUE") of at least 87% for oil burning and 92% for natural gas burning boilers and furnaces. For residential units subject to this Part, where individual units maintain their own boiler or furnace, each such new or replacement boiler or furnace shall be condensing boilers or furnaces with a minimum AFUE of at least 87% for oil burning and 92% for natural gas burning boilers and furnaces.

3. **High Efficiency Cooling Equipment.** All new or replacement cooling equipment shall have a seasonal energy efficiency ration ("SEER") of at least 16.

4. **Fixtures and Appliances:** All new or replacement appliances governed by Energy Star, such as but not limited to, dishwashers, refrigerators, freezers, washing machines, water heaters and room air conditioners, shall be compliant with Energy Star.

3.2(b): Energy Use Controls

1. **Electronic Thermostat:** Control all heating and cooling systems with a programmable thermostat that allows for a variety of time of day and seasonal settings.

2. **Whole Building Switch:** Install a master whole building switch to control applicable circuits and outlets (such as lights and major appliances) in economy mode when the structure is not occupied. For Alterations and Additions, this section only applies when a new main electric panel is being installed.

3. **Zoned Heating and Cooling:** New construction and Additions in excess of 1000 square feet shall have zoned controls for heating and cooling.

3.3 INTERIOR WATER USE

3.3(a) Toilets and Urinals: For installation or replacement of any toilets or urinals, install either low flush toilets equal to or less than 1.28 gallons per flush (“gpf”) or dual-flush toilets where the low flush feature is no more than 1.28 gpf.

3.3(b) Showers: Whenever any shower heads are newly installed or replaced, install shower heads that can be adjusted to supply either 1.0 or 1.5 gallons per minute.

3.4: MATERIALS AND INDOOR ENVIRONMENTAL QUALITY

3.4(a) Volatile Organic Compounds (VOCs): Paints, coatings, and primers, applied to interior surfaces, shall not exceed the following VOC content limits (as established by Green Seal Standard GC-11, Paints, First Addition, 1993):

Flat Paint: 50g/L flat
Non-Flat Paint: 150g/L non-flat

Clear wood finishes, floor coatings, stains, sealers, and shellacs, applied to interior surfaces, shall not exceed the following VOC content limits (as established by South Coast Air Quality Management District Rule 1113, Architectural Coatings, 2004):

Varnish: 350g/L
Laquer: 550g/L
Shellac: 750 g/L clear, 550 g/L pigmented
Sealers: 275 g/L waterproofing, 275 g/L sanding, 250 g/L all others

All carpet adhesive shall not exceed a VOC content limit of 50g/L

All composite materials shall contain no added urea formaldehyde.

3.4(b) Roofing Materials: All new roofing materials used shall have an SRI of at least 0.78 for Low Slope Roofs and an SRI of at least 0.29 for Steep Slope Roofs. Vegetated (“green”) roof areas that cover at least 50% of the roof will satisfy this provision. This Section does not apply to Additions and Alterations if new roofing materials are to be matched in roof type or color to existing roof areas.

3.4(c) Construction Waste Management: A minimum of 25% of construction waste shall be diverted from the landfill and incinerator. Submit a report to the Building Inspector substantiating compliance with this subpart.

3.5 PART 3 ADDITIONAL REQUIREMENTS

3.5(a) Applicability: In addition to the requirements set forth in Parts 3.1 through 3.4 above, for all New Construction and Additions and alterations in excess of the lesser of 1000 square feet or 50% of the aggregate area of the individual unit, at least five (5) points from the options set forth in this section must be obtained.

1. **Rainwater Harvesting:** Design and install a rainwater harvesting and storage system sized to hold water from a one inch rainfall event (0.62 gallons per square foot of roof area) to be used for landscape irrigation or indoor water use. **(1 point)**

2. **Greywater Harvesting:** Design and install a greywater reuse system for landscape irrigation or indoor water use collected from one of the following: clothes washer, showers, some combination of faucets and other sources estimated to exceed 5,000 gallons per year. **(1 point)**

3. **Construction Waste Management:** Increase the diversion from landfills and/or incinerators above the mandatory requirement set forth in Section 2.4.c. to a minimum of 50% of construction waste. A report shall be submitted to the Building Inspector to substantiate the diversion. **(1 point)**

4. **Economy of Wood Construction Framing:** For projects larger than 1000 sf, reduce use of wood materials by Efficient Framing. A report shall be submitted to the Building Inspector to substantiate compliance. **(1 Point)**

5. **Whole Building Energy Simulation:** For buildings with less than 50% fenestration, demonstrate through a computer analysis software determined to be acceptable to the Building Inspector, a percentage improvement in total energy performance compared to the Baseline Building.

Minimum Improvement of as follows:

New Buildings - 15% - **2 Points**; 25% - **3 Points**; 35% - **4 Points**

Existing Building Renovations - 12% - **2 Points**; 20% - **3 Points**; 25% - **4 Points**

6. **Primary Geothermal Heating and Cooling Systems**: Install a geothermal heating and cooling system that provides a minimum of 80% of the required space heating and space cooling energy. A calculation shall be submitted to Building Inspector to support performance claim. **(3 points)**

7. **Heat Recovery Ventilation**: Install a system that recovers a minimum of 40% of the Sensible Heat in the air such as a heat-recovery ventilator (HRV) or Energy-recovery ventilator (ERV). Ventilation equipment does not have to recover latent heat (moisture). **(1 Point)**

8. **Solar Electricity (Photovoltaics)**: Install a photovoltaic array to provide a minimum of 50% of year-round electricity. A calculation shall be submitted to Building Inspector to support performance claim. **(3 points)**

9. **Passive Solar Heating Strategies**: For projects larger than 1000 square feet, utilize Passive Solar Heating Strategies that save a minimum of 50% of the yearly heating energy requirements compared to a conventional, code-compliant building. A calculation shall be submitted to the Building Inspector to support passive performance claim including effects of winter shading, impact of trees and surrounding structures. **(2 points if impacts only Addition or Alteration, 3 points if impacts entire structure)**

10. **Solar Hot Water**: Install a solar hot water system to provide a minimum of 40% of year-round hot water. A calculation shall be submitted to Building Inspector to support performance claim. **(2 points)**

11. **High Efficiency Cooling System**: Install cooling equipment with a SEER of greater than 16. **(1 point)**

12. **Green/Vegetated Roofs**: Install Green/Vegetated Roofs for a minimum of 50% of the roof area. **(2 Points)**

13. **Light Emitting Diodes ("LEDs")**: Utilize LEDs for at least 75% of the light fixtures. **(1 point)**

14. **Recycled Content**: Utilize Recycled Content Materials for between 10% and 19.99% (by cost) of all building material and finishes. A report shall be submitted to the Building Inspector to substantiate compliance. **(1 point)**. Utilize Recycled Content Materials for 20% or greater (by cost) of all building material and finishes. A report shall be submitted to the Building Inspector to substantiate compliance. **(2 points)**

15. **Salvaged or Reused Materials:** Utilize salvaged, refurbished, or reused materials such that the sum of these materials constitutes at least 5%, based on cost, of the total value of materials on the project. A report shall be submitted to the Building Inspector to substantiate compliance. **(1 point)** Utilize salvaged, refurbished, or reused materials such that the sum of these materials constitutes at least 10%, based on cost, of the total value of materials on the project. A report shall be submitted to the Building Inspector to substantiate compliance. **(2 points)**

16. **Local Materials:** Utilize building materials or products that have been extracted, harvested or recovered, as well as manufactured, within 500 miles of the site for a minimum of 10% (based on cost) of the total materials value. **(1 point)**

17. **Certified Wood:** Use a minimum of 50% of wood-based materials and products that are certified by Forest Steward Council's (FSC) for wood building components. These components include, but are not limited to, structural framing, general dimensional framing, flooring, sub-flooring, wood doors, and finishes. A report shall be submitted to the building Inspector to substantiate compliance. **(1 point)**

17. **Rapidly Renewable Materials:** Use rapidly renewable materials made from plants that are typically harvested within a ten-year cycle or shorter, for at least 2.5%, based on cost, of the total value of materials and products used in the project. A report shall be submitted to the building Inspector to substantiate compliance. **(1 point)**

18. **Other Green Measure(s):** Sustainability measures not listed may be proposed to receive up to a maximum of 3 points, subject to approval of the Building Inspector.