2015



Enterprise

green

Communities

multifamily

specifications

# About Us

## Enterprise Green Communities

Enterprise Green Communities is the first national green building program focused entirely on affordable housing. Launched by Enterprise in fall 2004, Green Communities is designed to help developers, investors, builders and policymakers make the transition to a greener future for affordable housing. Visit [www.enterprisecommunity.org/green](http://www.enterprisecommunity.org/green).

## About Enterprise

Enterprise is a leading provider of the development capital and expertise it takes to create decent, affordable homes and rebuild communities. Enterprise has introduced neighborhood solutions through public–private partnerships with financial institutions, governments, community organizations and others that share our vision. Enterprise has raised and invested more than $18.6 billion in equity, grants and loans to help build or preserve more than 340,000 affordable rental and for-sale homes to create vital communities. Enterprise is currently investing in communities at a rate of $1 billion a year. Visit <http://www.enterprisecommunity.com/solutions-and-innovation/enterprise-green-communities> to learn more about Enterprise’s efforts to build communities and opportunity.

## Acknowledgments

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Alistair Jackson

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# Introduction

Thank you for your interest in creating a greener future for affordable housing. To help project teams meet the requirements of the 2015 Enterprise Green Communities Criteria (2015 Criteria), Enterprise has developed a customizable specifications template and companion planning matrix. When construction specifications include the correct green building requirements, contractors have the information they need to successfully build green affordable housing.

## Use and Limitations

Use these tools for multifamily buildings of all heights and for new construction, substantial or moderate rehabilitation projects. The design team must edit the specifications for each project’s specific climate, construction type, and targeted criterion. Recommendations and tips are offered in comment bubbles. In no case are recommendations found in the template to be incorporated if they are in conflict with the requirements of authorities having jurisdiction, including but not limited to state and local code officials, zoning requirements, OSHA standards, and the like.

## Template Specifications

This editable Word document is organized according to MasterSpec standard Divisions. All specifications for the 2015 Criteria are written into Division 1 General Requirements, primarily Section 018113 Sustainable Building Requirements. The remaining MasterSpec Divisions 2-33 link to the appropriate green specification under Section 018113.

Example: A project plans to pursue Green Communities Criterion 6.3 for Recycled Content in Concrete. Full specifications for recycled content concrete are located in Division 1, Section 018113 Sustainable Building Requirements. Under Division 3, Section 03 30 00 Concrete we find a link back to the appropriate spec under 018113.

## Companion Spec / Criterion Matrix

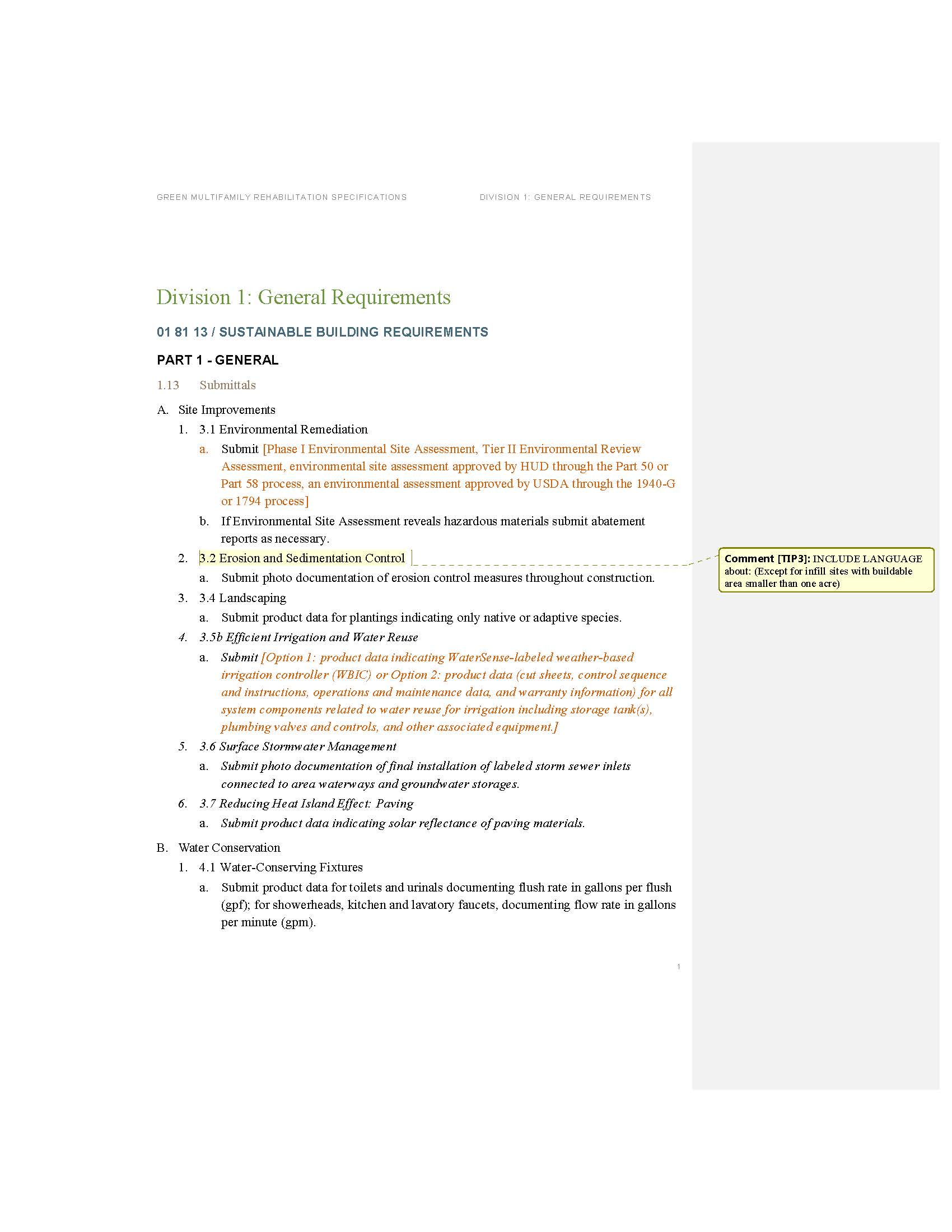
The Companion Spec / Criterion Matrix is an editable Excel file that maps each Green Communities criterion to the relevant MasterSpec Division. Specifically, the matrix indicates whether a Submittal (P), Product (P), or Execution (E) responsibility is associated with each individual criterion. This matrix can serve as a planning tool for customizing the template specifications or as a standalone resource for project teams.

## Instructions

Design teams can copy and paste from the Specifications Template to suit their needs. Teams may benefit from integrating the Specifications Template and Companion Matrix as follows:

1. Revise the companion matrix to eliminate any Green Communities criterion that do not apply to the project.
2. Remove unnecessary Divisions Sections or Parts from this Specifications Template, including any references to optional criterion your project is not pursuing, using the companion matrix as a resource.
3. Customize the specifications for your climate, housing stock and targeted criterion, following the template’s built-in guidance captured in Comment Tip Boxes (described in more depth in the legend below).
4. Train the project team on the use of these specifications, particularly the contractors who implement the specifications.

## Legend for Specification Edits



***Italics denotes optional criterion;*** delete any specs for criterion not being pursued

**Orange denotes a choice;** select the appropriate spec, delete others

**Green Communities criterion**

**MasterSpec Section**

**MasterSpec Division**

**Tips and recommendations in comment bubbles**

## Customization Tips

To remove individual comment boxes, click in the comment box, right click and select ‘delete.’ To remove all comment boxes, Go to the Review tab > Comments group. Click the drop-down arrow to the right of Delete. Select Delete All Comments in Document.

To remove all italics, or all colored fonts, first select all text. On the Home tab, in the Editing group, click Select, and then click Select All. In the Font tab, click or unclick Italics; or select the preferred font color.

If you have any questions or suggestions regarding these recommendations, please contact us at [greencommunities@enterprisecommunity.org](mailto:greencommunities@enterprisecommunity.org).

# Division 1: General Requirements

## 01 42 00 / References and Definitions

### general

#### References

##### 2012 ICC International Energy Conservation Code (IECC)

##### Air Conditioning Contractors of America (ACCA) Manual D, Residential Duct Systems

##### Air Conditioning Contractors of America (ACCA) Manual J, Residential Load Calculation

##### Air Conditioning Contractors of America (ACCA) Manual S, Residential Equipment Selection

##### ASHRAE 62.1-2010, Ventilation for Acceptable Indoor Air Quality (for common areas in mid- and high-rise buildings)

##### ASHRAE 62.2-2010, Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings

##### ASHRAE 90.1-2010, Energy Standard for Buildings Except Low-Rise Residential Buildings

##### ASHRAE Handbook—Systems and Equipment

##### ASME E17.1—Safety Code for Elevators and Escalators

##### ASTM C1371-04—Standard Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emissometers

##### ASTM E1527-05—Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process

##### ASTM C1549-04—Standard Test Method for Determination of Solar Reflectance Near Ambient Temperature Using a Portable Solar Reflectometer

##### ASTM E408-71(1996) e1—Standard Test Methods for Total Normal Emittance of Surfaces Using Inspection-Meter Techniques

##### ASTM E779-03—Standard Test Method for Determining Air Leakage Rate by Fan Pressurization

##### ASTM E1918-97—Standard Test Method for Measuring Solar Reflectance of Horizontal and Low-Sloped Surfaces in the Field

##### ASTM E1980-01—Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces

##### ASTM E2121-09—Standard Practice for Radon Mitigation Systems in Existing Low-Rise Residential Buildings

##### Building Performance Institute Home Energy Auditing Standard, Section 7, 2009

##### Building Performance Institute Technical Standards for the Building Analyst Professional

##### California Air Resources Board (CARB) 93120—Airborne Toxic Control Measure to Reduce Formaldehyde Emissions from Composite Wood Products

##### California Department of Health Services—Standard Practice for The Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers, including 2004 Addenda

##### California Title 24 2013 Building Energy Efficiency Standards, Title 24, Part 6

##### Carpet and Rug Institute (CRI) “Green Label” IAQ Testing Program for Carpet Cushion

##### Carpet and Rug Institute (CRI) “Green Label Plus” IAQ Testing Program for Carpet

##### ENERGY STAR Advanced Lighting Package

##### ENERGY STAR Appliances and Lighting Fixtures

##### ENERGY STAR for New Homes Version 3.0 or 3.1

##### ENERGY STAR Multifamily High-Rise Program, National Performance and Prescriptive Path Requirements

##### ENERGY STAR Roofing—Establishes criteria for sloped roofs to meet specific solar reflectance and emissivity values

##### EPA “Compendium of Methods for the Determination of Air Pollutants in Indoor Air”

##### EPA Indoor airPLUS Program

##### EPA Radon Zone Map.

##### EPA WaterSense Inspection and Verification Guidance for WaterSense Labeled New Homes, 2009

##### EPA Renovation, Repair, and Painting (RRP) Regulation 40 CFR 745 Lead-Based Paint Poisoning Prevention in Certain Residential Structures

##### EPA Stormwater Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices (EPA 832-R-92-005)

##### EVFM by International Leak Detection

##### Forest Stewardship Council (FSC) Guidelines

##### Enterprise Green Communities Criteria 2015

##### Green Seal (GC) Standard GC-03 “Anti-Corrosive Paints”

##### Green Seal (GS) Standard GS-11 “Paints”

##### Green Seal (GS) Standard GS-36 “Commercial Adhesives”

##### IESNA 90.1-2007 Space Type Lighting Power Density

##### Housing and Urban Development (HUD) 24 CFR 35 Lead Safe Housing Rule

##### Housing and Urban Development (HUD) 24 CFR 50 Protection and Enhancement of Environmental Quality

##### Housing and Urban Development (HUD) 24 CFR 58 Environmental Review Procedures

##### MaP Toilet Fixture Performance Testing Protocol, Version 3, July 2007

##### MPI Green Performance Standard for Paints & Coatings GPS-2-08

##### NSF/ANSI 332-2010, Sustainability Assessment for Resilient Floor Coverings

##### TPI BCSI, “Building Component Safety Information: Guide to Good Practice for Handling, Installing, Restraining, & Bracing Metal Plate Connected Wood Trusses”

##### Resilient Floor Covering Institute (RFCI) “FloorScore Program”

##### Sheet Metal and Air Conditioning Contractors’ National Association (SMACNA) 2008 Duct

##### Construction Standards

##### South Coast Air Quality Management District (SCAQMD) Rule #1168 “Adhesive and Sealant Applications”

##### USDA 1940-G and 7 CFR Part 1794 Environmental Policies and Procedures

##### WaterSense, U.S. Environmental Protection Agency, Office of Wastewater Management (4204M)

#### Definitions

##### Carbon Monoxide: A colorless, odorless, and tasteless gas that greatly affects indoor air quality. Because it is impossible to see, taste, or smell the toxic fumes, CO can kill before there is awareness that it is in the home. At lower levels of exposure, CO causes mild effects that are often mistaken for flu. These symptoms include headaches, dizziness, disorientation, nausea, and fatigue.

##### Certified Wood: Wood grown in a sustainably managed forest certified by a Forest Stewardship Council (FSC)–accredited certification agency. FSC-Certified wood products must have Chain of Custody from forest to manufacturer.

##### Common Area: An area available for use by more than one person, including rental or sales offices, entrances, hallways, shared leisure rooms, resident services areas, and laundry rooms.

##### Composite Wood: Products such as particleboard, medium-density fiberboard (MDF), plywood, wheatboard, strawboard, panel substrates, and door cores that are a composite of wood or plant material pressed and adhered together by synthetic resin or binder.

##### Construction Waste: Solid wastes typically including building materials, packaging, trash, debris, and rubble that results from construction, remodeling, repair, and demolition.

##### Emissivity (or Infrared Emittance): Indication of ability of a material to shed infrared radiation.

##### Engineered Wood Products: Wood building materials manufactured by gluing particles, fibers, or veneers to increase strength.

##### Formaldehyde: Chemical used widely to manufacture building materials and numerous household products. Also a by-product of combustion and certain other natural processes; thus, it may be present in substantial concentrations both indoors and outdoors. Health effects include eye, nose, and throat irritation; wheezing and coughing; fatigue; skin rash; and severe allergic reactions. May cause cancer.

##### LED (Light-Emitting Diode): Energy-efficient lights that produce less initial heat per lumen, consume less energy, and last longer than conventional incandescent and fluorescent lights.

##### Non-Toxic: Neither immediately poisonous to humans, nor poisonous after a long period of exposure.

##### Post-Consumer Waste: Materials or finished products that have served their intended use and have been diverted or recovered from waste destined for disposal, having completed their lives as consumer items.

##### Post-Industrial Waste (or Pre-Consumer Waste): Materials generated in manufacturing and converting processes, such as manufactured scrap and trimmings and cuttings.

##### Potable Water: Water suitable for drinking and supplied from wells or municipal water systems.

##### Radon: Colorless, odorless, and tasteless gas that greatly affects indoor air quality. According to the EPA, radon exposure is the second leading cause of lung cancer in the US.

##### Reclaimed Wood: Previously used wood that has been made available for reuse.

##### Recycling: Collection, reprocessing, marketing, and use of materials that were recovered or diverted from the solid waste stream.

##### Salvage: Removal of existing materials or assemblies for re-installation or other use as directed by Owner.

##### Sediment: Soil and other debris that has been eroded and transported by storm or production runoff water.

##### Solar Hot Water System: A means of capturing, converting, and transferring heat from direct and indirect sunlight to heat an auxiliary water tank and provide hot water for a building’s occupants.

##### Solar Reflectance (or Albedo): The measure of a material’s ability to reject solar heat, as shown by a small temperature rise. Calculated according to ASTM E1980 using the material’s Emittance and Reflectivity values. Standard black has an SRI of 0 and standard white has an SRI of 100.

##### Toxic: Poisonous to humans, either immediately or after a long period of exposure.

##### Ventilation: Process of supplying and removing air to and from interior spaces by natural or mechanical means.

##### Volatile Organic Compounds (VOCs): Carbon compounds that participate in atmospheric photochemical reactions, (excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides and carbonates, and ammonium carbonate). Compounds vaporize (become a gas) at normal room temperatures. VOC content is calculated in grams/liter (g/L) according to 40 CFR 59, Subpart D (EPA Method 24).

##### Waste: Extra material or material that has reached the end of its useful life in terms of its intended use.

## 01 57 13 / Temporary Erosion and Sedimentation Control

### General

#### Summary

##### Related sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Site Improvements

###### 3.2 Erosion and Sedimentation Control

Submit photo documentation in accordance with 018113 under Criterion 3.2.

### products (no egc comments)

### Execution

#### Execution Requirements

##### Site Improvements

###### 3.2 Erosion and Sedimentation Control

Conform to execution requirements in accordance with 018113 under Criterion 3.2.

## 01 74 19 / Construction Waste Management and Disposal

### General

#### Summary

##### Reduce construction and demolition waste on job site and minimize waste sent to landfills through implementation of Construction Waste Management Plan as required by Enterprise Green Communities criterion 6.12 and as outlined within this Section and in the Sections referenced herein.

##### Related sections:

###### Section 018113 Sustainable Building Requirements

###### Section 024119 Selective Structure Demolition

##### All projects must commit to following a waste management plan that reduces non-hazardous construction and demolition waste through recycling, salvaging, or diversion strategies. Projects must meet the minimum requirements of at least one of the following Options, and may earn additional points for selecting additional pathways:

###### [Option 1]: Provide a waste plan that diverts at least 50% *[75%]*.

###### [Option 2]: Separate and recycle at least two of the following materials *(select more for additional points)*: [all cardboard], [all wood], [all drywall], [all metals], [all concrete, brick, and asphalt], and/or [develop and implement a comprehensive efficient framing plan].

###### [Option 3]: Total construction waste to landfill or incinerator must be less than 2.5 lbs/SF of building *[less than 1.5 lbs/SF of building]*.

#### Submittals

##### Construction and Demolition Waste Management (CWM) Plan: Prior to any waste removal and within 30 days of Contract award, submit for approval a detailed CWM Plan in accordance with criterion 6.3 and 6.4 as outlined in this Section:

###### Analysis of estimated job-site waste to be generated, including types and quantities of compostable, recyclable, and salvageable materials.

###### Description of means and methods to achieve the mandatory requirement documented under 1.1C.

Identification of recycling contractors and haulers proposed for use in the project and locations accepting construction waste materials or entities providing related services.

##### Waste Management Progress Reports: Submit monthly, concurrent with each Application for Payment.

###### Project title, name of party completing report, and dates of period covered by the report.

###### Amount (by weight or volume) of project waste material landfilled to date and identity of the landfill(s).

##### Final Waste Management Report: Submit at completion of construction and prior to contract close-out, in electronic format.

###### All information required in Waste Management Progress Reports.

###### Legible copies of on-site logs, manifests, weight tickets, and receipts.

###### Final calculations and/or summaries that demonstrate compliance with the mandatory and optional pathways chosen under Criterion 6.12 as detailed in Section 018113.

### Products (no EGC Comments)

### Execution

#### Waste Management Plan Implementation

##### Training and Coordination

###### Provide copies of approved CWM Plan to all on-site supervisors, each subcontractor, Owner, and Architect.

Contractors, sub-contractors, and other entities responsible for implementing the CWM Plan must return a signed agreement stating that they will comply.

###### Instruction: Provide on-site instruction of appropriate separation, handling, recycling, salvage, reuse, and return methods to be used by all entities at the appropriate stages of the project.

###### Meetings: Include construction waste management on the agenda of all required regularly scheduled construction meetings.

##### Facilities: Provide designated facilities for co-mingling or separation and storage of materials for recycling, salvage, reuse, return, and waste disposal, per approved CWM Plan for use by all contractors and installers.

###### Provide signage in English (Spanish, Vietnamese, etc.) and graphics to indicate recycling procedure.

###### Provide materials for barriers and enclosures that are non-hazardous, recyclable, or reusable to the maximum extent possible; reuse project construction waste materials if possible.

###### Provide adequate space, convenient to subcontractors, for pickup and delivery.

###### Keep recycling and waste bin areas neat and clean to avoid contamination of materials.

##### Methods of waste disposal that are not acceptable for meeting this criterion include:

###### Burning or incinerating on or off project site.

###### Burying on project site, other than fill.

###### Dumping or burying on other property, public or private, other than official landfill.

###### Illegal dumping or burying.

##### Recycling Procedures:

###### Co-mingle or separate, store, protect, and handle at the site identified recyclable waste products in order to prevent contamination of materials and to maximize recyclability of identified materials. Arrange for timely pickups from the site or deliveries to recycling facility in order to prevent contamination of recyclable materials.

###### Coordinate work of recycling, composting, and salvaging waste haulers with other trades.

###### Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall accrue to Contractor.

## 01 77 00 / Closeout Procedures

### General

#### Summary

##### Related sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Operations, Maintenance and Resident Engagement

###### Refer to 018113 for submittals related to Enterprise Green Communities criterion 8.1 O&M Manual and Plan, 8.2 Emergency Management Manual.

### products (no egc comments)

### Execution (NO egc comments)

## 01 78 23 / Operations and Maintenance Data

### General

#### Summary

##### Related sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Operations, Maintenance and Resident Engagement

###### 8.1 Building Maintenance Manual

Refer to 018113 for submittals related to Enterprise Green Communities Criterion 8.1 Building Maintenance Manual.

###### 8.2 Emergency Manual

Refer to 018113 for submittals related to Enterprise Green Communities Criterion 8.2 Emergency Manual.

### products (no egc comments)

### Execution (NO egc comments)

## 01 79 00 / Demonstration and Training

### General

#### Summary

##### Related sections:

###### Section 018113 Sustainable Building Requirements

### products (no egc comments)

### Execution (NO egc comments)

#### Execution Requirements

##### Operations, Maintenance and Resident Engagement

###### 8.4 Resident and Property Staff Orientation

Refer to 018113 for submittals related to Enterprise Green Communities Criterion 8.4 Resident and Property Staff Orientation.

## 01 81 13 / Sustainable Building Requirements

### general

#### Summary

##### Section includes:

###### Summary of sustainable building requirements for project as necessary for certification of this project through the 2015 Criteria.

###### Related performance and administrative requirements.

##### Related sections:

###### Section 014200 References and Definitions

###### Section 017419 Construction Waste Management and Disposal

###### Section 018119 Construction Indoor Air Quality Management

###### Divisions 02 through 12, 14, 22, 23, 26, 28, 31 through 33 where related submittal, product, or execution requirements relate to Criteria. Requirements are not repeated but 018113 is referenced within respective sections.

#### References

##### 2015 Enterprise Green Communities Criteria

##### Refer to 014200 for a comprehensive list of References and Definitions

#### Coordination

##### Contractor is responsible for all requirements of the 2015 Criteria that are contained throughout these Specifications, including successful compliance with and passage of visual inspections and performance tests by verifying party.

##### ENERGY STAR verification: Contractor is responsible for coordinating with appropriate verification team members to ensure inspections and leakage tests can be performed at the appropriate times and without delaying construction progress;

###### Coordinate framers, plumbers, HVAC, insulators, and drywall trades to minimize uncontrolled air leakage pathways between residential units by sealing all penetrations in walls, ceilings, and floors in the units and by sealing all vertical chases adjacent to the units.

#### Submittals

##### Location + Neighborhood Fabric

###### *2.10 Passive Solar Heating/Cooling*

*Submit documentation showing the National Fenestration Rating Council (NFRC) certified U-value and Solar Heat Gain Coefficient (SHGC) of all windows to demonstrate compliance with the U-value and minimum SHGC for Glazing Type by climate zone: [Climate Zone 1 & 2, U-Factor 0.40, SHGC 0.25, 100% shaded on June 21/ Climate Zone 3 & 4 except Marine,U-Factor 0.30, SHGC 0.27, 75% shaded on June 21 / Climate Zone 4 Marine, 5, 6, 7 U-Factor 0.27, any SHGC, 50% shaded on June 21]*

##### Site Improvements

###### 3.1 Environmental Remediation

Submit [Phase I Environmental Site Assessment, Tier II Environmental Review Assessment, environmental site assessment approved by HUD through the Part 50 or Part 58 process, an environmental assessment approved by USDA through the 1940-G or 1794 process].

If Environmental Site Assessment reveals hazardous materials submit abatement reports as necessary.

###### 3.2 Erosion and Sedimentation Control

Submit photo documentation of erosion control measures throughout construction.

###### 3.4 Landscaping

Submit product data for plantings indicating only native or adaptive species.

###### 3.5a Efficient Irrigation and Water Reuse

Submit product data (including cut sheets, control sequence and instructions, operations and maintenance data, and warranty information) related to:

Drip irrigation system for landscape planting beds

Timer/controller that activates valves for each watering zone

Moisture sensor controller or rain delay controller

As-built landscape plan that indicates the separate zones for turf, bedding areas, and trees based on watering needs and final installation of irrigation equipment.

*3.5b Efficient Irrigation and Water Reuse*

Submit [Option 1: product data indicating WaterSense-labeled weather-based irrigation controller (WBIC) or Option 2: product data (cut sheets, control sequence and instructions, operations and maintenance data, and warranty information) for all system components related to water reuse for irrigation including storage tank(s), plumbing valves and controls, and other associated equipment.]

3.6 Surface Stormwater Management

Submit photo documentation of final installation of labeled storm sewer inlets connected to area waterways and groundwater storages.

3.7 Reducing Heat Island Effect: Paving

Submit product data indicating solar reflectance of paving materials.

##### Water Conservation

###### 4.1 Water-Conserving Fixtures

Submit product data for toilets and urinals documenting flush rate in gallons per flush (gpf); for showerheads, kitchen and lavatory faucets, documenting flow rate in gallons per minute (gpm).

Submit product data for toilets, urinals, showerheads, and lavatory faucets documenting fixture is WaterSense-labeled.

4.2 Advanced Water Conservation

Submit product data for toilets and urinals documenting flush rate in gallons per flush (gpf); for showerheads, kitchen and lavatory faucets documenting flow rate in gallons per minute (gpm).

Submit product data for toilets, urinals, showerheads, and lavatory faucets documenting fixture is WaterSense-labeled.

4.3 Leaks & Water Metering

Submit [Option 1: product data for dwelling unit’s water meter/submeter] or [Option 2: product data for domestic water riser water meter/submeter].

4.4 Efficient Plumbing Layout & Design

Submit calculations of pipe runs and stored volume.

Submit hot water delivery test results documenting volume of water collected from hot water fixtures before hot water is delivered.

*Submit product data for recirculation pumps and controls documenting ability to be demand-initiated (Required if using recirculation system to meet criterion).*

4.5 Water Reuse

Submit product data for holding tank(s)/cistern(s) documenting capacity in gallons.

Submit product data for pumps documenting horsepower and flow rate in gallons per minute.

Submit product data for water filtration/treatment equipment documenting micron rating if water is for potable uses.

4.6 Access to Potable Water during Emergencies

Submit *[Option 2: product information for potable water storage tanks, associated valves, and any regular maintenance tasks]* or *[Option 3: product and location information for the drilled will with clear instructions for operation during emergencies and any related maintenance tasks].*

##### Energy Efficiency

###### 5.1a Building Performance Standard: New Construction: single family and low-rise multifamily

Submit ENERGY STAR New Home certificate for each dwelling unit in the development.

###### 5.1b Building Performance Standard: New Construction: mid-rise and high-rise multifamily

[Option 1: Submit ENERGY STAR Multifamily High Rise certificate].

[Option 2: Submit a narrative and photographs documenting compliance with the ENERGY STAR Multifamily High Rise Prescriptive Pathway.

Submit 3rd party commissioning reports documenting all installed measures per LEED BD+C: Multifamily Midrise v4 Energy and Atmosphere Prerequisite: Minimum Energy Performance Prescriptive Commissioning Path.]

[Option 3: Submit ENERGY STAR Multifamily High Rise Performance Path Calculator documenting energy modeling results; and

Submit 3rd party commissioning reports documenting all installed measures per LEED BD+C: Multifamily Midrise v4 Energy and Atmosphere Prerequisite: Minimum Energy Performance Prescriptive Commissioning Path.]

###### 5.1c Building Performance Standard: Substantial and Moderate Rehab: single family and low-rise multifamily

Submit HERS Home Energy Rating Certificate for each dwelling unit in the development.

###### 5.1d Building Performance Standard: Substantial and Moderate Rehab: mid-rise and high-rise multifamily

Submit energy model output report demonstrating project energy performance consistent with ASHRAE 90.1-2010 using Appendix G.

5.2b Advanced Certification: Nearing Net Zero

Submit certificate documenting certification under any of the following programs:

PHIUS+

PH International

DOE Zero Energy Ready Home

Living Building Challenge

###### 5.3 Sizing of Heating and Cooling Equipment

Submit heating and cooling load calculations and equipment selection performed in accordance with the Air Conditioning Contractors of America (ACCA) Manuals J and S or ASHRAE handbooks.

###### 5.4 ENERGY STAR Appliances

If providing appliances, submit clothes washer, dishwasher and refrigerator product details generated directly from ENERGY STAR’s list of certified products.

###### 5.5 Lighting

Submit product data for all lighting fixtures, lighting and lamps documenting efficacy in lumens per watt (lm/W).

Submit product data for all lighting controls.

###### 5.6 Electricity Meter

Submit product data for individual dwelling unit electric meter/submeter

5.7b Renewable Energy

*Submit product data documenting number of solar panels, orientation, tilt angle of array, individual panel’s peak power rating in Watts and inverter efficiency.*

5.8b Resilient Energy Systems: Islandable Power

Submit [Option 1: product data documenting number of solar panels, orientation, tilt angle of array, and individual panel’s peak power rating in Watts. Inverter efficiency and emergency switching controls; Option 2: product data documenting number of solar panels, orientation, tilt angle of array, individual panel’s peak power rating in Watts. inverter efficiency, battery storage capacity and automatic transfer switch; Option 3: product data documenting generator power rating and automatic transfer switch].

##### Materials

###### 6.1 Low / No VOC Paints, Coatings and Primers

Submit VOC level in grams per liter for all interior paints, coatings, and primers.

###### 6.2 Low / No VOC Adhesives and Sealants

Submit VOC level in grams per liter for all interior adhesives, sealants, and caulks.

*6.3* *Recycled Content Materials*

*Submit product information that identifies post-consumer recycled content and post-industrial recycled content. Eligible products include:* [Framing: wood, concrete, steel, aluminum], [Siding: wood, metal, masonry], [Flooring (non-structure): linoleum, cork, bamboo, reclaimed wood, sealed concrete, carpet], [Paving: cement slab (urbanite)], [Roofing: wood shingles, asphalt shingles, tile, metal], [Insulation: fiberglass batt, cellulose, rigid panel], [Sheathing: plywood, OSB].

6.4 Regional Material

Submit product information that confirms exact location where the material was extracted, processed, and manufactured. Eligible products include: [Framing materials], [Exterior materials: siding, masonry, roofing], [Flooring materials], [Concrete / cement and aggregate materials], [Drywall / interior sheathing materials].

6.5 Certified, Salvaged and Engineered Wood Products

Submit product information that confirms the total cost or value and: [Chain of Custody Certificate for any products certified in accordance with the Forest Stewardship Council], [proof that products were salvaged], and/or [cut sheets for engineered wood demonstrating they do not include urea formaldehyde-based binders].

###### 6.6 Composite Wood Products that Emit Low / No Formaldehyde

Submit product documentation demonstrating that all composite wood products installed within the weather resistive barrier (WRB) are compliant with California 93120 Phase 2.

If non-compliant products are used, submit photo documentation and confirmation that all exposed edges and sides have been sealed with low-VOC sealants in accordance with Criterion 6.2.

###### 6.7a Environmentally Preferable Flooring

Submit product documentation to confirm that all hard surface flooring is: [ceramic tile], [solid unfinished hardwood], [meets the Scientific Certification System’s FloorScore program criteria, including for pre-finished hardwood flooring].

Submit product documentation to confirm all carpet products meet the Carpet and Rug Institute’s Green Label Plus certification and all carpet pads and adhesives meet Green Label certification.

6.7b Environmentally Preferable Flooring Throughout

Submit product documentation that confirms only non-vinyl, non-carpet floor coverings are used throughout the building.

###### 6.9 Mold Prevention: Tub & Shower Enclosures

Submit product documentation demonstrating all drywall behind tub and shower enclosures meets ASTM #D3273.

6.10 Asthmagen-free Materials

[For insulation] Submit product documentation demonstrating no formaldehyde in fiberglass batts and no spray polyurethane foam is used.

[For flooring] Submit product documentation demonstrating non-flexible vinyl (PVC) roll or sheet flooring was used and that carpets are not backed with vinyl or phthalates.

[For wall coverings] Submit product documentation demonstrating flooring materials do not contain vinyl, phthalates, epoxy-based coatings or polyurethane-based coatings.

[For Composite Wood] Submit product documentation demonstrating ULEF or NAF compliance.

6.11 Reduced Heat-Island Effect: Roofing

Submit: *Option 1: product documentation demonstrating ENERGY STAR-certified roofing product; Option 2: product documentation showing details of green (vegetated) roof system, including waterproofing, drainage layer, growing medium, containment, plant list and irrigation system.*

###### 6.12 Construction Waste Management

Refer to 017419 for general information and submittals related to Enterprise Green Communities criterion 6.12 Construction Waste Management.

##### Healthy Living Environment

###### 7.1 Ventilation

Submit product data for in-unit ventilation system(s) in compliance with ASHRAE 62.2-2010 requirements for

local mechanical exhaust system in bathrooms;

local mechanical exhaust system in kitchens; and

whole-house mechanical ventilation.

Submit product data for any individual bathroom fans demonstrating ENERGY STAR label and humidistat sensor, timer or other control.

Submit product data for any central ventilation systems in compliance with ASHRAE 62.1-2010 requirements for any corridors, stair wells, common and amenity areas and retail/commercial/office spaces.

Submit product data for any central rooftop fans showing direct-drive and variable-speed capability.

Submit product data for any fan providing central ventilation with design CFM 300-2000 showing an electronically commutated motor (ECM).

###### 7.3 Combustion Safety

Submit product data for any combustion water heating or space heating equipment showing compliant venting.

Submit product data for hard-wired carbon monoxide alarms with battery backup.

###### 7.5 Vapor Retarder Strategies

For new or replacement concrete slabs (basements, crawl spaces, and slab on grade construction), submit product data for capillary break and polyethylene sheeting.

For crawl spaces with no slab, submit product data for polyethylene sheeting.

###### 7.8 Radon Mitigation

For all new construction projects in EPA Radon Zone 1, submit photographs of installed radon-resistant construction features: below slab, vent pipe, and adjacent electrical outlet.

For all substantial rehab projects in EPA Radon Zone 1, submit test results (conducted by a radon professional in accordance with ANSI-AARST MAMF-2012). If test results exceed 4 pCi/L (pico curies per liter), submit photographs of installed radon-reduction measures outlined in ANSI/AARSTR RMS-MF (PS) 2013 or ASTM E 2121-11.

###### 7.10 Integrated Pest Management

Submit product data for nontoxic sealing methods including window screens, door sweeps, escutcheon plates, and rodent- and corrosion-proof screens for openings greater than ¼ inch.

###### 7.12 Active Design: Promoting Physical Activity Within the Building

Submit [Option 1: photographs of signage located at building entrance and corridor intersections promoting use of stairs over elevator; Option 2: photographs of strategies installed to increase frequency and duration of physical activity].

7.13 Active Design: Staircases and Building Circulation

Submit product data or photographs demonstrating [10 square feet of glazing in or adjacent to stair doors] or [magnetic door holds on all doors leading to the stairs].

###### 7.15 Reduce Lead Hazards

For properties built before 1978, submit credentials complying with EPA’s Renovation, Repair, and Painting Regulation (RRP) (40 CFR 745) requirements.

##### Operations, Maintenance and Resident Engagement

###### 8.1 Building Operations & Maintenance (O&M) Manual and Plan

Submit a manual with thorough building operations and maintenance guidance and a complementary plan, including all of the following components:

Operations and maintenance guidance for all mechanical, electrical and plumbing equipment and appliances for building-level equipment and dwelling-unit equipment, including HVAC and plumbing as-built information and O&M schedules;

O&M and replacement requirements for any other specialized systems within the project;

Floor plans specifically highlighting the location of mechanical, electrical, gas, and water-system turnoffs;

As-built lighting fixture and lamp schedules, specifications, and replacement guidance;

As-built landscaping and hardscaping plant lists, specifications, maintenance requirements and schedules, and any specific instructions for community gardens or growing spaces;

As-built irrigation plans, including zone delineation, control sequence, maintenance instructions, seasonal O&M schedule, and indication if irrigation is solely for establishment (indication # years) or is permanent;

Green cleaning product specifications and cleaning schedules for any finish materials requiring special treatment;

Pest Control Guidelines that reference the IPM strategies developed in 7.10 Integrated Pest Management;

Clear O&M requirements for building accessibility systems for residents, including but not limited to security and safety systems, door locking devices such as card keys or other; and

Maintenance requirements for equipment installed in active recreation and play spaces.

###### 8.2 Emergency Management Manual

Submit information critical to an Emergency Management Manual related to operations such as infrastructure and building shutdown procedures, potable water protection and supply.

### products

#### Product Requirements

##### Location + Neighborhood Fabric

###### *2.10 Passive Solar Heating/Cooling*

Order climate- and orientation-specific windows in strict accordance with the window schedule that meet climate-specific National Fenestration Rating Council (NFRC) certified U-value and minimum Solar Heat Gain Coefficient (SHGC) requirements: [Climate Zone 1 & 2, U-Factor 0.40, SHGC 0.25, 100% shaded on June 21/ Climate Zone 3 & 4 except Marine,U-Factor 0.30, SHGC 0.27, 75% shaded on June 21 / Climate Zone 4 Marine, 5, 6, 7 U-Factor 0.27, any SHGC, 50% shaded on June 21]

##### Site Improvements

###### 3.4 Landscaping

All trees, shrubs, groundcover, grasses, and plantings must be native or adapted to the region.

All new plants must be appropriate to the site’s soil and microclimate, and none should be invasive species.

###### 3.5a Efficient Irrigation and Water Reuse

Timer/Controller must be capable of activating a valve for each watering zone at the best time of day to minimize evaporative losses while maintaining healthy plants and obeying local regulations and water-use guidelines

3.5b Efficient Irrigation and Water Reuse

Install WaterSense-labeled weather-based irrigation controller (WBIC)

3.7 Reducing Heat Island Effect: Paving

Use paving materials with a minimum solar reflectance of 0.3 for at least 50% of the site’s hardscaped areas.

##### Water Conservation

###### 4.1 Water-Conserving Fixtures

Toilets, WaterSense-labeled and ≤ 1.28 gallons per flush (gpf)

Urinals, WaterSense-labeled and ≤ 0.5 gpf

Showerheads, WaterSense-labeled and ≤ 2.0 gallons per minute (gpm)

Kitchen faucets, ≤ 2.0 gallons per minute (gpm)

Lavatory faucets, WaterSense-labeled and ≤ 1.5 gallons per minute (gpm)

4.2 Advanced Water Conservation

Toilets, WaterSense-labeled and ≤ 1.1 gallons per flush (gpf)

Showerheads, WaterSense-labeled and ≤ 1.5 gallons per minute (gpm)

Lavatory faucets, WaterSense-labeled and ≤ 1.0 (gpm)

4.3 Leaks and Water Metering

Install meter or submeter in each dwelling unit with a technology capable of tracking water use.

Separately meter outdoor water consumption.

4.4 Efficient Plumbing Layout & Design

Size and install piping that will store no more than 0.5 gallons of water in any piping/manifold between the hot water source and any hot water fixture.

Install recirculation pump which is demand-initiated and NOT activated solely on a timer and/or temperature sensor (required if using recirculation system to meet criterion).

4.5 Water Reuse

Product requirements will vary depending on approach used for each project.

4.6 Access to Potable Water during Emergencies

Install [Option 2: potable water storage tanks capable of providing at least 20 gallons per resident] or [Option 3: drilled will with means for pumping water when the electric grid is down].

##### Energy Efficiency

###### 5.1a Building Performance Standard: New Construction: single family and low-rise multifamily

Provide products that meet ENERGY STAR program requirements.

###### 5.1b Building Performance Standard: New Construction: mid-rise and high-rise multifamily

Provide products that meet ENERGY STAR program requirements.

###### 5.3 Sizing of Heating and Cooling Systems

Install equipment that meets the sizing calculations in accordance with the Air Conditioning Contractors of America (ACCA) Manuals J and S or ASHRAE handbooks. Equipment capacity shall not exceed calculated sizing by more than 20% (unless smaller capacity equipment is unavailable).

###### 5.4 ENERGY STAR Appliances

The following appliances shall be ENERGY STAR certified

Clothes washers; and

Dishwashers; and

Refrigerators.

###### 5.5 Lighting

Permanently installed lighting fixtures shall have efficacy ≥ 40 lumens per watt.

Recessed lights are ballasted compact fluorescent fixtures or use ENERGY STAR qualified LED lamps; and

Fixtures are Insulation Contact Air-Tight rated.

Common area lighting are ballasted compact fluorescent fixtures or use ENERGY STAR qualified LED lamps; and

Are controlled by occupancy sensors or automatic bi-level controls

Exterior lamps are fluorescent or LED; and

ENERGY STAR certified when available in the product category; and

Dark-Sky approved; and

Have motion sensor controls, integrative photo cells, photo sensors or astronomic time-clock operation.

Exit signs shall consume ≤ 5 watts and have battery backup when located above stairwell doors and other forms of egress.

###### 5.6 Electricity Meter

Electric meter or submeter shall be installed that is capable of individually metering

each dwelling unit’s electricity.

5.7b Renewable Energy

Provide photovoltaic system for 5 [10, 20, 30] percent of energy demand as calculated by energy model

5.8b Resilient Energy Systems: Islandable Power

[Option 1: Photovoltaic system with inverter capable of providing limited access to solar-generated power when grid power is down and PV system is generating.]

[Option 2: Photovoltaic system with battery storage capable of providing stored power to critical circuits when grid power is down.]

[Option 3: Permanent generator capable of providing power to critical circuits when grid power is down.]

##### Materials

###### 6.1 Low / No VOC Paints, Coatings and Primers

All interior paints and primers must have volatile organic compound (VOC) levels, in grams per liter, less than or equal to the thresholds established by South Coast Air Quality Management District (SCAQMD) Rule 1113. Projects must follow the most recent revision available at the time of product specification. For the latest rules: [www.aqmd.gov/home/regulations/rules](http://www.aqmd.gov/home/regulations/rules); as of July 1, 2013 SCAQMD Rule 1113 thresholds are listed as:

Primers and sealers: 100g/L

Coatings, flats and non-flats: 50 g/L

Opaque floor coatings: 50 g/L

Rust preventative coatings: 100 g/L

Clear wood finishes: 275 g/L

###### 6.2 Low / No VOC Adhesives and Sealants

All interior adhesives and sealants (including caulks) must have volatile organic compound (VOC) levels, in grams per liter, less than or equal to the thresholds established by South Coast Air Quality Management District (SCAQMD) Rule 1168. Projects must follow the most recent revision available at the time of product specification. For the latest rules: [www.aqmd.gov/home/regulations/rules](http://www.aqmd.gov/home/regulations/rules); as of January 7, 2005, SCAQMD Rule 1168 thresholds are listed as:

Indoor carpet adhesives: 50 g/L

Carpet pad adhesives: 50 g/L

Outdoor carpet adhesives: 150 g/L

Wood flooring adhesives: 100 g/L

Rubber floor adhesives: 60 g/L

Subfloor adhesive: 50 g/L

Ceramic tile adhesives: 65 g/L

VCT and asphalt tile adhesives: 50 g/L

Drywall and panel adhesives: 50 g/L

Cove base adhesives: 50 g/L

Multipurpose construction adhesives: 100 g/L

Structural glazing adhesives: 100 g/L

Single-ply roof membrane adhesives: 250 g/L

Structural wood member adhesive: 140 g/L

Architectural sealants, including caulk: 250 g/L

6.3 Recycled Content Materials

Use building materials that feature recycled content. The building material must make up 75% (by weight or cost) of a project component, and must be composed of at least 25% post-consumer recycled content or at least 50% post-industrial recycled content. Eligible products include: [Framing: wood, concrete, steel, aluminum], [Siding: wood, metal, masonry], [Flooring (non-structure): linoleum, cork, bamboo, reclaimed wood, sealed concrete, carpet], [Paving: cement slab (urbanite)], [Roofing: wood shingles, asphalt shingles, tile, metal], [Insulation: fiberglass batt, cellulose, rigid panel], [Sheathing: plywood, OSB].

6.4 Regional Material

Use products that were extracted, processed, and manufactured within 500 miles of the project for a minimum of 50%, based on cost, of the building materials’ value. Building material types that can qualify include: [Framing materials], [Exterior materials (e.g. siding, masonry, roofing)], [Flooring materials], [Concrete/cement and aggregate material], [Drywall/interior sheathing materials].

6.5 Certified, Salvaged and Engineered Wood Products

Use products that total, by cost or value, make up at least 25% of all structural wood products and are [certified in accordance with the Forest Stewardship Council], [salvaged], and/or [engineered and do not include urea formaldehyde-based binders].

###### 6.6 Composite Wood Products that Emit Low / No Formaldehyde

[All composite wood products (plywood, OSB, MDF, cabinetry, etc.) installed within the weather-resistive barrier (WRB) must either be certified as compliant with California 93120 Phase 2], and/or;

[For composite wood products installed within the WRB that do not comply with California 93120 Phase 2, all exposed edges and sides must be sealed with low-VOC sealants per Criterion 6.2.]

###### 6.7a Environmentally Preferable Flooring

All hard surface flooring must be: [ceramic tile], [solid unfinished hardwood], and/or [a product that meets the Scientific Certification System’s FloorScore program criteria, including for pre-finished hardwood flooring].

All carpet products must meet the Carpet and Rug Institute’s Green Label Plus certification and all carpet pads and adhesives must meet Green Label certification.

6.7b Environmentally Preferable Flooring Throughout

Use only non-vinyl, non-carpet floor coverings throughout the building.

###### 6.9 Mold Prevention: Tub & Shower Enclosures

Use moisture-resistant backing materials such as cement board, fiber cement board, or equivalent perASTM #D3273 behind tub/shower enclosures.

6.10 Asthmagen-free Materials

[For insulation] *Do not use spray polyurethane foam (SPF) or formaldehyde-containing fiberglass batts.*

[For flooring] *Do not use flexible vinyl (PVC) roll or sheet flooring or carpet backed with vinyl or phthalates. Do not use fluid applied finish floor.*

[For wall coverings]*Do not use wallpaper made from vinyl (PVC) with phthalates or site-applied high-performance coatings that are epoxy-based or polyurethane-based.*

[For composite wood] *Use only Ultra Low Emitting Formaldehyde (ULEF) or No Added Formaldehyde (NAF) products for cabinetry, subflooring, and other interior composite wood uses.*

*6.11* *Reduced Heat-Island Effect: Roofing*

Use an ENERGY STAR-certified product for 100% of the non-vegetated roof area.

Use an intensive or extensive vegetated roof system with waterproof layer, drainage layer, growing medium and containment with appropriate planting and irrigation for the vegetated portion of the roof area.

##### Healthy Living Environment

###### 7.1 Ventilation

In-unit ventilation system(s) shall comply with ASHRAE 62.2-2010 requirements for local mechanical exhaust system in bathrooms and kitchens, and whole-house mechanical ventilation. Design/measured flow rates shall not exceed ASHRAE 62.2-2010 requirements by more than 50%.

Individual bathroom fans shall be

ENERGY STAR labeled; and either

turn on with the light switch and off with associated automatic delay timer, or

be activated by motion sensor, humidistat or other appropriate control.

Central ventilation system (s) shall comply with ASHRAE 62.1-2010 requirements for any corridors, stair wells, common and amenity areas and retail/commercial/office spaces. Design/measured flow rates shall not exceed ASHRAE 62.1-2010 requirements by more than 50%.

Any central rooftop fans shall be direct-drive and variable-speed.

Any fan providing central ventilation with design CFM 300-2000 shall be equipped with an ECM motor.

###### 7.3 Combustion Safety

Any combustion water heating or space heating equipment located within the conditioned envelope shall be power-vented or direct-vented.

Carbon monoxide alarms shall be hard-wired with battery backup.

###### 7.5 Vapor Retarder Strategies

Polyethylene sheeting used as a vapor retarder beneath any new or replacement concrete slabs (including basements, crawl spaces, or slab on grade construction) shall be at least 6mm thick.

Polyethylene sheeting used as a vapor retarder in crawl spaces (with no concrete slab) shall be at least 8mm thick.

###### 7.7 Mold Prevention: Water Heaters

Drain pans under tank water heaters shall be sloped and corrosion-resistant (e.g., stainless steel or plastic).

###### 7.9 Garage Isolation

Doors between conditioned space and garage space shall be equipped automatic closers or spring hinges AND weatherstripping or gaskets.

Air sealing products shall be low-VOC.

Do not install ductwork or air handling equipment in a garage.

###### 7.10 Integrated Pest Management

Sealants shall be low-VOC.

Openings greater than ¼” shall be equipped with rodent- and corrosion-proof screens.

Operable windows shall have screens.

All exterior doors and apartment entry doors shall be equipped with weatherstripping and door sweeps.

7.13 Active Design: Staircases and Building Circulation

All stairwell doors shall [incorporate 10 square feet of glazing in door or side light] or [be equipped with magnetic door holds].

### Execution

#### Enterprise Green Communities – General

##### Meet all Mandatory criterion and all Optional criterion as identified and specified by the design team, as required to achieve certification through Enterprise Green Communities.

#### Execution Requirements

##### Site Improvements

###### 3.1 Environmental Remediation

Execute mitigation steps as determined by environmental assessment.

###### 3.2 Erosion and Sedimentation Control

Follow all Best Management Practices (BMPs) within the Total Erosion and Sedimentation Control (TESC) Plan.

Photograph all erosion control measures used throughout construction, including representative photos during rain events (as applicable) to document no visible off-site discharge.

###### 3.4 Landscaping

Any disturbed area must be reseeded or xeriscaped with plants that meet product requirements.

###### 3.5a Efficient Irrigation and Water Reuse

After installation, provide contractor with as-built information including zone map, control sequence, shut-off locations, commissioning or test data indicating system is operating as intended, and relevant operations or maintenance task schedules.

If using a weather-based irrigation controller, coordinate with Electrical to provide power directly to controller.

*3.5b Efficient Irrigation and Water Reuse*

*[Option 1]*: Coordinate with Electrical to provide power directly to the WaterSense-labeled Irrigation Controller.

##### Water Conservation

*4.3* *Leaks & Water Metering*

*Conduct pressure-loss test in compliance with EPA WaterSense Inspection and Verification for WaterSense-labeled New Homes.*

*Conduct visual inspection of every accessible, visible water supply connection and valve for water-using fixture, appliance and equipment.*

Any leak detected during inspection shall be fixed.

Provide pressure-loss test results and visual inspection log documenting building has no detectable leaks.

*4.4* *Efficient Plumbing Layout & Design*

*Conduct testing of hot water fixtures in compliance with EPA WaterSense Inspection and Verification for WaterSense-labeled New Homes to verify no more than 0.6 gallons of water is collected from the hot water fixture before hot water is delivered.*

##### Energy Efficiency

###### 5.1a Building Performance Standard: New Construction: single family and low-rise multifamily

Certify each dwelling unit under ENERGY STAR Certified Homes program; and meet all Program Requirements of the applicable program.

Co-ordinate with a qualified third party Energy Rater to field verify compliance with all requirements of the applicable program.

###### 5.1b Building Performance Standard: New Construction: mid-rise and high-rise multifamily

[Option 1: Certify project under the ENERGY STAR Multifamily High Rise program.]

[Option 2: Design building to meet ENERGY STAR Multifamily High Rise prescriptive requirements; and

Coordinate with a qualified third party energy rater/commissioning agent to verify all installed measures per LEED BD+C: Multifamily Midrise v4 Energy and Atmosphere Prerequisite: Minimum Energy Performance Prescriptive Commissioning Path.]

[Option 3: Install energy efficiency measures in accordance with the final design energy model, which demonstrates that the building uses at least 15% less energy than the baseline designated by ENERGY STAR Multifamily High Rise; and

Verify all installed measures per LEED BD+C: Multifamily Midrise v4 Energy and Atmosphere Prerequisite: Minimum Energy Performance Prescriptive Commissioning Path.]

###### 5.1c Building Performance Standard: Substantial and Moderate Rehab: single family and low-rise multifamily

Co-ordinate with a qualified energy rater to verify that each dwelling unit achieves a Certified or Sampled HERS Index score of ≤ 85.

###### 5.1d Building Performance Standard: (Substantial and Moderate Rehab: Mid-rise and High-rise Multifamily)

The as-built building’s energy performance demonstrates compliance with ASHRAE 90.1-2010 Appendix G.

###### 5.3 Sizing of Heating and Cooling Equipment

Use HVAC load calculation software programs reviewed by ACCA to perform Manual J and S calculations; and

Select and install HVAC equipment according to ACCA Manual J and S procedures to ensure right-sizing.

5.7a PV / Solar Hot Water Ready

*Provide construction documents showing location of wiring and/or plumbing to connect solar collectors with inverter and/or hot water storage system.* System with roof mounted collector includes documentation estimating remaining useful life of roof.

30% of aggregated unobstructed roof area designated for future solar collectors oriented within +/- 45 degrees of true south.

Photovoltaic - Electrical Main Panel: Reserve space for future 240V breaker.

Inverter: Reserve space for future 35-inches-tall by 25-inches-wide inverter. Location options as follows:

Locate adjacent to the electrical main panel.

If space is not available near the electrical main panel, provide metal conduit from the main panel to the proposed inverter location.

Conduit: Provide conduit from the inverter location to the attic through the roof.

If underside of the roof will not be accessible, extend conduit through the roof and to a sealed junction box.

Provide construction documents showing location of wiring to connect solar collectors with inverter. System with roof mounted collectors includes documentation estimating remaining useful life of roof.

Solar Hot Water - Electrical Main Panel: Reserve space for future 240V breaker.

Conduit: Provide conduit from the inverter location to proposed solar tank location.

If underside of the roof will not be accessible, extend conduit through the roof and to a sealed junction box.

Provide construction documents showing location of plumbing to connect solar collectors with hot water storage system. System with roof mounted collectors includes documentation estimating remaining useful life of roof.

##### Materials

###### 6.6 Composite Wood Products that Emit Low/No Formaldehyde

For composite wood products installed within the WRB, that do not comply with California 93120 Phase 2, all exposed edges and sides must be sealed with low-VOC sealants per Criterion 6.2 prior to installation.

##### Healthy Living Environment

###### 7.1 Ventilation

Install the following ventilation systems and ductwork in full accordance with ASHRAE 62.2-2010 and manufacturer’s recommendations (This includes following guidelines for minimum straight duct length from fan boxes prior to first bend, type and size of duct, and number of bends to exterior wall termination):

Local mechanical exhaust system in each bathroom and wire individual bathroom fans to turn on with light switch;

Local mechanical exhaust system in each kitchen;

Whole-house ventilation system.

In the common spaces and hallways of multifamily buildings 4 stories or taller, install mechanical ventilation systems in full accordance with ASHRAE 62.1-2010 and manufacturer’s recommendations.

###### 7.2 Clothes Dryer Exhaust

Install rigid-type exhaust ductwork to connect all vented clothes dryers directly to outdoors.

Install a plumbed drain for all condensing or heat pump clothes dryers.

###### 7.3 Combustion Safety

Install hard-wired carbon monoxide (CO) alarm with battery backup function for each sleeping zone and placed per National Fire Protection Association (NFPA) 720.

For rehab projects with any atmospheric combustion space or water heating equipment within the conditioned envelope, conduct combustion safety testing for minimum 10% of dwelling units in accordance with RESNET or BPI Combustion Safety Test Procedures. Report any deficiencies immediately to the owner or owner’s representative.

###### 7.5 Vapor Retarder Strategies

Install products in accordance with ENERGY STAR program requirements.

For projects with new concrete slab (for basements, crawl spaces, or slab on grade construction), install a capillary break as follows:

Install 4-inch layer of half-inch diameter or greater clean aggregate, or a 4-inch uniform layer of sand, overlain with a layer or strips of geotextile drainage matting installed according to the manufacturer’s instructions.

Immediately above the aggregate/sand capillary break, install 6 mm (or thicker) polyethylene sheeting, overlapped 6 inches (or greater) at the seams, in direct contact with the concrete slab above.

For projects with crawl spaces that have no concrete slab, install a vapor retarder as follows:

Install 8 mm minimum thickness cross-laminated polyethylene on the crawl floor, extended at least 12 inches upward on piers and foundation walls, and overlap joints at least 12 inches minimum.

Line “high-traffic” areas of the crawl space with foam board to avoid disturbing polyethylene.

###### 7.6 Water Drainage

Install waterproofing and water management systems to direct water away from walls, windows, doors, and roofs.

Provide a continuous weather resistive barrier and drainage plane in accordance with manufacturer’s instructions:

[Install housewrap with sheets lapped single-style to prevent bulk water from penetrating the building cavity] OR [Install fluid-applied weather resistive barriers in accordance with manufacturer’s instructions].

Provide a means for bulk water to drain out from beneath cladding, i.e. weep holes.

Install flashing at all roof/wall intersections and wall penetrations that is integrated with the weather-resistive barrier and drainage plane. Penetrations to be flashed include any plumbing, electrical, vent, and HVAC refrigerant line penetrations. Provide pan, side, and head flashings for any openings.

Install drip edge at entire perimeter of roof.

At wall/roof intersections, maintain minimum 2 inch clearance between wall cladding and roofing materials, fully flash the intersection, and install kick-out flashing.

###### 7.7 Mold Prevention: Water Heaters

Install non-water-sensitive floor coverings in rooms with water heaters.

Install plumbed floor drains or plumbed drain pans under all tank water heaters, and ensure that floor slope or drain pan slope allows for adequate drainage.

Direct all condensate lines into a plumbing system; do not deposit condensate under concrete slabs.

###### 7.8 Radon Mitigation

For all new construction projects in EPA Radon Zone 1, install passive radon-resistant construction features as follows:

Seal the foundation with polyurethane caulk or the equivalent at all slab openings, penetrations, and control or expansion joints and sump covers.

Install below-slab venting and a vertical vent pipe that extends to daylight above the roofline.

Install a junction box and electrical outlet within 10’ of the vent pipe termination to allow for future conversion to an active radon reduction system.

For all substantial rehab projects in EPA Radon Zone 1, conduct a test for radon by a radon professional in accordance with ANSI-AARST MAMF-2012). If test results exceed 4 pCi/L (pico curies per liter), install radon-reduction measures outlined in ANSI/AARSTR RMS-MF (PS) 2013 or ASTM E 2121-11.

###### 7.9 Garage Isolation

Install continuous air barrier between conditioned space and any garage space.

Seal between all walls separating conditioned and garage spaces with foam [and/or caulk].

Seal all pipe and conduit penetrations with material compatible with the adjacent materials and resilient to temperature fluctuations and providing fire-resistive characteristics if required by authorities having jurisdictions.

Block and seal floor trusses and joists between conditioned space and garage with foam [and/or caulk].

Visually inspect air sealing for continuity and completeness before any insulation is installed.

Install automatic closers, spring hinges, and gaskets or weatherstripping on all doors between conditioned space and garage space.

Install a carbon monoxide alarm with backup in each sleeping zone of the project, placed per National Fire Protection Association (NFPA) 720.

###### 7.10 Integrated Pest Management

Seal all interior and exterior wall, floor, and joint penetrations with low-VOC caulking or other appropriate nontoxic sealing method (window screens, door sweeps, escutcheon plates, elastomeric sealant) to prevent pest entry.

Install rodent- and corrosion-proof screens (copper or stainless steel mesh, or rigid metal cloth) for openings greater than ¼ inch.

Thoroughly seal entry points under kitchen and bathroom sinks to prevent pest entry.

###### 7.15 Reduce Lead Hazards

Comply with EPA’s Renovation, Repair, and Painting Regulation (RRP) (40 CFR 745) and HUD requirements at 24 CFR 35.

Comply with EPA RRP requirements related to training and certification for in-house maintenance staff and construction team.

##### Operations and Maintenance

###### 8.4 Resident and Property Staff Orientation

Use materials provided under Criterion 8.1 and 8.2 to deliver training to facility management and building maintenance staff on all relevant systems.

## 01 81 19 / Construction Indoor Air Quality Management

### GENERAL (see egc tip)

### PRODUCTS (see egc tip)

### EXECUTION (see egc tip)

# Division 2: Existing Conditions

## 02 24 00 / Environmental Assessment

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Site Improvements

###### 3.1 Environmental Remediation

Submit data in accordance with 018113 under Criterion 3.1.

### products (NO EGC COMMENTS)

### execution

#### Execution Requirements

##### Site Improvements

###### 3.1 Environmental Remediation

Conform to all mitigation steps determined by environmental assessment and in accordance with 018113 under Criterion 3.1.

## 02 26 00 / Hazardous Materials Assessment

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Healthy Living Environment

###### 7.15 Reduce Lead Hazards in Pre-1978 Buildings

Submit information in accordance with 018113 under Criterion 7.15.

### products (NO EGC COMMENTS)

### execution

#### Execution Requirements

##### Healthy Living Environment

###### 7.15 Reduce Lead Hazards in Pre-1978 Buildings

Meet execution requirements in 018113 under Criterion 7.15.

## 02 41 19 / Selective Structure Demolition

### general

#### Summary

##### Related Sections:

###### Section 017419 Construction Waste Management

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Refer to 018113 **Error! Reference source not found.** **Error! Reference source not found.**

### products (NO EGC COMMENTS)

### execution (NO EGC COMMENTS)

# Division 3: Concrete

## 03 30 00 / Concrete

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Materials

6.3 Recycled Content Material

Submit product information that confirms post-consumer and post-industrial recycled content for products identified in 018113 under Criterion 6.3.

6.4 Regional Material

Submit product information that confirms exact location(s) where the material was extracted, processed, and manufactured for products identified in 018113 under Criterion 6.4.

##### Healthy Living Environment

###### 7.5 Vapor Retarder Strategies.

Submit product data in accordance with 018113 under Criterion 7.5.

##### Operations & Maintenance and Resident Engagement

###### 8.1 Building Operations & Maintenance (O&M) Manual and Plan

Where pervious concrete is installed, submit operations & maintenance guidance in accordance with the requirements of 018113 under Criterion 8.1.

### products

#### Product Requirements

##### Materials

6.3 Recycled Content Material

Use products that contain recycled content as described in 018113 under Criterion 6.3.

6.4 Regional Material

Use products that contain regional material as described in 018113 under Criterion 6.4.

##### Healthy Living Environment

###### 7.5 Vapor Retarder Strategies.

Use products that meet requirements in 018113 under Criterion 7.5.

### execution

#### Execution Requirements

##### Healthy Living Environment

###### 7.5 Vapor Retarder Strategies

Install all products in accordance with 018113 under Criterion 7.5.

# Division 4: Masonry

## 04 20 00 / Unit Masonry

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Materials

6.3 Recycled Content Material

Submit product information that confirms post-consumer and post-industrial recycled content for products identified in 018113 under Criterion 6.3.

6.4 Regional Material

Submit product information that confirms exact location(s) where the material was extracted, processed, and manufactured for products identified in 018113 under Criterion 6.4.

### products

#### Product Requirements

##### Materials

6.3 Recycled Content Material

Use products that contain recycled content as described in 018113 under Criterion 6.3.

6.4 Regional Material

Use products that contain regional material as described in 018113 under Criterion 6.4.

### execution (NO EGC COMMENTS)

## 04 70 00 / Manufactured Masonry

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Materials

6.3 Recycled Content Material

Submit product information that confirms post-consumer and post-industrial recycled content for products identified in 018113 under Criterion 6.3.

6.4 Regional Material

Submit product information that confirms exact location(s) where the material was extracted, processed, and manufactured for products identified in 018113 under Criterion 6.4.

### products

#### Product Requirements

##### Materials

6.3 Recycled Content Material

Use products that contain recycled content as described in 018113 under Criterion 6.3.

6.4 Regional Material

Use products that contain regional material as described in 018113 under Criterion 6.4.

### execution (NO EGC COMMENTS)

# Division 5: Metals

## 05 10 00 / Structural Metal Framing

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Materials

6.3 Recycled Content Material

Submit product information that confirms post-consumer and post-industrial recycled content for products identified in 018113 under Criterion 6.3.

### products

#### Product Requirements

##### Materials

6.3 Recycled Content Material

Use products that contain recycled content as described in 018113 under Criterion 6.3.

### execution (no egc comments)

# Division 6: Wood, Plastics & Composites

## 06 10 00 / Rough Carpentry

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Materials

###### 6.2 Low / No VOC Adhesives and Sealants

Submit VOC level in grams per liter for all interior adhesives and sealants in accordance with 018113 under Criterion 6.2.

6.4 Regional Material

Submit product information that confirms exact location(s) where the material was extracted, processed, and manufactured for products identified in 018113 under Criterion 6.4.

6.5 Certified Salvaged and Engineered Wood Products

Submit product information in accordance with 018113 under Criterion 6.5.

###### 6.6 Composite Wood Products that Emit Low / No Formaldehyde

Submit product information in accordance with 018113 under Criterion 6.6.

6.10 Asthmagen-free Materials

Submit product information in accordance with 018113 under Criterion 6.10.

### products

#### Product Requirements

##### Materials

###### 6.2 Low / No VOC Adhesives and Sealants

For all interior adhesives and sealants, use products that meet VOC level requirements in 018113 under Criterion 6.2.

6.4 Regional Material

Use products that contain regional material as described in 018113 under Criterion 6.4.

6.5 Certified Salvaged and Engineered Wood Products

Use products that meet requirements in 018113 under Criterion 6.5.

###### 6.6 Composite Wood Products that Emit Low / No Formaldehyde

Submit product information in accordance with 018113 under Criterion 6.6.

6.10 Asthmagen-free Materials

Use products that meet requirements in 018113 under Criterion 6.10.

### execution

#### Execution Requirements

##### Materials

###### 6.6 Composite Wood Products that Emit Low / No Formaldehyde

Follow execution details in accordance with 018113 under Criterion 6.6.

## 06 16 00 / Sheathing

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Materials

###### 6.2 Low / No VOC Adhesives and Sealants

Submit VOC level in grams per liter for all interior adhesives and sealants in accordance with 018113 under Criterion 6.2.

6.3 Recycled Content Material

Submit product information that confirms post-consumer and post-industrial recycled content for products identified in 018113 under Criterion 6.3.

6.4 Regional Material

Submit product information that confirms exact location(s) where the material was extracted, processed, and manufactured for products identified in 018113 under Criterion 6.4.

6.5 Certified Salvaged and Engineered Wood Products

Submit product information in accordance with 018113 under Criterion 6.5.

###### 6.6 Composite Wood Products that Emit Low / No Formaldehyde

Submit product information in accordance with 018113 under Criterion 6.6.

6.10 Asthmagen-free Materials

Submit product information in accordance with 018113 under Criterion 6.10.

### products

#### Product Requirements

##### Materials

###### 6.2 Low / No VOC Adhesives and Sealants

For all interior adhesives and sealants, use products that meet VOC level requirements in 018113 under Criterion 6.2.

6.3 Recycled Content Material

Use products that contain recycled content as described in 018113 under Criterion 6.3.

6.4 Regional Material

Use products that contain regional material as described in 018113 under Criterion 6.4.

6.5 Certified Salvaged and Engineered Wood Products

Use products that meet requirements in 018113 under Criterion 6.5.

###### 6.6 Composite Wood Products that Emit Low / No Formaldehyde

Use products that meet requirements in 018113 under Criterion 6.6.

6.10 Asthmagen-free Materials

Use products that meet requirements in 018113 under Criterion 6.10.

### execution (no egc comments)

## 06 17 00 / Shop-Fabricated Structural Wood

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Materials

###### 6.2 Low / No VOC Adhesives and Sealants

Submit VOC level in grams per liter for all interior adhesives and sealants in accordance with 018113 under Criterion 6.2.

6.3 Recycled Content Material

Submit product information that confirms post-consumer and post-industrial recycled content for products identified in 018113 under Criterion 6.3.

6.4 Regional Material

Submit product information that confirms exact location(s) where the material was extracted, processed, and manufactured for products identified in 018113 under Criterion 6.4.

6.5 Certified Salvaged and Engineered Wood Products

Submit product information in accordance with 018113 under Criterion 6.5.

###### 6.6 Composite Wood Products that Emit Low / No Formaldehyde

Submit product information in accordance with 018113 under Criterion 6.6.

6.10 Asthmagen-free Materials

Submit product information in accordance with 018113 under Criterion 6.10.

### products

#### Product Requirements

##### Materials

###### 6.2 Low / No VOC Adhesives and Sealants

For all interior adhesives and sealants, use products that meet VOC level requirements in 018113 under Criterion 6.2.

6.3 Recycled Content Material

Use products that contain recycled content as described in 018113 under Criterion 6.3.

6.4 Regional Material

Use products that contain regional material as described in 018113 under Criterion 6.4.

6.5 Certified Salvaged and Engineered Wood Products

Use products that meet requirements in 018113 under Criterion 6.5.

###### 6.6 Composite Wood Products that Emit Low / No Formaldehyde

Use products that meet requirements in 018113 under Criterion 6.6.

6.10 Asthmagen-free Materials

Use products that meet requirements in 018113 under Criterion 6.10.

### execution (no egc comments)

## 06 20 00 / Finish Carpentry

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Materials

###### 6.2 Low / No VOC Adhesives and Sealants

Submit VOC level in grams per liter for all interior adhesives and sealants in accordance with 018113 under Criterion 6.2.

###### 6.6 Composite Wood Products that Emit Low / No Formaldehyde

Submit product information in accordance with 018113 under Criterion 6.6.

6.10 Asthmagen-free Materials

Submit product information in accordance with 018113 under Criterion 6.10.

### products

#### Product Requirements

##### Materials

###### 6.2 Low / No VOC Adhesives and Sealants

For all interior adhesives and sealants, use products that meet VOC level requirements in 018113 under Criterion 6.2.

###### 6.6 Composite Wood Products that Emit Low / No Formaldehyde

Use products that meet requirements in 018113 under Criterion 6.6.

6.10 Asthmagen-free Materials

Use products that meet requirements in 018113 under Criterion 6.10.

### execution (no egc comments)

## 06 40 00 / Architectural Woodwork

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Materials

###### 6.2 Low / No VOC Adhesives and Sealants

Submit VOC level in grams per liter for all interior adhesives and sealants in accordance with 018113 under Criterion 6.2.

###### 6.6 Composite Wood Products that Emit Low / No Formaldehyde

Submit product information in accordance with 018113 under Criterion 6.6.

6.10 Asthmagen-free Materials

Submit product information in accordance with 018113 under Criterion 6.10.

##### Operations & Maintenance and Resident Engagement

###### 8.1 Building Operations & Maintenance (O&M) Manual and Plan

Submit green cleaning and maintenance requirements for any materials and finishes requiring special treatment in accordance with 018113 under Criterion 8.1

### products

#### Product Requirements

##### Materials

###### 6.2 Low / No VOC Adhesives and Sealants

For all interior adhesives and sealants, use products that meet VOC level requirements in 018113 under Criterion 6.2.

###### 6.6 Composite Wood Products that Emit Low / No Formaldehyde

Use products that meet requirements in 018113 under Criterion 6.6.

6.10 Asthmagen-free Materials

Use products that meet requirements in 018113 under Criterion 6.10.

### execution (no egc comments)

# Division 7: Thermal & Moisture Protection

## 07 21 00 / Thermal Insulation

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Energy Efficiency

###### 5.1a Building Performance Standard: New Construction: single family and low-rise multifamily

Submit product information that confirms R-values that comply with the design and with minimum requirements of the applicable ENERGY STAR program.

###### 5.1b Building Performance Standard: New Construction: mid-rise and high-rise multifamily

Submit product information that confirms R-values that comply with the design and with minimum requirements of the applicable ENERGY STAR program.

###### 5.1c Building Performance Standard: Substantial and Moderate Rehab: single family and low-rise multifamily

Submit product information confirming the R-values comply with the designed energy efficiency measures.

###### 5.1d Building Performance Standard: (Substantial and Moderate Rehab: Mid-rise and High-rise Multifamily)

Submit product information confirming the R-values comply with the designed energy efficiency measures.

###### *5.2a Additional Reductions in Energy Use*

*Submit product information that confirms R-values that comply with the design and with minimum requirements of the applicable ENERGY STAR program.*

###### *5.2b Advanced Certifications: Nearing Net Zero*

*Submit product information that confirms R-values that comply with the design and with any minimum requirements of the applicable Advanced Certification program.*

##### Materials

6.3 Recycled Content Material

Submit product information that confirms post-consumer and post-industrial recycled content for products identified in 018113 under Criterion 6.3.

6.10 Asthmagen-free Materials

Submit product information in accordance with 018113 under Criterion 6.10.

### products

#### Product Requirements

##### Energy Efficiency

###### 5.1a Building Performance Standard: New Construction: single family and low-rise multifamily

Use products that provide the nominal R-values required in the construction documents when installed at each location in the envelope assembly as appropriate.

###### 5.1b Building Performance Standard: New Construction: mid-rise and high-rise multifamily

Use products that provide the nominal R-values required in the construction documents when installed at each location in the envelope assembly as appropriate.

###### 5.1c Building Performance Standard: Substantial and Moderate Rehab: single family and low-rise multifamily

Use products that provide the nominal R-values required in the construction documents when installed at each location in the envelope assembly as appropriate.

###### 5.1d Building Performance Standard: (Substantial and Moderate Rehab: Mid-rise and High-rise Multifamily)

Use products that provide the nominal R-values required in the construction documents when installed at each location in the envelope assembly as appropriate.

###### *5.2a Additional Reductions in Energy Use*

*Use products that provide the nominal R-values required in the construction documents when installed at each location in the envelope assembly as appropriate.*

###### *5.2b Advanced Certifications: Nearing Net Zero*

*Use products that provide the nominal R-values required in the construction documents when installed at each location in the envelope assembly as appropriate.*

##### Materials

6.3 Recycled Content Material

Use products that contain recycled content as described in 018113 under Criterion 6.3.

6.10 Asthmagen-free Materials

Use products that meet requirements in 018113 under Criterion 6.10.

### execution

#### Execution Requirements

##### Energy Efficiency

###### 5.1a Building Performance Standard: New Construction: single family and low-rise multifamily

Install products consistent with the manufacturer’s installation guidelines to achieve the nominal insulation value at all locations. Installation quality will be verified by a third party energy rater, per the requirements in Section 018113 Sustainable Building Requirements.

###### 5.1b Building Performance Standard: New Construction: mid-rise and high-rise multifamily

Install products consistent with the manufacturer’s installation guidelines to achieve the nominal insulation value at all locations. Installation quality will be verified by a third party energy rater, per the requirements in Section 018113 Sustainable Building Requirements.

###### 5.1c Building Performance Standard: Substantial and Moderate Rehab: single family and low-rise multifamily

Install products consistent with the manufacturer’s installation guidelines to achieve the nominal insulation value at all locations. Installation quality will be verified by a third party energy rater, per the requirements in Section 018113 Sustainable Building Requirements.

###### 5.1d Building Performance Standard: (Substantial and Moderate Rehab: Mid-rise and High-rise Multifamily)

Install products consistent with the manufacturer’s installation guidelines to achieve the nominal insulation value at all locations.

5.2a Additional Reductions in Energy Use

Install products consistent with the manufacturer’s installation guidelines to achieve the nominal insulation value at all locations. Installation quality will be verified by a third party energy rater, per the requirements in Section 018113 Sustainable Building Requirements.

5.2b Advanced Certifications: Nearing Net Zero

Install products consistent with the manufacturer’s installation guidelines to achieve the nominal insulation value at all locations. Installation quality will be verified by a third party energy rater, per the requirements in Section 018113 Sustainable Building Requirements.

## 07 25 00 / Weather Barriers

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

### products (no egc comments)

### execution

#### Execution Requirements

##### Healthy Living Environment

###### 7.6 Water Drainage

Install all waterproofing details, weather resistive barrier, flashing, and details in accordance with 018113 under Criterion 7.6.

## 07 26 00 / Vapor Retarders

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Healthy Living Environment

###### 7.5 Vapor Retarder Strategies

Submit product data in accordance with 018113 under Criterion 7.5.

### products

#### Product Requirements

##### Healthy Living Environment

###### 7.5 Vapor Retarder Strategies

Use products that meet requirements in 018113 under Criterion 7.5.

### execution

#### Execution Requirements

##### Healthy Living Environment

###### 7.5 Vapor Retarder Strategies

Install all products in accordance with 018113 under Criterion 7.5.

## 07 27 00 / Air Barriers

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Energy Efficiency

###### 5.1a Building Performance Standard: New Construction: single family and low-rise multifamily

Submit product data in accordance with 018113 under Criterion 5.1a.

###### 5.1b Building Performance Standard: New Construction: mid-rise and high-rise multifamily

Submit product data in accordance with 018113 under Criterion 5.1b.

###### 5.1c Building Performance Standard: Substantial and Moderate Rehab: single family and low-rise multifamily

Submit product data in accordance with 018113 under Criterion 5.1c.

###### 5.1d Building Performance Standard: Substantial and Moderate Rehab: mid-rise and high-rise multifamily

Submit product data in accordance with 018113 under Criterion 5.1d.

5.2a Additional Reductions in Energy Use

Where specified, submit product data showing performance that exceeds Criterion 5.1 in accordance with 018113.

5.2b Advanced Certifications: Nearing Net Zero

Where specified, submit product data showing performance that exceeds Criterion 5.1 in accordance with 018113.

##### Materials

###### 6.2 Low / No VOC Adhesives and Sealants

Submit VOC level in grams per liter for all interior adhesives and sealants in accordance with 018113 under Criterion 6.2.

##### Healthy Living Environment

###### 7.10 Integrated Pest Management

Submit product data in accordance with 018113 under Criterion 7.10.

### products

#### Product Requirements

##### Energy Efficiency

###### 5.1a Building Performance Standard: New Construction: single family and low-rise multifamily

Use products that meet requirements in 018113 under Criterion 5.1a

###### 5.1b Building Performance Standard: New Construction: mid-rise and high-rise multifamily

Use products that meet requirements in 018113 under Criterion 5.1b.

###### 5.1c Building Performance Standard: Substantial and Moderate Rehab: Single family detached and attached homes

Use products that meet requirements in 018113 under Criterion 5.1c.

###### 5.1d Building Performance Standard: Substantial and Moderate Rehab: mid-rise and high-rise multifamily

Use products that meet requirements in 018113 under Criterion 5.1d.

5.2a Additional Reductions in Energy Use

Use products that meet or exceed requirements in 018113 under Criterion 5.1.

5.2b Advanced Certifications: Nearing Net Zero

Use products that meet or exceed requirements in 018113 under Criterion 5.1.

##### Materials

###### 6.2 Low / No VOC Adhesives and Sealants

For all interior adhesives and sealants, use products that meet VOC level requirements in 018113 under Criterion 6.2.

##### Healthy Indoor Environment

###### 7.10 Integrated Pest Management

Use products that meet requirements in 018113 under Criterion 7.10.

### execution

#### Execution Requirements

##### Energy Efficiency

###### 5.1a Building Performance Standard: New Construction: single family and low-rise multifamily

Ensure installation meets verification requirements as identified in 018113 under Criterion 5.1a.

###### 5.1b Building Performance Standard: New Construction: mid-rise and high-rise multifamily

Ensure installation meets verification requirements as identified in 018113 under Criterion 5.1b.

###### 5.1c Building Performance Standard: Substantial and Moderate Rehab: single family and low-rise multifamily

Ensure installation meets verification requirements as identified in 018113 under Criterion 5.1c.

###### 5.1d Building Performance Standard: Substantial and Moderate Rehab: mid-rise and high-rise multifamily

Ensure installation meets verification requirements as identified in 018113 under Criterion 5.1d.

5.2b Advanced Certification: Nearing Net Zero

Install products consistent with the manufacturers’ installation guidelines to achieve improved air barrier performance consistent with the applicable advanced certification requirements. Air barrier installation will be verified by a third party energy rater, per the requirements in 018113 under Criterion 5.2b

##### Healthy Living Environment

###### 7.9 Garage Isolation

Meet installation requirements in accordance with 018113 under Criterion 7.9.

###### 7.10 Integrated Pest Management

Meet installation requirements in 018113 under Criterion 7.10.

## 07 46 00 / Siding

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Materials

6.3 Recycled Content Material

Submit product information that confirms post-consumer and post-industrial recycled content for products identified in 018113 under Criterion 6.3.

6.4 Regional Material

Submit product information that confirms exact location(s) where the material was extracted, processed, and manufactured for products identified in 018113 under Criterion 6.4.

##### Operations, Maintenance and Resident Engagement

###### 8.1 Building Maintenance Manual

Submit operations & maintenance guidance in accordance with the requirements of 018113 under Criterion 8.1.

### products

#### Product Requirements

##### Materials

6.3 Recycled Content Material

Use products that contain recycled content as described in 018113 under Criterion 6.3.

6.4 Regional Material

Use products that contain regional material as described in 018113 under Criterion 6.4.

### execution

#### Execution Requirements

##### Healthy Living Environment

###### 7.6 Water Drainage

Install all waterproofing details, weather resistive barrier, flashing, and details in accordance with 018113 under Criterion 7.6.

## 07 50 00 / Roofing

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Materials

###### 6.2 Low / No VOC Adhesives and Sealants

Submit VOC level in grams per liter for all interior adhesives and sealants in accordance with 018113 under Criterion 6.2.

6.3 Recycled Content Material

Submit product information that confirms post-consumer and post-industrial recycled content for products identified in 018113 under Criterion 6.3.

6.4 Regional Material

Submit product information that confirms exact location(s) where the material was extracted, processed, and manufactured for products identified in 018113 under Criterion 6.4.

6.11 Reduced Heat-Island Effect: Roofing

Submit product information in accordance with 018113 under Criterion 6.11.

##### Operations, Maintenance and Resident Engagement

###### 8.1 Building Maintenance Manual

Submit operations & maintenance guidance in accordance with the requirements of 018113 under Criterion 8.1.

### products

#### Product Requirements

##### Materials

###### 6.2 Low / No VOC Adhesives and Sealants

For all interior adhesives and sealants, use products that meet VOC level requirements in 018113 under Criterion 6.2.

6.3 Recycled Content Material

Use products that contain recycled content as described in 018113 under Criterion 6.3.

6.4 Regional Material

Use products that contain regional material as described in 018113 under Criterion 6.4.

6.11 Reduced Heat-Island Effect: Roofing

Use products that meet requirements in 018113 under Criterion 6.11.

### execution

#### Execution Requirements

##### Healthy Living Environment

###### 7.6 Water Drainage

Install all waterproofing details, weather resistive barrier, flashing, and details in accordance with 018113 under Criterion 7.6.

## 07 55 63 / Vegetated Roof

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Materials

6.4 Regional Material

Submit product information that confirms exact location(s) where the material was extracted, processed, and manufactured for products identified in 018113 under Criterion 6.4.

###### *6.11 Reduced Heat Island Effect Roofing: Option 2 Vegetated Roof*

*Submit product information for vegetated roofing system and list of planting materials consistent with the requirements identified in 018113 under Criterion 6.11.*

##### Operations & Maintenance and Resident Engagement

###### 8.1 Building Operations & Maintenance (O&M) Manual and Plan

Submit O&M requirements for Vegetated Roof System, in accordance with the requirements of 018113 under Criterion 8.1

### products

#### Product Requirements

##### Materials

6.4 Regional Material

Use products that contain regional material as described in 018113 under Criterion 6.4.

6.11 Reduced Heat Island Effect Roofing: Option 2 Vegetated Roof

*Use a vegetated roofing system and planting list consistent with the requirements identified in 018113 under Criterion 6.11.*

### execution (no egc comments)

## 07 60 00 / Metal Flashing

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

### products (no egc comments)

### execution

#### Execution Requirements

##### Healthy Living Environment

###### 7.6 Water Drainage

Install all waterproofing details, weather resistive barrier, flashing, and details in accordance with 018113 under Criterion 7.6.

# Division 8: Openings

## 08 10 00 / Doors and Frames

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Energy Efficiency

###### 5.1a Building Performance Standard: New Construction: single family and low-rise multifamily

Submit product data in accordance with 018113 under Criterion 5.1a.

###### 5.1b Building Performance Standard: New Construction: mid-rise and high-rise multifamily

Submit product data in accordance with 018113 under Criterion 5.1b.

###### 5.1c Building Performance Standard: Substantial and Moderate Rehab: single family and low-rise multifamily

Submit product data in accordance with 018113 under Criterion 5.1c.

###### 5.1d Building Performance Standard: Substantial and Moderate Rehab: mid-rise and high-rise multifamily

Submit product data in accordance with 018113 under Criterion 5.1d.

##### Materials

###### 6.2 Low / No VOC Adhesives and Sealants

Submit VOC level in grams per liter for all interior adhesives and sealants in accordance with 018113 under Criterion 6.2.

### products

#### Product Requirements

##### Energy Efficiency

###### 5.1a Building Performance Standard: New Construction: single family and low-rise multifamily

Use products that meet requirements in 018113 under Criterion 5.1a

###### 5.1b Building Performance Standard: New Construction: mid-rise and high-rise multifamily

Use products that meet requirements in 018113 under Criterion 5.1b.

##### Materials

###### 6.2 Low / No VOC Adhesives and Sealants

For all interior adhesives and sealants, use products that meet VOC level requirements in 018113 under Criterion 6.2.

### execution

#### Execution Requirements

##### Healthy Living Environment

###### 7.6 Water Drainage

Install all waterproofing details, weather resistive barrier, flashing, and details in accordance with 018113 under Criterion 7.6.

###### 7.9 Garage Isolation

Meet installation requirements in accordance with 018113 under Criterion 7.9.

## 08 50 00 / Windows

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Location + Neighborhood Fabric

###### *2.10 Passive Solar Heating/Cooling*

*Submit documentation showing the National Fenestration Rating Council (NFRC) certified U-value and Solar Heat Gain Coefficient (SHGC) of all windows.*

##### Energy Efficiency

###### 5.1a Building Performance Standard: New Construction: single family and low-rise multifamily

Submit documentation showing the National Fenestration Rating Council (NFRC) certified U-value and Solar Heat Gain Coefficient (SHGC) of all windows.

###### 5.1b Building Performance Standard: New Construction: mid-rise and high-rise multifamily

Submit documentation showing the National Fenestration Rating Council (NFRC) certified U-value and Solar Heat Gain Coefficient (SHGC) of all windows.

###### 5.1c Building Performance Standard: Substantial and Moderate Rehab: single family and low-rise multifamily

Submit product data in accordance with 018113 under Criterion 5.1c.

###### 5.1d Building Performance Standard: Substantial and Moderate Rehab: mid-rise and high-rise multifamily

Submit product data in accordance with 018113 under Criterion 5.1d.

5.2a Additional Reductions in Energy Use

Submit documentation showing the National Fenestration Rating Council (NFRC) certified U-value and Solar Heat Gain Coefficient (SHGC) of all windows.

5.2b Advanced Certifications: Nearing Net Zero

Submit documentation showing the National Fenestration Rating Council (NFRC) certified U-value and Solar Heat Gain Coefficient (SHGC) of all windows.

##### Materials

###### 6.2 Low / No VOC Adhesives and Sealants

Submit VOC level in grams per liter for all interior adhesives and sealants in accordance with 018113 under Criterion 6.2.

##### Operations, Maintenance and Resident Engagement

###### 8.1 Building Maintenance Manual

Submit cleaning, operations & maintenance guidance in accordance with the requirements of 018113 under Criterion 8.1.

### products

#### Product Requirements

##### Location + Neighborhood Fabric

###### *2.10 Passive Solar Heating/Cooling*

*Use windows that meet the climate-specific National Fenestration Rating Council (NFRC) certified U-value and Solar Heat Gain Coefficient (SHGC) requirements listed in Criterion 2.10.*

##### Energy Efficiency

###### 5.1a Building Performance Standard: New Construction: single family and low-rise multifamily

Use windows that meet or exceed the U-value and SHGC required by the applicable ENERGY STAR program for the Climate Zone of the project in accordance with 018113.

###### 5.1b Building Performance Standard: New Construction: mid-rise and high-rise multifamily

Use windows that meet or exceed the U-value and SHGC required by the applicable ENERGY STAR program for the Climate Zone of the project in accordance with 018113.

5.2a Additional Reductions in Energy Use

Use windows that meet or exceed the U-value and SHGC required by the applicable ENERGY STAR program for the Climate Zone of the project and per the design in accordance with 018113.

5.2b Advanced Certifications: Nearing Net Zero

Use windows that meet or exceed the U-value and SHGC required by the applicable ENERGY STAR program for the Climate Zone of the project and per the design in accordance with 018113.

##### Materials

###### 6.2 Low / No VOC Adhesives and Sealants

For all interior adhesives and sealants, use products that meet VOC level requirements in 018113 under Criterion 6.2.

### execution

#### Execution Requirements

##### Healthy Living Environment

###### 7.6 Water Drainage

Install all waterproofing details, weather resistive barrier, flashing, and details in accordance with 018113 under Criterion 7.6.

## 08 90 00 / Louvers and Vents

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Healthy Living Environment

###### 7.10 Integrated Pest Management

Submit product data in accordance with 018113 under Criterion 7.10.

### products

#### Product Requirements

##### Healthy Living Environment

###### 7.10 Integrated Pest Management

Use products that meet requirements in 018113 under Criterion 7.10.

### execution

#### Execution Requirements

##### Healthy Living Environment

###### 7.10 Integrated Pest Management

Meet installation requirements in 018113 under Criterion 7.10.

# Division 9: Finishes

## 09 22 16 / Non-Structural Metal Framing

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Materials

6.3 Recycled Content Material

Submit product information that confirms post-consumer and post-industrial recycled content for products identified in 018113 under Criterion 6.3.

### products

#### Product Requirements

##### Materials

6.3 Recycled Content Material

Use products that contain recycled content as described in 018113 under Criterion 6.3.

### execution

#### Execution Requirements

##### Residential units will be infiltration tested as a requirement of Enterprise Green Communities, under Criterion 5.1 and 5.2. Refer to project details including unit air sealing details in the drawings for air sealing requirements for light-gauge steel framing of exterior walls, party walls, corridor walls and interior partitions.

##### See related requirements in 018113 under criterion 5.1.

## 09 29 00 / Gypsum Board

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Materials

###### 6.2 Low / No VOC Adhesives and Sealants

Submit VOC level in grams per liter for all interior adhesives and sealants in accordance with 018113 under Criterion 6.2.

6.3 Recycled Content Material

Submit product information that confirms post-consumer and post-industrial recycled content for products identified in 018113 under Criterion 6.3.

6.4 Regional Material

Submit product information that confirms exact location(s) where the material was extracted, processed, and manufactured for products identified in 018113 under Criterion 6.4.

###### 6.9 Mold Prevention: Tub and Shower Enclosures

Submit product information in accordance with 018113 under Criterion 6.9.

### products

#### Product Requirements

##### Materials

###### 6.2 Low / No VOC Adhesives and Sealants

For all interior adhesives and sealants, use products that meet VOC level requirements in 018113 under Criterion 6.2.

6.3 Recycled Content Material

Use products that contain recycled content as described in 018113 under Criterion 6.3.

6.4 Regional Material

Use products that contain regional material as described in 018113 under Criterion 6.4.

###### 6.9 Mold Prevention: Tub and Shower Enclosures

Install compliant product behind tub and shower enclosures that meet requirements in 018113 under Criterion 6.9.

### execution

#### Execution Requirements

##### Residential units will be infiltration tested as a requirement of Enterprise Green Communities. Refer to project details including unit air sealing details in the drawings for air sealing requirements for framing of exterior walls, party walls, corridor walls and interior partitions.

##### See related requirements in 018113 under criterion 5.1.

## 09 30 00 / Tiling

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Materials

###### 6.2 Low / No VOC Adhesives and Sealants

Submit VOC level in grams per liter for all interior adhesives and sealants in accordance with 018113 under Criterion 6.2.

6.3 Recycled Content Material

Submit product information that confirms post-consumer and post-industrial recycled content for products identified in 018113 under Criterion 6.3.

6.4 Regional Material

Submit product information that confirms exact location(s) where the material was extracted, processed, and manufactured for products identified in 018113 under Criterion 6.4.

###### 6.9 Mold Prevention: Tub & Shower Enclosures

Submit product documentation in accordance with 018113 under Criterion 6.9.

##### Operations, Maintenance and Resident Engagement

###### 8.1 Building Maintenance Manual

Submit cleaning and maintenance information in accordance with the requirements of 018113 under Criterion 8.1.

### products

#### Product Requirements

##### Materials

###### 6.2 Low / No VOC Adhesives and Sealants

For all interior adhesives and sealants, use products that meet VOC level requirements in 018113 under Criterion 6.2.

6.3 Recycled Content Material

Use products that contain recycled content as described in 018113 under Criterion 6.3.

6.4 Regional Material

Use products that contain regional material as described in 018113 under Criterion 6.4.

###### 6.9 Mold Prevention: Tub & Shower Enclosures

Use backer board products behind tub and shower enclosures in accordance with 018113 under Criterion 6.9.

### execution (no egc comments)

## 09 60 00 / Flooring

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Materials

###### 6.2 Low / No VOC Adhesives and Sealants

Submit VOC level in grams per liter for all interior adhesives and sealants in accordance with 018113 under Criterion 6.2.

6.3 Recycled Content Material

Submit product information that confirms post-consumer and post-industrial recycled content for products identified in 018113 under Criterion 6.3.

6.4 Regional Material

Submit product information that confirms exact location(s) where the material was extracted, processed, and manufactured for products identified in 018113 under Criterion 6.4.

###### 6.7a Environmentally Preferable Flooring

Submit product information in accordance with 018113 under Criterion 6.7a.

6.7b Environmentally Preferable Flooring: Throughout Building

Submit product information in accordance with 018113 under Criterion 6.7b.

6.10 Asthmagen-free Materials

Submit product information in accordance with 018113 under Criterion 6.10.

##### Operations, Maintenance and Resident Engagement

###### 8.1 Building Maintenance Manual

Submit cleaning and maintenance information in accordance with the requirements of 018113 under Criterion 8.1.

### products

#### Product Requirements

##### Materials

###### 6.2 Low / No VOC Adhesives and Sealants

For all interior adhesives and sealants, use products that meet VOC level requirements in 018113 under Criterion 6.2.

6.3 Recycled Content Material

Use products that contain recycled content as described in 018113 under Criterion 6.3.

6.4 Regional Material

Submit product information that confirms exact location(s) where the material was extracted, processed, and manufactured for products identified in 018113 under Criterion 6.4.

###### 6.7a Environmentally Preferable Flooring

Use products that meet requirements in 018113 under Criterion 6.7a.

6.7b Environmentally Preferable Flooring Throughout

Use products that meet requirements in 018113 under Criterion 6.7b.

6.10 Asthmagen-free Materials

Use products that meet requirements in 018113 under Criterion 6.10.

### execution (no egc comments)

## 09 68 00 / Carpeting

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Materials

###### 6.2 Low / No VOC Adhesives and Sealants

Submit VOC level in grams per liter for all interior adhesives and sealants in accordance with 018113 under Criterion 6.2.

6.3 Recycled Content Material

Submit product information that confirms post-consumer and post-industrial recycled content for products identified in 018113 under Criterion 6.3.

6.4 Regional Material

Submit product information that confirms exact location(s) where the material was extracted, processed, and manufactured for products identified in 018113 under Criterion 6.4.

###### 6.7a Environmentally Preferable Flooring

Submit product information in accordance with 018113 under Criterion 6.7a.

6.10 Asthmagen-free Materials

Submit product information in accordance with 018113 under Criterion 6.10.

6.12 Construction Waste Management

1. Submit a price quote to recycle carpet and carpet components.
2. Refer to 017419 for requirements related to Carpet Reclamation Plan and Carpet Reclamation Certificate.

##### Operations, Maintenance and Resident Engagement

###### 8.1 Building Maintenance Manual

Submit cleaning and maintenance information in accordance with the requirements of 018113 under Criterion 8.1.

### products

#### Product Requirements

##### Materials

###### 6.2 Low / No VOC Adhesives and Sealants

For all interior adhesives and sealants, use products that meet VOC level requirements in 018113 under Criterion 6.2.

6.3 Recycled Content Material

Use products that contain recycled content as described in 018113 under Criterion 6.3.

6.4 Regional Material

Use products that contain regional material as described in 018113 under Criterion 6.4.

###### 6.7a Environmentally Preferable Flooring

Use products that meet requirements in 018113 under Criterion 6.7a.

6.10 Asthmagen-free Materials

Use products that meet requirements in 018113 under Criterion 6.10.

### execution

#### Execution Requirements

##### Materials

###### 6.12 Construction Waste Management

1. Refer to 017419 for requirements related to Carpet Reclamation Procedures.

## 09 72 00 / Wall Coverings

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Materials

###### 6.2 Low / No VOC Adhesives and Sealants

Submit VOC level in grams per liter for all interior adhesives and sealants in accordance with 018113 under Criterion 6.2.

6.10 Asthmagen-free Materials

Submit product information in accordance with 018113 under Criterion 6.10.

##### Operations, Maintenance and Resident Engagement

###### 8.1 Building Maintenance Manual

Submit cleaning and maintenance information in accordance with the requirements of 018113 under Criterion 8.1.

### products

#### Product Requirements

##### Materials

###### 6.2 Low / No VOC Adhesives and Sealants

For all interior adhesives and sealants, use products that meet VOC level requirements in 018113 under Criterion 6.2.

6.10 Asthmagen-free Materials

Use products that meet requirements in 018113 under Criterion 6.10.

### execution (no egc comments)

## 09 90 00 / Painting and Coating

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Materials

6.1 Low / No VOC Paints, Coatings and Primers

Submit VOC level in grams per liter for all interior paints, coatings, and primers in accordance with 018113 under Criterion 6.1.

##### Operations, Maintenance and Resident Engagement

###### 8.1 Building Maintenance Manual

Submit paint product information and guidance on cleaning and maintaining painted surfaces in accordance with the requirements of 018113 under Criterion 8.1.

### products

#### Product Requirements

##### Materials

6.1 Low / No VOC Paints, Coatings and Primers

For all interior paints, coatings, and primers, use products that meet VOC level requirements in 018113 under Criterion 6.1.

### execution (No egc comments)

## 09 91 23 / Interior Painting

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Materials

6.1 Low / No VOC Paints, Coatings and Primers

Submit VOC level in grams per liter for all interior paints, coatings, and primers in accordance with 018113 under Criterion 6.1.

##### Operations, Maintenance and Resident Engagement

###### 8.1 Building Maintenance Manual

Submit paint product information and guidance on cleaning and maintaining painted surfaces in accordance with the requirements of 018113 under Criterion 8.1.

### products

#### Product Requirements

##### Materials

6.1 Low / No VOC Paints, Coatings and Primers

For all interior paints, coatings, and primers, use products that meet VOC level requirements in 018113 under Criterion 6.1.

### execution (No egc comments)

# Division 10: Specialties

## 10 14 00 / Signage

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Materials

###### 6.2 Low / No VOC Adhesives and Sealants

Submit VOC level in grams per liter for all interior adhesives and sealants in accordance with 018113 under Criterion 6.2.

### products

#### Product Requirements

##### Materials

###### 6.2 Low / No VOC Adhesives and Sealants

For all interior adhesives and sealants, use products that meet VOC level requirements in 018113 under Criterion 6.2.

### execution (no EGC comments)

# Division 11: Equipment

## 11 26 00 / Unit Kitchens

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Water Conservation

4.1 Water Conserving Fixtures

Submit product data in accordance with 018113 under Criterion 4.1.

*4.2 Advanced Water Conservation*

Submit product data in accordance with 018113 under Criterion 4.2.

##### Energy Efficiency

###### 5.1a Building Performance Standard: New Construction: single family and low-rise multifamily

Submit product data in accordance with 018113 under Criterion 5.1a

###### 5.1b Building Performance Standard: New Construction: mid-rise and high-rise multifamily

Submit product data in accordance with 018113 under Criterion 5.1b.

###### 5.1c Building Performance Standard: Substantial and Moderate Rehab: single family and low-rise multifamily

Submit product data in accordance with 018113 under Criterion 5.4.

###### 5.1d Building Performance Standard: Substantial and Moderate Rehab: mid-rise and high-rise multifamily

Submit product data in accordance with 018113 under Criterion 5.4.

###### 5.4 ENERGY STAR Appliances

Submit product data indicating ENERGY STAR certification as noted in 018113 under Criterion 5.4.

##### Materials

###### 6.2 Low / No VOC Adhesives and Sealants

Submit VOC level in grams per liter for all interior adhesives and sealants in accordance with 018113 under Criterion 6.2.

###### 6.6 Composite Wood Products that Emit Low / No Formaldehyde

Submit product information in accordance with 018113 under Criterion 6.6.

6.10 Asthmagen-Free Materials

Submit product information in accordance with 018113 under Criterion 6.10.

##### Healthy Living Environment

###### 7.1 Ventilation – Kitchen Range Hood

Submit product information demonstrating compliance with requirements of ASHRAE 62.2-2010 in accordance with 018113 under Criterion 7.1.

##### Operations, Maintenance and Resident Engagement

###### 8.1 Building Maintenance Manual

Submit operations & maintenance guidance in accordance with the requirements of 018113 under Criterion 8.1.

### products

#### Product Requirements

##### Water Conservation

4.1 Water Conserving Fixtures

Use products that meet requirements in 018113 under Criterion 4.1.

4.2 Advanced Water Conservation

Use products that meet requirements in 018113 under Criterion 4.2.

##### Energy Efficiency

###### 5.1a Building Performance Standard: New Construction: single family and low-rise multifamily

Use products that meet requirements in 018113 under Criterion 5.1a.

###### 5.1b Building Performance Standard: New Construction: mid-rise and high-rise multifamily

Use products that meet requirements in 018113 under Criterion 5.1b.

###### 5.1c Building Performance Standard: Substantial and Moderate Rehab: single family and low-rise multifamily

Use products that meet requirements in 018113 under Criterion 5.4.

###### 5.1d Building Performance Standard: Substantial and Moderate Rehab: mid-rise and high-rise multifamily

Submit product data in accordance with 018113 under Criterion 5.4.

###### 5.4 ENERGY STAR Appliances

Provide appliances that meet ENERGY STAR certification as noted in 018113 under Criterion 5.4.

##### Materials

###### 6.2 Low / No VOC Adhesives and Sealants

For all interior adhesives and sealants, use products that meet VOC level requirements in 018113 under Criterion 6.2.

###### 6.6 Composite Wood Products that Emit Low / No Formaldehyde

Use products that meet requirements in 018113 under Criterion 6.6.

6.10 Asthmagen-Free Materials

Use products that meet requirements in 018113 under Criterion 6.10.

### execution

#### Execution Requirements

##### Materials

###### 6.6 Composite Wood Products that Emit Low / No Formaldehyde

Follow execution details in accordance with 018113 under Criterion 6.6.

## 11 31 00 / Residential Appliances

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Water Conservation

4.2 Advanced Water Conservation [Option 2]

Submit product data for Clothes Washers and Dishwashers showing ENERGY STAR certification for both types, Water Factor (WF) - for clothes washers and Gallons per Cycle (GPC) - for dishwashers.

##### Energy Efficiency

###### 5.1a Building Performance Standard: New Construction: single family and low-rise multifamily

Submit product data in accordance with 018113 under Criterion 5.1a.

###### 5.1b Building Performance Standard: New Construction: mid-rise and high-rise multifamily

Submit product data in accordance with 018113 under Criterion 5.1b.

###### 5.1c Building Performance Standard: Substantial and Moderate Rehab: single family and low-rise multifamily

Submit product data in accordance with 018113 under Criterion 5.4.

###### 5.1d Building Performance Standard: Substantial and Moderate Rehab: mid-rise and high-rise multifamily

Submit product data in accordance with 018113 under Criterion 5.4.

###### 5.4 ENERGY STAR Appliances

Submit product data indicating ENERGY STAR certification as noted in 018113 under Criterion 5.4.

##### Operations, Maintenance and Resident Engagement

###### 8.1 Building Maintenance Manual

Submit operations & maintenance guidance in accordance with the requirements of 018113 under Criterion 8.1.

### products

#### Product Requirements

##### Water Conservation

4.2 Advanced Water Conservation [Option 2]

Use products that meet requirements in 018113 under Criterion 4.2.

##### Energy Efficiency

###### 5.1a Building Performance Standard: New Construction: single family and low-rise multifamily

Use products that meet requirements in 018113 under Criterion 5.1a.

###### 5.1b Building Performance Standard: New Construction: mid-rise and high-rise multifamily

Use products that meet requirements in 018113 under Criterion 5.1b.

###### 5.1c Building Performance Standard: Substantial and Moderate Rehab: single family and low-rise multifamily

Use products that meet requirements in 018113 under Criterion 5.4.

###### 5.1d Building Performance Standard: Substantial and Moderate Rehab: mid-rise and high-rise multifamily

Use products that meet requirements in 018113 under Criterion 5.4.

###### 5.4 ENERGY STAR Appliances

Provide appliances that meet ENERGY STAR certification as noted in 018113 under Criterion 5.4.

### execution

#### Execution Requirements

##### Healthy Living Environment

###### 7.2 Clothes Dryer Exhaust

Install rigid-type exhaust ductwork to connect all vented clothes dryers directly to outdoors as indicated in 018113 under Criterion 7.2.

# Division 12: Furnishings

## 12 35 30 / Residential Casework

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Materials

###### 6.2 Low / No VOC Adhesives and Sealants

Submit VOC level in grams per liter for all interior adhesives and sealants in accordance with 018113 under Criterion 6.2.

###### 6.6 Composite Wood Products that Emit Low / No Formaldehyde

Submit product information in accordance with 018113 under Criterion 6.6.

6.10 Asthmagen-free Materials

Submit product information in accordance with 018113 under Criterion 6.10.

### products

#### Product Requirements

##### Materials

###### 6.2 Low / No VOC Adhesives and Sealants

For all interior adhesives and sealants, use products that meet VOC level requirements in 018113 under Criterion 6.2.

###### 6.6 Composite Wood Products that Emit Low / No Formaldehyde

Use products that meet requirements in 018113 under Criterion 6.6.

6.10 Asthmagen-free Materials

Use products that meet requirements in 018113 under Criterion 6.10.

### execution

#### Execution Requirements

##### Materials

###### 6.6 Composite Wood Products that Emit Low / No Formaldehyde

Follow execution details in accordance with 018113 under Criterion 6.6.

## 12 48 13 / Entrance Floor Mats & Frames

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Materials

###### 6.2 Low / No VOC Adhesives and Sealants

Submit VOC level in grams per liter for all interior adhesives and sealants in accordance with 018113 under Criterion 6.2.

6.10 Asthmagen-free Materials

Submit product information in accordance with 018113 under Criterion 6.10.

##### Operations, Maintenance and Resident Engagement

###### 8.1 Building Maintenance Manual

Submit operations & maintenance guidance in accordance with the requirements of 018113 under Criterion 8.1.

### products

#### Product Requirements

##### Materials

###### 6.2 Low / No VOC Adhesives and Sealants

For all interior adhesives and sealants, use products that meet VOC level requirements in 018113 under Criterion 6.2.

6.10 Asthmagen-free Materials

Use products that meet requirements in 018113 under Criterion 6.10.

### execution (no egc comments)

# Division 14: Conveying Equipment

## 14 20 00 / Elevators

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Materials

###### 6.2 Low / No VOC Adhesives and Sealants

Submit VOC level in grams per liter for all interior adhesives and sealants in accordance with 018113 under Criterion 6.2.

##### Operations, Maintenance and Resident Engagement

###### 8.1 Building Maintenance Manual

Submit operations & maintenance guidance in accordance with the requirements of 018113 under Criterion 8.1.

### products

#### Product Requirements

##### Materials

###### 6.2 Low / No VOC Adhesives and Sealants

For all interior adhesives and sealants, use products that meet VOC level requirements in 018113 under Criterion 6.2.

### execution (no egc comments)

# Division 22: Plumbing

## 22 07 00 / Insulation for Plumbing

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Water Conservation

4.4 Efficient Plumbing Layout and Design

Submit calculations and product data in accordance with 018113 under Criterion 4.4.

### products

#### Product Requirements

##### Water Conservation

4.4 Efficient Plumbing Layout and Design

Use products that meet requirements in 018113 under Criterion 4.4.

### execution

#### Execution Requirements

##### Water Conservation

4.4 Efficient Plumbing Layout and Design

Conduct testing and inspections in accordance with 018113 under Criterion 4.4.

## 22 08 00 / Commissioning of Plumbing

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Water Conservation

4.3 Leaks and Water Metering

Submit a plan for leak detection prior to substantial completion, including pressure-loss test and visual inspection at all visible supply connections in accordance with 018113 under Criterion 43.

4.4 Efficient Plumbing Layout and Design

Submit calculations and product data in accordance with 018113 under Criterion 4.4.

### products

#### Product Requirements

### execution

#### Execution Requirements

##### Water Conservation

4.3 Leaks and Water Metering

Conduct leak detection prior to substantial completion, including pressure-loss test and visual inspection at all visible supply connections in accordance with 018113 under Criterion 4.3.

4.4 Efficient Plumbing Layout and Design

Conduct testing and inspections in accordance with 018113 under Criterion 4.4.

##### Operations, Maintenance and Resident Engagement

###### 8.1 Building Operations and Maintenance (O&M) Manual and Plan

Provide as-built documentation of systems for O&M Manual in accordance with the requirements of 018113 under Criterion 8.1

## 22 10 00 / Plumbing / Piping

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Water Conservation

4.3 Leaks and Water Metering

Submit product data in accordance with 018113 under Criterion 4.3

4.4 Efficient Plumbing Layout and Design

Submit calculations and product data in accordance with 018113 under Criterion 4.4.

##### Materials

###### 6.2 Low / No VOC Adhesives and Sealants

Submit VOC level in grams per liter for all interior adhesives and sealants in accordance with 018113 under Criterion 6.2.

### products

#### Product Requirements

##### Water Conservation

4.3 Leaks and Water Metering

Use products that meet requirements in 018113 under Criterion 4.3

4.4 Efficient Plumbing Layout and Design

Use products that meet requirements in 018113 under Criterion 4.4.

##### Materials

###### 6.2 Low / No VOC Adhesives and Sealants

For all interior adhesives and sealants, use products that meet VOC level requirements in 018113 under Criterion 6.2.

### execution (no egc comments)

## 22 11 16 / Domestic Water Distribution Piping

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Water Conservation

4.4 Efficient Plumbing Layout and Design

Submit calculations and product data in accordance with 018113 under Criterion 4.4.

### products

#### Product Requirements

##### Water Conservation

4.4 Efficient Plumbing Layout and Design

Use products that meet requirements in 018113 under Criterion 4.4.

### execution (no egc comments)

## 22 14 00 / Storm Drainage

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Site Improvements

3.6 Surface Stormwater Management

Submit product data in accordance with 018113 under Criterion 3.6.

### products (no egc comments)

### execution

#### Execution Requirements

##### Site Improvements

3.6 Surface Stormwater Management

Conform to execution requirements in accordance with 018113 under Criterion 3.6.

## 22 33 00 / Domestic Water Heaters

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Energy Efficiency

###### 5.1a Building Performance Standard: New Construction: single family and low-rise multifamily

Submit product data in accordance with 018113 under Criterion 5.1a

###### 5.1b Building Performance Standard: New Construction: mid-rise and high-rise multifamily

Submit product data in accordance with 018113 under Criterion 5.1b.

###### 5.1c Building Performance Standard: Substantial and Moderate Rehab: single family and low-rise multifamily

Submit product data in accordance with 018113 under Criterion 5.1c.

###### 5.1d Building Performance Standard: Substantial and Moderate Rehab: mid-rise and high-rise multifamily

Submit product data in accordance with 018113 under Criterion 5.1d.

5.7a Photovoltaic / Solar Hot Water Ready

Submit product data and in accordance with 018113 under Criterion 5.7a.

##### Operations, Maintenance and Resident Engagement

###### 8.1 Building Maintenance Manual

Submit operations & maintenance guidance in accordance with the requirements of 018113 under Criterion 8.1.

### products

#### Product Requirements

##### Energy Efficiency

###### 5.1a Building Performance Standard: New Construction: single family and low-rise multifamily

Use products that meet ENERGY STAR and requirements in 018113 under Criterion 5.1a.

###### 5.1b Building Performance Standard: New Construction: mid-rise and high-rise multifamily

Use products that meet ENERGY STAR and requirements in 018113 under Criterion 5.1b.

###### 5.1c Building Performance Standard: Substantial and Moderate Rehab: single family and low-rise multifamily

Use products that meet requirements in 018113 under Criterion 5.4.

###### 5.1d Building Performance Standard: Substantial and Moderate Rehab: mid-rise and high-rise multifamily

Submit product data in accordance with 018113 under Criterion 5.4.

### execution

#### Execution Requirements

##### Healthy Living Environment

###### 7.7 Mold Prevention: Water Heaters

Meet installation requirements in accordance with 018113 under Criterion 7.7.

## 22 40 00 / Plumbing Fixtures

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Water Conservation

###### 4.1 Water-Conserving Fixtures

Submit product data in accordance with 018113 under Criterion 4.1.

4.2 Advanced Water Conservation

Submit product data in accordance with 018113 under Criterion 4.2.

##### Materials

###### 6.2 Low / No VOC Adhesives and Sealants

Submit VOC level in grams per liter for all interior adhesives and sealants in accordance with 018113 under Criterion 6.2.

##### Operations, Maintenance and Resident Engagement

###### 8.1 Building Maintenance Manual

Submit operations & maintenance guidance in accordance with the requirements of 018113 under Criterion 8.1.

### products

#### Product Requirements

##### Water Conservation

###### 4.1 Water-Conserving Fixtures

Use products that meet requirements in 018113 under Criterion 4.1.

4.2 Advanced Water Conservation

Use products that meet requirements in 018113 under Criterion 4.2.

### execution (no egc comments)

# Division 23: HVAC

## 23 00 00 / Heating, Ventilating, & Air Conditioning (HVAC)

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Energy Efficiency

###### 5.1a Building Performance Standard: New Construction: single family and low-rise multifamily

Submit documentation showing energy efficiency ratings and heating/cooling/ventilation flow rate capacities for all equipment, consistent with the requirements of 018113 under Criterion 5.1a.

###### 5.1b Building Performance Standard: New Construction: mid-rise and high-rise multifamily

Submit documentation showing energy efficiency ratings and heating/cooling/ventilation flow rate capacities for all equipment, consistent with the requirements of 018113 under Criterion 5.1b.

###### 5.1c Building Performance Standard: Substantial and Moderate Rehab: single family and low-rise multifamily

Submit product data showing energy efficiency ratings in accordance with 018113 under Criterion 5.1c.

###### 5.1d Building Performance Standard: Substantial and Moderate Rehab: mid-rise and high-rise multifamily

Submit product data showing energy efficiency ratings in accordance with 018113 under Criterion 5.1d.

5.2a Additional Reductions in Energy Use

Submit documentation showing energy efficiency ratings and heating/cooling/ventilation flow rate capacities for all equipment, consistent with the requirements of 018113 under Criterion 5.2a.

5.2b Advanced Certifications: Nearing Net Zero

Submit documentation showing energy efficiency ratings and heating/cooling/ventilation flow rate capacities for all equipment, consistent with the requirements of 018113 under Criterion 5.2b.

###### 5.3 Sizing of Heating and Cooling Equipment

Submit calculations and product data in accordance with 018113 under Criterion 5.3.

##### Materials

###### 6.2 Low / No VOC Adhesives and Sealants

Submit VOC level in grams per liter for all interior adhesives and sealants in accordance with 018113 under Criterion 6.2.

### products

#### Product Requirements

##### Energy Efficiency

###### 5.1a Building Performance Standard: New Construction: single family and low-rise multifamily

Select heating/cooling/ventilation equipment consistent with the requirements of 018113 under Criterion 5.1a.

###### 5.1b Building Performance Standard: New Construction: mid-rise and high-rise multifamily

Select heating/cooling/ventilation equipment consistent with the requirements of 018113 under Criterion 5.1b.

###### 5.1c Building Performance Standard: Substantial and Moderate Rehab: single family and low-rise multifamily

Select heating/cooling/ventilation equipment consistent with the requirements of 018113 under Criterion 5.1c.

###### 5.1d Building Performance Standard: Substantial and Moderate Rehab: mid-rise and high-rise multifamily

Select heating/cooling/ventilation equipment consistent with the requirements of 018113 under Criterion 5.1c.

5.2a Additional Reductions in Energy Use

Install heating/cooling/ventilation equipment, consistent with the requirements of 018113 under Criterion 5.2a.

5.2b Advanced Certifications: Nearing Net Zero

Install heating/cooling/ventilation equipment, consistent with the requirements of 018113 under Criterion 5.2b.

###### 5.3 Sizing of Heating and Cooling Equipment

Install products in accordance with sizing calculations and requirements identified in 018113 under Criterion 5.3.

##### Materials

###### 6.2 Low / No VOC Adhesives and Sealants

For all interior adhesives and sealants, use products that meet VOC level requirements in 018113 under Criterion 6.2.

### execution

#### Execution Requirements

##### Energy Efficiency

###### 5.3 Sizing of Heating and Cooling Equipment

Follow execution details in accordance with 018113 under Criterion 5.3.

##### Healthy Living Environment

###### 7.9 Garage Isolation

Meet installation requirements in accordance with 018113 under Criterion 7.9.

##### Operations, Maintenance and Resident Engagement

###### 8.1 Building Operations and Maintenance (O&M) Manual and Plan

Provide as-built documentation of systems for O&M Manual in accordance with the requirements of 018113 under Criterion 8.1.

## 23 05 19 / Meters and Gas Gauges for Plumbing Piping

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Water Conservation

4.3 Leaks and Water Metering

Submit information in accordance with 018113 under Criterion 4.3.

### products

#### Product Requirements

##### Water Conservation

4.3 Leaks and Water Metering

Provide equipment in accordance with 018113 under Criterion 4.3.

### execution

#### Execution Requirements

##### Water Conservation

4.3 Leaks and Water Metering

Follow execution details in accordance with 018113 under Criterion 4.3.

## 23 05 93 / Testing, Adjusting and Balancing for Plumbing

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Water Conservation

4.3 Leaks and Water Metering

Submit information in accordance with 018113 under Criterion 4.3.

### products (no egc comments)

### execution

#### Execution Requirements

##### Water Conservation

4.3 Leaks and Water Metering

Conduct testing and inspections in accordance with 018113 under Criterion 4.3.

## 23 30 00 / HVAC Air Distribution

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Energy Efficiency

###### 5.3 Sizing of Heating and Cooling Equipment – distribution ductwork

Submit duct design calculations in accordance with ACCA Manual J and D and 018113 under Criterion 5.3.

##### Materials

###### 6.2 Low / No VOC Adhesives and Sealants

Submit VOC level in grams per liter for all interior adhesives and sealants in accordance with 018113 under Criterion 6.2.

##### Healthy Living Environment

###### 7.1 Ventilation

Submit product data in accordance with 018113 under Criterion 7.1.

### products

#### Product Requirements

##### Energy Efficiency

###### 5.3 Sizing of Heating and Cooling Equipment

Install products in accordance with sizing calculations and requirements identified in 018113 under Criterion 5.3.

##### Materials

###### 6.2 Low / No VOC Adhesives and Sealants

For all interior adhesives and sealants, use products that meet VOC level requirements in 018113 under Criterion 6.2.

##### Healthy Living Environment

###### 7.1 Ventilation

Use products that meet requirements in 018113 under Criterion 7.1.

### execution

#### Execution Requirements

##### Energy Efficiency

###### 5.1 Building Performance Standard – duct sealing

All heating and cooling distribution ductwork shall be air-sealed to the standard required by the applicable ENERGY STAR program. Follow execution details in accordance with 018113 under Criterion 5.1 [a) / b) / c)].

Heating and cooling distribution ductwork leakage shall be tested by a qualified third party energy rater or Commissioning Authority, in accordance with 018113 under Criterion [5.1 and/or 5.2].

##### Healthy Living Environment

###### 7.1 Ventilation

Install all equipment in accordance with 018113 under Criterion 7.1.

###### 7.9 Garage Isolation

Meet installation requirements in accordance with 018113 under Criterion 7.9.

##### Operations, Maintenance and Resident Engagement

###### 8.1 Building Operations and Maintenance (O&M) Manual and Plan

Provide as-built documentation of systems for O&M Manual in accordance with the requirements of 018113 under Criterion 8.1.

## 23 34 00 / HVAC Fans

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Energy Efficiency

###### 5.1a Building Performance Standard: New Construction: single family and low-rise multifamily

Submit product data in accordance with 018113 under Criterion 5.1a.

###### 5.1b Building Performance Standard: New Construction: mid-rise and high-rise multifamily

Submit product data in accordance with 018113 under Criterion 5.1b.

###### 5.1c Building Performance Standard: Substantial and Moderate Rehab: single family and low-rise multifamily

Submit product data in accordance with 018113 under Criterion 5.1c.

###### 5.1d Building Performance Standard: Substantial and Moderate Rehab: mid-rise and high-rise multifamily

Submit product data in accordance with 018113 under Criterion 5.1d.

##### Healthy Living Environment

###### 7.1 Ventilation

Submit product data in accordance with 018113 under Criterion 7.1.

##### Operations, Maintenance and Resident Engagement

###### 8.1 Building Maintenance Manual

Submit operations & maintenance guidance in accordance with the requirements of 018113 under Criterion 8.1.

### products

#### Product Requirements

##### Energy Efficiency

###### 5.1a Building Performance Standard: New Construction: single family and low-rise multifamily

Use products that meet the requirements of 018113 under Criterion 5.1a.

###### 5.1b Building Performance Standard: New Construction: mid-rise and high-rise multifamily

Use products that meet the requirements of 018113 under Criterion 5.1b.

###### 5.1c Building Performance Standard: Substantial and Moderate Rehab: single family and low-rise multifamily

Use products that meet the requirements of 018113 under Criterion 5.1c.

###### 5.1d Building Performance Standard: Substantial and Moderate Rehab: mid-rise and high-rise multifamily

Use products that meet the requirements of 018113 under Criterion 5.1d.

##### Healthy Living Environment

###### 7.1 Ventilation

Use products that meet requirements in 018113 under Criterion 7.1.

### execution

#### Execution Requirements

##### Healthy Living Environment

###### 7.1 Ventilation

Install all equipment in accordance with 018113 under Criterion 7.1.

## 23 52 00 / Boilers

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Energy Efficiency

###### 5.1a Building Performance Standard: New Construction: single family and low-rise multifamily

Submit product data in accordance with 018113 under Criterion 5.1a.

###### 5.1b Building Performance Standard: New Construction: mid-rise and high-rise multifamily

Submit product data in accordance with 018113 under Criterion 5.1b.

###### 5.1c Building Performance Standard: Substantial and Moderate Rehab: single family and low-rise multifamily

Submit product data in accordance with 018113 under Criterion 5.1c.

###### 5.1d Building Performance Standard: Substantial and Moderate Rehab: mid-rise and high-rise multifamily

Submit product data in accordance with 018113 under Criterion 5.1d.

##### Operations, Maintenance and Resident Engagement

###### 8.1 Building Maintenance Manual

Submit operations & maintenance guidance in accordance with the requirements of 018113 under Criterion 8.1.

### products

#### Product Requirements

##### Energy Efficiency

###### 5.1a Building Performance Standard: New Construction: single family and low-rise multifamily

Use products that meet the requirements of 018113 under Criterion 5.1a.

###### 5.1b Building Performance Standard: New Construction: mid-rise and high-rise multifamily

Use products that meet the requirements of 018113 under Criterion 5.1b.

###### 5.1c Building Performance Standard: Substantial and Moderate Rehab: single family and low-rise multifamily

Use products that meet the requirements of 018113 under Criterion 5.1c.

###### 5.1d Building Performance Standard: Substantial and Moderate Rehab: mid-rise and high-rise multifamily

Use products that meet the requirements of 018113 under Criterion 5.1d.

### execution

#### Execution Requirements

##### Healthy Living Environment

###### 7.3 Combustion Equipment

Install power-vented or direct-vent equipment that meets requirements in 018113 under Criterion 7.3.

## 23 54 00 / Furnaces

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Energy Efficiency

###### 5.1a Building Performance Standard: New Construction: single family and low-rise multifamily

Submit product data in accordance with 018113 under Criterion 5.1a.

###### 5.1b Building Performance Standard: New Construction: mid-rise and high-rise multifamily

Submit product data in accordance with 018113 under Criterion 5.1b.

###### 5.1c Building Performance Standard: Substantial and Moderate Rehab: single family and low-rise multifamily

Submit product data in accordance with 018113 under Criterion 5.1c.

###### 5.1d Building Performance Standard: Substantial and Moderate Rehab: mid-rise and high-rise multifamily

Submit product data in accordance with 018113 under Criterion 5.1d.

##### Operations, Maintenance and Resident Engagement

###### 8.1 Building Maintenance Manual

Submit operations & maintenance guidance in accordance with the requirements of 018113 under Criterion 8.1.

### products

#### Product Requirements

##### Energy Efficiency

###### 5.1a Building Performance Standard: New Construction: single family and low-rise multifamily

Use products that meet the requirements of 018113 under Criterion 5.1a.

###### 5.1b Building Performance Standard: New Construction: mid-rise and high-rise multifamily

Use products that meet the requirements of 018113 under Criterion 5.1b.

###### 5.1c Building Performance Standard: Substantial and Moderate Rehab: single family and low-rise multifamily

Use products that meet the requirements of 018113 under Criterion 5.1c.

###### 5.1d Building Performance Standard: Substantial and Moderate Rehab: mid-rise and high-rise multifamily

Use products that meet the requirements of 018113 under Criterion 5.1d.

### execution

#### Execution Requirements

##### Healthy Living Environment

###### 7.3 Combustion Equipment

Install hard-wired CO alarms with battery backup in accordance with NFPA 720 as identified in 018113 under Criterion 7.3.

## 23 56 00 / Solar Heating Equipment

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Energy Efficiency

5.7a Photovoltaic / Solar Hot Water Ready

Submit product data and in accordance with 018113 under Criterion 5.7a.

##### Operations, Maintenance and Resident Engagement

###### 8.1 Building Operations and Maintenance (O&M) Manual and Plan

Provide documentation of systems maintenance requirements for O&M Manual in accordance with the requirements of 018113 under Criterion 8.1

### products (no egc comments)

### execution (no egc comments)

# Division 26: Electrical

## 26 05 00 / Basic Electrical Materials & Methods

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Energy Efficiency

5.7a Photovoltaic / Solar Hot Water Ready

Submit product data and in accordance with 018113 under Criterion 5.7a.

5.8b Resilient Energy Systems: Islandable Power

Submit product data in accordance with 018113 under Criterion 5.8b.

##### Operations, Maintenance and Resident Engagement

###### 8.2 Emergency Management Manual

Submit operations and maintenance information related to electrical equipment, emergency shutoffs and other systems associated with emergency response (such as islandable power systems) in accordance with 01 81 13 under Criterion 8.2.

### products

#### Product Requirements

##### Energy Efficiency

5.8b Resilient Energy Systems: Islandable Power

Submit product data in accordance with 018113 under Criterion 5.8b.

### execution

#### Execution Requirements

##### Energy Efficiency

5.7a Photovoltaic / Solar Hot Water Ready

Follow execution details in accordance with 018113 under Criterion 5.7a.

## 26 27 13 / Electricity Metering

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Energy Efficiency

###### 5.6 Electricity Meter

Submit product data in accordance with 018113 under Criterion 5.6.

### products (no egc comments)

### execution (no egc comments)

## 26 31 00 / Photovoltaic Collectors

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Energy Efficiency

5.7a Photovoltaic / Solar Hot Water Ready

Submit product data and in accordance with 018113 under Criterion 5.7a.

5.7b Renewable Energy

Submit product data in accordance with 018113 under Criterion 5.7b.

5.8b Resilient Energy Systems: Islandable Power

Submit product data in accordance with 018113 under Criterion 5.8b.

##### Operations, Maintenance and Resident Engagement

###### 8.1 Building Maintenance Manual

Submit operations & maintenance guidance in accordance with the requirements of 018113 under Criterion 8.1.

##### Operations, Maintenance and Resident Engagement

###### 8.2 Emergency Management Manual

Submit operations and maintenance information related to electrical equipment, emergency shutoffs and other systems associated with emergency response (such as islandable power systems) in accordance with 01 81 13 under Criterion 8.2.

### products

#### Product Requirements

##### Energy Efficiency

5.7b Renewable Energy

Use products that meet requirements in 018113 under Criterion 5.7b.

5.8b Resilient Energy Systems: Islandable Power

Use products that meet requirements in 018113 under Criterion 5.8b.

### execution (no egc comments)

## 26 32 23 / Wind Energy Systems

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Energy Efficiency

5.7a Photovoltaic / Solar Hot Water Ready

Submit product data and in accordance with 018113 under Criterion 5.7a.

5.8b Resilient Energy Systems: Islandable Power

Submit product data in accordance with 018113 under Criterion 5.8b.

##### Operations, Maintenance and Resident Engagement

###### 8.1 Building Maintenance Manual

Submit operations & maintenance guidance in accordance with the requirements of 018113 under Criterion 8.1.

##### Operations, Maintenance and Resident Engagement

###### 8.2 Emergency Management Manual

Submit operations and maintenance information related to electrical equipment, emergency shutoffs and other systems associated with emergency response (such as islandable power systems) in accordance with 01 81 13 under Criterion 8.2.

### products

#### Product Requirements

##### Energy Efficiency

5.8b Resilient Energy Systems: Islandable Power

Use products that meet requirements in 018113 under Criterion 5.8b.

### execution (no egc comments)

## 26 51 00 / Interior Lighting

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Energy Efficiency

###### 5.5 Lighting

Submit product data in accordance with 018113 under Criterion 5.5.

##### Operations, Maintenance and Resident Engagement

###### 8.1 Building Maintenance Manual

Submit maintenance & replacement guidance in accordance with the requirements of 018113 under Criterion 8.1.

### products

#### Product Requirements

##### Energy Efficiency

###### 5.5 Lighting

Use products that meet requirements in 018113 under Criterion 5.5.

### execution (no egc comments)

## 26 53 00 / Exit Signs

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Energy Efficiency

###### 5.5 Lighting

Submit product data in accordance with 018113 under Criterion 5.5.

### products

#### Product Requirements

##### Energy Efficiency

###### 5.5 Lighting

Use products that meet requirements in 018113 under Criterion 5.5.

### execution (no egc comments)

## 26 56 00 / Exterior Lighting

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Energy Efficiency

###### 5.5 Lighting

Submit product data in accordance with 018113 under Criterion 5.5.

##### Operations, Maintenance and Resident Engagement

###### 8.1 Building Maintenance Manual

Submit maintenance & replacement guidance in accordance with the requirements of 018113 under Criterion 8.1.

### products

#### Product Requirements

##### Energy Efficiency

###### 5.5 Lighting

Use products that meet requirements in 018113 under Criterion 5.5.

### execution (no egc comments)

# Division 28: Electronic Safety & Security

## 28 31 49 / Carbon Monoxide Detection Sensors

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Healthy Living Environment

###### 7.3 Combustion Equipment

Submit product data in accordance with 018113 under Criterion 7.3.

###### 7.9 Garage Isolation

Submit product information in accordance with 018113 under Criterion 7.9.

##### Operations, Maintenance and Resident Engagement

###### 8.1 Building Maintenance Manual

Submit operations & maintenance guidance in accordance with the requirements of 018113 under Criterion 8.1.

### products

#### Product Requirements

##### Healthy Living Environment

###### 7.3 Combustion Equipment

Use products that meet requirements in 018113 under Criterion 7.3.

###### 7.9 Garage Isolation

Use products that meet requirements in 018113 under Criterion 7.9.

### execution (no egc comments)

# Division 31: Earthwork

## 31 10 00 / Site Clearing

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

### products (no egc comments)

### execution

#### Execution Requirements

##### Healthy Living Environment

###### 7.8 Radon Mitigation

Meet installation requirements in accordance with 018113 under Criterion 7.8.

## 31 21 13 / Radon Mitigation

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

##### Operations, Maintenance and Resident Engagement

###### 8.1 Building Operations and Maintenance (O&M) Manual and Plan

Provide as-built documentation of systems for O&M Manual in accordance with the requirements of 018113 under Criterion 8.1.

### products (no egc comments)

### execution

#### Execution Requirements

##### Healthy Living Environment

###### 7.8 Radon Mitigation

Meet installation requirements in accordance with 018113 under Criterion 7.8.

##### 

# Division 32: Exterior Improvements

## 32 13 00 / Rigid Paving

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Site Improvements

3.7 Reducing Heat-Island Effect: Paving

Submit product data in accordance with 018113 under Criterion 3.7.

##### Materials

6.3 Recycled Content Material

Submit product information that confirms post-consumer and post-industrial recycled content for products identified in 018113 under Criterion 6.3.

##### Operations, Maintenance and Resident Engagement

###### 8.1 Building Maintenance Manual

Submit operations & maintenance guidance in accordance with the requirements of 018113 under Criterion 8.1.

### products

#### Product Requirements

##### Site Improvements

3.7 Reducing Heat-Island Effect: Paving

Use products that meet requirements in 018113 under Criterion 3.7.

##### Materials

6.3 Recycled Content Material

Use products that contain recycled content as described in 018113 under Criterion 6.3.

### execution (no egc comments)

## 32 80 00 / Irrigation

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Site Improvements

###### 3.5a Efficient Irrigation and Water Reuse

Submit product data in accordance with 018113 under Criterion 3.5a.

3.5b Efficient Irrigation and Water Reuse

Submit product data in accordance with 018113 under Criterion 3.5b.

##### Water Conservation

4.5 Water Reuse

Submit product data in accordance with 018113 under Criterion 4.5.

### products

#### Product Requirements

##### Site Improvements

###### 3.5a Efficient Irrigation and Water Reuse

Use products that meet requirements in 018113 under Criterion 3.5a.

3.5b Efficient Irrigation and Water Reuse

Use products that meet requirements in 018113 under Criterion 3.5b.

##### Water Conservation

4.5 Water Reuse

Use products that meet requirements in 018113 under Criterion 4.5.

### execution

#### Execution Requirements

##### Site Improvements

###### 3.5a Efficient Irrigation and Water Reuse

Conform to execution requirements in accordance with 018113 under Criterion 3.5a.

3.5b Efficient Irrigation and Water Reuse

Conform to execution requirements in accordance with 018113 under Criterion 3.5b.

##### Operations, Maintenance and Resident Engagement

###### 8.1 Building Operations and Maintenance (O&M) Manual and Plan

Provide as-built documentation of systems for O&M Manual in accordance with the requirements of 018113 under Criterion 8.1.

## 32 90 00 / Planting

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Site Improvements

###### 3.4 Landscaping

Submit product data in accordance with 018113 under Criterion 3.4.

##### Operations, Maintenance and Resident Engagement

###### 8.1 Resident Manual

Submit plant species information and low-impact maintenance guidance in accordance with the requirements of 018113 under Criterion 8.1.

### products

#### Product Requirements

##### Site Improvements

###### 3.4 Landscaping

Use plantings that meet requirements in 018113 under Criterion 3.4.

### execution (no egc comments)

## 32 92 00 / Turf and Grasses

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Site Improvements

###### 3.4 Landscaping

Submit product data in accordance with 018113 under Criterion 3.4.

##### Operations, Maintenance and Resident Engagement

###### 8.1 Building Maintenance Manual

Submit plant species information and low-impact maintenance guidance in accordance with the requirements of 018113 under Criterion 8.1.

### products

#### Product Requirements

##### Site Improvements

###### 3.4 Landscaping

Use plantings that meet requirements in 018113 under Criterion 3.4.

### execution (no egc comments)

## 32 93 00 / Plants

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Site Improvements

###### 3.4 Landscaping

Submit product data in accordance with 018113 under Criterion 3.4.

##### Operations, Maintenance and Resident Engagement

###### 8.1 Building Maintenance Manual

Submit plant species information and low-impact maintenance guidance in accordance with the requirements of 018113 under Criterion 8.1.

### products

#### Product Requirements

##### Site Improvements

###### 3.4 Landscaping

Use plantings that meet requirements in 018113 under Criterion 3.4.

### execution (no egc comments)

# Division 33: Utilities

## 33 13 00 / Disinfecting of Water Utility Distribution

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Water Conservation

4.5 Water Reuse

Submit product data in accordance with 018113 under Criterion 4.5.

##### Operations, Maintenance and Resident Engagement

###### 8.1 Building Maintenance Manual

If water reuse systems are included, submit operations & maintenance guidance in accordance with the requirements of 018113 under Criterion 8.1.

### products

#### Product Requirements

##### Water Conservation

4.5 Water Reuse

Use products that meet requirements in 018113 under Criterion 4.5.

### execution (no egc comments)

## 33 16 13 / Aboveground Water Utility Storage Tanks

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Water Conservation

4.5 Water Reuse

Submit product data in accordance with 018113 under Criterion 4.5.

4.6 Access to Potable Water during Emergencies

Submit product data in accordance with 018113 under Criterion 4.6.

##### Operations, Maintenance and Resident Engagement

###### 8.1 Building Maintenance Manual

If water storage tanks are included, submit operations & maintenance guidance in accordance with the requirements of 018113 under Criterion 8.1.

### products

#### Product Requirements

##### Water Conservation

4.5 Water Reuse

Use products that meet requirements in 018113 under Criterion 4.5.

4.6 Access to Potable Water during Emergencies

Use products that meet requirements in 018113 under Criterion 4.6.

### execution (no egc comments)

## 33 21 00 / Water Supply Wells

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Water Conservation

4.6 access to Potable Water during Emergencies

Submit product data in accordance with 018113 under Criterion 4.6.

##### Operations, Maintenance and Resident Engagement

###### 8.1 Building Maintenance Manual

If water supply wells are included, submit operations & maintenance guidance as well as safety information in accordance with the requirements of 018113 under Criterion 8.1.

### products

#### Product Requirements

##### Water Conservation

4.6 access to Potable Water during Emergencies

Use products that meet requirements in 018113 under Criterion 4.6.

### execution (no egc comments)

## 33 49 00 / Storm Drainage Structures

### general

#### Summary

##### Related Sections:

###### Section 018113 Sustainable Building Requirements

#### Submittals

##### Site Improvements

3.6 Surface Stormwater Management

Submit product data in accordance with 018113 under Criterion 3.6.

##### Operations, Maintenance and Resident Engagement

###### 8.1 Building Maintenance Manual

If applicable, submit operations & maintenance guidance in accordance with the requirements of 018113 under Criterion 8.1.

### products (no egc comments)

### execution

#### Execution Requirements

##### Site Improvements

3.6 Surface Stormwater Management

Conform to execution requirements in accordance with 018113 under Criterion 3.6.