

CONSTRUCTION MASTER SPECIFICATION

SECTION 01350

LEED REQUIREMENTS

**THIS SPECIFICATION MUST BE EDITED BEFORE USE
AND BECOMES A SPECIAL SPECIFICATION FOR EACH CONTRACT**

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PART 1 - GENERAL

1.01 Summary

- A. Section Includes: This Section includes general requirements and procedures for compliance with certain U.S. Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED) prerequisites and credits needed for the Project to obtain LEED [**Certified**] [**Silver**] [**Gold**] [**Platinum**] certification.
1. Other LEED prerequisites and credits needed to obtain LEED certification are dependent on material selections and may not be specifically identified as LEED requirements. Compliance with requirements needed to obtain LEED prerequisites and credits may be used as one criterion to evaluate substitution requests.
 2. Additional LEED prerequisites and credits needed to obtain the indicated LEED certification are dependent on the Architect's design and other aspects of the Project that are not part of the Work of the Contract.
- B. Related Sections: Refer to the following sections for related work:
1. Divisions 1 through 16 Sections for LEED requirements specific to the Work of each of those Sections. These requirements may or may not include reference to LEED.

1.02 REFERENCES

- A. Code of Federal Regulations
1. 40 CFR 59, Subpart D
- B. Forest Stewardship Council
1. FSC 1.2, "Principles and Criteria"
- C. American Society of Heating, Refrigeration, and Air Conditioning Engineers
1. ASHRAE 52.2.
- D. Sheet Metal and Air Conditioning Contractors' National Association

1. IAQ Guideline for Occupied Buildings under Construction.
- E. Environmental Protection Agency
1. Protocol for Environmental Requirements, Baseline IAQ and Materials, for Research Triangle Park Campus, Section 01445.

1.03 DEFINITIONS

- A. Certificates of Chain-of-Custody: Certificates signed by manufacturers certifying that wood used to make products was obtained from forests certified by an FSC-accredited certification body to comply with FSC 1.2, "Principles and Criteria." Certificates shall include evidence that mill is certified for chain-of-custody by an FSC-accredited certification body.
- B. LEED: Leadership in Energy & Environmental Design
- C. Rapidly Renewable Materials: Materials made from agricultural products that are typically harvested within a ten-year or shorter cycle. Rapidly renewable materials include products made from bamboo, cotton, flax, jute, straw, sunflower seed hulls, vegetable oils, or wool.
- D. Regionally Manufactured Materials: Materials that are manufactured within a radius of **500 miles (800 km)** from the Project location. Manufacturing refers to the final assembly of components into the building product that is installed at the Project site.
- E. Regionally Extracted, Harvested, or Recovered Materials: Materials that are extracted, harvested, or recovered and manufactured within a radius of **500 miles (800 km)** from the Project site.
- F. Recycled Content: The percentage by weight of constituents that have been recovered or otherwise diverted from the solid waste stream, either during the manufacturing process (pre-consumer), or after consumer use (post-consumer).
1. Spills and scraps from the original manufacturing process that are combined with other constituents after a minimal amount of reprocessing for use in further production of the same product are not recycled materials.
 2. Discarded materials from one manufacturing process that are used as constituents in another manufacturing process are pre-consumer recycled materials.

1.04 SUBMITTALS

- A. General: Submit additional LEED submittal requirements included in **other sections of the Specifications**.
- B. LEED submittals are in addition to other submittals. If submitted item is identical to that submitted to comply with other requirements, submit duplicate copies as a separate submittal to verify compliance with indicated LEED requirements.
- C. Project Materials Cost Data: Provide statement indicating total cost for building materials used for Project. Include statement indicating total cost of mechanical and electrical components.

- D. LEED Action Plans: Provide preliminary submittals within [seven][14][30][60] days of date established for [commencement of the work] [the Notice to Proceed] [the Notice of Award] indication how the following requirements will be met.
1. Credit MR 2.1[and 2.2]: Waste management plan complying with Division 1 Section "Construction Waste Management."
 2. Credit MR 3.1[and 3.2]: List of proposed salvaged and refurbished materials.
 - a. Identify each material that will be salvaged or refurbished materials.
 3. Credit MR 4.1 [and 4.2]: List of proposed materials with recycled content.
 - a. Indicate cost, post-consumer recycled content, and pre-consumer recycled content for each product having recycled content.
 4. Credit MR 5.1[and 5.2]: List of proposed regionally manufactured materials [and regionally extracted, harvested, or recovered materials].
 - a. Identify each regionally manufactured material, its source, and cost.
 - b. Identify each regionally extracted, harvested or recovered material, its source, and cost.
 5. Credit MR 7.0: List of proposed certified wood products.
 - a. Indicate each product containing certified wood, its source, and cost.
 - b. Include statement indicating total cost for wood-based materials used for Project, including non-rented temporary construction.
 6. Credit EQ 3.1: Construction indoor air quality management plan.
- E. LEED Progress Reports: Concurrent with each [Application for Payment](#), submit reports comparing actual construction and purchasing activities with LEED action plans for the following:
1. Credit MR 2.1[and 2.2]: Waste reduction progress reports complying with [Division 1 Section "Construction Waste Management."](#)
 2. Credit MR 3.1[and 3.2]: Salvaged and refurbished materials.
 3. Credit MR 4.1[and 4.2]: Recycled content.
 4. Credit MR 5.1[and 5.2]: Regionally manufactured materials[and regionally extracted, harvested, or recovered materials].
- F. LEED Documentation Submittals:
1. Credit SS 7.2: Product Data for roofing materials [indicating Energy Star compliance] [for green vegetated roof system].
 2. Credit SS 8.0: Product Data for interior and exterior lighting fixtures that stop direct-beam illumination from leaving the building site.
 3. Credit WE [2.0] [3.1] [and] [3.2]: Product Data for plumbing fixtures indicating water consumption.
 4. Prerequisite EA 3.0: Product Data for new HVAC equipment indicating absence of CFC refrigerants.[Phase-out plan to replace CFC refrigerants in HVAC&R systems with CFC-free refrigerants within the Construction Period.]
 5. Credit EA 4.0: Product Data for new HVAC equipment indicating absence of HCFC refrigerants[, and for clean-agent fire-extinguishing systems indicating absence of HCFC and Halon].
 6. Credit EA 5.0: Product Data and wiring diagrams for sensors and data collection system used to provide continuous metering of building energy and water consumption performance over time.

7. Credit MR 2.1[**and 2.2**]: Comply with [Division 1 Section "Construction Waste Management](#).
8. Credit MR 3.1[**and 3.2**]: Receipts for salvaged and refurbished materials used for Project, indicating sources and costs for salvaged and refurbished materials.
9. Credit MR 4.1[**and 4.2**]: Product Data and certification letter indicating percentages by weight of post-consumer and pre-consumer recycled content for products having recycled content. Include statement indicating costs for each product having recycled content.
10. Credit MR 5.1[**and 5.2**]: Product Data indicating location of material manufacturer for regionally manufactured materials.
 - a. Include statement indicating cost and distance from manufacturer to Project for each regionally manufactured material.
 - b. Include statement indicating cost and distance from point of extraction, harvest, or recovery to Project for each raw material used in regionally manufactured materials.
11. Credit MR 6.0: Product Data for rapidly renewable materials.
 - a. Include statement indicating costs for each rapidly renewable material.
12. Credit MR 7.0: Product Data and certificates of chain-of-custody for products containing certified wood.
 - a. Include statement indicating costs for each product containing certified wood.
 - b. Include statement indicating total cost for wood-based materials used for Project, including non-rented temporary construction.
13. Credit EQ 1.0: Product Data and Shop Drawings for carbon dioxide monitoring system.
14. Credit EQ 3.1:
 - a. Construction indoor air quality management plan.
 - b. Product Data for temporary filtration media.
 - c. Product Data for filtration media used during occupancy.
 - d. Construction Documentation: Six photographs at three different occasions during construction along with a brief description of the SMACNA approach employed, documenting implementation of the IAQ management measures, such as protection of ducts and on-site stored or installed absorptive materials.
15. Credit EQ 3.2:
 - a. Signed statement describing the building air flush-out procedures including the dates when flush-out was begun and completed and statement that filtration media was replaced after flush-out.
 - b. Product Data for filtration media used during flush-out and during occupancy.
 - c. Report from testing and inspecting agency indicating results of IAQ testing and documentation showing conformance with IAQ testing procedures and requirements.
16. Credit EQ 4.1: Product Data for adhesives and sealants used on the interior of the building indicating VOC content of each product used. Indicate VOC content in g/L calculated according to 40 CFR 59, Subpart D (EPA method 24).
17. Credit EQ 4.2: Product Data for paints and coatings used on the interior of the building indicating chemical composition and VOC content of each product used. Indicate VOC content in g/L calculated according to 40 CFR 59, Subpart D (EPA method 24).

18. Credit EQ 4.3: Product Data for carpet products indicating VOC content of each product used.
19. Credit EQ 4.4: Product Data for composite wood and agrifiber products indicating that products contain no urea-formaldehyde resin.
 - a. Include statement indicating adhesives and binders used for each product.
20. Credit EQ 6.2: Product Data and Shop Drawings for sensors and control system used to provide individual airflow and temperature controls for minimum 50 percent of non-perimeter, regularly occupied space.
21. Credit EQ 7: Product Data and Shop Drawings for sensors and control system used to monitor and control room temperature and humidity.

PART 2 - PRODUCTS

2.01 SALVAGED AND REFURBISHED MATERIALS

- A. Credit MR 3.1[**and 3.2**]: Provide salvaged or refurbished materials for **[five] [10]** percent of building materials (by cost). The following materials may be salvaged or refurbished materials:
- B. Credit MR 3.1[**and 3.2**]: The following materials shall be salvaged or refurbished materials:
 1. <Insert list of materials.>

2.02 RECYCLED CONTENT OF MATERIALS

- A. Credit MR 4.1: Provide building materials with recycled content such that post-consumer recycled content constitutes a minimum of five percent of the cost of materials used for the Project or such that post-consumer recycled content plus one-half of pre-consumer recycled content constitutes a minimum of 10 percent of the cost of materials used for the Project.

2.03 REGIONAL MATERIALS

- A. Credit MR 5.1: Provide 20 percent of building materials (by cost) that are regionally manufactured materials.
- B. Credit MR 5.2: Of the regionally manufactured materials required by Paragraph "Credit MR 5.1" above, provide at least 50 percent (by cost) that are regionally extracted, harvested, or recovered materials.

2.04 CERTIFIED WOOD

- A. Credit MR 7.0: Provide a minimum of 50 percent (by cost) of wood-based materials that are produced from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC 1.2, "Principles and Criteria."
 1. Wood-based materials include but are not limited to the following materials when made from made wood, engineered wood products, or wood-based panel products:
 - a. Rough carpentry.

- b. Miscellaneous carpentry.
- c. Heavy timber construction.
- d. Wood decking.
- e. Metal-plate-connected wood trusses.
- f. Structural glued-laminated timber.
- g. Finish carpentry.
- h. Architectural woodwork.
- i. Wood paneling.
- j. Wood veneer wall covering.
- k. Wood flooring.
- l. Wood lockers.
- m. Wood cabinets.
- n. Non-rented temporary construction, including bracing, concrete formwork, pedestrian barriers, and temporary protection.

2.05 LOW EMITTING MATERIALS

- A. Credit EQ 4.1: For interior applications use adhesives and sealants that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA method 24):
 - 1. Wood Glues: 30 g/L.
 - 2. Metal to Metal Adhesives: 30 g/L.
 - 3. Adhesives for Porous Materials (Except Wood): 50 g/L.
 - 4. Subfloor Adhesives: 50 g/L.
 - 5. Plastic Foam Adhesives: 50 g/L.
 - 6. Carpet Adhesives: 50 g/L.
 - 7. Carpet Pad Adhesives: 50 g/L.
 - 8. VCT and Asphalt Tile Adhesives: 50 g/L.
 - 9. Cove Base Adhesives: 50 g/L.
 - 10. Gypsum Board and Panel Adhesives: 50 g/L.
 - 11. Rubber Floor Adhesives: 60 g/L.
 - 12. Ceramic Tile Adhesives: 65 g/L.
 - 13. Multipurpose Construction Adhesives: 70 g/L.
 - 14. Fiberglass Adhesives: 80 g/L.
 - 15. Structural Glazing Adhesives: 100 g/L.
 - 16. Wood Flooring Adhesive: 100 g/L.
 - 17. Contact Adhesive: 250 g/L.
 - 18. Plastic Cement Welding Compounds: 350 g/L.
 - 19. ABS Welding Compounds: 400 g/L.
 - 20. CPVC Welding Compounds: 490 g/L.
 - 21. PVC Welding Compounds: 510 g/L.
 - 22. Adhesive Primer for Plastic: 650 g/L.
 - 23. Sealants: 250 g/L.
 - 24. Sealant Primers for Nonporous Substrates: 250 g/L.
 - 25. Sealant Primers for Porous Substrates: 775 g/L.
- B. Credit EQ 4.2: For interior applications use paints and coatings that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA method 24) and the following chemical restrictions:

1. Flat Paints and Coatings: VOC not more than 50 g/L.
2. Non-Flat Paints and Coatings: VOC not more than 150 g/L.
3. Anti-Corrosive Coatings: VOC not more than 250 g/L.
4. Varnishes and Sanding Sealers: VOC not more than 350 g/L.
5. Stains: VOC not more than 250 g/L.
6. Aromatic Compounds: Paints and coatings shall not contain more than 1.0 percent by weight total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).
7. Restricted Components: Paints and coatings shall not contain any of the following:
 - a. Acrolein.
 - b. Acrylonitrile.
 - c. Antimony.
 - d. Benzene.
 - e. Butyl benzyl phthalate.
 - f. Cadmium.
 - g. Di (2-ethylhexyl) phthalate.
 - h. Di-n-butyl phthalate.
 - i. Di-n-octyl phthalate.
 - j. 1,2-dichlorobenzene.
 - k. Diethyl phthalate.
 - l. Dimethyl phthalate.
 - m. Ethylbenzene.
 - n. Formaldehyde.
 - o. Hexavalent chromium.
 - p. Isophorone.
 - q. Lead.
 - r. Mercury.
 - s. Methyl ethyl ketone.
 - t. Methyl isobutyl ketone.
 - u. Methylene chloride.
 - v. Naphthalene.
 - w. Toluene (methylbenzene).
 - x. 1,1,1-trichloroethane.
 - y. Vinyl chloride.

C. Credit EQ 4.4: Do not use composite wood

PART 3 - EXECUTION

3.01 SITE DISTURBANCE

A. Credit SS 5.1: Comply with requirements of [Division 1 Section "Summary"](#).

3.02 REFRIGERANT REMOVAL

A. Prerequisite EA 3.0: Remove CFC-based refrigerants from existing HVAC and refrigeration equipment indicated to remain and replace with refrigerants that are not CFC based. Replace or adjust existing equipment to accommodate new refrigerant as described in [Division 15 Sections](#) .

- B. Credit EA 4.0: Remove HCFC-based refrigerants from existing HVAC and refrigeration equipment indicated to remain and replace with refrigerants that are not HCFC based. Replace or adjust equipment to accommodate new refrigerant. **[Remove clean-agent fire-extinguishing agents that contain HCFCs or halons, and replace with agent that does not contain HCFCs or halons.]**
 - 1. Refer to Division 15 Section[s] <Insert name(s) of applicable Division 15 Section(s) if desired> for additional requirements.
 - 2. Refer to Division 13 Section "Clean-Agent Extinguishing Systems" for additional requirements.

3.03 CONSTRUCTION WASTE MANAGEMENT

- A. Credit MR 2.1[and 2.2] Comply with Division 1 Section "Construction Waste Management."

3.04 CONSTRUCTION INDOOR AIR QUALITY MANAGEMENT

- A. Credit EQ 3.1: Comply with SMACNA IAQ Guideline for Occupied Buildings under Construction.
 - 1. If Owner authorizes the use of permanent heating, cooling, and ventilating systems during construction period as specified in Division 1 Section "Temporary Facilities and Controls," install filter media having a MERV-8 according to ASHRAE 52.2 at each return-air inlet for the air-handling system used during construction.
 - 2. Replace all air filters immediately prior to **[occupancy] [building air flush-out]**. Replacement air filters shall have a MERV-13 according to ASHRAE 52.2.
- B. Credit EQ 3.2:
 - 1. Conduct a two-week building air flush-out after construction ends with new air filters and 100 percent outdoor air. Replace air filters after building air flush-out. Replacement air filters shall have a MERV-13 according to ASHRAE 52.2.
 - a. **<Insert specific details of building air flush-out procedure here.>**
 - 2. Owner will conduct a baseline indoor air quality testing program according to EPA Protocol for Environmental Requirements, Baseline IAQ and Materials, for Research Triangle Park Campus, Section 01445. Payment for these services will be made **[by Owner] [from the IAQ Testing Allowance, as authorized by Change Orders]**.
 - 3. Engage an independent testing and inspecting agency to conduct a baseline indoor air quality testing program according to EPA Protocol for Environmental Requirements, Baseline IAQ and Materials, for Research Triangle Park Campus, Section 01445.

END OF SECTION