A105.3 Material selection project electives. Each of the following shall be considered a separate material selection project elective. The project electives are cumulative and compliance with each item shall be recognized individually.

1. This project elective shall require compliance with Section 505.2, except that buildings and structures shall contain any two of the following:
   a. *Recycled Content and Salvaged Material* Content. The sum of the recycled content and the *salvaged material* content shall constitute a minimum of 40 percent, based on cost, of the total materials in the *building project*.
   b. Regional Materials. A minimum of 50 percent of building materials or products used, based on cost, shall be regionally extracted/harvested/recovered or manufactured within a radius of 500 mi (800 km) of the project *site*. If only a fraction of a product or material is extracted/harvested/recovered or manufactured locally, then only that percentage (by weight) shall contribute to the regional value.
   c. *Biobased Products*. A minimum of 10 percent of building materials used, based on cost, shall be *biobased products*.
2. Compliance with the project elective shall require compliance with Section 505.4, where not less than 50 percent of the total building materials used in the project, based on cost, shall comply with Sections 505.4.1 or 505.4.2. Where a material complies with both Sections 505.4.1 and 505.4.2, the material cost shall be multiplied by two.

A105.4 Building service life plan project electives. Projects seeking a building service life plan project elective shall comply with this section. The building service life plan (BSLP) in accordance with Section A105.4.1 shall be included in the construction documents.

A105.4.1 Plan and components. The building service life plan (BSLP) shall indicate the intended length in years of the design service life for the building as determined by the building owner or *registered design professional*, and shall include a maintenance, repair, and replacement schedule for each of the following components. The maintenance, repair and replacement schedule shall be based on manufacturer's reference service life data or other *approved* sources for the building components. The manufacturer's reference service life data or data from other *approved* sources shall be included in the documentation.

1. Structural elements and concealed materials and assemblies.
2. Materials and assemblies where replacement is cost prohibitive or impractical.
3. Major materials and assemblies that are replaceable.
4. Roof coverings.
5. Mechanical, electrical and plumbing equipment and systems.
6. Site hardscape.

A105.5 Design for deconstruction and building reuse project elective. Projects seeking a design for deconstruction and building reuse project elective shall be designed for deconstruction of not less than 90 percent of the total components, assemblies, or modules to allow essentially the entire building to be reused. Design for deconstruction shall be documented on the building's plans and construction documents.

A105.6 Existing building reuse project elective. The development of a building site on which an existing building is already located and in which not less than 75 percent of the existing core and shell of the structure will be reused shall be recognized as a project elective.

A105.7 Historic building reuse project elective. The development of a building site on which an existing building is already located and in which not less than 75 percent of the existing core and shell of a locally or nationally designated historic structure will be reused shall be recognized as a project elective.

A105.8 Deconstruction project electives. Projects seeking a *deconstruction* project elective shall comply with Section 503.1 and this section. Buildings, structures or portions thereof that are to be demolished shall be systematically disassembled by means of *deconstruction*. Deconstruction must be performed by a contractor with Building Materials Re-use

TABLE A105
MATERIAL RESOURCE CONSERVATION AND EFFICIENCY PROJECT ELECTIVES

SECTION	DESCRIPTION	MINIMUM NUMBER OF ELECTIVES REQUIRED AND ELECTIVES SELECTED	
A105.1	Waste management	☐ Yes	☐ No
A105.2	Construction waste landfill maximum	☐ Yes	☐ No
A105.3(1)	Recycled (40%), Regional (50%), and Biobased (10%) materials	☐ Yes	☐ No
A105.3(2)	Material declaration and certification (50%)	☐ Yes	☐ No
A105.4	Service life plan	☐ Yes	☐ No
A105.5	Design for deconstruction and building reuse	☐ Yes	☐ No
A105.6	Existing building reuse	☐ Yes	☐ No
A105.7	Historic building reuse	☐ Yes	☐ No
A105.8	Deconstruction	☐ Yes	☐ No

Association (BMRA) deconstruction certification or other *approved* certification. A *deconstruction* plan and schedule shall be prepared and submitted by the *deconstruction* contractor for approval at permit application and prior to demolition. The plan shall list materials to be deconstructed. The plans and schedule shall use BMRA; Institute for Local Self Reliance's (ILSR) publications for deconstruction planning and tracking; Delta Institute's guidelines; or similar guidelines as approved. Prior to project completion, documentation must be provided to the code official. Documentation shall include receipts for donation, sale, recycling, and disposal of all materials, a complete post-deconstruction form completed and signed by the approved deconstruction contractor, and pictures of materials intended for re-use.

SECTION A106
ENERGY CONSERVATION, EFFICIENCY AND EARTH ATMOSPHERIC QUALITY

A106.1 zEPI reduction project electives. Project electives using zEPI reductions for buildings designed on a performance basis shall be determined by predictive modeling. Predictive modeling shall use a source energy kBtu/sf-y unit measure based on compliance with Sections A106.1.1 and A106.1.2. Where a building has mixed uses, all uses shall be included in the performance based compliance.

A106.1.1 zEPI. Performance-based designs shall be determined in accordance with Equation A106-1 for energy use reduction:

$$zEPI = 75 \times (EUIp/EUI) \quad \textbf{(Equation A106-1)}$$

where:

EUIp = the proposed energy use index in source kBtu/sf-y for the proposed design of the building and its site calculated in accordance with Section A106.1.2.

EUI = the base annual energy use index in source kBtu/sf-y for a baseline building and its site calculated in accordance with Appendix G of the *Energy Conservation Code*.

A106.1.2 Base annual energy use index. The proposed energy use index (EUIp) of the building and building site shall be calculated in accordance with Appendix G of the *Energy Conservation Code*, and *approved* modeling guidelines. The annual energy use shall include all energy used for building functions and its anticipated occupancy.

A106.1.2.1 Electric power. In calculating the annual energy use index, consistent units shall be used for electric energy by converting the electric power use at the utility meter or measured point of delivery to Btus and multiplying by the conversion factor in Table A106.1.2.1 based on the geographical location of the building.

TABLE A106.1.2.1
ELECTRICITY GENERATION ENERGY CONVERSION FACTORS BY EPA eGRID SUB-REGION

eGRID 2010 SUB-REGION ACRONYM	eGRID 2010 SUB-REGION NAME	CO2e RATE (kg/kWh)
RFCE	RFC East	3.28

A106.1.2.2 Non-renewable energy. In calculating the annual energy use index, for fuel other than electrical power, energy use shall be converted to consistent units by multiplying the non-renewable energy fossil fuel use at the utility meter or measured point of delivery to Btus and multiplying by the conversion factor in Table A106.1.2.2.

TABLE A106.1.2.2
U.S. AVERAGE BUILDING FUELS ENERGY CONVERSION FACTORS BY FUEL TYPE

FUEL TYPE	ENERGY CONVERSION FACTOR
Natural Gas	1.09
Fuel Oil	1.19
LPG	1.15
Purchased District Heating—Hot Water	1.35
Purchased District Heating—Steam	1.45
District Cooling	0.33 × value in Table A106.1.2.1
Other	1.1

A106.2 Mechanical systems project elective. Buildings seeking mechanical systems project electives shall comply with Section A106.2.1. One elective shall be granted for each of the Sections A106.2.2 through A106.2.6.

A106.2.1 Prescriptive path. The building shall be designed prescriptively in accordance with the *Energy Conservation Code*.

A106.2.2 Heating equipment. For heating equipment, the part-load, full load, annual, or season efficiency of the equipment shall be not less than 10 percent greater than the part-load, full load, annual, or season efficiencies shown in the applicable tables of the *Energy Conservation Code*, or the equipment shall be ENERGY STAR labeled, as applicable. Grid-interactive electric thermal storage heating systems shall be deemed to meet the requisites of this section where they are directly regulated by the grid operator to store energy during off-peak hours to utilize available renewable energy or to provide balancing services for management of the grid.

A106.2.3 Cooling equipment. For cooling equipment, the part-load, full-load, annual, or season efficiency of the equipment shall be not less than 10 percent greater than the part-load, full load, annual, or season efficiencies shown in the applicable tables of the *Energy Conservation Code*, or the equipment shall be ENERGY STAR labeled. Cooling equipment compressors shall have at least two-stage operation if available for the size of the equipment.

A106.2.4 Supply and return duct insulation. Ducts shall be insulated to R-8 or greater where located in unconditioned spaces and R-11 or greater where located outside of the building structure. Where located within a building envelope assembly, the duct or plenum shall be separated from the building exterior or unconditioned or exempt spaces by R-8 insulation or greater. To qualify for this elective, there must be a minimum of 1 linear foot (304.8 mm) of applicable supply air ducting per 50 square feet (4.64 m^2) of building area for ducts 600 CFM or less, or 1 linear foot (304.8 mm) of applicable ductwork per 200 square feet (18.6 m^2) of building area for ducts supplying greater than 600 CFM.

TABLE A106
ENERGY CONSERVATION AND EFFICIENCY PROJECT ELECTIVES

SECTION	DESCRIPTION	MINIMUM NUMBER OF ELECTIVES REQUIRED AND ELECTIVES SELECTED
A106.1	zEPI reduction project electives	☐ Yes ☐ No
A106.1	Project zEPI score of 40	☐ 1 elective
A106.1	Project zEPI score of 35	☐ 2 electives
A106.1	Project zEPI score of 30	☐ 3 electives
A106.1	Project zEPI score of 25	☐ 4 electives
A106.1	Project zEPI score of 20	☐ 5 electives
A106.1	Project zEPI score of 15	☐ 6 electives
A106.1	Project zEPI score of 10	☐ 7 electives
A106.1	Project zEPI score of 5	☐ 8 electives
A106.1	Project zEPI score of 0	☐ 9 electives
A106.1	Project zEPI score of -5	☐ 10 electives
A106.2	Mechanical systems project elective	☐ Yes ☐ No
A106.2	Heating equipment	☐ 1 elective
A106.2	Cooling equipment	☐ 1 elective
A106.2	Duct insulation	☐ 1 elective
A106.2	Duct system testing	☐ 1 elective
A106.2	Ductless systems	☐ 1 elective
A106.3	Service water heating	☐ Yes ☐ No
A106.4	Lighting power density electives	☐ Yes ☐ No
A106.4	Lighting power density—10% reduction	☐ 1 elective
A106.4	Lighting power density—15% reduction	☐ 2 electives
A106.4	Lighting power density—20% reduction	☐ 3 electives
A106.4	Lighting power density—25% reduction	☐ 4 electives
A106.4	Lighting power density—30% reduction	☐ 5 electives
A106.5	Passive design	☐ Yes ☐ No
A106.6	Renewable energy systems	☐ Yes ☐ No
A106.6	Renewable energy systems—5%	☐ 1 elective
A106.6	Renewable energy systems—10%	☐ 2 electives
A106.6	Renewable energy systems—20%	☐ 3 electives
A106.7	Energy display	☐ Yes ☐ No
A106.8	Auto demand response for lighting	☐ Yes ☐ No
A106.9	Insulation and fenestration	☐ Yes ☐ No
A106.9	Insulation and fenestration—10% greater efficiency	☐ 1 elective
A106.9	Insulation and fenestration—20% greater efficiency	☐ 2 electives
A106.10	Permanent shading devices for fenestration—exterior	☐ Yes ☐ No
A106.10	Permanent shading devices for fenestration—interior	☐ Yes ☐ No
A106.11	Air leakage testing—0.25 cfm/ft^2 qualifies for two project electives	☐ Yes ☐ No
A106.11	Air leakage testing—0.15 cfm/ft^2 qualifies for two project electives	☐ Yes ☐ No
A106.12	Waste water heat recovery	☐ Yes ☐ No
A106.13	Circulating hot water systems	☐ Yes ☐ No
A106.15	High efficiency equipment project electives	☐ Yes ☐ No
A106.15	High efficiency equipment—100% CEE Tier 1	☐ 1 elective
A106.15	High efficiency equipment—100% CEE Tier 2	☐ 2 electives
A106.15	High efficiency equipment—100% CEE Tier 3	☐ 3 electives
A106.16	Green power purchases project electives	☐ Yes ☐ No
A106.16	Green power purchases —50%	☐ 1 elective
A106.16	Green power purchases—100% and Green-e Certified	☐ 2 electives