

SUMMARY OF TOPICS

The following is proposed for comment only:

1. The Proposed First Edition of The Standard for Sustainability for Suspended Ceiling Tiles, Panels and Boards, UL 105

COMMENTS DUE: OCTOBER 10, 2011

This proposal is for comment only (no ballot at this time).

1. The Proposed First Edition of The Standard for Sustainability for Suspended Ceiling Tiles, Panels and Boards, ULE 105

RATIONALE

Proposal submitted by: Aida Carbo, UL Environment

A proposal for the First Edition of the Standard for Sustainability for Suspended Ceiling Tiles, Panels and Boards, ULE 105, was issued for review and comment on June 30, 2010. A Standards Technical Panel meeting was held to discuss the comments. As detailed in the report of the meeting, numerous changes were to be made to the proposal. The present proposal reflects these changes. A copy of the meeting agenda and the meeting report are available in CSDS for use during the review of this proposal. Significant changes that have been made to the proposal that differ from those which were discussed during the STP Meeting are explained below in "Additional Changes to the Proposal".

Additional Changes to the Proposal

In addition to the changes explained in the STP 105 meeting report other changes to the proposal have been made and are explained below. Other significant changes in this proposal that are not discussed below are explained in the STP 105 meeting report.

Section 1, Introduction - General

Paragraph 1.1 has been revised to explain the purpose of the Standard from a more balanced perspective.

Section 5, Glossary

As a result of discussion during the September 22 and 23, 2010 STP 105 meeting a Task Group was formed to review the glossary. The Glossary Task Group recommends revised definitions to be consistent with ASTM and ISO definitions. The Glossary Task Group also recommends the addition of several definitions to clarify terms used in the Standard.

Section 7, Evaluation and Assessment Criteria

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The method of awarding points has been revised in Section 7. The purpose of these changes is to better address differences in products covered by the scope of the standard. The maximum points available are proposed to vary based on a product's characteristics. While a maximum of 107 points are available overall in the standard, the maximum points available to a specific product may be less. For instance, should two points be available for sustainable use of a material and a particular product does not employ that material the product would not be eligible to receive the two points. Therefore, the maximum points available to that product would be reduced by two points.

Related to the proposed variability in maximum points available for products is a proposed change in the achievement levels required to receive a Silver, Gold, or Platinum rating. So that products have equal opportunity to achieve a ranking, it is proposed that the achievement level be associated to a percentage of the maximum points available for a particular product. The achievement levels proposed are: 50% for a Silver rating, 65% for a Gold rating, and 80% for a Platinum rating. For example, a product that is eligible for the maximum of 107 points under the standard would be required to achieve: 53 points for a Silver rating, 69 points for a Gold rating, and 85 points for a Platinum rating. Another example might be a product that is eligible for a maximum of 95 points under the standard. That product would be required to achieve: 47 points for a Silver rating, 61 points for a Gold rating, and 76 points for a Platinum rating. Proposed revisions have been made in Section 7.2 and Table 7.1 to reflect this proposed change in the achievement level determination.

Finally, paragraphs 7.1.4 and 7.1.5 and Figure 7.1 are proposed to be added to clarify the boundaries of the document.

Section 9, Materials Inventory

As a result of discussion during the September 22 and 23, 2010 STP 105 meeting, a Task Group was formed to consider compliance documentation. One of the charges of the Task Group was to how to determine compliance when a product is manufactured at multiple locations. The Task Group recommends that 9.2 be added to address this scenario.

Determination of compliance with reference to vended product and toll manufacturers was also considered by the Task Group. In proposed new 9.3, the Task Group recommends that compliance be determined by the manufacturer providing product composition inventory at each source manufacturing location. The Task Group recognized that this may be difficult to achieve in some instances, given the wide range of vendor capabilities, but no alternative proposals were developed by the task group.

Section 11, Sustainable Use of Raw Materials

Requirements for raw materials have been expanded to address a wider range of materials used in ceiling tiles, panels, and boards. This Section now contains requirements for Mineral Wool (11.2), Certified wood products and wood-based composites (11.3), Rapidly renewable materials (11.4), Plastics and foams for core and facing materials (11.5), Steel (11.6), Aluminum (11.7), Gypsum lay-in panels (11.8), Fiberglass and fiberglass reinforced plastic (11.9), and Clay and perlite (11.10). Glues and Adhesives, Section 12, and Finishes, Section 13, have been moved out of the Sustainable Use of Raw Materials Section, and clarified.

Section 16, Energy Inventory and Energy Efficiency

As mentioned in the Rationale for Section 9, a Task Group was formed to consider compliance documentation. The Task Group identified that energy usage was a major issue for compliance documentation. Specifically, the overall energy usage is of marginal value to the product under assessment when other dissimilar products are manufactured at the same location. The Inventory of thermal and electrical energy requirements (Section 13.1 of the previous draft and 16.1 of the current

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draft) was reviewed and discussed. The task group agreed to address energy usage for a specific product, versus that for the whole manufacturing facility, especially when multiple products are made in the same facility.

The task group also recommends that when a product is made at multiple manufacturing locations, all facilities should be included in the energy inventory and expressed as a volume weighted average based on the total volume of the specific product.

Determination of compliance with reference to vended product and toll manufacturers was also addressed. It is proposed that compliance be based on providing energy usage inventory at each source manufacturing location.

As a result of its discussions, the Task Group recommends the revised requirements shown in 16.1.1 of this proposal. The Task Group also recommends the addition of AD16.1.1 in the explanatory appendix to explain the need for energy inventory documentation specific to the product under evaluation.

Section 19, Water Usage

As mentioned in the Rationale for Sections 9 and 16, a Task Group was formed to consider compliance documentation. As was noted for those Sections, the Task Group considered how to determine compliance when a product is manufactured at multiple locations and for products that are "vended" or toll-manufactured. The Task Group recommends revising 19.1.1 and adding new 19.1.2 and 19.1.3 to address water inventory compliance documentation.

Section 22.1, Toxic materials inventory and characterization - Addition of ULE P 113

The primary goal of including a reference to ULE P 113 in UL 105 is to harmonize the toxicity assessment methodology throughout all of ULE's standards. This change, which was implemented to provide greater clarity and streamline the standard, has not added or removed any toxicity criteria that were presented to stakeholders in the earlier draft version.

With the inclusion of ULE P 113 in ULE standards we intend to create an easily reproducible risk assessment methodology that can be applied to any ingredient within any formulation. This is an intentional movement away from inclusions of ingredient "black lists". We believe an inventory does not inform criteria and with the use of ULE P 113 are changing the focus to a process as a means to ensure the content is adequately addressed.

For example, all prerequisites that existed in the previous draft version are still maintained within the current iteration. The only change to this prerequisite list is the exclusion of the prerequisite that "physical properties including volatilization potential" are documented. This requirement is a fundamental requirement for all formulation ingredients within ULE P 113.

The implementation of UL P 113 does not change the way carcinogenic compounds are addressed within the Standard. It does, however, offer greater clarity to the manufacturer in identifying acceptable/unacceptable reproductive, or developmental, and biopersistent hazard profiles for all ingredients.

All the databases included in Table 20.1 are now found within ULE P 113.

Section 24, Indoor Environmental Quality

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As a result of discussion during the September 22 and 23, 2010 STP 105 meeting a Task Group was formed to review the proposed requirements for indoor environmental air quality. The Task Group considered several points during its discussions:

- a) Should points be awarded for third party certification of compliance with CDPH/EHLB/Standard Method V1.1.
- b) Should European testing requirements be an option to CDPH/EHLB/Standard Method V1.1 to meet VOC emissions criteria?
- c) Should the VOC emissions criteria include a limit for TVOC and provide points for products with TVOC below that limit.

With regard to item (a), the Task Group was in favor of points being awarded for third party certification. However, the Task Group determined that additional requirements were necessary to define what would be an acceptable third party verification program. The Task Group suggests that the new requirements in 24.1.2 be added to award points for a third party certification.

With regard to item (b), the Task Group agreed that harmonization between North America and Europe would be difficult at this point as efforts to harmonize within the EU are ongoing. The German standard AgBB was discussed as an option but the Task Group determined that current limitations of AgBB preclude its use in this standard. Therefore, no changes to the proposal are recommended as a result of this discussion.

With regard to item (c), the Task Group agreed that TVOC criterion for indoor air quality has severe limits and can be misused and misinterpreted. The Task Group considered if TVOC criteria could be appropriately applied in conjunction with CDPH/EHLB/Standard Method V1.1, but could not reach agreement on appropriate pass/fail criteria. Ultimately, the Task Group agreed that a TVOC limit should not be included in the standard at this time.

Change of earliest baseline year from 2000 to 2005

In the 2010 proposal some requirements allowed baseline data to be chosen between the year 2000 to the present. Upon further consideration, UL proposes that the earliest baseline year be changed from 2000 to 2005 in order for the data to be more current. The present proposal reflects this proposed change in 10.1, 16.2.1, 19.3.1, 20.1, 23.3.2, and 26.4.

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INNOVATION

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PROPOSAL

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INTRODUCTION

1 General

1.1 For the majority of products going into buildings, no clear definition or standard exists to assess the sustainability of these products. The environmental impact caused by the manufacture and use of building and construction materials creates an opportunity to address such sustainability issues in this Standard. This standard will address these issues within the category of suspended ceiling tiles, panels and boards.

1.2 The impacts of extraction through production and ultimate disposal are often left to a broad sweeping statement of sustainability without a true definition of what that means. There are various alternative constructions, materials, manufacturing practices and even disposal options that can minimize environmental burdens.

1.3 This standard provides a life cycle and human health based approach to setting the criteria to be achieved. This standard reflects the major areas of impact and provides a criteria structure that will allow manufactures to demonstrate that any product meeting this standard has made significant gains towards becoming sustainable.

2 Scope

2.1 This standard establishes multiple attribute sustainability requirements for suspended ceiling tiles, panels and boards. Suspended ceiling tiles, panels and boards consist of materials such as, but not limited to, mineral wool, paper, wood, fiberglass, plastic, metal, other minerals including clay and perlite and composites of these materials, with or without surface finishes or laminates of paper, fiberglass, plastic, or aluminum foil. Also included are gypsum lay-in panels that are suspended but not hung with nails, screws, or adhesives.

2.2 The criteria in this standard were developed based on the life cycle stages of ceiling panels and boards. Sustainability factors considered in this standard are: materials, energy, manufacturing and operations, health and environment, product performance, and product stewardship. Credit for innovations in these, or other factors not listed, is also addressed in this standard.

3 Units of Measurement

3.1 For the purposes of this standard, values shall be reported in accordance with the requirements of the specific criteria and shall be in US Customary units. If a manufacturer's choice of units deviates, that change shall be documented and justified as to the reason and relevance for that change.

4 Undated References

4.1 Any undated reference to a code or standard appearing in the requirements of this standard shall be interpreted as referring to the latest edition of that code or standard. The exception shall be in the case where the criterion explicitly states a certain version or date to be used.

5 Glossary

5.1 For the purpose of this standard, the following definitions apply.

5.2 ACIDIFICATION – The process of becoming acid or being converted into an acid.

5.3 ALTERNATIVE RESOURCES – Resources other than raw or virgin material, including but not limited to bio-based materials, rapidly renewable materials, recycled/reclaimed content.

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5.4 ALTERNATIVE ENERGY – Fuel sources that are other than those derived from fossil fuels. Includes wind, solar, biomass, wave and tidal energy.

5.5 BIO-BASED PRODUCTS – As defined in ASTM 2114, Standard Terminology for Sustainability Relative to the Performance of Buildings. (UL is seeking permission from ASTM to reprint this definition in the standard).

5.6 BIOACCUMULATION – As defined in ASTM E943, Standard Terminology Relating to Biological Effects and Environmental Fate. (UL is seeking permission from ASTM to reprint the definition in this standard.) [Note – See Appendix D for additional information]

5.7 BIO-BASED CARBON – Carbon materials that are derived in whole or part from biomass resources.

5.8 BIOMASS RESOURCES – Organic materials that are available on a renewable or recurring basis such as corn, bamboo, or jute.

5.9 BIOPERSISTENT – A chemical or physical (fiber, particulate) toxicant that is not readily degraded in the environment or within the organism. [Note – See Appendix D for additional information]

5.10 CARCINOGEN – A chemical that causes (Group 1) or probably causes (Group 2A) cancer to humans as defined by the International Agency for Research on Cancer. [Note – See Appendix D for additional information]

5.11 CHRONIC REFERENCE EXPOSURE LEVEL (CREL) – An airborne level of a substance that would pose no significant health risk to individuals indefinitely exposed to that level.

5.12 CLOSED LOOP WATER SYSTEM – A system in which the water used in production is cleaned and recirculated for reuse in operations without evaporation or exposure to the atmosphere.

5.12.1 CONSUMPTIVE WATER USE – The volume of freshwater used and then evaporated or incorporated into a product. It also includes water abstracted from surface or groundwater in a catchment and returned to another catchment or the sea.

5.13 CO₂ EQUIVALENT – The concentration of carbon dioxide that would cause the same level of radiative forcing as a given type and concentration of greenhouse gas.

5.14 ENDOCRINE DISRUPTOR – A chemical, such as environmental estrogen, that can interfere with the natural hormones found in an organism by mimicking an endogenous hormone.

5.15 ENVIRONMENTAL FATE – The final disposition of a chemical in the environment, such as persistence in soil, sediment, or water; the ability to accumulate in biological organisms. [Note – See Appendix D for additional information]

5.16 ENVIRONMENTAL MANAGEMENT SYSTEM (EMS) – Part of an organization's management system used to develop and implement its environmental policy and manage its environmental aspects. (Reprinted from ISO 14050)

5.17 ESTROGENIC ACTIVITY – That which causes estrus in animals or has an action similar to that of an estrogen.

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5.18 **EUROPEAN UNION (EU) HAZARD CLASSIFICATION** – The EU's system of classification, labeling and packaging chemical substances and mixtures. The Classification, Labeling and Packaging (CLP) Regulation incorporates the classification criteria and labeling rules agreed upon at the United Nations level in the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

5.19 **EUTROPHICATION** – The process whereby a body of water receives excess nutrients that stimulate excess plant growth, usually resulting in the depletion of dissolved oxygen.

5.20 **FINISHES** – Any product contained in Division 9 of the Construction Specification Institute's Master Format.

5.21 **FOSSIL FUEL** – Hydrocarbon deposit, such as petroleum, coal, or natural gas, derived from living matter of a previous geologic time that is used for fuel.

5.22 **FREE MONOMER** – A monomer that is not bound/complexed with other monomers or molecules.

5.23 **GLOBAL WARMING** – The sustained increase of the average temperature of the earth's atmosphere, resulting in climatic change, due to the increased emission of greenhouse gases.

5.24 **GREENHOUSE GAS** – Gaseous constituent of the atmosphere, both natural and anthropogenic, that absorbs and emits radiation at specific wavelengths within the spectrum of infrared radiation emitted by the Earth's surface, the atmosphere, and clouds. (Reprinted from Environmental management – Vocabulary, ISO 14050-2009)

5.25 **GLOBAL REPORTING INITIATIVE (GRI)** – An organization that provides an international recognized sustainability reporting framework that can be used to measure and report on the economic, environmental, and social performance of an organization.

5.26 **HAZARDOUS MATERIAL IDENTIFICATION SYSTEM (HMIS)** – A numerical hazard rating developed by the National Paint & Coatings Association (NPCA) as a compliance aid for the Occupational Safety & Health Administration (OSHA) Hazard Communication Standard.

5.27 **INHERENT TOXICITY** – As defined at http://www.ec.gc.ca/substances/ese/eng/dsl/cat_criteria_process.cfm. [UL is seeking permission to reprint this definition in this standard].

5.28 **INGREDIENT** – A component part of the product. As used in this Standard, it is specific to those constituents of the product added by the manufacturer with intent to impart specific function or attribute and does not include incidental impurities or contaminants.

5.29 **LANDFILL DIVERSION** – Process of diverting waste from the landfill for recycling or re-use. Alternative daily cover is not considered landfill diversion.

5.30 **LIFE CYCLE ASSESSMENT** – Compilation and evaluation of the inputs, outputs and the potential environmental impacts of a product system throughout its life cycle. (Reprinted from Environmental management – Vocabulary, ISO 14050)

5.31 **LIFE CYCLE IMPACT ASSESSMENT** – Phase of life cycle assessment aimed at understanding and evaluating the magnitude and significance of the potential environmental impacts for a product system throughout the life cycle of the product. (Reprinted from Environmental management – Vocabulary, ISO 14050)

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5.32 LIFE CYCLE INVENTORY (LCI) – Phase of life cycle assessment involving the compilation and quantification of inputs and outputs for a product throughout its life cycle. (Reprinted from Environmental management – Vocabulary, ISO 14050)

5.33 MICROBIAL RESISTANCE – The selection of anti-microbial resistant organisms (fungi, mold, bacteria) over time as a result of the use of biocides applied to ceiling tile and/or its component ingredients to reduce or inhibit mold growth.

5.34 NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) HAZARD CLASSIFICATION – The hazardous materials rating system set by NFPA 704, Standard System for the Identification of the Hazards of Materials for Emergency Response.

5.35 OZONE DEPLETION – The destruction of the stratospheric ozone layer which shields the earth from ultraviolet radiation harmful to life.

5.36 PER UNIT – Per 1000 square feet (MSF).

5.37 PHOTOCHEMICAL SMOG FORMATION – The process by which smog is formed during the chemical reaction of sunlight, nitrogen oxides and volatile organic compounds in the atmosphere, which leaves airborne particles (called particulate matter) and ground-level ozone.

5.38 POST-CONSUMER RECYCLED CONTENT – As defined in ISO 14021, Environmental labels and declarations – Self-declared environmental claims (Type II environmental labeling). [UL is seeking permission to reprint this definition in this standard].

5.39 PRIMARY ENERGY DEMAND – The demand for energy found in nature that has not been subjected to any conversion or transformation process. It is energy contained in raw fuels as well as other forms of energy received as input to a system.

5.40 PRE-CONSUMER RECYCLED CONTENT – As defined in ISO 14021, Environmental labels and declarations – Self-declared environmental claims (Type II environmental labeling). [UL is seeking permission to reprint this definition in this standard]

5.41 PRODUCT CATEGORY – Group of products which have equivalent function. (Reprinted from ISO 14050)

5.42 PRODUCT FAMILY – Group of products that share the same base-board formula and aesthetic appearance, but differ in edge treatments, geometric shape, size or thickness.

5.43 PRODUCT STEWARDSHIP – Manufacturer supported efforts to extend a products life, or handling of the products at the end of life. End of life handling may include, but is not limited to, updating, refurbishing, or recycling of products through take-back programs.

5.44 RAPIDLY RENEWABLE MATERIAL – Material which have a harvest cycle of 10 years or less including materials such as bamboo, agrifibers, corn starch and jute.

5.45 RECYCLED CONTENT – As defined in ISO 14021, Environmental labels and declarations – Self-declared environmental claims (Type II environmental labeling). [UL is seeking permission to reprint this definition in this standard]

5.46 RENEWABLE ENERGY – As defined in the Standard Terminology for Sustainability Relative to the Performance of Buildings. [UL is seeking permission to reprint the definition in this standard]

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5.47 RENEWABLE RESOURCE – As defined in the Standard Terminology for Sustainability Relative to the Performance of Buildings. [UL is seeking permission to reprint the definition in this standard]

5.48 REPRODUCTIVE/DEVELOPMENTAL HAZARD – A chemical that can interfere with normal reproduction, mating through parturition (birth), of a species. A reproductive hazard may affect the reproductive organs of the male and/or female of a species. A developmental hazard is one that affects the developing organism and can cause a range of effects from fetal death to malformation of the offspring.

5.49 VENDED PRODUCTS – Products that are not manufactured by the same company distributing or selling these.

5.50 VOLATILE ORGANIC COMPOUNDS (VOC) – Any organic compound which participates in atmospheric photochemical reactions. It excludes those organic compounds which the US EPA designates as having negligible photochemical reactivity. VOC in indoor air refers to any volatile carbon-containing compound that evaporates easily at room temperature or has a boiling point up to 250°C, including exempt compounds because these have the potential to adversely impact the health of people that are exposed, despite their negligible photochemical reactivity.

5.51 VOLATILIZATION POTENTIAL – The tendency of a compound to enter the gaseous or vapor state. [Note – See Appendix D for additional information]

5.52 WASTE – Substances or objects which the holder intends or is required to dispose of. (Reprinted from ISO 14050-2009)

5.53 WASTE MINIMIZATION – The practice and processes by which a manufacturer reduces the amount of landfill-bound waste generated during the production of their product.

COMPLIANCE, EVALUATION AND ASSESSMENT CRITERIA

6 Compliance Documentation

6.1 To comply with this Standard, a manufacturer shall provide to the assessing body documentation of the specific achievement level for the candidate product and declare the scoring of the product to this Standard. As an example, documentation can be in the form of, but not limited to, invoices, energy bills, test reports, certificates, calculations with supporting basis for information, etc. Documentation and detailed results of any verification shall not be made publicly available without manufacturer consent.

The methodology for assessing whether a product conforms to the requirements shall be documented and be of sufficient detail to provide confidence that the product has correctly conformed to this Standard. The product manufacturer shall document the specific criteria to which conformance are being claimed in accordance with the Achievement Matrix, Appendix A. Manufacturers that self-declare to these requirements shall follow the guidelines in ISO 14021, Environmental labels and declarations – Self-declared environmental claims (Type II environmental labeling).

6.2 Ceiling panel and board manufacturers shall declare in writing that their communications regarding the use of this standard and applicable sections comply with the Federal Trade Commission Guides for the Use of Environmental Marketing Claims at 16 CFR 260 for accurate, reliable, and documented communications. This declaration shall also state that “both the express and implied meaning of the certification about the data, responses to information, and provisions of the standard, is reasonable and based on competent and reliable scientific evidence prepared by qualified professionals in the relevant area, using procedures to produce accurate and reliable results.” [Note – See Appendix D for additional information]

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6.3 Products shall be reevaluated at least every three years or when changes to materials, processes or the manufacturing facilities occur that may impact compliance results to this standard, following a product's assessment to this standard.

7 Evaluation and Assessment Criteria

7.1 General

7.1.1 The following sections describe how the categories and point levels are associated. For each criterion within each category, the total number of possible points is specified. Overall, a maximum of 107 points are available, not including innovation points. No more than ten innovation points, as described in this standard, are permitted to be assigned to a candidate. When a particular criterion does not apply to the product being evaluated, for instance if a material is not used in the product, those points are subtracted from the total and the level goals in Table 7.1 shall be calculated based on the percentage of points achieved.

7.1.2 When evaluation for a credit results in a fractional point value, the point value recorded in the Achievement Matrix for that credit shall be the fractional value rounded down to the nearest whole number. Fractional points from one credit shall not be combined with fractional points from other credits.

7.1.3 Beyond the prerequisites, no minimum number of points is required from within each category specifically in order to demonstrate compliance with this Standard. The total number of points required may be obtained by any combination of total points available.

7.1.4 For purposes of this standard, manufacturing practices shall be defined to include as a minimum steps H-T in Figure 7.1 **(FIGURE AVAILABLE IN "SUPPORTING DOCUMENTATION" IN THE CSDS WORK AREA)** for products that are manufactured directly.

7.1.5 Where vended products are being evaluated, the aforementioned steps still shall be considered regardless of the manufacturing responsibility and or location.

7.2 Levels of achievement

7.2.1 Three levels of achievement are available within this Standard: Silver, Gold, and Platinum. Table 7.1 below identifies the levels, with the associated points needed to achieve each level.

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