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Expanding LEED V4 Material Health Transparency

The Lack of Toxin Reporting in ISO EPDs + LCAs is in Conflict with Truth in Advertising Law

FEBRUARY 12, 2014

ISO EPD + LCA BASED LEED V4 CREDITS MRC1 AND MRC2: CRITICAL REVIEW AND RECOMMENDED TECHNICAL CHANGES

Principal Investigator: Douglas Pierce, AIA, LEED Fellow

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"I didn't plan for a life built around protecting the environment. In fact, I started my career as a health agent…But at some point I realized that at its core, the issue of a clean environment is a matter of public health. The two are inextricably linked."

EPA Administrator, Gina McCarthy
Huff Post Green, September 20, 2013

ABSTRACT

LEED V4, EPDs + Life Cycle Assessments (LCAs) have a toxic loophole that most designers, green professionals and most likely, even the U.S. Green Building Council (USGBC) knows nothing about. After completing a deep review of the ISO 14025 standard that governs Environmental Product Declarations (one of the transparency tools recently endorsed by LEED), we found that EPDs + LCAs fail to effectively address toxicity. While manufacturers are required to report on impacts including global warming, acid rain, ozone depletion and others, they are not required to publish their product's impacts on Human Health and Ecological Toxicity under the ISO EPD + LCA guidelines. Unfortunately, few people are aware of the resulting conflict with Federal Trade Commission (FTC) Truth in Advertising law. Under the FTC Environmental Marketing Guides, EPDs qualify as 'general environmental claims' and are required to fully substantiate the claim. Thus an EPD or LCA cannot selectively choose to ignore toxicity impacts while reporting on a wide range of other impacts. They must also identify and report toxicity impacts or the EPD or LCA is deceptive. The U.S. FTC Guides prohibit deceptive environmental communications. In short, EPDs + LCAs can comply with ISO requirements, but not be incompliance with the FTC's Truth in Advertising Law.

Due to increasing global use and the LEED V4 EPD / LCA Credits, EPDs and LCAs are becoming a cost of doing business and thus have substantial implications for public health and environment. Therefore, the USGBC should lead on Material Health Transparency by issuing a technical correction including toxicity in LEED V4 EPD and LCA requirements that convey the Council's publicly stated high priority for addressing toxicity in products and amend the conflict with FTC law.

1.0 SUMMARY STATEMENT

After close review, there appears to be important conflicts between EPDs and multi-impact category LCAs compliant with the International Standard Organizations' (ISO) Environmental Product Declaration (EPD) criteria, ISO Life Cycle Assessment (LCA) and the U.S. Federal Trade Commission (FTC) Truth in Advertising law relative to General Environmental Claims / Communications (*see references 1&2 below explaining the FTC meaning of General Environmental Claims*). Claims using the terms "environmental," "sustainable," "green," "environmentally friendly" or "environmentally preferable" are considered to be General Environmental Claims covering multi-environmental and health attributes and impacts. Because of their breadth and complexity, "general" claims result in a higher level of FTC and state government regulatory scrutiny.

The FTC Environmental Marketing Guides require accurate communications, as well as communications that are not misleading or deceptive. Federal and state law compliance and enforcement including the Clean Water and Air Acts, and environmental cleanup law (including CERCLA and RCRA) evaluate public health and environmental issues together. Public health and environment are inseparable. In contrast, the ISO standards governing EPDs and LCAs do not mandate transparency on Human Health + Ecological Toxicity for environmental claims within Environmental Product Declarations (EPDs) and thus ISO compliant EPDs are inappropriately ignoring toxicity *(see Table 1)*.

TABLE 1. IMPACT CATEGORY REPORTING CRITERIA FOR ISO EPDs + LCAs, LEED AND U.S. EPA

	IMPACT CATEGORIES		
Traditional LCA Impact Categories Recognized by U.S. EPA and the United Nations (UNEP / SETAC)	**ISO 2006 14025 / 14044**	**LEED V4 MRc1 (Op. 4), MRc2**	**EPA TRACI 2.1 w/ USEtox**
Global Warming	Suggested / Silent	Yes	Yes
Ozone Depletion	Suggested / Silent	Yes	Yes
Acidification	Suggested / Silent	Yes	Yes
Eutrophication	Suggested / Silent	Yes	Yes
Photochemical Oxidation (Smog)	Suggested / Silent	Yes	Yes
Fossil Fuel Depletion	Suggested / Silent	Yes*	Yes
Water Use	Suggested / Silent	Yes / No**	Yes***
Land Use	Additional / Silent	No	Yes***
Human Health (Toxicity)	**Additional / Silent**	**No**	Yes
Particulates	**Additional / Silent**	**No**	Yes
Cancer****	**Additional / Silent**	**No**	Yes
Non-Cancer****	**Additional / Silent**	**No**	Yes
Ecotoxicity	**Additional / Silent**	**No**	Yes

*LEED V4 MRc2 - "Non-Renewable Energy Sources"
**Implied in LEED MR2 Option 1 via reference to ISO 14025, but not listed in MRc1 or MRc2 Option 2
***Identified as a baseline impact category by EPA, but not currently available in TRACI 2.1 due to lack of data
****TRACI 2.1 Impact Categories based on USEtox

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Given the scope of the built environment and the influence of LEED on green building practices, the resulting lack of toxicity information in EPDs and Whole-building LCAs will do little to slow the ongoing negative public and environmental health impacts associated with the built environment.

Because EPDs and Whole-building LCAs cover multiple impacts, they are General Environmental Claims. The lack of mandatory reporting requirements for toxicity impacts in the ISO Standards, which the LEED MRc1 Option 4 Whole-building Life-cycle Assessment and MRc2 Building Product Disclosure and Optimization – Environmental Product Declarations (EPD) credits follow, put the credits at odds with the FTC Truth in Advertising law prohibiting misleading communications *(see Reference 1 & 2 below)*.

In 2006 when the ISO 14025 was published, it was argued that toxicity reporting was not consistent across LCA programs and it was not appropriate to publish data that would create inconsistencies between EPDs. However the release of USEtox in 2010 through a consensus partnership between the United Nations Environment Program (UNEP), Society for Environmental Toxicology & Chemistry (SETAC) involving industry, and the U.S. Environmental Protection Agency (EPA), solved this issue and LCA toxicity reporting has become consistent.

Due to increasing global use and the LEED V4 EPD / LCA based credits, EPDs and LCAs are becoming a cost of doing business and thus have substantial implications for public health and environment. Given the scope of the built environment and the influence of LEED on green building practices, the resulting lack of toxicity information in EPDs and whole-building LCAs will do little to slow the ongoing negative public and environmental health impacts associated with the built environment. And, as noted above, there are possible legal implications for LEED and those that reference the ISO standards for development of EPDs and Whole-building LCAs. This is a clear case in which LEED *should lead* by issuing a simple technical correction to the MRc1 and MRc2 credit criteria to fall within the boundaries of the FTC Guides and require human and ecological health impact category reporting in EPDs and LCAs.

Moreover, a technical correction including toxicity in LEED V4 EPDs and LCAs would transparently and accurately convey the council's publicly stated high priority for addressing toxicity in products, enhance public health and environment over the global supply chain, and reduce liability risk from misleading communications to manufacturers, EPD Certifiers, EPD specifiers, whole-building LCA providers and USGBC as owner of LEED, a "seal" regulated by FTC and the states.

2.0 EXPANDED ANALYSIS AND REFERENCE MATERIALS

Consistent with FTC's Environmental Marketing Guides, consumers (including Architects and Designers) believe and expect that General Environmental Communications like an EPD, cover all of the substantive environmental impacts of a given product. This is particularly true in the case of EPDs and LCAs because they have been repeatedly framed as being all inclusive multi-attribute environmental accounting reports. Unfortunately (and surprisingly), EPDs and LCAs are not necessarily all inclusive and they are not required to be so by either ISO Standards or LEED V4.

Thus, ISO and therefore LEED V4 compliant EPDs and LCAs for products with substantial toxic impacts frequently ignore toxicity and inappropriately mislead the public, undermining environmental and public health improvement over the global supply chain.

The latest version of the ISO 14025 standards, which LEED is referencing, was published in 2006 and it does not reflect the state of the art in LCA relative to toxicity. ISO 14025 2006, Environmental Labels and Declarations, paragraph 7.2.2 "Data from LCA, LCI or Information Modules" *suggests* the inclusion of results for global warming, ozone depletion, acidification, eutrophication, photochemical oxidation (smog), fossil fuel depletion and water use be included in an EPD. However, it does not suggest including the results on human health and ecological toxicity. Paragraph 7.2.3 goes on to state that "additional environmental Information… such as toxicity related to human health and / or the environment" shall be included in the EPD "where relevant" leaving it up to those preparing and publishing the EPD to decide if the human and environmental health findings for the product should be reported, with no reference to governing federal, state, and common law (including enforcement cases) environmental marketing requirements requiring toxicity reporting. Unlike ISO 14025, ISO 14044 is silent on which results are to be included in an LCA.

Based on a review of several existing EPDs, including those for products with substantial toxicity impacts, human health + ecological toxicity are not included in the LCA results, and key product stages are also omitted where the greatest adverse environmental and health impacts occur. Toxicity is commonly omitted in many EPDs. The current state of EPDs shows that allowing the entities publishing an EPD to determine if environmental health and toxicity impacts are reported and which product stages are selected is not an effective way to achieve transparency. If not corrected, this common lack of transparency will only be perpetuated and amplified by the LEED V4 MRc1 and MRc2 criteria.

Human and ecological health have long been considered baseline reporting in regards to life cycle studies for products. In her 2002 technical report and presentation at the AIChE "Developing a Consistent Decision-Making Framework by Using the EPA's TRACI," Jane Bare of the EPA National Risk Management Research Laboratory in Cincinnati and lead author of the TRACI LCA Tool stated that "Universal impact categories for most studies include: ozone depletion, global warming, human toxicology, ecotoxicology, smog formation, acidification, and eutrophication. While it was recognized by the EPA that the selection of these impact categories is a normative decision depending on what is valued, the EPA decided to include at least this common set as a minimum." In essence , human and ecological toxicity (health) is considered part of the baseline reporting for LCA by the U.S. EPA and it is included as part of EPA's *Tool for the Reduction and Assessment of Chemical and other Environmental Impacts* or TRACI program. Table 1 illustrates the LCA reporting criteria for ISO 14025, LEED V4 MRc1 (based on Option 4), LEED V4 MRc2 and the EPA TRACI 2.1 program. Table 2 on the following page identifies product stage coverage.

The credibility of LCA toxicity data has improved dramatically through the consensus based development and publication of USEtox by the United Nations Environment Program (UNEP) and the Society of Environmental Toxicology and Chemistry (SETAC) in February 2010. In 2011, Haushcile, Jolliet and Huijbregts of the Technical University of Denmark, University of Michigan and University of Nijmegen The Netherlands respectively wrote in the International Journal of Life Cycle Assessment that "We consider that USEtox represents an important step forward for the inclusion of impacts from chemical emissions in LCA, being a consensus model built on a good understanding of the central elements of the characterization modeling and providing a substance coverage that is much broader than what has been offered earlier. In the last two decades, the process of comparative toxicity assessment has advanced very significantly. USEtox is also tested and applied outside the LCA field for chemical screening and has now acquired a sufficient maturity to be systematically used in LCA when properly interpreted."

Toxicity is commonly omitted in many EPDs.If not corrected, this common lack of transparency will only be perpetuated and amplified by the LEED V4 MRc1 and MRc2 criteria.

TABLE 2. LIFE CYCLE STAGES FOR ISO, LEED AND EPA

	LIFE CYCLE STAGES REQUIRED			
Traditional LCA Stages Per EPA TRACI / BEES	**ISO 2006 14025 / 14044**	**LEED V4 MRc2 (Op. 1)**	**LEED V4 MRc1 (Op.4) MRc2 (Op.2)**	**EPA TRACI 2.1 BEES LCA**
Stage 1: Raw Material Acquisition	Suggested*	Yes	Undefined**	Yes
Stage 2: Manufacturing	Suggested*	Yes	Undefined**	Yes
Stage 3: Transportation (Distribution)	Suggested*	No	Undefined**	Yes
Stage 4: Use (In-service / Reuse / Maintenance)	Suggested*	No	Undefined**	Yes
Stage 5: End-of-Life (Recycle / Landfill)	Suggested*	No	Undefined**	Yes

*ISO 14025 suggests all stages be included, buts allows any stage to be excluded based on information availability or expected environmental significance. ISO stages are Raw Material Acquisition, Production, Use + Transportation, End-of-Life.

**LEED MRc1 Option 4 and MR2 Option 2 do not require or define any specific Life Cycle Stages for inclusion in the reporting + analysis
Stage 1 is frequently referred to as the "Cradle"
Stage 2 is frequently referred to as "Gate to Gate" if only factory / manufacturing analyzed
"Cradle to Gate" refers to Stage 1 + 2 Analysis and "Cradle to Grave / Cradle" refers to analysis including all 5 stages

Identical conclusions are reached by Bare in "*TRACI 2.0: the tool for the reduction and assessment of chemical and other environmental impacts 2.0* (Clean Tech Environ Policy DOI 10.1007/s10098-010-0338-9, 2011) and EPA in *TRACI User Guide* (2012).

Federal Trade Commission (FTC) Environmental Marketing Requirements for "general" multi-attribute claims including EPDs are set forth in Note 1 below. From an FTC Environmental Marketing requirement perspective, the ISO 14025 EPD criteria and LEED V4 MRc1 (Option 4) and MRc2 credits have been closely reviewed by an environmental marketing law expert (*see reference note 2. below*). The conclusion is that unless toxicity and other key impacts are clearly included, the resulting EPDs are likely in violation of FTC Title 16 CFR §260.4. The ISO LCA and EPD criteria as previously noted, leaves reporting on ecological and human health issues up to the discretion of those preparing and publishing an EPD with no mention of governing environmental marketing requirements stating the contrary.

These ISO criteria and LEED V4 criteria incorporating ISO by reference, encourage manufacturers and EPD providers to mislead the public about toxicity in products thus likely violating FTC requirements, through the omission of important environmental data.

The FTC guidelines require that all relevant public health and environmental impacts be documented and reported for any General Environmental Claim. Both the U.S. EPA and the United Nations (UNEP / SETAC) recognize global warming, ozone depletion, acidification, eutrophication, photochemical oxidation (smog), fossil fuel depletion, water use, land use, human health, ecological toxicity as a baseline minimum for defining environmental issues and they represent the minimum relevant information that should be included in any EPD (*see Table 1*). LCA characterizations are available for all of these categories through TRACI 2.1 with the exception of Land and Water Use.

Because EPDs and LCAs are general environmental claims, their lack of required transparency around human health + ecological toxicity goes against the FTC Title 16 CFR §260.4 language which states that "it is deceptive to misrepresent, directly or by implication, that a product, package, or service offers a general environmental benefit" (*see the FTC requirements quoted in reference 1 below*).

Accordingly, EPDs and Whole-building LCAs that do not cover globally recognized impacts such as human health + ecological toxicity (*see Table 1*) and all life cycle stages (*see Table 2*), are misleading (and thus deceptive) as defined by the lack of legitimate transparency and disclosure regarding environmental impact categories and product stages. This is contrary to the FTC requirements and thus a substantial liability risk for manufacturers, certifiers, and seals like rating systems, standard developers, and labels.

CONCLUSION

The USGBC has a long history of referencing other standards as a means of effectively improving the environmental performance of buildings and the built environment. In this case, the ISO 14025 and 14044 criteria being referenced fall far short of scoping an appropriate and timely level of data reporting in EPDs and Whole-building LCAs.

Given the improvements in LCA capacity regarding toxicity reporting, any EPD and Whole-building LCA criteria that do not require reporting for human and ecological toxicity no longer represent the state of the art and they do a disservice to the public and the planet. Not requiring human and ecological toxicity reporting in EPDs and Whole-building LCAs sets precedent for misleading environmental claims which are in conflict with the FTC. We do not believe that this is in the best interest of the USGBC and it would undermine needed global public health and environmental improvements.

USEtox has harmonized LCA human and ecological health reporting criteria making it simple for LEED to require toxicity reporting for MRc1 Option 4 and both options under the MRc2 credit. The ISO 14025 paragraph 7.2.2 "Data from LCA, LCI or Information Modules" states that LCA studies "may include, but are not limited to the following categories" and while the category list offered does not suggest human and ecological health reporting, 7.2.2 does not prohibit or limit its inclusion.

LEED V4 MRc1 and MRc2 credit language can be readily brought into alignment with FTC guidelines and prohibit misleading EPDs that ignore toxicity. Both options should require the use of state-of-the-art LCA impact categories established by the U.S. EPA through TRACI 2.1 for human health and ecological toxicity and life cycle stages including Raw Material Acquisition, Manufacturing, Transportation, Use and End-of-Life. This technical correction would favorably align with USGBC's publicly stated high priority for transparently reducing toxic impacts of products, it would enhance global public health and environment, and would reduce liability risk for manufacturers, EPD certifiers and specifiers and USGBC.

If it wishes, the Council can make the simple technical corrections noted above without a Member vote in order to:

- Comply with Federal, State and common law.
- Conform to Federal LCA policy since TRACI is used by multiple Federal Agencies including NIST, HUD, USDA, and EPA with toxicity reporting therein substantiated by global consensus work of UNEP / SETAC and leading universities.
- Prevent misleading communications concerning product toxicity.
- Prevent liability risk for many parties involved in EPDs.

This action would also improve global public health and environment consistent with LEED and the Council's use of the Precautionary Principle adopted by the USGBC Board in 2009, including as it applies to product toxicity.

REFERENCE INFORMATION

1. Below is the quoted FTC Environmental Marketing Guides Requirements:

16 CFR §260.4. General Environmental Benefit Claims

"(a) It is deceptive to misrepresent, directly or by implication, that a product, package, or service offers general environmental benefits."

"(b) Unqualified general environmental benefit claims are difficult to interpret and likely convey a wide range of meanings. In many cases, such claims likely convey that the product, package, or service has specific and far-reaching environmental benefits and may convey that the item or service has no negative environmental impact. Because it is highly unlikely that marketers can substantiate all reasonable interpretations of these claims, marketers should not make unqualified general environmental benefit claims."

"(c) Marketers can qualify general environmental benefit claims to prevent deception about the nature of the environmental benefit being asserted. To avoid deception, marketers should use clear and prominent qualifying language that limits the claim to a specific benefit or benefits."

FTC GUIDES STATEMENT OF BASIS & PURPOSE

"[A] certification or seal can deceptively imply that the certifier has evaluated a product or service using independently-developed and objectively-applied standards (at 99). [A] certifier's criteria must be relevant and sufficiently rigorous to substantiate all claims reasonably communicated by the certification (at 109)."

2. Legal Interpretation and Conclusion

The following interpretation and conclusion are derived primarily from reviewing the FTC Guides, 6 CFR §260.4 and Basis & Purpose Statement, but also relevant Federal Truth in Advertising Law, FTC Policy on Deception, and enforcement cases:

A. FTC States that "General Environmental Communications" covering Multiple Environmental Attributes are subject to greater scrutiny than a single attribute claim like no VOCs, and thus require that a general claim like an EPD must cover all major impacts or it is deceptive, e.g., where the product has climate change and toxicity impacts, since:

- FTC Guides §260.4 requires a "general" claim like an EPD to be substantiated
- FTC Guides require that an EPD not covering climate or toxicity (and where there are these impacts), is not substantiated and is deceptive because it conveys it has "no negative impact" for toxicity or climate (§260.4(b)).

B. FTC States that a Certification / Seal (like LEED) can be deceptive & should be sufficiently rigorous to prevent deception: "a certification or seal can deceptively imply that the certifier has evaluated a product or service using independently-developed and objectively-applied standards" (FTC Statement of Basis & Purpose of Environmental Marketing Guides at 99: http://www.ftc.gov/os/fedreg/2012/10/greenguidesstatement.pdf).

Further, FTC states: "a certifier's criteria must be relevant and sufficiently rigorous to substantiate all claims reasonably communicated by the certification" (Basis & Purpose at 109).

END | Perkins+Will, AREA Research | February 12, 2014

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