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Product Disclosure: An Emerging Challenge for the Building Envelope Consultant

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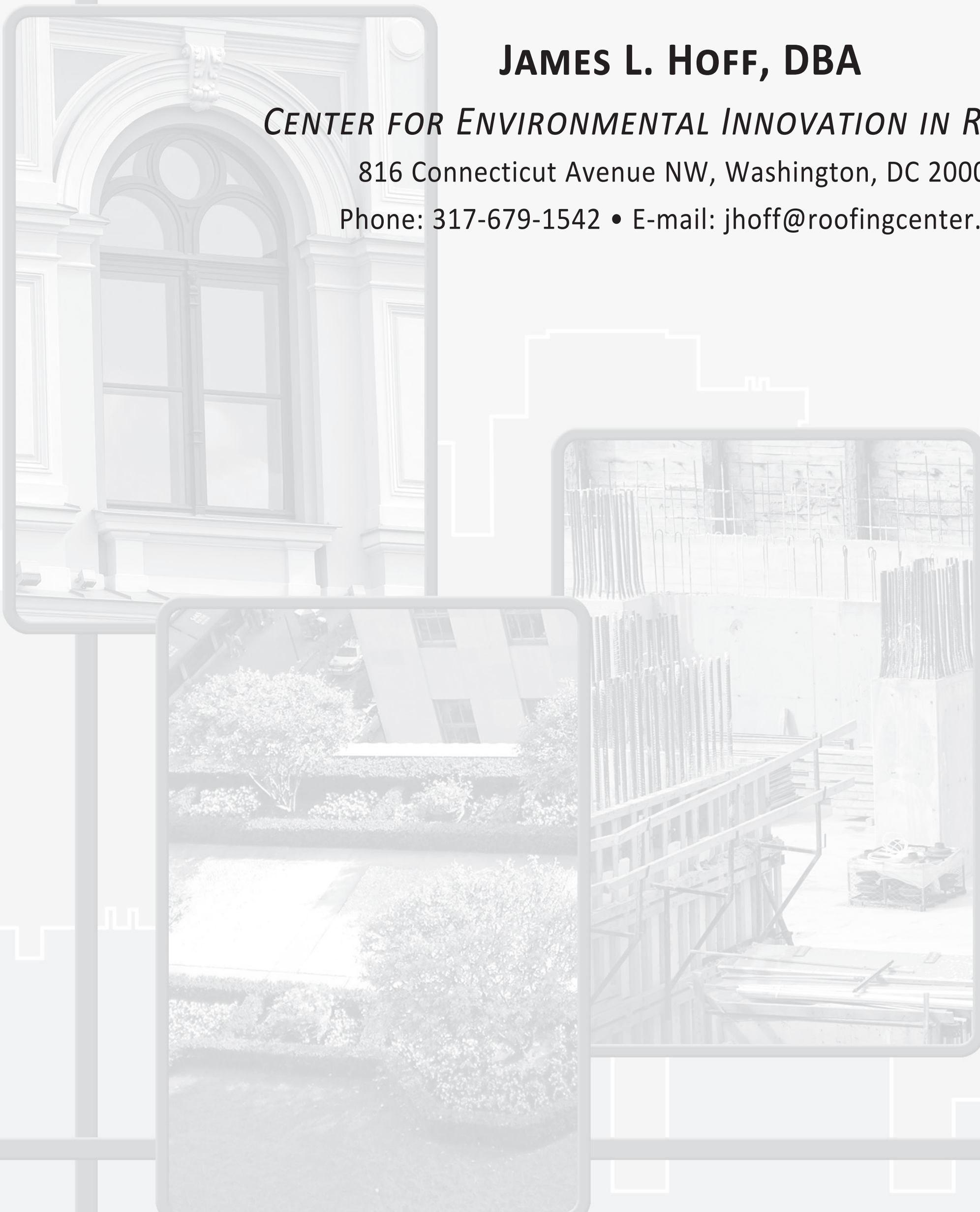

Abstract

With the release of the latest version of the Leadership in Energy and Environmental Design (LEED) Green Building Rating System (LEED v4), product disclosure has become an important topic in sustainable building design. Although disclosure offers an opportunity to move from guesswork to informed decision-making, it remains a work in progress, raising perhaps as many questions as answers. In order to answer these questions, this presentation will provide a summary of product disclosure research conducted over the past two years, including the origins of the product disclosure concept, the market forces driving product disclosure, and the latest product disclosure criteria incorporated in building standards and codes. In particular, the presentation will focus on two of the most talked-about disclosure tools: the Environmental Product Declaration (EPD) and the Health Product Declaration (HPD). The presentation will conclude with a discussion of how these new tools may impact consulting practice and liability and what strategies can be used to integrate these new tools into professional practice.

Speaker

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Product Disclosure: An Emerging Challenge for the Building Envelope Consultant

INTRODUCTION

Whether you are perusing the latest edition of an architectural magazine or viewing an online green building blog, the word "disclosure" is certain to catch your eye. With the release of the latest version of the Leadership in Energy and Environmental Design (LEED) Green Building Rating System (LEED v4),[1] disclosure has taken center stage as the next big topic in the ongoing discussion of how green building is defined. Sharing the stage with disclosure are new tools such as Environmental Product Declarations (EPDs) and the Health Product Declarations (HPDs) that have emerged to help measure the "greenness" of building products. In order to understand disclosure's eventual impact on building design and practice, it is important to start with a review of how the concept developed and how it is related to other important green building concepts.

Many different stakeholders within the building community have been active in the promotion of disclosure, but they all tend to share the same questions. A particular building material may help save operating energy, but how does it impact other equally important environmental concerns? A product may have a high recycled content, but after the effort required to salvage, transport, and convert the material, is there still a tangible net environmental benefit? Beyond specific environmental concerns, how does the product affect the safety, health, and well-being of building occupants? Unfortunately, many of these questions cannot be answered effectively using current tools such as energy calculators and one-dimensional green product certifications.

Each of these questions is related to common concerns held by not only green building advocates but also the entire building design community: Do we have the kind and quality of information about building products to make informed decisions? Do simplistic claims or categories of "greenness" help or hinder our analysis? Do current manufacturer data sheets and reports provide adequate information? Finally, do we understand exactly what goes into the building materials we use and how these ingredients may affect the well-being of building occupants?

Although disclosure offers an opportunity to move from guesswork to informed decision-making, it is important to recognize that it remains a work in progress, raising perhaps as many questions as answers. In order to help answer some of these questions, this article will strive to provide a balanced review by focusing on two of the most talked-about tools: the EPD and the HPD.

KEY DRIVERS OF THE PRODUCT DISCLOSURE MOVEMENT

Although many forces are involved in promoting disclosure in the green building market, the marked increase in demand for product disclosure has been affected significantly by three groups:

- **Leading Architecture and Design Firms.** Many of the leading global architecture firms have established formal policies regarding product disclosure and how they will work with product manufacturers in the future. As of the beginning of 2014, over two dozen of the largest architecture firms in the United States have released letters formally requesting EPDs, HPDs, or similar product disclosure from manufacturers who supply products specified by these firms.[2] And the request has some teeth behind it. Although the specific consequences vary from firm to firm, materials manufacturers who fail to develop EPDs and HPDs for their products may face restrictions on making presentations to a firm's staff, exclusion from product libraries, and loss of preference in project specifications.
- **The Green Building Media.** Within the past 10 years, the number of new media sources promoting green buildings has expanded almost exponentially. And from magazines, newsletters, blogs, and other social media, these green building commentators have become very visible and persuasive advocates for increased building product transparency.
- **The Green Data Aggregators.** Dozens of organizations have jumped into the growing business of collecting and compiling green product information. New groups like Green Wizard and Pharos have developed online tools to help building designers compare and select products based on the ingredients they contain and how they can be used to meet new LEED material credits. And established organizations like Underwriters Laboratories (UL) and NSF (formerly the National Sanitation Foundation) are rapidly expanding their traditional product certification listings to include the latest in green product disclosure.

THE EPD

EPDs have been around the longest of all the new disclosure tools, and current procedures to develop EPDs have been in place for over a decade. However, the fact that even this disclosure tool is still relatively new attests to how quickly the concept of disclosure has entered the construction market. Nevertheless, the current EPD process has been built on a solid, science-based approach that examines total environmental impact over the entire life cycle of a product. There are many excellent definitions of EPDs, but for the purposes of this article, the EPD may best be described as a tool that discloses recognized environmental impacts, using quantifiable measures, over the product life cycle in accordance with globally recognized procedures.[3]

Typical EPD Environmental Impact Categories (From U.S. EPA TRACI Tool[4])	
Environmental Impact Category	**Description of Effect**
Global Warming Potential (GWP)	Impact of greenhouse gasses that increase global temperatures
Ozone Depletion Potential (ODP)	Impact of chemicals that adversely affect the earth's upper ozone layer
Eutrophication Potential	Impact of chemicals that pollute rivers and lakes by removing oxygen
Smog Creation Potential	Impact of chemicals that contribute to ground-level ozone and smog
Acidification Potential	Impact of chemicals that produce acid rain

Table 1 – Typical EPD environmental impact categories.

Recognized Environmental Impacts

The environmental impacts reported by EPDs are based on a universally recognized listing of impact categories established by the U. S. Environmental Protection Agency (EPA). This listing, called the Tool for the Reduction and Assessment of Chemicals and other Environmental Impacts (TRACI),[4] categorizes a number of key environmental impacts related to the release of various chemicals into the atmosphere, ground, and water. Currently, five of the impacts are included in the data provided by most EPDs. *Table 1* provides a listing of these five impact categories, along with a brief description of their effects.

In addition to these primary environmental impact categories, EPDs also include an analysis of the energy consumed during the product's life cycle and classify this energy into renewable and nonrenewable sources. In addition, EPDs include data regarding water and other resource consumption, as well as information about hazardous and non-hazardous waste generated over the product's life cycle.

Quantifiable Measures

All of the data reported in an EPD are also quantified based on the best current science in order to allow for comparison of environmental impacts among similar products. In the case of the five key TRACI impact categories, these measures are based on chemical or molecular values that can be added to the impacts of other products to help establish an overall environmental "footprint" for a combination of products, such as a building or major building component. *Table 2* provides a listing of the specific metrics associated with each TRACI impact category.

In all cases, the specific chemical selected may be used as a common denominator for other chemicals that produce a similar result. As an example, although carbon dioxide (CO_2) is the most-recognized greenhouse gas, the TRACI tool allows for the conversion of other greenhouse gasses such as methane (CH_4) and ozone (O_3) into the equivalent amount of CO_2 that would cause the same effect. Because the TRACI measures accommodate the range of chemicals associated with environmental impact, these measures can be added to the impacts of other products to establish an overall environmental "footprint" for a whole building constructed from these products. The additive nature of EPD data is very important in the development of impact calculators such as the Athena Impact Estimator,[5] used to assess the environmental impacts of whole buildings or major subsystems.

The Product Life Cycle

The assessment and measurement of the environmental impacts reported in an EPD are structured to include all aspects of a product's life cycle, from the initial acquisition of raw materials to the eventual removal and disposal of the product. This life cycle typically is described in an EPD using a diagram similar to *Figure 1*.

Key elements of the product life cycle include the identification of all resource inputs (raw materials, energy, water, etc.) and all environmental outputs (atmospheric emissions, waterborne waste, solid waste, etc.) associated with the key stages of the product life cycle (raw material acquisition, transport, manufacture, installation, maintenance, removal, disposal, etc.). The diagram also typically includes a system boundary to indicate exactly what processes are covered within the life cycle assessment. As an example, the system boundary for many consumer products does not include the operation or use of the product, while almost all building material EPDs include maintenance and operational impacts within the system boundary.

Recognized Procedures

In addition to utilizing quantifiable and well-known measures of environmen-

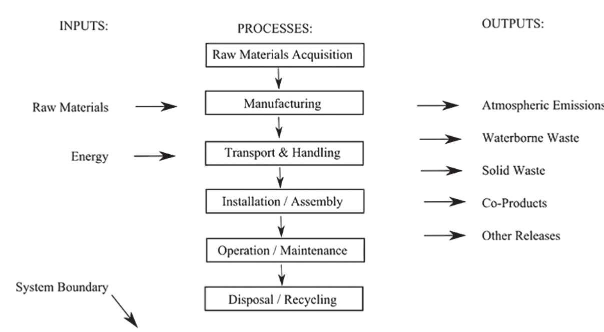

Figure 1 – Product life cycle diagram.

Typical EPD Environmental Impact Measures (From U.S. EPA TRACI Tool[4])	
Environmental Impact Category	**Impact Measure**
Global Warming Potential (GWP)	Kilograms (kg) of carbon dioxide (CO_2) or equivalent
Ozone Depletion Potential (ODP)	Kilograms (kg) of Freon (R11) or equivalent
Eutrophication Potential	Kilograms (kg) of nitrogen (N) or equivalent
Smog Creation Potential	Kilograms (kg) of ozone (O_3) or equivalent
Acidification Potential	Moles of positive ions (H^+) or equivalent

Table 2 – Typical EPD environmental impact measures.

tal impact based on established science, EPDs are conducted in accordance with the requirements of rigorous international standards. In almost all cases, these procedures are based on standards adopted and maintained by the International Standards Organization (ISO). Some of the ISO standards relevant to EPDs include:

- ISO 14044 Environmental Management – Life Cycle Assessment – Requirements and Guidelines
- ISO 14025 Environmental Labels and Declarations – Type III Environmental Declarations – Principles and Procedures
- ISO 21930 Sustainability in Building Construction – Environmental Declaration of Building Products

The use of well-established procedures helps assure that the information disclosed in an EPD has been developed in an objective and scientific manner. In fact, the type of EPD required by LEED and other green building guidelines requires a final third-party review to validate the disclosure for accuracy and reliability.

THE EPD IN CODES AND STANDARDS

EPDs are included as part of the new LEED v4 under Option 1 of Credit MRc2 ("Building Product Disclosure and Optimization: Environmental Product Declarations"). In this option, LEED credit may be awarded for projects that incorporate at least 20 products covered by EPDs. Full credit is available for products covered by product-specific declarations, while half credit is awarded for products covered by a generic industry declaration.

EPDs also may soon become part of other well-known green building codes and standards. Recently, the inclusion of EPDs has been proposed as an addendum to ASHRAE 189.1, *Standard for the Design of High-Performance Green Buildings*,[6] and the addendum is currently undergoing public comment and review. In addition, several proposals to add EPDs to the 2015 version of the International Green Construction Code (IgCC)[7] have been submitted as part of the 2014 code hearings process and were expected to be formally approved by the end of 2014 for inclusion in the 2015 version of the IgCC.

BENEFITS AND LIMITATIONS OF THE EPD

Benefits

Based on the previous discussion, it should be obvious that the key benefits of EPDs are related to the quantitative, scientific, and standardized approach used in their development. This combination of sound measurement, good science, and recognized procedure certainly helps to ensure the validity and reliability of the environmental data contained in EPDs. And because of the quantifiable basis for all measurements, the data for a specific product can be added to the data for other products to obtain a relatively reasonable picture of the overall environmental impact of whole buildings and major subassemblies. Finally, the measureable values contained in EPDs can be used not only to compare products, but also to improve existing products. In fact, one of the original rationales for the development of EPDs was to develop useful tools to drive continuous product improvement.

Limitations

Of course, the benefits of EPDs come with a cost, and the amount of resources required is a key limitation. Based on this researcher's own experience in helping material manufacturers and trade associations develop EPDs, the entire process is very resource-intensive. In addition, the complexity of the development process may be viewed as a limitation. For starters, the inherent complexity of EPDs, combined with the current lack of overall environmental impact data, means that it is possible for different EPD practitioners to obtain different results using the same basic procedures. More importantly, because construction and design professionals usually aren't chemists by training, it may be very challenging to select building products simply based on factors such as CO_2 equivalents or moles of H^+ ions.

Finally, although EPDs offer a way to compare the environmental aspects of building products, they currently fail to address more specific issues involving human health. And because of this limitation, the HPD is being developed.

HPDs

Compared to EPDs, the HPD is a brash newcomer, with the first HPD standard formally published just a few years ago. As a result, the most significant difference between EPDs and HPDs involves the degree of rigor and standardization in their underlying processes. Where EPDs rely on scientific method and quantifiable measurement, HPDs rely less on certainty and more on precaution. In fact, one of the founding values of the HPD is the precautionary principle, which advocates for the restriction or elimination of products if there is any concern about their safety. In addition, the measurements used in HPDs may be considered much less quantifiable than EPD metrics. Rather than providing a measurable effect on health impact, the HPD simply identifies the presence or absence of specific chemicals. As with EPDs, there are many definitions of HPDs; but in light of our previous definition of the EPD, the HPD may best be described as a tool that discloses product ingredients and, based on a variety of reference sources, discloses known/suspected health hazards associated with these ingredients.[3]

Product Ingredients

Without a doubt, the most critical feature of the HPD is the full disclosure of all ingredients in a building product. Because many building materials—especially materials other than liquids such as coatings or adhesives—are not specifically subject to previous Material Safety Data Sheet (MSDS) or current Safety Data Sheet (SDS) regulations, manufacturers are under no obligation to disclose the specific ingredients in their products. And even though many building materials manufacturers do, in fact, voluntarily provide MSDSs and/or SDSs for their products, procedures regarding the disclosure of important health impacts that may be relevant to the building designer are not well established. As a result, the HPD may offer a more standardized approach to the disclosure of ingredients. Current HPD standards also allow for the use of proprietary ingredients without disclosing the specific chemical or mixture as long as the health hazards are clearly identified and disclosed.

Reference Sources

After a product's chemical ingredients have been identified in an HPD, these chemicals must be screened against a variety of reference lists that identify any health hazards known or suspected to be associated with the ingredients. Frequently, these lists are referred to as being "authori-

Examples of HPD "Authoritative" Lists and Sources	
Source	**List**
U. S. Environmental Protection Agency (EPA)	Integrated Risk Information System (IRIS)[8] Database, Chemicals of Concern Action Plans
European Commission (EU-ECHA)	Registration, Evaluation, Authorization, and Restriction of Chemicals (REACH)[9]
International Agency for Research on Cancer (IARC)	Monographs on the Evaluation of Carcinogenic Risks to Humans[10]
State of California	Proposition 65 – Chemicals Known to the State to Cause Cancer or Reproductive Toxicity (Prop 65)[11]
San Antonio Statement	San Antonio Statement on Brominated and Chlorinated Flame Retardants[12]

Table 3 – Examples of HPD "authoritative" lists and sources.

tative" because many of the lists have been established by leading national and global bodies based on the best science available. However, these lists may vary significantly in terms of their recognition and scope. Some examples of current HPD "authoritative" lists are shown in *Table 3*.

It should be noted that *Table 3* provides only a partial listing of current HPD reference sources. The full listing in the current HPD Open Standard includes over one dozen compilers and over two-dozen specific lists.

Known/Suspected Hazards

For any chemical flagged by one or more of these lists, specific hazard warnings are provided by the list compiler. Similar to hazard warnings on the MSDS, these warnings identify hazards related to specific health concerns, such as cancer, reproductive toxicity, developmental toxicity, etc. *Table 4* provides a selected listing of typical hazard language associated with a selection of current HPD reference lists.

After screening each chemical ingredient against the hazard references, all known and suspected hazards as identified by these lists must then be reported as part of the HPD.

THE HPD IN CODES AND STANDARDS

HPDs are included as part of LEED v4 under Option 1 of Credit MRc4 ("Building Product Disclosure and Optimization: Material Ingredients"). In this option, LEED credit may be awarded for projects that incorporate at least 20 products covered by HPDs or similar disclosures. Like EPDs, HPDs also may soon become part of other well-known green building codes and standards. In fact, several proposals involving HPDs have been submitted as part of the 2014 code hearings for the 2015 version of the IgCC.

BENEFITS AND LIMITATIONS OF THE HPD

Benefits

Undoubtedly the biggest benefit offered by an HPD is the minimal amount of resources needed to produce it. In contrast to the exhaustive science required to develop an EPD, the time and effort to develop an HPD is much less demanding. Because product manufacturers already possess a reasonable understanding of their ingredients and have access to data from their raw material suppliers, the effort required to produce an HPD differs little from the work needed to produce the common MSDS. Based on the experiences of several manufacturers who participated in a pilot trial of HPDs in 2012, completing the first HPD may take a day or two; and after the first HPD is finished, it is likely that additional HPDs can be completed in less than a day.

Along with low resource requirements, HPDs also offer an innate simplicity not available with EPDs. Instead of reviewing dozens of complex measures involved in quantifying a broad range of environmental impacts, the sole function of an HPD is to identify the presence or absence of known or suspected health hazards. As a consequence, HPDs may be more suitable for the nonscientist to review and use. As stated by Russell Perry, FAIA, of architectural firm SmithGroupJJR:

> We do not need everyone to be an industrial hygienist in order for [HPDs] to be a valuable contribution to the building industry. We are not scientists in all of this, and we don't need to be. We're not making risk assessments. We're simply saying we have to get what these products consist of out into the world."[2]

Limitations

The most obvious limitation of the HPD relates to its infancy as a standard. Unlike widely recognized standard processes such as ASTM, ANSI, and ISO, the HPD protocol was developed using an "open standard" approach advanced by a coalition of health-

Examples of HPD Hazard Statements	
Source/List	**Hazard Statement Example**
U.S. EPA/IRIS	"Reproductive or developmental toxicity" (A through C)
U.S. EPA/Action Plans	"Action or work plan chemical"
E.U./REACH	"PBT, vPvB, POP, SVHC, REACH Annex XVII"
IARC/Cancer monographs	"Carcinogen or "likely carcinogen" (A through C)
California Proposition 65	"Known by the state to cause…"
San Antonio Statement	"Flame-retardant substance class of concern for PBT and long-range transport"

Table 4: Examples of HPD hazard statements.

Modern Roofing Products and Alleged Hazards (Per HPD Open Standard)[12]		
Roofing Product	**Alleged Hazard**	**Reference List**
"Cool" building materials (reflective wall/roof coatings, reflective roofing membranes, reflective metal wall and roof panels)	Titanium dioxide (TiO_2)	California Prop 65
Rubber-based building materials (EPDM roofing/waterproofing membranes, architectural weather seals/gaskets)	Carbon black	California Prop 65
Asphalt-based building materials (shingles, built-up roofing, mod-bit roofing and air barriers, asphaltic waterproofing, asphaltic sealants and coatings)	Bitumen	California Prop 65
Wood-based construction materials (lumber, plywood, OSB, high-density board, wood fiber board)	Wood dust	California Prop 65
Polystyrene wall and roof insulation (EPS and XPS)	Brominated flame retardants	San Antonio Protocol, EU REACH, California Prop 65
Polyiso wall and roof insulation	Chlorinated flame retardants	San Antonio Protocol
Spray foam (SPF) wall and roof insulation	Chlorinated flame retardants	San Antonio Protocol

Table 5 – Modern roofing products and alleged hazards.

oriented building advocates. This protocol, called the HPD Open Standard,[13] was developed primarily by representatives of the founding sponsors, with little or no formal public participation. In addition, material manufacturers did not directly participate in the development of the standard, but rather were relegated to a pilot trial of the standard that was for the most part in its completed form. As a result, many of the guiding principles of standard consensus processes—open participation, balanced stakeholders, consideration of all viewpoints, and the availability of an appeals process—were not included in the development of the current HPD protocol.

Perhaps as a result of the limited consensus process involved, the current HPD Open Standard includes a number of weaknesses and discrepancies. First, the current HPD standard fails to clarify if it is necessary to report chemical ingredients that are effectively transformed or consumed during manufacture. As an example, the production of polyurethane products such as foam insulations, coatings, and sealants requires the use of MDI, a chemical considered hazardous when directly exposed to humans. But for polyurethane products produced in the confines of a factory (such as rigid polyiso foam insulation), all of the MDI is consumed and transformed into a resultant cellular foam that itself contains no MDI. And even in field applications of polyurethanes, after proper application, no MDI remains when the material is ready for inclusion in a completed building.

The lack of clarification in HPDs also is challenging in regard to chemical mixtures. Many popular roof and wall products rely on the use of materials that may be considered hazardous when airborne in a factory setting, but in almost all cases, these materials are firmly encapsulated into a larger chemical matrix that poses little or no risk of release into the building environment. Examples of such materials include titanium dioxide (TiO_2), which is a key component in almost all "cool" building products; and carbon black, which is a key ingredient in rubber membranes and sealing gaskets. Some hazard lists, such as California Proposition 65, even include wood dust as a hazard. Does that mean we should identify all wood products to be hazardous?

The lack of clarification regarding ingredients is further compounded by the broad and disparate collection of "authoritative" lists used to identify hazards. Some of these lists, such as the European Union's REACH protocol, are widely acclaimed and accepted throughout the world. In most cases, this acceptance is due to the high levels of science and consensus used to develop the list. Others, such as California Proposition 65, are more regional in scope and, in many cases, are simply derivative collections of hazards identified by other lists. Some of the lists, like the U.S. EPA Work Plan List, do not actually identify a known hazard but rather are used to identify materials that are being subjected to further government review. Finally, some of the lists, such as the San Antonio Statement, are not actually lists but rather a public statement of opinion by a group of concerned individuals.

But regardless of the level of recognition each "authoritative" list has achieved, the hazards it identifies must be treated as equal threats within the HPD reporting protocol. As a result, many products that contain absolutely no hazardous chemicals as identified by the world's most recognized authorities still must be identified as hazardous if they contain any ingredient included in the dozens of less-recognized lists and sources covered within the current HPD framework.

Taken as a whole, the potential for product exclusion within the current HPD Open Standard protocol may be significant for many segments of the building material industry. As an example, the HPDs for the vast majority of building products will likely include the disclosure of at least one ingredient alleged to be hazardous by one or more of the "authoritative" lists. *Table 5* provides a listing of these products, the alleged hazards they may contain, and the reference list from which the alleged hazard is identified.

This table, which includes so many critical building materials, may help illustrate one more concern about the current HPD Open Standard. When this researcher has raised examples of products in this table to several leading green building advocates, their response has been, "Well, I'm sure the HPD Open Standard doesn't intend to flag all these products as hazardous. After all, many of these ingredients, like TiO_2 or wood dust or carbon black when fully embedded in building materials will likely never affect building occupants." This argument may be valid, but how will manufacturers respond in their published HPDs?

As an example, if a building product manufacturer produces a product containing even a theoretical portion of any California Proposition 65-listed ingredient (and there are over 400 of them!) and fails to list the ingredient on its product labels and literature, it could be in legal jeopardy for failing to comply with the specific reporting requirements of Proposition 65 in the state of California. And past experience from California suggests that there are plenty of law firms just looking for the opportunity to initiate a Proposition 65 lawsuit. As a result, it is unlikely that any product manufacturers will fail to report these ingredients and their alleged hazards in the HPDs they publish.

And how will building designers respond to HPDs that contain hazard warnings about cool roof coatings, wood, carbon black, and the like? They will now be in possession of information stating the products they plan to specify contain ingredients potentially hazardous to the health of the clients. As a result, the inclusion of so many chemicals that may be only remotely connected to actual occupant health hazards could easily damage the credibility of the HPD as an objective and effective tool. In simpler terms, if the HPD flags every building product as hazardous, the relevancy and usefulness of the tool will be lost.

The final and perhaps most critical limitation of the current HPD Open Standard is the lack of risk assessment to accompany the current hazard identification. Stated simply, many materials may be considered potentially hazardous, but a useful understanding of the actual hazard requires an assessment of the risks involved. Some of the key elements of risk assessment, currently lacking in the HPD Open Standard, include:

- **Threshold Level.** At what level does exposure actually produce adverse health effects? Using toxicological science and experimental evidence, a maximum threshold level can be established, usually with a significant margin of safety (MOS), typically in the thousands.
- **Exposure Path.** How can any particular hazardous ingredient directly affect building occupants? In the case of many roof and wall products—especially exterior products or materials such as insulation that are enclosed within walls and roofs—the potential for exposure will likely be very low.

Unfortunately, the current HPD protocol provides little or no information that may help a building owner or designer make decisions based on the actual risk posed by a building product.

POTENTIAL ALTERNATIVES TO THE HPD

As the building industry starts to digest the nuances of the new HPD Open Standard, the need for important changes to the standard are becoming apparent. Definitions regarding ingredients need to be broadened to accommodate a wide variety of real-world situations. And the "authoritative" nature of some of the reference lists needs to be examined. Finally, the concept of hazard needs to be expanded to include risk, especially if HPDs are to move up to the level of science and rigor established by EPDs.

Although many new initiatives to advance product health disclosure will focus on improving the current HPD process, other initiatives will focus on the development of better alternatives. Currently, two potential alternatives are available that may help address some or all of the limitations of HPDs. These alternatives include the new Safety Data Sheet (SDS) and the Product Transparency Declaration (PTD).

SDS

Even before the HPD Open Standard was developed, the disclosure world was already in the middle of a significant transformation regarding the reporting of product hazards. This transformation involved the harmonization of all product safety reporting across the globe using the new Globally Harmonized System (GHS)[14] sponsored by the United Nations. In accordance with recent U.S. government regulations, the new GHS standard will be required for all materials currently subject to product safety reporting. This new GHS data form will be called the Safety Data Sheet (SDS) and will replace the previous Material Safety Data Sheet (MSDS) starting in 2014.

Although a comprehensive review of the SDS is beyond the scope of this article, many observers have noted that the information contained in the SDS is virtually identical to the HPD, with the exception that only the most authoritative sources are used for hazard screening. Naturally, because all product manufacturers have spent considerable time and effort developing an entirely new portfolio of SDSs, it may be prudent to ask why this new disclosure method—which will be available much faster than the HPD—should not be used as a unified standard for product ingredient and hazard disclosure.

PTD

In an effort to expand the scope of HPDs to include risk analysis in addition to hazard identification, the Resilient Floor Covering Institute (RCFI) has recently developed a new PTD.[15] Starting with many of the same reference lists as the HPD Open Standard, the PTD protocol provides for an additional assessment of actual risk or exposure of each ingredient in its intended building function. Although the PTD protocol will be more complex than the current HPD standard, it may add value and help establish product health disclosure on a similar scientific level as the EPD. As a testament to the potential value of the PTD concept, an immediate effort has been started at ASTM to transform the current PTD format into a consensus-based ASTM standard similar in scope to previously mentioned ISO standards for EPDs.

CLOSING OBSERVATIONS

Although this paper has identified a number of limitations of EPDs and HPDs, it is important to recognize that everyone associated with green building agrees that increased transparency is a good thing. At a minimum, these environmental and health declarations will provide a better understanding of the building material supply chain and how it may impact our environment and health. Hopefully, this understanding will grow as we continue to refine and improve the reporting standards and protocols. Finally, and perhaps most importantly, increased product disclosure will help drive continuous improvement of the building materials we use.

At the same time, judgments concerning the suitability of any particular building product or comparisons among products will remain difficult and unpredictable. As a consequence, any building designer seeking to apply the information in EPDs and HPDs should always consider the risks involved. These risks include the possibility of overlooking important factors or trade-offs as well as the risk of arbitrary exclusion of otherwise excellent products and suppliers.

Perhaps the best recommendation going forward is to be proactive in the process but cautious with the results. Yes, we should all agree that increased disclosure is a good thing, and we need to get the process started. But we also should keep in mind that our tools are very new and still unproven in application. And as industry begins to engage in a new level of product disclosure and review, it will be important to avoid oversimplification, especially if it may lead to sweeping changes in product selection. And to avoid oversimplifying the challenges we face, it will be important to continually emphasize science, best practice, and continuous improvement as the best tools for assessing and selecting sustainable building products.

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