

---

THE COLUMBIA  
SCIENCE & TECHNOLOGY  
LAW REVIEW

---

VOL. XIV

STLR.ORG

SPRING 2013

---

ARTICLE

INTELLECTUAL PROPERTY LANDSCAPE OF MATERIAL  
SUSTAINABILITY STANDARDS<sup>†</sup>

Jorge L. Contreras and Charles R. MacManis\*

*One of the most significant factors affecting building sustainability is the sustainability of the materials used in construction. This recognition has led to the emergence of a broad range of advanced new building materials, many of which are claimed to address issues of sustainability either in their composition or the processes by which they are manufactured. The emergence of these new materials, as well as heightened public sensitivity to sustainability issues, have given rise to a burgeoning field of standards and certifications that purport to assess, measure and rate the sustainability of building materials ranging from structural elements such as masonry, drywall and flooring to interior design features such as carpeting, paint and furniture. As part of an ongoing research*

---

<sup>†</sup> This article may be cited as <http://www.stlr.org/cite.cgi?volume=14&article=8>. This work is made available under the Creative Commons Attribution–Non-Commercial–No Derivative Works 3.0 License.

\* Contreras is an Associate Professor of Law at American University Washington College of Law and McManis is the Thomas and Karole Green Professor of Law at Washington University in St. Louis. This article is based on a report presented to the National Academy of Science (NAS) Board on Science, Technology and Economic Policy (STEP) Symposium on Management of Intellectual Property in Standard-Setting Processes (Oct. 3-4, 2012). Research assistance by Gavin Dow, and financial support by the National Academies of Science (NAS), are gratefully acknowledged. The Materials Standards Sustainability Project at Washington University has received support from the Washington University/Brookings Institution Academic Venture Fund and the Skandalaris Center for Entrepreneurial Studies. Additional financial support for Contreras was provided by a summer research grant from American University Washington College of Law. The authors thank Steve Merrill, Rich Gilbert, Tim Simcoe and the other members of the NAS Committee on Intellectual Property Management in Standard-Setting Processes for their valuable guidance and feedback on this article. Contreras is also a member of the Committee.

*program to study and evaluate such materials sustainability standards (MSS), we conducted an in-depth study of nine selected MSS with to the goal of identifying intellectual property issues associated with each. These nine MSS and a summary of our observations concerning the intellectual property issues implicated by each is contained in this article. We found that the practices of manufacturers and standards development and certifying organizations in this field typically address copyright, trademark, and trade secret issues explicitly, but there is also a risk that patent issues will arise in the future.*

I. Introduction.....	486
II. The Materials Sustainability Standards (MSS) Landscape ...	489
A. Standards, Certifications and Ecolabels.....	489
B. Standards Development Processes and Players.....	491
C. Product Certification .....	494
D. Competition in the Market for MSS .....	495
III. An Overview Of Intellectual Property In Material Sustainability Standards.....	497
A. Copyright.....	497
B. Trademarks and Certification Marks.....	500
C. <i>Trade Secrets</i> .....	502
D. Patents.....	504
IV. Conclusion .....	508
V. Appendix: SURVEY OF MATERIALS SUSTAINABILITY STANDARD IP POLICIES.....	510

## I. INTRODUCTION

The market for residential and commercial construction in the United States is estimated to be nearly \$1 trillion per year,<sup>1</sup> representing approximately 13% of the U.S. Gross Domestic Product (GDP). Annually, existing buildings account for approximately 41% of U.S. energy consumption,<sup>2</sup> 67% of

<sup>1</sup> See Jerry Yudelson & S. Richard Fedrizzi, *The Green Building Revolution* 80 (2008).

<sup>2</sup> Percentage of total energy consumption by sector, US Energy Information Administration, *Annual Energy Review 2010* 38 (2011), [http://www.eia.gov/totalenergy/data/annual/pdf/sec2\\_4.pdf](http://www.eia.gov/totalenergy/data/annual/pdf/sec2_4.pdf).

electricity use,<sup>3</sup> and 39% of carbon dioxide emissions.<sup>4</sup> Compounding the environmental impact of buildings, growing incidence of “sick building syndrome”<sup>5</sup> has focused public attention on the human health effects of buildings and building materials.

As public awareness of the impact of buildings on human health, climate change, energy usage and environmental degradation has grown, so has public interest in environmentally-sustainable building. The U.S. Green Building Council (USGBC), which develops and administers the well-known Leadership in Energy and Environmental Design (LEED) rating system, has certified more than 5,000 “green” buildings since its inception in 2000.<sup>6</sup> The state of California has adopted a statewide green construction code,<sup>7</sup> and several other states have adopted, or are considering, versions of the International Code Council’s International Green Construction Code (IGCC).<sup>8</sup> In terms of procurement, the U.S. General Services Administration (GSA), Department of Housing and Urban Development, and other federal agencies have adopted aggressive policies to make their construction and building projects environmentally sustainable,<sup>9</sup> and numerous municipalities and counties have followed suit.<sup>10</sup>

---

<sup>3</sup> Percentage of total electricity consumption, US Energy Information Administration, Annual Energy Review 2010, at 233 (2011), [http://www.eia.gov/totalenergy/data/annual/pdf/sec8\\_3.pdf](http://www.eia.gov/totalenergy/data/annual/pdf/sec8_3.pdf).

<sup>4</sup> U.S. Environmental Protection Agency, *Buildings and Their Impact on the Environment: A Statistical Summary 2* (Apr. 22, 2009), available at <http://www.epa.gov/greenbuilding/pubs/gbstats.pdf>.

<sup>5</sup> First identified in the 1970s, sick building syndrome is a set of symptoms sometimes experienced by building occupants believed to result from various contaminants and poor indoor ventilation. See generally United States Environmental Protection Agency, Indoor Air Facts No. 4 (revised): Sick Building Syndrome (1991), available at [http://www.epa.gov/iaq/pdfs/sick\\_building\\_factsheet.pdf](http://www.epa.gov/iaq/pdfs/sick_building_factsheet.pdf).

<sup>6</sup> U.S. Green Bldg. Council, *The LEED Green Building Program at a Glance*, available at <http://www.usgbc.org/DisplayPage.aspx?CMSPageID=97&#presskit>.

<sup>7</sup> Cal. Code of Regs., Tit. 24, § 11 (2010).

<sup>8</sup> Int’l Code Adoptions (Int’l Code Council 2012), <http://www.iccsafe.org/gr/Pages/adoptions.aspx>.

<sup>9</sup> U.S. General Svcs. Admin., *GSA Moves to LEED Gold for All New Federal Buildings and Major Renovations*, (Oct. 28, 2010), <http://www.gsa.gov/portal/content/197325>; U.S. Dept. Housing & Urban Devel., *Enhancing Energy Efficiency and Green Building Design in Section 202 and Section 811 Programs 34-36* (2011).

<sup>10</sup> See, e.g., Timothy Simcoe & Michael W. Toffel, *Public Procurement and the Private Supply of “Green” Buildings*, Harvard Business School Technology & Operations Mgt. Unit Working Paper No. 13-030, <http://paper>

Though less frequently discussed, one of the most significant factors affecting overall building sustainability is the sustainability of the materials used in construction.<sup>11</sup> This recognition has led to the emergence of a broad range of advanced new building materials, many of which are claimed to address issues of sustainability either in their composition or the processes by which they are manufactured. The emergence of these new materials, as well as heightened public sensitivity to sustainability issues,<sup>12</sup> have given rise to a burgeoning field of standards and certifications that purport to assess, measure and rate the sustainability of building materials ranging from structural elements such as masonry, drywall and flooring to interior design features such as carpeting, paint and furniture.

As part of an ongoing research program to study and evaluate such materials sustainability standards (MSS), we conducted an in-depth study of nine selected MSS with the goal of identifying intellectual property issues associated with each.<sup>13</sup> These nine MSS and a detailed summary of our observations concerning the intellectual property issues implicated by each are contained in the Appendix to this article. By way of introducing our observations, Part I of this article will provide an overview of the MSS landscape, while Part II will explain the intersection of intellectual property (IP) law and the current MSS landscape. Part III presents our conclusions concerning this intersection. As described in greater detail below, we found that the practices of manufacturers, standards development organizations (SDOs), and certifying organizations in this field typically address copyright, trademark, and trade secret issues. While patent issues do not currently appear to be of significant concern to the industry, in the future patent issues could also arise.

---

s.ssrn.com/sol3/papers.cfm?abstract\_id=2142085 (describing and offering an explanation for the rapid adoption of LEED standards in different municipalities).

<sup>11</sup> Traci Rose Rider, *Understanding Green Building Guidelines* 40-41 (2009).

<sup>13</sup> The Materials Sustainability Standards project is an interdisciplinary, inter-institutional research project involving Washington University in St. Louis and the Brookings Institution in Washington, D.C. The Washington University research team is composed of current and former faculty and students from the School of Law and the Sam Fox School of Design and Visual Arts. On February 24-25, 2011, the research team from Washington University and the Brookings Institution conducted a workshop with a group of widely-known experts in MSS research and policy. The nine MSS selected for study were based on recommendations of participants in this workshop. For a detailed description of these nine MSS, see the Appendix to this article.

## II. THE MATERIALS SUSTAINABILITY STANDARDS (MSS) LANDSCAPE

Over the past decade the number and variety of MSS have grown rapidly, and today, both consumers and commercial purchasers of building materials must contend with a daunting array of certifications, ecolabels and standards that pertain to the sustainability of such materials.<sup>14</sup> In this Section, we briefly summarize the types of MSS and the processes and players involved in their development.

### A. Standards, Certifications and Ecolabels

With regard to MSS, it is critical to distinguish between standards, certifications, and ecolabels, though the three are closely related. As we use these terms, a *standard* sets forth the criteria by which a product is measured. A *certification* is a representation that a specific product meets a particular standard. The fact that a product has been certified as compliant with a standard is often signified by a visible *ecolabel* that is displayed on the product or its packaging.

MSS vary in the number of attributes that are considered, the number of product sectors to which the standard applies, the method by which the standard is scored, and whether single or multiple levels of certification are available. Some MSS focus narrowly on a single attribute of sustainability. For example, the GREENGUARD Indoor Air Quality certification, which has been awarded to more than 200,000 products, focuses exclusively on whether a product satisfies certain chemical emissions criteria.<sup>15</sup> Because a single attribute may not be an accurate measure of the overall sustainability of a given building material, the nine MSS we examined were all multi-attribute standards. In this Article, the name of each MSS studied includes the name of the standards development organization (SDO) involved in its development.<sup>16</sup>

A multi-attribute MSS may focus on a particular product category or sector. For example, the NSF 140 standard addresses

---

<sup>14</sup> See generally, Rider, *supra* note 11; BuildingGreen, Green Building Product Certifications – Getting What You Need (2011).

<sup>15</sup> *The GREENGUARD Env'tl. Inst. Media Kit*, GREENGUARD Env'tl. Inst. (Oct. 2009), [http://www.greenguard.org/Libraries/GG\\_Documents/2009\\_10\\_GeneralMediaKit\\_FINAL.sflb.ashx](http://www.greenguard.org/Libraries/GG_Documents/2009_10_GeneralMediaKit_FINAL.sflb.ashx)

<sup>16</sup> For a complete listing of these nine standards development organizations, see the Appendix accompanying this article.

commercial carpet products and the Nordic Swan Ecolabelling 031 standard applies to products within the furniture sector. Other MSS are broader and cover multiple industry sectors. We examined two such multi-sector standards, Cradle 2 Cradle (C2C) and SMaRT, both of which can apply to the manufacture of any type of building material.

MSS also vary based on the method by which a product is determined to conform to a given standard. Under the “prerequisite” method, a standard sets forth minimum criteria in each of several categories (e.g., water usage, recycled content, hazardous emissions, etc.). If a product meets each and every one of these criteria, it can be certified as compliant with the standard. The prerequisite method offers a degree of transparency, in that the criteria required to comply with the standard are publicly known, though the amount by which any given product has surpassed each category’s minimum levels is generally not disclosed. For example, a prerequisite criterion may provide that a manufacturer must document that compound X is not present at concentrations of 5 parts per million (ppm) or greater in the product, indicating that every product certified to the standard must have 5 ppm or lower concentrations of X.

In contrast, the “credit” method allocates a certain number of points to a product for meeting various criteria set out in the standard. A product that scores a given number of points is deemed to comply with the standard. For example, a credit criterion may provide that a manufacturer will receive *one point* for documenting that the concentration of compound X in the product is below 5 ppm. The credit method offers the manufacturer flexibility to choose the areas in which it wishes to focus its energies and does not require minimum levels of any given attribute. However, the credit method has been criticized because it generally eliminates the inherent transparency that exists in prerequisite-based standards and allows products to be certified when they may have poor performance in sustainability categories that might be important to certain users.

Meanwhile, some standards, such as the NSF 336 standard for commercial textiles, blend these two methods by setting prerequisites that all products must meet, and then requiring manufacturers to earn a certain number of additional credits to achieve certification.<sup>17</sup> This hybrid method permits the

---

<sup>17</sup> *Sustainability Assured for Commercial Furnishings Fabric*, NSF Int’l, [http://www.nsf.org/business/sustainability/su\\_336\\_commercial\\_fabric\\_insert.pdf](http://www.nsf.org/business/sustainability/su_336_commercial_fabric_insert.pdf)

manufacturer some flexibility in choosing how to receive certification while ensuring that all products meet certain minimum standards.

Some standards offer multiple levels or “tiers” of certification (e.g., silver, gold, platinum). As one would expect, the requirements for achieving higher tiers are more demanding than those for achieving lower tiers. For example, the C2C standard offers four levels of certification based on increasingly stringent prerequisites. Other standards, such as the NSF 336 standard for commercial textiles,<sup>18</sup> certify products at higher levels as they accumulate a greater number of credits.

### *B. Standards Development Processes and Players*

While some MSS have been promulgated by governmental agencies,<sup>19</sup> the majority have been developed privately.<sup>20</sup> The principal private sector participants in MSS development include manufacturers of building materials (either individually or acting through trade associations), designers and architects who procure and specify projects using these materials, and consultants who advise both manufacturers and designers with respect to MSS and building sustainability more generally.

In the United States, standards are typically developed within formalized SDOs by committees made up of private sector actors. Many SDOs in the MSS field are non-profit trade associations, such as the Business and Institutional Furniture Manufacturer’s Association (BIFMA) and the Carpet and Rug Institute (CRI). Other SDOs are groups with general expertise in standards development, such as NSF International (NSF), Underwriters Laboratories (UL) and ASTM International, which have chosen to enter the rapidly-growing MSS sector. In some cases, a trade association with expertise in a particular industry has partnered with an established SDO to create a standard for that industry. For example, CRI partnered with NSF to develop the NSF 140 Sustainability Assessment for Carpet. In the somewhat unusual

---

<sup>18</sup> *Id.*

<sup>19</sup> See, e.g., the Appendix to this article, describing the standards set by the European Union Ecolabelling Board and Nordic Ecolabelling.

<sup>20</sup> In the United States, governmental agencies typically develop or mandate standards that affect public health and safety or prevent environmental degradation. See Michael Carrier, *Innovation for the 21st Century: Harnessing the Power of Intellectual Property and Antitrust Law* 325 (2009). While MSS impact both public health and the environment, they have not, by and large, been the subject of agency regulation in the U.S.

case of C2C, the standard was developed by a for-profit consultancy, McDonough Braungart Design Chemistry LLC (MBDC). Subsequently, MBDC transferred certification authority for the standard to a non-profit entity, Cradle to Cradle Products Innovation Institute (CCPII), allowing MBDC to continue to offer paid consulting services to product manufacturers while distancing itself from the certification of those products to the standard.

In addition, particularly outside the United States, some MSS SDOs have significant governmental oversight or are themselves governmental bodies. These include the European Union Ecolabeling Board (EUEB), which chooses independent organizations to lead specific standards development efforts, and Nordic Ecolabelling, a body formed by the Nordic Council of Ministers comprising official representatives from the five Nordic countries.

SDOs create standards through a variety of models offering greater and lesser degrees of openness and public participation. Typically, an SDO will convene a group of interested and knowledgeable individuals to develop a given standard. For instance, the NSF 140 standard was developed by the NSF Joint Committee on Sustainable Carpet, which included experts from state government, the federal Environmental Protection Agency, non-governmental organizations, manufacturers, and consumer advocacy groups.<sup>21</sup> Sometimes, however, standards development is conducted in private, as was the case in the first two versions of the C2C standard, which, as noted above, was developed by a private, for-profit company. Some standards that originate through a private development process are later released for public comment and are subject to further changes based on public input.<sup>22</sup>

Once a standard is developed by the relevant SDO committee, it must be approved and issued by the SDO. This process may involve various ballots, both at the committee level and the level of the SDO's governing body, and may also allow for public commentary. If a proposed standard does not receive the requisite number of votes for approval, it may be sent back to the

---

<sup>21</sup> Commercial – ANSI Sustainability Standard, *The Carpet and Rug Inst.*, <http://www.carpet-rug.org/commercial-customers/green-building-and-the-environment/ansi-sustainability-standard.cfm> (last visited April 15, 2013).

<sup>22</sup> *E.g.*, *Standards*, Good Env'tl. Choice Australia, <http://www.geca.org.au/standards/> (last visited Mar. 18, 2013) (describing the standard development process).

committee for revision. This process sometimes takes months or years to complete. For example, Underwriters Laboratories' Standard for Sustainability for Gypsum Boards and Panels (UL 0100) took nearly two years to advance from an interim standard to an approved standard.

Many SDOs, such as the Institute for Market Transformation to Sustainability (MTS), NSF, and UL, are accredited by the American National Standards Institute (ANSI) as developers of "American National Standards" (ANS). ANSI accreditation signifies that an SDO meets ANSI's criteria for standards development, which include openness and other due process requirements.<sup>23</sup> ANSI accreditation is viewed as important for lending credibility to SDOs. Moreover, standards developed by ANSI-accredited SDOs may be submitted to ANSI for publication as ANS.<sup>24</sup> An ANS designation gives added credibility to the standard and also ensures that the standard will be made available through the ANSI web site. There is also a widely held belief in the building materials industry that being the first to "stake out" a particular area of standardization through the ANSI Project Initiation Notification System (PINS)<sup>25</sup> can give the first mover a significant advantage over other SDOs. This belief is supported, in part, by ANSI's requirement that accredited SDOs use good faith efforts to "resolve potential conflicts and to coordinate standardization activities intended to result in harmonized American National Standards."<sup>26</sup> Thus, if an SDO indicates its

---

<sup>23</sup> Am. Nat'l Standards Inst., *ANSI Essential Requirements: Due Process Requirements for American National Standards* (Jan. 2012), available at [http://publicaa.ansi.org/sites/apdl/Documents/Standards%20Activities/American%20National%20Standards/Procedures,%20Guides,%20and%20Forms/2012%20ANSI%20Essential%20Requirements%20and%20other%20Updated%20Procedures/2012\\_ANSI\\_Essential\\_Requirements.pdf](http://publicaa.ansi.org/sites/apdl/Documents/Standards%20Activities/American%20National%20Standards/Procedures,%20Guides,%20and%20Forms/2012%20ANSI%20Essential%20Requirements%20and%20other%20Updated%20Procedures/2012_ANSI_Essential_Requirements.pdf) [hereinafter *ANSI Essential Requirements* 2012].

<sup>24</sup> A standard that is approved by ANSI as an ANS is generally identified by the original SDO's name and reference number, together with an "ANSI" designation. Thus, NSF's "NSF 140" standard for carpet sustainability, which has been approved as an ANS, is formally designated as NSF/ANSI-140. However, for purposes of simplicity, we refer throughout this article to standards by their commonly-used SDO designations, without the ANSI designation. The full identifier for each standard is included in the Appendix.

<sup>25</sup> See Am. Natl. Standards Inst., *ANSI PINS Process: An Informative Summary* (Jan. 2013), [http://publicaa.ansi.org/sites/apdl/Documents/Standards%20Activities/American%20National%20Standards/Procedures,%20Guides,%20and%20Forms/PINS\\_Informative\\_Summary\\_January\\_2013.pdf](http://publicaa.ansi.org/sites/apdl/Documents/Standards%20Activities/American%20National%20Standards/Procedures,%20Guides,%20and%20Forms/PINS_Informative_Summary_January_2013.pdf) [hereinafter *ANSI PINS Process*].

<sup>26</sup> *Id.* § 2.4.2.

interest in standardizing a particular product attribute (e.g., sustainability of thermal insulation) and obtains the associated PIN from ANSI (a procedure that involves some cost to the SDO), other SDOs wishing to develop an ANS in the area will be required to “coordinat[e]” their efforts with the first mover and may thus be dissuaded (both by the first SDO and by other ANSI participants) from attempting to duplicate its efforts.<sup>27</sup>

### C. Product Certification

Once a standard has been developed and is issued by the relevant SDO, it becomes possible to certify that particular products conform to the standard. Certification requirements may be specified by the SDO responsible for the standard, or may be developed by the parties conducting certification testing.

Depending on the standard, different types of certification processes may be employed.<sup>28</sup> *First-party certification*, or *self-certification*, occurs when a product manufacturer declares that its own products meet the requirements of a standard. There is an inherent conflict of interest in self-certification, but it also has the virtue of being relatively inexpensive and quick to achieve. *Second-party certification* occurs when an SDO certifies that a product meets the requirements of its own standard. While viewed as more reliable than first-party certification, second-party certification remains somewhat suspect due to the SDO’s inherent interest in increasing the number of products certified to its standard. *Third-party certification* occurs when an outside certification organization certifies that a product meets the requirements of a standard. Because the certifier is independent of both the SDO and the manufacturer, third-party certification is generally seen as the most objective form of certification in this field, though even independent certification groups may be susceptible to market pressure to certify as many products as possible. Some SDOs, as in the case of the BIFMA E3 standard for sustainable furniture, only permit certification by organizations authorized by the SDO,<sup>29</sup> giving the SDO a measure of control over the market for certification of its standards.

---

<sup>27</sup> See *ANSI Essential Requirements 2012*, *supra* note 23, at § 2.5. The authors thank Hannah Rae Roth for her insights and research in this area.

<sup>28</sup> See *generally*, BuildingGreen, *supra* note 14, at 11 (describing ecolabel certification processes in greater detail).

<sup>29</sup> level™ Certification Program Guidelines, § I.B (Feb. 28, 2011), [http://levelcertified.org/wp-content/uploads/2011/03/a02\\_28\\_2011\\_level\\_program\\_guidelines.pdf](http://levelcertified.org/wp-content/uploads/2011/03/a02_28_2011_level_program_guidelines.pdf) (“[O]nly

In order to signify that a product has met the requirements of a particular MSS, manufacturers are often permitted to place one or more logos or “ecolabels” on the product or its packaging and advertising. Ordinarily, a single ecolabel is associated with a given standard. The NSF 140 standard for carpet is an exception; each of the three authorized certification organizations (NSF, UL and Scientific Certification Systems) may grant manufacturers the right to use a different ecolabel to certify compliance with the standard. A product that has been certified by an approved method is usually entitled to use the associated ecolabel. However, the NSF 140 standard is once again an exception: although NSF permits first-party (manufacturer) certification, self-certifiers are not permitted to use the NSF ecolabel.<sup>30</sup>

#### D. Competition in the Market for MSS

As the above discussion suggests, there is vigorous competition in the “market” for MSS. This competition stems from several sources. First, as discussed above, public demand for buildings certified by LEED and other groups has led to an increased demand for building materials that can support claims of sustainability.<sup>31</sup> As a result, manufacturers of building materials require ostensibly objective designations to signal to the market that their products meet certain criteria of sustainability.<sup>32</sup> To the

---

recognized and licensed third-party certification bodies can authorize the use of the level™ certification mark.”). Manufacturers are free to pursue other certifications to the BIFMA e3 standard, but they are not entitled to use the level™ mark. *Id.*

<sup>30</sup> There are several possible reasons for this limitation. On one hand, it could be argued that manufacturer self-certification is less reliable than third-party certification, and thus less deserving of application of the NSF certification mark. However, it is also true that NSF’s own certification business would benefit by encouraging manufacturers to seek NSF certification, rather than certifying their own products.

<sup>31</sup> The LEED system awards points for the use of sustainable building materials. See Rider, *supra* note 11, at 20, 22.

<sup>32</sup> Maxwell, Lyon and Hackett have postulated that corporate sponsorship of and adherence to privately-developed environmental standards may arise from a desire to preempt the government’s development and imposition of more stringent standards. John W. Maxwell, Thomas P. Lyon & Steven C. Hackett, *Self-Regulation and Social Welfare: The Political Economy of Corporate Environmentalism*, 43 J.L. & Econ. 583 (2000). This motivation may certainly exist in the area of MSS. However, in numerous discussions held by the authors and other members of our MSS research team with players in the MSS area, we found little direct evidence that this motivation strongly influences behavior in this area. One possible reason for this observation is that the government, other

extent that manufacturers can influence the content of MSS, they are likely to do so in ways that advantage their own products and manufacturing processes. Thus, manufacturers have strong incentives to participate actively in standards development and to support or develop standards that are likely to favor their own products while disfavoring products of their competitors.

Certifying agents are also involved in the competitive standardization process, as these organizations earn revenue by certifying that products comply with particular standards. Certifiers are thus likely to favor standards that require testing and measurement of a nature in which they already have expertise and a reputation. For example, consulting firms that grew up in the energy sector may favor the adoption of standards that place a high value on the measurement of energy usage characteristics rather than, for example, waste water discharge.

Certifiers also compete with one another to certify the compliance of manufacturers' products with increasingly rigorous standards. Lerner and Tirole<sup>33</sup> have modeled the behavior of manufacturers and certifiers, assuming, among other things, that submitting products to certifiers known for conducting more rigorous and credible testing will reflect favorably on the certified products.<sup>34</sup> As a result, in a competitive product market, manufacturers will be attracted to more rigorous certifiers.<sup>35</sup> It may be too early to tell whether these predictions will be borne out with respect to MSS certification, as a robust, multi-party market for certification does not yet exist.<sup>36</sup>

---

than through its market-based procurement policies (*see notes Error! bookmark not defined.*, *supra*, and accompanying text), has not indicated a strong desire to impose regulations in the area of environmental sustainability to the same degree as, for example, the toxic chemical releases modeled by Maxwell, Lyon and Hackett. Nevertheless, our information regarding this question is merely anecdotal and a good candidate for further study.

<sup>33</sup> Josh Lerner & Jean Tirole, *A Model of Forum Shopping*, 96 Am. Econ. Rev. 1091 (2006)

<sup>34</sup> *Id.* at 1091.

<sup>35</sup> *Id.* at 1107.

<sup>36</sup> As discussed in Section III.B, *infra*, there are currently three certifiers for the NSF 140 carpet sustainability standard, one of which is NSF itself (UL and SCS being the others). The recent entry of UL, a well-regarded and longstanding testing laboratory, into the market for MSS certification may indicate a belief on the part of UL that its reputation for reliable certification services outside of MSS may enhance its competitive stature in the MSS certification market.

Finally, SDOs earn revenue from membership dues and/or the sale of standards documents.<sup>37</sup> They thus compete with one another to develop widely-adopted standards and to become the leaders in standardization within particular industry sectors. By the same token, SDOs that also perform certification testing earn significant revenue from this service, and thus have an even greater incentive to have their standards adopted as broadly as possible, particularly if they prohibit third party certification to their standards.

This competition among manufacturers, certifiers, and SDOs has been partially responsible for the rapid proliferation of MSS across the globe and has also led to a significant degree of market confusion regarding the different standards, certifications, and ecolabels that exist in the sustainable materials sector. We have extensively addressed this market confusion in previous work,<sup>38</sup> and discuss it below in the context of the proliferation of MSS trademarks and ecolabels.

### III. AN OVERVIEW OF INTELLECTUAL PROPERTY IN MATERIAL SUSTAINABILITY STANDARDS

Although intellectual property disputes have yet to figure prominently in the MSS field, intellectual property plays an important role in the development, publication and certification of MSS. In this Section, we outline some of the intellectual property issues and frameworks that characterize this field, particularly with respect to the nine MSS that we studied in detail.

#### A. Copyright

As written “works of authorship”,<sup>39</sup> technical standards are generally protected by copyright in the United States and elsewhere. Though standards are often the product of group

---

<sup>37</sup> See, e.g., Am. Nat. Standards Inst., *Company Membership Application* 2013, [http://publicaa.ansi.org/sites/apdl/Documents/Membership/Company\\_Application.pdf](http://publicaa.ansi.org/sites/apdl/Documents/Membership/Company_Application.pdf) (revenue-based membership dues schedule); Am. Nat. Standards Inst., *ANSI Standards Store*, <http://webstore.ansi.org> (last visited April 14, 2013).

<sup>38</sup> Jorge Contreras, Hannah Roth & Meghan Lewis, *Higher Standards for Sustainable Building Materials*, 2 *Nature Climate Change* 62 (2012); Jorge Contreras, Hannah Roth & Meghan Lewis, *Toward a Rational Framework for Sustainable Building Materials*, Standards Engineering, Sept/Oct. 2011.

<sup>39</sup> See 17 U.S.C. § 102. But see Pamela Samuelson, *Questioning Copyright in Standards*, 48 B.C. L. Rev. 193 (2007) (questioning whether technical standards are (or should be) suitable subject matter for copyright protection).

collaboration, the copyright in the final, published version of a standard is typically claimed by the relevant SDO. Copyright notices were observed on several written MSSes, including BIFMA E3-2010, Cradle To Cradle, GECA 50-2011 v2, and ULE ISR 100. Some SDOs have registered the copyright in their standards with the U.S. Copyright Office, which confers some limited legal advantages and is required for copyright owners to enforce those copyrights against infringers.<sup>40</sup>

Among other things, a copyright owner has the exclusive rights to reproduce and publicly distribute copyrighted material<sup>41</sup>—here, the written standard. This right enables SDOs to control the dissemination of standards. In some cases, SDOs have chosen to make their standards publicly available without charge. These include most governmentally-developed standards (e.g., EULB and Nordic Swan) as well as some privately-developed standards (C2C, GECA 50 and UL-E). Other SDOs charge for access to their standards. Of the nine MSS we examined, four charged between \$105 and \$199 for access in either electronic or paper format: BIFMA E3-2010, MTS 2006 SMaRT, NSF 140, and NSF 336-2011. SDOs that promulgate their standards electronically, such as NSF 140, can also restrict access through electronic protection measures, making it more difficult for a purchaser to duplicate or redistribute the written standard. Circumventing such measures can also be unlawful under the U.S. Digital Millennium Copyright Act,<sup>42</sup> among other things, further enabling SDOs to control access to their standards. A number of standards display direct warnings against unauthorized reproduction or distribution, including BIFMA E3-2010 and ULE ISR 100, the latter of which is available without charge. Others include express “licensing” terms limiting user rights with respect to the use of their standards.

As MSS are increasingly being utilized in state, local and national building codes, this “incorporation by reference” into legislation presents a growing copyright issue. Use of a copyrighted standard may become mandatory by statute or regulation, yet access to that standard can still be controlled by the SDO that owns the copyright. This situation gives rise to a conflict between

---

<sup>40</sup> See 17 U.S.C. §§ 411 (registration generally required to bring infringement claims involving copyright in a U.S. work), 412 (registration as a prerequisite to certain remedies for infringement).

<sup>41</sup> See 17 U.S.C. § 106 (enumerating the exclusive rights in copyrighted works).

<sup>42</sup> See 17 U.S.C. §§ 1201-1205. Section 1201 specifically prohibits the circumvention of a technological measure that effectively controls access to a work protected under the U.S. Copyright Act.

the SDO's proprietary rights in the standard and the public interest in knowing "the law."<sup>43</sup> A few recent cases have addressed this conflict, but the U.S. Courts of Appeals are currently split over the question whether copyrighted standards that are incorporated into law may be distributed without charge against the wishes of the SDO.<sup>44</sup> This state of uncertainty led the Administrative Conference of the United States (ACUS)<sup>45</sup> to issue a December 2011 statement supporting free access to standards incorporated by reference in legislation.<sup>46</sup> Following this statement, a group of administrative law experts submitted a formal Petition for Rulemaking to the Office of the Federal Register seeking to require the same level of free access to incorporated standards.<sup>47</sup> This petition has generated significant debate, and responses to a subsequent Federal Register request for comments have both supported<sup>48</sup> and opposed<sup>49</sup> the proposed amendment.

---

<sup>43</sup> See generally, Pamela Samuelson, *Questioning Copyrights in Standards*, 48 Boston Col. L. Rev. 193 (2007).

<sup>44</sup> *Compare Practice Mgmt. Info. Corp. v. American Med. Ass'n.*, 121 F.3d 516, 517 (9th Cir. 1997), *opinion amended by* 133 F.3d 1140 (9th Cir. 1998) (upholding AMA's copyright in a standard for Medicare and Medicaid reimbursement claims even though incorporated into law) *with Veeck v. Southern Bldg. Code Congress Intl.*, 293 F.3d 791 (5th Cir. 2002) (en banc) (SDO cannot prohibit the public distribution of copyrighted building codes that are incorporated into local law), *cert. denied*, 539 U.S. 969 (2003).

<sup>45</sup> "The Administrative Conference of the United States is an independent federal agency dedicated to improving the administrative process through consensus-driven applied research, providing nonpartisan expert advice and recommendations for improvement of federal agency procedures. Its membership is composed of innovative federal officials and experts with diverse views and backgrounds from both the private sector and academia." *About the Administrative Conference of the United States*, <http://www.acus.gov/about-administrative-conference-united-states-acus> (last visited May 20, 2013).

<sup>46</sup> Admin Conf. of the United States, Administrative Conference Recommendation 2011-5: Incorporation by Reference (Adopted Dec. 8, 2011), available at [http://www.americanbar.org/content/dam/aba/administrative/administrative\\_law/2012\\_feb\\_4\\_5\\_council\\_agenda\\_with\\_materials.authcheckdam.pdf](http://www.americanbar.org/content/dam/aba/administrative/administrative_law/2012_feb_4_5_council_agenda_with_materials.authcheckdam.pdf).

<sup>47</sup> Letter from Peter L. Strauss to Office of the Federal Register (February 10, 2012), available at <https://www.federalregister.gov/articles/2012/02/27/2012-4399/incorporation-by-reference>.

<sup>48</sup> See, e.g., Letter from Michael Hertz to Hon. Cass Sunstein, Administrator, Office of Information and Regulatory Affairs (June 1, 2012) (submitted on behalf of the ABA Section of Administrative Law).

<sup>49</sup> See, e.g., Am. Natl. Standards. Inst., ANSI Response to Request for Comments on Incorporation by Reference (Apr. 10, 2012) [hereinafter *ANSI Response*], available at [http://www.x12.org/docs/ANSI%20Response%20IBR\\_041012.pdf](http://www.x12.org/docs/ANSI%20Response%20IBR_041012.pdf).

*B. Trademarks and Certification Marks*

Each of the MSS that we examined was associated with at least one ecolabel. In the United States, ecolabels can generally be registered with the U.S. Patent and Trademark Office as certification marks. Unlike ordinary trademarks, which identify the source of a particular good or service, a certification mark signifies that the product it is attached to meets certain criteria established by the owner of the mark.<sup>50</sup> The well-known “UL” designation from Underwriters Laboratories is one of the best-recognized certification marks in this field. However, certification marks are subject to strict rules: a certification mark must not be used for purposes other than certification and must be licensed for use with any product that meets the relevant criteria.<sup>51</sup> Additionally, the owner of a certification mark is not permitted to market goods or services that bear the certification mark.<sup>52</sup>

All but one of the U.S.-based MSS that we studied were registered as a certification mark in the U.S. The exception, the MTS 2006 SMaRT Sustainable Building Product Standard, did not appear to have a federally registered mark of any type, although protection may still be available in the U.S. under common law.<sup>53</sup> In the case of C2C, the SDO, MBDC, transferred the CRADLE 2 CRADLE CERTIFIED mark to a non-profit entity, CCPIL, now responsible for certification to the C2C standard, thus enabling MBDC to continue offering paid consulting services without jeopardizing the registration of the certification mark.<sup>54</sup>

Registration of ecolabels as certification marks can confer benefits on each player in the MSS field. The registrant, usually an SDO, establishes broad recognition of its standards through the

---

<sup>50</sup> See 15 U.S.C. §§ 1054 (specifying that certification marks are registrable), 1064(5) (specifying the conditions under which registration of a certification mark may be cancelled), and 1127 (defining a “certification mark” as “any word, name, symbol, or device, or any combination thereof . . . used by a person other than the owner . . . to certify regional or other origin, material, mode of manufacture, quality, accuracy, or other characteristics of such person’s goods services or that the work or labor on the goods or services was performed by members of a union or other organization.”).

<sup>51</sup> 15 U.S.C. § 1064(5) (specifying cancellation of a registered certification mark if the owner “discriminately refuses to certify or to continue to certify the goods or services of any person who maintains the standards or conditions which such mark certifies).

<sup>52</sup> See *ANSI Response*, *supra* note 49.

<sup>53</sup> See 3 Callmann on Unfair Competition, Trademarks and Monopolies § 17A:15, at n. 4 and accompanying text (4th ed.).

<sup>54</sup> See *supra* text accompanying notes 40-42.

display and use of its marks on products in the marketplace. Product manufacturers benefit from displaying the ecolabel because it enhances the appeal of their products, particularly if the ecolabel is well known. Purchasers benefit from the ecolabel because they can then rely on it in making purchasing decisions without having to investigate the sustainability practices of manufacturers independently. This being said, in recent years the rapid proliferation of ecolabels has caused oversaturation and concomitant confusion in the market.<sup>55</sup> For example, in the case of commercial carpeting, at least three different eco-labels may signify compliance with the same NSF140 standard: NSF International, the SDO that developed the standard, as well as Scientific Certification Systems and UL-Environment (UL-E). However, each of these organizations certifies compliance using its own eco-label. Thus, carpet products that comply with NSF140 may bear one, two or three different ecolabels.<sup>56</sup> To address some of this market confusion, and increasing reports of unethical behavior in the marketing of environmental products, the United States Federal Trade Commission has recently adopted strict requirements designed to limit deceptive advertising using ecolabels, sometimes known as “greenwashing.”<sup>57</sup>

The trademark landscape is somewhat different for the non-U.S. standards that we reviewed. The EC Ecolabel, as a government-sponsored program, receives specific protection under European Union law.<sup>58</sup> The Nordic Ecolabel is likewise administered by the governments of Denmark, Finland, Iceland, Norway and Sweden,<sup>59</sup> and is a registered trademark in Sweden and Finland, with pending registration in Norway. And the Australian GECA ecolabel is registered in Australia as a trademark rather than a certification mark, even though registration as a certification mark is available in Australia.

---

<sup>55</sup> See Contreras, Lewis & Roth – *Rational Framework*, *supra* note 38, at 4-5 (noting “the plethora of different ‘eco-labels’ that decorate brochures, web sites, and showroom windows”).

<sup>56</sup> See Contreras, Lewis & Roth – *Higher Standards*, *supra* note 38, at 62-63, and Contreras, Lewis & Roth – *Rational Framework*, *supra* note 38, at 4-5 (classifying weaknesses in MSS standardization and certification in terms of, among other things, incompatibility, redundancy, loss of specificity and lack of transparency).

<sup>57</sup> See 16 C.F.R. §§ 260.1-260.17 (2012).

<sup>58</sup> Regulation 66/2010, 2010 O.J. (L 27) 1 (EC).

<sup>59</sup> See Nordic Ecolabel, *Regulations for the Nordic Ecolabelling of Products*, (June 22, 2011), available at <http://www.svanen.se/Global/Regelverk/Regulations%20for%20the%20Nordic%20ecolabelling%20of%20products.pdf>.

As noted above, U.S. law requires that any party complying with the criteria established by the owner of a certification mark be permitted to display that certification mark.<sup>60</sup> None of the SDOs owning the U.S.-registered certification marks studied charges specifically for the use of ecolabels (though separate charges for product testing and certification might apply). On the other hand, the European and Australian SDOs that we studied each charge a fee for ecolabel use.<sup>61</sup>

### C. Trade Secrets

Although technical standards are often publicly available and their compliance requirements are broadly understood within the industry, the standardization and certification process may still embody features that are viewed as proprietary and confidential by SDOs, manufacturers and certifiers. While the statutory and common law of trade secrets afford some baseline level of protection for such information, the use of written nondisclosure agreements by the participants in the certification process is also common and viewed as a necessary supplement to underlying legal protections.

The types of information that are typically subject to nondisclosure and confidentiality obligations in the MSS area include the following:

*Standard Details.* Although most MSS are widely available, in some cases, an SDO may choose to treat the contents of a standards document as confidential. In such cases, the standards may be available only for purchase and may stipulate that their contents should not be revealed publicly. Such requirements are often embodied in “license agreements” accompanying the purchased standard or are contained on the SDO’s web site. This lack of transparency can limit the market utility of standardization, as consumers of products claiming to comply with a proprietary

---

<sup>60</sup> 15 U.S.C. § 1064(5).

<sup>61</sup> Nordic Ecolabel charges an annual licensing fee of 0.3% of product revenue in Nordic countries. The minimum annual fee is 14,000 SEK (about 1633) and the maximum annual fee is 100,000. Certain qualifying small businesses may have their fee halved. *Fees Furniture and Fitments*, Ecolabelling Sweden, <http://www.svanen.se/en/Svanenmarka/Fees/Fees/Furniture-and-fitments/> (accessed August 31, 2012). For the Australian GECA ecolabel, the annual licensing fee depends on total product revenue. Licenses start at 750 AUD and are capped at 45,000 AUD. *GECA Licensing Fees*, Good Environmental Choice Australia, [http://www.geca.org.au/media/medialibrary/2013/03/GECA\\_Licensing\\_Fees\\_-\\_2013.pdf](http://www.geca.org.au/media/medialibrary/2013/03/GECA_Licensing_Fees_-_2013.pdf) (last visited April 15, 2013).

standard have little information regarding the underlying requirements of the standard.<sup>62</sup>

*Product Details.* Manufacturers that submit their products for certification must often reveal confidential details regarding product manufacture, composition, ingredients, components, sourcing, labor practices, energy costs, facilities, transport and shipping, and the like. Certifiers would almost always be restricted from disclosing these details. Notwithstanding the foregoing, a growing trend (particularly in Europe) involves the disclosure of detailed environmental product declarations (EPDs). An EPD is a comprehensive informational document, generally between 12-20 pages in length, which is prepared by a manufacturer for a particular product.<sup>63</sup> The information that must be included in an EPD, as well as applicable testing and measurement methodologies, are set out in product category rules (PCRs)<sup>64</sup> tailored to each product category. Though EPDs are required by national regulation in some European countries (e.g. for all new consumer products in France),<sup>65</sup> and by voluntary certification programs elsewhere, EPDs are currently available for only a small fraction of building products sold in the U.S.

*Product Scorecard.* As part of the certification process, a “scorecard” is often created for the product under review. The level of detail and types of information contained in a certification scorecard varies by standard, but in general such documents contain information regarding the category-by-category compliance of a tested product with the standard.

By contrast, only two of the nine standards we surveyed require some form of a public scorecard disclosure: the BIFMA E3-2010 Furniture Sustainability Standard and the MTS 2006 SMaRT Sustainable Building Product Standard. As of this writing, BIFMA E3-2010’s public scorecard is under development, but is expected to show category-by-category scores. Certification to the SMaRT standard requires that manufacturers disclose specific metrics demonstrating compliance with the standard, as well as the percentage by weight of recycled and biobased content used in

---

<sup>62</sup> See Contreras, Lewis & Roth, *Rational Framework*, *supra* note 38, at 5 (criticizing the lack of transparency in some segments of MSS standardization and proposing a more open, transparent process).

<sup>63</sup> BuildingGreen, *supra* note 14, at 53

<sup>64</sup> *Id.*

<sup>65</sup> *Id.*

manufacture.<sup>66</sup> Though disclosure is not as extensive, under the NSF 140 Sustainability Assessment for Carpet, NSF, when certifying products to the standard, releases the total number of points scored by certified products, though it does not break these into specific categories.

*Certification Procedures.* Testing for compliance with sustainability criteria is often a complex and involved process. It has long been a complaint of observers of the MSS field that consistent and transparent means for measuring and testing sustainability criteria are lacking. This problem is most acute with first-party certification, where it is nearly impossible to verify a manufacturer's claims that its own products comply with a standard, and second-party certification, where an SDO may be unwilling to share its proprietary certification methodologies with others. However, the problem also exists with independent third-party certification, when different certifying groups use inconsistent methods for compliance testing and decline to make their methods and data publicly accessible.<sup>67</sup>

#### D. Patents

Patents, which are available on a wide range of technologies and processes, enable a patent holder to exclude others from making, using or selling the patented technology.<sup>68</sup> Ordinarily, if the vendor of a product that is allegedly covered by a patent is unable, or does not wish, to obtain a license on the terms offered by the patent holder, that vendor has three choices: stop selling the infringing product, design around the patent, or do neither and risk liability as an infringer. With standards, however, the calculus is somewhat different. Typically, firms collaborate to develop standards that are intended to be utilized by an entire industry. Thus, once a standard is approved and released by the SDO, market participants may make significant investments based on the standard (a situation often referred to as "lock-in").<sup>69</sup> After lock-in, the cost of switching from the standardized technology to an alternative may be prohibitive, thus increasing the patent holder's leverage in any licensing negotiation. This phenomenon has been

---

<sup>66</sup> Institute for Market Transformation to Sustainability, Smart Building Product Standard 7.1.2. (Dec. 15, 2006).

<sup>67</sup> See Contreras, Lewis & Roth, *Rational Framework*, *supra* note 38, at 4.

<sup>68</sup> 35 U.S.C. § 271.

<sup>69</sup> See Carl Shapiro & Hal R. Varian, *Information Rules: A Strategic Guide to the Network Economy* 116-30 (1999).

termed patent “hold-up” and is discussed extensively in the literature.<sup>70</sup>

Aware of the threat of patent hold-up, many SDOs have promulgated policies designed to mitigate this risk. Perhaps the most prevalent of these is a requirement that SDO participants license their relevant patents to all potential vendors of technologies implementing those standards on terms that are “fair”, “reasonable” and “non-discriminatory” (FRAND).<sup>71</sup> FRAND commitments seemingly assure vendors that they will not be prevented from using a standardized technology, so long as they obtain the required license (which may sometimes involve a payment). The use of FRAND commitments (either with or without royalties) has become widespread and is required of all SDOs accredited by ANSI.<sup>72</sup> They are also utilized widely among SDOs throughout Europe and elsewhere.<sup>73</sup> But despite the intuitive appeal of FRAND commitments, it is a common complaint that these commitments are vague and offer little, if any, useful guidance to market participants.<sup>74</sup> Such ambiguity, it is

---

<sup>70</sup> See Joseph Farrell et al., *Standard Setting, Patents, and Hold-Up*, 74 *Antitrust L.J.* 603, 603-16 (2007); Doug Lichtman, *Understanding the RAND Commitment*, 47 *Hous. L. Rev.* 1023, 1033 (2010). The general problem of hold-up is not, of course, unique to standard setting, and has been considered in the economics literature for decades. See Farrell et al., *supra*, at 603-04 (citing the work of Nobel laureate Oliver Williamson, among others). In cases in which SEPs were not disclosed until after the adoption or lock-in of a standard, or in which the patent holder has otherwise engaged in deceptive conduct, the term “patent ambush” has been applied.

<sup>71</sup> See, e.g., Kai-Uwe Kühn, Fiona Scott-Morton & Howard Shelanski, *Standard Setting Organizations Can Help Solve the Standard Essential Patents Licensing Problem*, CPI Antitrust Chronicle, Mar. 2013, at 3.

<sup>72</sup> *ANSI Essential Requirements 2012*, *supra* note 23, at § 3.1.1.

<sup>73</sup> See Rudi Bekkers & Andrew Updegrave, *A Study of IPR Policies and Practices of a Representative Group of Standard Setting Organizations Worldwide*, Presentation to National Academies of Science Symposium on Management of IP in Standards-Setting Processes, Session 4, p. 89, table 13 (Oct. 3, 2012), available at [http://sites.nationalacademies.org/xpedio/groups/pgasite/documents/webpage/pg\\_a\\_072197.pdf](http://sites.nationalacademies.org/xpedio/groups/pgasite/documents/webpage/pg_a_072197.pdf) (Of 12 major SDOs studied, 10 explicitly specify FRAND licensing as an option in their IPR policies).

<sup>74</sup> U.S. Federal Trade Commission, *The Evolving IP Marketplace: Aligning Patent Notice and Remedies With Competition* 192 (2011) [hereinafter “FTC Evolving Marketplace”] (“Panelists complained that the terms FRAND and RAND are vague and ill-defined”); Deborah Platt Majoras, *Recognizing the Procompetitive Potential of Royalty Discussions in Standard Setting* at 5 (Remarks prepared for “Standardization and the Law: Developing the Golden Mean for Global Trade,” Stanford Law School, Sept. 23, 2005) (“Experience has shown, however, that some agreements on RAND rates can be vague and may not fully protect industry participants from the risk of hold up”); Mark A. Lemley, *Intellectual Property Rights and Standard-Setting Organizations*, 90

argued, may permit opportunistic patent holders to insist on licensing terms, particularly royalty rates that are not bounded by meaningful limitations.<sup>75</sup> This lack of certainty has contributed to much of the current litigation over standards-essential patents.<sup>76</sup>

Despite the fact that significant patent-related standards disputes have been prevalent in industries such as electronics, telecommunications and related fields, to date patents have not been a large concern for MSS developers or manufacturers.<sup>77</sup> As noted above, SDOs that are ANSI-accredited are required to implement the minimum ANSI-mandated patent policy<sup>78</sup> in their constitutional documents, and those that we studied generally do so without change (see Table 1). Non-accredited U.S. SDOs and non-U.S. SDOs generally have no patent-related policy that we were able to identify. We are aware of no current patent-related disputes in the MSS field, nor of any patent or licensing disclosure made to any SDO, whether or not ANSI-accredited, in connection with MSS standards development.

---

Cal. L. Rev. 1889, 1964 (2002) (“[W]ithout some idea of what those terms are, reasonable and nondiscriminatory licensing loses much of its meaning”); Lichtman, *supra* note 70, at 1031 (“it is something of an outrage that the language of the RAND commitments offers so little guidance”).

<sup>75</sup> FTC Evolving Marketplace, *supra* note 74, at 192 (“there is much debate over whether such RAND or FRAND commitments can effectively prevent patent owners from imposing excessive royalty obligations on licensees”).

<sup>76</sup> See Kühn, Scott-Morton & Shelanski, *supra* note 71, at 3 (“Not surprisingly, there are frequently disputes among different parties about what a ‘reasonable’ royalty might be for a particular portfolio of intellectual property.”). For a snapshot of the way that FRAND issues are involved in the larger patent suits among these parties see, e.g., Jorge Contreras, *The FRAND Wars: Who’s on First*, Patently-O (Apr. 17, 2012), <http://www.patentlyo.com/patent/2012/04/the-frand-wars-whos-on-first.html>.

<sup>77</sup> Patent disputes over standardized technology are certainly not limited to the ICT industry. See, e.g., Complaint at 2, *Avery Dennison Corp. v. 3M Company*, et al., No. 0:10-CV-3849, 2011 WL 1193382 (D. Minn. 2011), *rev’d sub nom 3M v. Avery Dennison Corp.*, 673 F.3d 1372 (5th Cir. 2012) (No. CV 10-07931 MRP (RZ)) (alleging manipulation of the ASTM standardization process for retroflexive sheeting) and Union Oil Co. of Cal., F.T.C. Docket No. 9305 (Decision and Order, June 10 2005) (alleging violation of SDO patent policies for standards relating to reduced emission gasoline). See, also, Jorge L. Contreras, *Standards, Patents, and the National Smart Grid*, 32 Pace L. Rev. 641, 664-69 (2012) (describing actual and potential patent issues surrounding the adoption of standards for the national electrical “smart grid”).

<sup>78</sup> ANSI Essential Requirements 2012, *supra* note 23, at § 3.1.1.(b). The ANSI patent policy requires that ANSI-accredited SDOs obtain assurances from each holder of a patent essential to the implementation of an ANS that such patent holder will license such patent to all applicants on terms that are “reasonable” and “demonstrably free of any unfair discrimination”. *Id.* .

This absence is somewhat striking. In theory building materials such as concrete, steel, glass, fiberboard, and treated wood are amenable to patent protection when they embody novel compositions of matter or methods of manufacture. Likewise, new manufacturing processes that reduce environmental discharges, improve efficiency, or otherwise enhance environmental sustainability are protectable by patents. However, we are not aware of significant patenting in this area. Notably, most surveys of patenting in the “clean tech” area do not even discuss sustainable building materials.<sup>79</sup>

The absence of patents from the MSS landscape suggests several things. First, one can assume that new developments in materials technology that satisfy statutory thresholds of novelty and non-obviousness will be patentable. Second, there have been numerous innovations over the past decade in the field of sustainable materials.<sup>80</sup> If these innovations have not been broadly patented, or if their developers have not actively been commercializing those patents, then this may be an industry in which the putative innovation incentives offered by the patent system may not, in fact, be necessary to fuel innovation. Alternatively, the companies involved in the building sector (the quintessential “bricks and mortar” industry) may simply be unaccustomed to thinking in terms of patenting and generating revenue from patents or may not be the source of innovation (but merely patent licensees) in building materials. Or, as others have noted, industries that rely heavily on proprietary manufacturing processes may justifiably value trade secret protection more heavily than patents.<sup>81</sup>

---

<sup>79</sup> See, e.g., Foley & Lardner LLP, *Cleantech Energy Patent Landscape: Executive Summary* (2010); Eric L. Lane, *Clean Tech Intellectual Property – Eco-marks, Green Patents and Green Innovation* (2011).

<sup>80</sup> See, e.g., Nick Dorman, *Material Developments: New Technologies and Their Implications for Building Construction*, Owners Perspective (Oct. 10, 2011), available at <http://www.ownersperspective.org/item/75-material-developments-new-technologies-and-their-implications-for-building-construction> (describing new sustainable materials technologies including “environmentally benign” concrete, pollution-absorbing materials, integrated building photovoltaics, and “green roofs” on which vegetation is grown).

<sup>81</sup> See Jonas Anderson, *Secret Inventions*, 26 Berkeley Tech. L.J. 917 (2011). It is also possible that the recent enactment of Section 5(c) of the American Invents Act (codified at 35 U.S.C. §273), which provides a defense to patent infringement based on prior commercial use, may strengthen the position of persons who rely more heavily on trade secrets than patents. See Janelle Waack, *Value of Trade Secrets Bolstered by New Prior Commercial Use Defense*, Inside

In any event, while the industry may continue down its present path, it is possible that at least some companies in the building materials industry may realize that patenting their innovations can lead to greater profits, and that the potential value of patented technologies in technology standards is greater still. For example, suppose that Carpet Corp., a manufacturer of industrial floor coverings, discovers that a new type of highly durable fiber (the “X Fiber”) can be made from recycled plant matter, leading to significant reductions of synthetic chemical byproducts during the manufacturing process and substantially enhanced biodegradability of floor covering products made using the X Fiber. Carpet Corp. seeks patent protection on the composition of the X Fiber and its use in carpeting and many other commercial products. Carpet Corp. also participates in standardization activities relating to sustainable building materials and persuades a leading SDO or governmental agency that carpet should only be certified as “sustainable” if it contains at least 35% X Fiber content. Now, any competing carpet manufacturer who wishes to be certified as sustainable under the relevant SDO or governmental program must obtain a license under Carpet Corp.’s patent. The result is likely to inure to the significant financial benefit of Carpet Corp. Moreover, even if Carpet Corp. were willing to license its patent covering X Fiber to competing carpet manufacturers (a result that might be mandated by FRAND or other requirements of the relevant SDO), Carpet Corp. could still have a significant cost advantage over competitors who were required to pay royalties on Carpet Corp.’s patents. In response to this critique, of course, Carpet Corp. could argue that its heightened profits resulting from the licensing of X Fiber to the industry simply enable it to recoup its significant R&D expenditures from the development and testing of X Fiber. Today there is little agreement among industry, governmental agencies and academics regarding the true impact of patents on standardized technologies. However, if these scenarios occur or become more likely, then at a minimum standards developers, SDOs, and manufacturers should consider carefully the relevant SDO policies pertaining to disclosure and licensing of patents.

#### IV. CONCLUSION

Our review of the materials sustainability standards (MSS) landscape, and nine MSS in particular, reveal a number of characteristics that this field shares with other emerging technology standardization fields, but also a number of striking differences. Among the most notable observations are the following:

1. The development of MSS is dominated, at least in the U.S., by private sector entities, either industrial trade associations or, in one notable case, a for-profit consultancy. Government agencies such as the EPA have played a modest role in standards development in the United States and have been more prominent in Europe. There has been limited involvement by academia in the field.
2. Most standards are available for free or a modest fee (less than \$200). Nevertheless, market participants (SDOs, certifiers and manufacturers) have strong concerns about the protection of trade secrets inherent in the product certification process. The secrecy of much of this information hinders efforts to create uniform and transparent standards systems.
3. The use of ecolabels (certification marks) is widespread in the industry and the growth and unregulated nature of many ecolabel programs have been criticized. Nevertheless, ecolabels can serve a valuable informational function if they are well-understood in the marketplace.
4. Patents currently play a minimal role in the MSS development and certification process. It is not clear whether patenting of sustainable building materials and processes is quietly being undertaken, or whether the industry generally relies on trade secrets as its dominant form of protection (further research in this area may be warranted). Nevertheless, the potential for patent issues in the MSS field exists, and participants could be better-prepared to address issues before they arise.

V. APPENDIX: SURVEY OF MATERIALS SUSTAINABILITY STANDARD IP POLICIES

We reviewed publicly-available information about nine MSS, with a particular view toward understanding their handling of intellectual property rights. The results are summarized below:

Standard	Standard-Development Organization (SDO)	Standard Type	Certification	Copyright & Availability of Written Standard	Trademarks & Certification Marks	Trade Secrets	Patent Policy
BIFMA-ANSI E3-2010 Furniture Sustainability Standard (USA)	Joint Committee on BIFMA e3 Furniture Sustainability  Formed by Business and Institutional Furniture Manufacturer's Association (BIFMA) and NSF  BIFMA and NSF are ANSI accredited and non-profit	Prerequisites & credits  Multi-level  Multi-attribute  Single-sector (furniture)	3rd party certification bodies must be authorized by BIFMA.	2011 version available for purchase online from BIFMA or ANSI for \$105.  Standard is licensed to the individual purchasing it.	BIFMA owns the "LEVEL" certification mark. It licenses the right to authorize the mark to certification bodies.	Scorecard revealing a product's distribution within certain categories is being developed.	Follows ANSI

Standard	Standard-Development Organization (SDO)	Standard Type	Certification	Copyright & Availability of Written Standard	Trademarks & Certification Marks	Trade Secrets	Patent Policy
Cradle To Cradle (C2C) Certification Program V2.1 (USA)	McDonough Braungart Design Chemistry, LLC (MBDC) For-profit	Prerequisites Multi-level Multi-attribute Multi-sector	3rd party certification is performed by MBDC (the SDO), Environmental Protection & Encouragement Agency (Germany), and EcoIntelligent Grown (Spain). Certificate is issued by CCPIL.	Available at no cost online.	“Cradle to Cradle” and “C2C” trademarks registered to MBDC. “Cradle to Cradle Certified” certification mark registered to MBDC and exclusively licensed to the Cradle to Cradle Products Innovation Institute (CCPII). CCPII is non-profit.	No public scorecard.	None found
European Commission Decision 2009/607/EC (European Union)	European Union Ecolabeling Board Government	Prerequisites No levels Multi-attribute Single-sector (hard surface coverings)	3rd party certification performed by “competent bodies” designated by EU member states.	Available at no cost in the Official Journal of the European Union.	European Union law specifically protects the EU Ecolabel. Annual fee required for use.	Voluntary public disclosure.	None found

Standard	Standard-Development Organization (SDO)	Standard Type	Certification	Copyright & Availability of Written Standard	Trademarks & Certification Marks	Trade Secrets	Patent Policy
Good Environmental Choice Australia (GECA) 50-2011 V2 (Australia)	Good Environmental Choice Australia Ltd Non-profit	Prerequisites No levels Multi-attribute Single-sector (carpet)	3rd party certification performed by independent auditors (Conformance Assessment Bodies).	Available at no cost online.	Ecolabel registered in Australia as trademark. Licensing fee required for use.	No public scorecard.	None found
Nordic Swan Ecolabelling 031 Furniture and Fitments, Version 4.0 (Denmark, Iceland, Norway, & Sweden)	Nordic Ecolabelling Government	Prerequisites No levels Multi-attribute Single-sector (furniture)	2nd party certification by Nordic Ecolabelling required.	Available at no cost online. May only be copied in its entirety.	Use of certification mark subject to application fee and annual licensing fee.	No public scorecard.	None found
NSF/ANSI 140 Sustainability Assessment for Carpet (USA)	The Carpet and Rug Institute (CRI) and NSF International (NSF) CRI is a non-profit trade association. NSF is non-profit and ANSI accredited.	Prerequisites and credits Multi-level Multi-attribute Single-sector (carpet)	2nd party certification by NSF and 3rd party certification by SCS and UL are available. 1st party certification is also available, but a self-certifier may not use the NSF certification mark.	Secure PDF or print edition available from NSF website for \$105-160. Licensed for use of the individual purchasing the standard.	There are three ANSI-accredited certification bodies that each use their own registered certification mark: NSF, Scientific Certification Systems (SCS), and Underwriters Laboratories (UL).	Number of points scored is made available, but not the entire scorecard.	Follows ANSI

Standard	Standard-Development Organization (SDO)	Standard Type	Certification	Copyright & Availability of Written Standard	Trademarks & Certification Marks	Trade Secrets	Patent Policy
NSF/ANSI 336-2011 Sustainability Assessment for Commercial Fabric (USA)	NSF Non-profit ANSI accredited	Prerequisites and credits Multi-level Multi-attribute Single-sector (fabric)	1st, 2nd, and 3rd party certification to the standard are all available.	Secure PDF or print edition available from NSF or ANSI webstores for \$105.	NSF certification mark may only be used when NSF is the certifier.	No public scorecard.	Follows ANSI
SMaRT Sustainable Building Product Standard - MTS 2006 (USA)	Institute for Market Transformation to Sustainability (MTS) Non-profit ANSI accredited	Credits Multi-Level Multi-attribute Multi-Sector	3 <sup>rd</sup> party certification performed by two authorized certifiers: Ernst & Young and Redstone.	Available from ANSI webstore for \$199.	No registrations owned by MTS.	Public scorecard. Manufacturers required disclosing certain product metrics.	None found
ULE ISR 100 for Gypsum Boards and Panels (USA)	Underwriters Laboratories, Inc., UL Environment subdivision (ULE) For-profit ANSI accredited	Prerequisites and credits Multi-level Multi-attribute Single-sector (wall board)	Self certification, 2nd-party certification by ULE, or 3rd party certification by any certification body, but certification must be finalized and confirmed by ULE.	Currently available at no cost online, but will be licensed through ANSI webstore in the future.	UL owns certification mark, which is the only certification mark placed on a certified product.	No public scorecard.	Follows ANSI