# When Green Doesn't Register: User Disconnect in Certified Sustainable Buildings

Waheed, Zehra
[1] Suleman Dawood School of Business, Lahore University of Management Sciences
zehra.waheed@lums.edu.pk

## Abstract
Green building certifications such as LEED are designed to signal environmental responsibility and improve the quality of occupant experience. Yet the alignment between certified performance and user engagement is far from guaranteed. In this paper, we examine one of Pakistan's earliest LEED-certified industrial facilities, where a paradox emerged: despite strong pro-environmental orientations, occupants showed little awareness of the building's certified status. Drawing on decoupling theory, we frame this as a case of *certification without connection*—where organizational adoption of sustainability standards is symbolically successful but socially unrecognized. Using occupant survey data and interview insights, we develop stylized facts to show how certification can fail to embed itself in the lived practices of users. From these findings, we theorise the Certification–User Recognition (CUR) Framework, a two-by-two matrix that captures four possible relationships between certification and user recognition. The framework advances the notion of *user-level decoupling* and highlights the recognition problem as central to green building legitimacy. Our contribution extends debates in sustainable construction and organizational theory by linking institutional legitimacy with micro-level user experience, while offering practitioners a diagnostic tool to align certification processes with meaningful user engagement.

## Keywords
Green Building Certification; Sustainable Construction; User Recognition; Decoupling Theory; Certification–User Recognition (CUR) Framework; Building–Occupant Relationship; Industrial Context; Pakistan

## 1. Introduction
Buildings play a vital role in shaping economic prosperity and social well-being, particularly in the face of grand challenges - population growth, accelerating urbanisation, and climate volatility. The building and construction sector - including the policies and standards that govern it - exerts significant economic, social, and environmental impacts (Zuo and Zhao, 2014). Globally, buildings not only contribute to national economies and employment, but also directly affect human life through the provision of housing, workplaces, and civic facilities. Yet this comes at a cost: commercial, industrial and residential buildings account for 20–40% of global energy use (Pérez-Lombard, Ortiz and Pout, 2008) and roughly one-third of greenhouse gas emissions (World GBC, 2013), intensifying climate risks (Shanmugam et al., 2018; Wu, Xia and Zhao, 2014; Zhu *et al.*, 2013).

Against this backdrop, green building practices—defined as "(practices) designed and constructed with ecological principles" (Kibert, 2012) offer substantial potential to mitigate environmental impact while advancing the goals of sustainable development (Darko and Chan, 2016). By consuming fewer resources, providing healthier indoor environments, and aligning with the triple bottom line of environmental, economic, and social sustainability (Yudelson, 2010; Darko, Zhang and Chan, 2017), green buildings have become the dominant global paradigm for sustainable construction.

Despite this recognition, however, the occupant perspective often remains underdeveloped. A growing body of research has sought to compare comfort and satisfaction in green and conventional buildings, with mixed findings. Paul and Taylor (2008) observed minor difference in thermal comfort between certified and non-certified buildings, while Gou, Lau and Chen (2012) showed that dissatisfaction with thermal conditions persisted even in certified contexts. Other studies have focused on the broader performance gap: LEED-certified buildings sometimes consume as much or more energy than their conventional counterparts (Newsham, Mancini and Birt, 2009; Menassa et al., 2012). Deuble and de Dear (2012) highlighted how awareness of a building's ecological intent can produce a "forgiveness factor," whereby users tolerate minor discomforts. Yet this presumes that *occupants know their building is "green."*

Wider stakeholder research in construction projects reinforces this misalignment, showing that sustainability specifications often fail without inclusive engagement (Lam et al., 2010). More recently, systematic reviews of post-occupancy evaluation (Debrah et al., 2025) and comparative studies of certified versus non-certified buildings (Asojo and Tian, 2025) confirm that user feedback remains crucial but inconsistently integrated.

Together, these insights underscore a critical tension: *while green buildings are designed to deliver environmental performance and social well-being, certification systems risk overlooking the very users who inhabit them*. This becomes most apparent in the significant role of certification schemes such as LEED or BREEAM, which have become global benchmarks for sustainable construction, promising measurable performance improvements while offering organizations a powerful signal of environmental responsibility to important stakeholders. Yet the user perspective often remains peripheral. These frameworks tend to focus on quantifiable measures of design, construction, and performance, operating as externally validated systems that assure compliance with technical benchmarks but without embedding the user's experience or awareness into the process. This gap creates a paradox: buildings may achieve green certification and thus be recognized as sustainable, while the very people inhabiting them remain unaware of or disconnected from their green status.

This tension provides the starting point for our contribution. In what follows, we conceptualise this as a paradox of *certification without connection*—where sustainable performance is certified but remains invisible to the very people inhabiting the building.

## 2. Buildings, Users, and Paradox of Certification

In this paper, we develop the idea of *certification without connection*—when sustainable performance is certified but invisible to building users. This paradox matters because certification is not only a technical achievement but also a social and organizational practice. While green building frameworks are designed to secure external legitimacy, they rarely integrate the everyday experiences of occupants. As a result, certified sustainability may exist on paper while remaining unrecognized in practice. This raises fundamental questions for both construction professionals and sustainability scholars: What happens when a green building is certified but not experienced as green? And what does this imply for how we evaluate the success of sustainable construction?

Current built environment literature establishes a fundamental link between buildings and their users through the lenses of human-centred design, environmental psychology, and socio-spatial relationships. At its core, this relationship revolves around how built spaces shape human experiences, behaviours, and well-being while being reciprocally shaped by human needs and interactions - making it dynamic and bi-directional. Scholarship has highlighted different facets of this relationship. At the *individual level*, Deuble and de Dear (2012) showed how user awareness of a building's ecological purpose could generate a "forgiveness factor" in comfort perceptions. At the *organizational level*, Vo (2016) conceptualised decoupling as a coping response, while Fu (2020) emphasized how external stakeholders shape green behaviour within projects. Cole et al. (2021) added insights from place attachment, showing how green buildings can foster identity and connection. Finally, Goubran (2024) linked certification to global sustainability agendas, underlining its *institutional* importance (Table 1).

**Table 1.** Multi-level Framings in Green Building Scholarship and Their Implications

| Level of Analysis | Core Focus (Study) | Sector / Context | Implication for User–Building Connection |
|---|---|---|---|
| ***Individual (micro)*** | User awareness and comfort perceptions (*Deuble & de Dear, 2012*) | Commercial office buildings (academic offices) | Occupants' ecological awareness shapes tolerance of discomfort, but highlights dependence on user recognition of green intent. |
| ***Project (meso)*** | Decoupling as coping mechanism (*Vo, 2016*) | Green building projects (construction/project management) | Project actors may symbolically comply with sustainability goals, showing how user experience can be sidelined during delivery. |
| ***Organizational (meso-macro)*** | Influence of external stakeholders on green behaviour (*Fu, 2020*) | Construction/real estate organizations | Green practices are often adopted to satisfy external pressures rather than internal user needs, limiting user integration. |
| ***Community/ Identity (meso)*** | Place attachment through green buildings (*Cole et al., 2021*) | Mixed-use and residential buildings | Sustainable design can foster identity and belonging, underscoring the social dimension of user–building connection. |
| ***Institutional (macro)*** | Certification linked to global sustainability agendas (*Goubran, 2024*) | Global sustainability / certification systems | Certification strengthens institutional legitimacy, but risks detaching from everyday user recognition and experience. |

Yet across these levels, a critical micro-level gap remains. While ecological worldviews and environmental orientations are acknowledged, the *awareness and recognition of certification by users themselves*, particularly in industrial contexts - has received little empirical attention. By employing the New Ecological Paradigm (NEP) scale in the baseline study, our study directly engages this gap, linking occupants' pro-environmental worldviews to their (non-)recognition of certified sustainability. In doing so, we extend important debates on certification into the everyday practices of those inhabiting green-certified spaces, demonstrating how ecological worldviews shape (but do not guarantee) user connection and engagement with a building's 'green' status.

### 2.1 Case, Contribution, and Stylized Facts

Prior research has suggested that the effectiveness of green buildings depends on the alignment between design intent and user identity. Deuble and de Dear's (2012) influential NEP-based study exemplifies this point, showing that "green occupants" exhibit a forgiveness factor, tolerating shortcomings in comfort because they identify with a building's ecological purpose. Their work highlighted the potential for place attachment and environmental identity to sustain positive experiences in certified buildings. Crucially, however, such mechanisms presumed that users were both aware of, and recognized, the building as green in the first place.

It was precisely this assumption that our work interrogated. Through an empirical investigation, we built directly on Deuble and de Dear's (2012) insights but extended them into a different context: one of Pakistan's earliest LEED-certified industrial facilities (early adopter). Our investigation found that occupants expressed strong ecological orientations yet did not connect with the building's certified status. In other words, the very precondition for attachment—awareness of a building's green identity—was missing. This disjuncture set the stage for what we now term *certification without connection*, a form of user-level decoupling in which certified sustainability performance remains invisible to those inhabiting the building.

Drawing on survey and interview data, the case provided a rare empirical vantage point from an industrial facility in the Global South. It showed how certification could be oriented toward external stakeholders—in this instance, international buyers concerned with supply chain sustainability—while leaving the voices and experiences of internal users unconsidered. This buyer-centric orientation explained why certification could succeed symbolically while remaining invisible in practice.

By developing the idea of *certification without connection*, we theorise at the intersection of sustainable construction and organizational theory. Empirically, we documented a user-level paradox in which certification failed to "register" with occupants. Conceptually, we extend debates on decoupling theory by shifting attention to the micro-level of building users and integrating ecological worldviews as a diagnostic lens. Practically, we highlight the risks of treating certification as a proxy for engagement and call for certification processes that embed user recognition and participation. In doing so, the paper opens a conversation on how green building standards might evolve to ensure that certified sustainability is not only achieved technically but also experienced socially.

This paradox is not abstract. In our case study, it manifested in a distinctive set of patterns (Table 2).

**Table 2.** Stylized Facts from the Case Study

| Dimension | Finding |
|---|---|
| **Occupant Environmental Values** | High pro-environmental orientation (average NEP score = 4.4)[1] |
| **Satisfaction & Comfort** | Reported moderate-to-high workplace satisfaction and comfort |
| **Awareness of Certification** | Incredibly low awareness of the building's LEED/green certification |
| **Organizational Motivation** | Certification driven by strategic considerations linked to international buyers, not by user consultation or engagement |
| **User–Building Connection** | No strong cultural or identity-based linkage between occupants and the building's sustainability profile |

Analysis of our NEP-based survey data showed that occupants scored very high on pro-environmental values, with an average of 4.4 on the New Ecological Paradigm (NEP) scale and reported moderate-to-high levels of satisfaction and comfort in their workplace. Yet surprisingly, analysis of one-on-one interviews showed that occupants

[1] The New Ecological Paradigm (NEP) scale is a widely used measure of environmental orientation that captures individuals' pro-environmental worldviews, including beliefs about ecological limits, human–nature relationships, and environmental responsibility. Higher scores indicate stronger pro-environmental orientation (Dunlap, Van Liere, Mertig, & Jones, 2000).

of the industrial building (apart from resident senior-to-middle management personnel) displayed negligible awareness of the building's green certification. At the organizational level, the motivation for certification appeared to be driven primarily by strategic considerations linked to international buyers, rather than by user consultation or engagement. As a result, no strong cultural or identity-based linkages tied occupants to the building's sustainability profile. This is what we hereafter refer to as the paradox of *certification without connection.*

## 2. Methodological Approach: *Building Theory from Stylized Facts*

Having set out the paradox of *certification without connection* and illustrated it through stylized facts from our NEP-based investigation, the next step is to consider how such a puzzle can be theorised. Our aim is not merely to document an empirical anomaly but to use it as a basis for theory development. To do so, we adopt an abductive orientation.

We designed our study as an abductive inquiry, appropriate for situations where empirical findings diverge from prevailing theoretical expectations (Timmermans & Tavory, 2012). Abductive reasoning is now widely recognized as a core mode of theorizing in organization and management research, positioned alongside deduction and induction (Mantere & Ketokivi, 2013; Dubois & Gadde, 2002). It is particularly valuable when puzzling findings invite researchers to re-examine existing frameworks while remaining grounded in empirical material (Alvesson & Kärreman, 2007; Locke, Golden-Biddle, & Feldman, 2008).

The paradox we observed (i.e. pro-environmental occupants who did not recognize their workplace as a certified green building) does not neatly align with existing theories of sustainable construction or organizational behaviour. To address this, we follow Weick's (1989) notion of "thought trials," systematically exploring different theoretical anchors that could plausibly account for our findings. This abductive orientation enabled us to move iteratively between empirical material and theory, ultimately identifying decoupling theory as the most productive lens. By treating decoupling theory as our explanatory probe, we theorise *certification without connection* as a form of user-level decoupling in which certified sustainability remains symbolically achieved but socially unregistered.

## 3. Theorising Certification Without Connection

Our NEP-based investigation revealed a striking puzzle: occupants of a LEED-certified industrial facility in Pakistan scored high on pro-environmental values yet exhibited extremely low awareness of the building's green certification. This absence of recognition represents a *recognition problem*, which is a startling disconnect in which certified sustainability remains invisible to those inhabiting certified spaces.

To theorise this paradox, we draw on decoupling theory, which highlights how formal structures may be adopted symbolically for legitimacy while being disconnected from everyday practice (Meyer & Rowan, 1977; Bromley & Powell, 2012). While most decoupling studies focus on the organizational level, examining how firms secure external legitimacy without substantive internal change (Tilcsik, 2010), our findings point to a *micro-level form of decoupling*. Certification succeeds as a symbol for external stakeholders (e.g., international buyers) but fails to register socially among users. We conceptualise this as *certification without connection*.

To theoretically capture this dynamic, we develop the Certification-User Recognition (CUR) Framework (Figure 1).

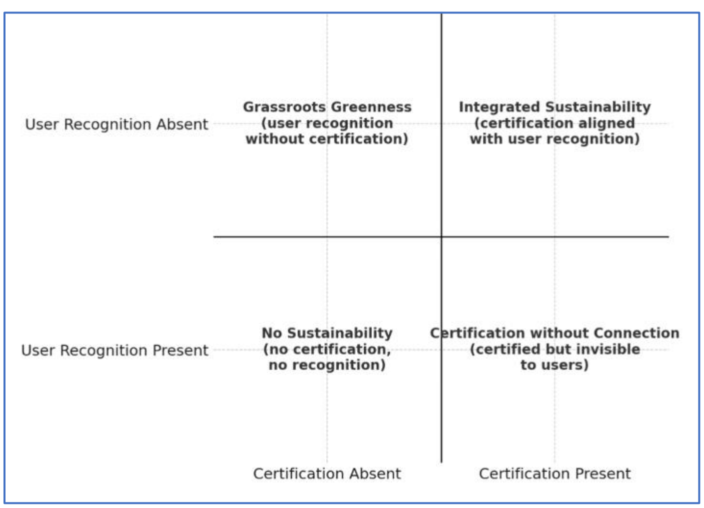


**Figure 1.** Certification-User Recognition (CUR) Framework

The framework maps certification (present/absent) against user recognition (present/absent), generating a 2×2 matrix of four distinct configurations (explained in Table 3).

**Table 3. Certification × User Recognition (CUR) Framework**

| Quadrant | Certification | User Recognition | Description | Implications |
|---|---|---|---|---|
| ***Integrated Sustainability*** | Present | Present | Certification and recognition align, reinforcing each other. Buildings achieve both institutional legitimacy and user embedding. | Aspirational configuration: signals both technical achievement and lived sustainability. |
| ***Certification without Connection*** | Present | Absent | Certification is secured but remains invisible to occupants. Legitimacy is symbolic, not socially registered. | Reveals a *recognition problem*—user-level decoupling where technical achievement fails to translate into lived experience. |
| ***Grassroots Greenness*** | Absent | Present | Users enact sustainability informally, without formal certification. | Shows that sustainability can be socially constructed bottom-up through user engagement and culture. |
| ***No Sustainability*** | Absent | Absent | Neither certification nor recognition is present. | Baseline state with limited legitimacy and weak user engagement. |

Figure 1 presents the CUR Framework, developed from our abductive analysis. By mapping certification against user recognition, the framework generates a simple but powerful typology that captures the range of possible configurations in sustainable construction. This framing not only clarifies our core theoretical contribution—*certification without connection*—but also highlights alternative configurations that may emerge in practice. In doing so, the framework provides both scholars and practitioners with a tool to diagnose the alignment (or misalignment) between certified sustainability and user recognition, thereby linking the micro-level of occupant experience with the institutional logic of certification.

The CUR Framework illustrates that certification does not automatically translate into recognition of users' role and engagement in the *greening* of buildings. Our stylised case falls squarely into the *certification without connection* quadrant, underscoring the recognition problem as central to understanding green building legitimacy. By contrast, *integrated sustainability* represents the aspirational state toward which both scholarship and practice might aim. The framework also surfaces alternative pathways, such as *grassroots greenness*, which point to diverse ways sustainability can be socially constructed.

Through abductive theorising, we advance a plausible extension of **decoupling theory to the micro-level**, demonstrating how user recognition mediates the relationship between symbolic certification and lived experience. The CUR Framework thus contributes both conceptually (by introducing the notion of *user-level decoupling*) and practically (by offering a diagnostic tool for practitioners to evaluate the alignment between certified sustainability and user recognition).

## 4. Discussion and Conclusions

In this paper, we theorise the paradox of *certification without connection* as a micro-level form of decoupling, captured through the CUR Framework. Certification delivers legitimacy at the institutional and organizational levels but disconnects from the lived experience of building users. Our contribution is to extend debates in sustainable construction and organizational theory by shifting attention to the user level, highlighting the *recognition problem* as central to green building legitimacy.

This contribution can be situated within a broader *macro–meso–micro* layering of sustainability literatures:

1. Macro (Goubran, 2024) → Certification systems operate as legitimacy devices, aligning with the SDGs and institutional pressures.
2. Meso (Fu, 2020) → Organizations prioritize salient external stakeholders (e.g., buyers, supply chains), orienting certification toward external legitimacy.
3. Micro (Vo, 2016; Cole et al., 2021) → Users cope with estrangement and experience weak attachment or recognition of sustainability within their everyday settings.

Our contribution lies squarely in the gap between meso and micro (Figure 2). Certification succeeds outwardly at the meso-level—delivering legitimacy to external stakeholders—yet fails inwardly at the micro-level, where it is unrecognized by users. We theorise this disconnect as *certification without connection*, extending decoupling theory to show how certification can achieve symbolic and strategic success while failing socially among occupants.

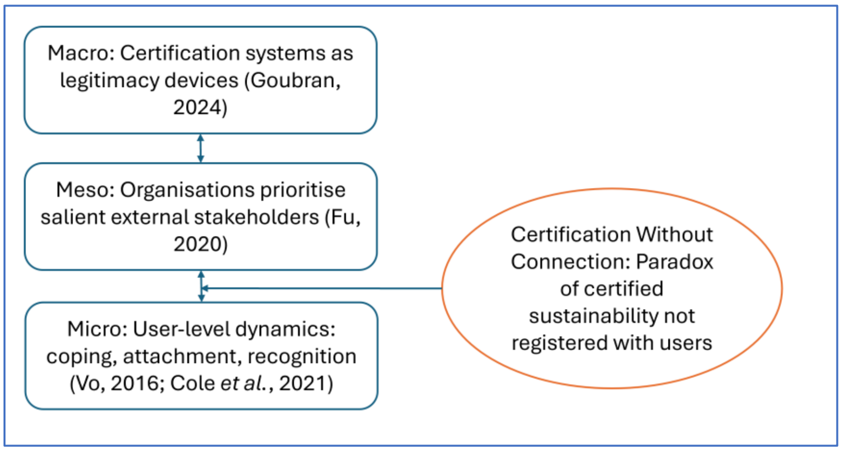


**Figure 2:** Positioning *Certification Without Connection* within the Macro-Meso-Micro layers of construction literature

Theoretically, in this paper we advance decoupling theory by foregrounding users as an overlooked site of disconnection. Our contribution is to demonstrate that decoupling is not only an organizational phenomenon but also a user-level one, manifested when certified sustainability does not translate into recognition or attachment. The CUR Framework provides a conceptual tool for diagnosing this misalignment, highlighting four possible certification-recognition configurations. Practically, our contribution is to offer the CUR Framework as a diagnostic for practitioners and policymakers. By making the recognition problem visible, we alert certification bodies, developers, and organizational leaders to the risk of treating certification as a proxy for engagement. Moving from *certification without connection* toward *integrated sustainability* requires embedding user recognition into certification processes—through communication, participation, and cultural alignment. This practitioner-friendly framing ensures that certified sustainability is not only achieved technically but also experienced socially.

In conclusion, this paper underscores the limits of sustainability frameworks that privilege external legitimacy while neglecting internal recognition. Through abductive theorising, we provide a plausible extension of decoupling theory to the user level, introducing the concept of *user-level decoupling* and situating it within a macro–meso–micro understanding of sustainability. Our contribution is to theorise *certification without connection* as both a conceptual category and a practical challenge.

Future studies could apply the CUR Framework across residential, commercial, and educational sectors to assess its robustness and transferability. Comparative investigations across Global North and Global South contexts may also help examine how cultural, institutional, and organizational conditions in each landscape shape the recognition problem, providing a richer understanding of user-level decoupling. For practitioners and policymakers, the CUR Framework highlights that certification must be paired with strategies for user recognition if green buildings are to deliver both *symbolic legitimacy* and *lived sustainability*. This implies that certification bodies and developers need to go beyond technical metrics, embedding communication, participation, and cultural alignment into certification processes to ensure that sustainability is not only achieved but also experienced.

## References


Alvesson, M., & Kärreman, D. (2007). Constructing mystery: Empirical matters in theory development. *Academy of Management Review*, *32*(4), 1265–1281. https://doi.org/10.5465/amr.2007.26586822

Asojo, A. O., & Tian, J. (2025). Occupants' perception of indoor environmental quality factors: A comparison of a LEED versus non-LEED certified campus building. In A. Almusaed & A. Almssad (Eds.), *North American and European Perspectives on Sustainability* (pp. 169–188). Springer. https://doi.org/10.1007/978-3-031-60471-9_9

Cole, L. B., Coleman, S., & Scannell, L. (2021). Place attachment in green buildings: Making the connections. *Building and Environment, 204*, 108–150. https://doi.org/10.1016/j.buildenv.2021.108150

Darko, A., & Chan, A. P. C. (2016). Critical analysis of green building research trend in construction journals. *Habitat International*, *57*, 53–63. https://doi.org/10.1016/j.habitatint.2016.07.001

Darko, A., Zhang, C., & Chan, A. P. C. (2017). Drivers for green building: A review of empirical studies. *Habitat International*, *60*, 34–49. https://doi.org/10.1016/j.habitatint.2016.12.007

Debrah, C., Chan, A. P. C., Darko, A., & Akowuah, E. (2022). A bibliometric-systematic analysis of post-occupancy evaluation of green buildings. In *CIB World Building Congress 2022: Building our future*. Purdue University. https://docs.lib.purdue.edu/cgi/viewcontent.cgi?article=1951&context=cib-conferences

Deuble, M. P., & de Dear, R. J. (2012). Green occupants for green buildings: The missing link? *Building and Environment*, *56*, 21–27. https://doi.org/10.1016/j.buildenv.2012.02.029

Dubois, A., & Gadde, L. E. (2002). Systematic combining: An abductive approach to case research. *Journal of Business Research*, *55*(7), 553–560. https://doi.org/10.1016/S0148-2963(00)00195-8

Dunlap, R. E., Van Liere, K. D., Mertig, A. G., & Jones, R. E. (2000). Measuring endorsement of the new ecological paradigm: A revised NEP scale. *Journal of Social Issues*, *56*(3), 425–442. https://doi.org/10.1111/0022-4537.00176

Fu, R. (2020). Stakeholders' green behaviour in construction projects: Drivers and mechanisms. *Journal of Cleaner Production*, *275*, 122901. https://doi.org/10.1016/j.jclepro.2020.122901

Gou, Z., Lau, S. S. Y., & Chen, F. (2012). Post-occupancy evaluation of green buildings: Coherent design and actual performance. *Building and Environment*, *55*, 184–195. https://doi.org/10.1016/j.buildenv.2012.02.009

Goubran, S. (2024). Green building standards and the SDGs: Impacts and implications. *Sustainable Development*, *32*(1), 44–58. https://doi.org/10.1002/sd.2525

Izadpanahi, P., & Tucker, R. (2017). NEP scores and children's environmental behaviour: The effect of sustainable design in schools. *Environmental Education Research*, *23*(7), 901–918. https://doi.org/10.1080/13504622.2016.1217394

Kibert, C. J. (2012). *Sustainable construction: Green building design and delivery* (3rd ed.). Wiley.

Lam, P. T. I., Chan, E. H. W., Poon, C. S., Chau, C. K., & Chun, K. P. (2010). Factors affecting the implementation of green specifications in construction. *Journal of Environmental Management*, *91*(3), 654–661. https://doi.org/10.1016/j.jenvman.2009.09.029

Locke, K., Golden-Biddle, K., & Feldman, M. S. (2008). Making doubt generative: Rethinking the role of doubt in the research process. *Organization Science*, *19*(6), 907–918. https://doi.org/10.1287/orsc.1080.0398

Mantere, S., & Ketokivi, M. (2013). Reasoning in organization science. *Academy of Management Review*, *38*(1), 70–89. https://doi.org/10.5465/amr.2011.0188

Menassa, C. C., Mangasarian, S., El Asmar, M., & Kirar, C. (2012). Energy consumption in LEED-certified buildings. *Journal of Performance of Constructed Facilities*, *26*(4), 463–471. https://doi.org/10.1061/(ASCE)CF.1943-5509.0000246

Newsham, G. R., Mancini, S., & Birt, B. J. (2009). Do LEED-certified buildings save energy? Yes, but… *Energy and Buildings*, *41*(8), 897–905. https://doi.org/10.1016/j.enbuild.2009.03.014

Paul, W. L., & Taylor, P. A. (2008). A comparison of occupant comfort and satisfaction between green and conventional buildings. *Building and Environment*, *43*(11), 1858–1870. https://doi.org/10.1016/j.buildenv.2007.11.006

Pérez-Lombard, L., Ortiz, J., & Pout, C. (2008). A review on buildings energy consumption information. *Energy and Buildings*, *40*(3), 394–398. https://doi.org/10.1016/j.enbuild.2007.03.007

Shanmugam, M., Soebarto, V., Williamson, T., & Bahadori-Jahromi, A. (2018). Do energy rating tools reflect actual energy consumption of buildings? *Energy and Buildings*, *175*, 165–182. https://doi.org/10.1016/j.enbuild.2018.07.003

Timmermans, S., & Tavory, I. (2012). Theory construction in qualitative research: From grounded theory to abductive analysis. *Sociological Theory*, *30*(3), 167–186. https://doi.org/10.1177/0735275112457914

Vo, L. C. (2016). Microfoundations of decoupling from a coping theory perspective. *Management*, *19*(2), 152–175. https://doi.org/10.3917/mana.192.0152

World Green Building Council. (2013). *The business case for green building: A review of the costs and benefits for developers, investors and occupants*. https://worldgbc.org/article/the-business-case-for-green-building-a-review-of-the-costs-and-benefits-for-developers-investors-and-occupants/

Wu, P., Xia, B., & Zhao, X. (2014). The importance of use and end-of-life phases to the life cycle greenhouse gas emissions of concrete. *Journal of Cleaner Production*, *68*, 118–126. https://doi.org/10.1016/j.jclepro.2013.12.003

Yudelson, J. (2008). *The green building revolution*. Island Press.

Zhao, X., Pan, W., & Lu, W. (2019). A bibliometric review of green building research 2000–2016. *Building and Environment*, *162*, 106270. https://doi.org/10.1016/j.buildenv.2019.106270

Zhu, Y., Lin, B., He, Y., Chen, Y., & Zhu, N. (2013). A review on green building in China: Current status and future prospects. *Energy and Buildings*, *64*, 143–152. https://doi.org/10.1016/j.enbuild.2013.04.037

Zuo, J., & Zhao, Z. Y. (2014). Green building research–current status and future agenda: A review. *Renewable and Sustainable Energy Reviews*, *30*, 271–281. https://doi.org/10.1016/j.rser.2013.10.021

Meyer, J. W., & Rowan, B. (1977). Institutionalized organizations: Formal structure as myth and ceremony. American Journal of Sociology, 83(2), 340–363. https://doi.org/10.1086/226550

Bromley, P., & Powell, W. W. (2012). From smoke and mirrors to walking the talk: Decoupling in the contemporary world. Academy of Management Annals, 6(1), 483–530. https://doi.org/10.5465/19416520.2012.684462

Tilcsik, A. (2010). From ritual to reality: Demography, ideology, and decoupling in a post-communist government agency. Academy of Management Journal, 53(6), 1474–1498. https://doi.org/10.5465/amj.2010.57319196