

CONTRIBUTORS

About the Center for Sustainable Building Research (CSBR)

The Center for Sustainable Building Research is a research center in the College of Design at the University of Minnesota. Building on past success and looking into the future the work of the center is focused on building the sustainability and resilience of the built environment to regenerate the well being of communities in Minnesota and beyond.

Authors

The **Center for Sustainable Building Research (CSBR)** at the University of Minnesota leads the B3 Team, managed the research project, conducted the stakeholder survey/focus groups, and provided recommendations on policy and next steps. Researchers from the CSBR that participated in the research and report:

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Conflicts of Interest

The Center for Sustainable Building Research (CSBR) is funded from federal, state, university and non-profit grants to support project-based research for the center. The center does not accept any sponsorships from manufacturers, trade associations or special interests.

LHB is a full-service architecture and engineering firm that works on B3 projects outside of their work on the B3 Team.



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EXECUTIVE SUMMARY

The Minnesota Sustainable Building Guidelines, also known as the B3 (Buildings, Benchmarks and Beyond) Guidelines is a program for state-funded buildings to achieve sustainability and resilience goals. Projects are required to comply with the B3 Guidelines, if they are funded in a Capital Investment Bill. The creation of the program is included in Minnesota state statute, but the statutes have not been updated to include the management, training, and other elements for project and program success. The report was created by the Center for Sustainable Building Research (CSBR) for the Department of Administration. It outlines a series of recommendations based on program experience, stakeholder feedback, and goals from the legislature. Recommendations include updating the goals of the program, clearly defining the applicability of B3 guidelines to projects, developing process improvements for compliance review, training stakeholders in the variety of roles and responsibilities they have on projects, defining the administration of the program, and provide resources and support required for successful implementation. These recommendations will require revising state statutes and budgets to be fully executed. Future consideration will need to be made for penalties for non-compliance.

INTRODUCTION

The State of Minnesota Commissioner of Administration contracted with the Center for Sustainable Building Research (CSBR) at the University of Minnesota to provide the report outlined in Minnesota Laws 2023, Chapter 71, Article 1, Section 6, Subdivision 4: "...To develop recommendations for updating goals, measuring project performance in meeting the goals, applicability, compliance, waivers, outreach, and administration of the sustainable building guidelines under Minnesota Statutes, section 16B.325, in collaboration with the commissioner of commerce and the Center for Sustainable Building Research at the University of Minnesota. The commissioner of Administration may contract with the commissioner of Commerce and the Center for Sustainable Building Research at the University of Minnesota for assistance in developing the recommendations, including obtaining input from public owners, nonprofit owners, design professionals, and other stakeholders. The commissioner of Administration must provide a report of findings and recommendations to the chairs and ranking minority members of the legislative committees with jurisdiction over capital investment, energy finance, and policy, and environment finance and policy on or before October 15, 2023."

History¹

The Minnesota Sustainable Building Guidelines, also known as B3 (Buildings, Benchmarks and Beyond) is a sustainability program for state-funded buildings that serves as a model for sustainability in Minnesota buildings. The program was created by the State of Minnesota in 2001 and developed by a team led by the Center for Sustainable Building Research (CSBR) at the University of Minnesota. Unlike other green building programs, it focuses on measured performance improvements, using a list of required metrics instead of a menu of potential options. The program is structured to provide a feedback loop to the building design, construction and operations industry in the state. Elements of the program are used through all phases of the development of state-funded buildings in Minnesota from pre-design through design, and construction and for ten years of operations.

In 1995 the Minnesota Office of Environmental Assistance (OEA) funded the Hennepin County Sustainable Design Guide. Collaborators included HOK Architects, local architects and landscape architects, the University of Minnesota, and the Hennepin County Environmental and Facilities Management Departments. In 1999, The Hennepin County Guidelines were modified and transferred to the University of Minnesota where they became known as the Minnesota Sustainable Design Guidelines. These guidelines were adopted by several public agencies in Minnesota for use on public buildings and served as a precursor to national green building programs like LEED.

Also, in 1997, the Minnesota State Legislature passed legislation requiring the Departments of Administration and Commerce to develop sustainability guidelines for all new state buildings that receive state bond funding. This act required the Department of Administration to collect information and energy use for all public buildings

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¹ This section is from the 2018 article in the Journal of Green Building: Graves, Richard and Smith, Patrick. **Minnesota Sustainable Building Guidelines: History, Effectiveness and Path for the Future**: *Journal of Green Building* (2018) 13 (2): 163–165.

to establish benchmarks and future conservation goals. The governor signed the bill into law on May 29, 2001. A team was selected to implement this program, which included the Center for Sustainable Building Research, LHB Inc., and The Weidt Group (now Wildan) acting as principal partners. CSBR led the development of the Minnesota Sustainable Building Guidelines and The Weidt Group led the development of the B3 Benchmarking part of the project.

The team developed Version 1.0 of the B3 that went Into effect on January 15, 2004, for all new buildings using State general obligation (GO) bonding. It was designed to be compatible with national guidelines such as LEED while maintaining regional relevance and impact. Adopting LEED was considered but it was decided to expand upon the existing B3 Guidelines because they were more specific to Minnesota's needs and could go further than LEED in some areas, such as energy efficiency, greenhouse gas emissions and embodied carbon. The B3 guidelines were also designed so that most of the elements are required, unlike LEED, which allows more selection between categories and a less targeted approach to reducing social and environmental impacts. Finally, the state desired and the team implemented a set of guidelines that is more performance than prescriptive based.

Structure of the Program²

The Minnesota Sustainable Building Guidelines are also known as Buildings, Benchmarks and Beyond (B3 Guidelines). They can be applied to the design of new buildings or renovations to meet sustainability goals for site, water, energy, indoor environmental quality, materials and waste. Guidelines are required on new construction and major renovation projects that receive general obligation bond funding from Minnesota. The guidelines can also be used on a voluntary basis on any project. They are a pathway for many municipalities in Minnesota to comply with their green building standards. Cities such as St. Paul, St. Louis Park, and others have integrated the guidelines into their programs.

The B3 Guidelines incorporate the Sustainable Buildings 2030 (SB 2030) energy standard, as this has become the program's energy standard since 2009. After design and during the building occupancy, the project uses the B3 Benchmarking tool to track and compare actual energy use to design targets. In addition, projects during operations can use the B3 post occupancy evaluation (POE) to survey occupants on the indoor environmental quality of the building to ensure occupant satisfaction with indoor environmental quality.

B3 has the following five sections: performance management, site water, energy and atmosphere, indoor environmental quality, and materials and waste. Each section has a number of requirements that are tracked during five phases of project life: pre-design, design, final design, closeout and occupancy. The occupancy tracking of actual performance related to projected performance is required by legislation to be submitted annually for 10 years to show actual compliance of a project. More information on all of the guidelines can be found at www.b3mn.org.

The performance management section of the guidelines has requirements for submissions during each phase of the project, including commissioning requirements. In addition, this section includes information and

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² ibid 165-167.

requirements for conducting Post Occupancy Evaluations in buildings that meet a certain threshold of occupants and available space types.

The objectives of the site and water section are to improve the ability of soil to maintain its structure against adverse impacts, restore and improve the hydrological cycle of water on the site to avoid adverse impacts on-site and downstream, reduce consumption of potable water, improve biodiversity by introducing flora and fauna that will help contribute to the sustainability of the site over time, and reduce energy consumption and pollution related to site location and associated transportation requirements and to restore and improve outdoor environmental quality. Requirements range from typical green building guidelines, like stormwater management, light pollution reduction, and site and building water efficiency, to guidelines particular to the Minnesota program, like designing buildings to be safe for migratory birds.

The energy section of the guidelines incorporates SB 2030 and was inspired by the Architecture 2030 program created by Ed Mazria. The goals of the energy section of the guidelines are to achieve significant reductions in energy and energy usage in carbon emissions every five years, so that by 2025, buildings in the program have a 90% reduction over a typical building in 2003. This creates the potential for these buildings to achieve Net Zero by 2030 by incorporating increasing efficiency and on-site renewable energy generation.

The indoor environmental quality section of the guidelines is designed to have buildings provide exemplary indoor air quality and other interior environmental conditions to promote occupant health, well-being, and productivity. Health is more than the absence of disease and well-being includes the provision of physical comfort and psychological satisfaction within the physical environment. The provision of indoor environmental quality at levels that support productive human habitation both complements and supports the environmental and economic goals for sustainable building. There are eight requirements in the indoor environmental quality section and three recommended guidelines. The requirements range from typical green building program requirements for lower-emitting materials, ventilation design, thermal comfort lighting and acoustics. More unique requirements like moisture control guidelines for exterior envelopes are also required. The recommended guidelines include elements like promoting health from physical activity that are also starting to emerge in programs like WELL and FitWell.

The materials and waste section of the guidelines reduces the embodied environmental impact and toxicity in building materials as well as reduces the contribution of construction and operations going into landfills. This section of the guidelines includes four requirements: a whole building life cycle assessment of the materials of construction, using environmentally preferable materials, waste reduction and management, and the impact of materials on human health. Materials and waste was updated in version 3.0 and released in 2017.

Current Minnesota Sustainable Building Guideline (B3) Program Goals and Statute

In 2001, the Legislature mandated the creation of sustainable building guidelines for certain capital construction projects that receive general obligation bond funding from Minnesota.³ The guidelines originally applied only to

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³ Laws of Minnesota 2001, chapter 212, art. 1, sec. 2, codified as Minnesota Statutes 2022, 16B.325, subds. 1-3.

new building projects; however, in 2008, the Legislature amended the law to include major renovations.⁴ According to Minnesota statutes, the sustainable building guidelines "are mandatory for all new buildings…and for all major renovations receiving funding from the bond proceeds fund…." In other words, all new buildings and major renovations that are funded in part or in whole with general obligation bonds must adhere to the guidelines. The Legislature can and has chosen to require that projects receiving funding through other funding sources follow the sustainable building guidelines.

When the Legislature mandated the creation of the B3 guidelines, it required the guidelines to take a broad approach to sustainability. By law, the sustainable building guidelines must:

- Include air quality and lighting standards.
- Create and maintain a healthy environment.
- Facilitate productivity improvements.
- Specify ways to reduce material costs.
- Consider the long-term operating costs of the building, including the use of renewable and certain other energy sources.⁶

Scope of this Report to the Legislature, October 15, 2023

This report is organized into the following sections as outlined in the legislation from the 2023 session based upon work and findings based upon the process of working with stakeholders outlined at the end of the Introduction:

- 1. Updating Program Goals and Measuring Performance
- 2. Applicability
- 3. Compliance and Waivers
- 4. Outreach and Training
- 5. Administration
- 6. Resources and Support

⁴ Laws of Minnesota 2008, chapter 179, sec. 30, codified as Minnesota Statutes 2022, 16B.325, subds. 1-3.

⁵ Minnesota Statutes 2022, 16B.325, subd. 3..

⁶ OLA Report, B3, https://www.auditor.leg.state.mn.us/ped/pedrep/sbg.pdf p. 4.

Process

This report was prepared between July and early October 2023. Members of the B3 team from both the Center for Sustainable Building Research and LHB are the primary authors of the report. However, members of the broader B3 team from CEE and Willdan also contributed. The team coordinated the work plan with members from the Minnesota Department of Administration. In addition, regular progress meetings included the Departments of Administration, the Department of Commerce and Management and Budget, (MMB).

A survey was conducted with stakeholders of the B3 program from state departments, design teams, advocacy groups, contractors, local units of government, and others. The survey was sent to the B3 contact list of over 2,500 members, the AIA Minnesota contact list, and other communication channels. Over 100 people filled out the survey from design teams, state agencies, local units of government, non-profit groups, construction firms and other organizations. Four online focus groups were held with state representatives, design teams, advocacy groups, and a final focus group for anyone who could not attend the first three meetings. 62 people participated in the focus groups. Survey and focus group results are included in the sections of the report. In addition to the survey and focus groups, individual meetings were held with non-profit owners, design teams that work with non-profits and from greater Minnesota, trade associations, labor unions, environmental groups and state agencies.

Finally, a great deal of work was done in the spring of 2023 during the legislative session between CSBR and State Departments to develop initial recommendations in response to the OLA report that were the foundation of the work and recommendations.

Definition of Roles

In this report, the following definitions are used to be clear about the roles and responsibilities organizations have for projects using the Minnesota Sustainable Building Guidelines (B3):

- Project Owner or "Owner": The entity that is signing the contracts with the design team and builder
 of the project. This is the recipient of the state funds, whether named in the bill, or selected through
 a grant program.
- Asset Owner: The entity that owns the completed project and is responsible for the custodial control
 and management of the facility. (This term is included for state agencies that have custodial control
 over a building that is technically owned by the State of Minnesota. This term does not apply to
 political subdivision projects, because for those projects, the Project Owner and Asset OWner are
 always the same entity.)
- **Grantor**: The state agency granting the money to the **Grantee** for a project.
- **Grantee:** The recipient of the money from the Grantor for a project.
- **Guideline Leader:** The group leading the documentation of B3 compliance.

Example project roles:

The Minnesota Department of Employment and Economic Development (**Grantor**) is appropriated funds for a grant to a political subdivision (**Project Owner and Asset Owner**) to build a community center for the same political subdivision. The political subdivision hires an architect (**Guideline Leader**) to design the project and manage the B3 Guidelines.

The Minnesota Department of Administration (**Project Owner**) is appropriated funds to build a Department of Human Services (**Asset Owner**) behavioral health hospital. The Department of Administration hires an architect (**Guidelines Leader**) to design the project and manage B3 guidelines.

The Minnesota Department of Natural Resources funds a project for a visitor center at a state park. The DNR will design and manage the project themselves and be the **Project Owner, Asset Owner, and Guideline Leader** for B3.

Section 1: Updating Goals and Measuring Performance

Current B3 Program Context

Legislative context

The Minnesota Statute establishing the B3 Guidelines identifies a primary objective of exceeding the state energy code by at least 30%. It also calls for "achieving the lowest possible lifetime cost for new buildings and renovations" and to:

- include air quality and lighting standards and [sic] that create and maintain a healthy environment and facilitate productivity improvements;
- specify ways to reduce material costs;
- consider the long-term operating costs of the building

In 2023, additional language was added to "establish resiliency guidelines to encourage design that allows buildings to adapt to and accommodate projected climate-related changes."

In addition to the guiding language for the B3 Guidelines, there are several statutes and executive orders that add specific requirements to the guidelines, addressing topics like on-site renewables, pollinator support, bird safety, and acoustic requirements.⁷

B3 Guidelines program approach

The B3 Guidelines currently span five categories related to sustainability. Each category has an overall intent (see Table below) supported by multiple guidelines.

Category	Intent
Performance Management	The following performance management guidelines assist project teams in gathering the necessary information and coordinating the design, construction, and operations processes to ensure that each project successfully meets key performance criteria, including those of the B3 Guidelines.
Site & Water	To support the design and maintenance of project sites that restore the ecological integrity of the site by restoring the local soil and water quality capable of supporting healthy, biodiverse plant, animal, and human communities.
Energy & Atmosphere	To promote the design and operation of energy-efficient buildings to reduce expenditures on imported fuel, reduce the impacts associated with greenhouse gas emissions, minimize negative impacts of refrigerant

⁷e.g., https://www.revisor.mn.gov/statutes/cite/16C.054 and https://www.revisor.mn.gov/statutes/cite/16C.054 and https://www.lrl.mn.gov/archive/execorders/19-28.pdf,

	selection, and ensure readiness for next-generation energy infrastructure.
Indoor Environmental Quality	To provide high-quality indoor environmental conditions to promote occupant health, well-being, and productivity.
Materials & Waste	To reduce the embodied environmental impact and toxicity in building materials.

The B3 Guidelines program collects data from projects that submit their information for compliance with the program in the online B3 Guidelines Tracking Tool and publishes the results in the B3 Case Studies Database (Figures 1-3). Each data point is compared to both a base case value and the B3 requirement. For example, a project's predicted indoor water use is compared to a base case that reflects Federal water efficiency standards and to the B3 requirement of a percentage reduction from that base case. Some data points are collected only during the design phase (such as predicted stormwater runoff rates), while others are collected during design and annually for ten years of building operations (such as predicted and actual energy use intensity).

In addition to these metrics tracking performance compared to the B3 Guidelines requirements, the B3 Case Studies Database also presents information about construction costs. Information from the B3 Case Studies Database can be exported and analyzed to determine program-scale results, as is currently done yearly to report total predicted energy savings from projects meeting the SB 2030 Energy Standard (Figure 1).

FIGURE 1: B3 Guidelines Scorecard for a specific project. Source: B3 Case Studies Database.

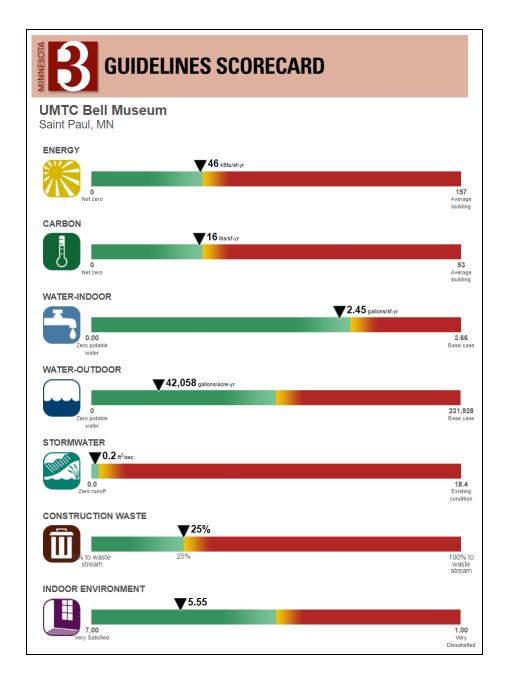


FIGURE 2: Energy consumption data for a specific project. Source: B3 Case Studies Database.

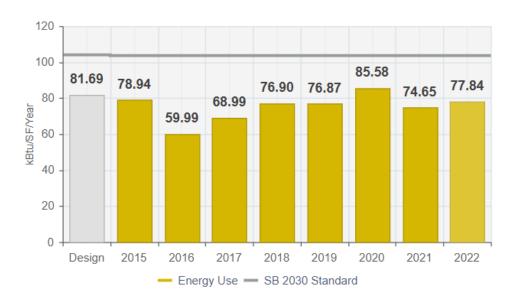
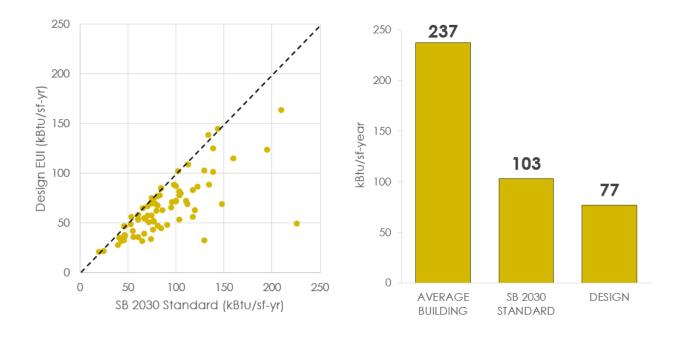


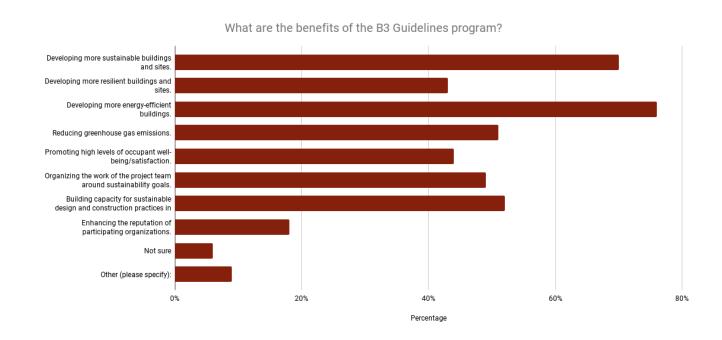
FIGURE 3: Program roll-up of energy data, showing the relationship between the design energy use intensity (EUI) and SB 2030 Energy Standard for each of the case studies (left) and the average predicted energy use intensity of 80 SB 2030 projects, weighted by area (right).



Stakeholder Feedback and Discussion

When asked about goals and outcomes to prioritize, many survey respondents specified quantitative measures, specifically focusing on reducing energy use, water use, greenhouse gas emissions, and embodied carbon, and increasing the use of renewable energy. Many comments also mentioned qualitative outcomes including occupant comfort and wellness and resilience. This trend is also visible in Figure 4, which shows what survey respondents believe to be the benefits of the B3 Guidelines Program.

FIGURE 4: Percentage of respondents that consider each item a benefit of the B3 Guidelines



Many comments confirmed that tracking energy use intensity (EUI) and cost at design and through operations is critical, and embodied carbon and greenhouse gas emissions should be tracked. Many comments also mentioned occupant satisfaction, measured via Post Occupancy Evaluations, as a meaningful indicator.

69% of survey respondents think there are Too many (32%) or Somewhat too many (37%) guidelines. In the focus group discussions, participants cited the value of all the guideline items, but suggested that fewer be required for all projects and expressed a desire for typology-specific applicability.

CSBR Recommendations:

- (A) <u>Update legislative goals</u>: Update the legislative goals of the B3 Guidelines program to remove outdated references and reflect the state's priorities for sustainable building projects. The updated language should provide directional guidance for the program's implementation while remaining open to flexibility and adaptation as the design and construction industries continue to evolve. Based on the program's historic scope in combination with stakeholder feedback, the following goals are recommended: reduce greenhouse gas emissions across the project's life cycle; promote the design and operation of energy-efficient buildings; provide high-quality indoor environmental conditions to promote occupant health, well-being, and productivity; reduce water use; restore local soil and water quality; reduce the embodied environmental impact of building materials, and encourage design that allows building resilience. Legislative goals should be overall performance goals and not prescriptive.
- (B) Report quantitative and qualitative program-wide metrics: To evaluate how well the program is meeting its legislative goals, expand the use of quantitative and qualitative metrics to reflect program-wide outcomes. This will entail analyzing existing project metrics at the program scale and establishing new key performance indicators that reflect the updated legislative goals. To provide flexibility over time, these metrics should be developed by the program administrators—with feedback from design professionals and building owners. Program administrators should report program-wide metrics to the legislature annually.
- (C) <u>Reduce the number of guidelines</u>: Reduce the number of guidelines by prioritizing high-impact items that support the updated legislative goals. This can be done by the program administrators with feedback from program stakeholders in the next version of the B3 Guidelines.
- (D) <u>Improve the collection of project cost data</u>: Establish a process for tracking project-specific and program-wide design, construction, and operational cost implications of meeting the B3 Guidelines.

SECTION 2: APPLICABILITY

Current B3 Program Context

The Minnesota Sustainable Building Guidelines (B3) are required for all new construction and major renovations based upon the following Statute Section 16B.325 which states: *The guidelines established under this section are mandatory for all new buildings receiving funding from the bond proceeds fund after January 1, 2004, and for all major renovations receiving funding from the bond proceeds fund after January 1, 2009.*

Though not specified in statute, new buildings are considered to include any project that qualifies as a building under the Minnesota Building Code.⁸ Additions are considered new buildings if they have both of the following characteristics:

- Either not heated, or if heated the addition has its own heating plant(s) (e.g., boiler, etc.) whether or not its source of energy (e.g., fuel) is from an adjacent building.
- Either not cooled, or if cooled, the addition has its own cooling plant(s) (e.g., chiller, rooftop unit, etc.) whether or not its source of energy (e.g., electricity) is from an adjacent building.⁹

For major renovations, the applicability language in Statute Section 16B.325 changed in 2023 as follows:

(3) define "major renovations" for purposes of this section. The definition may not allow "major renovations" to encompass <u>not</u> less than 10,000 square feet or to encompass <u>not</u> less than the replacement of the mechanical, ventilation, or cooling system of the <u>a</u> building or a <u>building</u> section of the <u>building</u>.

Which changes this section from:

define "major renovations" for purposes of this section. The definition may not allow "major renovations" to encompass less than 10,000 square feet or to encompass less than the replacement of the mechanical, ventilation, or cooling system of the building or a section of the building.

to:

define "major renovations" for purposes of this section to encompass not less than 10,000 square feet or not less than the replacement of the mechanical, ventilation, or cooling system of a building or a building section.

Note that this change altered the minimum major renovation project required to comply with the guideline from requiring *both* a replacement of the mechanical systems of the building and a size of 10,000 square feet (sf) to requiring *either* the project to include the replacement of the mechanical system or be at least 10,000 sf in size.

⁸ B3 Guidelines Applicability Form, https://www.b3mn.org/32r1form-p-0c/

⁹ https://www.b3mn.org/wp-content/uploads/20210820_B3GuidelinesVersion32r01_Small-Buildings-Updates-Final.pdf

The Department of Administration sees this change as a technical error and will work with the legislature to correct the definition of "major renovation" during the 2024 session.

The B3 team has explored the use of the guidelines for additional State-funded project types over the years:

- Minnesota Housing added SB2030 to the application process for funding for affordable housing, but
 maintains the use of Enterprise Green Communities as the green building program. This makes sense for
 affordable housing projects that may have funding from non-State Bond funding sources requiring the
 Enterprise program.
- The Minnesota Pollution Control Agency (MPCA) has collaborated with the B3 team on a pilot to benchmark the energy use and greenhouse gas emissions of Wastewater Treatment Facilities (WWTF) and provide suggested requirements. This pilot should continue to develop an overlay to integrate with federal funding requirements for Water and Wastewater Treatment Facilities to achieve the sustainability, resilience, and climate change goals. This overlay can be required even if Federal requirements are removed.
- The Minnesota Department of Health (MDH) strongly encourages municipalities to include sustainability and resiliency goals during the design of new drinking water treatment facilities. As such, MDH has developed a certification form for all new Drinking Water Revolving Fund (DWRF) projects requiring the owner/designer to certify that energy efficiency, sustainability, and resiliency were considered in the design of the project. The protection of public health is paramount. In some cases, the selected treatment processes may not be the most energy efficient but they are chosen because they are the most protective of public health. Also, in accordance with MN Rules 4720, all DWRF projects must have an approved DNR Water Supply Plan, which includes implementation of water conservation measures, prior to funding.

Current Applicability Process

Projects required to meet the B3 Guidelines are either self-identified by the Project Owner, Asset Owner, Grantor, or Design Team, or identified by the Department of Administration (in partnership with the CSBR) based on projects named in bonding bills. The primary challenge with this approach is that many bond-funded projects are not individually named in the funding bills and are funded through asset preservation or grant programs with funding originating from General Obligation Bonds. Examples include the state agency Asset Preservation program, the University of Minnesota and Minnesota State Higher Education Asset Preservation and Replacement (HEAPR) program, and the Department of Education's Library Construction Grants program. Though many of the projects funded through these programs would not be required to meet the B3 Guidelines due to minimal size and/or scope, some of them are of sufficient scope to trigger the guidelines. If these projects are not self-identified by the Project Owner, Asset Owner or Grantor that distributes the funds, they may not be tracked as possible B3 projects.

Projects that receive general obligation bond proceeds with limited project scope can submit an applicability determination form that identifies the various triggering conditions (e.g., the size of the project for major renovations, the replacement of the mechanical system, etc.). The CSBR reviews the submitted information and makes an applicability recommendation to the Department of Administration, which then makes the decision

about whether the project is required to follow the B3 Guidelines. Applicability determinations can also be done for groups of projects (used for programs such as POHP).

One ongoing challenge is how to accommodate projects that may receive B3-triggering funding late in the design process, potentially after undergoing much of the design of the project. These projects may have proceeded unaware of the B3 Guidelines requirements (as they were in early design there would not have been any funding yet requiring compliance with B3). The later in the design phases that these requirements are realized the larger the potential amount of design modifications may be necessary to be brought into compliance with the B3 Guidelines. Some of this challenge arises when Bond-fund eligible projects approach funding; as they may be well into design before seeking financial support. This disparity in the timeline of the identification of the applicability of the guidelines can be challenging to those teams coming to the program later.

Other challenging project types that have emerged are small projects considered a building under Minnesota Code and for which the B3 Guidelines apply; but that provide limited opportunity for energy and water savings and for achieving sustainable measures across the other guideline areas. These include:

- Small unheated and utility buildings.
- Pre-manufactured or modular buildings.
- Parking garages and park and ride facilities that may include a small amount of conditioned space
- Amphitheaters and outdoor facilities
- Facilities that enclose process loads (including wastewater treatment facilities).

Stakeholder Feedback and Discussion

Applicability of the B3 Guidelines for various project sizes and scopes was consistently mentioned in survey responses and in focus groups. Some agencies funded through the bonding bill use their funds for small-scale projects for which the B3 Guidelines have limited applicability and become a burden for the project teams. Focus group participants recognize some measures can and should be applied to all projects - but would prefer a prescriptive or typology-specific approach for applying guidelines to these small and limited-scope projects. They emphasized the importance of balancing the level of effort with the impactfulness of the outcome.

Focus group participants responded positively to the proposed update to the funding and contracting process in which, at the end of each bonding cycle, implementing State agencies work with CSBR to verify applicability and complete a B3 agreement. Participants agree that knowing about B3 Guideline requirements as early as possible in design leads to the best outcomes.

Comments made by survey respondents indicate a lack of client and or owner knowledge of requirements and compliance as a barrier to meeting the B3 Guideline requirements.

CSBR Recommendations

The Department of Administration, MMB, and the CSBR reviewed the process for notifying projects that they are required to comply with the B3 Guidelines. Figure 5 outlines the typical process that projects follow in the state

capital budget process with a number of notification points to integrate the B3 Guidelines. Local government projects with a construction cost of more than \$1,500,000, or any other capital project with a construction cost of more than \$750,000 must send the Department of Administration their predesign documents for review, before design work or any other work on a project can begin using state funds. The instructions in the Predesign Manual for Capital Project Budgets have listed the coordination of requirements of the Minnesota Sustainable Building Guidelines (B3) since 2005. However, additional process improvements are needed to ensure every project knows the B3 requirements must be met as early as possible to create project budgets, plan schedules and select design team members. In addition, many stakeholders confuse predesign requirements with B3 requirements and this needs to be addressed.

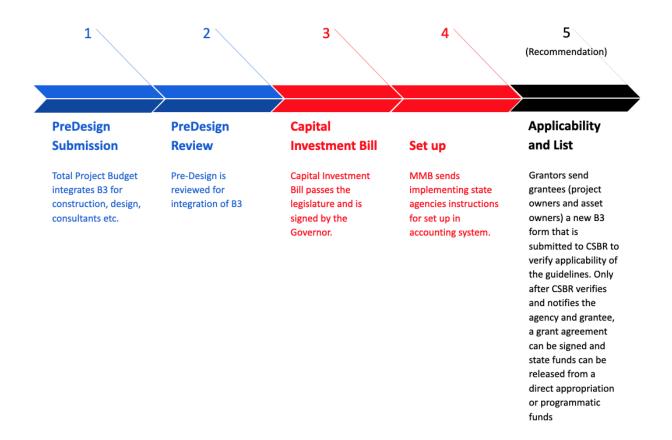


FIGURE 5 - Process for Integrating B3 in Capital Investment Bill and Designated Projects

- (E) Revise statutory language to clarify B3 Guidelines applicability for different project types: Clearly define "new buildings", specify applicability criteria for building additions, and refine the criteria for major renovations to include both a minimum size requirement and the replacement of mechanical systems.
- (F) Require project identification and a B3 Guidelines applicability determination for all projects prior to releasing Capital Investment Bill funds (Figure 5): Add a step to the process for distributing state funds from Capital Investment Bills for each implementing agency to work with the recipient of appropriations grantees to identify all projects that the funds will be used for (if not already specified in the bill

- language) and submit a B3 Guidelines Applicability Form for each project. Upon receipt of the Applicability Form, applicability determinations should be made for each project by the Department of Administration based upon a review by the Center for Sustainable Building Research (CSBR). This step should also identify which version of the B3 Guidelines and the SB 2030 Energy Standard will be used, whether an alternative path (e.g., Small Buildings Method) will be pursued, and whether any initial out-of-scope determinations will be requested. It can occur after MMB sends the legal and administrative requirements of capital funding to the implementing agencies and must always occur prior to the grant agreement and release of funds.
- (G) <u>Improve the review of the B3 Guidelines in Predesign submissions</u>: The Department of Administration and CSBR should create a process to review Predesign submissions for integrating the B3 Guidelines in Project Budgets, Schedules and Design Team agreements. This process needs to fit within the statutory requirement for the Department of Administration to complete predesign reviews within 10 days.
- (H) Consider a minimum size requirement for New Construction required to meet the B3 Guidelines: As noted in previous sections, Minnesota Statutes require all bond-funded new construction to comply with the B3 Guidelines. Even with the execution of the other recommendations in this section, small projects <\$750,000 (or \$1,500,000 for local projects) will not complete a Predesign and therefore might be unaware of the B3 requirements until they receive notification after a Capital Investment Bill. In addition, Capital Investment Bills frequently include funding for small projects, renovations and other projects that may not identify specific work until well after funding is received. A solution to these challenges could be to add a minimum size for New Construction, Additions, and Renovations in Statute. Further study is required between the CSBR and the Department of Administration to determine the optimum size for a minimum requirement. This minimum size could be combined with prescriptive requirements for all construction to retain sustainability impact regardless of project size.
- (I) Track projects in Design that may pursue bond funding in the future: Develop a process to identify projects that are beginning design and may seek bond funding that could trigger the requirement of meeting the B3 Guidelines. These projects should complete the CSBR B3 Guidelines Applicability Form before an appropriation is made to them and—if applicable—should meet with the CSBR and set the project up in the tracking tool. This will allow the project team to integrate potential requirements early in the design process. Training and education will be needed to encourage teams to communicate with CSBR to take advantage of this option.

Section 3: Compliance and Waivers.

Current B3 Program Context

The Compliance Review Process is designed to provide regular checkpoints for reviewing compliance with the guidelines from the project's initial phases through ongoing occupancy. The Project Owner that is granted general obligation bond funding for a project must ensure that the project adheres to the B3 Guidelines. The Project Owner has primary responsibility for B3 compliance and is the party that contracts with the design team and the contractor to complete the project. The Project Owner ensures that the project team has sufficient resources to comply with the B3 Guidelines and selects a Guideline Leader as a representative to assist with successfully submitting project documentation. This is conducted through the B3 Guidelines Tracking Tool, an online project file that tracks project phases from predesign through ten years of building operation.¹⁰

Project Owner Role on B3 Projects

The Project Owner has three primary tasks. They can act as the Guideline Leader or hire another group to perform this role, however, the Project Owner is ultimately responsible:

- Completing Guideline Documentation: The Project Owner must provide information related to guidelines that fall under their responsibility.
- Phase Review and Approval: The Project Owner is responsible for reviewing and approving project team submissions at each phase to confirm, to the best of their knowledge, that complete and accurate documentation is provided.
- Variance Review: Project Owner is responsible for determining whether variance requests made by the
 project team are deemed acceptable by Asset Owner and/or Grantor. This does not represent approval
 of the variance request. The final determination is made by the Department of Administration in
 consultation with CSBR.

The Project Owner also leads the Compliance Review Process, which consists of the following key components:

- The Project Owner receives the Phase Summary Report from the guideline leader, submitted online using the B3 Guidelines Tracking Tool.
- The Project Owner reviews the extent and nature of compliance as documented by the project team and submitted by the guideline leader. The Project Owner confirms the submission is accurate to the best of their knowledge.
- The Project Owner then either approves the extent of compliance for that phase, or directs the guideline leader to revisit compliance measures with the project team. This is done in part by the Variance Review Process.
- After completion of the project, data from each year of occupancy will be reported through the B3 Guidelines Tracking Tool for a period of at least 10 years.

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¹⁰ https://www.b3mn.org/wp-content/uploads/20210820_B3GuidelinesVersion32r01_Small-Buildings-Updates-Final.pdf

The project team is led by the Guideline Leader, who coordinates the completion and documentation of tasks to comply with the sustainable building guidelines. Different project team members may fill the role of guideline leader for each phase. The guideline leader may work within the organization contractually responsible for a specific phase, or they may be a consultant hired by that organization. The guideline leader is the primary contact person for guideline compliance. If an agency does not designate this role, a representative from the project team fulfills the guideline leader's tasks. 11

The guideline leader's duties include:

- Coordinating and supporting the Guideline Management Process.
- Maintaining continuity as the guideline leader's position transfers across phases and responsible organizations.
- Supporting an interdisciplinary, participatory team approach

Variances and Non-Compliance Summary

The B3 Guidelines consist primarily of mandatory sustainability measures. Projects with unique conditions may necessitate waivers (called variances under the B3 Guidelines program) from some guidelines under some conditions. To ensure smoother implementation of the program it is suggested that project teams fully review the guidelines at the beginning of the project to ensure instances of potential variances are identified as early as is feasible.

There are two types of variances under the B3 Guidelines program:

- Provisional Variance: This allows a temporary bypass for guidelines if full compliance can't be determined at a specific phase. It's applicable to a single project phase at a time (the guideline is retained at subsequent phases).
- Full Variance: When a project's use (program) conflicts with a guideline or available technology can't meet the B3 threshold, a full variance can be sought. However, teams must exhaustively explore creative solutions to uphold the guideline's intent.

Some example reasons that are not valid for full variance: Not evaluating alternative designs, financial or time constraints, errors by the project team unaddressed in later phases, design process adjustments needed to accommodate B3 Compliance, projects of irregular size or other unusual conditions.

Non-Compliance: If projects cannot satisfactorily document compliance to obtain a variance, the guideline is labeled 'Not Compliant' and listed as part of the project details on the B3 Case Studies Database.

¹¹ https://www.b3mn.org/wp-content/uploads/20210820_B3GuidelinesVersion32r01_Small-Buildings-Updates-Final.pdf

Both variance requests and non-compliant guideline indications are initiated in the Tracking Tool by the project team and approved during the phase submission by the Project Owner. Future consideration will need to be made with the legislature to consider adding appropriate penalties for noncompliance to statute.

Outside-of-scope determinations

Variances are not intended to be used for guidelines unrelated to the project scope, instead major renovation projects with limited scope may request that CSBR review the applicability of guidelines unrelated to project work. If approved, an outside-of-scope determination waives these unrelated guidelines. Adequate justification for this determination requires that guidelines are unrelated to project scope: e.g. an interior renovation may request stormwater-related guidelines be considered out-of-scope. Adequate justification does not include projects in which guidelines were simply not included in project scoping. 12

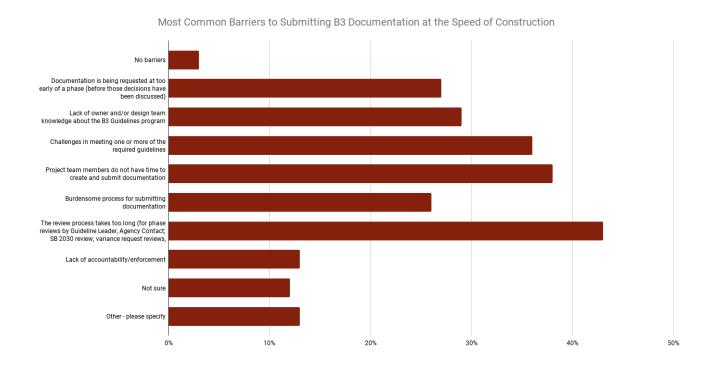
Stakeholder Feedback and Discussion

When asked about documentation for Guideline compliance, survey respondents cited the long timeline of the review process, lack of project team member time to complete documentation, challenges in meeting one or more guidelines, and lack of owner and or design team knowledge about the B3 Guidelines as the most common barriers to submitting documentation at the speed of construction, as shown in Figure 6.

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¹² https://www.b3mn.org/wp-content/uploads/20210820 B3GuidelinesVersion32r01 Small-Buildings-Updates-Final.pdf

FIGURE 6: Percentage of survey responses for each barrier to submitting documentation at the speed of construction



Focus group participants confirmed these findings and suggested that B3 documentation should follow design and construction submissions. Focus group participants also expressed a desire to allow 'incomplete' phase submissions for instances where a small number of guidelines are not yet in compliance, but the project is advanced in the Tracking Tool to allow documentation and design to progress.

Focus group participants also identified some technical improvements that could be made to the Tracking Tool to allow Guideline Leaders to more quickly and clearly understand and communicate the project's progress with team members.

CSBR Recommendations:

- (J) Modify state statute to explicitly allow individual guidelines to be waived due to non-applicability or another approved reason: Statute should enable individual guideline requirements to be waived if they are determined by the Department of Administration to be not applicable due to the project type and scope. Statute should also enable individual guideline requirements to be adjusted or waived based on a limited set of justifiable reasons established by the Department of Administration.
- (K) <u>Assign responsibility for reviewing compliance to the Department of Administration, with evaluation and technical support from the CSBR</u>: The Department of Administration should review project compliance and make the final determinations for variance requests. CSBR should evaluate performance and provide review tools and technical support. This approach will improve consistency across B3

- projects compared to the current model of these responsibilities being held by the individual agencies administering project funding.
- (L) <u>Streamline the process for making out-of-scope determinations:</u> For projects with limited scope (e.g., a renovation with no sitework), develop a streamlined process for determining which guidelines are not applicable. This can improve the consistent application of out-of-scope determinations across projects and reduce the time needed from project teams and B3 Guidelines administrators.
- (M) <u>Develop standardized practices for reviewing project documentation</u>: Produce a detailed review guide for project reviewers to ensure consistency across projects and over time. The CSBR should produce this guide and should address both the review of variance requests and the review of the project documentation submitted at each phase.
- (N) Enhance the B3 Guidelines Tracking Tool to better support variance requests: Revise the required project team inputs in the B3 Guidelines project tracking system to enable more detailed variance requests. Ensure there are input fields for each required piece of information, such as the program-approved reason for the variance request (e.g., programmatic conflict), a project-specific narrative justifying the request, a description of what alternative or partially-compliant solutions are being pursued, and any supporting documentation. This would also permit program-level summaries of variance requests and enable a more detailed review of which guidelines often trigger the variance process.
- (O) <u>Track metrics related to project compliance and variance use, report these annually and consider a penalty for non-compliance.</u>: Include program-wide compliance and variance request data in annual reports to track program outcomes and provide a feedback loop for the program. This can help identify challenging aspects of the guidelines that may benefit from additional training, project support, and/or guideline revisions to the requirements. The Department of Administration should develop a set of consequences for Project Owners, Asset Owners, Grantors and Grantees who do not comply with the B3 Guidelines.

Section 4: Outreach and Training

Current B3 Program Context

The B3 program administrators provide education, training, and technical support to project teams in several different formats, including conference presentations, live training sessions and workshops, recorded webinars, on-demand training videos, and guidance documents. Training topics include deep dives into specific subjects, summaries of recent changes to the B3 Guidelines, and overviews of specific roles. All recorded and on-demand resources are available through the B3 Guidelines website and/or the B3 Guidelines Training and Education webpage. Individual technical support is also available for project teams upon request via emails, phone calls, and meetings.

In addition to training project teams on sustainable design practices and B3 program requirements, the B3 program administrators also communicate and promote the program to a broader audience through annual events that alternate between 'Best of B3' project awards and a more general program celebration. Details about B3 projects - including project scorecards - are publicly available on the <u>B3 Case Studies Database</u>, which is presented to multiple audiences each year.

Stakeholder Feedback and Discussion

The survey results reveal that respondents believe the B3 Guidelines program should prioritize training for owners, starting during project planning, budgeting, and predesign.

- 60% of owners reported that training "content targeted for people in my project role" would be helpful.
- 29% of respondents identified lack of owner knowledge about the B3 Guidelines program as one of the largest barriers to meeting the B3 Guidelines.
- 53% of respondents indicated that an introduction to the B3 Guidelines for people that are completely new to the program would be useful to them.
- 62% of design team members and 51% of agency contacts do not think the B3 requirements were adequately incorporated into project planning, budgeting, and predesign for their projects.
- Many of the open-ended responses describe the need for owner training both to improve their understanding of the program and to motivate compliance. Several noted that the design team is currently providing this education.

The need for owner education and training was also emphasized during the focus groups, where participants noted that this is especially needed for college and university campuses.

Focus group participants and survey respondents also remarked that the sustainability achievements of B3 projects are not getting enough recognition due to a lack of branding and brand awareness.

As shown in Figure 7, survey respondents indicated that guideline-specific training resources would be most helpful, along with training on program updates, and an introduction to the program. Focus group participants

echoed the desire for a standard 'Introduction to B3' resource in project kick-off meetings with owners and project team members who may not know of B3.

Since nearly all (99%) of respondents are familiar with the B3 website, but most (70%) only engage in training occasionally or less, training resources should be directly integrated into the B3 Guidelines website and Tracking Tool - an idea that was supported by design team focus group members.

FIGURE 7: Percentage of respondents indicating helpfulness of training types

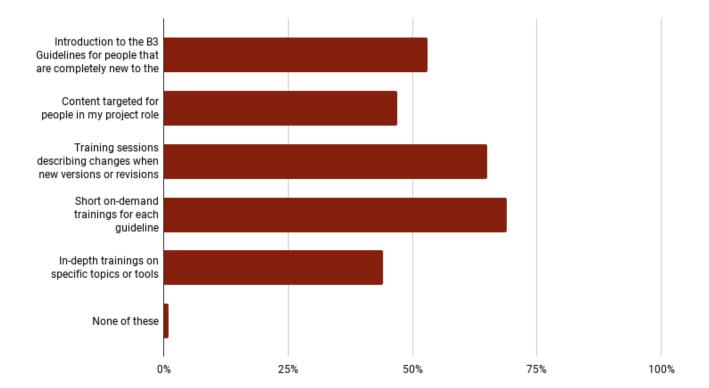
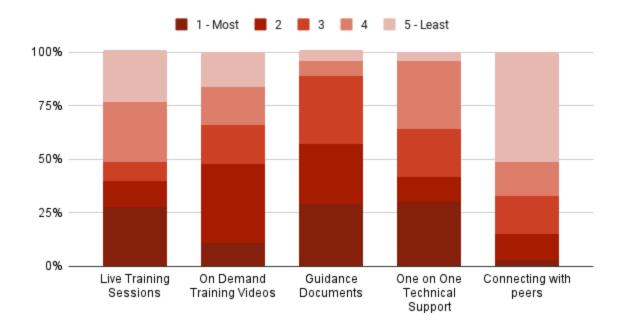


FIGURE 8: Training Support Type Ranked by Helpfulness: demonstrates that guidance documents rank as the most highly valued training resources (ranked in the top two of five options by 57% of respondents). Connecting with peers is currently ranked as the least helpful, however in the focus group participants shared a desire for a message board type forum for design team members (from different projects or firms) to share information with each other.



Survey responses indicate that project teams benefit greatly from one-on-one support and the B3 Guidelines program should extend its capacity for more technical support. 30% of respondents ranked one-on-one technical support as the most helpful type of support - the highest of any of the five options listed. Over half of the respondents estimate that over ten hours of direct support from B3 Guidelines program administrators are needed for each project.

CSBR Recommendations

- (P) <u>Update statutory language to include outreach, training, and technical support</u>: Include language in the B3 Guidelines statute requiring program administrators to provide training and technical support to project teams as well as program outreach to build awareness of the program across the state.
- (Q) <u>Prioritize the training resources and formats requested by stakeholders:</u> Stakeholders identified several opportunities to expand the available training resources, including: an introduction to the B3 Guidelines for people that are completely new to the program, education and training for building owners, and more guideline-specific training resources and guidance documents that are integrated into the B3 Guidelines website and Tracking Tool. While these priorities can inform the current training plan, progress can be greatly accelerated if the state allocates additional resources to this task.
- (R) <u>Provide additional technical support to project teams:</u> Both the survey and the focus groups identified direct technical support as a valuable resource and called for additional capacity for this type of support. We recommend: expanding the resources allocated to directly support project teams, ensuring project teams are aware of this resource, developing a structure for managing inquiries, publishing frequently asked questions, and facilitating peer-to-peer learning.
- (S) <u>Improve the communication and promotion of the program</u>: Expand the program's visibility to building owners and users across the state to celebrate sustainability efforts and outcomes better and to motivate compliance. With additional resources provided by the state, this can be done by B3 program administrators as an expansion to the existing communication and promotion efforts, and could include the implementation of B3 Guidelines window clings for compliant projects.

SECTION 5: ADMINISTRATION

Current B3 Program Context

The B3 Guidelines program is currently overseen by the Department of Administration, with the Department of Commerce providing input on the energy and atmosphere guidelines and overseeing the SB 2030 Standard.

Role of the Project Owner of a B3 Project

Ultimately, the Project Owner of the capital construction project is responsible for meeting the objectives outlined by the Legislature and the goals determined by the agency responsible for overseeing the program.

Challenges with this approach include:

- Uneven application of the Compliance Review process: Across various reviews by the B3 Guidelines administrators there is apparent variation in the level of rigor undertaken by the Project Owners, Asset Owners, Grantors and Grantees; both with respect to the apparent level of review undertaken as well as the extent to which teams are managed towards timely completion and compliance of the guidelines.
- Limited resources and expertise available for review and receipt: Related to the above item, different Project Owners have different capacities and processes relating to the review of building projects.

Stakeholder Feedback and Discussion

Focus group participants identified a perceived lack of oversight and accountability and 14% of survey respondents identified that the lack of accountability/enforcement is one of the top three barriers to meeting the B3 Guidelines. This was reinforced by multiple Project Owners reporting that they do not thoroughly review the project information submitted by design teams. In addition, responses from the survey and reinforced in the focus group noted that the Project Owner of a B3 project might be new to the process and need education and training to oversee the Design Team. Some comments indicated a lack of clarity regarding educating project team members on requirements and enforcing and verifying compliance.

Survey respondents also expressed frustration with the speed of the review process, both for the Project Owner review at each project phase and with reviews conducted by the B3 team, in particular the SB 2030 review.

CSBR Recommendations

- (T) Assign responsibility for administering and overseeing the B3 Guidelines to the Department of Administration: Update statutory language to assign responsibility for administering and overseeing the B3 Guidelines to the commissioner of the Department of Administration in consultation with the commissioner of the Department of Commerce. The Department of Administration's role should be to make applicability determinations, approve or deny variance requests, review project compliance, and update the legislature regarding program outcomes. Other program administration activities should continue to be complete with a contract with CSBR. The Department of Commerce's role should be to advise on the energy and atmosphere guidelines including coordination with the SB 2030 Standard.
- (U) Continue to contract with the Center for Sustainable Building Research (CSBR) for program implementation and evaluation of project compliance: CSBR should continue to maintain and update the B3 Guidelines and the online project tracking system, offer project applicability recommendations, and provide training and technical assistance to project teams. As described elsewhere in this report, the CSBR's role should be expanded to develop and track program-wide key performance indicators, evaluate variance requests and project compliance through documentation submissions for the Department of Administration, and provide an annual report on program outcomes to the commissioner of the Department of Administration.
- (V) Include compliance with the B3 Guidelines in project grant agreements: Include language in grant agreements requiring compliance with the B3 Guidelines and timely submissions of project documentation through the B3 Guidelines Tracking Tool. This language should make it clear that the owners of the projects receiving funding are responsible for meeting the B3 Guidelines as a condition of the funding. Agreements between building owners and design firms must include B3 Guidelines documentation as part of the project scope.

SECTION 6: RESOURCES AND SUPPORT

Current B3 Program Context

History of Funding

As noted in the Introduction and in Section 5: Administration the original legislation that created the Minnesota Sustainable Building Guidelines (B3) states: *The Department of Administration and the Department of Commerce, with the assistance of other agencies, shall develop sustainable building design guidelines for all new state buildings by January 15, 2003, and for all major renovations of state buildings by February 1, 2009.*

Funding to support the program has been split between funding for the broader sustainability guidelines (B3) and SB 2030, the energy/carbon guidelines. This supports the development, update and maintenance of the program. However, this funding has not been adjusted for inflation in the last 22 years for B3 and 16 years for SB 2030. Adjusted for inflation, the funding would change as follows:

- \$500,000 for B3 in 2001 is \$867,305 as of September 2023¹³
- \$500,000 for SB 2030 in 2007 is \$740,385 as of September 2023¹⁴

Holding the program budgets steady has reduced the number of resources for project support, research, and guideline updates as time goes on. In addition, these program budgets will not support any of the additional work recommended in this document - such as added time from the Minnesota Department of Administration to increase their administrative responsibilities and by the CSBR to offer additional training, provide documentation review, enhance the project tracking system, define and track program-wide key performance indicators, refine the guideline requirements, and expand technical assistance.

Funding is also tied to a typical Capital Investment Bill every two years of 25-35 projects that are required to comply with the B3 Guidelines. Expansion of the program to include more projects by statute or in the language of a particular Capital Investment Bill will also require additional funding to support.

ibiu

¹³ https://www.usinflationcalculator.com

¹⁴ Ibid

CSBR Recommendations

- (W) <u>Provide ongoing funding to the Department of Administration to oversee the Minnesota Sustainable</u>
 <u>Building Guidelines Program (B3):</u> The Department of Administration should provide staff to oversee and administer the program as outlined in Section 5.
- (X) Increase the ongoing funding to the Department of Administration for the Center for Sustainable Building Research (CSBR): Increase the ongoing funding to the CSBR for the B3 program (B3 and SB 2030) to account for inflation and the additional training, project documentation reviews, technical assistance and other recommendations in the report. This is estimated to be \$1,780,000 per year in 2024 which is an increase of \$780,000 from the typical yearly funding of \$1,000,000.
- (Y) Provide support in the next two fiscal years for targeted B3 program improvements: Some of the recommendations for program improvement in this report can be achieved with one-time investments, such as developing key performance indicators to measure progress toward the legislature's targeted outcomes, streamlining the B3 Guidelines requirements and tracking system to prioritize these outcomes, and providing additional on-demand trainings. Funding for these items is estimated to be a total of \$855,000 for the two-year period (FY25 and 26).
- (Z) Involve the Department of Administration, Department of Commerce, MMB and the CSBR in developing revised statutory language for the B3 Guidelines: The current program developers and administrators should assist with statute updates to ensure lessons learned over the past two decades are informing the future of the program.

ADDITIONAL FUNDING TO SUPPORT THE RECOMMENDATIONS IN THIS REPORT*					
	FY25	FY26	FY27	Future Years**	
Department of Administration	\$286,000	\$277,600	\$277,600	\$277,600	
CSBR	\$850,000 + \$427,500	\$850,000 + \$427,500	\$850,000	\$850,000	
Total	\$1,563,500	\$1,555,100	\$1,127,500	\$1,127,500	
New FTEs (Admin)	2	2	2	2	

^{*}Note: Estimates of funding needs based upon the recommendations in the report and assuming typical number and frequency of projects requiring B3 in Capital Investment Bills. These amounts have not been reviewed by MMB or the Legislative Budget Office.

^{**}Note: Future years will require funding to periodically be adjusted for inflation.