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B3 Guidelines Site and Water Updates Including Small and Constrained Sites

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Agenda

- Logistics: webinar and education credits
- Introduction
- Updates overview:
 - General intent of guideline revisions
 - Timeline of updates
 - Specific intent of these updates
- Applicability of Small Buildings and Small Sites under B3 and SB 2030
- Updates on defining a site
- Deep dive in guideline updates
- Upcoming training and other program notes

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Questions (collected via the chat during and leaving time at the end)



Webinar Logistics & Education Credits

- Logistics
- A recording of this session will be posted on our training page at b3mn.org
- Those needing AIA credit please send your AIA # in the chat
- Attendees will be muted
- Please send any questions in the chat. I'll leave time after each guideline and at the end to address questions not addressed during the presentation.





General Intent of Guideline Revisions

- Bring B3 up-to-date with the latest national standards and green rating systems
- Revise performance standards and requirements to reflect the current state of the building industry in Minnesota
- Reduce the administrative burden for project teams
- Improve the sustainable performance of projects in the future





B3 Process – providing a feedback loop that operates at different scales



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SB 2030 and B3 Programs



strategies through early

and repeated modeling.

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Ensure project is meeting performance requirements.



Timeline of Guideline Revisions

New Construction projects funded after in 2004 required to use B3

1.1, 2.0, 2.1 (version 2.1 was when the tracking Tool replaced the excel workbook)

• Major Renovations were added to projects receiving funding after 2009

Version 2.2 - 2013

Version 3.0 - 2017

- Revisions in overall process and in-depth revisions to process management and materials
- Goal of streamlining tracking while maximizing benefit

Version 3.1 - required for projects signing up for predesign in the tracking tool on or after January 1, 2019. Includes updates to :

- Indoor Environmental Quality
- Site and Water

Version 3.2 - January 1, 2020. Includes updates to:

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• Energy and Atmosphere

Version 3.2r01

• Updates to version 3.2 to better accommodate small buildings, implemented in 2021



B3 Guidelines Updates for Small and Constrained Sites

Goal

Better accommodate and differentiate between small sites with limited opportunities and those sites with greater capacity for addressing the intent and objectives of the guidelines.





B3 Guidelines Small Buildings, SB 2030 Small Buildings Method, and Small Sites

SB 2030 & B3 Small Buildings Method, Small Sites updates

SB 2030 Small Buildings Method covers the energy efficiency target and requirements, B3 Small Buildings Method covers all other topic areas except for site guidelines. These updates cover smaller and more constrained site considerations.

SB 2030 Small Buildings Method

- Energy efficiency target, including renewable energy (onsite and RECs)
- Prescriptive Efficiency Path
- Energy Star rated equipment
- Building water efficiency

GUIDELINES

B3 Guidelines Small Buildings Method

Topic areas except site and Energy Targets:

- Performance Management
- Bird Safety
- Energy consumption documentation
- Atmospheric Protection
- Renewable & EV Ready
- IEQ Guidelines
- Materials & Waste Guidelines

Updated 2020

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2021

B3 Guidelines Small Sites Method

- Site & Water Connections
- Site Water Quality & Efficiency
- Soil
- Vegetation
- Animal habitat support

2022

B3 Guidelines Small Building Method

"Small Buildings" are defined as those that include less than 20,000 gross square feet (gsf) of conditioned space. Upon approval from the B3 Guidelines Administrators, several other space types may be eligible for exclusion from the building area calculation, including:

- Spaces that are not regularly occupied and are indirectly conditioned or semi-heated
- Spaces that are not regularly occupied and are primarily used to enclose industrial or similar processes
- Spaces that are not regularly occupied and are primarily used to provide inactive storage



SB 2030 Small Buildings Method

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SB 2030 Small Buildings Method

- Developed to reduce the need for energy simulations for small buildings and permit the minimum efficiency measures to be established using a prescriptive approach
- This process aligns with the hierarchical approach that larger buildings will use
- SB 2030 Energy Standard tool is still used to set energy target, modified by an adjustment factor
- Updated in 2020; updated to include newer prescriptive requirements + renewables + off-site options
- Aligns with the approach that larger projects but doesn't require the same level of energy modeling by looking at on-site options



Applicability of B3 Guidelines and SB 2030 Spaces

	Regularly occupied	Not regularly occupied	Not regularly occupied, and primarily inactive storage/industrial process
Conditioned space	Include for both B3, SB 2030	Include for both B3, SB 2030	Include for SB 2030, potentially excluded from B3*
Indirectly conditioned	Include for both B3, SB 2030	Include for SB 2030, potentially excluded from B3*	Include for SB 2030, potentially excluded from B3*
Semiheated space	Include for both B3, SB 2030	Include for SB 2030, potentially excluded from B3*	Include for SB 2030, potentially excluded from B3*
Unconditioned space	Do not include for B3, SB 2030	Do not include for B3, SB 2030	Do not include for B3, SB 2030

*Spaces noted as "potentially excluded" above must be approved by the B3 Guidelines Administrators.

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Small Sites:

Previously—applicability looked at site disturbance or renovated impervious area combining the area under the building footprint and the area outside of that footprint.

Update has moving to 2 thresholds for different guidelines:

Most site and water guidelines will now look to whether they

Include at least 1,000 square feet of land disturbance, or at least 10 cubic yards or more of cut and fill of the site, **excluding the land disturbance and cut and fill within or below the building footprint**. Exterior scope related only to ADA improvements or utility connections may be excluded from contribution towards these amounts.

• Guideline S.2 looks at whether projects

Include at least 5,000 square feet of land disturbance, or at least 50 cubic yards or more of cut and fill **including the land disturbance and cut and fill within or below the building footprint**. Exterior scope related only to ADA improvements or utility connections may be excluded from contribution towards these amounts.



Applicability by guideline

	Based on disturbance <u>including</u> under the building footprint	Based on disturbance <u>excluding</u> the building footprint
S.1 Site and Water Connections		
S.1A - Plant network connections		Х
S.1A - Animal network connections		Х
S.1A - Human network connections		Х
S.2 Site Water Quality and Efficiency		
S.2A - Stormwater quantity & runoff	Х	
S.2B - Stormwater quality	Х	
S.2C - Site irrigation (no potable water after 5 year establishment)	Х	
S.2D - Building water consumption reduced by 50% compared to '92 EPAct		
S.3 Soil		
S.3A - Soil description		Х
S.3B - Greenfield sites		Х
S.3C - Minimize soil disturbance		Х
S.3D - Soil management and erosion control plans		Х
S.3E - Bulk density limits		Х
S.3F - Wetland buffer		Х
S.3G - No topsoil exported from site		Х
S.3H - Organic content in planting and seeding areas		Х
S.3I - Urban soils management		Х
S.3J - Atypical soils		Х

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	Based on disturbance <u>including</u> under the building footprint	Based on disturbance <u>excluding</u> the building footprint
S.4 Vegetation		
S.4A - Avoidance of critical sites		Х
S.4B - Adequate tree conditions		Х
S.4C - Vegetation selection		Х
S.4D - Pollinator friendly vegetation		Х
S.4E - Biomass target		Х
S.4F - Site albedo minimum		Х
S.5 Animal Habitat Support		
S.5A - Bird-safety Whole Building Threat Factor		
S.5B - Bird-safety Non-Enclosure Threat Factor		
S.5C - Bird-safety High Risk Surfaces		
S.5D - Bird-safety Traps		
S.5E - Bird-safety Lights Out Management procedures		
S.5F - Bird-safety First Year Monitoring		
S.5G - Protection of rare, threatened, endangered species		Х
S.5H - Animal habitat provisions		Х
S.5I - Aggregate illumination levels (Dark Sky Model Lighting Ordinance)		Х
S.5O - Bird-safety Small Buildings Path - Average Glazing Threat Factor		



Timeline of B3 Guidelines Small Sites Updates Rollout

- Version 3.2 projects will have access to this as an update; both posted on the guidelines and with available updates in the tracking tool. Older versions won't see this method available; though can upgrade to the newer version if they choose.
- Tracking tool programming is underway, anticipate full rollout in he fall.
- Update won't change minimum requirements for projects already using version 3.2

These updates will being posted as a revision to version 3.2 rather than a new version (this will be posted along with some other minor updates and clarifications as version 3.2r02).



Updates Overview

- Definition of project sites
- Guideline by guideline
- Highlighting updated sections
 - And when available meeting the guidelines sections

Note that this is not full text of the guidelines. For brevity some detailed non-updated sections have been edited in these slides; please see full guideline text for additional details.





Definition of a Project Site & Secondary Sites

Defining the project site can be accomplished in the following methods:

• Use property lines to determine the project site.

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 Include at least the area disturbed as a result of the construction activities of the project if the project is part of a larger campus. This disturbed area will be considered the primary project site.

On sites using the second method more flexible site considerations can be used in meeting the site and water requirements. Projects may meet the requirements of the primary project site by interventions on the larger campus outside of the primary site area (including in areas that is separated by a public right-of-way). The area used to meet the B3 Guidelines will be considered a secondary project site (or sites) and must be owned by the same entity as the primary project site. Different secondary project sites may be defined as necessary to meet different guidelines.



Definition of a Project Site & Secondary Sites (Continued)

These interventions on secondary project sites must satisfy the requirements for the primary project site area and consist of a modification performed as part of the project and documented as a permanent modification or consist of a well-documented use of a regional or campus resource (e.g. the use of a regional stormwater facility for stormwater requirements) that is filed with appropriate authority with jurisdiction (e.g. the watershed, county, city) that has adequate capacity to meet the B3 Guidelines requirements in addition to all other obligations. A modification of a secondary project site is not required for existing animal habitats that meet the B3 habitat requirements and that are immediately adjacent to the primary project area. The secondary site area may not contribute to meeting the B3 requirements if it is also used to satisfy other preexisting or planned regulatory requirements. The secondary site area, if utilized to satisfy any regulatory requirement for any area outside of the primary project site (e.g., the portion of a secondary site area which contributes to meeting stormwater runoff requirements for an area outside of the primary project site) may only consider the capacity above what is otherwise utilized in order to meet the B3 Guidelines.



Required Performance Criteria

Guidelines are required for New Construction and Major Renovation projects that include at least 1,000 square feet of land disturbance, or at least 10 cubic yards or more of cut and fill of the site, excluding the land disturbance and cut and fill within or below the building footprint. Exterior scope related only to ADA improvements or utility connections may be excluded from contribution towards these amounts.

S.1 Site and Water Connections

- S.1A Plant Network Connections
- S.1B Animal Network Connections
- S.1C Human Systems Connections



Required Performance Criteria

Guidelines other than S.2D are required for New Construction and Major Renovation projects that include at least 5,000 square feet of land disturbance, or at least 50 cubic yards or more of cut and fill including the land disturbance and cut and fill within or below the building footprint. Exterior scope related only to ADA improvements or utility connections may be excluded from contribution towards these amounts. Guideline S.2D applies to projects that include renovation or replacement of plumbing fixtures. Major Renovation projects must upgrade faucets and showerhead in renovated areas to low-flow products. Major Renovation projects may otherwise limit performance criteria application to the fixtures included in the renovation scope.

S.2 Site Water Quality and Efficiency

- S.2A Stormwater quantity and watershed connections
- S.2B Stormwater Quality
- S.2C Potable Water Limits
- S.2D Building water consumption reduction



Guideline S.2: Site Water Quality and Efficiency

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A. Stormwater quantity and watershed connections. Water leaving the project site is subject to the following:

1. Site water cycle requirements: The project site shall manage stormwater to meet the required percentage of site infiltration, evapotranspiration, and runoff according to its soil types, as evaluated using the Minnesota Impact Design Standard (MIDS) calculator and based on an annual evaluation. Additional requirements for A and B soils located in the uplands and lowlands of the watershed are listed under Part 2 below:

Hydrological Soil Groups	Infiltration at Least	Evapotranspiration at Least	Onsite Reuse	Runoff Not to Exceed	Total Onsite Managed
A Soils: 1.63–0.8 in./hr.	<mark>95%</mark>	<mark>5%</mark>	0%	0%	100%
B Soils: 0.45–0.3 in./hr.	50%	40%	5%	5%	95%
C Soils: 0.2 in./hr.	30%	55%	7%	8%	92%
D Soils: 0.006 in./hr.	0%	<mark>60%</mark>	25%	15%	85%



Guideline S.2: Site Water Quality and Efficiency—S.2A Continued

- 2. Watershed connections: (Note that if the project is within a watershed district or management organization's jurisdiction there may be other requirements for the site not listed here).
 - i. For projects located in the uplands of the watershed and in Hydrologic Soil Group A: High Infiltration or in Hydrologic Soil Group B: Moderate Infiltration, infiltration of all rainfall events should be planned for a 25year, 24-hour rain event for project area.
 - ii. For projects located in the lowlands and Hydrologic Soil Group A: High Infiltration or in Hydrologic Soil Group B: Moderate Infiltration, infiltration of all rainfall events should be planned for a 10-year, 24-hour rain event for project area.
 - iii. The features of the site's location in the watershed or lakeshed, and any site-watershed features should be used to inform the design of the site.



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Guideline S.2: Site Water Quality and Efficiency—S.2A Continued

3. Flood prevention: If required by building program to construct within a flood plain, the project shall follow the Federal Emergency Management Agency's (FEMA) regulatory flood protection elevation requirements. Building in a floodplain is prohibited unless essential to the program of the project. Where construction is added to the flood plain it is recommended (and likely to be required under future versions of this guideline) to excavate and remove a volume of soil from flood plain at a 1:1 ratio to offset the volume of the added structures.

4. Runoff rate: The site shall be designed to not exceed the pre-settlement runoff rate for native soil and vegetation conditions as evaluated for a 2- and 10-year storm event, and to not exceed the predevelopment runoff coefficient as evaluated for a 100-year storm event.



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S.2A—additional information on upper and lower watersheds

Determination of upper and lower watersheds:

Data on Minnesota Rivers and Streams is accessible by the Cooperative Stream Gaging (CSG) on the MN DNR CSG web (https://www.dnr.state.mn.us/waters/csg/index.html) for the most current water elevation readings. Ordinary High Water Level (OHWL) of Minnesota Lakes can be determined by contacting a local area hydrologist (listed here: https://www.dnr.state.mn.us/waters/surfacewater_section/hydrographics /ohw.html).

To simplify calculations as to whether a site is in the Lower or Upper part of a watershed, Minnesota has been divided into 7 Major Watersheds Basins or Watershed Basin Groups for the purpose of determining Lower or Upper Watershed position using elevation in feet above OHWL (Ordinary High Water Level) and NWL (Normal Water Level). Both OHWL and NWL of water bodies in Minnesota are determined and regularly updated by MnDNR (Minnesota Department of Natural Resources) and are readily available on-line. Sites or portions of sites located at a higher elevation than the Lower Watershed as defined below should be considered in the Upper Watershed.





S.2A—additional information on upper and lower watersheds (continued)

(receiving bodies for watershed basins listed in guidelines)

Lake Superior & Rainey River watershed basins: lower watershed is defined as within 20 feet elevation of ohwl/nwl of nearest relevant receiving water body.

Minnesota River & Red River of the north watershed basins: lower watershed is defined as within 5 feet elevation of ohwl/nwl of nearest relevant receiving water body.

Upper/North Mississippi River watershed basin: lower watershed is defined as within 15 feet elevation of ohwl/nwl of nearest relevant receiving water body.

St. Croix River watershed basin: lower watershed is defined as within 25 feet elevation of ohwl/nwl of nearest relevant receiving water body

West Metropolitan msp (Minneapolis/St. Paul) watershed organization basins: lower watershed is defined as within 10 feet elevation of ohwl/nwl of nearest relevant receiving water body.

East Metropolitan msp (Minneapolis/St. Paul) watershed organization basins: lower watershed is defined as within 15 feet elevation of ohwl/nwl of nearest relevant receiving water body.

Lower/South Mississippi river watershed basins: lower watershed is defined as within 25 feet elevation of ohwl/nwl of nearest relevant receiving water body.





Guideline S.3: Soil

Required Performance Criteria

Guidelines are required for New Construction and Major Renovation projects that include at least 5,000 square feet of land disturbance, or at least 50 cubic yards or more of cut and fill, excluding the land disturbance and cut and fill within or below the building footprint. Exterior scope related only to ADA improvements or utility connections may be excluded from contribution towards these amounts.

S.3 Soil

- S.3A Soil conditions report
- S.3B Greenfield site limits and requirements
- S.3C Soil disturbance limits
- S.3D Soil management and erosion plans
- S.3E Bulk density limits
- S.3F Vegetated buffer for wetlands
- S.3G Limits on topsoil export
- S.3H Organic material percent requirements
- S.3I Urban soil requirements
- S.3J Atypical soil requirements





Deep Dive—Guideline S.3I: Urban Soils

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I. If urban soils are present, in-site landscaped areas soil should be amended to mimic the physical and biological capabilities of natural and agricultural soils to achieve the following metrics:

- 1. Soil texture: Determine which of the 12 soil classes are present on the site.
- 2. A pH between 5.0 and 8.5.
- 3. Nitrogen-Phosphorous-Potassium (NPK) fertility greater than medium, as tested by using the University of Minnesota Soil Testing Laboratory "Lawn, Garden, and Landscape" Soil Analysis Request Sheet. Equivalent testing of NPK fertility may also be accepted if performed by a different laboratory.
- 4. Meeting certain bulk density requirements for certain soil types (Additional detail of what is required listed in the guideline).
- 5. Organic matter content requirement (Additional detail of what is required listed in the guideline).
- 6. Soil should be modified to achieve certain NRCS infiltration rates (Additional detail of what is required listed in the guideline).
- 7. A cation exchange capacity (CEC) of at least 15 should be achieved.
- 8. A base saturation percentage of at least 30% should be achieved.
- 9. A mycorrhizae count of at least two Glomus species per ounce of soil should be achieved.



Deep Dive—Guideline S.3I: Atypical Soils

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J. Atypical soils: If the project has atypical soils or substrates for a specialized NPC, these shall be preserved in the landscaped areas of the site according to the following:

- 1. All naturally occurring atypical soils of an area greater than 5,000 sq. ft. shall be preserved as required to support NPCs in seeps, fens, bogs, bedrock outcrops, sand blow-outs and sand dunes (as defined by DNR Natural Heritage and Nongame Research Program), Spodosols, Histosols, Psamment, Entisols, and Sodic soils.
- 2. The boundaries of these atypical soils and substrates should be field mapped, marked, and delineated with visible flagging on project site. This NPC delineation prohibits entry of any vehicles with tires before, during, or post construction. These soils or substrates should not be disturbed, buried, blasted, or removed from their original location onsite.
- 3. The MBS Sites of Biodiversity Significance from the DNR and the DNR Native Plant communities lists should be consulted to create and execute the following:
 - i. A specialized, NPC planting plan with a conservation status rank (S-ranks) of S1 or S2 that most appropriately matches the site's atypical soils and substrates.
 - ii. Guidance on site preparation (weed and erosion control), site drainage, and revegetation (seeding, planting, etc.), and long-term maintenance (fire management, weed control, etc.) for that specialized NPC.
 - iii. Operations and maintenance plan to ensure that this restored vegetation and naturally occurring atypical soil is rigorously protected and maintained.
- 4. Upon complete installation of this specialized NPC, a perimeter exclusion fence should be installed.



Pre- and Post-Development Soils

Pre-Development and Post-Development Soils:

Refers to the presence or absence of significant human activities or disturbance via machine of/on the soil of sites.

Post-development soil disturbance describes the removal, displacement or mixing of that site's soil's natural horizons prior to any disturbance of that project's site; and which consist of human machine soil disturbances comprising anything larger than 10 yd.³ in volume or 500 ft.² in area.

Pre-development soils are locations where the following vegetation cover exists: continuous grazing land or old meadow in that condition for at least 25 years, or continuous forest cover meeting these requirements: 70% of tree stems at greater than 10" diameter at breast height (DBH).





Guideline S.4: Vegetation

Required Performance Criteria

Guidelines are required for New Construction and Major Renovation projects that include at least 1,000 square feet of land disturbance, or at least 10 cubic yards or more of cut and fill of the site, excluding the land disturbance and cut and fill within or below the building footprint. Exterior scope related only to ADA improvements or utility connections may be excluded from contribution towards these amounts.

S.4 Vegetation

- S.4A Limits on critical site development
- S.4B Tree condition requirements
- S.4C Vegetation requirements
- S.4E Pollinator friendly vegetation
- S.4F Biomass target
- S.4G Site albedo limit





Required Performance Criteria

Guidelines S.5A through S.F are required for New Construction and Major Renovation projects that include new or renovated glazing within project scope. Projects that include less than 20,000 gsf. of conditioned space that do not include any traps (e.g., skyways, corner windows, or other see-through condition less than 20 ft. across) may opt to meet guideline S.5O in lieu of Guidelines S.5A through S.5F. Guidelines S.5G, S.5H and S.5I are required for New Construction and Major. Renovation projects that include at least 1,000 square feet of land disturbance, or at least 10 cubic yards or more of cut and fill of the site, excluding the land disturbance and cut and fill within or below the building footprint. Exterior scope related only to ADA improvements or utility connections may be excluded from contribution towards these amounts.

S.5 Animal Habitat Support

- S.5A Bird-safety Whole Building Threat Factor
- S.5B Bird-safety Non-Enclosure Threat Factor
- S.5C Bird-safety High Risk Surfaces
- S.5D Bird-safety Traps
- S.5E Bird-safety Lights Out Management Procedures
- S.5F Bird-safety First Year Monitoring

S.5G – Protection of rare, threatened, or endangered species

- S.5H Water habitat
- S.5I Limits on aggregate illuminance
- S.50 Small Building Average Glazing Threat Factor Limits



Deep Dive—Guideline S.5G: Protection of rare, threatened, or endangered species

G. Protection of rare, threatened, or endangered species:

If the project site is within 1 mile of a Minnesota state rare plants, animals, native plant community or other rare feature as determined by a Natural Heritage Review, the project team must create and execute a protection plan to mitigate the impact of those identified species on the project site including the measures listed in the Natural Heritage Letter and at least the following:

- 1. A perimeter exclusion fence a minimum of 42 in. tall.
- 2. An O&M manual to vigorously protect species, with instructions on how to enhance the vigor of the subject species until delisting.
- 3. Supportive habitat for the noted species, aggregated into largest single units with least perimeter.
- 4. Management practices for the subject site designed to protect and enhance the viability of rare, threatened, or endangered species until that species is delisted. Requirements may include avoidance, buffers, management with fire, elimination of fertilizers and invasive species, and/or artificial drainage.
- A permanent outdoor interpretive sign of dimensions greater than 24 in. by 36 in. that references the site's identified rare, threatened, or endangered species using Tilden's 5 Principles of Interpretation.



Deep Dive—Guideline S.5G: Protection of rare, threatened, or endangered species

Submittal requirements:

If the project's Natural Heritage Letter identifies rare features submit final protection plan listing measures to mitigate the impact of those identified species on the project site including the measures listed in the Natural Heritage Letter in addition to those measures listed in guideline requirements.

Include final plans and specification sections referencing design and installation of a perimeter exclusion fence; plans and specifications for site preparation (weed and erosion control), site drainage, and revegetation (seeding, planting, etc.) related to the impact mitigation of rare features.





Deep Dive—Guideline S.5G: Provisions for animal habitat

- G. The following provisions for animal habitat should be included in design:
 - 1. Water features with the following characteristics are required for all B3 sites subject to the listed exclusions:
 - i. At least partially open year-round (e.g., a heater, aerator, or fountain, or waterproof liner may be required to ensure that at least 10% of the water feature is accessible year-round) to maintain continual freshwater access for wildlife.
 - ii. Gently sloped (<10% grade) access for a 5-ft. horizontal distance.
 - iii. Sites with limited ledges and sharp drop-offs.

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- iv. For water features, the primary water source should be roof-collected rainwater, supplemented by treated greywater and potable water as necessary to maintain water feature.
- v. Water features are not required for sites within 500 ft. of an existing natural water body of at least 1 acre in size or a stream at least 10 ft. in width.
- vi. If the site or greater contiguous campus of the site's location has an existing, perennial freshwater feature (natural or manmade) such as the following: fen, river, wetland, stream, creek, pond, lake, NURP basin (stormwater retention or detention basin) with freshwater at least 3 inches in depth, which wildlife can access via land, it is considered to have fulfilled the necessary requirement for a wildlife freshwater source. However, to maintain year round freshwater access for wildlife during the coldest months, a heater or bubbler or fountain should be run to maintain an ice-free freshwater source.



Deep Dive—Guideline S.5G: Provisions for animal habitat (continued)

vi. Size requirements as follows, for listed nonbuilding area:

Size of Site	Size of Freshwater Feature (in Square Feet)	Maximum Depth of Freshwater Feature (in Inches)	Size of Freshwater Feature with depths of ~2" Depth (in Square Feet)	Percent of Perimeter with Gently Sloped (Under 10% Grade) Access
Less than 1 Acre	not required	n/a	<mark>n/a</mark>	n/a
1 to 3 Acres	300	12	100	50%
3 to 5 Acres	500	24	200	40%
5 to 10 Acres	2,000	24	200	30%
10 to 20 Acres	8,000	36	1000	30%
20 to 40 Acres	16,000	n/a	2000	30%
More than 40 Acres	5% of site area	n/a	5% of freshwater water feature area	<mark>10%</mark>



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Full Guidelines

- S.5A Bird safety: Whole Building Threat Factor (WBTF)
- S.5B Bird safety: Non-Enclosure Threat Factor (NETF)
- S.5C Bird safety: High Risk Surfaces
- S.5D Bird safety: traps
- S.5EBird safety: Lights Out management procedure
- S.5F Bird safety: first-year monitoring
- S.5G Protection of rare, threatened, or endangered species.
- S.5H Provisions for animal habitat
- S.5I Aggregate illumination levels





Deep Dive—S.5: Animal Habitat Support (Bird Safety)

Projects that include less than 20,000 gsf of conditioned space that do not include any traps (e.g. skyways, corner windows, or other see-through condition less than 20 ft. across):

S.5A Bird safety: Whole Building Threat Factor (WBTF)

S.5B Bird safety: Non-Enclosure Threat Factor (NETF)

S.5C Bird safety: High Risk Surfaces

S.5D Bird safety: traps

S.5EBird safety: Lights Out management procedure

- S.5F Bird safety: first-year monitoring
- S.5G Protection of rare, threatened, or endangered species.
- S.5H Provisions for animal habitat
- S.5I Aggregate illumination levels

S.50 Average Glazing Threat Factor (New small buildings path)





Deep Dive—S.5: Animal Habitat Support (Bird Safety)

Critical bird habitats clarification (updated from prior critical sites):

Critical bird habitats include all of the following:

- Any land within a conservation easement or existing municipal, county, state parkland.
- Any land within global or state Important Bird Areas, listed at https://www.audubon.org/important-bird-areas/state/minnesota
- Any land within an intact natural community as shown on Minnesota Biological Survey maps (or identified through a NHIS Data Request response) https://www.dnr.state.mn.us/eco/mcbs/maps.html



Deep Dive—S.5: Animal Habitat Support (Bird Safety)

S.5O. Demonstrate that the average threat factor of glazing included in the project is less than the value listed below relative to the project's window to wall ratio (WWR):

Project's Window to wall ratio	Average glazing threat factor— maximum allowed value: not critical bird habitats	Average glazing threat factor— maximum allowed value: critical bird habitats
Less than or equal to 25%	100 (clear glass)	40
Greater than 25%, up to 35%	80	30
Greater than 35%, up to 45%	60	25
Greater than 45%, up to 55%	45	20
Greater than 55%, up to 65%	40	15
Greater than 65%, up to 75%	30	13
Greater than 75%, up to 85%	28	10
Greater than 85%, up to 100%	25	10

When calculating the window to wall ratio and the average glazing threat factor, also include glazing and vertical surfaces of the building which are not part of the enclosure if present, such as glazed railings.



A couple notes on Threat Factors

- Contact us for estimates of threat factors for products that haven't been field tested
 - Estimated based on similar products, percent opacity, and line vs dot patterns
- Films / exterior applied products achieve a compelling threat factor, considerations that have been noted:
 - Durability considerations
 - Increased flexibility of glazing options
 - Exterior application lowers the threat factor relative to surface #2 applications for the same coverage





Other upcoming updates

- Expansion of evapotranspiration calculation guidance
- Water feature—exploration of increasing minimum depths to facilitate the use of available aeration equipment
- Potential for clarification for additional historic context to be incorporated in the project design.





Upcoming training sessions:

Whole Building Life Cycle Assessment for the B3 Guidelines Registration link being sent out this week:

https://z.umn.edu/WholeBuildingLCAJUN22

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2 sessions:

- June 7th, 1pm-3pm, Zoom
 - Introduction and Overview
- June 9th, 1pm-3pm, Zoom
 - Workshop



Posted at b3mn.org/guidelines/training-and-education/

Recently published—prior sessions on:

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