Master Roofers Guarantee of New Brunswick Ltd.
La Guarantie des Maitres Couvreur du Nouveau-Brunswick

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Information Bulletin – Updated

To:	NBRCA Members, MRGNB Manual Holders
From:	MRGNB
Date:	June 22, 2023 - UPDATED
Re:	2015 National Building Code – Roofing Changes: Frequently Asked Questions - UPDATED

On February 1, 2021, the Province of New Brunswick adopted the 2015 National Building Code of Canada (NBC) that came into enforcement as of January 1, 2022.

In the 2015 NBC, there are new requirements related to roofing, more specifically to the wind uplift design. This document is intended to help the NBRCA Members and the roofing industry in our region as we transition to the new criteria.

Part 4 of the NBC outlines states what is required to calculate the wind loads. It includes the wind speed, building geometry, building location, building openings and importance to name a few. The National Research Council (NRC) has developed an online tool to aid in the wind load calculation. Here is the link: https://nrc.canada.ca/en/research-development/products-services/software-applications/wind-load-calculators-roof-cladding-vegetated-roof-assembly

Part 5 of the NBC has a clause stating the roof system must be able to resist the wind loads and the resistance is to be determined in accordance with CAN/CSA-A123.21 “Dynamic Wind Uplift Resistance of Membrane Roofing”.

NBRCA Technical Committee has developed the following to help the roofing industry in answering some typical questions based on our experiences to date.

Frequently Asked Questions:

1. **Who is required to design the roof assembly?**
   The NBC states that environmental separations (i.e., the roof assembly) are to be designed by a professional. The designer is required to calculate the wind load values, indicate the roof edge width and the appropriate combination of materials that have a tested assembly report with a wind resistance value greater than that of the calculated wind loads for the corner, perimeter and field zones of the roof. Ideally, the specification will reference the tested assembly report the design in based on or, at a minimum, state the products listed in the tested assembly report so the Contractor can submit the appropriate products for the project.
2. **Can I install a roof assembly on a wood deck that the test report states the test was completed on a steel deck? What about that assembly on a concrete deck?**

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There are some tested assemblies specific to wood deck. However, the roof assembly report may include statements in the "General Notes" section stating deck equivalencies from the tested assembly. Additionally, if designing or installing a mechanically attached system, there will be a "fastener measured pull out resistance" value to use for field testing.

3. **Does my building need to meet the requirements of the National Energy Code for Buildings?**
   In New Brunswick, the 2011 National Energy Code for Buildings (NEBC) is the adopted code. The NECB applies to the design and construction of new buildings. The NBC applies to the design, construction and occupancy of all new buildings, and the alteration, reconstruction, demolition, removal, relocation and occupancy of all existing buildings.
4. **Do I need to perform field fastener pull out testing on my project with a wood deck?**
   It depends on a few factors. On a new construction, if there is sufficient published data on the fasteners and roof deck type, you can reasonably state the roof system will withstand the wind loads based on the published data.
   For reroof projects, prior to the tendering stage, the Owner should have field testing completed to determine the existing roof deck meets the equivalency requirement from the tested assembly. Testing should be carried out by a third party, such as the Quality Assurance Observers.
5. **Do wind loads and roof zone areas change?**
   Yes. Roof zones are dependant on both building height and width. High-rise buildings, typically, have increased corner zones compared to a low rise building. The wind loads on the building is dependant on the location, topography and use. The Wind RCI online tool will provide the dimensions for each calculation. Additionally, this illustration from the Roofing Contractors Association of British Columbia (RCABC) will help you understand the general expectation for the roof areas.

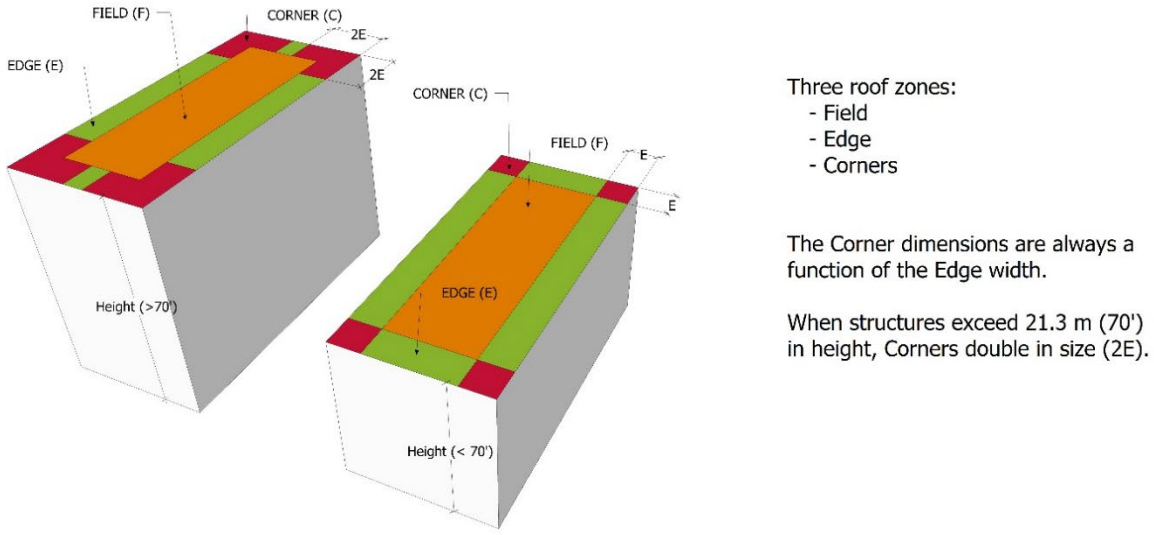

Figure 1 - Typical Low-rise and High-rise depiction of wind load zones

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6. **What securement rate do I use on material that extends between zones, such as insulation or gypsum board?**
   Similar to previous best practices and design intents, it is recommended that the more stringent securement rate be used at the transition locations (i.e., corner to perimeter, perimeter to field), including securing the entire material piece with the same rate.
7. **How do I calculate the wind load for a building that isn't a simple rectangle or square?**
   The NBC states in Division B, Part 4.1.7 that the building is to be designed as if it were to experience the highest possible wind loads. For buildings that are not simple shapes or have corner areas that are not 90 degrees, the designer should consider the intent of the NBC wind load requirements, zone calculation and allow for accommodation for additional zone widths, as required when calculating.
8. **What if there is an adjacent portion of the building that is at a higher elevation?**
   The illustration below represents NBRCA/MRGNB position on what should be considered a corner zone, edge zone and field zone in these situations. Additionally, in general, this illustration shows a more stringent approach to identifying more sensitive areas (i.e., corner zones). Please note that this does not address all situations, however, it can form the basis of understanding of the design intent for both the designer and roofing contractor. NBRCA/MRGNB thanks the Roofing Contractors Association of British Columbia (RCABC) for the use of their illustration.

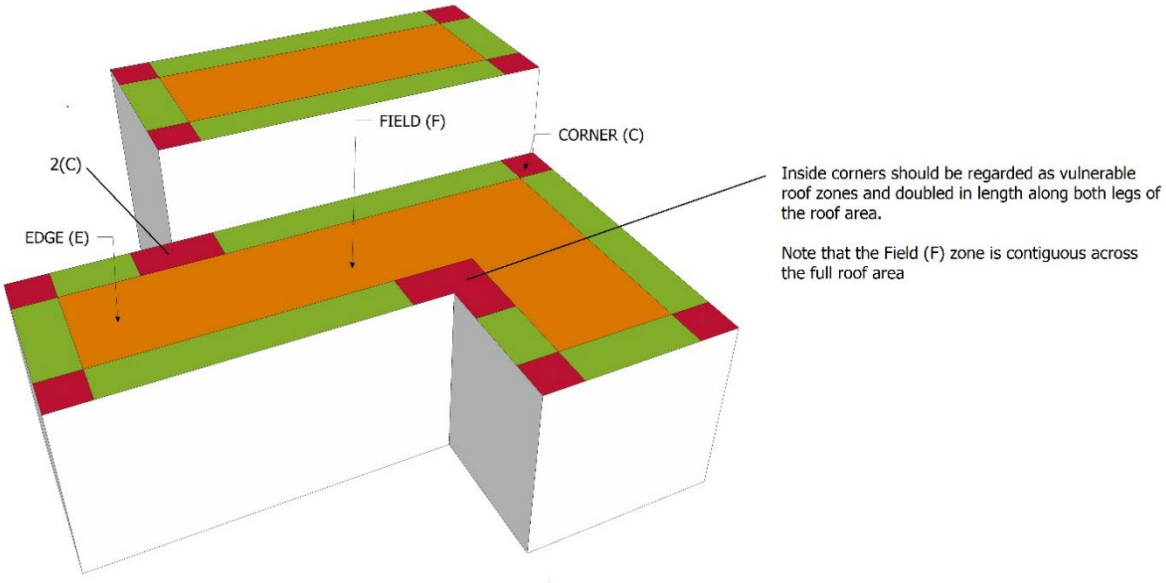

Figure 2 - NBRCA/MRGNB recommended zone layout for roof design with multiple roof heights and L-shaped building

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9. **A section of the roof is being replaced, do I need to conform to the National Building Code and have a CSA A123.21 tested roof assembly?**
   It depends on the situation. Consider the various types and extents of work.

   Maintenance: Membrane repairs, flashing/curb repairs, etc. should be considered maintenance work. This means that the tested assembly requirement of the NBC likely does not need to apply. Good roofing practices and industry standards are encouraged to be considered in the design and installation.

   Repairs: Repairs involve work where multiple components of the roofing assembly, affecting the wind uplift ability are removed. These types of replacements should, at the very least, consider the NBC requirements. The NBC requirements could be dependant on the size and location or sensitivity on the roof (i.e., a corner zone).

   Replacement: Roof section replacement would be a large-scale replacement of roof assembly components, such as a removal of an entire roof area (e.g., roof edges to edges, or roof divider to divider). The wind load calculation is completed for the entire roof of the building, not just the roof area being replaced, and the wind loads are applied appropriately to the roof area replaced.

   Best roofing design practices, MRGNB details and the intent of the NBC should be utilized for all situations, including adding a membrane cut-off to isolate the existing roof system materials and the new roof materials as per the MRGNB Technical Bulletin – 2021-02: MRGNB Detail Requirement for Sleeper/Curb Installation or Removal in existing Modified Bitumen Membrane Systems.

10. **An original roof assembly needs to be replaced and the owner wants to use the same system as before; however, I don't know if there is a tested assembly to match my wind loads with these components. Where can I get this information?**
    Manufacturer's have tested roof assemblies for review by designers, contractors and observers - most are available on their websites. If not available on a manufacturer's website, reach out to them and discuss. Alternatively, you can contact the NBRCA/MRGNB Technical Manager to discuss the project. NBRCA is here to help the contractors and the roofing industry as a whole. Project discussions are always welcomed.
11. **Can existing components, such as existing gypsum board and/or vapour retarder be retained with the new system?**
    As the CSA A123.21 is written, it does not cover existing components to remain as the tested assembly does not have a provision for these existing materials.
    In other provinces across Canada, removal to the roof deck is considered common practice, while others have modified their Building Code Application statement allowing designers to only have a tested assembly requirement for new construction.
    Where existing materials are required to remain, it is imperative that the existing materials are confirmed as secured to meet the wind load resistance requirements. This can be achieved through testing, additional materials that are mechanically secured or other means determined by he design

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authority. Additionally, the designer should consider the approach required based on the design intent, code requirements, available tested assemblies, and best roofing practices.

12. **Can products be swapped from the tested assembly?**
    In general, the products on the tested assembly report should be used. Most reports have many alternatives listed for the various components. However, material swap is possible for one of the materials in a roof assembly. The material must meet or exceed the properties and characteristics of the material they are replacing.
13. **Can insulation thickness change from the amount stated in the tested assembly report?**
    Most test reports indicate a range of thickness (e.g., 1 ½" – 4") and further state that additional layers are permitted in the design and installation.

Please do not hesitate to contact the NBRCA/MRGNB General Manager if you have any questions, concerns or suggestion or would like to further discuss this topic. We are here to help you.