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6.0 Built Form and Architectural Character

Duilt form refers to the spatial composition, proportion and scale of buildings. Architectural character is found in the material quality and articulation that give buildings their visual appeal and which, in concert with open spaces, unite the identity of the campus.

The built form and architectural integrity of a campus can greatly enhance the identity of a university, attract faculty and students and provide for an environment conducive to academic and life learning. Urban design and architecture's ability to compel and inspire, particularly in a place of higher learning, has a long history in campus design. It is a logical objective that excellence in quality and design of buildings and open spaces should reflect the excellence in quality of learning that is fundamental to institutional objectives. These built qualities are recognized as defining characteristics that give academic institutions their iconic stature within society.

Not unlike many of North America's most revered campuses, UNB Fredericton follows in the tradition of the "academic village" — the clustering of relatively small buildings harmoniously assembled around open spaces. This design approach, dating back to the late seventeenth and early eighteenth century, is deeply rooted in a commitment to a community of learning where spatial form is conducive to knowledge, the exchange of ideas and daily living. Individual buildings are designed to contribute to a comprehensive design objective where the experience of the campus is crafted with a respect and an understanding that the sum of the whole is greater than the sum of the individual parts.

Remarkably, and largely without the guidance of a campus plan, the built form and architectural character of UNB Fredericton is relatively harmonious and the "academic village" remains largely intact. In part, this design integrity can be attributed to the relative slow growth of the campus. The intent of the Fredericton Campus Plan is to maintain and enhance the existing built form and architectural pattern by reinforcing the notion of the "academic village."



The campus is organized in the "academic village" tradition

The following principles apply to Built Form and Architectural Character:

- Buildings should be designed for permanence. The highest quality in materials and construction that is appropriate for this topography and climatic region should be used.
- Building design should be beautiful. A place of higher learning that represents excellence warrants compelling and inspiring architecture.
- Buildings should be designed with versatility in mind. Many older structures that have been built to higher and generous standards are now valued for their ability to accommodate conversions in program and uses. They also have expansion capabilities.
- New buildings should reinforce and enhance the architectural integrity of the campus without resorting to historic replication. Instead, they should complement the existing architectural context. The objective should be to achieve continuity through consistency and to inspire visual interest through variety within a palette of choices.

- Buildings should be designed to be as accessible as possible. The unique topography provides for tremendous architectural possibilities but presents significant accessibility challenges. Buildings should seek to seamlessly integrate access for all users within their design and architectural approach.
- Building design should adhere to principles of sustainability in their location, construction, and their day-to-day operations.



6.1 Building Sites and Composition

New building or expansion sites that reinforce the plan approach and guiding principles of the Fredericton Campus Plan have been identified. These sites are placed to reinforce a composition of buildings that intensifies the existing core through infill and the framing of open spaces and streets, that provide convenience and comfort to pedestrians, and that enhance the campus setting. In some instances these sites can accommodate one or more buildings, depending on use and programming needs. Although in the interim these new building or expansion sites may be used for uses such as parking, the primary edges and interface treatment in relation to streets and/or open spaces should be defined at the outset. This serves to strengthen and enhance the open space pattern. The following section provides considerations and general guidelines that apply to building sites and their composition.

6.1.2 Building Considerations for Environment and Topography

- Sustainable design principles should be incorporated into the approach to building sites, thereby minimizing negative site impacts, such as soil disturbance, erosion and sediment deposits, ground water pollution and loss of landscape.
- As much as possible, new building and expansion sites should orient their greatest length with the slope to minimize grade shifts and difficulty in pedestrian movement.
- When possible, buildings should be oriented to take advantage of winter solar gain, provide year-round shading to western exposures, and provide summer shading for southern exposures.
- When possible, buildings should be oriented to minimize the effects of winter prevailing winds on entrances and open space.
- Consideration should be given to ensuring that the impact of shadows cast from new buildings, additions, or renovations on existing buildings and open space are minimized.





New Building Sites have been selected and composed to reinforce a topographical, open space and visual pattern

6.1.3 Building Considerations for Open Spaces and Streets

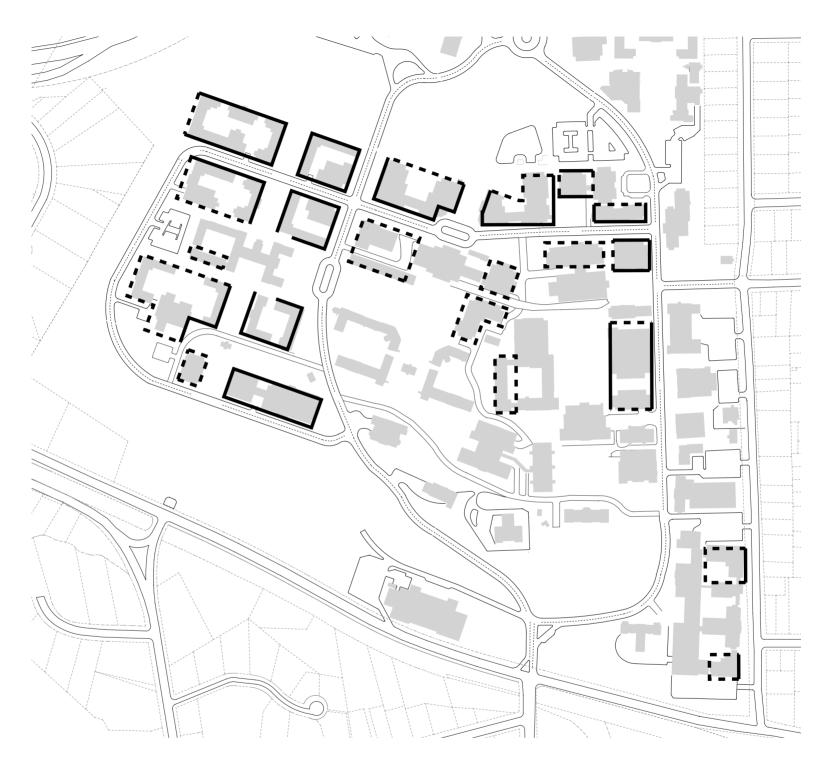
The buildings on campus consist of two fundamental types of spatial relationships: street-oriented and open space-oriented buildings. In many cases, a building or building site may relate to both a street and an open space. Build-to-lines are identified for new building or expansion sites to ensure that key spaces and streets are consistently framed and treated as principal façades.

As UNB Fredericton evolves, buildings should be designed to encourage active ground floor and small scale uses to support pedestrian vibrancy. As the campus as a whole strives to be permeable, buildings need to be permeable themselves, with multiple public entrances. In particular, some buildings need to "face" all four sides of the campus, if integrated into the campus landscape. Front doors and entrances are to be designed to respond to the open space and pedestrian system.

- Pedestrian pathways, active building uses such as offices, lounges, food areas or interior circulation routes should be placed to visually or physically connect with streets and open spaces and to provide increased animation, surveillance and safety.
- Non-specific programmed areas should be easily accessible from main circulation corridors to encourage interaction, reflection and informal conversations.
- Principal pedestrian entrances should be located right off streets and open spaces.

- Blank building walls containing loading areas, or building walls lacking entrances, should have minimal exposure to public areas of the campus, particularly streets and open spaces.
- Pedestrian and bicycle traffic should be given priority and generous space consideration at main building entrances.
- Exterior grade and interior floor levels should be aligned at pedestrian entrances.
- Service areas and service access should be discreetly located, separate from main public areas.
- Security should be promoted through self-surveillance, and facilitated through attention to:
 - ensuring that buildings do not contain dead-end exterior space;
 - strategic lighting;
 - visual transparency between interior and exterior at grade.





Build-to Lines are identified for important frontages on new building site to ensure that open spaces and streets are well defined and framed with a consistent building edge

6.1.4 Building Considerations for Views and Landmark Sites

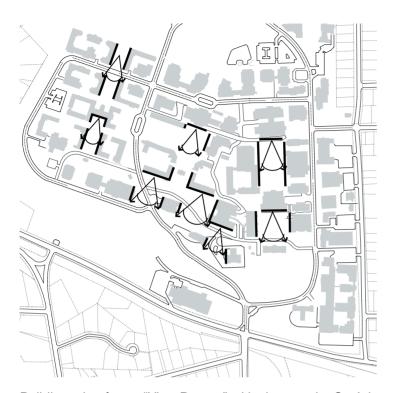
The slopes of the campus in concert with the composition of buildings and open spaces afford certain sites with stunning vistas to the St. John River Valley, the City of Fredericton and beyond. Conversely, this arrangement provides dramatic views back to the campus from the river, where the various grades create a skyline with prominent buildings clearly visible from great distances. The Fredericton Campus Plan recognizes this quality as unique to the Fredericton campus and strives to maintain and expand a built form pattern that enhances and reinforces vistas through the identification of "View Rooms."

Buildings, public art, and tall structures all have the capacity to act as landmarks in the campus setting. As orienting elements, landmarks provide visual interest and inspire students, faculty and staff as they move through campus. The Old Arts Building, perched on the hill and serving as a key focal point to users as they enter the campus, is an excellent precedent of a primary landmark on campus. Most of the landmark buildings on the existing campus are strategically located either at the view terminus of a street, such as Ludlow Hall, or prominent at the terminus of open space, such as the Harriet Irving Library and the Student Union Building. These locations are often further reinforced through architectural treatments such as a prominent entrance or tower feature that is aligned with the view axis.

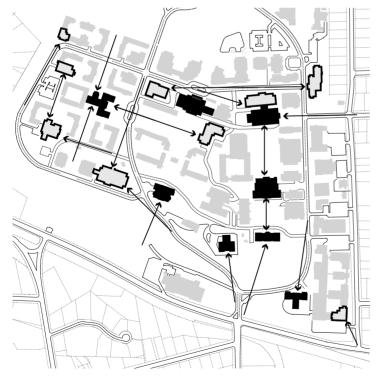
The Fredericton Campus Plan identifies existing and new sites for landmark buildings that visually terminate a street, pathway or open space. Landmark sites are also identified for "gateway" buildings that occupy highly visible and important entries into the campus or into its precincts. Gateway sites are often corner locations at important intersections between streets and/or open spaces.

- Vistas to the river valley or a view axis to a building should be reinforced through the composition of buildings and open spaces, as well as the use of trees and landscaping elements.
- Buildings with vistas should enhance viewing opportunities by incorporating exterior terraces.
- Landmark buildings should have distinguishing architectural features to reinforce campus identity and to act as a point of reference for orientation through campus.
- Buildings that occupy very prominent landmark sites, such as the termination of a long view axis, should incorporate tall vertical elements such as a tower or cupola.
- Where possible, the most important buildings that are commonly shared by the university community should occupy landmark sites.



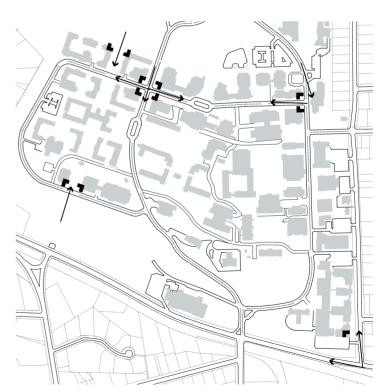


Buildings that frame "View Rooms" with vistas to the St. John River Valley



Landmark Sites that terminate a View Axis





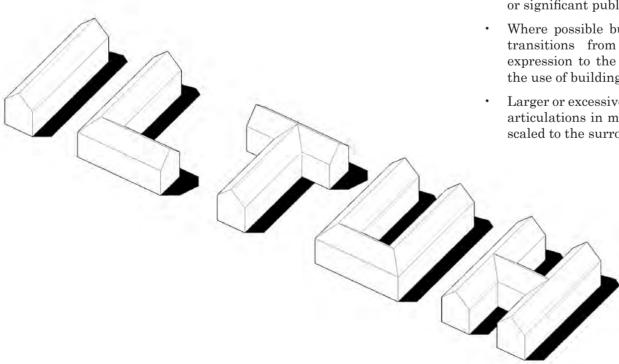
Landmark Sites that are Gateways

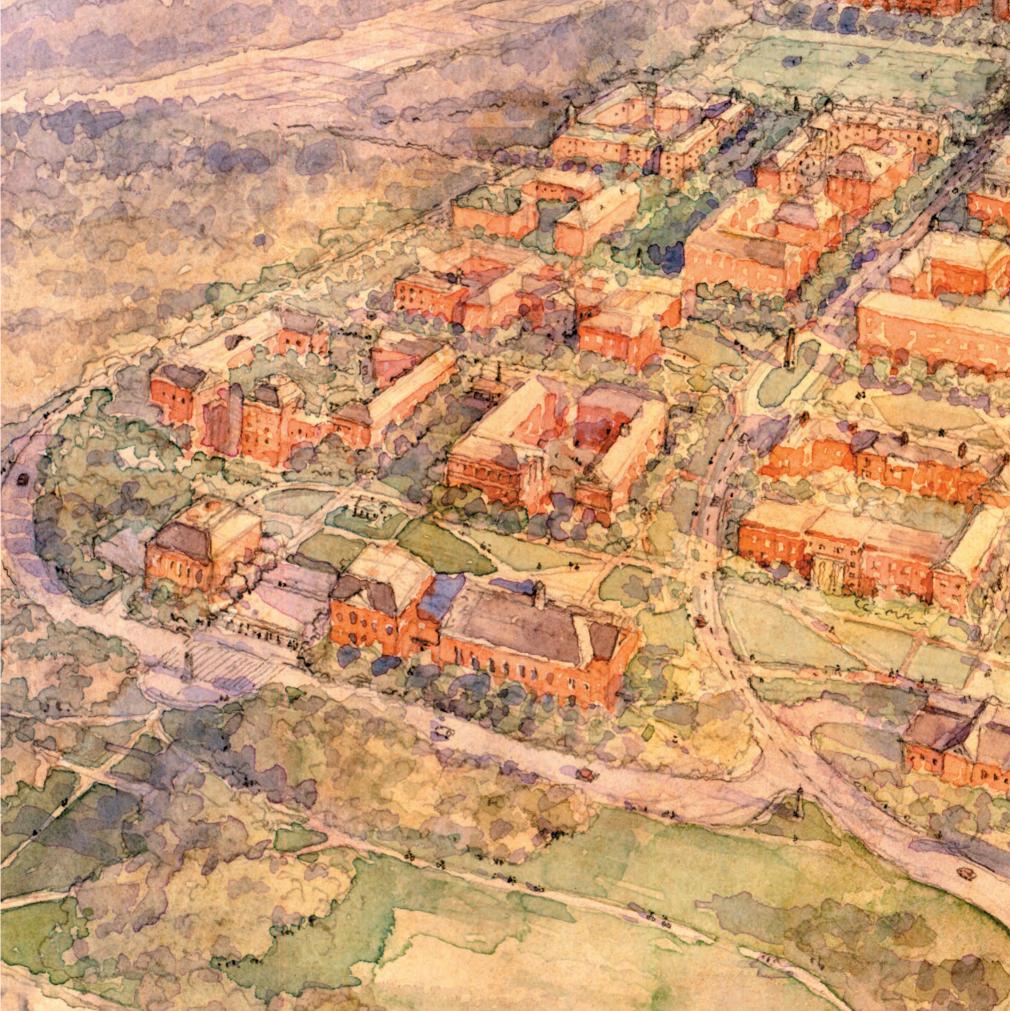
6.2 Building Scale and Massing

The scale and massing of buildings impacts the 'sense of place' within the campus. The roofline, proportion and visual mass of a building affect the overall built form, and when consistent, a high degree of unity between buildings on the campus can emerge, even among buildings of differing architectural style. To date, much of the harmonious built form pattern on the campus has been achieved through a consistent building scale and proportion. Most existing buildings are three storeys in height with narrow rectangular "bar" shaped footprints. The relatively small scaled and proportioned buildings composed over a sloping terrain give the entire campus a greater articulation that is visually appealing. Furthermore, this built form language is human scaled, meaning it provides for visual appeal and physical convenience and comfort to pedestrians. A key design strategy for the creation and enhancement of a pedestrian oriented campus is for new buildings to remain consistent with the existing scale and proportion of the built form pattern.

New building footprints should be consistent with the prevailing configurations on the campus, the shapes of which can generally be described as the following letters of the alphabet: I, L, T, U and H.

- Once a configuration for the footprint is defined, the massing of the building should reflect the role it will play in the larger composition of buildings on campus. For example, mirroring the adjacent buildings around an open space or distinguishing itself on a Strategic Site.
- Building depths should be narrow where possible to ensure access to natural light, particularly for residential uses.
- Where possible, buildings with longer floorplates should be arranged around courtyards to provide shelter from wind and create intimate spaces.
- Atriums should be introduced in larger floor plates for the provision of natural light, visual orientation and seasonal relief.
- Consistent with most buildings on campus, new structures should generally be three to four storeys in height to minimize shadows as well as reinforce continuity of form. Maximum building height should be six storeys.
- Building heights above four floors should step back between two to three metres or provide an architectural expression above the third storey such as a cornice line.
- Taller building elements should terminate view corridors and mark key building entrances, gateways or significant public spaces.
- Where possible building massing should articulate transitions from a pedestrian scale and give expression to the building at higher floors through the use of building envelope variation or rhythm.
- Larger or excessively long buildings should introduce articulations in massing to provide variation that is scaled to the surrounding buildings.







6.3 Building Design and Architectural Character

Traditionally, buildings have been the essence of the campus experience at UNB Fredericton. Through its loyalty to materials intended for longevity such as red Chipman brick and limestone, the general appearance of the campus has remained consistent despite a significant growth spurt through the 1950s and 1960s, national trends towards modern design, and, over the past thirty years, incremental growth.

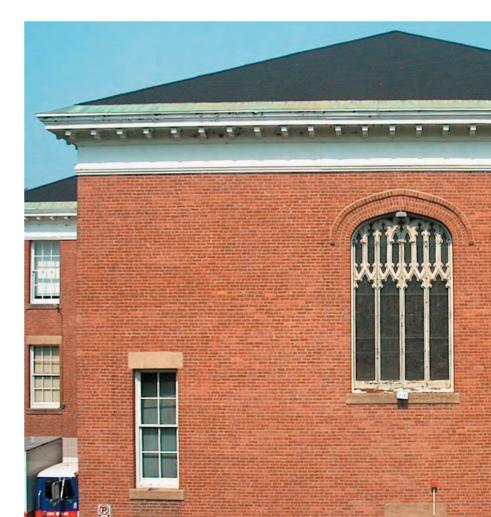
The predominant architectural style found on the UNB campus, most evident in the newer structures, is Georgian with some variations that introduce neo-classical elements. The Georgian style is one of the most, if not the most, reserved architectural style found in this region. It is characterized by a rectangular building shape with a gable roof, with very modest, if any, ornamentation. Most of the buildings with greater articulation, usually in the neoclassical style, are found among earlier structures such as the Forestry and Geology Building, and the original façades of the Archives and Sir Edmund Head Hall. The one exception is the Old Arts building, designed in the Palladian style and distinguished from other campus buildings in form, materials and colour.

While continuity can be achieved in a singular language of material and architecture, it also can create an environment that is monotonous, stark and disorienting. Much can be learned from the oldest and most treasured buildings on campus. Each of these buildings is unique in their massing, detailing, roof form, material selection and composition and in the articulation of entrances and windows. They are easily identified because they differ from one another, yet achieve a degree of complementarity and contribute to a sense of continuity in sharing a similar palette of materials and a certain attention to quality and detail.

The objective of the Campus Plan with respect to building design and architectural character is not to recommend strict adherence to historical styles, but rather to allow and encourage a variety of design interpretations within a range of choices. Architectural variety can co-exist while reinforcing the cohesiveness and built integrity of the campus. There must be a consistency in the aspects of the built form that are most visually legible, including harmonious compositions of buildings and spaces, similarity in form and massing, use of high quality materials and attention to detail, consistent rhythms in the vertical and horizontal articulation, and the use of a similar range of colourings and shades.

On the following pages, the plan provides an inventory of the façades, roof forms and towers, entrances, window treatments, and materials and detailing on campus that are most treasured or that represent design excellence. Also included are precedents from other campuses or cities that illustrate examples that would be appropriate and complementary. While this can become a palette of choices that can be literally applied in the design of new buildings, the primary objective of this inventory is to provide treasured, appropriate and desirable samples as a reference for design quality and interpretation.

The following section provides general principles that apply to building design and architectural character.



Façade CHARACTER































6.3.1 Façades

The façade and its composition provide buildings with an identity and visual appeal. Although a building's interior spaces may be planned on a repetitive module of classrooms or offices, the exterior façade should dialogue and respond to its adjacent exterior space. At a fundamental level, a façade is articulated through the pattern of windows and entries. However, architectural character emerges and the relationship to exterior spaces is enhanced through a vocabulary of design elements that include the composition of materials, cornice lines, pronounced porticos, colonnades, awnings, stairways, and masonry detailing. Although architectural style may vary, new building design should respond to and incorporate a common façade vocabulary to strengthen the visual unity of the campus.

- Each building should employ a coherent façade composition with a single, unifying vocabulary of forms, details, and materials on all sides;
- All structures should be divided into clearly defined base, body and attic;
- Buildings at ground level should be highly articulated and incorporate several protective architectural elements, such as canopies and colonnades, offcommon open space, plazas, or significant pedestrian pathways to encourage interaction and assembly;
- To emphasize the human scale on higher buildings, a cornice line or horizontal articulation should occur above the third storey;
- Buildings may have projecting bays at either end to reinforce a composition or framing of a space and to add relief and character to a long flat building surface;
- Building additions should emulate the façade proportions and rhythms of the existing structure;
- Façades should be composed primarily of solid planes with punched windows having a greater vertical than horizontal dimension;
- Windows should be placed either repetitively in an even, continuous grid or grouped in an A-B-A rhythm of subgroups;
- Maintaining a thirty to forty percent window-towall ratio contributes to an appealing articulated character and prevents expansive blank walls as well as large areas of glass. Most buildings on campus demonstrate this ratio;

- All windows should incorporate a similar mullion language to the historical buildings on campus;
- Where appropriate and in a subordinate manner, complementary and high quality metal and glass wall systems may be used as special architectural features.



Old Arts Building



Student Union Building



Harriet Irving Library

WINDOW CHARACTER



































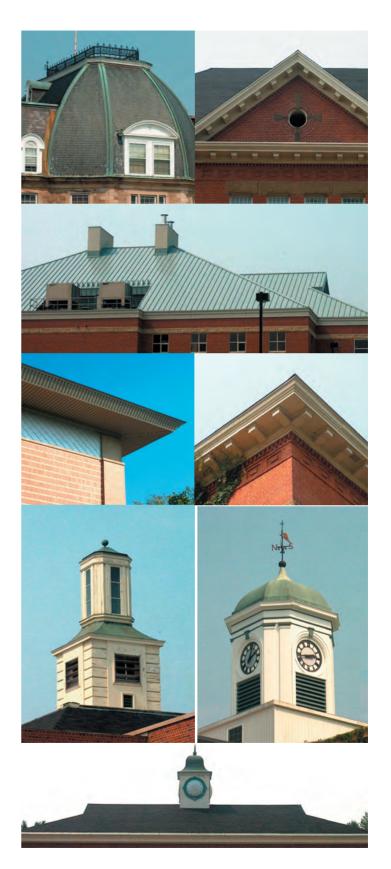


6.3.2 Roof Forms and Towers

A key component of building form is roof treatment. The roofline, together with the building's proportion and visual mass, affects the overall built form of the campus and when consistent, can provide a cohesive and identifiable appearance. Most existing buildings on campus have pitched roofs or articulate a slope in a hip or gable style. Furthermore, older buildings incorporate a classical overhang which articulates an appealing shadow line. As a consequence of the slope of the campus, the top side of many buildings is within view and therefore consideration should be made to all aspects of the design and appearance of roofs.

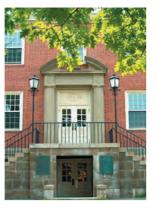
- In general, a pattern of sloped roof buildings should be encouraged to reduce shadows as well as reinforce horizontal continuity of campus form:
- Overhangs are encouraged to reinforce and articulate the façade composition as well as provide an appealing shadow line;
- Rooflines should be designed to emphasize key features such as main entrances or a visual terminus:
- Flat roofs should be used sparingly and designed with an overhang similar to the new addition to the Provincial Archives to ensure a well articulated form. In some instances, where buildings are slated for renovation, the conversion of flat roofs to pitched roofs may be appropriate:
- Roof gardens should be encouraged as they minimize heat absorption to reduce the heat island effect on site, and reduce storm sewer loads by collecting, filtering and storing rain water for on-site use;
- Mechanical penthouses and service areas should be incorporated as part of the building massing and/or within roof gardens.

Cupolas and towers are used on a number of buildings on campus, the most prominent being F. J.. Toole Hall, Memorial Hall and the Lady Beaverbrook Residence. Together with the towers of St. Thomas University, the skyline is greatly enhanced, and even helps pedestrians better orient themselves around the campus. The Campus Plan encourages the use of uniquely designed tower elements, especially as landmarks at highly visible strategic sites to enhance the campus setting and to reinforce visual connections. The location of these higher elements can correspond to axial views, primary frontages, main entrances or a combination.



ENTRANCE CHARACTER





































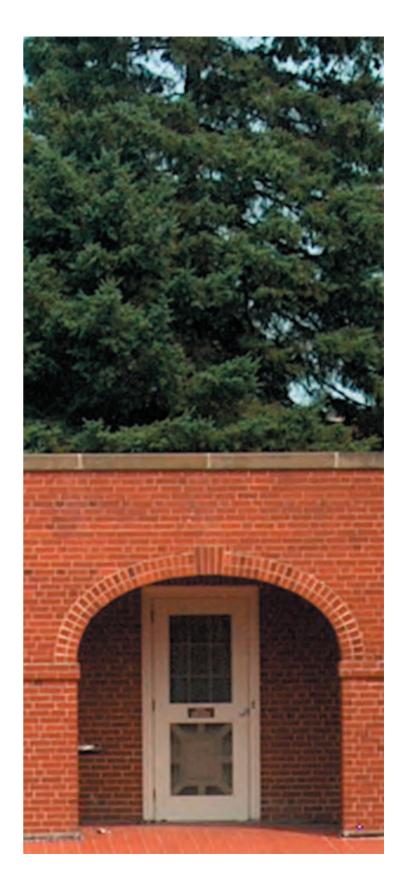




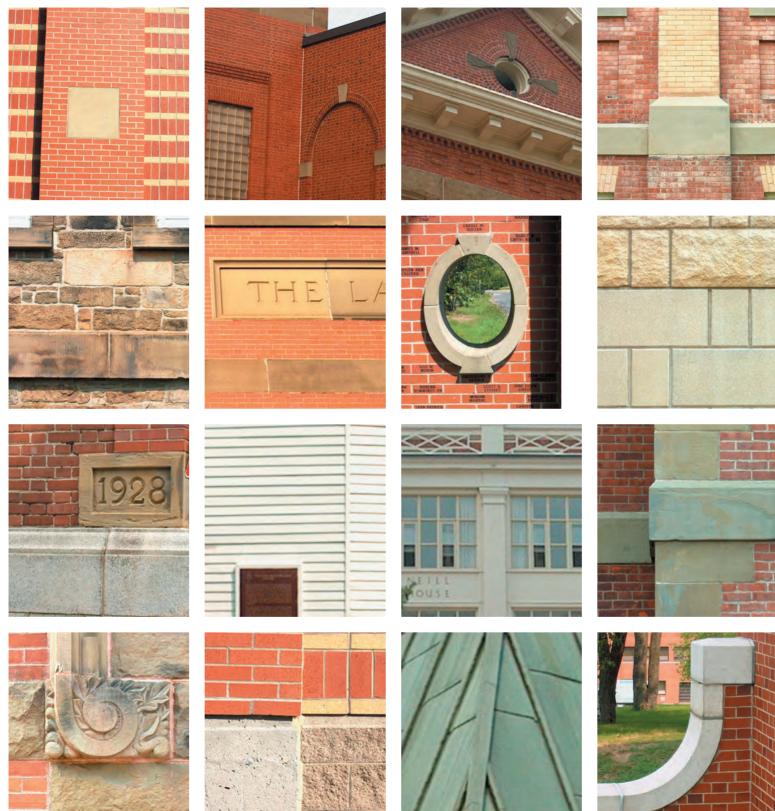
6.3.3 Entrances

Entrances are key distinguishing elements in a building elevation. They provide buildings with a legible hierarchy, indicating principal façades and orienting movement to and through the building. As evident on the campus, despite uniformity in form, buildings on campus have utilized a wide variety of entrance treatments to distinguish buildings from one another.

- Entrances should have clear and prominent architectural expression to aid both orientation and campus identity.
- Entrances should be located and designed to reinforce a visual terminus, key open space or gateway.
- Entrances should be recessed from the main building wall to further articulate the façade and to create shadow lines.
- Stone, brick or painted wood frames that project from the building face should be provided to highlight an entrance.
- Reinforcing elements such as lamps, porches and colonnades should be used.
- The design of the doors should be consistent with the quality and materials used on the building.



MATERIAL AND DETAIL CHARACTER

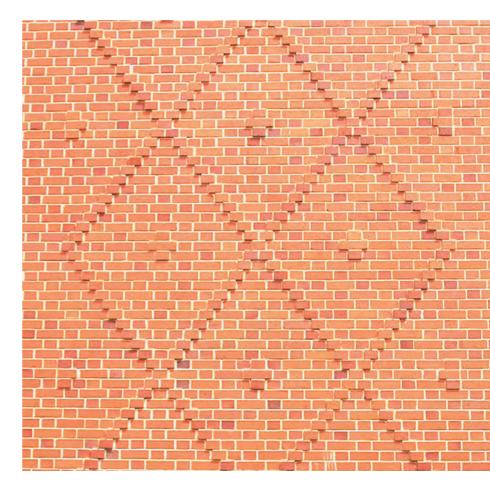


6.3.4 Materials and Details

For many years, the primary means for unifying the campus buildings has been the use of a common material palette — the red Chipman Brick. While red brick should continue to be the dominant material used on new buildings, other shades and materials are encouraged as a means to further articulate a façade. Detailing elements, especially the ground level, provide a tremendous visual appeal to pedestrians and articulate a human scale to the building. The older buildings on campus very successfully introduce a variety of materials, shades and detailing that distinguish individual buildings, yet lend to the cohesiveness of the campus.

- The dominant material to be used on new buildings is red Chipman brick. As with many of the most treasured buildings on campus, other complementary materials are also encouraged to accent façades and articulate rhythms, roofs, entrances and windows. Other recommended materials to be used include natural stone, limestone, pale yellow brick, and cream-coloured painted wood. Roof material should generally be dark tiling, copper or zinc or painted to appear as such;
- To enhance their prominence, buildings of great importance to the campus community should be distinguished by incorporating a dominant material other than red brick, preferably a natural stone as used to clad the Old Arts Building;
- New additions and renovations should incorporate a material palette and composition in keeping with, or complementary to, the existing structure;
- Clarity of massing and circulation through innovative use and composition of materials should be encouraged to aid in efficient pedestrian orientation and navigation;
- Strong colours with "character" should be used sparingly at strategic locations where they may be seen as identifiers to architectural elements, such as entrances and circulation paths to aid in efficient pedestrian orientation and navigation;
- The use of clear high-efficiency glazing should be encouraged wherever possible. Minimal tinting should be preferred to promote visual connections between buildings and outdoor areas and have a sense of the interior life and activity within the buildings.

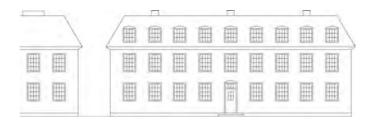
- Reflective and dark tinted glass should not permitted.
- Mechanical penthouses and service areas should be incorporated as part of the building cladding material.
- Where possible, exterior materials should continue into entrance lobbies to aid in efficient pedestrian orientation and navigation.
- Architectural detailing should be used to highlight window and door frames, cornices and corners.
- Blank walls should incorporate detailing such as material variety, projecting brick patterns and other techniques for articulation.
- Dated corner stones, dedications, building names and other inscriptions add to the visual appeal and provide the campus with historical meaning.



6.4 Breezeways

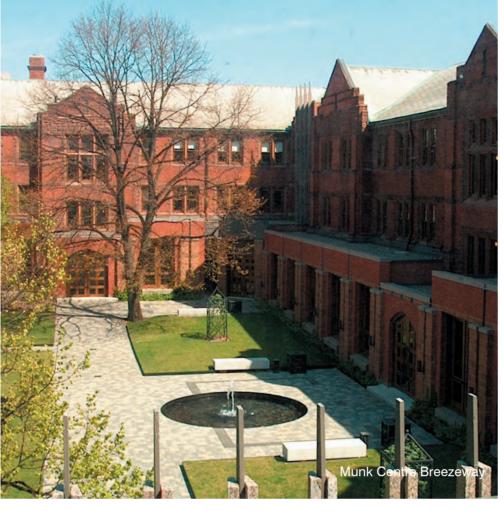
The addition of Breezeways to existing buildings or incorporated into new buildings provides an opportunity for further articulation of massing and the façade. In essence, a breezeway is a single or double storey colonnade that can be enclosed in the colder months. The primary design objective for breezeways is that they do not appear to be tacked on and that their design and material composition seamlessly fit within the overall campus setting.

- Breezeways should be located adjacent to public spaces, streets and other major pedestrian traffic corridors:
- Where possible, breezeways should link key campus wide destinations and functions;
- As primary circulation corridors, their design should be considerate to all users and incorporate ramping at key points of entry and egress;
- To ensure accessibility and appropriate architectural fit, breezeways added to existing buildings should only be located along frontages with a continuous grade:
- Where added to existing buildings, the architectural language and materials should complement and enhance the existing structure:
- Where possible, breezeways should bridge buildings of close proximity, either as a continuous enclosed corridor or as a covered connection:
- To reinforce visual and physical connection with the exterior spaces, as well as light penetration, breezeways should incorporate a sixty to seventy percent glazing-to-wall ratio;
- As much as possible, the glazing elements should be designed as operable doorways to allow for opening in the warmer months:
- Adjacent to open spaces and important intersections, elements such as several continuous steps or other protrusions should be incorporated at the base of the breezeway to encourage sitting and interaction.

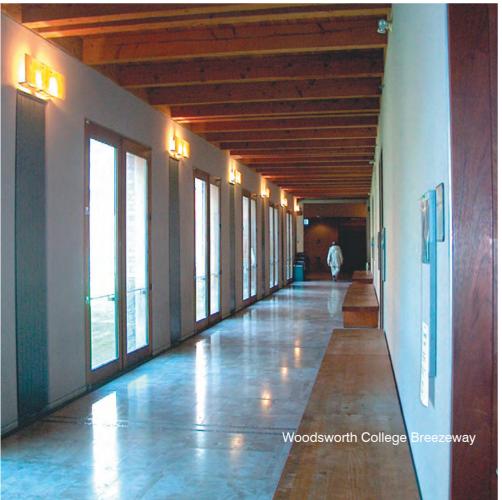


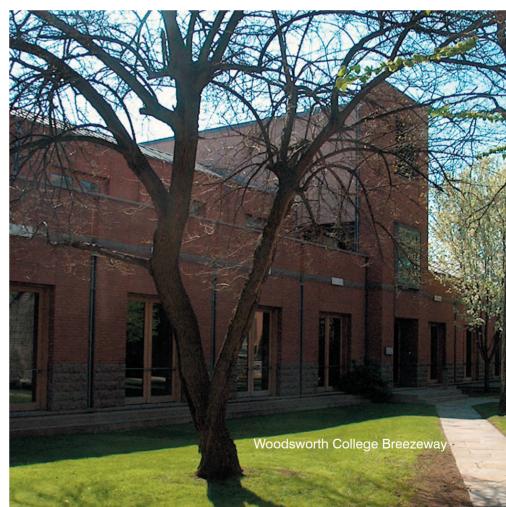
Retrofitting existing buildings with Breezeways can be accomplished by utilizing a variation on the architectural language and proportion of glazing while still maintaining a complementary relationship with the host building through scale, rhythm and material qualities.











6.5 Historic Buildings

An opportunity exists to create an extensive Qualitative Inventory of Historic Buildings on campus that points to the key characteristics that, cumulatively, establish the "real" architectural language of the campus. Red Chipman brick, simple windows and clearly articulated Georgian entrances are the fundamental elements that, when taken together, form the campus building aesthetic. At the same time, a variety of unique forms are fundamental to the campus character. For example, the Old Arts Building was designated in 1953 as a National Historic Site. Built between 1826 and 1829, it contains a variety of unique architectural forms including cut stone building materials (broken course and sawn), mansard, and balustrade, and has an architectural style known as Palladianism. An Inventory of Historic Buildings would both protect heritage buildings and entrench the building forms, materials, and ideas that should be brought forward to future design. To do so would further tie the identity of UNB Fredericton to beautiful and timeless buildings.

As an outcome of this inventory, buildings identified for Heritage Preservation should be protected in perpetuity and recognized for the qualitative value that they add to the overall campus environment. In consultation with the City of Fredericton, areas within campus that meet the guidelines related to Heritage Preservation Areas should be designated as such. Preservation areas include both buildings and unique environments that have heritage significance. Such a designation would ensure protection of these buildings and areas in the Capital Municipal Plan, and may qualify UNB Fredericton for prioritization of heritage resources.



6.6 Sustainable Building Systems

- New buildings on campus should be designed to meet and preferably exceed environmental standards such as the Model National Energy Code of Canada for Buildings (MNECB), C-2000, ISO 14000, or ASHRAE/IESNA 90.1-1999.
- Operational energy consumption is the most significant source of negative impact of a building on the ecosphere. The budgeting process for new projects should recognize lifecycle costs of building structures and factor reduced future operating costs into the review of initial capital costs.
- Natural ventilation and underfloor distribution systems should be encouraged to promote passive convection cooling and ventilation. Passive systems can minimize or eliminate mechanical systems for heating, cooling and ventilating buildings.
- Innovative wastewater treatment, water reduction and sustainable irrigation strategies, including the use of water efficient plumbing fixtures, should be encouraged.
- Protocols should be implemented to measure and verify the operation of building systems over their life cycles to provide both optimal performance as well as quantitative results.
- Building systems should be designed to be adaptable to future change in use or possible change in program.
 Designing for flexibility prolongs the longest possible useful life of buildings which in turn reduces waste, conserves resources and reduces environmental impacts of manufacturing and transport.
- Preference should be given to low impact energy sources (i.e. geothermal heating, solar power, passive heat gain, wind power, etc.). The selection of low impact energy sources is fundamental to reducing negative impacts from a building's energy consumption.

- Efficient lighting equipment should be used and unnecessary lighting of occupied space should be eliminated by using room and task light switches, occupancy sensors and photocells as energy efficient occupant controls.
- The highest possible indoor air quality should be provided by minimizing the contamination of indoor air and the penetration of pollutants present in outdoor air.

