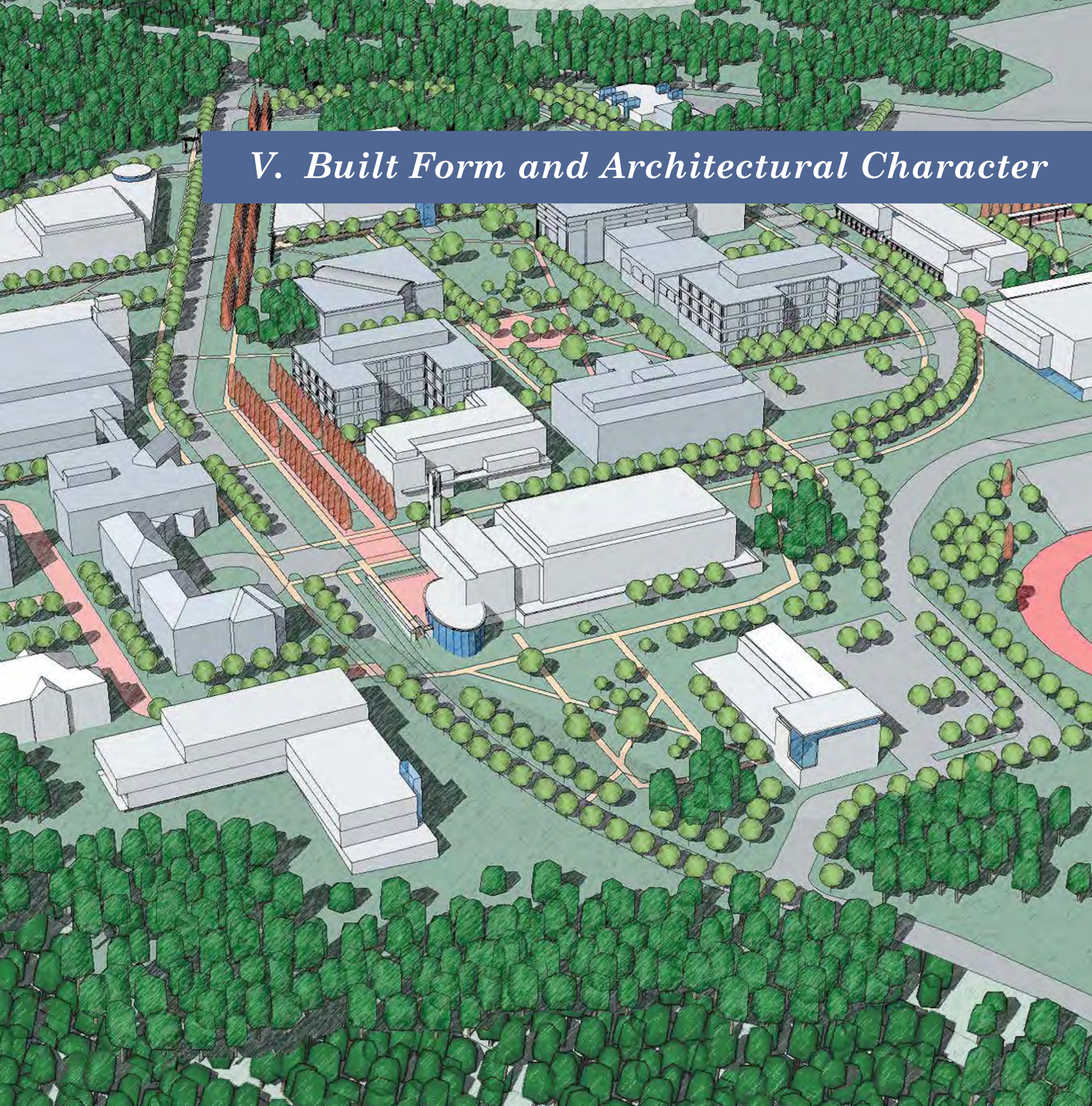


V. Built Form and Architectural Character

5.1 Building Design

With the exception of the new Residence, UNBSJ's existing buildings consistently reflect a modernist idiom reflecting the spirit of the 1960s era when the Tucker Park Campus was first developed. Generally, newer buildings have been designed to be consistent with a modernist style.

While these buildings provide adequate functionality, they lack the warm and friendly character that one generally associates with historical campuses. There is much room for improvement in the design of the campus's buildings so that UNBSJ can offer a rich community ambiance and 'sense of place' which campus users can enjoy. However, this is not a problem of style, but a problem of the architectural agenda. To address this issue, the Campus Plan proposes an architectural vocabulary that remains consistent with UNBSJ's modernist style, while providing those aspects of design that are richer, humane, and more supportive of a dynamic campus life.

The introduction of a 'heritage style' to new campus buildings should be avoided. Such an approach will result in a pastiche of imagery that will frustrate the objective of obtaining a consistent campus character and will unnecessarily diminish the status of the existing campus buildings. As well, contemporary buildings that are meant to mimic past architectural eras, unless lavished with very expensive building budgets, are generally poor imitations of their predecessors.

The quality of the campus cannot be enhanced through a program of new buildings alone. Substantial effort should be made to the renovation of existing campus buildings that define the main quad – including enhancements to the exterior of existing buildings. Subtle interventions that respect the spirit of the modernist era can radically improve these buildings - creating a more open, accessible and friendly character.

5.2 Built Form and Architectural Character

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 lifelong 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 qualities are recognized as defining characteristics that give academic institutions their stature within society.

The following principles apply to Built Form and Architectural Character:

- Buildings should be designed for permanence. The use of high quality in materials and construction that is appropriate for this topography and climatic region should be used.
- The architecture of campus buildings should fit with the natural setting of the campus, integrating views, topography and preservation of tree stands into the design concept.
- Building design should aspire to beauty. A place of higher learning that represents excellence warrants compelling and inspiring architecture.
- Buildings should be designed with long-term durability and versatility in mind. New buildings should be built to last for centuries and the selection of building materials, construction methods and interior partitioning should support the twin objectives of longevity and adaptability.
- 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, and aspire to design excellence and innovation. The objective should be to achieve a level of campus continuity through the consistent use of building elements and materials within a palette of choices, and adherence to central campus plan concepts such as the strong interface between buildings and outdoor spaces and views, pedestrian shelter, transparency and active uses at the ground floor etc.
- Buildings should be designed to be accessible for people with disabilities.
- Building design should adhere to principles of sustainability in their location, construction, and their day-to-day operations.

The Nicola Valley Institute of Technology at the University College of the Cariboo combines contemporary design with a sensitive approach to its site's natural features.

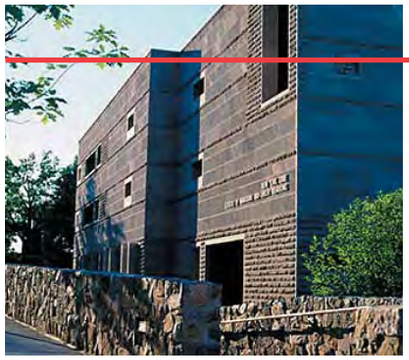


fig.1 Dry stone walls and textured concrete combine to create a unified building and landscape ambience at Cornell University.

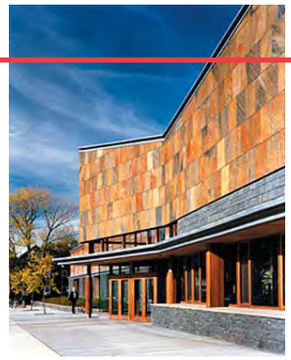


fig.2 The public main floor of a museum in Boston is glazed for clarity and orientation.

fig.3 The glazed wing of a museum in Boston creates a belvedere onto the surrounding landscape.

coherent design

Each new building should be a coherent architectural composition, and should employ a unifying vocabulary of forms, elements, details and materials on all building façades.

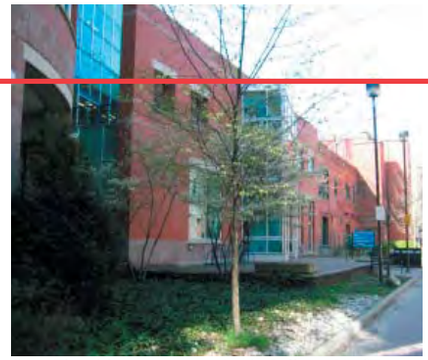


fig.4 The side entrance to Innis College, U of T, is marked by a transparent glass vestibule and entrance terrace.

fig.5 A student residence building at Princeton is a hybrid of architectural forms, reminiscent of vernacular housing architecture.

fig.6 A large brick building is given human scale by a sloping roof, and horizontal and vertical articulation.

fig.7 Specific building uses are expressed through different architectural volumes so that this large building is read as a collection of smaller buildings.

fig.8 A Ryerson University building achieves a human scale with fenestration and volumetric articualtion.

fig.9 Glass is used to articulate the entrance: to be a transparent interface in the day, and an illuminated beacon at night.

fig.10 Building functions and circulation are expressed in the architecture's volumetric expression.

defined architecture

A university campus usually includes an ensemble of buildings of different scale and form in response to different programmatic needs. While these buildings can be diverse in style, they should be united by their palette of materials and elements, and by their common approach to the site.

fig.11 This contemporary building provides a human scale through its horizontality, window rhythms, and combination of materials. For its occupants, it optimizes perimeter daylighting opportunities.

fig.12 The Bass Centre at Yale University provides an example of appropriate campus architecture. While acknowledging historic elements it has been designed as a contemporary structure.

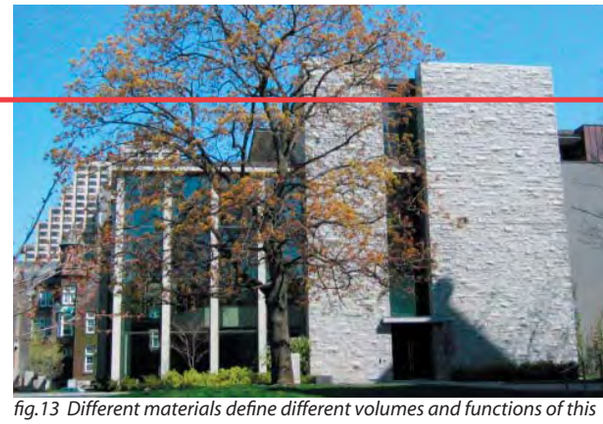


fig.13 Different materials define different volumes and functions of this building: the street elevation provides a lower, human scale and open transparency.

human scale

Buildings should be designed as highly articulated volumes that respond to the natural contours and features of the site and to the building's own programmatic divisions. Large buildings should be designed to reduce their perceived mass and impart a human scale to the campus. Buildings taller than three stories should have an articulated base and an articulated top.

elements

Architectural elements are components of a structure that add to or change its main volume such as windows, doors, columns, and colonnades. These elements reinforce the building's architectural style, but also enhance the quality of life for the building's occupants.

fig.1 The breezeway is a new addition to this 19th-century building.

fig.2 Changes in material correspond to changes in planes and volumes.

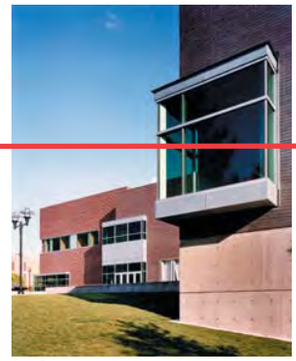


fig.3 Window elements pop out of this façade at the University of Utah to add visual interest and promote views out.

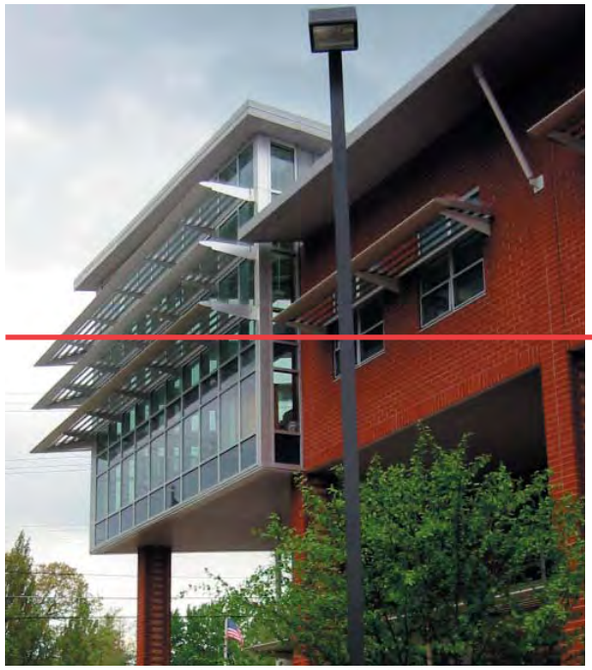


fig.4 Window visors on both the glass and brick volumes unify a school and community centre in Arlington, Virginia.

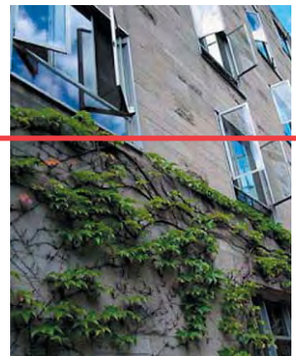


fig.5 Ivy and operable windows animate this student residence to change with the seasons.

fig.6 A canopy provides shade and demarcates this building's terrace.

fig.7 A 19th-century colonnade surrounds a sunken courtyard.

fig.8 Glass doors open in warm weather to become a colonnade onto an inner courtyard.

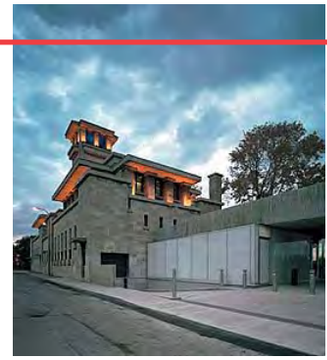


fig.9 Building details are highlighted with architectural lighting at a theatre in Montreal.

fig.10 A simple and contemporary gate design complements this historic building.

details

Building details are the crafted pieces that compose the larger elements. The quality of these details and how they fit together contribute to the building's visual interest and its ability to convey a human scale.

fig.1 Local stone is an appropriate primary building material, evoking permanence and durability as well as grounding the building in its site.

fig.2 Building elements are constructed from complementary materials to articulate the fenestration.

fig.5 Wood and stone articulate the different floors while the regular rhythm of windows divides the units.

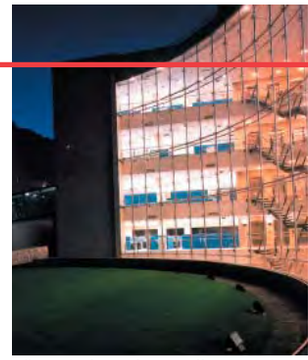


fig.6 A clear glass wall system is used as an architechtural feature.

fig.7 Copper cladding on a U of T, Scarborough building will patinate over time, gradually blending with its forested surroundings.

fig.8 Exterior materials reinforce volumetric changes.

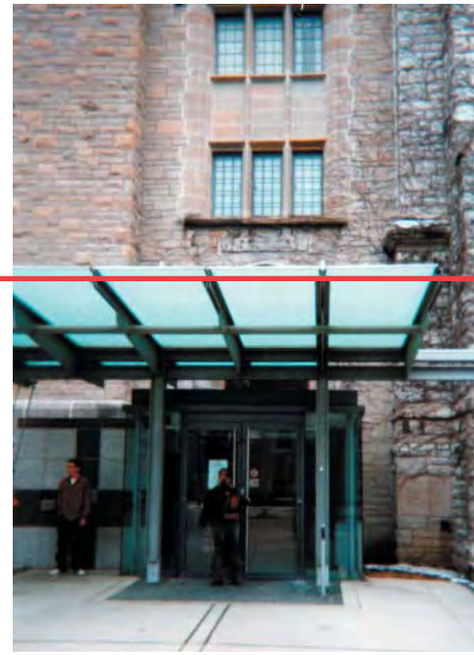


fig.3 A contemporary glass and steel canopy enhances the entrance of Douglas Library, a nineteenth-century limestone building at Queen's University.

fig.4 Roughly-hewn stone creates a contrasting base against a cut stone facade, balancing the metal-clad mechanical unit on the top floor.

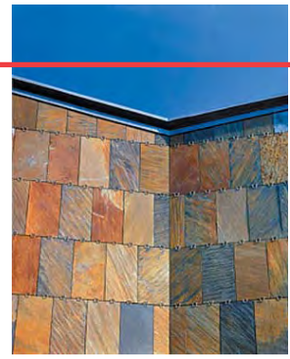


fig.9 Local stone was used to clad a museum in Boston.

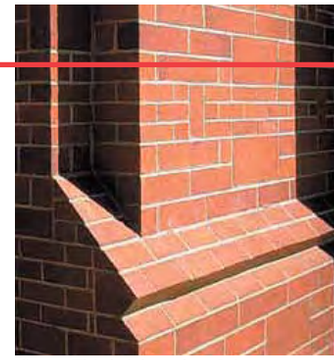


fig.10 This brickwork at Princeton was designed to articulate the building components by casting shadows.

materials

Building materials should be selected to convey an image of quality, durability, and permanence. Suitable primary materials include brick, stone, and concrete. Visual interest should be created by the articulation of planes and volumes, not by arbitrary changes in materials. Changes in materials should occur only at the inside corners of changes in surface plane.

5.3 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.
- As an alternative approach to extensive regrading of sites, buildings should be designed to integrate and complement the natural topography.
- Buildings should be designed 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.

Future campus expansion buildings should integrate topography into their design.

The gentle slope towards the Kennebecasis River lends itself well to sensitive development.

5.4 Interface With Paths and Open Spaces

Presently, buildings on campus are designed in a manner that defines a formal open space, such as the main quad, or a formal path or street. In some instances, particularly at the periphery of the campus, buildings appear to be sited less formally to take advantage of the views to wooded areas, or simply placed to take advantage of parking. The design of new buildings or renovation and additions of existing buildings should reinforce a pattern of path-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.

Buildings should be designed to encourage active ground floor and small scale uses to support pedestrian vibrancy. Buildings need to be permeable with multiple public entrances to appear open and welcoming to visitors and day-to-day users. 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.

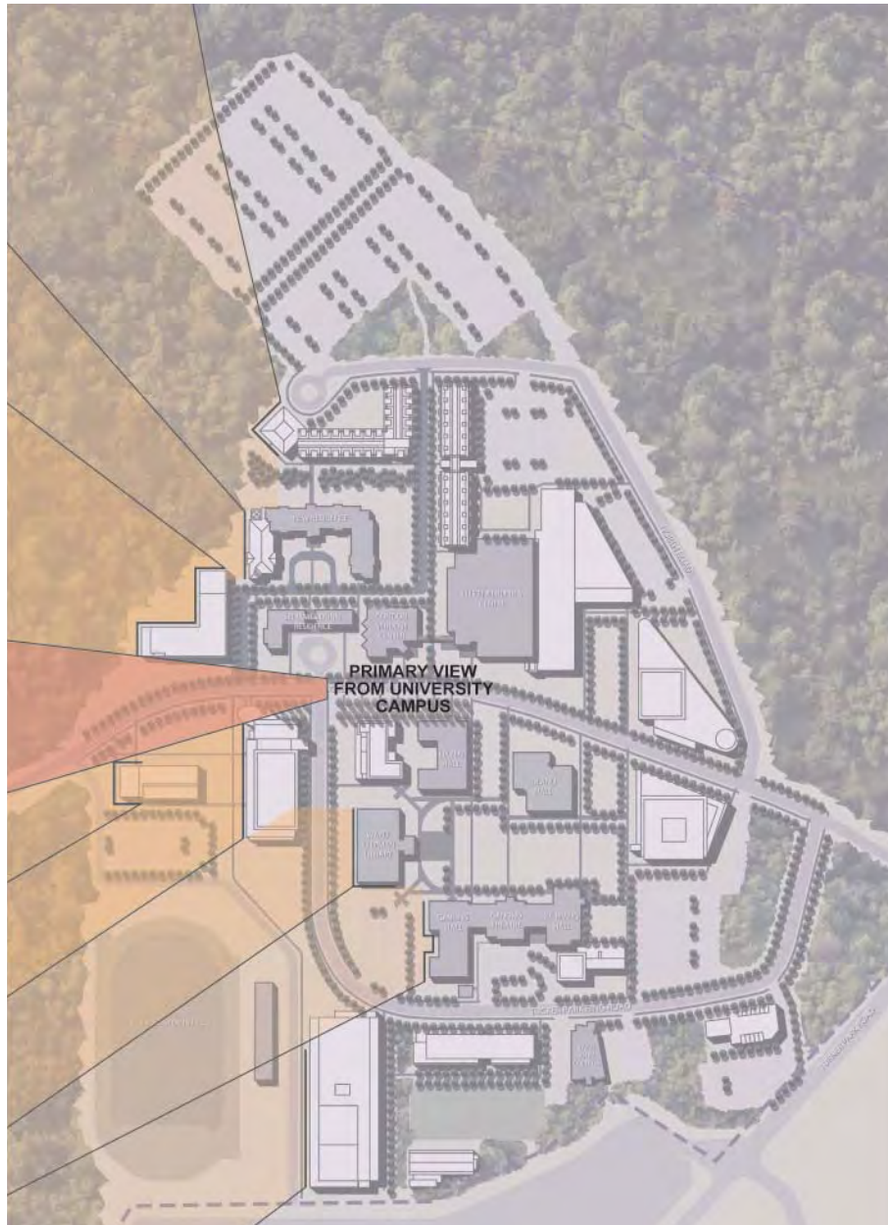
- Pedestrian pathways, active building uses such as offices, lounges, food areas or interior circulation routes should be placed to visually or physically connect with streets and open spaces and to provide increased animation, surveillance and safety.
- Informal areas for socializing or studying should be easily accessible from main circulation corridors and provide views to the outdoors to encourage informal interaction and engagement.
- Principal pedestrian entrances should be located on paths, streets and open spaces.
- Blank building walls (without windows) should be avoided to as great extent as possible particularly at the ground floor level. Where necessary they should be located to minimize exposure to public areas of the campus, particularly paths, streets and open spaces. Landscape screening should be used to mitigate the appearance of blank walls.
- 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 and incorporate visual screening.
- Security should be promoted through self-surveillance, and facilitated through attention to:
  - ensuring that buildings or groupings of buildings do not create dead-end exterior spaces;
  - strategic lighting;
  - visual transparency between interior and exterior at grade.

The ground level of all campus buildings should be as transparent as possible.

5.5 Views and The Forest Edge

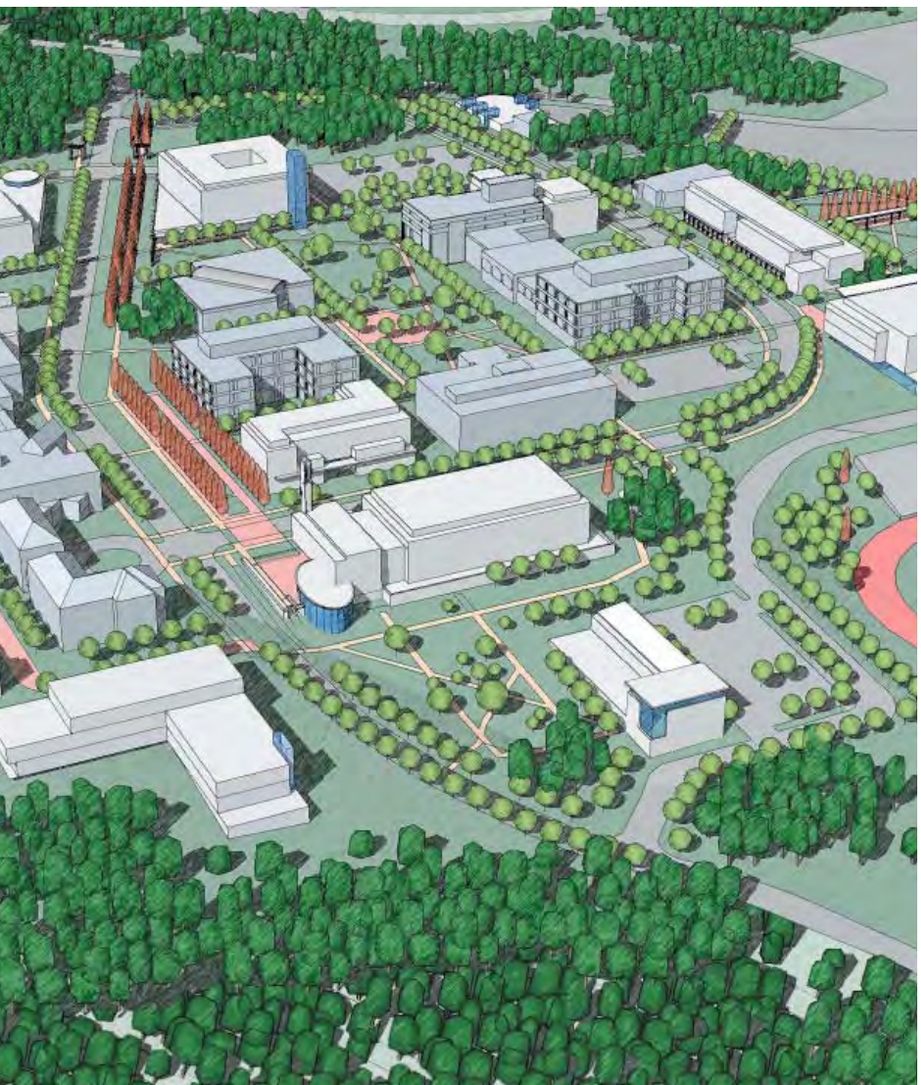
The selection of the Tucker Campus as the site for UNB SJ was motivated by the prominence of the site with its commanding views to the valley lands and the Kennebecais River. There are largely unrealized opportunities to provide magnificent views and overlooks from the campus to the forest and valleys below. Conversely, this arrangement provides an opportunity for views back to the campus from surrounding areas.

- Vistas to the river valley and the forest or a visual 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 interior double height public spaces featuring views to the valley, exterior 'belvederes' and 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.
- Where possible, the most important buildings that are commonly shared by the university community should occupy landmark sites with opportunities to provide views to the valley.



5.6 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. 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.

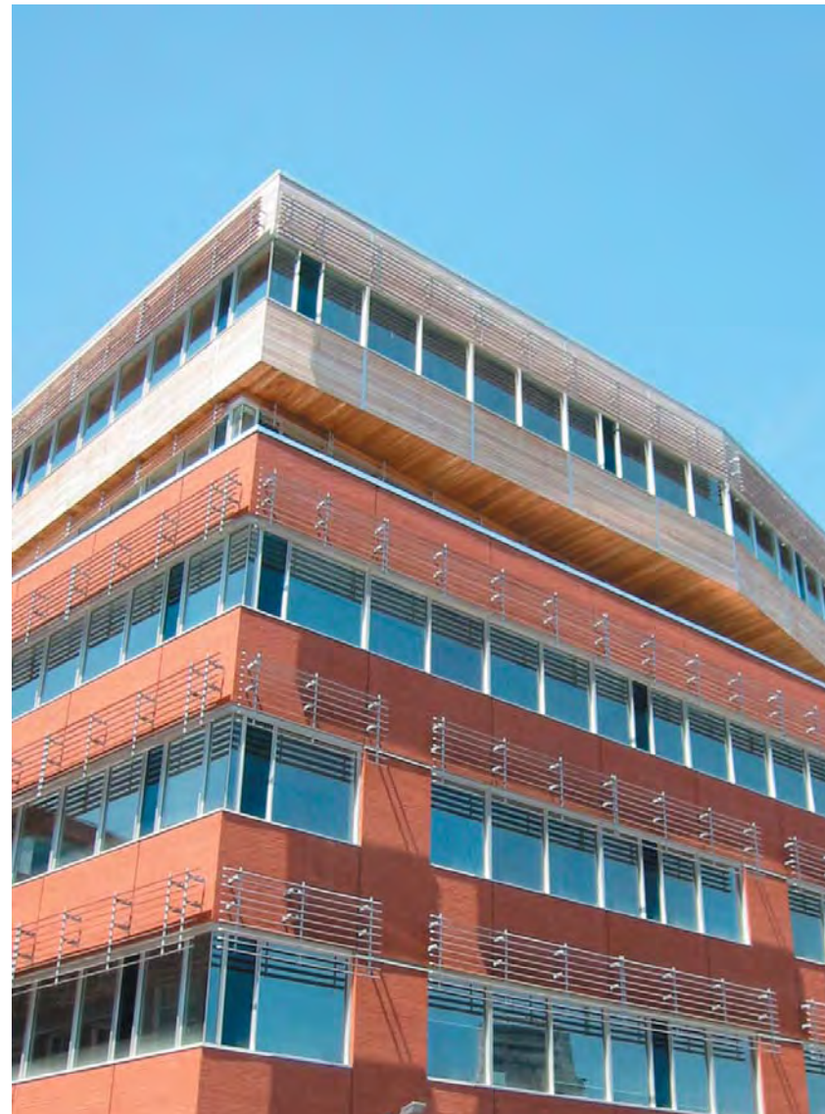


- Once a configuration for the footprint is defined, the massing of the building should reflect the role it will play in the larger composition of buildings on campus. For example framing an open space or quad.
- Building depths should be narrow where possible to ensure access to natural light, particularly 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 provide a setback for the top floor to reduce its apparent height.
- Taller landmark building elements extending above the roofline should be used to 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.

5.7 Façades

The exterior appearance of campus buildings is key to creating a campus that is both compelling and conveys a strong sense of identity, permanence and community.

- Buildings at ground level should be highly engaging, transparent and incorporate pedestrian-sheltering elements, such as canopies, breezeways and colonnades.
- The use of colour in the composition of façades should generally convey a sense of permanence and dignity through the use of high quality materials that are 'timeless' in their appeal. This includes the use of stone, brick and high quality precast concrete, wood, man-made stone and metal products. The use of colour should generally reflect materials in their natural state. While bright and vibrant colours should be encouraged as accents in the composition of façades, this should be achieved by applying colour to key interior spaces (entrance vestibules, lobbies, lounges, stairways etc.) that are visible from the outdoors through large windows.
- Building façades should provide a minimum forty percent window-to-wall ratio.



This Montréal building uses both vertical and horizontal articulation, as well as a variety of materials to break up the monotony of the façade.

- Building materials should be selected that convey a sense of prestige and permanence, and capital budgets must accordingly provide adequate resources to ensure that high-quality, durable materials and building components are used.
- A range of cladding materials and colours have been utilized on campus. The majority of the original campus buildings from the 1960s utilized light coloured materials such as light coloured brick and precast concrete. Recent additions to the campus have utilized vinyl and aluminium siding. While there is no one dominant material, a 'light-coloured' palette should be adhered to.
- Cladding materials should be selected from the following palette: priority should be given to the use of natural stone and wood from New Brunswick. Recent Canadian university buildings have successfully integrated wood into their design. The following materials should also be considered: man-made stone (light-coloured to reflect a limestone colour), natural limestone, yellow or light-coloured brick, zinc or copper siding, and metal panel curtain wall that utilizes neutral colours such as white, silver, dark grey, light grey. Vinyl and aluminium siding, corrugated and sheet metal panels and concrete block should be avoided. Future residence buildings should utilize a more permanent cladding material such as brick.
- Buildings façades should incorporate, where appropriate, projections which assist in the articulation of the façade and provide relief to long flat surfaces. These projections or bays should coincide with public areas of the buildings such as lounges, key meeting rooms, café/food areas, stair and elevator towers or the ends of corridors and integrate high levels of glazing to facilitate two-way views. These interior areas should be painted utilizing vibrant colours to enhance their visibility from the outdoors.
- Window glazing should facilitate two-way visual connections between indoor and outdoor areas. Window and doorway compositions which incorporate a combination of clear and frosted glazing should be encouraged. The use of dark tinting, 'smoked' and 'mirror' glass should be avoided as it limits visibility from the outdoors.
- New additions and renovations should incorporate a material palette and composition in keeping with, or complementary to, the existing structure;
- Mechanical penthouses and service areas should be screened utilizing attractive materials that complement the overall design.
- Where possible, exterior materials should continue into entrance lobbies to aid in 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.

5.8 Roof Forms and Materials

- Where flat roofs are used, the volume of the roof should be expressed through the use of projections or setbacks which distinguish the roof from the main body of the façade. Roof projections and setbacks reinforce and articulate the façade composition as well as provide an appealing shadow line;
- The colour of roofing materials should reflect a natural palette. For instance metal roofing should avoid the use of colours (greens, reds, blues) and emphasize colours which reflect the material's natural state: for instance:

  Copper – copper colour eventually transforming to a patina;

  Aluminium – silver or light grey;

  Galvanized metal – silver or light grey;

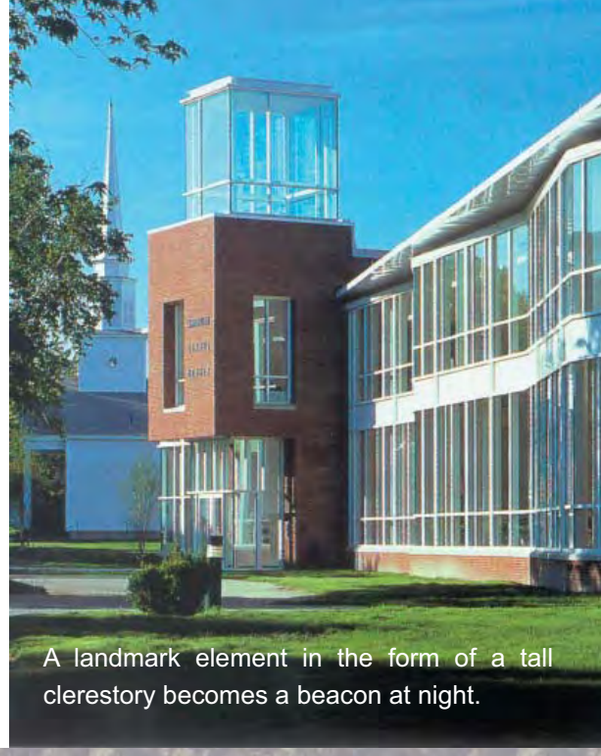
  Zinc or Coated Copper - silver or light grey;

- Roof membranes should be light coloured to reduce heat absorption and the 'heat island' effect;
- Roof gardens should be encouraged as they minimize heat absorption and reduce the 'heat island' effect on site, and reduce storm sewer loads by collecting, filtering and storing rain water for on-site use;
- Where sloped roofs are utilized high quality roofing materials should only be considered including: standing seam metal roofing (natural colours only – light grey, dark grey, silver), copper, lead coated copper, zinc, slate, and cedar shakes.
- Rooflines should be designed to emphasize key features such as main entrances or a visual terminus;
- Mechanical penthouses and service areas should be incorporated as part of the building massing and utilize the same high quality roofing and cladding materials used on the main body of the building;

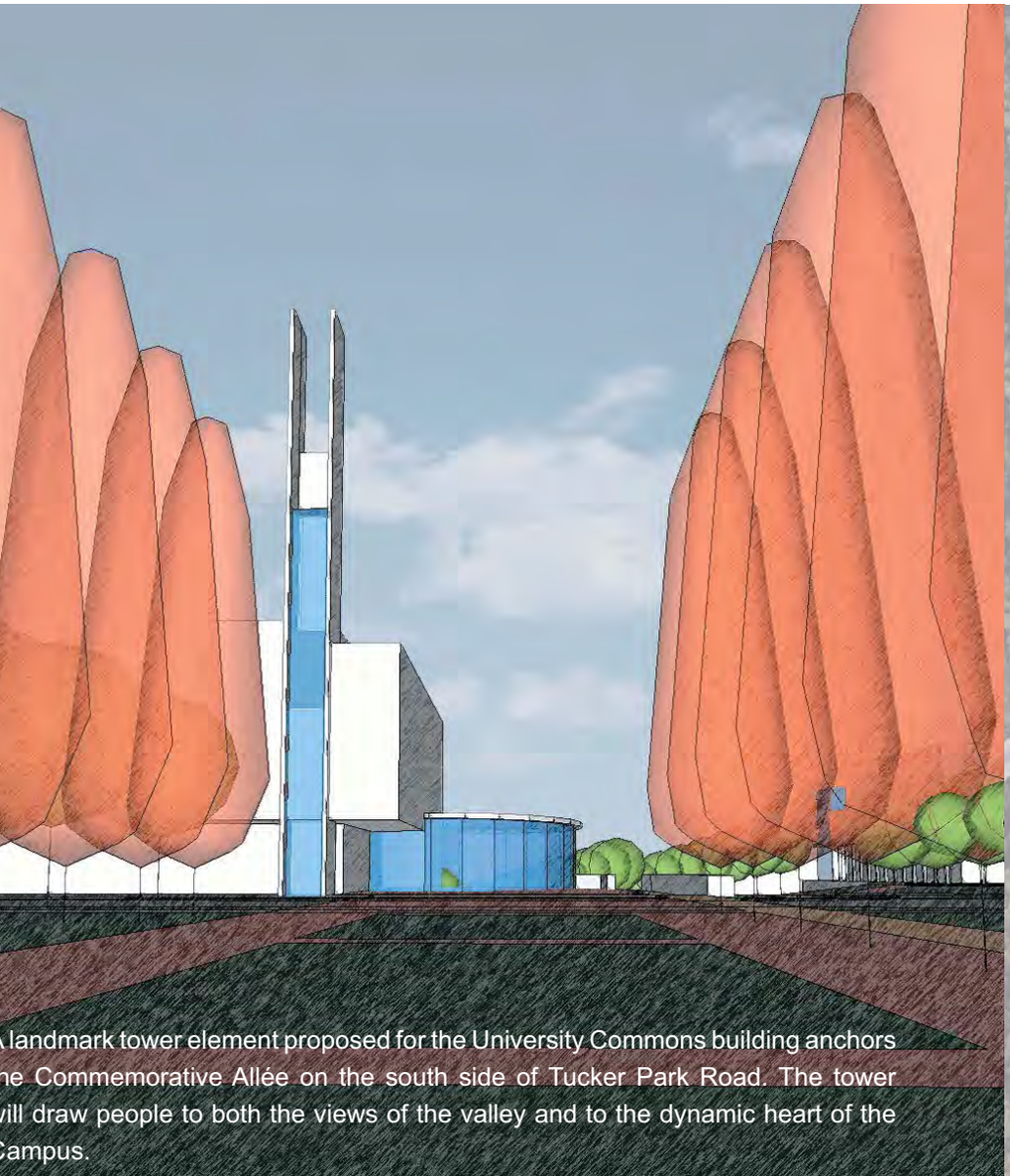
xamples of flat roof forms which area xpressed through cantilevered projections.

5.9 Landmark Elements

Taller landmark and tower elements are encouraged to extend above the height of buildings to articulate highly visible strategic sites, entrances or key public areas of the building. The location of these higher elements can correspond to axial views, primary frontages, main entrances or a combination of these. This pattern of landmark elements will enhance the sense of place, orientation and connectivity of the campus.



A landmark element in the form of a tall clerestory becomes a beacon at night.



A landmark tower element proposed for the University Commons building anchors the Commemorative Allée on the south side of Tucker Park Road. The tower will draw people to both the views of the valley and to the dynamic heart of the Campus.

Proposed landmarks and gateways

5.10 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.

- 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 project from or be recessed from the main building wall to further articulate the façade and to create shadow lines.
- Entrances should generally be highly transparent either through glazed doorways or solid doorways with a glazed surround.
- High quality materials should be utilized to signify entrances including stone, copper, and wood.
- Architectural elements which reinforce the identity of entrances should be considered such as special light fixtures, porches, canopies and colonnades.

Entranceways for all campus buildings should be clearly marked through architectural expression.

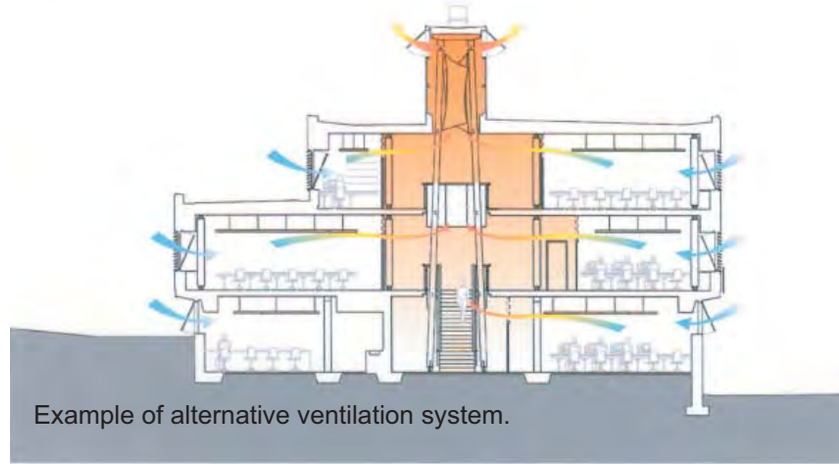
5.11 Sheltered Pedestrian Walkways (SPW)

A continuous system of sheltered pedestrian walkways should be integral to all new buildings and should be added to existing buildings undergoing renovation. This sheltered pedestrian circulation system will facilitate inter-building links while keeping the pedestrian engaged with the public life of the campus - located at grade and between the indoor and outdoor areas of the campus. The system takes the form of glazed corridors located on the ground floor/ exterior edge of buildings and between buildings through 'breezeways' which are a single or double storey colonnade. Both elements feature a high level of glazing with the opportunity to 'open-up' to the outdoors in the warmer months through a series of operable windows, sliding wall panels and doors. These at-grade systems should be used wherever possible. Pedestrian tunnels or overhead bridges should generally be avoided – and only considered where it is necessary to traverse roadways.

- Sheltered pedestrian walkways (SPW's) should be located adjacent to public spaces, paths, streets and other major pedestrian traffic corridors;
- SPW's 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;
- Where added to existing buildings, the architectural language and materials should complement and enhance the existing structure;
- Where possible, SPW's should link 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.

5.12 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.



Example of alternative ventilation system.