# FUNCTIONAL PROGRAM

# Art Gallery of Saskatchewan

## at River Landing, Saskatoon

**This Functional Program defines the requirements for a new building at River Landing in Saskatoon to house the Art Gallery of Saskatchewan (formerly the Mendel Art Gallery), expansion of the Persephone Theatre, underground parking, and requirements of the City of Saskatoon related to River Landing, a significant downtown redevelopment initiative of the City.**

**27 April 2010**

Lundholm Associates Architects
401 Richmond Street West Studio 369
Toronto, Ontario M5V 3A8
416 596 7400
mlundholm@lundholm.ca

Cover Design
Jelonek, Lundholm
Background 'Prairie Soils'

## TABLE OF CONTENTS

## TABLE OF CONTENTS



Unit Space Sheets covering detailed technical requirements will be provided at the start of design.

## ACKNOWLEDGEMENTS

*The consultants would like to express their appreciation to all those who contributed to the planning of this project. The Art Gallery of Saskatchewan Functional Program is the result of collaborative work involving the City of Saskatoon, the Mendel Art Gallery, Persephone Theatre, community stakeholders, and external expertise.*

**CITY OF SASKATOON OWNER TEAM STEERING COMMITTEE**
Sandi Schultz, Special Projects Manager, City Manager's Office
Bruce Wilson, Project/Mechanical Engineer, Infrastructure Services Department, Facilities Branch
Robert Tomiyama, Architect, Infrastructure Services Department, Facilities Branch
Vincent Varga, Executive Director and CEO, Mendel Art Gallery
Michael Lundholm, Principal, Lundholm Associates Architects

*Special thanks to Murray Totland, City Manager*

**MENDEL ART GALLERY**
Art Knight, Chair, Board of Trustees
John Hampton, Vice Chair
Trustees:
Jason Aebig
Herta Baron
Robert Christie
Carol Cisecki
Councillor Charlie Clark
David Haberman
Jack Hillson
Holly Kelleher
Linda Langille
Keitha McClocklin
Councillor Tiffany Paulsen
Alexander Sokalski
Dennis Yee

Vincent Varga, Executive Director and CEO

*Special thanks to Alison Lawlor and Hazel Mazca, and to the Mendel staff.*

**PERSEPHONE THEATRE**
Nicki Kiteley, Board of Directors
Sheldon Born, General Manager
Del Surjik, Artistic Director

**CITY OF SASKATOON**
Shantel Kolibab, City Manager's Office
Tim Stewart, Manager, Development Review
Kevin Kitchen, Community Initiatives Manager
Jim Greenshields, Superintendent, Boards and Agencies
Goran Lazic, Traffic Operations Engineer
Christopher Babyak, Electrical Site Servicing
Jeanna South, Urban Design Manager
Genevieve Russell, Senior Planner Urban Design
Keith Kingsbury, Infrastructure Analyst
Roxane Melnyk, Open Space Consultant

*Consultants to the City*
Rob Crosby, Crosby Hanna & Associates, Landscape Architecture and Community Planning
Geoff Wilson, fs Strategy Inc, Food Services Consultant
Ken Laustsen, Read Jones Christoffersen, Parking Planning Consultant
Graeme Alston, BTY (Alberta) Ltd., Cost Consultant

**MEEWASIN VALLEY AUTHORITY**
Lloyd Isaak, Manager of Design and Development
Doug Porteous, Community Development Manager

**TOURISM SASKATOON**
Randy Fernets, Director of Corporate Development and Visitor Services

**RIVERSDALE BUSINESS IMPROVEMENT DISTRICT**
Randy Pshebylo, Executive Director

**SASKATOON DOWNTOWN BUSINESS IMPROVEMENT DISTRICT**
Terry Scaddan, Executive Director

**SPECIAL THANKS TO PARTICIPANTS IN THE GALLERY VISIONING SESSION:**

| | |
|---|---|
| Kent Archer | Kevin Kitchen |
| John Shelling | Kevin Tobin |
| Bart Gazzola | Greg Hardy |
| Tod Emel | Grant McConnell |
| Jonathan Forest | Sandi Shultz |
| Marlessa Wesolowski | Robert Christie |
| Sue Stewart | Alison Norlen |
| Darrell Lechman | Linda Stark |
| Frances Westlund | |

**CONSULTING TEAM FOR LUNDHOLM ASSOCIATES ARCHITECTS**
Michael Lundholm, Project Lead
Calvin Chiu, Lead Programmer
Sonya Jensen, Senior Programmer
Mary-Ann Jelonek, Project Coordinator

# 1.0 INTRODUCTION TO THE FUNCTIONAL PROGRAM

## 1.1 Introduction

The City of Saskatoon is developing a project that includes an underground parking structure, a complete facility for the Art Gallery of Saskatchewan (formerly the Mendel Art Gallery), and an expansion of the Persephone Theatre. The site is part of the River Landing redevelopment in the South Downtown area of Saskatoon.

The Art Gallery will be a key destination in River Landing for both residents and visitors. Together with the Persephone Theatre and planned residential and commercial development on the adjoining site, the Art Gallery will help to animate the riverfront and connect it with the Downtown. The master plan for River Landing has been developed to transform the south downtown of Saskatoon to become Saskatchewan's premier urban waterfront. It presents an exciting social, cultural, and commercial focus in one of Canada's hottest economies and fastest growing communities – a showcase and lasting legacy for the citizens of Saskatoon, the people of Saskatchewan, and all Canadians. The Mendel Art Gallery has been Saskatoon's municipal art gallery, with significant stature and respect in the national art community. The Mendel's exceptional reputation has been earned through the excellence of its exhibitions, its significant collection, and its notable level of public programming. It has also achieved an enviable level of community support, including an exceptional attendance record for a gallery of its size.

The Mendel's existing accommodation presents serious limitations to the Gallery's ability to fulfill its mandate. There is a shortage of space for key functions, including permanent and temporary exhibitions, collection storage, preparation and conservation, programs, and administration. There are also operational problems concerned with collection handling, exhibition preparation and changeover, and visitor flow. The building has outdated mechanical and electrical systems, and is unable to consistently meet professional gallery standards.

Since 2001, the Mendel Art Gallery had attempted to develop a project to expand the building on the present site, but was unable to obtain funding and support. The Board and Executive Director have now fully endorsed the proposal to construct a new facility for the Gallery as part of the River Landing project. As the Art Gallery of Saskatchewan, the Gallery will expand the scope of its exhibitions and programs, further develop its important collection, and function as an important destination and activity centre at River Landing.

The Persephone Theatre was founded in 1974 with a mandate as a community-based regional theatre for Saskatoon and the surrounding area. Over the years it has developed a reputation for youth programming, production of Canadian plays, and showcasing Canadian theatrical talent. It operated out of a converted church with 300 seats from 1983 until the current building was constructed and opened for the 2007/08 season. The facility includes a 420 seat main theatre and a multi-purpose black box theatre. Budget limitations in the construction of the present facility led to reductions in the size of the black box theatre and certain support functions. A modest expansion to restore these losses will be included in the present project.

## 1.0 INTRODUCTION TO THE FUNCTIONAL PROGRAM

### 1.2 Purpose of this Functional Program

This Functional Program constitutes the statement of requirements for the Art Gallery of Saskatchewan building project, as well as the Persephone Theatre expansion, and related site development. It is based on extensive consultation with the Gallery, Theatre, and City, and presents the requirements of each in an integrated manner.

The Functional Program attempts to provide a comprehensive understanding of the Gallery as an institution within which its spatial requirements are presented. It deals with both subjective and objective design criteria and progresses from general principles to specific detail. The approach to the Functional Program is to present in one consolidated and concise source, all of the original input to the design process from the Gallery management, staff, and Board. The Functional Program document presents the requirements in a generic manner, applicable to any design and construction methodology. While the Gallery requirements are the dominant aspects of the project, the Functional Program also integrates the requirements of the Persephone Theatre and City, based on the same consultative process.

The Functional Program presents the requirements for the building complex and defines the institutional values which should guide design. There are four primary uses for the document:

1) Definition of the design requirements
2) Guideline for user analysis of development and design proposals
3) Justification to approving agencies and sponsors
4) Control of project content throughout the duration of the project

The principle is to provide as thorough a briefing on project requirements as possible without limiting the creative exploration of design solutions by the design team.

The importance of providing reliable and appropriate conditions for art collection materials is explained through the principles of preventive conservation. The preservation of the collections and enabling the Gallery to receive borrowed materials from other institutions are among the most critical factors governing the technical design of a gallery building. The building must provide suitable environmental conditions, and the means to maintain them, to enable the Gallery to honour this fundamental aspect of its mandate.

The technical components of the report detail project requirements following the traditional architectural and engineering disciplines. This section consists of interpretation of the functional and museological requirements in terms of building fabric and systems. Special attention is paid to the integrity of building envelope, museum-specific environmental control systems, fire protection and life safety issues, and security systems.

## 1.3 Structure of the Functional Program

The Functional Program is presented in a loose leaf format to facilitate insertion of updated pages. Any revisions after the formal issue of the document will be date-noted and printed on tinted paper for identification.

The document has seven chapters as follows:

Chapter 1.0 INTRODUCTION TO THE FUNCTIONAL PROGRAM
This chapter presents a general introduction and explains the purpose and organization of the functional program document.

Chapter 2.0 PROJECT BACKGROUND
This chapter presents an introduction to the River Landing development, and to the Art Gallery of Saskatchewan as an institution, reviewing its mandate, history, scope of activities, organizational structure, and audiences and clientele.

Chapter 3.0 PROJECT PARAMETERS
This chapter defines the major objectives for the project, and explores significant design issues.

Chapter 4.0 GENERAL REQUIREMENTS
This chapter models the desired conceptual organization of spaces. It presents the spatial requirements in quantitative terms.

Chapter 5.0 FUNCTIONAL GROUP REQUIREMENTS
This chapter explains the purpose of the requirements in qualitative terms for each major group of spaces in the gallery and theatre. It also explains the parking, City, and exterior functional requirements of the project.

Chapter 6.0 GALLERY SPECIFIC DESIGN CRITERIA
This chapter explains the collection oriented criteria in terms of preventive conservation.

Chapter 7.0 TECHNICAL DESIGN CRITERIA
This chapter presents technical design criteria based on preventive conservation applied to architectural, structural, mechanical, and electrical systems.

Unit Space Sheets covering detailed technical requirements will be provided at the start of design.

## 1.0 INTRODUCTION TO THE FUNCTIONAL PROGRAM

# 2.0 PROJECT BACKGROUND

## 2.1 River Landing

### *Background*

The development of River Landing is intended to provide an exciting social, cultural, and commercial focus in one of Canada's fastest growing communities. The area comprising River Landing is approximately 15 hectares (37 acres) in size, located along the riverfront adjoining the downtown and the neighbourhood of Riversdale.

### *History*

River Landing has played a crucial role in the history of Saskatoon. In 1882, John Lake led early settlers to form the Saskatoon Temperance Colony on the east bank of the South Saskatoon River, across from River Landing. Lake established one of the first community plans on the prairies to capture the garden city movement, exemplified in the expansive riverbank public green space. By 1884, a ferry service was established that ran from the west end of Main Street across the river to Victoria Park; the ferry near the Traffic Bridge was added in 1890. Given the long waiting times at the shore, the ferry landings soon became places where people gathered and interacted with each other. In 1890, the railway bridge was built, and the railway station was completed near 20th Street and 1st Avenue. A new settlement began to spring up around the railway station, and in 1901, what is now the city's downtown area was incorporated as the Village of Saskatoon. The opening of the Traffic Bridge at 3rd Avenue, in 1907, signaled a new era for automobile transportation. The ferry service was discontinued soon after the Traffic Bridge opened.

The area was the site of Saskatoon's first major exercise in urban renewal in the late 1920s and 1930s and included the Legion, Saskatoon Technical Collegiate (later the Gathercole Building), and the Saskatoon Arena. There was limited development in the area for the next forty years as downtown development was primarily focused north of Twentieth Street. In the 1970s the City of Saskatoon undertook several comprehensive studies of the river valley which resulted in a vision for the development of the valley's natural and heritage resources along the river edges. This resulted in a series of development plans and studies to generate design ideas on the remake of the downtown's river edge.

### *Meewasin Valley*

The Meewasin Valley refers to the river valley of the South Saskatchewan River in and around Saskatoon. In 1978, a 100 year conceptual plan for the river valley (The Meewasin Valley Project: 100 Year Conceptual Plan) was funded by the Province of Saskatchewan and the City of Saskatoon. The plan, authored by Raymond Moriyama and Associates, resulted in the establishment of the Meewasin Valley Authority (MVA). Meewasin is a conservation organization dedicated to conserving the natural and cultural heritage resources of the South Saskatchewan River Valley in Saskatoon and area. Meewasin's jurisdiction includes the river and its shores, Meewasin, provincial, university, and city land adjacent to the river. Over 60 km of trails have been developed since 1982, handling close to 1 million visits annually, making the Meewasin Valley Trail a popular visitor accesses to River Landing.

## 2.0 PROJECT BACKGROUND

### *Historical Buildings*

The Saskatoon pump house building is the only historical building on the River Landing development. It is the only surviving remnant of the Saskatoon Power House (later called the 'A.L. Cole Generating Station'). The pump house consists of two buildings: the distinctive octagonal tower built in 1911, and the rectangular pump house expanded in 1929, and again in 1954. The tower is one of the oldest remaining power plant structures in Saskatchewan and the only octagonal brick tower in existence on the prairies.

### *Development Plans*

Since the late 1970s, the City of Saskatoon has commissioned architects and planners to prepare a number of development plans for the future development of River Landing:

*(1) Moriyama Plan 1978*

*Raymond Moriyama Architects and Planners*

In 1978, Toronto architect Raymond Moriyama was commissioned by the City to work on a study report to develop the Meewasin Valley. His final report, the Meewasin Valley Project – 100 Year Conceptual Master Plan opened up a new era of planning development in Saskatoon. It advocated a balanced approach to urban development and conservation of the river valley. Moriyama's vision of the southern downtown area formed a basis for subsequent master plan proposals. He envisioned a continuous pedestrian promenade to wrap around the southern downtown edge along the river. At River Landing, Moriyama proposed to include a Winter Garden, an Enclosed Walkway, a Civic and Cultural Complex, and an extended Riverfront Promenade of civic, cultural, and recreational facilities that include a small theatre, playhouses, a community hall, an amphitheatre, and the new City Hall.

*(2) South Downtown Concept Plan 2004*

*CitySpaces Consulting, Crosby Hanna & Associates, Kindrachuk Agrey Architecture*

The South Downtown Concept Plan gathered all the concepts of various land uses into one report (Moriyama Plan 1978, the Mayor's Task Force Report 1989, to Southeast Riversdale Design Plan 2001). The proposed landmarks, housing, hotel, restaurants, cultural facilities, retails, parks, farmers' market, business facilities, and public squares presented the City's desire to create a strong urban identity and to resolve a number of site issues on downtown land use, urban connections, and site access. In the parcel at the west side of the 2nd Avenue extension, the Concept Plan proposed a live theatre and a public complex that contains a three-storey atrium, an interpretive centre, café, public washrooms, access to the theatre, and a small indoor stage. On the outside, towards the southwest corner of the site, a prominent landmark structure was proposed. This concept plan formed the basis of the DCD1 zoning district which regulates development in the south downtown area.

*(3) South Downtown Local Area Design Plan – Architectural Control District Overlay District 2004*

*Saunders Evans Architects*

The South Downtown Local Area Design Plan was prepared to recommend architectural controls for the South Downtown areas encompassed by the Architectural Control District Overlay District. The document is intended to guide developers in creating a strong sense of place and identity, according to the land planning principles in the South Downtown Concept Plan (2004). The key elements of the South Downtown Local Area Design Plan include: guidelines and suggestions on landmarks, strengthening of site connection and access, mixed land-uses, stages along the riverfront, ambient and special event lighting, heritage and environmental interpretation, streetscape and public art, and development and design control.

This design plan formed the basis of the Architectural Control Overlay District which regulates architectural design in the south downtown area.

*(4) River Landing Interpretive Plan 2005*
*Aldrich Pears Associates*
The Interpretive Plan took another look at River Landing in an attempt to tell the site stories. To discover and enhance 'the sense of place' of River Landing, the Plan focused on the ideas of: 'A People Place', 'Cultural Connections', 'The Nature of the River', and 'Celebrate the Past, Look to the Future'. The Plan also proposed a series of riverfront parks and landscape elements along the river, under the theme of the Saskatchewan River itself. Furthermore, the Plan paid close attention to the archaeological possibilities of the site, so that the remnants of the Clinkskill Foundation, the A.L. Cole Pumphouse, and the Gathercole Building could be properly displayed or incorporated into new architectural proposals. Stone gateways and building bricks salvaged from the Gathercole Building, which formerly stood at the land east of the 2nd Avenue extension, were especially considered for future usage at the interpretive centre, the place where the stories of River Landing can be told for generations to come.

***The River Landing Project***
On becoming the Province's premier residential and destination centre, the entire site of River Landing has been divided into a number of land parcels and two phases of development. The River Landing project signifies a close partnership amongst the Federal Government of Canada, the Provincial Government of Saskatchewan, the City of Saskatoon, and the Meewasin Valley Authority.

The area comprising River Landing is approximately 15 hectares (37 acres) in size, located along the riverfront adjoining downtown and the neighbourhood of Riversdale. River Landing is guided by the South Downtown Concept Plan (2004) and zoned as Direct Control District 1 (DCD1). Objectives for the River Landing district developments area:

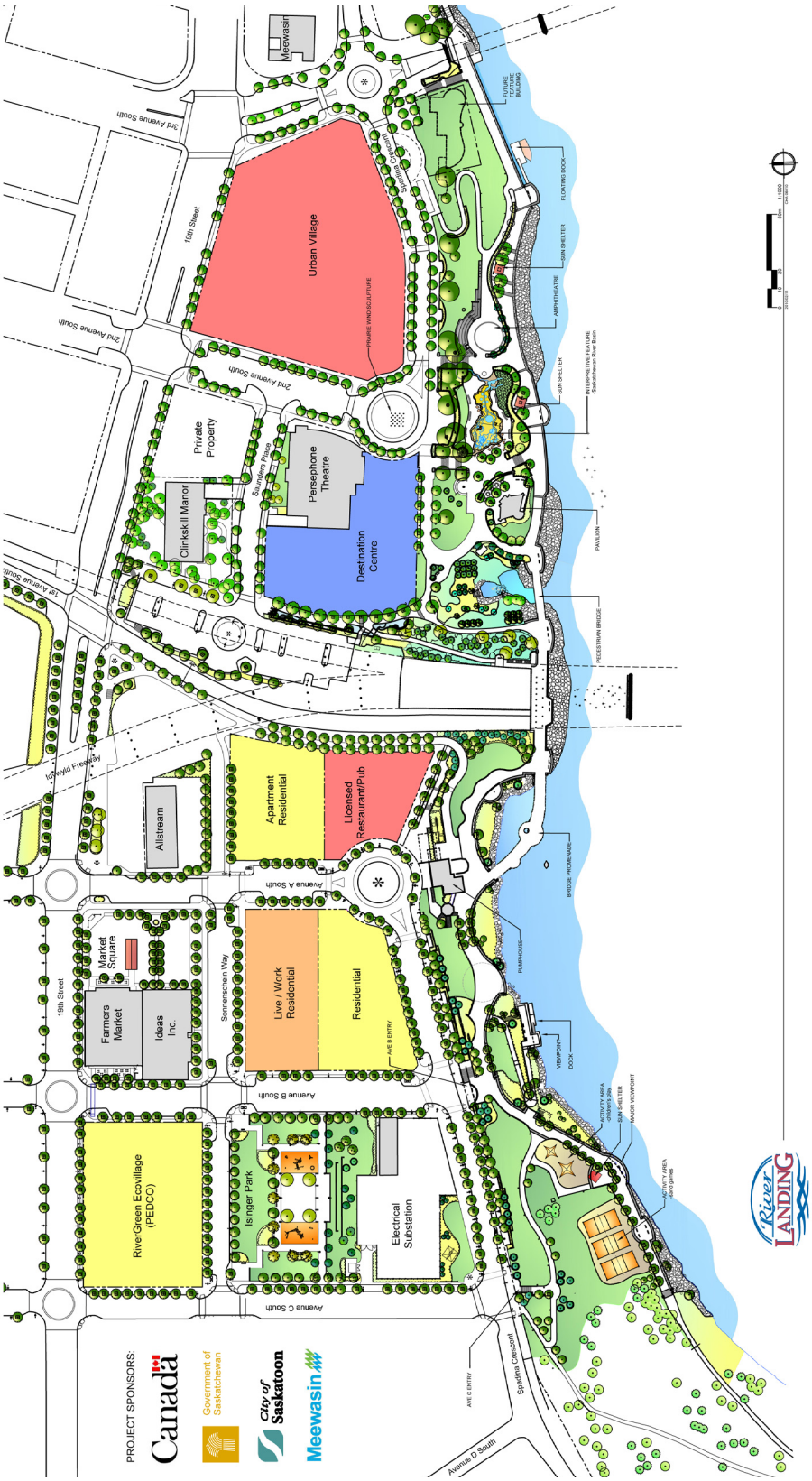
- Land use diversity;
- Mixed-use development;
- Enhance business in the adjacent downtown and Riversdale neighbourhoods through complementary development;
- Create strong linkages between the local neighbourhoods and the riverbank, and celebrate the waterfront;
- Include public spaces which facilitate activities year-round, day and night, indoor and outdoor; and,
- Access and circulation which is clear and barrier-free.

## 2.0 PROJECT BACKGROUND

Following completion of the South Downtown Concept Plan in 2004, development at River Landing commenced. Significant developments are:

- The riverfront park which runs south of Spadina Crescent from the 3rd Avenue Traffic Bridge to Avenue C is substantially complete on the east side, and over 50% complete on the west side. This forms an important link through the Meewasin Valley, connecting riverfront users throughout most of the city. The accessible areas of this park are already drawing notable public use, and activities and civic functions are staged here in both the winter and summer months. Included in the riverfront park are the riverfront pathways, Amphitheatre, water play feature, boat dock, public art, Prairie Wind landmark, pavilion with public washrooms, promenade, and small stage.
- At the west end of the site, Isinger Park, a new neighbourhood public space, was completed in August 2009.
- The Farmer's Market, which opened in 2007, is seeing unprecedented business since it relocated to this site. Also included in the development are: Saskatoon Ideas Inc., a business support centre which opened in 2007; and a public square which is an outdoor space for use by the public for special events and by the Farmers' Market.
- Persephone Theatre has been operating since December 2007.
- The Destination Centre, which is approved in principle, is the designated site for the Art Gallery of Saskatchewan.
- 19th Street roadway connections, parking, unit paver roadway construction, streetscaping including trees, street furniture, and special lighting.
- River Landing will be managed by a non-profit corporation. The River Landing Management Board will be appointed by City Council. Its primary mandate will be to establish strategies to promote, manage, operate, and maintain an effective and efficient urban riverfront. The River Landing Management Board will be established in late 2011.

## 2.0 PROJECT BACKGROUND




*River Landing Diagram*
*Source: Crosby Hanna & Associates*

## 2.0 PROJECT BACKGROUND

### *Neighbouring Developments*

Apart from the Persephone Theatre, which shares the same land Parcel 'X' with the AGS, there are a number of neighbouring facilities and developments in the immediate surroundings of the AGS site.

### *Riverfront Park and Facilities*

Construction began in 2004 to transform the riverfront landscape at River Landing into a promenade of public activities and events. The construction of the landscape was managed by the Meewasin Valley Authority. The City of Saskatoon owns and maintains the River Landing public riverfront park and amenities. The scope of the landscape includes a riverfront park, some river viewing areas, a pedestrian bridge over a new tributary and garden, a new boat dock to support and enhance river activities and events, a pavilion to service day-to-day activities and special events, a children's water play area, and an amphitheatre to support performances and other events. The riverfront landscape at River Landing connects to the larger and continuous Meewasin Valley riverfront trail network that flanks both sides of the South Saskatchewan River in and around Saskatoon.

### *Parcel 'Y' Mixed-Use Development*

Land Parcel 'Y' is south of 19th Street between 2nd and 3rd Avenues. In 2007, a Request for Proposal (RFP) submission from Lake Placid Group of Companies was approved by City Council. There is no longer an agreement in place between the City and Lake Placid. The City is developing a new RFP for the site. The site is identified as a multi-use urban complex which includes street level retail, restaurant(s), an indoor or outdoor public space, hotel, meeting facilities, and/or residential dwellings. Public parking is considered an important priority.

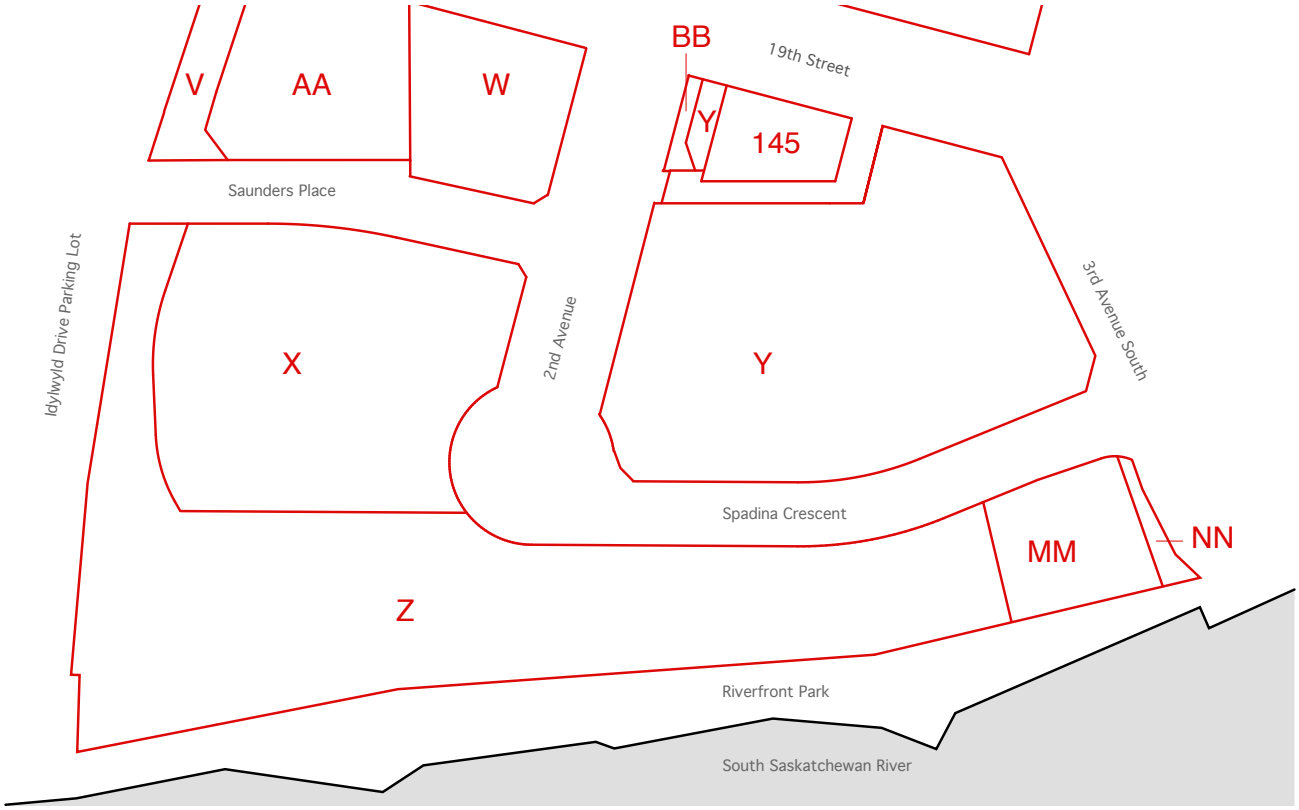
### *Prairie Wind Landmark*

Designed by Jyhling Lee and Paul Koopman, *Prairie Wind* is a public art installation completed in December of 2006 to mark the end of the City's centennial year. The installation is located in the middle of the roundabout that connects the 2nd Avenue extension and Spadina Crescent East. The piece consists of 25 steel poles reaching to a height of 15m. The poles are oriented toward true north and south. With special bearing pads at the base, the poles are able to move in the wind, under changing lighting from LED floodlights at the base. The piece is meant to remind viewers of a field of tall grass in the prairies swaying in the wind.

### *Parcel 'W' Mixed-Use Development*

The privately owned land Parcel 'W', at the southwest corner of 19th Street and 2nd Avenue, is identified for office and mixed use development in the future.

## 2.0 PROJECT BACKGROUND




*Above: Land Parcel Diagram*
*Based on the Survey Plan on Surface Subdivision prepared by George, Nicholson Franko & Associates Ltd. in October 2004.*

*Below Left: Riverfront Park*
*Below Right: Prairie Wind*

## 2.0 PROJECT BACKGROUND

## 2.2 Art Gallery of Saskatchewan (AGS)

With a long history as Saskatoon's municipal art gallery, the Mendel Art Gallery is preparing to become the Art Gallery of Saskatchewan and poised for the move to the new facility at River Landing.

### *Organization Profile*

The Mendel Art Gallery and Civic Conservatory opened officially on October 16, 1964. In 1967, the City of Saskatoon incorporated the Gallery as The Saskatoon Gallery and Conservatory Corporation.

The Mendel Art Gallery was named after Frederick Salomon Mendel, a successful businessman and art collector who came to Saskatoon in 1940, fleeing from the Nazi threats in Europe. Fred Mendel donated a generous sum to the City of Saskatoon for the construction of the gallery, which was matched by the Province of Saskatchewan. In 1965, a year after the Gallery's opening, Fred Mendel donated 13 paintings by the Group of Seven and their contemporaries to the gallery. These works formed the foundation of the Gallery's permanent collection.

In 1975, a modest building addition, with funding from the federal government, allowed the institution to assume additional operational capabilities. The Mendel began hosting, producing, and touring art exhibitions, both regionally and nationally, in recognition of its newly designated status as an Associate Museum of the National Museums of Canada.

### *Existing Building and Facilities*

The present building dates from 1964, with an addition in 1975. It enjoys a pleasant park setting on the South Saskatchewan River, across from the University of Saskatchewan. A national design competition attracted 48 entries from architects across the country. Winnipeg firm Blankstein, Coop, Gillmor, and Hanna won the competition with a fine example of Modernist architectural design. The original building permit was issued in November of 1963 with an estimated construction cost of $500,000.00.

It is important to note the architectural heritage of the Mendel Art Gallery. The Mendel Art Gallery was published in Canadian Architect September 1965 with the following text:

## 2.0 PROJECT BACKGROUND

"*Architects: Waisman, Ross. Blankstein, Coop, Gillmor and Hanna*

*This building was commissioned by national competition in 1962. W. E. Graham (former city planner and building director for the City of Saskatoon drew up the competition requirements which asked for the differing functions of the art gallery and civic conservatory to be combined into a single statement.*

*After many studies the architects decided that a basic bi-nuclear scheme would most directly solve the control problems of each function. The basic structural system is a series of four bearing masonry walls; the two exterior walls are extended to visually connect and enclose the conservatory structure. The masonry wall on the down slope side is resolved into a series of brick arches.*

*It was felt that the roofscape had to be carefully handled, because the riverbank opposite the site is 30 to 40 feet higher in elevation and the buildings would therefore be seen from an unusual standpoint. The main gallery has a series of folded concrete north light monitors which give the building a good level of lighting and a lively silhouette. The conservatory roof is composed of six domed fiberglass sections, each quarter section being a hyperbolic paraboloid. The domes are approximately 18 feet square and are supported on a precast concrete grid that is in turn held by a series of precast tree columns. Side walls are clear glass and the roof is of medium opacity fiberglass. The lower level is directly accessible from the parking lot and contains a 250 seat multi-purpose auditorium and a series of project rooms and studios along the arched wall.*

*The heating system for both gallery and conservatory is hot water. The gallery is totally air conditioned, with a high degree of humidity control."*

### *Existing Operations*

The Mendel is owned by the City of Saskatoon and governed by an appointed independent Board of Directors and is registered as a Canadian charity and certified under the Non-Profit Corporations Act of Saskatchewan. It is registered as a charity and entitled to give charitable receipts. The lands and premises of the Saskatoon Gallery and Conservatory Corporation (Mendel Art Gallery) are owned by the City of Saskatoon. The Mendel is one of two public art museums designated by the Government of Saskatchewan (provincial museum policy) as having provincial responsibilities. It houses one of the largest public art collections in the Province.

The Mendel receives its basic operating funding support from the City of Saskatoon, and financial support for its programs from Saskatchewan Arts Board, Canada Council for the Arts, Canadian Heritage, and SaskLotteries.

The Mendel is open from 9 AM to 9 PM daily, except for Christmas Day, for a total of 4,368 hours per year. Admission is free. Electronic counters at the public entrances tally attendance. With over 171,000 visitors in 2009, the Mendel has one of the highest per-capita attendance rates in Canada.

## 2.0 PROJECT BACKGROUND


*Exterior View of Mendel Gallery*


*Main Entrance of Mendel Gallery*

*Lobby of Mendel Gallery*

*Multi-Purpose Room of Mendel Gallery*

*Exhibition Space of Mendel Gallery*

## 2.0 PROJECT BACKGROUND

### *Existing Public Programs*

The Mendel Art Gallery offers a number of public programs for visitors of all ages, which address multiple learning styles in an immersive environment. Programs that enhance and support exhibition content are especially important. Most of the programs are offered free of charge, and additional financial support is sought to offset costs.

The Mendel is a valuable and unique learning resource for schools and other interested groups of all ages. Tours and workshops on numerous themes are pre-booked and provided at the Gallery and in school classrooms. A special program for community schools partners each school with the Mendel for a period of three years. In addition, free drop-in tours of the exhibitions for the public are held every Sunday.

Family and children's activities are offered every Sunday afternoon at the gallery, anytime at community gatherings off-site, and through a self-directed drop-in studio for casual visitors. These guided and self-directed programs make art more accessible and enhance visitors' understanding of the world.

The Mendel maintains a regular schedule of artists and curators talks, lectures, panels and symposia. Professional development and networking opportunities are created for artists, other arts professionals, and any individuals interested in the arts. An artist mentorship program includes an exhibition in the lower lobby.

Gallery interpretive programs provide informal material that enriches or expands on exhibition content for casual visitors. These include descriptive handouts, interpretive spaces, and technologically-driven interpretives (podcasts, iPOD tours, web sites, etc).

Community partnerships are developed with many non-profit agencies, arts and cultural groups, service groups, businesses, and academic institutions. The resulting collaborative programming takes place at the Gallery and out in the community.

### *Existing Collections*

The existing collection at Mendel Art Gallery began with the 13 paintings by the Group of Seven and their contemporaries donated by Fred Mendel. The collection continued to grow to over 5,600 works of art in various media. Works by Canadian artists have been a major focus of the Gallery's collection. In 1979, the Gallery began to aggressively purchase works by contemporary Saskatchewan artists. Since early days, donors have played a significant role in building the Gallery's collection, which also include significant pieces that highlight the history of early art communities in the Province.

Mendel Art Gallery exhibitions have placed regional artists in national and international contexts through concurrent exhibitions, public programs and outreach activities. Collection development and exhibitions programming are highly based on building an on-going relationship with different artists, and between the artists and the public..

In recent years, the collection of the Mendel Art Gallery has become a vital resource for provincial touring exhibitions in Saskatchewan.

### *Expansion Plan*

Due to the serious limitations of the existing building, which include a shortage of space for key gallery functions and operational problems concerned with collection handling, exhibition preparation and changeover, inflexible flow of visitors, and outdated mechanical and electrical systems; a plan to study the possibility of renovating and expanding the existing Mendel building was undertaken in 2001. The plan saw the facility expanding to 45,000 square feet from the current 25,000 square feet, including a courtyard, a café, and a larger civic conservatory. The cost of the expansion was estimated in 2008 to be around $24 million. A preliminary proposal to move the Gallery to River Landing in 2005 was not pursued. Despite renewed efforts to secure funding, the renovation and expansion project did not attract sufficient government and private donor interest.

### *Moving to River Landing*

In March 2009, the Mendel Board voted unanimously to pursue the construction of a new Gallery at River Landing.

On April 3rd, 2009, the City and the Gallery made a joint announcement of the proposed project and indicated that the new gallery will be named 'Art Gallery of Saskatchewan'. It will receive funding from the City, the Province, and the Federal Government. The arrival of the new gallery at River Landing will make the site an epicenter of arts and culture that defines the City's identity for the future. The new building as a purpose-built facility will meet the needs of a growing demand on the collection and programming facilities of the Gallery. The existing Conservatory will remain at its current location and the old Mendel building will be upgraded to house another organization, continuing to serve the public.

The move represents an opportunity for the Gallery to have a stronger presence in downtown Saskatoon. With its new downtown location and its proximity to the public transit network, the new Gallery will welcome a wider spectrum of visitors from nearby neighbourhoods and the downtown core. Together with the Persephone Theatre, it will create a major tourist destination.

Along with the adjacent Persephone Theatre, the AGS will become an architectural destination in the south downtown, creating an urban magnet for all people, and a focal point in the City where art, culture, and recreation meet with civic, commercial, and community's needs.

## 2.0 PROJECT BACKGROUND

### *Becoming the AGS*

The new status of becoming the Art Gallery of Saskatchewan will generate a bigger expectation from not only the City of Saskatoon, but also art communities from the entire province. The target annual attendance for the new AGS is 200,000.

The AGS will focus its efforts toward presenting accessible exhibitions and public programs that encourage all people to see the world in new ways through the experience of art. The AGS will dedicate a significant component of its galleries to presenting its collection and telling the story of this community. Changing exhibitions developed by the AGS staff and travelling exhibitions will help provide context for art making in Saskatchewan and beyond its borders – the AGS will be the window on Saskatchewan and western Canada, as well as the window on the world of art beyond Saskatchewan's borders.

### *Program Development for AGS*

The AGS will employ an integrated strategy in which understanding of place and community are interwoven with a program-centred vision to serve as a catalyst for dialogue and exchange, encouraging the understanding and appreciation of visual arts.

A primary role for the new AGS will be to celebrate visual art in its diverse manifestations and to act as an agent of community well being and development. The AGS intends to provide programming in an immersive environment, where people of diverse backgrounds can connect with visual art through a multiplicity of activities and resources that are sensitive to a broad range of learning styles. Where the experience of art brings people together to see the world in new ways, the AGS will be the destination for positive social development through art-based activities and for collaborations among community stakeholders in the making of public programs for the City.

Through public programming, the AGS will be determined to make historical and contemporary art accessible and enjoyable to all visitors, and to support professional development of artists in the community. The program of activities will centre on of the notion of the art museum as 'inclusive', a place where all people have access to work by artists, curators, and programmers, and a space to research, interact with, reflect on, and discuss the issues of their lives through art. The AGS will demonstrate, on a daily basis, that art is necessary to quality of life, and to the advancement of Saskatoon as a creative city dedicated to life-long learning.

The AGS also plans to develop strategic partnerships with other organizations in the community to create a meaningful dialogue amongst citizens of all backgrounds. Special attention will be paid to inspire the younger generation to engage with contemporary art development.

The AGS aims to create a balanced presentation of historical and contemporary art, to enhance a better understanding of place and City through the appreciation of art.

In the future, the AGS will continue to analyze and examine options and possibilities for its extension and outreach programs to serve the needs of the Province, fulfilling its responsibility and establishing its leading role in Saskatchewan to serve the life-long learning and cultural appreciation of diverse cultural communities, and communities of artistic practice that make up this place.

## 2.3 City Objectives for the Project

The City of Saskatoon has clear objectives for the site. The City wishes to ensure that the development is a strong attraction for residents and visitors, and functions as a gateway to the river activity areas. With this in mind, the City has been using words like 'atrium' and 'winter haven' to describe some of the principal spaces. It also suggests particular functions such as a community studio, lecture theatre, and dressing rooms to be included in the complex. As well, it sees a restaurant at the site.

These expectations will be met by identifying similar functions in the Gallery program and modifying or expanding them to meet the City's requirement that the site be an important destination and activity centre. The Gallery also wishes to be accessible to more audiences and to be a more active and socially lively place than it has been able to in its relatively isolated current facility. This reflects international trends in gallery and museum positioning in the community.

## 2.0 PROJECT BACKGROUND

### 2.4 Persephone Theatre

The Persephone Theatre was founded in 1974 with a mandate as a community-based regional theatre for Saskatoon and the surrounding area. Over the years it has developed a reputation for youth programming, production of Canadian plays, and showcasing of Canadian theatrical talent. It operated out of a converted church with 300 seats from 1983 until the construction of the new building at River Landing. In 2007, the Persephone Theatre relocated to its current site at River Landing. Occupying the northeast corner of Parcel 'X', the Persephone will be AGS's closest neighbour.

The Persephone contains a two-storey glass atrium lobby facing east along the 2nd Avenue extension, a mezzanine café area at the southeast corner of the building, back-of-house areas, and two stage facilities: the Main Stage that has approximately 420 seats, and the Backstage stage that has about 100 seats. The Theatre's box office is currently located at the northeast corner of Parcel 'X'. All the Theatre's servicing and loading are located along Saunders Place to the north. The fly tower of the main theatre space is currently the tallest structure in Parcel 'X'.

The Theatre is intended to expand its current facility to include extensions to the Backstage Stage and woodshop, additional dressing rooms, and administrative areas.

*Main Entrance of Persephone Theatre*

# 3.0 PROJECT PARAMETERS

## 3.1 Overview Of Facility Needs

### *Learning from the Mendel Art Gallery*

The Mendel Art Gallery in Saskatoon is an institution well known for its extensive permanent collection, its continuous support of the growing national standard of Saskatchewan artists, and its leading role in curating exhibitions at a national standard. It has demonstrated a thorough commitment to connecting artists with audiences. Because of this, the Mendel has earned an enviable reputation and has become part of the collective memory of its community and a source of civic pride. It's a success story that reflects the partnership between the Gallery, City, and citizens of Saskatoon. Fred Mendel's vision did indeed form a solid foundation for the Gallery, and this is evident in the modern institution that has evolved.

While the Mendel enjoys stature as a successful cultural institution, the current building, which was constructed in 1964, has long been a limiting factor in the continuing development of the institution. Not only are the exhibition spaces inadequate for showing the Gallery's extensive collections and large temporary exhibitions, the entire back-of-house collection storage, art handling, and preparation facilities are highly problematic. The demands of public programs and special events have also significantly outgrown the existing capacity of the building. Becoming the new Art Gallery of Saskatchewan at River Landing offers the opportunity to resolve the fundamental accommodation and technical challenges that the Mendel faces. This project will provide for the future by providing a new building with capacity adequate to accommodate the institution's growth and evolution for the coming decades.

Taking into account both the successes and challenges of the existing Mendel building, the future AGS should align with, and support, an enhanced vision of the institution. The AGS will build upon the successful spirit of the Mendel Art Gallery by recognizing the contributions of the founder and donors, extend its public programs to reach diverse communities in the region, and demonstrate the value of the visual arts to the people of Saskatchewan on a daily basis. Defining the facility needs of the AGS, and extending the efforts behind the Mendel success will enable a new chapter of the institution's story on becoming the provincial art gallery based in Saskatoon.

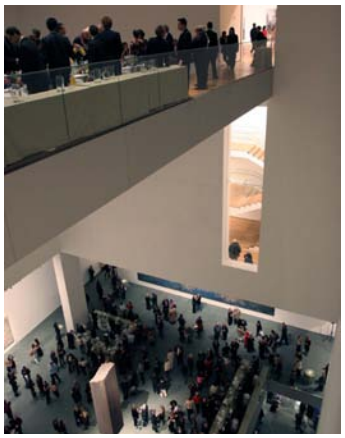
### *The Opportunity at River Landing*

There is a remarkable alignment between the City's vision to create a culturally oriented 'destination' at River Landing and the Gallery's determination to have a more dynamic presence in the City. Galleries and museums around the world are moving away from the 'temple' model and seeking ways of becoming more accessible, more transparent, with a greater diversity of activity. The underlying motivation is to deepen and broaden the relationship with and involvement in their communities. A common feature of these transitions is the creation of very public and lively spaces where many social activities occur. These spaces tend to be more accessible and break down the conventional 'container' and traditional psychological barriers to access and relevance often associated with the older 'elitist' model.

There are numerous examples of galleries that have created active social spaces that enhance the social life of their cities.

## 3.0 PROJECT PARAMETERS

### *Gallery Atrium and Visitor Circulation*



*Left to Right: MOMA New York, Tate Modern London, CaixaForum Madrid*

### *Exterior Public Spaces*



*Left to Right: de Young Museum San Francisco, MOMA New York, Southbank Centre London*

### *Public Programs and Lecture Theatre*



*Left to Right: Tate Modern London, Tate Modern London, Kunsthal Rotherdam*

The focal space in this marriage of intentions will be the Gallery lobby, which can become the 'atrium' and 'winter haven' envisaged by the City. This space has the potential to be the 'living room' of River Landing – a destination in its own right – but also animated by the placement of the café, gift shop, community studio, and lecture theatre. It would, of course, also contain washrooms, coat rooms, and access to and from the parking below. It would be glazed, open to the riverscape, and contain greenery – perhaps a living wall. This presence of living greenery could enhance the space as a 'winter haven' and provide a meaningful continuity with the Mendel Conservatory. This element would be a strong candidate to be a commissioned work by an artist. There could be many other opportunities in this space for commissioned work.

Despite playing some of these additional roles, the lobby must be identified with the Gallery and meet some specific functional criteria. The space must be designed to accommodate exhibition openings and fundraising events. It must work as the entrance to the Art Gallery of Saskatchewan, with the space leading naturally to an interior point of transition, where the visitor clearly enters the Gallery domain. Orientation and entrance to the Gallery would be found at this point. A portal to the galleries would have automatic glass doors to separate the controlled environment for the art from the more variable conditions in the lobby.

***Needs of the Art Gallery of Saskatchewan***

Notwithstanding the many expectations on this site, providing an art gallery facility worthy of the potential of the institution must be the overriding objective. A gallery building that does not provide a strong visible presence and identity, or that does not function properly, would not only be a failure for the AGS, but would become a liability for River Landing and the City. All efforts must be made to create a gallery building that declares the Gallery's identity, and achieves architectural excellence, including functional and technical performance.

Having the Persephone Theatre and future establishments in the surrounding sites at River Landing will ensure a prominent and animated cultural/ recreational hub in the City. On the other hand, a strong desire to express the distinctive identity of the AGS as a unique entity will be vital for the Gallery to assert its own stature as a leader in the visual arts. The architecture of the AGS building will define its physical presence at River Landing, and its relationship to the City and the river frontage. Meanwhile, logical design within the building will ensure successful operation of the Gallery and its capacity to serve the growing cultural demand of the region.

With a welcoming gift shop, café, and program spaces attached, the Gallery lobby provides the initial impression and experience for visitors before entering the exhibitions. At River Landing, where the axis to the downtown core and the unrivaled riverbank landscape dominate the planning decisions, the entry point and the orientation of the lobby of the Gallery will be important because of the contextual complexity of the site and the needs of various users – from gallery visitors and staff to the general public. In the Gallery lobby, where the needs of the City and Gallery interweave, the challenge to provide functionality, spatial order and clarity, and the flexibility of an indoor public place can be an opportunity to create a unique visitor experience. This will be the place where the freedom of interaction and mingling among different communities and user groups may well define a key aspect in the identity of a new Saskatoon.

### 3.0 PROJECT PARAMETERS

Given the accessibility and openness of the Gallery lobby, there is also the need to ensure a high level of security control for the Gallery exhibition and collection areas, as well as its back-of-house areas where access will be strictly controlled, especially during the times when civic events take place in the building.

As the importance of special events and public programs grows in the agenda of every gallery and museum around the world, a series of spaces flexibly designed to house a wide range of events and programs is a fundamental need for the AGS. The need of a community studio, a multi-purpose area, a lecture/ film theatre with sloped seating, an activity area with studios to house various programs and classes, and a formal boardroom reflect this growing demand in the community. How these spaces relate to the Gallery lobby and how they inter-relate among themselves will also become a primary design consideration.

Art gallery design involves a comprehensive understanding of the exhibition programs. Together with successful curatorial practices, custom architectural design of the exhibition spaces is a key factor to define visitors' experience of art. Curatorial practices at the AGS will further enhance its support for Saskatchewan contemporary artists, and establish a more extensive historical account of the province's artistic development within a regional, national, and international context. With the opportunity to appreciate regional art concurrently with exhibitions of national and international art exhibitions and programming, visitors are able to obtain a better understanding of both the local visual art community and developments from outside of the region. Provision of a series of exhibition spaces for the permanent collection, as well as spaces for temporary shows of local contemporary work and circulating national and international material, will be essential for the future program development of the AGS. Furthermore, a collective desire from Board, staff, and the general public to pay tribute to the legacy of Fred Mendel, will be reflected in a unique exhibition space to house the original Mendel donation. Evolution in art making and technology leads to the need to design these exhibition spaces in a flexible way to enable future upgrades of lighting equipment and multi-media infrastructure.

The need to provide a high-standard back-of-house facility to receive, handle, preserve, and store artworks and to prepare exhibitions, will be a determining factor for the success of Gallery operations. Proper back-of-house facilities will ensure the protection and appropriate treatment of not only the Gallery's growing collection, but also loans from collectors and other institutions, as well as traveling exhibitions. To achieve international museum standards, a comprehensive design strategy is required that encompasses architectural, structural, mechanical, and electrical criteria, based on preventive conservation science. A more detailed discussion on the technical requirements can be found in Chapter 7.

#### *Needs of the Persephone Theatre*

Like the AGS, the Persephone Theatre is a distinct and important cultural presence at River Landing, and has its own needs and concerns in this context. As the pioneer establishment in River Landing, the Theatre moved to its current building in 2007. Budget limitations in the construction led to reductions of the smaller theatre and some supporting facilities. With future development in mind, the Theatre is eager to have a modest expansion to compensate for its previous cutbacks.

Pedestrian access to and from the underground parking below the AGS that both institutions and the City will be sharing, is a major design consideration for the Theatre. The Theatre is organized around the existing entrance and box office at the north-east corner. This creates a challenge in linking directly with the underground parking.

There is a strong need to ensure proper functioning of the Theatre while civic events take place at River Landing. Building security, pedestrian access to the box office, loading access, and automobile traffic in and out of the Theatre parking, are vital considerations.

***Needs of the City***

Since the Moriyama Plan of 1978, the idea to transform River Landing into an urban hub of culture and recreation has become a visionary mandate for the City of Saskatoon. Having the Persephone Theatre and the Art Gallery of Saskatchewan take part in the remaking of the South Downtown becomes an exciting opportunity for the City to realize its long-term ambitions of revitalizing the riverfront with an urban focal point that redefines the City's development in the future.

Apart from its urban ambitions, the City also sees the cultural development of the community as an important means of promoting Saskatoon and enhancing the well being of its citizens. Saskatoon celebrated a centennial in 2006. In the same year, Saskatoon was designated as a 'Cultural Capital', where all communities join together to celebrate the creative and cultural success of the City with cultural events and arts programming that recognizes the positive impact the arts have on quality of life, life-long learning, and economic prosperity. In fact, cultural development for life-long education has long been a primary focus of the City. In 2009, the Canadian Council of Learning (CCL) placed Saskatoon as the second runner-up among 4,700 Canadian communities in the Composite Learning Index, the Council's annual measure of lifelong learning. In the four main areas of consideration, Saskatoon scored high in two: 'Learning to Be' and 'Learning to Live Together'. The City's continuing efforts in developing cultural resources that foster creativity and personal growth have proven to be a great success. Saskatoon residents' exposure to performing arts (52.4%) and to museums (40.7%), are significantly higher than the Canadian average (35.4% and 28.7% respectively). Public arts programs, tourism, multi-cultural celebrations, public art projects, and cultural networking, enhance the community's interest, knowledge, and understanding of their own city.

At River Landing, the establishment of the Persephone Theatre and the AGS responds to a broader civic vision for the future identity of Saskatoon. There is popular desire to express the *genius loci* (spirit of place) through vernacular characteristics of architectural design and urban strategies. Aligned with the projected population and economic growth of Saskatoon, the AGS and Persephone will pave the way for other urban transformations. The two institutions will serve as an urban catalyst, a tourist destination, and a pivotal communal place in the City, where communities mingle with communities, the locals meet with outsiders, and culture coincides with civic functions.

The AGS, along with its food services and gift shop, the Persephone Theatre, and other riverside facilities, will encourage visitors to extend their stay at River Landing. The Gallery lobby atrium will serve the need of a gathering place in all seasons. While the Gallery's need to function as a professional entity remains the primary design criteria of the project, there is also a strong desire to utilize the site to serve the general users of River Landing and Gallery visitors simultaneously.

### 3.0 PROJECT PARAMETERS

To ensure adequate parking for the two cultural institutions and other users of River Landing, there is a need to provide underground parking below the AGS. To resolve a number of planning issues, special attention is required to determine the locations of parking and loading access and circulation, the relationship between automobile and pedestrian traffic, and the pedestrian connections to various developments in River Landing.

The South Saskatchewan River is the most prominent natural component at River Landing and the City. Without the River, there would be no Saskatoon. Given all the advantages of being situated next to a river, there is the need for the AGS to introduce a compelling response to this contextual gift. As the intersection point between the downtown and the river, River Landing will become a beacon along the Meewasin Valley where urbanity coincides with nature. A responsible manipulation of the riverbank environment to enhance the outdoor needs of the Gallery and the civic functions is essential. Planning strategies and architectural ideas on how the urban development responds to the river environment will influence Saskatoon's future attitude to its natural context.

## 3.2 Project Objectives

The following reiteration of project objectives articulates the most important considerations for design and planning.

***Objective 1: Art Gallery Program as the Primary Design Determinant***

Among the many intentions and considerations that will affect planning and design decisions, a comprehensive response to the needs of the Art Gallery of Saskatchewan programs and operations remains as the foremost factor. Ensure that the design shows a thorough understanding of the functional requirements of the Gallery. Making a 'gallery that works' on all levels is the principal purpose of the project

***Objective 2: Image, Identity and Presence***

Consider the distinct and prestigious identities of the AGS and the Persephone Theatre. Create a prominent architecture for the Gallery that will become an urban symbol of Saskatoon and a landmark for River Landing. Reveal the stories of the site, the City, and the Province through thoughtful architectural interpretation. Depict a critical understanding of the region with a regionalist architectural character derived from the genius loci of the place. Draw out the urban, heritage, and environmental potentials of the site to provide a distinct urban experience with the River. Create an architectural vocabulary that speaks to this context.

***Objective 3: Transparency and Accessibility***

Develop the Gallery lobby as a welcoming atrium for River Landing, where people of all ages and cultures gather and interact in all seasons. Envision the immediate outdoor spaces around the Gallery building as around-the-clock public spaces where visitors can enjoy Gallery activities as well as the river. Ensure a pleasant connection between the Persephone Theatre, the underground parking garage, and the Gallery.

***Objective 4: Venues for Special Events***

Recognition of the significance of institutionally hosted and privately hosted events is vital for the Gallery and the Theatre for their engagement with the community and supporters. Provide appropriate infrastructure and spatial qualities in the lobby, the community studio, the lecture theatre, and the café. Also take into account that River Landing and the surrounding site occasionally host large-scale public events. Consider the supportive roles and building security of both AGS and Persephone Theatre when such events take place.

***Objective 5: Visitor Experience***

Provide visitors a compelling experience focused on the visual arts. Provide visitors a comfortable environment to appreciate art and the natural setting of the South Saskatchewan River. Create a sequence of self-orienting arrival spaces where all needed amenities are easily accessible by all visitors. Arrange the gift shop, food services, lecture/ film theatre, and community studio spaces in visually prominent locations around the lobby area. Create spatial flexibility in the lobby to accommodate special events and facility rentals at any time of the day, configured to not interfere with the Gallery's normal operations.

### 3.0 PROJECT PARAMETERS

***Objective 6: Organization of Exhibition Spaces***

Create a sensible sequence of exhibition spaces to house both the permanent and changing shows. Provide spatial flexibility and diversity with the use of fixed and movable partitions. Connect spaces for changing exhibitions, where possible, to the back-of-house areas to ensure ease of show changes. Equip exhibition spaces, where applicable, with proper infrastructure for multi-media installations. Maximize the quality of light and sound control for all spaces.

***Objective 7: Education and Community Programs***

Build up an enhanced relationship and collaboration model with local communities for how the Gallery can serve citizens. Provide facilities to accommodate a diverse range of educational, research, and community activities for citizens of all ages. Encourage formal and informal interaction among the general public and between visitors and both staff and artists.

***Objective 8: Professional Standards***

Provide a facility that supports the responsibility and professionalism of the Gallery in all aspects. Equip the Gallery with proper environmental controls, security, collection management, and art handling facilities. Create conditions to national standards for the receipt of loans and traveling exhibitions. Provide adequate collection storage for future collection expansion. Ensure that spaces for art circulation have the capacity to handle large objects.

***Objective 9: Quality of Work Spaces***

Create pleasant, efficient, healthy, and supportive workspaces for staff, visiting colleagues, and volunteers. Facilitate a collaborative working model in common work areas and meeting places. Ensure proper safety and health for all work areas.

***Objective 10: Building Quality***

Provide a facility whose building fabric, systems, and architectural detailing are of the highest attainable quality, for which proper building science, life-cycle cost effectiveness, ease of maintenance, regards to sustainable design, flexibility of future updating, high-level construction workmanship, and all aspects of safety and health standards are carefully considered.

***Objective 11: Sustainable Design***

Follow best practice for environmental considerations in all aspects of building and site design and construction. Integrate the most energy efficient systems that can sustain the collection preservation requirements. Take the project through the LEED certification process to achieve a high level of performance for the building type and site. Encourage the use of reclaimed and recycled building materials in the construction.

***Objective 12: Future Needs for AGS and Persephone***

Consider growth of the collection, transformation of community needs, and advancement of presentation technology in the coming 40 years. Recognize the challenge for either the Gallery or Persephone Theatre to expand in the future. Provide the necessary architectural flexibility to accommodate a projected capacity for the future. Ensure optimal flexibility and adaptability for the facilities to allow future re-development and growth.

## 3.3 The Site In Context

### *Location*

The proposed site for the Art Gallery of Saskatchewan is located at River Landing, between 2nd Avenue and Idywyld Drive (Senator Sid Buckwold Bridge), and immediately north of the South Saskatchewan River. It shares the site land parcel, known as Parcel 'X', with the existing Persephone Theatre.

Immediately north of Parcel 'X' across Saunders Place stands the apartment building 'Clinkskill Manor', and a private land parcel designated as Parcel 'W'. Across 2nd Avenue to the east and bounded by 3rd Avenue South, 19th Street, and Spadina Crescent, sits Parcel 'Y', an undeveloped land parcel designated for a future mixed-use complex. Parcel 'X' sits directly across the river from Rotary Park. Automobile traffic on the Senator Sid Buckwold Bridge has a prominent view of Parcel 'X'.

The site benefits from an extensive network of pedestrian trails and riverside parks developed by the City and Meewasin Valley Authority. Second Avenue serves as the main road axis that connects the downtown core with the South Saskatchewan River, terminating at a roundabout that connects 2nd Avenue with Spadina Crescent. Saunders Place, a small local street north of Parcel 'X', currently serves as the main servicing route for the Persephone Theatre, and the only access to the parking lots along Idylwyld Drive, beneath the Senator Sid Buckwold Bridge, and at Parcel 'W'.

The grounds along the west and south sides of Parcel 'X' are planted with trees along pedestrian pathways and Spadina Crescent, with specially designed tree grates. Flower beds and planting terraces mingled with public art and outdoor facilities are constructed along the retaining wall between Spadina Crescent and the river.

The contour falls sharply toward the river. The drop from the site to the river’s mean water level is roughly 9.5m. The estimated 100-year flood level is reportedly at around 480m and the mean water level is 473.4m.

The site is limited by easements for major utilities on the west and south sides. The improvements, including a roundabout to 2nd Avenue, constrain the southeast corner. The Persephone Theatre's south and west façades, intended as party walls, define the remaining boundaries.

## 3.0 PROJECT PARAMETERS


*Aerial View Showing Site Context*

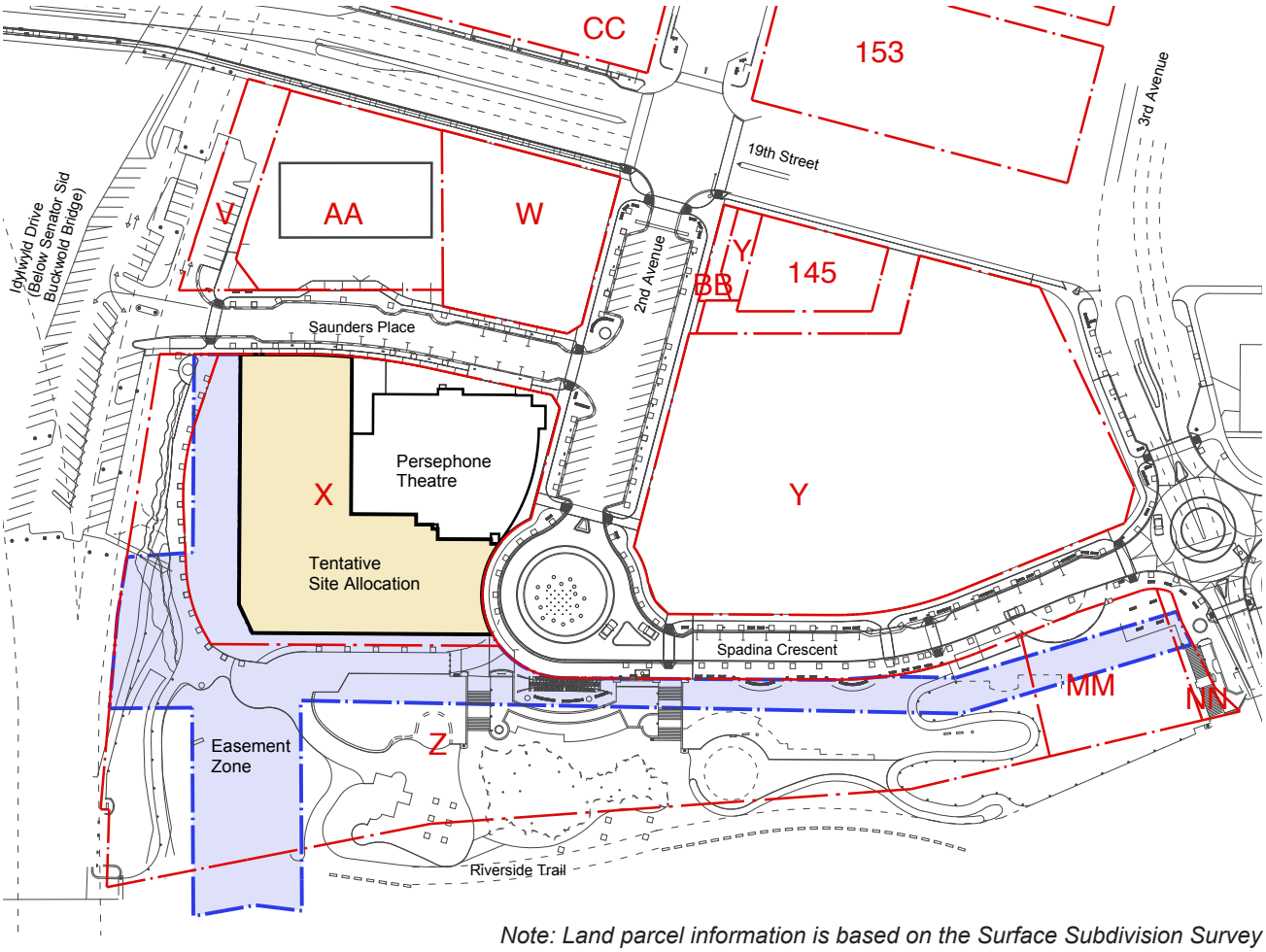
### *Access*

The intersection at 19th Street and 2nd Avenue serves as the main gateway into this portion of River Landing.

Vehicular access comes from either 2nd Avenue to the north or Spadina Crescent to the east. Above ground parking is currently located in Parcel 'W', the proposed AGS site, along Idylwyld Drive under the Senator Sid Buckwold Bridge, and street parking stalls along 2nd Avenue.

Second Avenue serves as the main pedestrian link from downtown to the AGS site. Currently, Riversdale pedestrians can reach the AGS site from 19th Street and the riverfront trail. The riverfront trail along the South Saskatchewan River also brings pedestrians to the site, especially in the summer.

Currently the closest bus stop is located near the intersection of 19th Street and Idylwyld Drive. There is a possibility of relocating the stop to the intersection at 19th Street and 2nd Avenue.




*Note: Land parcel information is based on the Surface Subdivision Survey prepared by George, Nicholson Franko & Associates Ltd in October 2004.*

### 3.0 PROJECT PARAMETERS

***Planning Criteria***

Site functions must be related to the AGS's primary purpose as an art gallery. Any other functions that may be developed should be supportive of the Gallery and should not unduly stress the site. The AGS will become a prominent landmark along the South Saskatchewan River. Site elements such as bicycle/ pedestrian paths, greenery, and riverside terraces along the south façade of the Gallery building, should be coordinated with indoor functions.

A maximum number of the public spaces and exhibition transition spaces should be given exposure to river views. In addition, it is desirable for staff offices and other workspaces to have access to natural light. The relationship between the Gallery building and the South Saskatchewan River should be an important consideration. There is a general interest to fully utilize the river's edge and terrain of the river valley. Roof patios, sculpture gardens, and riverfront terraces can be introduced to enhance visitor experience of the Gallery and the site.

The main Gallery entrance should open onto 2nd Avenue. Maximum visibility of the Gallery from downtown Saskatoon should be provided. Site treatment and the south elevation of the Gallery should take into consideration the views looking from Senator Sid Buckwold Bridge, a popular point of entry into the City for automobiles.

Pedestrian links between the AGS and Persephone Theatre should be considered, which may include pedestrian access to the underground parking garage.

The Gallery has some important site use and access criteria that will prove challenging. Both the Gallery and Theatre require bus and auto drop-off close to the main entrances. The Gallery requires access by full size tractor trailer trucks to an indoor truck bay. Each institution requires conventional access to/from the underground parking. Truck loading, garbage and recycling services, and automobile access to the underground parking should be strategically placed to provide full support to the Gallery's operations without interfering with intended outdoor public spaces and pedestrian routes.

The creation of a 'cultural plaza' to provide an appropriate pedestrian forecourt to the Gallery entrance has been proposed during the pre-design period. This would involve replacing the present traffic roundabout with a conventional two-way roadway to the east side of the 'Prairie Wind' sculpture. The present roadway would then be integrated into a larger pedestrian plaza. The 'Prairie Wind' installation would remain. City Council has approved the concept in principle, subject to a comprehensive design study as part of this project. A modest allowance has been included in the project budget. See Section 5.5 for a more complete discussion of this issue.

***Summary of Regulations*** *(for general information only - consult formal documents)*

The site for the Art Gallery of Saskatchewan (AGS) is zoned as Direct Control District (DCD1) and Architectural Control District (ACD1) under City of Saskatoon Bylaw No. 8770. Both DCD1 and ACD1 are designed to ensure proper waterfront planning, urban linkage between the Downtown, Riversdale, River Landing, and the river, and a strong sense of identity and place, adopting ideas from both the South Downtown Concept Plan (2004) and the South Downtown Local Area Design Plan (2004).

DCD1 is committed to the redevelopment of the South Downtown Area that offers diverse year-round indoor and outdoor activities, public access to the river, enhancement to the downtown commercial activities, a pivotal urban waterfront feature, riverside mixed-use developments, and a distinct identity and a sense of place in the city.

DCD1 encourages the building of a cultural heart of the city that improves economic prospects and tourism. Art galleries are a permitted use, along with recreational, retail, accommodation, residential, and office facilities.

All building elevations must provide a 5m minimum setback above 14m. (On the south and west sides of the site, this is regarded as complied with in the utility easements)

The maximum height allowance within the site for the AGS is 27m. Any Landmark constructed within the zone is not required to conform to the maximum building heights imposed by the DCD1 guidelines.

The floor space ratio may not exceed four (4:1 FSR).

Consistent landscaping treatment shall be used to improve outdoor spaces and to screen-off utility facilities.

Signage Group No. 5 of Appendix A of the Sign Regulations will govern the use of signs in the zone. No portable signs and third party advertising will be permitted.

Parking garage entrances are not permitted directly onto 2nd Avenue, but will be permitted along the riverfront as long as the access has a maximum width of 9m, a continuous street edge, blend into the street façade, integrate with the architecture, with proper paving material used for the sidewalk across the driveway entrance, and not interfere with area development plans or street closures.

Service loading entrances will not be permitted along 2nd Avenue or along the riverfront. All bin areas must be screened.

Development shall not cause or contribute to instability of the valley slope during or after construction.

The AGS site is within the Meewasin Valley Authority (MVA) conservation zone. All development is subjected to review and approval by the MVA.

ACD1 is an overlay of DCD1. The primary ACD document, the South Downtown Local Area Design Plan, outlines the architectural guidelines for commercial, residential, and riverbank park development in River Landing.

Although there are no zoning regulations regarding green spaces, any green spaces and landscaping incorporated into the design are desirable for site aesthetics and water absorption.

***Utilities*** *(general description - obtain formal information from City)*

Along the west and south sides of the AGS site, there is a utility right-of-way easement zone that should not be disturbed. The City of Saskatoon Infrastructure Services Department requires that no construction should be built on top of the easements.

The easement west of the site contains a water main line, a sanitary sewer and a storm sewer that runs southwards to the storm water discharge between the site and the river. The easement south of the site that continues to run along Spadina Crescent East contains a primary water main line. Both the gas line and electrical duct run along Saunders Place to the north of the site.

The City of Saskatoon Infrastructure Services Department does not desire to relocate any utility lines.

### 3.0 PROJECT PARAMETERS

***Persephone Roof Loading***

The Art Gallery of Saskatchewan project will likely require a building volume that is higher than the roofline of the existing Persephone Theatre, at least in places. Analysis of the snow loading impact on the Theatre structure will be required as part of this project. Drawings that were updated to include all Site Instructions and Change Orders will be made available to the design team. No 'construction record drawings' are apparently available. In any case, the design team will be fully responsible for analysis of this issue.

In addition, the building was designed to accommodate a two level underground parking structure adjacent to the Theatre. Provision was made on the west and south sides to permit the parking to extend under the ground floor footprint of the Theatre. How this area can be integrated with the general parking solution will be studied by the design team.

The following information was provided by Ben Robb, Robb Kulllman Engineering:

"I think the significant information relative to the Art Gallery is as follows:

1. The roof design for Persephone took into consideration snow build-up associated with a future 4 storey building to the South and East, based on snow loads identified in the 1995 NBC. The 2005 NBC has made some minor changes to the magnitude of snow drift loads.

2. Foundation walls on the South and East sides of Persephone extend approximately 7.3 m below main floor level to accommodate 2 levels of underground parking. These walls have been designed to act as shoring walls to deal with unbalanced backfill pressure where the parkade excavation extends below grade level on Persephone side of the wall.

3. The Persephone structure has been designed to extend over the underground parkade on the South and East sides of the building in an effort to optimize the layout / efficiency of the parkade. The pile foundations below the exterior wall have been designed with capacity to support the suspended parkade slabs and column loads from a 4 story building."


*Water Utility Lines at AGS Site ( data obtained from City of Saskatoon)*

## 3.0 PROJECT PARAMETERS

## 4.0 GENERAL REQUIREMENTS

### 4.1 Functional Model

This section of the Functional Program identifies the ideal conceptual relationships between the various functions, circulation, zoning, and relationships with points of access to the building and other external factors. This is presented in the overall functional diagram, and at a more detailed level in the local functional diagrams that follow.

There are several organizing principles that guide the grouping and placement of functions:

- The Gallery's lobby/ atrium will be a transparent, light filled gathering place that will be the venue for both informal and planned social activity. It will be the point of access to a number of gallery spaces such as the gift shop, lecture theatre, café, multi-purpose area, and community studio. These spaces will be used by the Gallery as well as by other organizations for programs. The lobby/ atrium and any of the specific functions may be open outside of normal gallery hours.

- Within the lobby/ atrium, there will be a transition to a smaller reception and orientation area where visitors can plan their visit and be informed of special exhibitions and programs. The access to the exhibition galleries as well as program spaces should be placed in a prominent way – indicative of their centrality in the visit.

- A closure of some kind must be incorporated to secure the gallery spaces out of hours. It will also be necessary to incorporate a set of doors at some point to segregate the controlled relative humidity environment of the gallery and collection spaces from the more variable conditions in the lobby/ atrium. These closures need to be applied with care so as to make the movement from lobby/ atrium, through reception area, into the exhibition galleries as fluid and natural as possible.

- The exhibition spaces form the heart of the visitors' experience. The changing galleries should be prominently placed. These spaces will be reconfigured for different exhibitions, including multiple shows at the same time. For this reason, multiple points of access are desirable. Access to the permanent collection galleries should also be direct and obvious. The Mendel Room should have a distinctive place, perhaps located adjacent to the Gallery lounge.

- The movement of works of art drives the spatial organization of the collection and other back-of-house functions. An interior truck bay is used for all art movement in and out of the building. The highest frequency of this movement is the arrival and departure of traveling exhibitions. A direct route to the changing exhibition galleries and their support spaces is important.

- The collection truck bay will serve a shipping/ receiving area dedicated to art movement. This area will have quarantine and pest control facilities and function as the 'gateway'. All other shipping/ receiving, as well as garbage and recycling will occur at a separate service entrance.

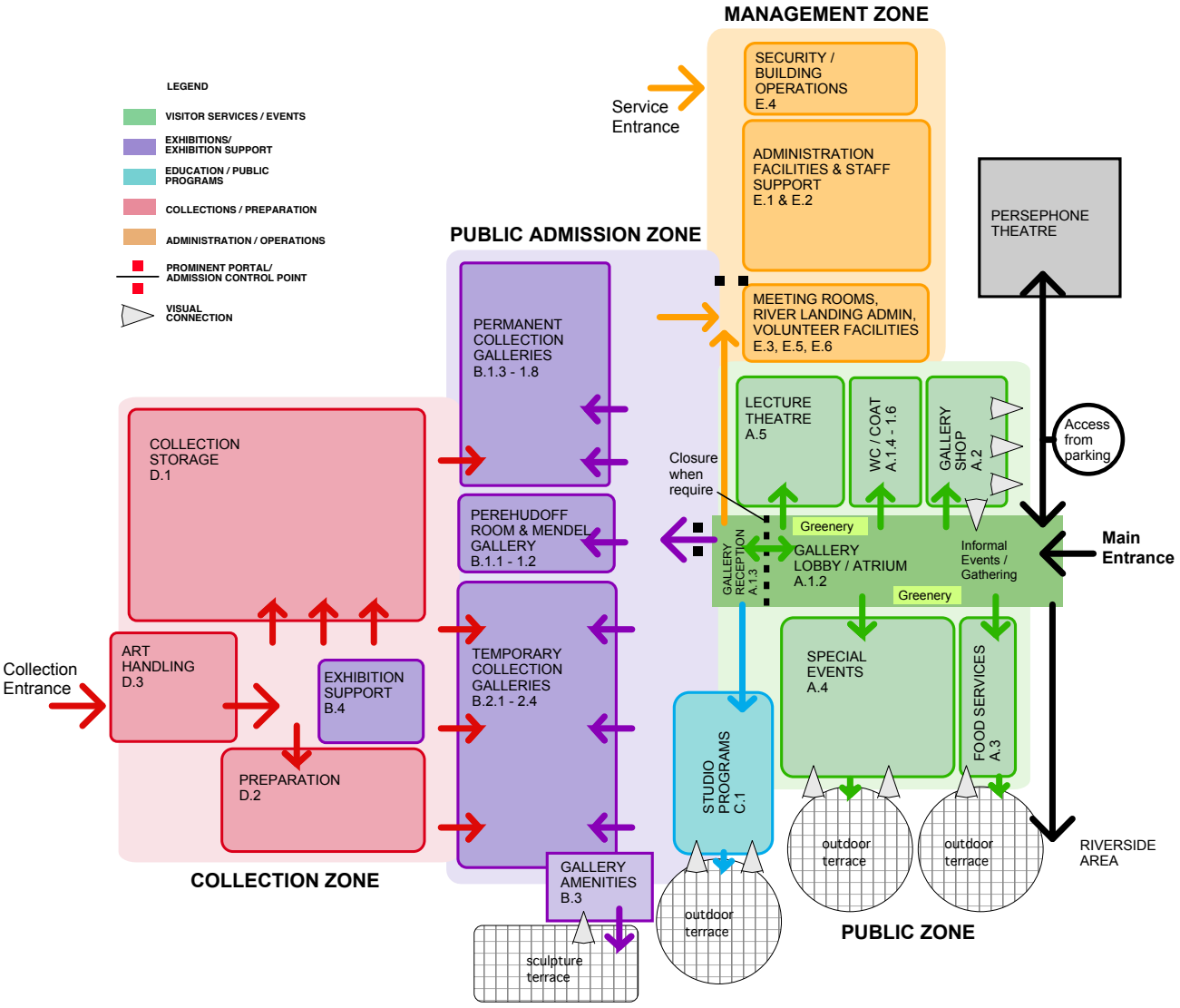
- The collections are stored in a number of 'vaults' that have specialized environments and storage equipment.

### 4.0 GENERAL REQUIREMENTS

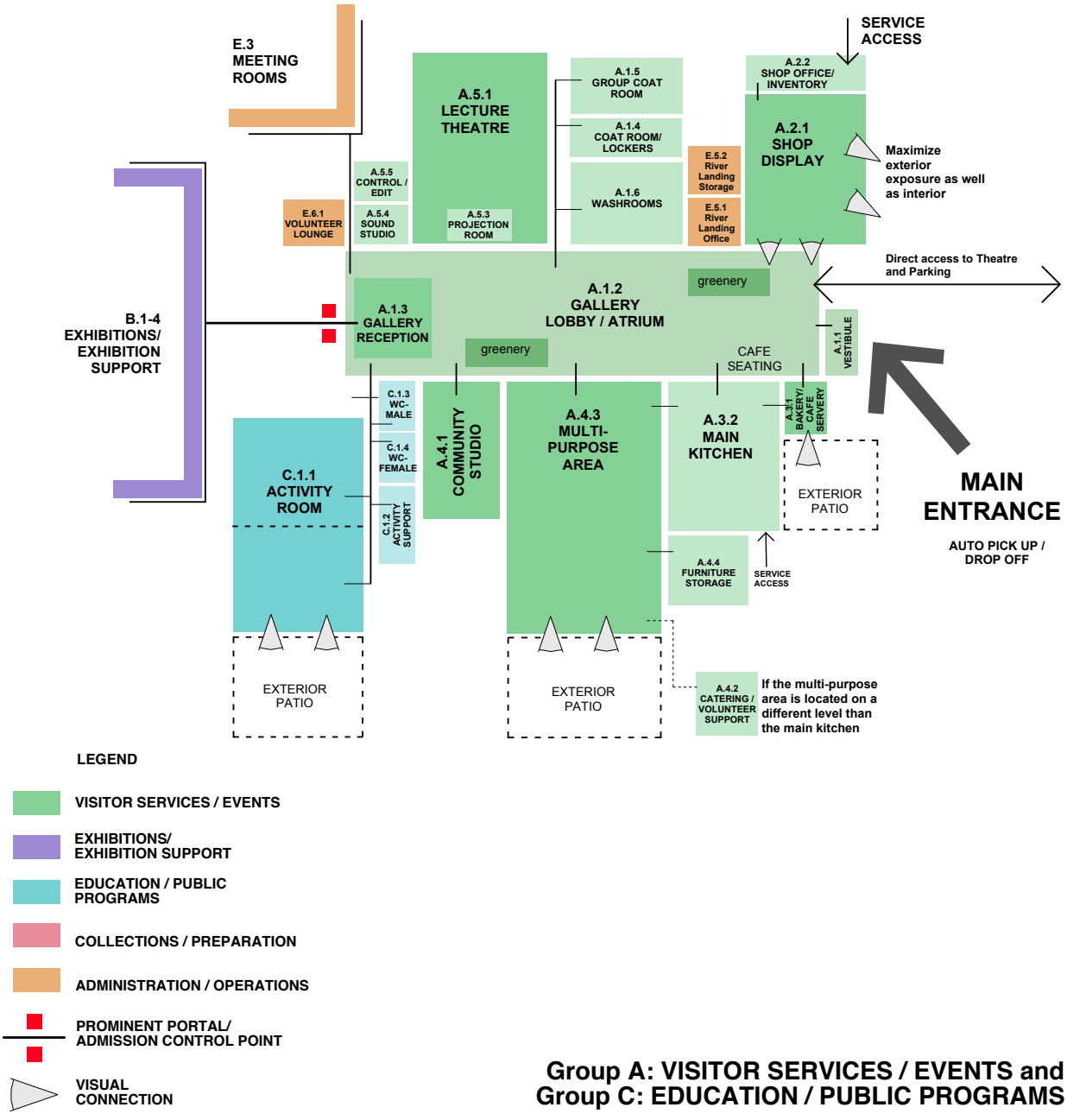
- The preparation workshops serve the changing galleries and should have reasonably direct access. The changing galleries should have separate staff access to permit installation activity without disturbing the public access of adjoining galleries. This would be desirable for the permanent collection galleries as well, but is less of a priority since changeover is not that frequent.
- The administration offices should be as close as possible to other staff work spaces so all staff are as consolidated as possible. The administration offices also require reasonable access from the lobby / atrium, preferably not through secure areas of the Gallery. Meeting rooms should be more directly accessible from the public areas.

Diagrams that follow: Overall functional model followed by four detailed diagrams

## OVERALL FUNCTIONAL DIAGRAM

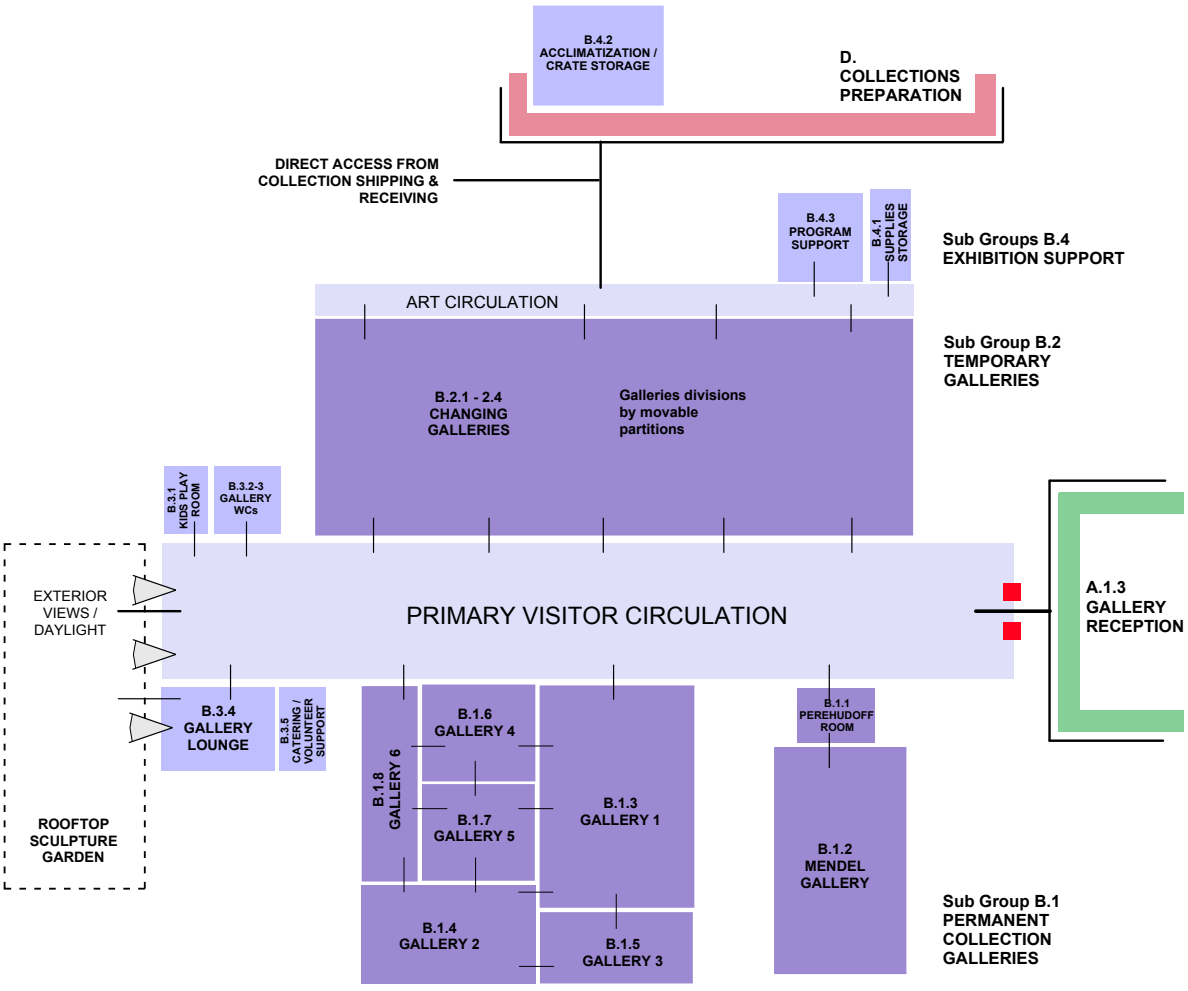


## 4.0 GENERAL REQUIREMENTS



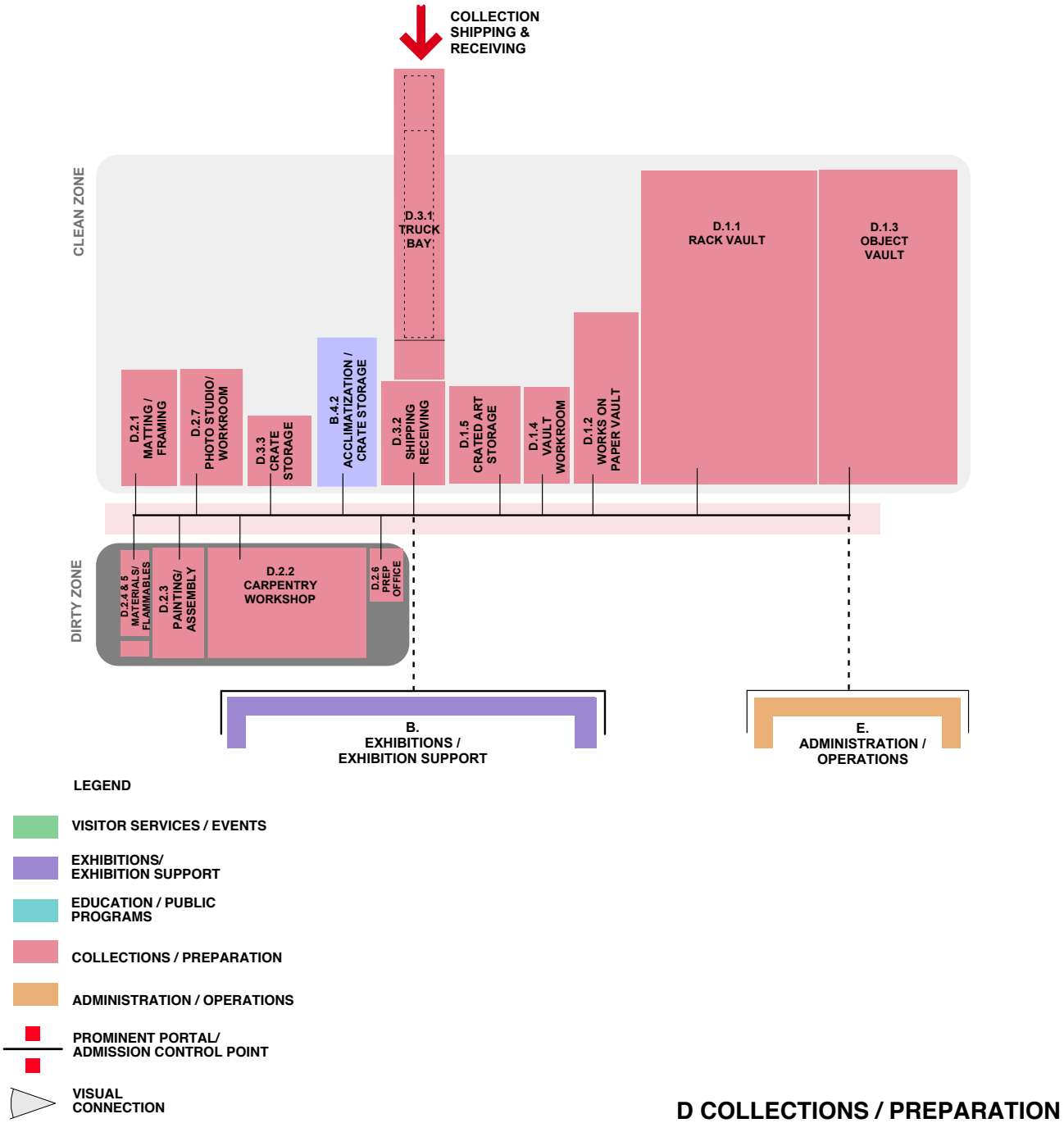

**Group A: VISITOR SERVICES / EVENTS and Group C: EDUCATION / PUBLIC PROGRAMS**

## 4.0 GENERAL REQUIREMENTS

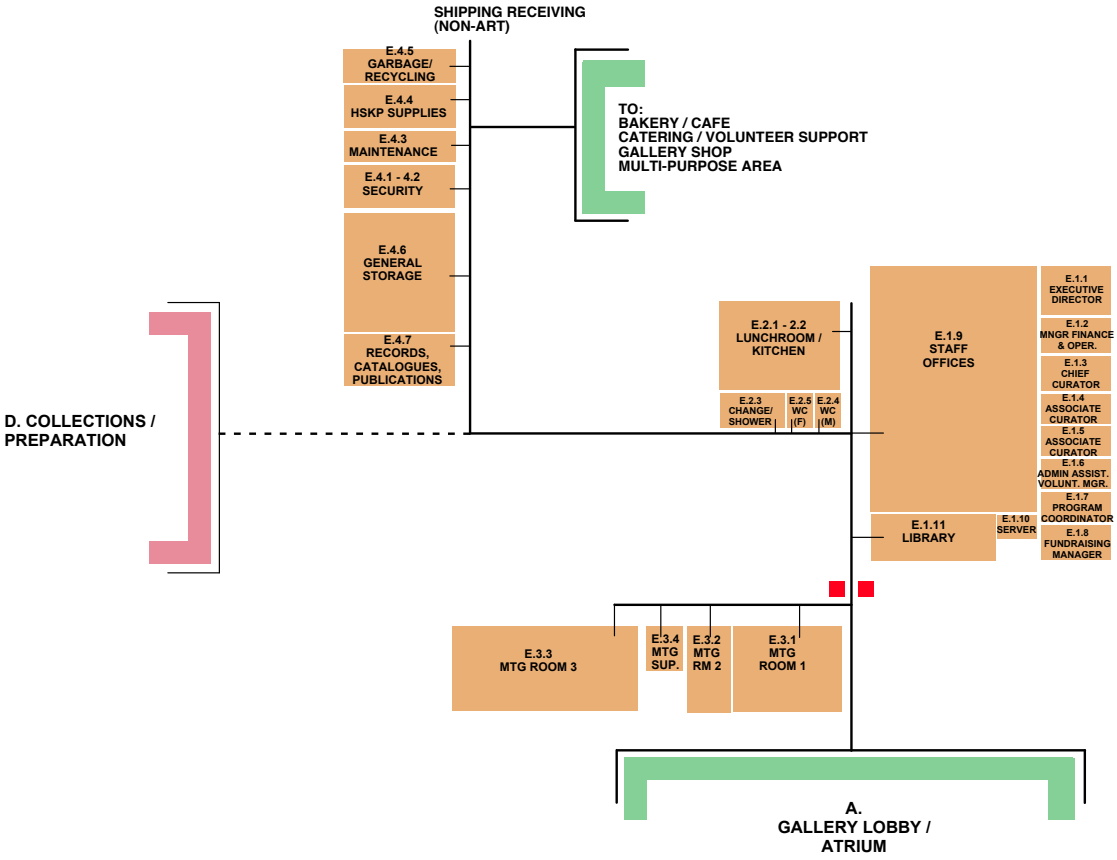



**Group B: EXHIBITIONS / EXHIBITIONS SUPPORT**

## 4.0 GENERAL REQUIREMENTS




**D COLLECTIONS / PREPARATION**




LEGEND

- VISITOR SERVICES / EVENTS
- EXHIBITIONS/ EXHIBITION SUPPORT
- EDUCATION / PUBLIC PROGRAMS
- COLLECTIONS / PREPARATION
- ADMINISTRATION / OPERATIONS
- PROMINENT PORTAL/ ADMISSION CONTROL POINT
- VISUAL CONNECTION

## Group E: ADMINISTRATION / OPERATIONS

### 4.0 GENERAL REQUIREMENTS

## 4.2 Required Spaces – Art Gallery of Saskatchewan

| Space Group / Sub-Group / Space Name | | | EXISTING sf | EXISTING sm | REQUIREMENTS sf | REQUIREMENTS sm |
|---|---|---|---|---|---|---|
| **SUMMARY BY SPACE GROUP:** | | | | | | |
| **A** | | **VISITOR SERVICES / EVENTS** | 10,046 | **933.3** | 16,275 | **1,512.0** |
| **B** | | **EXHIBITIONS / EXHIBITION SUPPORT** | 7,055 | **655.4** | 17,664 | **1,641.0** |
| **C** | | **EDUCATION / PUBLIC PROGRAMS** | 763 | **70.9** | 2,626 | **244.0** |
| **D** | | **COLLECTIONS / PREPARATION** | 4,392 | **408.0** | 16,177 | **1,502.9** |
| **E** | | **ADMINISTRATION / OPERATIONS** | 2,922 | **271.5** | 9,051 | **840.9** |
| **TOTAL ALL FUNCTIONS** | | | 25,178 | **2,339.1** | 61,793 | **5,740.8** |

All area figures express net functional area: true net space devoted to each function measured to inside face of defining partitions or boundaries. Internal circulation within exhibition spaces and aisles / manoeuvering space in collection storage spaces are counted as part of the functional area. Otherwise no circulation, building structure, or building service space is counted as functional area.

## 4.0 GENERAL REQUIREMENTS

| Space Group / Sub-Group / Space Name | EXISTING sf | EXISTING sm | REQUIREMENTS sf | REQUIREMENTS sm |
|---|---|---|---|---|
| **A: VISITOR SERVICES / EVENTS** | | | | |
| **A .1 Visitor Arrival** | | | | |
| A .1 .1 Vestibule | 252 | **23.4** | 161 | **15.0** |
| Lower Receiving Vestibule | 152 | **14.1** | | |
| A .1 .2 Gallery Lobby / Atrium | 1,138 | **105.7** | 4,090 | **380.0** |
| Lower Lobby | 533 | **49.5** | | |
| A .1 .3 Gallery Reception | 0 | **0.0** | 484 | **45.0** |
| A .1 .4 Coat Room / Lockers | 80 | **7.4** | 323 | **30.0** |
| A .1 .5 Group Coat Room | 0 | **0.0** | 484 | **45.0** |
| A .1 .6 WC (allowance - comply with code) | 340 | **31.6** | 700 | **65.0** |
| Catering / Volunteer Support | | | *see A.4.2* | |
| *Subtotal A.1 Visitor Arrival* | *2,494* | ***232*** | *6,243* | ***580*** |
| **A .2 Gallery Shop** | | | | |
| A .2 .1 Shop Display | 1,238 | **115.0** | 1,399 | **130.0** |
| A .2 .2 Shop Office / Inventory | 0 | **0.0** | 323 | **30.0** |
| Shop Storage | 200 | **18.6** | | |
| *Subtotal A.2 Gift Shop* | *1,438* | ***133.6*** | *1,722* | ***160.0*** |
| **A .3 Food Services** | | | | |
| A .3 .1 Bakery / Café Servery | 772 | **71.7** | 161 | **15.0** |
| A .3 .2 Main Kitchen | 157 | **14.6** | 1,281 | **119.0** |
| Food Services Office | | | *in A.1.2 allowance* | |
| *Subtotal A.3 Food Services* | *929* | ***86.3*** | *1,442* | ***134.0*** |
| **A .4 Special Events** | | | | |
| A .4 .1 Community Studio | 2,390 | **222.0** | 807 | **75.0** |
| A .4 .2 Catering / Volunteer Support | 0 | **0.0** | 301 | **28.0** |
| A .4 .3 Multi-Purpose Area | 0 | **0.0** | 3,046 | **283.0** |
| A .4 .4 Furniture Storage | 164 | **15.2** | 431 | **40.0** |
| A .4 .5 A/V Equipment Storage | 164 | **15.2** | *in A.4.4* | |
| *Subtotal A.4 Special Events* | *2,717* | ***252.4*** | *4,585* | ***426.0*** |
| **A .5 Lecture Theatre** | | | | |
| A .5 .1 Lecture Theatre | 0 | **0.0** | 1,830 | **170.0** |
| A .5 .2 Stage (portable) | | | | **in A.5.1** |
| A .5 .3 Projection Room | 0 | **0.0** | 161 | **15.0** |
| A .5 .4 Sound Studio | | | 161 | **15.0** |
| A .5 .5 Control Room / Editing Suite | | | 129 | **12.0** |
| *Subtotal A.5 Theatre* | *0* | ***0*** | *2,282* | ***212.0*** |
| **Conservatory** | | | | |
| Conservatory | 2,054 | **190.8** | **green wall desirable if possible** | |
| Work Room | 341 | **31.7** | | |
| Storage | 73 | **6.8** | | |
| *Subtotal Conservatory* | *2,468* | ***229.3*** | *0* | ***0.0*** |
| **TOTAL A: VISITOR SERVICES/ EVENTS** | 10,046 | **933.3** | 16,275 | **1,512.0** |

### 4.0 GENERAL REQUIREMENTS

| Space Group / Sub-Group / Space Name | | | | EXISTING sf | EXISTING sm | REQUIREMENTS sf | REQUIREMENTS sm |
|---|---|---|---|---|---|---|---|
| **B: EXHIBITIONS / EXHIBITION SUPPORT** | | | | | | | |
| **B** | **.1** | | **Permanent Collection Galleries** | | | | |
| B | .1 | .1 | Perehudoff Room | | | 246 | **22.9** |
| B | .1 | .2 | Mendel Gallery | | | 1,756 | **163.1** |
| B | .1 | .3 | Gallery 1 | | | 2,002 | **186.0** |
| B | .1 | .4 | Gallery 2 | | | 1,001 | **93.0** |
| B | .1 | .5 | Gallery 3 | | | 635 | **59.0** |
| B | .1 | .6 | Gallery 4 | | | 635 | **59.0** |
| B | .1 | .7 | Gallery 5 | | | 635 | **59.0** |
| B | .1 | .8 | Gallery 6 | | | 635 | **59.0** |
| *Subtotal B.1 Permanent Collection Galleries* | | | | | | *7,546* | ***701.0*** |
| **B** | **.2** | | **Temporary Collection Galleries** | | | | |
| | | | Galleries A-F | 6,812 | **632.9** | | |
| B | .2 | .1 | Changing Gallery 1 | | | 4,036 | **375.0** |
| B | .2 | .2 | Changing Gallery 2 | | | 2,002 | **186.0** |
| B | .2 | .3 | Changing Gallery 3 | | | 1,206 | **112.0** |
| B | .2 | .4 | Changing Gallery 4 | | | 301 | **28.0** |
| *Subtotal B.2 Temporary Collection Galleries* | | | | *6,812* | ***632.9*** | *7,546* | ***701.0*** |
| **B** | **.3** | | **Gallery Amenities** | | | | |
| B | .3 | .1 | Kids Play Room | | | 161 | **15.0** |
| B | .3 | .2 | Gallery Washroom Male | | | 129 | **12.0** |
| B | .3 | .3 | Gallery Washroom Female | | | 129 | **12.0** |
| B | .3 | .4 | Gallery Lounge | | | 538 | **50.0** |
| B | .3 | .5 | Catering / Volunteer Support | | | 215 | **20.0** |
| *Subtotal B.3 Special Exhibition Galleries* | | | | *0* | ***0.0*** | *1,173* | ***109.0*** |
| **B** | **.4** | | **Exhibition Support** | | | | |
| B | .4 | .1 | Supplies Storage | 93 | **8.6** | 215 | **20.0** |
| B | .4 | .2 | Acclimatization / Crate Storage | 150 | **13.9** | 753 | **70.0** |
| B | .4 | .3 | Program Support | | | 431 | **40.0** |
| *Subtotal B.4 Exhibition Support* | | | | *242* | ***22.5*** | *1,399* | ***130.0*** |
| **TOTAL B: EXHIBITIONS / EXHIBIT SUPPORT** | | | | 7,055 | **655.4** | 17,664 | **1,641.0** |

All area figures express net functional area: true net space devoted to each function measured to inside face of defining partitions or boundaries. Internal circulation within exhibition spaces and aisles / manoeuvering space in collection storage spaces are counted as part of the functional area. Otherwise no circulation, building structure, or building service space is counted as functional area.

## 4.0 GENERAL REQUIREMENTS

| Space Group / Sub-Group / Space Name | EXISTING sf | EXISTING sm | REQUIREMENTS sf | REQUIREMENTS sm |
|---|---|---|---|---|
| **C: EDUCATION / PUBLIC PROGRAMS** | | | | |
| **C .1 Studio Programs** | | | | |
| C .1 .1 Activity Room (divides into 2 spaces) | 574 | **53.3** | 2,153 | **200.0** |
| C .1 .2 Activity Support | 25 | **2.3** | 215 | **20.0** |
| C .1 .3 Programs Washroom Male | | | 129 | **12.0** |
| C .1 .4 Programs Washroom Female | | | 129 | **12.0** |
| *Subtotal C.1 Studio Program* | *598* | ***55.6*** | *2,626* | ***244.0*** |
| **C .2 Education Offices** | | | | |
| C. .2 .1 Education Office 1 | 73 | **6.8** | in E.1 | **in E.1** |
| C. .2 .2 Education Office 2 | 91 | **8.5** | in E.1 | **in E.1** |
| *Subtotal C.2 Education Offices* | *165* | ***15.3*** | *0* | ***0.0*** |
| **TOTAL C: EDUCATION / PUBLIC PROGRAMS** | 763 | **70.9** | 2,626 | **244.0** |
| | | | | |
| **D: COLLECTIONS / PREPARATION** | | | | |
| **D .1 Collection Storage** | | | | |
| D .1 .1 Rack Vault | 1,710 | **158.9** | 4,736 | **440.0** |
| D .1 .2 Works on Paper Vault | | | 947 | **88.0** |
| D .1 .3 Objects Vault | | | 3,789 | **352.0** |
| D .1 .4 Vault Workroom | | | 377 | **35.0** |
| D .1 .5 Crated Art Storage | | | 592 | **55.0** |
| *Subtotal D.1 Collection Storage* | *1,710* | ***158.9*** | *10,441* | ***970.0*** |
| **D .2 Preparation** | | | | |
| D .2 .1 Matting / Framing Workshop | 494 | **45.9** | 484 | **45.0** |
| D .2 .2 Carpentry Workshop | 1,312 | **121.9** | 1,507 | **140.0** |
| D .2 .3 Painting / Assembly Area | | | 484 | **45.0** |
| D .2 .4 Material Storage | | | 215 | **20.0** |
| D .2 .5 Flammables Storage | | | 32 | **3.0** |
| D .2 .6 Prep Office | | | 150 | **13.9** |
| D .2 .7 Photo Studio / Workroom | | | 592 | **55.0** |
| *Subtotal D.1 Preparation* | *1,806* | ***167.8*** | *3,465* | ***321.9*** |
| **D .3 Art Handling** | | | | |
| D .3 .1 Truck Bay | 375 | **34.8** | 1,356 | **126.0** |
| D .3 .2 Shipping Receiving | 501 | **46.5** | 538 | **50.0** |
| D .3 .3 Crate Storage | | | 377 | **35.0** |
| Fixture Storage | | | **off site: provide some space on-site if possible** | |
| Extension Storage | | | | |
| *Subtotal D.3 Art Handling* | *875* | ***81.3*** | *2,271* | ***211.0*** |
| **TOTAL D: COLLECTIONS PREPARATION** | 4,392 | **408.0** | 16,177 | **1,502.9** |

### 4.0 GENERAL REQUIREMENTS

| Space Group / Sub-Group / Space Name | | | | EXISTING | | REQUIREMENTS | |
|---|---|---|---|---|---|---|---|
| | | | | sf | **sm** | sf | **sm** |
| **E: ADMINISTRATION / OPERATIONS** | | | | | | | |
| **E** | **.1** | | **Administration Facilities** | | | | |
| E | .1 | .1 | Executive Director / CEO | 196 | **18.2** | 196 | **18.2** |
| E | .1 | .2 | Manager, Finance & Operations | 142 | **13.2** | 140 | **13.0** |
| | | | Assistant Business Manager | 100 | **9.3** | | |
| E | .1 | .3 | Chief Curator | 138 | **12.8** | 138 | **12.8** |
| | | | Clerk | 132 | **12.3** | | |
| | | | Clerk | 80 | **7.4** | | |
| | | | General Offices | 1,000 | **92.9** | | |
| E | .1 | .4 | Admin Assist/ Mgr of Volunteer | | | 119 | **11.1** |
| E | .1 | .5 | Associate Curator | | | 119 | **11.1** |
| E | .1 | .6 | Associate Curator | | | 119 | **11.1** |
| E | .1 | .7 | Public Program Coordinator | | | 119 | **11.1** |
| E | .1 | .8 | Manager, Fundraising | | | 138 | **12.8** |
| E | .1 | .9 | Offices (allowance for 22 staff) | | | 2,368 | **220.0** |
| E | .1 | .10 | Server Room | | | 38 | **3.5** |
| E | .1 | .11 | Library | 388 | **36.0** | 323 | **30.0** |
| | | | Office (Conservatory) | 48 | **4.5** | | |
| *Subtotal E.1 Administration Facilities* | | | | *2,224* | ***206.6*** | *3,818* | ***354.7*** |
| **E** | **.2** | | **Staff Support** | | | | |
| E | .2 | .1 | Lunchroom | 380 | **35.3** | 538 | **50.0** |
| E | .2 | .2 | Kitchen | | | 75 | **7.0** |
| E | .2 | .3 | Change / Showers (unisex) | | | 118 | **11.0** |
| E | .2 | .4 | Washroom Male | | | 59 | **5.5** |
| E | .2 | .5 | Washroom Female | | | 59 | **5.5** |
| *Subtotal E.2 Meeting Rooms* | | | | *380* | ***35.3*** | *850* | ***79.0*** |
| **E** | **.3** | | **Meeting Rooms** | | | | |
| E | .3 | .1 | Meeting Room 1 | 307 | **28.5** | 538 | **50.0** |
| E | .3 | .2 | Meeting Room 2 | 0 | **0.0** | 215 | **20.0** |
| E | .3 | .3 | Meeting Room 3 (30 people) | | | 904 | **84.0** |
| E | .3 | .4 | Meeting Room Support | 12 | **1.1** | 86 | **8.0** |
| *Subtotal E.3 Meeting Rooms* | | | | *319* | ***29.6*** | *1,744* | ***162.0*** |

All area figures express net functional area: true net space devoted to each function measured to inside face of defining partitions or boundaries. Internal circulation within exhibition spaces and aisles / manoeuvering space in collection storage spaces are counted as part of the functional area. Otherwise no circulation, building structure, or building service space is counted as functional area.

## 4.0 GENERAL REQUIREMENTS

| Space Group / Sub-Group / Space Name | EXISTING sf | EXISTING sm | REQUIREMENTS sf | REQUIREMENTS sm |
|---|---|---|---|---|
| **E .4 Security / Building Operations** | | | | |
| E .4 .1 Security Change / WC | | | 161 | **15.0** |
| E .4 .2 Security Office / Equipment | | | 108 | **10.0** |
| E .4 .3 Maintenance Office | | | 194 | **18.0** |
| E .4 .4 Housekeeping Supplies | | | 269 | **25.0** |
| E .4 .5 Garbage / Recycling | | | 215 | **20.0** |
| E .4 .6 General Storage | | | 753 | **70.0** |
| E .4 .7 Records, Cataloges, Publications | | | 323 | **30.0** |
| *Subtotal E.4 Security / Building Operations* | | ***0.0*** | *2,024* | ***188.0*** |
| **E .5 River Landing Administration** | | | | |
| E .5 .1 River Landing Office | | | 200 | **18.6** |
| E .5 .2 River Landing Storage | | | 200 | **18.6** |
| *Subtotal E.5 River Landing Administration* | | | *400* | ***37.2*** |
| **E .6 Volunteer Facilities** | | | | |
| E .6 .1 Volunteer Lounge | | | 215 | **20.0** |
| *Subtotal E.6 Volunteer Facilities* | | | *215* | ***20.0*** |
| **TOTAL E: ADMINISTRATION / OPERATIONS** | 2,922 | 272 | 9,051 | 841 |
| **TOTAL FACILITY** | 25,178 | **2,339.1** | **61,793** | **5,740.8** |

All area figures express net functional area: true net space devoted to each function measured to inside face of defining partitions or boundaries. Internal circulation within exhibition spaces and aisles / manoeuvering space in collection storage spaces are counted as part of the functional area. Otherwise no circulation, building structure, or building service space is counted as functional area.

4.0 GENERAL REQUIREMENTS

## 4.3 Required Spaces – Persephone Theatre

### *Expansion of Studio Theatre*

The Studio Theatre requires a lateral expansion of about 48.8 square metres, bringing the total net size of the space to about 165.4 sm. The Theatre has imagined this as a simple expansion to the south of which all characteristics of the present space are continued in the addition. The result would be a seamless larger theatre.

### *Expansion of the Workshop*

The workshop requires a lateral expansion of about 80.3 sm. The expansion is required to abut the high portion of the shop and replicate its characteristics. Ideally, all existing structure that would limit the interconnection of the space would be removed, but this requires study and discussion with the Persephone.

### *Additional Spaces*

The Theatre also requires two dressing rooms of 11.7 sm each; two washrooms of 5.6 sm each; a stage management office of 17.4 sm; and a green room of 13.0 sm. These spaces would primarily serve the Studio Theatre.

### *Character of Space*

In general, the scope of work in this project is to build the shell only, of similar construction to the existing building, except where required by code to be upgraded. The mechanical and electrical systems would be extended from the existing systems after the space is turned over by separate contract. Theatrical systems such as seating, pipe grid, lighting, and controls, would be extended by the Persephone at a later date.

See detailed requirements in Section 5.2

## 4.4 Gross Area Projection

Gross area is the total size of the building measured to the outside of the exterior walls and is used in estimating building cost. Gross area is only determined accurately through building design. For museums, the gross area usually falls in the range between 1.4 and 1.7 x the net area. This project has a high requirement for space for mechanical and electrical systems, which will tend to increase the gross area. Site limitations will require a multi-storey building, and this increases the ratio with the need for passenger and freight elevators, stairs, and additional horizontal circulation. On the other hand, the limited site dictates a discipline over planning that will tend to make the building more efficient. With all factors considered, with careful discipline over the design, the gross to net ratio can probably be kept to 1.5. This factor has been used in budget calculations

The gross area calculation is therefore:

| | |
|---|---|
| Net Area Art Gallery of Saskatchewan | 5,740.8 sm |
| Net Area Persephone Theatre | 194.1 sm |
| Total Net Area | 5,934.9 sm |
| Gross Area = Net x 1.5<br>not including parking structure | 8,902.4 sm |

## 4.0 GENERAL REQUIREMENTS

## 5.0 FUNCTIONAL GROUP REQUIREMENTS

This chapter presents the specific functional requirements for the five lettered space groups for the AGS. It also presents the functional requirements for the Persephone Theatre expansion, parking, and exterior. Each group and sub-group contains a brief explanation on the functions, character and requirements of the space to be provided. A summary of area requirements and functional diagrams can be found in the previous chapter. Unit space sheets for each space will be provided at the start of the design phase.

## 5.1 ART GALLERY OF SASKATCHEWAN

### *GROUP A: PUBLIC / VISITOR SERVICES*

For museums and galleries, the public/ visitor services serve as the arrival and orientation for all users of the building. For this project, a broader social use is intended, extending the public/ visitor services into a lively atrium containing a series of public functions including food services, gallery shop, community studio, lecture theatre, multi-purpose area, washrooms, coat facilities, and rest areas. The Gallery atrium will be the primary access to the building for both Gallery visitors and general users of River Landing. Orientation and services for Gallery visitors will form a smaller lobby with a degree of separation from the larger atrium/ lobby. Through the inner lobby Gallery users will have access to the exhibitions, education/ public programs, and meeting rooms. All spaces in the Public / Visitor Services group should be comfortable, welcoming, and accessible to all users. For the Gallery atrium/ lobby in particular, the character of a 'winter-haven' should be developed to enable the space to be a year-round social destination.

### Subgroup A.1: Visitor Arrival

The visitor arrival function of the AGS comprises the typical visitor services of most cultural institutions as the gateway to the Gallery facilities. In this project, as mentioned above, it is intended to serve a broader public purpose as a vital interior social space in the South Downtown, a destination where people gather for informal events, community activities, food, retail, recreation and culture throughout the year. It is essential to ensure that the visitor arrival spaces will have the capacity to accommodate Gallery visitors, special event guests, and the general public at the same time.

***Gallery Atrium and Gallery Lobby (Orientation and Reception)***

The Gallery atrium and lobby will be one of the largest spaces in the AGS and will set the tone for the building as a whole. It is also the most complex, serving a number of traffic patterns and multiple modes of operation. The Gallery atrium/ lobby should be welcoming and self-orienting, accessible in the broadest sense. All visitor amenities and destinations should be easily identifiable.

The Gallery atrium/ lobby will be the primary access point and orientation space for all visitors, including Gallery patrons, school and community groups, and the general public. The atrium/ lobby will remain open after Gallery hours. It will also accommodate special indoor events.

## 5.0 FUNCTIONAL GROUP REQUIREMENTS

In the larger context, the Gallery atrium/ lobby can be seen as the focal point at the gateway between downtown Saskatoon and the South Saskatchewan River, and an urban beacon along the riverfront trails. The Gallery atrium will contribute to the liveliness of the riverfront area.

The AGS main entrance should be prominently located at 2nd Avenue. Secondary entrances may provide additional connections with the riverfront landscape.

A generous connection between the underground parking level(s) and the Gallery atrium/ lobby should be located near the main entrance. The vertical connection should also lead directly to the exterior. Connecting to the Persephone Theatre is more complicated because access control is at the northeast corner of the building, but must be studied. A more detailed discussion of parking access can be found in the parking requirements in Section 5.3.

From the atrium/ lobby, visitors will have direct access to the public washrooms, gallery shop, food services, community studio, lecture theatre, and Gallery reception. The portal to the exhibition galleries should be strongly expressed. A subtle means of closure should be provided between the atrium/ lobby and the Gallery reception area to allow the management of different opening times.

The Gallery reception area will serve as the admission and orientation point for the Gallery. The admissions (as required) and information desks will be located within this space, as well as the portal to the exhibition spaces. Orientation to the exhibition spaces should be clear and, assuming galleries are located on multiple levels, spatial connection to those other levels is desirable.

Ideally there will be Gallery exhibition spaces on the ground level directly accessible from the Gallery reception area. If the exhibition spaces are on multiple levels, a generous stair and elevator would be located here, within the admission zone. Circulation to and from other levels must not take visitors back into the public (pre-admission) zone. Overlook into the Gallery atrium is desirable, however.

Views of the South Saskatchewan River are a dominant contextual element of the site. Both the Gallery atrium/ lobby and Gallery circulation spaces should make use of this opportunity and bring awareness of the setting into the public spaces. Controlled natural light is desirable for these spaces, and should be exploited wherever possible in circulation spaces between galleries (not in galleries). Proper shading devices will be required to control unwanted heat and glare.

### *Washrooms*

A set of washrooms should be placed in the Gallery atrium/ lobby and identifiable from the main entrance for use by the general public. These will be used during civic events outside the AGS. Accessibility must conform to regulations and prevailing standards. Additional sets of washrooms must be placed within the Gallery exhibition zone and near the education / public programs area.

### *Coatroom / Lockers*

Coatroom and locker facilities should be provided to serve Gallery visitors as well as special event guests.

### *Group Coatroom*

Although a separate group entrance is not planned, a group coat facility should be placed with access from the Gallery atrium for visiting school groups, up to two groups of 35 simultaneously.

***Indoor Greenery***
Indoor planting in the form of a living wall or commissioned artwork that involves planting, is desirable in the Gallery atrium/ lobby. The planting will enhance the indoor visitor experience year round, and reflect the legacy of the conservatory at the existing Mendel Gallery.

**Subgroup A.2: Gallery Shop**

The Gallery shop is expected to become a prominent and unique retail service at River Landing. Maximum exposure and immediate accessibility to the Gallery atrium/ lobby is essential. If possible it would also be easily accessible and visible from the street. Public access outside of Gallery hours should be possible without compromising the security of the Gallery.

A small office/ inventory area should be immediately adjacent to the shop display area. It should have straightforward access to the servicing route that links the shop with the service shipping/ receiving area.

The design and furnishing of the shop should reflect the character of the AGS.

**Subgroup A.3: Food Services**

The proposed model for food services at the AGS is a modest bakery/ café serving seating placed opportunistically in the atrium/ lobby, multi-purpose area, and exterior. This would be accompanied by a program of catered food events, some of which would be coordinated with Gallery openings and programs, and Theatre performances. Several venues will be used for catered events, including the atrium/ lobby, the multi-purpose area, the community studio, and the roof terrace. A kitchen would ideally be located adjacent to the bakery/ café – in turn ideally located prominently in the atrium/ lobby. It is assumed that a single operator would run the bakery/ café and all catering. A continuous full service restaurant has been found to be not economically viable.

The Gallery food service will operate during Gallery hours and may remain open after-hours. It will serve Gallery visitors, Persephone audiences, and the general public throughout the day. Public access outside of Gallery hours should be possible without compromising the security of the Gallery.

The bakery/ cafe will offer coffee and other beverages, limited alcoholic beverages, baked goods, sandwiches, snacks, and soup. The service style will consist of counter service to casual seating in the in the atrium/ lobby, exterior, and opportunistic spaces elsewhere in the public parts of the building. An appropriate ventilation system should be installed to prevent food odours from reaching beyond the bakery/ cafe area.

***Catering***
The kitchen should have direct access to the bakery/ cafe. It will be used to prepare the food for the bakery/ cafe, as well as limited catering service for other locations in the building. It should have adequate counter surfaces, dry goods storage, reheating equipment and cold storage facilities. It should also contain storage space for dishes, cutlery, glasses, tables and chairs. Food preparation, reheating, food arrangement and presentation, adequate layout and storage area, and refrigeration are required. The space allocation is limited and requires efficient design and high density storage solutions.

### 5.0 FUNCTIONAL GROUP REQUIREMENTS

This space should have direct access to the servicing route that links the food service with the service shipping/ receiving and waste disposal areas.

If the kitchen is located adjacent to the multi-purpose room, it can provide direct service for special events at this location. Additional catering support spaces must be located at any events venue distant from the main kitchen.

**Subgroup A.4: Special Events**

As is common in many museums and galleries, the AGS will support a number of programs, activities, and events throughout the year. These will take place in many parts of the building. The community studio and multi-purpose areas are the two spaces dedicated to use by community groups, organizations, and businesses.

***Community Studio***
The primary use of the community studio is to exhibit shows organized by community groups, guilds, students, etc. It should be easily accessible and visible from the Gallery atrium/ lobby. Public access outside of Gallery hours should be possible without compromising the security of the Gallery. Placement and access should distinguish this space from the 'professional' galleries of the AGS.

The community studio will be equipped with proper A/V support to handle multi-media installations. Its acoustical quality must be excellent. Its spatial and finishing qualities should be attractive and comfortable.

***Multi-Purpose Area***
The multi-purpose area will facilitate both in-house and rental events such as exhibition openings and corporate receptions. It will be located at either a space extended from the atrium/ lobby or on a mezzanine that overlooks the atrium. It will be desirable to have access to an outdoor patio by the riverfront. It will have the capacity to accommodate about 300 standing guests or 200 sit-down guests. Although generally an open space interconnected with the atrium/ lobby, an enclosing device such as a movable wall system should also be provided. This would be used to contain private or noisy events.

Convenient access to catering support should be provided. A portable bar may be brought into the multi-purpose room or the community studio may be used to serve drinks. Alcohol licensing restrictions must be considered.

***Furniture Storage***
A designated storage adjacent to the multi-purpose area will be required to store all the event furnishing, including all tables and chairs for sit-down reception.

***A/V Equipment Storage***
An A/V equipment storage adjacent to the multi-purpose area and community studio will store equipment used in those spaces.

***Catering Support***
A catering support space should be provided with direct access to the multi-purpose area. It should have adequate counter surface, storage, and reheating and cold storage facilities. The catering support spaces should have direct access to the servicing route that links the special event area with the service receiving and waste disposal areas. Garbage and food cannot be transported through the exhibition or gallery back-of-house areas.

The space will be used by either the catering company or volunteers for lightly catered events. The needs of volunteer and outside catering should be equally met and coordinated.

**Subgroup A.5: Lecture Theatre**

***Lecture Theatre***
The Lecture Theatre will accommodate 150 patrons with fixed seating on a tiered or sloped floor. Its primary functions include lectures, symposiums, film screenings, digital presentations, small scale performances, and meetings for both in-house usage and rentals. A projection room is required to project digital, film and slide presentations. A general storage space with direct access to the Lecture Theatre will be required. Acoustic quality must consider the diversity of uses. The floor at the front of the lecture theatre will be level. Portable staging will be used as required.

***Control / Editing Room***
The control/ editing suite will be located in close proximity to the Lecture Theatre. It will house the control staff and equipment for the sound studio, the Lecture Theatre, and any A/V use in other areas. It will also serve as the editing studio for in-house video production, such as interviews, video broadcast, online material, and multi-media touring. This space will be used by AGS technicians, as well as the staff of education / public programs. It should be secure and away from public access.

***Sound Studio***
The sound studio will be located adjacent to the control/ editing suite and in close proximity to the Lecture Theatre. It will serve as the sound recording studio for any in-house audio production. This space should be sound-proof. Audio and video interviews can also be held in this studio. This space will be used by AGS technicians, as well as the staff of education/ public programs. It should be secure and away from public access.

## 5.0 FUNCTIONAL GROUP REQUIREMENTS

### *GROUP B: EXHIBITIONS / EXHIBITION SUPPORT*

The primary function of the AGS is to exhibit and interpret art in curated exhibitions. Works of art may be drawn from the permanent collections, borrowed from other institutions, the work of contemporary artists, or be developed for the particular exhibition. Works will range from conventional media such as two-dimensional paintings, drawings, and prints; free-standing sculpture and sculpture on plinths or in display cases, installations, some of which use audio/ visual/ electronic media. Exhibitions will also frequently involve multiple media. Spatial quality and flexibility are essential to enable the curators to present the work in a manner that enhances visitors' experience.

A special dedication to the original Mendel gifts will form an essential part of the permanent collection and a possible starting point for the Gallery exhibitions.

***Exhibition Orientation and Circulation***

Exhibition orientation begins in the Gallery reception area, and continues in circulation spaces, and in the galleries themselves. Gallery circulation should be generous and pleasant to allow visitors to self-determine their itinerary in both the permanent and temporary exhibitions. Prominent staircases and elevators will provide the means of vertical circulation between exhibition levels, and interconnected spaces should be used to give visitors a sense of the extent of exhibition space offered. Controlled natural light and views towards the River are desirable.

***Gallery Lighting***

In art gallery design, the use of natural light in exhibition spaces is a contentious issue. For many conservators, curators, and gallery administrators there is no reason to use natural light and many reasons why it should be avoided. This is based on the many buildings in which natural light cannot be adequately controlled (for achieving the lighting environment that shows particular works to advantage and to achieve the proper conservation levels). The many buildings that have condensation or leakage problems associated with skylights also contribute to this negative view of the use of natural light.

Many architects have been trained or otherwise come to believe that natural light and views to the exterior have special qualities that enhance human experience in buildings. The use of natural light is also seen as a means of reducing electricity consumption as part of making buildings more environmentally responsible.

The idea that 'art should be seen in the conditions in which it was created' is sometimes cited as a reason for using natural light (although it would be a rare case where this can actually be implemented). Some gallery directors and curators share the belief in the special qualities of natural light and, of course, many notable galleries, old and new, have gone to great lengths to provide it.

If natural light is to be considered in some or all of the galleries in this project, the following guidelines should be considered:

1) The source of light should be readily controllable by a straightforward technology to permit adjustment of levels through the range of conservation levels. The control should permit complete blackout where natural light is not wanted, as in, for example, multi-media installations, and installations where a theatrical lighting effect is wanted.

2) A complete system of electrical lighting (usually a track system) must be installed that permits flexibility to design a wide range of lighting environments with and without natural light. Multi-circuit track systems and programmable control systems are desirable.

3) The skylights and windows used in galleries must be rigorously designed to the highest standards. This includes weather-tightness, ease of maintenance, and avoidance of reliance on components of finite service life, such as gaskets and sealants. Insulative qualities must also be considered to avoid condensation from the relatively high RH environments. Glazing should block the UV component of the light and should not distort the colour spectrum of the light being transmitted.

**Subgroup B.1: Permanent Collection Galleries**

The permanent collection galleries will exhibit woks from the Gallery's collections. They will cover all media: paintings, photography, sculpture, installations and multi-media works. The fit-up of these spaces will need to accommodate a variety of media needs.

Periodic show changes in the permanent collection galleries can take place after-hours using the public circulation routes. Therefore, direct back-of-house access is not required.

The permanent collection galleries will include exhibition rooms of various sizes defined by fixed partitions. For long-term flexibility, these sub-dividing partitions should not contain services other than the power and communication needed in the galleries themselves.

All permanent collection galleries will require a ceiling height of 14.900m (16'-0") throughout. They will have a built-in multi-circuit track lighting system and hanging capacity for point loads of approximately 45 kg (100 lbs) from points spaced in a 3.000 grid.

All gallery partitions and ceilings will be finished with 19mm (3/4") plywood covered by drywall, with indication of the point load locations. All partitions will have top and bottom reveals with access to electrical and communication outlets. Movable wall systems are not required.

***Mendel Gallery***

One of the gallery spaces of the permanent collection galleries will be designated to house the thirteen original Mendel gifts as well as later donations. The Mendel Gallery, together with the Perehudoff Room, will be an important opportunity to communicate the Mendel legacy to Gallery visitors. It would ideally be prominently located on the main floor near the beginning of the gallery sequence.

## 5.0 FUNCTIONAL GROUP REQUIREMENTS

The Mendel gift consists of 13 paintings:

| Artist | Title | Medium | Dimensions |
|---|---|---|---|
| Csato, George | Portrait of Mrs. Clare K. Mendel | oil on canvas | 80.1 x 60.1 cm |
| Konrad, Ignac | Alag | oil on canvas | 100.4 x 150.3 cm |
| Lismer, Arthur | Autumn, Bon Echo | oil on canvas | 106.0 x 132.9 |
| Jackson, Alexander Young | The Monastery, Assisi | oil on canvas | 65.0 x 81.5 cm |
| MacDonald, James Edward Hervey | Logs on the Gatineau | oil on canvas | 87.4 x 115.3 cm |
| Milne, David Brown | Palgrave Station | oil on canvas | 50.9 x 61.3 cm |
| Johnston, Franz | Aftermath | gouache on paperboard | 120.4 x 182.3 cm |
| Harris, Lawren Stewart | Untitled (Mountains near Jasper) | oil on canvas | 127.8 x 152.6 cm |
| Carr, Emily | Pine Forest | oil on paper | 60.8 x 91.4 cm |
| Hughes, Edward John | View of Shawnigan Lake | oil on canvas | 81.8 x 114.4 cm |
| Lemieux, Jean Paul | Le Bois de St. Antoine | oil on canvas | 73.5 x 127.3 cm |
| Krieghoff, Cornelius | Sault a la Puce, Ste. Anne de Beaupre | oil on canvas | 41.4 x 32.4 cm |
| Milne, David Brown | Grey Pool | oil on canvas | 51.0 x 61.0 cm |

Csato, George
*Portrait of Mrs. Clare K. Mendel*

Konrad, Ignac
*Alag*

Lismer, Arthur
*Autumn, Bon Echo*

## 5.0 FUNCTIONAL GROUP REQUIREMENTS

Jackson, Alexander Young
*The Monastery, Assisi*

MacDonald, James Edward Hervey
*Logs on the Gatineau*

Milne, David Brown
*Palgrave Station*

Johnston, Franz
*Aftermath*

Harris, Lawren Stewart
*Untitled (mountains near Jasper)*

Carr, Emily
*Pine Forest*

Hughes, Edward John
*View of Shawnigan Lake*

Lemieux, Jean Paul
*Le Bois de St. Antoine*

Krieghoff Cornelius
*Sault a la Puce, Ste. Anne de Beaupre*

Milne, David Brown
*Grey Pool*

## 5.0 FUNCTIONAL GROUP REQUIREMENTS

### *Perehudoff Room*

An antechamber to the Mendel Gallery will be dedicated for the Perehudoff murals, which were painted by William Perehudoff at Fred Mendel's office in the Mitchell Foods Building (also called Maple Leaf Foods and Intercontinental Packers). Before the demolition of the building, the murals were removed, stripped onto canvases, and crated. The canvases will be mounted on fiberglass panels for future installation.

The design of the antechamber will be based on the dimensions of the old Mendel office as indicated in the drawing that follows. In addition to the Perehudoff murals, the antechamber will also display photographs, illustrations, and text that explain the history of the Mendel Art Gallery, and pay tribute to the legacy of Fred Mendel and the Mendel family.

*East and South Walls*

*South and West Walls*

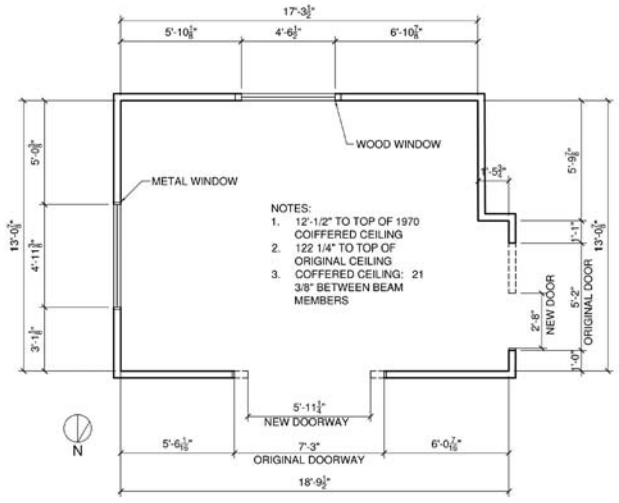
*Partial East Wall*

*West Wall*

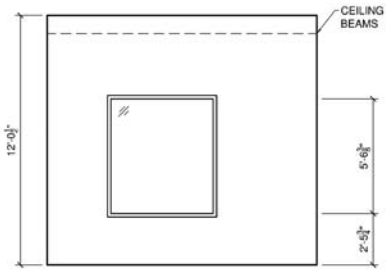
*North Wall*

*Partial North Wall*

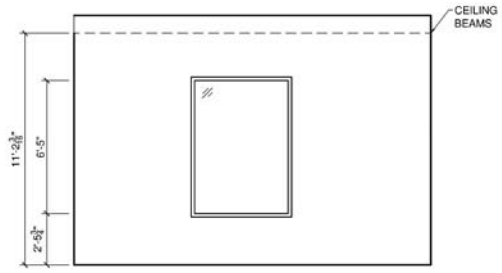
## 5.0 FUNCTIONAL GROUP REQUIREMENTS



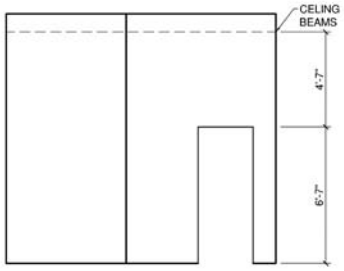

*Floor Plan of Mendel's Perehudoff Murals*
*Prepared by: Crystal M. Bueckert*



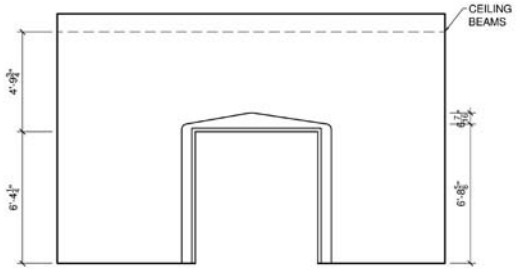

*East Elevation*




*South Elevation*




*West Elevation*




*North Elevation*

*Elevations of Perehudoff Murals*
*Prepared by: Crystal M. Bueckert*

## 5.0 FUNCTIONAL GROUP REQUIREMENTS

### Subgroup B.2: Temporary Collection Galleries

The temporary collection galleries will be the venues for changing and traveling exhibitions that maintain public and media interest in the Gallery. These shows will cover a broader subject matter than the permanent collection exhibitions. The exhibited art works will cover all media: paintings, photography, sculpture, installations and multi-media works. The outfitting of these spaces will need to accommodate new media and IT needs.

The temporary collection galleries will consisted of a single space capable of being subdivided into three or four spaces of variable size including the range of sizes indicated in the space list. Each can show a separate exhibition, or to be combined to exhibition a large show.

These galleries should be prominently located as visitors are often seeking out specific exhibitions that have been advertised. The temporary collection galleries will require a ceiling height of 14.900m (16'-0") throughout. They should have a built-in multi-purpose track lighting system and hanging points for loads of approximately 45 kg (100 lbs) spaced in a 3,000 grid. All gallery ceilings will be made of 3⁄4" plywood covered by drywall, with indication on the locations of trusses or beams.

All perimeter and movable gallery partitions will be drywall finished with 19mm (3/4") plywood backing. All walls will have top and bottom reveals with access to electrical and communication outlets. Movable wall systems must be studied carefully in full consultation with Gallery staff.

Due to the frequency of exhibition changes, the temporary collection galleries should be arranged so that the galleries can be closed off from public view and circulation during the installation of new exhibits. They require unobstructed access from the back-of-house areas, which include the art receiving / shipping, preparation and exhibition support zones. An art circulation corridor will connect each changing gallery with the back-of-house.

### Subgroup B.3: Gallery Amenities

***Washrooms***
A prolonged stay for visitors in the exhibition areas is expected. Small washrooms are needed within the gallery zone so that visitors do not have to return to the lobby.

***Kids Play Room***
The Kids Play Room will be located within the gallery zone. It will be a friendly place for children and parents. It should be transparent, while maintaining a degree of noise control.

***Gallery Lounge***
A gallery lounge should be provided on one of the upper levels, possibly adjacent to a rooftop terrace / sculpture garden. This area could have a modest beverage service consisting of a small seating area and a beverage counter similar to those in airport lounges.

The gallery lounge will require a catering support space for special events.

The gallery lounge will be an interpretation area where visitors can rest and have access to materials related to the exhibitions and collections through touch-screen stations, literature, and occasional curator talks. It will also be a venue for scheduled gallery events

***Rooftop Terrace / Sculpture Garden***

The rooftop terrace / sculpture garden will be accessible from the gallery zone and, if possible, separately accessible from the public zone. It should be regarded as one of the exhibition spaces in the Gallery admission zone. This rooftop terrace will be a curated exhibition venue for three-dimensional artwork.

It is desirable to locate the rooftop terrace adjacent to the gallery lounge so that the lounge can provide catering support to the special events.

**Subgroup B.4: Exhibition Support**

All galleries will require some nearby, discreetly located support areas for network and wiring closets, storage of light fixtures and bulbs, maintenance supplies, and programming materials. These spaces should be easily accessible from the galleries they serve.

A group of exhibition support spaces will be located in close proximity to the temporary collection galleries. This area will be comprised of a supplies storage, acclimatization/ crate storage, and program support. It will require direct access to the art shipping and receiving area.

Typically, arriving exhibitions will be placed in the acclimatization/ crate storage space for a certain period and stored securely until ready for installation. Empty crates will remain there for the duration of the exhibition. Exhibitions leaving the building will follow the reverse process. All areas in unpacking / acclimatization/ crate storage must be clean, secure, and meet the collection access and environmental requirements.

Program Support will store materials used for in-gallery programs.

## 5.0 FUNCTIONAL GROUP REQUIREMENTS

### *GROUP C: EDUCATION / PUBLIC PROGRAMS*

The AGS puts a priority on engaging local communities through art-related programs. Art classes, hands-on activities, school programs, and other community activities related to art will make up the primary focus of the education/ public programs. The education/ public programs will be inclusive to people of all ages, cultural backgrounds, and social groups. It will be an activity hub where local artists, public program staff, and the community interact.

The education/ public programs will be accessible as a separate destination within the gallery zone. Activity or school groups will enter the building from the main entrance, drop off their coats at the group coatroom, and enter the gallery zone to the education/ public programs area. Direct access from the education/ public programs to a riverfront terrace is desirable.

**Subgroup C.1: Studio Programs**

The studio programs will be designated for school groups, adult programs, and other public programs organized by the public program coordinator.

The large activity room will be the main venue for all public programs. It should be large enough to accommodate two groups of 35 people of any age for hands-on activities and art classes. It is to be subdivided by a soundproof, movable partition, of the best available technology.

Aligned with the Gallery's dedication to inclusiveness, all facilities for studio programs should be accessible to all. They should be equipped with furniture and heavy-duty sinks mounted for people with different height requirements. Proper ventilation should be considered. Suitable electrical and IT cabling should be provided to facilitate digital support in classes and activities. Controlled natural light is desirable to enhance the experience in the activity rooms. Furniture and finishes must be durable and easily maintained.

A lively and fun atmosphere with direct access to natural light will be highly desirable.

The activity rooms will require access from the activity support room. Adequate built-in storage for art supplies must be provided in the activity and program support areas.

A set of washrooms will be provided in close proximity to the activity room. These washrooms will be used by the education / program groups to avoid participants traveling all the way to the public washrooms in the Gallery atrium/ lobby.

## *GROUP D: COLLECTIONS / PREPARATION*

The collections/ preparation group encompasses the back-of-house functions responsible for the physical care, handling, and storage of art works. Activities in this category include documentation, evaluation, installation, shipping/ receiving, and storage. This area will be entirely off-limits to the public.

Professional responsibility for collections requires safeguarding artworks and ensuring that relevant agreements and laws are observed, including loan agreements, international cultural property agreements, customs regulations, copyright, and tax laws. These agreements obligate the AGS to provide secure, clean, and environmentally stable collection handling, exhibition, and activity areas.

Preventive conservation design criteria for all collection areas must meet recognized gallery standards as describe in Chapter 6.0.

### *Access Criteria*

All spaces, including circulation, that will house or be used for movement of traveling exhibitions and collection material must be able to accommodate a range of size of artworks. The following hypothetical object sizes should be used to verify openings, clearances, and turning radii throughout movement paths within collection spaces.

Long narrow object (L x D): **4.880m x 0.300m** (16' x 1')

Bulky object (L x H x W): **3.660m x 2.740m x 1.220m** (12' x 9' x 4')

Weighty object: **1814 kg** (4000 lbs)

All clearances in spaces through which the objects will move, including corridors, doorways, bulkheads, turning radii at corners, and freight elevator, must accommodate the above dimensions.

In addition, the following minimum access dimensions must be observed:

Doors (H x W): **3.050m x 4.270m** (10' x 14')

Corridor height: **3.050m** or 10'

Freight elevator (W x H x D): **4.270m x 3.050m x 6.100m** (14' x 10' x 20')
Weight capacity: **4536 kg** (10,000 lbs)

All art circulation spaces will be controlled for security. Surveillance cameras will be installed at appropriate locations, centrally monitored by the security officer.

The detailed technical requirements found in Chapter 7.0, particularly apply to this group of spaces.

## 5.0 FUNCTIONAL GROUP REQUIREMENTS

### Subgroup D.1: Collection Storage

The collection storage group includes those spaces where the AGS will store its permanent collection, unless the works are on loan, exhibition, or in preparation for loan and exhibition. The purpose of the collection storage is to provide a secure and stable environment to preserve the artworks. The required AGS storage facilities reflect the current needs of the Mendel Gallery and the projections for collection growth. The collection storage facilities consist of a rack vault (paintings), a works on paper vault, an objects vault, a vault workroom, a crated art storage and a short-term art storage. Each vault has distinct requirements for climate control, in relation to the specific materials stored there. For security reasons, access for the collection storage facility will be controlled for limited staff.

It is ideal to have all collection storage facilities consolidated in one area of the building for efficiency and security. If it is necessary to have the collection spaces on more than one level, they should be vertically aligned with the freight elevator within that area. All vaults, storages and workrooms must be clean, secure, and meet all collection access requirements. Doors for vaults must be sized according to the access requirements indicated earlier to ensure easy access for works of all sizes. If the collection storage facility requires more than one level, the freight elevator will serve as the primary vertical access for the movement of artworks.

Collection storage spaces must be easy to clean and maintain without the risk of contaminating the artworks. Mechanical equipment that poses the risk of water leakage or requires maintenance access must be kept away from collection storage.

### Subgroup D.2: Preparation

The Preparation group includes the facilities used for exhibition design and fabrication. This includes the making of display cases, plinths, frames, bases, temporary partitions, and shipping cases. The work spaces should be segregated into 'clean' and 'dirty' groups as indicated in the functional diagram. The Preparation group should be located close to the exhibition support group, shipping/ receiving, and the temporary galleries.

***Carpentry Workshop***
The carpentry workshop is involved in all exhibition-related fabrication. The carpentry workshop will house the usual tools and equipment associated with rough and finished woodworking. It will require dust removal system for power equipment. Shop equipment will require special power supply to suit special equipment. Proper ventilation and other safety requirements must be met to ensure a high level of workplace health and safety.

***Matting / Framing Workshop***
The matting / framing workshop will be a relatively clean space. Natural light is preferred for this space, especially if north-facing for consistent and accurate colour rendering. This will be used for picture framing, artwork labeling, large format cutting, plastic lamination, signage production and other preparation work that requires large, clean surfaces.

***Painting / Assembly Area***
The painting / assembly area is used for painting and curing of any exhibition elements. It will require a system for air extraction to support paint spray or spray adhesive.

***Flammable Storage***
A small flammable storage facility will consist of secure cabinets with specialized ventilation for solvent storage.

***Photo Studio / Workroom***
Well separated from the dirty workshops, the photo studio / workroom will be used for artwork documentation and in-house photography.

***Office***
An office for two staff will be required in the Preparation area.

**Subgroup D.3: Art Handling**

This section includes the spaces required for the arrival and departure of collection material to and from the Gallery, as well as storage for art handling equipment. To ensure the ease of moving large artworks, it is crucial for the art handling spaces to meet the artwork access criteria described earlier.

***Truck Bay and Shipping / Receiving***
All exhibitions entering or leaving the Gallery will require a clean, safe, secure, environmentally controlled space for shipping and receiving. Because of the potential risk of contamination to artwork from the receiving and shipping of general services such as food and waste, art shipping/ receiving and service shipping/ receiving must be segregated.

The interior truck bay should have the capacity to receive the longest tractor-trailer allowable in the province of Saskatchewan (77 feet in length from bumper to bumper). It should be an enclosed and temperature controlled space operable in all seasons. Bay doors should be designed to accommodate the full width of the tractor-trailer. The typical procedure is for the truck to enter, the exterior door closed, the space allowed to recover to room temperature, and only then is the trailer door opened.

A hydraulic platform should be installed to handle the height difference between the shipping / receiving area and variable truck bed heights. The size of the lifting device should be (W x D) **4.270m x 6.100m** or 14' x 20'. The lift in its lowered position must be flush with the floor.

The truck bay and shipping / receiving should be located adjacent to the unpacking / acclimatization area.

***Crate Storage***
Crate storage temporarily stores empty crates after traveling artwork has been received and sent to the exhibition space. This space is environmentally controlled to maintain the crates consistent with the art they will transport. The empty crate will stay at the crate storage until the artwork leaves the building again.

***Fixture Storage and Extension Storage***
Fixture and extension storage will be allocated off-site. Fixture storage will house miscellaneous items such as display pedestals.

## 5.0 FUNCTIONAL GROUP REQUIREMENTS

### *GROUP E: ADMINISTRATION / OPERATIONS*

Administration/ Operations spaces include work and support spaces required by AGS staff. This includes permanent and occasional staff, security personnel, building operation personnel and volunteers.

Other than the meeting rooms that will be made available for outside rentals if suitably located, all spaces in this section are generally off-limits to visitors without security clearance.

**Subgroup E.1: Administration Facilities**

The Administration area will accommodate eight (8) individual offices for the following:
Executive Director
Manager, Finance and Operations
Administration Assistant / Manager of Volunteer Resources
Chief Curator
Associate Curator
Associate Curator
Public Program Coordinator
Manager of Fundraising

It will also accommodate a general open office area for twenty-two (22) staff. This open office should be pleasant and reflect the image of AGS. Workstations should reflect the latest ergonomic and supportive practice for open office design. Informal discussion spaces are highly encouraged.

This area will require adequate spaces for filing, office supplies storage and office equipment, and a designated filing storage for registration related permanent object files.

There will also be a designated computer server room. This room must be secure, well ventilated and soundproof.

Natural light is preferred for this space.

**Subgroup E.2: Staff Support**

With easy access to the Administration facilities, the staff support area house a lunchroom, a small kitchen, and shower / changing facilities. The small kitchen will be equipped with a refrigerator, microwave oven, sink and counter and cupboard space.

**Subgroup E.3: Meeting Rooms**

The meeting room area consists of three (3) meeting rooms of the sizes indicated in the space list.

If the meeting room suite can be located in or adjacent to the public zone, it will facilitate access by external guests and make the spaces available for occasional rentals.

The 30-people meeting room will be used by board members, staff and public. It can be available as a rental space, and will be the only space in the administration / operations section accessible from the visitor-servicing zone without security clearance.

**Subgroup E.4: Security / Building Operations**

The security and building operations group includes functions necessary for the building to operate on a daily basis.

***Security***
Security personnel monitor all intrusion, access control, fire detection, annunciation and radio equipment during Gallery hours. Guards will also be on duty at designated posts throughout gallery hours.

All building entrances will require security surveillance. High level of security surveillance is required at the main entrance, the art shipping / receiving area, and the service entrance. Surveillance cameras and fire and intrusion detection systems will be monitored from a security office area. This area and its equipment must be secure.

All security posts must be comfortable for extended periods of duty. They will also need the best possible sight line to all public areas.

The actual need for permanent security posts and security system should be studied in depth as the project develops.

Overnight, motion, fire, and water detectors will be monitored by a private call centre.

A separate washroom and changing facility may be required for the security officer.

Extra security personnel may be required during weekends. Volunteers will sometimes get involved for security as well.

***Building Operations***
Building maintenance, building services, general storage, records, catalogue and publication storage, waste management, and non-collection shipping / receiving are all included in this section.

There should be a separate exterior truck loading area for non-collection shipping/ receiving. It is unwise to mix general shipping/ receiving and waste management with art spaces due to the risk of infestation. Any waste and recycling disposal area must be located near the non-collection shipping/ receiving area and well away from collection areas.

Good housekeeping operations and proper training of maintenance staff in preventive conservation principles will be key in minimizing the risk of infestation to artworks and collections.

The housekeeping supply storage will be located near the waste and recycling disposal area.

**Subgroup E.5: River Landing Administration**

An office for City use related to River Landing is required. It should be proximate to the Gallery atrium /lobby.

**Subgroup E.6: Volunteer Facilities**

A lounge space for volunteers will be located adjacent to the Gallery atrium/ lobby.

## 5.0 FUNCTIONAL GROUP REQUIREMENTS

### *GROUP F: MECHANICAL AND ELECTRICAL ROOMS*

Appropriate mechanical and electrical spaces are essential to meet the special demands of environmental control for the various types of facilities in the Gallery, which include the exhibition galleries, exhibit preparation, and collection handling spaces. Mechanical and electrical spaces should be configured for ease of access by maintenance personnel to encourage good preventive maintenance practice. Requirements will be determined during design.

Access to M/E spaces and equipment must never be through collection spaces.

Equipment and piping involving liquids must not be placed above collection spaces.

Rooftop equipment is not acceptable because it inhibits preventive maintenance.

Ideally chillers, boilers, and other equipment that may poses higher risks of water leakage should be located in the basement to minimize the risk of water damage to artworks.

Further technical requirements for the mechanical and electrical systems can be found in Chapter 7.0.

## 5.2 PERSEPHONE THEATRE

***Spatial Requirements***

The following reflects the minimum space requirement for the expansion of Persephone Theatre.

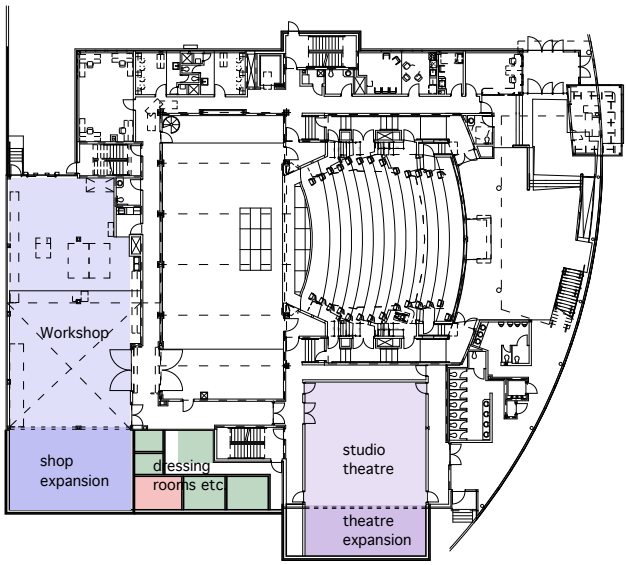
| Space Name | Existing Area | | Expansion Area | | Proposed Net Area | |
|---|---|---|---|---|---|---|
| | sf | sm | sf | sm | sf | sm |
| Studio Theatre (Backstage Stage) | 1,255 | 116.6 | 525 | 48.8 | 1,780 | 165.4 |
| Workshop | 2,593 | 240.9 | 864 | 80.3 | 3,457 | 321.2 |
| Dressing Room 1 | | | 126 | 11.7 | 126 | 11.7 |
| Dressing Room 2 | | | 126 | 11.7 | 126 | 11.7 |
| Stage Management | | | 187 | 17.4 | 187 | 17.4 |
| Green / Meeting Room | | | 140 | 13.0 | 140 | 13.0 |
| Washroom (Male) | | | 60 | 5.6 | 60 | 5.6 |
| Washroom (Female) | | | 60 | 5.6 | 60 | 5.6 |
| **TOTAL** | | | **2,088** | **194.1** | **5,936** | **551.6** |

The above figures do not include any additional circulation spaces.

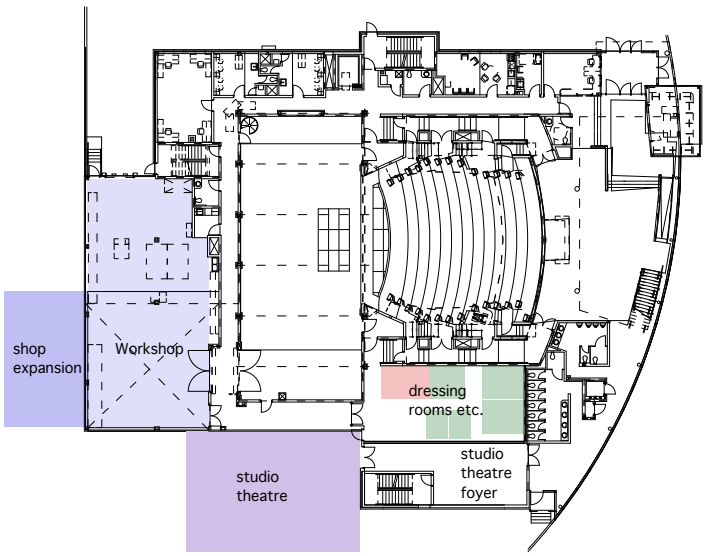
The construction of the Theatre expansion must deliver a building envelope equal to the present Theatre building. The AGS development project will deliver a base building shell only. All mechanical and electrical services will be extended from existing Theatre sources under later contracts by Persephone Theatre. Furnishing and equipping the space will also be completed under later contracts by Persephone Theatre.

The design of the Theatre expansion must provide efficient and desirable spaces that reflect the practical needs of Persephone Theatre. The layout of the Theatre expansion must also consider the design of the AGS. The following diagram shows an initial study of a possible layout of the Persephone Theatre expansion and an alternative layout that moves the extension away from the 2nd Avenue frontage. The diagrams are not intended to provide a final design solution. Solutions must also consider the impact on the fit-up cost for the Persephone.

## 5.0 FUNCTIONAL GROUP REQUIREMENTS




*Theatre Expansion as proposed by Persephone Theatre*




*Alternative Theatre Expansion Concept*

## 5.3 PARKING STRUCTURE

It is an important intention of the project to provide underground parking. This parking will serve the visitors of the Gallery, Persephone Theatre, and the general public. It will serve as a point of entry for visitors to the Gallery and Theatre arriving by car. The parking structure is intended to occupy one or more levels underground, including the space provided under part of the Persephone building. A means of parking access must be provided from the Gallery atrium/ lobby. Standards for the parking should exceed common practice in terms of simplicity of layout, safe pedestrian movement, lighting and way-finding.

The number of spaces is not prescribed. The design solution should work to produce the maximum number of spaces possible within the budget allocated.

***Character***

As an integral part of the Gallery visitor experience, architectural quality of the design of the parking facility should be considered. This includes the general design of the structural system as well as detailed design of pathways, curbs, crosswalks, ramps, stairs, natural light, lighting fixtures, etc.

Careful integration of mechanical, electrical, security, and way-finding elements, and a coherent design that avoids visual clutter are essential to the visitor experience in the parking.

The parking should be designed to withstand the harsh environment created by road de-icing salts, sand, and moisture.

***Site***

Entry into the underground parking will be likely from the north end of the site at Saunders Place. Careful design must be made to coordinate the parking traffic with pedestrian circulation and servicing routes.

The parking entrance must be visually identifiable from vehicular approach routes to the site. Adequate signage should be provided for way-finding.

***Parking***

The structure of the underground parking must be coordinated and responsive to the AGS structure above. It is desirable to minimize the impact on the ground floor plate as ground floor space is at a premium for Gallery functions.

Arrangement of parking stalls, ramps and driveways will be designed to accommodate the maximum number of parking vehicles within the allowed footprint, and at the same time, the extensions of elevators, stairs and shaft spaces from above, and any mechanical and electrical spaces required for the AGS.

Given the site configuration, it is likely that two-way traffic with 90-degree parking stalls will be required. One-way traffic is not required.

The maximum slopes of parking decks, or ramps with parking is 4%.

### 5.0 FUNCTIONAL GROUP REQUIREMENTS

The maximum slope at circulation ramps is 10%.

The minimum clear height to structure is 2.3m, and to services is 2.15m .

It is desirable to maximize parking on "flat" decks.

Parking stall dimensions must comply with the Saskatchewan Building Code. Ideally the parking stalls should will have a minimum width of 2.7m, and 3.1m when adjacent to a wall or other physical barriers. Clear width for a double loaded parking aisle should have a minimum of 18.0m.

At least five (5) disabled parking stalls should be provided near the elevator lobby. The minimum width for a disabled parking stall should be 4.0m.

Orientation of the parking circulation must be efficient. A possible middle lane may be included at the parking entry / exit to allow alternate vehicle flow depending on needs.

It will be worthwhile to investigate the feasibility of advances in technology to enhance the overall functioning and user experience in the parking.

Access to the Gallery atrium/ lobby must be provided for all types of visitors, which includes a barrier-free route. Directions must be clearly posted. An open and glass-enclosed elevator vestibule should be provided for security reasons. See the following section for possible models of parking access.

The parking layout should facilitate pedestrian access to the parking access elevator vestibule. Long views across the parking floor for visibility of the elevator vestibule are desirable.

The parking structure will be clean and pleasant with adequate and appropriate lighting. The possibility of natural lighting along the south and west faces should be investigated.

Artificial lighting should be uniform throughout the parking floor. Enhanced lighting for pedestrian paths, stair entrances and elevator vestibule should be considered.

Ease of orientation for visitors should be provided by the simplicity of parking layout, expression of structural system, and other architectural features that can be seen as memorable landmarks.

***Way-finding***

Inherent design features of the parking garage should be considered as a primary form of orientation and way-finding.

A clear, unambiguous line of vehicle traffic circulation must be provided from the entrance to the parking spaces, and from the parking spaces to the exit.

Maximum headroom should be provided throughout.

The layout of the structural system and incorporation of architectural features can be considered to provide means of orientation and way-finding.

Other means of orientation and wayfinding should also be considered:

- Colour-coding, numbering, and other visual cues should be provided to assist patrons in finding their way to retrieve their cars.
- Signage should be provided at locations where drivers and pedestrians can read them in a timely fashion
- Clear and simple signage with direct messages and of consistent graphics should also be provided.

***Safety and Security***

Apart from overall way-finding, it is crucial to ensure public safety and security. Life safety requirements must comply with the Saskatchewan Building Code and current best practice.

Passive security should be acknowledged as a guiding principle on the parking design, including but not limited to the following:

- Columns should be minimized in size and number to reduce site line obstructions.
- Other interior obstruction such as walls, upstands, railings, etc should be minimized.
- Visibility into stairs, elevator lobbies and cabs should be maximized by use of glazing.
- Potential hiding places such as the underside of stairs should be avoided.
- Material and finishes should be selected to maintain a clean appearance.
- All interior surfaces should be painted white.
- High level of energy efficient and vandal resistant lighting should be provided throughout, and enhanced at entry / exit lanes, pedestrian ways and destination points.
- Proper drainage, floor slopes and ramps must be provided to avoid ponding water.
- Headroom should be maximized wherever possible.
- Vehicle / pedestrian conflict should be minimized wherever possible.
- Parking floor and pedestrian path surfaces should be non-slip.
- Design principles of CPTED (Crime Prevention Through Environmental Design) should be followed.

Active security should also be provided, including but not limited to the following:

- Audio / video device and emergency buttons should be provided.

***Structural Incorporation with Persephone Theatre***

For the first basement level of Persephone Theatre along its west and south sides, there is a setback of approximately 6m from its above ground footprint. The piles along these two sides mark the above ground building footprint in the basement. The space within this Persephone basement setback zone is intended for the underground parking structure. Up to two levels of underground parking can be accommodated without further excavation work that may undermine the Theatre foundations.

***Design Codes***

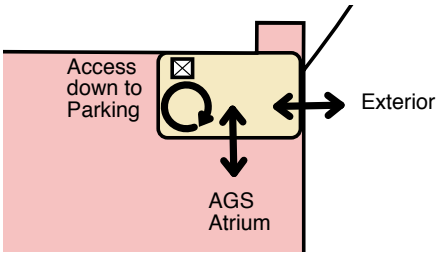
As a minimum, design of the parking facility should conform to the National Building Code of Canada 2005 as amended by the Province of Saskatchewan, and referenced standards, such as CSA S413-07-Parking Structure for parking structure durability.

## 5.0 FUNCTIONAL GROUP REQUIREMENTS

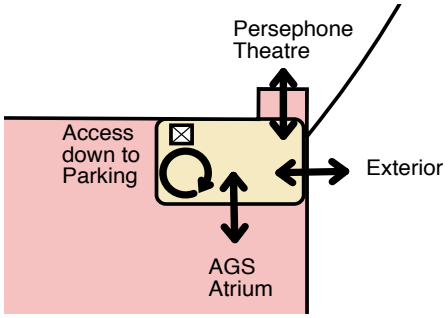
### *Parking Access Configuration*

The parking access at ground level must consider different access modes at different times of day. The following options should be studied:

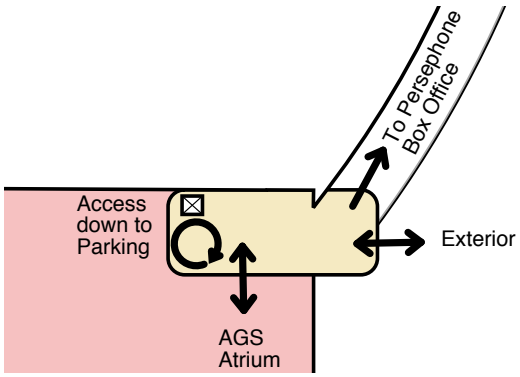
Model 1:
The parking access comes up in the AGS atrium/ lobby with direct exterior access available. The direct exterior access would be used when the AGS atrium is closed. Theatre users would go to the exterior and use the existing box office entrance.




Model 2:
This option includes the atrium and exterior access of Model 1, and adds a small vestibule at the south end of Persephone Theatre lobby. It would generally be used before and after performances. Within this vestibule, an electronic video control linked to the box office would be provided.




Model 3:
This option includes the atrium and exterior access of Model 1, and adds a one level enclosed walkway wrapping around the façade of the Theatre to the box office entrance. The extended walkway is not included in the AGS project budget.




### *Bicycle Parking*

It is the intention of the Gallery to encourage bicycle users by providing adequate secure parking.

A highly visible location for the bicycle parking will enable cyclists to easily spot the parking, and discourages theft and vandalism. The bicycle parking area should have convenient access to the Gallery atrium. Locations that require bicycles to travel over stairs should be avoided. Lighting at the bicycle parking will be essential for theft protection, personal security and accident prevention. It is desirable to provide weather protection by use of a building overhang, covered walkway, or a freestanding canopy.

Bicycle parking should not be placed in conflict with pedestrian path. Protruding bars that could trip cyclists or pedestrians should also be avoided. Bicycle parking should be separated from car parking and roadways with a physical barrier, for both safety and security reasons.

## 5.4 CITY FUNCTIONS

***Requirements***

The City's objectives and needs in the project have been discussed in previous chapters. The City's idea of the Destination Centre, a fundamental planning concept in the master-plan of River Landing, encompasses a series of public functions that include a retail unit, food services, public washrooms, a community studio, an access to the underground parking and a welcoming atrium that supports the notion of winter haven, all of which will be incorporated into the Gallery's public realm of visitor services as indicated in Group A of 5.1.

Apart from the public requirements mentioned above, the City also requires the following functional requirements in the AGS. These spaces are listed in the E.5 group:

| **Space Name** | **Proposed Area** | |
|---|---|---|
| | sf | sm |
| River Landing Administration Office | 200 | 18.6 |
| River Landing Storage / Filing | 200 | 18.6 |
| **TOTAL** | **400** | **37.2** |

Furthermore, the City also expects to have access to a meeting room with audiovisual and presentation capability for up to 16 people. For this purpose the City will make use of the AGS meeting rooms listed in Group E.3.

## 5.0 FUNCTIONAL GROUP REQUIREMENTS

## 5.5 EXTERIOR SPACES

***Site Boundary***
AGS will share with Persephone Theatre the land parcel referred to as Parcel 'X' in the Land Survey. The building site is bounded by the west and south side of Persephone Theatre, Saunders Place to the north, the utility easement zones to the west and south, and 2nd Avenue to the east.

***Site Requirements***
The site must accommodate the following:

1) The footprint of the AGS
2) The footprint of the underground Parking Structure
3) Emergency vehicle access and circulation
4) Pedestrian access and circulation
5) Visitor vehicle access and circulation
6) Car and bus drop-off

It is expected that there will be a continuing demand for both daytime and evening events in the area of the site. The outdoor spaces, especially along the riverfront, will be expected to accommodate casual daily usage and periodic civic events. Access to the Gallery entrances must be maintained during such events.

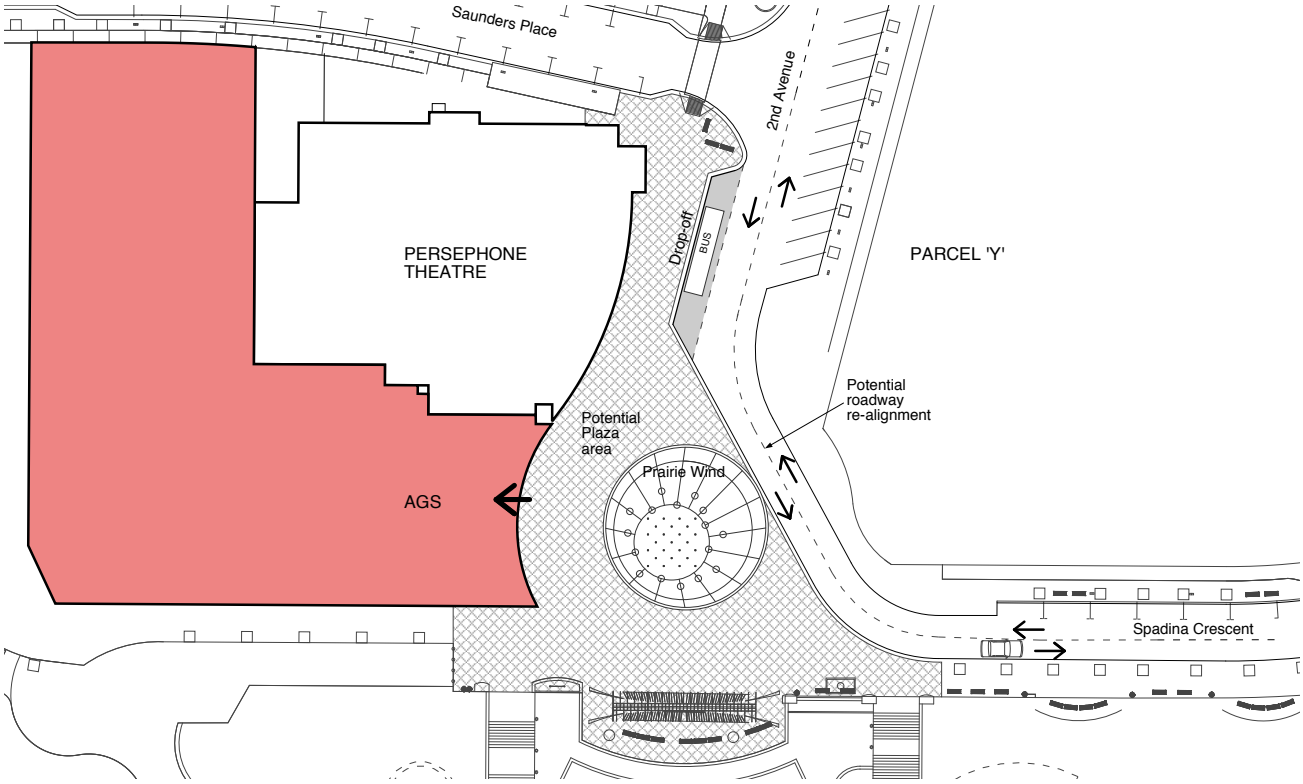
***Planning***
The prominent location of the site offers the opportunity to create a unique landmark and destination at River Landing. The site will be public and welcoming, and easily accessible from the downtown and from other developments at River Landing. The relationship of the AGS building to the 2nd Avenue axis is an important challenge to establish visibility from downtown Saskatoon.

The relationship between AGS and the South Saskatchewan River is also a significant design opportunity for the project. This relationship has great potential to integrate the Gallery and the riverfront park system. The river corridor provides supreme views and outdoor landscape that the Gallery can exploit.

***Cultural Plaza***
An impressive approach to the AGS building is fundamental to the institution's public image and visitor experience. Not only can a gallery plaza provide the place for gathering, for programs to spill out of the building, a location for vehicle drop-off, and a transition for building entry, but it also emphasizes the importance of cultural development and the public realm of Saskatoon.

The City of Saskatoon has approved, in principle, the creation of a cultural plaza at the terminus of 2nd Avenue. The work would involve the following planning transformations and landscaping ideas:

1) Remove the 2nd Avenue roundabout that circles Prairie Wind.
2) Re-route 2nd Avenue's connection with Spadina Crescent to the east side of the plaza.
3) Create a lay-by for bus and car drop-off along the Persephone frontage.
4) Preserve Prairie Wind and integrated it into the new plaza landscaping.
5) Provide appropriate street furniture, lighting, and landscaping elements.
6) Provide landscape design that relates well to the main entrance of AGS and Persephone.
7) Integrate the plaza with the existing Riverfront Park.




During the Schematic Design Stage of this project, the Design Team will develop design proposals for this aspect of the project in consultation with the City and MVA.

***Character of Exterior Spaces***

External spaces of the AGS will reflect the image and character of the institution. The expression of public inclusiveness, of profound and diverse cultural experience, and of a sense of place and civic pride will enhance the general image of the Gallery and its external areas. Landscaping should present an environmental consciousness that echoes the character of the Meewasin Valley riverfront development and the City's initiatives at River Landing.

***Pedestrian Access***

Pedestrian access to the site should be provided from sidewalks, bus stops, pedestrian crossings and the Meewasin Valley trail network. Pedestrian access must minimize hazards due to conflict with road traffic, and shipping/ receiving movement.

Pedestrian walkways should be designed so that grass, leaf, and snow removal equipment can easily clear the surfaces.

Barrier-free site design should follow best practice.

## 5.0 FUNCTIONAL GROUP REQUIREMENTS

### *Vehicular Access*

Car and bus drop-off and emergency vehicles should be accommodated in a lay-by in close proximity to the main entrance of AGS.

It is expected that the vehicular parking access will be located at Saunders Place, along the north side of the site.

Underground parking access should be compatible with occasional loading operations. Sight lines from the parking entrance to the local road system should ensure that users have an unobstructed view of the traffic.

Vehicular access must be designed to facilitate the clearing and removal of snow by motorized equipment. Excessive curbs and surface projections that inhibit clear snow plough runs should be avoided.

### *Service Access*

It is expected that all service access will be located at Saunders Place, along the north side of the site.

The Saunders Place roadway may require adjustment to accommodate waste disposal trucks and the largest allowable tractor-trailer for art and exhibition shipments.

Due to the limited AGS street frontage at Saunders Place, careful planning is required to minimize the conflict between service vehicles and cars arriving or leaving the underground parking.

### *Way-finding*

Site design should comply with best practice to enable visitors to identify entrances and otherwise be well oriented to all destination choices.

Adequate signage will be required north of the site along 2nd Avenue to indicate the location of the parking entrance.

### *Riverfront Terraces*

A number of AGS' indoor functions could make use of the Gallery's riverfront for exterior terraces. Appropriate paving, shading devices and outdoor furniture will be required. Servicing and public safety of the Riverfront Terraces should be carefully thought out. It is understood that surface use of the utility easements is possible with the understanding that such installations would be disrupted in the event of major utility failure or upgrading.

### *Event Support*

Civic events will be held at River Landing. The Gallery atrium and its public amenities will be occasionally required to provide support to the general public during such events.

## 6.0 GALLERY SPECIFIC DESIGN CRITERIA

### Introduction: Preventive Conservation Principles

The combination of exhibition, exhibit preparation, and collection caretaking functions to be housed in gallery facilities places special demands on their construction. In many instances, the design criteria exceed present building codes and general institutional building standards. In the case of environmental control systems, redundancies and backup systems are called for which clearly exceed the usual building practices. The following sections explain the rationale for many of these requirements. They stress that great care must be taken to integrate these requirements so that the finished building shell and its systems are capable of meeting all criteria on a reliable, permanent basis. The requirements are presented as ideal requirements as though for new construction. Adaptation may be needed when applied to an existing building.

The importance of providing reliable and appropriate environments for works of art cannot be overstated. The preservation of the collections, as part of the heritage of future generations, is the single most critical factor governing the design of a gallery building. The building must therefore provide suitable environmental conditions, and the means to maintain them, to enable the curators, collection managers, and conservators to honour this fundamental aspect of the institution's mandate, as well as to meet the lending prerequisites for obtaining loans from other institutions. The following sections explain both the preventive conservation requirements for the building and the rationale for these criteria in order to enable the users of this document to make judgments in the fullest context.

The primary causes of deterioration are:

| | |
|---|---|
| **Light:** | intensity, duration, ultraviolet content |
| **Relative Humidity:** | variation, extremes |
| **Temperature:** | variation, extremes |
| **Insect / Animal Pests:** | moths, dermestids, wood-boring insects, rodents |
| **Contaminants:** | various pollutant sources including dust |
| **Water Damage:** | rain and ground water entry, plumbing leaks |
| **Physical Damage:** | structural failure, inadequate support, improper handling, inappropriate storage conditions, overcrowding, blocked or narrow aisles, shelving that is too high, inadequate corridors, doorways, elevators |
| **Damage due to Fire:** | caused by fires, smoke damage, and by water from sprinklers and firefighting measures |
| **Theft and Vandalism:** | intentionally caused loss or damage |
| **Seismic Forces:** | damage to collections due to earthquake |

## 6.0 GALLERY SPECIFIC DESIGN CRITERIA

### 6.1 LIGHT

Selection of lighting in the collections areas of galleries is an area of decision-making which brings into play the classic dilemma of the wish to show the objects and works of art to best advantage and the wish to preserve their often subtle and vulnerable visual characteristics. When designing lighting systems for galleries or museums, one basic fact must be considered in all decisions: *light damages many classes of works of art.* It is therefore important that lighting systems are designed to allow maximum flexibility based on distance (ceiling height, position of fixtures), reflective surfaces, and type of illumination. For many objects, any and all light is damaging and the damage is irreversible and strictly cumulative – directly related to the intensity of the light and the length of exposure. Display and storage methods attempt to minimize this danger. Internationally agreed upon standards now exist and define the light levels to be used when exhibiting works of art and many categories of artifacts. These levels allow good discrimination of colour and detail, and at adequately warm correlated colour temperature give the impression of being pleasantly bright. Without gradual adjustment however, and seen adjacent to the comparatively cool colour temperatures of natural light, these light levels are unpleasantly dim and dull.

The standard maximum light levels for the exhibition of collection items are as follows:

| | |
|---|---|
| 50 lux | particularly sensitive objects (natural materials such as pigments of feathers, fur, and other natural materials, works on paper, textiles such as silk and cotton, basketry and other ethnographic objects with dyes and pigments, water colours) |
| 150 lux | general collections (most organic materials, most paintings, and polychrome sculpture) |
| 300 lux | for viewer comfort, where needed, for materials like stone, many minerals, and metals that are not sensitive to light |

***Forms of Light Damage***

Excessive or improper exposure to light causes damage through the acceleration of chemical processes, colour change, and fading.

Early synthetic materials are very sensitive to light damage and simply disintegrate. Resin varnishes yellow and darken while decreasing in solubility, thus becoming more difficult to remove safely from paint layers.

Organic materials may depolymerize and thus weaken and become brittle. Wood veneers lose strength. Coloured by-products may be produced by photo-degradation or thermal degradation, as in yellowing of paper and cotton.

Many pigments lose colour saturation or change hue and chroma. The degree of sensitivity varies widely from one material to another. Certain botanical specimens including pressed flowers, feathers, and the organic or synthetic dyes used in textiles, colour photographs, and water colours are the most fugitive, with some colours fading even in the dark. Other colours, such as many greens, yellows, blues, reds, and mauves, when exposed even at 50 lux, can sustain noticeable change in only a few months and can be virtually lost in a decade. For more stable objects, even small increments of change must be taken seriously in long-term gallery exposures. Calculating the accumulative exposure, and the long-term preservation mandate of the gallery, play a role here.

***Control Considerations***

Damage to gallery collections can be ameliorated, by controlling the ultraviolet (choice of lamp and/or filters at source) and infrared components of the light, by controlling intensities (flexible grid, high ceiling, air distribution to minimize heat build-up), and by controlling exposure time (multiple circuit track, localized switching).

*Ultraviolet*

The ultraviolet (UV) component of light comprises the high-energy wavelengths just outside human perception. It is particularly damaging and unnecessary for viewing. Daylight and many fluorescent and quartz halogen lamps are high in UV content, and filters must be used on all such light sources to reduce UV levels to below 75 micro watts/lumen. Although UV is thus simply controlled, it is important to remember that this does not reduce the threat of damage from the other causes, which follow. Since UV filter sleeves are often inadvertently discarded at relamping, choosing low UV sources is preferred.

*Infrared*

Infrared (IR) light, composed of long wavelengths, is equally unnecessary for viewing and causes damage by heating. Incandescent and quartz halogen lamps are the worst source of infrared light. Heating also accelerates other degradation processes. Intensity levels from these sources must not raise surface temperatures by more than 1°C.

*Intensity*

Light intensity is the most difficult issue to resolve because of the subjectivity of judgments about the levels necessary for viewing. Light damage in normal viewing ranges is directly proportional to intensity. Therefore a determination of the lowest level acceptable for viewing is fundamental to minimizing damage. Full sunlight, for example, if permitted in a gallery, could accelerate damage by a factor of 1000x over recommended viewing levels and produce the colour changes which would have taken centuries, in only a few months.

It has been demonstrated that 30 lux is more than adequate to make subtle colour distinctions between patches of colour. Although visual acuity can improve up to very high levels of illumination, realistically, common visual tasks are successfully performed at 200 to 500 lux (e.g. scholarly study, laboratory work, and clerical functions).

## 6.0 GALLERY SPECIFIC DESIGN CRITERIA

Many years of experience and viewer surveys at institutions that abide by standards recommending 50/150 lux have concluded that these levels are successful in display areas where careful attention has also been given to context, sources of glare, background, colour temperatures, and contrasts. Allowance for visual adaptation from bright to less bright spaces is also a critical factor in visual acceptance of these levels.

Lighting quality is also a significant factor in making the recommended intensities acceptable. The correlated colour temperature (CCT) of light sources must be lower (i.e. warm light) at levels of 50/150 lux in order to be seen as appropriate. This coincides with the success of incandescent lighting (2400-2700K) at these levels.

The technology of lighting has recently seen dramatic increases in efficiency and equally drastic losses of colour rendering index (CRI), although there has been some recuperation in fluorescent lighting. Lamps should have CRI over 85. Lamps used must provide a good value for R9 (deep red), otherwise all skin tones, browns, and reds will be highly distorted: a serious problem for artifacts and specimens where accurate colour rendition is essential for aesthetic enjoyment and scientific scrutiny. Dimming is not generally a suitable means of adjusting light levels in gallery situations since colour temperature is affected. Level adjustment is made through selection and spacing of lamps and fixtures.

*Exposure*
Light damage follows a reciprocity law: damage is proportional to light intensity multiplied by the duration of exposure *(damage = intensity x time)*. Having determined the minimum intensity necessary for the task of viewing, it is then necessary to arrange for the minimum duration for the objects to be exposed. This suggests convenient switching to permit the darkening of spaces not in use, and conscientious operating practices, including coordinated controls of display lighting, maintenance lighting, and security lighting.

*Collection Storage*
Generally, collection storage spaces should be kept dark. Planning adjacent work spaces for extended staff work on collection material can reduce the exposure of the general collections. Switching arrangements should permit lights to be on only where needed.

See discussion on use of natural light in galleries Chapter 5.0, page 5-6.

## 6.2 RELATIVE HUMIDITY

Relative humidity control is the subject of the greatest technical difficulty and expense of the environmental considerations in Canadian galleries. Yet the issue is fundamental: uncontrolled fluctuations and inappropriate levels account for very significant collection losses. Unlike lighting, where irreversible fading may occur gradually, there is no contradictory consideration other than cost, as recommended levels are excellent for human health and comfort and have beneficial effects on furnishings and carpets.

### *Forms of Relative Humidity Damage*

Inappropriate levels or fluctuations cause damage to collection objects and works of art through mechanical stress, differential response, microbiological decay, and chemical degradation. These damages occur within the first season of acquisition, as well as the result of repeated stresses over many years. Relative humidity damages are the most costly to repair and the most visible.

*Mechanical Stress*

Organic materials maintain a moisture content equilibrium roughly proportionate to the ambient relative humidity (RH). Dimensional change occurs with moisture content change. Stress occurs when dimensional change differs between the surface and interior layers of mass objects, and between layers of different materials in thin objects. This stress can result in fractures such as checking in wood, cracking, delamination, and paint loss in paintings. Stretched canvas membranes are particularly vulnerable examples of the latter. Abrupt damage can occur from as little as a 10% change in RH. Cumulative damage from fatigue occurs from repeated cycles of lesser change. Objects are particularly vulnerable when they are being moved from storage to exhibit, or loaned from one location to another.

*Differential Response*

Another form of RH damage occurs from the variation in rates by which different materials absorb moisture. Coatings may have dramatically different absorption rates than the substrates they cover. Organic coatings such as varnish and paint may take only minutes or hours to respond to an ambient change compared with days for some underlying materials. This factor aggravates the mechanical stress damage discussed above.

*Microbiological Decay*

Excessive moisture content provides the necessary environment for attack by fungi, bacteria, and many insects. Relative humidity of over 65% for more than three days encourages these forms of damage. High humidity can reactivate mildew and mould in books and textiles, especially when air circulation is insufficient and the building envelope is faulty.

*Chemical Alteration*

High RH levels may also be problematic for some specimens (e.g., some deliquescent minerals) where long-term stability relies on maintenance of particular RH levels. (This is distinct from the mechanical and differential responses outlined above.)

## 6.0 GALLERY SPECIFIC DESIGN CRITERIA

Excessive dryness is also a problem because desiccation causes brittleness that increases the risk of damage from handling. This embrittlement can be seen in archival collections where corners of documents are often torn or missing.

### *Control Considerations*

Modern museum and gallery standards for relative humidity (RH) control began in England in 1929. The preferred general value was 55% and has remained so for much of Europe. North American standards have favoured 50%. Glass, metals, archival, and photographic collections have resulted in separate set points. Permissible fluctuations have usually been stated simply as plus or minus 3%, or plus or minus 4% annually. These latter values have been based primarily on what was deemed feasible with state-of-the-art equipment, not proven artifact tolerance. Hospital operating rooms and computer rooms have a similar stated preference for 50% RH year round, but such institutions do not have a tradition of precise monitoring to see if buildings involved maintain this level. Galleries and museums, however, do require precise monitoring and adjustment for RH control.

Most relative humidity fluctuation is the result of spatial temperature fluctuation. Temperature variations should not exceed 1°C (3% RH) at the surface of the object. In spaces with low human occupancy such as collection vaults, the primary cause of RH fluctuation is humidistat-switching differentials. With present technology this should not exceed 2 percentage points. Where occupancy is high or intermittent, stability is also dependent on responsive air handling systems with good dispersal and high air change characteristics.

### *Setpoint Selection*

Recent research by the Smithsonian Institution Conservation Analytical Laboratory has indicated that the degree of flatlining prescribed in the last thirty years may be excessively rigid for many collections. This research does not suggest that uncontrolled environments do not cause damage, but rather that the middle range in which minimal damage will occur may be slightly wider than previously believed. Similarly, there may be a slightly wider tolerance for short-term fluctuation limits. This information has been much debated by conservators who must balance the findings of research scientists with observed behaviour of collection objects, in the context of their specific institutions.

The possibility that lower winter humidity setpoints might be acceptable is of interest in its potential to alleviate problems in existing gallery and museum buildings, and to simplify the design of new situations. For many years the Canadian Conservation Institute (CCI) has endorsed a compromise humidity regime for use in older buildings, which cannot tolerate the 50% RH year round setting which was then being recommended for new buildings. This standard is 38% RH in winter with stepped adjustment seasonally to 55% RH in summer. This adapted standard has permitted the resolution of conflicts between collection and building preservation where galleries are placed in heritage buildings.

The above discussion would apply to many permanent collections in storage in galleries, but not to new acquisitions. Experience has shown that artifacts damaged due to structural restraints will continue to be adversely affected by changing RH conditions. It is also necessary to consider the conditions of the lending institutions for loans and travelling exhibitions. Lending institutions emphasize that loans are considered on a case-by-case basis with due consideration of the condition and make-up of the pieces concerned, their environmental history, the sequence of travel and venues involved, and the conditions at the receiving venue. Many institutions would be looking for conditions in the 45 - 55% RH range with fluctuations not exceeding 5% points. Institutions have a wide range of requirements and in particular, European galleries and museums generally demand higher setpoints based on their own country's RH and temperature averages.

The fact that loan conditions may be more demanding and more diverse than the standards which might be regarded as responsible for the permanent collection suggests a separate treatment of temporary exhibition galleries and lay-out areas which receive travelling exhibitions, other loaned materials, and new acquisitions which may need a full cycle to acclimatize to local conditions. All spaces that may be used for travelling or loaned works, including support spaces, will have to meet the more demanding criteria. This concept includes adequate air barrier separation of temporary exhibition galleries from surrounding spaces and a variable setpoint control in a range from 45% - 55% RH ± 5% points.

See summary of Environmental Criteria at end of this chapter.

## 6.3 TEMPERATURE

Temperature directly affects rates of chemical and biological decay. The latter is virtually eliminated below 5°C. Chemical change is similarly diminished at lower temperatures. Colour photographs and paper records are examples of collection materials that are frequently given cool or cold storage environments. Heating over 30°C will cause physical change in many organic materials.

Dimensional change with temperature is not sufficiently different in most materials to be a significant factor of collection damage. Important exceptions are some of the mineral specimens. It is the indirect change in relative humidity that is of greater concern as discussed in the section on Relative Humidity.

## 6.0 GALLERY SPECIFIC DESIGN CRITERIA

### 6.4 INSECTS AND ANIMAL PESTS

Vertebrate animal pests can cause damage to collections through eating, shredding for nesting material, or staining with wastes. Common pests include mice, rats, squirrels, porcupines, raccoons, bats, and birds. Insect and animal pests are a major concern. Outbreaks of pests can quickly do irreparable damage to art works that can even result in total loss. Apart from the loss of specimens, as a minimum, the cost of intervention to control an outbreak will be time for staff to clean, move, and freeze specimens. At the maximum, it could require total fumigation of the facility and replacement of specimens.

The preferred prevention method is *exclusion* by having a well constructed, tightly sealed building fabric. Insect pests are numerous and include many species of beetles, wasps, ants, bees, dermestids, moths, flies, and roaches. Exclusion is also important – for example, in denying access for nest building to wasps and bees. But many of the other perpetrators enter the building within the collection itself, on staff clothing, or with food deliveries.

The design considerations are therefore to create conditions that encourage good housekeeping and ease of inspection. Food and garbage facilities should be strictly segregated from collection areas. Compartmentalization and zoning of mechanical systems can reduce the extent of infestation and be useful if extermination efforts become necessary. The availability of a freezer used for treatment of incoming collections and an integrated pest management program will also help to eliminate pests.

It is important that the facility be designed to support integrated pest management control of these pests, as it is essentially impossible to completely eradicate them from the facility. Passive controls are preferred since storage areas with specimens/artifacts on open shelving cannot be routinely fumigated/misted without affecting the collection materials. Integrated pest management requirements include: zoned HVAC, isolation of food preparation areas from collection areas, surfaces that allow easy monitoring and cleaning in service areas and areas where food is prepared and served, freezers and a fumigator for decontamination, and quarantine space for unpacking and isolation areas for pest control.

## 6.5 CONTAMINANTS

It is generally recognized that air pollutants, gaseous and particulate, threaten the conservation of collection objects and works of art. It is less certain, however, what the “safe” levels of these offending agents are. There is at present much research underway to understand this relatively new problem, arising from modern building materials and work activities, as well as historic collections with inherent off-gassing. It is known that some materials/artifacts are more sensitive to some agents than others. The Canadian Conservation Institute published an excellent review of this subject: *Airborne Pollutants in Museums, Galleries, and Archives: Risk Assessment, Control Strategies, and Preservation Management*, by Jean Tétreault, Canada 2003.

Offending agents which must be considered include: sulphur dioxide (SO2), nitrogen dioxide (NO2), ozone (O3), carbon dioxide (CO2), hydrogen chloride (HCl), acetic acid, formaldehyde (HCHO), fine particulate (TSP – Total Suspended Particulate), and metallic fumes.

Survey of the ambient environment or reference to environmental monitoring records will be required during the design phase to determine the most appropriate filtration that can be realized within the project budget. Another issue for resolution during the design phase, in cooperation with the Gallery, is the location of filtration equipment within the system, that is, whether specialized filtration is located centrally, and/or localized to spaces in which the requirement is judged most acute. The equipment must be accessible from the service corridor to facilitate upgrading and maintenance.

Notwithstanding the above, there are some simple guidelines to follow:

1. Space should be allowed within the air handling units for later upgrading of the filtration components.

2. Air intakes should be located appropriately high and at an authorized distance to avoid drawing in local sources of pollutants, especially away from the paint shop, the casting shop, the welding shop, the carpentry shop, and shipping/receiving areas.

3. Electrostatic filtration must not be used unless the resultant ozone is removed.

The large and changing variety of materials used in construction presents one of the most difficult to control threats to gallery and archive collections through contact and off-gassing. This is a fairly recent area of study for conservation scientists and the constant emergence of new materials requires knowledgeable, up-to-date information to make clear recommendations. The table on the following page gives an indication of the main areas of concern. Particular issues must be referred for conservation advice. Publications by the Canada Mortgage and Housing Corporation on healthy alternatives, the above referenced publication by the Canadian Conservation Institute, and WHMIS Material Safety Data Sheets now required by labour and health regulating agencies, are helpful in identifying the major groups of corrosive and acidic off-gassing materials.

## 6.0 GALLERY SPECIFIC DESIGN CRITERIA

### Off-gassing of Construction Materials - Preferences

| Material | Best | Worst |
|---|---|---|
| Wood and Wood Products (no wood is perfect – substitute metal with powder coating, galvanized or stainless steel, acrylic sheet, glass) | aged, seasoned, dry wood, beech, birch, mahogany | young, unseasoned wood, knots, red cedar, oak, douglas fir, sweet chestnut |
| Waferboards, Chipboards, Hardboards, Plywoods, Melamine-laminated Boards, Overlay Plywoods (substitute as above) | those with phenol formaldehyde, polyurea, epoxy adhesives, medium and high density overlays, ABS and phenolic laminates, exterior grade plywoods and particle boards | those with urea formaldehyde, polyformaldehyde, drying oil, rubber contact cement type adhesives, interior plywoods and particle boards, waferboard, chipboard, untempered hardboard, oil tempered hardboard, fiberboards |
| Papers, Cardboards | acid-free tissue, permalife paper, mat board, corrugated paper board, folder stock, honeycomb paper panels, non-woven spun bonded polyethylene sheeting | acidic newsprint, kraft papers, cardboard, common papers, glassine |
| Coatings, Paints, Varnishes, Stains | moisture-cured urethane, two-component urethanes and epoxies, polyurethane-based liquid plastics, acrylic latex emulsion, vinyl acrylics, acrylic urethane, butadiene-styrene vapour barriers | oil-based and alkyd paints, oil-modified polyurethane varnishes, latex varnishes, one-component epoxies, corrosion resistant paints, chlorinated rubber paints |
| Plastics | polyethylene, polypropylene, polyester, poly-styrene,acrylic,Mylar (terephthalate),silicone, polycarbonates, air-bubble | chloride compounds, vulcanize or chlorinated rubbers, neoprene, polyvinylchloride, cellulose nitrate, cellulose acetate |
| Sheetings | polyurethane with polyesters, polyethylene, cross-linked polyethylene, PEVA, polypropylene, polystyrene, silicone | urea-formaldehyde impregnated paper, laminated paper boards |
| Foams | polyethylene foam, cross-linked polyethylene, white extruded polystyrene, ethylene/vinyl acetate copolymers, polypropylene, silicone | polyester polyurethane foam, polyether, chloroprene, polyvinyl chloride, rubber with sulphur vulcanizing agents |
| Plastic and Foam Boards | corrugated plastic boards, paper-faced laminated panel boards, styrene plastic-faced laminated panel boards, aluminum sheet coated on panel boards | urea-formaldehyde laminated panel, polyurethane, polyvinyl chloride foam boards |
| Wires and Tubes | nylon and polyester monofilament, plastic coated wire, polyethylene or silicone tubing, Teflon, glass | polyvinyl chloride tubing, vulcanized rubber, chloroprene rubber, neoprene |
| Adhesives and Tapes | polyacrylics, starch paste, 3M Scotchpar #415, two component epoxies, hot wax and polyethyl-ene glues, polyvinyl acetate emulsions, animal glues, starch paste | most epoxies, polysulphides, most polyvinyl acetate emulsions and solids, cellulose nitrate, most contact cements |
| Textiles | unbleached cotton, linen, polyester, needlefelt, acrylic felt, nylon, hook and loop fasteners, polyacrilonitrites, non-woven polyester sheeting | wool, fabric treated with flame retardants, durable press finishes, rubber backed carpet |

## 6.6 WATER DAMAGE

Water damage from both external and interior sources has been the cause of extensive losses in gallery and archival collections. Particular care must be taken to ensure that the building envelope is weather tight, denying entry of rainwater under all conceivable weather conditions. Reliance on system components having a high maintenance requirement to remain effective, such as caulking, short life-span membranes, etc should be avoided. Particular problem areas include: roof areas not properly drained, poorly detailed flashing, sloped glazing, snow build up against vertical surfaces, inadequate ground surface drainage, and poorly constructed operable windows.

Generally, it is poor planning to place collection materials in below-grade spaces. If unavoidable, particular care must be taken to ensure no infiltration of water through foundation walls, at service entry points, and through slabs on grade. In addition, providing for water removal through drainage, perimeter channels, etc in the event of infiltration, is desirable.

Water damage can also result from interior sources such as sewer backup, leaking pipes, and blocked drains. Care must be taken to avoid condensation or provide condensation channels and drains where the risk cannot be eliminated. Location of water-using mechanical equipment and all water piping except sprinklers must not be located above collection spaces. These should be located in service corridors away from the collections. Where water is unavoidable in the exhibition areas for maintenance of aquaria and insect galleries, or program use, adequate drainage and tiled floor sinks, as well as drip pans and alarms, should be placed under equipment and piping.

## 6.7 PHYSICAL DAMAGE

Generally, physical damage is an operational concern. However, there are several design considerations which can contribute to lessening this area of risk. It is unacceptable to have mechanical and electrical equipment requiring maintenance located within collection spaces, since this results in accidental damage to valuable collections by workers carrying tools and equipment. Provision of properly designed elevators, dumbwaiters, loading docks, and related spaces facilitates the safe movement and handling of collection materials.

Movement paths must be identified for several categories of objects and must conform to the physical parameters identified below. Movement paths must also maintain the environmental criteria of the storage spaces.

## 6.0 GALLERY SPECIFIC DESIGN CRITERIA

### 6.8 DAMAGE DUE TO FIRE

Catastrophic losses of collections have occurred from fires. Although there is concern about water damage from accidental or legitimate discharge, fire authorities and experts and most collection custodians agree that water sprinklers are the best single source of protection after prevention. The building codes generally permit the sprinkler system itself to function as the alarm (generally, water flow through an open head signals the alarm). Since in this scenario there is inevitably some level of fire, smoke, and water damage, an earlier warning system is desirable in gallery facilities. This is usually a smoke detection system which gives a warning earlier than sprinkler discharge and permits the possibility of intervention before discharge. Special consideration must also be given to earthquake implications.

Care in the design and testing of the sprinkler system itself is also required to ensure reliability and to minimize the risk of accidental discharge caused by physical damage, freezing, or human error. The use of pre-action systems, self-closing heads, and other technical details, can also be considered with a view to minimizing the risk of water damage beyond what is actually required to suppress the fire. Nevertheless, most experts recommend wet pipe systems because of their inherent reliability. Regardless of the system chosen, the following special measures can reduce the risk of collection damage from accidental or functional discharge: use of welded pipe to minimize joints, painting or marking of sprinkler pipes to prevent accidental cutting, protection of heads or concealed heads, regular inspection, and strategically located shut-off valves.

Compartmentalization is an effective way of minimizing the potential impact of a fire. This involves the arranging of collection storage rooms in as small a number of modules as can be functionally tolerated and constructing the divisions between them as well as all six sides of the perimeter of as high a fire rating as can be afforded. This should be arranged to coincide with separate environmental zones required for separate collection categories if possible.

### 6.9 THEFT AND VANDALISM

Preventing intentional loss and damage is a preoccupation of those responsible for collections. The high commercial value of many works of art and artifacts is well known. The collections held by public galleries represent a major asset. Many objects are irreplaceable. Many of the most valuable objects from these collections and from the collections of other institutions are used in exhibitions. Some of these items can easily be carried and all are potentially subject to vandalism.

Security measures generally consist of an integrated combination of operational and facility means. The facility aspects, in turn, consist of two categories: *electronic monitoring* including detection, alarm, and communication systems, and *physical barriers to access* including zoning of access, design of spatial envelopes, and access control hardware. A security presence or monitoring is required at all points of entry and egress, including shipping / receiving and staff entrances.

## 6.10 ENVIRONMENT STANDARDS SUMMARY

The following summarizes the different categories of environmental criteria applicable to different spaces within the building complex. General application is indicated. Each category is indicated by a code.

| CODE | CRITERIA | | |
|---|---|---|---|
| **ENV 1** | **TEMPERATURE SET POINT** | **Summer**<br>**Winter** | **22° C**<br>**20° C** |
| **GENERAL ENVIRONMENT**<br><br>Lobbies, public spaces, offices, workspaces not containing art works.<br><br>All spaces in Groups A, C, E | **RELATIVE HUMIDITY SET POINT** | **Summer**<br>**Winter** | **≤60%RH**<br>**≥30%RH** |
| | **PERMITTED FLUCTUATION** | | |
| | Maximum Fluctuation/Time | | ± **1.5° C** |
| | Fluctuation/Place to Place | | ± **1.5° C** |
| | Maximum Rate of Temperature | | ± **1.5° C** |
| | **FILTRATION**<br><br>Follow ANSI/ASHRAE standard 62.1-2004<br>Ventilation for Acceptable Indoor Air Quality, Air Class 1 | | |

## 6.0 GALLERY SPECIFIC DESIGN CRITERIA

| CODE | CRITERIA | | |
|---|---|---|---|
| ENV 2 | **TEMPERATURE SET POINT** | **Summer**<br>**Winter** | **20° C**<br>**18° C** |
| **GENERAL COLLECTION**<br><br>Permanent collection galleries, object storage, paintings storage, collection workrooms | **RELATIVE HUMIDITY SET POINT**<br>seasonal change ≤ 5% points / month | **Summer**<br>**Winter** | **55%RH**<br>**40%RH** |
| | **PERMITTED FLUCTUATION** | | |
| | Maximum Fluctuation/Time | | **± 2° C** |
| | Fluctuation/Place to Place | | **± 2° C** |
| | Maximum RH Fluctuation | | **± 5 % points** |
| | **FILTRATION** | | |
| | Maximum level of gaseous pollutants: | | |
| | Hydrogen Sulfide | | ≤ 0.1 µg/m$^3$ |
| | Sulfur Dioxide | | ≤ 1.0 µg/m$^3$ |
| | Nitrogen Dioxide | | ≤ 1.0 µg/m$^3$ |
| | Ozone | | ≤ 1.0 µg/m$^3$ |
| | Acetic Acid | | ≤ 100 µg/m$^3$ |
| | Fine Particulates | | ≤ 1.0 µg/m$^3$ |

| CODE | CRITERIA | | |
|---|---|---|---|
| ENV 3 | **TEMPERATURE SET POINT** | **Summer**<br>**Winter** | **22° C**<br>**20° C** |
| **CHANGING GALLERIES**<br>Temporary exhibition spaces<br>Temporary exhibition support, including all Group B.4 spaces | **RELATIVE HUMIDITY SET POINT** | RH setpoint can be set between 40% and 50% RH any time of the year | |
| | **PERMITTED FLUCTUATION** | | |
| | Maximum Fluctuation/Time | ± **1.0° C** | |
| | Fluctuation/Place to Place | ± **1.0° C** | |
| | Maximum rate of Temperature Setpoint change (24 hours) | ± **1.0° C** | |
| | Maximum RH Fluctuation | ± **3 % points** | |
| | **FILTRATION** | | |
| | Maximum level of gaseous pollutants: | | |
| | Hydrogen Sulfide | ≤ 0.1 µg/m$^3$ | |
| | Sulfur Dioxide | ≤ 1.0 µg/m$^3$ | |
| | Nitrogen Dioxide | ≤ 1.0 µg/m$^3$ | |
| | Ozone | ≤ 1.0 µg/m$^3$ | |
| | Acetic Acid | ≤ 100 µg/m$^3$ | |
| | Fine Particulates | ≤ 1.0 µg/m$^3$ | |

**This is the most demanding set of criteria in the building, needed to qualify for travelling exhibitions and loans.**

## 6.0 GALLERY SPECIFIC DESIGN CRITERIA

| CODE | CRITERIA | | |
|---|---|---|---|
| ENV 4 | **TEMPERATURE SET POINT** | **Summer**<br>**Winter** | **12.5° C**<br>**12.5° C** |
| **WORKS ON PAPER**<br>Works on Paper Vault | **RELATIVE HUMIDITY SET POINT** | **Summer**<br>**Winter** | **40%RH**<br>**30%RH** |
| | **PERMITTED FLUCTUATION** | | |
| | Maximum Fluctuation/Time | | ± **2.0° C** |
| | Fluctuation/Place to Place | | ± **2.0° C** |
| | Maximum RH Fluctuation | | ± **5 % points** |
| | **FILTRATION** | | |
| | Maximum level of gaseous pollutants: | | |
| | Hydrogen Sulfide | | ≤ 0.1 µg/m$^3$ |
| | Sulfur Dioxide | | ≤ 1.0 µg/m$^3$ |
| | Nitrogen Dioxide | | ≤ 1.0 µg/m$^3$ |
| | Ozone | | ≤ 1.0 µg/m$^3$ |
| | Acetic Acid | | ≤ 100 µg/m$^3$ |
| | Fine Particulates | | ≤ 1.0 µg/m$^3$ |

## 7.0 TECHNICAL DESIGN CRITERIA

The following technical design criteria are, where applicable, based on the preventive conservation design principles presented in the previous Section. They are organized under traditional building system disciplines.

## 7.1 ARCHITECTURAL SYSTEMS

### *Building Envelope*

The building envelope is considered to include exposed and concealed walls and panels, windows, roof lights, glassed frames, penetrations (doors, shutters, louvres, etc.), slabs on grade or over unheated space, roof, terrace or traffic deck. All components of the envelope must meet the following criteria:

The envelope must meet or exceed current regulations and best practice for energy conservation. Fire rating must be in accordance with the applicable building code. The envelope must resist all external forces which can be reasonably predicted over a 100-year period, including air pressures and earth or structural movement. The envelope must permit the maintenance of the interior temperatures and humidities specified for particular gallery spaces under predictable extremes. The insulative layer must be continuous throughout this envelope and tight to all penetrations. All elements positioned external to the insulative layer must be designed to accommodate expansion and contraction within the service temperature range of -40°C to +80°C. All elements which are within the insulative layer must be designed to accommodate expansion and contraction within the service temperature range of -20°C to +30°C.

The membrane air/vapour barrier must be properly placed in the wall construction, have very low permeability, and retain its performance under maximum wind load conditions or pressure differentials. The barrier must be rigid and durable and must be continuous through the envelope, with all elements of the barrier durably and functionally integrated at joints. Air/vapour exfiltration from the building must be tested following completion of air barrier installation and must satisfy criteria which support the specified interior environments without degradation of building components. The need for internal barriers between humidified areas and non-humidified areas, or areas intended for different set points, must be studied. Noise transmission through the exterior envelope must be reduced to satisfy the acoustic requirements, stated in following sections.

The envelope must secure the interior against invasion of pests, vermin, insects, plant and fungoid spores, and other organisms which may promote conditions which could cause deterioration of collections. The envelope must resist intrusion by unauthorized persons. Louvres, shutters, door and window frames, and other openings must be integrated with the building envelope.

Glazing systems must be designed and made to safely withstand local environmental conditions in accordance with the applicable building code. Metal glazing frames must be designed to prevent transmission of temperatures that would permit condensation to form on inner surfaces. Where extreme conditions may overcome the thermal break, the framing must accommodate, by design, the dispersal or disposal of condensate. Glassed areas must meet all envelope criteria except that thermal performance may be reduced. Colour temperature of daylight transmitted to the interior must not be appreciably changed in spaces where indicated.

## 7.0 TECHNICAL DESIGN CRITERIA

Exterior doorways must be constructed to minimize air passage, with durable effective weatherstrip on all sides, using the best technology available. Door frames must be designed to prevent condensation on inner surfaces and be integrated with the insulative layer and the air/vapour barrier. Doors must be insulated to keep inner surface temperatures above the dew point at lowest external design temperature. Ductwork connected to louvres forms part of the building envelope and must respond to all criteria.

### *Accessibility*

Access for people with disabilities is an important consideration in gallery buildings, and their needs must be given special consideration. The guiding principle must be that movement and access for users of wheelchairs and other mobility aids are fully integrated and as little distinguished from regular circulation as possible. The visual environment must also be considered. This implies careful consideration of light levels, avoidance of situations likely to cause perception problems, and appropriate design of signage, including tactile signage, and exhibition graphics.

The building must be accessible to a wide range of users including those who use wheelchairs or other devices which aid mobility, elderly people, and those with reduced seeing and/or hearing abilities. All public and staff spaces of the building, including amenities, must be designed to accommodate the disabled. The paths of travel used by those in wheelchairs must be direct and integrated into general movement systems.

The design of the facility must be in accordance with current regulations and guidelines published by recognized accessibility advocate groups. Consultation with an advisory group or consultant during the design period is also recommended to achieve the most sensitive results.

### *Finishes*

The finishes within all areas of the building must conform to the preventive conservation considerations outlined in the preceding section on Contaminants and at the same time be supportive of the architectural concept and the stated design objectives.

The design process must weigh each finish material and coating choice against the following criteria:

- accordance with architectural and spatial concept(s) including heritage considerations
- functional performance: sound transmission, sound absorption, reflectance, stability
- durability
- maintenance: all finishes must be cleanable and require minimal maintenance
- ease of access for maintenance purposes
- acceptability from a collection conservation perspective based on stability over time
- reaction with other materials
- sustainable design considerations

Finishes in public areas with little or no supervision such as washrooms and corridors must be vandal-proof, easy to monitor for pests, and easily cleanable. Serious consideration should be given to upgrading the quality of finishes in mechanical and electrical spaces beyond usual practice to better support pest management practices.

### *Daylight*

The implications of the admission or restriction of daylight to specific spaces must be analyzed. Generally, daylight should not be admitted to areas where collection material will be present. However, daylighting may be considered in certain exhibition and reference areas if the design is such that light levels and distribution are controlled by architectural means, or provision is made to completely eliminate (blackout) the daylight if demanded by the exhibition design, and the light that is admitted can be modulated to the intensity, ultraviolet, and infrared requirements of the space as described in the earlier section on light. Since mechanical blackout systems are prone to failure, the architectural solution is the preferred option.

### *Acoustics*

It is important that the design of the facility give consideration to the acoustic quality of the spaces being created. Appropriate acoustic environments must be provided by virtue of design with minimal reliance on superficially applied treatment either before or after the fact. Of particular importance is the isolation of mechanical equipment to avoid transfer of sound or vibration to public and collection spaces. The following guidelines are presented to assist the design process in defining the appropriate acoustic environments.

*Interior Background Noise (NC level)*

The design process must identify and address the origin and transmission of noise from all sources both external to the space and from the mechanical and electrical systems serving it. The following is a summary of those requirements:

| Space | Maximum Noise Coefficient* |
|---|---|
| public circulation spaces | 35 |
| exhibition spaces | 30 |
| research / reference areas | 30 |
| individual offices | 30 |
| open office and staff work areas | 35 |
| lecture rooms, multi-use rooms | 25 |
| studios | 35 |
| workshops | 45 |

* Noise Coefficient (NC) is a code which represents a curve specifying the permissible sound pressure levels across an octave band of frequencies with centre frequencies ranging from 31.5 to 8000 Hz. It is required that none of the octave bands exceed the level of the specified NC curve.

*Spatial Acoustic Qualities (reverberation)*

The usually subliminal perception of sound reverberation is a significant factor in perception of space and the degree of comfort one feels. Although reverberation times are easily quantifiable, the appropriateness of a given set of sound characteristics to a particular architectural setting and use are less than absolute. The design of the facility must consider the nature of the environments being created and provide acoustic properties which accord with the conceptualization of the space and are appropriate for the specified use. The following ranges of reverberation times are offered as a guide:

### 7.0 TECHNICAL DESIGN CRITERIA

| Space Type | Reverberation Time (seconds) |
|---|---|
| activity rooms | .5 to .9 |
| exhibition spaces | .8 to 1.2 |
| lecture rooms, multi-use rooms | 1.4 to 1.9 |
| meeting rooms | .9 to 1.1 |
| individual offices | .5 to .9 |

*Acoustic Privacy (sound transmission)*
Appropriate acoustic segregation of spaces is a factor in planning of both spatial adjacencies and construction. The design must avoid, wherever possible, the adjacency of acoustically incompatible spaces to minimize the requirements for special construction to reduce the offending transmission.

Sound Transmission Requirements for Walls and Floors Between Spaces:

| Between | and | Maximum Sound Transmission* |
|---|---|---|
| offices | adjacent offices | STC 47 |
| | general office areas | STC 47 |
| | corridor or lobby | STC 47 |
| | washrooms and toilet areas | STC 47 |
| | exterior of building | STC 42 |
| | mechanical equipment rooms | STC 52 |
| meeting rooms | other meeting rooms | STC 42 |
| | adjacent offices | STC 42 |
| | corridor or lobby | STC 42 |
| | washrooms and toilet areas | STC 47 |
| | exterior of building | STC 37 |
| | kitchen and dining areas | STC 47 |
| | other noisy interior areas | STC 47 |
| shop and laboratory office | adjacent offices | STC 37 |
| | workshops | STC 42 |
| | washrooms and toilet areas | STC 37 |
| | corridor or lobby | STC 32 |
| | exterior of building | STC 32 |

| | | |
|---|---|---|
| lecture rooms / exhibition spaces | adjacent similar areas | STC 52 |
| | corridors and public areas | STC 47 |
| | mechanical equipment spaces | STC 52 |
| | activity rooms | STC 47 |
| | laboratories | STC 47 |
| | shops | STC 52 |
| | washrooms | STC 52 |
| | exterior of building | STC 52 |
| activity rooms | adjacent similar spaces | STC 37 |
| | exhibition spaces | STC 42 |
| | corridor or public areas | STC 37 |
| | mechanical equipment rooms | STC 52 |
| | washrooms | STC 42 |
| | exterior of building | STC 37 |

* STC = Sound Transmission Coefficient

***Circulation***

Circulation spaces and systems must respond to three primary criteria:

- the safe circulation of collection materials through the gallery with specific attention to the movement in and out of the building itself
- safe and straightforward movement of visitors to the gallery including those using the gallery in groups
- organization of circulation routes within a concept of access zones

A particular objective of the most gallery projects is the improvement of visitor circulation and orientation.

All movement of collection materials, whether crated or not, should involve as little handling and as few hazards for the objects as possible as well as avoiding damage to the building. To achieve this, the typical patterns of movement, and sequence of functions involved in the use of collection materials, must be considered and every effort made to minimize the distances and manipulations involved. Conveyance vehicles should ride easily and smoothly; corridors should be wide enough for easy manipulation, and unobstructed, with as few turnings as possible; doors should accommodate vehicles and objects with ease; routes should be short and direct, with few doors. If travel between floors is necessary, a freight elevator equipped to accommodate even the largest object should be provided. Where collection circulation requires movement to and from public or heavily trafficked areas, recessed entry ways are required.

### 7.0 TECHNICAL DESIGN CRITERIA

The concerns surrounding shipping and receiving collection materials combine those of artifact circulation generally, with the special needs that arise when items must move in or out of the building. Providing for easy access and turnaround for delivery trucks; an indoor (or as a minimum weather protected) truck bay; level loading/unloading facilities; easy security supervision; and direct access to the non-public circulation systems is essential.

All interior doors and collection circulation routes, including freight elevator, in the path between collection shipping/receiving and all spaces designated as having collection present must accommodate the criteria presented in the earlier section – Physical Damage.

Doorways between the loading dock and the holding areas must be sized to accommodate the objects described above, with their crates and any conveyance needed to move these. Movement by forklift is common.

The ideal gallery loading condition is an enclosed truck bay to provide indoor parking for transport vehicles, including tractor-trailers, with the door closed. To assist in side and rear loading of vehicles which will vary in size and height, and so that a minimum of lifting of heavy objects is required, generously sized hydraulic lifts (not dock levelers) are required along the back and one side of the truck bay. Direct access through security and the receiving/quarantine/fumigation area to registration and general collection circulation systems is required from the loading dock. The loading dock should also allow a forklift to drive on and off trucks for movement of large and/or heavy items, and there should be a permanent parking space for the forklift.

The design of circulation systems and mechanical and electrical spaces must allow for movement of maintenance materials and equipment, and for replacement of mechanical and electrical equipment. Access for all maintenance, adjustment, and monitoring requirements must be allowed for without requiring access through collection spaces.

## 7.2 STRUCTURAL SYSTEMS

### *Choice of Systems*

The purpose of this section is to identify criteria for consideration in structural system selection and design. In new construction, the inherent qualities of *poured-in-place reinforced concrete* structure offer many advantages, and facilitate meeting the specialized criteria for the building. The following advantages of concrete must be considered in the weighing of cost and other criteria during the system selection process:

- inherent fire protection and separation
- reduced structure-borne sound and vibration transmission
- simplified detailing of enclosure (air barrier) which is more likely to lead to a satisfactory result at less cost
- greater structural loading flexibility – i.e. better lateral distribution of loads

For large exhibition spaces and storage where longer spans are required, structural steel framing may be preferred for floors or roofs above these spaces.

### *Design Loads*

The structure of the building must be designed and executed in accordance with the applicable building codes including seismic considerations. Live load design criteria must also be discussed with gallery representatives in areas where the requirement may exceed code requirement including collection storage, collection processing, and exhibition spaces.

Design live loads can only be determined through a collaborative process in which intended storage configurations and exhibition planning assumptions are agreed. All collection storage space should assume use of compact storage throughout the space regardless of whether compact systems will be used initially. In areas where conversion of storage systems to compact systems will be done in future, depress slabs to accommodate future rails and fill to finish floor level with lightweight concrete. This will permit future installation to avoid ramps.

## 7.0 TECHNICAL DESIGN CRITERIA

## 7.3 MECHANICAL SYSTEMS

### *Heating, Ventilating, and Air Conditioning Systems*

The HVAC systems must provide precision environmental control to the building to the standards defined in the previous section 1.10 Summary of Environmental Criteria.

The following general criteria must be met:

- Systems must follow advanced practice for energy conservation and other principles of sustainable development *except where in conflict with continuity of interior environmental criteria*. In no case will energy saving measures be permitted to compromise the interior environmental criteria presented in this document. All mechanical systems must be thoroughly coordinated with the architectural design and not encroach upon critical spatial dimensions such as collection storage and circulation routes and exhibition space requirements.

- Systems must provide efficiency and economy in both capital and operating costs. Maintenance procedures must be clearly outlined in a preventive maintenance plan to encourage compliance and minimize system failures. Equipment must be arranged for easy access and replacement. Complete as-built drawings and equipment manuals must be furnished at completion.

Note the following observation by Stefan Michalski of the Canadian Conservation Institute:

> "One unfortunate syndrome worldwide is the construction of an elaborate gallery building by generous capital grants and outside technocrats, which is then operated on a shoestring by mere mortals. The result has been many white elephants built through the 1970s and 1980s. Our primary advice to galleries now is: design building systems for reliability, for the long haul, and for local operating resources."

Outdoor ventilation air must be supplied at rates which recognize concern for indoor air quality. All systems, considered in combination, must operate within the noise criteria limits prescribed in the previous section on acoustics. In order to reduce the demands on humidity control equipment, it is suggested that the outside air percentage be adjustable in response to occupancy loads.

The system must be designed to include redundant pieces of critical or difficult-to-repair or replace equipment, to permit the maintenance of critical environments in the event of equipment failure. The system must be designed to maintain the specified environments under emergency conditions, such as electrical power supply interruption. Under such conditions, collections and security staff would take appropriate operational precautions such as closing the gallery, removing most of the occupant load, etc. An assessment of the building's passive holding capacity and the reliability of electrical supply will be a factor in this consideration. Computer modeling of various emergency conditions is recommended. The systems must also be designed in a manner that avoids disruption to environmental conditions for equipment maintenance shutdowns.

Direct exhaust must be provided for those spaces with an identified need. Energy recovery measures should be considered for all exhaust points. The properties of the exhausted air and the nature of its exhaust must comply with all applicable environmental regulations with staff safety being a primary consideration. Makeup air must be conditioned to maintain the environmental criteria for the given space.

### 7.0 TECHNICAL DESIGN CRITERIA

Mechanical equipment involving liquids (coils, humidifiers, condensers, etc.) must not be located above collection storage areas, exhibition galleries, or other spaces such as labs or collection processing spaces where collection material is likely to be present.

The mechanical systems must be controlled and monitored from a central microcomputer, with graphic display, keyboard, and printer. The system must sound an alarm if environmental conditions deviate from the prescribed limits, or if any component of the system fails. The control/monitoring system must also record, over time, the environmental conditions in all spaces.

Dual stage filtration including pre-filtration panels, and high efficiency bag filters shall be used in all air-handling units. Additional space should be reserved in the units for further future upgrading of the filtration component. Additional local filter capacity located outside the rooms shall be provided for exhibit spaces with high traffic and open dioramas.

The HVAC system must be carefully zoned (compartmentalized) so that a contamination in one area (smoke, insects, bacteria, etc.) does not spread to the entire facility, especially to or from collection workrooms, storage, and exhibition galleries; provide positive air pressure differential at entrances to minimize the infiltration of dust and other contaminants; and avoid the creation of micro-environments which may be outside the design parameters of the space.

Access arrangements for mechanical systems should minimize the need for access by maintenance personnel to exhibition or collection spaces. Access should be designed to permit replacement of the largest components when required.

The HVAC system must have a provision for quick air evacuation from all areas of the building that can be used as a smoke evacuation system or for any other emergency. Access to this system must be restricted to prevent improper usage.

The control of the relative humidity and temperature in spaces in which collections are present must be fully modulating or have enough steps to avoid rapid variations of the RH values. The priority must be given to RH over temperature, except for the cold rooms, where RH must nevertheless be tightly controllable. The programs for the regulation of temperature and relative humidity should implement the best available technology. The operator shall be able to modify any program during the operation of the system without affecting its performance. Humidity sensors should be of the best quality with minimal drift and simple to recalibrate. Combined with high quality sensors, the means to control the relative humidity must be adequate to maintain the required deadband. Fully modulating or multi-stage capacity control for both humidification and dehumidification must be standard. All aspects of the mechanical system must be designed to control transfer of sound and vibration to public, staff, and collection spaces.

In order to minimize the risk of water damage to the collection, water and drainage pipes (excepting the sprinkler system) must not pass over collection storage, exhibition, or other areas where collection materials are housed. Floor drains must be provided in washrooms, mechanical rooms, loading dock, elevator pits, activity rooms, laboratories, and all other spaces where water may accumulate.

### 7.0 TECHNICAL DESIGN CRITERIA

Generally, collection storage spaces should not be located below grade. However, if this is unavoidable, a drainage system must be installed and sized to quickly carry away water in the event of water entry. Floor drains must also prevent backflow of water, entry of pests, and entry of sewer gases.

***Fire Protection***

The concern for life safety is paramount and should be met by thoughtful compliance with applicable codes and standards. *However, the concern for the protection of the collections is not automatically accounted for by straightforward compliance with codes, and therefore requires special consideration.*

Reference should be made to the applicable codes and design guidelines. Consultation with local fire-fighting authorities during the design stage is recommended. Every effort should be made to produce a building that will resist the spread of fire and not materially contribute to the fire load or fire growth rate. The integrity of the fire separations must not be compromised by the openings created to provide access, or by the design of HVAC equipment. As well, walls and ceilings must be finished with materials having a flame spread rating maximum of 25.

Access for the fire department to the property and to the building itself should be in accordance with applicable building codes. In addition, the fire department connection, which supplies water to both the sprinkler system and the standpipe system, should be well identified and easily accessible.

Care in the design and testing of the sprinkler system itself is also required to ensure reliability and to minimize the risk of accidental discharge caused by physical damage, freezing, or human error. The use of pre-action systems, self-closing heads, and other technical details can also be considered with a view to minimizing the risk of water damage beyond what is actually required to suppress the fire. Nevertheless, most experts recommend wet pipe systems because of their inherent reliability. Regardless of the system chosen, the following special measures can reduce the risk of collection damage from accidental or functional discharge: use of welded pipe to minimize joints, painting or marking of sprinkler pipes to prevent accidental cutting, protection of heads or concealed heads, regular inspection, and strategically located shut-off valves.

In addition to sprinklers, the building must be equipped with a standpipe fire hose system and hand-held fire extinguishers of the most appropriate type. Selecting the best fire extinguisher for the given situation depends on the nature of the combustibles, the potential severity, the effectiveness of the extinguisher on the hazard, the potential for damage to collections from extinguisher agents, the ease of use, the personnel available to effectively operate the extinguisher, the adverse chemical reactions between the extinguishing agent and the burning materials, the safety of the operators, and the maintenance requirements for the extinguisher.

Note also that regardless of code requirements, a sensitive smoke detection system is also required. See 7.4 Electrical Systems.

## 7.4 ELECTRICAL SYSTEMS

### *Power*

The electrical system must be designed to meet or exceed all applicable federal, provincial, and municipal codes. The electrical supply should exceed the immediate requirements of the building to allow for future requirements.

Cultural facilities are increasingly reliant on electronic data media including significant use in exhibitions and installations. Consideration should be given to ensuring that all 110V convenience outlets in staff spaces are supplied with current within computer operating parameters, proper grounding, and power conditioning, including brownout and blackout protection, ideally by means of a true on-line Un-interruptible Power Supply (UPS), with adequate power backup at individual workstations. The relative cost of a building-wide solution must be compared with a workstation-by workstation solution for power conditioning. If including a central approach is not practical, then these parameters must be met on an individual basis for outlets in spaces designated by gallery representatives as being likely computer locations. Consideration should be given to cable/fibre routes throughout the facility, as well as wireless-friendly building materials, and the location of patch panel closets or repeater stations throughout. A dedicated power source is required for security systems.

### *Lighting*

Lighting systems will provide a high degree of flexibility and must be capable of meeting the following criteria:

1) The preventive conservation criteria.
2) Appropriate response to the heritage character of some spaces.
3) Multiple modes of operation in exhibition spaces including normal exhibition viewing, special events and programs, maintenance and cleaning, emergency, and minimum light wayfinding.

All exhibition and performance systems shall be on a locally programmable control system with additional remote control capability from the security control room.

Where lighting track is used, it must be the same system throughout, selected in consultation with gallery staff. Fixture and lamp selection should favour locally available materials, whenever possible.

See discussion on use of natural light in galleries in Chapter 5.0 page 5-6.

### *Backup Power*

The electrical system must provide sufficient backup capacity to operate those systems required by code, emergency lighting, security alarm systems, and the HVAC equipment to a degree required to maintain the environment within the specified limits during an interruption in electrical supply. In order to calculate the minimum requirements, modeling of building performance under critical conditions, including operational measures, is required.

All servers, network infrastructure, 'mission critical' workstations, and other 'essential' computing resources should be protected in this way. However, any power conditioning/backup systems for these critical core computing resources should be on an entirely separate system. It is also imperative to have power and environmental monitoring capability in the Security Centre for the 'Server Room'.

## 7.0 TECHNICAL DESIGN CRITERIA

The emergency power supply system should conform to CSA C282 Emergency Electrical Power Supply for Buildings. Due to the need for security measures, the emergency power supply shall be able to operate for long intervals without requiring special care (diesel units). Provision shall be made for easy and safe connection of a rental power generator unit to the distribution panel or to the transfer switch in the central electrical power supply.

### *Fire Alarm System*

A two-stage, fully addressable, zoned, non-coded fire alarm system should be installed for the purpose of alerting the occupants of an emergency situation as well as initiating appropriate action of other building systems. The system should include the following:

- control panel to carry out fire alarm and protection function, including receiving the alarm signals, initiating general alarms, supervising the system continuously, activating zone annunciator, and initiating trouble signals
- trouble signal devices
- power supply facilities
- manual alarm stations
- automatic alarm initiating devices (addressable to locate signal)
- audible signal devices
- end of line devices
- annunciator panels
- visual alarm signal devices
- ancillary devices
- remote annunciator panels

Operation of any initiating device should cause the following:

- audible and visual signal devices to sound continuously throughout the building
- a signal to be transmitted to security or to an approved central station facility
- indication on the control panel and the remote annunciators of the zone from which the alarm originated
- automatic closing of fire and smoke doors that are normally left open
- immediate shutdown of the air conditioning and ventilation systems

The zoning of the fire alarm system should be based on floor area, building structural fire separations, and the severity of the hazard present within each area.

### *Fire Alarm Voice System*

The facility must be equipped with a high quality fire alarm voice system to allow the following function:

- delivery of emergency instructions (voice) to all areas of the building from the security control room and from the lobby reception desk

***Public Address System***

The facility must also be equipped with a Class-A public address system to allow the following functions:

- delivery of messages (voice) to all public areas of the building from the security control room and from the lobby reception desk for things such as closing announcements or locating visitors
- delivery of public addresses from strategic locations in the lobby or other gathering spaces to the immediate area for the delivery of speeches at special events
- delivery of individual messages to all service areas without disturbing other areas

***Smoke Detection System***

An early warning smoke detection system, comprised of both ionization and photoelectric smoke detectors, should be installed throughout the building including areas served by sprinkler systems. This may exceed code requirements but is a requirement for the protection of the holdings to give advance warning ahead of sprinkler discharge. The type, design, spacing, and area of coverage must be selected to reflect the area, volume, ceiling height, and fire hazard condition which might be encountered in the particular areas of the building.

In specific areas where investigation shows that the detectable quantity of heat might precede the detectable quantity of smoke, the detection system should be reinforced with strategically located heat detectors.

***Equipment Location***

Electrical switchgear, fuse boxes, or breaker panels, and all mechanical equipment requiring maintenance access, must be excluded from collection areas. All electrical equipment must be securely mounted a safe distance away from any combustible material.

***Communication Systems and Related Cable / Conduit Requirements***

The gallery must provide detailed IT requirements for the project.

## 7.0 TECHNICAL DESIGN CRITERIA

## 7.5 SECURITY SYSTEMS

This section discusses a general model for gallery security from general requirements for physical, operational, and electronic security to the identification of security zones and the application of requirements within each zone. It is recommended that a gallery planning a development project have a professional security assessment completed prior to the design stage of the project.

### *Concept*

The model concept of security discussed here is based on the utilization of several interacting security systems, which function in parallel and provide the levels of protection necessary to adequately safeguard personnel, collections, data, and assets from assessed threats. These interacting systems are described in the following sections.

### *Operational Security*

In an ideal model, the security staff provide 24-hour per day, seven-day per week coverage of the building and site. The guards monitor the intrusion, fire, life safety, and closed circuit television systems. They patrol the exterior and interior of the building and monitor access to the receiving dock/employee entrance areas. After-hours guards must be able to monitor the entire building from a single position. The security staff also provides security coverage of the building during open hours in exhibition spaces and in events spaces for functions held after-hours. In addition to its role of protecting all exhibition assets on display, it assists the public during any emergency condition. The security staff represents a 'passive' approach to security within the gallery spaces, avoiding the police or security guard image.

The number of contract staff required will be determined by the vulnerability of the building to intrusions and the degree of protection afforded by the electronic security systems. The number of proprietary staff required to protect the collections during public viewing hours will be determined by the design of the galleries (line of sight, viewing planes, etc.), the nature of works on display, and the anticipated volume of visitors. The aim must be to minimize the number of staff by maximizing viewing planes.

### *Physical Security*

The facility must be designed so as to effectively prevent illegal access by use of adjacent objects such as trees or parked vehicles. The building fabric should be designed so that walls and roofs cannot be penetrated or scaled without the greatest of difficulty. There should be no lower adjacent structures which can act as a route to the roof or upper stories. All openings in structures that allow entry, such as vents, ducts, trap doors, and roof hatches, must be securable and electronically monitored. Manhole entrances for site utilities such as gas, water, sewage, electricity, telephone lines, and drainage outlets which provide access to ductwork or pipes that lead into the building, and which are large enough to accommodate people, should be secured and monitored. All utilities should be protected and not accessible to the public.

Windows on the ground floor are a considerable weakness and should be designed, illuminated, and protected so as to prevent easy access. The use of polycarbonate laminates should be considered. In the case where a window may give access to a gallery or transitional area, the glass should be either polycarbonate laminate or 1/2" plate glass. Accessible operating windows are not acceptable.

The number of doors into and out of the gallery should be no more than the minimum number of doors required for efficient operation and fire safety, but should include separate access for live animal maintenance, catering supplies and food waste, construction waste, and chemical waste disposal. Hardware requirements should be determined at the time of the security assessment. All entry points should be clearly visible from the adjoining streets and well lighted.

All galleries should be designed for lock-down, especially the temporary exhibit halls.

***Electronic Security***

All security electronics will report to the security control room. The room and its furnishings must be designed to allow one person to comfortably oversee all of the monitoring and communication devices.

The following systems must be installed as directed in the specific 'security level' definitions which follow:

| | | |
|---|---|---|
| 1. | Electronic Alarm system: | *Requirements to be determined through a security assessment at the schematic design stage.* |
| 2. | Closed Circuit Television System (CCTV): | *Requirements to be determined through a security assessment at the schematic design stage.* |
| 3. | Card Access System: | *Requirements to be determined through a security assessment at the schematic design stage.* |
| 4. | Security Communications: | *Requirements to be determined through a security assessment at the schematic design stage.* |

***Security Levels***

Within the building, spaces will require varying degrees of security based on the contents and activity of the space. Security requirements are given in three levels according to the following guidelines:

LEVEL I (highest)

- secure storage for collections, traveling exhibits, curatorial work/storage lay-out areas, and restricted areas (vaults)
- security control room
- exterior doors

LEVEL IIA (high - public access)

- exhibition galleries
- exhibition gallery support spaces

### 7.0 TECHNICAL DESIGN CRITERIA

LEVEL IIB (high)

- conservation laboratories
- workshop areas
- collection shipping / receiving area
- areas where cash and sensitive records are stored
- audiovisual and high value attractive items
- any area that may contain collection material overnight
- chemical storage
- emergency supply cabinets

LEVEL III (basic)

- general office space
- general storage and supplies
- areas that never contain collection material or
- attractive, high value items
- mechanical rooms
- first aid room

## 7.6 COMMISSIONING

Commissioning is the process of managing the transition of the building from a construction mode to an operating mode. Attention to a well designed, well integrated commissioning process is particularly important to gallery projects due to the reliance on the performance of systems for collection preservation. The objective of commissioning is to maximize the effectiveness of project delivery activities and of environmental support provided to gallery staff and collections. Commissioning is a transitional process that moves the facility from a passive building to an active operating phase ready for occupancy. Experience has shown that comprehensive commissioning is required in order to ensure that the intended gallery requirements have been met.

Every building is unique. The nature and extent of commissioning varies according to the size, end-use, and complexity of the facility; and the types of systems installed. All systems must be commissioned. Commissioning will normally include the following:

*Performance Verification*
The purpose of verification is to ensure that the final product meets the initial requirements. Verification takes place as quality management activities during the implementation and commissioning phases of the product delivery system. It comprises examination of components, subsystems, systems, and environments.

*Documentation*
Complete, accurate, and usable documentation is needed to support those who deal with and operate the building. Resources must be allocated for the preparation of documents used to operate and manage the building in order to provide effective asset management.

*Passive to Active Hand-over*
This transforms the static building facility into an active accommodation service ready for occupancy. Activities include:

- training of operating staff for normal and emergency conditions
- setting up service contracts
- installing signage
- establishing monitoring and information systems

### 7.0 TECHNICAL DESIGN CRITERIA

## 7.7 SUSTAINABLE DESIGN CRITERIA

In the context of this project, sustainable design can be defined in broad terms as a design strategy that routinely and consistently includes the consideration of the environmental, economic, and societal impact of every decision made for the project. The City of Saskatoon places a high importance on conducting its operations in an environmentally responsible manner. It sees the construction of the new art gallery and related facilities as an important opportunity to both practice and, where possible, display sustainable design principles.

The following principles should be considered in the design of site and building:

1) Sustainable design objectives must support program objectives.

2) Support the design and construction of a highly durable facility by integrating life cycle costing and life cycle analysis in the decision making process.

3) Support energy efficiency, keeping in mind the importance of continuous controlled humidity and temperature conditions required for collections, visitor comfort, and program requirements.

4) Maximize solid waste diversion in the construction process.

5) Support the implementation of water saving initiatives.

6) Minimize use of materials and procedures with ozone depleting potential and other negative environmental impacts.

7) Support measures that will ensure indoor/outdoor air quality.

8) Support the use of sustainable construction materials and products.

9) Support integrated pest management.

Requirements for following the LEED process and specific project targets will be furnished separately by the City's LEED consultant. In no case will sustainability measures be permitted to significantly impair the achievement of the Gallery’s functional and collection care criteria.

## BIBLIOGRAPHY

### Books

American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. *ASHRAE Handbook: Heating Ventilating, and Air-Conditioning Applications*. Atlanta: ASHRAE, 1995.

Black, Graham. *The Engaging Museum: Developing Museums for Visitor Involvement*. London & New York: Routledge, 2005.

Decoursey, Elaine, with Don Kerr, Dan Ring, and Matthew Teitelbaum. *Saskatoon Imagined: Art and Architecture in the Wonder City*. Saskatoon: Mendel Art Gallery, 1989.

Chrest, Anthony P., with Mary S. Smith, Sam Bhuyan, Donald R. Monahan, and Mohammad Iqbal. *Parking Structures: Planning, Design, Construction, Maintenance and Repair*, 3rd Edition. Boston: Kluwer Academic Publishers, 2001.

Cuttle, Christopher. *Light for Art's Sake: Lighting for Artworks and Museum Displays*. Oxford: Elsevier Ltd, 2007.

Flaman, Bernard. *Character and Controversy: The Mendel Art Gallery and Modernist Architecture in Saskatchewan*. Saskatoon: Mendel Art Gallery, 2004.

Florida, Richard. *The Rise of the Creative Class*. New York: Basic Books, 2002.

Gardner, James B., and Elizabeth E. Merritt. *The AAM Guide to Collections Planning*. Washington: American Association of Museums, 2004.

Greuel Morna. *Telling Details: The Architecture of Clifford Wiens*. Saskatoon: Mendel Art Gallery, 2009.

Hanley, Paul. *25 Years in the Life of a River Valley*. Saskatoon: Meewasin Valley Authority, 2006.

Hudson, Kenneth. *Museums of Influence*. Cambridge: Cambridge University Press, 1987.

Karp, Ivan, with Christine Mullen Kreamer, and Steven D. Lavine. *Museums and Communities: The Politics of Public Culture*. Washington & London: Smithsonian Institution Press, 1992.

Liston, David and International Committee on Museum Security. *Museum Security and Protection: A Handbook for Cultural Heritage Institutions*. London & New York: International Council on Museums and Routledge, 1993.

Manask, Arthur M and Mitchell Schechter. *The Complete Guide to Foodservice in Cultural Institutions: Keys to Success in Restaurants, Catering, and Special Events*. New York: John Wiley & Sons, Inc., 2002.

## BIBLIOGRAPHY

### Books *continued*

Miles, Roger and Lauro Zavala. *Towards the Museum of the Future: New European Perspectives*. London: Routledge, 1994.

Montaner, Josep. *New Museums*. New York: Princeton Architectural Press, 1990.

McLean, Kathleen. *Planning for People in Museum Exhibitions*. Washington: Association of Science-Technology Centers, 1996.

Newhouse, Victoria. *Toward a New Museum*. New York: The Monacelli Press Inc., 1998.

Oldenburg, Ray. *The Great Good Place: Cafes, Coffee Shops, Bookstores, Bars, Hair Salons and Other Hangouts at the Heart of a Community*. New York: Marlowe & Company, 1999.

Saskatchewan Association of Architects. *Historic Architecture in Saskatchewan*. Regina: Focus Publishing Ltd., 1986.

Tétreault, J. *Airborne Pollutants in Museums, Galleries, and Archives: Risk Assessment, Control Strategies, and Preservation Management*. Ottawa: Canadian Conservation Institute, 2003.

Thomson, G. *The Museum Environment*. London: Butterworths, 1986.

### Reports and Documents

*Facility Development Plan: Mendel Art Gallery*. Lundholm Associates Architects, 2001.

*River Landing Interpretive Plan*. Aldrich Pears Associates, April 2005.

*South Downtown Concept Plan*. CitySpaces Consulting, Crosby Hanna & Associates, and Kindrachuk Agrey Architecture, June 2004.

*South Downtown Local Area Design Plan: Architectural Control District Overlay District*. Saunders Evans Architects, August 2004.

*The Meewasin Valley Project: 100 Year Conceptual Master Plan of the South Saskatchewan River Environment in the Rural Municipality of Corman Park and the City of Saskatoon, the Province of Saskatchewan, Canada*. Raymond Moriyama Architects and Planners, 1978.

*Zoning Bylaw No. 8770 of the City of Saskatoon*. City of Saskatoon, September 2009.

**BIBLIOGRAPHY**

## Articles

Baeker, Greg. "Creative Connections: Saskatoon Builds its Creative City." *Municipal World*, September 2007. <www.municipalworld.com>

Becker, Franklin, and Sims, Richard. "Offices that Work, Balancing Communication, Flexibility and Cost." Unpublished article, Cornell University International Workplace Studies Program, October 2001. <http:// iwsp.human.cornell.edu>.

Canadian Architect. "Mendel Art Gallery – Architects: Waisman, Ross. Blankstein, Coop, Gillmor and Hanna." *Canadian Architect*, September 1965.

Canadian Council on Learning. "Composite Learning Index." Canadian Council on Learning, 2009. <http://www.ccl-cca.ca>.

Canadian Council on Learning. "CLI case study #4: Saskatoon, Sask." Canadian Council on Learning, 2009. < http://www.ccl-cca.ca/CCL/Reports/CLI/CLI2009/CLICaseStudiesSaskatoon2009.htm>

CBC News. "Saskatoon to top Calgary on economic growth list: report." CBC News, 13th September 2007. <http://www.cbc.ca/money/story/2007/09/13/citieseconomies.html>

Christensen, Carol. "Environmental Standards: Looking Beyond Flatlining?" AIC News, Vol. 20, No. 5, September 1995.

Commission internationale d'éclairage. Draft paper. "Museum Lighting and Protection Against Radiation Damage." October 1995.

Conrad, Ernest, P.E. "The Filtration Question." Norwalk: Landmark Facilities Group, Inc., 1990.

Delainey, William P. "The South Saskatchewan River and the Development of Early Saskatoon 1881 – 1908." Saskatoon: Public Art Project, Cultural Capital of Canada, 23rd April 2007.

Dorge, Valerie and Sharon L. Jones. "Building an Emergency Plan. A Guide for Museums and Other Cultural Institutions." Los Angeles: The Getty Conservation Institute, 1999.

Kennedy, Gregory. "The Morning Borealis: The New Art Gallery of Alberta." *Where Edmonton*, January/ February issue, January 2010. <http://where.ca/edmonton/article_feature.cfm?listing_id=102>

Lafontaine, R. H. "Environmental Norms for Canadian Museums, Art Galleries and Archives." *CCI Technical Bulletin*, No. 5. Ottawa: National Museums of Canada, 1979.

Macleod, K.J. "Museum Lighting." *CCI Technical Bulletin*, No. 2. Ottawa: National Museums of Canada, 1978.

Michalski, S. "Light and Conservation Guidelines." Unpublished paper. Ottawa: Canadian Conservation Institute, 1989.

**BIBLIOGRAPHY**

**Articles** *continued*

Michalski, Stefan. "Guidelines for Humidity and Temperature in Canadian Archives." *Technical Bulletin*, No. 15. Ottawa: Canadian Council of Archives, 2000.

Michalski, S. "Time's Effect on Paintings." Shared Responsibility: Proceedings of a Seminar for Curators and Conservators. Ottawa: National Gallery of Canada, 1990.

Proudfoot, Shannon. "Canada a model for US: Expert." Canwest News Service, 6th April 2009. <www.creativeclass.com>, <www.canada.com>.

Smithsonian Institution. "Smithsonian Guidelines for Accessible Exhibition Design." Smithsonian Accessibility Program, June 1996.

**Internet Sources**

Canadian Conservation Institute
http://www.cci-icc.gc.ca

City of Saskatoon
http://www.saskatoon.ca/Pages/default.aspx

Experience Downtown Saskatoon
http://www.downtownsaskatoon.com/

Fred Mendel in Encyclopedia of Saskatchewan
http://esask.uregina.ca/entry/mendel_fred_s_1888-1976.html

Meewasin Valley Authority
http://www.meewasin.com/

Mendel Art Gallery
http://www.mendel.ca/

Mendel Blog
http://www.mendel.ca/wordpress/

Perehudoff Murals
http://mendelsmurals.blogspot.com/

Persephone Theatre
http://www.persephonetheatre.org/home.php

River Landing
http://www.riverlanding.ca/index.html

**Internet Sources** *continued*

Saskatchewan Archives Board
http://www.saskarchives.com/

Saskatchewan Archaeological Society
http://www.saskarchsoc.ca/

Saskatoon Kiosk
http://www.saskatoonkiosk.ca/history.php

Saskatoon Heritage Society
http://www.saskatoonheritage.ca/index.html

Saskatoon Tourism
http://www.tourismsaskatoon.com/