TRUE NORTH SQUARE

223 Carlton Street

TENANT DESIGN CRITERIA MANUAL

BentallGreenOak

TRUE NORTH SQUARE DESIGN CRITERIA MANUAL

Contents

GENERAL INTRODUCTION

This Manual is a living document and contains general information, procedures and requirements which have been established by the Landlord to assist Tenants in the design and construction of their improvements within their premises and to notify them of the basic design specifications for the building.

The Landlord reserves the right, acting reasonably, to amend or add to the information in this manual at any time and the Tenant is obliged to abide by such changes upon notification thereof. Any such additions or amendments affecting any Tenant work undertaken after the addition or amendment has been issued, and all costs associated with compliance shall be at the Tenant's expense.

Tenants, their designers and contractors are urged to acquaint themselves thoroughly with the material herein, as it will form the basis of the Landlord's approval of all tenant submissions.

The Tenant and/or its designer should visit the leased premises to inspect and verify all site conditions prior to commencement of design work.

THIS MANUAL IS INTENDED TO REFLECT ONLY STANDARD CONDITIONS OR SITUATIONS, AND IT DOES NOT AMEND THE OFFER TO LEASE OR THE LEASE WHICH GOVERNS IN THE EVENT OF ANY INCONSISTENCIES BETWEEN THEM AND THIS MANUAL.

BentallGreenOak will guide and assist Tenants throughout their design, construction and deficiency period and be a liaison between the Landlord and Tenant.

BentallGreenOak is responsible for the review and approval of and/or comment on all Tenant drawing submissions prior to commencement of the Tenant's work. BentallGreenOak controls the co-ordination between the Tenant's and Landlord's Work on leased premises and the construction site.

All questions, comments and submissions shall be addressed to BentallGreenOak.

LANDLORD'S CONSULTANTS

The Tenant may wish to retain the Landlord's Architect, and/or mechanical, electrical and structural consultants under direct contractual arrangement for the production of design and working drawings.

Note that, during and for the entirety of the new building construction warranty period as communicated by the Landlord, the Landlord's designated base building contractors are required to be used for all Life Safety Systems work within the building. Life Safety systems work shall include but not necessarily be limited to: modification, addition, deletion, testing, tie-in and re-verification of any system that constitutes part of the fire alarm, sprinkler protection, fire dampers, smoke control, automated fire egress systems, emergency generator system, emergency lighting and any associated controls. The Tenant shall contract directly with the designated base building Life Safety Systems contractor for all tenant projects where life safety work is to be performed. For greater certainty, in any event, the Tenant, or the Tenant's General Contractor, shall consult with the Landlord prior to negotiating and executing any contract associated with building life safety work and shall gain written approval to proceed.

If the Tenant chooses to employ consultants other than the base-building consultants for its design work, and by prior arrangement, BentallGreenOak will work with the base-building consultants to review the Tenant's design drawings in order to ensure compatibility with the base building systems. The Tenant must notify BentallGreenOak of their intent to employ consultants other than the base building consultants and, in so doing, must agree to a final review of the design drawings by the base building consultants at the Tenant's expense. Based on this review and subject to a mutually agreed date by which the review is to occur, BentallGreenOak will provide written feedback, via email, to the tenant within 7 business days.

If the tenant decides to contract directly with the Landlord's consultant(s), initial communication should include a written request to the consultant, copied to BentallGreenOak via email.

A list of the Landlord's consultants is included below:

ARCHITECT:

Architecture 49
710-1122 4th Street SW
Winnipeg, MB, R3T 6B8
Tel: (204) 477-1260
winnipeg@architecture49.com

STRUCTURAL ENGINEER:

Crosier, Kilgour & Partners
300-275 Carlton Street
Winnipeg MB, R3C 5R6
Tel: (204) 477-6650

ELECTRICAL ENGINEER:

MCW
210-1821 Wellington Avenue
Winnipeg MB, R3H 0G4
Tel: (204) 779-7900

WSP *(MMM)*
1600 Buffalo Place
Winnipeg MB, R3T 6B8
Tel: (204) 943-7501

SMS Engineering Ltd.
770 Bradford Street,
Winnipeg, MB, R3H 0N3
Tel: (204) 775-0291

ALTERNATE STRUCTURAL ENGINEER:

Entuitive
200 University Avenue, 7th Floor
Toronto ON, M5H 3C6
Tel: (416) 477-5832

MECHANICAL ENGINEER:

AME Group
1600 Buffalo Place
Calgary, AB, T2R 1M1
Tel: (403) 252-2333

SMS Engineering Ltd.
770 Bradford Street,
Winnipeg, MB, R3H 0N3
Tel: (204) 775-0291

LOCKSMITH:

Noble Locksmith
249 Notre Dame Avenue
Winnipeg, MB, R3B1N8
Tel: (204) 943-8254

RISER MANAGEMENT:

Daemon Defense
www.daemondefense.com

FIRE ALARM SYSTEM:

Siemens
675 Berry Street, Unit M
Winnipeg, MB, R3H 1A7
Tel: (204) 774-3411

SECURITY SYSTEMS:

National Industrial Communications Inc.
5-854 Marion Street
Winnipeg, MB, R2J 0K4
Tel: (204) 783-6688

FIRE SPRINKLER SYSTEM:

TYCO Integrated Fire & Security
989 Century St
Winnipeg MB, R3H 0W4
Tel: (204) 694-0140

BUILDING AUTOMATION:

Johnson Controls
62 Scurfield Blvd
Winnipeg, MB, R3Y 1M5 ,
Tel: (204) 885-9360

LANDLORD REPRESENTATIVE:

BentallGreenOak(Canada) Limited Partnership
Suite 400 – 242 Hargrave Street
Winnipeg MB, R3C 0T8
truenorthsquare@bentallkennedy.com
Tel: (204) 942-6446

CODES AND REGULATIONS

Tenant Work must comply with all applicable by-laws, codes and regulations of authorities having jurisdiction. Each Tenant is responsible for applying and obtaining all permits and approvals from all authorities having jurisdiction over the work to be performed by the Tenant's contractors, prior to commencement of such work, at the Tenant's expense. Evidence of the required permits must be posted at the leased premises and a copy forwarded to BentallGreenOak prior to commencement of work. Landlord approval for permit applications shall be coordinated through BentallGreenOak.

WORK PERMITS

A Work Permit must cover all work in the Leased Premises. Tenant Work Authorization Permit Request forms are available via the Property Management office. All forms must be signed by an authorized Tenant/Contractor's signature and approved by BentallGreenOak in advance. Please refer to individual forms for additional information.

CERTIFICATES AND APPROVALS

INSURANCE

All contractors are required to maintain liability and other insurance typical to their type of business operation. The contractor shall carry commercial general liability insurance providing a limit of liability of not less than $5,000,000, copies of contractor insurance coverage shall be provided to:

TN Square Inc.
BentallGreenOak (Canada) Limited Partnership,
BentallGreenOak (Canada) G.P. Limited, their successors and assigns.

A copy of the contractor's insurance must always be supplied to the Landlord for review and approval prior to any work commencing. Additionally, insurance must be maintained in amounts and under conditions, which provide a full range of protection acceptable to the Landlord. The contractor shall furnish the Landlord with evidence, satisfactory to the Landlord, of compliance with all applicable worker's compensation and occupational health and safety legislation and regulations.

WORKING DRAWINGS

The Landlord requires three complete sets of architectural, electrical and mechanical working drawings for all work proposed to Tenant premises, one copy shall be in electronic format. Additional drawings or information related to base building systems, which the Tenant may reasonably require, may be obtained from the Landlord at the Tenant's expense. The Tenant is responsible for the production of accurate and complete working drawings, contract documents, and a comprehensive construction schedule for the proposed Tenant's work within the Leased Premises.

As a minimum, all drawings should include floor plans indicating location of the tenant premises, grid lines, electrical circuits, sprinklers, life safety systems, speakers, air distribution including cfm's on each outlet, sections, special installations affecting the building or perimeter walls, specification of materials and type of construction, and reflected ceiling plans.

Where the leased premises occupy less than a full floor, plans must include the entire floor showing the location (complete with dimensions) of the leased premises and their relationship to the elevator lobby, exit stairs, washrooms, fire hoses cabinets, etc.

All Tenant's work intended to be carried out by the Tenant or its forces in or about the Leased Premises must be completely and accurately indicated on drawings submitted to the Landlord for written approval.

GUIDELINES FOR SUBMISSION OF PLANS AND DRAWINGS TO CITY, DISTRICT, OR MUNICIPAL AUTHORITIES

1. Submit two (2) full sets of stamped and sealed plans from architects and engineers in a minimum 1/8" to 1/2' scale.

2. Drawings must include:

- Site plan (showing building location and orientation relative to street names). Scale not less than 1/16" to 1/2" or metric equivalent.
- Legal description.
- Street names.
- Location and dimensions of building(s).
- Required yards or setback and building lines.

GENERAL GUIDELINES FOR CONSTRUCTION, RENOVATIONS AND ALTERATIONS

PRIOR TO CONSTRUCTION

1. The current editions of the Tenant Design Criteria Manual and the Tenant Construction Rules and Regulations Manual, available from the Landlord, shall be requested prior to commencement of design and/or construction.

2. Architectural, mechanical and electrical design drawings are required. Submit electronic files, AutoCAD release 2007 or later and two copies of white print working drawings, with specifications and color boards to BentallGreenOak for final approval fourteen (14) business days prior to any tenant improvements or other construction. Re-submit as above until approval is granted. All drawings shall be a minimum of 24' x 36'; and be sealed with design engineers stamps, and required City or District approvals. This process may only be varied by written agreement with BentallGreenOak. The City approved Permit drawings and specifications must be left on site and returned to BentallGreenOak upon completion of the construction.

3. All required permits will in general, be obtained and paid for by the general contractor. Copies of all permits, including those of sub-trades, will be submitted to BentallGreenOak. **No work shall commence until copies of permits, (WSIB) Workplace Safety and Insurance Board Clearance Certificate and Liability Insurance Certificates have been received by BentallGreenOak.** The General Contractor and Sub-Contractors are responsible for following all building codes. Contractors will make inspections of the space prior to commencement of all work and will be responsible for acceptance of base building conditions. Any concerns are to be submitted in writing to BentallGreenOak.

4. Copies of government inspections, interim or final, whether approved or disapproved, shall be submitted to BentallGreenOak within 48 hours of receipt.

5. BentallGreenOak is to be notified if any work is to be done with fire alarm or life safety systems or with any components, which connect to those systems, prior to commencement of work. Also, if the work is likely to cause an alarm, such work will require a minimum of 24 hours advance notice, not including weekends.

6. Mechanical balancing of the air handling system is required after each renovation or improvement. (Contractor to be designated and/or approved by the Landlord).

7. No coring may be undertaken without coordination through, and permission of BentallGreenOak. Minimum requirement is for an X-ray report prior to coring. Where structural elements come into play, as in post tension construction, the approval of a BentallGreenOak appointed structural engineer will be required.

8. Unless prior agreement is made with BentallGreenOak, all walls shall be designed to center of main T-bar grids. Further, designs shall have walls butt against mullions or columns.

9. All partition walls are to be fastened to the T-bar (where installed) with the use of clips, BentallGreenOak will not allow the use of screws, cutting/drilling of the T-bar. All damages to the T-bar will be the Tenants responsibility and replaced/repaired at own expense.

10. All sub trades used by the Tenant must be on the Sub-Trades approved list provided by BentallGreenOak, must be registered through Complyworks and, must be registered with Workers Compensation Board.

11. Tenant work that is visible from the common areas of the Building must be covered by hoarding, the design of which is approved by the Landlord in advance. Hoarding Specifications: Paint: Dulux Strip #247, Renoir Bisque, 00YY 65/060, A1724. If a banner is installed, the banner/sign Size: 24" wide, centered from floor to ceiling. The landlord does not allow vendor and construction signage outside of the horded space.

GENERAL GUIDELINES FOR CONSTRUCTION, RENOVATIONS AND ALTERATIONS

DURING CONSTRUCTION

1. All work, which requires a contractor to enter the building, must be coordinated with BentallGreenOak and must be approved through the work authorization permit process.

2. Noisy Work - Work that disrupts or has the potential to disrupt the Residential Tenants will, whenever possible, be done during the hours of 8am to 5pm on weekdays only. Noisy work such as hammer drilling and stone cutting must be conducted only during the hours of 8am to 5pm and only after approval through the work authorization permit process. This also applies to any contract in respect to maintenance, modification, addition to or deletion of building systems, fittings, fixtures or surfaces.

3. For work to be done after normal business hours of 6am to 6pm, all contractors must coordinate work, at least 48 hours in advance, with BentallGreenOak. This work must also be approved through the work authorization permit process.

4. Note that construction work being performed on levels 4, 5 and 6 may require special protocols and advanced approval where noisy work is involved. This is due to their proximity to potentially occupied commercial space on floors below and residential space on floors above.

5. Any major or significant changes to drawings shall be agreed upon in writing with BentallGreenOak. Items which may represent a direct or indirect cost to the Landlord require prior approval by BentallGreenOak.

6. All fixtures supplied shall be to building standard or equal in quality and finish as approved by BentallGreenOak. All unused base building fixtures are the property of BentallGreenOak. They are to be returned to the building staff as soon as they have been removed and cleaned up. Alternatively, they are to be disposed of by the contractor, if requested by the Landlord, at no additional cost.

7. Designers and Engineers must be invited to return to inspect the work as it progresses, and upon completion. Their recommendations shall be complied with, and are to be submitted to BentallGreenOak for review and comment as soon as they become available.

8. Use of elevators for material transport shall be pre-arranged with BentallGreenOak - Building Operations. Only specific elevators, as designated by Building Operations, shall be used for any material transport. No material shall be transported in an elevator that does not have suitable protection installed.

9. No contractor has the exclusive right to the use of any elevator. If an elevator, which is locked off, is ordered released by BentallGreenOak, it must be returned to regular service without delay.

10. Care is to be used to protect building surfaces including elevators. Materials shall only be brought through the loading dock receiving area in a manner approved by BentallGreenOak.

11. Areas under construction shall be kept clean at all times to reduce the risk of fire or accident. Direction from BentallGreenOak in this regard must be followed without delay.

12. Building common areas are not to be used for storage of construction materials or equipment at any time. Contractors are responsible to clean common areas to building standards daily wherever they have caused any mess, and to promptly repair any damage.

GENERAL GUIDELINES FOR CONSTRUCTION, RENOVATIONS AND ALTERATIONS

AFTER CONSTRUCTION

1. Final clean-up is the responsibility of the General Contractor (as recognized by BentallGreenOak). If clean-up is left to the building or cleaning staff, the hours will be logged and invoiced by BentallGreenOak to the General Contractor at cost of labour and materials plus a fifteen percent management fee (15%).
2. At the completion of the improvements, the Tenant will finalize “as built” drawings prepared by the designer. One full set of the “as built” drawings in electronic form (CAD and PDF) and one white paper copy set are to be submitted to BentallGreenOak for its permanent records.
3. Prior to final payment to the Contractor, all permits must be closed, a “Signing Off” by BentallGreenOak that work has been carried out in a manner acceptable to BentallGreenOak, must be obtained. Failure to obtain this approval may result in BentallGreenOak having to complete or re-construct some components of the work in order to achieve the standard of the building, with the cost for same being to the Tenant.
4. Payment of contractor will be made in accordance with the Lease or other written agreements made between the Landlord and Tenant.

BUILDING SPECIFICATIONS

A. ARCHITECTURAL SPECIFICATIONS

This outline specification describes True North Square, Winnipeg in general terms. It describes the design intent, and is subject to change. All elements in the specification (unless otherwise noted) are base building items and are included in the Owner's work.

Residential/Office/Retail Tower

1.1 General

1.1.1 The 223/225 Carlton Street Tower is a mixed use building comprised of a lobby, two levels of retail premises, four levels of rentable office space, and nineteen levels of residential rental space. Levels 7 through to 24 are exclusively residential apartment space, floors 3 through 6 are rentable office space and floors 1 and 2 are retail space. A roof-top residential amenity space is located at level 25.

1.1.2 The typical office floor size on levels 03-06 is approximately 8,800 sq.ft. of contiguous, rentable area.

1.2 Landscaping

1.2.1 The public square (level 1) has a mixture of materials, such as: unit concrete pavers, stone highlight paving and cast in place concrete and contain various elements of soft landscaping including trees.

1.2.2 The municipal sidewalks are paved in accordance with the City of Winnipeg standards.

1.2.3 The plaza and sidewalk within the property line are sloped to trench drains and roof drains. Sidewalk areas outside the property line are sloped to the street curb.

1.3 Building Envelope

1.3.1 The exterior office lobby vestibules has overheight glass doors with brushed stainless steel sill and head frames, floor to ceiling glass walls, and a composite wood/steel roof structure.

1.3.2 The exterior envelope of the office is a unitized, thermally-broken aluminum curtain wall with an anodized finish. Double or triple-glazed vision glass with a low-e coating has been selected to further improve energy efficiency and occupant comfort levels.

1.3.3 On Levels 3 – 5, vision glass typically extends from the sill to the head at 9'-8". On Level 6, vision glass extends from the sill to the head at 17'-2", with an intermediate spandrel panel at 8'-4" to 11'-2". The spandrel panels will be a double-glazed insulated unit, with an unfinished galvanized steel back-pan, complete with a frit and opaque coating on the glass surfaces.

1.3.4 A generous column grid of primarily 30'x30' allows for freedom in demising and aligns with the mullion spacing.

1.4 Roofing

1.4.1 Roof surface is either: 1) concrete pavers on pedestals or 2) variety of pea gravel ballast on protected inverted roof membrane and insulation over structural concrete deck.

1.5 Central Alarm and Control Facility

1.5.1 The central alarm control facility for 223/225 Carlton is located on level 01.

1.5.2 A security CCTV system provides continuous monitoring from a local concierge desk on level 1 and also from the main security desk within 242 Hargrave.

1.6 Office Lobby

1.6.1 The office lobby will have a boutique aesthetic as it shares its lobby space with the residential lobby. The shared lobby features tiled floors, wood wall treatments, stone-effect tiled walls with an approximately 15-foot ceiling height.

1.6.2 A concierge desk and interior directory is situated adjacent to the lobby elevator core.

1.7 Typical Single Tenant Office Floors

1.7.1 Each floor has its own electrical room each servicing the dedicated floor. Each floor has either (a) its own janitor room to service the dedicated floor or (b) in lieu of the Landlord providing a janitor room, it will provide a cash allowance to the Tenant so as to allow the Tenant to construct its own.

1.7.2 The exit stairways are concrete with tactile nosing, and painted steel balustrades.

1.7.3 Building perimeter sill walls are steel stud frame only, to be built out by the Tenant with a finished enclosure.

1.7.4 Sprinklers are provided to achieve core and shell occupancy with upturned pendant heads. The relocation and addition of sprinkler heads within Tenant spaces to meet TI layout is to be part of the Tenant's work. To meet the building warranty requirements, all sprinkler rework and additions must be completed by the tenant using the preferred base building sprinkler contractor.

1.7.5 Floors beyond the core are exposed concrete slab with smooth trowel finish, within industry tolerance (span/240 or 20mm), ready to accept Tenant finishes.

1.7.6 The Tenant to provide building standard ceiling comprised of exposed white T-Bar suspension system and 2'x2' white fine fissured beveled concealed or tegular tiles. Should the Tenant choose to omit a ceiling, the proposed finish is to be provided to the Landlord and is subject to the Landlord's approval, acting reasonably.

1.7.7 Base building lighting in tenanted spaces meets minimum code requirement. LED luminaires to be provided by Tenant in accordance with base building specifications. Should the Tenant choose to omit a ceiling, the details of the proposed luminaires are to be provided to the Landlord and are subject to the Landlord's approval, acting reasonably.

1.7.8 Perforated roller blinds for glare control on exterior glazing will be provided by the Landlord.

1.7.9 The building is equipped with an electronic card access system for after hour access to main building entry points. All elevators are equipped with a fob/ card access reader system for security control. The Tenant will have access to the base building security access system for the purpose of tying in the Tenant's security access system. If the tenant chooses to tie into the base building access system, tenant is responsible for ensuring compatibility between the systems and any

protocol compliance and licensing requirements where necessary.

1.7.10 A telecommunications riser closet is located in the service core on each floor. This riser closet is provided for core communications riser cabling and tenant communication riser backbone. The core riser closet is not available for use to house tenant communications systems and equipment.

1.7.11 Interior concrete columns are exposed concrete.

1.7.12 Assuming that the Tenant installs a typical t-bar suspension ceiling, the typical ceiling height on Level 3 -5 office areas will be 2950 mm (9' – 8") above finished slab, and the Level 6 office area ceilings will be 5250 mm (17'-2") above the finished.

1.8 Single-Tenant Floor Elevator Lobby and Corridor Finishes

1.8.1 Core walls are prime painted drywall, to be finished by the Tenant. Passenger elevator lobbies will have unfinished concrete or masonry walls and exposed structure ceiling.

1.8.2 Single-Tenant floor corridors to be built out by Tenant, such finishes to be of a quality consistent with the multi-tenant floor corridor finishes in the building.

1.9 Typical Multi-Tenant Floor Elevator Lobby and Corridor Finishes

1.9.1 The multi-Tenant passenger elevator lobby walls will be painted gypsum drywall/ceramic tile, painted steel frame elevator doors, painted gypsum drywall and acoustic panel ceiling systems with recessed and cove lighting, and tile on the floors.

1.9.2 Corridors include painted drywall demising walls, solid core wood, painted metal and/or glass doors, acoustic ceiling tiles, painted gypsum ceiling and carpet/tile on the floors.

1.10 Washrooms

Should the Landlord supply washrooms; the washrooms shall conform to the following standards. In the event the Landlord does not supply washrooms, it shall provide the Tenant with a cash allowance equivalent to the value of the following standards.

1.10.1 The number of washroom fixtures is dependent on the number of occupants, on a floor-by-floor basis. A multi-stall washroom may not be required; if a low occupant load can be declared, individual toilet rooms may be constructed as an alternative.

1.10.2 Washroom floors are porcelain tile.

1.10.3 Washroom walls are glazed ceramic tile and painted drywall.

1.10.4 Washroom ceilings are painted gypsum drywall, with cove lighting over the fixtures.

1.10.5 Polished quartz composite countertop with semi recessed basins and frameless mirror.

1.10.6 Stainless steel partitions.

1.10.7 Brushed stainless steel washroom accessories.

1.10.8 Washrooms equipped with low-flow plumbing fixtures. Water closets and sink faucets are hands-free. Washrooms

are equipped with exhaust as part of base building.

1.10.9 Additional washrooms to be designed to current MBC.

1.10.10 Additional washrooms exceeding building code requirements will be part of Tenant improvement.

1.11 Doors, Frames and Hardware

1.11.1 Hollow metal doors and frames with commercial grade hardware are provided for the stairwells, mechanical rooms, electrical rooms, and service rooms. Washroom doors are 8' tall solid core with fir veneer in metal frames.

1.11.2 Finish hardware is heavy duty commercial type, brushed stainless steel finish in public areas. Lever handles are provided for barrier free access.

1.11.3 Tenant doors and frames within the Tenant space will be part of Tenant improvement.

1.12 Elevators

1.12.1 The office floors are serviced by 2 high-speed elevators (both of which connect the below grade parking directly to the tower).

1.12.2 The rated capacity is 3,500 lbs for the 2 passenger elevators.

1.12.3 Elevator cabs have brushed stainless steel doors, cab front and sides, a stone rear wall and tile floor, finished stainless steel ceiling with LED lighting.

1.12.4 Elevator service accommodates standard ambulance stretchers measuring 610mm x 2010 mm.

1.12.5 All elevators meet the Safety Standard Act, Elevator Devices Safety Regulations, The Safety Code for Elevators, CAN/CSA B44-07.

1.13 Building Services Module

1.13.1 Building service components: fire alarm pulls, emergency lighting, fire alarm strobes, extinguishers, thermostatic controls are contained within a vertical module by all exit doors.

1.13.2 Recessed extinguisher cabinet modules.

2.0 Exterior Building Maintenance System

2.1 Main Façade Servicing

2.1.1 Main building façade maintenance utilizing roof rigged davit arms and integrated stabilization anchors in the façade.

3.0 Signage and Branding

3.1 General

3.1.1 A custom signage program is provided throughout the office tower, podium levels, parking levels and exterior levels.

3.1.2 Other custom signage conforming with building program by Tenant.

BUILDING SPECIFICATIONS

B. STRUCTURAL SPECIFICATIONS

1.0 Introduction

This design brief is intended to summarize the primary structural design criteria and to provide an overview of the structural systems used. It describes the design intent, and is subject to change or amendment.

2.0 Design Criteria

The structural design meets or exceeds the requirements of the 2010 National Building Code of Canada (NBCC) and its referenced material standards. The buildings have been designed as of normal importance with seismic, wind and snow importance factors of 1.0 (ULS).

2.1 Floor Loads

2.1.1 The following live loads have been used in design:

- Office areas 2.4 kPa (in conformance with NBCC)
- Ground floor 4.8 kPa
- Parking 2.4 kPa
- Corridors, Exits, Stairs 4.8 kPa
- Mechanical and Electrical rooms 3.6 kPa
- Transformer/Boiler Areas 7.2 kPa
- Garbage Compactor Rooms 7.2 kPa
- Retail 4.8 kPa
- Ground floor (exterior areas) 12.0 kPa
- Loading Bays 12.0 kPa

3.0 Structural Systems

3.1 Floors/Roof

3.1.1 The lowest basement floor level is a slab-on grade or structural slab. Compaction requirements and subgrade materials are in accordance with the geotechnical recommendations.

3.1.2 The ground floor exterior landscaped area above the parking level is a flat slab, conventionally reinforced cast-in-place concrete system with drop panels and/or beams. The slabs are sloped to suit ramping and drainage requirements, with built-up areas for landscaping and planters.

3.1.3 Building framing consists of conventionally reinforced cast-in-place concrete flat slabs with discrete drops at the column locations or continuous drops between columns, depending on spans.

3.1.4 The Level 3 – 5 typical floor-to-floor dimension is approximately 12’0”. The Level 6 floor-to-floor dimension is

approximately 19’0”.

3.2 Lateral Load Resisting Systems

3.2.1 Building concrete shear walls in the central elevator and stair core are utilized to resist lateral wind loads.

3.3 External Wall Supports

3.3.1 In the double floor height areas at the ground floor of the buildings facing the plaza, and other areas at the ground floor, the glass curtain wall system is supported by aluminum curtain wall mullions, reinforced where required.

3.3.2 Curtain wall, where used, is anchored into and hung from the concrete slab. The steel anchors for the curtain wall are cast into pockets in the concrete slab at the time the concrete slab is poured.

3.3.3 Canopies are structural steel with varying surfaces such as glass, metal and wood soffits.

3.4 Level 2 Skywalk

3.4.1 The Level 2 Skywalk consists of built-up HSS steel frames supporting HSS steel posts and beams, with steel hangers between frame locations, and a slab-on-deck floor assembly. The walls of the Skywalk typically consists of glazing.

BUILDING SPECIFICATIONS

C. MECHANICAL SPECIFICATIONS

1.0 Design Criteria and Building System Description

The mechanical systems are designed and constructed in accordance with the Manitoba (National) Building Code 2010, Manitoba Energy Code for Buildings (MECB), Class A office standards and LEED Canada 2009 Core & Shell requirements. The following is a description of the mechanical system for True North Square. It describes the design intent, and is subject to change and amendment. Refer to the summary tables within this section for scope delineation between Tenant and Owner.

Some features include:

- Terminal heating and cooling units.
- Heat recovery between supply and exhaust air on a building level for the office tower, and recovering energy from retail cooling systems via centralized hydronic system.
- Microprocessor based direct digital controls.
- Carbon dioxide monitoring on air returns from typical tenant floors.
- CO & NOx monitoring in parking and loading bay areas.
- A dedicated tenant condenser water loop for connection of tenant service / communication room cooling units.

1.1 Climatic Design Conditions

- Winter Design: -35°C (-31°F) – January 1%
- Summer Design: 30°C (86°F) dry-bulb / 23°C (73°F) wet-bulb – July 2-1/2%

Source: National Building Code of Canada 2015

1.2 Internal Temperature Setpoints

1.2.1 Underground & Enclosed Parking:

- Heating: 5°C (41°F)

1.2.2 Office Tower:

- Heating: 21°C (70°F), 25% relative humidity minimum
- Cooling: 24°C (75°F), 55% relative humidity maximum

1.3 Internal Gains & Ventilation

1.3.1 Office:

- Occupants: 150 ft2/person
- Lighting: 0.9W/ft2
- Plug Loads: 2 W/ft2
- Ventilation: 20 cfm/person

2.0 Base Building HVAC Systems

2.1 Central Plant

2.1.1 Heating and cooling is provided by a low temperature hydronic heating and cooling system. The central plant consists of high efficiency water cooled chillers, condensing boilers, and heat recovery chillers.

2.2 Ventilation

2.2.1 Ventilation for each office floor is provided via a central air handling (energy recovery ventilation) unit located on each floor.

2.2.2 Ventilation air and general exhaust is distributed to each floor with cap-offs at the floor for Tenant connection.

2.2.3 A dedicated washroom exhaust riser is provided for ventilation of base building washrooms and janitor's rooms. Cap-offs are provided on each floor for future Tenant connection. Washroom exhaust is routed through the exhaust side of the floor's central air handling unit for energy recovery.

2.2.4 Air is to be supplied to terminal units via VAV boxes to provide demand controlled ventilation. VAV boxes will not be provided as part of the base building fit out and are a tenant responsibility.

2.3 Space Heating & Cooling

2.3.1 Heating and chilled water cap-offs are provided on each floor for Tenant connection of terminal units on the office floors. Where required for unoccupied spaces, temporary unit heaters are provided.

2.3.2 A dedicated Tenant condenser water loop is provided along with a cooling tower located on the roof. Cap-offs with isolation valves are provided on each floor for Tenant use to connect cooling systems for server and communications equipment rooms. The system is sized for an allowance of 2 W/ft2 of connected load on the office levels. Heat from this condenser loop will be recovered for use in space heating and/or pre-heating domestic water whenever possible. The tenant is responsible for providing a suitably sized condenser pump within the tenant space to provide flow and heat rejection into the condenser loop system.

2.4 Smoke Control Systems

2.4.1 Smoke venting is provided based on a single floor being vented at 6 ACH. Combined fire smoke dampers are used to control the smoke exhaust system. Operation is manually controlled via the building fire fighters control panel.

2.5 Parking Areas

2.5.1 Outdoor air to parkade levels is provided by ground level intakes located at several perimeter locations on the site.

2.5.2 Supply air enters each parkade space through dedicated air intake shafts furnished with individual supply fans within the space. Supply air is tempered utilizing glycol heating coils to maintain the parking to a minimum of 5°C.

2.5.3 Separate shafts and associated ducting is installed to provide make-up air to each elevator lobby and staircase entrance vestibule on parking levels.

2.5.4 The ventilation system is controlled by carbon monoxide / NOx detecting systems to modulate fans. Monitoring systems are connected to the building management system (BMS).

2.5.5 An emergency stair pressurization system is provided for below grade stairways.

3.0 Base Building Plumbing Systems

All service connections to the facility (water, sanitary, storm, and gas) are provided through the parking level.

3.1 Sanitary Drainage

3.1.1 The sanitary drainage system for the office tower is connected to all plumbing fixtures and has been designed to flow by gravity with connections to the designated street sanitary sewers.

3.1.2 Sediment sump and oil interceptors are provided for parkade level and elevator pit drainage systems. These drainage systems are below the elevation of the city sewer connections and are pumped. All pumping stations are duplex pumping stations with intrinsically safe controls.

3.2 Water Service – Domestic and Fire Suppression

3.2.1 Water service from the street mains is extended into the building and split into two systems: fire protection and domestic water systems. Domestic water systems are metered within the building.

3.3 Domestic Cold Water

3.3.1 The piping distribution system consists of pressure boosted risers with connections and pressure reducing stations throughout the building. All the areas below the third floor are supplied from City pressure.

3.3.2 Hose bibs are provided at parking level heated vestibules for wash down.

3.3.3 All domestic cold water piping is copper.

3.4 Domestic Hot Water

3.4.1 Decentralized domestic hot water system is provided for base building washrooms.

3.4.2 All domestic hot water piping is copper.

3.5 Plumbing Fixtures

3.5.1 Plumbing fixtures are white vitreous china to a standard commercial quality with all exposed piping chrome plated. Base building washrooms in the office tower are provided with wall mounted water closets and urinals. Urinals and toilets are low flow and have electronic flushing devices. Accessible compliant fixtures are provided on every floor.

3.6 Natural Gas

3.6.1 Gas service into the building including the required metering, pressure regulating valve and vents is provided for base building gas-fired boilers.

4.0 Base Building Fire Suppression Systems

4.1 Fire Standpipe System

A 6" standpipe is provided in each exit stair with 2 ½" hose connections.

4.2 Fire extinguishers

Fire Extinguishers are provided in closed cabinets at each point of exit on all floors and where required by code. Tenant is responsible for providing additional fire extinguishers as required for their fit-out.

4.3 Automatic Sprinkler System

4.3.1 Automatic sprinklers are provided throughout the facility with the exception of the electrical vault.

4.3.2 All systems are hydraulically designed in accordance with NFPA-13 requirements.

4.3.3 The system for the parking levels consists of dry sprinkler zone valves connected to fire department connection(s) and also includes test connections and pressure switches at each floor.

4.3.4 Office areas are designed for light hazard (225 square foot per head, 0.10 gpm/ft2 over1500 ft2).

4.3.5 Service areas are designed for ordinary hazard (130 square foot per head 0.16 gpm/ ft2 over 1500 ft2).

4.3.6 Parking levels are designed for ordinary hazard (130 square foot per head, 0.16 gpm/ft2 over 1950 ft2).

5.0 Base Building Controls

5.1.1 The building management system incorporates direct digital control loops using a distributed processing networking type system. The system is capable of monitoring and controlling the major components of the HVAC system.

6.0 Typical Office Floor Levels

The office floors are core and shell with the following outline of systems provided in the Tenant spaces:

Component	Base Building	Tenant Responsibility
Ventilation Air	Ventilation air cap-off is provided on each floor.	Tenant is responsible for duct distribution from core cap-off to terminal units, including VAV boxes for demand

		controlled ventilation.
Washroom Exhaust	Washroom exhaust complete with ductwork and grilles is provided for base building washrooms.	Tenant is responsible for exhaust ductwork and grilles for any Tenant installed washrooms.
General Exhaust	General exhaust air cap-off is provided on each floor.	Tenant is responsible for duct distribution from core cap-off to points of exhaust.
Heating Water Piping	Valved heating water cap-offs are provided on each floor. Provisions exist for installation of Tenant supplied energy meters.	Tenant is responsible for all heating water piping from core cap-offs to terminal units.
Chilled Water Piping	Valved chilled water cap-offs for every floor.	Tenant is responsible for all piping for all Tenant plumbing fixtures.
Fire Sprinklers	Sprinklers and associated piping are installed and operational for an open concept with heads turned up.	Tenant is responsible for revising sprinkler layout to suit Tenant fit-out. Tenant must use designated base building sprinkler systems contractor for system revisions, additions and tie-ins.
Fire Standpipes	Standpipes with 2-1/2” hose connections will be provided in each core exit stair.	-
Fire Extinguishers	Fire extinguishers are provided at each exit stair in the core.	Tenant is responsible for providing fire extinguishers as required on the floor level to meet NFPA 10 requirements.
Controls	Base building controls have the capacity to accept integration of controller & sensors for a base building layout plus an additional 10% points for Tenant fit up.	Tenant is responsible for providing and connecting terminal unit controllers, space controls and sensors to the building management system.

BUILDING SPECIFICATIONS

D. ELECTRICAL SPECIFICATIONS

The following is a description of the electrical system for True North Square. It describes the design intent, and is subject to change or amendment. Refer to the summary tables within this section for scope delineation between Tenant and Owner.

1.0 General Overview

1.1 The building is designed and constructed to comply with the currently enforced provision of the following Codes and Standards:

- City of Winnipeg Building By-Law.
- Canadian Electrical Code latest edition.
- CAN-S524 Standard for the Installation of Fire Alarm Systems, and local guidelines.
- ULC-S537 Standard for the Testing of Fire Alarm Systems.
- CAN/CSA-C282 Emergency Power for Building.

1.2 As the entire building is sprinklered, drip-proof hoods and sprinkler-proof louvers are provided on all major electrical equipment, including power panels, distribution centres, motor control centres and transformers. The high voltage electrical rooms are not sprinklered but rather they are in a rated room with smoke detection provided.

2.0 Power Distribution

2.1 Site Services

2.1.1 One HV utility primary service is fed into the building, the HV equipment is located in the high voltage room in the parkade. A dedicated unit substation for the each tower (223/225 Carlton and 242 Hargrave) is provided. Main transformers provide 347/600V 3 phase 4 wire service secondary distribution throughout the building.

2.2 Power Distribution

2.2.1 **Normal Secondary Distribution**

Major power in the building is distributed at 347/600V 3 phase 4 wire. Vertical bus duct risers at 347/600V will run the entire height of the building through the stacked electrical closets.

Base building ground bus is provided in electrical and communication rooms. Tenant will be able to connect to this system for their grounding needs.

2.2.2 Step down transformation for normal power distribution (600V/120/208V), panels, meters, is provided in the electrical room on alternate floors, and provides power, lighting and mechanical distribution for two base building levels. Office Tenant spaces may be individually metered (if required under the lease), with the meters located in electrical closets located on the office floors. Any additional Tenant power requirements including branch circuit panels to be provided by the Tenant.

2.3 Tenant Utilization Power and Lighting

2.3.1 The systems are designed with the following load capability on the office floors (capacity for tenant utilization and for the common areas on the floor):

Base Building Office lighting and miscellaneous power	1.2W/sq.ft.
Tenant Load	5W/sq.ft.
Power	4.25W/sq.ft.
Lighting	0.75W/sq.ft.
Mechanical loads	approx. 1.5W/sq.ft.
Special and Reserved Power	1.0W/sq.ft.

3.0 Tenant Mechanical

3.1 Mechanical loads, electric water heaters and washroom fans on the typical floors are serviced by local mechanical panels located in the respective floor electrical closet.

3.2 Any additional cooling equipment for the Tenant's IT and communications closets added by the Tenant. Cooling equipment for Tenant IT and communications closets to be tied into base building tenant condenser loop. Tenant to provide appropriately sized condenser loop pump as per design specification requirement in base building mechanical drawings.

4.0 Equipment and Wiring

4.1 All conductors #6 and smaller are copper. All branch circuit wiring will be copper; RW90 rated with a minimum size of #12 AWG.

5.0 Building Emergency Power

5.1 A generator for building emergency service is located on Level 2 of 242 Hargrave Street in a 2h rated generator room. The emergency generator service provides for the code required two hours of emergency power run-time to support Life Safety loads. The system is not designed or intended as a “critical system” emergency power supply. Typical loads that are powered from the building emergency system are:

- Fire Pump
- All elevators fed from the emergency distribution (life safety)
- Smoke Removal System
- Pressurization system
- Parkade Exhaust System
- Sump Pumps
- Emergency Lighting and Exit Signs
- Fire Alarm System
- Specific Emergency Equipment loads

Fire Pump is fed from the Main Distribution MDC and emergency generator through a separate automatic transfer switch.

The emergency power system consists of an “Emergency Life Safety” bus and an “Emergency Non-Essential” bus. Each of these is supplied by a separate automatic transfer switch.

5.2 The two automatic transfer switches (emergency life safety, emergency non-essential), 347/600V emergency distribution centre, step down transformers, 120/208V distribution centre as well as the lower level emergency panels are located in the emergency distribution room located in 223/225 Carlton.

5.3 A 1-hour rated vertical riser shaft rises through the electrical room on typical office floors, for life safety emergency power, non-essential emergency power, mechanical emergency loads, fire alarm, elevator feeders, to meet the high building requirements.

5.4 Emergency power panels at 120/208V are located on every floor within electrical closets on the office floors. Extension of additional emergency circuits to the tenant space shall be the responsibility of the tenant.

5.5 Emergency circuits at 120/208V from the panels only exit on the floor they service. Both emergency lighting and exit signs are fed this way.

5.6 The Emergency Non-Essential or "standby" bus is available to provide power to important non-Life Safety loads. Emergency non-Life Safety panels are located on every alternate floor. The system is not designed as a "critical system" power supply. The tenant may, however, connect IT systems, UPS and server loads to this bus. The tenant is responsible for the design and configuration of any power systems connected to this bus. When connecting a UPS system in support of an IT server, consideration should be made for providing an alternate "normal" bus feed as a maintenance bypass, this will assist in avoiding potential system downtime due to base building power system maintenance requirements.

6.0 Electric Vehicle Charging Stations

6.1 A total of eight electric car charging station(s) are provided on two levels within the underground parkade.

7.0 Lighting Controls

7.1 Lighting Control Systems

7.1.1 Base building interior and exterior lighting to meet minimum code for undeveloped space (except emergency lighting) is provided and controlled through a low voltage lighting control system.

7.1.2 Low voltage lighting control for the tenant space will be part of the tenant lighting design and responsibility.

7.2 Lighting Control Zoning:

7.2.1 The base building lighting control system is zoned to take advantage of daylight penetration in the building separate from interior zones. Control of tenant space lighting is to be provided by Tenant lighting controls.

7.3 Luminaires:

- *Typical office floor:* Temporary base-building lighting is provided throughout the office spaces for emergency lighting only. The Tenant is responsible for providing all new lighting to meet its needs.
- *Washrooms:* LED recessed and LED cove lights provided.
- *Exit Signs:* Base building provided as per code. Tenant responsible for additional lighting related to their fit-out to meet code.

8.0 Connections and Restraint

8.1 Connections from outlets above suspended ceiling use armoured cable type AC-90. Luminaire connections may be daisy-chained, depending on the lighting control system.

9.0 Emergency Lighting

9.1 Selected luminaires on each floor are powered from emergency circuits. These luminaires will not be controlled by the building lighting computer or by the manual switches. They will function as both emergency lighting and as pathway or nightlights. Tenant shall be responsible for extending the emergency lighting circuit to selected light fixtures within tenant spaces.

10.0 Fire Alarm System

10.1 System Criteria

10.1.1 The fire alarm system is a field programmable, fully addressable, supervised, two stage system, complete with all necessary subcomponents for a high building as defined by local codes. Capacity is provided for tenants to add speaker/strobes in their space as per local codes.

In general the system design allows for the following:

- Detection by smoke detectors and heat detectors, where required.
- High building requirements.
- Control panel with alarm indication installed in a convenient location (CACF) at the designated Fire Fighter's entrance.
- Offsite monitoring.
- System monitoring of sprinkler system compressor. Sprinkler system heat tracing monitoring (if required).
- Sprinkler system zones are electrically supervised in accordance with the building code, with zone coverage areas in accordance with NFPA.
- Monitoring of sprinkler system tamper and flow switches.
- Manual supervised pull station units at all fire exits.
- Duct smoke detectors for shutdown of all air handling equipment serving multiple floors or fire compartments.
- Smoke detectors in each stairwell.
- Interface to elevators to provide automatic recall on fire alarm activation.
- Fire alarm zones are determined by:
    - conformance with sprinkler zones
    - smoke and/or fire separation on a single floor level
    - minimum of one zone per floor level
    - separate zone for each stair shaft c/w smoke detectors
    - elevator machine room and elevator shaft
- Fire detectors as per code. Air duct smoke detectors for air handling unit shutdown as required. Manual pull stations located as per Building Code requirements.
- Fire pump connection monitoring.
- Fire alarm visual signaling devices (strobes) are provided in washrooms, mechanical rooms and boiler room. Fire alarm voice communication is installed to provide adequate sound levels throughout the building.
- Smoke detectors are provided as required in the building as MBC and NFPA requirements.
- Provide monitoring of Tenant pre-action sprinkler fire suppression systems as required, for specific facility rooms/zones where indicated. Interface with building fire alarm system (Tenant responsibility).
- Each shaft is equipped with smoke or heat detectors such as elevators, as required.
- Fire alarm visual signaling devices (strobes) are provided as required by Code.
- The elevator lobby is provided with smoke detectors separately annunciated.
- Alternate elevator floor homing if main lobby smoke detectors are activated.

10.1.2 Central Alarm and Control Facility (CACF)

A CACF is provided in the CACF Room on the main floor next to the elevator lobby and includes the following:

- Vertical Graphic Annunciator
- Emergency Voice Communication Control Station
- Fire Fighters Handset Control Station
- Mechanical Air System Control Station
- Elevator Control Station (located next to the CACF)
- LCD Alpha-numeric Display
- Elevator Communications Station (located next to the CACF)

10.2 Fire Alarm Detection:

10.2.1 Detection zones include the following:

- *Sprinklers*: Primary fire detection is provided by the sprinkler system.

- *Smoke Detectors*: Smoke detectors are provided in public corridors and exit stair shafts. Smoke detectors are provided in accordance with NFPA 80 at doors which are on hold-open devices and are in required fire separations. Smoke detectors are provided for any fire shutters in required fire separations. Smoke detectors are provided in the high voltage electrical unit substation (electrical vault) in lieu of sprinklers.

- *Duct-type Smoke Detectors*: Duct-type smoke detectors are provided in every recirculating air handling system which serves more than 1 storey and serves more than 1 suite in a storey.

- *Manual Pull Stations*: Manual fire alarm pull stations are located at all exits from floor areas and at the main entrance.

10.3 Emergency Voice Communication System

10.3.1 The system has a phone and controls at the central alarm and control facility, with zoned speakers to provide audible signals throughout the building. A 2-way communications system is provided with emergency telephones located on each floor area near exit stairs. Loudspeakers that serve the emergency voice communications system also provide the audible signals for ALERT and ALARM, using a simulated bell tone. Speakers are provided in the core rooms and stairwells as needed. Amplifiers in the life safety system are capable of up to 8 future additional speakers on each floor. Additional speakers that may be required due to tenant sub-division can be extended from the base building speakers and shall be the responsibility of the tenant.

11.0 Communications

11.1 Main Communications Service

11.1.1 Communications

- Incoming 3 - 4” service for telephone is provided into the building, and terminates in the service entry room located in the parkade.

- Incoming 1 - 4” cable service is provided into the building, and terminates in the Service Entry room located in the parkade.

- The Office Main Communications room will act as a pull through or it can be the “Point of Presence” (POP) space.

11.2 Communication system

- One base building communications room is located on each office floor as part of the base building design and to provide the communication vertical risers. Tenant equipment is not permitted within this space and must be located in a communications room within the tenant space.

- The Tenant will be responsible for their system as part of the fit-up design, including additional cooling.

- The base building system is a converged network to operate the security, BAS, etc. for the core and shell work.

- All base building communication rooms have: plywood on all walls, sufficient surge suppressed power receptacles, environmental control (temperature, humidity), and grounding bus bars connected to building ground system.

- Base Building Communication Riser Room:
    - A number of 4" sleeves are provided to interconnect the vertically aligned closets. These will all be initially fire stopped.
    - Provides a fiber optic backbone from a network core situated in the parkade level network room with a 48 port switch every three floors for the base building smart network. This backbone is intended to meet the requirements of a standard office Tenant. Extension from base building switch to the tenant space shall be the responsibility of the tenant.
    - Provides 2" zone conduit to each 1000sq.ft.
    - No Tenant equipment shall be installed in the base building communication rooms.

11.3 Communications Grounding System:

11.3.1 The base building is provided with a grounding and bonding infra-structure system in accordance with CAN/CSA T527 – 94 using a #3/0 insulated conductor running vertically inside the typical floor communication closets. This system can be extended to the Tenant communication closets, by the Tenant.

12.0 MISCELLANEOUS

12.1 Security

12.1.1 A security system is provided with card access/door security on building entrance doors, parkade entrance doors, and elevator cabs.

12.1.2 High security restricted keyway locks are provided for all base building lockable doors, including perimeter doors, stairwell doors, service closets and back-of house spaces. Tenant is responsible to ensure lockable access doors to their space are keyed to the base building restricted keyway and that doors are operable by the base building master keys. Special secure access rooms within tenant space may be keyed 'off-master" provided a method of gaining emergency access is incorporated and shared with the Landlord.

12.1.3 CCTV is located in the below grade, ground level and skywalk areas of the building, including entrance/exit doors, loading docks.

12.1.4 Secure entry doors, where electromagnetic locks are used, will comply with City of Winnipeg bylaw requirements.

12.1.5 Tenant is responsible for access card readers connected to the base building system on corridor access doors to its suite. These readers are to be fully compatible with the base building security card access system.

12.2 Lightning Protection

12.2.1 A lightning protection system that meets the CAN/CSA-B72-M87 'Installation Code for Lightning Protection Systems' is provided.

13.0 Typical Office Floor Levels

The office floors are core and shell with the following outline of systems provided in the Tenant spaces:

Component	Base Building	Tenant Responsibility
Power distribution	Vertical 600V distribution with step-down transformer and 208V distribution panel for normal power, located every other floor.	Where applicable, Tenants located on floors without step-down transformation will need to extend feeders to transformer /distribution panel on the alternate floor level by coring through the slab.
Emergency power	Vertical 600V distribution with step down transformer and 208V distribution panel for emergency Life Safety power located every floor. Step down transformer and 208V distribution panel for emergency "Standby" power located on every alternate floor.	Tenant will be responsible to extend a feeder to the level above or below for "Standby" power, as applicable, by coring through the slab to the alternate floor.
Lighting	Base building lighting in stairs, and washrooms is provided. Lighting in elevator lobbies for multi-tenant/crossover floors is provided. "Stubble Lighting" only is provided in lobbies on single tenant/non-crossover floors.	The tenant will be responsible for all lighting in tenant spaces and in lobbies on single tenant floors.
Lighting Controls	Lighting Control provided in stairwells, washrooms, and finished lobbies. Infrastructure is available on every floor for tenant to add on to existing lighting control system. No Lighting control in empty tenant space is provided.	Expansion of low voltage lighting controls for Tenant requirements for any added lighting in TI is the responsibility of the tenant.
Fire alarm	Base building fire alarm system is provided for elevator lobbies, washrooms and stairs, and with up to 3 speakers/strobes within open plan floor layouts.	Tenant responsible to relocate or add fire alarm devices and additional VI report inspections. Work must be contracted by the Tenant through the designated base building contractor.

Communications	Riser conduits provided to each floor in the communication room. Additional conduits have been provided to open Tenant space to allow a pathway (5x1-1/4" in slab) for future Tenant to base building communication room on each floor.	Tenant is responsible to connect to base building terminations and extending service to Tenant communication closet. No Tenant equipment is permitted within base building communication closets.
Security	Card access control system provided for base building systems. A card access system riser is located in the base building communication closet. No additional provisions are present for Tenant card access.	Tenant will be responsible for adding controllers and extending the card access system to the Tenant space entry doors. The card access system for entry doors must be compatible with base building system.
Metering	Base building metering system is provided with revenue grade meters.	Tenant will be responsible for any meters on Tenant panels if required by design or under lease obligation.

BUILDING SPECIFICATIONS

E. SUSTAINABILITY SPECIFICATIONS

1.0 Overview

The sustainability objectives pursued by TN Square Inc. for the True North Square Development is premised on achieving LEED Gold. The project will be registered with the Canada Green Building Council under LEED 2009 Core & Shell Rating System. The following outlines the LEED strategies being pursued:

2.0 Sustainable Sites

2.1 By virtue of its location next to the Graham Mall Bus Mall, True North Square is well served by public transit. Bicycle storage facilities are designed to accommodate bike stalls for office employees to further minimize the reliance on personal vehicles. Provisions for electric vehicle recharging and car sharing are anticipated to promote sustainable transportation initiatives.

2.2 To reduce impacts on the surrounding area, a Construction Activity Pollution Prevention Plan will be in place to reduce the erosion and sedimentation impacts from construction activities. Stormwater from the site must be filtered on site to reduce sedimentation before being discharged into city systems.

2.3 To address and minimize heat island effects within the urban setting, parking on site is located underground. As well, the selection of both high albedo and green/vegetated roofs reduces solar heat gain and minimizes temperature increases due to radiation of hard surfaces. Green roofs can also help to increase urban biodiversity and air quality.

3.0 Water Efficiency

3.1 Water reduction strategies include efficient irrigation measures, selection of low-maintenance plants as well as high-efficiency, low flow fixtures such as dual flush toilets, low flow lavatories, showers, and kitchen sinks.

4.0 Energy and Atmosphere

4.1 Numerous strategies are integrated into the overall design to achieve a high-performance, energy efficient building that significantly reduces building energy use. Strategies include energy sharing between uses, optimized building orientation and envelope, enhanced refrigerant management and enhanced commissioning to ensure buildings operate as designed. A measurement and verification plan meters ongoing energy and water consumption for various locations and uses to inform building operators how energy is being used, and also includes a performance check after one year (post occupancy).

5.0 Materials and Resources

5.1 Building centralized recycling spaces are part of a site-wide, recycling program. Construction practices will divert over 75% of construction waste from landfills into recycling facilities. Materials are sourced and specified to achieve over 15% recycled content as well as over 20% harvested and manufactured regionally.

6.0 Indoor Environmental Quality

6.1 Increased ventilation rates and the specification of low VOC emitting materials ensure a healthful indoor air quality. A construction IAQ management plan ensures that the design goals for IAQ are not diminished due to on site construction activity.

6.2 Occupant thermal comfort is met through the mechanical system design as well as the controllability of systems for partial use control. Daylighting and access to views are optimized to provide natural light and promote a connection between the indoor and outdoor environment.

7.0 Innovation in Design

7.1 Sustainable strategies beyond the typical scope of LEED credits include reduction of the heat island effect with 100% of all additional parking designed underground, increased access to public transportation and the prospective provision of coop cars in addition to provisions for electrical vehicle charging stations.

7.2 A green housekeeping plan enables environmentally sensitive maintenance practices to be carried on throughout the life of the building, and the reduction of mercury in lighting fixtures through careful selection of fixtures reduces harmful toxins introduced into the environment.

BUILDING ACCESS AND DELIVERIES

F. CONTRACTOR IDENTIFICATION BADGES

The building uses an electronic card access security system. Cameras have been placed strategically within the building lobby, concourse, level 2 Skywalk and parking garage. Elevators are equipped with card access readers.

All Contractors working within the building will be required to wear a badge authorizing them to be on the premises. Building Security will issue the badges to all contractors.

If a contractor is working directly for you, please arrange to obtain a badge from the **Building Security** team on duty.

If anyone requests access to your premises and they are not wearing a badge, **DO NOT PROVIDE THEM ACCESS.**

G. DELIVERIES

If you have any special deliveries that may require the reservation of the Freight Elevator, please arrange the time with BentallGreenOak Property Management. A dolly is to be used to protect building surfaces. Reservation is on a first-come, first-served basis.

Access to 223/225 Carlton tower for move-ins and large deliveries is via the loading dock taking the freight elevator down to Parking level P1 and following a route through a back-of-house transit corridor that allows access to the main elevator bank and service elevator for 223/225 Carlton. All moves and deliveries through the back-of-house corridor must be coordinated through Building Operations and BentallGreenOak Property Management.

Please keep in mind that the Freight Elevator will not be permitted to be locked off during regular business hours.

The loading dock must be reserved in advance for all large deliveries. Building Management must authorize any exceptions to this entry point. If other areas of access are approved, the mover must protect floors, walls and elevators with acceptable material to prevent damage.

H. MOVING GUIDELINES

These moving and delivery guidelines have been developed to ensure a safe and efficient move for you and your organization. Following these guidelines will expedite your move and protect the people handling the move, as well as your property and the building itself. These guidelines are in no way meant to hamper or restrict your moving process, but rather to safeguard the elements involved in the process. Please let us know how we can best assist you with your move. We would be happy to answer any further questions you may have. Please contact Property Management.

1. Prior to move in, please forward a copy of your Certificate of Insurance to the property management office.

2. Ensure that the Tenant Access Card Request and Emergency forms for your staff have been submitted to us.

3. Notify us as soon as possible as to the date and time of your scheduled move. All moving arrangements must be confirmed with BentallGreenOak. All moves will be scheduled on a first come, first serve basis.

4. Please remember that all move-ins must be done after normal business hours. This will minimize disruption to other tenants of the building and will ensure efficient elevator service.

5. The loading dock is the only building entrance permitted for moves. We strongly encourage you to reserve this area for all large moves and deliveries. BentallGreenOak must authorize any exceptions to this entry point. If other areas of access are approved, the mover must protect floors and walls with acceptable material to prevent damage.

6. The moving contractor must provide a Certificate of Insurance prior to the move. The mover must be bonded and carry a minimum of $5 million combined single limit, property damage, and public liability insurance. We suggest that you secure a Certificate of Insurance for your firm as well.

7. If you are using a moving contractor, they will be responsible for any damage to the building incurred during the move. To avoid unnecessary damage, pad or otherwise protect all entrances, doorways and walls affected by the move and cover all floors traversed during the move with appropriate material.

8. Your moving contractor must report any electrical problems or equipment breakdowns that occur during the move, which may affect building operations. They are also responsible for removing all trash and bulky packing cartons.

9. Building has a strict “No Smoking” policy per the municipal bylaw (City of Winnipeg By-law No. 62/2011).

10. The Fire Marshall prohibits the blocking of any fire corridor, exit door, elevator, lobby, or hallway. Do not park vehicles in marked Fire Lanes.

11. The loading dock doors are open from 7:00 am to 5:00 pm. Any deliveries made outside of these hours must be scheduled and approved by the Building Operations team.

12. Arrange for an inspection of common areas and the elevator prior to and after a move to prevent being charged for damages for which you are not responsible.

I. SMOKE FREE ENVIRONMENT

There is a smoke free policy throughout the complex, including tenant premises, all common areas such as the parking garage, loading dock, elevator lobbies, building entrances, rest rooms, stairwells, and elevators. (City of Winnipeg By-law No. 62/2011).

Smoking is not allowed within 30 feet or 9 meters of outside entry doors or, near air intakes, in accordance with Provincial law.

This policy is in effect and applies to tenants and their contractors during periods of construction, renovation and alterations to tenant premises.

Local City By-laws will be enforced.

APPENDIX A

SUMMARY OF LANDLORD VS. TENANT SCOPE OF WORK

The office floors will be core and shell with the following outline of systems provided in the tenant spaces:

Component	Base Building	Tenant Responsibility
ARCHITECTURAL		
Building Envelope	Exterior envelope of the office is a unitized, thermally-broken aluminum curtain wall with an anodized finish and triple-glazed vision glass with a low-e coating. Vision glass typically extends from the sill at 0'11.8" to the head at 9'-6'. The spandrels are primarily glass with a custom ceramic frit pattern.	N/A
Columns	Interior concrete columns are exposed concrete.	Tenant responsible for interior column finish beyond concrete finish provided by Landlord.
Floors	Base building floors beyond the core is exposed concrete slab with smooth trowel finish, within industry tolerance (span/240 or 20mm).	Tenant responsible for floor finishes.
Ceilings	N/A	Tenant responsible for suspended ceiling systems.
Perimeter Walls	Base building perimeter sill walls are steel stud frame only.	Tenant shall finish sills.
Core Walls – Single Tenant Floor	Core walls are prime painted drywall.	Tenant responsible for finish at core walls on all single tenanted floors.
Core Walls – Multi-Tenant Floor	Core walls are prime painted drywall.	Tenant responsible for final finish at core walls.
Corridor - Single Tenant Floor	N/A	Tenant responsible for corridor/finishes as required.
Corridor - Multi-Tenant Floor	Multi-tenant corridors have painted drywall demising walls, solid core wood veneer, painted metal and/or glass doors, acoustic ceiling tiles, painted gypsum ceiling, and carpet/ceramic tile on floors.	N/A
Elevators	2 Passenger Elevators (3500 lb capacity each).	N/A
Elevator Lobbies – Single Tenant Floor	Single-tenant floor passenger elevator lobbies has unfinished	Tenant responsible for wall, ceiling, and floor finishes at

	concrete or masonry walls, primed painted elevator door and frames, exposed structure ceiling.	elevator lobbies on single-tenanted floors.
Elevator Lobbies – Multi-tenant Floors	Multi-tenant floor passenger elevator lobby walls are painted gypsum drywall/ceramic tile, stainless steel elevator doors, painted gypsum board and acoustic panel ceiling systems with recessed and cove lighting, and tile on the floors.	N/A
Washrooms	The number of washroom fixtures is dependent on the number of occupants, on a floor-by-floor basis. A multi-stall washroom may not be required; if a low occupant load can be declared, individual toilet rooms may be constructed as an alternative.	Tenant responsible for additional washrooms exceeding Building Code requirements.
Doors, Frames, and Hardware	Base building doors (complete with frame, trim and hardware) are installed on washrooms, exit stairwells, service core rooms, and in demising wall to public corridor on multi-tenanted floors. Hollow metal doors and frames with commercial grade hardware are provided for the stairwells, mechanical rooms, electrical rooms, and service rooms; painted where facing common areas. Finish hardware is heavy duty commercial type, brushed stainless steel finish in public areas complete with lever handles.	Tenant responsible for all doors, frames, and hardware within Tenant space. Door locks must be keyed to the base building restricted keyway system and operable by the building master keying.
Window Coverings	Perforated roller blinds for glare control to be provided by Landlord on exterior glazing.	Tenant responsible for black-out blinds to be added to base building blind housing as required.

Component	**Base Building**	**Tenant Responsibility**
MECHANICAL		
Ventilation Air	Ventilation air cap-off is provided on each floor.	Tenant responsible for duct distribution from core cap-off to terminal units, including VAV boxes and controls for demand controlled ventilation.

Washroom Exhaust	Washroom exhaust complete with ductwork and grilles is provided for base building washrooms.	Tenant responsible for exhaust ductwork and grilles for any tenant installed washrooms.
General Exhaust	General exhaust air cap-off provided on each floor.	Tenant responsible for duct distribution from core cap-off to points of exhaust. Tenant is also responsible for a minimum of one VAV box per floor on general exhaust system to compensate for demand controlled ventilation operation.
Heating Water Piping	Valved heating water cap-offs are provided on each floor. Provisions available for installation of tenant supplied energy meters.	Tenant responsible for all heating water piping from core cap-offs to terminal units. Tenant to supply energy meters for own use or if required under lease.
Chilled Water Piping	Valved chilled water cap-offs are provided on each floor. Provisions will be provided for installation of tenant supplied energy meters.	Tenant responsible for all chilled water piping from core cap-offs to terminal units. Tenant to supply energy meters for own use or if required under lease.
Tenant Condenser Loop	A tenant condenser water loop is provided. Cap-offs are provided on each floor for tenant use. There is an allowance of 2 W/ft^2 .	Tenant responsible for local condenser loop circulation pumps sized to the design requirements stipulated in the base building drawings, with a capability of 25.5 GPM flow maximum and satisfying 170kPa pressure downstream of the the connection. Tenant is responsible for all condenser water piping from core cap-offs to terminal units. Tenant is responsible for rebalancing of condenser loop flow after tie-in of their systems.
Terminal Units (Fan Coils)	Terminal units are <u>not</u> provided under base building scope.	Tenant is responsible for providing all terminal units and controls.

Smoke Control Systems	Smoke venting is provided based on a single floor being vented at 6 ACH. Combined fire smoke dampers are used to control the smoke exhaust system. Operation is manually controlled via the building fire fighters control panel.	Tenant layouts must not compromise smoke venting opening on each floor.
Sanitary Drainage System	Drainage, waste & vent systems are provided for base building washrooms and janitor's rooms on each floor. A capped-off sanitary drainage and vent connection is provided at the core of each floor for future tenant use.	Tenant responsible for drainage, waste & vent piping for tenant installed fixtures, back to the core cap-offs. The location of any tenant fixtures must be coordinated with the building structure and base building mechanical & electrical services within the drop ceiling space.
Domestic Cold Water	Domestic cold water riser's are provided complete with piping to base building washroom and janitor room fixtures. A capped cold water connection provided at the core wall of each floor for future tenant use. All cold water piping is copper.	Tenant responsible for all domestic water piping from core cap-off to tenant plumbing fixtures.
Domestic Hot Water	Decentralized domestic hot water system is provided for base building washrooms with an electric domestic water heater for every three floors.	Tenant responsible for providing electric hot water generation (tank or instantaneous) and distribution piping as needed within their space.
Fire Sprinklers	Sprinklers and associated piping installed and operational for an open concept with heads turned up.	Tenant responsible for revising sprinkler layout to suit tenant fit-out. Tenant must engage designated base building sprinkler system contractor for all fire sprinkler work including revisions, additions, tie-in and re-verification.
Fire Standpipes	Standpipes with 2-1/2" hose connections are provided on each floor in each exit stair.	N/A
Fire Extinguishers	Fire extinguishers are provided at each exit stair in the core where required by Code.	Tenant responsible for providing additional fire extinguishers as required to suit tenant fit-out, to meet NFPA 10 requirements.

Controls	Base building controls has the capacity to accept integration of controller & sensors for a base building layout plus an additional 10% points for tenant fit up.	Tenant responsible for supplying and connecting terminal unit controllers, space controls and sensors to the building management system. Tenant controls system shall be compatible with base building BMS system to allow full integration including graphical interface.

Component	Base Building	Tenant Responsibility
ELECTRICAL		
Power Distribution	Vertical 600V distribution with step-down transformer and 208V distribution panel for normal power, located every other floor.	Where applicable, Tenants located on floors without step-down transformation will need to extend feeders to transformer /distribution panel on the alternate floor level by coring through the slab.
Power and Data Outlets	N/A	Tenant responsible for electrical rough-in, wiring, devices, and terminations.
Emergency Power	Vertical 600V distribution with step down transformer and 208V distribution panel for emergency Life Safety power located every floor. Step down transformer and 208V distribution panel for emergency “Standby” power located on every alternate floor.	Tenant will be responsible to extend a feeder to the level above or below for “Standby” power, as applicable, by coring through the slab to the alternate floor.
Lighting	Base building lighting in stairs, and washrooms is provided. Lighting in elevator lobbies for multi-tenant/crossover floors is provided. “Stubble Lighting” only is provided in lobbies on single tenant/non-crossover floors.	The tenant will be responsible for all lighting in tenant spaces and in lobbies on single tenant floors.
Lighting Controls	Lighting Control provided in stairwells, washrooms, and finished lobbies. Infrastructure is available on every floor for tenant to add on to existing lighting control system. No Lighting control in empty tenant space is provided.	Expansion of low voltage lighting controls for Tenant requirements for any added lighting in TI is the responsibility of the tenant.
Fire Alarm	Base building fire alarm system is provided for elevator lobbies, washrooms and stairs, and with up to 3 speakers/strobes within open plan floor layouts.	Tenant responsible to relocate or add fire alarm devices and additional VI report inspections. Work must be contracted by the Tenant through the designated base building contractor.

Communications	Riser conduits provided to each floor in the communication room. Additional conduits have been provided to open Tenant space to allow a pathway (5x1-1/4" in slab) for future Tenant to base building communication room on each floor.	Tenant is responsible to connect to base building terminations and extending service to Tenant communication closet. No Tenant equipment is permitted within base building communication closets.
Security	Card access control system provided for base building systems. A card access system riser is located in the base building communication closet. No additional provisions are present for Tenant card access.	Tenant will be responsible for adding controllers and extending the card access system to the Tenant space entry doors. The card access system for entry doors must be compatible with base building system.
Metering	Base building metering system is provided with revenue grade meters for main building utility monitoring.	Tenant will be responsible for any meters on Tenant panels if required by design or under lease obligation.

APPENDIX B

TENANT
GREEN DESIGN GUIDE

For Commercial Interiors

BentallGreenOak

INTRODUCTION

This Tenant Green Design Guide is supplemental to and is intended to be read and used in conjunction with the buildings' Tenant Design Criteria Manual.

This guide contains general information, procedures and recommendations designed to assist tenants in the design and construction of their improvements within their premises with the ultimate goal of being environmentally responsible and economically profitable and creating a healthy workplace for all employees.

The Lease and any other agreement(s) between the tenant and landlord of the building shall govern and take precedence over any information included in the Tenant Design Criteria Manual and this Tenant Green Design Guide.

OUR COMMITMENT

We are committed to strategically develop and continually improve environmental best practice with regard to our managed properties and the impact they have on the communities in which we do business. BentallGreenOak is the foundation of our Responsible Property Management principles. These principles embody the elements of sound property management practices with social and environmental principles of sustainability.

We seek the involvement of stakeholders, including our clients, employees, tenants and suppliers, in our efforts to reduce greenhouse gas emissions, increase waste diversion and assist us in reducing the environmental footprint of the properties that BentallGreenOak manages.

This commitment takes many forms, including the development of a culture of conservation and sustainability through appropriate and effective communication. We offer education programs to staff and we engage tenants in conservation practices and stewardship as well as inform all parties on the use of effective waste, energy and utilities management principles, all of which are incorporated in this Green Design Guide.

You play an important role in our building and we want you to know about our commitment to Responsible Property Management. Please visit our website for more information about our ForeverGreen promise and for a listing of all of our buildings that have been certified “Green” or have received industry related awards and recognition.

WHY A GREEN DESIGN?

It is well documented that more than 30% of the total energy produced and 60% of the electricity generated is consumed by buildings annually. Additionally, a typical North American commercial construction project generates up to 1.13 kilograms or 2.5 pounds of solid waste per square foot of occupied floor space.

A Green Design not only has a positive impact on public health and the environment, it reduces operating costs, enhances employer organizational marketability, has the potential to increases occupant productivity and demonstrates a commitment to a sustainable community. Beyond that, it contributes to a sustainable environment by reducing our energy and natural resource consumption and cutting down on the waste and pollution we create.

Many leading organizations consider the impact their workplaces have on a range of financial drivers and a Green Design can assist in securing a competitive advantage. This can provide the following benefits:

- Enhance company reputation;
- Attract and retain talented employees;
- Enhance employee wellbeing and productivity;
- Enhance and protect organizational knowledge;
- Reduce Liability;

Some of the economic benefits of a green building are:

- Lower utility bills and operating costs because of energy and water efficiency systems;
- Lower waste and dumping costs because of landfill diversion measures (recycling/reuse programs) used during construction and occupancy;
- Lower energy bills from efficiencies in HVAC systems;
- Fewer employee sick days taken and heightened worker productivity because of improved indoor air quality.

GETTING STARTED

Whether you have an in-house team that serves your facility design needs or you rely on outside firms to assist you, it is paramount that you select design consultants that are wholly committed to a Green Design. Once your design team is established choose other advisors (including engineers, suppliers, commissioning services and contractors) that are equally engaged in environmental best practices.

Key considerations in a Green Design include:

- Energy efficiency in mechanical and electrical installations that addresses thermal considerations, noise and indoor air quality and meets flexibility and privacy needs;
- Environmentally friendly interiors that support healthy work environments and avoid / minimize harmful emissions;
- Effective Waste Management practices and indoor environmental controls during renovation work;

This document includes a number of initiatives and strategies that should be considered when arranging service agreements and construction documents and will assist you in developing and refining plans and specifications that achieve your Green Design goals.

Often the first question asked is “What does a Green Design cost?” Many measures can be done with no additional cost while others may involve minimal upfront costs but will save money over the long haul. Some green measures may cost considerably more, but yield benefits that are more difficult to quantify, such as improved productivity. In all cases, the key to eliminating or minimizing additional costs is to establish your design team and set your goals very early in the process.

ENERGY EFFICIENCY

WATER

It is important to consider reducing our consumption of this resource in order to ease the burden on water and sewer infrastructure systems in our cities. Through Green Design you can maximize water efficiency within your space to reduce the burden on water supply and waste water systems.

These strategies, in aggregate, will help you to reduce potable water consumption up to 20% over a typical installation. Use the following as a guide to achieving this goal:

FIXTURE	MAXIMUM FLOW REQUIREMENT			
Water Closets	6.0	(LPF)	1.6	(GPF)
Urinals	3.8	(LPF)	1.0	(GPF)
Shower Heads	9.5	(LPM)	2.5	(GPM)
Faucets	8.3	(LPM)	2.2	(GPM)
Replacement Aerators	8.3	(LPM)	2.2	(GPM)
Metering Faucets	0.95	(L/CY)	0.25	(G/CY)

Index:
(LPF) liters per flush;
(LPM) liters per minute;
(L/CY) liters per cycle;
(GPF) gallons per flush;
(GPM) gallons per minute;
(G/CY) gallons per cycle;

Choose the most efficient water consuming fixtures available when installing new fixtures, whether these are for a kitchen, private bathroom, employee gym, etc. Technologies are changing at a rapid pace so ensure your consultants incorporate the best available in your Green Design.

ENERGY EFFICIENCY

LIGHTING

Understandably, a lot of emphasis goes into designing premises lighting in a Green Design. After all, it accounts for more than 60% of total premises energy costs and represents the largest single opportunity for savings. The building standard lighting system already achieves a high level of energy performance though the use of T8 lighting and proper spacing of fixtures.

Taking advantage of as much natural light as possible should be the initial focus. Next is an efficient lighting design. Energy efficient solutions are flooding the marketplace at an increasing rate and your design team is crucial to ensuring latest technologies are used.

A Green Design for lighting incorporates many elements, the highlights of which are detailed below:

- Use energy efficient LED lights (less than 10W/m2) for general office lighting;
- Design for light levels to 35-40 foot candles or 1 watt per square foot and incorporate task lighting where higher lighting levels are needed;
- For special purpose lighting, use energy efficient compact fluorescents or LED's;
- Install comprehensive occupancy based lighting control systems with appropriate zoning and incorporate daylight harvesting (use of natural light within 4.5 meters (15 feet) of windows and under skylights). Simple solutions include occupancy sensors in private offices or meeting rooms and/or electronic dimmer switches;
- Use LED in exit signs which only consume 1.6W of power versus 30W in conventional signs;
- Where the base building system does not meet your needs you may wish to consider installing upward facing or indirect lighting using parabolic lenses to reflect of the ceiling as a replacement to standard overhead fluorescent fixtures. Not only does this system produce a softer and shadow free light, computer screen glare is also reduced;

An added benefit to lowering the energy use in lighting systems is the reduction in the heat loads created which has a positive effect in the cooling system/s of the building.

ENERGY EFFICIENCY

HEATING VENTILATION AND AIR CONDITIONING

Improved and enhanced indoor air quality is fundamental in achieving overall employee satisfaction. Thus your goal is to establish and design to quantifiable standards for indoor air quality (IAQ) performance.

A successful Green Design for HVAC is often conditional on the base building capacities and systems. Where feasible:

- Provide for separate control zones in every room or area with a solar exposure
- Zone interior spaces separately
- Install controls and systems capable of sensing space use and modulating HVAC systems in response to space demand. This includes private offices and specialty occupancies (conference rooms, kitchens, etc.).

EQUIPMENT AND APPLIANCES

Install only Energy Star rated equipment and appliances, including kitchen and laundry appliances, office equipment, electronics and commercial food service equipment and, more importantly, ensure equipment and computers are turned off when not in use.

ENERGY MEASUREMENT

The ability to track energy consumption within the premises is a key step in energy conservation and awareness. It allows ongoing accountability and optimization in energy performance over time. By installing metering equipment that measures and records consumption within your space on all electrical, gas and water services you are able to monitor energy usage, which in turn allows you to identify, influence and see the results of any energy programs and initiatives you undertake.

For larger projects, continuous metering equipment should also be installed for the following end uses:

- Lighting systems and controls
- High consumption areas such as computer / server rooms

- “Plug Load” measuring consumption of office equipment, photocopiers, computers, etc. which are plugged into electrical outlets throughout your space.

ENERGY EFFICIENCY

CONSTRUCTION AND COMMISSIONING

The construction phase begins once you have a contract with the contractor you have selected. It ends when the project is complete and ready for occupancy. The last step prior to occupancy should be a commissioning period.

A project cannot be deemed a success until proven with written verification that confirms the project’s mechanical, HVAC and electrical systems are installed and calibrated and performance is validated to the intended design. This verification process is completed by a commissioning team and should be included as part of your project work.

FURTHER REDUCTIONS IN FOOTPRINT

In order to further reduce your energy footprint once you have designed and constructed efficient space, you may want to give consideration to purchase Green Power for your premises.

ENVIRONMENTALLY FRIENDLY INTERIORS

FURNITURE

Workstations can also have a significant environmental impact, particularly if they are not designed for easy assembly and reassembly, and capable for reuse or recycling. Improvements to indoor environment quality can be attained through the use of products that contain no or low “VOC”.

General office furniture contributes to a significant percentage of waste going to landfills. Consider reusing as much office furniture as possible which saves money and the environment. Cost effective, environmentally and healthy (no or low VOC) products are readily available and some manufactures agree to take back products for reuse or recycling at the end of your use.

MILLWORK

A Green Design incorporates built in waste receptacle millwork to ensure that all recyclable materials generated within your space is diverted from landfill. The following waste streams should be taken into consideration when working with your property management team:

KITCHENS/KITCHENETTES/ SERVERIES	PHOTOCOPY AREAS	MEETING/ BOARDROOMS
• Organic Waste	• Paper	• Paper
• Cans and Bottles	• Toner Cartridges	• Cans and Bottles
• Paper	• Battery Recycling	• Waste
• Plastics and Styrofoam		• Organic waste

Each receptacle should be properly labeled according to the building’s identified waste streams.

DURING CONSTRUCTION OR RENOVATION

WASTE MANAGEMENT

An effective waste management program is based on the 3Rs, Reduce, Recycle and Reuse. The element that needs to be considered right from the start is **REUSE!**

If your Green Design requirements are due to relocation, be sure to walk through your new premises and give careful consideration to any existing fixtures and furniture that can be reused. Also look to reuse whatever materials, equipment and resources you can from your existing premises.

If demolition of some or all of the premises is to be undertaken ensure suppliers, contractors and/or subcontractors retrieve / retain packaging (e.g. skids, plastic wrap etc.) for reuse.

This leads us to the next step in waste management, **RECYCLE!**

Your contractor should be advised to contact local salvaging/recycling companies and arrange for recycling services. At a minimum, you should ensure your contractor recycles the following waste materials that could not be reused and may be generated throughout demolition or construction:

- Concrete / masonry / stone
- Steel and other metals
- Wood
- Gypsum
- Cardboard
- Plastic
- Blue Box Waste
- Glass
- Ceiling tiles
- Carpet

The final step in your waste management efforts is to **REDUCE!**

Prevent damage of materials due to mishandling, improper storage and contamination so they do not end up as waste. Where possible, use prefabricated components built at a central facility to avoid waste generation at the site.

An important element of the commitment to waste management is ensuring effective documentation is kept during the construction process. This is done through a Waste Diversion Report. The report is comprised of a compilation of waybills, invoices, letters and other documentation from your suppliers/contractors that is

appropriately indexed and shows product types, quantities and details of waste diverted and waste sent to landfill. A copy of your Waste Diversion Report should be provided to us when completed.

It is therefore essential that you inform your contractor early in the renovation process about the following processes and procedures that form part of a Green Design.

Designate a central Waste Collection Area onsite that is dedicated to the separation and storage of all waste generated during demolition and construction.

- Provide separate containers in the Waste Collection Area that are sized to accommodate the estimate amount of each waste type and quantity.
- Clearly indicate the material type being stored in each container using appropriate signage and labels.
- If space is insufficient to provide proper sorting, ship all materials to a sorting station.
- Co-ordinate daily inspections of containers to check for and remedy cross contaminations.
- Ensure the material type is clearly labeled on each container.
- Arrange for and/or promptly transport containers to receiving facilities when containers are full.

Provide “blue box” recycling bins on site for recycling waste generated by site workers and visitors. Waste deposited in the bins should include aluminum, food or beverage cans, glass and plastic bottles and jars for food or beverage, cardboard and paper products.

Within 14 days...

- Have suppliers and contractors provide a letter listing the item(s) to be reused and the item(s) and quantity being removed from the site.
- Those items being removed from the site should show a list of proposed salvaging / recycling facilities to be used and further specify the material(s) that will be accepted by each facility and whether the material(s) will be reused, recycled or sent to landfill.
- Follow any salvaging / recycling facilities’ material acceptance requirements to ensure materials are properly sorted, grouped and packaged for collection.

Additional information and suggestions on waste management practices can be found on these websites:

City of Winnipeg – http://www.winnipeg.ca/waterandwaste/

INDOOR ENVIRONMENT

Prevent indoor air quality problems arising from the construction / renovation process.

Protect all materials from moisture damage whether stored on-site or installed with the use of absorptive materials. Provide filtration media with a Minimum Efficiency Reporting Value (MERV) of 8 at each return air grill when air handlers are used during construction. Air handling systems serving the premises will only be turned on in the construction area when filters have been installed.

Additionally, reduce the quantity of indoor air contaminants that are odorous, potentially irritating and/or harmful to the comfort and well-being of installers and occupants. This would include adhesives, sealants and sealant primers. Specify low volatile organic compound “VOC” materials in all products being used. This is often accomplished with no additional cost.

Special consideration should be given to the selection of furniture and fixtures to ensure VOC levels are minimized and sufficient time for “off gassing” of new furniture is allowed to occur in a warehouse designed for this purpose rather than on the construction site. Be sure to order these products early in your process so it does not delay your overall construction schedule.

INFORMATION AND RESOURCES

To assist you in identifying environmentally friendly and sustainable ("green") goods and services; sourcing, using and disposing office products in an environmentally preferable manner; and recognizing the vast array of products and services available, we have identified a few of the thousands of web sites available in your pursuit of Green Design.

EcoLogo™ Program – Launched by the Canadian Federal government in 1988, EcoLogo™ has grown to service thousands of buyers and sellers of green products throughout the United States and Canada. EcoLogo™ is North America's oldest environmental standard and certifications organization. At this site, you will be able to make important, green conscious decisions while you browse through a list of over 7,000 product and service offerings.

www.ecologo.org/en/

Bullfrog Power – Bullfrog sources power exclusively from generators who meet or exceed the federal governments Environmental Choice Program EcoLogo™ standard for renewable electricity.

www.bullfrogpower.com

Public Works Canada - offers a number of reference guides and publications including Environmentally Responsible Green Office and an Environmentally Responsible Construction and Renovation handbook.

www.pwgsc.gc.ca/realproperty/text/publications-e.html

BUILDSMART® - a program of Metro Vancouver, is a sustainable building information source for the design and construction industry, helping make smart, sustainable choices when crafting the future of our constructed environment. The site features a sustainable products directory, technical resources, and information covering the life cycle of a building including; Design, Construction, Operations, Retrofit/Renovation and finally Deconstruction.

www.gvrd.bc.ca/BuildSmart/

TAKING IT TO THE NEXT LEVEL

If you wish to take your commitment to designing and constructing sustainable office interiors to an elevated level we highly recommend you consider certification of your interior renovations to the LEED® - CI rating system offered by the Canadian and United States Green Building Councils. A two page summary is attached to this guide as Schedule 1 with detailed information available at the following websites:

www.cagbc.org/

www.usgbc.org/

Of paramount importance is to ensure your consultants are LEED Accredited Professional with experience in LEED accreditation programs to alleviate costs that can be associated with their learning curve.

SCHEDULE 1

LEED – CI SUMMARY

What is LEED?

The Leadership in Energy and Environmental Design (LEED) Green Building Rating System™ is a voluntary, consensus-based national rating system that encourages and accelerates global adoption of sustainable green building and development practices through the creation and implementation of universally understood and accepted tools and performance criteria.

LEED Basic Facts

- LEED is implemented by the Canadian Green Building Council for the Canadian market and by the U.S. Green Building Council for the United States market which are not for profit and non-profit organizations respectively;
- LEED is a point-based system for rating the environmental performance of buildings;
- Ratings of CERTIFIED, SILVER, GOLD or PLATINUM are awarded based on the number of points a project achieves;
- LEED includes a third-party review and certification process;
- There are several versions of LEED, each addressing different building types and construction scopes;

LEED –CI

LEED for Commercial Interiors is the green benchmark appropriate for the tenant improvement market. It is the recognized system for certifying high-performance green interiors that: are healthy, productive places to work; are less costly to operate and maintain; and have a reduced environmental footprint. LEED–CI provides a framework to make sustainable choices to tenants and designers who do not occupy whole buildings.

LEED–CI addresses the following categories of environmental performance, which are explained in more detail in the sections that follow:

- Sustainable Sites
- Water Efficiency
- Energy & Atmosphere
- Materials & Resources
- Indoor Environmental Quality
- Innovation in Design

Sustainable Sites

This section looks at the environmental choices in terms of the site, its surroundings and certain aspects of the base building in which the LEED–CI project is taking place. A number of the issues addressed in this section may be outside of the scope of influence of the tenant. Within Sustainable Sites, LEED–CI addresses environmental performance in areas such as the reuse of brownfield sites, storm water management, heat island effect, on-site renewable energy and transportation management.

Water Efficiency

Points for water efficiency are awarded to project teams for their reduction in potable water use relative to standard practice. Low flow fixtures such as toilets, showers and faucets all contribute towards these points.

Energy & Atmosphere

Energy conservation may be the most important way to reduce the negative environmental impact of buildings, since energy use is implicated in resource depletion, global warming and air pollution to name but a few impacts.

To reflect the importance of this section, it contains three prerequisites – mandatory measures that must be completed in order to obtain any level of LEED certification. These are:

- Fundamental Commissioning – to ensure that testing procedures are conducted before tenant occupancy;
- Minimum Energy Performance – to ensure compliance with energy code standards;
- CFC Reduction – to ensure the avoidance of ozone depleting CFCs in mechanical equipment;

LEED rewards projects with points for meeting or exceeding energy efficiency standards for lighting, HVAC and appliances. Points are also available for electricity from green sources, energy metering and enhanced commissioning.

Materials and Resources

The energy and resources required to extract, manufacture and transport building materials have significant environmental impacts. To reduce these impacts, the design team should emphasize the use of materials that have a minimal environmental impact and low embodied energy.

This section has one prerequisite – the provision of space for storing recyclables in the finished project – and also assesses the recycled content, reused content and locality of the materials used. Points are also available for diverting construction waste from landfill and selecting sustainable materials such as FSC certified wood or rapidly renewable materials such as bamboo.

Indoor Environmental Quality

Earth-conscious building design doesn't stop at the building entrance, but includes issues related to the indoor environment: air quality, natural lighting and outdoor views. Healthy workspaces mean healthy, happy and productive staff with reduced absenteeism; many measures in this section make commercial sense too.

All projects must comply with two prerequisites in this section – tobacco smoke control and ventilation rates in accordance with or better than minimum standards.

Beyond that, LEED encourages a healthy working environment in two ways. First, LEED awards project points for minimizing harmful substances such as pollutants from construction process and harmful substances (particularly VOCs) in materials, paints, sealants and furniture. Second, LEED recognizes design features that actively contribute toward health and well-being, namely natural day lighting, views out and comfortable and controllable heating, ventilation and lighting systems.

Innovation in Design

The final section allows projects to be rewarded for innovation measures not covered elsewhere in LEED or to achieve points by demonstrating "exceptional performance" in one of the areas covered by LEED.