



# **Broadway Tech Centre Building 5**

## **TENANT DESIGN GUIDELINES**

**FOR NEW AND RENOVATION CONSTRUCTION PROJECTS**

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## **INTRODUCTION**

It is intended that the high standards of design and building finishes of Broadway Tech Centre will be carried through into the Tenant Improvements and to that end, these guidelines have been prepared.

This manual contains general information, procedures and requirements which have been established by QuadReal Property Group, as manager for 2725312 Canada Inc. and Broadway Tech Centre Holdings Inc., the Landlord, to assist and introduce Tenants, Designers and Contractors to the fundamental design, systems, constraints and opportunities inherent at Broadway Tech Centre. Following these guidelines will facilitate the Tenant's improvements of the premises, while avoiding unnecessary delays, alterations and expenses, thus achieving an earlier occupancy schedule in a cost effective manner.

### **Be Green**

QuadReal Property Group, 2725312 Canada Inc. and Broadway Tech Centre Holdings Inc. are committed to good stewardship in tenant design and protecting both the internal environment as well as the external environment. Through this manual you will find useful tips and guidance on how you can participate in our goal to reduce the building's overall environmental footprint.

The reuse of materials, components and equipment generated from demolition is preferred over recycling as the overall environmental impacts of reuse are much less. If reuse is not practical, recycling should be maximized to divert as much material as possible from landfill for use as feedstock in the manufacture of new products.

Reduction of the waste generated by demolition can be achieved through careful planning and delineation of the extent of required demolition. The sequence to be followed and the methods to be used for deconstruction should be carefully specified. Deconstruction workers must be well instructed as to the expectations for material recovery and the processes to be followed. Carefully planned and executed material site separation, segregated storage and protection are essential to maximizing potential savings.

Section 1 – Procedures

**1.1 LANDLORD & PROPERTY CONTACTS**

Landlord/Owner  
2725312 Canada Inc. and Broadway Tech Centre Holdings Inc.

Landlord's Managing Agent  
QuadReal Property Group  
Suite 800-666 Burrard Street  
Vancouver, BC, V6C 2X8

***Property Manager***

Vice President, Property Management: Mr. Rod Olsen  
Email: rod.olsen@quadreal.com  
Telephone: (403) 202-7528

***Tenant Coordinator***

Contact: Mr. Rod Olsen  
E-Mail: rod.olsen@quadreal.com

QuadReal Property Group  
Suite 260  
2985 Virtual Way, Box 18  
Vancouver, BC, V5M 4X7  
Telephone: (403) 202-7528

***Leasing Agent***

Leasing Contact: Mr. Jeff Rank  
E-Mail: jeff.rank@quadreal.com

QuadReal Property Group  
800-666 Burrard Street  
Vancouver, BC, V6C 2X8  
Telephone: (604) 975-9623

## **1.2. BASE BUILDING CONSULTANTS AND PREFERRED CONTRACTORS**

### Base Building Consultants

#### **Architects**

B+ H Architects  
Suite 200  
1132 Alberni Street  
Vancouver, BC, V6E 1A5  
Telephone: (604) 979-9924  
Fax: (604) 685-0694  
Contact: Mr. Michael Apostolides  
E-Mail: Michael.Apostolides@bharchitects.com

#### **Structural Engineers**

Choukalos Woodburn McKenzie Maranda Ltd.  
#206 - 1412 West 7th Avenue  
Vancouver, BC, V6H 1C1  
Telephone: (604) 731-6584  
Fax: (604) 738-5110  
Contact: Mr. Patrick Lam  
E-Mail: plam@cwmm.com

#### **Mechanical Engineers**

Flow Consulting Group Inc.  
1080 – 1075 West Georgia Street  
Vancouver, BC V6E 3C9  
Telephone: (604) 609-0500  
Cell: (778) 238-2638  
Contact: Ron Braun  
E-Mail: [rbraun@flowgroup.ca](mailto:rbraun@flowgroup.ca)

#### **Air Balancing**

KD Engineering  
3735 Myrtle Street  
Vancouver, BC, V5C 4E7  
Telephone: (604) 872-8651  
Fax: (604) 872-0281

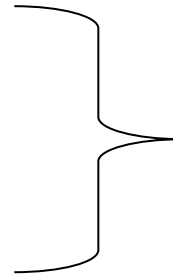
#### **Electrical Engineers**

Flow Consulting Group Inc.  
1080 – 1075 West Georgia Street  
Vancouver, BC V6E 3C9  
Telephone: (604) 609-0500  
Contact: Othmar A. Brunner  
E-Mail: [obrunner@flowgroup.ca](mailto:obrunner@flowgroup.ca)

#### **Riser Manager/Communications Systems**

(Telephone, data design and installation services)

Canem West  
1358 – 13351 Commerce Parkway  
Richmond, BC V6V 2X7  
Telephone: (604) 279-1260  
Cell: (604) 340-7406  
Contact: Mr. John Cameron  
E-Mail: [jcameron@canem.com](mailto:jcameron@canem.com)



*Building Riser Manager MUST be utilized for all security cabling within building riser closets.*

**Code Consultants**

LMDG Building Code Consultants Ltd.  
780 Beatty Street, 4th Floor  
Vancouver, BC, V6B 2M1  
Telephone: (604) 682-7146  
Fax: (604) 682-7149  
Contact: Mr. Warren Marshall  
E-Mail: [wmarshall@lmdg.com](mailto:wmarshall@lmdg.com)

**Certified Professional**

CFT Engineering Inc.  
800-1901 Rosser Avenue  
Burnaby, BC, V5C 6R6  
Telephone: (604) 684-2384  
Fax: (604) 684-2402  
Contact: Mr. Bob Heikkila  
E-mail: [cft@cftengineering.com](mailto:cft@cftengineering.com)

**Signage Consultants**

Exterior Signage:

Imperial Sign  
2821 Huntington Pl.  
Port Coquitlam, BC,  
Telephone: (604) 464-1211  
Fax: (604) 941-8496  
Contact: Mr. Lindsay Miles  
E-Mail: [info@imperialsign.com](mailto:info@imperialsign.com)

Interior Signage:

Vancouver Sign Group  
#414 – 5940 No. 6 Road  
Richmond, BC, V6V 1Z1  
Telephone: (604) 273-4155  
Contact: Ms. Alysha Jacobs  
E-Mail: [alysha@vsgbc.com](mailto:alysha@vsgbc.com)

**Mandatory Subcontractors (for base building systems integrity)**

*Any modification to the mechanical controls systems must be performed by:*

ESC Automation Ltd.  
17850 56th Avenue  
Surrey, BC, V3S 1C7  
Telephone: (604) 574-7790  
Fax: (604) 574-7793  
Contact: Mr. Trevor Danielson  
E-Mail: [tdanielson@escautomation.com](mailto:tdanielson@escautomation.com)

*Any modifications made to the fire alarm system must be performed by:*

Chubb Edwards  
3997 Henning Drive, Unit 101  
Burnaby, BC, V5A 1V5  
Telephone: (604) 420-4113  
Facsimile: (604) 430-6544  
Contact: Mrs. Robin Wright  
E-Mail: [robin.wright@chubbedwards.com](mailto:robin.wright@chubbedwards.com)

*Any modifications made to the base building security system must be performed by:*

BMS Integrated Services  
1277 Georgia Street East  
Vancouver, BC V6A 2A9  
Telephone: (604) 604-676-0136  
Contact: Mr. Mike Herle  
E-Mail: [mike.herle@bmscom.com](mailto:mike.herle@bmscom.com)

**Pre-approved Trades**

***Electrical:***

Canem Systems Ltd.  
Suite 100 – 1600 Valmont Way  
Richmond, BC, V6V 1Y4  
Telephone: (604) 279-1263  
Facsimile: (604) 273-5056  
Contact: Mr. Rick Friesen  
E-Mail: [rfriesen@canem.com](mailto:rfriesen@canem.com)

Mott Electric Ltd.  
419 West Hastings Street  
Vancouver, BC, V6B 1L4  
Telephone: (778) 231-8119  
Contact: Howard Smith

Action Electric  
1277 East Georgia  
Vancouver, BC V6A 2A9  
Telephone: (604) 216-1521  
Contact: Mark Amos

E-Mail: mamos@action-electric.ca

**Mechanical:**

Lathams  
100 – 1060 West 8th Avenue  
Vancouver, BC, V6H 1C4  
Contact: Rob Flipse  
Telephone: (604) 683-2321  
E-Mail: rflipse@lathams.ca

Eagle Ridge Mechanical  
117 – 1515 Broadway St  
Port Coquitlam, BC, V3C 6M2  
Telephone: (778) 285-1181

Davidson Bros. Mechanical Contractors  
7388 Headley Ave  
Burnaby, BC, V5E 2P9  
Contact: Wayne Davidson  
Telephone: (604) 522-4798  
E-Mail wdavidson@davidsonbros.ca

Fred Welsh Ltd.  
#201 - 94 Glacier Street  
Coquitlam, BC, V3K 6B2  
Contact: Mr. Chris Welsh  
Telephone: (604) 942-0012

**Fire Sprinklers:**

Priority Fire Systems Limited  
1261 2nd Avenue  
Vancouver, BC, V6A 3T9  
Telephone: (778) 987-5583  
Contact: Cyle Lappin

Tyco Simplex Grinnell  
1485 Lindsey Place  
Delta, BC, V3M 6V1  
Telephone: (604) 515-8872 Ext. 125  
Facsimile: (604) 519-1477  
Contact: Mr. Bill Keyes  
E-Mail: bkeyes@tyoint.com



## **Pre-approved General Contractors**

Prime Interiors Inc.  
Suite 603 – 610 Granville Street  
Vancouver, BC, V6C 3T3  
Telephone: (604) 685-5966 ext. 301  
Contact: Michael Wan  
E-Mail: [mwan@primeinteriors.com](mailto:mwan@primeinteriors.com)

Unison Construction Management Ltd.  
201-225 Smithe Street  
Vancouver, BC, V6B 4X6  
Phone: (604) 685-1422  
Contact: Mr. Ryan Sayer  
E-mail: [ryan@unisoncm.com](mailto:ryan@unisoncm.com)

Matra Construction Inc.  
3909 Charles Street  
Burnaby, BC, V5C 3K7  
Phone: (604)320-1600  
Contact: Arfan Khan  
E-mail: [arfan@matra.ca](mailto:arfan@matra.ca)

Totalplan Inc.  
350-1095 West Pender Street  
Vancouver, BC V6E 2M6  
Phone: (604) 728-7947  
Contact: Nico Scholz  
E-mail: [nico@totalplan-inc.com](mailto:nico@totalplan-inc.com)

### **1.3. APPROVAL PROCESS**

#### **Tenant Coordination**

The Landlord has appointed the Property Manager as Tenant Coordinator whose primary function is:

- To provide guidance and assistance to the Tenant throughout the design and construction of their improvements within the Lease Premises
- To review, comment upon and approve all tenant submissions prior to commencement of work within the Leased Premises
- To be the liaison between the Landlord and Tenant, and its contractor and designer

All questions, comments and submissions relative to Tenant Coordination are to be addressed to:

Mr. Rod Olsen  
Vice President, Property Management  
Suite 260  
2985 Virtual Way, Box 18  
Vancouver, BC V5M 4X7  
Ph: (403) 202-7528  
Email: rod.olsen@quadreal.com

### **1.4. PERMITS AND CODES**

#### **Building Permits**

*All drawings for Tenant Improvement work must be approved by the Tenant Coordinator and a Building Permit must be issued by the City of Vancouver before construction can begin.*

The project legal description for permitting purposes is:

PID: 024-662-348  
Lot 1 Except Part in Plan LMP49647  
Section 36  
Town of Hastings Suburban Lands  
Plan LMP44003

For general office tenancies, use is to be as described in the CD-1 (470) zoning Bylaw for 2900 East Broadway. Refer to the City of Vancouver Bylaw for applicable fees.

Permits required prior to the completion of the Base Building in new developments will require the Certified Professional to monitor the work and provide submissions. The Certified Professional services and associated costs will be the responsibility of the Tenant.

The Tenant or the Tenant's contractor/designer is responsible for obtaining all necessary permits and approvals from the Building Department, Health Department, Fire Department

and Ministry of Labour. The Tenant shall provide to the Landlord proof of building permits and approvals as received from all regulatory bodies having jurisdiction prior to commencement of the Tenant's construction. Any installation of items that are contrary to code will not be allowed.

Approval of such plans as outlined in this section does not waive the Tenant's responsibility to ensure that any and all Tenant Improvements meet building standards and code requirements as outlined herein with respect to design and/or construction.

### **Occupancy Permits**

Tenants are responsible via the General Contractor/Design-Build Contractor to make arrangements for a Building Inspector to inspect their premises prior to move-in. In order to avoid unexpected delays with obtaining your Occupancy Permit, tenants are STRONGLY encouraged to apply for the Occupancy Permit at the same time as the Building Permit.

Each different use i.e. Commercial, Retail, and Industrial will require different trade inspectors to sign off on the various aspects i.e. Health, Electrical, Mechanical, Sprinkler.

When you have arranged a date and time for the final inspection, please advise the Tenant Coordinator as soon as possible, as they will also attend the inspection.

## **1.5. PRE-CONSTRUCTION PROCESS**

- i. The Tenant must coordinate and provide all information through the Tenant Coordinator.
- ii. The Tenant shall arrange a pre-design orientation meeting at the site with the Tenant's Representative, Tenant Coordinator, Tenants Designer, and the Base Building Consultants in attendance.
- iii. The General Contractor chosen by the Tenant must be approved by the Tenant Coordinator, such approval not to be unreasonably withheld.
- iv. The Tenant is responsible to ensure their Contractor is familiar with the Tenant Work Rules and Regulations, Section II of this manual.
- v. The Tenant must have prepared and submitted two (2) copies of design drawings and specifications in print sized 24"x 36" and one (1) electronic copy with the CAD drawings to the Tenant Coordinator. Drawings must be signed and sealed by qualified professionals.
- vi. The Tenant must obtain written approval of the drawings and specifications from the Tenant Coordinator.
- vii. The Tenant must obtain the required City permits, including the Building Permit and submit copies of the permits to the Tenant Coordinator.
- viii. The Tenant must include the Construction Rules & Regulations in any tender package so that the contractors are aware of and follow the rules.
- ix. Once the Tenant Coordinator has approved the Tenant's chosen General Contractor the Tenant must submit a list with the name and contact information of the Contractor and all Subcontractors along with proof of insurance and WCB Clearance letters to the Tenant Coordinator.

- x. The Tenant shall arrange a pre-construction orientation meeting at the site with the Tenant's Representative, Tenant Coordinator, Tenant's Designer, Tenant's General Contractor, Tenant's Representative for Telephone & Data, and the Base Building Consultants in attendance.
- xi. The Tenant must obtain written permission to start work and confirm the work schedule with the Tenant Coordinator.
- xii. During Base Building Construction, temporary services such as utilities and associated costs will need to be arranged through the Base Building Contractor.

## **1.6. TENANT'S SUBMITTALS**

### **Preliminary Drawing Review**

The Tenant will submit one (1) electronic and two (2) print copies sized 24"x 36" of any preliminary drawings to the Tenant Coordinator for review and approval. The drawings will be of sufficient detail to illustrate the intended design theme. Preliminary Tenant drawings will be reviewed primarily to determine physical compatibility with the Base Building.

### **Working Drawing Review**

Following approval of the preliminary drawings, one electronic and two (2) print copies of working drawings and specifications for the Tenant's Work shall be submitted to the Tenant Coordinator for final approval. This submission must include:

a) ***Architectural*** (2 print and 1 electronic of each)

Floor plans and partition layouts  
Reflected ceiling plans  
Sections and details  
Door and hardware schedules  
Signage drawings

b) ***Finishes***

Two (2) print copies and one electronic copy of the finish schedule along with one (1) materials sample and color board. The sample board will be returned.

c) ***Structural/Mechanical/Electrical***

Two (2) print copies and one electronic copy of the engineered drawings and specifications showing all proposed changes affecting structure, lighting, electrical, fire alarm, HVAC, plumbing, sprinkler systems and building electrical room wall spaces. Wherever supplementary work or amendments to the mechanical, electrical or structural base building systems, assemblies, or components are necessary, the Tenant must engage, at their own expense, the services of the Building Consulting Engineers. These consultants will design and inspect the work to ensure performance and compatibility with the building systems. Alternate engineers cannot be engaged.

d) ***Communication***

Two (2) print copies and one (1) electronic copy of telephone and data drawings and specifications. Tenants should note that supplied copper voice communications cabling is

provided at the rate of 1.5 pairs per 100 square feet of GLA. Further voice and all data cabling are at the Tenant's expense.

**e) *Schedule***

Two (2) print copies and one (1) electronic copy of a bar-type construction schedule which notes the dates of start and completion for each subtrade section.

**f) *Subtrade List***

One (1) print copy and one (1) electronic copy of the list of the names of the general contractor and all subcontractors; including Name, Address, Contact Names, Phone and Fax Numbers, of who will be constructing the Tenant Improvements.

**Approved Working Drawings**

Approval of plans as outlined in this section does not release the Tenant from their responsibility to ensure that all Tenant Improvements meet building standards as outlined herein with respect to design and/or construction.

## **1.7. *POST CONSTRUCTION***

The Tenant is required to carry out its construction work in strict accordance with the Approved Drawings. Variations must be approved and recorded in "as-built" drawings, and provided to the Landlord at the conclusion of the construction. As-built drawings are to be submitted as 2 print copies sized 24"x 36" and one electronic AutoCAD copy.

The Tenant must correct immediately any work which does not meet with the approval of the Building Inspector, notwithstanding the fact that the Tenant's drawings may have been approved previously by the appropriate governmental authorities and the Landlord. Any revisions to the Approved Drawings requested by such authorities must be brought to the attention of the Landlord immediately. Should the Tenant unduly delay the required correction, the Landlord may make the correction at the Tenant's cost.

Any elements of the Base Building such as, but not limited to, base building standard light fixtures, ceiling tiles, doors, door frames, hardware, etc., which the Tenant removes with the approval of the Landlord, are the property of the Landlord and must be turned over, upon their removal, to the Building Operator.

Pre-occupancy cleaning may be done by the Landlord's cleaning Contractor at the Tenant's request.

## **1.8. *PRIOR TO RELEASE OF TENANT IMPROVEMENT ALLOWANCE***

Please refer to the Offer to Lease and or Lease for further detail, but generally the following shall apply in order for the Tenant Improvement Allowance to be released:

- There are no outstanding charges on the Tenant's account (including any Development or Base Building work completed on behalf of the Tenant).

- The Lease Agreement or other documentation has been fully executed.
- Tenant has been set up on Pre-Authorized Debit Plan, if applicable.
- A Statutory Declaration has been received from the Tenant as evidence that all contractors have been paid in full along with copies of invoices.
- The Tenant must be in occupancy of the premises.
- A copy of the Contractors Liability Insurance and a copy of the Contractor's WorkSafeBC Clearance letter must be submitted.
- All Tenant work has been completed in accordance with the Tenant Design Guidelines; air balancing reports, as-built drawings (2 print copies sized 24"x 36" and 1 electronic AutoCAD), maintenance manuals, sprinkler and fire alarm verification reports, and copies of final acceptance of all permits have been submitted to the Tenant Coordinator.

## **1.9. ENERGY CONSERVATION**

Every effort must be made by designers to reduce the energy consumption by using:

- Fluorescent pot lights instead of incandescent pot lights;
- No more than two watts per square foot for lighting;
- Local switches on workstation valance lighting;
- All areas must comply with the WCB regulations regarding lighting levels;
- The average switching zone shall not exceed 1,000 square feet.

## **1.10. MATERIAL SELECTION**

QuadReal Property Group and the Landlord are strongly committed to using low environmental impact materials. All contractors working within Broadway Tech Centre are encouraged to use environmentally-friendly materials in construction, such as products with high recycled content, products which are produced with minimal impact on the environment, and low off gassing carpeting and furnishings.

Information on selecting environmentally-friendly construction materials can be obtained from:

The Recycling Council of BC has a web site that includes the BC Materials Exchange (MEX) which provides a way of connecting recycling suppliers with consumers. Their website can be found at [www.rcbc.bc.ca](http://www.rcbc.bc.ca).

Information on environmentally friendly purchasing policies can be found on Environment Canada's website: [www.ns.ec.gc.ca/epb/pollprev/wm\\_factsheets/purchase.html](http://www.ns.ec.gc.ca/epb/pollprev/wm_factsheets/purchase.html)

Iris Communications Inc operates the Oikos green building web site which includes extensive information on green building materials.  
<http://oikos.com/library/index.html#Downloads>

Books on green building construction materials can be obtained from the Association for Environmentally Conscious Building (AEVB) in the United Kingdom. See their website at: [www.aecb.net/books/materials](http://www.aecb.net/books/materials)

All contractors working within Broadway Tech Centre are strongly encouraged to recycle construction materials. See Tenant Work Regulations section.

From time to time used products and materials from other construction jobs within Broadway Tech Centre become available, i.e. doors, furniture etc; when possible, and if not used immediately, they are stored for future use. Contractors are encouraged to contact the Tenant Coordinator to find out if there are any used materials available for use in their construction project.

### **1.11. TENANT MOVE-IN & ELEVATORS**

Prior to Tenant occupancy and the movers commencing their work, the Tenant, Tenant Contractor and Tenant Coordinator will inspect the premises and record any deficiencies or cleaning requirements. The Tenant Contractor is responsible for arranging this inspection. The Tenant will also provide the Tenant Coordinator with a copy of the interim or final occupancy permit issued by the City of Vancouver.

To book the freight elevator please call QuadReal Connect at 1-877-977-2262, please provide as much notice as possible to avoid conflicts. The capacity of the freight elevator is 4,000 pounds. The size of the centre opening elevator door is 4 feet by 7 feet. The clear height within the elevator is 11 feet with a folding suspended ceiling. The clear inside dimensions of the elevator cab is 7 feet 8 inches by 5 feet 6 inches. Tenants and designers should consider these limiting factors as well as access routes when completing their design work.

## **SECTION 2 – TENANT WORK**

### **2.1. RULES AND REGULATIONS**

The following outlines the general Rules and Regulations enforceable by the Landlord at any time during the construction period. Failure to comply with any of the items outlined below may result in the job being stopped/halted by the Tenant Coordinator. The Landlord accepts no faults for non-performance by the Contractor should this event occur. Strict adherence to these guidelines is mandatory.

**The Tenant Coordinator will inspect all work and has the authority to stop work where there are violations of these guidelines and/or have violations rectified at the Tenant's cost.**

The following shall be considered part of the requirements for Tenant, designers, contractor and subcontractors:

1. All construction must be performed by a general contractor and subcontractors whom the Tenant Coordinator shall approve; such approval not to be unreasonably withheld. The Tenant Coordinator reserves the right to inspect and approve all work carried out by the Tenant's Contractors to ensure compliance with approved drawings and building standards.
2. All carpeting installed using the "direct glue down" method must be adhered with a water soluble adhesive approved by the Tenant Coordinator.
3. **INSURANCE** - The Tenant is to provide to the Tenant Coordinator the approved Contractor's Certificate of Insurance with comprehensive general liability insurance covering work with a minimum of five million dollars (\$5,000,000) on any occurrence. The policy will contain a cross liability clause naming the Landlord, 2725312 Canada Inc. and Broadway Tech Centre Holdings Inc. and QuadReal Property Group as additional named insured and be extended to include automobiles and contractor's protective and blanket contractual liability. As well, the contractor is to provide an "all risk" of physical loss or damage policy covering the total contract price for Tenant's Work.
4. **WorkSafeBC** - The Tenant is to provide to the Tenant Coordinator a WorkSafeBC Clearance Letter as evidence that the Contractor is in good standing with the Workers' Compensation Board.
5. It is the Tenant's responsibility to ensure that the Tenant's contractor observes and complies with all applicable construction, and health and safety regulations. Any additional safety regulations which may be imposed by an authorized representative of the Landlord must also be complied with, immediately and fully. Should failure to comply result in any construction delay, the Tenant will be held responsible for all resulting costs.
6. The Tenant's Contractor is required to post at the site at least two names and telephone numbers for emergency contact. In the event of an emergency, call 911 and QuadReal Connect at 1-877-977-2262.
7. Operable fire extinguishers must be supplied by the Tenant Contractor and be kept within the Leased Premises throughout the construction period.
8. The Tenant's Contractor shall restrict deliveries of materials and equipment to predetermined times and routes as directed by the Tenant Coordinator.



- **Deliveries are not permitted through the main entrance doors of any building.** Contractors are required to wear a badge identifying themselves as contractors at **Broadway Tech Centre** which can be obtained through QuadReal Connect (1-877-977-2262).
9. The Tenant Contractor must protect base building assemblies, components, and systems during construction, and is responsible for restoring building standard finishes affected or damaged by Tenant construction. Where encroachments beyond construction limits are necessary, the Tenant Contractor shall supply and erect a suitable hoarding at the job site. The hoarding design and location is to be approved by the Tenant Coordinator.
  10. The Tenant Contractor must provide and erect any hoarding required by the Tenant Coordinator. Wherever the Tenant Coordinator deems necessary, polyethylene sheathing with sealed joints will be applied to hoardings to prevent dust migration within the building.
  11. All coring, drilling and other noisy work shall occur before or after the Business Hours of 7:00am to 6:00pm Monday through Friday and 8:00am to 1:00pm on Saturday.
  12. During the construction of Tenant Improvements, the Landlord will not be responsible for any loss or damage to the Tenant's materials, fixtures, equipment, etc. whether the loss is a result of the Tenant's failure to properly secure the premises or any other circumstances.
  13. The Tenant Contractor shall not use "Ramset", "Hilti", or other explosive type fastening devices during Business Hours as outlined above.
  14. The Tenant Contractor shall confine operations to the leased area and arrange for the security of the Tenant's leased area and equipment, materials, etc. during the construction period.
  15. The Tenant Contractor shall keep premises clean and remove garbage daily. The Tenant Contractor must make arrangements with the Tenant Coordinator for the location and storage of large refuse containers. The Tenant Contractor is encouraged to use the Building's recycling bin for used cardboard. All Contractors working within Broadway Tech Centre are strongly encouraged to recycle construction materials. The Landlord requires all Tenant Contractors to make their own arrangements for recycling of glass, plastic, wood and waste gypsum board. Below is a list of construction materials that should be recycled and the recycling facilities that accept them:
    - **Drywall** can be recycled through New West Gypsum Recycling (BC) Inc, Telephone: 604-520-6647.
    - All **metals, steel studs, copper, aluminum, brass,** and **electrical wiring** can be recycled through Allied Salvage & Metals Ltd, Telephone: 604-322-6629.
    - All other **construction garbage, wood, carpet, glass,** and **plastic** can be sent to one of two facilities for sorting; Inner-City Recycling, Telephone: 604-327-0957, or Ecowaste Industries Ltd, Telephone: 604-276-9511. At these facilities the wood and other products are separated for possible recycling. What is left can then be taken to the city landfill.
    - **Fluorescent lamps** can be recycled through Nu-Life Industries, Telephone: 604-857-5588.
  16. The Tenant Contractor is required to comply with all jurisdictional regulations concerning disposal of products.

17. Gypsumboard and other heavy items may only be stacked twelve inches high. Stacks shall be located across beam lines and near core walls or columns.
18. UNDER NO CIRCUMSTANCES will the movement of construction personnel, tools, materials, etc. be permitted via passenger elevator other than with the Tenant Coordinator's consent and proper protection of the elevator and lobby finishes
19. Washrooms may not be used for cleaning painting and drywall equipment etc. Depending on circumstances, construction staff may be permitted to use washrooms if appropriate controls are put in place to ensure cleanliness and non-disturbance of occupants.
20. Finished flooring at the work entrance must be protected with a carpet remnant at least three feet by five feet (3' x 5') in area.
21. The Tenant Coordinator will inspect the work and has the authority to stop work where there are violations of these guidelines. The Tenant Coordinator has the authority to have any violations rectified at the Tenant's cost.
22. The Tenant Coordinator, acting reasonably, may require that part or all of the leasehold improvement work be conducted after Business Hours if such work disturbs neighboring tenants.
23. Prior to commencement of construction, the Tenant and the Tenant's Contractor will make arrangements with the Tenant Coordinator to inspect the public areas adjacent to the construction area to list any existing deficiencies. Following substantial completion, both parties will again inspect these public areas and the Tenant Contractor will be required to repair any new damage which may have occurred during construction.
24. Fan coil units will remain off during construction and the Tenant Contractor must bag air diffusers and thermostats to protect them from dust. Fan coil unit filters are to be changed by the Tenant Contractor at the end of construction.
25. The Tenant Contractor will use a suitable means to protect light fixtures from dust.
26. The Tenant contractor will protect existing blinds from dust and damage by raising and bagging them or by removal and reinstallation.
27. All "hazardous" materials must be handled and stored in accordance with the Workplace Hazardous Materials Information System (WHMIS).
28. Firestopping must be replaced immediately at all new floor penetrations.
29. Smoking will not be permitted by the Tenant or Tenant Contractor in accordance with municipal by-law.
30. Any modifications to the locks & keying systems must be performed by:

Al Scott Lock and Safe  
6651 Buswell Street  
Richmond, BC V6Y 2G9  
Telephone: 604-581-5000  
Fax: 604-583-4303

31. Prior to moving in, the Tenant is responsible to ensure that its Contractor cleans:

- Carpets and all other floor coverings.
- Light fixtures and lenses.
- Inside face of windows and curtain wall mullions.
- Public corridors adjacent to Leased Premises, and service areas used during construction.

## **SECTION 3 – DESIGN CRITERIA**

### **3.1. BASE BUILDING**

#### **a) Tenant Improvements/Base Building**

In this section:

- "Base Building" means the then standard products, finishes, materials, equipment and enclosures provided by the Landlord and which make up the Building, but specifically excluding the Tenant Improvements. The cost of any modifications to the Base Building necessitated by a Tenant fit-out are the responsibility of the Tenant, and will be funded by the Tenant Allowance (if any) provided to the Tenant. The sole exception is any architectural work associated with the provision of demising walls and access/exit doors within the Leased Premises as required by code, which are supplied by the Owner, unless otherwise stated in the Offer to Lease or the Lease.
- "Tenant Improvements" means and includes all fixtures, finishes and improvements installed within a Leased Premises, irrespective of when or by whom the same were installed.

The Base Building is provided by the Owner as set out below, and as per Base Building Plans and specifications.

#### **b) Base Building Floor Finishes**

Entrance Lobbies	Carpets / Stone Tile / Concrete
Public Corridor*	Carpet
Washrooms	Ceramic Tile
Locker Rooms	Ceramic Tile
Electrical Rooms	Painted Concrete Floor
Exit Stairwells	Painted Concrete Floor
Exit Corridors	Painted Concrete Floor
Tenant Areas 2 <sup>nd</sup> , 3 <sup>rd</sup>	Exposed Concrete - Trowel Finish
Tenant Areas (Main)	
18" raised access floor with cementitious panels (carpet tile to be supplied by Tenant) or concrete floor	

*\*For multi-tenant floors only.*

*Note: Base Building concrete floors may not be suitably level for Hardwood Floor installation. Any remedial floor work done to accommodate wood floors is the responsibility of the tenant.*

#### **c) Basic Building Wall Finishes**

Entrance Lobbies	Painted Drywall, Concrete, Wood Finishes and Glazing
Public Corridors	Painted Drywall

Washrooms	Ceramic Tile and painted drywall
Locker Rooms	Ceramic Tile
Electrical Rooms	Painted Drywall
Mechanical Rooms	Painted Drywall
Exit Stairwells	Painted Drywall
Exit Corridors	Concrete or Painted Drywall
Tenant Areas	
Taped, Filled and Sanded Drywall or if currently painted, as existing	

**d) Curtain Wall and Windows**

Aluminum, thermally broken frames with tinted double pane "Low E" glazing. The building standard for window coverings is 1 inch horizontal venetian blinds; Levelor "Riviera" model, Dust Guard 1" Blind (perforated slat), colour #8920 Matte Black, mounted. (Tenant Contractor to mount window blinds to window mullion utilizing rear mount bracket.) **The blinds are to be supplied and installed by tenants at tenants' cost, to the East, West, and South elevations as a minimum.**

**e) Tenant Area Ceilings**

Ceilings in the rental areas consist typically of suspended metal T-bar in a 20" x 60" grid pattern designed to support typical overhead loads with building standard lay-in acoustical fissure tile. Typical ceiling height is 11'-0" above the concrete floor for the main floor and 9' for the 2<sup>nd</sup> and 3<sup>rd</sup> floors.

Service areas such as electrical rooms, telephone rooms, and storage rooms will have exposed structure or suspended acoustic tile. Washrooms, washroom vestibules, elevator lobbies, and multi-tenant corridors have either suspended acoustic tile or gypsumboard ceilings.

Please note that any changes to the ceiling grid or lighting grid will require seismic restraints as per building code.

**f) Entrance/Exit Doors**

The Owner will provide one (1) building standard entrance door assembly per tenant on multi-tenant floors. Standard entrance doors from the corridor are as existing or a solid core wood door and sidelight. Tenant, at its sole cost may upgrade to tempered glass.

Please refer to Appendix B for detail. Additional or special entrances must be approved by the Tenant Coordinator.

**g) Entrance Door Hardware**

Heavy duty lever handle doorsets with brushed stainless finish is standard for all Tenant entrance doors. All locksets and deadbolts must be keyed to the building master key system. (Sargent 10-line locksets). Hardware that is required to be used are Sargent C-2761050A and Sargent KD2810G04.

**h) Heating, Ventilation and Air Conditioning (HVAC)**

All areas are served by fan coil units which provide mixed fresh and recirculated air of a temperature dictated by a thermostat within the applicable zone. The air is distributed throughout the space by a system of ductwork and diffusers. The ceiling space is used as a return air plenum and air re-enters the plenum through return air grilles. The standard indoor design conditions are 24° C (75° F) in the summer months and 22.2° C (72° F) in the

winter months. If tenants require temperatures beyond these requirements, additional equipment MAY be required. The Tenant must employ the Landlord's HVAC, air balancing and controls sub-contractor to ensure proper installation and operation of the building's overall HVAC system. Attempts should be made to place Tenant demising walls between HVAC zones. Where Tenant demising walls interfere with the base system HVAC, the Tenant Fit-Out allowance shall cover the cost to completely restore HVAC function for the floor.

**i) Smoking**

As per the City of Vancouver Health By-Law smoking is not allowed within 6 meters (3 meters outside of the Vancouver Coastal Health District) of any opening into any building including any door or window that opens or any air intake. This regulation is strictly enforced. Smoking is permitted only at designated smoking areas at Broadway Tech Centre.

**j) HVAC Controls**

The HVAC System is controlled by a direct digital control (DDC) system. Computerized programmable thermostats within each zone provide automated night set back with a manual override. The system can easily be programmed to suit specific requirements within each zone. The DDC graphics must be updated at the Tenant's cost to reflect the Tenant layout.

**k) Fire Protection**

All Tenant areas are fully sprinklered with chrome pendant heads. Special T-bar assembly and sprinkler density provides an equivalent fire-rated assembly on the first and second floor ceilings in Building 7.

**l) Lighting**

The office lighting system consists of recessed fluorescent light fixtures, 20 inch by 48 inch, two lamp T-8, 3500K lamps with 3 inch deep parabolic louvre. Ballasts are electronic/hybrid at 347V. Lighting is controlled by a computerized programmable low voltage system with daily and weekend after hours setting as well as local manual control. It is imperative that any non-building standard Tenant lighting be tied in to the low voltage control system in order to maximize energy efficiency. Base building switch zoning is based on lease area and is to be proportionately applied at approximately one switch per 1,000 square feet. The base lighting system is designed to approximately 50 foot candles based on an open plan.

**m) Power**

Each floor shall have one distribution point with min. K13 phase stepped transformer dedicated solely to plug load. The 120/208 three-phase, four-wire power supply shall accommodate 5W/sq.ft. The lighting and HVAC shall be powered at 347/600V independently of the plug load for cleaner power. Any required upgrade to the circuit panel is paid from the Tenant Allowance.

**n) Plumbing**

Cold water supply valves as well as drain and vent connections are provided in the washroom ceiling spaces for connection of Tenant plumbing from the 2<sup>nd</sup> floor and above. Connection of drainage piping on the main floor is possible in most cases but becomes

more costly since the concrete floor slab must be cored to facilitate connection to the existing underslab drainage piping.

**o) Demising Partitions**

The Owner will provide demising partitions (architectural component only) to the underside of structure enclosing each Tenant area. On the Tenant's side, the surface will be as existing or taped, filled and sanded gypsum board ready for priming and finishing by the Tenant.

**p) Base Building Changes**

Base Building standard materials and finishes may not be altered without the prior written approval from the Tenant Coordinator

**q) Use and Occupancy Requirements**

Corridor locations on multi-tenant floors are determined in accordance with the building code's use and occupancy requirements. Tenant entrance and egress doors must also be located in accordance with these requirements as they relate to the Tenant's interior layout. Special consideration must be paid to the length of "dead end" corridors as defined in the building code.

### **3.2. BUILDING SYSTEMS**

**a) Integral Work**

To prevent the voiding of maintenance and construction warranties, integral work required on behalf of the Tenant, with prior consent of the Tenant Coordinator, must be executed by the Landlord's designated contractors as part of the overall Tenant Work Contract and at the Tenant's expense.

Integral work shall include, but is not limited to:

- a) All work impacted by warranties (roofing, windows etc.).
- b) All work beyond the Tenant's Premises
- c) All work on control systems, fire alarms and sprinkler systems
- d) All work on mechanical and control systems.
- e) All design and consulting work necessary to the above.

**b) Modules**

The building and building services have been designed to a module and partitions must be kept on this module wherever possible. All partition walls that intersect an exterior perimeter wall must do so at the aluminum framing or at a drywall surface. Intersections at glazed surfaces will not be permitted.

**c) Surplus Material**

All surplus Base Building materials such as light fixtures, ceiling tile, doors, door frames, etc. not used or re-used in construction or renovation is the property of the Owner and must be returned to the Tenant Coordinator.

**d) Structural**

Any floor penetrations must be located to avoid conflicting with structural components within the floor assembly. Proposed locations must be approved by the Tenant Coordinator. Larger openings in the structural floor are possible at certain locations. Designers should inquire with the Tenant Coordinator if they are considering this type of floor opening. Special fire separation systems and assemblies are required at all floor penetrations to maintain the integrity of base building floor to floor fire separation.

**e) Floor Loading**

The live load capacity of the floor assembly in typical office areas is 50 pounds per square foot and the dead load capacity is 20 pounds per square foot for partitions and finishes. The ground floor has a live load capacity of 100 pounds per square foot. Wherever Tenant Improvements, furnishings, equipment, storage areas, etc. approach or exceed these limits, the Tenant must provide a sketch to the Tenant Coordinator in advance of any construction which indicates the location and weight of the item or area in question. All structural engineering involved in checking existing capacity and reinforcing provisions for Tenant loads in excess of the foregoing will be at the Tenant's expense.

**f) Mechanical**

Fixed furniture and walls must not be located such that they restrict the ability to service or prevent the functioning of mechanical or electrical equipment.

**g) Electrical**

Power and electrical cables must be routed through interior partitions or through the Tenant's ceiling space, power poles are discouraged. The Tenant is responsible for the cost of providing local light switching as outlined under 3.1(l) Lighting.

**h) Energy Conservation**

Designers should make every effort to reduce electrical consumption. Electrical consumption is limited by the capacity of the air conditioning system, which removes heat generated by all electrical lights and devices. Early in the design process, the designer should contact the Mechanical Consultant and establish the limits that apply to the pertinent Tenant area.

**i) Telephone and Data Communications**

The Tenant is responsible for arranging for any telephone or data equipment within their space. The Tenant must also arrange for the supply and installation of any required conduit, data cabling, voice cabling, low voltage telecommunications cabling and similar equipment within their own space. All Tenant equipment must be housed within Tenant space.

The Owner has set up various Telecommunications Closets within the building(s) to which the Tenant can tie into (crossconnect). The Tenant must advise their telecom supplier of the presence of a Riser Manager, who will act on behalf of the Owner, approving Tenant communications and data plans, and providing the service and supply of this service through riser and telephone room areas. The cost of this service will be supplied to the Tenant by the Riser Manager upon request.

The base building Riser Manager is responsible, at the Tenant's expense, for the supply and installation of any wiring, cable, or conduit, and for any x-ray and core drilling required

to make the connection from Tenant space to the building's Communication Riser Room and, from this point, to the available Service Provider of the Tenant's choice.

The Riser Manager will supply & install required communication cabling from the building Communication Riser Room through to the Tenant's designated Demarcation Point as per a schedule of unit prices available upon request. Future removal of any or all of this cabling may be required at the Tenant's expense at lease termination.

The Tenant must use a reputable Designer for the design of the Communications Cabling System within Tenant space. The Tenant must notify QuadReal Property Group in writing of both the completion date of the project and the activation date of the service and provide as-built drawings in written and electronic (CAD) form of all installations in the Tenant space within 30 days of activation of the service. All construction/cabling must comply with all current National and Provincial Building and Fire Codes as well as any other relevant legislation dealing with the installation and operation of communication and data cables within their suite. The Installation and Design must also conform to ANSI/TIA/EIA Telecommunication Standards and bulletins. Communication, security, control and data cabling within Tenant space must be installed above all pipes, conduits, air ducts or any other equipment installed above the ceiling space, within 6 inches of the floor above, and must be independently supported from the floor structure above. Only FT6 insulated wire may be used in the ceiling space. The Tenant shall be responsible for properly removing any unused cable encountered during any installation of communication and data cabling.

Subsequent to the initial installation, no coring or additional conduit or any other wiring infrastructure is to be installed in the Tenant space without the written approval of QuadReal Property Group or the Riser Manager.

All drawings must be submitted to QuadReal Property Group for review, and approval must be received by the Tenant in writing prior to commencement of any work. This review and approval by QuadReal Property Group shall in no way limit the liability of the Tenant Communication Cabling Designer for any failure to provide a fully functional Structured Cabling System as per the ANSI/TIA/EIA Telecommunication Standards and bulletins. All cables within the building envelope are to be tagged and labeled in accordance with ANSI/TIA/EIA Telecommunication Standards and bulletins, and tagging and labeling systems are to be consistent for all Tenant work.



## **SECTION 4 – SIGN CRITERIA**

### **4.1. DESIGN DETAILS AND PERMISSION**

All signage must be in accordance with the Lease, the Offer to Lease and Owner's design criteria, and must be approved in writing by the Tenant Coordinator prior to ordering by the Tenant. Tenant identification will be provided in the main lobby directory by the Owner at the time of initial occupancy. All other signage is provided by the Tenant and at the Tenant's expense.

#### **Exterior Signage**

Signage on the exterior of the building or signage at the entrance to the building will only be permitted for major Tenants where there is special authority included in the Lease or the Offer to Lease. Provided the Tenant has been granted, by the owner, the right to exterior signage the Tenant shall be responsible for the cost of installation and the Tenant shall solely be responsible for the costs to maintain such signage to first class standards. The Tenant shall at its sole cost, remove the sign and make good any damage at the termination of the Lease. All such signage will require City of Vancouver approval.

#### **Entrance Lobby Signage**

Tenants with frontage onto the entrance lobby will be permitted to install signage within their premises that is viewable from the lobby, the size, location and materials are subject to prior written approval by the Tenant Coordinator.

#### **Public Corridor Signage**

Tenants with entrances off of public corridors may be permitted to install signage consistent with the building signage criteria on the standard entrance signage panel subject to prior written approval being issued by the Tenant Coordinator.

## APPENDIX A

# TENANT GREEN DESIGN GUIDE FOR COMMERCIAL INTERIORS

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### Schedule 1 – LEED CI Summary

## Introduction

This Tenant Green Design Guide is supplemental to and is intended to be read and used in conjunction with the building's Tenant Design Guidelines.

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 Guidelines 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. 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 green house gas emissions, increase waste diversion and assist us in reducing the environmental footprint of the properties that QuadReal Property Group 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.

## 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 increase 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				Index:
Water Closets	6.0	(LPF)	1.6	(GPF)	(LPF) liters per flush
Urinals	3.8	(LPF)	1.0	(GPF)	(LPM) liters per minute
Shower Heads	9.5	(LPM)	2.5	(GPM)	(L/CY) liters per cycle
Faucets	8.3	(LPM)	2.2	(GPM)	(GPF) gallons per flush
Replacement Aerators	8.3	(LPM)	2.2	(GPM)	(GPM) gallons per minute
Metering Faucets	0.95	(L/CY)	0.25	(G/CY)	(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.

## 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 fluorescent lights with electronic ballast (less than 10W/m<sup>2</sup>) 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 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 off 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.



### 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

### 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

## Floor Materials:

Floor finishes have the greatest single environmental impact of any fixed item over the life of a typical tenant's occupancy timeframe. This is due to a tendency to replace floor materials at the end of every lease cycle. If reusing existing floor finishes is not possible or practical, many environmentally friendly options are available at similar and often lower cost than typical selections. For example:

- ✓ Use modular carpets, reconditioned options or those with high recycled content
- ✓ Choose low emissions products
- ✓ Use linoleum instead of vinyl
- ✓ Select carpets from vendors who will take back the product for recycling at the end of its useful life.

## Walls, Wall covering & Paint:

Research indicates a link between open plan work environments and improved organizational learning. By reducing the amount of walls or offices and moving towards an "open work" plan, you are not only reducing upfront costs, but increasing employee moral and wellbeing. This has the potential to generate further proven organizational productivity through inherent increases in natural light and better ventilation associated with this design approach.

Minimize the amount of volatile organic compounds "VOC" in paints, adhesives and sealants that are specified. This contributes to a healthier and more pleasant work environment for staff, especially at the beginning of your occupancy. Natural paints cost only a little more than standard paints and are completely VOC free. These provide a tangible demonstration of your company's commitment to maintaining a healthy environment for employees. Avoid the use of vinyl wall coverings as much as possible as most tend to have a high VOC content.

## 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:

<b>Kitchens/Kitchenettes/Sergeries</b>	<b>Photocopy Areas</b>	<b>Meeting/ Boardrooms</b>
- 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 Renovations



### 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 | ✓ Plastic        |
| ✓ Steel and other metals     | ✓ Blue Box waste |
| ✓ Wood                       | ✓ Glass          |
| ✓ Gypsum                     | ✓ Ceiling tiles  |
| ✓ Cardboard                  | ✓ 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:

Recycling Council of BC - <http://www.rcbc.bc.ca/>

City of Vancouver - <http://vancouver.ca/engsvcs/solidwaste/>

Greater Vancouver Regional District – <http://www.gvrd.com/recycling/index.html>

Web Based - Buy and Sell of Recycling materials - <http://www.recycle.net/>

### 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. <http://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. <http://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. <http://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. <http://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:

<http://www.cagbc.org/>

<http://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, stormwater 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.

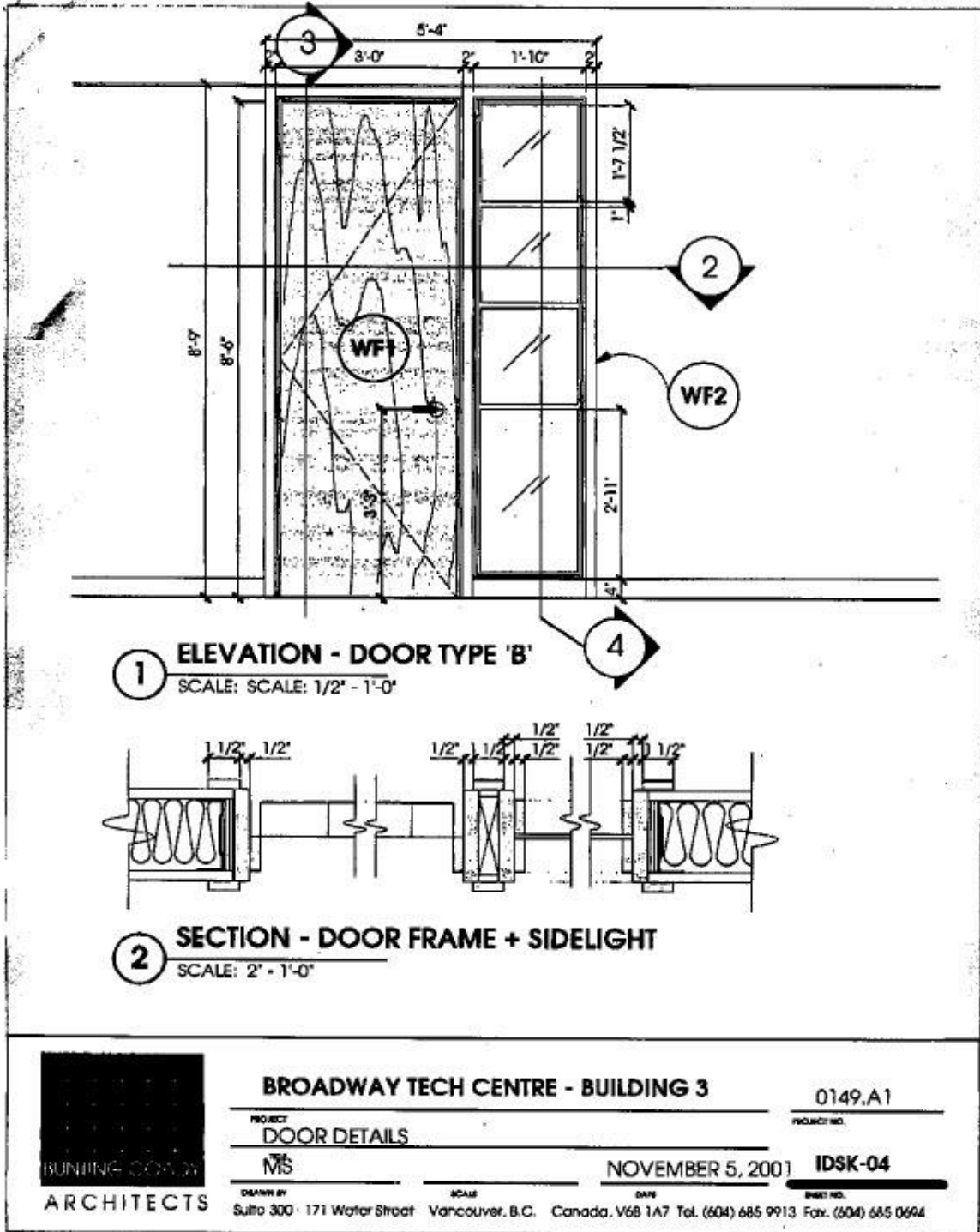
All projects must comply with two prerequisites in this section – tobacco smoke control and ventilation rates in accordance with or better than minimum standards.

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.

# APPENDIX B – TYPICAL ENTRANCE



**BROADWAY TECH CENTRE - BUILDING 3**

0149.A1

PROJECT  
**DOOR DETAILS**

PROJECT NO.

MS

NOVEMBER 5, 2001

**IDSK-04**

DESIGN BY: Suite 300 · 171 Water Street Vancouver, B.C. Canada, V6B 1A7 Tel. (604) 685 9913 Fax. (604) 685 0604

(THU) 11 8 2001 17:28/ST.17:28/NO.5041954542 P

FROM

## **APPENDIX C – SIGN CRITERIA**

To be clarified by Rod Olsen of Quadreal Property Group at rod.olsen@quadreal.com or phone at 403-202-7528.

Tenant signage is subject to the written approval of the landlord and must comply with the following criteria. The intent of these guidelines is to provide a consistent level of finish, presentation, and maintain carefully considered design guidelines, which will complement the building design and are acceptable to the owner and the City of Vancouver sign bylaws. The tenant must provide shop drawings for approval by the landlord tenant coordinator prior to construction and installation. The landlord recommended sign designers/fabricator are:

- I. Exterior signage – Imperial Sign
- II. Interior signage – Scott Paragon Signs & Screenprinting Ltd.

### A. PLAZA PYLON SIGNAGE Reference TC5

The landlord will provide externally lit double-sided pylon displays for each building. In order to qualify to be displayed on the pylon, the tenant must be in excess of 15,000 square feet in size and will be identified on these displays with silver aluminum letters. The landlord will provide the tenant's name on these displays at the tenant's expense.

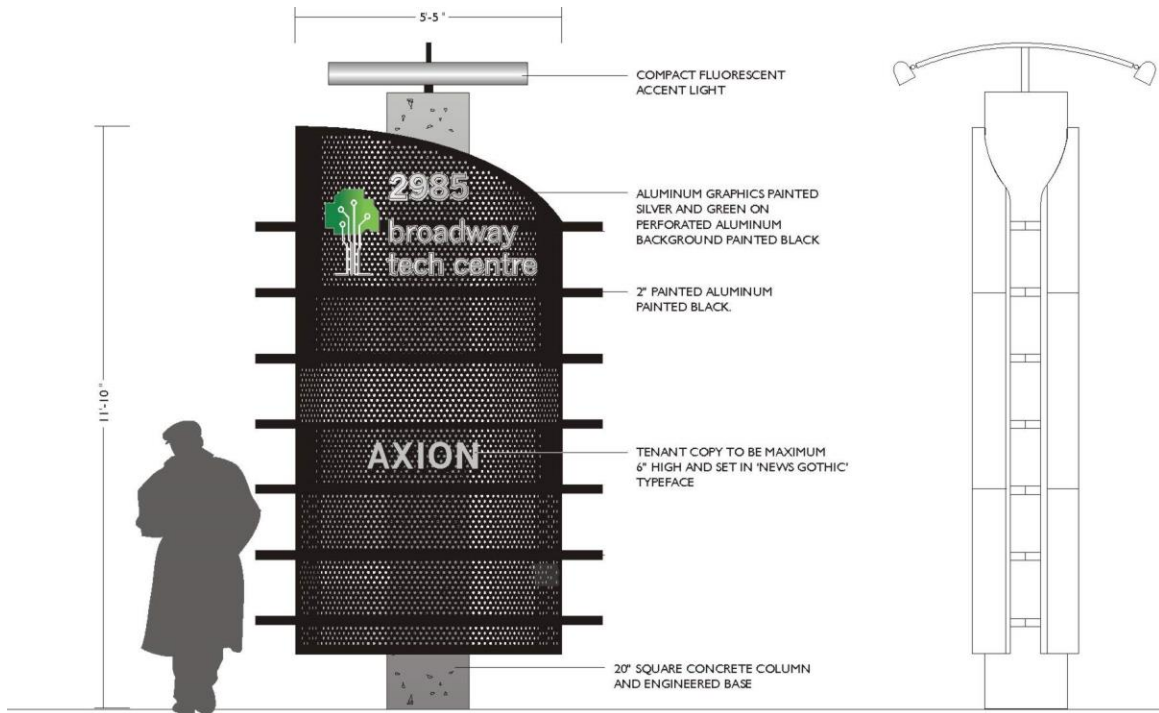
- Not to exceed 6" in height
- Letter style NEWS GOTHIC.

### B. LOBBY DIRECTORY & DISPLAYS Reference TC6

The landlord will provide company identification on the lobby directory displays with the suite number for each tenant in 1" silver copy. The landlord will provide the tenant's name on these displays at the tenant's expense.

### C. INTERIOR TENANT ENTRANCE DISPLAYS

The landlord will provide a building standard wall or door mounted sign. The landlord will provide the tenant's name on this display at the tenant's expense.



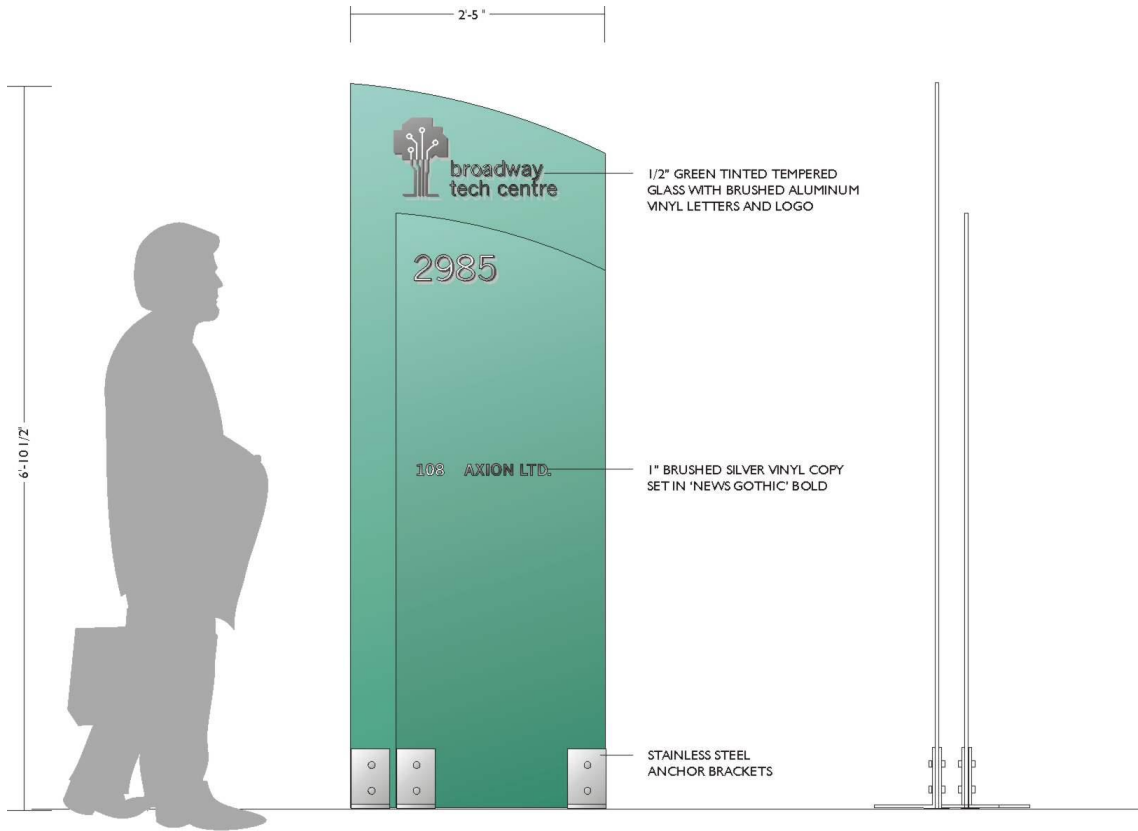
TC-5  
104

EXAMPLE OF PLAZA PYLON DISPLAY FOR VIRTUAL WAY AREA

1/2" = 1'-0"

broadway tech centre 





TC-6  
105

INTERIOR DIRECTORY DISPLAY FOR MAIN FLOOR TENANT AREA

broadway tech centre 

# Broadway Tech Centre Sign Specifications

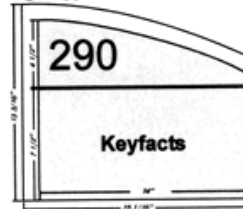
## Main Directory

Sign Type 1  
Font : Arial  
Text Size : 1.125"  
Vinyl : Brushed Aluminum  
Avery Premium Brushed  
Chrome - A1840-S  
(To Match Existing)  
Horizontally Brushed

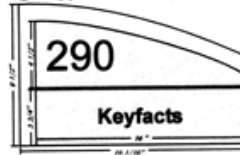
## Door Signs

Sign Type 3a, 3b  
Font : Arial  
Text Size : 2", 1"  
1/8" Brushed Aluminum  
with 1/4" Glass Accent Trim  
Engraved and Filled Black

Sign Type 3a



Sign Type 3b



## **APPENDIX D – PROJECT MANAGEMENT SERVICES**

### **Summary of Activities by QuadReal Property Group Acting as Tenant Improvement Project Manager**

#### ***LANDLORD'S RESPONSIBILITIES***

##### **A. PRE-CONSTRUCTION**

###### **i) Interior Design Consultant**

Make recommendations on possible candidates.  
Assist Tenant in obtaining fee proposals and engaging Interior Design Consultant.  
Make recommendation to Tenant.  
On authorization from Tenant, award design work.

###### **ii) Required Base Building Consultants**

Obtain fee proposals, review and make recommendations to the Tenant regarding mechanical, electrical, certified professional, architectural and structural (if required) consultants.  
On authorization from Tenant, award design work.

###### **iii) Other TI Consultants**

Obtain fee proposals and make recommendation on possible candidates for all required sub-consultants such as telecommunications, signage, food service, building code, security, etc.  
On authorization from Tenant, award design work.

###### **iv) Permits**

Assist consultants and contractors in obtaining required Building Permit.

###### **v) Overall Schedule**

Prepare, distribute and monitor design, permit and construction schedule.  
Set deadlines for all involved parties to achieve required completion and occupancy dates.

###### **vi) Budget/ Cost Control**

Prepare and obtain Tenant approval of Project Budget for all areas of work under Project Manager's control. Pay approved fees, permit costs, etc. from tenant improvement allowance and provide monthly statements to Tenant.  
Make monthly projections of final project budget costs to Tenant.

vii) Base Building Change Orders (Mechanical and Electrical)

On completion of mechanical and electrical design, arrange preparation, issuing and pricing of base building change orders for mechanical and electrical work.

Arrange consultant's review of costing, review costing and make recommendation to Tenant for approval of change order.

Ensure fair pricing for these change orders.

On authorization from Tenant, approve change order for work to proceed.

viii) Contract

Review and make recommendation to Tenant for TI General Contract document.

Arrange Tenant's approval and signature on all required contracts.

ix) TI Design Drawings and Specification

Arrange Tenant approval of TI drawings, specifications and budgets prior to issuing for tender.

x) Subcontract Tenders

Arrange issuance of drawings to general contractor and who will issue to subcontractors for competitive bids wherever possible.

Review all bids and obtain general contractor's recommendations for subcontract award.

Arrange for a Comprehensive General Contract Price from the contractor.

Review general contractor's price and each subtrade section and make recommendation to Tenant for award.

Obtain Tenant approval of GC price and authorize general contractor to proceed with the work.

B. CONSTRUCTION

i) Liability and WCB Insurance

Ensure contractors provide certificates of insurance and WCB clearance letter.

ii) Certificate of Payments

Obtain contractor's monthly invoices. Obtain consultants' written review and payment recommendation. Make recommendation to Tenant regarding payment. On receipt of Tenant's authority to pay, make payment from TI allowance.

iii) Builders Lien Holdback

Ensure compliance with Builders Lien Act, including setting up of holdback account, ensuring retention per the Act and release of funds when required by the Act, assuming the contractor is in compliance.

iv) Change Orders

Where Tenant instigates change orders by site conditions or consultant coordination, arrange issuance from consultants and costing by GC. Review costing with consultants,

provide recommendation and obtain approval of change orders. Ensure change orders do not affect occupancy schedule.

v) Budget / Cost Control

Pay contractor's invoices, consultant fees, permit costs, etc. from tenant improvement allowance and provide monthly statements to Tenant.

Make monthly projections of final costs to Tenant.

Consolidate all billings for Tenant approval and deduction from TI allowance.

vi) Schedule

Monitor status and expedite, as required, to meet completion date.

vii) General Contract Administration.

Attend bi-weekly TI site meetings with Tenant, make decisions on Tenant's behalf and obtain Tenant's approval, as required.

C. OCCUPANCY/MOVE IN

i) Occupancy Permit

Assist consultants and contractors in obtaining required Occupancy Permit.

ii) Final Inspections

Arrange for written copies of all Final Inspection reports from all consultants.

iii) Systems Furniture

Assist with coordination of delivery and assembly of systems furniture.

iv) Equipment, Furnishings, Deliveries

Assist with coordination of move in various components such as equipment, furniture, plants, files, etc.

v) Monitor Deficiency List

Arrange for contractors to correct all items on consultant's Final Inspection reports.

D. POST CONSTRUCTION

i) Deficiencies

Ensure 100% completion of all deficiency items.

Close Out Documentation

Ensure contractors provide electronic and hard copy files of all as-builts, air balance reports, maintenance manuals, etc.

ii) Statutory Declaration

Release holdback, ensure compliance with Builders Liens Act.

iii) Final Budget

Prepare final reconciliation of project costs and provide to Tenant.

## ***TENANT'S RESPONSIBILITIES***

A. PRE-CONSTRUCTION

Provide detailed program of requirements to all consultants to enable completion of design.

Make decisions and provide information during design phase to enable consultants' completion of design.

Attend design meetings and be principal contact with consultants to pass along Tenant's design requirements and program.

Hire consultant, if required, and make all arrangements and payments related to procurement of systems furniture.

Make all arrangements and payments related to procurement of office equipment, computers, servers, photocopiers, printers, plants, etc.

B. CONSTRUCTION

Attend bi-weekly construction meetings with Project Manager to provide decisions and responses to questions from contractors or consultants.

Make application for connection of all telephone, cable TV, and fibre optic connections.

C. OCCUPANCY AND MOVE IN

Hire a move consultant or make all arrangements related to move in of staff, furniture and equipment. Project Manager will coordinate with contractors on site and assist in booking elevators and load docks at new premises.

D. POST CONSTRUCTION

Final inspection punch list and payments.

## **Appendix E – Low Voltage Lighting Design Guideline**

### General:

The concept of the low voltage lighting control in tenant spaces is to control ALL lighting within the space. The basic function is to provide a manual 'on' function upon entry and a programmed 'sweep' off at the end of day. All lighting in the tenant suite would be controlled including overhead lighting, 120v accent lighting meeting rooms and secondary spaces. The design is expected to meet the ASHRAE 90.1 – 2010 Guideline.

### Zoning:

The essence is to appropriately size lighting control zones on each floor, provide local switching and have the ability to programme each relay or 'control zone to a maximum of 2500sqft for an area less than 10,000sq ft, independently if required or in a group switching function. The lighting controller relays should be distributed logically for the size and layout of each suite/floor to best take advantage of the lighting control function for each floor. Each zone will be programmed to sweep 'off' at regular intervals from the end of business through the nights and weekends based on the tenants' schedules by the building Staff.

NO ganged switch boxes should be supplied but rather zone switches should be located individually on convenient traffic paths to the workspace zones.

A 10 minute warning flash is required to allow for the zone to be over ridden if desired. The Maximum individual over-ride shall not exceed 2 hours.

In public areas and corridors etc., programmed 'on' and 'off' times, will be established by the building staff based on tenancy and lease requirements and suggest occupancy sensor over-ride for after hours.

### Open Area Office Control:

For the general office areas Low Voltage switching is the only acceptable method of switching. Switching zones should be designed on reasonably sized 'functional' areas. Very large zones are not acceptable and should be broken up. The need for interpretation as a result of different interior designs and tenant schedules is acknowledged.

### Enclosed Offices Control:

Provide manual on/off capability with low voltage programmed sweep off.

The controlled lighting shall have a least one control step between 30% and 70% of full lighting power in addition to all off. Each space shall have at least one control device to allow the occupant to control the lighting. An occupancy sensor shall turn lighting off within 30 minutes of occupants leaving the space.

### Secondary Tenant Spaces:

For storage and other spaces (including washrooms) Line Voltage switching is acceptable in conjunction with integral motion or IR detector (dual technology occupancy sensors) with appropriate off timing relay (ie +/- 5 to 20 minutes). If the switch cannot be appropriately placed, then low voltage switching must be used. These lights must not be fed from Low Voltage controlled circuits from the tenant spaces.

### Photocells/Daylight Coordination:

Where photocells are used, they must provide an input into the Low Voltage switching system. The Photocells should not be interrupting the line voltage circuits directly. Ideally, first row and second row lights from the windows, would have separate photocell activation. Enclosed spaces 250sqft and larger are required to have multilevel or dimming control.

Master Control Switches: Master ON lighting control switches are not allowed. However, for convenience a Master OFF switch can be provided at the entrance.

Secondary Lighting: All Tenant decorative, accent or sundry lighting must be accommodated into the low voltage lighting switching and control hierarchy with appropriate switching as required.

Modular Switching: Task lighting circuits in modular furniture should be low voltage controlled additionally where feasible or proximity switched. Alternately, the task lights should have integral occupancy sensors.

Emergency Lighting: All 120/347 emergency lighting circuits should be switched by the same lighting zone relay but be overridden 'On' during a power outage or emergency generator activation.

24 Hr 'Courtesy Lighting: This lighting as differentiated from true Emergency lighting should be eliminated as economy and practicality permits.

Suite Entrance Lighting: A motion/IR activated circuit should be provided to enable light to facilitate the location of entrance area light switches for the remainder of the suite.

Meeting Rooms:

Low Voltage lighting control should provide the master 'enable' function for the meeting room lighting (120 + 347 V), to allow for configuration and design as required. For meeting rooms, occupancy sensor shall turn all lighting off after 30 minutes of inactivity.