



DESIGN CRITERIA MANUAL

140 Allstate Parkway





DESIGN CRITERIA MANUAL

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PERTINENT CONTACTS AND APPROVED CONTRACTORS





1 DESIGN CRITERIA MANUAL

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INTRODUCTION

The Tenant Design Criteria Manual is prepared to assist Tenants in the design and construction of leasehold improvements before, during and after the substantial completion of the base building project. Revisions, as the nature of the project's site conditions change, will be supplemented.

The manual contains information about procedures and requirements established by the Landlord for Tenants who undertake improvements within the leased premises; it also outlines the basic design specifications for the building. The information provided here applies as a general rule and should be made available to the Tenant's designers and contractors, who are urged to acquaint themselves thoroughly with the material herein, as it will form the basis of the Landlord's approval of all Tenant submissions.

The Landlord's approval of all drawings is for the purpose of obtaining information about the intended design and use of the premises and the impact such design and use may have on the base building systems, structurally, electrically and mechanically.

By giving such approval the Landlord is not agreeing with your consultants design accuracy, only approving or disapproving of the impact on the base building systems. It is recommended that the Tenant work and/or designer visit the site to inspect and verify all site conditions prior to commencement of design work.

The Landlord reserves the right to amend or add to the information in the manual at any time and the Tenant is obliged to abide by such changes upon notification thereof. All costs associated with the compliance shall be at the Tenant's expense.

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This manual is intended to reflect only standard conditions or situations and does not amend the formal lease agreement, which is to govern in the event of any inconsistencies.

Permission to deviate from the criteria contained herein must be obtained in writing. Notes on drawings in conflict with the design criteria have no validity.



TENANT COORDINATION

The Landlord will appoint a Project Manager, who will guide and assist the Tenant through the construction and renovation period and act as a point of contact within the Landlord's organization. All questions, comments and submissions are to be addressed to:

Construction Coordinator / Project Manager
GWL Realty Advisors Inc.
675 Cochrane Drive, Suite 101, West Tower
Markham, Ontario L3R 0B8
Telephone: (905) 475-1995
Fax: (905) 475-3676





BASE BUILDING CONSTRUCTION

Base Building construction includes all structural, mechanical, electrical, sprinkler systems and architectural finishes as stated in the basic construction contract between the Landlord and the Landlord's contractors.

Drawings indicating all major elements of the Tenant's floor will be provided to the Tenant by the Landlord if available. Any additional drawings requested by the Tenant will be supplied by the Landlord at the Tenant's expense.



DESIGN AND WORKING DRAWINGS

The Tenant may wish to retain the Landlord's Architects or Consultants, under direct contractual arrangements for the production of working drawings. If the Tenant chooses to employ Consultants other than the Base Building Consultants for the design work, the Landlord will have their drawings checked by the Base Building Consultants in order to ensure compatibility with the building's systems. The cost of this review will be charged to the Tenant. A list of the Base Building Consultants is attached to this manual.

All drawings are to be made in Imperial with Metric conversions in brackets.

For the purpose of this manual, the drawings approved by the Landlord shall be called "Approved Drawings". Any revisions made to the Approved Drawings must be submitted to the Landlord for further approval.

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The Tenant shall submit to the Landlord one (1) set of sepias and three (3) sets of prints of the completed working drawings and specifications for final approval at least fifteen (15) working days prior to the Tenant's commencement of construction. The sepias will be returned within fifteen (15) working days with the Landlord's approval or comments. The Tenant drawings must include the following information:

1. Floor Plans:

- a) drawing scale of 1:100;
- b) location of all major fixed elements within the Leased Premises dimensionally related to grid lines and demising partitions.
- c) locations, loads and layouts of rooms of unusual loading concentrations, such as centralized filing areas, Vaults, Safes, Etc.;
- d) location of power and telephone outlets;
- e) room names or uses. The number of persons working in the room will help in calculations for the mechanical requirements;
- f) floor materials and finishes throughout the Premises, including washrooms, kitchens/sinks if applicable;



- g) where the Leased Premises occupy less than a full floor, a drawing of the entire floor showing the location (complete with dimensions) of Leased Premises and its relationship to the elevator lobby, exits, washrooms, etc., will be required.
 - h) door hardware and keying schedule;
 - i) location of inter-floor stairs, if any, (subject to approval by the Landlord's structural engineer);
 - j) clearly defining the extent of work of the Tenant.
2. Reflected Ceiling Plans:
- a) lighting layout, ceiling pattern, materials and suspension system;
 - b) types and Wattage of any proposed special lighting fixtures;
 - c) locations and types of sound baffles above the ceiling, and clear identification of rooms requiring soundproofing.
3. Construction details, at suitable scales, indicating all methods of construction.
4. Complete mechanical, electrical, sprinkler systems, building automation and life safety system drawings, at a scale of 1:100, showing all alterations to, or additions to, the existing Base Building work as well as Base Building conditions which remain unchanged. All electrical work in electrical rooms to be installed in conduit. Heat generating equipment and their heat output will be required on the mechanical drawings. Thermostat locations to be clearly shown. 5
5. Structural drawings, at suitable scales, where special conditions warrant the production of such drawings e.g. openings in the slab, Libraries, file rooms, vaults, etc.
6. Architectural, mechanical and electrical specifications.



PERMITS

The Tenant is responsible for all necessary permits and approvals required by government authorities for construction. The Tenant must provide the Landlord with copies of such permits and approvals prior to commencement of construction.

The Tenant is responsible for the correction of any items of work, which do not meet with the approval of the Municipality's building inspector, notwithstanding the fact that the drawings have been approved previously by the Municipality or the Landlord. The Tenant will be given a specified time to complete corrections. Should the Tenant or the contractor delay the required correction unduly, the Landlord will make the correction at the Tenant's expense. All Building, Occupancy and Permit drawings will be submitted to the Landlord upon completion of work.



INSURANCE

The Tenant and its contractors are required to provide a copy of the insurance coverage at least equal to the itemized amounts stipulated in the Lease. For further information see Section 4 of this manual.



APPOINTMENT OF CONTRACTORS

All Tenant Contractors are subject to approval by the Landlord and MUST:

- a) have union affiliations compatible to those on site at the time the Tenant's construction is to commence;
- b) furnish evidence of good standing with the Workers Compensation Board (see Section 4);
- c) engage the services of the Base Building Sprinkler, approved Mechanical (HVAC) contractors, Building Automation and Controls subcontractors for approved Tenant work involving these trades;
- d) furnish the Landlord with a list of their Contractors' names, contacts and telephone numbers prior to construction and schedule a meeting of the General Contractor and designer with the Landlord's representative.

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All contractors accepting work in 140 Allstate Parkway have been advised to the security measures in operation at this location. The four general regulations which they must adhere to upon arrival and prior to starting work are listed below:

- a) Contractors are to register with the 1st floor Reception, located at 675 Cochrane Drive and provide the Receptionist with a copy of their valid work order.
- b) Once the work order is confirmed as being valid, the contractors are to be issued a passcard for the work area involved.
- c) Passcards are to be kept on the contractor's person, during the entire working time within the building(s) and are to be returned at the end of each week.
- d) Contractors requiring Fire system isolations must contact Tenant Services (905) 475-7250, who will issue a work order to the Building Operator who in turn will isolate the required fire system devices.



If contractors arrive for work and do not have a copy of their work order, they should be referred to their General Contractor or, during normal business hours, to the Project Manager, Construction Division located on the 1st floor of 675 Cochrane Drive. After hours, the Security Officer is to be contacted.

1. Security Officers and Building Operators conducting patrols throughout the building(s) will ensure that the above conditions are being met by all contractors as they are encountered. If contractors are located within the building(s) who do not have a passcard, they will be requested to leave the site and to register in with the 1st floor Reception, 675 Cochrane Drive for verification, sign-in and passcard issue.
2. Patrolling Security Officers and Building Operators are to ensure that desks in Tenant areas are not used as lunch tables or work benches by contractors. Work areas are to be kept in as clean a manner as possible, bearing in mind the nature of the work involved. No refuse of any type is to be left by the contractors upon completion of work. Any abuse of these regulations, or any property damage attributable to contract work, must be reported to Security immediately.
3. In the event that a contractor requires access to an office area other than that designated on the work order, they must be escorted to that area at all times by a Security Officer. If sufficient manpower is not available to provide an escort, the contractor must await the arrival of the Tenant, or a special order escort. Under no circumstances will an office be unlocked to accommodate a contractor without the Tenant's permission or an escort.
4. Contractors must always use the service elevators for the buildings in which they are working for access and egress. If service elevators are booked for a move, the contractor will be informed that there may be a slight delay and security will contact the appropriate elevator and arrange for a contractor pick-up as soon as convenient.

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COMMENCEMENT OF CONSTRUCTION

Construction may proceed only after the Tenant has:

- a) Submitted acceptable evidence of insurance coverage to the Landlord as set out in the Lease and in this manual (Section 4).
- b) Posted all required permits on site. Including but not limited to Building permit, clearance certificate from the Workers Compensation Board, liability insurance certificate, and Notice of Project from the Ministry of Labour (if applicable).
- c) have available on the Leased Premises a complete set of prints of the Approved Drawings for the duration of the construction period for reference by the Landlord's authorized representatives.
- d) Received approved drawings and written notice from the Landlord to proceed with construction.





COMPLETION OF CONSTRUCTION

The Tenant is required to submit an executed Statutory Declaration form to the Landlord on completion of the Tenant's work stating that the work has been completed in accordance with the approved drawings and all contractors have been paid in full.

An Ontario Hydro Certificate of approval must also be submitted.

The Tenant is required to carry out its approved construction work in strict accordance with the approved drawings. Variations must be approved and recorded on the "as built" drawings and provided to the Landlord at the conclusion of construction.

Any elements of the Base Building such as (but not limited to), ceiling components, doors, door frames, hardware, etc., which the Tenant removes with the approval of the Landlord, shall remain the property of and must be turned over to the Landlord.



LANDLORD'S CHARGES

The Tenant will be responsible to pay the Landlord a fee for the building services and supervision incurred as a result of the Tenant development work to the project. The amount of this fee will be up to a maximum of 15% of the cost of the Tenant development work. This fee covers the cost of facilities and equipment such as additional project security personnel, temporary heat, light, water and power for the Tenant construction purposes. Should the Tenant for some reason be unable to furnish their costs to the Landlord within a reasonable period of time, the Landlord will estimate the value of 15% of that estimate.

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Due to the heavy demand for hoisting materials and equipment, a 48 hour advance reservation will be required. Service Elevator time will be available after hours at times that may be obtained from the Project Manager based on a "first come, first served" basis.

Should the Tenant employ structural, mechanical or electrical consultants other than those retained by the Landlord, the Tenant will be invoiced for the checking and review of their drawings and specifications.

The Landlord's cleaning contractor will complete the pre-occupancy cleaning at the Tenant / Contractor's cost.

Please note that additional charges and/or fines will be levied for any false fire alarms that may be set off by the tenant's contractor and/or sub-trades.



WORK REGULATIONS



■ Public Safety

It is the Tenant's responsibility to ensure that the Tenant Contractors observe and comply with all applicable construction safety regulations including W.H.M.I.S. 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. The Tenant's Contractors shall provide and maintain adequate First Aid facilities during the construction period.

■ Minors

Minors are not permitted on the construction site at any time.

■ Emergency Contact

The Tenant Contractors are required to post on the Leased Premises three (3) names and telephone numbers for emergency contact.

■ Temporary Services

The Tenant's Contractor is responsible for the distribution and installation of temporary power and telephone within the Leased Premises during the construction period. Exposed electrical cords are not permitted outside of the Leased Premises. The Tenant is responsible for the installation of a telephone during the construction period. The Tenant and its contractors will not have access to the Landlord's telephone.

■ Work Areas

All construction materials, tools, equipment and work benches must be kept within the Leased Premises throughout construction. All public lobbies, washrooms and stairs shall be kept clean of construction materials. Should the public washroom be used by the contractors, such contractors will be responsible for cleaning and/or repair of damages. The Contractor shall be responsible for the implementation and maintenance of Dust Control measures.

■ Garbage Removal

The Tenant is responsible for ensuring that the Tenant Contractors remove all garbage and debris in approved containers from the Leased Premises, corridors and common areas after regular business hours. Garbage containers will not be provided by the Landlord. Should it be necessary for the Landlord to remove a Tenant's garbage or debris due to inaction by the Tenant, the Tenant will be invoiced for the cost thereof. Temporary storage of garbage or debris outside the Leased Premises is not permitted. The Tenant's contractor will not be permitted to



dispose of construction debris in the building compactor. The Tenant / Contractor shall make arrangements to provide a separate garbage container and place it in a suitable location agreed to by the Landlord. The cost of the extra garbage container and all tipping and disposal fees shall be the sole responsibility of the Tenant / Contractor.

■ Salvage

All permanent improvements are the property of the Landlord and, as such, the Landlord holds exclusive salvage claims throughout the building.

■ Working Hours

The Tenant Contractors' work shall be carried out in the Leased Premises from 7:00 a.m. to 5:00 p.m., Monday to Friday. Any work which is required to be carried out at times other than those stated above, will require written approval from the Landlord prior to the work being performed.

■ Temporary Fire Protection

Operable fire extinguishers of the proper classification must be kept in the Leased Premises throughout the construction period.

■ Security

The Tenant and its contractor are fully responsible for the physical security of the Leased Premises and the contents thereof throughout the construction period. If required, temporary door (s), frame (s) and hardware are to be installed at the Tenant / Contractors cost. A copy of the key must be left with the Landlord in case of emergency within the suite. Storage of materials in the areas other than the Leased Premises will not be permitted.

■ Access to Occupied Tenant Spaces

Contractors requiring access to occupied premises during construction will do so by appointment, to be arranged through the Landlord and at the reasonable convenience of the affected Tenant.

■ Access and Deliveries

All material deliveries MUST be scheduled 48 hours in advance and approved by the Landlord. Personnel access and material deliveries to the Leased Premises are to be only by routes designated by the Landlord. The handling of items, which due to weight or dimension that require special treatment, must be reviewed and arranged with the Landlord. The Landlord or any of its agents will not be responsible for receiving or signing for any materials. No deliveries of any kind will be allowed through the Lobby without written approval from the Landlord in advance.



■ Access Panels

The Tenant must provide access panels in walls, ceilings and floor construction as directed by the Landlord to permit necessary access to equipment and/or services.

■ Testing and Tie-ins

The Tenant must obtain the Landlord's permission prior to the installation or test of any tie-ins to the mechanical, Controls, and fire protection or life safety systems. The Tenant will be held fully responsible for any damages that may result from such tie-ins.

■ Plumbing

Where plumbing is removed from Tenant premises, all water supply, drain lines and vent connections must be removed from the ceiling spaces back to the core riser and properly capped. Installation of water meter(s) will be required on all incoming lines to the Tenant's premises servicing any kitchens, private washrooms and HVAC equipment.

■ Powder Actuated Devices

Powder actuated fasteners may not be used to support ceiling suspension systems or equipment suspended from the underside of slabs.

■ Drilling or Cutting

The Tenant Contractors are not permitted to drill, cut or chase openings of any description in any part of the Base Building Structure. If such work is deemed to be necessary and acceptable by the Landlord and the Landlords structural engineer, it will be carried out after regular working hours by the Tenant / Contractor to their account. X-Ray of core slabs or walls, is mandatory, and will be at the Tenant's / Contractor's cost. All hole locations shall be submitted on the drawings, accompanied by the x-rays for review and approval by the Landlord prior to drilling.

■ Fastenings

The Tenant's contractors are NOT permitted to fasten to curtain walls, window frames, mullions, heating radiation covers, or walls that may contain vapour barriers or special fire rated structures. Clips in lieu of screws MUST be used to fasten interior or demising walls to the ceiling T-bars. No wall partitions will be permitted to butt up to the windows. All walls must end at an existing window mullion.

■ Welding & Any Open Flame Work

Open flames for welding, cutting or other purposes are not permitted without the prior consent of the Landlord. Proposed work of this nature must be approved by Base Building Operations in writing with at least 48 hours notice before the work is to be done. An operational fire extinguisher must be available in the immediate vicinity of the work, in addition to those already present. The Tenant contractor shall co-ordinate shut off or covering of the smoke detectors





with Building Operations. Should the Tenant contractor neglect to notify Operations regarding the above-noted work and a fire alarm is activated, resulting in a false alarm the Tenant contractor will be charged with all associated costs plus an administration fee of 15% per occurrence.

■ Damages

The Tenant Contractors shall protect all finishes to the Base Building elements and reimburse the Landlord the cost to make good any damages. Polyethylene vinyl will be applied to protect all Base Building Carpet surfaces. Pressboard will be used in all common areas for move-ins and moving of materials.

■ Storage

The Tenant Contractors will stack drywall in piles not exceeding 305mm in height over the main beams at column lines. Do not overload the structure.

■ Noise

Work such as coring and drilling MUST be carried out during non-business hours with the Landlord's approval in advance. The Landlord reserves the right to request any work that creates noise that could disrupt the surrounding tenant's right for quiet enjoyment of their own premises, to cease the activity and reschedule to an after hours time frame. Under no circumstances will the Landlord be held accountable for any cost increases incurred by the tenant/contractor for alternate scheduling of the associated work.

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■ Odours

Any work that has the possibility of generating an odour which will offend other occupied area shall be moved to either after hour or weekend schedules (i.e. any painting operations other than those utilizing latex paint, concrete sealing, glue applications for tile or carpet, etc.).

■ Access to Premises

The Landlord shall have free access to the Leased Premises at all times for the Purpose of completing, correcting or inspection of any work.

■ Parking

Parking for trades people's cars will be permitted, if space is available, in the parking garage.

No vehicles may be parked, placed or worked from on the sidewalks, driveways, or any other property inside the street lines surrounding 140 Allstate Parkway.





Where security card access is required for access to parking or other areas of the building it will be the Tenant Contractor's responsibility to obtain the Security Cards. There will be a refundable deposit for the security cards.

■ Work Conflict

Tenant Contractors work shall be performed in a manner that will not interfere or conflict with any activities of the Landlord, other Tenants or the operation of the Complex.



CLEAN-UP

Prior to moving in, the Tenant and Contractor are responsible for cleaning the following:

- a) carpets and all other floor coverings which may have become soiled during the construction;
- b) light fixtures and lenses (including fixtures previously installed);
- c) inside face of windows and curtain wall mullions; perimeter radiation units (inside & out)
- d) public corridors adjacent to the Leased Premises, and service areas used during construction, including base building electrical and mechanical rooms;
- e) window coverings, i.e. blinds;
- f) elevator(s) and loading area(s);

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NOTE: If cleaning is to be done by the Landlord's cleaning contractor, it shall be at the Tenant and Contractor's cost.



MOVE IN

It is the responsibility of the Tenant to advise the Landlord in writing, at least two weeks prior to the anticipated move in date, of the following:

- a) Name of the moving company, including a primary and secondary contact name and telephone number
- b) Date and time of the move in
- c) Elevator requirements
- d) Any other special services or requirements.





2 DESCRIPTION OF FINISHES



FINISHES

■ Floors

Finished concrete floor slabs suitable to receive carpet. Carpet will be provided in multi-tenant corridors and elevator lobbies.

■ Walls

Core walls, exterior walls, columns and Tenant demising partitions are taped and sanded drywall. On multi-tenant floors the public corridors will be vinyl wall covering to the building standard. Minimum width of any public or Tenant suite corridor will be 1.1 meters unless the building code dictates otherwise due to the high occupancy loads. Clear width must take into account door obstruction. All interior partition walls must terminate at an existing building window mullion. No walls will be permitted to end in the middle of a window (fake mullions will not be permitted). All mullions and radiator covers are to remain the base building colour; they are not to be painted without written authorization from the Landlord.

■ Ceilings (Tenant space and Corridors)

The ceilings will be CGC lay-in white acoustical panels, 20" x 60" on a standard white fire rated T-Bar at a standard height of 2.74m (9') unless otherwise approved. Tiles will be stored on the floor ready for installation by the tenant's contractor. The Tenant and contractor will be responsible for all ceiling tiles previously installed.

■ Elevator Lobbies

Elevator lobbies on multi-tenant floors will be a T-Bar ceiling with a drywall lighting valance, the elevator doors will be painted steel to the building standard. The walls will be vinyl wall covering. The floor will be polished granite border with carpet inlay to building standard.

Elevator lobbies on full floor tenancies will have a T-Bar ceiling with a curved drywall lighting valance. The elevator doors and frames will be painted steel. The walls will be concrete block. The floors will be smooth finished concrete. Full floor tenants will have the option of Base Building finishes: i.e. carpet, and vinyl in their elevator lobbies if desired at the Tenant / Contractor's expense.

■ Hardware

Hardware will be 8 line Sergeant brushed nickel cylindrical locksets on the stairway doors and exterior doors to premises and 6 line Sergeant brushed nickel cylindrical locksets and passage sets within the suites/or acceptable lever handle with finish to match base building.



All door locks installed by the Tenant, on both entrance and interior doors must be keyed to the building Master Keying System. The system, while allowing complete versatility and freedom for the Tenant regarding the locking arrangements for their offices, provides access to each office at all times for both normal cleaning and especially emergency situations. It is the contractors responsibility to ensure the correct keyway is installed to accommodate the Master Key System.

All locking hardware must be compatible with Sergeant cylinders and locks. Outside locksmiths or lock manufacturers are NOT permitted to change the bitting or keying of the locks.

■ Window Coverings

Building standard window coverings and necessary hardware will be provided by the Landlord and must not be removed. Blinds will be white aluminum 1" wide horizontals.



SIGNAGE

Suite signage will be in accordance with the standards established for the project at the Tenant's expense. All signage visible from the exterior of the suite must be approved by the Landlord in writing. Any signage other than Building standard signage requires the Landlord's approval, which may be withheld by its sole discretion.

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■ Structural Systems

Total live load of 50 lbs PSF plus partition load (dead load) of 20 lbs PSF.



MECHANICAL SYSTEMS

■ Heating, Ventilation and Air Conditioning (H.V.A.C.)

The perimeter of the building is heated by wall fin radiation located between each column. Heating risers are located at each column. Each section of radiation between the columns have thermostatically controlled zone valves.

Each floor is provided with a roof-top unit. Ductwork is installed from these units throughout the interior space on a grid system.

Good air quality is provided by introducing fresh air at a rate of 0.5 ltr/s/sq m. which is in excess of the accepted minimum level of 0.28 ltr/s/sq.m.

The ductwork feeds variable air volume terminal boxes dividing the floor into perimeter zones (approximately 3750mm wide) and interior zones. Each VAV terminal box has a remote mounted control thermostat. Each VAV terminal box in turn feeds a supply ductwork system which provides a spin-on fitting with balancing dampers, 2m of flexible ducting and a supply air boot. Relocating the flexible duct or installing additional boots and take-offs with balancing dampers are at the Tenant's / Contractors cost. Air is returned through the light fixtures and ceiling plenum. The mechanical system is computer controlled on each floor.

Balancing of the air system is the responsibility of the Mechanical contractor and must be approved by the Tenant's Engineering Consultant and at the tenant's cost. Upon completion, a written Air Balance report approved by the Tenant's Engineering Consultant shall be submitted to the Landlord.

It is required that controls be installed and set by the Building Controls contractor (see Appendix "A") at the Tenant / Contractor's expense. Air transfer / smoke relief grilles must be installed in all sound baffles above the ceiling. Engineered, Smoke / Air transfer boxes must be installed in all demising walls.

■ Plumbing

Core area washrooms where shown on the drawings are complete with all fixtures.

Drinking fountains where shown on the drawings are refrigerated.

Four (4) inch sanitary, 3/4 inch hot and cold water, and 2-inch vent connections are installed and capped on each floor in the ceiling space. Metered domestic water is available on all levels for large water consumers (i.e. Restaurants, Computer rooms etc.).

Open-ended exhaust ducts are provided in each ceiling space as shown on the drawings. The ground floor is on grade and is, therefore, not equipped with drain lines.



FIRE PROTECTION SYSTEMS

■ Fire Protection

Fire hose cabinets with 45m of 38mm hose, 65mm Fire Department valve, and a 9.5 ltr pressurized water fire extinguisher as shown on the mechanical drawings. Locations are based on anticipated office partitions. If the Tenant partitioning prevents coverage with 45m of 38mm hose, as required by the Ontario Building Code, the Tenant shall provide additional fire hose cabinets complete with 45m of 38mm hose, 65mm Fire Department valve and 9.5 ltr pressurized water fire extinguisher.

The building is an un-splintered building.

■ Welding

Insurance regulations dictate that a welding and burning permit be obtained from the Landlord prior to bringing this type of machinery on site. This permit must be attached to the equipment at all times. No welding is to be carried out without the approval of the Project Manager. This will ensure that the necessary Fire Protection Systems are bypassed. Any costs incurred by the Landlord due to the neglect of the Tenant / contractor will result in these charges being forwarded to the Tenant / Contractor's account.



ELECTRICAL SYSTEMS

■ General

The telephone/electrical rooms, which are provided on each floor, are intended only for basic communications and electrical services and are not accessible to tenants or their contractors. Any space of this nature that a Tenant requires for their own equipment, or use, must be provided within the Leased Premises.

■ Lighting

The Landlord will supply lighting fixtures for the Tenant areas on the basis of one fixture per 16sq.m. The Tenant will install the lighting fixtures on the task lighting principal (i.e., fixtures positioned at task area). The lighting fixtures may be installed in the 20" x 60" ceiling grid.

All fluorescent lighting shall be 347V energy saving bulbs and ballasts.

Tenants will be required to provide any local switching within their Leased Premises. Each office floor is divided into six lighting zones controlled throughout by the building lighting computer system.

■ Power

The Tenant is to provide a service panel within their suite direct from the floor electrical room. Such services will be to the Landlord's approval. Large facilities (computer, etc.) requiring an exceptionally large service will require detailed review by the Landlord to determine the feasibility of providing such a service. If the service proves feasible, the service shall be provided by the Tenant.

All heavy duty services will require check power consumption metering by the Tenant.

Conduit systems above the ceiling (on the floor below) with drilled holes for floor pedestal devices will be subject to the occupancy condition on the floor below.

■ Telephone

Approximately each 84 sq.m. of floor area is serviced with an empty 25mm conduit wireway from the floor telephone room riser into the ceiling space. Telephone outlets shall be by wiring in partitions. Conduit system above ceiling below with drilled holes for floor pedestal devices will be subject to the occupancy conditions on the floor below. All special switchboard facilities required by each Tenant and all wiring shall be provided by the Tenant. Arrangements for telephone services shall be carried out by the Tenant directly with Bell Canada or an alternative supplier.



■ Meters

Tenants are required to install, at their cost, Measurement Canada Approved METER MANAGER™ Electronic Submeters supplied by Carma Industries Inc.

Electronic Submeters for electricity measurement are required for all tenant electrical services, including receptacle power, lighting and supplementary air conditioning units (etc.), unless stipulated otherwise by Building Management.

For further details on Submetering, please contact Building Management or Carma Industries Inc. in Toronto at 416-260-4264 or Peterborough at 705-743-2401 for further details. Please ask for Sales or Customer Service.

Please see Addendum “B” at the end of the “Electrical” Section for Instructions, specifications, etc

■ Computer Power Supply

An isolated ground riser is available in panels on each floor at 120 / 208 Volt power. Use of and connection to this computer riser is at the Tenant's / Contractor's cost, and subject to availability.

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■ Emergency Power

Each floor has a minimum coverage of emergency lighting. This emergency lighting is battery back-up only.



3 TENANT / CONTRACTOR RESPONSIBILITIES

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MECHANICAL

■ Labour, Materials & Fees

Provide all labour and new materials for the complete installation of the systems. Ensure that complete installation meets with the approval of all authorities having jurisdiction in accordance with all codes, etc.

Arrange and pay for all permits and fees required for this installation.

Use materials that are C.S.A., U.L.C., code approved and C.G.A. or Ontario Hydro certified for the intended application.

Comply with the intent of the base building specifications.

Comply with all requirements as outlined in the Landlord's "Design Criteria Manual".

■ Examine the Site

Examine the site and be familiar with all the conditions covered by these specifications. Extras will not be allowed for failure to properly evaluate conditions.

Take field dimensions prior to any installation.

■ Compliance With Codes

Comply with all latest relevant codes and local regulations having jurisdiction including O.B.C., N.B.C., N.F.P.A. 13, C.G.A. 149.1, C.S.A., O.W.R.A. 675/85, Canadian Plumbing Code, Ontario Hydro Code.

■ Debris & Clean Up

Keep premises clean as work progresses, avoid accumulation of debris, ensure that during construction all open vents are sealed and any controls (thermostats etc.) are covered. On completion of the work, clean up and remove from site all scrap materials resulting from the work. Clean all equipment prior to final inspection.

■ Co-ordination & Co-operation

Co-ordinate the work with all trades to ensure work may progress without delay. Arrange the schedule of all work in co-operation with the General Contractor.

Co-ordinate the work with all trades and co-operate to ensure services do not conflict with the other services and / or structure.



Make allowances for such items as offsets to accommodate actual field conditions. Refer to structural and architectural drawings (or site visit) for further building information.

Mechanical contractor shall indicate in red ink on an extra set of white prints all changes and deviations from locations on plans as job progresses. On completion of the work provide the landlord with two sets of completed drawings showing location of all equipment, piping, ducting etc.

■ Warranty

Guarantee all work, equipment and materials for one year from substantial completion of the contract (A/C unit compressors - 5 years).

Ensure that all equipment is properly guaranteed by the manufacturer.

■ Shop Drawings

Submit shop drawings of all fixtures and equipment (including wiring diagrams) to the Landlord for approval. Approval of shop drawings is gratuitous and does not relieve the contractor of his responsibilities.

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■ Cutting and Patching

Provide cutting and patching for work. Arrange to provide for the making good to finishes and include for the cost of this work.

■ Wiring

All power wiring: Electrical Specifications
24 volt wiring only: Electrical Specifications

Include for all necessary starters, disconnects, transformers and relays, etc.

Ensure co-ordination between trades to avoid gaps and overlaps and to ensure all equipment is operational.

■ Demonstration

Allow for demonstration of all equipment to the Landlord and the Landlord's operating staff.



■ Miscellaneous

Provide structural steel support members as necessary to hang equipment, fans, ductwork, and piping from the building structure.

Paint all miscellaneous bare metal one coat grey oxide primer.

■ Alternatives

Assume full responsibility that the equipment offered as an alternative is suitable for the space allocated, and for any additional costs to any part of the work resulting from the use of an alternate.

No deviation from plans and specifications will be allowed unless written approval and consent is first obtained from the Landlord.

■ Maintenance & Operating Instructions

Provide two copies of manufacturers maintenance and operating instructions for all equipment.

Present the instruction in indexed three ring hard cover binders, with spine label project indicator, and index sheet. Including all shop drawings, permits, warranty details, certificates, contractor names, and telephone number lists for all project trades in this manual.

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■ Interruption of Services

Any interruptions of the base building systems shall be coordinated with the Landlord for the time and duration and shall strictly adhere to the Landlord's instructions in this regard.

Include cost of premium time in tender price for the work outside normal working hours to maintain all mechanical services in operation without disruption to existing tenants.

■ Workmanship

Employ a responsible foreman to supervise the work and retain for duration of construction period.

Employ only skilled plumbers, steam fitters, sheet metal workers for the execution of the work. Workmanship shall be first class as regards to durability, efficiency, safety, and neatness of detail.



PLUMBING

■ Piping Materials

Condensate drain piping: Type 'M' copper.

■ Heat Pump supply and Return Piping:

Steel pipe 50mm and smaller - schedule 40 electric weld or seamless ASTM specification A-53, 65mm and larger - schedule 40 as above ASTM specification A-53 with butt welding ends. With steel pipe fittings up to and including 50 mm shall be threaded joints malleable iron, 65mm and larger shall be forged steel butt weld.

Copper pipe 50mm and smaller type 'L' hard drawn copper with wrought copper solder type fittings.

All elbows shall be long radius type.

| | | |
|----|-------------------------|---|
| a) | Gate valves up to 50mm | Crane 428 Jenking 810 RW/Toyo 393 Newman Hattersley T605 |
| b) | Globe valves up to 50mm | Crane 7 Jenking 1068 RW//Toyo 221 Newman Hattersley 13 |
| c) | Ball valves up to 50mm | Crane 915 Jenking 33 RW/Toyo 5044A Watts B6000 Newman Hattersley 1969AT |
| d) | Flow balancing valves | Armstrong CBV |

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Victaulic and Gustin-Bacon systems are acceptable equals.

Domestic water piping: Type 'L' copper. Exposed piping in finished areas shall be chrome plated.

Drain and vent lines: Cast iron with mech. joints, copper DWV or aluminum DWV pipe with cast iron fittings.

Condensate drain piping: Type 'M' copper.

Domestic water valves: Crane 438 and 1320
Jenking 310 and 313
RW/TOYO 280A and 281A.



Shock absorbers: Ancon shok-gard
 Enpoco - HT series
 Zurn - Shok Trol.

When using solder on portable water piping, use 0.2% maximum lead solder or alternatively use 90/5/5 (tin/silver/antimony) lead free solder.

■ Piping Supports

Support all piping using Clevis type hangers and riser clamps. Use hangers of the same material as pipe, or insulating inserts between hanger and pipe. Grinnell, Myatt, Economec or equal.

Provide pipe covering protection saddle at each hanger where pipes are insulated.

■ Escutcheon Plates

Provide escutcheon plates at all walls where pipes are exposed to view.

■ Unions

Provide unions to connect all piping to equipment to facilitate ease of maintenance.

■ Pipe Insulation

Insulate all domestic cold water piping and horizontal condensate drain lines with 1" thick fibreglass heavy density pipe insulation with all service jacket (ASJ). Adhere a factory applied vapour barrier jacket; lap smoothly and securely at the longitudinal seams with vapour barrier adhesive. Adhere 3" butt joint strips over all end joints to ensure a continuous vapour barrier.

Insulate domestic hot water piping with 1" thick fibreglass heavy density pipe insulation with full service jacket.

Finish all exposed insulation with 6 oz fire retarding canvas.

Clearly label pipe contents on pipe surface (i.e. D.H.W. or D.C.W.) and identify flow direction.

■ Piping Installation

Piping shall be concealed in finished areas and grouped so that valves etc. are accessible through as few access panels as possible.

Run piping parallel to building lines with crossing over kept to a minimum.

Identify all visible piping fully exposed or in accessible spaces (i.e. lay-in ceilings) with legend lettering, direction of flow and field colour band.



| Medium | Legend | Legend & Flow Arrow Colour | Field Colour Band |
|------------------------|---------------|---------------------------------------|--------------------------|
| Heat Pump Water Supply | H.P.W.S. | Black | Light Green |
| Heat Pump Water Return | H.P.W.R. | Black | Light Green |
| Condensate | Cond. | Black | Black |
| Cold Water | C.W. | Black | Light Blue |
| Domestic Hot Water | D.H.W. | Black | Dark Blue |
| Sanitary Sewer | San. | White | Black |
| Plumbing Vent Line | Vent | Black | Black |
| Radiation Heat Supply | HWS | White | Purple |
| Radiant Heat Return | HWR | White | Purple |
| Condenser Water Supply | CWS | White | Dark Green |
| Condenser Water Return | CWR | White | Dark Green |

■ Valve Tagging

All valves shall have securely affixed to them a brass plate tag with embossed black numbers.

Prepare for the Landlord a list of valve numbers indicating location and function.

■ Access Doors

Provide approved access doors to all valves, etc.

■ Liquid Heat Transfer

Provide heat pumps as noted on drawings.

Refer to original base building specification for maintenance, flushing, installation etc. on heat pumps.

■ Drains

Provide Enpoco E-1000-R5-CI-PB-TSP floor drains where shown.

All interior floor drains shall be piped and connected to trap seal primers TSP-2.

■ Cleanouts

Install all floor cleanouts with standard TY branch or Y branch and blend using Enpoco 3000-CI cleanouts with cover to suit floor finish.



■ Plumbing Alternatives

Enpoco numbers used in drains and cleanouts. Equivalent alternates by Zurn, Ancon or Rototech Smith are acceptable.

■ Plumbing Vents

Plumbing vents are not necessarily shown on drawings. However, install vent system in accordance with O.W.R.A. 675/85.



H.V.A.C.

■ Ductwork:

Provide ductwork as indicated on drawings.

Provide all ductwork to "SMACNA" standards. Fabricate all ductwork from galvanized steel to the clear inside dimensions as noted on the drawings, with all flat surfaces cross broken.

Install all ducts free from leaks and seal all holes with 3M #474 tape.

Duct thickness as follows:

| <u>Maximum Size</u> | <u>Gauge</u> |
|---------------------|--------------|
| up to 12" | 26 |
| 13" to 30" | 24 |
| 31" and over | 22 |

Where any construction impediment or requirement renders the dimensions impossible, alter ductwork so as to give an effective cross sectional area equal to that originally shown without exceeding an aspect ratio of 4:1. Make changes at no additional cost to the owners.

Use bends where possible. Use square elbows c/w turning vanes wherever bends are impractical. Duro Dyne "Durovane Rail" or Hart & Cooley "Ducturn" or equal.

Brace ducts so they do not vibrate or sag. Support horizontal ducts up to 20" wide with 1" x 14 gal. galvanized straps passing under ducts, on 8'0" centres. Use angle iron support for ducts over 20" wide or deep.

Provide approved access doors to all balancing and fire dampers, and etc.

Supply and install splitter dampers at all supply air branch take-offs. Dur-Dyne SRP or equal hardware.



Paint inside ductwork black where visible through grilles, etc.

Flexible ducting to be class 1 air duct connectors as listed and labeled by Underwriter's Laboratories of Canada, with flame spread of not more than 25 and smoke development classification of not more than 50.

All round duct through 24" diameter shall be United Sheet Metal spiral lock-seam Uni-seal duct manufactured from galvanized steel meeting ASTM A-527-71 in the following gauges:

| <u>Diameter</u> | <u>Metal Thickness</u> |
|-----------------|------------------------|
| 3" - 8" | 28 Ga. |
| 9" - 14" | 28 Ga. |
| 15" - 24" | 26 Ga. |

All fittings shall be United Sheet Metal standard, or equal, uniform fittings manufactured from galvanized steel meeting ASTM A-527-71 with continuous weld or standing seam construction in the following gauges:

| <u>Diameter</u> | <u>Metal Thickness</u> |
|-----------------|------------------------|
| 3" - 8" | 24 Ga. |
| 9" - 14" | 24 Ga. |
| 15" - 24" | 22 Ga. |

■ Duct Insulation

Insulate ductwork with 1" thick internal neoprene coated fiberglass ductliner where indicated. Adhere with min 50% covering of fire retarding adhesive and supplement with welding pins.

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Make provisions for duct liner so that sizes shown on drawings are clear inside dimensions inside the insulation.

■ Fire Dampers

Provide Ruskin or controlled air ULC rated Type B fire dampers.

Install in accordance with N.F.P.A. 90A rated to suit fire rating of membrane to be protected.

■ Fans

Provide fans as scheduled on the drawings.

Adjust fans and motors to operate quietly, and make dampers tight to prevent vibration.

Provide fans with spring isolation to give a minimum 95% efficiency.

Provide flexible connections at each fan 24 oz. per yard tensile strength of not less than 500 lbs. with metal to 3" fabric to metal "Grip-Loc" duct connections.



■ Balancing

Engage the service of the Tenant / Contractor's balancing contractor to balance and test all air handling systems under this section.

This contractor shall:

Review drawings, specifications, and installed work to ensure that systems may be properly balanced in accordance with drawings. Advise installing contractor of any additional requirements for effective balancing.

Ensure that air handling systems are free from obstructions, that dampers are positioned correctly, that moving equipment is lubricated in accordance with manufacturer's recommendations, and that filters are clean.

Demonstrate that the air handling system's performance is as specified and adjust variable speed pulley's and volume control dampers where necessary. Each diffuser and grille shall supply or exhaust specified quantity with +/-5%.

Tabulate and certify test results on suitable forms and submit to the Landlord for approval and record.

Perform this work in accordance with procedures and standards described in SMACNA "Balancing and Adjusting Manual".

■ Control Dampers

Dampers shall be opposed or parallel blade low leakage type.

Frames to be reinforced extruded aluminum with vinyl jamb and blade seals. Blades to be 6" maximum on centres. Damper actuators shall be oil submerged, spring return, two position 120/1/60 electric type. Bearings to be non-corrosive nylon.

Damper seal shall be designed for minimum air leakage by means of overlapping seals. Dampers to be Nailor Hart, Ruskin or approved equal.

■ Variable (Constant) Air Volume Valves (V.A.V.)

Refer to schedules for type, capacity and size of variable volume air valves. Install in locations shown on plans.

The valve shall be of Venturi shape and designed to achieve linear air flow to operator stroke relationship for precise control of air delivery. The valves shall have a tubular shock absorber to prevent any fluttering noise that may occur due to aerodynamic instability in the system or its components. The valves shall have mechanical means of achieving pressure independence.



Valves shall have external CFM setting indicator so that the CFM can be read. Maximum and minimum settings shall be factory calibrated and shall be field adjustable with the use of standard tools. The valves shall be rated for its full capacity at 0.3" WG and shall maintain pressure independence within 10% of the settings between 0.3" - 3" static pressure drop across the valve. Leakage in the closed position shall not exceed 1% of the maximum valve rating at operating static pressure.

V.A.V. valves shall have factory mounted operators furnished by the controls subcontractor. Controls subcontractor shall carry the operator mounting charge, to be paid to the V.A.V. valve manufacturer. Pneumatic operators shall be of sufficient stroke and power to operate over the V.A.V. valve's entire range within its design operating duct pressure range.

Valve housing and cones shall be spun aluminum, tubular shock absorber shall be machined or stamped from heavy gauge aluminum, bearings shall be of centreless ground 304 stainless steel, operator plate and shaft support struts shall be of heavy gauge galvanized steel. All parts are designed and constructed to operate smoothly throughout its full range without creating objectionable noise.

The V.A.V valve shall be normally open or normally closed. Refer to schedule on drawings.

Individual valves shall be factory calibrated for minimum and maximum CFM settings as specified by use of actual air flow tests. V.A.V (CAV) valves shall be as manufactured by M & I Heat Transfer Products Ltd. Markhot Inc. or equal.

■ Controls

Provide for new and relocation of existing control components as indicated on drawings.

Controls are to be supplied by "Johnson Controls" and installed by the base building contractor.

Control Air Tubing Minimum Requirements,

- A. Copper tubing
 - Hard drawn seamless type.
- B. Polyethylene tubing and polyethylene jacketed tubing bundles.
 - Maximum operating pressure: 80 p.s.i. at 140 Deg F.
 - Ambient Operating Temperature Range: (100 Deg. F. to 175 Deg. F)
 - Number coded tubing in polyethylene jacketed tubing bundles.
 - "FR" stamped along entire length of tubing.



NOTES:

- a) Conceal tubing whenever in public areas, run parallel to building lines wherever exposed in mechanical rooms.
- b) Install tubing using standard connectors and adapter fittings.
- c) Install tubing with the building insulation between it and the outer building surface so that the tubing is isolated from the outdoor air temperature.
- d) Support tubing at regular intervals.



ELECTRICAL

■ General

All work shall be in accordance with the latest edition of the Ontario Hydro Code, Local Inspection, Ontario Building Code, and any other ordinance.

Examine the site and all drawings and specifications of all trades and be familiar with the work of this trade. No allowances will be made for the failure to do so.

All electrical work shall comply with C.S.A. electrical bulletins applicable to tender close. Where specific bulletins are not named they are still considered an integral part of this specification.

Grounding shall be in accordance with the requirements of the Ontario Electrical Code. Provide all grounding required regardless if not shown on the drawings.

Provide all new materials having C.S.A. approval. All workmanship shall be first class in regard to standard practices, safety, accessibility, durability and neatness of detail for acceptance by the Landlord's representative.

Arrange and pay for all permits and inspection fees required for the work of this trade. It is the responsibility of this contractor to submit to the Electrical Inspection Department and/or supply authority any and all drawings and specifications required for permits, fees, approvals, examinations and services.

Provide all cutting and patching required for the work of this trade. All shop painted equipment damaged in transit shall be touched-up to match existing finish.

Avoid accumulation of debris as the work progresses. On completion of the work, clean up and remove from the site all scrap materials resulting from the work of this trade.



Co-ordinate the work of this trade with all other trades on the job so that the work may progress without delay.

Prior to final inspection, clean all electrical equipment. Clean all construction dust and dirt from installed equipment at the conclusion of the job.

Upon completion of the work, provide the final unconditional certificate of acceptance from Ontario Hydro Inspection Department to the Landlord.

Provide a one-year guarantee on all materials, and labour from the date of acceptance by the owner.

The Electrical Contractor shall adjust phase loading, such as not to exceed a 10% phase imbalance.

The electrical contractor shall submit shop drawings for power distribution equipment, fire alarm equipment, and all luminaries with associated equipment, i.e. poles, brackets etc. to the Landlord.

The shop drawings shall bear the name of the manufacturer, the manufacturer's catalogue number, and the engineer's designation, along with all pertinent information on each piece of equipment.

All equipment shall be mounted, plumbed true.

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The electrical contractor shall obtain one set of blueprints, for 'as built' purposes, and make all necessary revisions on these blueprints to reflect actual on-site changes.

At the end of construction, prior to final inspection by the engineer, the electrical contractor shall submit the as built drawings for review. Final inspection will not be carried out until these drawings are submitted.

The base building specifications shall form an integral part of this specification and shall be strictly adhered to.

The interior design drawings are to be consulted for all locations of devices and mounting instructions. Where device styles, colour, or orientation are specified on the interior design drawings these shall be strictly followed. Where requests by the designer are in conflict with the applicable codes, the Landlord's engineer shall be contacted for a decision.

The Tenants electrical contractor shall be responsible for the installation and certification of any metered service. The fees and deposits for such metered service shall be the sole responsibility of the Tenant / Contractor.



Electrical contractors should note that existing metered services that have been disconnected for more than six (6) months are required by local hydro regulations to be re-inspected by Ontario Hydro regardless if any changes took place.

■ Conduits and Raceways

Use TWH or R90 copper conductors C.S.A. approved for the application. Size conductors so that maximum branch circuit voltage drop does not exceed 3%. Minimum conductor size is #12 AWG unless otherwise indicated.

Design is based on copper conductors except where shown on the drawings, aluminum conductors may be used only for feeders 1/0 AWG or larger. Size the aluminum conductors to the equivalent ampacity of copper conductors. Conductors in underground raceways may be RWU90 in poly pipe.

Terminate aluminum feeder conductors with pressure connectors, and utilize an oxide preventative solution "Penetrox" on all bare surfaces. Lugs to be aluminum or aluminum/copper alloy only.

All conductors are to be installed in raceways as described below;

- a) Interior exposed surface raceways, branch circuit wiring from panel, concealed in accessible ceilings and walls or in concrete block construction: E.M.T. Raceways.
- b) In metal stud partition walls, branch circuit wiring from panels in suite or Tenant occupancies, in concrete block walls for final drops and for final drops to fixtures in ceiling spaces. (Length not to exceed 3 M in this application); Armoured Cable (Bx).

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All conduit and wiring is to be concealed in all finished areas.

Minimum raceway size for telephone and communication conductors is 19 mm (3/4 ").

■ Switches

- a) Specification grade rated 15A, 125VAC, single pole, single throw. (3-way or 4-way as noted on drawings).
- b) Spec grade, rated 15A, 240VAC, single pole single throw. (3-way or 4-way as noted on drawings).

Manufacturers: Smith & Stone, Harvey Hubbell, Leviton, Pass & Seymour, Eagle or equal.

■ Receptacles

- a) Spec grade, duplex, rated 15A, 125VAC, EEMAC 5-15R configuration, U-ground.
- b) Isolated ground, duplex, rated 15A, 125VAC, EEMAC 5-15R configuration, insulated, isolated U-ground.
- c) Ground fault interrupting Class A duplex, rated 15A, 125VAC, EEMAC 5-15R configuration, trip at 4-6 MA fault current. C/W push to test and reset buttons.



■ Cover Plates

a) Smoothline bakelite, colour to match switches and receptacles. Coverplates to be of the same manufacturer as the devices.

■ Dimmers

Lutron Nova "T" Series. Wattage as indicated. Provide appropriate wall boxes for corresponding dimmer size. Do not gang dimmers in one outlet box.

Manufacturers: Smith & Stone, Leviton, Ideal, Prescolite or equal.

■ Equipment isolating disconnects

Disconnecting devices to be sized for the current carrying capacities of the equipment to be isolated. Provide number of poles as required by the equipment to be isolated. Type of enclosure as indicated below;

- 1) Dust free or standard - EEMAC Type 1.
- 2) Outdoor or damp location -EEMAC Type 3R.
- 3) For direct exposure to water under pressure - EEMAC Type 4.
- 4) For high dust concentration of non-ignitable dust - EEMAC Type 5.

Manufacturers: Commander, Arrow-Hart, Scepter, F.P.L. Square D, Westinghouse, or equal.

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All devices of the same type, size and rating are to be of the same manufacturer throughout the project.

■ Service and Distribution

The Landlord provides 347V distribution for the computer controlled lighting system on a ceiling grid system. Provide additional 347V, 15A rated circuits to match existing for any fixtures that cannot easily be serviced through the existing grid system.

The Landlord provides 120/208V, 3-phase power to a distribution panel located in the core electrical room. Provide a 100A, 3P, 250V rated breaker in this panel and a 100A, 4 wire plus ground feeder through the available P.V.C. raceway system to the Tenant Panel "A" location (if available).

Provide and install complete secondary distribution system as detailed on the drawings.

Acceptable manufacturers for the distribution equipment include:

Commander, Federal Pioneer Limited, ITE (Seimens), Square D, Westinghouse.

Label all disconnect switches, starters, and panels to clearly indicated equipment controlled or area serviced. Indicate fuse size and type on all fused disconnects.

Provide circuit breaker panels of the type, with ampere capacity, number of poles, branch



breaker capacity etc., as specified in panel schedule. Mounting to be as indicated.

Provide a typed directory card on the inside of the panel door in a metal frame with clear plastic cover.

All branch breakers shall be thermal-magnetic trip indicated, ambient temperature compensated and bolted to the bus-bar.

All surface mounted equipment shall be mounted on 19 mm (3/4") plywood backboard.

■ Lighting

Provide fixtures complete with all accessories and mounting hardware, and lamps as approved by the Landlord as an equal fixture. Products of equal quality by alternate manufacturers such as Sylvania, York, Peerless, Prescolite, Halo, C & M, Capri, Midday etc. are also acceptable.

■ Emergency Power

An emergency lighting circuit at 347V, 15A, is provided by the Landlord to receptacles located in the ceiling space. Receptacles are identified as emergency power. Emergency fixtures are direct wired to the emergency circuit.

Emergency lighting circuit is fed from an emergency generator. When the generator engages it has a starting time of approximately 8 to 13 seconds.

■ Exit Fixtures

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Provide exit fixtures to match base building exit fixtures style and voltage, each fixture is to be LED illuminated (15T6 retrofit kit). Acceptable manufacturers are Emergi-Lite or alternates.

Extend base building exit fixture circuit from existing exit locations to new locations.

Exit fixture circuit is connected to the building emergency distribution system.

■ Fire Alarm System

The building fire alarm system is existing and operating. Before performing any changes to the system, alert the Landlord 24 hours in advance to allow the zone to be isolated.

All devices which are disconnected and reconnected to the fire alarm system are to be verified for the operation prior to final inspection. Verification and testing must be performed by the Base Building Fire Alarm Contractor.

- Provide certification of verification on project completion.
- Installation to ULC CAN4-5524-M82.
- Verification ULC CAN4-5537.
- Sequence of operation shall be as designed for the base building.



■ Telephone / Data / Communications Raceway Systems

Complete system shall consist of outlet box, plaster ring as required, Raceway from outlet box to terminal board in equipment room, pull wire, and coverplates on all outlets not wired by the Tenant. All wire must be FT6 rated.

Minimum Raceway size is 19 mm (3/4"). Minimum pull wire size is 3 mm (1/8") braided nylon.

■ Wiring for Other Trades

Provide power wiring for the mechanical trades unless noted otherwise. Provide all starters and disconnect switches as required. L.V. Controls and control wiring is provided by the mechanical contractor.

Verify size, location, and electrical requirements of all mechanical equipment prior to the installation of the related electrical equipment. Maintain all clearances as required for mechanical equipment servicing.

The electrical contractor shall provide all line voltage wiring and terminations of time clocks, controls, transformers etc. required by the mechanical contractor.

■ General

The Landlord reserves the right, from time to time, to add to or to amend the foregoing information, procedures and regulations.

Regulations and procedures as amended from time to time will affect any Tenant work undertaken after the amendment is issued.



ADDENDUM "A"



METER ADDITIONS / CHANGES INSTRUCTIONS TO ELECTRICAL ENGINEERS

■ Engineering Support

The Carma Metering system design may be different from one building to another to accommodate tenant lease requirements and property management standards. For this reason Carma's Technical group should be contacted for assistance in determining the number of meters and equipment required to isolate each tenant's power usage, in accordance with Building Standards. It is important that submeter details are determined prior to issuing the Tender for the electrical installation.

Please contact Carma Industries Inc. Toronto Office by telephone to alert the engineering staff of contemplated meter additions or changes that are to be tendered. Details can then be faxed or E-mailed.

Tel. (416) 260-4264

Fax. (416) 260-4265

Email: torontotech@carmaindustries.com

■ Summary of Carma Metering Operation

The Carma METER MANAGER™ Submetering System calculates the electrical energy consumed using PTs (potential transformers) and CTs (current transducers) which are connected to an Energy Monitoring Pod (Field Data Gathering Panel). A meter (set of three CTs) will be required for every electrical service that is to be monitored. Many Property Managers require tenants to isolate their receptacle power to their own panel. When circuits are used from a base-building panel or another tenant's panel, those circuits must pass through separate CTs for power isolation. Multiple conductors of the same phase can be fed through individual CTs. In most cases, sub meter installations will be less expensive if all electrical energy to a tenant can be isolated to a single breaker or disconnect switch. Isolation of lighting circuits will typically require separate CTs (and PTs) installed at the Base Building lighting panel.

Existing EMPs located in the building, may or may not have capacity remaining to monitor further CTs and PTs. Carma Industries Inc. will provide the details as to which EMP those new meters will be connected following consultation with Property Management.

PTs must be supplied to monitor the voltage from each separate power source (transformer) that supplies the tenant power. PTs also require termination at an EMP.

■ Engineering Details

Tenant's submeters are configured to match the electrical system on which they are to be installed. Therefore, Carma Industries Inc. requires the following details for all lighting and receptacle tenant loads.



1. The Service Voltage and Electrical Service details (eg. 347/600v 3-phase 4-wire or 600v 3ph3w).
2. The current rating of the service and conductor details (for CT size required).
3. Designation and location of panel containing tenant breaker(s) (eg. RP-10W, 10th flr electrical rm.).
4. Transformer supplying the power. (If two panels are fed from the same transformer, their meters may share one set of PTs).

■ Engineering Procedure for Additions and Changes

Once the electrical isolation details have been determined by the Electrical Engineer, the following information must be forwarded to Carma Industries Inc.

- Engineering Details (listed above)
- Closing date for the electrical bids
- A list of the Electrical Contractors bidding the Tenant fit-up (If a bidder does not request pricing, Carma can notify Property Management)

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Once the contract has been awarded, the Electrical Engineer must contact Carma with:

- The date the Electrical service must be activated. (To ensure equipment delivery and system commissioning is completed prior to the tenant requiring uninterrupted power).
- The successful Electrical Contractor's name and contact information.

Carma Industries Inc. requires two weeks advance notice to have equipment manufactured, Measurement Canada tested and delivered.

■ Tenants Electrical Contractor Specifications for Meter Changes / Additions

Specification Standard:

1. The Electrical Contractor will supply and install Carma Industries Inc. digital submetering for all Tenant Power and Lighting as outlined below.
2. The Electrical Contractor will purchase the submetering equipment and services from Carma Industries Inc., Toronto Office (416-260-4264) or Peterborough head office (705-743-2401).



3. The Electrical Contractor will supply and install:
 - a. Conduit for the communications Local Area Network (LAN).
 - b. Conduit for CT and PT leads. (CT-Current Transducer, PT-Potential Transformer) from the electricity submeter location to the closest available Energy Monitoring Pod.
 - c. Connectors, fasteners, and junction boxes for conduit.
 - d. Mount 10" x 10" x 4" PT enclosures which house PTs and fuse blocks. Note: Enclosure, fuse block, fuses and DIN rail will be factory assembled and CSA Approved by Carma Industries Inc.
 - e. Install all CTs on the phases corresponding to their assigned PTs as per the EMP wiring chart and individual CT serial numbers.
 - f. Ensure that the white dot on the CTs points toward the power source.
 - g. Connect line-side of PT fuse block to the CT power source using red, black and blue 12 gauge wire.
 - h. Where large step-down CTs are required (over 400 amps), mount enclosures which house 5 Amp Transducers and Shorting Terminals. Note: The 10" x 10" x 4" Enclosure c/w Shorting Terminals, will be factory assembled and CSA Approved by Carma Industries Inc. and will be mounted by the Tenant's Electrical Contractor.
 - i. Where large step-down CTs are required (over 400 amps), mount Current Transformers and connect current transformer secondaries using red, black, blue and white 12 gauge wire to the 5AMP Transducer Enclosure.
 - j. Ensure that CTs and PTs are accessible by Measurement Canada inspection personnel.
 - k. Assist in the orientation of the Commissioning Technician and perform any corrections or wire tracing deemed to be necessary by the Technician from Carma Industries Inc.
 - l. All conduit connections to the EMP will be installed in a manner that will not allow water to enter the EMP.
 - m. Coordinate with "the Base Building Metering Subcontractor" for access to EMPs enclosures that are Measurement Canada sealed.
 - n. Contact "the Base Building Metering Subcontractor" to receive all enclosures, CTs, PTs and details regarding the required conduit and PT/CT installation instructions.
4. Acquire Carma Submetering Installation Details from "the Base Building Metering Subcontractor" for installation drawings, specifications, etc., and comply with all requirements outlined in the Installation Details Sheets.

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■ Base Building Metering Subcontractors Specifications

Carma Industries Inc. Meter Changes / Additions:

1. Current Transformer and Potential Transformer Co-ordination and Low Voltage Wiring

- a. Site Pre-Inspection – Visual inspection of electrical room and drawings that are approved for construction, for confirmation of electrical configuration details, including:
 - Feeder size,
 - Current rating,
 - Determination of what transformer feeds the service to be metered
- b. Meet with the Tenant’s Electrical Contractor – Coordinate with the Contractor performing the tenant’s electrical installation to arrange for all necessary conduit and junction boxes to be installed. It is the Base Building Metering Subcontractor’s responsibility to see that the complete installation meets with all requirements of the METER MANAGER™ Installation Manual and the Building Management Tenant Criteria Manual.
- c. Provide the following Installation Hardware for connection to the EMP Sensor Card of Current Transducers and Potential Transformers
 - 3-pair shielded, 22 gauge cable, (insulated for highest voltage required by electrical code)
 - 22 gauge fasteners for PT/CT extensions
 - Labels for wire/cable
- d. Coordination of Measurement Canada Seal Integrity – notice to be provided to Carma Industries of the approximate date that access will be required behind the sealed outer EMP door. Note that breaking a Measurement Canada seal can result in fines and/or re-sealing fees if proper procedures are not followed.
- e. Co-ordinate the installation of Current Transducers or Transformers – Installations of CTs in accordance with the METER MANAGER™ Installation Manual, including phase tracing between CTs and appropriate marking of phases relative to PTs with coloured electrical tape. For large, step-down current transformers, terminations to Carma supplied enclosures and shorting terminals will be provided by the Tenant’s Electrical Contractor.

Note: Unit pricing is to include up to (100) one hundred feet of three-pair, 22 gauge cable for CT and PT installation and all terminations at the CTs, PTs and at the EMP. Coordination of electrical room access and the power shut-down with the tenant(s) and building management will also be included within the Base Building Metering Subcontractor’s responsibilities.



- f. As-Built Documentation – System As-Built Forms must be completed and issued to Carma Industries Inc. for incorporation into the Owner’s As-Built binders. This must take place immediately upon completion of the installation to signify that the meter(s) are ready for activation and commissioning. Copies of the forms and examples may be found in the METER MANAGER™ Installation Manual.

2. EMP and/or Repeater Installation

The Base Building Metering Subcontractor will be responsible for the installation of any new EMPs or Network Repeaters that may be required. Installation must conform to requirements specified in the latest release of the METER MANAGER™ Manual. Unit pricing must include:

- 120 auxiliary power, fed from a locked and labeled breaker.
- LAN (Local Area Network) cable supply and connection.
- Mounting of the unit as per the standards laid out by Property Management.
- ¾” conduit necessary for 120 volt auxiliary power fed from an emergency receptacle panel within ten (10) feet of the EMP and/or Repeater.
- ¾” conduit necessary to install network, communications cables to an existing Carma junction box within ten (10) feet of the location of the new network device.

■ Base Building Metering Subcontractor Unit Pricing

The following Standing Unit Pricing is required and is to encompass all above mentioned responsibilities of the Base Building Metering Subcontractor.

1. (a) Price for installation of conductors and terminations for one set of Current Transducers. This price should include all items from 1a – 1f.
Unit price for Item 1. \$ _____
- (b) Price for installation of conductors and terminations for one set of Potential Transformers. This shall conform to all items in 1a – 1f above.
Unit price for Item 1. \$ _____
2. Price for installation of one Energy Monitoring Pod or Network Repeater as outlined in item 2 above, EMP and/or Repeater Installation.
Unit price for Item 2. \$ _____
3. Price to remove and reinstall one set of Potential Transformers (PTs) from an existing PT enclosure.
Unit price for Item 3. \$ _____
4. Price to remove one set of spare Current Transducers and return to the Building Manager.
Unit price for Item 4. \$ _____



■ Base Building Metering Subcontractor

Company Name: _____ Date: _____

Representative's Name (Print): _____

Representative's Signature: _____

■ Carma Technicians Additions / Changes Instructions

1. Carma Industries Inc. Sales Dept. and Building Management will agree on an appropriate unit price to charge for Tenant meter additions. A method of account reconciliation will be agreed upon. A Base Building Metering Subcontractor will also be chosen and unit installation pricing established.
2. The Tenant Criteria Manual for the Building is to contain references to ensure all tenant power (including lighting) is Submetered.
3. The Leasing Department will ensure that the Tenant's Electrical Engineering Company is aware of the metering requirements. Leasing will issue the Tenant Criteria Manual to the Electrical Engineer which will include a copy of the Meter Engineering Instructions as outlined in Sections #3 and #4. A copy of the Metering Specification will also be provided in the Electrical Tender Document as outlined in Section #5.
4. The Electrical Engineer will contact Carma Engineering Support with the information specified in the Engineering Instructions. This provides advance notice of metering requirements to Carma Industries Inc. as well as assistance to the Engineer in determining the number of meters required to isolate the Tenant's electricity.
5. A Job Document will then be provided by the Carma Engineer to track all relevant metering details, including installation details. This will be issued to the Electrical Engineer, and to the Building Manager and Electrical Contractors, if required.
6. Upon receipt of the Specification / Tender Documents, the bidding Electrical Contractors will contact Carma Industries Inc. for pricing.
7. Carma Industries Inc. sales can promptly issue a Quotation since the job details and equipment list have already been prepared.
8. When the successful Bidder has been selected and a Power-On date is determined, the Engineer should notify Carma Industries Inc. Note: Often, the Electrical Contractor orders the meters too late to meet the Power-On date.

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9. Upon receipt of a Purchase Order for the new meter(s), the Base Building Metering Subcontractor is hired by Carma to coordinate the installation of the metering equipment.
10. The Metering Equipment is delivered to the Base Building Metering Subcontractor, who in turn, hands the equipment over to the successful Installing Contractor.
11. The Base Building Metering Subcontractor notifies Carma when the equipment is installed and a Carma Technician will perform commissioning and installation verification.
12. The System Software, the Billing Database, the System Design Schedule and the As-built Drawings are updated by a Carma Industries Inc. Technician.

The Project is credited or debited to the Building Manager's account based on time & materials and a monthly account reconciliation is provided.



4 INSURANCE AND INDEMNIFICATION

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In this section, the "Landlord" is defined as "The Great-West Life Assurance Company" and/or its officers, agents, employees and representatives.



INDEMNIFICATION

The Tenant / Contractor shall indemnify and hold harmless the Landlord, its agents and employees from and against all claims, demands, losses, costs, damages, actions, suits, or proceedings arising out of or attributable to the performance by the Tenant / Contractor(s) of the Tenant's work provided that any such claims, demands, losses, costs, damages, actions, suits or proceedings are:

1. attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property.
2. caused by a negligent act or omission of the Tenant / Contractor or anyone for whom the Tenant / Contractor may be legally liable.

Your liability under this section shall not extend to damage incurred by the Landlord where the primary cause of the injury or damage arises out of:

1. the use of maps, drawings, reports, surveys, change orders, designs or specifications provided by the Landlord, its agent and employees.
2. decisions or instructions by the Landlord.

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INSURANCE

Prior to commencement of the Tenant's work, the Landlord must be provided with evidence that the insurance specified in this section is in place with an insurance company licensed to do business in the Province of Ontario.

All insurance policies shall contain the following clause

"It is understood and agreed that the coverage provided by this policy will not be changed or amended in any way to the detriment of any named insured or cancelled until 30 days after written notice of such change or cancellation shall have given to all named insureds."



COMPREHENSIVE GENERAL LIABILITY



Without restricting the generality of the "Indemnification" section, above, the Tenant and Contractor, shall provide and maintain, either by way of a separate policy or by an endorsement to the existing policy, comprehensive general liability insurance acceptable to the Landlord, subject to the limits of not less than three million dollars (\$3,000,000.00) inclusive per occurrence for bodily injury, death, and damage to property including loss of use thereof.

The insurance shall be in the Tenant's name and anyone employed directly or indirectly by the Tenant to perform a part or parts of the work. The Landlord shall be listed as an additional named insured.

The insurance shall preclude subrogation claims by the insurer against anyone insured thereunder.

The comprehensive general liability insurance shall include coverage for:

- a) premises and operations liability;
- b) products completed operations liability;
- c) blanket contractual liability;
- d) cross-liability;
- e) elevator and hoist liability;
- f) contingent employer's liability;
- g) personal injury liability arising out of false arrest, detention or imprisonment or malicious prosecution. Libel, slander or defamation of character, invasion of privacy, wrongful eviction or wrongful entry;
- h) shoring, blasting, excavating, underpinning, demolition, pile driving and caisson work, work below ground surface, tunnelling and grading, as applicable
- i) liability with respect to non-owned licensed vehicles.

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All liability insurance shall be maintained continuously until twelve months after completion of the Tenant's / Contractor's work.



AUTOMOBILE LIABILITY INSURANCE

The Tenant / Contractor shall provide and maintain liability insurance in respect to owned licensed vehicles subject to limits of not less than one million dollars (\$1,000,000.00) inclusive.

The Tenant / Contractor shall be responsible for any deductible amounts under the policies.



PROPERTY INSURANCE

The Tenant / Contractor shall provide insurance acceptable to the Landlord insuring the full value of the Tenant's work and the full value as stated of products that are specified to be provided by the Landlord for incorporation into the work. The insurance shall be in the joint names of the Tenant and the Landlord and all others having an insurable interest in the Tenant's work. The policies shall preclude subrogation claims by the insurer against anyone insured thereunder.

Such coverage shall be provided for by either an "All Risks Builders' Risk Policy" or by a combination of a "Standard Builders' Risk Fire Policy" including "Extended Risk Difference in Conditions Policy" providing equivalent coverage.

The coverage referred to in this "Property Insurance" section shall apply to:

- a) all products, labour and supplies of any nature whatsoever, the property of the insureds or of others for which the insureds may have assumed responsibility, to be used in or pertaining to the site preparation, erection and/or fabrication and/or reconstruction and/or repair of the insured project, while on the site or in transit.
- b) the installation, testing and any subsequent use of machinery and equipment including boiler(s) or pressure vessel(s) forming part of the Tenant's work.
- c) damage to the Tenant's work, caused by an accident to and/or the explosion of any boiler(s) or pressure vessel(s) forming part of the Tenant's work.

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Such work shall exclude construction machinery, equipment, temporary structural and other temporary facilities, tools and supplies used in the construction of the Tenant's work, which are not expendable under the contract. Such coverage shall be maintained continuously until completion of the Tenant's work.

The Tenant / Contractor shall be responsible for any deductible amounts under the policies maintained pursuant to this "Property Insurance" section, and for providing such additional insurance as may be required to protect the insureds against loss on items excluded from the policies.



WORKER'S COMPENSATION

Prior to commencing the Tenant's work, and until the completion thereof, the Tenant / Contractor shall provide evidence of compliance with all requirements of local Provincial statutes with respect to Workmen's Compensation including assessments or payments due thereunder.

At any time during the performance of the Tenant's work when requested by the Landlord, the Tenant / Contractor shall provide such evidence of compliance by the Tenant / Contractor, and any or all of your contractors and/or sub-contractors.

