

Respect

Excellence

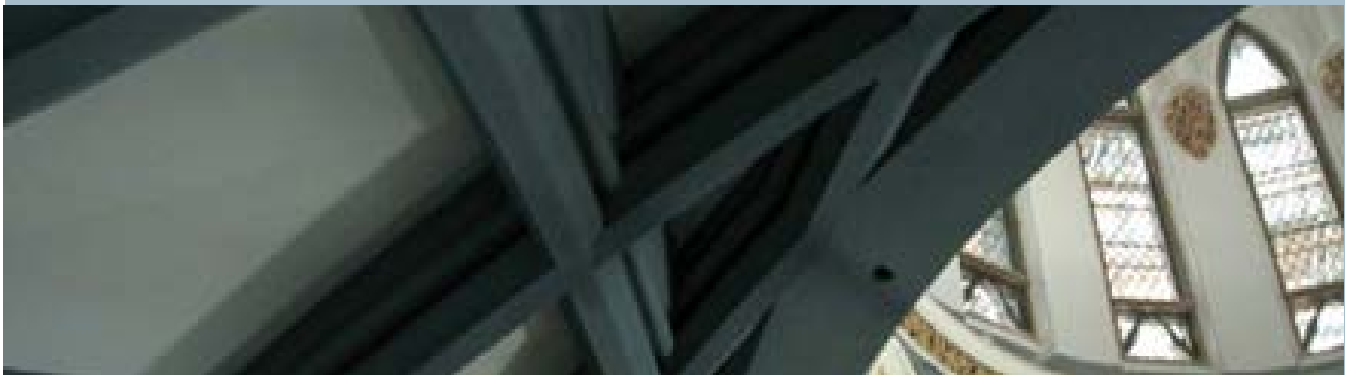
Integrity

Leadership

# PWGSC National CADD Standard Supplement

National Capital Area  
Operations – Professional and Technical Services

March 2010



Public Works and  
Government Services  
Canada

Travaux publics et  
Services gouvernementaux  
Canada

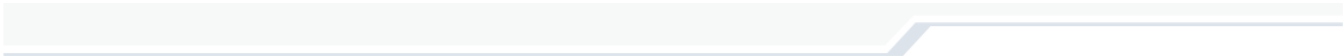
Canada





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## 1.0 Introduction

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Real Property Branch (RPB) is real property professionals specializing in office accommodation, architecture, engineering, real estate and asset and facility management. RPB are involved in all aspects of real property, from initial investment strategies, the construction and leasing of facilities, to the maintenance, repair and disposal of real property assets. RPB is divided into Headquarters and National Capital Area (NCA). Within RPB – NCA there are four divisions: Portfolio Management, Real Estate Services, NCA Operations Sector and Major Crown Projects.

The National Capital Area Operations Sector (NCA-OPS) provides the full range of property and project management services, lease administration and specialized real property services in the NCA, (excluding Parliamentary Precinct) and in Nunavut. NCA-OPS is responsible for the day-to-day operations of office and special purpose buildings for Real Property Branch (RPB) and other custodian departments, either internally or via private sector service providers. This includes repairs, capital improvements, fit up and refits projects. One of the sectors with NCA-OPS is Professional and Technical Services.

The Professional and Technical Services (P&TS) Directorate maintain professional and technical services that support service management and service delivery in the areas of operations and maintenance, planning, design, renovation and construction of federal facilities. The Directorate provides specialized expertise in project delivery, architecture engineering, heritage conservation, Geomatics, asset and facilities management, energy conservation and environmental services.

The purpose of the PWGSC CADD Standard Supplement – NCA-Operations – Professional and Technical Services (P&TS Supplement) is to ensure consistent 2D drawings, and uniform requirements for private sector service providers design deliverables. Also the P&TS Supplement aid the business of RPB by providing uniform record drawings for accommodations management and future fit-up of federal buildings. These standards must be read in conjunction with the PWGSC National CADD Standard found on the web sites listed below.

English: <http://www.tpsgc-pwgsc.gc.ca/cdao-cadd/index-eng.html>

French: <http://www.tpsgc-pwgsc.gc.ca/cdao-cadd/index-fra.html>





## 2.0 P&TS Project Delivery

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### 2.1 Project Start-up

All project drawings must be created using the standards contained within the PWGSC National CAD Standards and the additional standards contained within the PWGSC CADD Standard Supplement– NCA-OPS – Professional and Technical Services (P&TS Supplement).

### 2.2 P&TS CAD Templates

The P&TS drawing templates are organized by discipline and sheet sizes and each sheet size template is set-up with several sheet layouts: a Cover Sheet, Legend sheets for each discipline, and a Typical Detail sheet. The templates are set for the default metric units, text styles and dimensions styles as is outlined in the PWGSC National CADD Standards. These templates serve as a starting point for all CAD projects, and may be edited as needed to suit the project scope. By including the legend information directly to the template the template comes equipped with a basic library of symbols and callout blocks ready for insertion by the CAD user.





## Typical Project Cover Sheet (For use by all disciplines):

### Title block information

<b>ISSUED FOR</b> dd/mm/yyyy Publics Works and Government Services Canada Travaux publics et services gouvernementaux Canada		<b>PROJECT TITLE</b> <b>BUILDING NAME</b> PROJECT ADDRESS, CITY, PROVINCE		Canada			
<b>LIST OF ARCHITECTURAL DRAWINGS</b> A.000 A.002 A.004 A.006 A.008 A.010 A.012 A.014 A.016 A.018 A.020 A.022 A.024 A.026 A.028 A.030 A.032 A.034 A.036 A.038 A.040 A.042 A.044 A.046 A.048 A.050 A.052 A.054 A.056 A.058 A.060 A.062 A.064 A.066 A.068 A.070		<b>LIST OF STRUCTURAL DRAWINGS</b> S.000 S.002 S.004 S.006 S.008 S.010 S.012 S.014 S.016 S.018 S.020 S.022 S.024 S.026 S.028 S.030 S.032 S.034 S.036 S.038 S.040 S.042 S.044 S.046 S.048 S.050 S.052 S.054 S.056 S.058 S.060 S.062 S.064 S.066 S.068 S.070		<b>LIST OF MECHANICAL DRAWINGS</b> M.000 M.002 M.004 M.006 M.008 M.010 M.012 M.014 M.016 M.018 M.020 M.022 M.024 M.026 M.028 M.030 M.032 M.034 M.036 M.038 M.040 M.042 M.044 M.046 M.048 M.050 M.052 M.054 M.056 M.058 M.060 M.062 M.064 M.066 M.068 M.070		<b>LIST OF ELECTRICAL DRAWINGS</b> E.000 E.002 E.004 E.006 E.008 E.010 E.012 E.014 E.016 E.018 E.020 E.022 E.024 E.026 E.028 E.030 E.032 E.034 E.036 E.038 E.040 E.042 E.044 E.046 E.048 E.050 E.052 E.054 E.056 E.058 E.060 E.062 E.064 E.066 E.068 E.070	
<b>NBC/OBC Building Code Data Matrix</b>		<b>KEY PLAN</b>					
<b>COVER SHEET</b> PWGSC CAD STANDARDS		<b>COVER SHEET</b> PWGSC CAD STANDARDS					
<b>PROJECT NO.</b> <b>DRAWING NO.</b>		<b>PROJECT NO.</b> <b>DRAWING NO.</b>					

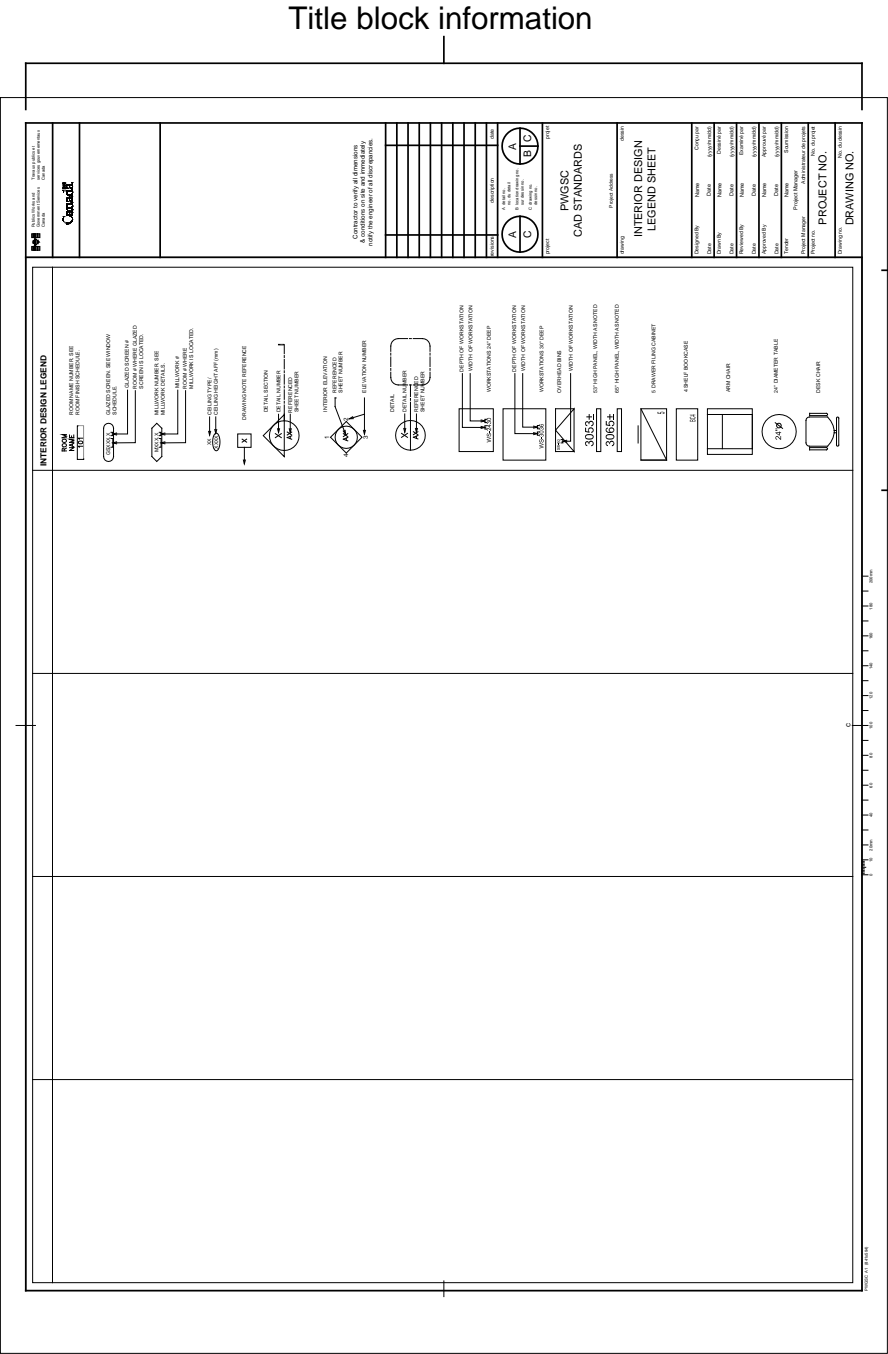
Project cover sheet information title band

Designated area for key plan

Drawing lists to be edited to suit the scope of the project.



Typical Interior Design Legend Sheet:



Interior Design symbols and callouts





## Typical Mechanical Legend Sheet:

Title block information

LEGEND - GENERAL		LEGEND - EMERGENCY		LEGEND - HVAC		LEGEND - PLUMBING AND PIPING		LEGEND - PLUMBING AND PIPING	
— — — — —	EXISTING TO REMAIN	☐	FIRE ALARM PULL STATION	→	AIR FLOW DIRECTION	☐	DRAIN FLOOR ROUND	☐	SWITCH-FLOW
— — — — —	TO BE REMOVED	☐	FIRE ALARM BELL	++++	FLEXIBLE CONNECTION	☐	DRAIN FLOOR SQUARE	☐	SWITCH-PRESSURE
— — — — —	NEW	☐	FIRE HOSE CABINET	☐	RECTANGULAR DIFFUSER	☐	DRAIN FLOOR FUNNEL	☐	SWITCH-TEMPERATURE
— — — — —	DOMESTIC COLD WATER	☐	SMOKE CONNECTION	☐	LINEAR DIFFUSER	☐	DRAIN FLOOR ELEVATION	☐	THERMOMETER
— — — — —	DOMESTIC HOT WATER	☐	SPRINKLER HEAD - FLUSH MOUNTED	☐	CIRCULAR DIFFUSER	☐	DRAIN HUB	☐	TRAP-P
— — — — —	SANITARY BELOW GROUND	☐	SPRINKLER HEAD - PENDANT	☐	RETURN GRILLE - CEILING	☐	DRAIN HUB	☐	TRAP-STEAM (INDICATE TYPE)
— — — — —	GAS LINE	☐	SPRINKLER HEAD - UPRIGHT	☐	EXHAUST GRILLE	☐	DRAIN HUB	☐	EXPANSION VALVE
— — — — —	DOWN	☐	SPRINKLER HEAD - WALL MOUNTED	☐	SUPPLY AIR	☐	DRAIN HUB	☐	SPRING TYPE PIPE HANGAR
		☐	SPRINKLER HEAD - WALL MOUNTED	☐	RETURN AIR	☐	DRAIN HUB	☐	MANUAL VALVE
		☐	SPRINKLER HEAD - WALL MOUNTED	☐	HEAT EXCHANGER	☐	DRAIN HUB	☐	SOLID VALVE
		☐	SPRINKLER HEAD - WALL MOUNTED	☐	HANDSTAT	☐	DRAIN HUB	☐	FLOAT VALVE
		☐	SPRINKLER HEAD - WALL MOUNTED	☐	THERMISTAT	☐	DRAIN HUB	☐	HYDRAULIC VALVE
		☐	SPRINKLER HEAD - WALL MOUNTED	☐	STATIC PRESSURE SENSOR	☐	DRAIN HUB	☐	MOTOR VALVE
		☐	SPRINKLER HEAD - WALL MOUNTED	☐	TEMPERATURE SENSOR	☐	DRAIN HUB	☐	PNEUMATIC VALVE
		☐	SPRINKLER HEAD - WALL MOUNTED	☐	TEMPERATURE SENSOR	☐	DRAIN HUB	☐	VALVE-ALARM CHECK
		☐	SPRINKLER HEAD - WALL MOUNTED	☐	TEMPERATURE SENSOR	☐	DRAIN HUB	☐	VALVE-BALANCING
		☐	SPRINKLER HEAD - WALL MOUNTED	☐	TEMPERATURE SENSOR	☐	DRAIN HUB	☐	VALVE-BALL
		☐	SPRINKLER HEAD - WALL MOUNTED	☐	TEMPERATURE SENSOR	☐	DRAIN HUB	☐	VALVE-BUTTERFLY
		☐	SPRINKLER HEAD - WALL MOUNTED	☐	TEMPERATURE SENSOR	☐	DRAIN HUB	☐	VALVE-CHECK
		☐	SPRINKLER HEAD - WALL MOUNTED	☐	TEMPERATURE SENSOR	☐	DRAIN HUB	☐	VALVE-GLOBE
		☐	SPRINKLER HEAD - WALL MOUNTED	☐	TEMPERATURE SENSOR	☐	DRAIN HUB	☐	VALVE-DIAPHRAGM
		☐	SPRINKLER HEAD - WALL MOUNTED	☐	TEMPERATURE SENSOR	☐	DRAIN HUB	☐	VALVE-PRESSURE REDUCING
		☐	SPRINKLER HEAD - WALL MOUNTED	☐	TEMPERATURE SENSOR	☐	DRAIN HUB	☐	VALVE-GAS COCK
		☐	SPRINKLER HEAD - WALL MOUNTED	☐	TEMPERATURE SENSOR	☐	DRAIN HUB	☐	VALVE-HOSE END
		☐	SPRINKLER HEAD - WALL MOUNTED	☐	TEMPERATURE SENSOR	☐	DRAIN HUB	☐	VALVE-LOCK SHIELD
		☐	SPRINKLER HEAD - WALL MOUNTED	☐	TEMPERATURE SENSOR	☐	DRAIN HUB	☐	VALVE-MULTI-PORT
		☐	SPRINKLER HEAD - WALL MOUNTED	☐	TEMPERATURE SENSOR	☐	DRAIN HUB	☐	VALVE-SQUARE HEAD COCK
		☐	SPRINKLER HEAD - WALL MOUNTED	☐	TEMPERATURE SENSOR	☐	DRAIN HUB	☐	VALVE-GATE
		☐	SPRINKLER HEAD - WALL MOUNTED	☐	TEMPERATURE SENSOR	☐	DRAIN HUB	☐	VALVE-NEEDLE
		☐	SPRINKLER HEAD - WALL MOUNTED	☐	TEMPERATURE SENSOR	☐	DRAIN HUB	☐	VALVE-PLUG
		☐	SPRINKLER HEAD - WALL MOUNTED	☐	TEMPERATURE SENSOR	☐	DRAIN HUB	☐	VALVE-THREE WAY
		☐	SPRINKLER HEAD - WALL MOUNTED	☐	TEMPERATURE SENSOR	☐	DRAIN HUB	☐	PUMP

Mechanical drawing symbols and callouts







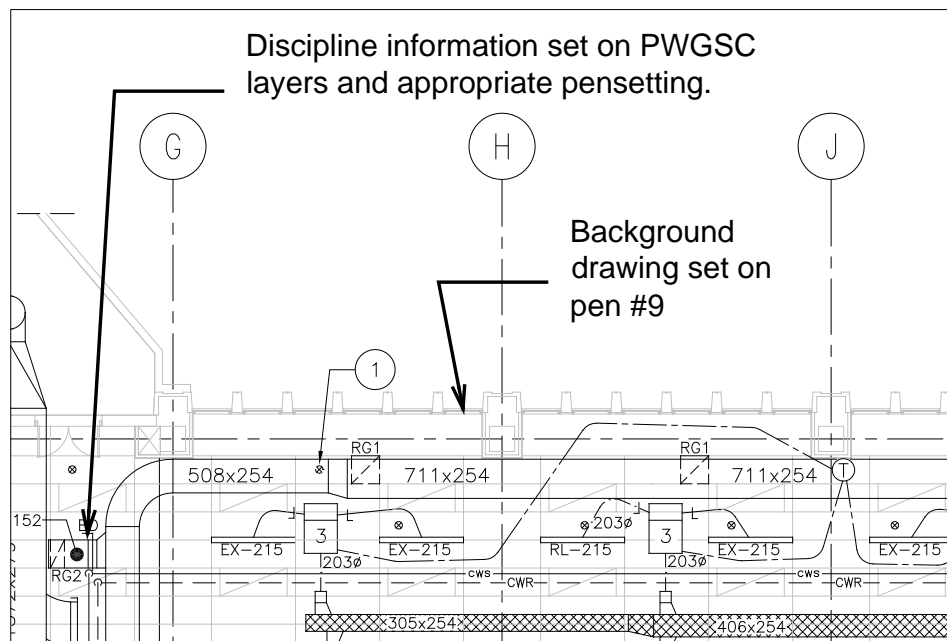


## 3.0 P&TS Computer Aided Drafting Standards

### 3.1 Colour Assignment Standard: Layer Colours and Pen Weights

Colour is to be used as a method of defining line weight to the plotter. One “ctb” file referred to as PWGSC\_P&TS\_AEC Pens, will be used by all P&TS CAD users (with the exception of Civil and Surveyor see 3.2) and associated consultants providing such services. The PWGSC\_P&TS\_AEC pens are described in the table at the end of this section.

The first 8 pens are identical to the 8 pens traditionally used by PWGSC. Pen # 9 is reserved for background drawings. This allows other disciplines to take base building plan information and change the pen to a light screened pen # 9, thus emphasizing the discipline information on the drawing sheet. The example below demonstrates the use of pen # 9 for the background plan information on a mechanical drawing.



PWGSC Layers are preloaded and found within the drawing sheet templates (see A2.2 P&TS CAD Templates). The layers have been pre-assigned with suggested pen colours, but can be altered by the CAD user to produce the desired effect sought during the production of CAD drawings. The CAD user is required to adhere to the PWGSC\_P&TS\_AEC Pen assignments, and also follow the suggested line weight settings shown in section 3.2.5 of the PWGSC National CAD Standard.



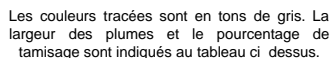


## PWGSC P&TS Pen and Colour Assignment Table

Colour on screen	No.	Line Weight	% Screen	Plot colour	Line Thickness
red	1	.35	100%	black	———
yellow	2	.7	100%	black	—————
green	3	.25	100%	black	———
cyan	4	.18	100%	black	———
blue	5	.5	100%	black	—————
magenta	6	.35	100%	black	———
white	7	.25	100%	black	———
grey	8	.05	100%	black	———
	9	.15	50%	dark gray	———
	10	.15	100%	black	———
	11	.1	100%	black	———
	12	.15	100%	black	———
	13	.2	100%	black	———
	14	.25	100%	black	———
	15	.35	100%	black	———
	16	.45	100%	black	—————
	17	.5	100%	black	—————
	18	.7	100%	black	—————
	19	1	100%	black	—————
	50	.5	100%	black	—————
	90	.25	100%	black	———
	130	.15	100%	black	———
	170	.35	100%	black	———
	210	.2	100%	black	———
	20, 60, 100, 140, 180, 220	.15	100%	black	———
	30, 70, 110, 150, 190, 230	.25	100%	black	———
	40, 80, 120, 160, 200, 240	.35	100%	black	———
	21, 31, 41, 51, 61, 71, 81, 91, 101, 111, 121, 131, 141, 151, 161, 171, 181, 191, 201, 211,	.1	100%	black	———
	22, 32, 42, 52, 62, 72, 82, 92, 102, 112, 122, 132, 142, 152, 162, 172, 182, 192, 202, 212,	.15	100%	black	———
	23, 33, 43, 53, 63, 73, 83, 93, 103, 113, 123, 133, 143, 153, 163, 173, 183, 193, 203, 213,	.2	100%	black	———
	24, 34, 44, 54, 64, 74, 84, 94, 104, 114, 124, 134, 144, 154, 164, 174, 184, 194, 204, 214,	.25	100%	black	———
	25, 35, 45, 55, 65, 75, 85, 95, 105, 115, 125, 135, 145, 155, 165, 175, 185, 195, 205,	.35	100%	black	———
	26, 36, 46, 56, 66, 76, 86, 96, 106, 116, 126, 136, 146, 156, 166, 176, 186, 196, 206, 216,	.45	100%	black	———
	27, 37, 47, 57, 67, 77, 87, 97, 107, 117, 127, 137, 147, 157, 167, 177, 187, 197, 207, 217,	.5	100%	black	———
	28, 38, 48, 58, 68, 78, 88, 98, 108, 118, 128, 138, 148, 158, 168, 178, 188, 198, 208, 218,	.7	100%	black	—————
	29, 39, 49, 59, 69, 79, 89, 99, 109, 119, 129, 139, 149, 159, 169, 179, 189, 199, 209, 219,	1	100%	black	—————
	250	.18	50%	dark grey	———
	251	.18	40%	medium dark grey	———
	252	.18	30%	grey	———
	253	.18	20%	medium light grey	———
	254	.18	10%	light grey	———
	255	.18	white	white	———



Tableau des largeurs de traits PWGSC\_NCA\_OPS\_Color.ctb











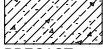





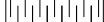

## Example of the PWGSC\_P&TS\_REN pen settings

### 3.3 Drawing Graphics and Callout Symbols

The drawing graphics and callout symbols developed within these guidelines are intended to provide a consistent appearance of P&TS deliverables.

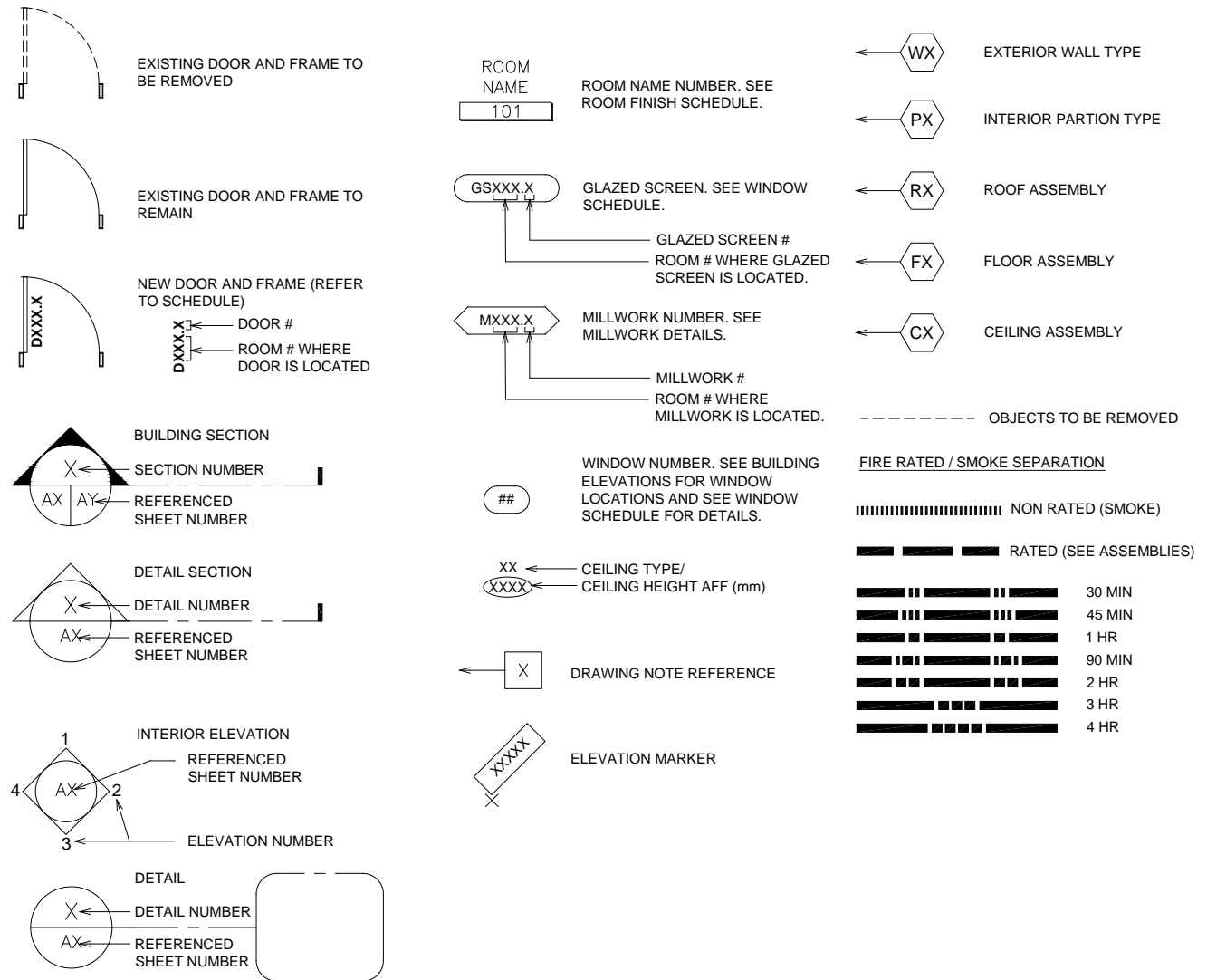
The drawing sheet templates come equipped with the basic P&TS callout symbols required to produce CAD drawings. These symbols are also located on a 'Legends and schedules' sheet for convenience of CAD project start-up.

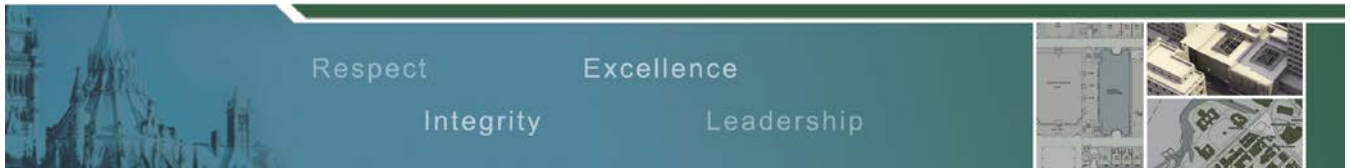
#### Basic Architectural Hatch Patterns:

MATERIAL LEGEND			
MATERIAL	PATTERN (HATCH) SCALE	MATERIAL	PATTERN (HATCH) SCALE
 STONE	ANSI 33 H.S 10	 STEEL	STEEL H.S.5.0
 BRICK	ANSI 31 H.S 10	 ALUMINIUM	ANSI 34 H.S.1.75
 CONC. BLOCK	ANSI 37 H.S 10	 PLYWOOD	DOLMIT H.S.1.0
 IN-SITU CONCRETE	SOLID FILL	 FIBREBOARD	LINE H.S.2.5
 PRECAST CONCRETE	AR-CONC. H.S.0.5 + ANSI 33 H.S 5	 GYPSUM BOARD	AR-SAND H.S.0.35
 EXISTING	ANSI 36 H.S 5	 FINISHED WOOD	WOOD3 H.S.100
		 SPRAY FOAM INSULATION	HEX H.S.1.0
		 SEMI-RIGID INSULATION	
		 RIGID INSULATION	
		 BATT INSULATION	



## Basic Symbols and Callouts:





## 4.0 Annex A – Abbreviations

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### A

A: Area, Acre

ABV: Above

ACT: Acoustical Tile

ADJ: Adjust, Adjustable, Adjacent

AFF: Above Finished Floor

ALUM: Aluminum

APPROX: Approximate

ARCH: Architect, Architectural

AVG: Average

### B

B TO B: Back to Back

BD: Board

BHD: Bulkhead

BLDG: Building

### C

C: Degrees Celsius

C/C: Center to Center

CJ: Control Joint

CL: Centerline

CLG: Ceiling

CLO: Closet

CLR: Clear

C.O.: Clear Opening

COL: Column

CONC: Concrete

CONT: Continuous, Continue, Control CPT: Carpet

CT: Ceramic Tile

C/W: Complete with

### D

D: Depth

DEG: Degree

DET: Detail

DF: Drinking Fountain

DIA: Diameter

DIM: Dimension

DN: Down

DWG: Drawing

### E

E: East

EA: Each

EJ: Expansion Joint

EL: Elevation

ELEV: Elevator

EQ: Equal

EQUIP: Equipment

EXIST: Existing

### F

F TO F: Face to Face

FD: Floor drain

FEC: Fire Extinguisher Cabinet

FF: Finished Floor

FH: Fire Hose

FHC: Fire Hose Cabinet

FIN: Finish, finished

FIXT: Fixture

FLR: Floor

### G

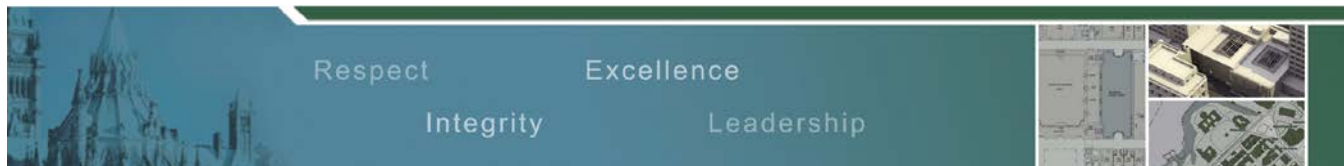
GALV: Galvanized

GL: Glass

GRAN: Granular

GYP BD: Gypsum Board





## H

H: High

HB: Hose Bib

HC: Hollow Core

HDW: Hardware

HM: Hollow Metal

HORIZ: Horizontal

HT: Height

HVAC: Heating, Ventilating & Air Conditioning

## I

ID: Inside Diameter

INFO: Information

INSUL: Insulation

INT: Interior, Internal

## J

JAN: Janitor

JT: Joint

## L

L: Length

LAB: Laboratory

LAM: Laminate, Laminated

LAV: Lavatory

LH: Left Hand

LIN: Linear

## M

M: Meter

MAINT: Maintenance

MAS: Masonry

MAX: Maximum

MECH: Mechanical

MEMB: Membrane

MEZZ: Mezzanine

MIN: Minimum

MISC: Miscellaneous

MO: Masonry Opening

## N

N: North

NIC: Not In Contract

NO: Number

NTS: Not To Scale

## O

OA: Overall

OC: On Center

OD: Outside Diameter

OH: Overhead

OHD: Overhead Door

## P

P. LAM: Plastic Laminate

PARTN: Partition

PL: Property Line

PT: Paint

## Q

QT: Quarry Tile

QTR: Quarter

QTY: Quantity

## R

R: Riser, Radius

RB: Rubber, Rubber Base, Resilient Base

RCF: Raised Computer Floor

RCP: Reflected Ceiling Plan

RD: Roof Drain

RH: Right Hand

RHR: Right Hand Reverse

RM: Room

RO: Rough Opening

RWL: Rain Water Leader

## S

S: South

SAN: Sanitary

SC: Solid Core





SCHED: Schedule

SCWD: Solid Core Wood

SD: Soap Dispenser

SIM: Similar

SPEC: Specification

SS: Stainless Steel

STC: Sound Transmission Class

STO: Storage

STRUCT: Structural

T

T: Tread

T/: Top of

T&G: Tongue & Groove

TD: Trench Drain

TEL: Telephone

THK: Thick, Thickness

TO: Top of

TYP: Typical

U

ULC: Underwriters' Laboratories Canada

UNO: Unless Noted Otherwise

U/S: Underside

V

VB: Vapor Barrier

VCT: Vinyl Composition Tile

VERT: Vertical

W

W: West, Width, Wide

W/: With

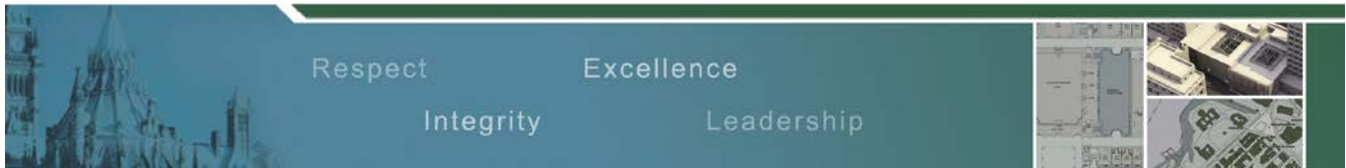
W/O: Without

WC: Water closet

WD: Wood

WGL: Wire-Glass





## 5.0 Annex B – Glossary

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**“CADD”** Computer Aided Design and Drafting

**“CTB”** Line weight assignment system based on colours. (colour table) in AutoCAD.

**“NCA-OPS”** National Capital Area Operations sector (in Real Property Branch – Government of Canada)

**“P&TS”** Professional and Technical Services (in the Operations sector – Government of Canada)

**“RPB”** Real Property Branch – Government of Canada

**“PWGSC”** Public Works and Government Services Canada

