

### Sheet List Sheet Name Number

ARCHITECTURAL OBC Matrix, Life Safety Plans & Schedules JW-WING - Demolition & Proposed Plans & RCP G-WING - Demolition & Proposed Plans & RCP STRUCTURAL

Canopy Foundation Plan & Sections Canopy Roof Plan & Sections S-1.3 Misc. Detail & Construction Notes

**MECHANICAL** Legend, Details, Schedules & Drawing List M-001 M-002 Specifications M-100 JW WING - Fire Protection Plan JW-WING -Level 1 HVAC Plan G-WING Level 2 - Fire Protection, Plumbing & Drainage Plan M-300 Mechanical Zoning M-400 Details M-500 Controls

ELECTRICAL	
E-001	Legend, Site Plan & Drawing List
E-002	Electrical Specifications
E-100	JW-Wing Level 1 Power & System Layout
E-101	JW-WING Level 1 Lighting Layout
E-102	G-WING Level 2 Power & System Layout
E-103	G-WING Level 2Lighting Layout
E-300	Electrical Details

Durham College WORKSHOP ARCHITECTURE 2000 Simcoe Street North 6 Sousa Mendes St Oshawa, ON Toronto, ON M6P 0A8 tel. 416.901.8055 fax 416.849.0383 NAME OF PROJECT: Project Area: 135 m<sup>2</sup> (interior alteration) Durham College JW-Wing Renovation **OBC REFERENCE** Area of Work 2 ONTARIO'S 2012 BUILDING CODE DATA MATRIX PARTS 3 & 9 for Division A or [C] for Division C 1 PROJECT DESCRIPTION: □ NEW ☑ PART 11 ☑ PART 3 □ PART 9 □ ADDITION 11.1 TO 11.4 1.1.2. [A] 1.1.2 [A] & 9.10.1.3 ☐ CHANGE OF USE 2 MAJOR OCCUPANCY(S): 3.1.2.1(1) 9.10.2 3 BUILDING AREA (M2) EXISTING: 1176 NEW: 0 TOTAL no change 1.4.1.2.[A] 1.4.1.2.[A] 4 GROSS AREA EXISTING: 2143 TOTAL no change 1.4.1.2.[A] 1.4.1.2.[A] NEW: 0 BELOW GRADE 0 1.4.1.2 [A] & 3.2.1.1 5 NUMBER OF STOREYS ABOVE GRADE 1.4.1.2 [A]&9.10.4 6 NUMBER OF STREETS / FIRE FIGHTER ACCESS 2 (EXISTING UNCHANGED) 3.2.2.10 & 3.2.5 9.10.20 7 BUILDING CLASSIFICATION 3.2.2.20-.83 9.10.2. ☐ ENTIRE BUILDING ☐ SELECTED COMPARTMENTS 8 SPRINKLER SYSTEM (PROPOSED) 3.2.2.20-.83 9.10.8.2. 3.2.1.5 □ BASEMENT ☐ IN LIEU OF ROOF RATING 3.2.2.17 ☐ SELECTED FLOOR AREAS INDEX INDEX □ NOT REQUIRED 9 STANDPIPE REQUIRED □ YES ☑ NO 3.2.9 N/A 10 FIRE ALARM REQUIRED 3.2.4 9.10.18 11 WATER/SERVICE/SUPPLY IS ADEQUATE 3.2.5.7 N/A 12 HIGH BUILDING □ YES ☑ NO 3.2.6 □ NON-COMBUSTIBLE □ BOTH 3.2.2.20-.83 13 CONSTRUCTION RESTRICTIONS ☑ COMBUSTIBLE 9.10.6 PERMITTED REQUIRED ACTUAL CONSTRUCTION □ COMBUSTIBLE ☑ NON-COMBUSTIBLE ☐ BOTH 3.2.1.1.(3)-(8) 9.10.4.1 14 MEZZANINE(S) AREA M<sup>2</sup> 15 OCCUPANT LOAD BASED ON 3.1.17 9.9.1.3 ☐ M.SQ./PERSON ☑ DESIGN OF BUILDING OCCUPANCY \_\_\_\_\_ LOAD <u>Unchanged</u> PERSONS 16 BARRIER-FREE DESIGN ✓ YES □ NO (EXPLAIN) 17 HAZARDOUS SUBSTANCES □ YES ☑ NO 9.10.1.3(4) 3.3.1.2. & 3.3.1.19 9.10.8 HORIZONTAL ASSEMBLIES LISTED DESIGN NO. 3.2.2.20-.83 & 3.2.1.4 REQUIRED 9.10.9 FRR (HOURS) OR DESCRIPTION (SG-2) FIRE 0 HOURS FLOORS RESISTANCE ROOF 0 HOURS NO CHANGE RATING NA MEZZANINE NA HOURS LISTED DESIGN NO. FRR OF SUPPORTING MEMBERS NO CHANGE OR DESCRIPTION (SG-2)

LOCATION:

20 OTHER-DESCRIBE

FIRM NAME:

There is no proposed Change In Use/Occupant Load under this work Existing building is non-combustible construction Fire separation at Public Corridor is waived given Floor Area is sprinklered as per OBC 3.3.2.5(3)

References are to Division B unless noted [A] FLOORS no change HOURS ROOF no change HOURS MEZZANINE NA HOURS 19 SPATIAL SEPARATION - CONSTRUCTION OF EXTERIOR WALLS 3.2.3 9.10.14

FIRM NAME: LOCATION: Durham College WORKSHOP ARCHITECTURE 2000 Simcoe Street North 6 Sousa Mendes St Oshawa, ON Toronto, ON M6P 0A8 tel. 416.901.8055 fax 416.849.0383 Project Area: NAME OF PROJECT: 225 m² (interior alterations) **OBC REFERENCE** Durham College G-Wing Renovation Area of Work 3 References are to Division B unless noted [A] ONTARIO'S 2012 BUILDING CODE DATA MATRIX PARTS 3 & 9 for Division A or [C] for Division C 1 PROJECT DESCRIPTION: ☑ PART 3 □ PART 9  $\square$  NEW ☑ PART 11 ADDITION 11.1 TO 11.4 1.1.2. [A] 1.1.2 [A] & 9.10.1.3 ☐ CHANGE OF USE 2 MAJOR OCCUPANCY(S): 3.1.2.1(1) 9.10.2 A2 3 BUILDING AREA (M2) TOTAL no change 1.4.1.2.[A] EXISTING: 2002 NEW: 0 1.4.1.2.[A] 4 GROSS AREA EXISTING: 3696 1.4.1.2.[A] NEW: 0 TOTAL no change 1.4.1.2.[A] BELOW GRADE 0 5 NUMBER OF STOREYS ABOVE GRADE 2 1.4.1.2 [A] & 3.2.1.1. 1.4.1.2 [A]&9.10.4 6 NUMBER OF STREETS / FIRE FIGHTER ACCESS 1(EXISTING UNCHANGED) 3.2.2.10 & 3.2.5 9.10.20 7 BUILDING CLASSIFICATION 3.2.2.25 (Existing Non-conforming) 3.2.2.20-.83 9.10.2. 8 SPRINKLER SYSTEM (PROPOSED) ENTIRE BUILDING ☐ SELECTED COMPARTMENTS 3.2.2.20-.83 9.10.8.2. 3.2.1.5 □ IN LIEU OF ROOF RATING □ BASEMENT 3.2.2.17 ☐ SELECTED FLOOR AREAS INDEX INDEX ☑ NOT SPRINKLERED □ NOT REQUIRED □ YES ☑ NO 9 STANDPIPE REQUIRED 3.2.9 N/A 10 FIRE ALARM REQUIRED 3.2.4 9.10.18 11 WATER/SERVICE/SUPPLY IS ADEQUATE 3.2.5.7 N/A 12 HIGH BUILDING □ YES ☑ NO 3.2.6 N/A □ NON-COMBUSTIBLE □ BOTH 3.2.2.20-.83 13 CONSTRUCTION RESTRICTIONS ☑ COMBUSTIBLE 9.10.6 PERMITTED REQUIRED ACTUAL CONSTRUCTION □ COMBUSTIBLE ☑ NON-COMBUSTIBLE ☐ BOTH 14 MEZZANINE(S) AREA M<sup>2</sup> NA 3.2.1.1.(3)-(8) 9.10.4.1 3.1.17 9.9.1.3 OCCUPANT LOAD BASED ON ☑ DESIGN OF BUILDING □ M.SQ./PERSON LOAD Unchanged PERSONS OCCUPANCY \_\_\_\_\_ 16 BARRIER-FREE DESIGN 9.10.1.3(4) 17 HAZARDOUS SUBSTANCES □ YES ☑ NO 3.3.1.2. & 3.3.1.19 9.10.8 HORIZONTAL ASSEMBLIES LISTED DESIGN NO. 3.2.2.20-.83 & 3.2.1.4 REQUIRED 9.10.9 FRR (HOURS) OR DESCRIPTION (SG-2) FIRE FLOORS <sup>0</sup> HOURS RESISTANCE ROOF 0 HOURS NO CHANGE RATING NA MEZZANINE NA HOURS LISTED DESIGN NO. FRR OF SUPPORTING MEMBERS NO CHANGE OR DESCRIPTION (SG-2) FLOORS no change HOURS ROOF no change HOURS

3.2.3

9.10.14

19 SPATIAL SEPARATION - CONSTRUCTION OF EXTERIOR WALLS

20 OTHER-DESCRIBE There is no proposed Change In Use/Occupant Load under this work Existing building does not conform to 3.2.2.25 classification as it exceeds permitted building area Existing building is non-combustible construction Public Corridor provides FRR per 3.3.2.5(4)

HOURS

MEZZANINE NA

### **ASSEMBLY SCHEDULE**

1. USE WATER RESISTANT DRYWALL IN AREAS SCHEDULED TO RECFIVE TILE -REFER TO SPECIFICATION 09 21 00

2. PROVIDE CONTINUOUS PLYWOOD BLOCKING BEHIND ALL MILLWORK CABINETS, SUSPENDED ITEMS, TELEVISIONS ETC.

3. ALL INTERNAL PARTITIONS EXTEND TO U/S DECK ABOVE UNLESS NOTED OTHERWISE.

4. PROVIDE FIRE RESISTANCE RATINGS AS INDICATED ON DRAWINGS

DG202A

DG202B

DG202E

JW-Wing

DJW103

DJW105 DJW105A DJW105B DJW105C

### INTERIOR PARTITIONS

PW1 1 LAYER 16mm TYPE X GYPSUM WALLBOARD 92mm STEEL STUDS ACOUSTICAL FIRE BATT INSULATION 1 LAYER 16mm TYPE X GYPSUM WALLBOARD

1 LAYER 16mm TYPE X GYPSUM WALLBOARD 152mm STEEL STUD FRAMING @ MAX 600mm o.c. 125mm ACOUSTICAL FIRE BATT INSULATION RESILIENT CHANNEL @ MAX 600mm o.c. 1 LAYER 16mm TYPE X GYPSUM WALLBOARD TO U/S OF SLAB

TO U/S OF SLAB

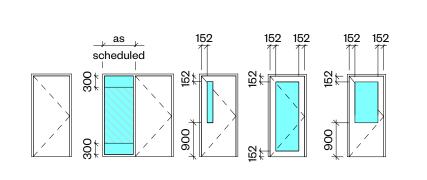
92mm STEEL STUDS

HM

CAPABLE OF ACHIEVING STC 56 PER ULC Des W453

1 LAYER 16mm TYPE X GYPSUM WALLBOARD

TO U/S OF SLAB UNLESS NOTED OTHERWISE



Door C

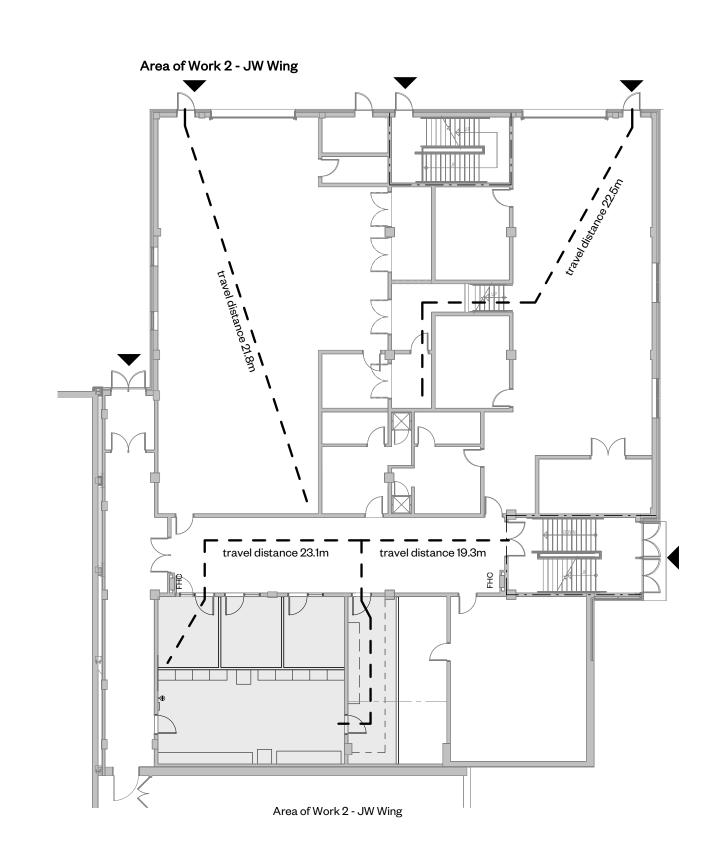
Door D/DD Door E

NOTE: All glazing to be tempered UNO Provide wireless/ceramic fire rated glass at rated doors/screens All HM frames to be 2" profile Privacy film - acceptable product: Milky Milky SH2MAMM by 3M

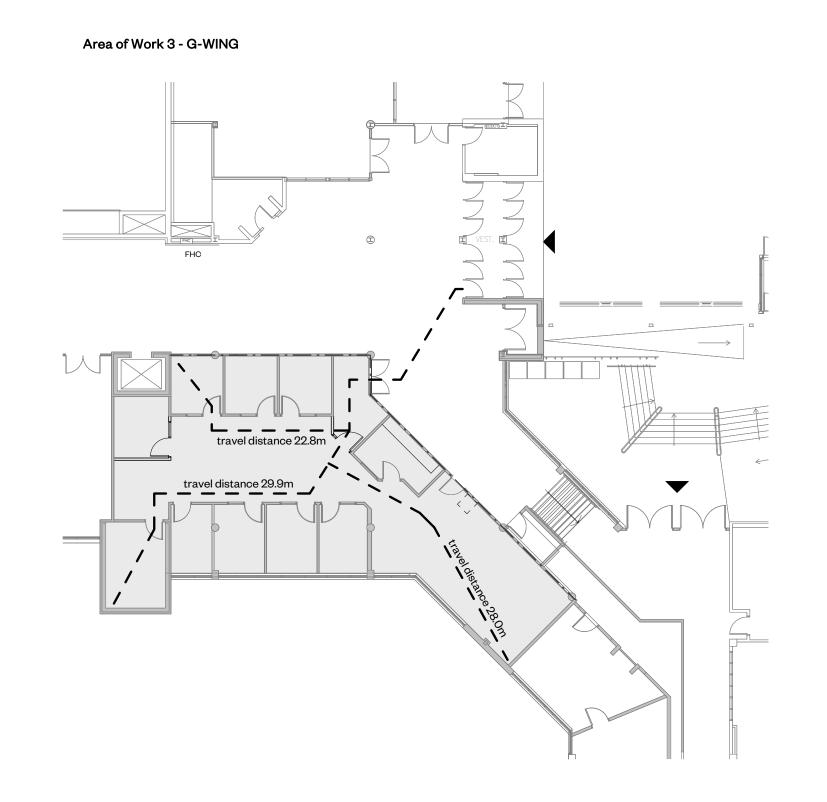
Door A/AA Door B

							Door S	Schedule			
Type Mark	Height	Width	Sidelight	Door Mat'l	Finish	Frame Material	Frame Fin.	FRR	Power Operator	Card Reader	Comments
			•								
	2134	965		НМ	PT	НМ	PT	45-min		Υ	
	2134	965	275	НМ	PT	НМ	PT				Privacy film at sidelight
	2134	965	800	НМ	PT	НМ	PT				Privacy film at sidelight
	2134	965		НМ	PT	НМ	PT			Υ	
	2134	965		НМ	PT	НМ	PT				
	2134	965	800	НМ	PT	НМ	PT			Υ	Privacy film at sidelight
	2134	965	800	НМ	PT	НМ	PT			Υ	Privacy film at sidelight
	010.4	OCE	000	1.18.4	DT	1.15.4	DT			V	District Class of circle limits

					Room Finish Schedule		
Room No.	Room Name	Wall Finish	Floor Finish	Base Finish	Ceiling Finish	Comments	
G-Wing							
G202	Reception	PT	RES	RB	ACT		
G202A	Office	PT	RES	RB	ACT		
G202B	Office	PT	RES	RB	ACT		
G202C	Office	PT	RES	RB	ACT		
G202D	Storage	PT	RES	RB	ACT		
G202E	Office	PT	RES	RB	ACT		
G202F	Office	PT	RES	RB	ACT		
3202G	Office	PT	RES	RB	ACT		
G202H	Office	PT	RES	RB	ACT		
G202I	Office	PT	RES	RB	ACT		
G202J	Office	PT	RES	RB	ACT		
JW-Wing							
JW103	Storage/Supplies Rm	PT	RES	RB	ACT		
JW105	Staff Room	PT	RES	RB	ACT		
JW105A	Office	PT	RES	RB	ACT		
JW105B	Office	PT	RES	RB	ACT		
JW105C	Office	PT	RES	RB	ACT		



4 JW WING Level 01 - Life Safety Plan 1 : 200



5 G WING Level 02 - Life Safety Plan 1 : 200

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13 Sept '21 1 Issued for Costing 2 Re-Issued for Class B Costing 15 Oct '21 3 Issued for Permit 01 Dec '21 20 April '22 4 Re-Issued for Tender

Description

Life Safety Plan Legend

Travel Distance Max Allowable = 30m FHC Coverage Max Allowable: 30.0m + 3.0m spray = 33.0m

FHC Fire Hose Cabinet

Shaded area indicates approximate extrent of proposed work

— - — 1HR FRR

WORKSHOP

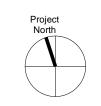
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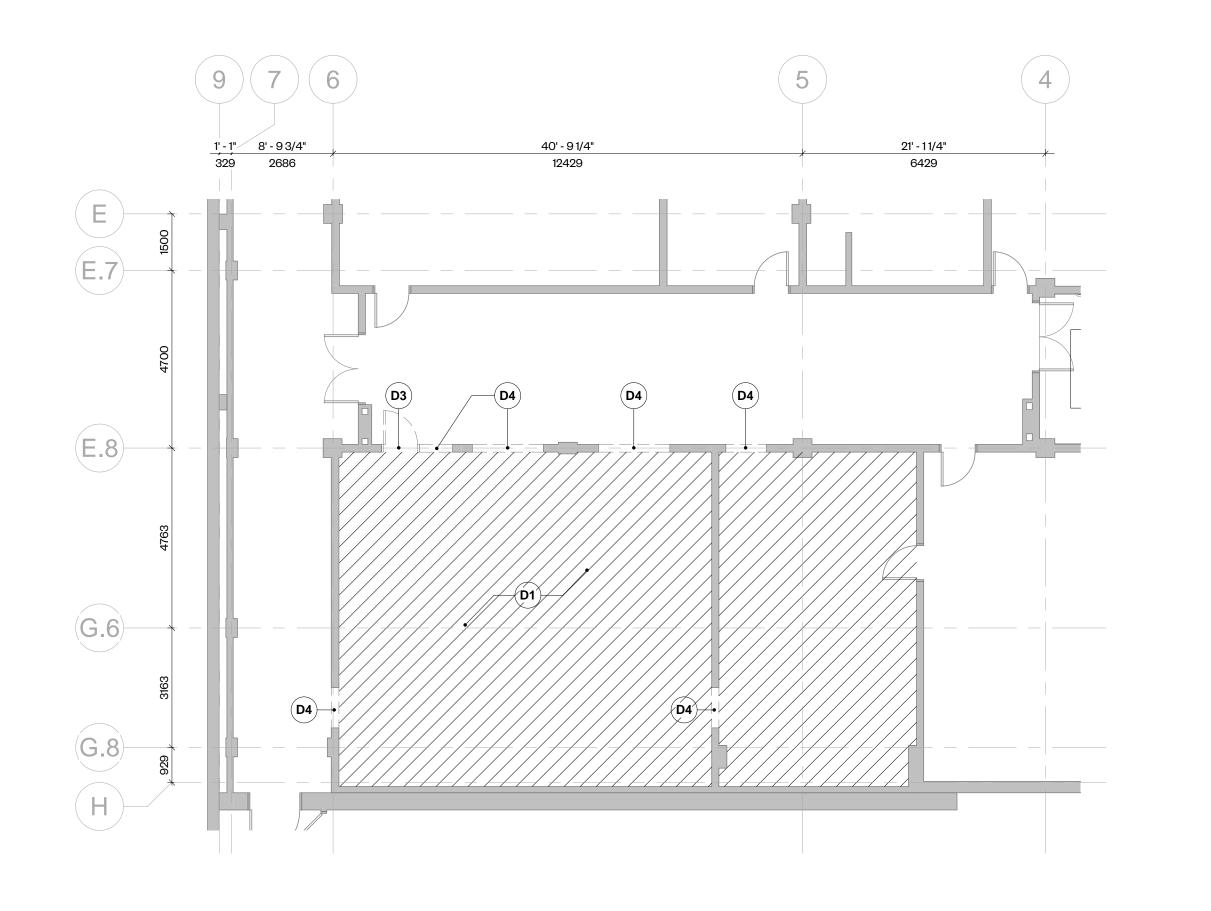
2000 Simcoe St North Oshawa, ON L1H 7K4

PROJECT CODE SCALE: 2130 As indicated STATUS: DATE: 21 Dec '21

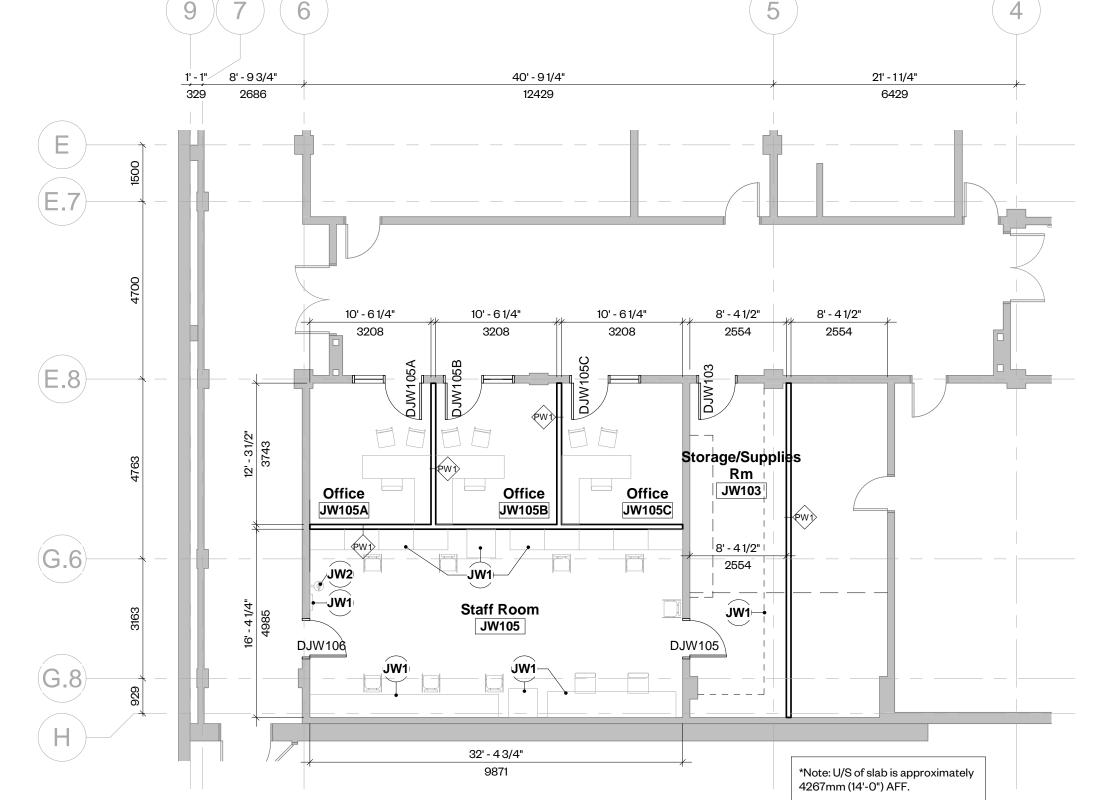
**OBC Matrix, Life Safety Plans &** Schedules

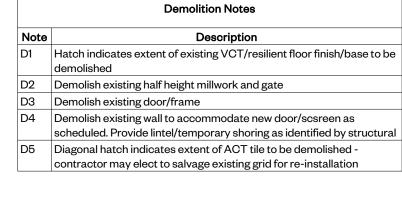


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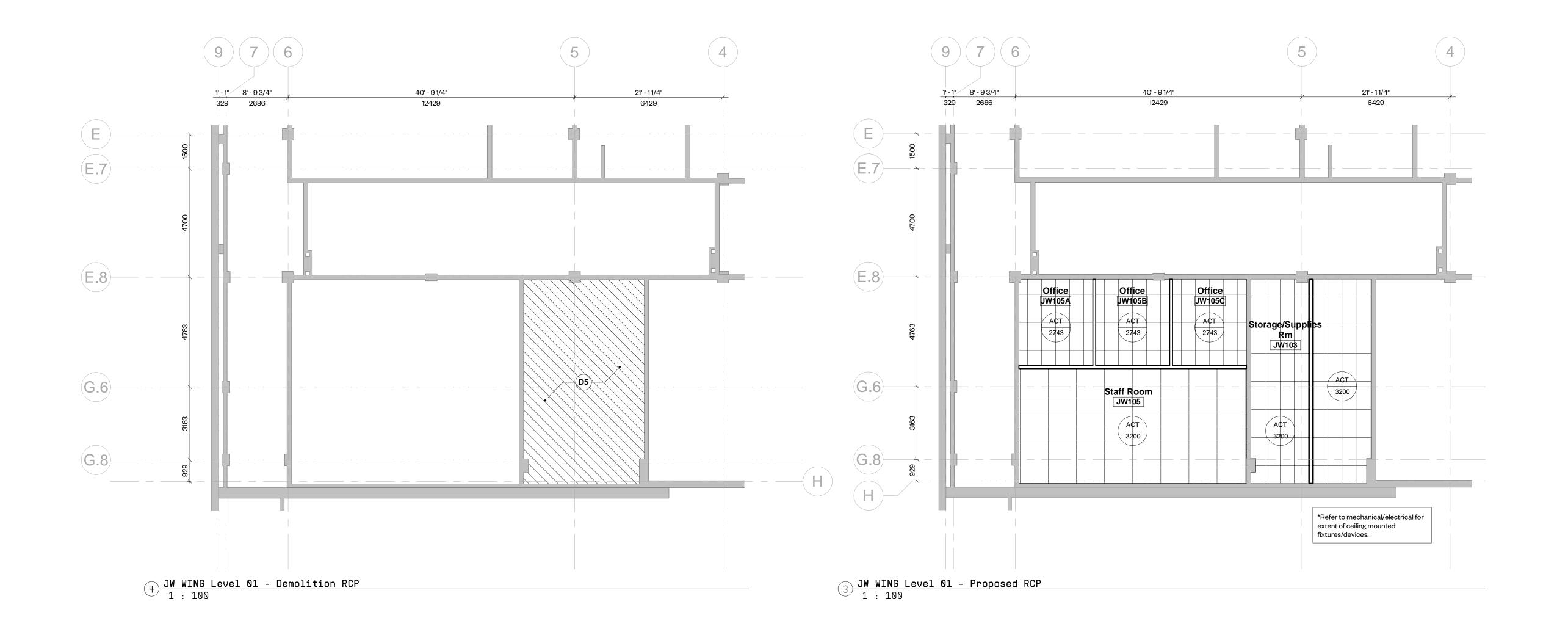
1 JW WING Level 01 - Demolition Plan 1 : 100





	JW-WING Notes						
Note	Description						
JW1	Furniture and racking by owner (NIC)						
JW2	Existing eyewash station to be relocated. Provide new plumbing						

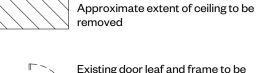
connections - see mechanical.



2 JW WING Level 01 - Proposed 1 : 100

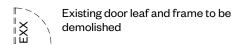
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# Rev Description Date 1 Issued for Costing 13 Sept '21 2 Re-Issued for Class B Costing 15 Oct '21 3 Issued for Permit 01 Dec '21 Demolition Legend Existing CMU partition to be demolished Existing wall partition system to be demolished



Existing element to be demolished

Approximate extent of flooring to



### <u>Legend</u>

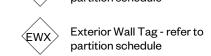
Existing partition to remain

/// be removed

New partition as scheduled

### Symbols Legend

PWX Partition Tag - refer to partition schedule



WX Window tag - refer to schedule

Glazed Screen tagrefer to schedule

New Door tag - refer to schedule

MW1 Millwork Tag

GWB Ceiling Material

1' - 0" Height above Finished Floor

(E) Existing

N.I.C. Not in Contract



# WORKSHOP

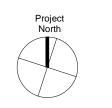
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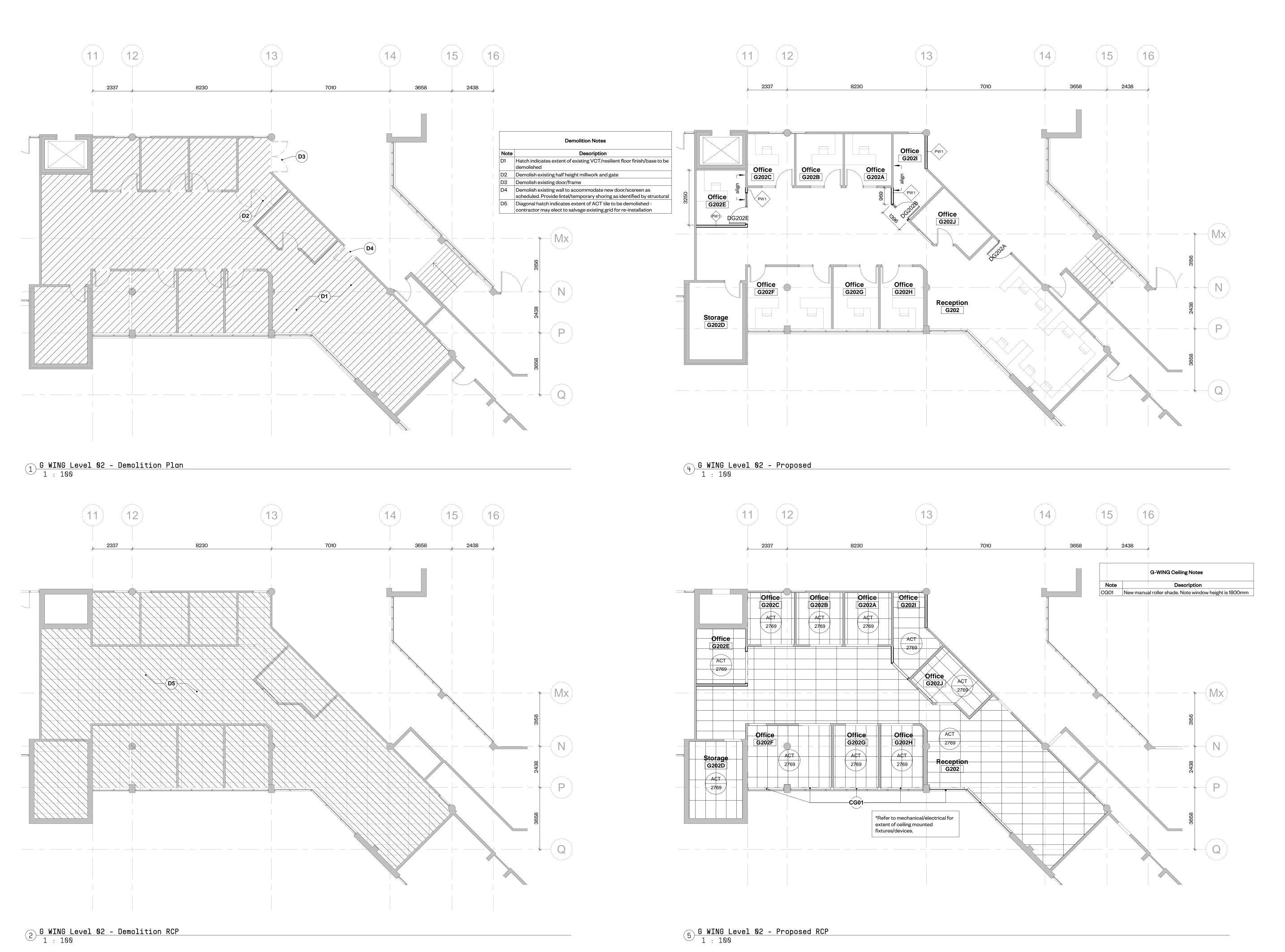
2000 Simcoe St North Oshawa, ON L1H 7K4

PROJECT CODE:	SCALE:
2130	As indicated
DATE:	STATUS:
21 Dec '21	Tende

JW-WING - Demolition & Proposed Plans & RCP



A1.0



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Description

1 Issued for Costing

2 Re-Issued for Class B Costing 15 Oct '21 3 Issued for Permit

Demolition Legend

Existing CMU partition to be demolished

Existing wall partition system to be demolished

\_ Existing element to be

demolished Approximate extent of flooring to

be removed Approximate extent of ceiling to be removed

13 Sept '21

01 Dec '21

Existing door leaf and frame to be demolished

Existing partition to remain

New partition as scheduled

Symbols Legend

Partition Tag - refer to partition schedul-

EWX Exterior Wall Tag - refer to partition schedule

Window tag - refer to

schedule Glazed Screen tag -

refer to schedule

New Door tag refer to schedule

MW1 Millwork Tag

GWB Ceiling Material 1' - 0" Height above Finished Floor

N.I.C. Not in Contract



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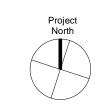
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As indicated
STATUS:
Tender

G-WING - Demolition & Proposed Plans & RCP



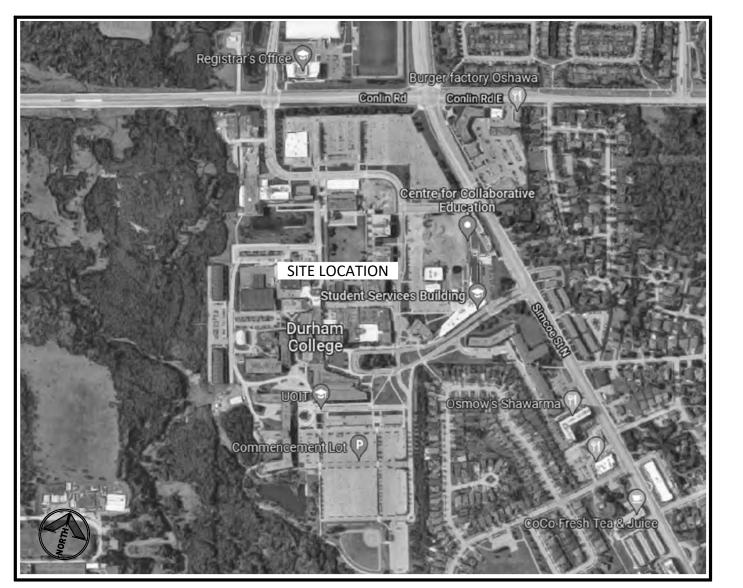
A2.0



2 CAMPUS MAP
M-001 N.T.S

1. FOR NECK SIZE AND AIR FLOW SEE DWGS

2. FOR SIZE AND AIR FLOW SEE DWGS



1 SITE KEY PLAN - 2000 SIMCOE ST. N.
M-001 N.T.S

### **DEMOLITION NOTES**

- . CONTRACTOR MUST CHECK AND VERIFY ALL DIMENSIONS AND REPORT ANY DISCREPANCIES BEFORE COMMENCING WORK. USE ONLY THE LATEST APPROVED DRAWING FOR CONSTRUCTION; PRINTS ARE NOT TO BE SCALED.
- 2. ALL DRAWINGS TO BE READ IN CONJUNCTION WITH ARCHITECTURAL PLANS.
- 3. ALL WORKS SHOWN ON DRAWINGS ARE NEW AND TO BE CARRIED OUT BY THE MECHANICAL CONTRACTOR (PLUMBER INCLUDED), UNLESS OTHERWISE NOTED.
- . MECHANICAL CONTRACTOR WILL DO ALL CUTTING AND PATCHING WHERE REQUIRED FOR H.V.A.C. AND PLUMBING SYSTEMS.
- MECHANICAL CONTRACTOR SHALL VISIT SITE DURING THE TENDER PERIOD TO VERIFY EXISTING CONDITIONS NOT LIMITED TO THAT WHICH IS SHOWN ON THE PLANS OR WRITTEN TO THE SPECIFICATIONS AND INCLUDE FOR TO MAKE GOOD ALL REQUIREMENTS AS PER THE INTENT OF THESE CONTRACT DOCUMENTS FOR A FULLY OPERATIONAL TURN KEY INSTALLATION. IF ACCESS IS NOT PROVIDED FOR WHATEVER REASON, IT IS TO BE STATED IN THE TENDER QUOTATION IN CLEAR PRINT ACCORDINGLY.
- 6. MECHANICAL CONTRACTOR TO MAKE ALL NECESSARY TEMPORARY PROVISIONS TO MAINTAIN H.V.A.C., PLUMBING AND DRAINAGE SYSTEMS FOR OCCUPIED AREAS DURING DEMOLITION AND CONSTRUCTION. ALL OF WHICH TO BE INCLUDED IN HIS CONTRACT. ALL ASSOCIATED NON MECHANICAL WORK, SUCH AS ELECTRICAL, TO BE CARRIED OUT BY THE GENERAL CONTRACTOR.
- 7. MECHANICAL CONTRACTOR TO COMMISSION A BUILDING AUTOMATION SYSTEM TECHNICIAN TO ENSURE THAT SYSTEMS ARE NOT INTERRUPTED AS A RESULT OF THE CONSTRUCTION. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REMEDIAL WORK TO THE AUTOMATION SYSTEM IN ITS ENTIRETY AS REQUIRED.
- B. MECHANICAL CONTRACTOR SHALL SUPPLY AND INSTALL NEW PLUMBING VENTS IN WALL AND CEILING SPACE WHERE EXISTING VENTS ARE REVEALED DURING DEMOLITION OF EXISTING PARTITIONS AND WALLS. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE TO SUPPLY & INSTALL NEW PLUMBING VENTS TO ACCOMMODATE NEW BUILDING DESIGN AND PARTITION LAYOUTS. ALL ASSOCIATED FLOOR CUTTING, IF REQUIRED, SHALL BE BY THE MECHANICAL CONTRACTOR.
- 9. SUPPLY AND INSTALL NEW CLEANOUTS WHERE REQUIRED AS A RESULT OF FLOOR DEMOLITION AND
- 10. DRAIN EXISTING COLD WATER SYSTEM AFTER-HOURS FOR COLD WATER PIPING REMEDIAL WORK OR EXTENSION.
- 11. MECHANICAL CONTRACTOR SHALL REBALANCE ALL EXISTING SYSTEMS AND UNITS BEING REUSED THAT HAVE BEEN ALTERED IN ANY WAY. REPLACE DRIVE KITS AND MOTORS WHERE REQUIRED. THE MECHANICAL CONTRACTOR WILL CLOSELY COORDINATE WITH THE ROOFING CONTRACTOR TO PREVENT ANY DAMAGE TO ROOF TOP EQUIPMENT.
- 12. ALL CONTROL WIRING AND CONTROLS ARE TO BE REMOVED OR REPLACED BY THE MECHANICAL CONTRACTOR WHERE REQUIRED.
- 3. MECHANICAL CONTRACTOR TO INCLUDE FOR RELOCATION OF ALL STARTERS AND THERMOSTATS NOT SHOWN ON DRAWINGS. VISIT SITE PRIOR TO TENDER CLOSING TO CONFIRM EXTENT OF ALL WORK. COORDINATE WITH THE GENERAL CONTRACTOR AND DIVISION 16, TO ENSURE THAT ALL ASSOCIATED WORKS ARE INCLUDED IN THE CONTRACT.
- COMPLETELY REMOVE AND DISCARD ALL CROSSED H.V.A.C. UNITS, SYSTEMS INCLUDING DUCTWORK, THERMOSTATS AND CONTROL WIRING, UNLESS OTHERWISE NOTED.
- 15. MECHANICAL CONTRACTOR TO CONTACT LOCAL GAS COMPANY TO INFORM THEM OF THE REVISED GAS LOAD REQUIREMENTS AT THE IMMEDIATE START OF THE PROJECT. MECHANICAL CONTRACTOR SHALL MAKE ALL NECESSARY APPLICATIONS AND COMPLETE FORMS TO SATISFY THE REQUIREMENTS OF THE GAS COMPANY. MECHANICAL CONTRACTOR SHALL COORDINATE REMEDIAL GAS METER WORKS WITHIN THE CONSTRUCTION SCHEDULE AND BE RESPONSIBLE FOR ANY DELAYS.
- 16. MECHANICAL CONTRACTOR TO MAKE ALL NECESSARY PROVISIONS FOR RELOCATED THERMOSTATS.
- 17. SOME ASBESTOS REMOVAL MAY BE REQUIRED. PLUMBER TO VISIT SITE AND VERIFY PRIOR TO STARTING ANY WORK. REPORT ANY REMOVAL REQUIRED TO THE GENERAL CONTRACTOR AND ---. ASBESTOS REMOVAL SHALL BE PART OF THIS CONTRACT FOR DEMOLITION OF PIPING AND INSULATION.

	GRILLE AND DIFFUSER SCHEDULE							
TAG	SERVICE SELECTION TYPE ACCESSORIES REMARKS							
Α	SUPPLY AIR DIFFUSER	SCD/31/600x600	SQUARE CONE ALUMINUM CONSTRUCTION	NOTE 1, 2, 3	NAILOR MODEL RNSA 24"X24" (T-BAR CEILING) C/W O.B. DAMPER, LOUVER FACE DIFFUSER - STEEL CONSTRCTION			
В	RETURN AIR GRILLE	EGGCRATE TYPE	EGGCRATE C/W BORDER	NOTE 1, 2, 3	NAILOR, MODEL 80/TB/B12 (T-BAR CEILING) ½"x½"x½" EGGCRATE GRILLE WITH CHANNEL FRAME - ALUMINUM CONSTRUCTION			

3. FOR AIR FLOW SEE DWGS4. TO BE COORDINATED WITH CEILING TILE SIZES

AIR SYSTEM LEGEND						
7	RECTANGULAR SUPPLY/ OUTSIDE AIR DUCT UP		FLEXIBLE DUCT			
7 [><]	RECTANGULAR SUPPLY/ OUTSIDE AIR DUCT DOWN	CFM	SPACE PRESSURIZATION ARROW			
<del>-</del>	RECTANGULAR RETURN/ RELIEF AIR DUCT UP	DL/ UC—V-	DOOR LOUVER / UNDERCUT DOOR			
7	RECTANGULAR RETURN/ RELIEF AIR DUCT DOWN	-	SUPPLY AIRFLOW ARROW			
7	RECTANGULAR EXHAUST AIR DUCT UP	- <del>-</del>	RETURN OR EXHAUST AIRFLOW ARROW			
7	RECTANGULAR EXHAUST AIR DUCT DOWN		CEILING DIFFUSER (SUPPLY)			
7 🗆	ROUND SUPPLY/ OUTSIDE AIR DUCT UP		RETURN AIR GRILLE OR REGISTER			
7 🗴	ROUND SUPPLY/ OUTSIDE AIR DUCT DOWN		EXHAUST AIR GRILLE OR REGISTER			
	ROUND RETURN/ RELIEF AIR DUCT UP		DIFFUSER TYPE			
	ROUND RETURN/ RELIEF AIR DUCT	A XX XX	NECK SIZE			
7 1 0	DOWN		-CFM			
7 1 🛇	ROUND EXHAUST AIR DUCT UP		SIDE WALL GRILLE			
7 13	ROUND EXHAUST AIR DUCT DOWN	F/D	FIRE DAMPER			
7	DUCT WITH LINING OR SOUND INSULATION	$\bigoplus \overline{X}$	HUMIDITY SENSOR OR HUMIDISTAT AND NUMBER			
	STAINLESS STEEL DUCT	<u>S</u> <u>x</u>	SENSOR AND NUMBER			
<del></del>	PVC COATED DUCT	$\widehat{SW} \underline{X}$	SWITCH AND NUMBER			
	DOUBLE WALL DUCT	$\bigcirc \overline{X}$	TEMPERATURE SENSOR OR THERMOSTAT & ZONE NUMBER			
BDD	BACKDRAFT DAMPER FOR ROUND AND RECTANGULAR DUCT	DP	DIFFERENTIAL PRESSURE SENSOR			
FD 7	FIRE DAMPER FOR ROUND AND RECTANGULAR DUCT	SP	STATIC PRESSURE SENSOR			
SD 7	SMOKE DAMPER FOR ROUND AND RECTANGULAR DUCT	$\bigcirc_2$	OXYGEN SENSOR			
SFD	COMBINATION SMOKE/FIRE DAMPER FOR ROUND & RECTANGULAR DUCT	CO	CARBON MONOXIDE SENSOR			
YD Y	MANUAL VOLUME DAMPER FOR ROUND AND RECTANGULAR DUCT	<u>CO2</u>	CARBON DIOXIDE SENSOR			
7 11 7	FLEXIBLE CONNECTION	##" X ##"	DIFFUSER SIZE			
	LINEWOR	K LEGEN	ID			
	DENOTES EXISTING TO BE RELOCATED	RL-	DENOTES TO BE RELOCATED			
	DENOTES EXISTING TO REMAIN		DENOTES NEW			
L*-3   X   X	DENOTES EXISTING TO BE REMOVED	<del></del>	DENOTES TO BE REMOVED			

### **GENERAL NOTES**

- 1. ALL DRAWINGS ARE DIAGRAMMATIC ONLY. THE ARRANGEMENTS OF EQUIPMENT SHOWN ARE APPROXIMATIONS ONLY AND MAY BE ALTERED BY THE ENGINEERS TO MEET THE REQUIREMENTS OF THE PROJECT. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH THE ARCHITECT'S, INTERIOR DESIGNER, AND MECHANICAL DRAWINGS FOR LOCATION OF ALL LUMINAIRES, SWITCHES, DEVICES, OUTLETS, FURNITURE FEEDING POINTS, DIMENSIONS, MOUNTING HEIGHTS, AND CONSTRUCTION DETAILS.
- 2. IN EVERY INSTANCE WHERE IT IS REQUIRED IN THE SPECIFICATION OR ON DRAWING THAT EQUIPMENT AND MATERIALS BE REMOVED FROM EXISTING LOCATIONS AND RE-INSTALLED, EITHER IN WHOLE OR IN PART IN NEW LOCATIONS, ALL SUCH EQUIPMENT AND MATERIALS SHALL BE THOROUGHLY CLEANED AND WHERE NECESSARY PUT INTO GOOD OPERATING CONDITION BEFORE BEING RE-INSTALLED IN THE NEW LOCATION. TEST ALL PARTS OF THE RE-USED OR RELOCATED ELECTRICAL EQUIPMENT AND CORRECT ALL FAULTS AND GROUNDS.
- 3. ALL SLAB OPENINGS WILL BE X-RAYED AND REVIEWED WITH LANDLORD AND BASE BUILDING STRUCTURAL CONSULTANT. CONTRACTOR SHALL X-RAY THE FLOOR AND SUBMIT TO BASE BUILDING STRUCTURAL ENGINEER FOR WRITTEN APPROVAL AT LEAST 72 HOURS PRIOR TO ANY CORE DRILLING ON THE BUILDING. THE CONTRACTOR SHALL INCLUDE THE COST OF STRUCTURAL ENGINEER. COORDINATE ALL CORE DRILLING WITH LANDLORD'S SITE REPRESENTATIVE AND TENANT. ALL NOISY WORK SHALL BE PERFORMED AFTER HOURS.
- 4. ALL OPENINGS IN BUILDING RISER, IF APPLICABLE, SHALL BE SEALED WITH APPROVED FIRE STOP MATERIAL. ANY FIREPROOFING MATERIAL REMOVED WILL BE REPLACED WITH A SUITABLE AND APPROVED FIREPROOFING MATERIAL AND SHALL BE INSTALLED AS PER BUILDING AND FIRE CODE.
- 5. COORDINATE WITH THE CLIENT TO CONFIRM EQUIPMENT OR SYSTEMS/DEVICES TO REMAIN.
- 6. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REFINISHING OF DAMAGED BUILDING AREAS AND FINISHES AFFECTED BY THE WORK AS OUTLINED UNDER SCOPE OF WORK OF THIS PROJECT.
- 7. ALL INSTALLATIONS WITHIN EXISTING AREAS SHALL BE COORDINATED WITH OWNER AND BASE BUILDING MANAGEMENT. INSTALLATION MUST BE PERFORMED IN A MANNER TO ELIMINATE ANY INTERFERENCES TO STAFF AND NORMAL OPERATION OF THE FACILITY.
- 8. THE CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION AND DISTRIBUTION OF TEMPORARY POWER WITHIN THE PREMISES DURING THE CONSTRUCTION PERIOD. EXPOSED ELECTRICAL CORDS OUTSIDE THE LEASED PREMISES SHALL NOT BE PERMITTED.
- 9. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF ALL THE WORK WITH ALL OTHER TRADES, CONSULTANTS, AND THE OWNER. ALL WORK SHALL BE SCHEDULED AND CARRIED OUT BY THE CONTRACTOR IN A MANNER TO ENSURE CONTINUED AND NON-INTERRUPTED OPERATION OF EXISTING FACILITY.
- 10. DUCT DIMENSIONS AND FLOWS ON DRAWINGS ARE EXPRESSED IN S.I. UNITS.
- 11. PIPING AND PLUMBING DIMENSIONS ON DRAWINGS ARE EXPRESSED IN I.P. UNITS.

INLET DIA. MM

200Ø

150Ø

	DOMESTIC COLD WATER		FLEXIBLE CONNECTION (PIPE)
	DOMESTIC HOT WATER	+	HOSE BIBB
	DOMESTIC HOT WATER RECIRC	0	ROOF DRAIN
—— HWS ——	HOT WATER SUPPLY	•	SECONDARY ROOF DRAIN
—— HWR ——	HOT WATER RETURN	(E)	EXISTING
—— CD ——	CONDENSATE DRAIN	#-	WALL HYDRANT
	STORM , BURIED STORM		UNION
G	PIPING TURN DOWN OR DROP	P	FLOW SWITCH
0	PIPING TURN UP OR RISE		PRESSURE SWITCH
	PIPING TEE DOWN OR DROP	— EJ	EXPANSION JOINT
O	PIPING TEE UP OR RISE	AV	AUTOMATIC AIR VENT
∞ <u></u>	P-TRAP	<u> </u>	PRESSURE GAUGE WITH GAUGE CO
	GATE VALVE	<b>1</b> -1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-	VALVE ON PIPING RISE OR DROP
	BALL VALVE		TRAP PRIMER
	MIXING VALVE	Д	THERMOMETER
—  <b>%</b>  —	BUTTERFLY VALVE		DIRECTION OF FLOW
	GLOBE VALVE		SLOPE & DIRECTION OF FALL
<u> </u>	PRESSURE REDUCING VALVE	—D—	REDUCER OR INCREASER
	BACKFLOW PREVENTER	$\oplus$	POINT OF CONNECTION
<del></del>	BALANCING VALVE	$\otimes$	POINT OF DEMARCATION
, , ,	AUTOMATIC FLOW CONTROL VALVE	ø	DIAMETER
- ky - kž	TEMP. & PRESSURE RELIEF VALVE	Ø	SQUARE FEET
	PRESSURE RELIEF VALVE	(3)	DRAIN RECEPTOR
	MOTORIZED SHUT-OFF VALVE		FLOOR DRAIN
	STRAINER	×	FLOOR SINK
Ø	FLOOR CLEAN OUT	0	GAS LINE. GAS PIPING SCHEDULE 40
	WALL CLEAN OUT	G	& TO CODES.
Ø	EXTERIOR CLEAN OUT	v	DHW COMBUSTION EXHAUST VENT
Г	CAPPED PIPE / CLEAN OUT	—— A——	DHW COMBUSTION AIR MAKEUP

### FIRE PROTECTION SYSTEM

<b>\( \phi \)</b>	NEW PENDANT SPRINKLER HEAD	X	EX. SPRINKLER HEAD TO BE DEMOLISHED
0	NEW UPRIGHT SPRINKLER HEAD	<b>⊚</b> E	EXISTING CONCEALED SPRINKLER HEAD
<b>(a)</b>	NEW CONCEALED SPRINKLER HEAD	() E	EXISTING SPRINKLER HEAD
———F——	FIRE PROTECTION PIPING	잣	FIRE HYDRANT
WP	WET FIRE PROTECTION PIPING		TAMPER SWITCH
———DS———	DRY STANDPIPE	FS FS	FLOW SWITCH
———DP———	DRY PIPE SPRINKLER PIPING		ALARM CHECK VALVE
×	SIANATOT LIGOT CONNECTION	(FE)	FIRE EXTINGUISHER
//	SIAMESE HOSE CONNECTION	FHC	FIRE HOSE CABINET

### TAGS AND CALL OUT SYMBOLS

EQUIP	EQUIPMENT REQUIRING ELECTRICAL SERVICE. REFER TO	_#	REVISION CALLOUT
#_/	SCHEDULES FOR PERFORMANCE REQUIREMENTS.	$\bigcirc$	KEYNOTE CALLOUT
EQUIP	EQUIPMENT NOT REQUIRING ELECTRICAL SERVICE. REFER TO	•	POINT OF CONNECTION
#	SCHEDULES FOR PERFORMANCE REQUIREMENTS.	lacktriangle	POINT OF DEMARCATION
	SECTION CALLOUT	(E)	FURNISHED & INSTALLED BY
1	— SECTION DESIGNATION		ELECTRICAL
P3.1	— SHEET NUMBER	$\langle M \rangle$	FURNISHED & INSTALLED BY
13.1		\\\\	MECHANICAL
A	DETAIL CALLOUT	P	FURNISHED AND INSTALLED BY PLUMBING
	— DETAIL DESIGNATION — SHEET NUMBER	S E	HEAT TRACE CIRCUIT START AND
P3.1		1 1	END HEAT TRACE CIRCUIT NUMBER
	— DIFFUSER TYPE		~VAV ID
A XX	— NECK SIZE	6" VAV-1 300 CFM	CFM
XX	— CFM	300 CFWI	– VAV INLET SIZE

MECHANICAL DRAWING LIST	

age	DWG#	TITLE/ DESCRIPTION
L	M-001	LEGEND, DETAILS, SCHEDULES & DRAWING LIST
2	M-002	SPECIFICATIONS
3	M-100	JW-WING : FIRE PROTECTION DEMOLITION AND NEW WORK PLAN
ı	M-101	JW-WING : HVAC DEMOLITION AND NEW WORK PLAN
5	M-110	G-WING : FIRE PROTECTION DEMOLITION AND NEW WORK PLAN
5	M-300	MECHANICAL ZONING
7	M-400	DETAILS
3	M-500	CONTROLS

VARIABLE VOLUME UNIT SCHEDULE				
MFG.  MODEL  DESIGN AIR FLOW (CFM)  DISCHARGE DUCT SIZE (UNLESS NOTED OTHERWISE) MMxMM				REMARKS
E.H. PRICE	SDV-5000	450	REFER TO PLAN	
E.H. PRICE	SDV-5000	250	REFER TO PLAN	

ALL TERMINAL BOXES TO BE PRESSURE INDEPENDENT.
 BOXES SIZE 8 TO BE C/W 900mm LONG INTERGRAL SOUND

**TAG** 

VAV-A

VAV-B

**UNIT SIZE** 

ATTENUATOR.

BOXES AND ATTENUATORS TO BE C/W 25mm ACOUSTIC LINING.
 MINIMUM VAV S/A SHALL BE SET @ 20% OF MAXIMUM.

G. E. J. GALUNG TO 15364607

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PROJECT CODE: SCALE:
21046.2 As indicated

DATE: STATUS:

September 2021 -

Legend, Site, Schedules & Drawing List

drawing number

### **SPECIFICATIONS**

### **GENERAL NOTES:**

MECHANICAL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE ARCHITECTURAL, STRUCTURAL AND ELECTRICAL DRAWINGS

DIVISION 1 GENERAL CONDITIONS OF THE CONTRACT AND AMENDMENTS THERETO, GENERAL INSTRUCTIONS AND INSTRUCTION TO TENDERERS, FORM AN INTEGRAL PART OF THIS SPECIFICATION.

PROVIDE ALL MATERIALS, EQUIPMENT, LABOR, TOOLS, SCAFFOLDING, TEMPORARY SERVICES AND OTHER ITEMS REQUIRED TO COMPLETE ALL THE WORK INDICATED ON THE DRAWINGS AND IN THE SPECIFICATIONS. PROVIDE WELL QUALIFIED TRADES PERSONS TO CARRY OUT EACH PHASE OF WORK.

ALTERNATIVES: ALTERNATIVES WILL NOT BE CONSIDERED UNLESS SUBMITTED ON A SEPARATE FORM DURING THE TENDER PERIOD TO ACCOMPANY THE BID FORM. ALTERNATIVES PROVIDED SHOULD INDICATE SAVINGS TO THE OWNER AND SHOULD BE SUBMITTED WITH PRODUCT SPECIFICATIONS. ANY ALTERNATIVES SUGGESTED SHOULD MEET OR EXCEED THE SPECIFICATIONS INDICATED IN THE TENDER DOCUMENTS.

PERMIT: APPLY FOR, OBTAIN, AND PAY FOR INCLUDING ALL SALES TAXES AND GST/HST, CERTIFICATES OF APPROVAL, PERMITS, AND INSPECTIONS REQUIRED BY AUTHORITIES HAVING JURISDICTION. SUBMIT ALL PLANS, ETC., REQUIRED AND OBTAIN PERMITS IMMEDIATELY AFTER NOTIFICATION OF AWARD OF CONTRACT. DO NOT START WORK PRIOR TO OBTAINING APPROVAL AND PERMIT. GIVE ALL NOTICES REQUIRED FOR TEST AND INSPECTIONS. MAKE ALL CORRECTIONS AND CHANGES REQUIRED BY THE AUTHORITY HAVING JURISDICTION WITHOUT ADDITIONAL CHARGE OR EXPENSE TO THE OWNER.

GUARANTEE: WARRANT ALL LABOR AND MATERIALS INSTALLED UNDER THIS DIVISION FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE. PROVIDE ALL ADDITIONAL WARRANTIES PROVIDED AS STANDARD BY EQUIPMENT MANUFACTURER.

LIABILITY: ASSUME FULL RESPONSIBILITY FOR COORDINATING AND LAYOUT OF ALL WORK AND FOR ANY DAMAGE CAUSED TO THE PROPERTY OR THE WORK OF OTHER DIVISIONS BY IMPROPER LOCATION OR CARRYING OUT OF THIS WORK.

PROTECTION OF PROPERTY: ASSUME FULL RESPONSIBILITY FOR PROTECTING THE PROPERTY WHILE CARRYING OUT THE WORK OF THIS CONTRACT. REPAIRS SHALL BE CARRIED OUT AT OWN EXPENSE OF ANY DAMAGE CAUSED BY THIS CONTRACTOR OR BY HIS SUB-CONTRACTORS. REPAIR WORK SHALL BE CARRIED OUT FOR THIS CONTRACTOR BY TRADE WHOSE WORK IS AFFECTED.

SITE CONDITIONS: EXAMINE SITE CONDITIONS BEFORE SUBMITTING TENDER TO BE SURE THAT WORK CAN BE SATISFACTORILY CARRIED OUT AS INDICATED. IF SITE EXAMINATION REVEALS ANY AMBIGUITIES, DIFFICULTIES, DISCREPANCIES, DEPARTURES FROM RELEVANT CODES HAVING JURISDICTION, AND/OR FROM GOOD PRACTICE, OBTAIN CLARIFICATION PRIOR TO SUBMITTING TENDER. FAILURE TO DO SO SHALL RESULT IN ALL ADDITIONAL COSTS BEING THE RESPONSIBILITY OF THE CONTRACTOR.

SITE VISIT: THE CONTRACTOR SHALL ATTEND THE MANDATORY SITE VISIT AT THE TIME GIVEN IN THE TENDER DOCUMENTS PRIOR TO SUBMITTING TENDER.

CONTINUATION OF EXISTING SERVICES: CONTINUE EXISTING SERVICES USING SAME TYPE MATERIAL AS USED FOR EXISTING SERVICE, EXCEPT WHERE INDICATED OTHERWISE ON THE DRAWING OR IN THE SPECIFICATION.

MECHANICAL SERVICES: ARRANGE WITH UTILITIES DIVISION AND MAKE CONNECTION TO / DISCONNECT FROM EXISTING SERVICES WHERE INDICATED ON DRAWINGS. COORDINATE WITH THE OWNERS REPRESENTATIVE TEN (1 D) WORKING DAYS BEFORE ANY ESSENTIAL SERVICE IS INTERRUPTED. COMPLY WITH INSTRUCTION FOR TIME AND DURATION OF INTERRUPTIONS. PRIOR TO CUTTING PIPES AND CAPPING, CONTRACTOR SHOULD ENSURE THAT THE PIPES ARE NOT LIVE. PROVIDE STANDBY MANPOWER AND ENSURE THAT REQUIRED SERVICES ARE MAINTAINED. ADVISE THE OWNER'S REPRESENTATIVE IMMEDIATELY OF ANY DIFFICULTIES ENCOUNTERED AND REMEDIAL ACTIONS TO BE TAKEN. UTILITIES DIVISION SHALL SHUT OFF SERVICES.

DRAWINGS: THE MECHANICAL DRAWINGS ARE DIAGRAMMATIC IN NATURE, INTENDED TO CONVEY THE SCOPE OF THE WORK. ANY INFORMATION INVOLVING ACCURATE MEASUREMENT OF THE BUILDING AND EQUIPMENT SHALL BE TAKEN FROM THE BUILDING ITSELF, FIGURED DIMENSIONS ON ARCHITECTURAL DRAWINGS AND CERTIFIED MANUFACTURER'S SHOP DRAWINGS OF EQUIPMENT. BE RESPONSIBLE FOR A THOROUGH KNOWLEDGE OF SAME BEFORE PROCEEDING WITH THE WORK.

IF AN ITEM IS INDICATED ON A PLAN, SECTION OR DETAIL, IT SHALL BE CONSIDERED AS APPEARING ON ALL VIEWS. IF THE ITEM IS CALLED FOR IN THE SPECIFICATION, IT SHALL BE CONSIDERED AS APPEARING ON THE DRAWINGS.

WHERE AN ITEM IS SPECIFIED IN A NOTE ON A DRAWING, IT SHALL BE CONSIDERED AS APPEARING IN THIS SPECIFICATION. DIMENSIONAL DATA SHOWN ON MECHANICAL DRAWINGS SHALL BE CONSTRUED AS TRUE FIGURES WHEN CONFLICTING DATA APPEAR ON BOTH MECHANICAL AND ARCHITECTURAL/STRUCTURAL DRAWINGS.

CLEAN-UP: UPON COMPLETION OF WORK, AND PORTION OF THE WORK, REMOVE FROM THE PREMISES ALL TOOLS, DEBRIS, SUPPLIES AND WASTE MATERIALS RESULTING FROM OPERATIONS UNDER THIS DIVISION. THE WORKING AREAS SHALL BE LEFT IN A CLEAN AND SATISFACTORY CONDITION. CLEAN ALL EQUIPMENT AND LEAVE ALL ITEMS IN PROPER ORDER READY FOR OPERATION.

PAINTING: TOUCH UP ALL SCRATCHES AND OTHER DAMAGE TO PAINTED FINISH ON ALL FACTORY PAINTED EQUIPMENT. ALL OTHER PAINTING WORK SHALL BE DONE UNDER THE PAINTING DIVISION, INCLUDING ALL NEW AND EXISTING GRILLES & DIFFUSERS, ALL NEW & EXISTING EXPOSED PIPING, ALL NEW & EXISTING EXPOSED DUCTWORK, AND ALL EXISTING PERIMETER INDUCTION UNITS.

ELECTRICAL WORK: ALL ELECTRICAL WIRING, INSTRUMENTS, AND INSTALLATION SHALL COMPLY WITH THE REQUIREMENTS OF THE ELECTRICAL SPECIFICATION DIVISION 16. ALL ELECTRICAL POWER WIRING SHALL BE BY DIVISION 16. FACTORY INSTALLED WIRING ON MECHANICAL EQUIPMENT AND CONTROL WIRING AS INDICATED ON DRAWINGS AND IN SPECIFICATION SHALL BE THE RESPONSIBILITY OF DIVISION 15.

ELECTRICAL EQUIPMENT: ALL ELECTRICAL EQUIPMENT, INCLUDING MOTORS SHALL BE CSA OR ONTARIO SAFETY AUTHORITY INSPECTIONS APPROVED AND SHALL BEAR EVIDENCE OF SAME.

SCHEDULING AND HOURS OF WORK: REFER TO DIVISION 1 SPECIFICATIONS FOR MORE INFO ON SCHEDULING AND HOURS OF WORK. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE APPROVED CONSTRUCTION SCHEDULE AND ALL SPECIFIED INTERIM SCHEDULES. CONTRACTORS MUST COMPLY WITH THE GENERAL CONTRACTOR'S CONSTRUCTION SCHEDULE. INCLUDE THE COST OF PREMIUM TIME IN THE TENDER PRICE FOR WORK PROVIDED DURING NIGHTS, WEEKENDS OR OTHER TIMES OUTSIDE NORMAL WORKING HOURS, NECESSARY TO MAINTAIN ALL MECHANICAL SERVICES IN OPERATION AND TO MEET THE PROJECT SCHEDULE.

COORDINATION: COORDINATE WORK WITH OTHER DIVISIONS TO AVOID INTERFERENCE WITH OTHER SERVICES.

RECEIVING AND STORAGE: THE CONTRACTOR SHALL BE RESPONSIBLE FOR RECEIVING, UNLOADING, STORING, SAFEKEEPING, AND PROTECTION FROM THE WEATHER OF ALL MATERIALS THAT FORM PART OF THIS CONTRACT.

DEMONSTRATE: UPON COMPLETION OF THE WORK, SET ALL EQUIPMENT INTO OPERATION, DEMONSTRATE THE SUCCESSFUL OPERATION AND FAMILIARIZE THE OWNER'S OPERATING PERSONNEL WITH THE NEW SYSTEM, EQUIPMENT AND CHANGES TO THE EXISTING SYSTEM UNDER THIS DIVISION. PRIOR TO DEMONSTRATION, THE CONTRACTOR SHALL HAVE

SUBMITTED THE MAINTENANCE MANUALS AND SUCCESSFULLY OPERATED THE SYSTEM AND EQUIPMENT.

MAINTENANCE MANUALS: PROVIDE "OPERATION AND MAINTENANCE MANUALS" IN ACCORDANCE TO DIVISION 1 SPECIFICATIONS.

"OPERATION AND MAINTENANCE MANUALS" SHALL CONTAIN INSTALLATION INSTRUCTIONS, MAINTENANCE INSTRUCTIONS AND REVIEWED SHOP DRAWINGS OF ALL ITEMS OF EQUIPMENT SUPPLIED UNDER THIS DIVISION; ALL BALANCE REPORTS; AND ALL WARRANTIES.

SHOP DRAWINGS: BEFORE EQUIPMENT IS MANUFACTURED OR SHIPPED TO THE SITE, SUBMIT TO THE CONSULTANT THE SHOP DRAWINGS IN PDF FORMAT THROUGH ELECTRONIC MAILS TO THE ENGINEER FOR REVIEW. ALL SHOP DRAWINGS SHALL BE FULLY CHECKED AND SIGNED BY THE CONTRACTOR FOR ACCURACY TO ENSURE SATISFACTORY INSTALLATION.
SUBSEQUENT REVIEW BY THE CONSULTANT IS FOR GENERAL ARRANGEMENT ONLY AND DOES NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY FOR THE CORRECTNESS OF THE WORK.

THE FOLLOWING INFORMATION SHALL BE GIVEN ON EACH DRAWING:

- a. PERFORMANCE FIGURES AND DATA TO CONFIRM THOSE GIVEN IN THE
- SPECIFICATION.
  b. DIMENSIONS AND WEIGHTS WHERE APPLICABLE.
- c. DATE OF ISSUE OF SHOP DRAWING AND NAME AND PROJECT NUMBER OF CONTRACT. REFERENCE
- LETTERS AND NUMBERS OF PIECE OF EQUIPMENT
  d. THE CONTRACTOR SHALL SUPPLY SHOP DRAWINGS FOR EQUIPMENT INDICATED ON
- TRADES SECTIONS IN
  THIS SPECIFICATION.

ORDERING OF EQUIPMENT: PLACE ORDERS FOR EQUIPMENT IMMEDIATELY UPON RECEIPT OF AWARD OF CONTRACT, SO THAT THE MANUFACTURERS CAN COMMENCE PREPARATION OF SHOP DRAWINGS. SUBMIT PROOF THAT ORDERS ARE PLACED.

DEMOLITION: PRIOR TO ANY DEMOLITION WORK TO BE DONE IN THE RENOVATION AREA, INCLUDING GENERAL TRADES WORK, ALL EXISTING AIR MOVING SYSTEMS INCLUDING SUPPLY, RETURN, TRANSFER, EXHAUST AND FRESH AIR INTAKE, WHETHER ATTACHED OR NOT TO THE MAIN BUILDING SYSTEMS SHALL BE ISOLATED AND CAPPED AIR-TIGHT TO AVOID CONTAMINATION AND WASTE OF ENERGY. THE CONTRACTOR SHALL LIAISE WITH THE MAINTENANCE DIVISION THROUGH THE OWNER'S REPRESENTATIVE TO ISOLATE THE SYSTEMS WHICH MIGHT INVOLVE SHUTTING DOWN AIR HANDLING EQUIPMENT, CUTTING BACK DUCTWORK AND PUTTING PLASTIC SHEET COVERINGS TO SEAL OFF AIR INLETS AND OUTLETS, PROVIDING TEMPORARY BYPASS DUCTWORK BETWEEN SUPPLY AND RETURN SYSTEMS AND PROVIDING AIR FILTERS AND FRAMES AT THE RETURN AIR SYSTEMS.

THE CONTRACTOR SHALL PROVIDE ALL LABOUR AND MATERIALS TO CARRY OUT THE ISOLATION WORK AND THE SUBSEQUENT WORK REQUIRED TO RESUME THE OPERATION OF THE SYSTEMS AFTER THE CONSTRUCTION.

CAREFULLY REMOVE EXISTING PIPING, FIXTURES, EQUIPMENT, DUCTWORK, ETC., AS INDICATED ON THE DRAWINGS AND/OR AS REQUIRED BY THE WORK. THE OWNER'S REPRESENTATIVE SHALL DECIDE WHICH MATERIALS OR ITEMS ARE TO BE DISPOSED OFF SITE BY THE CONTRACTOR, OR WHICH ARE TO BE HANDED OVER TO THE OWNER. SEAL ENDS OF EXISTING SERVICES THAT ARE TO REMAIN TO ENABLE SERVICES TO BE REACTIVATED.

LIFTING & SCAFFOLDING: PROVIDE ALL, HOISTS, ETC., REQUIRED FOR LIFTING AND PLACING EQUIPMENT, DUCTING AND PIPING IN POSITION, ON WALLS AND IN CEILING AS REQUIRED. PROVIDE ALL SCAFFOLDING REQUIRED, INCLUDING ITS DISMANTLE AND REMOVAL FROM THE SITE ON COMPLETION.

COORDINATE WITH OTHER DIVISIONS TO ENABLE THEM TO ALSO USE THE SCAFFOLDING.
THE SPACE REQUIRED AND LOCATIONS OF LIFTING EQUIPMENT AND SCAFFOLDING SHALL BE
AGREED WITH THE OWNER'S REPRESENTATIVE.
PROVIDE SUFFICIENT CAUTION SIGNAGE AROUND LIFTING EQUIPMENT AND SCAFFOLDING
WORKING AREAS.

HAZARDOUS MATERIALS REMOVAL AND DRILLING OF HOLES IN WALLS AND CEILING THAT CONTAIN ASBESTOS: HAZARDOUS MATERIALS, IF FOUND, THEY SHALL BE REMOVED BY HAZARDOUS MATERIAL ABATEMENT CONTRACTOR ACCORDING TO THE TYPE OF PROCEDURES STIPULATED BY THE REGULATIONS AND IN DIVISION O & 13 SPECIFICATIONS FOR THIS CONTRACT. FOR DRILLING OF HOLES IN WALLS AND CEILINGS THAT CONTAIN ASBESTOS REFER TO DIVISION O & 13 SPECIFICATIONS FOR THIS CONTRACT.

ENTRY & WORK IN RESTRICTED SPACES: ENTRY AND WORK IN RESTRICTED SPACES MUST BE PERFORMED IN ACCORDANCE WITH DIVISION 1 SPECIFICATIONS FOR THIS CONTRACT.

ACCESS DOORS: PROVIDE ALL NECESSARY ACCESS DOORS FOR MECHANICAL EQUIPMENT, AND ALL ACCESS DOORS INDICATED ON THE DRAWINGS. WHERE NECESSARY, DOORS SHALL BE RATED TO SUIT FIRE ASSEMBLY RATINGS.

PAYMENT FOR CHANGES: PROVIDE A COMPLETE ITEMIZED COST BREAKDOWN OF ALL MATERIALS, EQUIPMENT, LABOR COSTS AND MARK-UP FEES ASSOCIATED WITH EACH SUBMISSION FOR ADDITIONAL OR DELETED WORK.

RECORD DRAWINGS: RECORD ALL CHANGES MADE TO DESIGN ON SET OF PRINTS KEPT ON SITE FOR THIS PURPOSE.

AS-BUILT DRAWINGS: PROVIDE "AS-BUILT DRAWINGS" IN ACCORDANCE WITH GENERAL CONDITIONS OF CONTRACT. AS-BUILT DRAWINGS SHALL RECORD ALL CHANGES TO DESIGN.

DEFINITION: THE WORD "PROVIDE" SHALL MEAN SUPPLY, INSTALL AND TEST.

### THERMAL INSULATION

GENERAL: APPLY INSULATION AFTER ALL TESTS HAVE BEEN SUCCESSFULLY COMPLETED. INSTALL INSULATION IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. ALL INSULATION MATERIAL AND ADHESIVE SHALL BE FIRE RESISTANT AND COMPLY WITH OBC. WORK SHALL ONLY BE PERFORMED BY PERSONNEL EXPERIENCED IN INSULATION WORK.

DUCTWORK INSULATION: INSULATE ALL NEW SUPPLY AIR DUCTWORK ACCORDING TO THE THERMAL INSULATION SCHEDULE WITH VAPOUR-SEAL RIGID GLASS FIBRE INSULATION (THERMAL PERFORMANCE - 0.23 BTU/HR/IN/SO FT/'F @ 75'F, DENSITY - 3.0 LB/CU FT, JOHNS MANVILLE - MANVILLE 814 SPIN-GLAS OR EQUAL), EXCEPT AT DUCT TAKE-OFFS, TRANSITIONS AND FOR ROUND DUCTS WHERE FACED FLEXIBLE GLASS FIBRE INSULATION (THERMAL PERFORMANCE - 0.27 BTU/HR/IN/SO FT/'F @ 75'F TESTED WITH MATERIAL THICKNESS COMPRESSED 25%, DENSITY - 0.75 LB/CU FT, JOHNS MANVILLE - MICROLITE EQ TYPE 75 OR EQUAL) SHALL BE USED. TAPE ALL JOINTS. RECOVER INSULATION WHERE EXPOSED, WITH 60Z. CANVAS JACKET AND FIRE RETARDANT ADHESIVE COATING.

### **DEMOLITION**

PROVIDE FOR THE REMOVAL OF EQUIPMENT AND DEVICES AS NOTED ON THE DRAWINGS. UNLESS OTHERWISE NOTED, EQUIPMENT SHALL BE THE PROPERTY OF THE OWNER. ANY EQUIPMENT NOT REUSED SHALL BE TURNED OVER TO THE OWNER. EQUIPMENT NOT WANTED BY THE OWNER SHALL BE REMOVED AND DISPOSED OF AWAY FROM THE SITE. REMOVAL OF DEBRIS AND RUBBISH FROM THE JOB SITE TO BE EXECUTED ON A DAILY BASIS IN ORDER TO MAINTAIN A CLEAN AND SAFE WORK ENVIRONMENT. PRIOR TO DEMOLITION, MAKE NOTE OF ANY DAMAGE TO THE EXISTING SYSTEM. IDENTIFY THESE ITEMS AND INFORM THE CONSULTING ENGINEER IMMEDIATELY. FAILURE TO REPORT ANY DEFICIENCIES, PRIOR TO DEMOLITION, IMPLIES THAT THE CONTRACTOR HAS ACCEPTED THE SITE. IT SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR TO MAKE GOOD ALL EXISTING EQUIPMENT NOTED TO REMAIN FOLLOWING THE DEMOLITION WORK.

CAP ALL PIPING, WHICH ARE NOT TO BE RE-USED, BACK TO RISER OF ORIGIN.

CAP ALL DUCT TAKE-OFFS, WHICH ARE NOT TO BE RE-USED, BACK TO MAIN SHAFT.

ENSURE THE CONTINUED OPERATION OF THE EXISTING HVAC. PLUMBING AND FIRE

PROTECTION SYSTEMS WHICH SUPPLY THE ADJOINING TENANT SPACES.
ENSURE THE CONTINUED OPERATION OF THE LIFE-SAFETY SYSTEM DURING THE ENTIRE CONSTRUCTION OF THE PROJECT. BYPASS ONLY THE ZONES NECESSARY AND AS REQUIRED TO COMPLETE THE WORK REQUIRED. GIVE 24 HOURS NOTICE TO THE BUILDING OWNER FOR SYSTEM BYPASS AND NOTIFY IMMEDIATELY UPON COMPLETION OF THE WORK SO AS TO RESTORE THE FIRE-SAFETY SYSTEM TO THE ENTIRE FACILITY. IN NO CASE SHALL THE FIRE SAFETY SYSTEM, OR ANY PART OF, REMAIN ON BYPASS DURING THE NIGHT (AFTER NORMAL WORKING HOURS). IT IS THE RESPONSIBILITY OF THIS CONTRACTOR TO ENSURE THAT THE FIRE-SAFETY SYSTEM IS FULLY FUNCTIONAL PRIOR TO LEAVING THE SITE AT THE END OF EACH WORKING

CO-ORDINATE IN ADVANCE WITH THE BUILDING OWNER, WORK WHICH IS TO BE CARRIED OUT "AFTER NORMAL WORKING HOURS". THIS MAY INCLUDE, BUT IS NOT LIMITED TO; THE LIFE-SAFETY SYSTEM, HVAC SYSTEM, PLUMBING SYSTEM, FIRE PROTECTION SYSTEM AND ANY WORK WHICH MUST BE CONDUCTED IN THE ADJOINING TENANT SPACES.

### **HANGERS**

PROVIDE HANGERS TO SUPPORT UNBURIED PIPING AND DUCTS. OBTAIN APPROVAL OF METHODS OF HANGING TO BUILDING BEFORE PROCEEDING. ENSURE THAT LOAD ON BUILDING STRUCTURE DOES NOT EXCEED MAXIMUM MECHANICAL LOADING PER SQUARE METER. SUPPORT DUCT ASSEMBLIES FROM BUILDING STRUCTURE WITH 25mm (1") X 3mm (10 GA) GALVANIZED STEEL 'Z' BAND HANGERS SECURED UNDER DUCTS. HANGERS SHALL BE SPACED AT NOT OVER 1800mm (6 FEET) CENTRES.

DO NOT HANG FROM STEEL OR TECTUM DECKING. PROVIDE STRUCTURAL FRAMING WHERE NECESSARY TO SUPPORT WORK IN THESE AREAS. PROVIDE HANGER AT EACH FITTING.
SUPPORT UNBURIED HORIZONTAL CAST IRON PIPING AT EACH HUB LENGTH (MAX. 1500mm)
WITH GRINNELL #260 OR MYATT #124 CLEVIS HANGERS. WHERE GROUPS OF FITTINGS OCCUR,
NOT MORE THAN 900mm SHALL BE BETWEEN HANGERS. SUPPORT OTHER HORIZONTAL PIPING
WITH GRINNELL #260 OR MYATT # 124 CLEVIS HANGERS AS FOLLOWS:

- 38mm (1 ½") TO 80mm (3") SIZE: 3000mm (10 FEET) MAXIMUM SPACING.
SUPPORT PLUMBING PIPING IN ACCORDANCE WITH MORE STRINGENT REQUIREMENTS OF
PLUMBING CODE OR OTHERWISE SPECIFIED.
SUPPORT THROUGH VERTICAL PIPING WITH GRINNELL #261 OR MYATT #182 RISER CLAMPS AT
EACH FLOOR LEVEL OR MAXIMUM.

- UP TO 32mm (1 1/4") SIZE: 1800mm (6 FEET) MAXIMUM SPACING;

PROVIDE BARRIER TO PREVENT COPPER PIPE BEING IN CONTACT WITH FERROUS OR CINDER MATERIALS.

TOGGLE BOLTS OR PHILLIPS "RED HEAD" CONCRETE ANCHORS.

WHERE STRUCTURAL BEARINGS DO NOT EXIST, PROVIDE ANGLE OR CHANNEL IRON OF
SUFFICIENT SIZE FROM OTHER STRUCTURAL BEARINGS TO SUPPORT HANGERS OR EQUIPMENT.
PROVIDE VIBRATION HANGERS ( 4 REQUIRED) FOR NEW EXHAUST FAN (EF-1). HANGER
VIBRATION ELIMINATORS SHALL BE RUBBER-IN-SHARE TYPE, BY PENNBARRY OR APPROVED

SUPPORT PIPING ON WALLS WITH MYATT #157 OFFSET WALL HOOKS FASTENED TO WALL WITH

### SUPPORTS

EQUAL.

PROVIDE SUPPORTS, STANDS AND PLATFORMS NECESSARY FOR PROPER INSTALLATION OF EQUIPMENT AND COMPONENTS, OF CONCRETE, STEEL OR WOOD AS MAY BE REQUIRED AND AS APPROVED OR ELSEWHERE SHOWN OR SPECIFIED. PROVIDE NECESSARY ANCHOR BOLTS AND OTHER FASTENINGS. SECURE WORK TO CONCRETE WITH PHILLIPS "RED HEAD" CONCRETE ANCHORS.

### **HVAC - DUCTWORK & EQUIPMENT**

DUCTWORK - LOW PRESSURE: CONSTRUCT DUCTWORK USING GALVANIZED SHEET STEEL IN ACCORDANCE WITH THE LATEST EDITION OF ASHRAE GUIDE AND SMACNA STANDARDS FOR LOW PRESSURE ( + /- 1" W.G.) RECTANGULAR AND ROUND DUCTWORK, INCLUDING REINFORCING, JOINTING AND SUSPENDING AND METAL THICKNESS RECOMMENDATIONS EXCEPT OTHERWISE INDICATED ON DRAWINGS. SEAL ALL JOINTS WITH RUBBERIZED CAULKING TO MEET SMACNA SEAL CLASS C EXCEPT OTHERWISE INDICATED ON DRAWINGS. PROVIDE SLEEVES THROUGH WALLS AND FLOORS. PACK BETWEEN DUCT AND SLEEVE WITH FIRE-RATED MATERIAL..

VOLUME DAMPERS /VD: MANUAL VOLUME DAMPERS BY 'NAILOR INDUSTRIES' OR EQUAL. FOR RECTANGULAR DUCTS: 1800 SERIES, BLADES FABRICATED FROM 16 GAUGE GALVANIZED STEEL, DRIVE SHAFT 152MM LONG BEYOND FRAME, DRIVE SHAFT AND AXLES 13MM DIAMETER, COMPLETE WITH HAND LOCKING QUADRANT, POSITION INDICATOR AND STAND OF BRACKET TO ALLOW QUADRANT TO BE USED ON EXTERNALLY INSULATED DUCTS.

FOR ROUND DUCTS: MODEL 1890 (BUTTERFLY DAMPER), BLADES SHALL BE FABRICATED FROM 22 GAUGE GALVANIZED STEEL UP TO 12" DIAMETER AND 20 GAUGE OVER 12" DIAMETER, DRIVE SHAFT/AXLE 6MM SQUARE PLATED STEEL, COMPLETE WITH HAND LOCKING QUADRANT, POSITION INDICATOR AND STAND OF BRACKET TO ALLOW QUADRANT TO BE USED ON EXTERNALLY INSULATED DUCTS.

PROVIDE VOLUME/BALANCING DAMPER ON ALL BRANCH DUCTS WHETHER OR NOT IT IS SHOWN ON DRAWINGS.

### SPLITTER DAMPERS (SD): NOT TO BE USED.

ACCESS DOORS IN DUCTWORK: INSTALL ACCESS DOORS IN DUCTWORK TO ALLOW SERVICING, MAINTENANCE, AND INSPECTION OF CONTROL ELEMENTS, FIRE DAMPERS AND AS INDICATED ON DRAWINGS.

ACCESS DOORS SHALL BE OF THE SAME MATERIAL AND THICKNESS AS THE DUCT.
ACCESS PANELS SHALL HAVE A GREASETIGHT, GASKET, RATED FOR 1500 F (816'C). FASTENERS,
SUCH AS BOLTS, WELD STUDS, LATCHES, OR WING NUTS USED TO SECURE THE ACCESS PANELS
SHALL BE CARBON STEEL OR STAINLESS STEEL AND SHALL NOT PENETRATE THE DUCTS. ACCESS
DOORS TO BE INSTALLED ON THE SIDE OF THE DUCTS. THE EDGE OF THE ACCESS DOORS SHALL
BE A MINIMUM OF

1 ½" ( 40mm) FROM ALL OUTSIDE EDGES OF THE DUCT OR WELDED SEAMS.
COORDINATE WITH GENERAL TRADES FOR LOCATION AND SIZES OF ACCESS PANELS ON
CEILING, PARTITION WALLS AND BULKHEADS TO MAKE THE ACCESS DOORS IN DUCTWORK
ACCESSIBLE.

GRILLES DIFFUSERS, VAV BOXES TERMINAL UNITS & REGISTERS: ALL GRILLES, DIFFUSERS, VAV BOXES TERMINAL UNITS AND REGISTERS SHALL BE MANUFACTURED BY PRICE, NAILOR OR TITUS, AND SHALL BE AS SPECIFIED IN THE SCHEDULE. SUBMIT SHOP DRAWINGS.

FLEXIBLE DUCTWORK: FLEXMASTER TYPE 6M, ACOUSTICAL INSULATED. LINER SHALL BE SPUNBOND NYLON TO ALLOW BROADBAND SOUND ENERGY TO PENETRATE THE DUCT WALL. HELIX SHALL BE CORROSION RESISTANT GALVANIZED STEEL, FORMED AND MECHANICALLY LOCKED TO FABRIC. INSULATION SHALL BE THICK FIBERGLASS INSULATION BLANKET, FACTORY WRAPPED, WITH THERMAL CONDUCTANCE R-8.0. VAPOR BARRIER SHALL BE FIRE

RETARDANT REINFORCED ALUMINUM. FLEXIBLE DUCTS SHALL CONFORM TO THE STANDARDS OF NFPA 90A AND SHALL BE TESTED AND LISTED BY UL 181 CLASS 1 AIR DUCT. MAXIMUM LENGTH LMAX=2.40M. SUBMIT SHOP DRAWINGS.

### AIR BALANCING

PROVIDE BALANCING OF THE ALL NEW AIR SUPPLY, RETURN, FRESH AND EXHAUST AIR SYSTEMS SERVING RENOVATION AREA. ENSURE THAT THE FINAL AIR QUANTITIES SPECIFIED ON DRAWINGS ARE AVAILABLE AT THE OUTLETS, WITHIN A TOLERANCE OF +5%. MEASURE AIR QUANTITIES, STATIC PRESSURES AND TEMPERATURES USING RELIABLE TESTING INSTRUMENTS.
SUBMIT BALANCING REPORT TO THE PROJECT MANAGER.
BALANCING OF AIR SYSTEM SHALL BE AT FULL LOAD CONDITIONS.

TESTING, ADJUSTING AND BALANCING (TAB) OF MECHANICAL SYSTEMS SHALL BE AS PER OWNER'S TAB STANDARDS SECTION 23 05 93.

SUBMIT CONSOLIDATED BALANCE REPORT IN TRIPLICATE TO THE PROJECT MANAGER. THE BALANCING REPORT SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING:

### AIR OUTLET /INLET DATA SHEET:

a. OUTLET/INLET NUMBER, MAKE, MODEL

- b. AREA FACTOR, REQUIRED VELOCITY & L/S (CFM), ACTUAL VELOCITY & L/S (CFM) c. STATIC PRESSURE IN MAIN SUPPLY AIR DUCTS.
- d. AIR TEMPERATURE SUPPLIED TO TENANT SPACE AT LAST SUPPLY AIR DIFFUSER ON EACH DUCT RUN.
- e. IF HOOD IS USED, ACTUAL L/S (CFM) AND REQUIRED L/S (CFM)

f. NAMEPLATE INFORMATION OF ALL APPARATUS USED.

PRE-CONSTRUCTION TAB: PRIOR TO START OF CONSTRUCTION
PERFORM A COMPLETE READING FOR SYSTEMS ON AN AS-IS CONDITION:
FOR THE SPACES

- 1) AFFECTED RTU & AHU
- .1) ALL SUPPLY & RETURN SYSTEMS.
- .2) ALL ASSOCIATED SUPPLY AIR OUTLETS
  .3) RECORD ALL DUCTWORK ROUTING AND SIZES FROM EACH UNIT TO EACH
- SUPPLY AIR OUTLET OF DIFFUSER.

2) AFFECTED EXHAUST FAN

SCHEMATIC DRAWING:
SINGLE LINE DRAWING WITH OUTLETS AND INLETS NUMBERED CORRESPONDING TO AIR
OUTLET AND INLET SHEETS.

TAB CONTRACTOR QUALIFICATION SHALL BE:
INDEPENDENT TESTING, ADJUSTING, AND BALANCING AGENCY SHALL MEET THE
QUALIFICATIONS SPECIFIED BELOW:
NEBB - NATIONAL ENVIRONMENTAL BALANCING BUREAU;
AABC - ASSOCIATED AIR BALANCE COUNCIL;

NO EXCEPTIONS TO ABOVE MENTIONED CERTIFICATIONS ARE ALLOWED".

### HVAC

ALL DUCTWORK AND HANGERS SHALL BE FABRICATED TO SMACNA LATEST EDITION. SUPPLY DUCTWORK SHALL BE CLASS 2 IN WG, SEAL CLASS B. RETURN DUCTWORK SHALL BE CLASS 1 IN WG, SEAL CLASS C. RETURN/EXHAUST DUCTWORK SHALL BE CLASS 1 IN WG, SEAL CLASS B.

### INSTALL DUCTWORK IN ACCORDANCE WITH SMACNA STANDARDS.

FLEXIBLE DUCT SHALL BE CLASS I ALUMINUM HELICAL WOUND SUITABLE FOR HIGH PRESSURE APPLICATION. MAXIMUM LENGTH OF FLEX SHALL NOT EXCEED 5 FEET. FLEXIBLE DUCTS SHALL BE SECURED TO RIGID DUCTS BY STAINLESS STEEL CLAMPS. TAPE ALONE IS NOT ACCEPTABLE. NO JOINTS WILL BE ALLOWED ON FLEX DUCTS.

PROVIDE 25 MM (1"), 24 KG/M3 (1.5 LB) NEOPRENE FACED ACOUSTIC DUCT INSULATION WHERE SHOWN AS CROSS\_HATCHED. DUCT DIMENSIONS ARE INTERNAL, INCREASE DUCT DIMENSIONS ACCORDINGLY.

PROVIDE DURO DYNE "DUROLON" FLEXIBLE CONNECTIONS BETWEEN FAN AND ADJACENT DUCTWORK.

ALL EXISTING GRILLES, DIFFUSERS AND ALL VISIBLE MECHANICAL EQUIPMENT SHALL BE CLEANED AFTER DRYWALL INSTALLATION IS COMPLETE.

PROVIDE AIR BALANCE FOR ALL QUANTITIES SHOWN ON THE DRAWINGS. AIR BALANCE STATEMENT OF THE PROVIDE AIR BALANCE STATEMENT.

PROVIDE AIR BALANCE FOR ALL QUANTITIES SHOWN ON THE DRAWINGS. AIR BALANCE SHALL BE DONE BY AN INDEPENDENT AIR BALANCE CONTRACTOR CERTIFIED BY AABC, PAID FOR BY THIS CONTRACTOR. SUBMIT 3 COPIES OF THE REPORTS FOR REVIEW. AT THE REQUEST OF ENGINEER, PERFORM RANDOM CHECK UP TO 10% OF ALL OUTLETS OR MEASURING POINTS. THE AIR BALANCE CONTRACTOR SHALL CHECK ALL CONTROL DEVICES FOR PROPER OPERATION. SUBMIT REPORT INDICATING EQUIPMENT REQUIRING REPAIR OR REPLACE.

### **PLUMBING**

DOMESTIC WATER PIPING SHALL BE TYPE L WITH CAST BRASS OR WROUGHT COPPER FITTINGS. GATE VALVES SHALL BE CRANE #428 OR #438C.

SANITARY DRAIN AND VENT SHALL BE CAST IRON WITH MJ JOINTS OR DWV COPPER.

ALL PLUMBING WORK AND PIPE SIZING SHALL CONFORM TO THE PLUMBING CODE.

### INSULATION

COVER ALL DOMESTIC COLD AND HOT WATER PIPES, FITTING AND VALVES WITH 25 MM (1") PRE\_MOULDED GLASS FIBRE INSULATION WITH VAPOUR BARRIER. SEAL VAPOUR BARRIER WITH LAP CEMENT.

INSULATE CONDENSATE DRAIN PIPING SAME AS COLD WATER.

COVER ALL NEW SUPPLY AIR DUCTS WITH 1" FOIL-FACED BLANKET INSULATION.

### RECOVER ALL INSULATION IN EXPOSED AREA WITH 6 OZ CANVAS.

### AUTOMATIC CONTROLS

PROVIDE ALL CONTROLS, WIRING AND APPURTENANCES NECESSARY FOR COMPLETE AND OPERATING SYSTEMS. ALL CONTROL WIRING SHALL BE IN CONDUITS SUITABLE FOR EXPOSED TO BE PAINTED WITH NO CEILING.

G. E. J. GALLING 15364607

22.04.20

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be immediately reported to the architect



Galang Consulting Services

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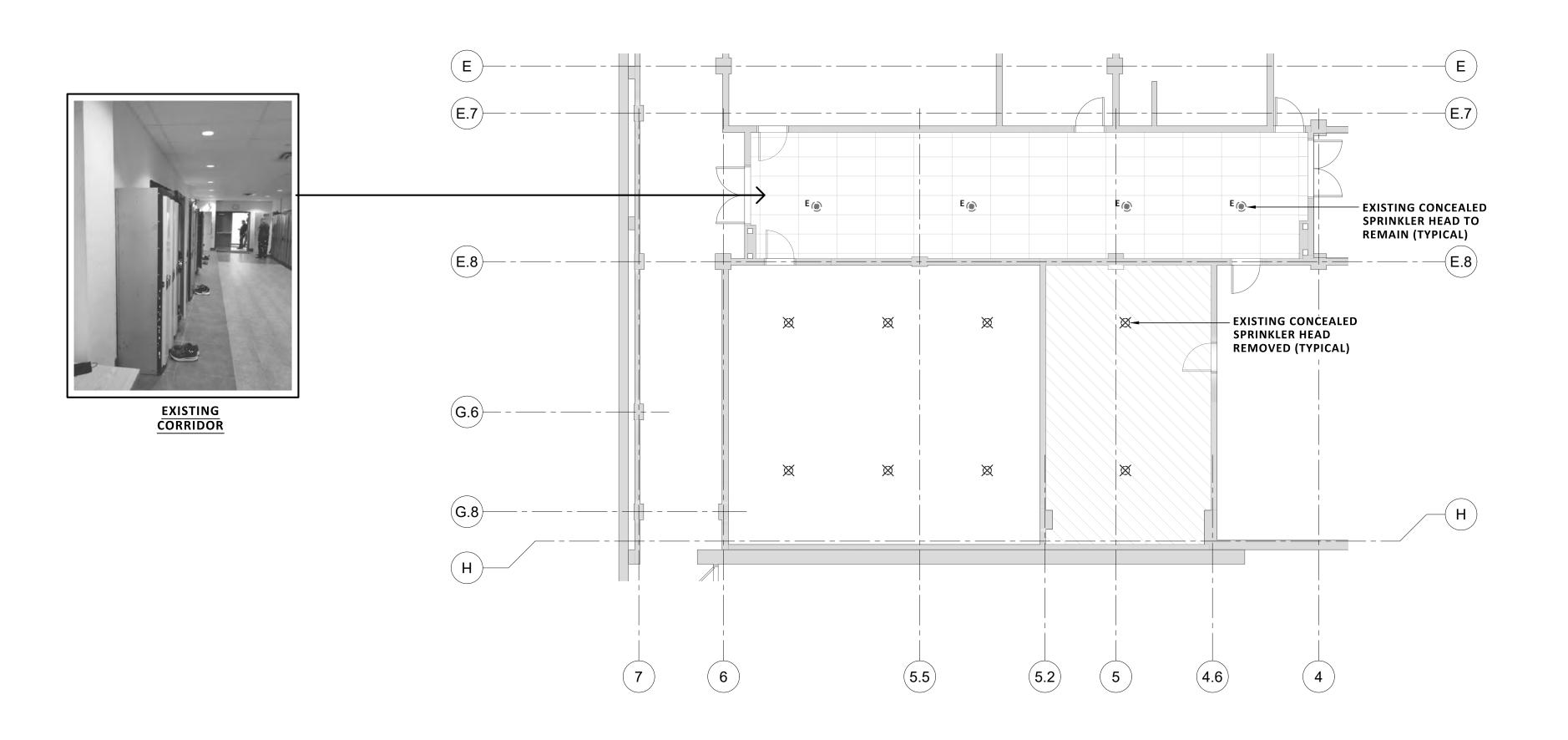
# Durham College Renovations JW-Wing & G-Wing

2000 Simcoe Street North Oshawa, Ontario

PROJECT CODE:	SCALE:
21046.2	As indicat
DATE:	STATUS:
September 2021	-

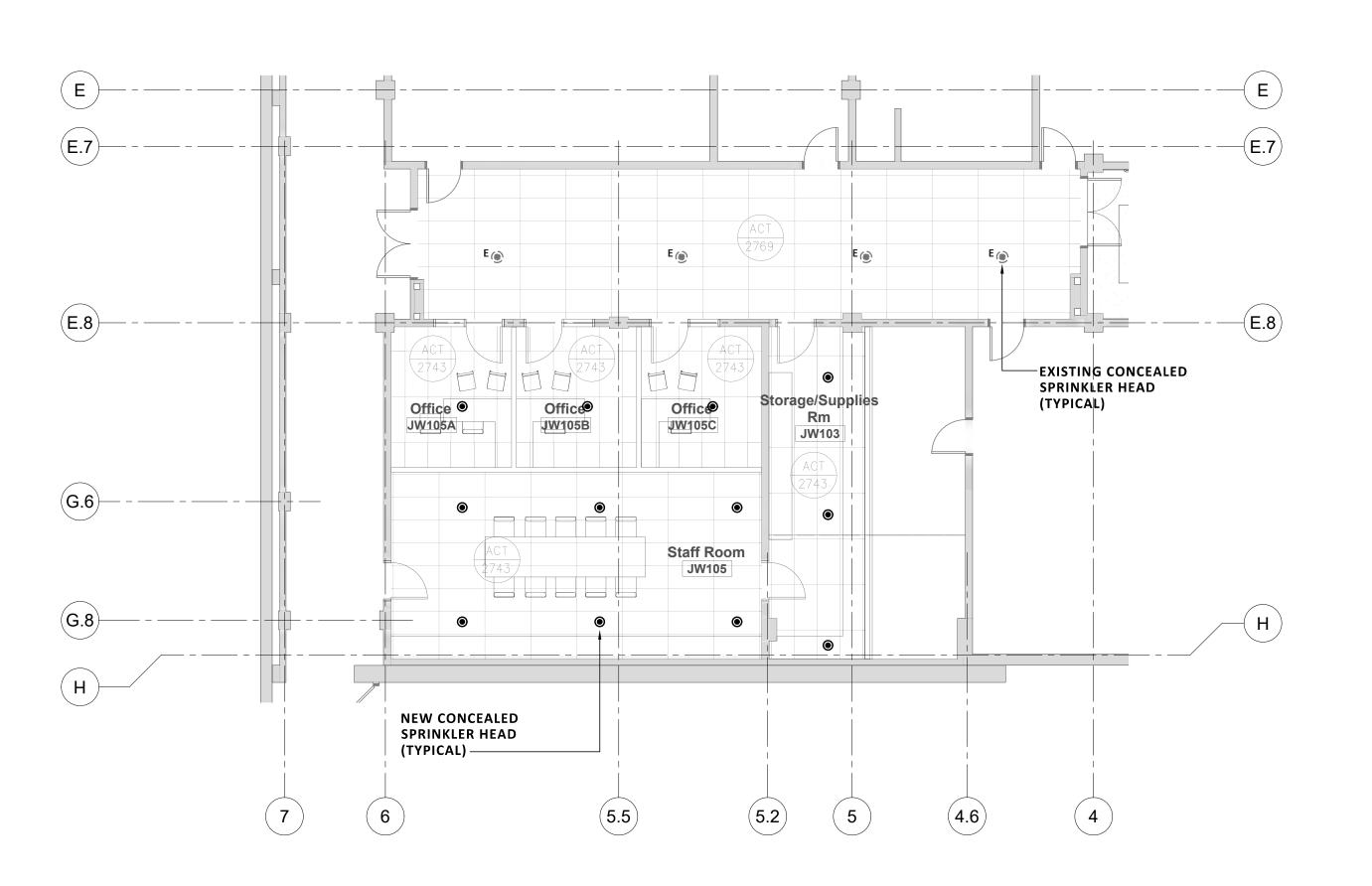
**Specifications** 

M-00



JW-WING LEVEL 01 : FIRE PROTECTION DEMOLITION PLAN

M-100 SCALE: 1:100



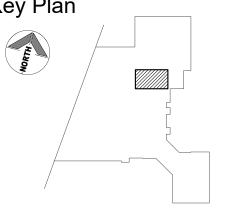
JW-WING LEVEL 01 : NEW WORK FIRE PROTECTION PLAN

M-100 SCALE: 1:100

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Key Plan







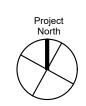
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### **Durham College Renovations** JW-Wing & G-Wing

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JW-Wing Level 1 Fire Protection Plan





### **PICTURES**

### 2.0 JW/G WING MECHANICAL ROOM & ROOF TOP UNITS DATA:



2.1 RTU NAMEPLATE **UNIT BY: LENNOX** 



2.2 RTU LENNOX



2.3 EXHAUST (LOREN CODE) SERVING PEPPER SPRAY TRAINING ROOM



2.4 LOREN CODE PEPPER SPRAY TRAINING ROOM NAME PLATE DATA

NAILOR

NAILOR

NAILOR

BOXES SIZE 8 TO BE C/W 900mm LONG INTERGRAL SOUND ATTENUATOR. BOXES SIZE 12 & UP TO BE C/W 1500mm LONG INTERGAL SOUND ATTENUATOR.

BOXES AND ATTENUATORS TO BE C/W 25mm ACOUSTIC LINING.

UNIT SIZE

В 7"

DESIGN AIR FLOW (CFM)

400-475

600-700

. ALL TERMINAL BOXES TO BE PRESSURE INDEPENDENT.

SET VAV BOXESMINIMUM @ 20%

250

VARIABLE VOLUME UNIT SCHEDULE

MODEL

3000 SERIES

3000 SERIES

3000 SERIES

DISCHARGE DUCT SIZE (UNLESS

NOTED OTHERWISE) MMxMM

REFER TO FLOOR PLAN

REFER TO FLOOR PLAN

REFER TO FLOOR PLAN

# ♦ & ASSOCIATED DUCTWORK TO BE DELETED. EXISTING VAV RETURN DUCTWORK TO REMAIN.

**NOTES:** 

EXISTING DUCT MOUNTED SUPPLY AIR DIFFUSER

EXISTING EXHAUST FAN SYSTEM TO BE DELETED IN IT'S ENTIRETY - FROM THE EXISTING TRAINING

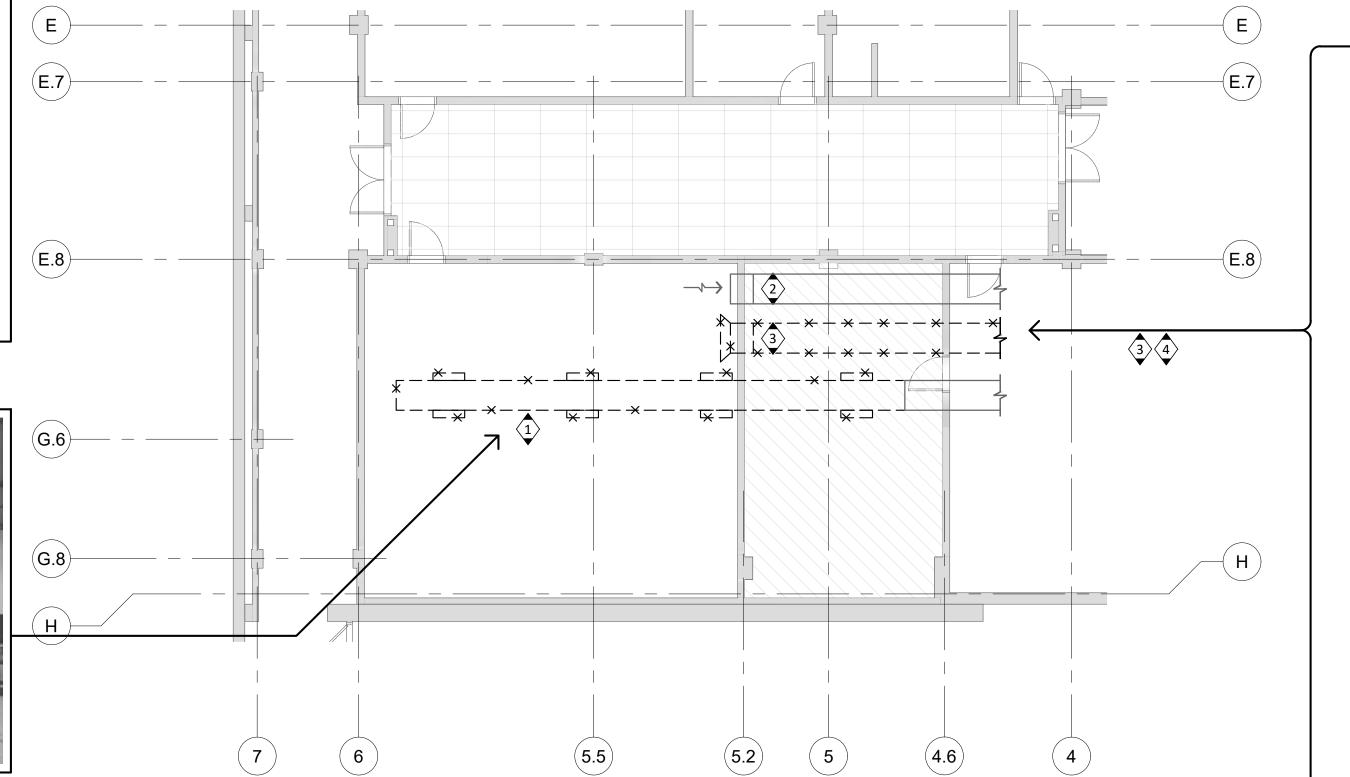
ROOM TO THE FAN IN THE MECHANICAL ROOM TO THE OUTSIDE PLENUM. MAKE GOOD ON ALL CONNECTIONS AFFECTED BY THE REMOVAL.

EXISTING EXHAUST SYSTEM TO BE DEMOLISHED

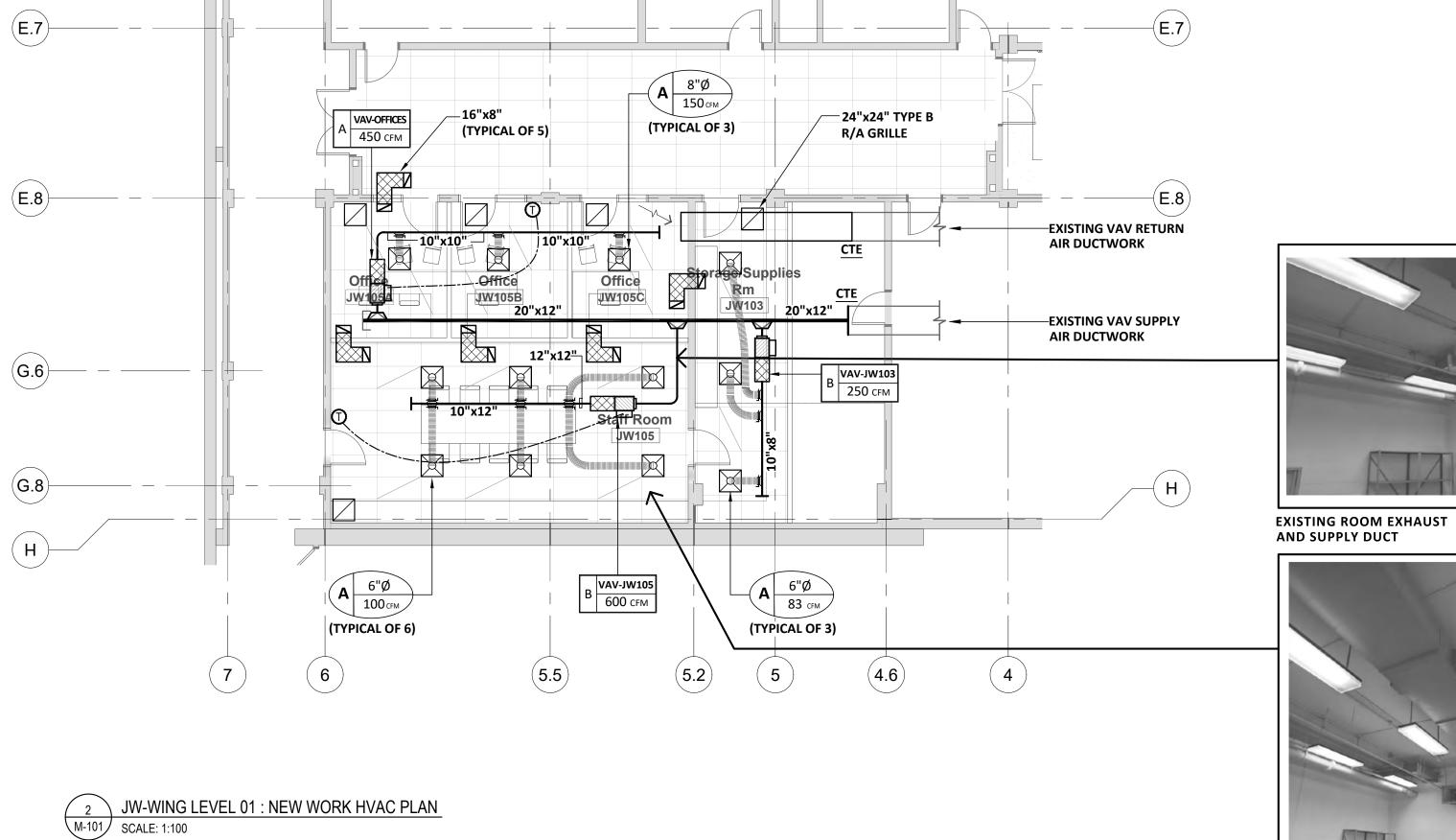
PROVIDE AIR AUDIT FOR THE ENTIRE EXISTING VAV SYSTEM PRIOR TO DEMOLITION. ALL OTHER SYSTEM BRANCHES SHALL BE MAINTAINED AT FINAL COMMISSIONING, ADJUST THE MAIN AHU TO ACCOMMODATE 5 VAV SYSTEMS AS SHOWN.

FROM THIS ROOM & OUTSIDE LOUVRE. CONNECTION TO OUTSIDE LOUVERS TO BE BLANKED OFF, INSULATED, WEATHERPROOFED & MADE GOOD TO SUIT EXISTING PLENUM.

**EXISTING SPACE SHOWING DUCTWORK** TO BE DEMOLISHED

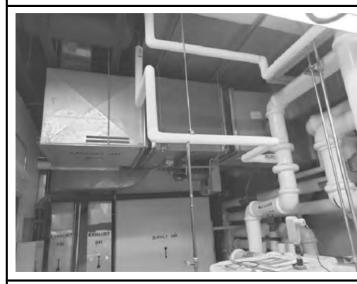














**EXISTING ROOM EXHAUST** 

AND SUPPLY DUCT



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### **Durham College Renovations** JW-Wing & G-Wing

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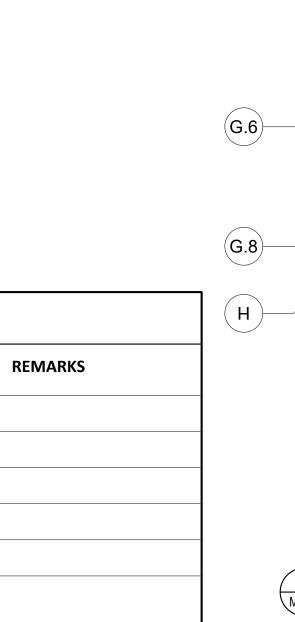
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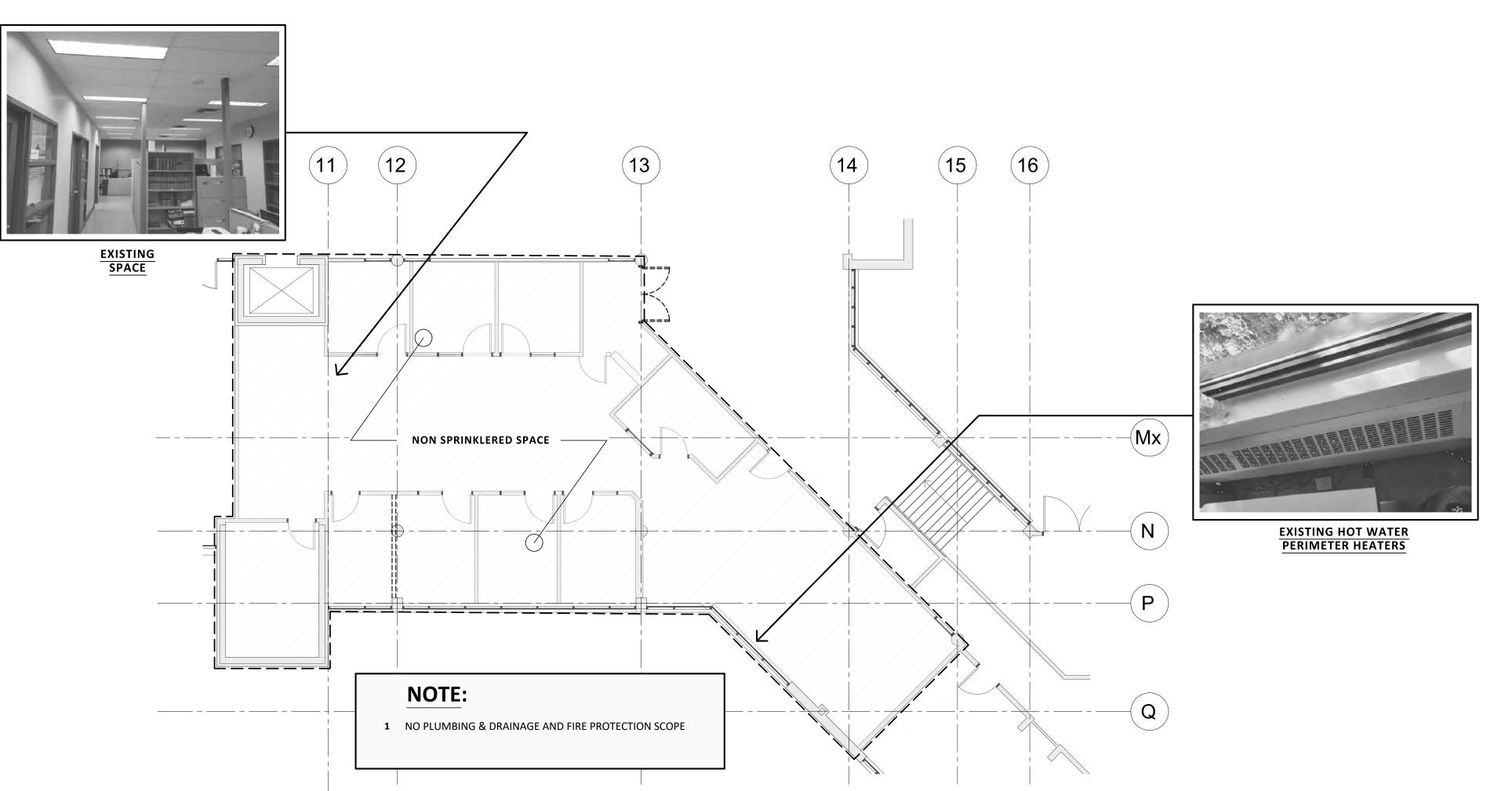
JW-Wing Level 1 HVAC Plan

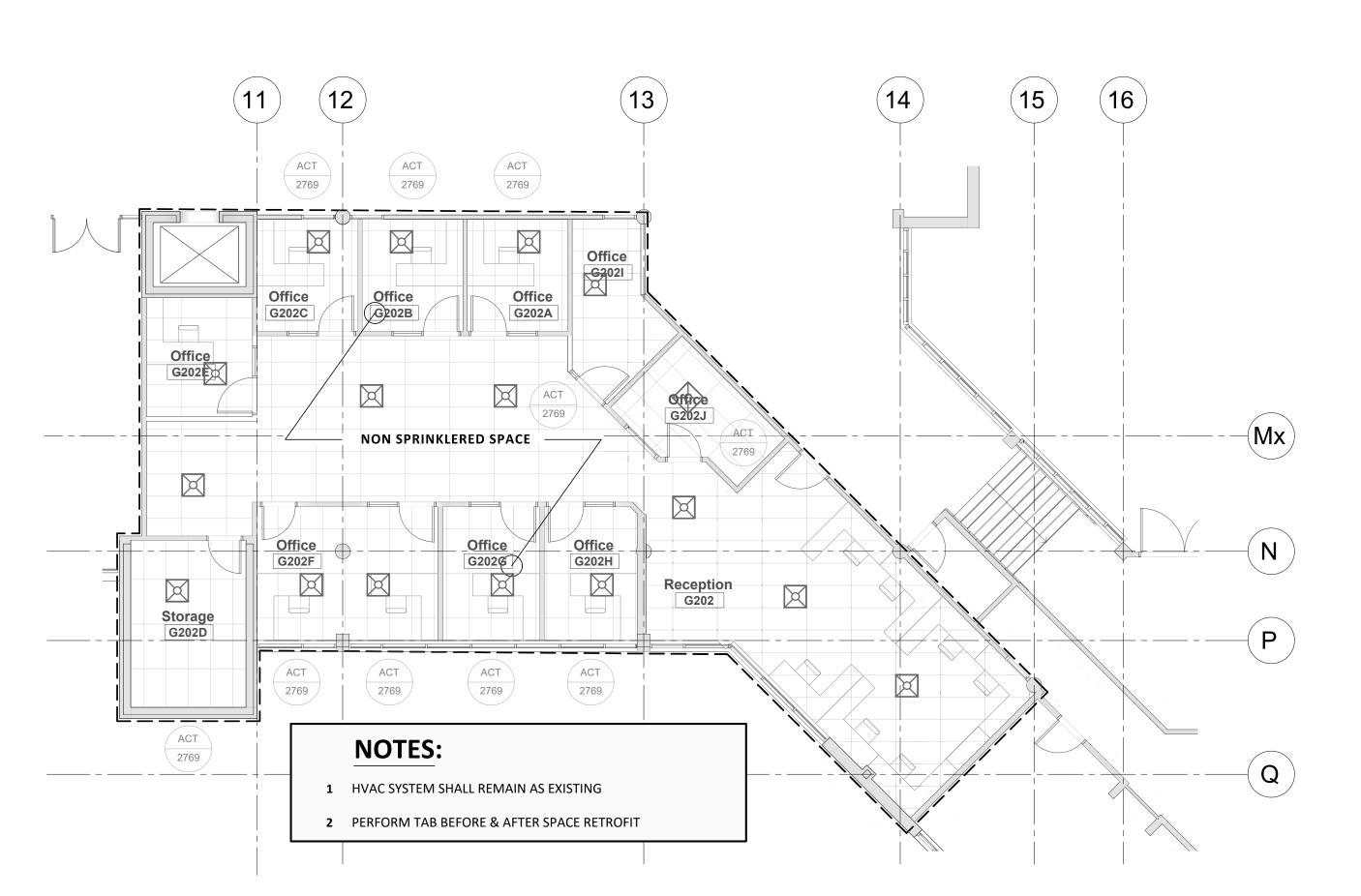


M-101









G-WING LEVEL 02: NEW WORK FIRE PROTECTION, PLUMBING & DRAINAGE PLAN
SCALE: 1:100

G-WING LEVEL 02 : FIRE PROTECTION, PLUMBING & DRAINAGE DEMOLITION PLAN

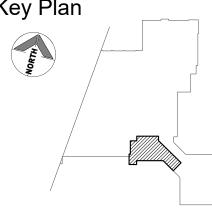
SCALE: 1:100

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Key Plan







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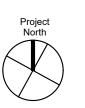
# Durham College Renovations JW-Wing & G-Wing

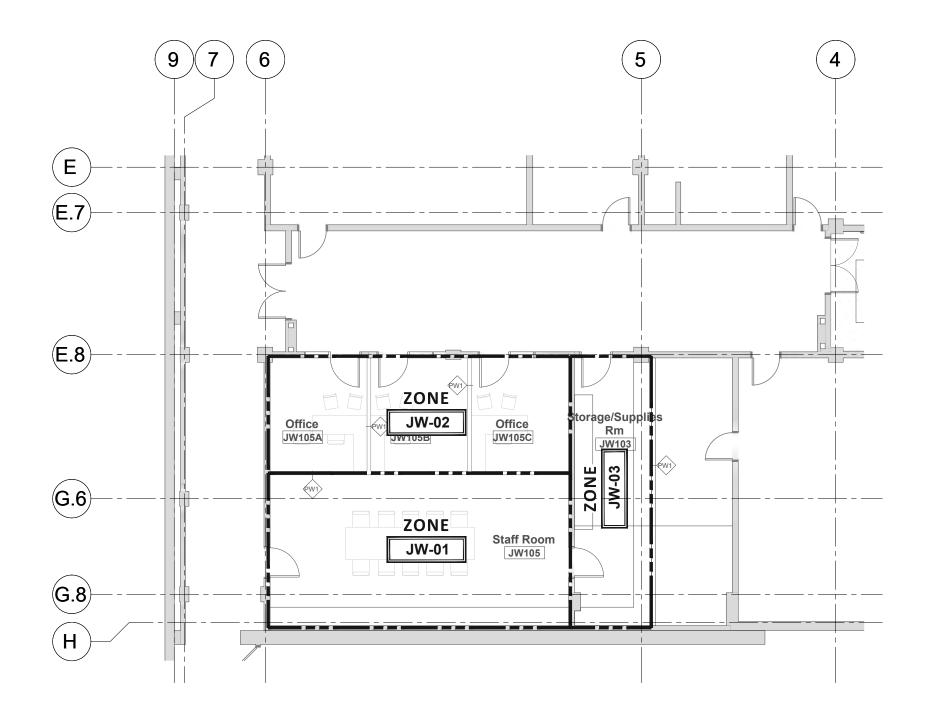
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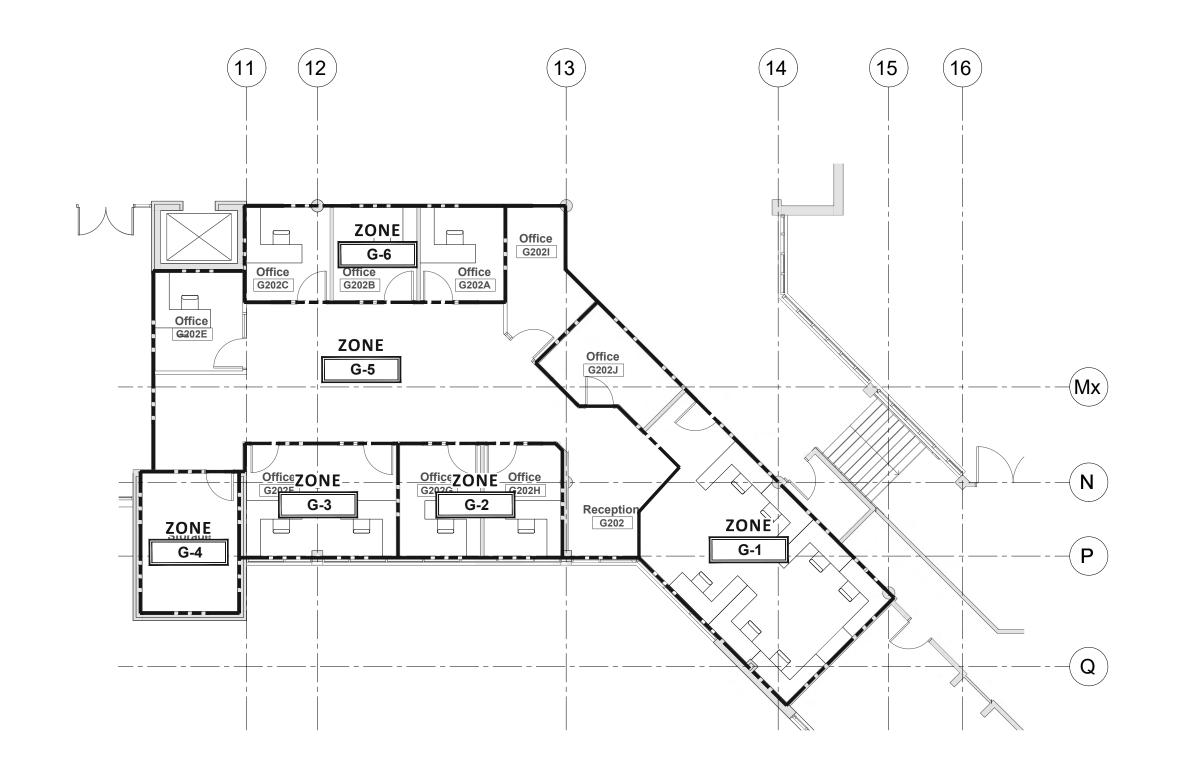
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G-Wing Level 2
Fire Protection, Plumbing &
Drainage Plan







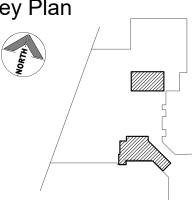
JW WING : LEVEL 01 ZONING
M-300 SCALE: 1:125



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Key Plan







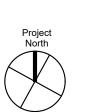
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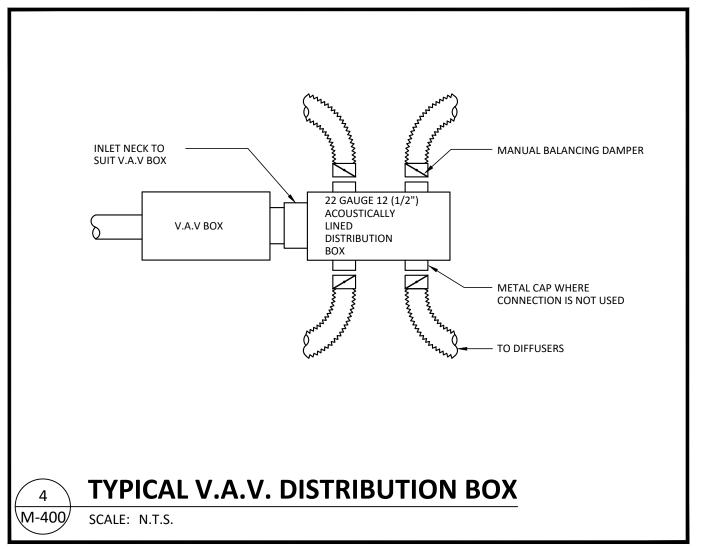
2000 Simcoe Street North Oshawa, Ontario

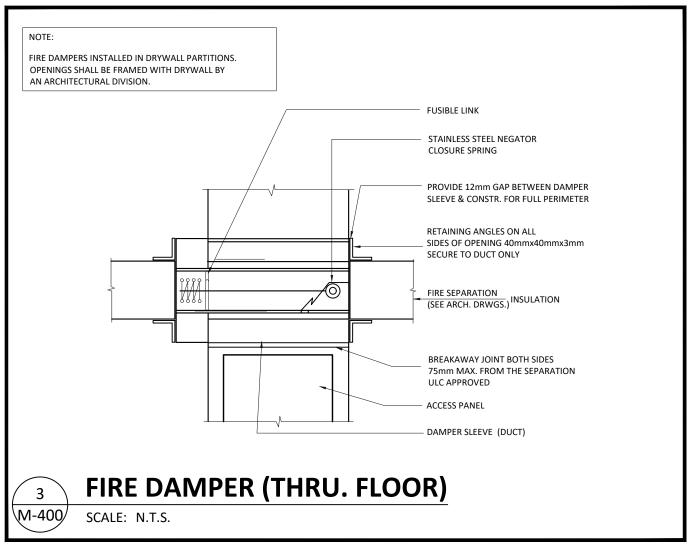
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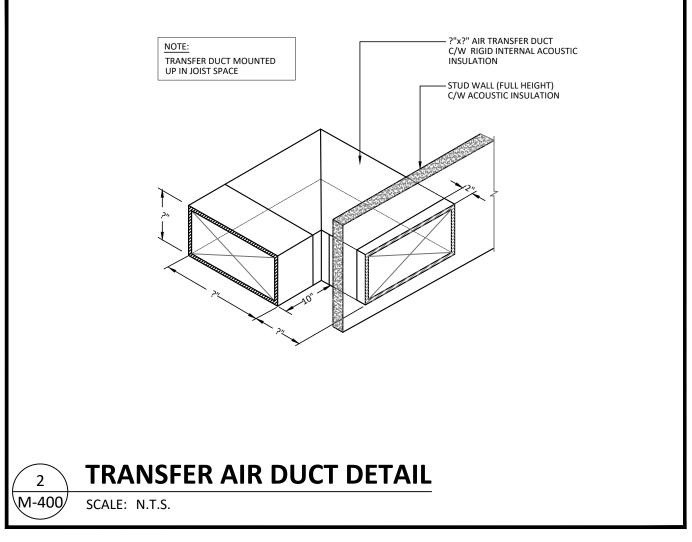
Mechanical Zoning

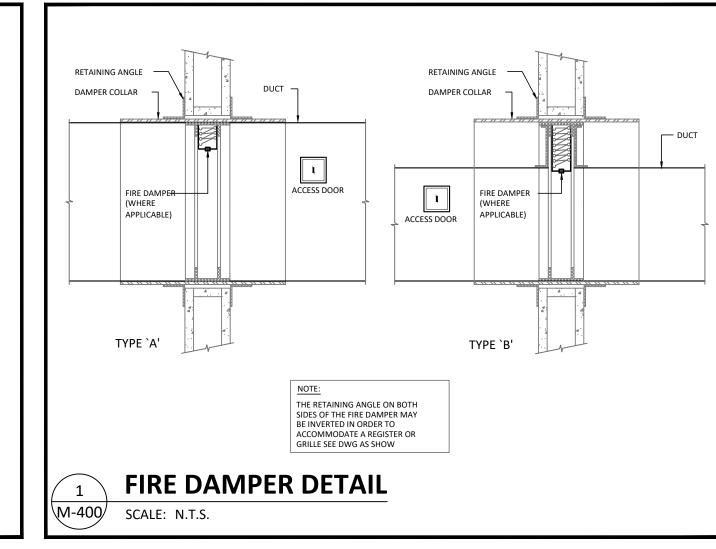


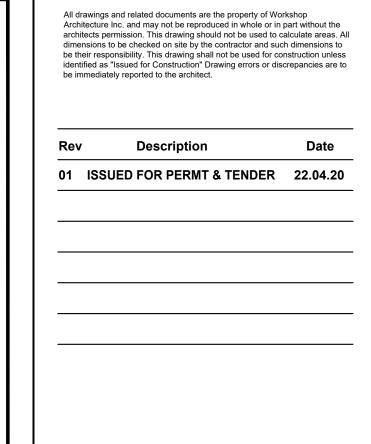


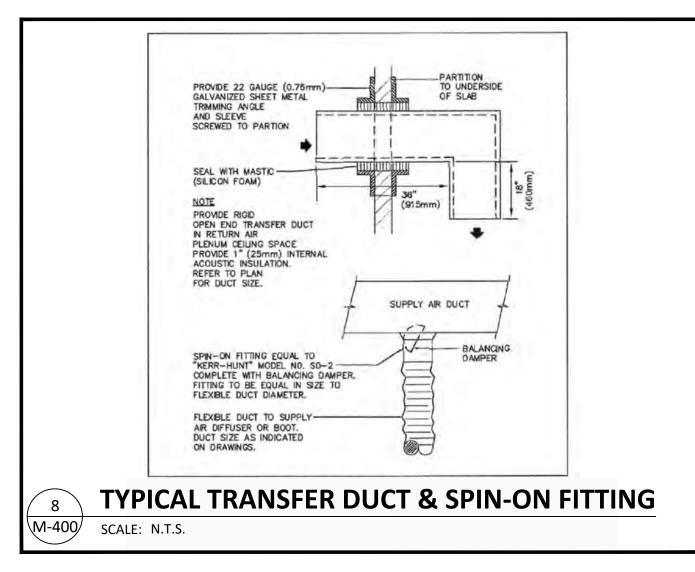


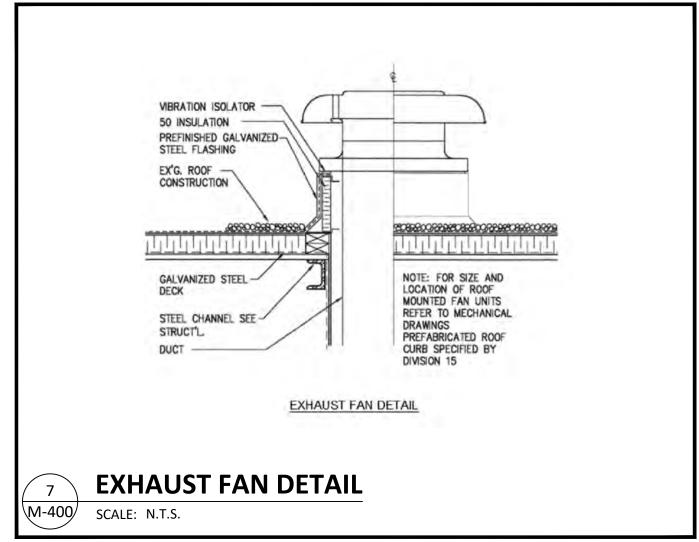


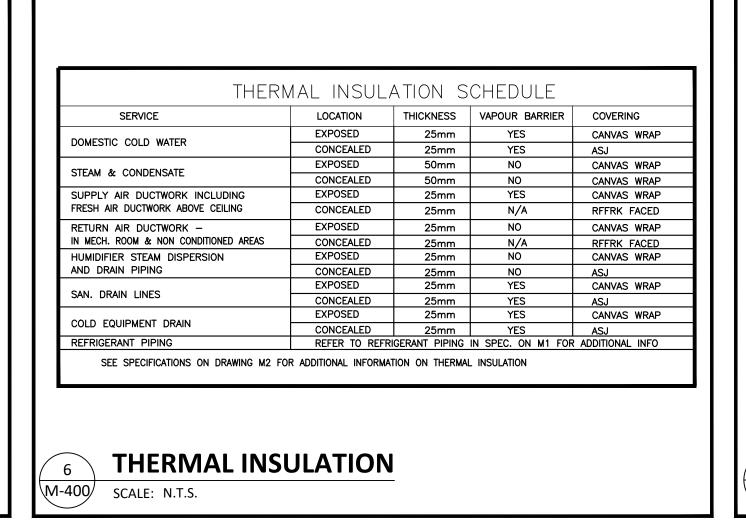


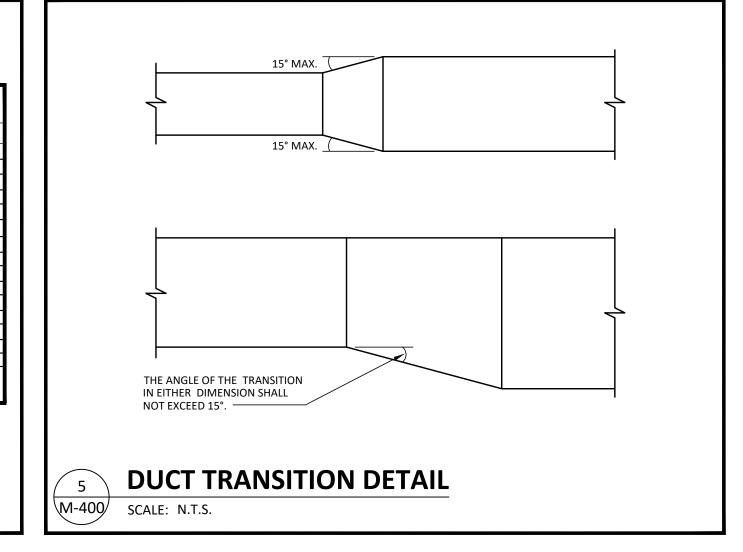


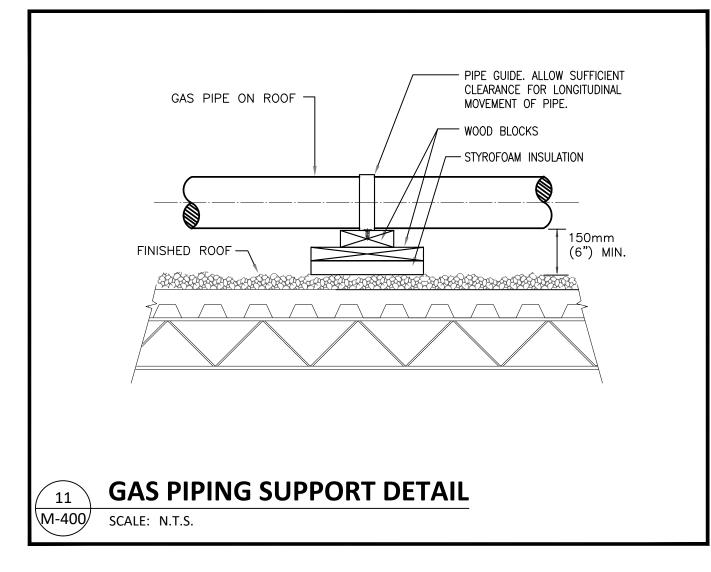


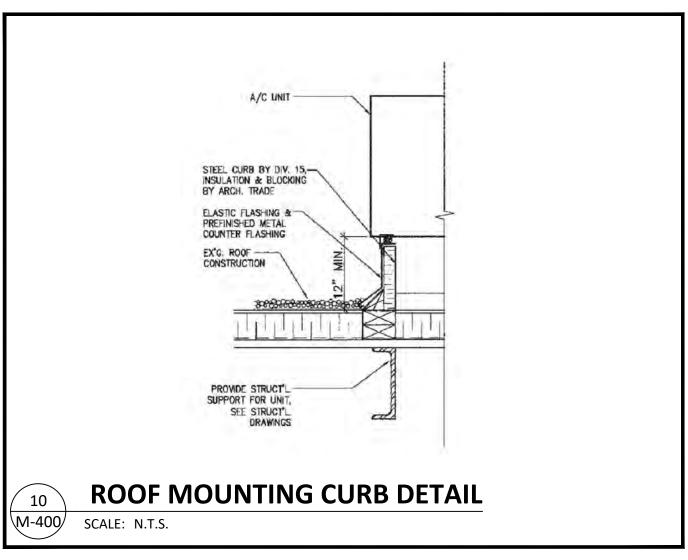


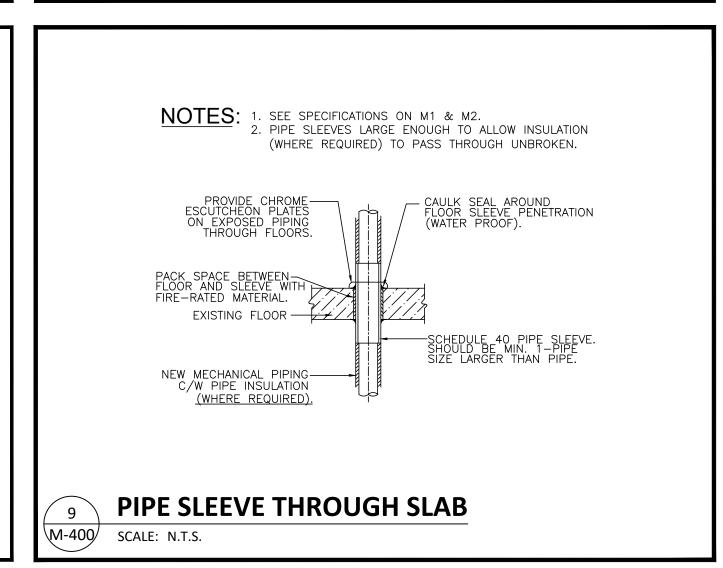


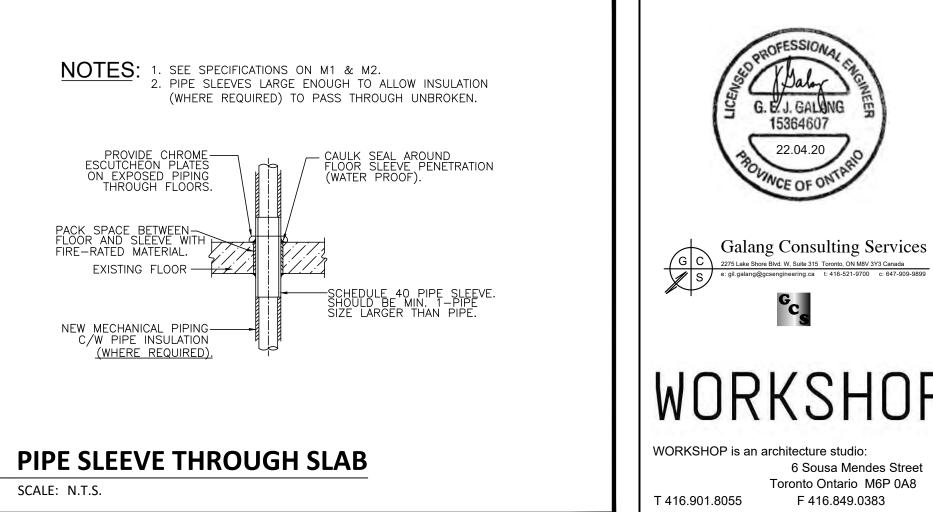


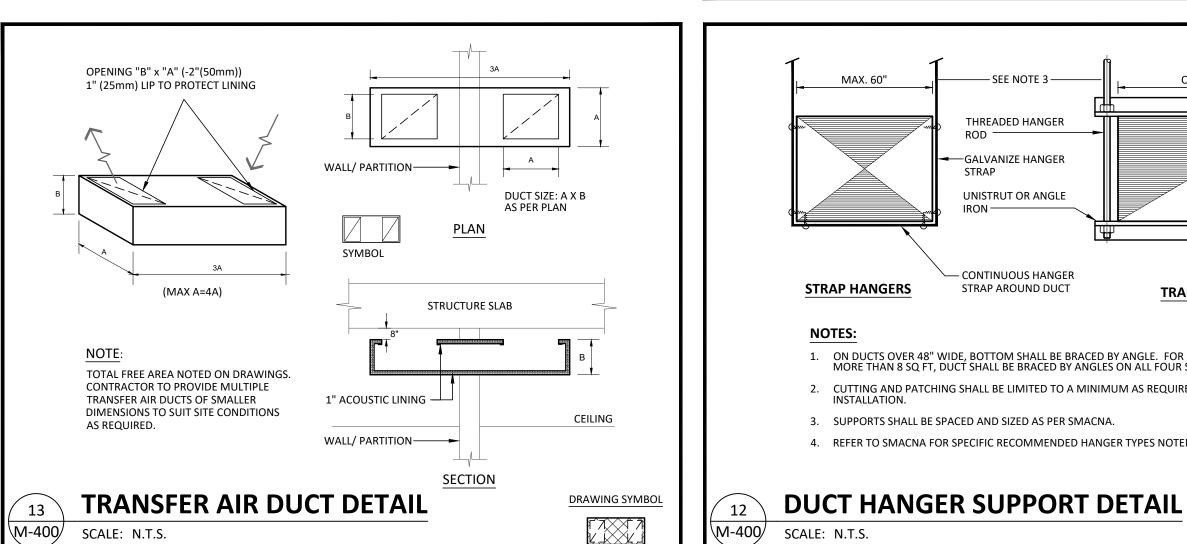


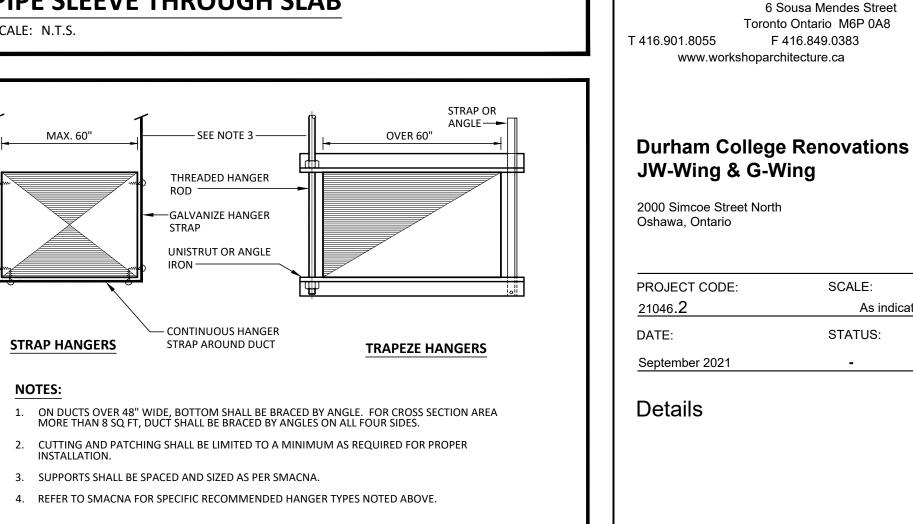




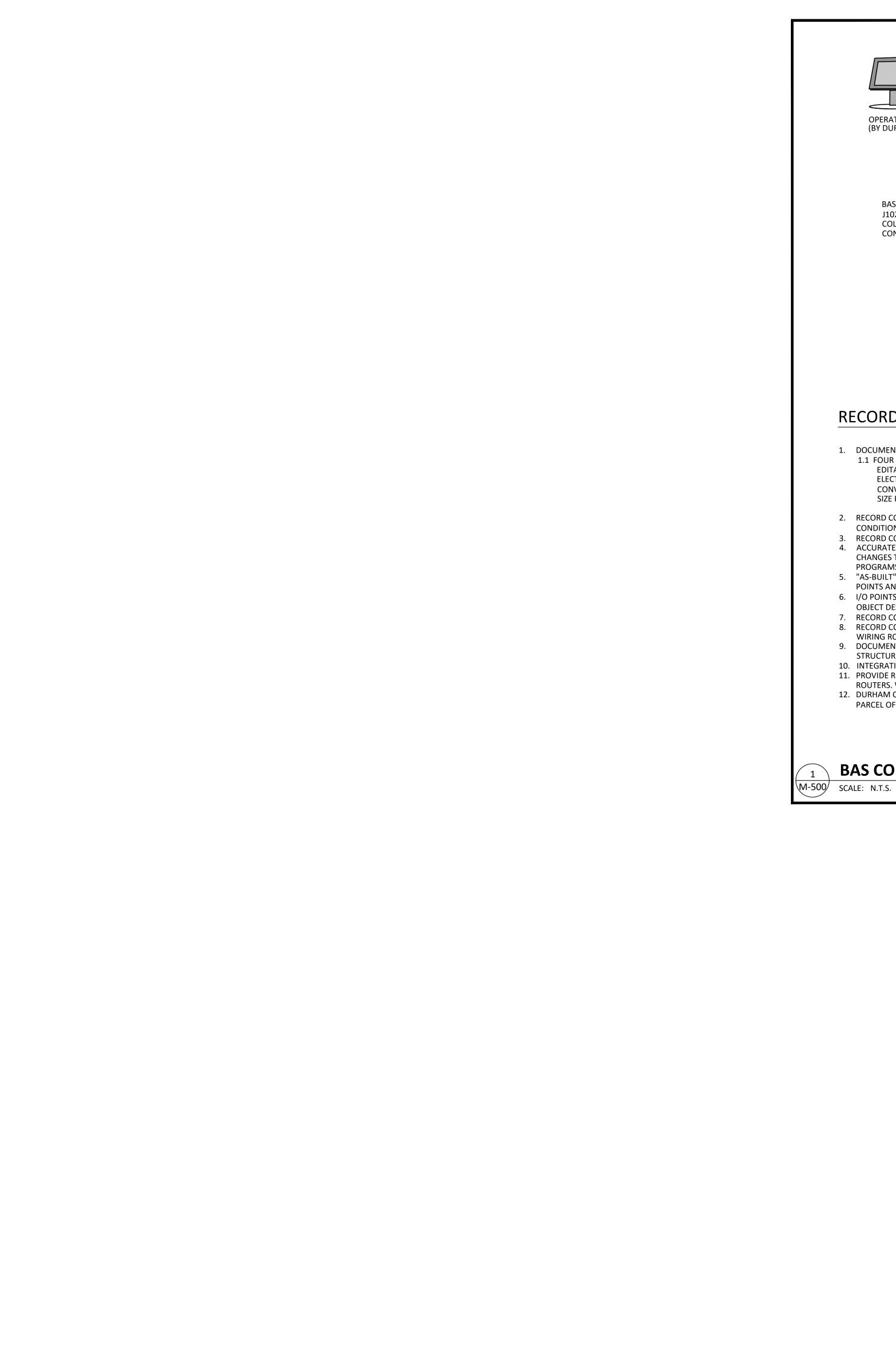


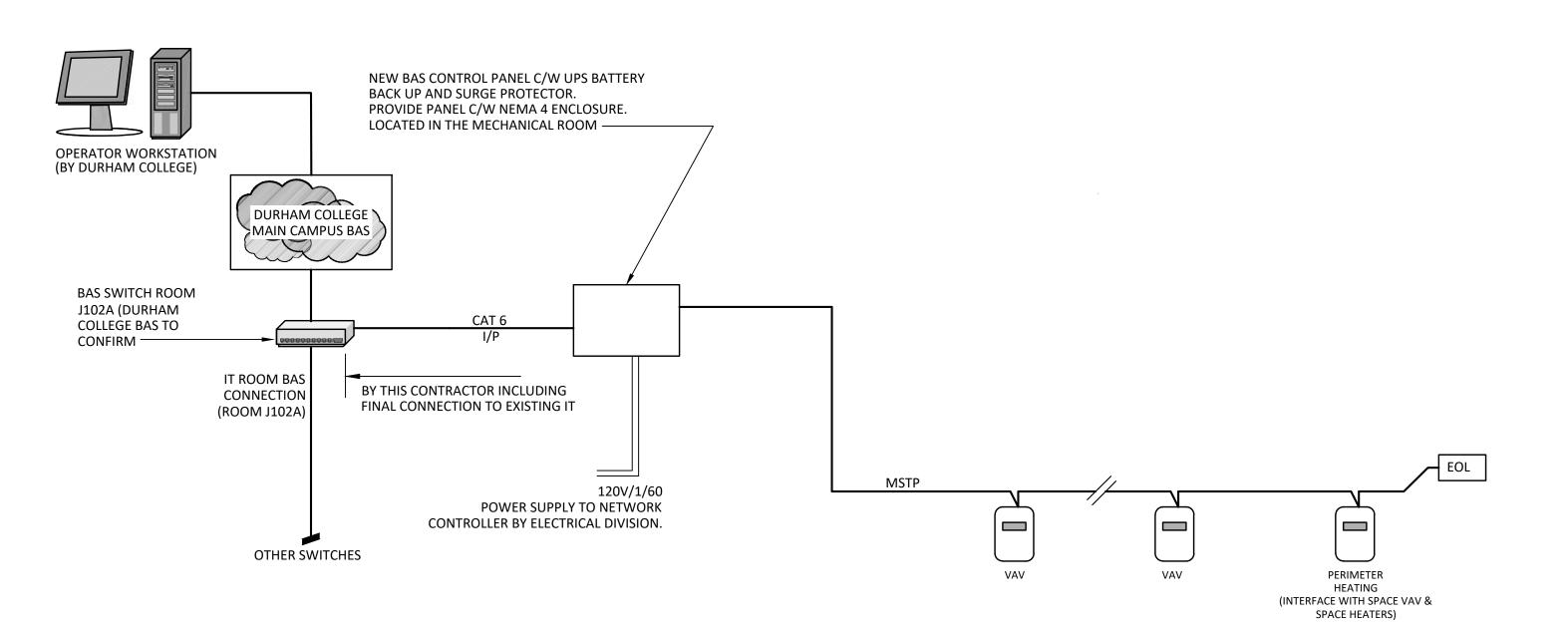






As indicated





### RECORDS/DOCUMENTATION + CONTROL NOTES:

- 1. DOCUMENTATION SHALL BE PROVIDED ELECTRONICALLY
- 1.1 FOUR (4) COPIES OF THE CONTROLS SUBMITTALS AND O&M INFORMATION SHALL BE PROVIDED IN UNLOCKED, EDITABLE ADOBE PDF OR MICROSOFT WORD FORMAT. DOCUMENTS WILL BE CONVERTED FROM THEIR NATIVE ELECTRONIC FORMAT DIRECTLY TO A PREFERRED FORMAT. ANY DOCUMENTS SCANNED AS IMAGES MUST BE CONVERTED TO A SEARCHABLE TEXT FORMAT USING OCR (OPTICAL CHARACTER RECOGNITION) AND REDUCED IN SIZE PRIOR TO SUBMISSION.
- 2. RECORD COPIES OF PRODUCT DATA AND CONTROL SHOP DRAWINGS UPDATED TO REFLECT THE FINAL INSTALLED CONDITION. SUBMIT FOUR (4) COPIES.
- RECORD COPIES OF APPROVED CONTROL LOGIC PROGRAMMING AND DATABASE ON CD/DVD OR USB KEY.
- 4. ACCURATELY RECORD ACTUAL SET POINTS AND SETTINGS OF CONTROLS, FINAL SEQUENCE OF OPERATION, INCLUDING CHANGES TO PROGRAMS MADE AFTER SUBMISSION AND APPROVAL OF SHOP DRAWINGS AND INCLUDING CHANGES TO PROGRAMS MADE DURING SPECIFIED TESTING.
- 5. "AS-BUILT" RECORD DRAWINGS THAT REPRESENT THE FINAL SYSTEM ARCHITECTURE. CONFIGURATION INPUT/OUTPUT POINTS AND DEVICE LOCATIONS IN THE AUTOCAD EDITABLE FORMAT.
- 6. I/O POINTS LIST SHALL INCLUDE THE NAME/DESCRIPTION, DISPLAY UNITS, ALARM LIMIT(S)/DEFINITIONS AND BACNET
- OBJECT DESCRIPTION, INCLUDING OBJECT ID AND DEVICE ID, FOR EACH I/O POINT.

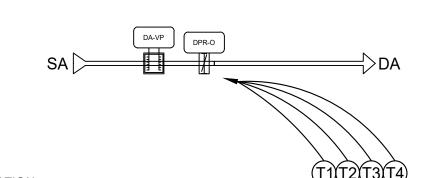
**BAS CONTROLS SYSTEMS NETWORK SCHEMATIC** 

- 7. RECORD COPIES OF APPROVED PROJECT SPECIFIC GRAPHIC SOFTWARE ON CD/DVD OR USB KEY. 8. RECORD COPIES SHALL INCLUDE INDIVIDUAL FLOOR PLANS WITH CONTROLLER LOCATIONS WITH ALL INTERCONNECTING
- WIRING ROUTING INCLUDING SPACE SENSORS, LAN WIRING, POWER WIRING. LOW VOLTAGE POWER WIRING. 9. DOCUMENTATION FOR ANY NON-STANDARD BACNET OBJECTS, PROPERTIES, OR ENUMERATIONS USED DETAILING THEIR STRUCTURE, DATA TYPES AND ASSOCIATED LISTS OF ENUMERATED VALUES.
- 10. INTEGRATION DETAILS WITH ROOF TOP UNITS (YORK) BACNET BASED CONTROL SYSTEMS.
- 11. PROVIDE RECORD RISER DIAGRAM SHOWING THE LOCATION OF ALL CONTROLLERS, CONNECTION TO CENTRAL BAS, ROUTERS. WIRELESS AND REPEATERS.
- 12. DURHAM COLLEGE AUTOMATION SYSTEM DESIGN STANDARDS AND GUIDELINES, LATEST EDITION. BECOMES PART AND
- PARCEL OF THE MECHANICAL DOCUMENTS / CONTRACT.

- 13. ALL THERMOSTATS SHALL BE PROVIDED WITH TEMPERATURE INDICATOR.
- 14. ALL ALARMS FROM NEW/EXISTING EQUIPMENT AC CONTROLLERS, INCLUDING PERIMETER HEATERS SHALL BE SENT TO THE DESIGNATED DURHAM COLLEGE USERS' EMAIL. E-MAIL LIST TO BE FINALIZED AT SHOP DRAWING STAGE.
- 15. THE FOLLOWING ALARMS SHALL BE TRENDED AND BE CONSIDERED CRITICAL AND SENT DIRECTLY VIA EMAIL TO MAINTENANCE DEPT.
- 15.1. OUT OF RANGE TEMPERATURE SET POINTS
- 15.2.1 ± 5°C ABOVE SET POINT TEMP 15.2. POWER INTERRUPTED
- 15.3. FOR ADDITIONAL POINTS TO MONITOR BY THE BAS, PLEASE REFER TO SPECIFICATION SECTION 23 81 27 16. LIST OF POINTS TO BE ALARMED.
- 16.1. OXYGEN SENSORS 16.1.1. RTU NOT OPERATIONAL
- 16.1.2. ROOM OUT OF RANGE SPACE TEMPERATURE
- 17. LIST OF POINTS AND SENSORS TO BE MONITORED 17.1. PERIMETER HEATING
- 17.2. VRF SYSTEM
- 17.3. ALL SPACE SENSORS' TEMPERATURE
- 18. LIST OF ALL POINTS TO BE TRENDED
- 18.1. ROOM TEMPERATURE FOR EACH THERMOSTAT 19. PROVIDE TEMPORARY WORK STATION FOR THE PURPOSES OF:
- 19.1. TRAINING 19.2. COMMISSIONING
- 20. ACCEPTABLE CONTROLS:
  - 1. SIEMENS ( DURHAM COLLEGE TO ADVISE) 2. RELIABLE CONTROL

### **NOTES:**

REFER TO VRF SPECIFICATIONS FOR MORE CONTROLS DETAILS & INTERFACE TO DURHAM COLLEGE BAS SYSTEM.



SEQUENCE OF OPERATION: OCCUPIED MODE: WHEN THE ZONE TEMPERATURE (ZN-T) IS BELOW THE COOLING SETPOINT (EFFCLG-SP), THE PRIMARY AIR DAMPER (DPR-O) WILL BE AT THE MINIMUM CFM (SA-F). ON A RISE IN ZONE TEMPERATURE (ZN-T) ABOVE THE COOLING SETPOINT (EFFCLG-SP), THE PRIMARY AIR DAMPER (DPR-O) WILL INCREASE THE CFM (SA-F).

WHEN IN THIS MODE, WHILE THE ZONE TEMPERATURE (ZN-T) IS BETWEEN THE UNOCCUPIED HEATING (EFFHTG-SP) AND COOLING (EFFCLG-SP) SETPOINTS (INSIDE OF THE BIAS), THE PRIMARY AIR DAMPER (DPR-O) WILL BE AT THE MINIMUM CFM (SA-F). ON A RISÉ IN ZONE TEMPERATURE (ZN-T) ÁBOVE THE UNOCCUPIED COÒLING SÉTPOINT (EFFCLG-SP), THE PRIMARY AIR DAMPER (DPR-O) WILL INCREASE THE CFM (SA-F) (IF AVAILABLE). ON A DROP IN ZONE TEMPERATURE (ZN-T) BELOW THE UNOCCUPIED HEATING SETPOINT (EFFHTG-SP), THE PRIMARY AIR DAMPER (DPR-O) WILL BE AT THE MINIMUM CFM (SA-F).

A NETWORK UNIT ENABLE (UNITEN-MODE) SIGNAL WILL CONTROL THE MODE OF THE BOX.

**NETWORK WARMUP-COOLDOWN:** 

WARM-UP AND COOLDOWN MODES WILL BE ACTIVATED BY A NETWORK COMMAND (WC-C). WHEN THE ZONE TEMPERATURE (ZN-T) IS BELOW THE EFFECTIVE HEATING SETPOINT (EFFHTG-SP), THE BOX WILL USE WARM AIR FLOW TO MAINTAIN THE ZONE TEMPERATURE (ZN-T). WHEN THE BOX IS SATISFIED



THE FLOW WILL REMAIN AT THE WARM-UP MINIMUM POSITION UNTIL THE WARM COMMAND HAS BEEN REMOVED. CONTROLS SCHEMATIC #1 VAV CONTROLS SCHEMATIC



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be immediately reported to the architect.





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### **Durham College Renovations** JW-Wing & G-Wing

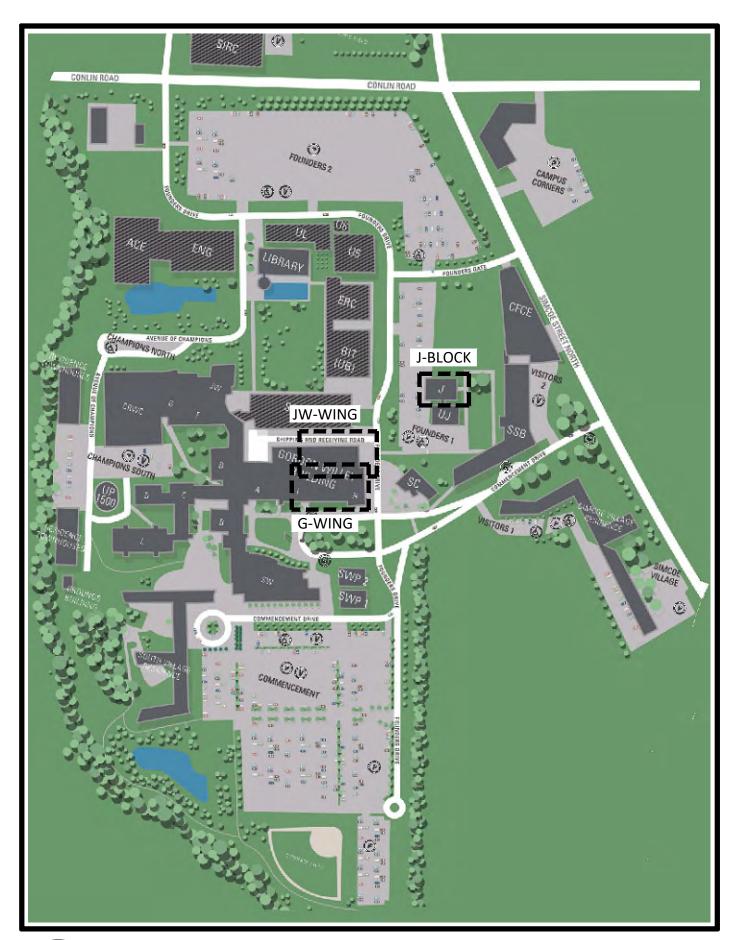
2000 Simcoe Street North Oshawa, Ontario

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Controls



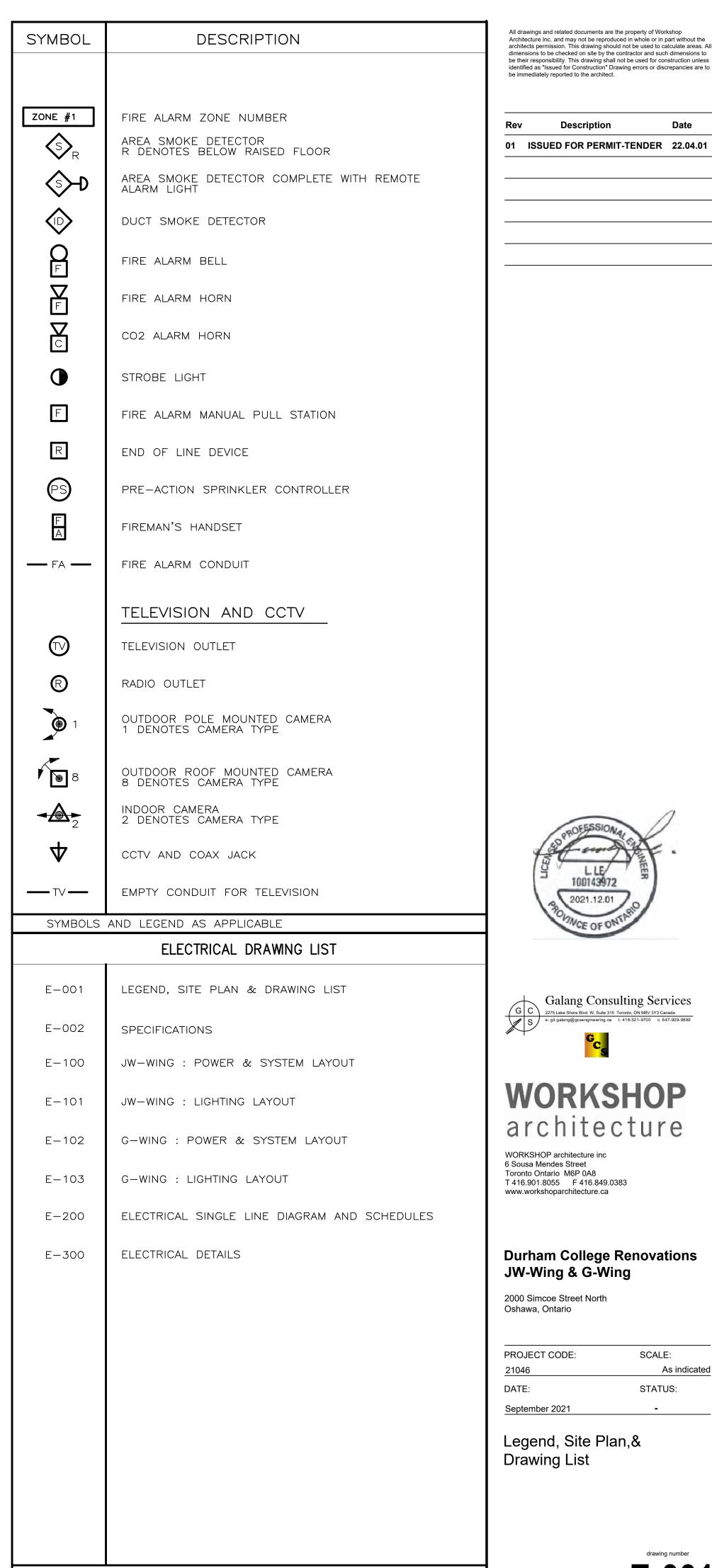


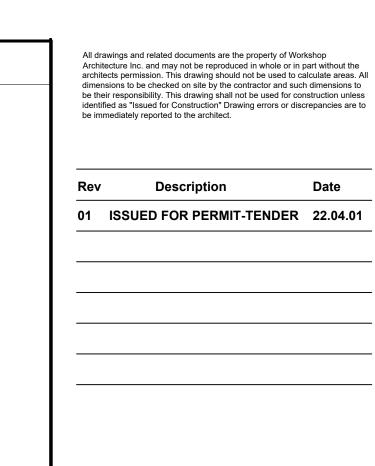


**CAMPUS MAP** E-001 N.T.S

SYMBOL DESCRIPTION		
	LIGHTING	
F01	TYPICAL LUMINAIRE NOMENCLATURE: F01 — DENOTES LUMINAIRE TYPE	
2-28.1	'NL' — DENOTES NIGHT LIGHT 2—28.1 — DENOTES CIRCUIT NUMBER (PREFIX 'E' IN CIRCUIT NUMBER DENOTES	
	EMERGENCY PANEL)  2 — DENOTES PANELBOARD NUMBER  28 — DENOTES CIRCUIT NUMBER	
	.1 — DENOTES SWITCH NUMBER  DESIGNATIONS FOR LUMINAIRE TYPES:	
	C — COMPACT FLUORESCENT F — FLUORESCENT	
	H — METAL HALIDE M — MERCURY VAPOUR S — HIGH PRESSURE SODIUM T — INCANDESCENT	
	T — INCANDESCENT X — EXIT SIGN B — EMERGENCY LIGHTING BATTERY PACK	
0	CEILING OR PENDANT MOUNTED LUMINAIRE	
$\oslash$	CEILING OR PENDANT MOUNTED LUMINAIRE ON EMERGENCY CIRCUIT	
0	WALL MOUNTED LUMINAIRE	
Ø T		
Y	WALL MOUNTED LUMINAIRE ON EMERGENCY CIRCUIT	
δ	POLE MOUNTED LUMINAIRE	
	CEILING OR PENDANT MOUNTED FLUORESCENT LUMINAIRE	
	CEILING OR PENDANT MOUNTED FLUORESCENT LUMINAIRE ON EMERGENCY CIRCUIT	
	WALL MOUNTED FLUORESCENT LUMINAIRE	
	WALL MOUNTED FLUORESCENT LUMINAIRE ON EMERGENCY CIRCUIT	
\$	LIGHT SWITCH DESIGNATIONS FOR LIGHT SWITCHES	
	3 - 3-WAY 4 - 4-WAY	
	D – DIMMER MC – MOMENTARY CONTACT P – PILOT LIGHT	
	K – KEY OPERATED LV – LOW VOLTAGE	
<u>os</u>	OCCUPANCY SENSOR—CEILING MOUNTED	
\$	OCCUPANCY SENSOR—WALL MOUNTED C/W OVERID SWITCH	
$\otimes$	EXIT SIGN — CEILING MOUNTED	
⊗	EXIT SIGN — WALL MOUNTED	
$\bigotimes$	EXIT SIGN — CEILING MOUNTED ARROW DENOTES DIRECTION CHEVRON	
<b>&amp;</b>	CEILING MOUNTED COMBINATION EXIT SIGN & EMERGENCY LIGHTS	
*	WALL MOUNTED COMBINATION EXIT SIGN & EMERGENCY LIGHTS	
44	EMERGENCY BATTERY UNIT WITH 2 INTEGRAL HEADS AND DEDICATED SINGLE RECEPTACLE	
4.	DOUBLE REMOTE EMERGENCY LIGHTING HEADS	
	SINGLE REMOTE EMERGENCY LIGHTING HEAD	
$\Box \phi$	REMOTE MOUNTED EMERGENCY BATTERY UNIT AND DEDICATED SINGLE RECEPTACLE	
4	EMERGENCY BATTERY UNIT WITH 2 INTEGRAL HEADS, HARD WIRED	
	TELEPHONE AND COMMUNICATIONS	
lacktriangledown	TELECOMMUNICATION OUTLET — WALL MOUNTED	
▼c	TELECOMMUNICATION OUTLET — CEILING MOUNTED	
▼F	TELECOMMUNICATION OUTLET — FLOOR MOUNTED	
	TELECOMMUNICATION OUTLET — PANEL MOUNTED	
	HANDS FREE COMMUNICATION SPEAKER	
	TELEPHONE TERMINAL CABINET — SURFACE MOUNTED	
	TELEPHONE TERMINAL CABINET - RECESSED	
===	TELECOMMUNICATION EQUIPMENT RACK	
	TELECOMMUNICATION EQUIPMENT CABINET	
SYMROLS	AND LEGEND AS APPLICABLE	

SYMBOL	DESCRIPTION			
POWER AND CONTROL				
	RECEPTACLE AND/OR LIGHTING PANELBOARD — SURFACE MOUNTED			
P1	RECEPTACLE AND/OR LIGHTING PANELBOARD  — RECESSED			
P1	POWER AND/OR DISTRIBUTION PANELBOARD  — SURFACE MOUNTED			
PP1	POWER AND/OR DISTRIBUTION PANELBOARD			
PP1	<ul> <li>RECESSED</li> <li>EMERGENCY POWER PANELBOARD SURFACE MOUNTED</li> </ul>			
PPE1	PPE1 DENOTES EMERGENCY POWER PANEL NO.1  EMERGENCY POWER PANELBOARD RECESSED MOUNTED			
PPE1	PPE1 DENOTES EMERGENCY POWER PANEL NO.1			
	COMBINATION MAGNETIC STARTER			
	MAGNETIC STARTER			
	MANUAL STARTER			
<b>\$</b> M	HORSEPOWER RATED MOTOR TOGGLE SWITCH			
Z	VARIABLE FREQUENCY DRIVE			
	COMBINATION CONTACTOR			
	DISCONNECT SWITCH — NON—FUSIBLE			
F	FUSED DISCONNECT SWITCH			
•	PUSHBUTTON STATION			
MD MOTORIZED DAMPER  TX TRANSFORMER  CP CONTROL PANEL  JUNCTION BOX				
		0	BLANK JUNCTION BOX	
		P PULL BOX  SINGLE RECEPTACLE  DUPLEX RECEPTACLE		
				₩
© #	RECEPTACLE SUBBLIED WITH FOLLIDMENT			
<u>ш</u>	RECEPTACLE SUPPLIED WITH EQUIPMENT  SPECIAL RECEPTACLE			
<b>#</b> <sub>A</sub>	A DENOTES TYPE			
Ф	POKE THROUGH POWER OUTLET  DESIGNATIONS FOR RECEPTACLE TYPES			
DESIGNATIONS FOR RECEPTACLE TYPES  F - FLOOR E - EMERGENCY IG - ISOLATED GROUND  B - BENCH MOUNTED				
	DIRECT CONNECTION TO EQUIPMENT			
	FIRE ALARM_			
	FIRE ALARM PANEL			
ANN	REMOTE ANNUNCIATOR			
GCC FTP	GRAPHIC COMMAND CENTRE  FIRE ALARM TERMINAL PANEL			





E-001

# **SPECIFICATIONS**

DEFINITIONS:

PROVIDE - MEANS 'SUPPLY AND INSTALL'. INSTALL - MEANS 'MOUNT AND WIRE'. WIRE - MEANS 'SUPPLY AND INSTALL ALL REQUIRED WIRE AND RACEWAYS AND MAKE ALL CONNECTIONS. CONCEALED - MEANS 'NOT VISIBLE ON COMPLETION'. EXPOSED - MEANS 'VISIBLE ON COMPLETION'.

ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST CODES, RULES, BULLETINS, REGULATIONS, BY-LAWS AND REQUIREMENTS OF ALL AUTHORITIES HAVING JURISDICTION.

THE DRAWINGS AND SPECIFICATIONS
SHOULD NOT CONFLICT WITH THE
ABOVE REGULATIONS BUT WHERE
THERE ARE DISCREPANCIES THE
ELECTRICAL CONTRACTOR SHALL
INFORM THE ENGINEER'S
REPRESENTATIVE

INCLUDE ALL NECESSARY MATERIALS, LABOUR AND EQUIPMENT TO INSTALL ELECTRICAL WORK AS INDICATED AND SPECIFIED HEREIN.

USE ONLY NEW AND CSA CERTIFIED EQUIPMENT AND MATERIALS. ONLY FIRST CLASS WORKMANSHIP WILL BE ACCEPTED IN REGARD TO ACCEPTED STANDARD PRACTICES, SAFETY, ACCESSIBILITY, DURABILITY AND NEATNESS OF DETAIL.

ALL EQUIPMENT AND MATERIAL IS TO BE CSA CERTIFIED OR APPROVED BY AN ACCREDITED ORGANIZATION.
WHERE THERE IS NO ALTERNATIVE TO SUPPLYING EQUIPMENT WHICH IS NOT CSA CERTIFIED, OBTAIN SPECIAL APPROVAL FROM ELECTRICAL INSPECTION AUTHORITIES.

COMPLETE INSTALLATION IN
ACCORDANCE WITH LATEST EDITION
OF THE ONTARIO ELECTRICAL SAFETY
ONTARIO ELECTRICAL SAFETY CODE,
ONTARIO BUILDING CODE AND THE
REQUIREMENTS OF LOCAL INSPECTION
AUTHORITIES HAVING ONTARIO
BUILDING CODE AND THE
REQUIREMENTS OF LOCAL INSPECTION
AUTHORITIES HAVING BUILDING CODE
AND THE REQUIREMENTS OF LOCAL
INSPECTION AUTHORITIES HAVING
JURISDICTION. ADHERE TO RULES AND
REGULATIONS OF BASE BUILDING.
COORDINATE ALL WORK WITH BASE

BUILDING PERSONNEL AS NECESSARY
TO PERFORM WORK IN AS
EXPEDITIOUS AS MANNER AS NNEL
AS NECESSARY TO PERFORM WORK
IN AS EXPEDITIOUS AS MANNER AS
NEL AS NECESSARY TO PERFORM
WORK IN AS EXPEDITIOUS AS
MANNER AS POSSIBLE.

EXAMINE THE SITE AND LOCAL CONDITIONS AFFECTING THE WORK. NO EXTRAS TO TENDER PRICE WILL BE APPROVED FOR ANY EXPENSES INCURRED THROUGH FAILURE TO EXAMINE THE SITE.

MAKE SUBMISSIONS TO OBTAIN ALL PERMITS. INCLUDE FOR AND PAY FOR ALL FEES AND ARRANGE FOR ALL REVIEWS REQUIRED FOR THE WORK.

FURNISH A CERTIFICATE OF ACCEPTANCE FROM INSPECTION DEPARTMENT ON COMPLETION OF WORK.

SAW CUTTING, DRILLING AND
PATCHING FOR FLOOR OUTLETS AND
CONDUITS BY GENERAL CONTRACTOR.
OBTAIN LANDLORD'S APPROVAL PRIOR
TO PROCEEDING WITH WORK.

ALL EQUIPMENT, JUNCTION BOXES, PULL BOXES, LIQUID TIGHT FLEX, ETC. TO BE GROUNDED THROUGH GROUND WIRES, AS PER LOCAL CODES.

MAINTAIN COLOUR CODE OF ALL CONDUCTORS. COLOUR CODE TO CSA C22.1-1994. ALL WIRING SHALL BE COPPER MINIMUM #12 T90 TWH OR R90 (X-LINK) INSTALLED IN CONDUIT. WHERE CONDUCTOR SIZE IS NOT INDICATED, SIZE IT FOR CURRENT CARRYING CAPACITY OF PROTECTING DEVICE AND VOLTAGE DROP AT OUTLET OF 5% MAXIMUM. ARMOURED FLEXIBLE CABLE MAY BE USED FOR SHORT BRANCH CIRCUIT CONNECTIONS BETWEEN OUTLETS AND MOTORIZED EQ., FIXED APPLIANCES, IN CEILING SPACES FOR FINAL CONNECTION TO LIGHTING LUMINAIRES (10'-0" MAX.), FOR WIRING DEVICES IN DRYWALL AND DOUBLE MASONRY PARTITIONS AND FURRED SPACES. TIE ARMOURED CABLES TO BUILDING CONSTRUCTION WHERE USED FOR EXPOSED WRING, AVOID LOOSE CABLES.

PROVIDE SUITABLE METAL BRACKETS, FRAMES HANGERS, CLAMPS AND RELATED TYPES OF SUPPORT TO SUPPORT CONDUIT AND CABLE RUNS. FASTEN EXPOSED CONDUITS TO BUILDING CONSTRUCTION OR SUPPORT SYSTEM USING ONE HOLE

MALLEABLE IRON STRAPS. SUPPORT
TWO OR MORE CONDUITS ON
U-CHANNELS SUPPORTED BY
MINIMUM 1/4" DIAMETER THREADED
ROD HANGERS WHERE DIRECT
FASTENING TO BUILDING
CONSTRUCTION IS IMPRACTICAL. TO
SUPPORT CONDUITS FROM
U-CHANNEL USE ONE PIECE PIPE
CLAMPS

CLAMPS. RUN ALL CONDUITS CONCEALED IN FINISHED AREAS. CONDUITS IN SERVICE AREAS MAY BE SURFACE. USE EMT CONDUIT WITH DIE CAST SET SCREW-TYPE CONCRETE TIGHT COUPLINGS AND CONNECTORS IN DRY AREAS. USE FLEXIBLE METAL CONDUIT FOR CONNECTION TO MOTORS IN DRY AREAS AND DRY TYPE TRANSFORMERS. USE LIQUID-TIGHT FLEXIBLE METAL CONDUIT WITH COMPRESSION RAIN TIGHT COUPLINGS AND CONNECTORS WITH INSULATED THROAT FOR CONNECTION TO EQUIPMENT IN DAMP OR WET LOCATIONS. WHERE CONDUIT SIZE IS NOT INDICATED, SIZE CONDUIT TO ALLOW 25% SPARE CAPACITY. INSTALL FISH CORD IN ALL EMPTY CONDUITS. WHERE CONDUITS PASS THROUGH FLOORS AND FIRE RATED WALL, SEAL SPACE BETWEEN CONDUIT AND STRUCTURE WITH CANSTRUT ELASTA-SEAL (OR APPROVED EQUAL).

PROVIDE JUNCTION AND OUTLET BOXES WHERE NECESSARY FOR PROPER PULLING OF WIRES.

PROVIDE AND INSTALL LABELS FOR RECEPTACLES INDICATING CIRCUIT NUMBERS AND PANEL DESIGNATION, LABELS TO BE PRINTED, SIMILAR TO A BRADY LABEL. LABEL TO BE PLACED ON COVER PLATE AND LOCATION OF THE LABEL IS TO BE CONSISTENT THROUGHOUT THE BUILDING.

THE ELECTRICAL CONTRACTOR IS
RESPONSIBLE TO REMOVE THEIR OWN
WASTE FROM THE SITE.

THE ELECTRICAL CONTRACTOR IS
RESPONSIBLE FOR ANY DAMAGES
CAUSED TO EXISTING SYSTEMS WHEN
MAKING CONNECTIONS.

THE ELECTRICAL CONTRACTOR SHALL PROVIDE THE ENGINEER'S REPRESENTATIVE WITH A DETAILED COST ANALYSIS OF ANY CHANGE NOTICE INCLUDING QUANTITY OF EACH MATERIAL, UNIT COST OF EACH MATERIAL, TIME INVOLVED, ANY

SUB-TRADE QUOTES, VALUE OF GST OR HST, AS APPLICABLE, ETC.

PROTECT EXPOSED LIVE EQUIPMENT DURING CONSTRUCTION FOR PERSONNEL SAFETY.

SUBMIT FINAL "AS BUILT DRAWINGS" WITH ONE SET OF MARK UP SEPIAS TO OWNER AFTER COMPLETION FINAL "AS BUILT DRAWINGS" WITH ONE SET OF MARK UP SEPIAS TO OWNER AFTER COMPLETION "AS BUILT DRAWINGS" WITH ONE SET OF MARK UP SEPIAS TO OWNER AFTER COMPLETION OF WORKS. INCLUDE THE ROUTING OF ALL FEEDERS EXCEPT FOR BRANCH CIRCUITS, ALL JUNCTION. INCLUDE THE ROUTING OF ALL FEEDERS EXCEPT FOR BRANCH CIRCUITS, ALL JUNCTION BOXES AND ALL REVISIONS MADE DURING CONSTRUCTION, INCLUDING ALL APPROVED CHANGE NOTICES.

ALL ELECTRICAL WORK SHALL BE
WARRANTED TO BE FREE FROM
DEFECTS IN MATERIAL AND
WORKMANSHIP FOR A PERIOD OF ONE
YEAR FROM THE DATE OF
SUBSTANTIAL PERFORMANCE. AT NO
SUBSTANTIAL PERFORMANCE. AT NO
COST TO THE OWNER, CORRECT ANY
DEFECTS IN THE ELECTRICAL WORK
THAT ARE IDENTIFIED WITHIN THAT
PERIOD OF TIME.

THE ELECTRICAL CONTRACTOR SHALL MAINTAIN ACCIDENT AND CONSTRUCTION LIABILITY INSURANCE TO THE LIMITS REQUIRED FOR THE PROJECT IN ORDER TO PROTECT ALL CONTRACTUAL PARTIES.

PROVIDE FIRE STOPPING WHERE REQUIRED. COORDINATE WITH THE GENERAL CONTRACTOR. ALL PAINTS, COATINGS, SEALANTS AND ADHESIVE SHALL MEET ALL APPLICABLE CODES.

THE ELECTRICAL CONTRACTOR IS
RESPONSIBLE FOR PATCHING AND
RE-PAINTNING THE ENTIRE WALL
WHERE A DEVICE AND/OR BOX HAS
BEEN ADDED, REMOVED OR
RELOCATED.

WHERE A DEVICE IS SHOWN TO BE RELOCATED, THE ELECTRICAL CONTRACTOR IS TO REMOVE AND RE—INSTALL DEVICE AND BACK BOX AND RE—FEED THE DEVICE WITH NEW CONDUIT AND WIRE FROM THE NEAREST EXISTING ACCESSIBLE JUNCTION BOX.

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# **WORKSHOP** architecture

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# Durham College Renovations JW-Wing & G-Wing

2000 Simcoe Street North Oshawa, Ontario

PROJECT CODE: SCALE:
21046 As indica

DATE: STATUS:

September 2021 -

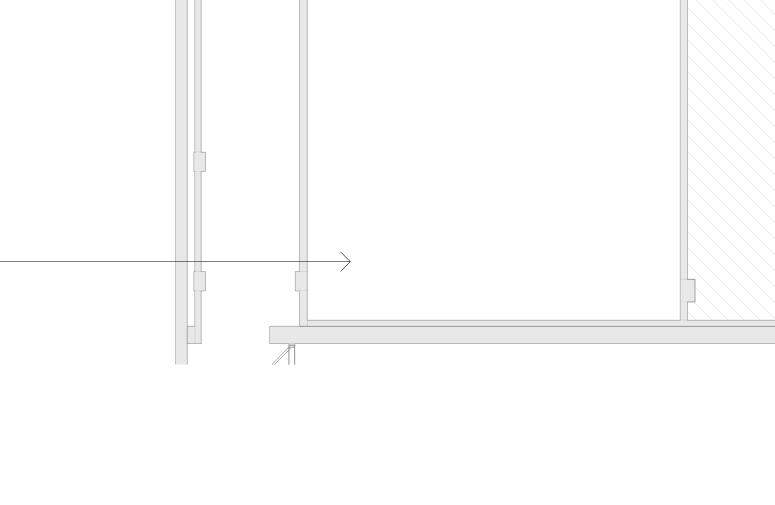
Electrical Specifications

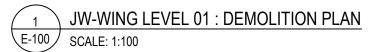


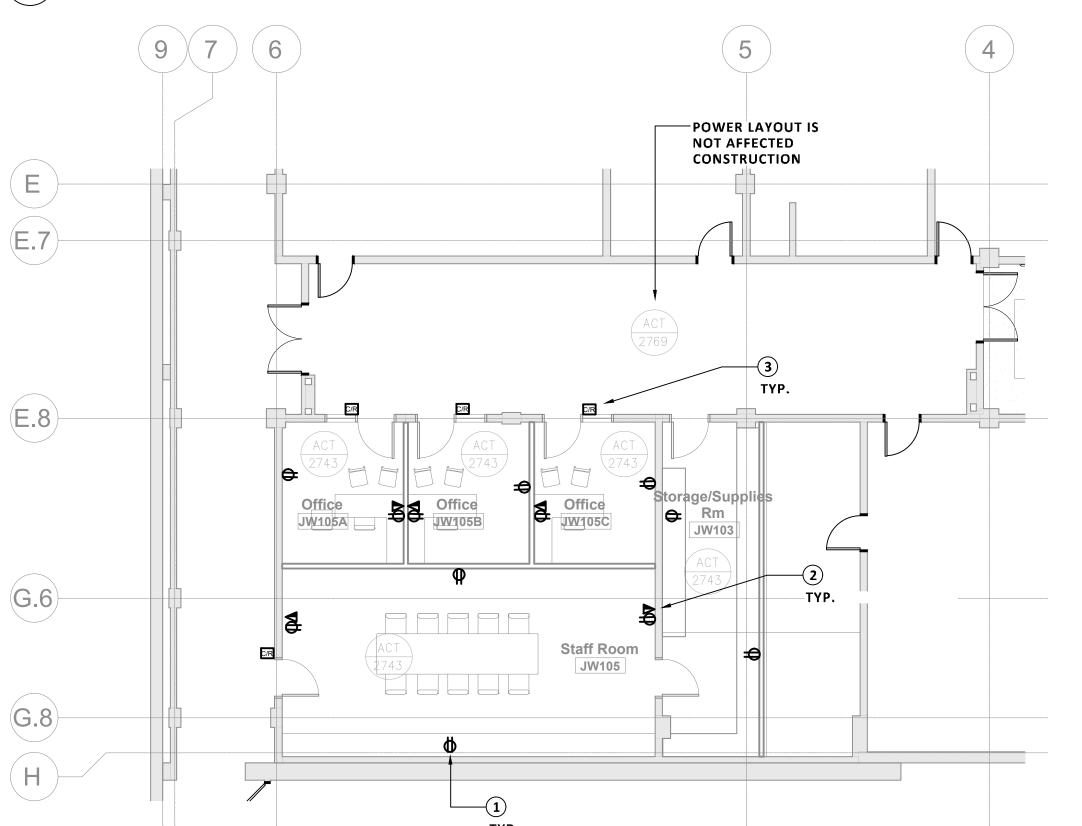
EXISTING LIGHTING PLAN TO BE REMOVED



EXISTING LIGHTING PLAN TO BE REMOVED







JW-WING LEVEL 01 : POWER & SYSTEM LAYOUT
SCALE: 1:100

### ELECTRICAL DEMOLITION GENERAL NOTES:

- DEMOLISH ELECTRICAL WORK AS INDICATED. COORDINATE WITH MECHANCAL DRAWINGS FOR MECHANICAL EQUIPMENT DEMOLITION.
- 2. REMOVE, RELOCATE, AND EXTEND EXISTING INSTALLATIONS TO ACCOMMODATE NEW CONSTRUCTION.
- 3. REMOVE ABANDONED WIRING TO SOURCE OF SUPPLY AND MAKE SAFE.
- 4. REMOVE EXPOSED ABANDONED CONDUIT, INCLUDING ABANDONED CONDUIT ABOVE ACCESSIBLE CEILING FINISHES. CUT CONDUIT FLUSH WITH WALLS AND FLOORS, AND PATCH SURFACES.
- 5. DISCONNECT ABANDONED OUTLETS AND REMOVE DEVICES. REMOVE ABANDONED OUTLETS IF CONDUIT SERVICING THEM IS ABANDONED AND REMOVED. PROVIDE BLANK COVER FOR ABANDONED OUTLETS WHICH ARE NOT REMOVED.
- 6. EXISTING FIRE ALARM SMOKE DETECTOR DEVICES AND PA SPEAKERS SHALL BE PROTECTED AND RE-INSTALLED IN THE SAME LOCATION AFTER NEW CEILING TILE INSTALLATION IS COMPLETED.

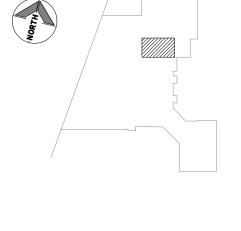
KEY NOTES:

- 1. CONNECT NEW RECEPTACLES TO 2-SPARE BREAKERS IN PANEL RP1BE LOCATED IN MECHANICAL PENTHOUSE (J301).
- 2. PROVIDE CONDUITS C/W CAT 6 CABLING FOR EACH DATA OUTLET TO LAN ROOM.
- 3. PROVIDE ELECTRICAL INFRASTRUCTURE AS PER ACCESS CONTROL DETAILS ON DWG E-300

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Rev Description Date

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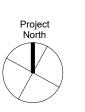
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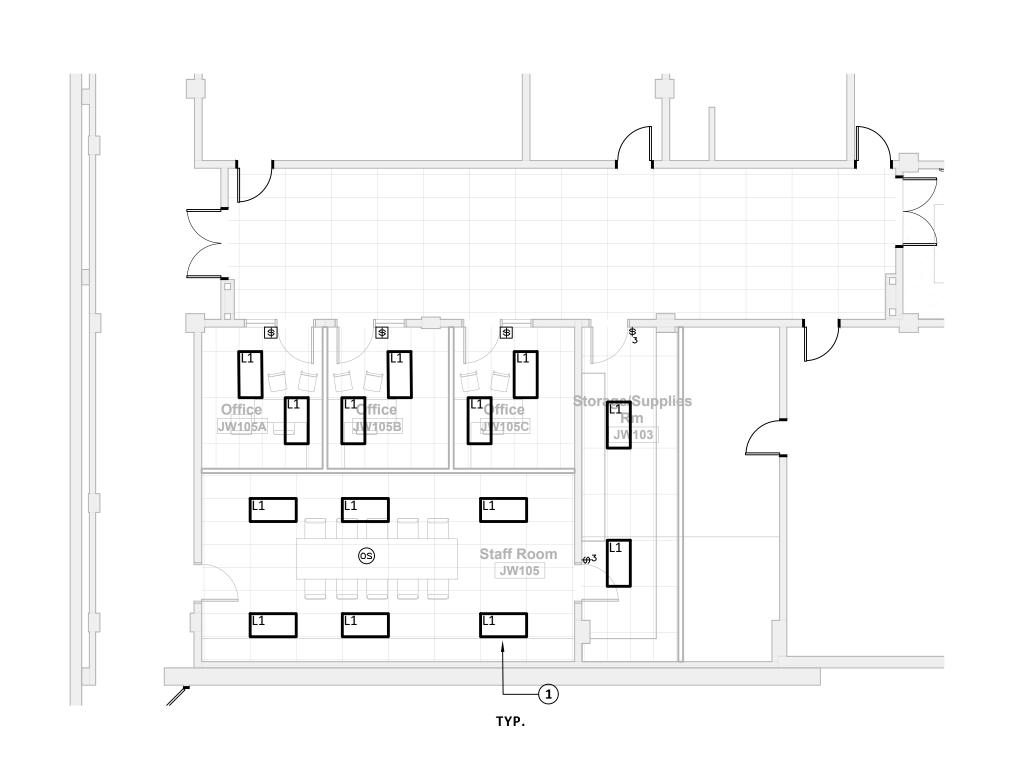
# Durham College Renovations JW-Wing & G-Wing

2000 Simcoe Street North Oshawa, Ontario

PRC	JECT CODE:	SCALE:
210	46	As indicat
DAT	E:	STATUS:
Sep	tember 2021	_

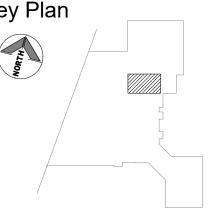
JW-Wing Level 1
Power & System Layout





KEY NOTES:

CONNECT NEW LIGHTING FIXTURES TO EXISTING LIGHTING CIRCUIT.



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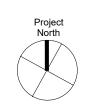
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### **Durham College Renovations** JW-Wing & G-Wing

2000 Simcoe Street North Oshawa, Ontario

PROJECT CODE:	SCALE:
21046	As indicate
DATE:	STATUS:
September 2021	-

JW-Wing Level 1 LIGHTING LAYOUT





KEY NOTES:

 CONNECT NEW LIGHTING FIXTURES TO EXISTING LIGHTING CIRCUIT. All drawings and related documents are the property of Workshop Architecture Inc. and may not be reproduced in whole or in part without the architects permission. This drawing should not be used to calculate areas. All dimensions to be checked on site by the contractor and such dimensions to be their responsibility. This drawing shall not be used for construction unless identified as "Issued for Construction" Drawing errors or discrepancies are to be immediately reported to the architect.

Rev Description Date
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Key Plan





# **WORKSHOP** architecture

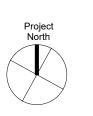
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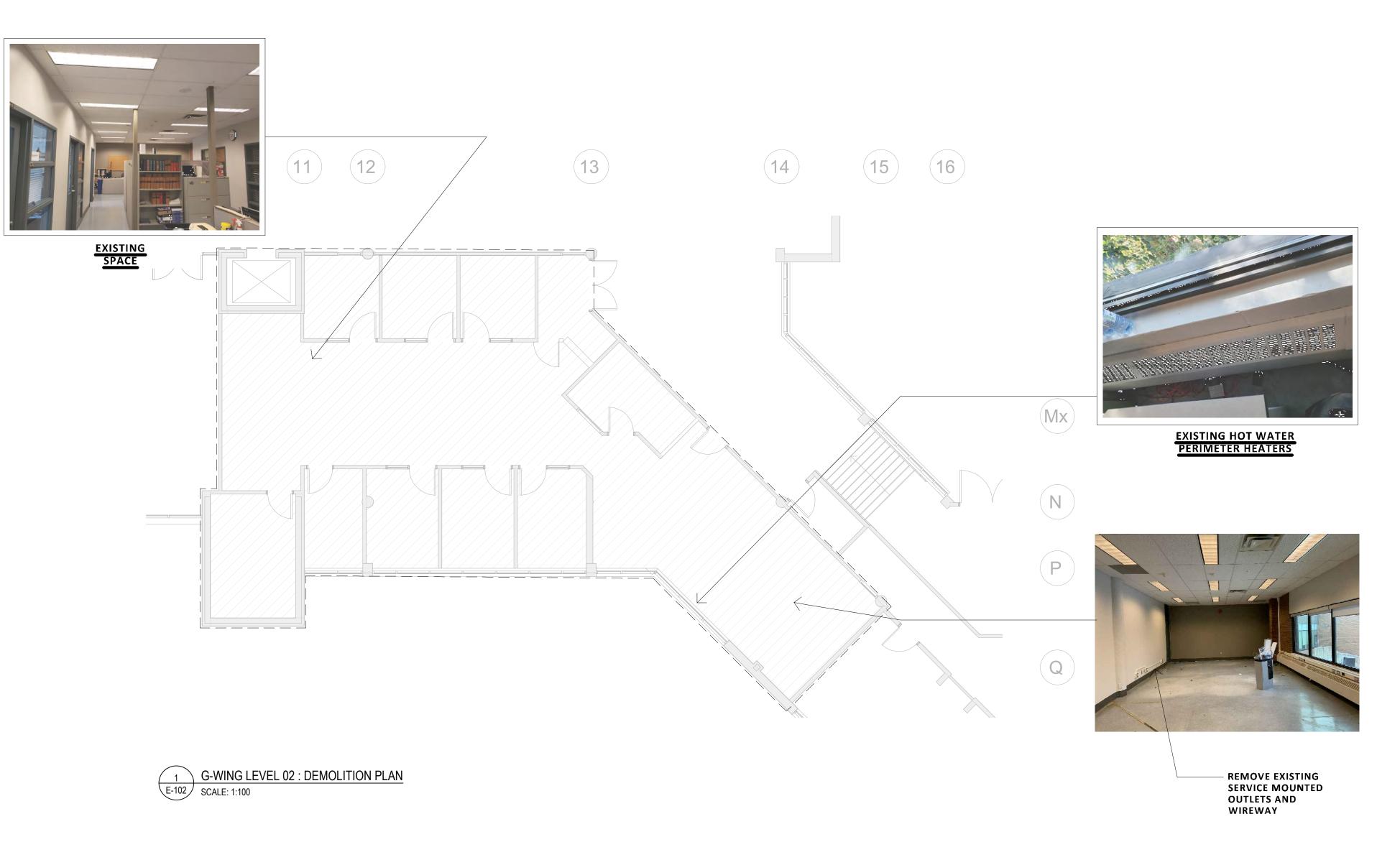
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2000 Simcoe Street North Oshawa, Ontario

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G-Wing Level 2 Lighting Layout







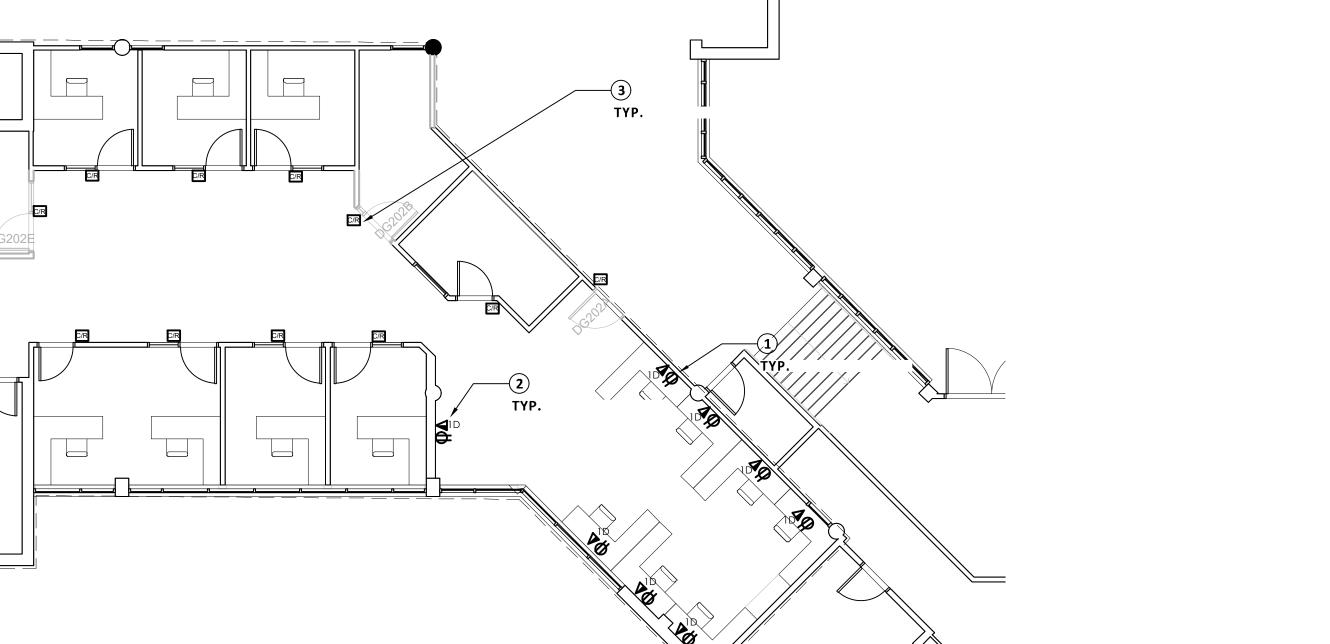
- INDICATED. COORDINATE WITH MECHANCAL DRAWINGS FOR MECHANICAL EQUIPMENT DEMOLITION.
- 2. REMOVE, RELOCATE, AND EXTEND EXISTING INSTALLATIONS TO
- 5. DISCONNECT ABANDONED OUTLETS AND REMOVE DEVICES. REMOVE ABANDONED OUTLETS IF CONDUIT SERVICING THEM IS ABANDONED AND REMOVED. PROVIDE BLANK COVER FOR ABANDONED OUTLETS WHICH ARE NOT REMOVED.
- 6. EXISTING FIRE ALARM SMOKE DETECTOR DEVICES AND PA SPEAKERS SHALL BE PROTECTED AND RE-INSTALLED IN THE SAME LOCATION AFTER NEW CEILING TILE INSTALLATION IS COMPLETED.

**KEY NOTES:** 

- 2. PROVIDE CONDUITS C/W CAT 6 CABLING FOR EACH DATA OUTLET TO LAN ROOM.
- PROVIDE ELECTRICAL INFRASTRUCTURE AS PER ACCESS CONTROL DETAILS ON DWG E-300

- DEMOLISH ELECTRICAL WORK AS
- ACCOMMODATE NEW CONSTRUCTION.
- REMOVE ABANDONED WIRING TO SOURCE OF SUPPLY AND MAKE SAFE.
- 4. REMOVE EXPOSED ABANDONED CONDUIT, INCLUDING ABANDONED CONDUIT ABOVE ACCESSIBLE CEILING FINISHES. CUT CONDUIT FLUSH WITH WALLS AND FLOORS, AND PATCH SURFACES.

- 1.) CONNECT NEW RECEPTACLES TO EXISTING AREA CIRCUITS (PANEL 1RA)



G-WING LEVEL 02: POWER & SYSTEM LAYOUT
SCALE: 1:100

**Durham College Renovations** 

G C

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**WORKSHOP** 

architecture

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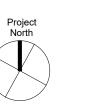
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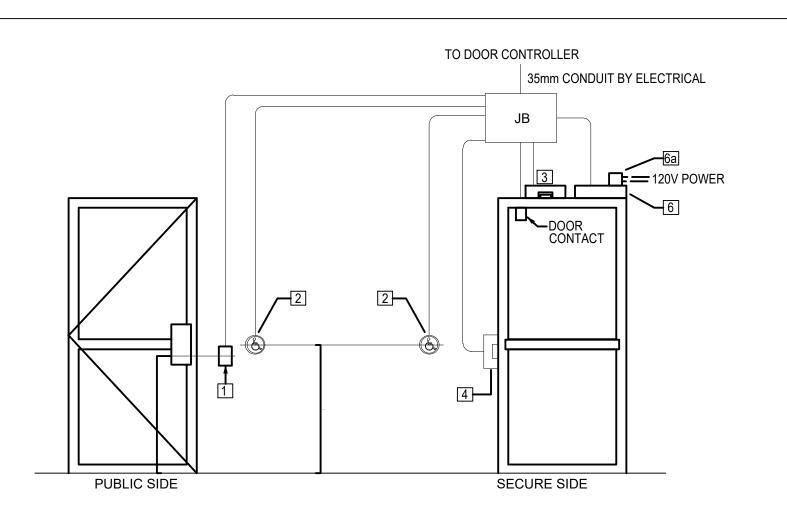
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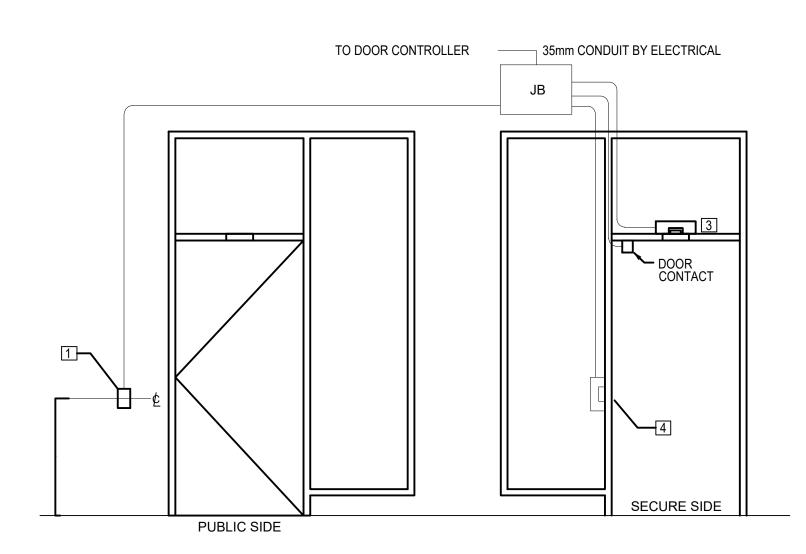
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G-Wing Level 2 POWER & SYSTEM LAYOUT







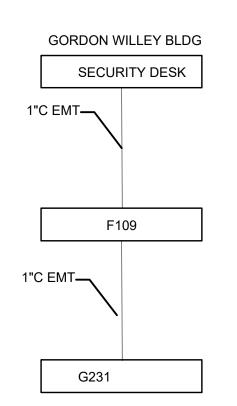
### NOTES:

- 1. REFER TO WIRING DETAIL SHOP DRAWINGS FOR WIRING INTERFACE DETAILS TO DOOR CONTROLLER
- 2. REFER TO HARDWARE SUPPLIER SHOP DRAWINGS FOR DETAILS.
- REFER TO ARCHITECTURAL DRAWINGS FOR FURTHER DETAILS ON DOOR/FRAME TYPES, AND CLEARANCES
   CARD READER/PUSH BUTTON MIN. 600mm CLEAR OF DOOR SWING IF APPLICABLE (IF DOOR SWINGS TOWARDS WALL MOUNTED DEVICE)
- 5. INSTALLATION SHOP DRAWINGS NOT AVAILABLE AT TIME OF ISSUE
- 6. WIRING WITHIN ALUMINUM FRAMES TO BE ARMORED TECK.

LEGEND				
1	CARD READER (PUBLIC)			
1a	CARD READER (SECURE)			
2	PUSH BUTTON			
3	REQUEST-TO-EXIT (MOTION)			
4	ELECTRIC STRIKE			
5	AUDIO ALARM			
6	AUTO OPERATOR			
6a	BACK BOX (100mm x 100mm)			
7	ELECTRIC HINGE			

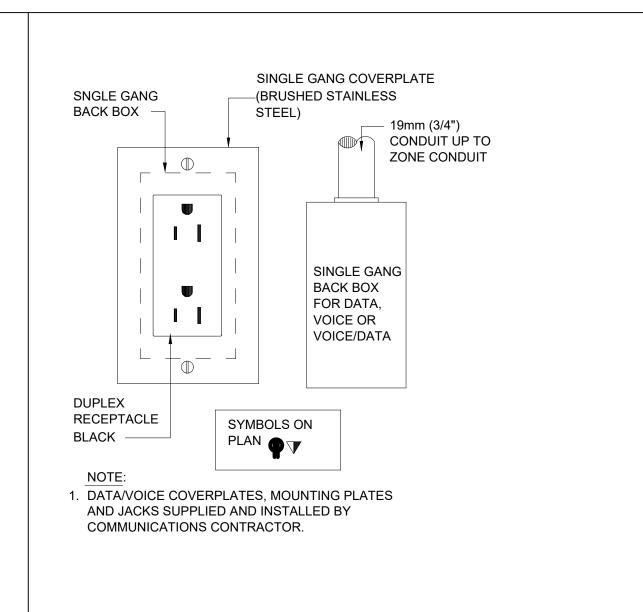
8 OCCUPANCY INDICATOR

# 6 ACCESS CONTROL DOOR DETAILS E-300 N.T.S



7 ACCESS CONTROL BACK BONE CONDUIT RISER DIAGRAM
E-300 N.T.S

LIGH	LIGHTING FIXTURE SCHEDULE						
TYPE	VOLTS	LAMPS	LUMENS	KELVIN	DESCRIPTION	MFR. TYPES/SERIES	
L1	347V	LED	3500	3500K	LED LRTP RECESSED, LAY-IN COFFERED T-BAR TROFFER FIXTURE BY VISCOR. 3500lm, 28W. FIXTUREW SHALL BE C/W EMBEDDED ENLIGHTED LoT SENSORS BY SIEMENS. CONTRACTOR SHALL CONTACT ZAID AL-QAYSI AT SEIMENS (ZAID.AL-QAYSI@SIEMENS.COM) FOR FIXTURES AND ENLIGHTED CONTROL SYSTEM FOR J-BLOCK.	LRTH2X4-LED840K050L347	

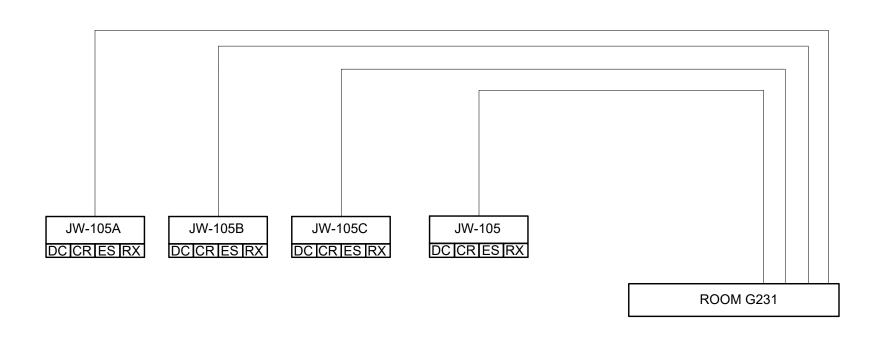


POWER & COMMUNICATIONS-WALL MOUNTED DETAILS

E-300 N.T.S

MULTI-CONDUCTOR CABLE

2 LIGHTING FIXTURE SCHEDULE
E-300 N.T.S



LEGEND - DEVICES

DC DOOR CONTACT

CR CARD READER

ES ELECTRIC STRIKE

REQUEST-TO-EXIT

MOTION SENSOR

NOTES:

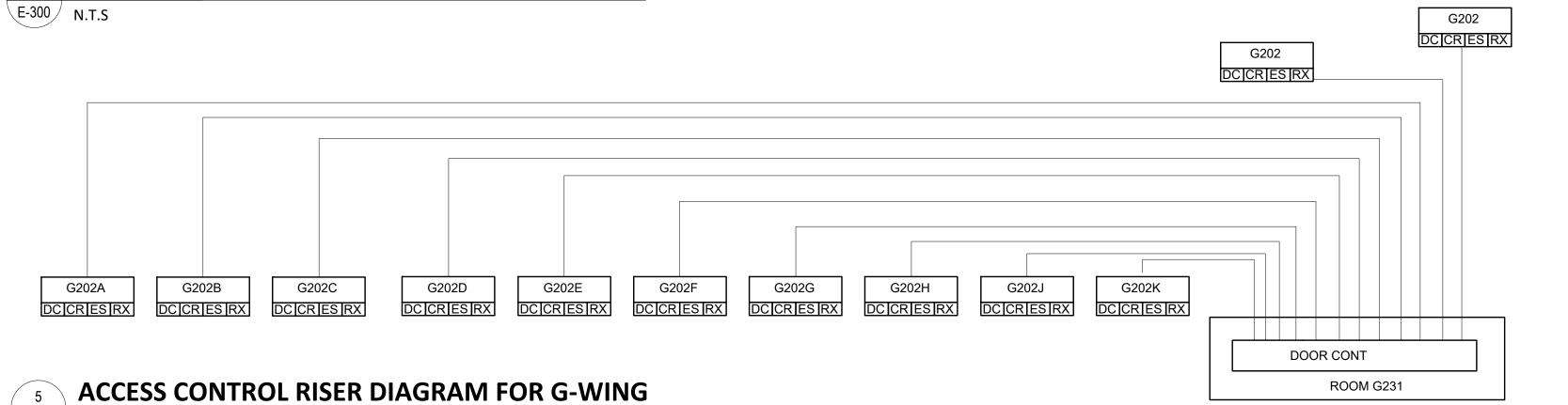
 ALL DEVICES ARE HOME RUNNED TO DESIGNATED DOOR CONTROLLER AND ARE NOT DAISY CHAINED.

LEGEND - CABLES

- EXACT NUMBER OF DOOR CONTROLLER TO BE CONFIRMED BY BASE BUILDING ACCESS CONTROL VENDOR (ADELPHIA ENTERPRISE LIMTED).
- CONTRACTOR SHALL COORDINATE WITH BASE BUILDING ACCESS CONTROL VENDOR (ADELPHIA) FOR THE SUPPLY AND INSTALLATION OF ACCESS CONTROL SYSTEM AS SHOWN.



E-300 N.T.S



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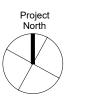
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Electrical Details



drawing number
E-300