FIRM NAME:LOCATION:WORKSHOP ARCHITECTUREÉcole élémentaire Pavillon de la Jeunesse6 SOUSA MENDES ST105 High StreetToronto, ON M6H 0A8Hamilton, ON L8T 3Z4tel. 416.901.8055fax 416.849.0383										Zonii 105 F Zone Lot A Site F	
NAME OF PROJECT:     Project Area: 520 m <sup>2</sup> CSV Pavillon de la Jeunesse Childcare Addition								OBC REFERENCE			
ITEM			ON	ITARIO'S 2	012 BUILDING CO	DDE DATA MATE	RIX PARTS	3&9	for Division A or [0	C] for Division C	Eron
1	PROJECT	DESC	RIPTIO	N			V	Ø PART 11	Ø PART3		
		2200					ITION	11.1 TO 11.4	1.1.2. [A]	1.1.2 [A] &	Side
				□ CH	ANGE OF USE	🗆 ALTI	ERATION			9.10.1.3	Park
2	MAJOR OC	COUPA	NCY(S	s): A2 - ELE	MENTARY SCH	OOL			3.1.2.1(1)	9.10.2	
3	BUILDING	AREA (	(m²)	E	XISTING: 2399	NEW: 520	)	TOTAL: 2919	1.4.1.2.[A]	1.4.1.2.[A]	Heig
4	GROSS AR	EA		E	XISTING: 2399	NEW: 520		TOTAL: 2919	1.4.1.2.[A]	1.4.1.2.[A]	
5	NUMBER C	OF STO	REYS	A	BOVE GRADE:1		BEL	OW GRADE: 0	1.4.1.2 [A] & 3.2.1.1.	1.4.1.2 [A]&9.10.4	* Elei
6	NUMBER C	OF STR	EETS/	FIRE FIGH	TER ACCESS:	2 (EXISTII	NG UNCHA	NGED)	3.2.2.10 & 3.2.5	9.10.20	Day
7	BUILDING	CLASS	IFICAT	ION	3.2.	2.25 (EXISTING N	NON-CONF	ORMING)	3.2.2.2083	9.10.2.	
8	SPRINKLER	RSYST	EM (PF	ROPOSED)		E BUILDING		TED COMPARTMENTS	3.2.2.2083	9.10.8.2.	
						MENT		J OF ROOF RATING	3.2.1.5		Mashire
						DTED FLOOR AR	EAS		3.2.2.17		Washro
					⊠ NOT F			-			
9	STANDPIP	EREQ	JIRED				YES ⊠ N	0	3.2.9	N/A	
10							YES DN	0	3.2.4	9.10.18	
11			SUPP		JUATE			0	3.2.5.7	N/A	51
12			DEOT						3.2.0	N/A	Cł
13	ACTUAL C	ONST	RUCTI	ON	PERMIT □ COMBU	STIBLE □ I TED I STIBLE □ I	NON-COME REQUIRED NON-COME	BUSTIBLE DITH	3.2.2.2083	9.10.6	
14	MEZZANIN	NE(S) A	REAm	2	NA				3.2.1.1.(3)-(8)	9.10.4.1	Existing
15									3117	9.9.1.3	
	OCCU	PANC	Y <u>A</u>	. <u>2</u> I	_OAD (EXISTING LOAD (NE	, UNCHANGED): W, CHILD CARE) TOTAL:	<u>331 PE</u> (46 STA : <u>58 PE</u> (9 STAF <u>389 P</u>	ERSONS AFF + 285 STUDENTS) RSONS FF + 49 STUDENTS) ERSONS			Propos
16	BARRIER-I	FREE D	DESIGN	1	⊠ Y	ES 🗆 NO (EXPL	_AIN)		3.8	9.5.2	
17	HAZARDC	OUS SU	BSTAN	NCES	□ Y	ES ⊠ NO			3.3.1.2. & 3.3.1.19	9.10.1.3(4)	
18	REQUIR	ED		HORIZON	TAL ASSEMBLIE	S	LIST	FED DESIGN NO.	3.2.2.2083 & 3.2.1.4	9.10.8	
	FIRE			FR	R (HOURS)		OR DE	SCRIPTION (SG-2)		9.10.9	
	RESISTA	NCE	FL	OORS	0 HOURS						
	(FRR)	)	RO	OF	45 min if co	mbustible			NO CHANGE TO		
			ME	ZZANINE	N/A			NA	EXISTING BUILDING		
				FRR OF SU	PPORTING MEM	BERS	LIST OR DE	FED DESIGN NO. SCRIPTION (SG-2)	_		
			FLC	OORS	non-combus	tible			-		
			RO	OF	non-combus	tible			_		
			ME	ZZANINE	NA						
19	SPATIAL S	SEPAR	ATION	- CONSTR	UCTION OF EXT	ERIOR WALLS			3.2.3.1.D	9.10.14	
	WALL	ARE/ EBF	A OF (m <sup>2</sup> )	LD (m)	PERMITTED MAX % OF OPENINGS	PROPOSED % OF OPENINGS		WALL + CLADDING CONSTRUCTION			
	NORTH	50.	0m <sup>2</sup>	Зm	28%	11.8%	NON-CO	OMBUSTIBLE provided			
	SOUTH						NON-CO	OMBUSTIBLE provided	1		
	EAST						NON-CO	OMBUSTIBLE provided	1		
	WEST						NON-CO	OMBUSTIBLE provided	1		
								p	1	1	
20	OTHER-DE	SCRIB.	Ē	EXISTING Existing so Existing so 1HR FRR is facing brid	i NON-CONFORI chool is not sprinl chool is >2000sr s provided betwe ck on 190mm holl	VIING (TO OBC 3. klered - this remain n maximum area. en existing schoo ow concrete mas	2.2.25) ITEN ins unchang Existing stru I and new ac onry unit an	/IS: ged with this renovation. The eets (Sherwood Rise and Hig ddition. Exterior wall assemb d is capable of achieving 1HF	addition is to be sprinklere sh Street are >15m from sol ly of existing school consis 3 FRR per SB-2 Table 2.11	d. nool.) ts of 103mm solid	



ing Summary High Street, Hamilton, ON L8T 3Z4 Area: 16,733 m<sup>2</sup> Plan Approval File #SI it yard setback e yard setback king ght oom Fixture Count

staff WC fixtures hildcare students

g school students ng school staff sed childcare students

sed childcare staff



PA-24-017	

Permitted/ Required	Existing	Proposed
12m	12m	unchanged
3m	12.6m	Зm
28 spaces*	22 spaces	29 spaces
11m	5.5m	unchanged

ementary school: 15 classrooms (incl. 3 portables) @1.25 spaces per classroom = 19 spaces ay nursery: 49 children @1 space per 6 children = 9 spaces



#### General Notes

1. Drawings are to be read in conjunction with project specifications.

2. Make good all surfaces/areas/finishes damaged during demolition. Prepare existing surfaces to accept new finishes as scheduled/specified.

3. All dimensions are to face of partition unless noted otherwise.

4. Angles are 90 degrees unless noted otherwise.

5. Contractor to measure and verify all site dimensions and verify existing conditions affecting new work. Notify consultant of any discrepancies before proceeding with new work.

6. General Contractor to provide adequate blocking for all millwork, signage, grab bars, equipment, etc mounted to walls/ceilings.

7. General Contractor shall be responsible for all mechanical, electrical and plumbing work. The General Contractor shall be responsible for all chases, cutting, openings (including scanning/xray where required) and patching as required by mechanical, electrical, plumbing and IT cabling trades. Review requirements with these trades.

8. Site access, including working hours, for material delivery, work forces and for refuse removal is to be coordinated with the Owner, as per terms outline in Specification Section 0114 00.

9. General Contractor is to co-ordinate and co-operate with trades retained directly by Owner as applicable (eg: security contractor, IT sub trades, etc).

10. General Contractor shall be responsible for scheduling the trades identified in item 9, where such work affects the progress of the job.

11. Any temporary shoring required, including excavation support systems, shall be coordinated and provided by General Contractor within bid price. Refer also to Structural drawings, details and specification for additional requirements.

12. Building Permit shall be obtained by Owner. All other permits/fees (including but not limited to ESA, Municipal road closure permits, service connection fees, sign permits, etc) to be obtained by the Contractor as necessary to complete the Work. All costs for these permits (Municipal Inspections, traffic direction costs, etc) shall be included in bid price and provided at no additional cost to the Owner.

13. Reinstatement of any adjacent paving/sidewalks/roadways/asphalt within the Municipal Right of Way or adjacent properties disturbed during construction to be carried out according to applicable Municipal Standards. Refer also to Landscape/Civil drawings.





	Demolition Notes
Note	Description
D2	Demolish opening in exsting exterior wall to suit new window opening. Provide tempo shoring and new lintel as per Structural.
D3	Demolish existing window and frame.
D4	Demolish existing GWB bulkhead
D5	Demolish millwork including plumbing fixtures.
D6	Demolish existing 8" masonry wall.
D7	Refer to Electrical for extent of demolition of existing exterior devices/fixtures.
D8	Remove existing unit ventilator. Unit to be relocated - refer to Mechanical.
D9	Demolish existing door and frame. Prepare opening to receive new door and frame.
D10	Extent of existing VCT floor finish to be removed.

#### Sheet List Sheet Sheet Name Number ARCHITECTURAL A0.0 OBC Matrix, Life Safety & Key Plan, Existing School Demolition Plans A0.1 Schedules A0.5 Site Plan - Proposed A0.6 Site Plan Proposed - Partial A1.0 Proposed Plans A1.1 Foundation & Slab Plan A1.2 Roof Plan & RCP A2.0 Exterior Elevations & Window/Screen Schedules A3.1 Building Sections A3.2 Wall Sections A3.3 Detail Sections & Plans A4.0 Interior Elevations A4.1 Detail Plans & Interior Elevations A6.0 Millwork Details A6.1 Millwork Details STRUCTURAL **General Notes** S0.0 S1.0 Foundation Plan S2.0 Slab on Grade Plan S3.0 **Roof Framing Plans** S4.0 Sections Typical Details S6.0 MECHANICAL MO.0 General Notes and Legends M0.5 Overall Site Plan & Mechanical Demolition Plan M1.O Proposed Ground Floor/Roof Level Drainage Plan M2.0 Proposed Ground Floor Plumbing Plan M3.0 Proposed Ground Floor Fire Protection Plan M4.0 Proposed Ground Floor/Roof Level HVAC Plan M4.1 Proposed Ground Floor Hydronics Plan M5.0 Mechanical Details M5.1 Mechanical Details M6.0 Mechanical Schedules ELECTRICAL Lead Sheet, General Notes & Electrical Legend E0.0 Electrical Specifications EO.1 E0.2 **Electrical Specifications** E0.3 **Overall Site Plan** First Floor Power and Lighting Demolition Plan E1.0 E2.0 First Floor Lighting Proposed Plan E2.1 First Floor Power Proposed Plan E2.2 **Existing Power Plan** E2.3 Power Proposed Plan\_Roof Level E3.0 **Electrical Details** E4.0 **Electrical Schedules** E5.0 Electrical Details CIVIL C0.0 **General Notes** C0.1 Typical Details 1 C0.2 Typical Details 2 C1.0 **Demolition Site Plan** Site Servicing Plan C2.0 C3.0 Site Grading Plan C4.0 Sediment & Erosion Control Plan C5.0 Pre-Development Drainage Area Plan C6.0 Post Development Drainage Area Plan LANDSCAPE Proposed Landscape Plan L1.1 L1.2 Proposed Landscape Plan Englargement L1.3 Proposed Landscape Plan Details I L1.4 Proposed Lanscape Plan Details II L1.5 Proposed Lanscape Plan Details III

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Rev	Description	Date
1	Issued for 30% Costing	2022-08-03
2	Issued for 60% Review	2022-11-11
3	Reissued for 60% Review	2023-01-20
4	Issued for 80% Costing	2023-02-27
5	Issued for Zoning Compliance Review	2023-06-02
10	Issued for 90% Client Review	2024-09-11
12	Issued for Building Permit	2024-11-18
13	Issued for Tender	2024-11-20

# WORKSHOP

Workshop Architecture Inc 6 Sousa Mendes Street Toronto Ontario M6P 0A8

> 416.901.8055 info@workshopto.ca workshopto.ca

# CSV Pavillon de la Jeunesse Childcare Addition

105 High Street Hamilton, ON

DATE: STATU	: SL
DATE: STATE	JS :

OBC Matrix, Life Safety & Key Plan, **Existing School Demolition Plans** 







AVB-01 - Vapour permeable air/weather barrier (at above- grade walls)
AVB-02 - Transition membran (at openings/transitions)
VB-01 - Vapour barrier (at slab-on-grade)
VB-02 - Vapour barrier (at roof)
WRB-01 - Weather resistant barrier (at rainscreen cladding)
RWP-01 - Fluid Applied Damproofing (exterior below-grade walls)

Materials Legend	
Materials Legend ACT ALUM BRK CER CMU EXIST or (E) EXP GWB MTL PLY POR PLAM	Acoustic Ceiling Aluminum Clay Brick Ceramic Tile Concrete Masonr Existing Exposed Gypsum Wallboa Metal Cladding Fire Rated Plywoo Porcelain Tile Plastic Laminate
PT QTZ RB RES SO SS TGL WD WV	Paint Finish Quartz Rubber Base Resilient Sheet FI Solid Polymer Fal Stainless Steel Tempered Glass Solid Wood Wood Veneer

	ASSEMBLY SCHEDULE	INTERIOR PARTITIONS
	<ol> <li>USE WATER RESISTANT DRYWALL IN ALL WET AREAS - REFER SPECIFICATION 09 21 00, 2.1.3</li> <li>PROVIDE CONTINUOUS PLYWOOD BLOCKING BEHIND ALL MILLWORK CABINETS, SUSPENDED ITEMS, TELEVISIONS ETG</li> </ol>	TO PW1 190mm CMU PARTITION (CMU-01)
	(TYP) 3. ALL INTERNAL PARTITIONS EXTEND TO U/S DECK ABOVE UNLESS NOTED OTHERWISE.	PW2 1 LAYER 15.9mm TYPE X GYPSUM WALLBOARD
	4. PROVIDE FIRE RESISTANCE RATINGS AS INDICATED ON DRAWINGS	92mm STEEL STUDS ACOUSTICAL FIRE BATT INSULATION (INS-05) 1 LAYER 15.9mm TYPE X GYPSUM WALLBOARD TO U/S OF DECK UNO Capable of achieving 1HR FRR (ULC Design No. W407)
	FLOOR ASSEMBLY	PW3 140mm CMU PARTITION Capable of achieving 1HR FRR
	Floor F1 (min R-15 value) FLOOR FINISH AS SCHEUDLED 125mm POURED IN PLACE CONCRETE SLAB CONTINUOUS BELOW GRADE VAPOUR BARRIER (N 100mm CONTINUOUS BELOW SLAB RIGID INSULATION (I ENGINEERED BASE/GRANULAR FILL (see Strucutural/Geotech)	/B-01)       FURRED WALL FW1         NS-01)       1 LAYER 15.9mm TYPE X GYPSUM WALLBOARD         92mm STEEL STUDS         TO U/S OF DECK UNLESS NOTED OTHERWISE
	ROOF ASSEMBLY	
	Roof R1 (min R-35ci value)       MODIFIED BITUMEN CAP & BASE SHEET       (F         ASPHALT IMPREGNATED OVERLAY BOARD       75mm DUAL DENSITY MINERAL WOOL INSULATION       (If         TAPERED POLISO INSULATION TO MAKE UP SLOPE       (If         100mm CONTINUOUS POLYISO INSULATION       (If         CONTINUOUS SELF ADHERED VAPOUR BARRIER       (V         STEEL ROOF DECK & SUPPORT STRUCTURE (see Structural)       (If	M-01) NS-04b) NS-04a) NS-04a) /B-02)
R2	Roof R2 (min R-35ci value) MODIFIED BITUMEN CAP & BASE SHEET (F ASPHALT IMPREGNATED OVERLAY BOARD 75mm DUAL DENSITY MINERAL WOOL INSULATION (IF	:M-01) NS-04b)
	100mm CONTINUOUS POLYISO INSULATION       (If         CONTINUOUS SELF ADHERED VAPOUR BARRIER       (V         STEEL ROOF DECK & SUPPORT STRUCTURE (see Structural)         Underside of roof deck is exposed - no fasteners permitted through roots	NS-04a) (B-02) pof deck

- Vapour permeable her barrier (at aboveılls) - Transition membrane ings/transitions) Vapour barrier on-grade) Vapour barrier

ofing below-grade walls)

g Tile nry Unit

ard boc

Flooring abrications

						Door So	chedule				
Door No.	Room	Type Mark	Height	Width	Door Mat'l	Finish	Frame Material	Frame Fin.	Fire Rating	Card Reader	Comments
D101A	Corridor 102	E	2134	965	ALUM/TGL	-	ALUM	-	-	yes	auto door operator, intercom
D101B	Corridor 102	E	2240	965	ALUM/TGL	-	ALUM	-	-	yes	auto door operator
D102	Office 108	D	2134	965	НМ	PT	НМ	PT	-		lockdown shade
D103	Staff 116	С	2134	965	НМ	PT	НМ	PT	-		lockdown shade
D104	Infant 110	С	2134	965	НМ	PT	НМ	PT	-		lockdown shade
D105A	Cubbies 109	E	2134	965	НМ	PT	НМ	PT	-		auto door operator, lockdown shade
D105B	Infant Vestibule 105	E	2134	965	НМ	PT	НМ	PT	-		auto door operator, intercom
D106	Infant Sleep Area 112	D	2134	965	НМ	PT	НМ	PT	-		
D107	Infant Sleep Area 112	D	2134	965	НМ	PT	НМ	PT	-		
D108	Toddler 103	С	2134	965	НМ	PT	НМ	PT	-		lockdown shade
D108A	Toddler Storage 104	A	2134	965	НМ	PT	HM	PT	-		
D109	Kitchen 113	С	2134	965	НМ	PT	НМ	PT	-		lockdown shade
D110	Preschool 107	С	2134	965	НМ	PT	НМ	PT	-		lockdown shade
D110A	Preschool Storage 105	A	2134	965	НМ	PT	НМ	PT	-		
D111A	Shared WC 106	A	2134	965	HM	PT	HM	PT	-		
D111B	Shared WC 106	A	2134	965	HM	PT	НМ	PT	-		
D112	Staff WC 115	A	2134	965	HM	PT	НМ	PT	-		
D113	Laundry 114	A	2134	965	HM	PT	HM	PT	-		
D114	Utility 117	A	2134	965	НМ	PT	НМ	PT	45 MIN		
D115A	Vestibule 135	В	2134	1930	HM/TGL	PT	НМ	PT	45 MIN		to suit existing rough opening, auto door operator
D115B	Vestibule 135	В	2134	1930	ALUM/TGL	-	ALUM	-	-	yes	auto door operator, intercom
D115C	Vestibule 115	D	2134	965	HM/TGL	PT	НМ	PT	45 MIN	yes	auto door operator
DS02	Computer Lab 128	E	2134	965	HM/TGL	PT	НМ	PT	-		
DS03	Kindergarten 129	E	2286	902	HM/TGL	PT	НМ	PT	45 MIN		
DS04	Kindergarten 130	E	2286	902	HM/TGL	PT	НМ	PT	45 MIN		
DS06	Corridor C104	E	2134	902	HM/TGL	PT	НМ	PT	-		
DS08	Gymnasium 118	A	2134	902	НМ	PT	НМ	PT	-		



Door D Door E

Door C

NOTE: All glazing to be tempered NOTE: All fire rated assemblies to be fire-rated glass NOTE: All HM frames to be 2" profile

Door B

Door A

NOTE: Provide 50mm vision strip at all sidelites at 1450mm AFF.

	<mark>⊀420</mark> ⊀⊀	EXTERIOR PARTITIONS	
		EW1 Min R-Value R17ci 190mm CMU AIR/VAPOUR/WEATHER BARRIER 115mm (4.5") MINERAL WOOL INSULATION WEATHER RESISTIVE BARRIER 25mm AIRSPACE 90mm BRICK VENEER CLADDING	(CMU-01) (AVB-01) (INS-03) (WRB-01) (BRK-01)
)	exterior S223 EW2	EW2 Min R-Value R17ci 190mm CMU AIR/VAPOUR/WEATHER BARRIER 115mm (4.5") MINERAL WOOL INSULATION WEATHER RESISTIVE BARRIER 25mm AIRSPACE PREFINISHED METAL CLADDING	(CMU-01) (AVB-01) (INS-03) (WRB-01) (MTL-01)
	exterior with the second secon	EW2a Min R-Value R17ci 1 LAYER 15.9MM TYPE X GYPSUM WALLBOAD 150mm STEEL STUDS 1 LAYER 12.7MM EXTERIOR GYPSUM SHEATH AIR/VAPOUR BARRIER 115mm (4.5") MINERAL WOOL INSULATION WEATHER RESISTIVE BARRIER 25mm AIRSPACE PREFINISHED METAL CLADDING	RD HING (AVB-01) (INS-03) (WRB-01) (MTL-01)
	exterior a sterior a	Foundation Wall FD1 - Min R-Value R20 100mm RIGID INSULATION DAMPROOFING 405mm POURED CONCRETE (and/or as per structural)	(INS-01) (RWP-01)

(FD2)

Foundation Wall FD2 - Min R-Value R20 100mm RIGID INSULATION DAMPROOFING 200mm POURED CONCRETE (and/or as per structural)

(INS-01) (RWP-01)

Room Finish Schedule								
Room No.	Room Name	Wall Finish	Floor Finish	Base Finish	Ceiling Finish	Comments		
130	Kindergarten	PT	RES/EXIST	RB/EXIST	EXIST	patch existing ceiling, wall, floor, base finish at demolished elements		
131	Classroom	PT	RES/EXIST	RB/EXIST	EXIST	patch existing ceiling, wall, floor, base finish at demolished elements		
A1-101	Vestibule	PT	POR	POR	ACT			
A1-102	Office	PT	RES1	RB	ACT			
A1-103	Staff	PT	RES1	RB	ACT			
A1-104	Infant	PT	RES1	RB	ACT/EXP			
A1-105	Infant Vestibule	PT	RES1	RB	ACT			
A1-106	Infant WC	PT	RES2	RB	ACT	Separate Price 1: Provide POR floor finish and base		
A1-107	Infant Sleep Area	PT	RES1	RB	ACT			
A1-108	Toddler	PT	RES1	RB	ACT/EXP			
A1-108A	Toddler Storage	PT	RES1	RB	ACT			
A1-109	Servery	PT	POR	POR	ACT			
A1-110	Preschool	PT	RES1	RB	ACT/EXP			
A1-110A	Preschool Storage	PT	RES1	RB	ACT			
A1-111	Shared WC	PT	RES2	RB	ACT	Separate Price 1: Provide POR floor finish and base		
A1-112	StaffWC	PT	POR	POR	ACT			
A1-113	Laundry	PT	POR	POR	EXP			
A1-114	Utility	PT	CONC	RB	EXP			
A1-115	Vestibule	PT	POR	POR	ACT			
A1-C101	Corridor	PT	POR	POR	ACT			

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Rev	Description	Date
10	Issued for 90% Client Review	2024-09-11
13	Issued for Tender	2024-11-20

# WORKSHOP

Workshop Architecture Inc. 6 Sousa Mendes Street Toronto Ontario M6P 0A8

416.901.8055 info@workshopto.ca workshopto.ca

CSV Pavillon de la Jeunesse Childcare Addition

105 High Street Hamilton, ON

PROJECT CODE:	SCALE :
2206	As indicated
DATE :	STATUS:
2024-11-20	Issued for Tender

Schedules

drawing number A0.1

		1 A0.6
New curb cut - refer to Civil	S19 New asphalt driveway and parking lot S0m S13 S13 S13 S16.6 m A2.0 S13 S13 S13 S13 S13 S13 S13 S13	
Remove existing curb cut	S100 S100 Infant Outdoo Play Area S2800 3400 Vyp. S8 S100 Vyp. S8 S100 S100 Play Area S7 S21 Concrete walkway	
Approximate extent of sidewalk, curb, and road removals for new underground services - see Civil		Proposed 1-s Care ad
Brucedale Ave E		
	12.0 m front yard setback	
	High Stores Elementary School	
(	(12.1 m existing setback S10a	
	Vault (E) Sign (E) Existing t Sign (E)	1 2
	CB WV CB VV CB VV	Asphelit Driveway (E)
	MH MH	Curb Cut (E)
1 <u>Sit</u> 1:	<u>e Plan Proposed</u> 300	

City of Hamilton Site Plan Notes:

as, but not limited to the following:

- Sewer and Water Permits

- Approach Approval Permits

- Committee of Adjustment

- Encroachment Agreements (if required)

- Relocation of Services

Fire Department and at the expense of the owner.

thereafter, all driveways shall be within 10% maximum grades.

Development Department.

otherwise stated.

- Building Permit

- Sign Permits

- Road Cut Permits

1. All work involved in the construction, relocation, repair of municipal services for the project

shall be to the satisfaction of the Director of Planning and Chief Planner, Planning and Economic

2. Fire Route Signs and 3-Way Fire Hydrants shall be established to the satisfaction of the City

3. Main driveway dimensions at the property line boundaries are plus or minus 7.5 m unless

4. All driveways from property lines for the first 7.5 m shall be within 5% maximum grade,

5. The approval of this plan does not exempt the owner's bonded contractor Site Plan

Application Submission Requirements and Information (April 2023) from the requirements to

obtain the various permits/approvals normally required to complete a construction project, such

**UNDERTAKING** 

I, (We) \_

undertake and agree without reservation,

filed to obtain compliance with this plan.

Dated this \_\_\_\_\_day of \_\_\_\_

Witness(signature)

Address of Witness

Witness (print)

vary therefrom;

, the owner(s) of the land, hereby

RE: 105 High Street File No. SPA-24-017

(a) To comply with all the content of this plan and drawing and not to

(b) To perform the facilities, works or matters mentioned in Section

with the conditions of approval as set out in the Letter of Approval dated

(c) To maintain to the satisfaction of the City and at my (our) sole risk

and expense, all of the facilities, works or matters mentioned in Section 41(7)

(b) of the said Act, shown in this plan and drawing, including removal of snow

from access ramps and driveways, parking and loading areas and walkways;

required works, and further the Owner authorizes the City to use the security

or full address to the building or on a sign in accordance with the City's

Owner(s) (signature)

Owner(s) (print)

Sign By-law, near the entrance in a manner that is visible from the street.

\_\_, the owner agrees that the City may enter the land and do the

\_\_\_\_\_20\_\_\_\_\_

(d) In the event that the Owner does not comply with the plan dated

(e) That the Owner agrees to physically affix the municipal number

41(7)(a) of the Planning Act shown on this plan and drawing(s) in accordance



WV FH

6. Abandoned accesses must be removed and the curb and boulevard restored with sod at the owner's expense to the satisfaction of the Corridor Management Section, Public Works Department.

7. For visibility triangles at the vehicular access points, the following note to be provided: "5.0 metre by5.0 metre visibility triangles in which the maximum height of any objects or mature vegetation is not to exceed a height of 0.60 metres above the corresponding perpendicular centreline elevation of the adjacent street."

8. Signage is not approved through the Site Plan Process. All signs must comply with Hamilton Sign By-law No. 10-197.

9. Lighting must be directed on site and must not spill over to adjacent properties or street.

10. CALL BEFORE YOU DIG, arrange for underground hydro cable locate(s) and gas pipelines before beginning construction by contacting Ontario One Call at 1-800-400-2255.

#### Site Statistics Table

105 High Street, Hamilton, ON L8T 3Z4 Present Zoning: B District ("Suburban Agriculture and Residential, Etc.")

Bylaw: 6593 Former Hamilton see Applioable Law Review File No. 23-123940-01 ALR

	Permitted/ Required	Existing	Proposed
Permitted Uses Lot Area (m <sup>2</sup> ) Building Height (max.) Number of Storeys Number of Parking Spaces Number of Loading Spaces Front yard setback (min.) Side yard setback (min.) (north) GFA	school, day nursery - 11.0 m 2.5 28* 0 12 m 3 m	school, day nursery 16,733 m <sup>2</sup> 1 22 0 12 m 12.6 m 2399 m <sup>2</sup>	unchanged unchanged unchanged 29 unchanged unchanged 3 m 2919 m <sup>2</sup>

\* Elementary school: 15 classrooms (incl. 3 portables) @1.25 spaces per classroom = 19 spaces Day nursery: 49 children @1 space per 6 children = 9 spaces

Site Plan Notes Description Note Approximate extent of new asphalt as required to facilitate excavation for proposed additio 1524mm tall chain link fence and gate -refer to Landscape S2b 1524mm tall chain link fence - refer to Landscape New asphalt pedestrian walkway New asphalt drive aisle and parking lot New retaining wall -refer to Civil Existing playgroudn structure to remain Refer to Landscape Plan for outdoor play area design "Type A" accessible parking space (3400mm wide) with 1500mm access aisle Accessible parking access aisle S10a Existing snow storage area S10b New snow storage area New 2m high storage shed - refer to Landscape S11 Dashed line denotes extent of existing asphalt S12 New 2m tall wood privacy fence - see Landscape and Civil S13 Depressed curb - refer to Civil S14 Line painting Provide new curb cut in existing concrete curb Replace existing vehicle gate with new - retain existing chain link fence S17 S18 Light standard - refer to Electrical and Structural S19 5m x 5m visbility triangles - no obstruction permitted above 60cm above street centreline elevation S20 Approximate extent of removals in grassed area for new underground services - see Civil S21 Demolish existing concrete sidewalk and steps and replace with sod S22 Frost slab - see Structural

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4	Issued for 80% Costing	2023-02-27
5	Issued for Zoning Compliance Review	2023-06-02
7	Reissued for ZCR	2023-07-24
8	Issued for SPA	2024-01-16
9	SPA Revision	2024-07-31
10	Issued for 90% Client Review	2024-09-11
12	Issued for Building Permit	2024-11-18
13	Issued for Tender	2024-11-20

#### Symbols Legend



# WORKSHOP

Workshop Architecture Inc. 6 Sousa Mendes Street Toronto Ontario M6P 0A8

416.901.8055 info@workshopto.ca workshopto.ca

### CSV Pavillon de la Jeunesse Childcare Addition

105 High Street Hamilton, ON

2024-11-20	Issued for Tender
DATE :	STATUS:
2206	As indicated
PROJECT CODE:	SCALE :

## Site Plan - Proposed







1 <u>Site Plan Proposed - Partial</u> 1 : 100

![](_page_3_Figure_2.jpeg)

2 Detail Plan - West Ramp 1 : 50

![](_page_3_Figure_4.jpeg)

Rev	Description	Date
12	Issued for Building Permit	2024-11-18
13	Issued for Tender	2024-11-20

Site Plan Notes	
Note	Description
S1	Approximate extent of new asphalt as required to facilitate excavation for proposed addition
S2	1524mm tall chain link fence and gate -refer to Landscape
S2b	1524mm tall chain link fence - refer to Landscape
S3	New asphalt pedestrian walkway
S4	New asphalt drive aisle and parking lot
S5	New retaining wall -refer to Civil
S6	Existing playgroudn structure to remain
S7	Refer to Landscape Plan for outdoor play area design
S8	"Type A" accessible parking space (3400mm wide) with 1500mm access aisle
S9	Accessible parking access aisle
S10a	Existing snow storage area
S10b	New snow storage area
S11	New 2m high storage shed - refer to Landscape
S12	Dashed line denotes extent of existing asphalt
S13	New 2m tall wood privacy fence - see Landscape and Civil
S14	Depressed curb - refer to Civil
S15	Line painting
S16	Provide new curb cut in existing concrete curb
S17	Replace existing vehicle gate with new - retain existing chain link fence
S18	Light standard - refer to Electrical and Structural
S19	$5 \mathrm{m}  \mathrm{x}  5 \mathrm{m}$ visbility triangles - no obstruction permitted above 60cm above street centreline elevation
S20	Approximate extent of removals in grassed area for new underground services - see Civil
S21	Demolish existing concrete sidewalk and steps and replace with sod
S22	Frost slab - see Structural

# WORKSHOP

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# CSV Pavillon de la Jeunesse Childcare Addition

105 High Street Hamilton, ON

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2206	As indicated
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2024-11-20	Issued for Tender

Site Plan Proposed - Partial

![](_page_3_Picture_14.jpeg)

![](_page_3_Picture_15.jpeg)

![](_page_4_Figure_1.jpeg)

![](_page_4_Figure_2.jpeg)

![](_page_4_Figure_3.jpeg)

⊕ Detail Plan - Column/Foundation at Entrance Screen Jamb 1 : 10

	General Notes		
Note	Description		
1	Sprinkler valve assembly - see Mechanical		
2	10 double stacked cubbies		
3	furniture (N.I.C.) shown dashed		
4	Canopy above		
5	Existing millwork to remain		
6	Roof hatch & access ladder		
7	CMU and brick wall infill at demolished existing window		
8	Approximate extents of resilient floor finish and base to be patched to match existing.		
9	Double stacked teacher lockers - refer to Specification.		
10	Existing Unit Ventilator to remain		
11	Patch existing terrazzo floor finish to facilitate sanitary line tie-in.		
12	Tactile attention indicator		
13	50mm contrast strip		
14	Fire shutter above		

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Rev	De	escription	Date
1 2 3 4 10	Issued for 30% Costing Issued for 60% Review Reissued for 60% Review Issued for 80% Costing		2022-08-03 2022-11-11 2023-01-20 2023-02-27 2024-09-11
12 13	Issued for E	Building Permit	2024-11-18
Ŀ		Existing partition to rem	nain
5	Symbols Lege	nd	
	PWX	Partition Tag - refer to partition schedule	
	EWX	Exterior Wall Tag - refer partition schedule	• to
	<wx></wx>	Window tag - refer to schedule	
	ŚX	Glazed Screen tag - refer to schedule	
	DXXX	New Door tag - refer to schedule	
	MW1	Millwork Tag	
	GWB 1' - 0"	Ceiling Material Height above Finished F	Floor
	CCP	Classroom Control Pan see Electrical	el -
	(E)	Existing	
	NLC	Not in Contract	

WORKSHOP

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CSV Pavillon de la Jeunesse Childcare Addition

105 High Street Hamilton, ON

PROJECT CODE:	SCALE :
2206	As indicated
DATE :	STATUS :
2024-11-20	Issued for Tender

**Proposed Plans** 

![](_page_4_Picture_17.jpeg)

![](_page_4_Picture_18.jpeg)

![](_page_5_Figure_0.jpeg)

2 Proposed Plan - Addition Foundation 1 : 100

 Foundation Plan Notes

 Note
 Description

 F1
 CMU finish at exposed walls - refer to building elevations for locations/extent

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CSV Pavillon de la Jeunesse Childcare Addition

105 High Street Hamilton, ON

PROJECT CODE:	SCALE :
2206	1:100
DATE :	STATUS:
2024-11-20	Issued for Tender

Foundation & Slab Plan

![](_page_5_Picture_13.jpeg)

![](_page_5_Picture_14.jpeg)

Proposed Plan - Addition Slab Plan1 : 100

![](_page_6_Figure_0.jpeg)

![](_page_6_Figure_3.jpeg)

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# RCP LEGEND

![](_page_6_Figure_9.jpeg)

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# CSV Pavillon de la Jeunesse Childcare Addition

105 High Street Hamilton, ON

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2206	As indicated
DATE :	STATUS:
2024-11-20	Issued for Tender

Roof Plan & RCP

![](_page_6_Picture_17.jpeg)

![](_page_6_Picture_18.jpeg)

![](_page_7_Figure_0.jpeg)

![](_page_7_Figure_2.jpeg)

![](_page_7_Figure_3.jpeg)

![](_page_7_Figure_8.jpeg)

 $\langle S2 \rangle$ 

 $\langle S3 \rangle$ 

 $\langle S4 \rangle$ 

![](_page_7_Figure_13.jpeg)

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#### Materials Legend

ACT	Acoustic Ceiling Tile
ALUM	Aluminum
BRK	Clay Brick
CER	Ceramic Tile
CMU	Concrete Masonry Unit
EXIST or (E)	Existing
EXP	Exposed
GWB	Gypsum Wallboard
MTL	Metal Cladding
PLY	Fire Rated Plywood
POR	Porcelain Tile
PLAM	Plastic Laminate
PT	Paint Finish
QTZ	Quartz
RB	Rubber Base
RES	<b>Resilient Sheet Flooring</b>
SO	Solid Polymer Fabrications
SS	Stainless Steel
TGL	Tempered Glass
WD	Solid Wood
WV	Wood Veneer

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## CSV Pavillon de la Jeunesse Childcare Addition

105 High Street Hamilton, ON

PROJECT CODE:	SCALE :
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2024-11-20	Issued for Tender

Exterior Elevations & Window/Screen Schedules

drawing number

A2.0

5 Building Section - NS Through Flat Roof & Corridor 1 : 100

![](_page_8_Figure_1.jpeg)

3 Building Section - EW Through Sloped Roof 1 : 100

![](_page_8_Figure_3.jpeg)

1 <u>Building Section - EW Through South Vestibule</u> 1 : 100

![](_page_8_Figure_5.jpeg)

![](_page_8_Figure_6.jpeg)

![](_page_8_Figure_7.jpeg)

![](_page_8_Figure_8.jpeg)

![](_page_8_Figure_9.jpeg)

![](_page_8_Figure_10.jpeg)

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CSV Pavillon de la Jeunesse Childcare Addition

105 High Street Hamilton, ON

PROJECT CODE:	SCALE :
2206	1:100
DATE :	STATUS :
2024-11-20	Issued for Tender

**Building Sections** 

drawing number A3.1

![](_page_9_Figure_0.jpeg)

![](_page_9_Figure_2.jpeg)

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Membrane Legend	
	AVB-01 - Vapour permeable air/weather barrier (at above- grade walls)
	AVB-02 - Transition membrane (at openings/transitions)
	VB-01 - Vapour barrier (at slab-on-grade)
	VB-02 - Vapour barrier (at roof)
	WRB-01 - Weather resistant barrier (at rainscreen cladding)
	RWP-01 - Fluid Applied Damproofing (exterior below-grade walls)

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drawing number

A3.2

CSV Pavillon de la Jeunesse Childcare Addition

105 High Street Hamilton, ON

PROJECT CODE:	SCALE :
2206	As indicated
DATE :	STATUS :
2024-11-20	Issued for Tender

Wall Sections

![](_page_10_Figure_0.jpeg)

9 Detail Plan - Window Jamb at Clerestory 1 : 5

![](_page_10_Figure_5.jpeg)

![](_page_10_Figure_7.jpeg)

762

450

200

 $\approx$ 

\_\_\_\_

- Roof R1

\_\_\_\_\_

<del>╡╴╞╶╎╤╡╶╎╴╡╤╪╟╴╡╤╪╡</del>

- Lap VB on to to existing roof

edge for continous seal

- Ceiling finish as scheduled

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CSV Pavillon de la Jeunesse Childcare Addition

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PROJECT CODE:	SCALE :

**Detail Sections & Plans** 

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Date

Description

Rev

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Workshop Architecture Inc. and may not be reproduced in

12 13	Issued for Bui Issued for Ter	lding Permit nder	2024-11-18 2024-11-20
Memb	prane Legend		
		AVB-01 - Vap air/weather ba grade walls)	our permeable rrier (at above-
		AVB-02 - Trar (at openings/ti	nsition membrane ransitions)
		VB-01 - Vapoı (at slab-on-gra	ur barrier ade)
		VB-02 - Vapoı (at roof)	ur barrier
		WRB-01 - We barrier (at rain cladding)	ather resistant screen
		RWP-01 - Flui Damproofing (exterior belov	d Applied v-grade walls)

Tie new roof base and cap sheet into existing

roof membrane at flat expansion joint -

follow manufacturer's guidelines

Existing roof assembly

![](_page_10_Picture_19.jpeg)

![](_page_11_Figure_0.jpeg)

Interior Elevation - Corridor C101 West1 : 50

![](_page_11_Figure_2.jpeg)

![](_page_11_Figure_3.jpeg)

Interior Elevation - Corridor A1-C01 North1 : 50

![](_page_11_Figure_5.jpeg)

7 Interior Elevation - Toddler 103 South 1 : 50

![](_page_11_Figure_7.jpeg)

![](_page_11_Figure_8.jpeg)

2 Interior Elevation - Corridor C101 East 1 : 50

![](_page_11_Picture_12.jpeg)

5 Interior Elevation - Staff East 138 1 : 50

![](_page_11_Figure_14.jpeg)

6 Interior Elevation - Laundry 113 East 1 : 50

![](_page_11_Figure_18.jpeg)

![](_page_11_Figure_19.jpeg)

![](_page_11_Figure_20.jpeg)

15 Interior Elevation - Preschool 110 West 1 : 50

![](_page_11_Figure_22.jpeg)

Relocated Unit Ventilator refer to Mechanical 10 A6.0 WB-05 UV UV

11 Interior Elevation - Kindergarten 130 North 1 : 50

(12) Interior Elevation - Kindergart 1 : 50

![](_page_11_Figure_27.jpeg)

![](_page_11_Figure_28.jpeg)

![](_page_11_Figure_29.jpeg)

Interior Elevation - Toddler 108 North (Partial)1 : 50

![](_page_11_Figure_31.jpeg)

ten	130	East	
			-

EQ	EQ	EQ	EQ	EQ	EQ	EQ	Ł
			PT	$\rangle$			
			PT	)			
drawer	drawer	drawer	drawer	drawer	fix	ed	<u> </u>

# (14) MW13 Elevation 1 : 50

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## Materials Legend

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ALUM	Aluminum
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CER	Ceramic Tile
CMU	Concrete Masonry Unit
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EXP	Exposed
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MTL	Metal Cladding
PLY	Fire Rated Plywood
POR	Porcelain Tile
PLAM	Plastic Laminate
PT	Paint Finish
QTZ	Quartz
RB	Rubber Base
RES	Resilient Sheet Flooring
SO	Solid Polymer Fabrications
SS	Stainless Steel
TGL	Tempered Glass
WD	Solid Wood
WV	Wood Veneer

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# CSV Pavillon de la Jeunesse Childcare Addition

105 High Street Hamilton, ON

PROJECT CODE:	SCALE :
2206	As indicated
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Interior Elevations

![](_page_11_Picture_46.jpeg)

![](_page_11_Picture_47.jpeg)

![](_page_12_Figure_0.jpeg)

![](_page_12_Figure_1.jpeg)

![](_page_12_Figure_2.jpeg)

8 Detail Plan - Shared WC 106 1 : 50

![](_page_12_Figure_4.jpeg)

![](_page_12_Figure_5.jpeg)

![](_page_12_Figure_6.jpeg)

![](_page_12_Figure_7.jpeg)

![](_page_12_Figure_8.jpeg)

![](_page_12_Figure_9.jpeg)

![](_page_12_Figure_10.jpeg)

![](_page_12_Figure_11.jpeg)

![](_page_12_Figure_12.jpeg)

![](_page_12_Figure_13.jpeg)

![](_page_12_Figure_14.jpeg)

Image: 13Interior Elevation - Servery A1-109 South1: 50

![](_page_12_Figure_17.jpeg)

14 Interior Elevation - Servery A1-109 West 1 : 50

![](_page_12_Figure_19.jpeg)

# 15 Interior Elevation - Servery A1-109 North 1 : 50

Washroom Accessories		
Note	Description	
W1	Mirror - 18" x 30"	
W2	Mirror - 24" x 36"	
W3	Paper towel dispenser	
W4	Soap dispenser	
W5	Toilet paper dispenser	
W6	Horizontal grab bar	
W7	'L' grab bar	
W8	Automatic hand dryer	
W9	Sanitary napkin disposal	
W10	Wall-mounted stainless steel shelf	
W11	Wall-mounted waste receptacle	
W12	Prefabricated change table	
W13	Coat hook	
W14	Mop shelf & hooks	

![](_page_12_Figure_22.jpeg)

![](_page_12_Figure_23.jpeg)

sinks

# Notes:

1. All controls (power door operator, elevator call buttons, fire alarms, switches, emergency call button and fire extinguishers, coat hooks etc.) to be between 900mm and 1200mm AFF.

2. Locations of all accessories and controls to be marked on site prior to installation for final sign off.

![](_page_12_Figure_27.jpeg)

17 Typical Child WC Partition 1 : 50

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![](_page_12_Figure_31.jpeg)

11 Interior Elevation - Shared WC 106 North 1 : 50

![](_page_12_Figure_33.jpeg)

General Notes Description Sprinkler valve assembly - see Mechanical 10 double stacked cubbies furniture (N.I.C.) shown dashed Canopy above Existing millwork to remain Roof hatch & access ladder CMU and brick wall infill at demolished existing window Approximate extents of resilient floor finish and base to be patched to match existing. Double stacked teacher lockers - refer to Specification. 10 Existing Unit Ventilator to remain Patch existing terrazzo floor finish to facilitate sanitary line 11 tie-in. 12 Tactile attention indicator 50mm contrast strip 13 14 Fire shutter above

WORKSHOP

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CSV Pavillon de la Jeunesse Childcare Addition

105 High Street Hamilton, ON

2024-11-20	Issued for Tender
DATE :	STATUS :
2206	1:50
PROJECT CODE:	SCALE :

### **Detail Plans & Interior Elevations**

![](_page_12_Picture_43.jpeg)

![](_page_12_Picture_44.jpeg)

![](_page_13_Figure_0.jpeg)

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2206	1:10
PROJECT CODE:	SCALE :

**Millwork Details** 

drawing number A6.0

![](_page_14_Figure_0.jpeg)

![](_page_14_Figure_1.jpeg)

![](_page_14_Figure_2.jpeg)

2 MW - Section through Adult Sink 1 : 10

![](_page_14_Figure_3.jpeg)

6 MW9 - Section through Dressing Table 1 : 10

7 Infant Cubbies 1 : 10

![](_page_14_Figure_6.jpeg)

![](_page_14_Figure_7.jpeg)

![](_page_14_Figure_8.jpeg)

(8) Teacher Cubbies 1 : 10

![](_page_14_Figure_10.jpeg)

 MW3/4
 - Section Through Full-Height Storage

 1
 : 10

![](_page_14_Figure_13.jpeg)

![](_page_14_Figure_14.jpeg)

5 MW6/10 - Section Through Microwave Shelf 1 : 10

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105 High Street Hamilton, ON

PROJECT CODE:	SCALE :
2206	1:10
DATE :	STATUS:
2024-11-20	Issued for Tender

**Millwork Details** 

![](_page_14_Picture_25.jpeg)

![](_page_14_Picture_26.jpeg)

 Solid wood edging at exposed edge (typ) Hardware as specified. incl. lock, typ

# STRUCTURAL DRAWING LIST

- S0.0 GENERAL NOTES
- \$1.0 FOUNDATION PLAN
- S2.0 SLAB ON GRADE PLAN S3.0 ROOF FRAMING PLANS
- S4.0 SECTIONS
- S4.1 SECTIONS
- S6.0 TYPICAL DETAILS

### GENERAL NOTES

- THE GENERAL NOTES MUST BE READ IN CONJUNCTION WITH THE DESIGN DRAWINGS AND SPECIFICATIONS OF ENGINEERING AND ARCHITECTURAL DISCIPLINES WHICH FORM PART OF THIS CONTRACT, THIS INCLUDES DRAWING SPECIFICATIONS AND SKETCHES, SHOULD THERE BE CONTRADICTORY INFORMATION BETWEEN DRAWINGS, SKETCHES AND SPECIFICATIONS, THE ONE WHICH IS MOST STRINGENT TAKES PRECEDENCE.
- REFER TO ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR LOCATION AND SIZE OF OPENINGS, TRENCHES, PITS, EQUIPMENT, SLEEVES, DEPRESSIONS, GROOVES AND CHAMFERS NOT INDICATED ON STRUCTURAL DRAWINGS.
- UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS, NO PROVISION HAS BEEN MADE IN THE DESIGN FOR CONDITIONS OCCURRING DURING CONSTRUCTION. THE CONTRACTOR IS TO PROVIDE ALL NECESSARY BRACING AND SHORING REQUIRED FOR STRESSES AND INSTABILITY OCCURRING FROM ANY CAUSE DURING CONSTRUCTION.THE CONTRACTOR SHALL ACCEPT FULL RESPONSIBILITY FOR ALL SUCH MEASURES. IT SHALL ALSO BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ALL NECESSARY BRACING, SHORING, SHEET PILING OR OTHER TEMPORARY SUPPORTS TO SAFEGUARD ALL EXISTING OR ADJACENT STRUCTURES AFFECTED BY THE WORK.
- ALL CONNECTIONS CONNECTED TO EXISTING STRUCTURE ARE TO BE SITE VERIFIED.
- REVIEW OF SHOP DRAWINGS BY STRUCTURAL CONSULTANT IS ONLY TO ASSESS THAT SUBMITTED SHOP DRAWINGS REFLECT THE INTENT OF THE STRUCTURAL DESIGN.
- REVIEW BY THE STRUCTURAL CONSULTANT SHALL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY FORSEEN THAT THE WORK IS COMPLETE, ACCURATE AND IN CONFORMITY WITH THE STRUCTURAL DRAWINGS AND SPECIFICATIONS.
- TYPICAL DETAILS SHALL BE USED WHERE SPECIFIC DETAILS ARE NOT SHOWN ON THE DRAWINGS. ALL WORK REQUIRED, INCLUDING ANY DEMOLITION, SHALL BE CARRIED OUT IN A MANNER THAT WILL NOT DAMAGE THE EXISTING SITE OR STRUCTURE. ANY DAMAGE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
- ALL DESIGN, DETAILING, CONSTRUCTION, EXCAVATION AND SHORING, MUST CONFORM TO THE PRESENT ONTARIO BUILDING CODE, OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS LATEST EDITION. ALL ASSOCIATED COST WITH THE DESIGN, SUPPLY AND INSTALLATION OF TEMPORARY SHORING IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR. GENERAL CONTRACTOR TO PROVIDE STAMPED, ENGINEERED SHORING DRAWINGS.
- . THE GENERAL CONTRACTOR IS RESPONSIBLE TO COORDINATE WORK OF ALL SUBCONTRACTORS.
- THE GENERAL CONTRACTOR MUST REVIEW ALL DIMENSIONS PRIOR TO THE COMMENCEMENT OF ALL WORK AND MUST REPORT ALL DISCREPANCIES TO THE ENGINEER/ARCHITECT.
- . STRUCTURAL DRAWINGS SHALL BE READ IN CONJUNCTION WITH THE ARCHITECTURAL, CIVIL, MECHANICAL AND ELECTRICAL DRAWINGS.
- 3. PROVIDE STAMPED STRUCTURAL SHOP DRAWINGS AS NOTED IN THE FOLLOWING TABLE.

ITEMS	REQ'D SUBMITTAL?	ENGINEER'S STAMP REQ'D?	NOTES
REBAR SHOP DWGS.	YES	NO	
CONC. MIX DESIGNS	YES	NO	
PRECAST CONC. STAIRS	NO	NO	
PRECAST CONC. SLAB	NO	NO	
STRUCT. STEEL SHOP DWGS.	YES	YES	
STEEL JOISTS DWGS.	NO	NO	
STEEL JOISTS CALC.	NO	NO	
STEEL DECK SHOP DWGS.	YES	YES	
STUD WALL SHOP DWGS.	NO	NO	

4. PROJECTS WHICH INCLUDE ANY DEMOLITION AND OR RENOVATION WORK, THE GENERAL CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL DIMENSIONS AND EXISTING CONSTRUCTION. SHOULD A DISCREPANCY ON EITHER BE FOUND, REPORT FINDINGS TO ENGINEER/ARCHITECT.

ALL DETAILS SHOWN ARE SPECIFIC TO THE PROJECT. WHERE A LOCATION IS NOT SPECIFIED FOR A DETAIL, DETAILS IN THE DRAWINGS INCLUDING TYPICAL DETAILS WHICH CLOSELY RESEMBLES THE WORK, WILL APPLY.

16. ALL CODES AND REGULATIONS QUOTED ARE TO BE THE LATEST EDITION.

## SOILS AND FOUNDATIONS

- ALL THE SPREAD FOOTINGS AND STRIP FOOTINGS TO BE CONSTRUCTED ON UNDISTURBED NATIVE SOIL OR ENGINEERED FILL CAPABLE OF RESISTING 150 KPa (3100PSF) (SLS). THE GEOTECHNICAL CONSULTANT TO CONFIRM THE SOIL BEARING RESISTANCE BEFORE CONSTRUCTION. REFER TO GEOTECHNICAL REPORT #313695 BY PINCHIN DATED SEPTEMBER 20, 2024.
- THE GEOTECHNICAL REPORT PROVIDED IS A GUIDE ONLY. MANTECON PARTNERS INC. IS NOT RESPONSIBLE FOR ITS CONTENT, RECOMMENDATIONS, CORRECTNESS AND OMISSIONS.THE GENERAL CONTRACTOR SHOULD FAMILIARIZE HIMSELF WITH THE REPORT AND THE SITE.
- FOR THE DURATION OF THE EXCAVATION, THE GEOTECHNICAL AND STRUCTURAL ENGINEERS MUST BE MADE AWARE OF ALL SOIL CONDITIONS FOUND WHICH ARE DIFFERENT THAN REPORTED IN THE GEOTECHNICAL REPORT.
- FOUNDING ELEVATION, BACKFILL AND COMPACTION MUST BE APPROVED BY THE GEOTECHNICAL ENGINEER.
- ALL FOOTINGS MUST BE FOUNDED AT THE ELEVATIONS SHOWN ON THE CONTRACT DOCUMENTS, UNLESS POORER SOIL CONDITIONS ARE ENCOUNTERED, WHERE THE GEOTECHNICAL ENGINEER WILL DETERMINE FOUNDING ELEVATIONS.
- ALL EXTERIOR FOOTINGS AND FOOTINGS EXPOSED TO FREEZING MUST BE FOUNDED TO A MINIMUM FROST PROTECTION DEPTH OF 1.2M (4') BELOW FINISHED GRADE. REFER TO GRADING PLAN FOR FINISH EXTERIOR GRADE ELEVATIONS.
- ALL SPREAD FOOTINGS, CONTINOUS FOOTINGS AND DEEP FOUNDATIONS, WHICH INCLUDES BUT IS NOT LIMITED TO CAISSONS AND PILES, MUST BE CONSTRUCTED CONCENTRIC TO THE COLUMN AND/OR WALL WHICH THEY ARE SUPPORTING UNLESS OTHERWISE NOTED.
- ALL EXCAVATIONS MUST BE CARRIED OUT IN CONFORMANCE TO THE GEOTECHNICAL REPORT AND OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS, LATEST EDITION GUIDELINES.
- DO NOT EXCEED A MAXIMUM RISE TO RUN OF 7 TO 10 SLOPE BETWEEN ADJACENT FOOTINGS UNLESS DIRECTED IN WRITING BY THE GEOTECHNICAL ENGINEER. . BACKFILL MATERIAL AND COMPACTION SHOULD BE IN CONFORMANCE WITH GEOTECHNICAL
- PRIOR TO BACKFILLING, CONCRETE FLOOR OR STRUCTURAL STEEL FLOOR AND SLAB ON GRADE MUST BE IN PLACE TO PREVENT WALLS FROM COLLAPSE. THE CONCRETE MUST HAVE ACHIEVED A STRENGTH OF MINIMUM 75% OF ITS DESIGN STRENGTH.
- . IN WALLS WHERE THE CONTRACT DOCUMENTS CALL FOR WATER STOPS AT THE INTERFACE OF THE TOP OF FOOTING AND THE UNDERSIDE OF THE WALL, THE GENERAL CONTRACTOR MUST PROVIDE THE STRUCTURAL ENGINEER SKETCHES OF THE PROPOSED INSTALLATION FOR REVIEW. SIMILAR DIRECTION MUST BE FOLLOWED FOR WALL CONSTRUCTION JOINTS

# CONCRETE AND REINFORCING

- CONCRETE MATERIALS AND METHODS OF CONCRETE CONSTRUCTION, TESTING AND STANDARD PRACTICES FOR CONCRETE SHALL BE IN ACCORDANCE WITH CSA STANDARD A23.1/A23.2 (LATEST EDITION)
- CONCRETE DESIGN SHALL BE IN ACCORDANCE WITH THE DESIGN OF CONCRETE STRUCTURES CSA STANDARD A23.3 (LATEST EDITION).
- SUPPLY AND PLACE CONCRETE IN ACCORDANCE TO TABLE 1 TABLE 1

	LOCATION	MIN. COMPRESSIVE STRENGTH (f'c) AT 28 DAYS MPa (PSI)	SLUMP mm (in)	EXPOSURE CLASS	AIR CONTEN (%)
FTGS	FND. WALL FOOTINGS	25 (3500)	80 ± 30 (3 ± 1)	Ν	0
WALLS	FND. WALLS, SHEAR WALLS, ABOVE GRADE WALLS RETAINING WALLS	35 (5000)	80 ± 30 (3 ± 1)	C-1	5-8
BEAMS AND STAIRS	INTERIOR SLAB ON GRADE, AND CONC. SLAB ON DECK	25 (3500)	80 ± 30 (3 ± 1)	Ν	0
SIABS, COLUMNS /	INTERIOR SLAB, BEAMS, COLUMNS AND STAIRS	35 (5000)	$80 \pm 20 (3 \pm \frac{3}{4})$	Ν	0
	SIDEWALK/CURBS PAVING SLABS, EXTERIOR CONC. AND TOPPING	32 (4650)	$40 \pm 20$ $(1\frac{1}{2} \pm \frac{3}{4})$	C-2	5-8
DTHER	Housekeeping Pads	25 (3500)	80 ± 30 (3 ± 1)	Ν	0
	NON-SHRINKABLE GROUT	30	AS PER MANUF. RECOMEN.	Ν	0
	LEAN MIX CONCRETE	8 (1000)	80 ± 30 (3 ± 1)	Ν	0

4. THE COMPRESSIVE STRENGTH OF THE CONCRETE IS BASED ON THE FOLLOWING CONDITIONS:

- TYPE GU NORMAL PORTLAND CEMENT UNLESS OTHERWISE NOTED OR APPROVED MAXIMUM SIZE OF AGGREGATE 20mm (3/4") WASHED IRREGULAR CUT CLEAR STONE SLUMP SHOWN ON THE TABLE IS SLUMP WITHOUT SLUMP AID ADMIXTURE. WHERE THE USE OF AN ADMIXTURE IS PREFERRED TO INCREASE THE SLUMP, THE SUPERPLASTICIZED CONCRETE SLUMP
- MUST REMAIN BELOW THE POINT AT WHICH SEGREGATION WILL OCCUR REINFORCEMENT SHALL CONFORM TO CSA G30.3,G30.5 AND G30.18 (LATEST EDITION) YIELD STRENGTH FOR CONCRETE AND MASONRY REINFORCEMENT, fy=400MPa YIELD STRENGTH FOR WELDED WIRE FABRIC fy=360MPa
- WHEN COLUMNS AND WALLS ARE POURED INTEGRALLY USE THE HIGHER STRENGTH CONCRETE
- OF THE ELEMENT WHICH SPECIFIED IN TABLE 1. MINIMUM CONCRETE COVER FOR REINFORCING, WHERE NOT SHOWN ON DESIGN DRAWINGS SHALL BE AS FOLLOWS:
- ALL STEEL NOT CAST IN FORMS PERMANENTLY AGAINST EARTH OR ROCK AND IN A NON-CORROSIVE ENVIRONMENT, COVER SHALL BE 75mm (3").
- ALL STEEL CAST IN FORMS SHALL FOLLOW TABLE 2 OR AS NOTED ON DRAWINGS. TAREO

STRUCTURAL ELEMENT	COVER mm (in)	STRUCTURAL ELEMENT	COVER mm (in)
CONCRETE POURED IN FORMS BUT EXPOSED TO WEATHER OR EARTH	E POURED IN FORMS BUT TO WEATHER OR EARTH CONCRETE NOT EXPOSED TO WEATHER OR EARTH		
-BARS LARGER THAN 15M	50 (2")	-SLABS AND WALLS	25 (1")
-BARS 15M AND SMALLER	38 (1 <u>1</u> ")	-BEAMS AND GIRDERS	38 (1 <sup>1</sup> / <sub>2</sub> ")
		-COLUMNS MAIN STEEL	50 (2")
FTGS. & OTHER ELEMENTS POURED AGAINST EARTH	75 (3")		

- THE GENERAL CONTRACTOR MUST COORDINATE THE INSTALLATION OF MECHANICAL AND
- ELECTRICAL OPENINGS AND SLEEVES. THEY MUST FOLLOW THE GUIDE LINES BELOW: NO SLEEVES SHALL BE PLACED VERTICALLY OR HORIZONTALLY THROUGH BEAMS UNLESS
- APPROVED BY THE STRUCTURAL ENGINEER. NO OPENINGS SHALL BE MADE IN FLAT SLABS OR TWO WAY SLAB COLUMN STRIPS EXCEPT AS
- SHOWN ON THE DRAWINGS OR APPROVED BY THE STRUCTURAL ENGINEER. WHERE A CORE DRILL OR AN OPENING IS REQUIRED IN HARDENED CONCRETE THE GENERAL
- CONTRACTOR MUST SEEK THE APPROVAL OF THE STRUCTURAL ENGINEER. ELECTRICAL CONDUITS SHALL NOT PASS THROUGH COLUMNS AND ARE NOT TO RUN HORIZONTALLY IN WALLS.
- CONDUITS WITHIN SLABS MUST NOT HAVE A (OUTER) DIAMETER GREATER THAN ONE-QUARTER OF THE SLAB THICKNESS. SPACING BETWEEN CONDUITS MUST BE AT LEAST 3 TIMES THE OUTER DIAMETER (CLEAR SPACING). CONDUITS MUST BE PLACED WITHIN MIDDLE THIRD OF SLAB. CONDUITS SHALL BE LAID SUCH THAT ONLY SINGLE CROSS OVERS OCCUR WITHIN MAXIMUM 500mm OF ONE ANOTHER. ALL CONDUITS WITHIN SLAB ARE SUBJECT TO APPROVAL BY STRUCTURAL CONSULTANT.
- REFER TO DESIGN DRAWINGS FOR TYPICAL DETAILS OF CONTROL JOINTS, EXPANSION JOINTS AND CONSTRUCTION JOINTS. UNLESS OTHERWISE NOTED ON THE DESIGN DRAWINGS, THE FOLLOWING MAXIMUM DISTANCE BETWEEN JOINTS MUST BE FOLLOWED:
- CONTROL JOINTS IN WALLS 6m (20') MAXIMUM MAXIMUM POUR LENGTH FOR SLAB ON GRADE IS 30m (100').
- ALL SAWCUTS MUST BE MADE WITHIN 24 HRS. FROM PLACING OF CONCRETE. THE DEPTH OF THE SAWCUT MUST BE 1/3 THE DEPTH OF THE SLAB.
- THE CONTRACTOR SHALL PROVIDE A SUITABLE TOP FINISH TO ACCEPT DIRECT APPLICATION OF FINISHED FLOORING/ROOFING AS PER ROOM FINISH SCHEDULE

# TESTING AND INSPECTION

THE FOLLOWING ITEMS REQUIRE TESTING OR INSPECTION BY A CERTIFIED INDEPENDENT TESTING OR INSPECTION AGENCY UNLESS NOTED OTHERWISE. THE AGENCY SHALL SEND COPIES OF ALL STRUCTURAL TESTING AND INSPECTION REPORTS TO THE ENGINEER FOR REVIEW.

ITEMS	REQ'D?	COMMENTS
SOIL BEARING CAPACITY	YES	BY SOILS ENGINEER
SOIL COMPACTION	YES	BY SOILS ENGINEER
REINF. STEEL PLACEMENT	YES	INSPECT FINAL PLACEMENT
CONC. COMPRESSIVE TESTS	YES	MIN. 2 SETS PER X m <sup>3</sup>
CONC. SLUMP	YES	
STRUCTURAL STEEL	YES	INSPECTION OF ALL CONNECTIONS
Mortar Cubes	NO	
GROUT CUBES	NO	

REPORT

### UNIT MASONRY

1.	MASONRY DESIGN AND CONSTRUCTION SHALL CONFORM TO
	C.S.A. S304.1: MASONRY DESIGN FOR BUILDINGS
	C.S.A. A371: MASONRY CONSTRUCTION FOR BUILDINGS
	C.S.A. A165: CSA STANDARDS FOR CONCRETE MASONRY UNITS
	C.S.A. A179: MORTAR AND GROUT FOR UNIT MASONRY
	(LATEST EDITION)

2.	ALL CONCRETE BLOCK SHALL HAVE A NET COMPRESSIVE STRENGTH OF 15 MPa (2200 PSI).
3.	MASONRY WALLS SHALL HAVE TYPE S MORTAR.

- 4. GROUT SHALL BE IN ACCORDANCE WITH THE ABOVE NOTED STANDARDS.
- PROVIDE THREE COURSES OF FULLY GROUTED MASONRY UNDER BEARING PLATES FOR STEEL
- BEAMS, UNLESS OTHERWISE NOTED. . PROVIDE LATERAL RESTRAINT AT THE TOP OF ALL NON-LOAD BEARING PARTITIONS. REFER TO TYPICAL DETAILS.
- PROVIDE CONTROL JOINTS EVERY 7m AND AT ALL DISCONTINUITIES AND OPENINGS AND AS SHOWN ON THE ARCHITECTURAL DRAWINGS.
- PROVIDE AND INSTALL HORIZONTAL REINFORCING IN ALL MASONRY WALLS. UNLESS INDICATED OTHERWISE ON DRAWINGS, PROVIDE 4.8mm GALVANIZED LADDER TYPE HORIZONTAL REINFORCING AT EVERY SECOND MORTAR JOINT IN MASONRY WALLS.
- PROVIDE AND CONSTRUCT A SINGLE COURSE BOND BEAM AT THE TOP OF ALL NON BEARING WALLS. REINFORCE BOND BEAM WITH 2-10M CONTINUOUS. AT LOAD BEARING WALLS BOND BEAMS ARE 400mm DEEP WITH 2-15M CONTINUOUS.
- PROVIDE 1-15M EVERY FOURTH CELL, VERTICAL REINFORCEMENT, IN ALL LOAD BEARING AND NON-LOAD BEARING WALLS AND SHEAR WALLS UNLESS GREATER REINFORCEMENT IS INDICATED ON THE DRAWINGS.
- PROVIDE ADDITIONAL REINFORCING TO MATCH WALL REINFORCING AT ALL CORNERS, OPENINGS AND BENEATH ALL BEARING PLATES AND LINTELS.
- PROVIDE AND INSTALL LINTELS OVER ALL OPENINGS IN ACCORDANCE WITH THE TYPICAL LINTEL SCHEDULE OR AS SHOWN ON THE DRAWING.

### STEEL DECK

- STEEL DECK SHALL CONFORM TO \$136 GRADE 230 WITH DEPTHS AND THICKNESSES AS INDICATED ON DRAWINGS.
- DECK SHALL BE CONTINUOUS OVER A MINIMUM OF THREE SPANS WHERE POSSIBLE.
- STEEL DECK FOR COMPOSITE SLABS SHALL BE COMPOSITE TYPE DECK.
- UNLESS INDICATED OTHERWISE ON THE DRAWINGS FASTEN DECK TO SUPPORTS AS FOLLOWS: a) 20mm DIA WELDS EVERY 2ND FLUTE AND EVERY 600mm (24") ALONG SIDES, OR, b) HILTI ENP2K OR ENKK NAILS EVERY FLUTE AND EVERY 600mm (24") ALONG THE SIDES. c) WHEN USING SHEAR STUDS WELD EVERY THIRD FLUTE.
- UNLESS INDICATED OTHERWISE ON THE DRAWINGS BUTTON PUNCH SIDE LAPS EVERY 600mm
- ALL EDGES OF DECK SHALL BE SUPPORTED WITH PERIMETER ANGLES WITH VERTICAL AND HORIZONTAL LEGS EQUAL TO THE DECK DEPTH, UNLESS OTHERWISE NOTED

REINFORCING

NO REINFORCING REQUIRED

. REINFORCE OPENINGS ACCORDING TO THE FOLLOWING TABLE: OPENING SIZE (MAX. DIMENSION)

# LESS THAN 150mm (6")

- 150-300 mm (6"-12") L51x51x6 (L2x2x1/4) WELDED TO U/S DECK (PERPENDICULAR TO SPAN) EXTENDING 450mm BEYOND OPENING ON EACH SIDE L75x75x6 (L3x3x1/4) WELDED TO U/S DECK ALL AROUND 300-450mm (12"-18") OPENING AND EXTENDING 450mm (18") BEYOND
- OPENING ON EACH SIDE (PERPENDICULAR TO SPAN) OPENINGS LARGER THAN 450mm (18") OR OPENINGS CARRYING LOADS GREATER THAN 1.0 kN
- SHALL BE REINFORCED ACCORDING TO THE TYPICAL ROOF TOP SUPPORT DETAIL 8. DECK SHALL OVERLAP A MINIMUM OF 50mm (2") AT ALL END JOISTS AND HAVE A MINIMUM
- BEARING LENGTH OF 50mm (2") ON ALL STRUCTURAL STEE 9. DECK WELDS SHALL BE TOUCHED UP WITH APPROVED PAINT BY THE DECK ERECTOR.
- METAL DECK SHALL BE GALVANIZED STRUCTURAL STEEL SHEET FABRICATED AND ERECTED IN
- ACCORDANCE WITH CSSBI 10M-96 AND CAN3-S136.
- . PROTECT ROOF AND FLOOR DECK FROM DAMAGE DURING SHIPPING STORAGE AND ERECTION. CONTRACTOR SHALL REPLACE ANY PUNCTURED, DENTED OR WELD PERFORATED DECK.
- STEEL DECK WORK SHALL INCLUDE THE SUPPLY AND INSTALLATION OF ALL SHEET STEEL ANGLES, COVER PLATES, CLOSURES, STIFFENERS AND ANY OTHER ACCESSORIES REQUIRED.

## STRUCTURAL STEEL

- STRUCTURAL STEEL DESIGN, FABRICATION AND ERECTION SHALL CONFORM TO THE LATEST EDITION OF: C.S.A. \$16.1: LIMIT STATES DESIGN OF STEEL STRUCTURES, C.S.A. G40-20: GENERAL REQUIREMENTS FOR ROLLED OR WELDED STRUCTURAL QUALITY STEELS C.S.A. G40-21: STRUCTURAL QUALITY STEELS C.S.A. W59: WELDED STEEL CONSTRUCTION C.S.A. \$136: COLD FORMED STEEL STRUCTURAL MEMBERS
- STRUCTURAL STEEL SHALL CONFORM TO G40.21 GRADE 350W FOR W SHAPES AND GRADE 300W FOR PLATES, ANGLES AND CHANNELS. SQUARE/RECTANGULAR HSS (HOLLOW STRUCT. SECTIONS) SHALL BE GRADE 350W, CLASS C. ROUND HSS SHALL BE ASTM A500 GRADE C.
- UNLESS NOTED ON DRAWINGS, ALL BOLTS SHALL CONFORM TO A325 HIGH STRENGTH BOLTS IN BEARING M20 DIAMETER MINIMUM.
- THE DESIGN OF BEAM SHEAR CONNECTIONS SHALL BE THE GREATER OF 50% OF THE BEAM SHEAR OR THE BEAM REACTION CALCULATED USING THE DESIGN LOADS SHOWN ON THE DRAWINGS, OR THE DESIGN SHEAR SHOWN. USE A MINIMUM OF TWO BOLTS.
- WELDED CONNECTIONS SHALL BE UNDERTAKEN ONLY BY CERTIFIED WELDERS APPROVED BY C.W.B. TO THE REQUIREMENTS OF W47.1 DIVISION 1 AND 2. WELDING SHOULD BE DONE IN ACCORDANCE WITH W59. USE WELDING ELECTRODES WITH LOW HYDROGEN E480XX (E70XX) OR APPROVED EQUAL.
- SHOULD THE FABRICATOR ELECT TO USE AN ALTERNATE ELECTRODE, THE ALTERNATE ELECTRODE SHALL MEET THE INTENT OF THE CONNECTION DESIGN AND MUST BE CERTIFIED BY A LICENSED WELDING ENGINEER IN THE PROVINCE OF ONTARIO. THE COST OF THE CERTIFICATION MUST BE BOURN BY THE CONTRACTOR.
- WHEN WELDING TO EXISTING STEEL OR FIELD WELDING NEW STEEL, THE LOCATION OF THE WELD MUST BE FREE OF PAINT AND PRIMER.
- CONNECTIONS FOR BRACING MEMBERS MUST BE DESIGNED FOR THE FULL TENSILE STRENGTH OF THE MEMBER, UNLESS LOADS ARE OTHERWISE INDICATED ON THE DRAWINGS.
- ALL EXTERIOR EXPOSED STEEL INCLUDING MISCELLANEOUS EMBEDDED PLATES SUPPORTING SHELF ANGLES AND SHELF ANGLES SHALL BE HOT DIPPED GALVANIZED.
- 10. ALL STEEL EXPOSED TO VIEW SHALL MEET FINISHES SET FORTH BY AESS CATEGORY 2.

# **DESIGN LOADS**

- GRAVITY LOADS dead loads MAIN ROOF
  - STEEL SELF WEIGHT = 0.2kPa ROOFING + METAL DECK = 0.55kPa = 0.25 kPaCEILINGS = 0.2kPa TOTAL = 1.2kPa
- SNOW LOADS HAVE BEEN DETERMINED IN ACCORDANCE WITH THE O.B.C. USING THE FOLLOWING CRITERIA
- Is(ULS) = 1.15 (HIGH IMPORTANCE) Is(SLS)=0.9
- Ss = 1.3kPa Sr = 0.4kPa REFER TO PLANS FOR SNOW PILE UP CONDITIONS.
- ATERAL LOADS
- WIND LOADS HAVE BEEN DETERMINED IN ACCORDANCE WITH THE 0.B.C USING THE FOLLOWING
- Is(ULS) = 1.15 (HIGH IMPORTANCE) Is(SLS)=0.75 q10 = 0.36kPa q50 = 0.46kPa
- SEISMIC LOADS HAVE BEEN DETERMINED IN ACCORDANCE WITH THE O.B.C. USING THE
- FOLLOWING CRITERIA:
- Sa (0.2) = 0.260 Sa (0.5) = 0.128 Sa (1.0) = 0.061 Sa (2.0) = 0.028 PGA = 0.168 SITE CLASS 'D' Rd = 1.5 Ro = 1.5

# STRUCTURAL ABBREVIATIONS

ΔR		kPa	
A.D.		I I	
A.F.F.		L	
ALI.	ALIERNATE	2-L	DOUBLE ANGLE
ALUM.	ALUMINUM	lbs	POUNDS
APPROX.	APPROXIMATELY	LL	LIVE LOAD
ARCH.	ARCHITECTURAL	L.L.H.	LONG LEG HORIZONTAL
B/F	BOTTOM FACE	L.L.V.	LONG LEG VERTICAL
BH	BOREHOLE	L.P.	LOW POINT
B/O	BOTTOM OF	IG	IONG
BP	BASE DIATE	1 S H	
	BASETERIE		
DLK.	BLOCK	L.J.V.	
BM.	BEAM	L.L.B.B.	LONG LEG BACK TO BACK
BIM.	BOITOM	MC	MOMENT CONNECTION
BRG.	BEARING	MANUF.	MANUFACTURER
BRP	BEARING PLATE	MAX.	MAXIMUM
B.L.L	BOTTOM LOWER LAYER	MECH.	MECHANICAL
B.U.L.	BOTTOM UPPER LAYER	MEZZ.	MEZZANINE
B/S		MIN	MINIMUM
		MISC	MISCELLANEOUS
CAN.			MISCELLA RECOS
C/W			
C/C	CENTRE TO CENTRE	mm	
C.I.P.	CAST IN PLACE	MPa	MEGAPASCAL
C.J.	CONTROL JOINT	N.I.C.	NOT IN CONTRACT
C.L. / 🗉	CENTRE LINE	N.T.S.	NOT TO SCALE
CLG.	CEILING	No.	NUMBER
COL	COLUMN	NS/FS	NEAR SIDE/FAR SIDE
	COMPOSITE	OAF	OR APPROVED FOLIAL
	CONCRETE	00	
CONC.		0.0.	
CONN.	CONNECTION	0.D.	
CONST.	CONSTRUCTION	O.H.	
CONT.	CONTINUOUS	OW21	OPEN WEB STEEL JOIST
DEMO.	DEMOLITION	OPG.	OPENING
DIA. / Ø	DIAMETER	O.S.F.V.	OUTSIDE FACE VERTICAL
DIM	DIMENSION	PART'N.	PARTITION
DI		PL.	PLATE
		P.T.	POST TENSION
DO	DIDO	n of	
DP.	DEEP	psi	
DWG.	DRAWING	PC	PRECASI
DWL.	DOWEL	PROJ.	PROJECT
E.F.	EACH FACE	PRI	PRESSURE IREATED
E.F.H.	EACH FACE HORIZ.	R.C.	REINFORCED CONCRETE
E.J.	EXPANSION JOINT	R.D.	ROOF DRAIN
ELEC.	ELECTRICAL	R.O.	ROUGH OPENING
FS	FACH SIDE	REF.	REFERENCE
E.W/	EACHWAY	REINF.	REINFORCED
L. VV.			REQUIRED
LA.		SECT	SECTION
EXI.	EXTERIOR	SECI.	
ELEV.	ELEVATION	З.Г.	
EMBED.	EMBEDMENT	S.L.H.	SHORT LEG HORIZONTAL
EQ.	EQUAL	S.L.V.	SHORT LEG VERTICAL
EX.	EXISTING	S.L.B.B.	Short leg back to back
F.F.	FACE TO FACE	S.O.G	SLAB ON GRADE
FIN.	FINISHED	S.P.D.D.	STANDARD PROCTOR DRY DEN
FI	FLOOR	SPECS	SPECIFICATIONS
FDN	FOUNDATION	S.S.	STAINLESS STEEL
FTG		STL	STEEL
GA	GALICE	STIFF	STIFFENER
		STRUCT	
GALV.	GALVANIZED	T	TOP
GRD.	GRADE		
Н	HANGER	TEMP.	TEMPORARILY/TEMPERATURE
H.L.	HOLLOW CORE	IHK.	THICKNESS
HL.P.	HELICAL PILE	T/O	TOP OF
HORIZ.	HORIZONTAL	T.J.	TIE JOIST
H.D.	HEAVY DUTY	T.L.L.	TOP LOWER LAYER
H.D.G.	HOT DIPPED GALVANIZED	T.U.A.	TOP UPPER LAYER
HFF		TYP	TYPICAL
	HOOKED	וסט	
ЦР			
н.г. Цсс			
122		U.N.U.	UNLESS INCIED OTHERWISE
HI.	HEIGHI	U/S	UNDERSIDE
I.D.	INSIDE DIAMETER	VERT.	VERTICAL
INT.	INTERIOR	V.E.F	VERTICAL EACH FACE
INV. ELEV.	INVERT ELEVATION	V.I.F.	VERTICAL INSIDE FACE
I.S.V.	INSIDE FACE VERTICAL	V.O.F.	VERTICAL OUTSIDE FACE
ka	KILOGRAM	V.S.C	VERTICAL SLOTTED CONNECTIO
kine	KIPS	WP	WALL PLATE
riha VI		W/ \A/ AA	
			SPACED AT
KINM		w	
kN/m	KILONEWTON PER METER		

![](_page_15_Figure_118.jpeg)

%)

OVER m (in)

5 (1") (1<u>1</u>")

STEEL LINTELS FOR NON-LOAD BEARING MASONRY WALLS AND BRICK VENEER				
MASONRY TYPE	MAXIMUM MASONRY OPENING	MATERIAL	DETAIL	
90 BRICK/ 90 BLOCK	UP TO 1530	1-L89x89x6.4	L	
	1530 TO 1830	1-L102x89x7.9	L	
	1830 TO 2135	1-L127x89x7.9	L	
	2135 TO 2440	1-L152x89x9.5	L	
140 BLOCK	UP TO 1830	2-L's 89x64x7.9	64 LEGS HORZ.	
	1830 TO 2135	2-L's 89x64x9.5	64 LEGS HORZ.	
	2135 TO 3050	W200x21	I	
190 BLOCK	UP TO 1830	2-L's 89x89x7.9	_L	
	1830 TO 2440	2-L's 127x89x7.9	89 LEGS HORZ.	
	2440 TO 3050	W200x21 + 175x6 PLATE	I	
240 BLOCK	UP TO 1530	2-L's 102x102x6.4	Ŀ	
	1530 TO 2440	2L's 152x102x7.9	Ŀ	
	2440 TO 3050	W200x21 + 225x6 PLATE	Ī	
290 BLOCK	UP TO 2440	W200x21 + 275x6 PLATE	I	
	2440 TO 3050	W200x27 + 275x6 PLATE	Ī	

. READ THIS SCHEDULE IN CONJUNCTION WITH THE ARCHITECTURAL, MECHANICAL AND ELECTRICAL . PROVIDE A SUITABLE LINTEL FOR ALL OPENINGS IN MASONRY WALLS (MECH./ELECT.)

. PROVIDE 200mm MIN. BEARING EACH END ON 2 COURSES OF FILLED OR SOLID MASONRY UNLESS OTED OTHERWISE

PROVIDE STEEL PACKING PLATES TO ENSURE EVEN BEARING

CONNECT ALL LINTELS TO STEEL WHERE LESS THAN 300mm OF MASONRY REMAINS BETWEEN ROUGH OPENING AND FACE OF STEEL . ALL DOUBLE ANGLE LINTELS TO BE WELDED BACK TO BACK, TOP AND BOTTOM WITH

mmx50mm LONG WELD @ 450mm O.C ALL EXTERIOR ANGLES SHALL BE HOT-DIPPED GALVANIZED, INCLUDING ANY CONNECTION MATERIA

TO BACK-UP STRUCTURAL STEEL LINTELS IN CURVED WALLS TO BE ROLLED TO REQUIRED RADIUS

. ALL STEEL TO BE CSA G40.21-300W OR BETTER, SHOP PRIMED AND TOUCHED UP IN THE FIELD

AFTER ERECTION . CONCRETE BLOCK UNITS ARE TO BE HOLLOW AND UNFILLED EXCEPT FOR FIRST COURSE ABOVE LINTEL WHICH SHALL BE FILLED SOLID UNLESS NOTED OTHERWISE

LINTELS FOR NON-LOAD BEARING MASONRY WALLS				
MASONRY TYPE	MASONRY MAXIMUN TYPE OPENING DEPTH REINFORCEMENT WIDTH		DETAIL	
140 (5 1/2") BLOCK 190 (7 1/2") BLOCK 240 (9 1/2") BLOCK	UP TO 1220 (48")	200 (8'')	2-15M	
140 (5 1/2") BLOCK 190 (7 1/2") BLOCK 240 (9 1/2") BLOCK	1220 (48") TO 2740 (108")	400 (16")	2-15M	
140 (5 1/2") BLOCK 190 (7 1/2") BLOCK 240 (9 1/2") BLOCK	2740 (108'') TO 3660 (144'')	610 (24")	2-15M	
NOTES				

1. READ THIS SCHEDULE IN CONJUNCTION WITH THE ARCHITECTURAL, MECHANICAL AND ELECTRICAL 2. PROVIDE A SUITABLE LINTEL FOR ALL OPENINGS IN MASONRY WALLS (MECH./ELECT.)

3. CONTROL JOINTS NOT TO BE LOCATED THROUGH LINTELS

4. DO NOT PASS DUCTS THROUGH REINFORCED MASONRY LINTELS

5. PROVIDE 300mm MIN. BEARING LENGTH EACH SIDE OF OPENING UNLESS NOTED OTHERWISE 6. CONCRETE STRENGTH fc' = 20 MPa WITH 10mm MAX. AGGREGATE AND 3"±1" SLUMP

7. REINFORCING STEEL GRADE fy = 400 MPa

![](_page_15_Picture_164.jpeg)

![](_page_16_Figure_0.jpeg)

![](_page_16_Picture_1.jpeg)

![](_page_16_Picture_2.jpeg)

![](_page_16_Picture_3.jpeg)

# FOUNDATION NOTES

TOP OF CONCRETE FOOTING ELEVATIONS NOTED ON PLAN AS SUCH (-XXX)
 UNDERSIDE OF ALL FOOTINGS AT EXTERIOR OF BUILDING SHALL BE A

MINIMUM OF 4'-0" BELOW FINISHED GRADE ELEVATION UNLESS NOTED

- OTHERWISE. 3. FOOTINGS HAVE BEEN DESIGNED FOR AN ALLOWABLE SAFE BEARING PRESSURE ON UNDISTURBED NATIVE SOIL OR ENGINEERED FILL. SEE SPECIFICATION AND SOILS REPORT FOR ADDITIONAL INFORMATION. IN THE EVENT OF POORER BEARING CAPACITY AT ELEVATIONS SHOWN, CONTACT ENGINEER FOR REDESIGN OF FOUNDATIONS AS REQUIRED.
- 4. ALL FOOTINGS SHALL BE CENTERED UNDER WALLS UNLESS NOTED.
- 5. SUBGRADE SOIL SHALL BE PROOF-ROLLED PRIOR TO PLACING GRANULAR BASE COURSE.
- 6. SEE ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS, WALL THICKNESS FLOOR SLOPES AND FLOOR FINISHES NOT SHOWN.
- 7. FOUNDATION CONTRACTOR TO CO-ORDINATE WITH ALL TRADES THE LOCATION OF ALL PIPE SLEEVES PASSING THROUGH FOUNDATION WALLS. PIPING IS NOT TO RUN THROUGH OR BELOW FOOTINGS. FOOTINGS TO BE STEPPED DOWN TO SUIT. FOR LOCATION AND DEPTH OF EXISTING AND NEW UNDERGROUND SERVICES NOT SHOWN, REFER TO CIVIL, ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS.
- 8. DROP PIERS DOWN AS INDICATED ON DRAWINGS AND EXTEND CONCRETE FLOOR SLAB OVER.
- 9. DEPRESS TOP OF FOUNDATION WALL 8" TO ALL EXTERIOR AND INTERIOR DOOR OPENINGS. AT EXTERIOR OPENINGS, HOOK TOP BARS DOWN 800mm EACH SIDE OF OPENING. PROVIDE MATCHING HORIZONTAL BARS BELOW DOOR OPENING. EXTEND BARS 800mm BEYOND EDGE OF DOOR OPENING, EACH SIDE. PROVIDE SLAB ON GRADE CONTROL JOINT AT ALL INTERIOR DOORS.
- 10. ELEVATION FOR TOP OF FOUNDATION WALL SHALL BE EQUAL TO TOP OF ADJACENT FINISHED FLOOR, UNLESS NOTED OTHERWISE.
- 11. DRILL AND EPOXY 15M @ 200mm O/C INTO EX. FOUNDATION WALL WHERE NEW FOUNDATIONS MEET EXISTING.
- 12. WHERE NEW FOOTING MEETS EXISTING FOOTING, STEP FOOTING AS REQUIRED TO MATCH EXISTING DEPTH. BOTTOM OF EXISTING FOOTING ASSUMED TO BE 4'-0" BELOW GRADE.

FOOTING SCHEDULE							
0175	THICKNESS	REINFORCE	MENT				
SIZE	(†)	BOTTOM	TOP	REMARKS			
1200 x 1200	250	3-15M E/W (HOOKED)					
500 x 500	250	2-15M E/W (HOOKED)					

PIER SCHEDULE				
PIER MARK	SIZE	REINFORCEMENT	REMARKS	
P1	400 x 400	4-15M VERT. 10M @ 10" TIES	T/O PIER = -200mm	

![](_page_16_Picture_18.jpeg)

![](_page_16_Picture_19.jpeg)

WORKSHOP ARCHITECTURE

PROJECT: CSV PAVILLON DE LA JEUNESSE CHILDCARE ADDITION 105 HIGH STREET

# DRAWING TITLE: FOUNDATION PLAN

HAMILTON, ON

![](_page_16_Picture_23.jpeg)

![](_page_16_Picture_24.jpeg)

![](_page_17_Figure_0.jpeg)

ORIGINAL SHEET – ARCH D

1.	TOP OF FINISHED CONCRETE SLAB ON GRADE ELEVATION AS NOTED ON PLAN.
2.	SLAB ON GRADE TO BE FOUNDED ON MIN. 300mm THK. LAYER OF GRANUL 'A' COMPACTED TO 100% SPMDD. ALTERNATIVELY, CONSIDERATION MAY ALSO BE GIVEN TO USING MIN. 200mm THK. LAYER OF 19mm CLEAR STONE COMPACTED TO 98% SPMDD PLACED OVER APPROVED SUBGRADE BY GEOTECH. ENGINEER. ANY REQUIRED FILL SHOULD CONSIST OF A GRANUL/ 'B' TYPE I OR II.
3.	. SAWCUTS @ MAX. 4000mm O.C., SEE PLAN FOR SAWCUT/CONTROL JOINTS LOCATIONS. CO-ORDINATE LOCATION OF FLOOR CONTROL JOINTS AND/OR CONSTRUCTION JOINTS WITH ARCHITECTURAL FLOOR FINISHES.
4.	. SEE ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS, WALL THICKNESS FLOOR SLOPES AND FLOOR FINISHES NOT SHOWN.
5.	. SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR LOCATION AND SIZE C ALL PITS, INSERTS, DRAINS AND HOUSEKEEPING PADS.
6.	ALL ISOLATION JOINTS AROUND COLUMNS AND FLOOR DRAINS ARE TO BE FORMED NOT SAWCUT.
7.	PROVIDE SLAB THICKENING/ISOLATED FOOTING BELOW ALL INTERIOR CONCRETE BLOCK PARTITION WALLS UNLESS NOTED OTHERWISE.
8.	. DEPRESS AND MAINTAIN SPECIFIED SLAB ON GRADE THICKNESS AT MAT SINKAGES AND OTHER FLOOR DEPRESSIONS. SEE ARCHITECTURAL DRAWING FOR EXACT LOCATIONS.
9.	. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR ALL FLOOR AND WALL PENETRATIONS.
10	). REFER TO DRAWING \$0.0 FOR DOOR/MECH. OPENING LINTELS IN NON-LOA BEARING CONC. BLOCK WALLS.

	LINTEL	SCHEDULE	
MARK	SIZE	DETAIL	NOTES
Ll	W200x19 C/W CONT. 178x6.4mm TOP & BOT. PLATE	I	MIN. 200mm BEARING E/S ON BLOCK WALL. FULLY GROUT COURSES BELOW LINTEL CW BP1
L2	2L-102x89x6.4 (LL∨)	<u></u>	MIN. 200mm BEARING E/S ON BLOCK WALL. FULLY GROUT COURSES BELOW LINTEL
L3	W200x27 C/W CONT. 178x6.4mm TOP & BOT. PLATE	I	MIN. 200mm BEARING E/S ON BLOCK WALL. FULLY GROUT COURSES BELOW LINTEL C/W BP1
L4	2L-64x64x6.4 C/W 300mm x 6.4mm CONT. PLATE WELDED TO HORIZ. LEGS OF ANGLES		MIN. 200mm BEARING E/S ON BLOCK WALL. COORDINATE LOCATIONS WITH MECH. DWGS.
FOR ALL NON-L	.OAD BEARING WALL LINTELS, R	efer to general notes	

BEARING PLATE & WALL PLATE SCHEDULE					
MARK	SIZE	NOTES			
BP1	175x12x175mm	C/W 2-Ø19mm x 200mm LG. NELSON STUDS			
WP1	200x6.4x250mm	C/W 4-Ø16mm THREADED RODS & HILTI HY 200 V3 ADHESIVE (150mm EMBED.)			
NOTE: LAST DIMENSION PARALLEL TO BEAM WEB					

STEEL COLUMN SCHEDULE				
MARK	SIZE	BASEPLATE	NOTES	
Cl	HSS 127x127x6.4	300x12x300 C/W 4-Ø19mm A307 ANCHOR RODS (HOOKED) & 50mm THK. GROUT		
CIA	HSS 127x127x6.4	300x12x175 C/W 2-Ø19mm A307 ANCHOR RODS (HOOKED) & 50mm THK. GROUT		
C2 HANGER	HSS 102x102x6.4 C/W CAP PLATES & FULLY WELDED TO FLANGE OF BEAM		HEIGHT VARIES WITH SLOPE OF ROOF	
C2 STUB	HSS 102x102x6.4 CAP PLATES & FULLY WELDED TO FLANGE OF BEAM			

DESIGN MOMENT (M) FORCES		
MARK	FORCE (FACTORED)	
MF1	7kN · m	
MF2	3.5kN · m	

	1					
	PROJECT NORTH					
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SEAL REVIEW DRAWII CONSI DOCUM UPONT PART O	/ ALL DRAWINGS AND VERIFY ALL DIMENSIC NGS. REPORT ALL DISCREPANCIES TO THE I IRUCTION OR SHOP FABRICATION. ALL DR WENTS ARE THE COPYRIGHT PROPERTY OF REQUEST. REPRODUCTION OF DRAWINGS R WHOLE IS FORBIDDEN WITHOUT THE EN	DNS AT THE SITE. DO I ENGINEER BEFORE PRO AWINGS, SPECIFICATIG MANTECON PARTNEI , SPECIFICATIONS ANI IGINEER'S WRITTEN PE	NOT SCALE THE DCEEDING WITH AT DNS AND RELATED RS' AND MUST BE RI D RELATED DOCUME RMISSION.	NY ETURNED ENTS IN		
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3	ISSUED FOR 90% REV	IEW	2024/09/11	A.B.		
2	ISSUED FOR 80% REVI	IEW	2023/02/17 2022/11/11	A.B. A.B.		
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![](_page_18_Figure_0.jpeg)

MARK	SIZE	NOTES			
BP1	175x12x175mm	C/W 2-Ø19mm x 200mm LG. NELSON STUDS			
WP1	200x6.4x250mm	C/W 4-Ø16mm THREADED RODS & HILTI HY 200 V3 ADHESIVE (150mm EMBED.)			

STEEL COLUMN SCHEDULE				
MARK	SIZE	BASEPLATE		
CI	HSS 127x127x6.4	300x12x300 C/W 4-Ø19mm A307 ANCHOR RODS (HOOKED) & 50mm THK. GROUT		
CIA	HSS 127x127x6.4	300x12x175 C/W 2-Ø19mm A307 ANCHOR RODS (HOOKED) & 50mm THK. GROUT		
C2 HANGER	HSS 102x102x6.4 C/W CAP PLATES & FULLY WELDED TO FLANGE OF BEAM		HEIGH SLO	
C2 STUB	HSS 102x102x6.4 CAP PLATES & FULLY WELDED TO FLANGE OF BEAM			

![](_page_18_Figure_5.jpeg)

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			PROJECT	NORTH
				NTECON
			PAR	RTNERS
		— <u>(1</u> )	STRUCTURAL MECHA ENG	NICAL ELECTRICAL CIVIL INEERS
			Phone: (905)648-0373 SEAL	www.manteconpartners.com
331055				
4.84kPa		2	REVIEW ALL DRAWINGS AND VERIFY ALL DIMENS DRAWINGS, REPORT ALL DISCREPANCIES TO THE CONSTRUCTION OR SHOP FABRICATION. ALL DI DOCUMENTS ARE THE COPYRIGHT PROPERTY OF	IONS AT THE SITE, DO NOT SCALE THE ENGINEER BEFORE PROCEEDING WITH ANY RAWINGS, SPECIFICATIONS AND RELATED * MANTECON PARTNERS' AND MUST BE RETURNED SECEFICATIONS AND PELATED DOCUMENTS IN
			PART OR WHOLE IS FORBIDDEN WITHOUT THE E	NGINEER'S WRITTEN PERMISSION.
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5			NO. ISSUED KEY MAP: N.T.S	DATE BY
		6	n Place	Kenilworth Reservoir
			Heodaide Day	Al agara Escarpation
			East Shern	vood ndary TE
			Mountain	Valecrest Avenue Marpale Avenue
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			CLIENT	
			WORKSHOP ARG	CHITECTURE
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			CHILDCARE ADD	ITION
			HAMILTON, ON	1
			DRAWING TITLE:	
			ROOF FRAMIN	g plans
			DRAWN BY: A.B.	AS NOTED
			CHECKED BY: S.M. DATE:	
			NOV 2022 PROJECT NUMBER:	33.0
			22-059	nom Plotted by abardati

![](_page_19_Figure_0.jpeg)

![](_page_19_Figure_3.jpeg)

N         V         V         V         PROJECT NORTH					
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REVIEW ALL DRAWINGS AND VERIFY ALL DIMENSIONS AT THE SITE. DO DRAWINGS. REPORT ALL DISCREPANCIES TO THE ENGINEER BEFORE PR CONSTRUCTION OR SHOP FABRICATION. ALL DRAWINGS, SPECIFICATI DOCUMENTS ARE THE COPYRIGHT PROPERTY OF "MANTECON PARTNE UPON BEOLIEST PERPONICTION OF DRAWINGS. SPECIFICATIONS AND	REVIEW ALL DRAWINGS AND VERIFY ALL DIMENSIONS AT THE SITE. DO NOT SCALE THE DRAWINGS. REPORT ALL DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING WITH ANY CONSTRUCTION OF SHOP FARRICATION. ALL DRAWINGS. SPECIFICATIONS AND RELATED				
PART OR WHOLE IS FORBIDDEN WITHOUT THE ENGINEER'S WRITTEN P					
4     ISSUED FOR TENDER       3     ISSUED FOR PERMIT       2     ISSUED FOR 90% REVIEW       1     ISSUED FOR 80% REVIEW       NO.     ISSUED	2024/11/20         A.B.           2024/10/25         A.B.           2024/09/11         A.B.           2023/02/17         A.B.           DATE         BY				
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	UKE				
PROJECT: CSV PAVILLON DE LA JEUNESSE CHILDCARE ADDITION 105 HIGH STREET HAMILTON, ON					
drawing title: SECTIONS					
DRAWN BY: A.B. CHECKED BY: S.M. DATE: NOV 2022 PROJECT NUMBER: 22-059 November 20, 2024 – 02:52pm Plotted b	DTED ER: <b>4.0</b> y: abardati				

![](_page_20_Figure_0.jpeg)

![](_page_20_Figure_3.jpeg)

![](_page_21_Figure_0.jpeg)

L ORIGINAL SHEET – ARCH D

NRY PARTITION SEE GS. FOR SIZE AND LOCATIONS UR-O-WAL DA720 SERIES RIANGULAR TIES (12 GA.)	PROJECT NORTH
VENICALIOF VERT. C/W DOVETAIL ANCHOR SLOT BRACKET BY L CAST INTO CONC. WALL UR-O-WAL VETAIL ANCHOR SLOT ALVANIZED	A CONTRACTOR OF THE STRUCTURAL MECHANICAL ELECTRICAL CIVIL ENGINEERS
OPENING OPENING OPENING CONC. FILL (TYP.) AT CORNERS PROVIDE 4-15M VERTICALS GROUT SOLID VERTICALS GROUT SOLID NOTE: ALL CORNERS TO BE INTERLOCKED AND BONDED	Phone: (905)648-0373 www.manteconpartners.com SEAL
x 400mm /16" x 16" LATE + BENT PLATE DO S00mm (24") OMATCH SING	REVIEW ALL DRAWINGS AND VERIFY ALL DIMENSIONS AT THE SITE. DO NOT SCALE THE DRAWINGS. REPORT ALL DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING WITH ANY CONSTRUCTION OR SHOP FABRICATION. ALL DRAWINGS, SPECIFICATIONS AND RELATED DOCUMENTS ARE THE COPYRIGHT PROPERTY OF 'MANTECON PARTNERS' AND MUST BE RETURNED UPON REQUEST. REPRODUCTION OF DRAWINGS, SPECIFICATIONS AND RELATED DOCUMENTS IN PART OR WHOLE IS FORBIDDEN WITHOUT THE ENGINEER'S WRITTEN PERMISSION.
	5         ISSUED FOR TENDER         2024/11/20         A.B.           4         ISSUED FOR PERMIT         2024/10/25         A.B.           3         ISSUED FOR 90% REVIEW         2024/09/11         A.B.           2         ISSUED FOR 80% REVIEW         2023/02/17         A.B.           1         ISSUED FOR 60% REVIEW         2022/11/11         A.B.
TON JOINT IS LOCATED ON SAWCUT LINE DLED JOINT AND BREAK JOINT WITH FORM 25 (1") MIN. UNLESS NOTED EXPANSION JOINT EXPANSION JOINT HERE ONE EXPANSION JOINT FILLER ATERSTOP HERE ONE EXPANSION JOINT FILLER SIDES	KEY MAP: N.I.S         Image: Comparison of the second of
400W REBAR       SIZE     Id       In     In       (1)     15M       225mm (9")     T/O PIER       (1)     (1)	DRAWING TITLE: TYPICAL DETAILS DRAWING TITLE: TYPICAL DETAILS DRAWING MUMBER: A.B. CHECKED BY: S.M. DATE: NOV 2022
	INCV 2022JO.UPROJECT NUMBER:22-059November 20, 2024 – 02:53pm Plotted by: abardati

# MECHANICAL DRAWING LIST

M0.0GENERAL NOTES, DRAWING LIST & LEGENDSM0.1MECHANICAL SPECIFICATIONSM0.2MECHANICAL SPECIFICATIONSM0.4MECHANICAL SPECIFICATIONSM0.5MECHANICAL SPECIFICATIONSM0.6OVERALL SITE PLAN & MECHANICAL DEMOLITION PLANM1.0PROPOSED GROUND FLOOR DRAINAGE PLANM1.1PROPOSED GROUND FLOOR PLUMBING PLANM2.0PROPOSED GROUND FLOOR PLUMBING PLANM3.0PROPOSED GROUND FLOOR FIRE PROTECTION PLANM4.0PROPOSED GROUND FLOOR/ROOF LEVEL HVAC PLANM4.1PROPOSED GROUND FLOOR HYDRONIC PLANM5.0MECHANICAL DETAILSM5.1MECHANICAL DETAILSM5.3MECHANICAL DETAILSM6.0MECHANICAL DETAILSM6.0MECHANICAL DETAILS		
<ul> <li>M0.1 MECHANICAL SPECIFICATIONS</li> <li>M0.2 MECHANICAL SPECIFICATIONS</li> <li>M0.4 MECHANICAL SPECIFICATIONS</li> <li>M0.5 MECHANICAL SPECIFICATIONS</li> <li>M0.6 OVERALL SITE PLAN &amp; MECHANICAL DEMOLITION PLAN</li> <li>M1.0 PROPOSED GROUND FLOOR DRAINAGE PLAN</li> <li>M1.1 PROPOSED GROUND FLOOR/ ROOF LEVEL STORM DRAINAGE PLAN</li> <li>M2.0 PROPOSED GROUND FLOOR PLUMBING PLAN</li> <li>M3.0 PROPOSED GROUND FLOOR FIRE PROTECTION PLAN</li> <li>M4.1 PROPOSED GROUND FLOOR HYDRONIC PLAN</li> <li>M4.1 PROPOSED GROUND FLOOR HYDRONIC PLAN</li> <li>M5.0 MECHANICAL DETAILS</li> <li>M5.1 MECHANICAL DETAILS</li> <li>M5.3 MECHANICAL DETAILS</li> <li>M6.0 MECHANICAL DETAILS</li> <li>M6.0 MECHANICAL DETAILS</li> </ul>	M0.0	GENERAL NOTES, DRAWING LIST & LEGENDS
<ul> <li>M0.2 MECHANICAL SPECIFICATIONS</li> <li>M0.4 MECHANICAL SPECIFICATIONS</li> <li>M0.5 MECHANICAL SPECIFICATIONS</li> <li>M0.6 OVERALL SITE PLAN &amp; MECHANICAL DEMOLITION PLAN</li> <li>M1.0 PROPOSED GROUND FLOOR DRAINAGE PLAN</li> <li>M1.1 PROPOSED GROUND FLOOR/ ROOF LEVEL STORM DRAINAGE PLAN</li> <li>M2.0 PROPOSED GROUND FLOOR PLUMBING PLAN</li> <li>M3.0 PROPOSED GROUND FLOOR FIRE PROTECTION PLAN</li> <li>M4.0 PROPOSED GROUND FLOOR /ROOF LEVEL HVAC PLAN</li> <li>M4.1 PROPOSED GROUND FLOOR HYDRONIC PLAN</li> <li>M5.0 MECHANICAL DETAILS</li> <li>M5.1 MECHANICAL DETAILS</li> <li>M5.3 MECHANICAL DETAILS</li> <li>M6.0 MECHANICAL SCHEDULES</li> </ul>	M0.1	MECHANICAL SPECIFICATIONS
<ul> <li>M0.4 MECHANICAL SPECIFICATIONS</li> <li>M0.5 MECHANICAL SPECIFICATIONS</li> <li>M0.6 OVERALL SITE PLAN &amp; MECHANICAL DEMOLITION PLAN</li> <li>M1.0 PROPOSED GROUND FLOOR DRAINAGE PLAN</li> <li>M1.1 PROPOSED GROUND FLOOR/ ROOF LEVEL STORM DRAINAGE PLAN</li> <li>M2.0 PROPOSED GROUND FLOOR PLUMBING PLAN</li> <li>M3.0 PROPOSED GROUND FLOOR FIRE PROTECTION PLAN</li> <li>M4.0 PROPOSED GROUND FLOOR/ROOF LEVEL HVAC PLAN</li> <li>M4.1 PROPOSED GROUND FLOOR HYDRONIC PLAN</li> <li>M5.0 MECHANICAL DETAILS</li> <li>M5.2 MECHANICAL DETAILS</li> <li>M5.3 MECHANICAL DETAILS</li> <li>M6.0 MECHANICAL DETAILS</li> <li>M6.0 MECHANICAL DETAILS</li> </ul>	M0.2	MECHANICAL SPECIFICATIONS
<ul> <li>M0.5 MECHANICAL SPECIFICATIONS</li> <li>M0.6 OVERALL SITE PLAN &amp; MECHANICAL DEMOLITION PLAN</li> <li>M1.0 PROPOSED GROUND FLOOR DRAINAGE PLAN</li> <li>M1.1 PROPOSED GROUND FLOOR/ ROOF LEVEL STORM DRAINAGE PLAN</li> <li>M2.0 PROPOSED GROUND FLOOR PLUMBING PLAN</li> <li>M3.0 PROPOSED GROUND FLOOR FIRE PROTECTION PLAN</li> <li>M4.0 PROPOSED GROUND FLOOR HYDRONIC PLAN</li> <li>M4.1 PROPOSED GROUND FLOOR HYDRONIC PLAN</li> <li>M5.0 MECHANICAL DETAILS</li> <li>M5.2 MECHANICAL DETAILS</li> <li>M5.3 MECHANICAL DETAILS</li> <li>M6.0 MECHANICAL SCHEDULES</li> </ul>	M0.4	MECHANICAL SPECIFICATIONS
<ul> <li>M0.6 OVERALL SITE PLAN &amp; MECHANICAL DEMOLITION PLAN</li> <li>M1.0 PROPOSED GROUND FLOOR DRAINAGE PLAN</li> <li>M1.1 PROPOSED GROUND FLOOR/ ROOF LEVEL STORM DRAINAGE PLAN</li> <li>M2.0 PROPOSED GROUND FLOOR FLOOR PLUMBING PLAN</li> <li>M3.0 PROPOSED GROUND FLOOR FIRE PROTECTION PLAN</li> <li>M4.0 PROPOSED GROUND FLOOR/ROOF LEVEL HVAC PLAN</li> <li>M4.1 PROPOSED GROUND FLOOR HYDRONIC PLAN</li> <li>M5.0 MECHANICAL DETAILS</li> <li>M5.3 MECHANICAL DETAILS</li> <li>M6.0 MECHANICAL SCHEDULES</li> </ul>	M0.5	MECHANICAL SPECIFICATIONS
<ul> <li>M1.0 PROPOSED GROUND FLOOR DRAINAGE PLAN</li> <li>M1.1 PROPOSED GROUND FLOOR/ ROOF LEVEL STORM DRAINAGE PLAN</li> <li>M2.0 PROPOSED GROUND FLOOR PLUMBING PLAN</li> <li>M3.0 PROPOSED GROUND FLOOR FIRE PROTECTION PLAN</li> <li>M4.0 PROPOSED GROUND FLOOR/ROOF LEVEL HVAC PLAN</li> <li>M4.1 PROPOSED GROUND FLOOR HYDRONIC PLAN</li> <li>M5.0 MECHANICAL DETAILS</li> <li>M5.2 MECHANICAL DETAILS</li> <li>M5.3 MECHANICAL DETAILS</li> <li>M6.0 MECHANICAL SCHEDULES</li> </ul>	M0.6	OVERALL SITE PLAN & MECHANICAL DEMOLITION PLAN
<ul> <li>M1.1 PROPOSED GROUND FLOOR/ ROOF LEVEL STORM DRAINAGE PLAN</li> <li>M2.0 PROPOSED GROUND FLOOR PLUMBING PLAN</li> <li>M3.0 PROPOSED GROUND FLOOR FIRE PROTECTION PLAN</li> <li>M4.0 PROPOSED GROUND FLOOR/ROOF LEVEL HVAC PLAN</li> <li>M4.1 PROPOSED GROUND FLOOR HYDRONIC PLAN</li> <li>M5.0 MECHANICAL DETAILS</li> <li>M5.2 MECHANICAL DETAILS</li> <li>M5.3 MECHANICAL DETAILS</li> <li>M6.0 MECHANICAL SCHEDULES</li> </ul>	M1.0	PROPOSED GROUND FLOOR DRAINAGE PLAN
<ul> <li>M2.0 PROPOSED GROUND FLOOR PLUMBING PLAN</li> <li>M3.0 PROPOSED GROUND FLOOR FIRE PROTECTION PLAN</li> <li>M4.0 PROPOSED GROUND FLOOR/ROOF LEVEL HVAC PLAN</li> <li>M4.1 PROPOSED GROUND FLOOR HYDRONIC PLAN</li> <li>M5.0 MECHANICAL DETAILS</li> <li>M5.1 MECHANICAL DETAILS</li> <li>M5.2 MECHANICAL DETAILS</li> <li>M5.3 MECHANICAL DETAILS</li> <li>M6.0 MECHANICAL SCHEDULES</li> </ul>	M1.1	PROPOSED GROUND FLOOR/ ROOF LEVEL STORM DRAINAGE PLAN
<ul> <li>M3.0 PROPOSED GROUND FLOOR FIRE PROTECTION PLAN</li> <li>M4.0 PROPOSED GROUND FLOOR/ROOF LEVEL HVAC PLAN</li> <li>M4.1 PROPOSED GROUND FLOOR HYDRONIC PLAN</li> <li>M5.0 MECHANICAL DETAILS</li> <li>M5.1 MECHANICAL DETAILS</li> <li>M5.2 MECHANICAL DETAILS</li> <li>M5.3 MECHANICAL DETAILS</li> <li>M6.0 MECHANICAL SCHEDULES</li> </ul>	M2.0	PROPOSED GROUND FLOOR PLUMBING PLAN
<ul> <li>M4.0 PROPOSED GROUND FLOOR/ROOF LEVEL HVAC PLAN</li> <li>M4.1 PROPOSED GROUND FLOOR HYDRONIC PLAN</li> <li>M5.0 MECHANICAL DETAILS</li> <li>M5.2 MECHANICAL DETAILS</li> <li>M5.3 MECHANICAL DETAILS</li> <li>M6.0 MECHANICAL SCHEDULES</li> </ul>	M3.0	PROPOSED GROUND FLOOR FIRE PROTECTION PLAN
M4.1       PROPOSED GROUND FLOOR HYDRONIC PLAN         M5.0       MECHANICAL DETAILS         M5.1       MECHANICAL DETAILS         M5.2       MECHANICAL DETAILS         M5.3       MECHANICAL DETAILS         M6.0       MECHANICAL SCHEDULES	M4.0	PROPOSED GROUND FLOOR/ROOF LEVEL HVAC PLAN
<ul> <li>M5.0 MECHANICAL DETAILS</li> <li>M5.1 MECHANICAL DETAILS</li> <li>M5.2 MECHANICAL DETAILS</li> <li>M5.3 MECHANICAL DETAILS</li> <li>M6.0 MECHANICAL SCHEDULES</li> </ul>	M4.1	PROPOSED GROUND FLOOR HYDRONIC PLAN
<ul> <li>M5.1 MECHANICAL DETAILS</li> <li>M5.2 MECHANICAL DETAILS</li> <li>M5.3 MECHANICAL DETAILS</li> <li>M6.0 MECHANICAL SCHEDULES</li> </ul>	M5.0	MECHANICAL DETAILS
M5.2 MECHANICAL DETAILS M5.3 MECHANICAL DETAILS M6.0 MECHANICAL SCHEDULES	M5.1	MECHANICAL DETAILS
M5.3 MECHANICAL DETAILS M6.0 MECHANICAL SCHEDULES	M5.2	MECHANICAL DETAILS
M6.0 MECHANICAL SCHEDULES	M5.3	MECHANICAL DETAILS
	M6.0	MECHANICAL SCHEDULES

### GENERAL NOTES

- REFER TO SITE AND OWNER INSTRUCTIONS FOR PHASING AND STAGING.
- THE CONTRACTOR SHALL CO-ORDINATE WITH THE STRUCTURAL TO PROVIDE OPENINGS AND SLEEVES THROUGH STRUCTURAL ELEMENTS WHERE REQUIRED.
- PENETRATIONS OF CONCRETE SHALL BE SAW-CUT OR CORE BORED-IMPACT HAMMERS ARE NOT ALLOWED, SEAL ALL DUCTWORK & SLEEVES TO PREVENT LEAKAGE THRU FLOOR.
- DO NOT SCALE DRAWINGS FOR INSTALLATION PURPOSES. OBTAIN ALL DIMENSIONS FROM ARCHITECTURAL PLANS, MANUFACTURER'S SHOP DRAWINGS, AND ON SITE INSPECTIONS.
- MECHANICAL, DIV. 2-14 AND ELECTRICAL TRADES SHALL WORK IN CONJUNCTION WITH ONE ANOTHER SO AS TO AVOID INTERFERENCE'S BETWEEN PIPING, DUCTWORK, CONDUIT, LIGHTING FIXTURES, ETC.
- WORK SHALL BE CO-ORDINATED THROUGH THE GENERAL CONTRACTOR PRIOR TO INSTALLATION C ANY EQUIPMENT, DUCTWORK AND CONTROLS. CO-ORDINATE WITH ARCHITECTURAL ELEVATIONS FOR ARCHITECTURAL, MECHANICAL, AND ELECTRICAL SPACE ALLOCATIONS.
- PROPERLY SUPPORT CEILING MOUNTED EQUIPMENT AND ANY OTHER EQUIPMENT INDEPENDENT OF CEILING SUPPORT SYSTEM. REFER TO ARCHITECTURAL DETAILS AND CO-ORDINATE WITH STRUCTURAL
- REFER TO ARCHITECTURAL FOR OWNER SUPPLIED EQUIPMENT. CONFIRM ALL MECHANICAL REQUIREMENTS AND PROVIDE TO SUIT.
- REVIEW ARCHITECTURAL, ELECTRICAL, AND STRUCTURAL DRAWINGS AND PROVIDE ON SITE INSPECTIONS TO DETERMINE FULL EXTENT OF PROJECT PRIOR TO SUBMITTING BID.
- CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL MECHANICAL SERVICES TO THE OCCUPIED AREA THROUGHOUT THE PHASING OF THE WORK. PROVIDE CONSTRUCTION VALVES, TEMPORARY DUCTWORK AND PIPING AS REQUIRED TO LIMIT THE SHUT DOWN OF SERVICES TO ONE TIME.
- EXISTING MECHANICAL SERVICES SHOWN ON THESE DRAWINGS WERE TAKEN FROM THE ORIGINAL CONTRACT DRAWINGS AS LISTED BELOW. THE CONTRACTOR SHALL VERIFY EXACT SIZE AND LOCATION OF ALL EXISTING SERVICES ON SITE AND SHALL REMOVE ALL REDUNDANT SERVICES IN THE AREAS OF CONSTRUCTION.
- ALL DRAWINGS ARE INTEGRATED WITH THE SPECIFICATIONS WHICH ACCOMPANY THEM. NEITHER IS TO BE USED ALONE. ANY ITEM OR SUBJECT OMITTED FROM ONE BUT IMPLIED IN THE OTHER IS FULLY AND PROPERLY REQUIRED. WHEREVER DIFFERENCE OCCURS, THE MOST ONEROUS CONDITION GOVERNS
- 13. PENETRATIONS OF EITHER FIRE OR SMOKE BARRIER RESISTANT WALLS SHALL BE SLEEVED & SEALED AGAINST THE PASSAGE OF FLAME OR SMOKE W/SUITABLE NON-COMBUSTIBLE MATERIALS EQUAL T THE CONSTRUCTION TO BE PENETRATED.
- AVOID ANY DIRECT CONTACT BETWEEN ANY PIPING, DUCTING AND ELECTRICAL CONDUIT SYSTEM: TO PREVENT SOUND TRANSMISSION
- 5. IF ANY AREAS ARE AFFECTED BY THE NEW SCOPE OF WORK, CONTRACTOR TO CARRY COSTS FOR THE REMOVAL AND INSTALLATION OF THE EXISTING CEILING TILES. REFER TO ARCHITECTURAL NEW REFLECTED CEILING PLAN FOR SCOPE OF NEW CEILING.
- INSTALLATION SHALL BE COMPLETE AND FULLY FUNCTIONAL. PROVIDE ALL LABOR, MATERIALS, TOOLS, SERVICES, EQUIPMENT, ETC. AS REQUIRED.
- PROVIDE ACCESS FOR SERVICING EQUIPMENT AS INDICATED, AS REQUIRED BY CODE AND AS RECOMMENDED BY THE MANUFACTURER.
- PROVIDE ACCESS DOORS AS NECESSARY FOR ACCESS TO VALVES, DAMPERS, AND OTHER COMPONENTS REQUIRING MONITORING, INSPECTION, AND MAINTENANCE.
- INSTALL EQUIPMENT, DUCTS, AND PIPES PARALLEL TO OR PERPENDICULAR TO BUILDING LINES. PROVIDE SPACE, UNIONS AND FLANGES FOR DISASSEMBLY, SERVICING AND REMOVAL OF EQUIPMENT
- THE CONTRACTOR SHALL, WITH APPROVAL OF THE OWNER AND AT NO ADDITIONAL CONTRACT COST, REMOVE, REARRANGE AND/OR RELOCATE ANY OBSTRUCTIONS WHICH INTERFERE WITH INSTALLATION OF NEW WORK.
- ALL SHUTDOWN OF ANY PORTION OF EXISTING BUILDING SYSTEMS SHALL BE PERFORMED WITH THE OWNER'S CONSENT. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER FOR TIME AND DURATION OF SERVICE INTERRUPTIONS. INCLUDE COST OF PREMIUM TIME IN THE CONTRACT PRICE FOR WORK PERFORMED DURING NIGHTS, WEEK-ENDS OR OTHER TIME OUTSIDE NORMAL WORKING HOURS AS NECESSARY TO MAINTAIN MECHANICAL SERVICES IN OPERATION.
- WHEN A CONFLICT OCCURS BETWEEN INSTALLATION DETAILS, DIAGRAMS, ETC. INDICATED IN THE CONTRACT DOCUMENTS AND MANUFACTURER'S INSTALLATION INSTRUCTIONS, THE MANUFACTURER'S INSTRUCTIONS SHALL GOVERN AND SHALL BE FOLLOWED.
- . ALL INSTALLATIONS SHALL BE IN ACCORDANCE WITH CODES, APPLICABLE STANDARDS, BULLETINS ETC., AND REQUIREMENTS OF ALL INSPECTION AUTHORITIES FOR THE <u>CITY OF HAMILTON</u>.
- 24. DUE TO INCONSISTENT RECORD OF EXISTING SERVICES NOT ALL SERVICES MAY BE SHOWN, OR IF SHOWN MAY NOT BE ACCURATE. IT IS CONTRACTORS RESPONSIBILITY TO FIELD CONFIRM ALL SERVICES.
- 25. CONTRACTOR IS TO VERIFY CONNECTION POINTS TO EXISTING SERVICES ON SITE.
- 5. CHECK AND VERIFY LOCATION OF ALL PIPES, DUCTS AND EQUIPMENT WITH ALL OTHER TRADES TO PREVENT INTERFERENCE. REMOVAL OR RELOCATION OF ANY SUCH WORK INTERFERING WITH WORK OF OTHER TRADES IS THE RESPONSIBILITY OF THE MECHANICAL TRADE CONCERNED UNLESS OTHERWISE APPROVED IN WRITING.
- PROVIDE ACCESS DOOR FOR ALL VALVES LOCATED ABOVE DRY WALL CEILING.
- . IN ALL INSTANCES THE NEED FOR ACCESS DOOR IN GWB CEILINGS SHOULD BE AVOIDED IF POSSIBI WHERE INSTALLATION OF COMPONENTS WHICH REQUIRE ACCESS CANNOT BE AVOIDED, SUBMIT (DIMENSIONED) LAYOUT ON ARCHITECTURAL REFLECTED CEILING PLANS TO CONSULTANTS FOR APPROVAL PRIOR TO INSTALLATION OF COMPONENT.
- BEFORE CUTTING ANY HOLES THROUGH THE EXISTING SLAB REFER TO STRUCTURAL DRAWINGS FOR GENERAL REQUIREMENTS.
- PROVIDE SIGN IDENTIFYING LOCATION OF ALL VALVES INSTALLED IN CEILING SPACE.

## GENERAL DEMOLITION NOTES

- CONTRACTOR IS TO ENSURE THAT ALL EXISTING PIPING SERVING EXITING AREAS REMAIN IN SERVICE UNTIL THESE AREAS ARE RECONNECTED TO NEW SERVICES. ONLY THEN OBSOLETE PIPING IS TO BE REMOVED AS SHOWN. ALL DISTURBED SURFACES AFTER PIPE REMOVAL OR REROUTING TO BE FILLED-IN WITH
- APPROPRIATE MATERIAL TO MAINTAIN FIRE SEPARATION AND PATCHED TO MATCH EXISTING OR
- CONTRACTOR IS TO ENSURE THAT ALL EXISTING REMOVED FIXTURES AND EQUIPMENT REMAIN THE PROPERTY OF THE OWNER.
- AFTER PIPE/DUCT REMOVAL ALL EXISTING OPENINGS IN FIRE SEPARATION ARE TO BE FILLED-IN TO MAINTAIN INTEGRITY OF THAT FIRE SEPARATION.

### PLUMBING NOTES

- CONTRACTOR IS TO CLEAR EXISTING DUCTWORK WHEN INSTALLING NEW PIPING. CLEARANCES TO BE VERIFIED ON SITE.
- PROVIDE A CLEANOUT AT THE BOTTOM OF EVERY SOIL AND WASTE STACK THAT CONNECTS TO
- A HORIZONTAL DRAINAGE PIPE.
- PROVIDE A CLEANOUT FROM EACH PLUMBING FIXTURE WHERE REQUIRED BY ONTARIO BUILDING CODE, PART 7 - PLUMBING.
- ALL PLUMBING FIXTURES INCLUDING FLOOR DRAINS (HUB, FUNNEL FLOOR DRAINS) TO BE TRAPPED AND VENTED AS REQUIRED BY ONTARIO BUILDING CODE, PART 7 - PLUMBING.
- FOR MOUNTING HEIGHT OF ALL PLUMBING FIXTURES REFER TO ARCHITECTURAL DRAWINGS.
- PROVIDE ACCESS DOOR FOR ALL CLEANOUTS LOCATED ABOVE DRY WALL CEILING.
- CONTRACTOR IS TO REMOVE ALL OBSOLETE PIPING WHEREVER POSSIBLE.
- CONTRACTOR IS TO ENSURE THAT ALL EXISTING PIPING SERVING EXISTING AREAS REMAIN IN SERVICE UNTIL THESE AREAS ARE RECONNECTED TO NEW SERVICES. ONLY THEN OBSOLETE PIPING IS TO BE REMOVED AS SHOWN.
- RECONNECT VENTS FROM EXISTING EQUIPMENT AND PLUMBING FIXTURES WHICH ARE TO REMAIN TO NEW VENTS AS REQUIRED.
- WHENEVER COLD AND HOT WATER DISTRIBUTION TO LAVATORIES IS TO RUN UNDER COUNTER, PIPING DISTRIBUTION IS TO BE INSTALLED AS TIGHT TO UNDER SIDE OF THE COUNTER AS POSSIBLE.
- ALL WATER, SANITARY, SEWER AND VENT COPPER PIPING WITH SOLDER JOINTS SHALL BE LEAD FREE. DO NOT INSTALL WATER LINES IN OUTSIDE WALL WHERE THEY MAY FREEZE, UNLESS BOTH THE WALL AND THE PIPES ARE PROPERLY INSULATED.
- INSTALL SHUT-OFF VALVES AT EACH PLUMBING FIXTURE.
- DEMOLITION AND REMOVAL OF PLUMBING AND DRAINAGE PIPING SHALL BE TAKEN BACK TO THE NEAREST WORKING MAIN AND BE CAPPED AS CLOSE TO THE WORKING MAIN AS POSSIBLE TO AVOID DEAD LEG LENGTHS OF PIPING. REFER TO CSA CODE Z317. SPECIAL REQUIREMENTS FOR PLUMBING INSTALLATIONS IN HEALTH CARE FACILITIES 6.4.1.3

### **LEGEND - PLUMBING**

THIS LEGEND OF SYM	MBOLS REPRESENTS MANTECON PARTNERS INC. STANDARD/GENERIC LEGEND. ALL SYMBOLS MAY NOT APPEAR ON DRAWINGS.
REFER	DESCRIPTION
E	EXISTING
A	ABANDONED
	DOMESTIC COLD WATER
	DOMESTIC HOT WATER
	DOMESTIC HOT WATER RECIRC.
	PIPING DOMESTIC TEMPERED WATER
PO\$	PIPING REVERSE OSMOSIS SUPPLY
	PIPING REVERSE OSMOSIS RETURN
NON	PIPING COLD SOFT WATER
	PIPING VENT
	PIPING SANITARY PIPING ABOVE
	FLOOR SANITARY PIPING BELOW GRADE OR
	FLOOR STORM PIPING ABOVE
S	FLOOR STORM PIPING BELOW GRADE OR
<b>— — - S - — —</b>	FLOOR ACID WASTE
AW	PIPING ACID VENT
AV	PIPING
CS	PIPING OVER PIPING
C	PIPING
PC	PUMPED CONDENSALE PIPING
PD-	PUMPED DISCHARGE PIPING
	FORCEMAIN PIPING
G	GAS PIPING
CA	COMPRESSED AIR PIPING
NP	NON PORTABLE PIPING FOR IRRIGATION
*****	PIPING TO BE REMOVED
<del></del>	HEAT TRACED PIPING
E	CONNECTION OF NEW AND EXISTING
3	CAPPED PIPE
FD	FLOOR DRAIN
FFD	FUNNEL FLOOR DRAIN
	ARFA DRAIN
FS	
	NON-FREEZE WALL HYDRANT c/w VACUUM
	BREAKER
	THROTTLING VALVE
	CHECK VALVE
	CHECK VALVE c/w BALL DRIP VALVE
	STRAINER
	GAS VALVE
	PREVENTER
	VACUUM BREAKER - PRESSURE TYPE
	PRESSURE REDUCING VALVE (WATER)
VTR	VENT THROUGH ROOF
$\bowtie$	3-WAY VALVE
<u>لم</u>	TEMPERATURE & PRESSURE RELIEF VALVE
図	CONTROL VALVE
	UNION
<b>O</b> PG	PRESSURE GAUGE
Τ	THERMOMETER
	PUMP
ə	PIPE DOWN
o	PIPE UP
•	PIPE UP & DOWN
	PIPE TEE

# FIRE PROTECTION NOTES

- SPRINKLER CONTRACTOR IS RESPONSIBLE FOR DESIGN OF SPRINKLER SYSTEM IN STRICT ACCORDANCE WITH THE ONTARIO BUILDING CODE, ALL APPLICABLE NFPA STANDARDS, THE REQUIREMENTS OF THE OWNER'S INSURANCE UNDERWRITERS ENGINEERING AUTHORITY (O.I.U.E.A.) AND AUTHORITIES HAVING JURISDICTION.
- THE CONTRACTOR SHALL COORDINATE THE INSTALLATION WITH THE WORK OF OTHER TRADES. PROVIDE HORIZONTAL AND/OR VERTICAL OFFSETS AS REQUIRED TO SUIT THIS COORDINATION.
- PROVIDE ADDITIONAL SPRINKLER HEADS AS REQUIRED TO SUIT OBSTRUCTIONS GREATER THAN 1200mm (48") [I.E.: DUCTWORK, BULKHEADS, ETC.].
- CONTRACTOR SHALL PAY ALL FEES, CHARGES AND COSTS REQUIRED FOR REVIEWS, INSPECTIONS, TESTS OR COMMENTS IN REGARDS TO THIS PROJECT.
- THE SPRINKLER LAYOUT SHOWN ON THESE DRAWINGS SERVE AS A GENERAL SCOPE OF WORK. THE SPRINKLER CONTRACTOR SHALL MAKE ALL MODIFICATIONS TO THE DESIGN TO COMPLY WITH AUTHORITIES REQUIREMENTS AND TO THE ARCHITECT'S APPROVAL. SPRINKLER HEADS MAY BE ADDED OR DELETED TO PROVIDE ADEQUATE COVERAGE AS DETERMINED BY THE SPRINKLER CONTRACTOR AT NO EXTRA OR CREDIT TO THE CONTRACT, PROVIDED ALL APPROVALS ARE MET IN FULL COORDINATION MECHANICAL, ELECTRICAL, STRUCTURAL AND ARCHITECTURAL ELEMENTS OF THE BUILDINGS.
- 5. FOR FINAL COORDINATION OF SPRINKLER LAYOUT REFER TO ARCHITECTURAL REFLECTED CEILING PLAN.
- SPRINKLER CONTRACTOR IS TO SUBMIT LAYOUT OF SPRINKLER HEAD LOCATIONS TO ARCHITECT AND CONSULTANTS FOR REVIEW.
- 3. IN "T" BAR CEILING LOCATE SPRINKLERS CENTERED LENGTHWISE WITH TILE, AT LEAST 6" FROM "T".
- P. PROVIDE WIRE GUARDS ON ALL SPRINKLERS IN MECHANICAL AND ELECTRICAL ROOMS.
- 0. PROVIDE STAMPED SPRINKLER SHOP DRAWINGS FOR REVIEW PRIOR TO COMMENCING ANY WORK.
- 1. APPLY FOR & PAY FOR A SPRINKLER PERMIT.
- 2. PROVIDE A ULC APPROVED FIRE STOP SEALANT AT ALL PIPE & DUCTWORK PENETRATIONS. REFER TO ARCHITECTURAL DRAWINGS FOR FIRE RATING REQUIREMENTS.

#### LEGEND - FIRE PROTECTION THIS LEGEND OF SYMBOLS REPRESENTS MANTECON PARTNERS INC. STANDARD/GENERIC LEGEND. ALL SYMBOLS MAY NOT APPEAR ON DRAWINGS. RFFFR DESCRIPTION EXISTING —— F —— Standpipi ——— F ——— \_\_\_\_\_\_SP \_\_\_\_\_ DRY STANDPIPE \_\_\_\_\_DF \_\_\_\_\_ DRY SPRINKLER DSP ------STANDPIPE FIRE DEPARTMENT CONNECTION SPRINKLER FIRE DEPARTMENT CONNECTION ELECTRICALLY SUPERVISED VALVE FLOW Ю FIRE DEPARTMENT PUMPER $\rightarrow$ FIRE HOSE CABINET - SURFACI IRE HOSE CABINET - SEMI PRINKLER CONTROL FIRE EXTINGUISHER - SURFACE **FEX** FIRE EXTINGUISHER FEC CABINET SECURE FIRE EXTINGUISHER SFEC SPRINKLER HEAD • SPRINKLER HEAD -× SPRINKLER HEAD - PENDENT C/W WIRE ( )SPRINKLER HEAD - UPRIGHT C/w WIRE SPRINKLER HEAD -SIDEWALL SPRINKLER HEAD - SIDEWALL c/w WIRE GUARD SPRINKLER HEAD - PENDENT • SPRINKLER HEAD - HIGH TEMPERATURE HT SPRINKLER HEAD - HIGH TEMPERATURE 💓 HT SPRINKLER HEAD - DRY • D

# DRAWING NOTES

- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE ONTARIO BUILDING CODE, NFPA STANDARDS NO,'S 10, 13, & 14 AND TO THE LOCAL AUTHORITIES REQUIREMENTS.
- THE CONTRACTOR SHALL COORDINATE THE INSTALLATION WITH THE WORK OF OTHER THE CONTRACTOR SHALL COORDINATE THE INSTALLATION WITH THE TOWN OF TRADES, PROVIDE HORIZONTAL AND/OR VERTICAL OFFSETS AS REQUIRED TO SUIT THIS
- COORDINATION PROVIDE ADDITIONAL SPRINKLER HEADS AS REQUIRED TO SUIT OBSTRUCTIONS GREATER THAN
   1200mm (48") [I.E.: DUCTWORK, BULKHEADS, ETC.].

# GENERAL SITE SERVICE NOTES

- CONTRACTOR IS TO VERIFY LOCATIONS OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.
- ALL EXISTING UTILITIES AND SERVICES ARE TO BE MAINTAINED AND SUPPORTED BY THE CONTRACTOR TO THE SATISFACTION OF THE OWNER OF THE UTILITY.

# HVAC NOTES

- REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR CO-ORDINATION OF GRILLES. DIFFUSERS AND OTHER ELEMENTS.
- CONTRACTORS SHALL COORDINATE ALL CEILING FINISHES WITH OWNER AND MATCH EXISTING. CONTRACTOR SHALL REVIEW MECHANICAL DRAWINGS, ARCHITECTURAL REFLECTED CEILING PLANS AND ARCHITECTURAL ROOM FINISH SCHEDULES AS SOON AS CONTRACT DOCUMENTS ARE SIGNED. ADVISE CONSULTANT OF ANY CONFLICTS BETWEEN CEILING TYPE AND DIFFUSER/GRILLE TYPE.
- THE CONTRACTOR SHALL VERIFY ALL CEILING FINISHES WITH ARCHITECTURAL DRAWINGS. CONTRACTOR AND DIFFUSER/GRILLE SUPPLIER ARE RESPONSIBLE TO PROVIDE ALL PLASTER AND FINISHING FRAMES, MOUNTING HARDWARE, AND ACCESSORIES TO SUIT ARCHITECTURAL CEILING TYPES. MECHANICAL CONTRACTOR SHALL CO-ORDINATE AND PROVIDE DETAILS OF MOUNTING REQUIREMENTS OF DIFFUSERS AND GRILLES IN DRYWALL CEILINGS TO DRYWALL TRADE AND ENSURE EDGES OF OPENINGS ARE FRAMED BY DRYWALL TRADE TO SUPPORT DIFFUSERS AND GRILLES PROPERLY. DIFFUSERS AND GRILLES MUST NOT BE SUPPORTED SOLELY BY HANGER WIRES
- CONTRACTOR TO CARRY FOR ADDITIONAL DUCTS AND DUCT FITTING REQUIRED TO CLEAR THE INTERFERENCES IN THE CEILING SPACE.
- ALL NEW DUCTWORK TO BE CLEANED.
- ALL DUCTWORK FITTINGS SHALL BE RIGID GALVANIZED IRON.
- CONTRACTOR TO TAKE ALL MEASUREMENTS NECESSARY TO DETERMINE CURRENT SYSTEMS PERFORMANCE IN AREAS THAT WILL CONTINUE TO BE SERVED BY EXISTING AIR HANDLING EQUIPMENT AND SHALL REPORT ALL MEASUREMENTS MADE PRIOR TO START OF DEMOLITION.
- ON COMPLETION OF DUCT ALTERATIONS, AIR BALANCE TECHNICIAN SHALL REBALANCE ALL EXISTING SYSTEMS TO DELIVER PRE-CONSTRUCTION FLOWS.
- WHERE MODIFICATIONS HAVE BEEN DONE TO THE HEATING WATER CIRCUITS CONTRACTOR MUST REBALANCE THE AFFECTED PARTS.

THIS LEGEND OF SYMBOLS REPRESENTS MANTECON PARTNERS INC. STANDARD/GENERIC LEGEND.

# LEGEND - HVAC - AIR DISTRIBUTION

	ALL SYMBOLS MAY NOT APPEAR ON DRAWINGS.
R	DESCRIPTION
	POSITIVE PRESSURE (SUPPLY)
×	DUCT UP
<u> </u>	POSITIVE PRESSURE (SUPPLY)
	NEGATIVE PRESSURE (RETURN)
	DUCT UP
)×(	POSITIVE PRESSURE (SUPPLY) DUCT
	POSITIVE PRESSURE (SUPPLY) DUCT
	DOWN
1	EXISTING DUCTWORK TO BE
1	REMOVED
	EXISTING DUCTWORK TO REMAIN
1	NEW
1	DUCTWORK
<u></u>	(5'-0" MAX)
]	DOUBLE WALL INSULATED
ł	ENCLOSURE
	CROSSHATCHING ON DUCTWORK INDICATES 1"(25mm) DUCT LINING AS
<u>ກດດຄດດດດດດດດດດດດດດດດດ</u>	DUCTWORK WITH
000000000000000000000000000000000000000	INSULATION SLIPPLY AIR DIFFLISER
X	(SQUARE)
	SUPPLY AIR DIFFUSER (LAMINAR
R	SHADING INDICATES DIFFUSER TO HAVE A BLANK OFF PANEL
	LINEAR OR SLOT DIFFUSER WITH
	SUPPLY AIR DIFFUSER
	(ROUND)
	SIDEWALL
	RETURN/EXHAUST
	CONNECTION
<u>†</u>	TAP-IN DUCT
1	ROUND DUCT
<u> </u>	CONNECTION
⁺└Д	TURNING VANES
	FIRE
	DAMPER EXISTING FIRE
BEXFD +	DAMPER
RFD -	
	FIRE DAMPER/SMOKE
<u><u><u></u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u></u>	
CFD	DAMPER
MD	MOTORIZED
	EXISTING MOTORIZED
EXMD	DAMPER
VD	
RD.	BALANCING
שט	
OBBD	DAMPER
OED	OPEN ENDED
	EXISTING ELECTRIC REHEAT
ERC	
N.I.C.	CONTRACT
(T)	THERMOSTAT
	REVERSE ACTING
URAI	
$\mathbf{O}$	COVER
Ш	HUMIDISTAT
	SPEED
S	CONTROLLER
O/U	SWITCH
UC.	U/C
	UNDERCUI
	RADIATION
	HOT WATER PANEL
	RADIATION HOT WATER REHEAT
	COIL
	CROSS TALK
	SILENCER
	SILENCER
EXS CFM	INDICATES EXISTING SUPPLY AIR OULET
EXR	INDICATES EXISTING RETURN AIR OUTI ET
CFM FTR	
CFM	INDICATES EXISTING VAV BOX
S1	INDICATES NEW SUPPLY AIR OULET
<u>R</u> 1	
CFM	
CFM	FLOW INDICATED
TR	INDICATES NEW VAV BOX
CFM	-
IFFUSER / GRIL	LE
	ТҮРЕ
	SIZE (IN)
	AIR FLOW (CFM)

LEGEND - H	HVAC - PIPING MBOLS REPRESENTS MANTECON PARTNERS INC. STANDARD/GENERIC LEGENT
REFER	ALL SYMBOLS MAY NOT APPEAR ON DRAWINGS. DESCRIPTION
	EXISTING PIPING SHOWN HATCHED TO BE REMOVED
—— (NAME) —— ——————————————————————————————————	REMAIN REMAIN EXISTING PIPING TO BE
	ABANDONED LOW PRESSURE
(PSI) —	STEAM HIGH PRESSURE
	SIEAM LOW PRESSURE CONDENSATE RETURN (GRAVITY FLOW)
	HIGH PRESSURE CONDENSATE RETURN
———PC———	PUMPED CONDENSATE
——— HWS ———	HOT WATER HEATING SUPPLY
— — — HWR — — —	RETURN LOW TEMPERATURE HOT WATER
	SUPPLY LOW TEMPERATURE HOT WATER
	RETURN MEDIUM TEMPERATURE HOT WATER
— — MTHW— —	MEDIUM TEMPERATURE HOT WATER
—— HTHW ——	HIGH TEMPERATURE HOT WATER SUPPLY
<b>— — —</b> HTHW <b>— — —</b>	HIGH TEMPERATURE HOT WATER RETURN
CHWS	CHILLED WATER
	RETURN CONDENSER WATER
	SUPPLY CONDENSER WATER
GLYS —	RETURN GLYCOL
— — GLYR — —	SUPPLY GLYCOL BETIEN
——— RS ———	REFRIGERANT
RL	REFRIGERANT LIQUID
FOD	FUEL OIL DISCHARGE
FOS	
<b>— — — — — — — — — —</b>	RETURN
	VENT HEAT PUMP WATER
— — HPWR— —	SUPPLY HEAT PUMP WATER
O	RETURN PIPING RISER
	UP PIPING DROP
•	PIPING RISER UP & DOWN
; <del>t</del> ,	TEE
t	ELBOW - 90° ELBOW -
+×	45°
<del>/*</del>	REDUCER
	UNION
	FLANGE
	FLEXIBLE CONNECTOR
	EXPANSION LOOP
	JOINT
	PIPE
	GUIDES STEAM FLOW
 	PUMP
	VERTICAL INLINE PUMP
₽ 2 2	VERTICAL INLINE PUMP
	STRAINER
	VALVE 2-WAY CONTROL
	VALVE ISOLATING (SHUT-OFF)
	VALVE THROTTLING (BALANCING)
	CIRCUIT BALANCING VALVE
	CHECK VALVE
	PRESSURE REDUCING VALVE       (STEAM)
	VALVE DRAIN
	COCK SOLENOID ELECTRIC
	VALVE VACUUM
	BREAKER BACKFLOW PREVENTOR
Q	THERMOMETER
Q	PRESSURE GAUGE
	AIR SEPARATOR
<u> </u>	VIANUAL AIK VENT AUTOMATIC AIR
	VENT
	STEAM
 ₫	IRAP CHEMICAL POT
Ğ	SUCTION DIFFUSER
	TRIPLE DUTY VALVE
	AIR PURGER
	CHILLER WATER PUMP FLEXIBLE
]====[	CONNECTION

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November 20, 2024 - 02:40pm Plotted by: jsneek

ABBREVIATED SPECIFICATION DESCRIBES SOME EQUIPMENT AND MATERIALS TO BE INCLUDED IN THE WORK, ONLY FIRST-CLASS WORKMANSHIP, MATERIALS AND PRACTICES WILL BE ACCEPTED. THE	CONSTRUCTION, ACCURATE DIMENSIONS, CAPACITIES AND PERFORMANCE. PRIOR TO SUBMISSION CHECK AND CERTIFY AS CORRECT, SHOP DRAWINGS AND DATA SHEETS. DO I
STANDARDS TO BE MET ARE FULLY DESCRIBED IN THE MASTER SPECIFICATIONS OF MANTECON PARTNERS INC. AND ARE AVAILABLE FOR REFERENCE AT THEIR MAIN OFFICE.	ORDER EQUIPMENT UNTIL A COPY OF THE SHOP DRAWINGS, REVIEWED BY CONSULTANT, H BEEN RETURNED.
	3.3. THE CONSULTANT WILL NOT REVIEW SHOP DRAWINGS THAT FAIL TO BEAR THE CONTRACTO STAMP OF APPROVAL OR CERTIFICATION.
. GENERAL REQUIREMENTS	3.4. AS-BUILT RECORDS: BEFORE FINAL PAYMENT, SUBMIT TWO SETS OF AS-BUILTS DRAWINGS IN AUTOCAD FORMAT SHOWING ALL CHANGES & CONCEALED SERVICES DIMENSIONED.
.1. READ AND CONFORM TO: 1.1.1. THE CONTRACT CCDC 2, STIPULATED PRICE CONTRACT AS AMENDED.	FEE OF \$300.00 PLUS \$25.00 PER SHEET UPON REQUEST.
	3.5. REQUESTS FOR SHUT-DOWN: OBTAIN PERMISSION FOR SYSTEMS SHUT-DOWN AND/OR SERVI INTERRUPTION FROM THE OWNER PRIOR TO DISRUPTION OF ANY SYSTEM OR SERVICE IN USE THE OWNER. EMPLOY THE OWNER'S STANDARD FORM OF REQUEST WHERE AVAILABLE.
<ol> <li>THE SPECIFICATIONS ARE INTEGRAL WITH THE DRAWINGS WHICH ACCOMPANY THEM. DO NOT USE EITHER ALONE. ANY ITEM OR SUBJECT OMITTED FROM ONE BUT IMPLIED IN THE OTHER IS FULLY AND PROPERLY REQUIRED.</li> </ol>	3.6. REQUESTS FOR START-UP: OBTAIN PERMISSION FROM THE OWNER TO START-UP OR TO RETUR SERVICE ANY ITEM OF EQUIPMENT, SYSTEM OR SERVICE INSTALLED NEW OR PREVIOUSLY SH
B. WHEREVER DIFFERENCES OCCUR IN THE TENDER DOCUMENTS, THE MOST ONEROUS CONDITION GOVERNS. BASE THE BID ON THE COSTLIEST ARRANGEMENT.	DOWN. 3.7. WARRANTY: PROVIDE WRITTEN GUARANTEE FOR ALL NEW EQUIPMENT & WORKMANSHIP FO
<ol> <li>ENSURE SUB-CONTRACTORS UNDERTAKING THE WORK PROVIDE A 50% PERFORMANCE BOND AND A 50% LABOUR AND MATERIALS PAYMENT BOND. IN ADDITION, ENSURE</li> </ol>	ONE (1) YEAR FROM DATE OF SUBSTANTIAL COMPLETION. FIVE (5) YEARS FOR COMPRESSO HEAT EXCHANGER. DEFECTIVE PARTS REPAIRED OR REPLACED WITHOUT CHARGE.
SUB-CONTRACTORS EMPLOYED TO UNDERTAKE ANY PART OF THE WORK THAT IS \$50,000.00 OR GREATER IN CONTRACT VALUE PROVIDE A 50% PERFORMANCE BOND AND A 50% LABOUR AND	4. COMMON WORK RESULTS 4.1. ELECTRIC MOTORS
CONFORM TO THE LATEST EDITION OF ONTARIO BUILDING CODE (CSA STANDARDS), ONTARIO	4.1.1. PROVIDE MOTORS FOR MECHANICAL EQUIPMENT AS SPECIFIED.
FIRE CODE, LOCAL & DISTRICT BYLAWS, REGULATIONS, & PUBLISHED ENGINEERING STANDARDS. NOTIFY CONSULTANT UPON DISCOVERY OF CONDITIONS WHICH ADVERSELY AFFECT WORK OF THIS DIVISION. NO ALLOWANCE WILL BE MADE AFTER LETTING OF CONTRACT FOR ANY EXPENSES INCURRED THROUGH FAILURE TO DO SO.	4.1.2. MOTORS UNDER 1/2 HP: SPEED AS INDICATED, CONTINUOUS DUTY, BUILT-IN OVERLO PROTECTION, RESILIENT MOUNT, SINGLE PHASE, 120 V, UNLESS OTHERWISE SPECIFIED O INDICATED. PROVIDE CONTINUOUSLY RATED SQUIRREL CAGE INDUCTION TYPE WITH CAPACITOR START, EEMAC 'N' STARTING CHARACTERISTICS AND A MINIMUM OF CLAS INSULATION.
PPLY FOR & OBTAIN PERMITS INCLUDING BUILDING PERMITS, & TSSA APPLICATIONS, LICENSES, IR CERTIFICATES NECESSARY FOR THE PERFORMANCE OF THE WORK. COORDINATE WORK WITH JILDING OFFICIALS & AUTHORITIES HAVING JURISDICTION. MAKE MODIFICATIONS REQUIRED BY UTHORITIES.	<ul> <li>4.1.3. MOTORS 1/2 HP AND LARGER: EEMAC CLASS B, SQUIRREL CAGE INDUCTION, SPEED INDICATED, CONTINUOUS DUTY, DRIP PROOF, BALL BEARING, MAXIMUM TEMPERATURE 40 DEGREES C, 3 PHASE, VOLTAGE AS INDICATED. PROVIDE CONTINUOUSLY RATED SQUIRREL CAGE INDUCTION TYPE WITH EEMAC `B' STARTING CHARACTERISTICS AND A</li> </ul>
ENSURE TRADESMEN EMPLOYED ON THE PROJECT SHALL HOLD VALID TRADE CERTIFICATES/LICENSES AND HAVE A COPY AVAILABLE FOR REVIEW BY THE CONSULTANT AND/OR OWNER WHEN REQUESTED.	MINIMUM OF CLASS 'B' INSULATION. 4.1.4. DO NOT PROVIDE MOTORS WITH CLASS F OR H INSULATION FOR TENV ENCLOSURE RATINGS. DO NOT PROVIDE CLASS H INSULATION MOTORS FOR ALL OTHER ENCLOSURE
EXTRAS: PROVIDE DETAILED BREAKDOWNS INCLUDING MATERIALS QUOTATIONS FROM SUPPLIERS, HOURS OF WORK AND HOURLY LABOUR RATES. QUOTATIONS FROM SOFTWARE SUCH AS ALLPRISER WILL NOT BE ACCEPTED.	4.1.5. IF PROVIDING A MOTOR WITH AN INSULATION CLASS THAT INCREASES THE TEMPERA
THE DIVISION OF WORK AMONG SUBCONTRACTORS IS NOT THE CONSULTANT'S RESPONSIBILITY AND THE CONSULTANT ASSUMES NO RESPONSIBILITY TO ACT AS AN ARBITER AND/OR TO ESTABLISH SUBCONTRACT LIMITS BETWEEN ANY PORTIONS OR SECTIONS OF THE WORK.	<ul> <li>4.2.1. PROVIDE LAMINATED PLASTIC PLATES WITH BLACK FACE AND WHITE CENTRE OF</li> </ul>
COPE OF WORK PROVIDE PRODUCTS AND METHODS MENTIONED OR SHOWN IN THE CONTRACT DOCUMENTS	MINIMUM SIZE 3-1/2" X 1-1/2" X 3/32" (90 X 40 X 2 MM) NOMINAL THICKNESS, ENGRAV WITH 1/4" (6 MM) HIGH LETTERING. USE 1" (25 MM) LETTERING FOR MAJOR EQUIPMENT.
COMPLETE WITH INCIDENTALS NECESSARY FOR A COMPLETE OPERATING INSTALLATION. PROVIDE TOOLS, EQUIPMENT AND SERVICES REQUIRED TO DO THE WORK.	4.2.2. FASTEN NAMEPLATES SECURELY IN CONSPICUOUS PLACE. WHERE NAMEPLATES CANNOT BE MOUNTED ON COOL SURFACE, PROVIDE STANDOFFS.
XAMINE EXISTING SITE CONDITIONS WHICH MAY AFFECT WORK OF THIS DIVISION. EXAMINE CONTRACT DOCUMENTS IN CONJUNCTION WITH SITE EXAMINATION TO ENSURE THAT WORK OF THIS DIVISION MAY BE SATISFACTORILY COMPLETED.	4.2.3. IDENTIFY EQUIPMENT TYPE AND NUMBER AND SERVICE OF AREAS OR ZONE OF BUILT SERVED.
INCLUDE DISCONNECTION AND REMOVAL OF VARIOUS MECHANICAL EQUIPMENT IN AREAS TO BE TURNED OVER TO THE OWNER.	4.2.4. FOR EACH ITEM OF EQUIPMENT WHICH MAY BE STARTED AUTOMATICALLY OR REMO ADD A RED LAMACOID PLATE, 2-1/2" X 9" (65 X 230 MM), READING: "WARNING. THIS FOUNDATED AND THE AUTOMATICALLY CONTROL FOR AND AND A TO A T
INCLUDE DISCONNECTION AND MAKING SAFE OF VARIOUS MECHANICAL SYSTEMS AND EQUIPMENT IN AREAS TO BE DEMOLISHED AND/OR RENOVATED.	4.3. PRESSURE GAUGES
SOLATE AND DRAIN (OR PIPE FREEZE IF DRAINING IS NOT FEASIBLE) SYSTEMS AS REQUIRED TO EFFECT DEMOLITION, RENOVATIONS, MODIFICATIONS AND/OR REPAIRS. DISCONNECT. CAP	4.3.1. APPROVED MANUFACTURER: TRERICE MODEL 600C OR EQUAL BY WEISS, WINTER, MORRISSON, OR TAYLOR.
AND MAKE SAFE MECHANICAL SERVICES TO THE BUILDING INCLUDING, BUT NOT LIMITED TO; ANITARY SEWER(S), STORM SEWER(S), WATER SERVICE, NATURAL GAS SERVICE, STEAM SERVICE, CONDENSATE RETURN, WATER SUPPLY TO STANDPIPE AND SPRINKLER SYSTEMS, FIRE SUPPRESSION SYSTEMS HOT WATER HEATING SYSTEMS, STEAM AND CONDENSATE SYSTEMS.	4.3.2. GAUGE: 4-1/2" (115MM) DIAMETER BLACK CAST ALUMINUM, PHOSPHOR BRONZE BOURDON TUBE, ROTARY BRASS MOVEMENT, BRASS SOCKET, WITH FRONT RECALIBRATI ADJUSTMENT, BLACK SCALE ON WHITE BACKGROUND, MID-SCALE ACCURACY: 1%, SC PSI AND KPA
ON COMPLETION OF RENOVATIONS, MODIFICATIONS AND/OR REPAIRS, TEST ENTIRE SYSTEM AS F NEW. REPORT REPAIRS OR REPLACEMENTS REQUIRED OF EXISTING EQUIPMENT, PIPING,	4.3.3. GAUGE COCK: TEE OR LEVER HANDLE, BRASS FOR MAXIMUM 150 PSI (1034 KPA0.
TINGS OR DEVICES THAT ARE NOT INCLUDED IN CONTRACT TO CONSULTANT AND OWNER OR INSTRUCTION. FLUSH, CLEAN AND REFILL RENOVATED SYSTEMS AS SPECIFIED FOR NEW.	<ul><li>4.3.4. NEEDLE VALVE: BRASS, 1/4 (6 MM) NPT FOR MINIMUM TSU PSI (1034 KPA).</li><li>4.3.5. PULSATION DAMPER: PRESSURE SNUBBER, BRASS WITH 1/4" (6 MM) CONNECTIONS.</li></ul>
UDE EXCAVATION & BACKFILL NECESSARY FOR INSTALLATION OF UNDERGROUND WORK. AVATE WITH SUITABLE MACHINERY OR BY HAND AS NECESSARY.	4.3.6. SYPHON: STEEL, SCHEDULE 40, 1/4" (6 MM) ANGLE OR STRAIGHT PATTERN. 4.4. STEM TYPE THERMOMETERS
LUDE CUTTING AND PATCHING OF NEW OR EXISTING WORK.	4.4.1. APPROVED MANUFACTURER: TRERICE MODEL BX91403-1/2 OR WEISS MODEL 9VS3- OR EQUAL BY WINTER, MORRISON, TAYLOR.
DRAWING DETAIL. APPLY EXISTING SYSTEMS TO NEW WORK. CONFORM TO CSA BT49, NFPA NFPA 14, AND CAN/CGSB 24.3 FOR PIPING SYSTEMS. SUBMIT IDENTIFICATION DETAILS TO NSULTANT FOR APPROVAL.	4.4.2. THERMOMETER: 9" (230MM) SCALE, RED APPEARING THERMAL FLUID WITH BLACK FIGURES ON WHITE SCALE, CALIBRATED IN BOTH DEGREES F AND DEGREES C, ACCURA
RFORM START-UP AND COMMISSION EQUIPMENT AND SYSTEMS INSTALLED AND/OR DDIFIED UNDER THIS CONTRACT. COMPLETE COMMISSIONING WORK TO THE SATISFACTION	TO ASTM E77 OF 2%, CLEAR GLASS LENS FRONT TUBE, CAST ALUMINUM CASE WITH ENA FINISH, CAST ALUMINUM ADJUSTABLE JOINT WITH POSITIVE LOCKING DEVICE, 3/4" (20N NPT BRASS STEM
THE CONSULTANT PRIOR TO ACCEPTANCE OF THE WORK OR ANY PART THEREOF.	4.4.3. INCLUDE SEPARABLE WELL WITH THERMOMETERS.
STING BUILDING AND ITS FINISHES DURING ALTERATIONS AND CONSTRUCTION OF THE NEW DDITION. COORDINATE THIS PROTECTIVE WORK WITH OTHER TRADES.	4.4.4. SOCKET: BRASS SEPARABLE SOCKETS FOR THERMOMETER STEMS WITH OR WITHOUT EXTENSIONS AS REQUIRED, AND WITH CAP AND CHAIN.
VERIFY THE CORRECT OPERATION OF EACH EQUIPMENT ITEM PROVIDED AND/OR ALTERED ND EACH SYSTEM IN TOTAL AND OBTAIN THE OWNER'S APPROVAL PRIOR TO STARTING	4.4.5. FLANGE: 3" (75 MM) OUTSIDE DIAMETER REVERSIBLE FLANGE, DESIGNED TO FASTEN SHEET METAL AIR DUCTS, WITH BRASS PERFORATED STEM
CONTRACT DOCUMENTS DRAWINGS FOR HVAC, PLUMBING AND FIRE PROTECTION WORK ARE	<ul><li>4.5. SLEEVES: MINIMUM SCHEDULE 20 GALVANIZED STEEL OR CAST IRON.</li><li>4.6. FLASHINGS AND COUNTER FLASHINGS: THALER OR EQUIVALENT MECHANICAL/ELECTRICAL</li></ul>
INSTALL MECHANICAL EQUIPMENT AND APPURTENANCES TO MANUFACTURERS'	FLASHINGS AS RECOMMENDED FOR SPECIFIC PURPOSE. STAINLESS STEEL FLASHING SLEEVE, INTEGRAL DECK FLANGE AND EPDM SEAL.
PROVIDE VIBRATION ISOLATION FOR MECHANICAL EQUIPMENT TO PREVENT TRANSMISSION OF	<ul><li>4.7. PENETRATION SEALS</li><li>4.7.1. APPROVED MANUFACTURER: LINK-SEAL OR EQUAL</li></ul>
LOCATION OF EXISTING UNDERGROUND UTILITIES IS SHOWN IN AN APPROXIMATE WAY.	4.7.2. MODULAR MECHANICAL TYPE, CONSISTING OF INTERLOCKING SYNTHETIC RUBBER I SHAPED TO CONTINUOUSLY FILL THE ANNULAR SPACE BETWEEN THE PIPE AND WALL
ETERMINE EARCH LOCATIONS OF EXISTING UTILITIES BEFORE COMMENCING WORK. REPAIR AMAGES CAUSED BY FAILURE TO EXACTLY LOCATE AND PRESERVE UNDERGROUND UTILITIES. MAINTAIN MINIMUM 6'-8'' CLEARANCE TO THE UNDERSIDE OF DUCTS, PIPES, CONDUITS AND JSPENDED EQUIPMENT THROUGHOUT ACCESS ROUTES IN MECHANICAL ROOMS.	OPENING. LINKS SHALL BE LOOSELY ASSEMBLED WITH BOLTS TO FORM A CONTINUOUS RUBBER BELT AROUND THE PIPE WITH A PRESSURE PLATE UNDER EACH BOLT HEAD AND 4.8. ACCESS DOORS
COMPLETE TESTING BEFORE INSULATION OF PIPING OR EQUIPMENT IS APPLIED.	<ul><li>4.8.1. MANUFACTURERS: ACUDOR ACORN, CEB, MIFAB, CENDRES CONTOUR</li><li>4.8.2. STANDARD UNIVERSAL FLUSH - MATERIAL: UPT TO 16" X 16" (400X400) 16 GAUGE</li></ul>
VITH STRAIGHT SECTIONS OF PIPE/DUCT UP-AND-DOWNSTREAM AS RECOMMENDED BY MANUFACTURER TO MAINTAIN GOOD ACCURACY. ENSURE TESTING, ADJUSTING AND BALANCING AGENCY IS A MEMBER OF AABC OR NEBB IN	MOUNTING FRAME, OVER 16" X 16" (400X400) 14 GAUGE DOOR, 16 GAUGE MOUNTING FRAME. HINGE: CONTINUOUS, CONCEALED. LATCH: STAINLESS STEEL SCREWDRIVER OPERATED CAM LATCH FINISH: STEEL: 5-STAGE IRON PHOSPHATE PREPARATION WITH P COAT OF WHITE, ALKYD BAKING ENAMEL OR STAINLESS-STEEL TYPE 304, NO. 4 SATIN PC
WHERE TWO OR MORE ITEMS OF THE SAME TYPE ARE REQUIRED, PROVIDE THE PRODUCT OF	4.8.3. RECESSED - MATERIAL: STEEL OR STAINLESS STEEL, 22 GAUGE DOOR, 22 GAUGE MOUNTING FRAME. DOOR -RECESSED 5/8". HINGE: CONTINUOUS, CONCEALED. LATCH STAINLESS STEEL SCREWDRIVER OPERATED CANALATCH. ENJICH: SATING COAT STEEL
CONFORM TO ASTM 315 AND ACI 318 FOR CONCRETE REINFORCEMENT, DETAILING AND	4.8.4. FIRE RATED - ULC LABELLED. REFER TO ARCHITECTURAL DRAWINGS FOR RATINGS OF
CONSTRUCTION REQUIREMENTS". PROVIDE 3000 PSI 28 DAY COMPRESSIVE STRENGTH. ENSURE SETWEEN 3 AND 7 PERCENT AIR CONTENT IN BY VOLUME. ENSURE SLUMP IS BETWEEN 3" & 4".	JEFARATIONS AND ASSEMBLIES, MINIMUM 12 GAUGE, HINGE; CONTINUOUS, CONCEA LATCH: STAINLESS STEEL SCREWDRIVER OPERATED CAM LATCH FINISH: STEEL: 5-STAGE II PHOSPHATE PREPARATION WITH PRIME COAT OF WHITE, ALKYD BAKING ENAMEL OR
CURE CONCRETE FOR SEVEN DAYS AFTER PLACEMENT. SIZE AND LOCATE CONCRETE HOUSEKEEPING PADS. PROVIDE MINIMUM 6" THICKNESS PADS	STAINLESS-STEEL TYPE 304, NO. 4 SATIN POLISH.
THAT EXTEND MINIMUM 6" BEYOND THE EQUIPMENT ON EACH SIDE UNLESS OTHERWISE NDICATED.	4.9. PIPE HANGERS AND SUPPORTS
LOCATIONS OF ITEMS SHOWN ON DRAWINGS IS APPROXIMATE UNLESS DIMENSIONED. DO NOT SCALE DRAWINGS. DETERMINE EXACT LOCATIONS IN ACCORDANCE WITH SITE LOCATIONS. DBTAIN CONSULTANT APPROVAL FOR LOCATIONS BEFORE INSTALLING.	<ul><li>4.9.1. APPROVED MANUFACTURERS: ANVIL, MYAT, HUN</li><li>4.9.2. STANDPIPE &amp; FIRE HOSE</li><li>4.9.2.1. CONFORM TO NFPA 14.</li></ul>
SUPPORT EQUIPMENT, PIPING AND DUCTWORK TO PROVIDE A VIBRATION-FREE INSTALLATION.	4.9.2.2. HANGERS FOR PIPE SIZES 1/2" TO 1-1/2" (15 TO 40 MM): CARBON STEEL, ADJUSTABLE SWIVEL, SPLIT RING.
DO NOT SUPPORT MECHANICAL PRODUCTS FROM A METAL DECK. PROVIDE FIRE STOPPING IN FIRE SEPARATION PENETRATIONS FROM DUCTWORK, PIPING.	4.9.2.3. HANGERS FOR PIPE SIZES 2" (50 MM) AND OVER: CARBON STEEL, ADJUSTABLE CLEVIS.
CONDUITS, ETC. PROVIDE MOTORS REQUIRED FOR EQUIPMENT SUPPLIED BY THIS DIVISION.	4.9.2.4. MULTIPLE OR TRAPEZE HANGERS: STEEL CHANNELS WITH WELDED SPACERS AN HANGER RODS.
PROVIDE VARIABLE FREQUENCY DRIVES FOR MOTORS AND EQUIPMENT SUPPLIED BY THIS DIVISION. PROVIDE INTERNAL WIRING, RELAYS, CONTACTORS, SWITCHES. TRANSFORMERS. MOTOR	<ul> <li>4.9.2.5. WALL SUPPORT FOR PIPE SIZES TO 3-1/4" (80 MM): CAST IRON HOOK.</li> <li>4.9.2.6. WALL SUPPORT FOR PIPE SIZES 4" (100 MM) AND OVER: WELDED STEEL BRACK AND WROUGHT STEEL CLAMP.</li> </ul>
STARTERS, AND CONTROLS NECESSARY FOR THE INTENDED OPERATION, FURNISHED WITH TERMINALS AND EXTERNAL CONTROLS SUITABLE FOR CONNECTION TO POWER SOURCE AT A SINGLE EASILY ACCESSED LOCATION FOR ITEMS THAT ARE SUPPLIED WITH MOTORS AND/OR ELECTRICAL OR ELECTRONIC COMPONENTS UNDER THIS DIVISION.	<ul> <li>4.9.2.7. VERTICAL SUPPORT: STEEL RISER CLAMP.</li> <li>4.9.2.8. FLOOR SUPPORT: CAST IRON ADJUSTABLE PIPE SADDLE, LOCK NUT, NIPPLE, FL FLANGE, AND CONCRETE PIER OR STEEL SUPPORT.</li> </ul>
ADJUST THE LOCATION OF MATERIALS AND/OR EQUIPMENT AS DIRECTED WITHOUT DJUSTMENT TO CONTRACT PRICE, PROVIDED THAT THE CHANGES ARE REQUESTED BEFORE	4.9.3. SPRINKLER PIPING
NSTALLATION AND DO NOT AFFECT MATERIAL QUANTITY. NOTE THAT OUTLETS AND/OR QUIPMENT MAY BE RELOCATED UP TO 10 FEET (3 M) IN ANY DIRECTION WITHOUT A CHANGE TO	4.9.3.2. HANGERS FOR PIPE SIZES 1/2" TO 1-1/2" (15 TO 40 MM): CARBON STEEL,
MITTALS	4.9.3.3. HANGERS FOR PIPE SIZES 2" (50 MM) AND OVER: CARBON STEEL, ADJUSTABLE
DRAWINGS: PREPARE AND SUBMIT TWO (2) COPIES OF SHOP DRAWINGS OF EQUIPMENT TO THE CONSULTANT FOR REVIEW. THE CONSULTANT WILL RETURN ONE COPY, MARKED	4.9.3.4. MULTIPLE OR TRAPEZE HANGERS: STEEL CHANNELS WITH WELDED SPACERS AI
ARLY INDICATE MANUFACTURER'S AND SUPPLIER'S NAMES, MODEL NUMBERS, DETAILS OF	4.9.3.5 WALL SUPPORT FOR PIPE SIZES TO 3-1/4" (80 MM): CAST IRON HOOK

22-059	MECHANICAL SPECIFICATIONS - GENERAL 22-059
RIOR TO IEETS. DO NOT	4.9.3.6. WALL SUPPORT FOR PIPE SIZES 4" (100 mm) AND OVER: WELDED STEEL BRACKET AND WROUGHT STEEL CLAMP.
SULTANT, HAS	4.9.3.7. VERTICAL SUPPORT: STEEL RISER CLAMP.
	4.9.3.8. FLOOR SUPPORT: CAST IRON ADJUSTABLE PIPE SADDLE, LOCK NUT, NIPPLE, FLOOR FLANGE, AND CONCRETE PIER OR STEEL SUPPORT.
WINGS IN ONED. TNERS INC AT A	4.9.4.1CONFORM TO ASME B31.9.
)/OR SERVICE	4.9.4.2. HANGERS FOR PIPE SIZES 1/2" TO 1-1/2" (15 TO 40 MM): MALLEABLE IRON, ADJUSTABLE SWIVEL, SPLIT RING.
/ICE IN USE BY _ABLE.	4.9.4.3. HANGERS FOR PIPE SIZES 2" (50 MM) AND OVER: CARBON STEEL, ADJUSTABLE, CLEVIS.
r to return to 'Iously shut	4.9.4.4. MULTIPLE OR TRAPEZE HANGERS: STEEL CHANNELS WITH WELDED SPACERS AND HANGER RODS.
	<ul> <li>4.9.4.5. WALL SUPPORT FOR PIPE SIZES TO 3-1/4" (80 MM): CAST IRON HOOK.</li> <li>4.9.4.6. WALL SUPPORT FOR PIPE SIZES 4" (100 MM) AND OVER: WELDED STEEL BRACKET</li> </ul>
E.	AND WROUGHT STEEL CLAMP. 4.9.4.7. VERTICAL SUPPORT: STEEL RISER CLAMP.
	4.9.4.8. FLOOR SUPPORT: CAST IRON ADJUSTABLE PIPE SADDLE, LOCK NUT, NIPPLE, FLOOR FLANGE, AND CONCRETE PIER OR STEEL SUPPORT.
IN OVERLOAD	4.9.4.9. COPPER PIPE SUPPORT: CARBON STEEL RING, ADJUSTABLE, COPPER PLATED.
PECIFIED OR (PE WITH	<ul><li>4.9.5. PLUMBING PIPING - WATER:</li><li>4.9.5.1. CONFORM TO ASME B31.9.</li></ul>
M OF CLASS A	4.9.5.2. HANGERS FOR PIPE SIZES 1/2" TO 1-1/2" (15 TO 40 MM): MALLEABLE IRON, ADJUSTABLE SWIVEL, SPLIT RING.
ION, SPEED AS MPERATURE RISE MRATED	4.9.5.3. HANGERS FOR COLD PIPE SIZES 2" (50 MM) AND OVER: CARBON STEEL, ADJUSTABLE, CLEVIS.
ICS AND A	4.9.5.4. HANGERS FOR HOT PIPE SIZES 2" TO 4" (50 TO 100 MM): CARBON STEEL, ADJUSTABLE, CLEVIS,
ICLOSURE ENCLOSURE	4.9.5.5. HANGERS FOR HOT PIPE SIZES 6" (150 MM) AND OVER: ADJUSTABLE STEEL YOKE,
E TEMPERATURE	4.9.5.6. MULTIPLE OR TRAPEZE HANGERS: STEEL CHANNELS WITH WELDED SUPPORTS OR
CHANGES AT	4.9.5.7. MULTIPLE OR TRAPEZE HANGERS FOR HOT PIPE SIZES 6" (150 MM) AND OVER: STEEL
TRE OF	ROLL.
S, ENGRAVED QUIPMENT.	4.7.3.0. WALL SUPPORT FOR FIFE SIZES 10 3-1/4" (80 MM): CAST IRON HOOK. 4.9.5.9. WALL SUPPORT FOR PIPE SIZES 4" (100 MM) AND OVER: WELDED STEEL BRACKET
PLATES	4.9.5.10. WALL SUPPORT FOR HOT PIPE SIZES 6" (150 MM) AND OVER: WELDED STEEL
NE OF BUILDING	BRACKET AND WROUGHT STEEL CLAMP WITH ADJUSTABLE STEEL YOKE AND CAST IRON PIPE ROLL.
y or remotely, Ng. This	<ul><li>4.9.5.11. VERTICAL SUPPORT: STEEL RISER CLAMP.</li><li>4.9.5.12. FLOOR SUPPORT FOR COLD PIPE: CAST IRON ADJUSTABLE PIPE SADDLE, LOCK</li></ul>
."	NUT, NIPPLE, FLOOR FLANGE, AND CONCRETE PIER OR STEEL SUPPORT. 4.9.5.13. FLOOR SUPPORT FOR HOT PIPE SIZES TO 4" (100 MM): CAST IRON ADJUSTABLE PIPE
, WINTER,	SADDLE, LOCKNUT, NIPPLE, FLOOR FLANGE, AND CONCRETE PIER OR STEEL SUPPORT. 4.9.5.14. FLOOR SUPPORT FOR HOT PIPE SIZES 6" (150 MM) AND OVER: ADJUSTABLE CAST
BRONZE ECALIBRATION	IRON PIPE ROLL AND STAND, STEEL SCREWS, AND CONCRETE PIER OR STEEL SUPPORT. 4.9.5.15. COPPER PIPE SUPPORT: CARBON STEEL RING, ADJUSTABLE, COPPER PLATED.
ACY: 1%, SCALE:	4.9.6. FUEL GAS PIPING
)34 KPAO. .).	<ul><li>4.9.6.1. CONFORM TO NFPA 31.</li><li>4.9.6.2. HANGERS FOR PIPE SIZES 1" - 1-1/2" (15 TO 40 MM): MALLEABLE IRON, ADJUSTABLE</li></ul>
, IECTIONS.	SWIVEL, SPLIT RING. 4.9.6.3. HANGERS FOR PIPE SIZES 2" (50 MM) AND OVER: CARBON STEEL, ADJUSTABLE,
	CLEVIS. 4.9.6.4. MULTIPLE OR TRAPEZE HANGERS: STEEL CHANNELS WITH WELDED SPACERS AND
DDEL 9V\$3-1/2,	HANGER RODS. 4.9.6.5. WALL SUPPORT FOR PIPE SIZES TO 3-1/4" (80 MM): CAST IRON HOOK.
H BLACK C, ACCURACY	4.9.6.6. VERTICAL SUPPORT: STEEL RISER CLAMP.
E WITH ENAMEL E, 3/4'' (20MM)	4.9.6.7. FLOOR SUPPORT: CAST IRON ADJUSTABLE PIPE SADDLE, LOCK NUT, NIPPLE, FLOOR FLANGE, AND CONCRETE PIER OR STEEL SUPPORT.
	<ul><li>4.9.6.8. ROOF SUPPORT: REFER TO SECTION 15140 AND CSA B149.1</li><li>4.9.6.9. COPPER PIPE SUPPORT: CARBON STEEL RING, ADJUSTABLE, COPPER PLATED.</li></ul>
R WITHOUT	4.9.7. HYDRONIC PIPING:
O FASTEN TO	4.9.7.2. HANGERS FOR PIPE SIZES 1/2" TO 1-1/2" (13 TO 38 MM): CARBON STEEL,
	4.9.7.3. HANGERS FOR COLD PIPE SIZES 2" (50 MM) AND OVER: CARBON STEEL,
IG SLEEVE,	4.9.7.4. HANGERS FOR HOT PIPE SIZES 2" TO 4" (50 TO 100 MM): CARBON STEEL,
	ADJUSTABLE, CLEVIS. 4.9.7.5. HANGERS FOR HOT PIPE SIZES 6" (150 MM) AND OVER: ADJUSTABLE STEEL YOKE,
C RUBBER LINKS	CAST IRON ROLL, DOUBLE HANGER. 4.9.7.6. MULTIPLE OR TRAPEZE HANGERS: STEEL CHANNELS WITH WELDED SPACERS AND
id wall Ontinuous Head and nut.	HANGER RODS. 4.9.7.7. MULTIPLE OR TRAPEZE HANGERS FOR HOT PIPE SIZES 6" (150 MM) AND OVER: STEEL
	CHANNELS WITH WELDED SPACERS AND HANGER RODS, CAST IRON ROLL. 4.9.7.8. WALL SUPPORT FOR PIPE SIZES TO 3" (76 MM): CAST IRON HOOK.
GAUGE	4.9.7.9. WALL SUPPORT FOR PIPE SIZES 4" (100 MM) AND OVER: WELDED STEEL BRACKET AND WROUGHT STEEL CLAMP.
MOUNTING DRIVER ON WITH PRIME	4.9.7.10. WALL SUPPORT FOR HOT PIPE SIZES 6" (150 MM) AND OVER: WELDED STEEL BRACKET AND WROUGHT STEEL CLAMP WITH AD ILISTABLE STEEL YOKE AND CAST IPON
4 SATIN POLISH.	ROLL. 4.9.7.11. VERTICAL SUPPORT: STEEL RISER CLAMP
LED. LATCH: STEEL	4.9.7.12. FLOOR SUPPORT FOR COLD PIPE: CAST IRON ADJUSTABLE PIPE SADDLE, LOCK
ATINGS OF FIRE , CONCEALED.	4.9.7.13. FLOOR SUPPORT FOR HOT PIPE SIZES TO 4" (100 MM): CAST IRON ADJUSTABLE PIPE
: 5-STAGE IRON AMEL OR	4.9.7.14. FLOOR SUPPORT FOR HOT PIPE SIZES 6" (150 MM) AND OVER: ADJUSTABLE CAST
	4.9.7.15. COPPER PIPE SUPPORT: CARBON STEEL RING, ADJUSTABLE, COPPER PLATED.
	4.9.8. ACCESSORIES 4.9.8.]. HANGER RODS: GALVANIZED CARBON STEEL CONTINUOUS THREADED
	4.9.8.2. INSERTS: MALLEABLE IRON CASE OF GALVANIZED STEEL SHELL AND EXPANDER PLUG FOR THREADED CONNECTION WITH LATERAL AD HISTAGENT TOP SLOT FOR
STEEL,	REINFORCING RODS, LUGS FOR ATTACHING TO FORMS; SIZE INSERTS TO SUIT THREADED HANGER ROD
DJUSTABLE,	
PACERS AND	(75 MM) CANT, VARIABLE STEP TO MATCH ROOF INSULATION, FACTORY INSTALLED WOOD NAILER.
К.	
EEL BRACKET	4.11.1. ACCEPTABLE MANUFACTURERS: PORTABLE PIPE HANGERS, INC, UNISTRUT 4.11.2. PROVIDE PRE-ENGINEERED PIPE/DUCT SUPPORT SYSTEM.
	4.11.3. BASES: WEATHER RESISTANT AND UV RADIATION RESISTANT WITH SEISMIC ATTACHMENTS
, NIPPLE, FLOOR	ASTM A570, GRADE 33., ROLL FORMED OF 12-GAUGE (2.7MM THICK) STEEL INTO 3-SIDED OR TUBULAR SHAPE.
	4.11.5. PIPE SUPPORTS AND HANGERS: CONFORM TO MSS SP-58 AND MSS SP-69, FABRICATED OF CARBON STEEL, SINGLE ROLLER SUPPORTS FOR PIPING SUB IFCT TO FXPANSION AND
STEEL,	CONTRACTION. 4.11.6. PROVIDE PLASTICS AS MOULDED WITH UV RADIATION PROTECTION
DJUSTABLE,	4.11.7. PROVIDE METAL SURFACES HOT DIP GALVANIZED FREE OF ROUGHNESS, WHISKERS, UNSIGHTLY SPANGLES, ICICLES, RUNS, RARRS, SAGS, DRODLETS, AND OTHER SUPERCE
PACERS AND	BLEMISHES. GALVANIZING SHALL CONFORM TO ASTM A123 FOR TUBING AND TO ASTM A153 FOR HARDWARE AND ACCESSORIES.

3.5	PIPE HANGER SPACING:			
	PIPE SIZE (IN)	ROD DIAMETER (IN)	SUPPORT STEEL PIPE	I SPACING (FT) COPPER TUBE
	1/2	3/8	7	6
	3/4	3/8	7	6
	1	3/8	7	6
	1-1/4	3/8	7	6
	1-1/2	3/8	9	8
	2	3/8	10	9
	2-1/2	3/8	12	10
	3	3/8	12	10
	4	5/8	14	12
	6	7/8	17	
	8	7/8	19	
	10	7/8	21	
	12	7/8	23	
	14	1	25	
	16	1	27	
	18	1	28	
3.6	FUEL GAS PIPE HANGER SPACI	NG:		
	PIPE SIZE (IN)		SUPPORT SPAC	ING (FT)
	1/2		6	
	3/4 - 1		8	
	1-1/4 - 2-1/2		10	
	3 - 4		15	
	5 - 8		20	
	10 OR LARGER		25	
	ALL VERTICAL		EVERY FL	OOR
	TUBING (ALL SIZES)		6	
3.7	DUCT HANGER SPACING:			
	DUCT SIZES (LARGEST UP TO 30" 31" TO 42" 43" TO 60" 61" TO 84"	SIDE) ANGLE SIZE 1" X 1" X 1/8" 1-1/2" X 1-1/2" X 1 1-1/2" X 1-1/2" X 1 2" X 2" 1/8"	ROD SIZE 1/4" DIAM /8" 1/4" DIAM /8" 3/8" DIAM 3/8" DIAM	SPACING LETER 10 FT LETER 10 FT LETER 10 FT LETER 8 FT

MECHANICAL SPECIFICATIONS - GENERAL 22-059

N         Image: Construction of the second
STRUCTURAL MECHANICAL ELECTRICAL CIVIL           NS Foundry Street, Dundas, ON, 19H 2V6           Phone: (905)648.037
REVIEW ALL DRAWINGS AND VERIFY ALL DIMENSIONS AT THE SITE. DO NOT SCALE THE
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2         ISSUED FOR TENDER         2024/11/20         J.S.           1         ISSUED FOR PERMIT         2024/10/25         J.S.           NO.         ISSUED         DATE         BY
Place     Common descention       Fair     Naccase descention       Maccase descention     Naccase descention       Macc
WORKSHOP ARCHITECTURE
PROJECT: CSV PAVILLON DE LA JEUNESSE CHILDCARE ADDITION 105 HIGH STREET HAMILTON, ON
DRAWING TITLE: MECHANICAL SPECIFICATIONS
DRAWN BY: J.S. CHECKED BY: A.M. DATE: NOV 2022 PROJECT NUMBER: 22-059 November 20, 2024 – 02:40pm Plotted by: jsneek

# PLUMBING SPECIFICATIONS

- 1.1. CONFORM TO ONTARIO BUILDING CODE O.REG 332/12 AS AMENDED, DIVISION B, PART 7.
- 1.2. VERIFY THAT EXCAVATIONS ARE TO REQUIRED GRADE, DRY, AND NOT OVER-EXCAVATED.
- 1.3. REAM PIPE AND TUBE ENDS. REMOVE BURRS. BEVEL PLAIN END FERROUS PIPE. REMOVE SCALE AND DIRT, ON INSIDE AND OUTSIDE, BEFORE ASSEMBLY. PREPARE PIPING CONNECTIONS TO
- EQUIPMENT WITH FLANGES OR UNIONS. 1.4. PROVIDE NON-CONDUCTING DIELECTRIC CONNECTIONS WHEREVER JOINTING DISSIMILAR
- METALS. 1.5. PROVIDE ACCESS WHERE VALVES AND FITTINGS ARE NOT EXPOSED. COORDINATE SIZE AND
- LOCATION OF ACCESS DOORS WITH GENERAL TRADES. 1.6. INSTALL VENT PIPING PENETRATING ROOFED AREAS TO MAINTAIN INTEGRITY OF ROOF
- ASSEMBLY 1.7. SUPPORT VERTICAL PIPING AT EVERY OTHER FLOOR. SUPPORT RISER PIPING INDEPENDENTLY OF CONNECTED HORIZONTAL PIPING
- 1.8. PRIME COAT EXPOSED STEEL HANGERS AND SUPPORTS. HANGERS AND SUPPORTS LOCATED IN CRAWL SPACES, PIPE SHAFTS, AND SUSPENDED CEILING SPACES ARE NOT CONSIDERED EXPOSED
- 1.9. SUPPORT CAST IRON DRAINAGE PIPING AT EVERY JOINT.
- 1.10.DO HYDROSTATIC TESTING PRIOR TO BACKFILLING OVER JOINTS
- 1.11.DISINFECT NEW AND ALTERED WATER DISTRIBUTION PIPING.
- 1.12. VERIFY THAT PIPING SYSTEM IS COMPLETE AND HAS BEEN FLUSHED, CLEANED, INSPECTED, AND PRESSURE TESTED. .13.ISOLATE EXISTING PIPING TO FULL EXTENT POSSIBLE. ENSURE THAT FIXTURES, EXITING AND NEW
- THAT ARE SERVED FROM PIPING BEING DISINFECTED. ARE TAKEN OUT OF SERVICE AND SIGNS ARE PLACED AT EACH FIXTURE PROHIBITING USE DURING THE DISINFECTION PERIOD. .14.ENSURE PH OF WATER TO BE TREATED IS BETWEEN 7.4 AND 7.6 BY ADDING ALKALI (CAUSTIC SODA OR SODA ASH) OR ACID (HYDROCHLORIC). INJECT DISINFECTANT, FREE CHLORINE IN LIQUID, POWDER, TABLET OR GAS FORM, THROUGHOUT SYSTEM TO OBTAIN 50 TO 80 MG/L RESIDUAL
- 1.15.MAKE PROVISONS FOR MAINTAINING THE TRAP SEAL OF FLOOR DRAINS AND HUB DRAINS.
- 2. SANITARY SEWER PIPING, BURIED WITHIN 1500 MM (5 FEET) OF BUILDING 2.1. CAST IRON PIPE: ASTM A74 EXTRA HEAVY WEIGHT, FITTINGS: CAST IRON, IOINTS:
- HUB-AND-SPIGOT, CISPI HSN COMPRESSION TYPE WITH ASTM C564 NEOPRENE GASKETS 2.2. CAST IRON PIPE: CISPI 301, HUBLESS. FITTINGS: CAST IRON. JOINTS: CISPI 310, NEOPRENE
- GASKET AND STAINLESS-STEEL CLAMP AND SHIELD ASSEMBLIES. 2.3. COPPER TUBE: ASTM B306, DWV. FITTINGS: ASME B16.23, CAST BRONZE, OR ASME B16.29,
- WROUGHT COPPER. JOINTS: ASTM B32, SOLDER, GRADE 50B. 2.4. ABS PIPE: CSA B1800, ASTM D2751 OR ASTM F628. FITTINGS: ABS. JOINTS: ASTM D2235,
- SOLVENT WELD.
- 2.5. ABS PIPE: CSA B1800, ASTM D2661 OR ASTM D2751. FITTINGS: ABS. JOINTS: ASTM D2235, SOLVENT WELD.
- 2.6. PVC PIPE: CSA B1800, ASTM D2665 OR ASTM D3034. FITTINGS: PVC. JOINTS: ASTM D2855, SOLVENT WELD WITH ASTM D2564 SOLVENT CEMENT.
- 2.7. PVC PIPE: CSA B1800, ASTM D2665, ASTM D3034, OR ASTM F679. FITTINGS: PVC. JOINTS: ASTM F477, ELASTOMERIC GASKETS.
- 3. SANITARY SEWER PIPING, ABOVE GRADE
- 3.1. CAST IRON PIPE: ASTM A74, SERVICE WEIGHT. FITTINGS: CAST IRON. JOINTS: ASTM C564, NEOPRENE GASKET SYSTEM
- 3.2. CAST IRON PIPE: CISPI 301, HUBLESS, SERVICE WEIGHT. FITTINGS: CAST IRON. JOINTS: CISPI 310, NEOPRENE GASKETS AND STAINLESS-STEEL CLAMP-AND-SHIELD ASSEMBLIES.
- 3.3. COPPER TUBE: ASTM B306, DWV. FITTINGS: ASME B16.23, CAST BRONZE, OR ASME B16.29,
- WROUGHT COPPER, OR ASME B16.32, SOVENT. JOINTS: ASTM B32, SOLDER, GRADE 50B. 3.4. PVC: IPEX SYSTEM XFR SCH 40 TO CSA B1800, LISTED TO ULC S102.2 WITH FLAME SPREAD RATING OF 25 OR LESS, SMOKE DEVELOPED CLASS OF 50 OR LESS. NOT FOR USE IN SHAFTS.
- 4. SANITARY SEWER PIPING, ABOVE GRADE (URINALS ONLY)
- 4.1. COPPER TUBING: ASTM B88M, TYPE K, HARD DRAWN.FITTINGS: ASME B18.18 CAST COPPER ALLOW OR ASME B16.22, WROUGHT COPPER AND BRONZE. JOINTS: ASTM B32, SOLDER, GRADE 95TA.
- 5. SANITARY VENT PIPING, BURIED
- 5.1. CAST IRON PIPE: ASTM A74 EXTRA HEAVY WEIGHT. FITTINGS: CAST IRON. JOINTS: HUB-AND-SPIGOT, CISPI HSN COMPRESSION TYPE WITH ASTM C564 NEOPRENE GASKETS OR LEAD AND OAKUM.
- CAST IRON PIPE: CISPI 301, HUBLESS. FITTINGS: CAST IRON. JOINTS: CISPI 310, NEOPRENE GASKET AND STAINLESS-STEEL CLAMP AND SHIELD ASSEMBLIES.
- 5.3. COPPER TUBE: ASTM B306, DWV. FITTINGS: ASME B16.23, CAST BRONZE, OR ASME B16.29, WROUGHT COPPER. JOINTS: ASTM B32, SOLDER, GRADE 50B.
- 5.4. ABS PIPE: CSA B1800, ASTM D2751 OR ASTM F628. FITTINGS: ABS. JOINTS: ASTM D2235,
- SOLVENT WELD. 5.5. ABS PIPE: CSA B1800, ASTM D2661 OR ASTM D2751. FITTINGS: ABS. JOINTS: ASTM D2235,
- SOLVENT WELD.
- 5.6. PVC PIPE: CSA B1800, ASTM D2665 OR ASTM D3034. FITTINGS: PVC. JOINTS: ASTM D2855, SOLVENT WELD WITH ASTM D2564 SOLVENT CEMENT.
- 5.7. PVC PIPE: CSA B1800, ASTM D2665, ASTM D3034, OR ASTM F679. FITTINGS: PVC. JOINTS: ASTM F477, ELASTOMERIC GASKETS.
- 6. SANITARY VENT PIPING, ABOVE GRADE 6.1. CAST IRON PIPE: ASTM A74, SERVICE WEIGHT. FITTINGS: CAST IRON. JOINTS: ASTM C564,
- NEOPRENE GASKET SYSTEM 6.2. CAST IRON PIPE: CISPI 301, HUBLESS, SERVICE WEIGHT. FITTINGS: CAST IRON. JOINTS: CISPI 310,
- NEOPRENE GASKETS AND STAINLESS-STEEL CLAMP-AND-SHIELD ASSEMBLIES.
- 6.3. COPPER TUBE: ASTM B306, DWV. FITTINGS: ASME B16.23, CAST BRONZE, OR ASME B16.29, WROUGHT COPPER, OR ASME B16.32, SOVENT. JOINTS: ASTM B32, SOLDER, GRADE 50B.
- 6.4. PVC: IPEX SYSTEM XFR SCH 40 TO CSA B1800, LISTED TO ULC S102.2 WITH FLAME SPREAD RATING OF 25 OR LESS, SMOKE DEVELOPED CLASS OF 50 OR LESS. NOT FOR USE IN SHAFTS.
- 7. WATER PIPING, BURIED WITHIN 1500 MM (5 FEET) OF BUILDING 7.1. DUCTILE IRON PIPE: AWWA C151. FITTINGS: DUCTILE IRON, STANDARD THICKNESS. LINING: CEMENT. JOINTS: AWWA C111, RUBBER GASKET WITH 3/4" (19 MM) DIAMETER RODS.
- 8. WATER PIPING, BURIED WITHIN BUILDING 8.1. DOMESTIC HOT AND COLD WATER.
- 8.1.1. COPPER TUBING: ASTM B88M, TYPE L, SOFT ANNEALED. FITTINGS: ASME B18.18 CAST COPPER ALLOY OR ASME B16.22, WROUGHT COPPER AND BRONZE. JOINTS: ASTM B32, SOLDER, GRADE 95TA.
- 8.2. DOMESTIC HOT WATER RE-CIRCULATION.
- 8.2.1. COPPER TUBING: ASTM B88M, TYPE L, SOFT ANNEALED. FITTINGS: ASME B18.18 CAST COPPER ALLOY OR ASME B16.22, WROUGHT COPPER AND BRONZE. JOINTS: ASTM B32, SOLDER, GRADE 95TA.
- 9. WATER PIPING, ABOVE GRADE

ORIGINAL SHEET - ARCH D

- 9.1. DOMESTIC HOT AND COLD WATER.
- 9.1.1. COPPER TUBING: ASTM B88M, TYPE L, HARD DRAWN. FITTINGS: ASME B16.18, CAST COPPER ALLOY OR ASME B16.22, WROUGHT COPPER AND BRONZE. JOINTS: ASTM B32, SOLDER, GRADE 95TA.
- 9.2. DOMESTIC HOT WATER RE-CIRCULATION.
- 9.2.1. COPPER TUBING: ASTM B88M, TYPE L, SOFT ANNEALED. FITTINGS: ASME B18.18 CAST COPPER ALLOY OR ASME B16.22, WROUGHT COPPER AND BRONZE. JOINTS: ASTM B32, SOLDER, GRADE 95TA.
- 10. STORM WATER PIPING, BURIED WITHIN 1500 MM (5 FEET) OF BUILDING
- 10.1.CAST IRON PIPE: ASTM A74 EXTRA HEAVY WEIGHT. FITTINGS: CAST IRON. JOINTS: ASTM C564, NEOPRENE GASKET SYSTEM 10.2.CAST IRON PIPE: CISPI 301, HUBLESS, SERVICE WEIGHT. FITTINGS: CAST IRON. JOINTS:
- NEOPRENE GASKETS AND STAINLESS-STEEL CLAMP-AND-SHIELD ASSEMBLIES.
- 10.3. ABS PIPE: CSA B1800, ASTM D2680 OR ASTM D2751. FITTINGS: ABS. JOINTS: ASTM D2235, SOLVENT WELD, MAXIMUM VOC CONTENT OF 325 G/L.
- 10.4.PVC PIPE: CSA B1800, ASTM D2665 OR ASTM D3034. FITTINGS: PVC. JOINTS: ASTM D2855, SOLVENT WELD WITH ASTM D2564 SOLVENT CEMENT. 10.5.PVC PIPE: CSA B1800, ASTM D2665, ASTM D3034, OR ASTM F679. FITTINGS: PVC. JOINTS: ASTM
- F477, ELASTOMERIC GASKETS. STORM WATER PIPING, ABOVE GRADE
- 1.1. CAST IRON PIPE: ASTM A74 EXTRA HEAVY WEIGHT. FITTINGS: CAST IRON. JOINTS: ASTM C564, NEOPRENE GASKET SYSTEM
- 1.2.CAST IRON PIPE: CISPI 301, HUBLESS, SERVICE WEIGHT. FITTINGS: CAST IRON. JOINTS: NEOPRENE GASKETS AND STAINLESS-STEEL CLAMP-AND-SHIELD ASSEMBLIES.

- PLUMBING SPECIFICATIONS
- 1.3.PVC: IPEX SYSTEM XFR SCH 40 TO CSA B1800, LISTED TO ULC S102.2 WITH FLAME SPREAD RATING OF 25 OR LESS, SMOKE DEVELOPED CLASS OF 50 OR LESS. NOT FOR USE IN SHAF FLANGES, UNIONS, AND COUPLINGS
- 12.1.PIPE SIZE 3-1/4" (80 MM) AND UNDER:
- 12.1.1. FERROUS PIPE: CLASS 150 MALLEABLE IRON THREADED UNIONS. 12.1.2. COPPER TUBE AND PIPE: CLASS 150 BRONZE UNIONS WITH SOLDERED JOINTS.
- 12.2.PIPE SIZE OVER 1" (25 MM):
- 12.2.1. FERROUS PIPE: CLASS 150 MALLEABLE IRON THREADED OR FORGED STEEL SLIP-OF FLANGES; PREFORMED NEOPRENE GASKETS.
- 12.2.2. COPPER TUBE AND PIPE: CLASS 150 SLIP-ON BRONZE FLANGES; PREFORMED NEC GASKETS.
- 2.3. GROOVED AND SHOULDERED PIPE END COUPLINGS:
- 12.3.1. HOUSING: MALLEABLE IRON CLAMPS TO ENGAGE AND LOCK, DESIGNED TO PER SOME ANGULAR DEFLECTION, CONTRACTION, AND EXPANSION; STEEL BOLTS, NUTS, WASHERS; GALVANIZED FOR GALVANIZED PIPE.
- 12.3.2. SEALING GASKET: "C" SHAPE COMPOSITION SEALING GASKET. 12.4.DIELECTRIC CONNECTIONS: UNION WITH GALVANIZED OR PLATED STEEL THREADED END
- COPPER SOLDER END, WATER IMPERVIOUS ISOLATION BARRIER.
- VALVES GENERAL (POTABLE) 13.1.CONFORM TO REQUIREMENTS OF ANSI, ASTM, ASME, AND APPLICABLE MSS STANDARDS
- 13.2. MANUFACTURER'S NAME AND PRESSURE RATING CLEARLY MARKED ON BODY TO MSS-S
- 13.3. VALID CRN (CANADIAN REGISTRATION NUMBER) ISSUED BY PROVINCE OF ONTARIO REG FOR EACH VALVE.
- 13.4.PROVIDE VALVES WITH NSF NO LEAD CERIFICATION FOR POTABLE SERVICE. 13.5.MATERIALS:
- 13.5.1. BRONZE: ASTM B62 OR B61 AS APPLICABLE
- 13.5.2. BRASS: ASTM B283 C3770
- 13.5.3. CAST IRON: ASTM A126 CLASS B
- 13.6.END CONNECTIONS:
- 13.6.1. FLANGED ENDS: ANSI B16.1 (CLASS 125), ANSI B16.5
- 13.6.2. FACE-TO-FACE DIMENSIONS: ANSI B16.10
- 13.7.ISOLATION VALVES
- 13.7.1. UP TO AND INCLUDING 2" (50MM) BALL TYPE KITZ #859 MSS SP-110, CLASS 150, 6 (4140 KPA) CWP, FORGED BRASS, TWO PIECE BODY, STAINLESS STEEL BALL AND STEM PORT, VIRGIN PTFE SEATS AND STEM PACKING, BLOW-OUT PROOF STEM, LEVER HAN WITH BALANCING STOPS, STEM EXTENSIONS FOR INSULATED PIPING, SOLDER ENDS. NO LEAD CERTIFICATION.
- 13.7.2. 2-1/2" (65 MM) AND LARGER BUTTERFLY TYPE: KITZ 6122EL MSS-SP-67, MSS-SP-25 API-609; LUG TYPE HAVING BI-DIRECTIONAL "DEAD END SERVICE" PRESSURE RATING KPA (200 PSI) WITH THE DOWNSTREAM FLANGE REMOVED; STAINLESS STEEL STEM WIT AND BOTTOM BUSHINGS OF DISSIMILAR MATERIALS AND WITH POSITIVE STEM RETENT MECHANISM, ALUMINUM BRONZE DISC AND MOLDED OR BONDED STYLE EPDM SEA SUITABLE FOR BOTH CHILLED WATER AND HOT WATER OPERATION: SUPPLIED WITH POSITION LOCKING LEVER HANDLE 2" EXTENDED NECK TO ALLOW FOR INSULATION.
- NO LEAD CERTIFICATION.
- 13.8.THROTTLING VALVES
- 13.8.1. UP TO AND INCLUDING 2" (50 MM) GLOBE TYPE: KITZ #812 MSS SP-80, 860 KPA 200 WOG, BRONZE BODY TO ASTM B62, RISING STEM, UNION BONNET, INSIDE SCREW DISK, SOLDER ENDS. NSF 372 NO LEAD CERTIFICATION
- 13.8.2. 2-1/2" (65 MM) AND LARGER BUTTERFLY TYPE: KITZ 6122EL MSS-SP-67, MSS-SP-25 / API-609; LUG TYPE HAVING BI-DIRECTIONAL "DEAD END SERVICE" PRESSURE RATING KPA (200 PSI) WITH THE DOWNSTREAM FLANGE REMOVED: STAINLESS STEEL STEM WIT AND BOTTOM BUSHINGS OF DISSIMILAR MATERIALS AND WITH POSITIVE STEM RETENT MECHANISM, ALUMINUM BRONZE DISC AND MOLDED OR BONDED STYLE EPDM SEA SUITABLE FOR BOTH CHILLED WATER AND HOT WATER OPERATION; SUPPLIED WITH POSITION LOCKING LEVER HANDLE 2" EXTENDED NECK TO ALLOW FOR INSULATION NO LEAD CERTIFICATION.
- 13.9.CHECK VALVES
- 13.9.1. UP TO AND INCLUDING 3" (75 MM): KITZ #823 MSS SP-80, 860 KPA (125PSIG) 200 V BRONZE BODY TO ASTM B62, BRONZE TRIM, SOLDER ENDS. NSF 372 NO LEAD CERTIFIC 13.9.2. 4" (100MM) AND LARGER: KITZ #W30-A-RD-FF, MSS SP-71, 1380 KPA CLASS 125 / 2 WOG, CAST IRON BODY TO ASTM A 126 CLASS B, BRONZE TRIM, BOLTED BONNET, FLA ENDS. NSF 372 NO LEAD CERTIFICATION.
- 13.10.DRAIN VALVES
- 13.10.1.UP TO 150 PSIG BALL TYPE: KITZ #869 150 PSIG (1034 KPA), 600 WOG, BRASS BOI TO ASTM C37700, TWO PIECE BODY, FULL PORT, PTFE SEATS AND STEM PACKING OR DOUBLE "O" RING, BLOW-OUT PROOF STEM, CHROME PLATED BALL, LEVER HANDLE V CAP AND CHAIN, (3/4") 20 MM HOSE CONNECTION. NSF 372 NO LEAD CERTIFICATIO
- 13.11.STRAINERS

14.1.FINISHES:

- 13.11.1.UP TO AND INCLUDING 2": MUELLER LF351 SCREWED ENDS OR LF358 SOLDER ENDS, CLASS 125 C87800 BRONZE BODY, 304 SS MESH STRAINER, METAL FILLED GRAF GASKET, LEAD FREE CONSTRUCTION, C/W PLUG, 200 PSIG RATING.
- 13.11.2.OVER 2": M.A.S FIG W40-A-YX-FF (CLASS 125 FLANGED) OR W40-A-YX-GG (GROOVED) A536 BODY, 304 SS MESH STRAINER, LEAD FREE CONSTRUCTION, 300 PSI RATING C/W PLUG.

PLUMBING SPECIFICATIONS	22-059	PLUMBIN	G SPECIFICA	TIONS		22-059
11.3.PVC: IPEX SYSTEM XFR SCH 40 TO CSA B1800, LISTED TO ULC S102.2 V RATING OF 25 OR LESS, SMOKE DEVELOPED CLASS OF 50 OR LESS. N	VITH FLAME SPREAD OT FOR USE IN SHAFTS.	151°F (6 LESS. M	6°C). GLOSS FINISH. MAXI AXIMUM SMOKE DEVELOP	MUM FLAME SPREAD: ED: CAN/ULC-S102, A	CAN/ULC-S102, AST STM E84; 50 OR LESS	im E84; 25 OR S. Thickness: 20
		MIL (U.4 STANDA MAXIMI	INDIANA IN INTROM. 30 MIL (U. IRD OFF-WHITE COVERING) JM VOC CONTENT OF 50 (	B ADHESIVE MASTIC: C G/L. APPROVED MANI	OUTDOOR USE, CO OMPATIBLE WITH IN: JFACTURER: CEEL-C	SULATION,
12.1.9PE SIZE 3-174 (80 MM) AND UNDER: 12.1.1. FERROUS PIPE: CLASS 150 MALLEABLE IRON THREADED UNIO	NS.	ZESTON 14.11.2. ALUN	PVC /INUM JACKET: ACAN/ULI	C-\$102, STM E84. (APPI	Y TO ALL EXTERIOR	PIPING
12.1.2. COPPER TUBE AND PIPE: CLASS 150 BRONZE UNIONS WITH SC	DLDERED JOINTS.	ONLY) T FINISH. F	HICKNESS: ASTM C1729 RE INISH: SMOOTH PLAIN MI	Equirements for Rig LL Finish. Joining: LC	ID AND NON-RIGID DNGITUDINAL SLIP JO	INSULATION DINTS AND 2'' (50
12.2.1. FERROUS PIPE: CLASS 150 MALLEABLE IRON THREADED OR FO	DRGED STEEL SLIP-ON	MM) LA ATTACH THICK A	PS. FITTINGS: 0.02" (0.40 M IED PROTECTIVE LINER. ME I UMINUM	IM) THICK DIE SHAPED TAL JACKET BANDS: 3/	FITTING COVERS WI '8" (10 MM) WIDE; 0.	TH FACTORY .01" (0.38 MM)
12.2.2. COPPER TUBE AND PIPE: CLASS 150 SLIP-ON BRONZE FLANGI	ES; PREFORMED NEOPRENE	14.12.PROVIDE P	HENOLIC PIPE SUPPORTS E ISHING OF INSULATION BE	ETWEEN PIPE HANGER	S AND SUPPORTED F	PIPING TO
12.3.GROOVED AND SHOULDERED PIPE END COUPLINGS:		15. PIPE INSULA	ATION THICKNESS			
12.3.1. HOUSING: MALLEABLE IRON CLAMPS TO ENGAGE AND LOC SOME ANGULAR DEFLECTION, CONTRACTION, AND EXPANSION WASHERS; GALVANIZED FOR GALVANIZED PIPE.	k, designed to permit I; steel bolts, nuts, and	15.1.INSULATE NE PIPING WHE SERVICE	W OR ALTERED PIPING WI RE INSULATION HAS BEEN OPERATING TEMP. (°F)	TH RIGID PIPE INSULATI REMOVED OR DAMAC PIPE DIA. (IN)	ON AND RE-INSULAT GED AS FOLLOWS: INSULATION THICK	ie existing (ness (in)
12.4.DIELECTRIC CONNECTIONS: UNION WITH GALVANIZED OR PLATED S	i. TEEL THREADED END,	DCW DHW & DHWR	0 TO 105 105 TO 180	ALL 3/8 TO 1-1/4	1	
3. VALVES - GENERAL (POTABLE)		DHW & DHWR	105 TO 180	1-1/2 & LARGER	1-1/2	
13.1.CONFORM TO REQUIREMENTS OF ANSI, ASTM, ASME, AND APPLICAL	BLE MSS STANDARDS.	sanitary storm	TO 55 TO 55	ALL	1	
13.3. VALID CRN (CANADIAN REGISTRATION NUMBER) ISSUED BY PROVIN	CE OF ONTARIO REQUIRED	16. PLUMBING	AND DRAINAGE TESTING			
13.4.PROVIDE VALVES WITH NSF NO LEAD CERIFICATION FOR POTABLE SE	RVICE.	HAVE BEEN	SET OR CONNECTED, TEST	THE JOINT TIGHTNESS /	AND PIPE SOUNDNE	SS.
13.5.MATERIALS:		16.3.NOTIFY CON	ISULTANT AT LEAST 48 HOU	aled. JRS BEFORE COMMEN	CING TEST AND SUB	MIT A WRITTEN
13.5.2. BRASS: ASTM B283 C3770		16.4.STORM, SAN	ITARY, WASTE, AND VENT	PIPING: SECURELY CLC	DSE OPENINGS IN PIL	PE ENDS BY
13.5.3. CAST IRON: ASTM A126 CLASS B 13.6.END CONNECTIONS:		MEANS OF A FIXTURES AN TRAPS AND	APPROVED PLUGS AND FIL D HORIZONTAL RUNS WITH APPARATUS TO DETECT IM	L THE PIPING SYSTEM II I WATER. TEST BY RUNN IPERFECT MATERIALS C	NCLUDING STACKS, IING WATER INTO PI IR WORKMANSHIP, \	BRANCHES TO PES, FIXTURES, WHERE IT IS
13.6.1. FLANGED ENDS: ANSI B16.1 (CLASS 125), ANSI B16.5		IMPOSSIBLE TO SECTION	TO TEST THE WHOLE SYSTE/ 7.3 OF THE OBC. PERFOR	M AT ONCE, DIVIDE IN M ADDITIONAL TESTS A	O PARTS. PERFORM S REQUIRED BY THE	THE WATER TEST AUTHORITIES
13.6.2. FACE-TO-FACE DIMENSIONS: ANSI B16.10 13.7.ISOLATION VALVES		HAVING JUN 16.5.TEST WATER	RISDICTION. LINES HYDROSTATICALLY /	at 1.5 times working	PRESSURE (NOT LES	s than 200
13.7.1. UP TO AND INCLUDING 2" (50MM) - BALL TYPE KITZ #859 MSS (4140 KPA) CWP, FORGED BRASS, TWO PIECE BODY, STAINLESS S PORT, VIRGIN PTFE SEATS AND STEM PACKING, BLOW-OUT PROC WITH BALANCING STOPS, STEM EXTENSIONS FOR INSULATED PIPIL NO. LEAD CERTIFICATION	SP-110, CLASS 150, 600 PSI TEEL BALL AND STEM, FULL DF STEM, LEVER HANDLE NG, SOLDER ENDS. NSF 372	PSIG) FOR A PRIOR TO PI SUBJECT TO 16.6.CORRECT D	PERIOD OF NOT LESS THA PE CONCEALMENT. DISCO TEST PRESSURE WITHOUT D EFECTS AND RE-TEST UNTIL	N TWO HOURS WITHO DNNECT OR ISOLATE PF DAMAGE. RESULTS ARE ACCEPT,	JT ANY DROP IN PRE RODUCTS THAT CAN ABLE.	ESSURE. TEST INOT BE
13.7.2. 2-1/2" (65 MM) AND LARGER - BUTTERFLY TYPE: KITZ 6122EL A	ISS-SP-67, MSS-SP-25 AND	16.7.DO NOT CA 16.8.CHECK HOR	ULK THREADED JOINTS. IZONTAL PIPE WITH AN AC	COURATE LEVEL FOR AI	TERATIONS IN PITCH	ł.
KPA (200 PSI) WITH THE DOWNSTREAM FLANGE REMOVED; STAIN AND BOTTOM BUSHINGS OF DISSIMILAR MATERIALS AND WITH P	ILESS STEEL STEM WITH TOP DSITIVE STEM RETENTION	16.9.INSPECT LAT HAMMER.	erals, crossarms and	ELIMINATE AIR POCKE	is. correct cases	OF WATER
MECHANISM, ALUMINUM BRONZE DISC AND MOLDED OR BONE SUITABLE FOR BOTH CHILLED WATER AND HOT WATER OPERATIC POSITION LOCKING LEVER HANDLE OF EXTENDED NECK TO ALLO	DED STYLE EPDM SEAT; N; SUPPLIED WITH 10 W EOP INSULATION INSE 372	17. FLUSHING	AND CLEANING.			
NO LEAD CERTIFICATION.		17.1.INSPECT SYS	PLETED SYSTEMS WITH CLE	AR WATER.		
13.8.1. UP TO AND INCLUDING 2" (50 MM) - GLOBE TYPE: KITZ #812 N 200 WOG, BRONZE BODY TO ASTM B62, RISING STEM, UNION BC DISK, SOLDER ENDS. NSF 372 NO LEAD CERTIFICATION.	ASS SP-80, 860 KPA (125PSIG) NNET, INSIDE SCREW, PTFE	17.3.maintain is 17.4.domestic v Awwa C65	OLATING AND CONTROL VATER SYSTEM: FLUSH, CHI 1-99.	VALVES IN OPEN POSI ORINATE AND RE-FLUS	TION. SH OUTSIDE WATER N	MAINS TO
13.8.2. 2-1/2" (65 mm) and larger - Butterfly type: Kitz 6122el m API-609; lug type having BI-directional "Dead end service	SS-SP-67, MSS-SP-25 AND " PRESSURE RATING OF 1380	18. FUEL GAS F	PIPING			
KPA (200 PSI) WITH THE DOWNSTREAM FLANGE REMOVED; STAIN AND BOTTOM BUSHINGS OF DISSIMILAR MATERIALS AND WITH P	ILESS STEEL STEM WITH TOP DSITIVE STEM RETENTION	18.1.1. COP	PER TUBING: ASTM B88, TY	PE K, PROTECTED AGA		AGE ABOVE
SUITABLE FOR BOTH CHILLED WATER AND HOT WATER OPERATIC POSITION LOCKING LEVER HANDLE 2" EXTENDED NECK TO ALLO	W; SUPPLIED WITH 10 W FOR INSULATION. NSF 372	COPPER AWS AS	R OR BRONZE, RATED FOR 8.8 CLASSIFICATION BCUP-	NOT LESS THAN 125 PS 3 OR BCUP-4 SILVER BF	IG WORKING PRESS RAZE.	URE. JOINTS:
NO LEAD CERTIFICATION. 13.9.CHECK VALVES		18.1.2. COP EXTRUD	PER TUBING: ASTM B88 TYF ED POLYETHYLENE OR PVC	PE L OR ASTM B837 TYP C RESIN, FITTINGS: ASM	E G, EXTERNALLY CO E B16.26, CAST BRO	DATED WITH
13.9.1. UP TO AND INCLUDING 3" (75 MM): KITZ #823 MSS SP-80, 860 BRONZE BODY TO ASTM B62, BRONZE TRIM, SOLDER ENDS. NSF 3	KPA (125PSIG) 200 WOG, 72 NO LEAD CERTIFICATION.	NOT LES OR BCU	s than 125 psig workin P-4 silver braze.	G PRESSURE. JOINTS: A	WS A5.8 CLASSIFIC	ATION BCUP-3
13.9.2. 4" (100mm) and larger: Kitz #W30-A-RD-FF, MSS SP-71, 138 Wog, Cast Iron Body to Astm A126 class B. Bronze trim.	0 KPA CLASS 125 / 200 BOLTED BONNET, FLANGED	18.1.3. STEEL ANSI/AS	PIPE: ASTM A53/A53M O ME B 16, RATED FOR NOT	R A106, SCHEDULE 40, LESS THAN 125 PSIG W	SEAMLESS. FITTINGS ORKING PRESSURE.	STEEL TO JOINTS: ANSI
ENDS. NSF 372 NO LEAD CERTIFICATION. 13.10.DRAIN VALVES		MM PO	LYETHYLENE TAPE.	TUS POLITEINITLENE O	R DOUBLE LATER, HI	ALF-LAPPED 0.23
13.10.1.UP TO 150 PSIG - BALL TYPE: KITZ #869 150 PSIG (1034 KPA), 6 TO ASTM C37700, TWO PIECE BODY, FULL PORT, PTFE SEATS AND	00 WOG, BRASS BODY STEM PACKING OR	18.2.ABOVE GRC 18.2.1. COP	PER TUBING: ASTM B88, TY	PE K, HARD DRAWN. FI	TTINGS: ASME B16.1	18, CAST
DOUBLE "O" RING, BLOW-OUT PROOF STEM, CHROME PLATED B, CAP AND CHAIN, (3/4") 20 MM HOSE CONNECTION. NSF 372 NG	ALL, LEVER HANDLE WITH D LEAD CERTIFICATION.	COPPER	ICATION BCUP-3 OR BCUF	P-4 SILVER BRAZE.	ID BRONZE, JOINIS:	AWS A5.8
		18.2.2. STEEL B16.3, N WROUG	. PIPE: ASTM A53/A53M G IALLEABLE IRON CLASS 15 GHT CARBON STEEL AND A	r. b, erw or a106 sm 0, screwed or flang 11.0y steel welding 1	ls, schedule 40. fi Ged or Astm A234, 'Ype, Joints: NFPA	Mings: Astm /A234M, 30. Threaded.
ENDS, CLASS 125 C87800 BRONZE BODY, 304 SS MESH STRAINER, GASKET, LEAD FREE CONSTRUCTION, C/W PLUG, 200 PSIG RATIN	METAL FILLED GRAPHITE	FLANGE	D OR WELDED TO ANSI B3	1.1. DIFAD PASTE		
13.11.2.0VER 2": M.A.S FIG W40-A-YX-FF (CLASS 125 FLANGED) OR V (GROOVED) A536 BODY, 304 SS MESH STRAINER, LEAD FREE CO	/40-A-YX-GG NSTRUCTION, 300 PSIG	18.2.4. WEL	DED FITTINGS: BUTT-WELDIN	NG FITTINGS TO CSA W	47.1.	
RATING C/W PLUG. 13.12.WATER PRESSURE REDUCING VALVES		18.2.5. FLAN 18.2.6. UNIC	GE GASKETS: NONMETALL	IC FLAT, TO ASME B16. ASS TO IRON, GROUND	5. SEAT, TO ASTM A 4	7/A47M.
13.12.1.UP TO AND INCLUDING 2" (50 MM): WATTS MODEL LFU5B-Z3, COPPER SILICON ALLOY BODY, STAINLESS STEEL STRAINER, HIGH	lead-free, Cast temperature resistant	18.2.7. BOLT	S AND NUTS: TO ASME B18	8.2.1.		
REINFORCED DIAPHRAGM, THREADED ENDS, 300 PSIG RATING, A SERVICEABLE WITHOUT REMOVING VALVE FROM WATER LINE. LI	Adjustable to 25-75 psi, Sted to asse 1003 and	18.2.8. NIPP 18.2.9. WHE	re piping is installed in	M A 53/A53M. CEILINGS USED AS RET	urn air plenums, f	PROVIDE
13.12.2.OVER 2" (50 MM): ARMSTRONG MODEL GD 200.200H OR WA	TTS MODEL SERIES	SEAMLE 18.3.ISOLATION	ss pipe and welding fitt /alves	IINGS.		
N223 MSS SP-85, CAST IRON BODY, BRONZE HITED, ELASTOMERI DISC, FLANGED.	C DIAPHRAGM AND SEAT	18.3.1. 2" (50 OPERAT	) mm) and Smaller: Sen ed. rockwell "nordstr	MI-STEEL LUBRICATED PI UM" FIG. 142, NEWMA	LUG VALVES, SCREV N-MILLIKEN 170M.	VED, WRENCH
13.13.RELIEF VALVES 13.13.1.PRESSURE RELIEF: WATTS MODEL SERIES 40 AGA Z21.22 CERTIF	IED, BRONZE BODY,	18.3.2. 2-1/2 WRENC	" (65 MM) AND 3" (75 MM H OPERATED. ROCKWELL '	): SEMI-STEEL LUBRICA "NORDSTRUM" FIG. 143	TED PLUG VALVES, , NEWMAN-MILLIKEI	FLANGED, N 171M.
<ol> <li>PLUMBING PIPING INSULATION</li> </ol>	ESSURE ACTUATED.	18.3.3. PROV	/IDE TWO (2) STANDARD F	PATTERN, CAST HANDL	E WRENCHES TO OP	ERATE VALVES.
14.1.FINISHES:		RELIEF VALV REFER TO DF	E. CAST IRON BODY, ALUN AWINGS.	VALVES. SI KING LOA MINUM DIAPHRAGM C	ASE AND ORIFICE. F	OR CAPACITIES
14.1.2. EXPOSED IN MECHANICAL ROOMS: PVC JACKET.		18.5.GAS PIPE IN	STALLATION & TESTING			
14.1.3. CONCEALED, INDOORS: CANVAS ON VALVES, FITTINGS. NO 14.1.4. USE VAPOUR RETARDER JACKET ON TIAC CODE A-3 INSULATI	FURTHER FINISH. ON COMPATIBLE WITH	AUTHOR	RILL AND TEST GAS PIPING RITIES HAVING JURISDICTIC	IO LOCAL UIILITY REGI	JLAIIONS, CSA B149	
INSULATION. 14.1.5. OUTDOORS: WATER-PROOF ALUMINUM JACKET.		AFFIX TA	AGS TO PIPING AT THE POI	NT OF PIPING ENTRY IN	TO BUILDING.	SSURE IESI.
14.1.6. FINISH ATTACHMENTS: SS BANDS, AT 150 MM ON CENTRE. SEA	LS: CLOSED.	18.5.3. REPA 18.5.4. DO N	IR LEAKS AND RE-IEST UNI	IL SYSTEM IS ACCEPTED INTS.	) BA THE CONPULIE	.NI.
14.2.GLASS FIBRE 14.2.1. JOHNSMANVILLE MICRO-LOK OR EQUAL BY OWENS CORING	FIBERGLASS, CERTAINTEED	18.5.5. SLOF	E PIPING DOWN IN THE DI	RECTION OF FLOW TO		SITIVE
CRIMPWRAP. 14.2.2. INSULATION : ASTM C547 ; ASTM C411, ASTM C356, CAN/ULC	-\$102, ASTM E84, ASTM	DRAINA				
D774, NFPA 259. 'KSI' VALUE: 0.23 BTU-in/Hr-Sq. Ff-F AT 75°F, 0.03 MINIMUM SERVICE TEMPERATURE: 0°F (-18°C). MAXIMUM SERVIC (454°C). MAXIMUM MOISTURE ABSORPTION: <5% BY WEIGHT.	3 W/m- C AT 24 °C. CE TEMPERATURE: 850°F	SHUT-OI ROOMS	F VALVES AT MAIN GAS S CONTAINING GAS-FIRED	ERVICE ENTERING BUIL EQUIPMENT.	DING AND OUTSIDE	MECHANICAL
14.3. VAPOUR BARRIER JACKET. ASTM C136 TYPE I, WHITE KRAFT PAPER RE FIBRE YARN AND BONDED TO ALUMINIZED FILM. MOISTURE VAPOUR 0.02 PERM. SECURE WITH SELF SEALING LONGITUDINAL LAPS AND BU OUTWARD CLINCH EXPANDING STAPLES AND VAPOUR BARRIER MA	INFORCED WITH GLASS TRANSMISSION: ASTM E96; TT STRIPS. SECURE WITH STIC	19. PLUMBING		Specialties		
14.4. IIE WIRE: 1.3 MM STAINLESS STEEL WITH TWISTED ENDS ON MAXIMUM 14.5. VAPOUR BARRIER LAP ADHESIVE COMPATIBLE WITH INSULATION.	12" (300 MM) CENTRES	17.1. <u>нь нозе BIB</u> 19.1.1. ZURN	ZINGIN-FREEZEJ	FREE, NON-FREEZE AUI		
14.6.INSULATING CEMENT/MASTIC: ASTM C195; HYDRAULIC SETTING ON CONTENT NOT TO EXCEED 80 G/L.	MINERAL WOOL, VOC	FOR FLU ALL-BRC C.OMBIN	SH INSTALLATION C/W INT DNZE INTERIOR COMPONE VATION %" MALE HOSE %	egkal backflow PR NTS WITH ½ TURN LON " FEMALE SOLDFR ANT	EVENIER, COPPER ( G-LIFE CERAMIC DIS ) %'' MPT INLET COM	JASING, SC CARTRIDGE, NECTION, C/W
14.7.FIBROUS GLASS FABRIC: CLOTH: UNTREATED; 9 OZ/SQ YD (305 G/SC LB/CU FT (16 KG/CU M) DENSITY.	Q M) WEIGHT. BLANKET: 1.0	NICKEL	BRONZE HOUSING WITH LO	OCKING HINGED COV	ER STAMPED "WATE	R" AND
14.8.INDOOR VAPOUR BARRIER FINISH: VINYL EMULSION TYPE ACRYLIC, C INSULATION, WHITE COLOUR, VOC CONTENT NOT TO EXCEED 250 G	COMPATIBLE WITH /L.	19.2. <u>TRAP SEAL F</u>	RIMER (SINGLE)	AP PRIMER C/W ALL PE	NONZE BODY WITH IN	NTEGRAI
14.9.OUTDOOR VAPOUR BARRIER MASTIC: VINYL EMULSION TYPE ACRYLI INSULATION, WHITE COLOUR.	C, COMPATIBLE WITH	VACUU REMOV	M BREAKER, NON-LIMITING ABLE BRONZE SEAT WITH N	G INTERNAL OPERATING METERING OROFICE, AN	G PISTON, STAINLESS	STEEL SPRING, COVER.
14.10.INSULATING CEMENT: ASTM C449, VOC CONTENT NOT TO EXCEED	80 G/L.	20. THERMOST	ATIC MIXING VALVE			
14.11.JACKETS 14.11.1.PVC PLASTIC: ONE PIECE MOULDED TYPE FITTING COVERS AN	ID SHEET MATERIAL.		SUPPLY TO BUILDING.			
CAN/ULC-\$102, ASTM E84, ASTM D1784, ULC \$102-M88. MAXIMU	IM SERVICE TEMPERATURE:	APPROVED	TO CSA B125.2 AND CSA	B125.70. PROVIDE LEAI	D-FREE CAST COPPE	ER SILICON

# PLUMBING SPECIFICATIONS

#### ALLOY BODY. PROVIDE VALVE WITH INTEGRAL FILTER WASHERS AND CHECK VALVES AND AN ADJUSTMENT CAP WITH LOCKING FEATURE. PROVIDE VALVE WITH END FITTINGS TO SUIT INSTALLATION.

#### 20.3. PROVIDE WATTS LFMMV OR EQUAL. 21. FIXED AIR GAP

- 21.1. PROVIDE ZURN Z1024 DURA-COATED CAST IRON FIXED AIR GAP WITH SLIP JOINT INLET AND NPT
- 21.1.1. PROVIDE ON BOILER FEEDWATER LINES WITHOUT BYPASS. 21.1.2. PIPE RELIEF TO NEAREST DRAIN.

21.1.3. PROVIDE STRAINER UPSTREAM OF BACKFLOW PREVENTERS.

#### WATER HAMMER ARRESTORS

22.1. PROVIDE PROPERLY SIZED ZURN Z17100 WITH NESTING TYPE BELLOWS CONTAINED WITHIN CASING HAVING SUFFICIENT DISPLACEMENT VOLUME TO DISSIPATE THE CALCULATED KINETIC ENERGY GENERATED IN THE PIPING SYSTEM. BOTH CASING AND BELLOWS CONSTRUCTED OF 18-8 STAINLESS STEEL.

![](_page_24_Picture_111.jpeg)

PLUMBING SPECIFICATIONS	22-059	PLUMBING SPECIFIC	CATIONS	22
<ul> <li>LUMBING SPECIFICATIONS</li> <li>GENERAL</li> <li>PROVIDE MATERIALS AND EQUIPMENT AND PERFORM LABOUR REQUIRED TO INS AND OPERABLE FIRE PROTECTION SYSTEMS AS INDICATED ON THE DRAWINGS, A AND IN COMPLIANCE WITH THE STANDARDS OF THE NATIONAL FIRE PROTECTION INDUSTRIAL RISK INSURES, FACTORY MUTUAL, AND PROVINCIAL AND LOCAL RE DIVISION TO ENSURE SATISFACTORY INSTALLATION AND TO AVOID DELAYS. PRO MATERIALS TO BE BUILT-IN SUCH AS SLEEVES, ANCHORS, ETC., TOGETHER WITH A DIMENSIONS OR TEMPLATES, PROMPTLY.</li> <li>INSTALL PIPING, WHEREVER POSSIBLE, IN PARTITIONS AND ABOVE CEILING. DO IN PIPING IN OUTSIDE WALLS UNLESS SO SHOWN ON DRAWINGS. WRAP UNINSULAY MASONRY WALLS WITH BUILDING PAPER.</li> <li>WHERE PIPING PASSES THROUGH CONCRETE FLOORS, OR WALLS, SLEEVES SHALL PERMIT THE PIPE TO EXPAND FREELY WITHOUT BINDING OR CRUSHING PIPE INSULE.</li> <li>USE DIELECTRIC COUPLINGS WHERE PIPING OF DISSIMILAR METALS CONNECT.</li> <li>FLUSH WATER MAINS IN ACCORDANCE WITH PROCEDURES ESTABLISHED BY NEP, CLEAN AND REPLACE ALL STRAINERS IN SYSTEMS AFTER FLUSHING. THOROUGHLY UBRICATE ALL EQUIPMENT AND LEAVE ALL ITEMS IN PERFECT ORDER READY FOI .</li> <li>PROVIDE FIRE EXTINGUISHERS WHERE INDICATED AND IN CONFORMANCE WITH FIRE CODE AND NFPA 10.</li> <li>PERFORM SPRINKLER WORK TO REQUIREMENTS OF ONTARIOF FIRE CODE AND NF .</li> <li>PEFORM STANDPIPE WORK TO REQUIREMENTS OF ONTARIOF FIRE CODE AND NF .</li> <li>PERFORM SPRINKLER WORK TO REQUIREMENTS OF ONTARIOF FIRE CODE AND NF .</li> <li>PERFORM STANDPIPE WORK TO REQUIREMENTS OF ONTARIOF FIRE CODE AND NF .</li> <li>PERFORM STANDPIPE WORK TO REQUIREMENTS OF ONTARIOF FIRE CODE AND NF .</li> <li>PERFORM STANDPIPE WORK TO REQUIREMENTS OF ONTARIOF FIRE CODE AND NF .</li> <li>PEROVIDE 10 LB. (4.54 KG) CARBON DIOXIDE EXTINGUISHERS IN EACH FIRE HOSE CA MECHANICAL ROOMS.</li> <li>PROVIDE 10 LB. (4.54 KG) CARBON DIOXIDE EXTINGUISHERS IN ELECTRICAL ROOM COMMUNICATIONS ROOMS, AND DATA CENTRES</li> </ul>	22-059 STALL COMPLETE AS SPECIFIED N ASSOCIATION, EGULATIONS. ORK OF THIS DVIDE ALL CCURATE NOT INSTALL TED PIPING IN L BE SIZED TO ATION A 24. REMOVE, Y CLEAN AND R OPERATION. THE ONTARIO EPA 13. EPA 14.	<ul> <li>PLUMBING SPECIFIC</li> <li>9.7. PROVIDE LAYOUT DRAWINGS ARE LICENSED IN THE PROVINCE WHER</li> <li>9.8. PERFORM WORK TO OBC, NFPA 1 COPY ON SITE.</li> <li>9.9. MANUFACTURER QUALIFICATIONS: PRODUCTS SPECIFIED IN THIS SECT</li> <li>9.10. INSTALLER QUALIFICATIONS: CO SECTION WITH MINIMUM FIVE (5) N</li> <li>9.11. DESIGN SYSTEM UNDER DIRECT SI DESIGN OF THIS WORK AND LICEN</li> <li>9.12. ACCEPTABLE MANUFACTURERS:</li> <li>9.13. SPRINKLERS</li> <li>9.13.1. SEMI-RECESSED PENDANT:</li> <li>9.13.1.1. TYPE: SEMI-RECESSED PLATE.</li> <li>9.13.1.2. FINISH: CHROME PLA 9.13.1.3. ESCUTCHEON PLATE</li> <li>9.13.1.4. FUSIBLE LINK: GLASS</li> <li>9.13.2.3. FUSIBLE LINK: GLASS</li> <li>9.13.3. SIDEWALL TYPE:</li> <li>9.13.3.1. TYPE: SEMI-RECESSED</li> </ul>	ETO BE SEALED BY A REGISTERED PROFESSIONAL I TO BE SEALED BY A REGISTERED PROFESSIONAL I THE SITE IS LOCATED. 3 AND OWNER'S INSURER'S REQUIREMENTS. MAIN 5: COMPANY SPECIALIZING IN MANUFACTURING 10N WITH MINIMUM THREE YEARS DOCUMENTED MPANY SPECIALIZING IN PERFORMING THE WORK YEARS DOCUMENTED EXPERIENCE. UPERVISION OF A PROFESSIONAL ENGINEER EXPENSE ISED AT THE PLACE WHERE THE PROJECT IS LOCA VICTAULIC, GLOBE SPRINKLERS, NATIONAL FIRE E D PENDANT TYPE WITH MATCHING PUSH ON ESCU ATED. FINISH: CHROME PLATED. BULB TYPE TEMPERATURE RATED FOR SPECIFIC AF PRIGHT TYPE WITH GUARD. BULB TYPE TEMPERATURE RATED FOR SPECIFIC AF D HORIZONTAL SIDEWALL TYPE WITH MATCHING IN UARD.	22 ENGIN VTAIN ; THE EXPER K OF T REANC ; THE EXPER REAH
EACH KITCHEN/KITCHENETTE ACCEPTABLE MANUFACTURERS: NATIONAL FIRE EQUIPMENT, FLAG, KENT, PYREN CFH, SAFETY SUPPLY CHUBB. MULTI-PUPURPOSE (ABC) TYPE: DRY CHEMICAL, 5 LB. (2.27 KG) MINIMUM 3A:10E MULTI-PURPOSE (ABC) TYPE, DRY CHEMICAL, 10 LB. (4.54 KG) MINIMUM 4A:60BC	NE CANADA, BC. C.	<ul> <li>9.13.3.2. FINISH: CHROME PLA</li> <li>9.13.3.3. ESCUTCHEON PLATE</li> <li>9.13.3.4. FUSIBLE LINK: GLASS</li> <li>9.13.4. CONCEALED PENDANT:</li> <li>9.13.4.1. COVER PLATE ATTAC</li> </ul>	ATED. FINISH: CHROME PLATED. BULB TYPE TEMPERATURE RATED FOR SPECIFIC AF CHMENT WITH 1/2" (13MM) ASSEMBLY ADJUSTMEN	REA H.
CARBON DIOXIDE : 10 LB. (4.54 KG), MINIMUM SBC. ( CABINETS FULLY RECESSSED: 18 GA. (1.3 MM) STEEL TUB WITH WHITE PRIME PAINTED FINISH ' (2.1 MM) STAINLESS STEEL DOOR & TRIM, BRUSHED FINISH OR STEEL WITH PRIME P (2.1 MM) STAINLESS STEEL DOOR & TRIM, BRUSHED FINISH OR STEEL WITH PRIME P (2.1 MM) STAINLESS STEEL DOOR & TRIM, BRUSHED FINISH OR STEEL WITH PRIME P (2.1 MM) STAINLESS STEEL DOOR & TRIM, BRUSHED FINISH OR STEEL WITH PRIME P (2.1 MM) STAINLESS STEEL DOOR & TRIM, BRUSHED FINISH OR STEEL WITH PRIME (2.1 MM) STAINLESS STEEL DOOR & TRIM, BRUSHED FINISH OR STEEL WITH PRIME (2.1 MM) STAINLESS STEEL DOOR & TRIM, BRUSHED FINISH OR STEEL WITH PRIME (2.1 MM) STAINLESS STEEL DOOR & TRIM, BRUSHED FINISH OR STEEL WITH PRIME (2.1 MM) STAINLESS STEEL DOOR & TRIM, BRUSHED FINISH OR STEEL WITH PRIME (2.1 MM) STAINLESS STEEL DOOR & TRIM, BRUSHED FINISH OR STEEL WITH PRIME (2.1 MM) STAINLESS STEEL DOOR & TRIM, BRUSHED FINISH OR STEEL WITH PRIME (2.1 MM) STAINLESS FINISH OR STEEL THE WITH WHITE PRIME PAINTED FINISH THE (2.1 MM) STAINLESS FINISH OR STEEL THE WITH WHITE PRIME PAINTED FINISH THE PRIME PRIME PRIME PRIME PRIME PRIME PRIME PRIME P	TUB 14 GAUGE AINTED FINISH,	<ul> <li>9.13.4.2. SMOOTH AESTHETIC</li> <li>9.13.4.3. FACTORY INSTALLED</li> <li>9.13.4.4. FACTORY PAINTED (C</li> <li>9.14. GUARDS: FINISH TO MATCH SPRI</li> <li>9.15. SPRINKLER LOCATIONS</li> </ul>	CEILING PROFILE. PROTECTIVE CAP. CONFIRM COLOUR WITH ARCHITECT PRIOR TO O NKLER FINISH.	RDERI
GAUGE (2.1 MM) STEEL DOOR AND TRIM WITH PRIME PAINTED FINISH, FOR SEMI- MOUNTING WITH 1/2" (15 MM) RETURN, SHATTER-PROOF TRANSPARENT CANOPY	-RECESSED Y, TO	APPLICATION	ТҮРЕ	
accommodate specified extingUISHER. LVES - GENERAL		SUSPENDED DRYWALL CEILING	G CONCEALED PENDANT	
PROVIDE SHUTOFF VALVES IN SPRINKLER, STANDPIPE, AND COMBINED SYSTEMS ( INDICATING TYPE.	OF APPROVED,	SUSPENDED T-BAR CEILING	CONCEALED PENDANT	
		EXPOSED AREA	STANDARD UPRIGHT	
. CONFORM TO REQUIREMENTS OF ANSI, ASTM, ASME, AND APPLICABLE MSS STA MANUFACTURER'S NAME AND PRESSURE RATING CLEARLY MARKED ON BODY TO PROVINCE OF ONTARIO WITH TSSS. SUPPLIERS SHALL PROVIDE A COPY OF THE SUPCLARATION FOR VALVES, STAMPED, SIGNED AND DATED BY TSSA AS VALIDAT CRN REGISTRATION, INCLUDE WITH THE SHOP DRAWING SUBMITTAL PACKAGE. . MATERIALS: 4.7.1. BRONZE: ASTM 862 OR 861 AS APPLICABLE 4.7.2. BRASS: ASTM 862 OR 861 AS APPLICABLE 4.7.3. CAST IRON: ASTM A126 CLASS B END CONNECTIONS: 4.8.1. THREADED ENDS: ANSI B1.20.1 4.8.2. FLANGED ENDS: ANSI B1.6.1 (CLASS 125), ANSI B16.5 4.8.3. FACETO-FACE DIMENSIONS: ANSI B1.6.1 0. DESIGN AND TESTING: 4.9.1. BRONZE GATE & CHECK VALVES: MSS-SP-80 4.9.2. CAST IRON GLOBE VALVES: MSS-SP-85 4.9.4. CAST IRON GLOBE VALVES: MSS-SP-85 4.9.4. CAST IRON GLOBE VALVES: MSS-SP-70 4.9.3. CAST IRON GLOBE VALVES: MSS-SP-70 4.9.3. CAST IRON GLOBE VALVES: MSS-SP-70 4.9.4. CAST IRON GLOBE VALVES: MSS-SP-71 4.9.5. BUITTERFLY VALVES: MSS-SP-73 4.9.4. CAST IRON GLOBE VALVES: MSS-SP-74 6. ACCEPTABLE MANUFACTURERS: KITZ, CRANE, JENKINS, CONBRACO, NIBCO COLATION VALVES 5. ELECTRICAL SUPERVISION ON TROUBLE CIRCUIT OF FACILITY FIREA VALVE MONTORING SWITCHES SHALL BE POTTER ELECTRICS CISCALA AND MANUF UMITED OR EQUIVALENT: UP TO 2 (50 MM) AND LARGER: ULC LISTED, FM APPROVED, 107 SP1 1210 KPA CW AVALVE MONTORING SWITCHES SHALL BE OTTER WITH CACHE SUBALL BATM MANUF UMITED OR EQUIVALENT. UP TO 2 (56 MM) AND LARGER: ULC LISTED, FM APPROVED, 175 PS1 (1210 KPA), CAST IRON STANLESS STEL SHAFT, DOUBLE TORN BONZE SWING DISC WITH REPLACEABLE BRO CLANCED ENDS. CONSTRUCTION: ULC LISTED, FM APPROVED, 175 PS1 (1210 KPA), CAST IRON SO STANLESS STEL SHAFT, DOUBLE DOOR BRONZE DISC TO B-62, BUNA SEAT, 316 ST SPRING, WARE STYLE. SRAIN VALVES 1. ULC LISTED AND AND APPROVED	NDARDS. O MSS-SP-25. BER FOR THE STATUTORY TION OF THE TION OF THE ACT SWITCH ALARM SYSTEM. FACT SWITCH ALARM SYSTEM. FACTURING WB62 BRONZE 25 P, OUTSIDE SRED SOLID WP, IRON BODY DNZE SEAT RINGS, DY, 316 TAINLESS STEEL OMINAL SIZE OMINAL SIZE OMI	<ul> <li>9.16. STEEL PIPE: ASTM A53, SCHEDULE HITTINGS, SCHEDULE 40 IF JOINED' SCHEDULE 40 FOR 6" SIZES AND L/ 9.17. PIPE FITTINGS:</li> <li>9.17.1. STEEL FITTINGS: ASME B16.' 9.17.2. CAST IRON FITTINGS: ASME 9.17.3. MALLEABLE IRON FITTINGS: 9.17.4. MECHANICAL GROOVED 0 ENGAGE AND LOCK, "C" SHAPI WASHERS; GALVANIZED FOR G 9.17.5. MECHANICAL FORMED FIT AND O-RING POCKET AND O-R MECHANICAL ENGAGEMENT C 9.18. ELECTRICALLY SUPERVISED ISOLA CONTACT SWITCH SUITABLE FOR E FIRE ALARM SYSTEM. VALVE MONI MANUFACTURING LIMITED OR EQU 9.18.1. UP TO 2" (50 MM): CONSTR WOG, ASTM 862 BRONZE BODY ENDS, KITZ #25</li> <li>9.18.2. 2-1/2" (65 MM) AND LARGI OUTSIDE SCREW AND YOKE, C SOLID WEDGE DISC, FLANGED</li> <li>10. TESTING, ADJUSTING, FLUSHING, 10.1.AFTER SYSTEM IS COMPLETE, FLUSH 10.2.TEST SPRINKLER LINES HYDROSTATI- BY THE AUTHORITIES BUT AT NOT LE THAN FOUR (4) HOURS WITHOUT A OR FURRED IN AND BEFORE PRESS CORRECT ALL DEFECTS DISCLOSEI</li> <li>10.3.IF ANY LEAKS ARE DISCOVERED BY PORTIONS OFTHE SYSTEMS AND RE</li> <li>10.4.THE SYSTEM IS ACCEPTED BY THE C THREADED JOINTS.</li> <li>10.5.CHECK HORIZONTAL PIPE WITH AN LATERALS AND CROSS ARMS, ELIM TEN (10) MINUTES, OR UNTIL ALL FK CLEAR, PROVIDE A STANDARD CE AND SUBMIT TO CONSULTANT.</li> </ul>	E 10 IF JOINED BY WELDING OR BY ROLL GROOVE WITH THREADED FITTINGS OR CUT GROOVE PIPE, ARGER IN ANY CASE. 9, WROUGHT STEEL, BUTTWELDED. E 816.1, FLANGES AND FLANGED FITTINGS. ASME B16.3, THREADED FITTINGS. COUPLINGS: MALLEABLE IRON HOUSING CLAMF ED ELASTOMERIC SEALING GASKET, STEEL BOLTS, ALVANIZED PIPE. TINGS: CARBON STEEL HOUSING WITH INTEGRAL ING UNIFORMLY COMPRESSED INTO PERMANEN SINTO PIPE. TION YALVES: ULC LISTED, FM APPROVED, NO/N ELECTRICAL SUPERVISION ON TROUBLE CIRCUIT OF TORING SWITCHES SHALL BE POTTER ELECTRIC SIG UIVALENT. UCTION: ULC LISTED, FM APPROVED, 300 PSIG NG , SOULD WEDGE DISC, RISING STEM, BRONZE TRIM ER: ULC LISTED, FM APPROVED, 175 PSI 1210 KPA ASST IRON BODY, STEM WITH ACME DOUBLE THREA ENDS, RENEWABLE BRONZE SEAT RINGS. AND CLEANING. 4 AND TEST ENTIRE SYSTEM IN ACCORDANCE WIT CALLY AT 2 TIMES THE WORKING PRESSURE OR AS SS THAN 1,380 KPA (200 PSI), FOR A PERIOD OF N NY DROP IN PRESSURE. DOUTESTING BEFORE PIPIN UNE SENSTITUE DEVICES ARE INSTALLED IN THE PIP D BY TESTS. RETEST UNTIL ALL RESULTS ARE ACCEP Y THE ABOVE TESTS, REMOVE AND REPLACE THE F EPEATTHE TEST. REPEAT THIS PROCEDURE UNTIL CONSULTANT'S REPRESENTATIVE ON THE SITE. DO I N ACCURATE LEVEL FOR ANY ALTERATIONS IN PIT- MINATE POCKETS. FLUSH THE SYSTEM AT FULL FLOW DREIGN MATERIALS HAVE BEEN REMOVED AND T IRTIFICATE THAT FLUSHING HAS BEEN PROPERLY C	ED PIP AND F 'S TO NUTS, PIPE S T C SPD F FAC 3NAL CWP, ADS, T, H NFP S REQU G ISBI EWOR TABLE : AULTY NOT C CH. IN Y RATE HE WO CARRIE
<ul> <li>AND SPRINKLER HEADS IN PROPER RELATION TO OTHER EQUIPMENT SUCH AS LIC AND DUCTS TO ENSURE CLEAR CEILING HEIGHTS INDICATED ON THE DRAWINGS LOCATION OF SPRINKLER HEADS IN SUSPENDED CEILINGS WITH THE LOCATION OF GRILLES, DIFFUSERS AND SIMILAR ITEMS. MAINTAIN MAXIMUM HEADROOM IN AI CEILINGS.</li> <li>9.5. OBTAIN APPROVAL OF THE FIRE SUPPRESSION SYSTEMS LAYOUT DRAWINGS BY C OR FACTORY MUTUAL AS APPLICABLE, AND THE CONSULTANT BEFORE ANY WOI</li> <li>9.6. TAKE INTO CONSIDERATION ARCHITECTURAL, STRUCTURAL, MECHANICAL AND I LAYOUTS OF THE BUILDING. PIPING MAINS AND BRANCHES MUST BE ARRANGED INTERFERE WITH ANY OF THE AFOREMENTIONED SYSTEMS AND EQUIPMENT.</li> </ul>	GHT FIXTURES 6. COORDINATE DF LIGHTING, REAS WITH NO DWNER'S INSURER RK IS STARTED. ELECTRICAL D TO NOT			

ONS	22-059	PLUMBING SPECIFICATIONS	22-059	PLUMBING SPECIFICATIONS	22-059
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PANY SPECIALIZING IN MANUFACTURING H MINIMUM THREE YEARS DOCUMENTED	G THE D EXPERIENCE.				
SPECIALIZING IN PERFORMING THE WOR OCUMENTED EXPERIENCE.	rk of this				
ION OF A PROFESSIONAL ENGINEER EXPI THE PLACE WHERE THE PROJECT IS LOCA	ERIENCED IN ATED.				
LIC, GLOBE SPRINKLERS, NATIONAL FIRE E	EQUIPMENT.				
ant type with matching push on esc	UTCHEON				
PE TEMPERATURE RATED FOR SPECIFIC A	REA HAZARD.				
YPE WITH GUARD.					
PE TEMPERATURE RATED FOR SPECIFIC A	REA HAZARD.				
ONTAL SIDEWALL TYPE WITH MATCHING	PUSH ON				
PE TEMPERATURE RATED FOR SPECIFIC A	REA HAZARD.				
WITH 1/2" (13MM) ASSEMBLY ADJUSTME	NT.				
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M COLOUR WITH ARCHITECT PRIOR TO C INISH.	DRDERING)				
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READED FITTINGS OR CUT GROOVE PIPE N ANY CASE.	AND FITTINGS,				
JGHT STEEL, BUTTWELDED.					
FLANGES AND FLANGED FITTINGS. B16.3, THREADED FITTINGS.					
NGS: MALLEABLE IRON HOUSING CLAMI TOMERIC SEALING GASKET, STEEL BOLTS, ZED PIPE.	ps to NUTS, AND				
CARBON STEEL HOUSING WITH INTEGRAL	- PIPE STOP NT				
- E. ALVES: ULC LISTED, FM APPROVED, NO/N CAL SUPERVISION ON TROUBLE CIRCUIT C	IC SPDT DRY DF FACILITY				
SWITCHES SHALL BE POTTER ELECTRIC SINT.					
WEDGE DISC, RISING STEM, BRONZE TRIM	M, THREADED				
LISTED, FM APPROVED, 175 PSI 1210 KPA N BODY, STEM WITH ACME DOUBLE THREA ENEWABLE BRONZE SEAT RINGS.	. CWP, ADS, TAPERED				
EANING. EST ENTIRE SYSTEM IN ACCORDANCE WIT	TH NFPA-13.				
AT 2 TIMES THE WORKING PRESSURE OR A N 1,380 KPA (200 PSI), FOR A PERIOD OF I	S REQUIRED NOT LESS				
ISITIVE DEVICES ARE INSTALLED IN THE PIF ITS. RETEST UNTIL ALL RESULTS ARE ACCEF	PEWORK. PTABLE.				
BOVE TESTS, REMOVE AND REPLACE THE I E TEST. REPEAT THIS PROCEDURE UNTIL					
RATE LEVEL FOR ANY ALTERATIONS IN PIT	ICH. INSPECT				
OCKETS. FLUSH THE SYSTEM AT FULL FLOW MATERIALS HAVE BEEN REMOVED AND 1 TE THAT FLUSHING HAS BEEN PROPERLY (	W RATE FOR THE WORK IS CARRIED OUT				

![](_page_25_Picture_3.jpeg)

	4.20.3. CHECK (BACKFLOW): 200 PSIG NO BODY, BOLTED COVER, BRONZE MO	N-SHOCK WOG, ASTM 126 CLASS B CAST IR OUNTED, SWING TYPE DISC, FLANGED ENDS
1.1. CERTAIN ITEMS SUCH AS RISES AND DROPS IN DUCTWORK, ACCESS DOORS, DAMPERS, ETC. ARE INDICATED FOR CLARITY FOR A SPECIFIC LOCATION REG NOT AN ADVISION OF THE DESCRIPTION OF THE D	VOLUME IREMENT. DO 4.20.4. PROVIDE STEM EXTENSIONS FOR INS	SULATED PIPING.
1.2. CO-ORDINATE DIFFUSERS, REGISTERS, AND GRILLE LOCATIONS WITH ARCHIT	4.20.5. PROVIDE GEAR OPERATOR AND CL	HAIN ON VALVES INSTALLED ABOVE 10-FT A
REFLECTED CEILING PLANS, LIGHTING AND OTHER CEILING ITEMS. MAKE MING MODIFICATIONS TO SUIT.	R DUCT 4.21. STRAINERS, 2 AND SMALLER CLASS 2 SCREWED CAP AND ENDS, A167 304 STAINL	LESS STEEL SCREEN WITH 1/32" PERFORATION
1.3. ARRANGE AND ASSEMBLE FIELD-ERECTED AND FACTORY ASSEMBLED AIR HA	ADLING UNIT S. PROVIDE 4.22. STRAINERS, 2-1/2" AND LARGER CLAS	.SS 250 PSIG NON-SHOCK WOG, CAST IRON,
GALVANIZED STEEL SUPPORTS FOR COILS IN BANKS OVER TWO COILS HIGH TO INDEPENDENT REMOVAL OF INDIVIDUAL COILS.	PERMIT     Y-PATTERN, BOLTED FLANGE COVER, BLOW       1/32" PERFORATIONS, FLANGED ENDS, MUEL	-OUT PLUG, A167 304 STAINLESS STEEL SCREE LLER STEAM 752.
1.4. ENSURE AIR HANDLING UNITS OPERATE WITHOUT MOISTURE CARRY-OVER.	5. GROOVED PIPING SYSTEMS TO 150 PSIG, ABO	VE GROUND
1.5. LOCATE MECHANICAL EQUIPMENT SUCH AS SINGLE-DUCT, DUAL-DUCT, VAI CONSTANT VOLUME AND FAN-POWERED BOXES, FAN COILS, CABINET HEATE	ABLE VOLUME, 5.1. ACCEPTABLE MANUFACTURERS: VICTAULIC	C COMPANY, ANVIL INTERNATIONAL, GRUV
UNIT VENTILATORS, COILS, HUMIDIFIERS, ETC. FOR UNOBSTRUCTED ACCESS TO CONTROLS AND VALVING	ACCESS PANELS, S.2. PERMITED APPLICATIONS: GROOVED JOIN	DIADON DI ANTED IN HVAC PIPING STSTEM. D 140°F, INCLUDING: CHILLED WATER; CONI E HEAT DI MATED
1.6. PROVIDE WALL-TO-WALL FINNED-TUBE RADIATION ENCLOSURES UNLESS OTH	RWISE INDICATED. 5.3. NOMINAL OPERATING PRESSURE	125 PSIG
1.7. PROVIDE FLEXIBLE CONNECTIONS IN DUCTWORK CONNECTIONS TO AIR-HA	DLERS, FANS AND 5.4. DESIGN PRESSURE	150 PSIG
HVAC HYDRONIC PIPING	5.5. TEST PRESSURE	225 PSIG
2.1. KEEP OPEN ENDS OF PIPE FREE FROM SCALE AND DIRT. PROTECT OPEN END	WITH TEMPORARY 5.6. DESIGN TEMPERATURE	350°F
PLUGS OR CAPS. AFTER COMPLETION, FILL, CLEAN, AND TREAT SYSTEMS.	5.7. CORROSION ALLOWANCE 5.8. PIPE: ASTM A53B OR ASTM A106B, SCH 40.	0.0625 IN.
METALS IN OPEN SYSTEMS.	5.9.FITTINGS: ROLL GROOVED, MALLEABLE IRC	ON TO ASTM A47/A47M
2.3. PRIME COAT EXPOSED STEEL HANGERS AND SUPPORTS. HANGERS AND SUPF CRAWL SPACES, PIPE SHAFTS, AND SUSPENDED CEILING SPACES ARE NOT CO	DRTS LOCATED IN 5.10. JOINTS, 2-1/2" AND LARGER: ROLL G ISIDERED MANUFACTURERS INSTRUCTIONS AND RECO	ROOVED TO CSA B242, IN ACCORDANCE V OMMENDATIONS, WITH FLANGES AT CONNE
EXPOSED.	TO EQUIPMENT.	
COMPLETE WITH ISOLATING VALVES. PROVIDE AIR VENTS AT HIGH POINTS OF	ACH DROP IN THE 5.11. GASKETS: EPDM	
PIPING TO LOW POINTS. PROVIDE HOSE-END DRAIN VALVES AT THE BOTTOM	F RISERS AND AT     6.1. COPPER TUBING: ASTM B88, TYPE M AND D	OWV, HARD DRAWN.
2.5. INSTALL VALVES SO THE VALVE REMAINS IN SERVICE WHEN EQUIPMENT OR F	ING ON THE 6.2. FITTINGS: ASME B16.18, CAST BRASS, OR AS	SME B16.22 SOLDER WROUGHT COPPER.
EQUIPMENT SIDE IS REMOVED.	6.3. JOINTS: SOLDER, LEAD FREE, ASTM B32, 95- RANGE 4428°E TO 536°E (220°C TO 280°C)	-5 TIN-ANTIMONY, OR TIN AND SILVER, WITH I
2.6. PIPE DISCHARGE FROM TEMPERATURE & PRESSURE SAFETY RELIEF VALVES TO DISCHARGE DIRECTLY INTO A FLOOR DRAIN, HUB DRAIN OR SAFE OUTDOOR	A POINT OF SAFE     10 4002 1120 100 000 1 (220 0 10 200 0);       DCATION.     7. CIRCUIT BALANCING VALVES	
2.7. PROVIDE AUTOMATIC FEED VALVE ON THE COLD-WATER MAKE-UP LINE TO B	CH NEW HOT 7.1. VALVES, SHALL PROVIDE THE FOLLOWING	FUNCTIONS:
2.8. TEST LIQUID HEAT TRANSFER PIPING HYDROSTATICALLY AT NOT LESS THAN 15	% OF OPERATING	
PRESSURE OR NOT LESS THAN 125 PSI (860 KPA) WHICHEVER IS THE GREATER. BE NOT LESS THAN SIX (6) HOURS DURATION DURING WHICH TIME EACH JOIN	ST PERIOD SHALL7.1.2.PRECISION FLOW BALANCING.SHALL BE7.1.3POSITIVE SHITL OF WITH NO DOING.	
INSPECTED, GIVEN A SHARP TAP WITH A HAMMER AND CHECKED FOR LEAKS	7.1.3. POSITIVE SHUT OFF WITH NO DRIPS 7.2. CIRCUIT BALANCING VALVES: 2" (50 MM) A	AND SMALLER
2.9. PROVIDE BALANCING VALVES AND BUTTERFLY VALVES WITH POSITION INDIC MAXIMUM ADJUSTABLE STOPS (MEMORY STOPS).	7.2.1. SCREWED CONNECTION, GLOBE S	TYLE DESIGN, NONFERROUS, PRESSURE DIE-C
2.10. PROVIDE CHAINWHEEL OPERATORS FOR VALVES IN EQUIPMENT ROOM	S MOUNTED NONPOROUS AMETAL COPPER ALL INSTALLED IN ANY DIRECTION, IT WI	IUY. EACH VALVE SHALL BE SUCH THAT WHE ILL NOT AFFECT FLOW MEASUREMENT.
2.11. PROVIDE UNIONS AND/OR FLANGES AT EQUIPMENT, IN BYPASSES. ANI	7.2.2.     VALVES SHALL HAVE FOUR 360° AD       LONG PIPING     VERNIED_TVDE SETTING WITH "UPDER	JUSTMENT TURNS OF HANDWHEEL FOR MAX
RUNS (>100') TO PERMIT DISASSEMBLY FOR ALTERATION AND REPAIRS.	PRECISION TAMPER-PROOF BALAN	ICING SETTING.
2.12. INSTALL PIPING WITHOUT FORCING OR SPRINGING.	7.2.3. VALVES SHALL BE SHIPPED IN A 4.5 BE USED AS INSULATION AFTER VAL	R FACTOR POLYURETHANE CONTAINER THA VE IN INSTALLED.
2.13. CO-ORDINATE FIFTING WITH OTHER TRADES. FROVIDE OFFSETS AROUN 2.14. ADJUST VALVES FOR SMOOTH AND EASY OPERATION.	7.2.4. PROVIDE VALVES SUITABLE FOR MA	AXIMUM WORKING PRESSURE OF 250 PSI (17:
2.15. PROVIDE FLEXIBLE CONNECTIONS IN PIPING CONNECTED TO PUMPS,		ERATURE OF 250°F (121°C).
COOLING TOWERS, AND OTHER EQUIPMENT WHICH REQUIRES VIBRATION ISC WATER COILS. PROVIDE FLEXIBLE CONNECTIONS AS CLOSE AS POSSIBLE TO E	ATION EXCEPT 7.2.3. ACCEPTABLE PRODUCTS, S.A. ARM UIPMENT. STA-D OR NEWMAN HATTERSLEY.	ASTRONG CRYTINDICATED OR TOUR & AND
	7.3. CIRCUIT BALANCING VALVES 2 1/2" (65 MM	M) AND LARGER
VALVES - GENERAL	7.3.1. FLANGED, LINE SIZE CONNECTION, DIE-CAST, NONPOROUS AMETAL C	GLOBE STYLE DESIGN, NONFERROUS, PRESS OPPER ALLOY.
3.1. CONFORM TO REQUIREMENTS OF ANSI, ASTM, ASME, AND APPLICABLE MSS 3.2 MANUFACTURER'S NAME AND PRESSURE RATING CLEARLY MARKED ON BOD	ANDARDS. 7.3.2. VALVES SHALL HAVE TWELVE 360° / 7 TO MSS-SP-25	ADJUSTMENT TURNS OF HANDWHEEL FOR M.
3.3. VALID CRN (CANADIAN REGISTRATION NUMBER) REQUIRED FOR EACH VAL	PRECISION TAMPER-PROOF BALAN	ICING SETTING.
3.4. VALVES - MATERIALS:	7.3.3. VALVES SHALL BE SUITABLE FOR MA AND MAXIMUM OPERATING TEMPE	AXIMUM WORKING PRESSURE OF 250 PSI (172 ERATURE OF 250°F (120°C).
3.4.1. BRONZE: ASTM B62 OR B61 AS APPLICABLE	7.3.4. ACCEPTABLE PRODUCTS: S.A. ARM	ASTRONG CBV II INDICATED OR TOUR & AND
3.4.2. BRASS: ASTM B283 C3770		DACK
3.4.3. CAST IKON, ASIM A126 CLASS B 3.5. VALVES - END CONNECTIONS:	7.4. VICTAULIC SERIES 799779V KOIL-KIT M COIL 7.5. INSTALL SERIES 786, 787. OR 78K TOUR & AN	. PACK NDERSSON BALANCING VALVE, VICTAULIC (
3.5.1. THREADED ENDS: ANSI B1.20.1	78U UNION PORT FITTING, SERIES 78Y STRAIN COMBINATION, AND TWO STAINLESS STEEL	JER/BALL VALVE OR SERIES 78T UNION/BALL Y
3.5.2. FLANGED ENDS: ANSI B16.1 (CLASS 125), ANSI B16.5	COIL OUTLET. VICTAULIC SERIES 799 OR SER	RIES 79V WITH ATC VALVE.
3.5.3. FACE-TO-FACE DIMENSIONS: ANSI B16.10	8. HVAC PIPING INSULATION 8.1. GLASS FIBRE	
3.6.1. BRONZE GATE & CHECK VALVES: MSS-SP-80	8.1.1. APPROVED MANUFACTURERS: JOH	INSMANVILLE MICRO-LOK. OTHER ACCEPTA
3.6.2. BALL VALVES: MSS-SP-110	MANUFACTURERS OFFERING EQUIV CERTAINTEED CRIMPWRAP.	VALENT PRODUCTS: OWENS CORING FIBERG
3.6.3. CAST IRON GATE VALVES: MSS-SP-70	8.1.2. INSULATION : ASTM C547 ; ASTM C4	411, ASTM C356, CAN/ULC-S102, ASTM E84,
3.6.4. CAST IRON GLOBE VALVES: MSS-SP-85	0/74, NFPA 259. 8.1.2.1. K' VALUE: 0.23 BTU-in/Hr-SQ FT	T-F AT 75°F
3.6.5. CAST IRON CHECK: MSS-SP-71	8.1.2.2. MINIMUM SERVICE TEMPERATU	JRE: 0°F (-18°C).
3.7. VALVES - ACCEPTABLE MANUFACTURERS:	8.1.2.3. MAXIMUM SERVICE TEMPERAT	URE: 850°F (454°C).
3.7.1. KITZ, CRANE, JENKINS, CONBRACO, NIBCO	8.1.2.4. MAXIMUM MOISTURE ABSORPT	
HYDRONIC SYSTEMS TO 150 PSIG, ABOVE GROUND	8.1.3. VAPOUR BARRIER JACKET: ASTM C GLASS FIBRE YARN AND BONDED T	3136 TYPE I, WHITE KRAFT PAPER REINFORCE
4.1.NOMINAL OPERATING PRESSURE 125 PSIG	TRANSMISSION: ASTM E96; 0.02 PER AND BUTT STRIPS. SECURE WITH OUT	RM. SECURE WITH SELF SEALING LONGITUDIN TWARD CLINCH EXPANDING STAPLES AND \
+.2. DESIGN FRESSURE 150 PSIG 4.3. TEST PRESSURE 225 PSIG	BARRIER MASTIC	
.4.DESIGN TEMPERATURE 350°F	8.1.4. TIE WIRE: 1.3 MM STAINLESS STEEL W CENTRES	WITH TWISTED ENDS ON MAXIMUM 12" (300 M
.5. CORROSION ALLOWANCE 0.0625 IN.	8.1.5. VAPOUR BARRIER LAP ADHESIVE: C	COMPATIBLE WITH INSULATION.
.6. STEEL PIPE: ASTM A53B ERW OR ASTM A106B SMLS, SCH 40	8.1.6. INSULATING CEMENT/MASTIC: ASTN VOC CONTENT NOT TO EXCEED 80	и C195; HYDRAULIC SETTING ON MINERAL И ) G/L.
1.7. JOINTS, 2" AND SMALLER     SCREWED       4.8. SCREWED FITTINGS     150 LB	8.1.7. FIBROUS GLASS FABRIC: CLOTH: UN	NTREATED; 9 OZ/SQ YD (305 G/SQ M) WEIGI
1.0.JULD. MALLEABLE IKON 1.9.UNIONS: CL.150, ASTM A-47 MALLEABLE IRON, ASTM A-153 GALVANIZED. AN		
4.10. JOINTS 2-1/2" AND LARGER: WELDED, WITH FLANGES AT CONNEC	IONS TO	CONTENT NOT TO EXCEED 250 G/L.
	8.1.9. OUTDOOR VAPOUR BARRIER MAST WITH INSULATION, WHITE COLOUR	IC: VINYL EMULSION TYPE ACRYLIC, COMPA
4.12. FLANGES ASTM A105, CLASS 150, RAISED FACE, WELD NECK OR SLIP C	8.1.10. INSULATING CEMENT: ASTM C449, V	VOC CONTENT NOT TO EXCEED 80 G/L.
4.13. BOLTS: ASTM A307 C.S. BOLTS, SQ. HEAD; ASTM A563 NUTS, HEX H	AD 8.2. JACKETS - PVC PLASTIC	
4.14. GASKETS: 1/16" (1.6 MM) THICK PREFORMED NON-ASBESTOS, GRAPHI	FIBRE. 8.2.1. JACKET: ONE PIECE MOULDED TYPE CAN/ULC-S102, ASTM E84, ASTM D	E FITTING COVERS AND SHEET MATERIAL. 1784, ULC \$102-M88.
COPPER TUBING: 2" AND SMALLER ASTM B88, TYPE L, HARD DRAWN.	8.2.2. MAXIMUM SERVICE TEMPERATURE:	151°F (66°C).
.10. COFFER JOINTS: SOLDER, LEAD FREE, ASTM B32, 95-5 IIN-ANTIMONY, ( WITH MELTING RANGE 220°C TO 280°C.	8.2.3. FINISH: GLOSS.	
.17. COPPER FITTINGS: ASME B16.18, CAST BRASS, OR ASME B16.22, SOLDE COPPER	WROUGHT 8.2.4. MAXIMUM FLAME SPREAD: CAN/U	JLC-S102, ASTM E84; 25 OR LESS.
4.18. DIELECTRIC UNIONS: UNION WITH GALVANIZED OR PLATED STEEL THRE	8.2.5.       MAXIMUM SMOKE DEVELOPED: C/         DED END,       8.2.6.         THICKNESS: 20 AAII. (0.4 AAAA). AAINIAA	ANYULO-STUZ, ASTM E84; 50 OR LESS. AUM. 30 MIL (0.8 MM) MINIMITM FOR OUTDO
COPPER SOLDER END, WATER IMPERVIOUS ISOLATION BARRIER.	8.2.7. COLOUR: STANDARD OFF-WHITE	
4.19.1. GATE VALVES (ISOLATING): 300 PSIG NON-SHOCK WOG ASTM R42 P	ONZE BODY,	MPATIBLE WITH INSULATION, MAXIMUM VOC
SOLID WEDGE DISC, RISING STEM, BRONZE TRIM, THREADED ENDS, KI	#25 CONTENT OF 50 G/L.	L-CO 300 SERIES. ZESTON PVC
4.19.2. GLOBE VALVES (THROTTLING): 300 PSIG NON-SHOCK WOG, ASTM BE COMPOSITION (TEFLON) DISC, RISING STEM. BRONZE TRIM. THREADE	BRONZE BODY, ENDS, KITZ #09 8.3. JACKETS - ALUMINUM	. CO GOU DENIEU, ZEUTOTATI AC
4.19.3. CHECK VALVES (BACKFLOW): 300 PSIG NON-SHOCK WOG, ASTM BE	BRONZE BODY, 8.3.1. CAN/ULC-S102, ASTM E84. (APPLY	TO ALL EXTERIOR PIPING ONLY)
4 19 4 BALL VALVES (DRAIN): KOO PSIG NON SHOCK WOOL EODOCD BRASS	8.3.2. THICKNESS: ASTM C1729 REQUIREM	/ENTS FOR RIGID AND NON-RIGID INSULATIC
BALL AND STEM, FULL PORT, BLOW-OUT PROOF PTFE SEATS & STEM, LI	8.3.3.     FINISH: SMOOTH PLAIN MILL FINISH       8.3.4.     ION INCOMENTATION OF THE STATE	
інкеалер ENDS, KIIZ #68AC. 4.20. VALVES. 2-1/2" AND LARGER: ASTM A214	8.3.4. JOINING: LONGITUDINAL SLIP JOIN 8.3.5 EITTINGS: 0.00" 10.40 MAA THICK DI	
4.20.1. GATE VALVES (ISOLATING): 200 PSIG NON-SHOCK WOG, ASTM A126	CLASS B CAST ATTACHED PROTECTIVE LINER.	
		Λ) WIDE; 0.01" (0.38 MM) THICK ALUMINUM.
IRON BODY, BOLTED BONNET, BRONZE MOUNTED, SOLID WEDGE DIS NON-ASBESTOS PACKING, FLANGED ENDS, KITZ #72.	0.5.0. MEIAL JACKET BANDS. 5/6 (10 Miv	
<ul> <li>IRON BODY, BOLTED BONNET, BRONZE MOUNTED, SOLID WEDGE DIS NON-ASBESTOS PACKING, FLANGED ENDS, KITZ #72.</li> <li>4.20.2. GLOBE VALVES (THROTTLING): 200 PSIG NON-SHOCK WOG, ASTM A</li> </ul>	26 CLASS B CAST	

ONS	22-059	HVAC	SPECIFICA	TIONS		22-059
) PSIG NON-SHOCK WOG, ASTM 126 CLAS	S B CAST IRON	8.4.PIPE IN	SULATION			
NS FOR INSULATED PIPING.	IGED LINDS, KIIZ #70	8.4.1.	INSULATE NEW OR AI EXISTING PIPING WHI	TERED PIPING WITH R ERE INSULATION HAS I	IGID PIPE INSULATION AND RE-I BEEN REMOVED OR DAMAGED	NSULATE AS FOLLOWS:
OR AND CHAIN ON VALVES INSTALLED ABC	OVE 10-FT AFF.	SER\ Chil	ICE	OPERATING TEMP.	(°F) PIPE DIA. (IN)	THICK. (IN
804 STAINLESS STEEL SCREEN WITH 1/32" PER	RFORATIONS.	REFR	RIGERANT	40 - 60	1-1/4 & SMALLER	1/2
GER CLASS 250 PSIG NON-SHOCK WOG, ER, BLOW-OUT PLUG, A167 304 STAINLESS	CAST IRON, STEEL SCREEN WITH	CHIL	LED WATER, BRINE,	40 - 60	1-1/2+	1
NDS, MUELLER STEAM 752. SIG, ABOVE GROUND		CHIL	LED WATER, BRINE,			
VICTAULIC COMPANY, ANVIL INTERNATIO	NAL, GRUVLOK	REFR	LED WATER, BRINE,	<40	3/4 & SMALLER	1/2
DVED JOINTS ARE PERMITTED IN HVAC PIPII DT EXCEED 140°F, INCLUDING: CHILLED W, R. CLOSE: HEAT PLIMP WATER	NG SYSTEMS WHERE ATER; CONDENSER	REFR	RIGERANT	<40	1 to 6	1
125 PSIG		STEA	WATER	105 - 140	1-1/4 & SMALLER	1
150 PSIG 225 PSIG		STEA	M, CONDENSATE,	105 140	1 1/2+	1 1/2
350°F		STEA	M, CONDENSATE,	103 - 140	1-1/2*	1-1/2
0.0625 IN. , SCH 40.		hot stea	WATER	141 - 200	1-1/4 & SMALLER	1-1/2
ABLE IRON TO ASTM A47/A47M		НОТ	WATER	141 - 200	1-1/2+	2
ND RECOMMENDATIONS, WITH FLANGES	AT CONNECTIONS	STEA	WATER	201 - 250	3 & SMALLER	2-1/2
10 10		STEA	M, CONDENSATE,	201 250	4	+2
s M AND DWV, HARD DRAWN.		8.4.2.	ON CHILLED WATER	OR REFRIGERANT PIPI	4 NG PROVIDE VAPOUR BARRIER	LOCATED
SS, OR ASME B16.22 SOLDER WROUGHT C		8.4.3.	PROTECT INSULATION	ION. SEAL JOINTS AN I EXPOSED TO WEATH	d penetrations. IER WITH ALUMINUM JACKETING	Э.
) 280°C).	VER, WITT MEETING	8.4.4.	PROVIDE PVC JACKE INSIDE OF BUILDING.	eting on exposed in	JSULATED PIPING, FITTINGS AND	VALVES
LOWING FUNCTIONS:		9. HYDRONIC	C SPECIALTIES			
MENT. CING.		9.1.1.	MANUAL TYPE: SHOR		S OF 2" (50 MM) DIAMETER PIPE	to form Air
NO DRIP SEAT AND TEFLON DISC.		9.1.2.	FLOAT TYPE: MANUF	ACTURERS: ARMSTRO	NG, AMTROL, TACO. BRASS OR	SEMI-STEEL
(50 mm) and smaller Globe style design, nonferrous, pre-	ssure die-cast.		BODY, COPPER, POL VALVE AND VALVE S	YPROPYLENE, OR SOI EAT; SUITABLE FOR SY ATING VALVE	LID NON-METALLIC FLOAT, STAII STEM OPERATING TEMPERATUR	nless steel e and
PPER ALLOY. EACH VALVE SHALL BE SUCI ON, IT WILL NOT AFFECT FLOW MEASUREN	H THAT WHEN AENT.	9.2. STRAIN	NERS			
360° ADJUSTMENT TURNS OF HANDWHEE H "HIDDEN MEMORY" FEATURE TO PROGR	EL FOR MAXIMUM AM THE VALVE WITH	9.2.1.	SIZE 2" (50 MM) AND COLTON SCREWED E	UNDER: MANUFACTU RASS OR IRON BODY	IRERS: SARCO SB, CRANE, ARM FOR 175 PSI (1200 KPA) WORK	STRONG, ING PRESSURE,
IN A 4.5 R FACTOR POLYURETHANE CON PROVIDENT OF POLYURETHANE CON	TAINER THAT SHALL	9.2.2.	SIZE 2-1/2" TO 4" (65 /	MM TO 100 MM): FLA	INFORATED SCREEN.	(1200 KPA)
FTER VALVE IN INSTALLED. E FOR MAXIMUM WORKING PRESSURE OF	250 PSI (1720 KPA)	9.2.3.	SIZE 6" (150 MM) ANI	) Y PATTERN WITH 1.2 D LARGER: FLANGED	mm stainless steel perforati Iron body for 175 psi (1200 f	ED SCREEN. (PA) WORKIN(
IG TEMPERATURE OF 250°F (121°C). S.A. ARMSTRONG CRV I INDICATED OR T	our & Anderson	9.3.RELIEF	PRESSURE, BASKET PA	TTERN WITH 3.2 MM S	TAINLESS STEEL PERFORATED SC	REEN.
RSLEY.		9.3.1.	MANUFACTURERS: SA	ARCO, WATTS, BELL &	GOSSETT, CONBRACO	
NECTION, GLOBE STYLE DESIGN, NONFERR	OUS, PRESSURE	9.3.2.	PRESSURE ACTUATED	, CAPACITIES ASME C	EEL SIEM AND SPRINGS, AUTON CERTIFIED AND LABELLED.	ATIC, DIRECT
VE 360° ADJUSTMENT TURNS OF HANDWH		10. BALL-S 10.1.	STYLE ZONE CONTROL PROVIDE BELIMO VAL	valves /es and actuators	b.	
DF BALANCING SETTING.		10.2.	2-WAY BALL VALVE W			
E FOR MAXIMUM WORKING PRESSURE OF NG TEMPERATURE OF 250°F (120°C).	250 PSI (1720 KPA)	10.2.1.	65) THROUGH NPS 6	and smaller: nick (DN 150): CAST IRON	EL PLATED (FORGED) BRASS; NF I GG25.	25 2-1/2 (DN
S.A. ARMSTRONG CBV II INDICATED OR TO RSLEY.	OUR & ANDERSON	10.2.2. 10.2.3.	BALL: STAINLESS STEE SEATS/SEALS: PTFE (TI	 EFLONTM), (2) EPDM (	O-RINGS.	
'I™ COIL PACK OUR & ANDERSSON BALANCING VALVE, \	VICTAULIC SERIES	10.2.4.	STEM/EXTENSION/SE	ALS: STAINLESS STEEL.		
BY STRAINER/BALL VALVE OR SERIES 78T UN ESS STEEL FLEXIBLE HOSES TO COMPLETE TE	NION/BALL VALVE RMINAL HOOKUP AT	10.2.5.	CHARACTERIZING DI	-rings (2). SC: NPS 2 (DN 50) AN	ID SMALLER: PTFE (TEFZELTM); N	PS 2-1/2 (DN
YY OR SERIES /YY WITH ATC VALVE.		10.2.7.	65) THROUGH NPS 6 PIPING CONNECTIOI	(DN 150): STAINLESS : \s: NPS 2 (DN 50) ANI	steel. D SMALLER: (2), FEMALE NPT. NI	PS 2-1/2 (DN
		10.2.8.	65) THROUGH NPS 6 MEDIA: WATER (MAX	(DN 150): (2), FLANG IMUM 60% AQUEOUS	ED, [ANSI CLASS 125B] OR [ANS 5 PROPYLENE GLYCOL SOLUTIO	I CLASS 250] N).
NG EQUIVALENT PRODUCTS: OWENS COR P.	ING FIBERGLASS,	10.2.9.	PERFORMANCE:			1000 10
: ASTM C411, ASTM C356, CAN/ULC-S102,	ASTM E84, ASTM	10.2.9	20°C); NPS 2-1/2 (DN 6	5) THROUGH NPS 6 (E	AND SMALLER: 0°F 10 250 °F (- N 150): 0°F TO 250 °F (-18°C TO	120°C).
n/Hr-SQ FT-F AT 75°F		10.2.9 1- T	P.2. PRESSURE: BODY -1/4, 1-1/2, 2 (DN 32 TC O DN 150): 400 PSIG (	': NPS ½, ¾, 1, 1-1/4 ( ) DN 50): 400 PSIG (2 2758 ΚΡΔ)	DN 15 TO DN 32): 600 PSIG (41 2758 KPA); NPS 2-1/2, THROUGH	37 KPA); NPS NPS 6 (DN 65
MPERATURE: 0°F (-18°C). EMPERATURE: 850°F (454°C).		10.2.9	2.3. MAXIMUM OPER	ATING DIFFERENTIAL:	50 PSID (345 KPA)	
ABSORPTION: <5% BY WEIGHT.		10.2.9 T	2.4. CLOSE-OFF (VAI O DN 50): 200 PSID (13	VE AND ACTUATION 379 KPA); NPS 2-1/2 T	ASSEMBLY): NPS ½ THROUGH I HROUGH NPS 6: ANSI CLASS 12	NPS 2 (DN 15 25B: 175 PSID
ONDED TO ALUMINIZED FILM. MOISTURE V 6; 0.02 PERM. SECURE WITH SELF SEALING L	APOUR ONGITUDINAL LAPS	( 10.2.9	1206 KPA); ANSI CLASS 9.5. LEAKAGE (A-AB)	250: 310 PSID (2137 : 0%.	KPA).	
WITH OUTWARD CLINCH EXPANDING STA	PLES AND VAPOUR	10.3.	2-WAY AND 3-WAY RE		ALVE:	
is steel with twisted ends on maximum	1 12" (300 MM)	10.3.1.	BALL: CHROME PLAT	ED BRASS		
		10.3.3.	SEATS/SEALS: PTFE (T	EFLONTM), EPDM O-F	RINGS	
CEED 80 G/L		10.3.4.	PIPING CONNECTION	NS: NPS 1 (DN 25) AN	ID SMALLER: FEMALE NPT.	
KG/CUM) DENSITY.		10.3.6. 10.3.7	MEDIA: WATER (MA)	KIMUM 60% AQUEOU	S PROPYLENE GLYCOL SOLUTIO	N).
X FINISH: VINYL EMULSION TYPE ACRYLIC, UR, VOC CONTENT NOT TO EXCEED 250 C	COMPATIBLE WITH G/L.	10.3.7	7.1. INHERENT FLOW	CHARACTERISTICS: 2	2-WAY: EQUAL PERCENTAGE; 3	-WAY
HER MASTIC: VINYL EMULSION TYPE ACRYL COLOUR.	IC, COMPATIBLE	10.3.7	7.2. MEDIA TEMPERA	.TURE: 0°F TO 212 °F (	(-18°C TO 100°C);	
M C449, VOC CONTENT NOT TO EXCEED 8	80 G/L.	10.3.7 10.3.7	7.3. PRESSURE: BODY 7.4. MAXIMUM OPER	: 360 PSIG (2482 KPA ATING DIFFERFNTIAL	\); : 40 PSID (276 KPA):	
LDED TYPE FITTING COVERS AND SHEET MA	ATERIAL.	10.3.7	7.5. CLOSE-OFF (VA	VE AND ACTUATION	ASSEMBLY); 2-WAY: 75 PSID (51	7 KPA);
ERATURE: 151°F (66°C).		10.3.7	7.6. LEAKAGE: 0%.	r:		
): Can/ulc-s102, astm e84; 25 or less.		10.4. 10.4.1.	ACTUATORS	Y (CONTROL VALVE A	AND ACTUATOR) SHALL BE PRO	VIDED AND
OPED: CAN/ULC-S102, ASTM E84; 50 OR L	ESS.		DELIVERED FROM A S ALL COMPONENTS F	SINGLE MANUFACTUR	ER. THE MANUFACTURER SHALL EARS FROM THE DATE OF PROD	WARRANT JCTION WITH
m) minimum. 30 mil (0.8 mm) minimum f -White	OR OUTDOOR USE.	10.4.2.	TYPE: MOTOR OPER	NUNCONDITIONAL.	ECTRIC AND ELECTRONIC. AC	iuators for
STIC COMPATIBLE WITH INSULATION, MAX	IMUM VOC		HYDRONIC CONTRO SHUTOFF HEAD. ACT	L VALVES: CAPABLE ( JATORS FOR STEAM ( PRESSURF	of closing valve against s' Control valves: Shutoff ag	YSTEM PUMP AINST 1.5
RER: CEEL-CO 300 SERIES, ZESTON PVC		10.4.3.	VOLTAGE: SEE DRAW	/INGS		
I. (APPLY TO ALL EXTERIOR PIPING ONLY)		10.4.4. 10.4.5	TWO-POSITION ACT	JATORS: SINGLE DIRE	CTION, SPRING RETURN OR REV	
? REQUIREMENTS FOR RIGID AND NON-RIGIE	D INSULATION FINISH.	10.4.4				
ill finish. . SLIP JOINTS AND 2'' (50 MM) LAPS.		10.4.6.		NTIRE OPERATING RAI		
-		10.4.7.	enclosure: Suitabl	E FOR AMBIENT CON	UTIONS ENCOUNTERED BY APP	LICATION.
THICK DIE SHAPED FITTING COVERS WITH I 'NER.	FACTORY	10.4.7	7.1. NEMA TYPE 1 FC	R INDOOR INSTALLAT	ION IN AN EQUIPMENT ENCLOS	SURE.
THICK DIE SHAPED FITTING COVERS WITH I INER. '8" (10 MM) WIDE; 0.01" (0.38 MM) THICK A	FACTORY LUMINUM.	10.4.7	7.1. NEMA TYPE 1 FC 7.2. NEMA TYPE 2 FC 7.3. NEMA TYPE 4 CC	R INDOOR INSTALLAT	TION IN AN EQUIPMENT ENCLOS TECTED APPLICATIONS.	

### HVAC SPECIFICATIONS

22-059

10.4.8.	STROKE TIME: SELECT OPERATING SPEED TO BE COMPATIBLE WITH EQUIPMENT AND SYSTEM OPERATION.
HYDRO	DNIC PIPE TESTING
11.1. AND TH	AFTER PIPES HAVE BEEN PLACED IN POSITION, TEST THE TIGHTNESS OF JOINTS E SOUNDNESS OF PIPES.
11.2. PRESSUI (4) HOU	iest water piping with cold water at a pressure of 1-½ times the working re, but not less than 1,035 kpa (150 psi), for a period of not less than four rs, without any drop in pressure.
RETEST F	MAKE TIGHT LEAKS WHILE UNDER PRESSURE. IF THIS IS NOT POSSIBLE, REMOVE, REFIT, AND PIPING. DO NOT CAULK THREADED JOINTS.
(12.1.	CLEANING SOLUTIONS
12.1.1.	TRI-SODIUM PHOSPHATE: 0.40 KG PER 100 L WATER IN SYSTEM.
12.1.2. 12.1.3.	SODIUM CARBONATE: 0.40 KG PER 100 L WATER IN SYSTEM. LOW-FOAMING DETERGENT: 0.01 KG PER 100 L WATER IN SYSTEM.
12.2. E	ENSURE SYSTEMS OPERATIONAL, HYDROSTATICALLY TESTED AND WITH SAFETY DEVICES DNAL, BEFORE CLEANING IS CARRIED OUT.
12.3. I	RETAIN QUALIFIED WATER TREATMENT SPECIALIST TO PERFORM SYSTEM CLEANING.
12.4. I FOUR (4	PROVIDE DETAILED REPORT OUTLINING PROPOSED CLEANING PROCEDURES AT LEAST I) WEEKS PRIOR TO PROPOSED STARTING DATE.
12.5.	CONDITIONS AT TIME OF CLEANING OF SYSTEMS:
12.5.2.	CONTROL VALVES: OPERATIONAL, FULLY OPEN TO ENSURE THAT TERMINAL UNITS CAN
12.5.3.	STRAINERS: CLEAN PRIOR TO INITIAL FILL.
12.5.4.	INSTALL TEMPORARY FILTERS ON PUMPS NOT EQUIPPED WITH PERMANENT FILTERS.
12.5.5. 12.6. I	HYDRONIC SYSTEMS:
12.6.1.	FILL SYSTEM WITH WATER, ENSURE AIR IS VENTED FROM SYSTEM.
12.6.2.	LEAST 35 KPA (DOES NOT APPLY TO DIAPHRAGM TYPE EXPANSION TANKS).
12.6.3. 12.6.4.	USE WATER METER TO RECORD VOLUME OF WATER IN SYSTEM TO +/- 0.5%. ADD CHEMICALS UNDER DIRECT SUPERVISION OF CHEMICAL TREATMENT SUPPLIER.
12.6.5.	CLOSED LOOP SYSTEMS: CIRCULATE SYSTEM CLEANER AT 60 DEGREES C FOR AT LEAST 36 H. DRAIN AS QUICKLY AS POSSIBLE. REFILL WITH WATER AND INHIBITORS. TEST CONCENTRATIONS AND ADJUST TO RECOMMENDED LEVELS.
12.6.6.	FLUSH VELOCITY IN SYSTEM MAINS AND BRANCHES TO ENSURE REMOVAL OF DEBRIS. SYSTEM PUMPS MAY BE USED FOR CIRCULATING CLEANING SOLUTION PROVIDED THAT VELOCITIES ARE ADEQUATE.
12.6.7.	ADD CHEMICAL SOLUTION TO SYSTEM.
12.0.0.	CIRCULATE FOR 12 H, ENSURING FLOW IN ALL CIRCUITS. REMOVE HEAT, CONTINUE TO CIRCULATE UNTIL TEMPERATURE IS BELOW 38 DEGREES C. DRAIN AS QUICKLY AS POSSIBLE. REFILL WITH CLEAN WATER. CIRCULATE FOR 6 HOURS AT DESIGN TEMPERATURE. DRAIN AND REPEAT PROCEDURES SPECIFIED ABOVE. FLUSH THROUGH LOW POINT DRAINS IN SYSTEM. REFILL WITH CLEAN WATER ADDING TO SODIUM SULPHITE (TEST FOR RESIDUAL SULPHITE).
2.7.	START-UP OF HYDRONIC SYSTEMS
12.7.1. 12.7.2.	AFTER CLEANING IS COMPLETED AND SYSTEM IS FILLED: ESTABLISH CIRCULATION AND EXPANSION TANK LEVEL, SET PRESSURE CONTROLS.
12.7.3.	ENSURE AIR IS REMOVED.
12.7.4.	CHECK PUMPS TO BE FREE FROM AIR, DEBRIS, POSSIBILITY OF CAVITATION WHEN SYSTEM IS AT DESIGN TEMPERATURE.
12.7.5.	DISMANTLE SYSTEM PUMPS USED FOR CLEANING, INSPECT, REPLACE WORN PARTS, INSTALL NEW GASKETS AND NEW SET OF SEALS.
12.7.6.	CLEAN OUT STRAINERS REPEATEDLY UNTIL SYSTEM IS CLEAN.
12.7.8.	CHECK WATER LEVEL IN EXPANSION TANK WITH COLD WATER WITH CIRCULATING
12.7.9.	REPEAT WITH WATER AT DESIGN TEMPERATURE.
12.7.10.	CHECK PRESSURIZATION TO ENSURE PROPER OPERATION AND TO PREVENT WATER HAMMER, FLASHING, CAVITATION. ELIMINATE WATER HAMMER AND OTHER NOISES.
12.7.11.	PERIOD.
12.7.12.	ADJUST PIPE SUPPORTS, HANGERS, SPRINGS AS NECESSARY.
12.7.14.	MONITOR PIPE MOVEMENT, PERFORMANCE OF EXPANSION JOINTS, LOOPS, GUIDES, ANCHORS.
12.7.15. 12.7.16.	IF SLIDING TYPE EXPANSION JOINTS BIND OR IF BELLOWS TYPE EXPANSION JOINTS FLEX INCORRECTLY, SHUT DOWN SYSTEM, RE-ALIGN, REPEAT START-UP PROCEDURES. RE-TIGHTEN BOLTS USING TORQUE WRENCH, TO COMPENSATE FOR HEAT-CAUSED
12.7.17.	CHECK OPERATION OF DRAIN VALVES.
12.7.18.	ADJUST VALVE STEM PACKINGS AS SYSTEMS SETTLE DOWN.
12.7.19. 12.7.20.	FULLY OPEN BALANCING VALVES (EXCEPT THOSE THAT ARE FACTORY-SET). CHECK OPERATION OF OVER-TEMPERATURE PROTECTION DEVICES ON CIRCULATING
12.7.21.	PUMPS. ADJUST ALIGNMENT OF PIPING AT PUMPS TO ENSURE FLEXIBILITY, ADEQUACY OF PIPE MOVEMENT, ABSENCE OF NOISE OR VIBRATION TRANSMISSION
HVAC	DUCTWORK IVAC DUCTWORK - GENERAL:
13.1.1.	INSTALL AND SEAL DUCTS TO SMACNA HVAC DUCT CONSTRUCTION STANDARDS -
13.1.2.	SUPPORT DUCTWORK FROM STRUCTURAL MEMBERS. WHERE STRUCTURAL BEARINGS DO NOT EXIST, SUSPEND STRAPPING OR HANGERS FROM STEEL CHANNELS OR ANGLES. PROVIDE SUPPLEMENTARY STRUCTURAL MEMBERS.
13.1.3.	DUCT SIZES ARE INSIDE CLEAR DIMENSIONS. FOR LINED DUCTS, MAINTAIN SIZES INSIDE
13.1.4.	PROVIDE OPENINGS IN DUCT WORK WHERE REQUIRED TO ACCOMMODATE THERMOMETERS AND CONTROLLERS. PROVIDE PILOT TUBE OPENINGS WHERE REQUIRED FOR TESTING OF SYSTEMS, COMPLETE WITH METAL CAN WITH SPRING DEVICE OR SCREW TO ENSURE AGAINST AIR LEAKAGE, WHERE OPENINGS ARE PROVIDED IN
13.1.5.	INSULATED DUCTWORK, INSTALL INSULATION MATERIAL INSIDE A METAL RING. INSTALL BALANCING DAMPERS ON BRANCHES AS PER LOCATIONS SHOWN ON THE DRAWINGS AND AS PER THE REQUIREMENTS OF NEBB AND AABC LISTING/MEASURING STANDARDS.
13.1.6. 13.1.7.	PROVIDE DRAIN IN EVERY FRESH AIR INTAKE AND EXHAUST PLENUM. LEAK TEST DUCTWORK IN ACCORDANCE WITH THE SMACNA "HVAC AIR DUCT LEAKAGE TEST MANUAL". THE MAXIMUM PERMITTED DUCT LEAKAGE SHALL BE DETERMINED BY MULTIPLYING THE LEAKAGE FACTOR FROM PARAGRAPH 2.4 ABOVE BY THE SURFACE AREA OF THE DUCTWORK IN THE TEST ZONE.
13.1.8. 13.1.9.	INSTALL DUCTWORK CLEAR OF DOORS AND WINDOWS. PROVIDE 90-DEGREE ELBOWS WITH DOUBLE-RADIUS TURNING VANES UNLESS OTHERWISE INDICATED. PROVIDE UN-VANED, SMOOTH-RADIUSED ELBOWS IN DISHWASHER, KITCHEN, AND LAUNDRY EXHAUSTS WITH RADIUS 1.5 TIMES DUCT WIDTH.
13.1.10.	PROVIDE ACCESS DOORS UPSTREAM OF ELBOWS WITH TURNING VANES. UNLESS OTHERWISE INDICATED, PROVIDE DUCTWORK TIGHT TO UNDERSIDE OF
13.1.11.	CO-ORDINATE DUCTWORK WITH OTHER TRADES. PROVIDE OFFSETS INCLUDING DIVIDED DUCTS AND TRANSITIONS AROUND OBSTRUCTIONS.
13.2. I	
13.2.1. 13.2.1	31ANDARD CONSTRUCTION, RIGID HVAC DUCTS, CASINGS AND FITTINGS: .1. ASTM A653 GALVANIZED STEEL SHEET, LOCK FORM QUALITY, G90 ZINC COATING
(C SI	.90 OZ/FT2) TO ASTM A90. SHEETS FREE OF PITS, BLISTERS, SLIVERS, AND UNGALVANIZED POTS.

13.2.2. ALUMINUM DUCTS, DRYER VENTS:

#### HVAC SPECIFICATIONS 22-059 13.2.2.1. ASTM B209; ALUMINUM SHEET, ALLOY 3003-H14. ALUMINUM CONNECTORS AND BAR STOCK: ALLOY 6061- T6 OR OF EQUIVALENT STRENGTH. 13.2.3. AIR INTAKE PLENUMS, CONCEALED WET EXHAUST FROM DISHWASHERS, CART WASHERS, VENTS AND OTHER UTILITY APPLICATIONS: 13.2.3.1. TYPE 304 STEEL SHEET PER ASTM A480 AND ASTM A240 WITH A 2B FINISH. DUCTS SHALL HAVE LONGITUDINALLY WELDED SEAMS AND WELDED OR FLANGED TRANSVERSE JOINTS AND CONNECTIONS TO EQUIPMENT OR ACCESSORIES. 13.3. DUCT SEALING 13.3.1. SEAL DUCTWORK IN ACCORDANCE WITH SMACNA DUCT CONSTRUCTION STANDARDS SEALING REQUIREMENT AS FOLLOWS: 13.3.1.1. PROVIDE SEAL CLASS A. 13.3.1.2. SEAL ROTATING SHAFT OPENINGS WITH BUSHINGS, ETC. TO SEAL OFF AIR LEAKAGE. 13.3.1.3. DO NOT USE PRESSURE-SENSITIVE TAPE AS PRIMARY SEALANT UNLESS IT COMPLIES WITH UL-181A OR UL-181B AND IS USED IN ACCORDANCE WITH THAT CERTIFICATION. 13.3.1.4. SEAL CONNECTIONS INCLUDING SPIN-INS, TAPS, BRANCH CONNECTIONS, ACCESS DOORS, ACCESS PANELS, AND DUCT CONNECTIONS TO EQUIPMENT. SPIRAL LOCK SEAMS do not need sealing. 13.3.1.5. LEAK TEST DUCTWORK DESIGNED TO OPERATE IN EXCESS OF 3" W.C. OR EXTERIOR DUCTWORK TO INDUSTRY STANDARDS. TEST AS PER ASHRAE 90.1 REQUIREMENTS. SEAL 13.4. DUCTWORK FABRICATION 13.4.1. CONSTRUCT DUCTWORK TO WITHSTAND 1-1/2 TIMES FAN PRESSURE AT SHUT-OFF AND 2" (500 PA) MINIMUM. 13.4.2. FABRICATE AND SUPPORT TO SMACNA HVAC DUCT CONSTRUCTION STANDARDS -METAL AND FLEXIBLE, AND AS INDICATED. PROVIDE DUCT MATERIAL, GAUGES, REINFORCING, AND SEALING FOR OPERATING PRESSURES INDICATED IN ACCORDANCE WITH RECOMMENDATIONS OF ASHRAE AND SMACNA. 13.5. JOINTS AND REINFORCEMENTS: 13.5.1. TO SMACNA AND ASHRAE 13.5.2. MAY BE MADE WITH THE DUCTMATE SYSTEM OR NEXUS SYSTEM. SYSTEM COMPONENTS SHALL BE MADE OF STANDARD CATALOGUE MANUFACTURE AS SUPPLIED BY DUCTMATE INDUSTRIES, INC. OR NEXUS INC. REVIEW ALL DRAWINGS AND VERIFY ALL DIMENSIONS AT THE SITE. DO NOT SCALE THE WINGS. REPORT ALL DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING WITH ANY 13.5.3. CONSTRUCT TEES, BENDS, AND ELBOWS WITH RADIUS OF NOT LESS THAN 1-1/2 TIMES INSTRUCTION OR SHOP FABRICATION, ALL DRAWINGS, SPECIFICATIONS AND RELATED WIDTH OF DUCT ON CENTRELINE. WHERE NOT POSSIBLE AND WHERE RECTANGULAR ocuments are the copyright property of `mantecon partners' and must be returned ELBOWS ARE USED, PROVIDE AIR FOIL TURNING VANES. WHERE ACOUSTICAL LINING IS on request. Reproduction of drawings, specifications and related documents ii ART OR WHOLE IS FORBIDDEN WITHOUT THE ENGINEER'S WRITTEN PERMISSION. INDICATED, PROVIDE TURNING VANES OF PERFORATED METAL WITH GLASS FIBRE INSULATION. 13.5.4. INCREASE DUCT SIZES GRADUALLY, NOT EXCEEDING 15 DEGREES DIVERGENCE WHEREVER POSSIBLE; MAXIMUM 30 DEGREES DIVERGENCE UPSTREAM OF EQUIPMENT AND 45 DEGREES CONVERGENCE DOWNSTREAM. 13.6. FABRICATE CONTINUOUSLY WELDED ROUND AND OVAL DUCT FITTINGS TWO GAUGES HEAVIER THAN DUCT GAUGES INDICATED IN SMACNA STANDARD. JOINTS: MINIMUM 80 MM CEMENTED SLIP JOINT, BRAZED OR ELECTRIC WELDED. PRIME COAT WELDED JOINTS. 13.7. PROVIDE STANDARD 45-DEGREE LATERAL WYE TAKEOFFS. ALTERNATIVE 90-DEGREE CONICAL TEE CONNECTIONS MAY BE USED ONLY WHERE SPECIFICALLY INDICATED. 13.8. DUST COLLECTOR DUCTWORK JOINTS AND REINFORCMENTS 13.8.1. LONGITUDINAL SEAMS: BUTT WELD OR CAP & SEAM WELD. 13.8.2. TRANSVERSE CONNECTIONS: INDUSTRIAL ANGLE RINGS SUITABLE FOR ROUND DUCT CONNECTIONS, ROLLED ANGLE FLANGES, NON-EXTRUDING GASKETS, 5/16" DIA. BOLTS 13.8.3. PROVIDE 1"X 1" X 10GA. ROLLED ANGLE FLANGES FOR DUCTS UP TO 14" DIAMETER AND 1-1/2" X 1-1/2" X 1/8" ROLLED ANGLE FLANGES FOR LARGER DUCTS. 13.9. FLEXIBLE DUCTWORK 13.9.1. MAXIMUM LENGTH: 5-FEET. 13.9.2. MANUFACTURER: THERMAFLEX M-KC 13.9.3. FLEXIBLE DUCTWORK CONFORMING TO UNDERWRITERS LABORATORIES LISTED AS CLASS 1 AIR DUCT, UL STANDARD 181 AND CUL \$110. 13.9.4. CONFORMS TO NFPA 90A AND 90B. 13.9.5. HEAVY WOVEN AND COATED FIBERGLASS CLOTH CORE. 13.9.6. GREENGUARD CERTIFIED. KEY MAP: N.T.S 13.9.7. FIBERGLASS INSULATING BLANKET AND LOW PERMEABILITY OUTER VAPOR BARRIER OF FIBERGLASS REINFORCED METALLIZED FILM LAMINATE. 13.9.8. CAN/ULC-S102 20/50 FLAME/SMOKE SPREAD RATING. 13.9.9. 0.05 PERM VAPOR TRANSMISSION RATING . HVAC DUCT INSULATION 14.1. DO NOT BREAK CONTINUITY OF INSULATION VAPOUR BARRIER BY HANGERS OR RODS. 14.2. GLASS FIBRE, FLEXIBLE 14.2.1. MANUFACTURER: CERTAINTEED SOFT TOUCH AND WIDE WRAP 14.2.2. OTHER ACCEPTABLE MANUFACTURERS: JOHNS MANVILLE MICROLITE. 14.2.3. INSULATION: ASTM C553; ASTM C1290, CAN 51.11-92, ASTM C1136, NFPA 90A, CAN/ULC-S102, ASTM E84, ASTM E136. 14.2.4. 'KSI' VALUE: ASTM C518, 0.039 AT 24 °C (0.27 @ 75.2 °F) 14.2.5. MAXIMUM SERVICE TEMPERATURE: 121 °C (250 °F). 14.2.6. MAXIMUM MOISTURE ABSORPTION: ASTM C1104; <5% BY WEIGHT. 14.2.7. CAN/ULC-S102, ASTM E84 MAXIMUM FLAME SPREAD INDEX: 25. MAXIMUM SMOKE DEV INDEX: 50 14.2.8. VAPOUR BARRIER JACKET: 14.2.8.1. KRAFT PAPER WITH GLASS FIBRE YARN AND BONDED TO ALUMINIZED FILM. (FSK) 14.2.8.2. KRAFT PAPER REINFORCED WITH GLASS FIBRE YARN AND BONDED TO WHITE METALIZED POLYPROPYLENE 14.2.8.3. MOISTURE VAPOUR TRANSMISSION : ASTM E96 ; 0.02 PERM. 14.2.8.4. SECURE WITH PRESSURE SENSITIVE TAPE. 14.2.8.5. VAPOUR BARRIER TAPE: KRAFT PAPER REINFORCED WITH GLASS FIBRE YARN AND BONDED TO ALUMINIZED FILM, WITH PRESSURE SENSITIVE RUBBER BASED ADHESIVE. 14.2.8.6. OUTDOOR VAPOUR BARRIER MASTIC: VINYL EMULSION TYPE ACRYLIC OR MASTIC, COMPATIBLE WITH INSULATION, BLACK COLOUR. 14.2.8.7. ON COOLING DUCTS OUTSIDE THE CONDITIONED SPACE PROVIDE VAPOUR BARRIER LOCATED OUTSIDE THE INSULATION. SEAL JOINTS AND PENETRATIONS. 14.2.9. TIE WIRE: ANNEALED STEEL, 1/16" (1.5 MM). 14.3. GLASS FIBRE, RIGID PROJECT: 14.3.1. MANUFACTURER: CERTAINTEED CERTAPRO BOARD. 14.3.2. OTHER ACCEPTABLE MANUFACTURERS: JOHNS MANVILLE 800 SERIES SPIN-GLASS 14.3.3. INSULATION: ASTM C612; RIGID, NONCOMBUSTIBLE BLANKET. 14.3.3.1. INSULATION: ASTM C553; ASTM C1290, CAN 51.11-92, ASTM C1136, NFPA 90A, CAN/ULC-S102, ASTM E84, ASTM E136. 14.3.3.2. 'KSI' VALUE: ASTM C518, 0.25 BTU-in/Hr-Sq. Ft- F AT 75 F (0.036 W/M- C AT 24 C). 14.3.3.3. MAXIMUM SERVICE TEMPERATURE: 250 °F (121 °C). 14.3.3.4. MAXIMUM MOISTURE ABSORPTION: ASTM C1104, LESS THAN5% BY WEIGHT. 14.3.3.5. A CAN/ULC-S102, STM E84 MAXIMUM FLAME SPREAD INDEX: 25. MAXIMUM SMOKE DEV INDEX: 50 DRAWING TITLE: 14.3.4. VAPOUR BARRIER JACKET: 14.3.4.1. KRAFT PAPER WITH GLASS FIBRE YARN AND BONDED TO ALUMINIZED FILM. 14.3.4.2. MOISTURE VAPOUR TRANSMISSION : ASTM E96 ; 0.04 PERM. 14.3.4.3. SECURE WITH PRESSURE SENSITIVE TAPE. 14.4. CLOSED-CELL ELASTOMERIC 14.4.1. MANUFACTURER: ARMACELL AP ARMAFLEX SA 14.4.2. COMPLIANCE: ASTM C54, CAN/ULC-S102, ASTM E84, ULC-S102, NFPA 90A, ASTM C1534, ASTM D1056 14.4.3. THERMAL CONDUCTIVITY: 0.245 BTU-in/Hr-Sq. Ft- F AT 75 F (0.0353 W/mK AT 24 C) 14.4.4. PERMEABILITY: 0.05 PERM-IN

14.4.6. WATER ABSORPTION: 0.2% BY VOLUME 14.4.7. MAXIMUM SERVICE TEMPERATURE: 180 F (82 C). MINIMUM SERVICE TEMPERATURE: -30 F (34 C)

14.4.5. CAN/ULC-S102, ASTM E84 MAXIMUM FLAME SPREAD INDEX: 25. MAXIMUM SMOKE

14.5. ALUMINUM JACKETING (APPLY TO OUTDOOR DUCTWORK)

DEVELOPMENT INDEX: 50

ISSUED FOR TENDER 2024/11/20 ISSUED FOR PERMIT 2024/10/25 J.S ISSUED DATE WORKSHOP ARCHITECTURE CSV PAVILLON DE LA JEUNESSE CHILDCARE ADDITION 105 HIGH STREET HAMILTON, ON MECHANICAL SPECIFICATIONS

PROJECT NORTH

STRUCTURAL MECHANICAL ELECTRICAL CIVIL

15 Foundry Street, Dundas, ON, L9H 2V6

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ENGINEERS

DRAWN BY J.S. CHECKED BY: A.M.

ATF: NOV 2022 PROJECT NUMBER: 22-059

N.T.S. DRAWING NUMBER:

14.5.1. 14.5.2. 14.5.3.					
14.5.2. 14.5.3.	MANUFACTURER: JOHNS MANVIL	LLE ALUM	INUM ROLL	AND SHEET	Г
14.5.3.	COMPLIANCE: ASTM C1729, CAN	V/ULC-S1	02, ASTM E	34	
1154	FINISH: SMOOTH PLAIN MILL F	нлі2Н			
14.5.4. ]4.5.5	MAXIMUM FLAME SPREAD INDEX	:0			
14.5.6.	MAXIMUM SMOKE DEVELOPMEN	T INDEX:	5		
14.6.	RIGID/FLEXIBLE INSULATION TYPE	//,			
14.6.1.	PROVIDE RIGID INSULATION ON F	RECTANG	ULAR DUC	is, plenum	s and duct mountee
14/0		PEONE			
14.6.2.		re UN RO	UNU OR F	lai UVAL [	JUCTWOKK.
14.7.1	INSULATION THICKNESS	THEATING	NFRPH	REFURN	
	INSULATION HAS BEEN REMOVED	OR DAN DUCTS	A BEBYAS I DUCTS	EXHAUST	HEATING & COOLING
				DUCTS	DUCTS
	EXTERIOR	R-12	R-12	R-12	R-12
	VENTILATED ATTIC	R-6	R-1.9	R-3.5	R-6
	UNVENTILATED ATTIC ABOVE	R-12	R-12	R-12	R-12
	INSULATED CEILING				
	UNVENTILATED ATTIC WITH ROOF	NONE	R-1.9	NONE	R-1.9
	UNCONDITIONED SPACE	R-12	R-12	R-12	R-12
	INDIRECTLY CONDITIONED SPACE	NONE	NONE	NONE	NONE
	BURIED	R-6	NONE	NONE	R-3.5
	DONED	N O	1.01.2		K 0.0
14.8. WITH C BOTH \ 14.9. 14.10. LOCAT 14.11.	INDIRECTLY CONDITIONED SPACES OR WITHOUT EXPOSED ROOF ABOVI /ENTILATED AND UNVENTILATED. INSULATE INLINE DUCT SILENCERS IN ON COOLING DUCTS OUTSIDE CO ED OUTSIDE THE INSULATION. SEAL PROTECT INSULATION EXPOSED TO	S IN TABLE E. UNCOI N THE SA <i>I</i> NDITIONI JOINTS A WEATHE	e above in Nditioned Me Manne Ed Space F Nd Penetr R With Alu	CLUDES RET SPACES INC R AS DUCTV PROVIDE VA ATIONS. MINUM JAC	IURN AIR PLENUMS CLUDE CRAWLSPACES NORK. NPOUR BARRIER CKETING.
14.12. OF EXT 5. DUCT 15.1.	PROVIDE INSULATION (EXTERIOR C ERIOR WALL PENETRATIONS. ACCESSORIES AIR TURNING DEVICES / EXTRACTO	OLUMN) DRS	ON EXHAU	ST DUCTS A	ND PLENUMS WITHIN 6
15.1.2	MULTI-BLADE VANES WITH BLADE CONSTRUCTION; WITH INDIVIDUA ACCEPTABLE PRODUCTS: DURO "DUCTURN", DYN-AIR OR TUTTLE A VOLUME EXTRACTORS: GANG C	S ALIGNE ALLY ADJI -DYNE "D AND BAIL"	D IN SHORT JSTABLE BL/ URO VANE (. ) CURVED F	DIMENSIO ADES, MOU RAIL'', HART	N; STEEL NTING STRAPS. [ & COOLEY
15.1.0	OPEN TO FULL CLOSED POSITION FROM 14 GA. AND 22 GA. (2 ANI AND NO. 2 OR NO. 3 OPERATOR	S. UNITS D.9 MM) S TO SUIT	SHALL BE FA	ACTORY AS I BLADES O ON.	SEMBLED, FABRICATED N 1" (25 MM) CENTRES
15.1.3.	ACCEPTABLE MANUFACTURERS: EX-8, DURO-DYNE, DYN-AIR. BACKDRAFT DAMPERS.		E MODEL A		ED. KRUEGER MODEL
15.2.1.	GRAVITY BACKDRAFT DAMPERS, WITH AIR MOVING EQUIPMENT: A CONSTRUCTION.	AIR MOVI	NG EQUIPA	450 MM) O 1ENT MANU	FACTURERS STANDARE
13.2.2.	MM) THICK GALVANIZED STEEL, C (150 MM) WIDTH, WITH FELT OR FL RATTLE-FREE MANNER WITH 90 DE PIVOT PIN; ADJUSTMENT DEVICE PRESSURE.	DR, WITH EXIBLE V EGREE STO TO PERM	CENTRE PIV NYL SEALEI DP, STEEL B, T SETTING F	OTED BLAD DEDGES, LI ALL BEARING	IF DAMEERS: 1718 (1. IES OF MAXIMUM 6" NKED TOGETHER IN GS, AND PLATED STEEL IG DIFFERENTIAL STATIC
15.2.3.	PROVIDE MAXIMUM AIR LEAKAG	E OF 4 C	FM/SQ. FT A	AT 1.0" W.C	. DIFFERENTIAL
1504	PRESSURE.				
15.2.4.			•		
15.3.1.	FABRICATE TO SMACNA HVAC D	100 TOU	<b>NSTRUCTIOI</b>	standar	ds - metal and
	FLEXIBLE, AND AS INDICATED.				
15.3.2.	PROVIDE MAXIMUM AIR LEAKAG PRESSURE.	E OF 4 C	FM/SQ. FT A	AT 1.0" W.C	. DIFFERENTIAL
15.4.	SPLITTER DAMPERS:				
15.4.1.	MATERIAL: SAME GAUGE AS DUC	CT TO 24"	(600 MM) S	IZE IN EITHE	r direction, and
	TWO GAUGES HEAVIER FOR SIZES	SOVER 2	4" (600 MM	).	
1542	BLADE: FABRICATE OF SINGLE THI WITH CONTINUOUS HINGE OR RC	CKNESS S DD.	Sheet meta	l to strea	MUNE SHAPE SECURE
10.4.2.					
15.4.3.	OFERATOR. MINIMUM 24 (000 M	M) DIAM	eter rod i	N SELF ALIG	NING, UNIVERSAL
15.4.3. 15.5. STEEL, S	SINGLE LEAF DAMPERS: FABRICAT	M) DIAM IG WITH S ED FROM VIBRATIC	ETER ROD I ET SCREW. MINIMUM DN AND FIT	n self alig 20 gauge Ted with in	(1.0 MM) GALVANIZEE DICATING REGULATO
15.4.3. 15.5. STEEL, S DURO- 15.6. GALVA VIBRAT	SINGLE LEAF DAMPERS: FABRICAT SUITABLY REINFORCED TO PREVENT DYNE, LAWSON & TAYLOR, DYN-AII MULTI-BLADE OPPOSED ACTION D. NIZED STEEL, MOUNTED IN SEPARA 10N, AND FITTED WITH OPPOSED A	M) DIAM IG WITH S VIBRATIC R. AMPERS: TE CHAN CTION LII	ETER ROD I ET SCREW. MINIMUM DN AND FIT FABRICATI NEL FRAME NKAGE HAI	N SELF ALIG 20 GAUGE TED WITH IN ED FROM 16 S, REINFOR RDWARE, D	SNING, UNIVERSAL (1.0 MM) GALVANIZEE DICATING REGULATOI S GAUGE (1.6 MM) CED TO PREVENT JURO-DYNE "OPAX"
15.4.3. 15.5. 5TEEL, 3 DURO- 15.6. GALVA VIBRAT BLADE 15.7. END BE SINITED	JOINT ACTION, FLANGED BUSHIN SINGLE LEAF DAMPERS: FABRICAT SUITABLY REINFORCED TO PREVENT DYNE, LAWSON & TAYLOR, DYN-AII MULTI-BLADE OPPOSED ACTION D. ANIZED STEEL, MOUNTED IN SEPARA TON, AND FITTED WITH OPPOSED AC KIT, LAWSON & TAYLOR, DYN-AIR END BEARINGS: EXCEPT IN ROUND ARINGS. ON MULTIPLE BLADE DAN ED BRONZE BEARINGS	M) DIAM IG WITH S ED FROM VIBRATIC R. AMPERS: TE CHAN CTION LII DUCTWC APERS, PR	ETER ROD I ET SCREW. I MINIMUM DN AND FIT FABRICATI NEL FRAME NKAGE HAI DRK 12" (30 OVIDE OIL	N SELF ALIG 20 GAUGE TED WITH IN ED FROM 16 S, REINFOR RDWARE. D 0 MM) AND IMPREGNA	SNING, UNIVERSAL (1.0 MM) GALVANIZED DICATING REGULATOR GAUGE (1.6 MM) CED TO PREVENT DURO-DYNE "OPAX" SMALLER, PROVIDE TED NYLON OR
15.4.3. 15.5. STEEL, 3 DURO- 15.6. GALVA VIBRAT BLADE 15.7. END BE SINTER 15.8.	JOINT ACTION, FLANGED BUSHIN SINGLE LEAF DAMPERS: FABRICAT SUITABLY REINFORCED TO PREVENT DYNE, LAWSON & TAYLOR, DYN-AII MULTI-BLADE OPPOSED ACTION D, NIZED STEEL, MOUNTED IN SEPARA TON, AND FITTED WITH OPPOSED AT KIT, LAWSON & TAYLOR, DYN-AIR END BEARINGS: EXCEPT IN ROUND ARINGS. ON MULTIPLE BLADE DAN ED BRONZE BEARINGS. QUADRANTS:	M) DIAM IG WITH S ED FROM VIBRATIC R. AMPERS: TE CHAN CTION LII DUCTWC MPERS, PR	eter rod i et screw. I minimum dn and fit fabricati nel frame nkage hai drk 12" (30 dovide oil	N SELF ALIG 20 GAUGE IED WITH IN ED FROM 14 S, REINFOR RDWARE. D 0 MM) AND IMPREGNA	SNING, UNIVERSAL (1.0 MM) GALVANIZEE DICATING REGULATOF GAUGE (1.6 MM) CED TO PREVENT DURO-DYNE "OPAX" SMALLER, PROVIDE TED NYLON OR
15.4.3. 15.5. STEEL, 3 DURO- 15.6. GALVA VIBRAT BLADE 15.7. END BE SINTER 15.8. 15.8.1.	JOINT ACTION, FLANGED BUSHIN SINGLE LEAF DAMPERS: FABRICAT SUITABLY REINFORCED TO PREVENT DYNE, LAWSON & TAYLOR, DYN-AII MULTI-BLADE OPPOSED ACTION D, NIZED STEEL, MOUNTED IN SEPARA 10N, AND FITTED WITH OPPOSED A KIT, LAWSON & TAYLOR, DYN-AIR END BEARINGS: EXCEPT IN ROUND ARINGS. ON MULTIPLE BLADE DAN ED BRONZE BEARINGS. QUADRANTS: PROVIDE LOCKING, INDICATING	M) DIAM IG WITH S ED FROM VIBRATIC R. AMPERS: TE CHAN CTION LII DUCTWC APERS, PR QUADRA	ETER ROD I ET SCREW. I MINIMUM DN AND FIT FABRICATI NEL FRAME VKAGE HAI ORK 12" (30 OVIDE OIL	N SELF ALIG 20 GAUGE FED WITH IN ED FROM 14 S, REINFOR RDWARE. D D MM) AND IMPREGNA	SNING, UNIVERSAL (1.0 MM) GALVANIZED DICATING REGULATOD S GAUGE (1.6 MM) CED TO PREVENT DURO-DYNE "OPAX" SMALLER, PROVIDE .TED NYLON OR
15.4.3. 15.5. STEEL, S DURO- 15.6. GALV/ VIBRAT BLADE 15.7. END BE SINTER 15.8. 15.8.1.	JOINT ACTION, FLANGED BUSHIN SINGLE LEAF DAMPERS: FABRICAT SUITABLY REINFORCED TO PREVENT DYNE, LAWSON & TAYLOR, DYN-AIR MULTI-BLADE OPPOSED ACTION D. ANIZED STEEL, MOUNTED IN SEPARA TON, AND FITTED WITH OPPOSED AC KIT, LAWSON & TAYLOR, DYN-AIR END BEARINGS: EXCEPT IN ROUND EARINGS. ON MULTIPLE BLADE DAN ED BRONZE BEARINGS. QUADRANTS: PROVIDE LOCKING, INDICATING MULTI-BLADE DAMPERS.	M) DIAM IG WITH S ED FROM VIBRATIC R. AMPERS: TE CHAN CTION LII DUCTWO APERS, PR QUADRA	ETER ROD I ET SCREW. I MINIMUM DN AND FIT FABRICATI NEL FRAME NKAGE HAI ORK 12" (30 OVIDE OIL	N SELF ALIG 20 GAUGE TED WITH IN ED FROM 16 S, REINFOR RDWARE. D 0 MM) AND 1MPREGNA	SNING, UNIVERSAL (1.0 MM) GALVANIZEE DICATING REGULATOI GAUGE (1.6 MM) CED TO PREVENT OURO-DYNE "OPAX" SMALLER, PROVIDE TED NYLON OR
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HVAC	SPECIFICATIONS	22-05
	DESIGNED AND TESTED TO MEET BOTH UL555 REQUIREMENTS FOR FIRE DAY UL555S FOR LEAKAGE CLASS 1 RATED SMOKE DAMPERS. PROVIDE WITH EI CONSTRUCT FRAME FROM 1.6MM (16 GAUGE) GALVANIZED STEEL. CONS PIECE CONSTRUCTION AIR FOIL BLADES FROM 2.0MM (14 GAUGE) GALVY WITH STAINLESS STEEL SLEEVE BEARINGS, SQUARE PLATED STEEL AXLES AND CONCEALED LINKAGES. USE STAINLESS STEEL SPRING. DESIGN FOR OPERA MOUNTED OUT OF THE AIR STREAM. EQUIP WITH 120 DEGREES C (250 DEG DISC. DESIGN FOR OPERATOR MOUNTED OUT OF AIR STREAM. PROVIDE D ACTUATORS FOR COMPLETE CUL LISTED AND TESTED DAMPER ASSEMBLY.	MPERS AND ND SWITCH STRUCT SING ANIZED STE D TOR GREE F) SNA DAMPER
15.10.3.	USE ONLY FIRE DAMPER ASSEMBLIES TESTED IN ACCORDANCE WITH CANA "STANDARD METHOD OF FIRE TEST OF FIRE DAMPER ASSEMBLIES" AND LIST RECENT ULC "LIST OF EQUIPMENT AND MATERIALS" OR BY ANOTHER RECC INDEPENDENT TESTING AND CERTIFICATION AGENCY ACCEPTANCE TO TH CONSULTANT. LABEL EACH DAMPER TO INDICATE COMPLIANCE WITH THE REQUIREMENTS.	4 S92 M ED IN MOS IGNIZED IE ESE
15.10.4.	PROVIDE LINKS COMPLYING WITH ULC \$505 "STANDARD FOR FUSIBLE LINK PROTECTION SERVICE".	s for fire
15.10.5.	FABRICATE DAMPERS FROM GALVANIZED STEEL EXCEPT IN COPPER, STAIN ALUMINUM DUCT SYSTEMS. IN THESE SYSTEMS, USE ALL STAINLESS-STEEL CO	ILESS STEEL
15.10.6.	COMPLY WITH ONTARIO BUILDING CODE REQUIREMENTS FOR FIRE RESIST/ RATINGS OF THE FIRE SEPARATIONS THROUGH WHICH THE PROTECTED OP PROVIDE AN APPROVAL LABEL, STATING THE FIRE RATING, FROM A RECO- INDEPENDENT TESTING LABORATORY ACCEPTABLE TO THE CONSULTANT, O ASSEMBLY.	ANCE ENINGS PA GNIZED ON EACH
15.10.7.	PROVIDE WITH EACH DAMPER, DETAILED INSTALLATION INSTRUCTIONS. IN ILLUSTRATIONS AND ADEQUATE INFORMATION TO ATTAIN PROPER AND S/ INSTALLATION OF THE SMOKE/FIRE DAMPER ASSEMBLY.	CLUDE AFE
15.11.1.	PROVIDE ACCESS DOORS IN DUCTWORK FOR ACCESS TO SMOKE DETECT DAMPERS, SMOKE DAMPERS, VOLUME DAMPERS, HUMIDIFIERS, COILS, AN ITEMS LOCATED IN DUCTWORK REQUIRING SERVICE, OPERATION, MAINTE AND/OR INSPECTION.	TORS, FIRE ID OTHER NANCE
15.11.2.	FABRICATE TO SMACNA HVAC DUCT CONSTRUCTION STANDARDS - META FLEXIBLE, AND AS INDICATED.	AL AND
15.11.3. 15.11.	FABRICATION: RIGID AND CLOSE-FITTING OF GALVANIZED STEEL WITH SEA GASKETS AND QUICK FASTENING LOCKING DEVICES. FOR INSULATED DU INSTALL MINIMUM 1" (25 MM) THICK INSULATION WITH SHEET METAL COVE 3.1. LESS THAN 12" (300 MM) SQUARE: SECURE WITH SASH LOCKS.	.LING CT WORK, R.
15.11.	<ul> <li>3.2. UP TO 18" (450 MM) SQUARE: PROVIDE TWO HINGES AND TWO SASH</li> <li>3.3. UP TO 24" X 48" (600 X 1200 MM): THREE HINGES AND TWO COMPRES</li> </ul>	locks. SION LATC
W 15.11.4.	LARGER SIZES: PROVIDE AN ADDITIONAL HINGE.	
15.11.5. 15.11.6.	ACCESS DOORS WITH SHEET METAL SCREW FASTENERS ARE NOT ACCEPTA ACCEPTABLE MANUFACTURER: ACUDOOR, DURO-DYNE, DYN-AIR, NAILO	ABLE. R. KREUGE
15.12.	DUCT TEST HOLES	
15.12.1. 15.12.2.	PROVIDE TEST PORTS TO SUIT INTENDED APPLICATION, (IE. INSULATED/UNIN DUCT, ROUND/RECTANGULAR DUCT). TEMPORARY TEST HOLES: CUT OR DRILL IN DUCTS AS REQUIRED. CAP WITH PATCHES, NEOPRENE PLUGS, THREADED PLUGS, OR THREADED OR TWIST-(	ISULATED H NEAT ON METAL
15.12.3.	CAPS. PERMANENT TEST HOLES: FACTORY FABRICATED, AIRTIGHT FLANGED FITTIN SCREW CAP. PROVIDE EXTENDED NECK FITTINGS TO CLEAR INSULATION.	igs with
15.12.4. 15.13. F	ACCEPTABLE MANUFACTURERS: AIR POWER CO. FLEXIBLE DUCT CONNECTIONS	
15.13.1.	FABRICATE TO SMACNA HVAC DUCT CONSTRUCTION STANDARDS - META FLEXIBLE, AND AS INDICATED.	AL AND
15.13.2. 15.13.3	MIL-C-20696B PARA. 4.4.3, 4.4.4 (OIL AND HYDROCARBON RESISTANCE)	) FILM
15.13.4.	10/120 CAN/ULC-S102, ASTM E84 FLAME/SMOKE RATING.	
15.13.5. 15.13.6.	-40F TO 250F CONTINUOUS TEMPERATURE RANGE. WHITE WOVEN FIBERGLASS COLOUR	
15.13.7.	GALVANIZED STEEL CONFORMING TO ASTM-A-525 G 60 OR BETTER	
15.13.8. 15.14. F 15.14.1.	ACCEPTABLE MANUFACTURERS'' DURO-DYNE, DDFDC. HANGERS AND SUPPORTS FABRICATE STRAP HANGERS TO SAME MATERIAL AS DUCT. HANGER CONI TO SMACNA DETAILS. 20" (500 MM) IS MAXIMUM DUCT SIZE TO BE SUPPOR HANGER	FIGURATIO RTED BY STR
15.14.2. 15.14.3.	ROD AND ANGLE HANGERS: GALVANIZED STEEL TO SMACNA DETAILS. HANGER ATTACHMENTS: MANUFACTURED CONCRETE INSERTS, EXPANSIO AND BOLTED STEEL CLAMPS. DO NOT WELD RODS TO STEEL DECKS OR US ACTUATED FASTENERS.	n shields e powder
15.15.		
15.15.2.	COMPLIANCE: ASTM C54, CAN/ULC-S102, ASTM E84, ULC-S102, NFPA 90A C1534, ASTM D1056 THICKNESS: 25mm (1") THICK	a, ASTM
15.15.4.	THERMAL CONDUCTIVITY: 0.245 BTU-in/Hr-Sq.Ft- F AT 75 F (0.0353 W/mk A	T 24 C)
15.15.5. 15.15.6.	PERMEABILITY: 0.05 PERM-IN MAXIMUM FLAME SPREAD INDEX: 25	
15.15.7.	MAXIMUM SMOKE DEVELOPMENT INDEX: 50	
15.15.8.	MAXIMUM SERVICE TEMPERATURE: 180 F (82 C)	
15.15.10 15.15.11 15.16. [	. MINIMUM SERVICE TEMPERATURE: -30 F (34 C) . EROSION RESISTANCE: ASTM C1071. DUCT SEALANT	
15.16.1.	GENERAL: LOW VOC, WATER BASED SEALANT, NON-TOXIC, NON-COMBU NON-FLAMMABLE, AND TESTED IN ACCORDANCE WITH CAN4/ULC-S102. SPREAD SHALL NOT EXCEED 25 AND SMOKE DEVELOPED SHALL NOT EXCE	ISTIBLE, FLAME EED 50.
15.16.2.	ACCEPTABLE PRODUCTS: MULTI-PURPOSE DUCT SEALANT AS MANUFACTU TRANS CONTINENTAL EQUIPMENT, DURO DYNE SWB DUCT SEALER, IRON O SUPPLIED BY ALPHA SHEET METAL CO., OR UNI-GRIP DUCT SEALER FROM U MCGILL CORPORATION.	JRED BY GRIP 601 AS JNITED
15.17. E	ELECTRONIC DAMPER ACTUATORS MANUFACTURED, BRAND LABELED OR DISTRIBUTED BY BELIMO OR APPRO	VED
15.17.2.	equivalent. Size for torque required for damper seal at load conditions.	
15.17.3.	COUPLING: V-BOLT DUAL NUT CLAMP WITH A V-SHAPED, TOOTHED CRAD	DLE.
15.17.4.	ELECTRICALLY PARALLELED TO INCREASE TORQUE IF REQUIRED. OVERLOAD PROTECTION: ELECTRONIC OVERLOAD OR DIGITAL ROTATION CIRCUITRY WITHOUT THE USE OF END SWITCHES TO PREVENT ANY DAMAG ACTUATOR DURING A STALL CONDITION	N-SENSING
15.17.6.	FAIL-SAFE OPERATION: MECHANICAL, SPRING-RETURN MECHANISM.	0.000
15.17.7.	PROPORTIONAL ACTUATORS SHALL BE FULLY PROGRAMMABLE. CONTRO POSITION FEEDBACK AND RUNNING TIME SHALL BE FACTORY OR FIELD PROGRAMMABLE BY USE OF EXTERNAL COMPUTER SOFTWARE DIAGNOST SHALL PROVIDE INDICATIONS OF HUNTING OR OSCILLATION, MECHANICA. AND MECHANICAL TRAVEL. PROGRAMMING SHALL BE THROUGH AN EEF	24-V AC C L INPUT, TC FEEDBA AL OVERLC PROM
15.17.9.	TEMPERATURE RATING: -22 TO +122°F (-30 TO +50°C)	
15.17.10 15.17.11	. HOUSING: MINIMUM REQUIREMENT NEMA TYPE 2 MOUNTED IN ANY ORIEN	NTATION.
15.17.12 6. STATIO	THE MANUFACTURER SHALL WARRANT ALL COMPONENTS FOR A PERIOD FROM THE DATE OF PRODUCTION, WITH THE FIRST TWO YEARS UNCONDITI	OF 5 YEAR: ONAL.
16.1. F ASTM D	PROVIDE UNITS CONFORMING TO AAMA 611, AAMA 2603, AAMA 2605, AM 17091.	MCA 500L,
16.2. F THE PLA	PROVIDE PRICE MODEL DE635 DRAINABLE LOUVER OF SIZE AND SHAPE IND	ICATED OI

22-059	HVAC SPECIFICATIONS	22-059	HVAC SPECIFICATIONS	22-059
AMPERS AND END SWITCHES.	16.3. ENSURE LOUVER PERFORMANCE IS BASED ON TESTS AND PROCED	URES IN	FANS. EACH FAN SHALL BEAR A PERMANENTLY AFFIXE CONTAINING THE MODEL NUMBER AND INDIVIDUAL S	ED MANUFACTURE'S NAMEPLATE SERIAL NUMBER
NSTRUCT SINGLE VANIZED STEEL, ND	16.4. PROVIDE LOUVERS CONSTRUCTED OF 6063-T5 ALLOY EXTRUDED A	LUMINUM.	18.1.2. WHEEL: FORWARD CURVED CENTRIFUGAL WHEEL CC STEEL OR CALCIUM CARBONATE FILLED POLYPROPYL	NSTRUCTED OF GALVANIZED ENE STATICALLY AND
RATOR EGREE F) SNAP	16.5. PROVIDE LOUVER BLADES AND FRAMES MINIMUM 0.081 INCH WA CONSTRUCTION WITH 39° STATIONARY DRAINABLE BLADES AND WELDED	LL THICKNESS, 4" DEEP CONSTRUCTION.	DYNAMICALLY BALANCED IN ACCORDANCE TO AM 18.1.3. MOTORS: MOTOR ENCLOSURES SHALL BE OPEN DRIPP	CA STANDARD 204-05 ROOF (ODP), OPENING IN THE
E DAMPER Y.	16.6. PROVIDE LOUVERS DESIGNED TO WITHSTAND A 25 POUND PER SC LOAD.		FRAME BODY AND OR END BRACKETS. MOTORS ARE SLEEVE BEARING TYPE TO MATCH WITH THE FAN LOAE VOLTAGE AND PHASE. MOTOR SHALL BE MOUNTED C	<sup>3</sup> ERMANENTLY LUBRICATED ) AND FURNISHED AT THE SPECIFIC )N VIBRATION ISOLATORS AND BE
ISTED IN MOST COGNIZED	MOUNTED ON INTERIOR LOUVER FACE.	MINUM BIRD SCREEN,	ACCESSIBLE FOR MAINTENANCE C/W THERMAL OVER 18.1.4. HOUSING: CONSTRUCTED OF HEAVY GAUGE GALVA	LOAD PROTECTION
THE THESE	16.9. PROVIDE CONTINUOUS BLADE APPEARANCE AND CONCEALED	NULLIONS.	LINED WITH 0.5 INCHES OF ACOUSTICAL INSULATION ( BACKDRAFT DAMPER.	2/W SPRING LOADED ALUMINUM
NKS FOR FIRE	16.10. PROVIDE THERMOSETTING ACRYLIC BASED RESIN COATING FOR S ARCHITECTURAL APPLICATIONS: FACTORY FINISHED-AFTER-ASSEMBLY WI ACRYLIC BASED RESIN COATING. RESIN COATING SHALL BE OVEN CURE	TANDARD DUTY 'H A THERMOSETTING D IN ACCORDANCE	18.1.5. OUTLET: TYPE OF OUTLET: ROUND, HELD ROTATABLE H DISCHARGE, DUCT COLLAR SHALL INCLUDE AN ALUM	INUM BACKDRAFT DAMPER.
AINLESS STEEL OR CONSTRUCTION.	WITH THE COATING MANUFACTURER'S INSTRUCTIONS. MINIMUM DRY FILM IN ACCORDANCE WITH ASTM D7091. MEET SALT SPRAY AND HARDNESS S	1 THICKNESS OF 0.8 MIL PECIFICATIONS OF	18.1.6. GRILLE: TYPES: NO GRILLE. PROVIDE IN-LINE CONFIGU 18.1.7. EXTERNAL ELECTRICAL ACCESS THAT ELIMINATES REM	RATION AS SHOWN. OVING THE MOTOR PACK WHICH
STANCE DPENINGS PASS.	16.11. VERIFY THAT CONDITIONS ARE SUITABLE FOR INSTALLATION.		18.1.8. MOUNTING BRACKETS: FULLY ADJUSTABLE FOR MULTI	PLE INSTALLATION CONDITIONS
T, ON EACH	16.12.VERIFY THAT HELD MEASUREMENTS ARE AS SHOWN ON THE DRAW16.13.INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS	INGS.	<ul><li>18.1.9. OPTIONS/ACCESSORIES:</li><li>18.1.9.1. DISCONNECT SWITCHES: NEMA 1 POSITIVE ELECT</li></ul>	RICAL SHUT-OFF. WIRED FROM
INCLUDE SAFE	16.14. SEE DRAWINGS FOR THE SIZE(S) AND LOCATIONS OF LOUVERS.		FAN MOTOR TO JUNCTION BOX INSTALLED WITHIN MOTO WIRING SHALL BE EXTERNAL	OR COMPARIMENT. ACCESS FOR
	17. TESTING, ADJUSTING, BALANCING		18.1.9.2. FLAT ROOF CAPS: MODEL GFSF 18.1.9.3. VIBRATION KIT: INCLUDES PREPUNCHED HOLE FO	R EASE OF INSTALLATION AND
CTORS, FIRE AND OTHER JTENANCE	17.1.1. PERFORM TOTAL SYSTEM BALANCE TO AABC NATIONAL STANDA MEASUREMENT AND INSTRUMENTATION TOTAL SYSTEM BALANC	RDS FOR FIELD	19. PACKAGED ROOFTOP UNIT (GAS-FIRED HEAT) (TRANE)	
ETAL AND	17.1.2. AGENCY: COMPANY SPECIALIZING IN THE TESTING, ADJUSTING SYSTEMS UNDER THIS SECTION WITH MINIMUM FIVE YEARS DOCL	AND BALANCING OF MENTED EXPERIENCE	19.1. PACKAGED ROOFTOP UNITS COOLING, HEATING CAP, AHRI CERTIFIED WITHIN SCOPE OF AHRI STANDARD (I-P) AND A PERTAINING TO COMMERCIAL WARM AIR FURNACES.	ACITIES, AND EFFICIENCIES ARE ANSIZ21.47 AND 10 CFR PART 431
EALING	CERTIFIED BY AABC 17.1.3. WORK SHALL BE PERFORMED UNDER THE SUPERVISION OF AN A.	ABC CERTIFIED TEST	19.2. FACTORY ASSEMBLED, INTERNALLY WIRED, FULLY CHAR PERCENT RUN TESTED TO CHECK COOLING OPERATION, FAN A	GED WITH R-410A, AND 100 AND BLOWER ROTATION, AND
DUCT WORK, VER.	AND BALANCE ENGINEER, AN NEBB CERTIFIED TESTING, ADJUSTI SUPERVISOR OR A REGISTERED PROFESSIONAL ENGINEER EXPER PERFORMANCE OF THIS WORK AND LICENCED AT THE PLACE W	NG AND BALANCING ENCED IN THE HERE THE PROJECT IS	CONTROL SEQUENCE BEFORE LEAVING THE FACTORY 19.3. CASING:ZINC COATED, HEAVY GAUGE, GALVANIZED S	STEEL.WEATHER-RESISTANT BAKED
SH LOCKS.	LOCATED. 17.1.4. PROVIDE A REPORT FOR REVIEW BY CONSULTANT.		SPRAY TEST. REMOVABLE SINGLE SIDE MAINTENANCE ACCESS MAINTENANCE ACCESS PANELS (CAN BE REMOVED AND REIN	ASIM BIT7, 672-HOUR SALI PANELS LIFTING HANDLES IN ISTALLED BY REMOVING NO
ression latches	17.2. PREPARATION 17.2.1. PROVIDE INSTRUMENTS REQUIRED FOR TESTING, ADJUSTING, AN	DBALANCING	MORE THAN 11 FASTENERS WHILE PROVIDING A WATER AND A PANELS AND TOP COVERS IN THE INDOOR AIR SECTION SHALL 1-POUND DENSITY FOIL-FACED, FIRE-RESISTANT, PERMANENT, C	JIRTIGHT SEAL) EXPOSED VERTICAL BE INSULATED WITH A 1/2-INCH, DOORLESS, GLASS FIBER MATERIAL
PTABLE.	OPERATIONS. MAKE INSTRUMENTS AVAILABLE TO CONSULTANT T CHECKS DURING TESTING.	O FACILITATE SPOT	BASE OF UNIT SHALL BE INSULATED WITH 1/2-INCH, 1-POUND D MATERIAL.BASE PAN SHALL HAVE NO PENETRATIONS WITHIN TH THAN THE RAISED 1 1/8-INCH HIGH DOWNFLOW SUPPLY/RETURN	ENSITY, FOIL-FACED, GLASS FIBER HE PERIMETER OF THE CURB OTHER RN OPENINGS TO PROVIDE AN
LOR, KREUGER	<ul><li>17.2.2. PROVIDE ADDITIONAL BALANCING DEVICES AS REQUIRED.</li><li>17.3. INSTALLATION TOLERANCES</li></ul>		ADDED WATER INTEGRITY PRECAUTION, IF THE CONDENSATE E UNIT'S BASE PAN SHALL HAVE NO PENETRATIONS WITHIN THE P THAN THE RAISED 1, 1/8-INCH HIGH SUPPLY (RETURN OPENINGS	)RAIN BACKS UP. DOWNFLOW ERIMETER OF THE CURB OTHER
NINSULATED	17.3.1. AIR HANDLING SYSTEMS: ADJUST TO WITHIN PLUS OR MINUS 5 PE SUPPLY SYSTEMS AND PLUS OR MINUS 5 PERCENT OF DESIGN FO EXHAUST SYSTEMS	RCENT OF DESIGN FOR R RETURN AND	INTEGRITY PRECAUTION, IF THE CONDENSATE DRAIN BACKS UP PROVISIONS FOR FORKLIFT AND CRANE LIFTING.	'. BASE OF UNIT SHALL HAVE
/ITH NEAT ST-ON METAL	17.3.2. AIR OUTLETS AND INLETS: ADJUST TOTAL TO WITHIN PLUS 5 PERCE PERCENT OF DESIGN TO SPACE. ADJUST OUTLETS AND INLETS IN	INT AND MINUS 5 SPACE TO WITHIN PLUS	19.4. COMPRESSORS: DIRECT-DRIVE, HERMETIC, SCROLL TYP CENTRIFUGAL TYPE OIL PUMPS. C/W SUCTION GAS-COOLED M UTILIZATION RANGE OF PLUS OR MINUS 10 PERCENT OF UNIT N	E COMPRESSORS WITH MOTOR WITH VOLTAGE AMEPLATE VOLTAGE. INTERNAL
TINGS WITH N.	OR MINUS 5 PERCENT OF DESIGN. 17.3.3. HYDRONIC SYSTEMS: ADJUST TO WITHIN PLUS OR MINUS 10 PERC	ENT OF DESIGN.	OVERLOADS STANDARD WITH SCROLL COMPRESSORS. ALL MO AND LOW- AND HIGH-PRESSURE CONTROLS AS STANDARD.	DDELS HAVE PHASE MONITORS
	17.3.4. ROOM PRESSURIZATION: ADJUST TO WITHIN PLUS 20 PERCENT AN OF DESIGN FOR ROOMS UNDER POSITIVE PRESSURE AND WITHIN MINUS 20 PERCENT OF DESIGN FOR POOMS UNDER NEGATIVE R	ID MINUS 0 PERCENT PLUS 0 PERCENT AND	19.5. DISCHARGE LINE THERMOSTAT: A BI-METAL ELEMENT DIS INSTALLED AS A STANDARD OPTION ON THE DISCHARGE LINE EXTRA PROTECTION TO THE COMPRESSORS AGAINST HIGH DIS	CHARGE LINE THERMOSTAT IS OF EACH SYSTEM AND PROVIDES CHARGE TEMPERATURES IN CASE
ETAL AND	17.4. ADJUSTING	LISSURE.	OF LOSS OF CHARGE, EXTREMELY HIGH AMBIENT AND OTHER DRIVE THE DISCHARGE TEMPERATURE HIGHER. WIRED IN SERIES WHEN DISCHARGE TEMPERATURE RISES ABOVE THE PROTECTION	CONDITIONS WHICH COULD WITH HIGH PRESSURE CONTROL. ON LIMIT, THE BI-METAL DISC IN THE
	17.4.1.ENSURE RECORDED DATA REPRESENTS ACTUAL MEASURED OR O17.4.2.PERMANENTLY MARK SETTINGS OF VALVES, DAMPERS, AND OTH	BSERVED CONDITIONS. ER ADJUSTMENT	THERMOSTAT SWITCHES TO THE OFF POSITION, OPENING THE 2 TEMPERATURE ON THE DISCHARGE LINE COOLS DOWN, THE BI	4 VAC CIRCUIT WHEN -METAL DISC CLOSES THE
ND HLM.	17.4.3. AFTER ADJUSTMENT, TAKE MEASUREMENTS TO VERIFY BALANCE	AEMORY STOPS. HAS NOT BEEN	19.6. EVAPORATOR AND CONDENSER COILS: MICROCHANI MANUFACTURER, MICROCHANNEL CONDENSER COILS STAND	NEL COILS BURST TESTED BY DARD ON ALL UNITS, COILS LEAK
	17.4.4. LEAVE SYSTEMS IN PROPER WORKING ORDER, REPLACING BELT	GUARDS, CLOSING	TESTED TO ENSURE THE PRESSURE INTEGRITY. EVAPORATOR CC TESTED TO 225 PSIG AND PRESSURE TESTED TO 450 PSIG. SLOPE	IL AND CONDENSER COIL LEAK D CONDENSATE DRAIN PANS ARE
	THERMOSTATS TO SPECIFIED SETTINGS. 17.4.5. AT FINAL INSPECTION, RECHECK RANDOM SELECTIONS OF DATA		19.7. FILTERS: 2" STANDARD FACTORY SUPPLIED.	
	REPORT. RECHECK POINTS OR AREAS AS SELECTED AND WITNES: 17.4.6. CHECK AND ADJUST SYSTEMS APPROXIMATELY SIX MONTHS AFT	ED BY THE OWNER. ER FINAL ACCEPTANCE	19.8. GAS HEAT SECTION: PROGRESSIVE TUBULAR HEAT EXCH AND CORROSION RESISTANT STEEL. INDUCED DRAFT COMBUS PULL THE COMBUSTION PRODUCTS THROUGH THE FIRING TUBE	IANGER, STAINLESS STEEL BURNERS TION BLOWER SHALL BE USED TO S. DIRECT SPARK IGNITION (DSI)
ORTED BY STRAP	AND SUBMIT REPORT. 17.5. AIR SYSTEM PROCEDURE		SYSTEM. ON INITIAL CALL FOR HEAT, THE COMBUSTION BLOWE EXCHANGER FOR 20 SECONDS BEFORE IGNITION. AFTER THREE ATTEMPTS. ENTIRE HEATING SYSTEM SHALL BE LOCKED OUT UN	r Shall purge the heat E unsuccessful ignition Til manually reset at the
SION SHIELDS	17.5.1. ADJUST AIR HANDLING AND DISTRIBUTION SYSTEMS TO PROVIDE SUPPLY, RETURN, AND EXHAUST AIR QUANTITIES AT SITE ALTITUDE	REQUIRED OR DESIGN	THERMOSTAT/ZONE SENSOR. SUITABLE FOR USE WITH NATURAL (FIELD-INSTALLED KIT).	GAS OR PROPANE
USE POWDER	17.5.2. MAKE AIR QUANTITY MEASUREMENTS IN DUCTS BY PITOT TUBE TR CROSS-SECTIONAL AREA OF DUCT.	AVERSE OF ENTIRE	19.9. INDOOR FAN: BELT DRIVEN, FC CENTRIFUGAL FANS WI MOTORS THERMALLY PROTECTED. OVERSIZED MOTORS AVAIL APPLICATION. INDOOR FAN MOTORS MEET THE U.S. ENERGY P	TH ADJUSTABLE MOTOR SHEAVES. ABLE FOR HIGH STATIC POLICY ACT OF 1992 (EPACT)
	17.5.4. ADJUST DISTRIBUTION SYSTEM TO OBTAIN UNIFORM SPACE TEMP	ERATURES FREE FROM	19.10. LOCKING SAFETY DEVICE: PRESSURE SWITCH MONITOR SITUATION WHERE THE SWITCH IS OPENED. BY MONITORING TH	ING ALLOWS FOR LOCKOUT IN A IE Y INPUT AS WELL AS THE
POA, ASTM	17.5.5. USE BRANCH VOLUME CONTROL DAMPERS AND SPLITTERS TO RUQUANTITIES. DEVICES AT AIR OUTLETS MAY BE USED ONLY TO THE	GULATE AIR EXTENT THAT	PRESSURE SWITCHES, ADVANCED DECISION-MAKING CAN BE WHERE FAULTS/ERRORS OCCUR.	
AT 24 C)	ADJUSTMENTS DO NOT CREATE OBJECTIONABLE AIR MOTION C 17.5.6. VARY TOTAL SYSTEM AIR QUANTITIES BY ADJUSTMENT OF FAN SP	r sound levels. Eeds. adjust airflow	DRAW-THROUGH IN THE VERTICAL DISCHARGE POSITION. FAN PERMANENTLY LUBRICATED AND SHALL HAVE CURRENT OVER	MOTOR(S) SHALL BE LOAD PROTECTION.
	TO DESIGN QUANTITY. PROVIDE DRIVE CHANGES AS REQUIRED. FOR LOADING OF FILTERS TO 50% OF MANUFACTURERS' RECOM FINAL PRESSURE AT FANS WITH FIXED SPEED DRIVES AND TO 1009	MAKE ALLOWANCES MENDATIONS FOR 5 OF MANUFACTURERS'	19.12. REFRIGERANT CIRCUITS: EACH REFRIGERANT CIRCUIT SE SERVICE PRESSURE PORTS, AND REFRIGERANT LINE FILTER DRIEL STANDARD, AN AREA SHALL BE PROVIDED FOR REPLACEMENT	HALL HAVE A FIXED ORIFICE, RS FACTORY INSTALLED AS
	RECOMMENDATIONS FOR FINAL PRESSURE AT FANS WITH VARIA 17.5.7. PROVIDE SYSTEM SCHEMATIC WITH REQUIRED AND ACTUAL AIR	BLE SPEED DRIVES. QUANTITIES RECORDED	19.13. REFRIGERANT PRESSURE CONTROL: HIGH- AND LOW-PR	RESSURE CUTOUTS AS STANDARD.
	AT EACH OUTLET OR INLET. 17.5.8. MEASURE STATIC AIR PRESSURE CONDITIONS ON AIR SUPPLY UN AND COMPRESSURE DECEMBER AND TOTAL DEFENDED A COOSE THE	TS, INCLUDING FILTER	19.14. UNIT TOP: DOUBLE HEMMED AND GASKET SEALED TO P 19.15. MULTI-SPEED INDOOR FAN SYSTEM: INCORPORATES A M	REVENT WATER LEAKAGE.
	17.5.9. ADJUST OUTSIDE AIR AUTOMATIC DAMPERS, OUTSIDE AIR, RETUR	N AIR, AND EXHAUST	STAGES.	SHUT THE UNIT DOWN IN THE
BUSTIBLE,	17.5.10. MEASURE TEMPERATURE CONDITIONS ACROSS OUTSIDE AIR, RET DAMPERS TO CHECK LEAKAGE.	urn air, and exhaust	EVENT THAT A CLOGGED CONDENSATE DRAIN LINE PREVENTS FROM THE UNIT.	PROPER CONDENSATE REMOVAL
CEED 50.	17.5.11. WHERE MODULATING DAMPERS ARE PROVIDED, TAKE MEASURE AT EXTREME CONDITIONS. BALANCE VARIABLE VOLUME SYSTEM	MENTS AND BALANCE IS AT MAXIMUM AIR	19.17. [DEMAND CONTROL VENTILATION WITH CO2 SENSOR: ABILITY TO MONITOR THE CONCENTRATION (PARTS PER MILLIC DIOXIDE) IN THE AIR. AS THE CO2 CONCENTRATION CHANGES	CO2 SENSOR SHALL HAVE THE IN, PPM) OF CO2 (CARBON S, THE OUTSIDE AIR DAMPER
N GRIP 601 AS M UNITED	17.5.12. MEASURE BUILDING STATIC PRESSURE AND ADJUST SUPPLY, RETU	-ULL HEATING. RN, AND EXHAUST AIR	MODULATES TO MEET THE CURRENT VENTILATION NEEDS OF TH 19.18. [ECONOMIZER (STANDARD) DOWNFLOW: ASSEMBLY	e zone.] Includes fully modulating
	APPROXIMATELY 0.05 IN.WG. (10.5 PA) POSITIVE STATIC PRESSURE ENTRIES.	E NEAR THE BUILDING	0-100% MOTOR AND DAMPERS, BAROMETRIC RELIEF, MINIMUM LINKAGE, WIRING HARNESS WITH PLUG, FIXED DRY BULB AND S BAROMETRIC RELIEF DAMPER SHALL PROVIDE A PRESSURE OPE	A POSITION SETTING, PRESET FRING RETURN ACTUATOR. ERATED DAMPER THAT SHALL BE
ROVED	17.5.13. CHECK MULTI-ZONE UNITS FOR MOTORIZED DAMPER LEAKAGE. WITH MIXING DAMPERS SET FIRST FOR COOLING, THEN HEATING	ADJUST AIR QUANTITIES THEN MODULATING.	GRAVITY CLOSING AND SHALL PROHIBIT ENTRANCE OF OUTSIE "OFF" CYCLE.]	DE AIR DURING THE EQUIPMENT
ADLE.	17.5.14. FOR VARIABLE AIR VOLUME SYSTEM POWERED UNITS SET VOLUM FLOW SETTING INDICATED. CONFIRM CONNECTIONS PROPERLY PROPER OPERATION FOR AUTOMATIC VARIABLE AIR VOLUME TE	E CONTROLLER TO AIR MADE AND CONFIRM MPERATURE CONTROL.	19.19. [ELECTRIC HEATERS: ELECTRIC HEAT MODULES SHALL BE WITHIN THE BASIC UNIT. ELEMENTS CONSTRUCTED OF HEAVY-D INTERNALLY DELTA CONNECTED FOR 240-VOLT, WYE CONNECT	JUTY NICKEL CHROMIUM ELEMENTS
	17.5.15. ON FAN POWERED VAV BOXES, ADJUST AIR FLOW SWITCHES FC	R PROPER OPERATION.	ASSEMBLIES SHALL PROVIDE SINGLE POINT CONNECTION. ELE UL LISTED OR CSA CERTIFIED. IF ORDERING THE THROUGH THE AN ELECTRIC HEATER, THE HEATER MUST BE FACTORY INSTALLE	CTRIC HEAT MODULES SHALL BE 3ASE ELECTRICAL OPTION WITH [D.]
AGE TO THE	17.6.1. ADJUST WATER SYSTEMS TO PROVIDE REQUIRED OR DESIGN QU	ANTITIES.	19.20. HAIL GUARDS: TOOL-LESS, HAIL PROTECTION QUALITY C CONDENSER COIL PROTECTION.	COIL GUARDS ARE AVAILABLE FOR
AT 24-V AC OR 8	17.6.2. USE CALIBRATED VENTURI TUBES, ORIFICES, OR OTHER METERED GAUGES TO DETERMINE FLOW RATES FOR SYSTEM BALANCE. WH DEVICES ARE NOT INSTALLED, BASE FLOW BALANCE ON TEMPER	ITTINGS AND PRESSURE ERE FLOW METERING ATURE DIFFERENCE	19.21. [LOW LEAK ECONOMIZER WITH FAULT DETECTION & DIA CONTROLLER SHALL HAVE THE CAPABILITY TO PROVIDE THE VA	AGNOSTICS - DOWNFLOW: ALUE OF EACH SENSOR USED IN
ROL INPUT,	ACROSS VARIOUS HEAT TRANSFER ELEMENTS IN THE SYSTEM. 17.6.3. ADJUST SYSTEMS TO PROVIDE SPECIFIED PRESSURE DROPS AND	LOWS THROUGH HEAT	FOLLOWING CONDITIONS: FREE COOLING AVAILABLE, ECON ENABLED, HEATING ENABLED, MIXED AIR LOW LIMIT CYCLE AC	DMIZER ENABLED, COMPRESSOR TIVE, FAULT DETECTION AND
DSTIC FEEDBACK ICAL OVERLOAD	IRANSFER ELEMENTS PRIOR TO THERMAL TESTING. PERFORM BA MEASUREMENT OF TEMPERATURE DIFFERENTIAL IN CONJUNCTIO BALANCING.	ANCING BY N WITH AIR	FAILURE/FAULT, NOT ECONOMIZING WHEN CONDITIONS INDICATE ECONOMIZING, ECONOMIZING WHEN CONDITIONS INDICATE	APERATURE SENSOR CATE SYSTEM SHOULD BE E SYSTEM SHOULD NOT BE
EEPROM	17.6.4. EFFECT SYSTEM BALANCE WITH AUTOMATIC CONTROL VALVES F TRANSFER ELEMENTS.	ULLY OPEN TO HEAT	ECONOMIZING, DAMPERS ARE NOT MODULATING, EXCESSIVE BEING INTRODUCED THOUGH THE ECONOMIZER. FAULT DETEC CERTIFIED BY THE CALIFORNIA ENERGY COMMISSION AS MEET	Amounts of outside Air Are Tion and diagnostic system is Ing requirements of
IENTATION.	17.6.5. EFFECT ADJUSTMENT OF WATER DISTRIBUTION SYSTEMS BY MEAN COCKS, VALVES, AND FITTINGS. DO NOT USE SERVICE OR SHUT- BALANCING LINI ESS INDEXED FOR BALANCE POINT	S OF BALANCING DFF VALVES FOR	CALIFORNIA TITLE 24 120.2(I)1 THROUGH 120.2(I)8 IN ACCORD 19.22. MOTORIZED OUTSIDE AIR DAMPER: MANUALLY SET OUT	ANCE WITH SECTION 100(H).] DOOR AIR DAMPERS SHALL
D OF 5 YEARS	17.6.6. WHERE AVAILABLE PUMP CAPACITY IS LESS THAN TOTAL FLOW R INDIVIDUAL SYSTEM PARTS, FULL FLOW IN ONE PART MAY BE SIM	Equirements or Jlated by Temporary	PROVIDE UP TO 50% OUTSIDE AIR. OUTDOOR AIR DAMPERS SH INDOOR FAN STARTS. DAMPER SHALL CLOSE TO THE FULL CLO SHUTS DOWN.	all open to set position when sed position when indoor fan
DITIONAL.	RESTRICTION OF FLOW TO OTHER PARTS. 18. HVAC FANS		19.23. OVERSIZED MOTORS SHALL BE AVAILABLE FOR HIGH ST. 19.24. POWERED EXHAUST OF DETURN AND	ATIC APPLICATIONS.
AMCA 500L,	18.1. DIRECT DRIVE PREMIUM CEILING MOUNTED CENTRIFUGAL EXHAU 18.1.1. GENERAL DESCRIPTION: BASE FAN PERFORMANCE AT STANDAR	et fans d conditions	TO MAINTAIN BETTER BUILDING PRESSURIZATION. 19.25. [REFERENCE OR COMPARATIVE ENTHALPY: USED TO ME	EASURE AND COMMUNICATE
NDICATED ON	(DENSITY 0.075 LB/FT3). MAXIMUM OPERATING TEMPERATURES IS CELSIUS). UL/CUL LISTED FOR ABOVE BATHTUB EXHAUST. UL/CUL	130 FAHRENHEIT (54.4 LISTED 507 - ELECTRIC	OUTDOOR HUMIDITY, UNIT RECEIVES AND USES THIS INFORMAT COMFORT COOLING WHILE USING THE ECONOMIZER. COMP.	ION TO PROVIDE IMPROVED ARATIVE ENTHALPY MEASURES

AND COMMUNICATES HUMIDITY FOR BOTH OUTDOOR AND RETURN AIR CONDITIONS, AND RETURN AIR TEMPERATURE - UNIT RECEIVES AND USES THIS INFORMATION TO MAXIMIZE USE OF	
REFERENCE OR COMPARATIVE ENTHALPY OPTION SHALL BE AVAILABLE WHEN A FACTORY OR FIELD INSTALLED DOWNFLOW ECONOMIZER IS ORDERED.] 19.26. THROUGH THE BASE GAS PIPING: UNIT SHALL INCLUDE A STANDARD THROUGH THE BASE	PROJECT NORTH
GAS PROVISION. OPTION SHALL HAVE ALL PIPING NECESSARY INCLUDING, BLACK STEEL, MANUAL GAS SHUT-OFF VALVE, ELBOWS, AND UNION. MANUAL SHUTOFF VALVE SHALL INCLUDE A 1/8" NPT PRESSURE TAP. ASSEMBLY WILL REQUIRE MINOR FIELD LABOR TO INSTALL (GAS/ELECTRIC ONLY).	
19.27. THROUGH THE BASE UTILITIES ACCESS: ELECTRICAL SERVICE ENTRANCE SHALL BE PROVIDED ALLOWING ELECTRICAL ACCESS FOR BOTH CONTROL AND MAIN POWER CONNECTIONS INSIDE THE CURB AND THROUGH THE BASE OF THE UNIT. OPTION SHALL ALLOW FOR FIELD INSTALLATION OF LIQUID-TIGHT CONDUIT AND AN EXTERNAL FIELD INSTALLED DISCONNECT SWITCH.	PARTNERS
<ul> <li>19.28. THE LEAK DETECTION SYSTEM CONSISTS OF ONE OR MORE REFRIGERANT DETECTION SENSORS. WHEN THE SYSTEM DETECTS A LEAK, THE FOLLOWING MITIGATION ACTIONS WILL BE INITIATED UNTIL REFRIGERANT HAS NOT BEEN DETECTED FOR AT LEAST 5 MINUTES:</li> <li>19.28.1. ENERGIZE THE SUPPLY FAN(S) TO DELIVER A REQUIRED MINIMUM AMOUNT OF CIRCULATION AIR.</li> </ul>	STRUCTURAL MECHANICAL ELECTRICAL CIVIL ENGINEERS 15 Foundry Street, Dundas, ON, L9H 2V6 Phone: (905)648-0373 www.manteconpartners.com
<ul> <li>19.28.2. DISABLE COMPRESSOR OPERATION</li> <li>19.28.3. PROVIDE AN OUTPUT SIGNAL TO FULLY OPEN A ZONING DAMPERS, SUCH AS VAV BOXES [ IMPORTANT OF 3RD PARTY BAS PROVIDER]</li> <li>19.28.4. PROVIDE AN OUTPUT TO ENERGIZE ADDITIONAL MECHANICAL VENTILATION (IF NEFDED).</li> </ul>	SEAL
<ul> <li>19.28.5. UNITS WITHOUT AIRFLOW PROVING WILL DISABLE ELECTRIC HEAT SOURCES.</li> <li>19.29. BUILDING FIRE AND SMOKE SYSTEMS MAY OVERRIDE THIS FUNCTION.</li> <li>19.30. IF REFRIGERANT SENSOR HAS A FAULT, IS AT THE END OF ITS LIFE, OR IS DISSCONNECTED,</li> </ul>	
<ul> <li>THE UNIT WILL INITIATE THE MITIGATION ACTIONS.</li> <li>19.31. MITIGATION ACTIONS MAY BE VERIFIED BY DISCONNECTING THE SENSOR</li> <li>19.32. THE REFRIGERANT DO NOT NEED SERVICE. USE ONLY MANUFACTURER-APPROVED SENSORS WHEN REPLACEMENT IS REQUIRED.</li> </ul>	
0. KITCHEN EXHAUST HOOD - RESIDENTIAL IN COMMERCIAL ENVIRONMENTS	REVIEW ALL DRAWINGS AND VERIFY ALL DIMENSIONS AT THE SITE. DO NOT SCALE THE DRAWINGS. REPORT ALL DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING WITH ANY CONSTRUCTION OR SHOP FABRICATION. ALL DRAWINGS, SPECIFICATIONS AND RELATED DOCUMENTS ARE THE COPYRIGHT PROPERTY OF "MANTECON PARTNERS' AND MUST BE RETU UPON REQUEST. REPRODUCTION OF DRAWINGS, SPECIFICATIONS AND RELATED DOCUMENT AND ADDITION OF DRAWINGS, SPECIFICATIONS AND RELATED DOCUMENT
20.1. PROVIDE KITCHEN EXHAUST-ONLY VENTILATION HOOD FOR DOMESTIC RANGE (SIZES 30" OR 36") IN COMMERCIAL ENVIRONMENTS USED FOR DOMESTIC PURPOSES ONLY. PROVIDE ICC EVALUATED AND CERTIFIED AS COMPLIANT WITH INTERNATIONAL MECHANICAL CODE (IMC), INTERNATIONAL FIRE CODE (IFC), AND UNIFORM MECHANICAL CODE (UMC). PROVIDE UL 507 LISTED FANS OR EQUIVALENT. PROVIDE UL LISTED FIRE SUPPRESSION TO THE UL SUBJECT 300A.	PART OR WHOLE IS FORBIDDEN WITHOUT THE ENGINEER'S WRITTEN PERMISSION.
<ul> <li>PROVIDE WALL STYLE C/W WALL MOUNTING BRACKET.</li> <li>20.2. HOOD: CONSTRUCTED OF 18 GAUGE MINIMUM, 300 SERIES STAINLESS STEEL OUTER SHELL, 30" LONG (TO COVER 30" RANGE) OR 36" LONG (TO COVER 36" RANGE).</li> <li>MANUFACTURED AND ASSEMBLED WITH NO VISIBLE OUTER WELDS OR WELD MARKS WITH INTERNAL SEAMS SHALL BE SEALED WITH NSF-APPROVED CAULK, STANDARD. PROVIDE METAL MESH FILTER AND TWO (2) 2200-2700K COLOR LED RECESSED HOOD LIGHTS PROVIDING OVER</li> </ul>	
50 FOOT-CANDLES OF EVENLY DISPERSED LIGHTING ON THE RANGE BELOW. 20.3. PROVIDE FACTORY-INSTALLED UL SUBJECT 300A FIRE SUPPRESSION SYSTEM, INCLUDING FULLY MONITORED ELECTRONIC DETECTION AND ACTUATION. NO BRAIDED CABLE OR FUSIBLE LINKS SHALL BE ACCEPTED. PROVIDE FIRE SUPPRESSION CONSISTING OF TWO (2) MOUNTED	
METAL-HOUSED TEMPERATURE SENSORS THAT MONITOR THE COOKING SURFACE AND UPON REACHING SET-POINT, SEND A SIGNAL BACK TO THE MAIN FIRE SYSTEM CONTROL BOARD, WHICH ACTIVATES THE TANK SOLENOID VALVE AND EXPELS THE WET CHEMICAL FROM A PRE-CHARGED TANK RESPONSIBLE FOR SUPPRESSING THE FIRE. ENSURE TANK PRESSURE IS MONITORED USING TANK PRESSURE SENSOR WITH FAULT DISPLAY ON THE USER INTERFACE IF LOW PRESSURE IS DETECTED.	
20.4. ENSURE FIRE SUPPRESSION AND CONTROL COMPONENTS ARE EASILY ACCESSIBLE BY DROPPING THE HOOD INTO A SERVICE POSITION TO ALLOW FOR SERVICE WITHOUT REMOVING THE HOOD. PROVIDE LATCHES HOLD THE HOOD INTO PLACE FOR NORMAL OPERATION.	2 ISSUED FOR TENDER 2024/11/20
20.5. PROVIDE EITHER AN ELECTRONIC OR GAS SHUT OFF DEVICE FIELD CONNECTED BACK TO THE HOOD VIA FACTORY-PROVIDED PLUG AND PLAY CABLES. PRIOR TO FIRE SUPPRESSION RELEASE, ENSURE THE SHUT OFF DEVICE DISABLES THE RANGE UPON DETECTING A HIGH TEMPERATURE. ENSURE GAS DISCONNECT INCLUDES A <sup>3</sup> / <sub>4</sub> " GAS VALVE SUPPLIED WITH PLUG AND PLAY CABLE AND A 115VAC CONTROL RECEPTACLE. ENSURE ELECTRIC DISCONNECT INCLUDES A 4-PRONG 250VAC 50A POWER RECEPTACLE.	1     ISSUED FOR PERMIT     2024/10/25       NO.     ISSUED     DATE       KEY MAP: N.T.S     ISSUED     ISSUED
<ul> <li>20.6. FOR NFPA 101 PROVIDE 500 CFM FAN, LOCKED (PASSWORD PROTECTED) APPLIANCE DISCONNECT WITH TIMED-AUTOMATIC RANGE DEACTIVATION, AND MANUAL PULL STATION.</li> <li>20.7. PROVIDE USER INTERFACE TO CONTROL FAN, RANGE, AND LIGHTS AND VIEW SYSTEM</li> </ul>	n Place
STATUSES, INCLUDING FAULIS/ALARMS. FULL COLOR 4.3" LCD TOUCH SCREEN. NO TOGGLE SWITCHES OR RHEOSTATS SHALL BE ACCEPTABLE. ENSURE FACTORY AND CONFIGURATION SETTINGS MUST BE ACCESSED BY TOUCHSCREEN THROUGH PASSWORD-PROTECTED ENTRY. 20.8. PROVIDE FACTORY-SUPPLIED INTEGRAL FAN PROVIDE INTEGRAL FAN W/ FRONT	Wicodade Dha
<ul> <li>RECIRCULATING.</li> <li>20.8.1. FRONT RECIRCULATING STYLE: INCLUDE EASILY ACCESSIBLE CHARCOAL FILTER AND OPENING IN THE FRONT OF THE HOOD FOR FILTERING THE EXHAUST AIR BEFORE DISCHARGING BACK INTO THE SPACE.</li> <li>20.8.2. PROVIDE ECM FAN MOTORS ON FANS.</li> </ul>	East Sherwood Secondary SITE Valcored Aug
20.9. BASIC HOOD OPERATION: 20.9.1. USER INTERFACE: TURN ON AND OFF FANS, LIGHTS, AND RANGE DISCONNECT.	Word Ital Avenue
20.9.2. NFPA 101 LIFE SAFETY CODE, PASSWORD ENTRY WILL BE REQUIRED TO ENGAGE DISCONNECT. AFTER RANGE IS TURNED ON, COUNT DOWN TIMER WILL BEGIN, AND UPON EXPIRING WILL DISENGAGE THE RANGE DISCONNECT.	Morningede Drive Basi
<ul> <li>20.9.3. UPON REACHING SPECIFIC SET-POINT, ENSURE EXHAUST FAN WILL ENGAGE AUTOMATICALLY IF NOT ALREADY TURNED ON AND BE FORCED TO A SPEED BASED ON A TEMPERATURE RANGE.</li> <li>20.9.4. UPON REACHING A SECOND HIGHER TEMPERATURE SET-POINT, ENSURE THE</li> </ul>	CLIENT
DISCONNECT WILL BE AUTOMATICALLY SHUT OFF AND A WARNING WILL APPEAR ON THE USER INTERFACE. 20.9.5. UPON REACHING A PRESET TEMPERATURE, ENSURE THE FIRE SYSTEM WILL ENGAGE AND	WORKSHOP ARCHITECTURE
20.10. OPTIONS:	
20.10.1. FINISHED TOP, WHEN NO OVERHEAD CABINETS ARE ENCLOSING THE TOP OF THE HOOD 20.10.2. HORN STROBE, WITH PLUG AND PLAY CABLE 20.10.3. K-CLASS 6 LITER WET CHEMICAL FIRE EXTINGUISHER	
20.10.4. MANUAL PULL STATION, WITH PLUG AND PLAY CABLE (INCLUDED AUTOMATICALLY WITH NFPA 101 COMPLIANCE) 20.10.5. DRY CONTACTS ARE PROVIDED STANDARD FOR THE INTO BUILDING ALADAA SYSTEMAS	PROJECT:
AND SUPPLY FAN INTEGRATION.	CSV PAVILLOIN DE LA JEUINESSE CHILDCARE ADDITION
	105 HIGH STREET
	DRAWING TITLE: MECHANICAL
	SPECIFICATIONS
	DRAWN BY: SCALE:
	J.S. N.T.S. CHECKED BY: DRAWING NUMBER:
	PROJECT NUMBER:

![](_page_28_Figure_0.jpeg)

ORIGINAL SHEET – ARCH D

	PROJECT NORTH
	STRUCTURAL MECHANICAL ELECTRICAL CIVIL           NSTRUCTURAL MECHANICAL ELECTRICAL CIVIL           ENGINEERS           15 Foundry Street, Dundas, ON, L9H 2V6           Phone: (905)648-0373           Www.manteconpartners.com
	REVIEW ALL DRAWINGS AND VERIFY ALL DIMENSIONS AT THE SITE. DO NOT SCALE THE DRAWINGS, REPORT ALL DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING WITH ANY CONSTRUCTION OR SHOP FABRICATION. ALL DRAWINGS, SPECIFICATIONS AND RELATED DOCUMENTS ARE THE COPYRIGHT PROPERTY OF "MANTECON PARTNERS' AND MUST BE RETURNED
	UPON REQUEST. REPRODUCTION OF DRAWINGS, SPECIFICATIONS AND RELATED DOCUMENTS IN PART OR WHOLE IS FORBIDDEN WITHOUT THE ENGINEER'S WRITTEN PERMISSION.         Image: Imag
D	Image: Market
	KEY MAP: N.T.S
	WORKSHOP ARCHITECTURE
	PROJECT: CSV PAVILLON DE LA JEUNESSE CHILDCARE ADDITION 105 HIGH STREET HAMILTON, ON
	DRAWING TITLE: OVERALL SITE PLAN & MECHANICAL DEMOLITION PLAN
	DRAWN BY: J.S. CHECKED BY: A.M. DATE: NOV 2022 PROJECT NUMBER: 22-059

![](_page_29_Figure_0.jpeg)

# DRAWING NOTES

CONNECT TO EXISTING UNDERGROUND SANITARY SERVICE AT APPROXIMATE LOCATION INDICATED.

2 UNLESS OTHERWISE NOTED ALL FLOOR DRAIN, FUNNEL FLOOR DRAINS SHOWN ON THE DRAWING SHALL BE CONNECTED TO THE TRAP SEAL PRIMER. CONTRACTOR TO FIELD RUN ALL TUBING AS NECESSARY TO ACCOMMODATE. TUBING SIZE SHALL BE 3/8" ID MINIMUM.

- 3 CONNECT TO EXISTING DRAIN LINE IN APPROXIMATE LOCATION.
- 4 P TRAP FOR WASHING MACHINE DRAIN LINE.
- 5 CHILD HEIGHT MOUNTED SINK TO BE ROTATED 90° TO WALL FOR EASE OF REACH TO FAUCET.

![](_page_29_Picture_8.jpeg)

GREASE INTERCEPTOR (GI) CALCULATION GI-1 GREASE INTERCEPTOR CALCULATION: OBC 7.4.4.3(8) SERVERY <u>0.75\*(45.72 x 40.62 x 20.32)</u> = 0.471L/s 60 seconds \* 1000cm^3/L SINGLE SINK <u>0.75\*(3\*40.62 x 35.56 x 17.78)</u> = 0.964L/s 60 seconds \* 1000cm^3/L TRIPLE SINK TOTAL 1.435 L/S SELECT A PROCEPTOR MODEL: ZURN Z1170, SIZE 600 TOTAL LIQUID CAPACITY: 137.235L GI-2 GREASE INTERCEPTOR CALCULATION: OBC 7.4.4.3(8) SERVERY DISHWASHER 4GPM = 0.25 L/s (RESIDENTIAL) TOTAL .25 L/S SELECT A PROCEPTOR MODEL: ZURN Z1170, SIZE 100 TOTAL LIQUID CAPACITY: 47,774L

![](_page_30_Figure_0.jpeg)

![](_page_30_Figure_2.jpeg)

# DRAWING NOTES

ROOF DRAIN CONTINUES DOWN TO INTERIOR OF BUILDING WITH 100Ø CONNECTION

2 PROVIDE SCUPPERS IN PARAPET WALL TO DRAIN ROOF SECTION.

	PROJECT NORTH
	A CONTRACTOR OF
	15 Foundry Street, Dundas, ON, L9H 2V6 Phone: (905)648-0373 www.manteconpartners.com SEAL
	REVIEW ALL DRAWINGS AND VERIFY ALL DIMENSIONS AT THE SITE. DO NOT SCALE THE DRAWINGS. REPORT ALL DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING WITH ANY CONSTRUCTION OR SHOP FABRICATION. ALL DRAWINGS, SPECIFICATIONS AND RELATED DOCUMENTS ARE THE COPYRIGHT PROPERTY OF 'MANTECON PARTNERS' AND MUST BE RETURNED UPON REQUEST. REPRODUCTION OF DRAWINGS, SPECIFICATIONS AND RELATED DOCUMENTS IN PART OR WHOLE IS FORBIDDEN WITHOUT THE ENGINEER'S WRITTEN PERMISSION.
	Image: Constraint of the second se
	Image: style interview         Image: style interview<
	<image/>
	WORKSHOP ARCHITECTURE
	PROJECT: CSV PAVILLON DE LA JEUNESSE CHILDCARE ADDITION 105 HIGH STREET HAMILTON, ON
	DRAWING TITLE: PROPOSED GROUND FLOOR/ROOF LEVEL STORM DRAINAGE PLAN
	DRAWIN BY: J.S. CHECKED BY: A.M. DATE: NOV 2022 PROJECT NUMBER: 22-0.59
1	November 20, 2024 — 02:40pm Plotted by: jsneek

![](_page_31_Figure_0.jpeg)

ORIGINAL SHEET – ARCH D

![](_page_31_Picture_3.jpeg)

![](_page_32_Figure_0.jpeg)

1 PROPOSED GROUND FLOOR FIRE PROTECTION PLAN M3.0 SCALE: 1:100

ORIGINAL SHEET - ARCH D

![](_page_32_Figure_3.jpeg)

![](_page_32_Figure_4.jpeg)

![](_page_33_Figure_0.jpeg)

# DRAWING NOTES

- S/A AND R/A UP TO AHU-01 ON ROOF ABOVE
- RELOCATE UV-9 ALONG THIS WALL, REESTABLISH CONNECTION TO HEATING WATER, AND NEW PENETRATIONS IN THE EXTERIOR WALL.
- 3 LOCATE END OF RETURN DUCT NEAR GRILLE IN CEILING PLENUM.
- 4 PULL STATION FOR RH-1 (NFPA 101)

![](_page_33_Picture_6.jpeg)

ORIGINAL SHEET – ARCH D

![](_page_33_Figure_8.jpeg)

![](_page_33_Picture_12.jpeg)

![](_page_33_Picture_14.jpeg)

PROJECT NORTH

STRUCTURAL MECHANICAL ELECTRICAL CIVIL ENGINEERS

15 Foundry Street, Dundas, ON, L9H 2V6

Phone: (905)648-0373 www.manteconpartners.com

DRAWN BY: J.S. CHECKED BY: A.M. DATE:

PLAN

NOV 2022 PROJECT NUMBER: 22-059

AS INDICATED DRAWING NUMBER:

![](_page_33_Picture_18.jpeg)

November 20, 2024 – 02:40pm Plotted by: jsneek

![](_page_34_Figure_0.jpeg)

DRAWING NOTES

1 LOCATE RADIATOR AT HIGH LEVEL.

![](_page_34_Picture_3.jpeg)

ORIGINAL SHEET – ARCH D

	PROJECT NORTH						
	STRUCTURAL MECHAN ENGIN	NICAL ELECTRICA NEERS UNIdas, ON, L9H 2	CON RS L CIVIL				
SEAL	Phone: (905)648-0373 v	vww.manteconpart	ners.com				
REVIEW DRAWII CONST DOCUN UPON R PART OF	ALL DRAWINGS AND VERIFY ALL DIMENSIG NGS. REPORT ALL DISCREPANCIES TO THE RUCTION OR SHOP FABRICATION. ALL DR. MENTS ARE THE COPYRIGHT PROPERTY OF REQUEST. REPRODUCTION OF DRAWINGS R WHOLE IS FORBIDDEN WITHOUT THE EN	DNS AT THE SITE. DO N ENGINEER BEFORE PRO AWINGS, SPECIFICATIO MANTECON PARTNER , SPECIFICATIONS AND IGINEER'S WRITTEN PE	NOT SCALE THE CCEEDING WITH ANY DNS AND RELATED RS' AND MUST BE RETURNED D RELATED DOCUMENTS IN RMISSION.				
5 4 3	ISSUED FOR TEND ISSUED FOR PERN ISSUED FOR 90% RE	ER AIT VIEW	2024/11/20 J.S. 2024/10/25 J.S. 2024/09/11 J.S.				
2	ISSUED FOR 80% RE	VIEW	2023/02/17         J.L.           2022/11/11         J.S.				
	And Andrew Days of the second	Nervice East	TURE				
	<del>م</del> ۲.						
CS CH 10 HA	PROJECT: CSV PAVILLON DE LA JEUNESSE CHILDCARE ADDITION 105 HIGH STREET HAMILTON, ON						
draw PR HY	DRAWING TITLE: PROPOSED GROUND FLOOR HYDRONICS PLAN						
DRAW	N BY:	scale: AS INDI	CATED				
CHECK A. DATE: PROJEC 22	ED BY: M. DV 2022 CT NUMBER: 2-059 nber 20, 2024 - 02:40	DRAWING NUMBE	<b>4.1</b> y: jsneek				

![](_page_35_Figure_0.jpeg)

![](_page_36_Figure_0.jpeg)

![](_page_37_Figure_0.jpeg)

		Hardwa	re Points				Softwar	e Points			
Point Name	AI	AO	BI	во	AV	BV	Loop	Sched	Trend	Alarm	Show On Graphic
Final Filter Differential Pressure	x								x		
Mixed Air Temp	х								х		x
Outside Air Humidity	x								x		x
Outside Air Temp	x								x		x
Prefilter Differential Pressure	х								x		
Return Air Humidity	х								х		x
Return Air Temp	х								х		х
Supply Air Temp	х								х		x
Zone Setpoint Adjust	x										x
Zone Temp	x								x		x
Mixed Air Dampers		x							x		x
Supply Fan VFD Speed		Х							x		x
Freezestat			x						x	x	x
Supply Air Smoke Detector			x						x	x	x
Supply Fan Status			x						x		x
Supply Fan VFD Fault			x						x		x
Zone Override			x						x		x
Refrigerant Leak Sensor			x						х	x	
Cooling Stage				x					х		x
Heating Stage				x					x		x
Supply Fan Start/Stop				x					х		x
Cooling Setpoint					x				x		x
Economizer Zone Temp Setpoint					x				X		x
Environmental Index					x				x		
Heating Setpoint					x				x		x
Percent of Time Satisfied					X				x		
Schedule								X			
Compressor Runtime Exceeded										X	
Final Filter Change Required										X	X
High Mixed Air Temp										X	
High Return Air Humidity										X	
High Return Air Temp										X	
High Supply Air Temp										X	
High Zone Temp										X	
										X	
										X	
										X	
										X	
Low Zone Temp										X	
Cumple Con Caller										X	×
										X	
Supply Fan In Hand											
	40										
I OTAIS	1 10		5	ŏ ا	5			1	29	18	28

Total Hardware (25)

Total Software (53)

![](_page_37_Picture_4.jpeg)

# SEQUENCE OF OPERATION:

#### 1. RTU (TYPICAL OF 1)

#### RUN CONDITIONS - SCHEDULED:

THE UNIT SHALL RUN ACCORDING TO A USER DEFINABLE TIME SCHEDULE IN THE FOLLOWING MODES:

- OCCUPIED MODE: THE UNIT SHALL MAINTAIN
- A 24°C (ADJ.) COOLING SETPOINT
- A 21°C (ADJ.) HEATING SETPOINT.
- UNOCCUPIED MODE (NIGHT SETBACK): THE UNIT SHALL MAINTAIN
- A 30°C (ADJ.) COOLING SETPOINT.
- A 13°C (ADJ.) HEATING SETPOINT.

#### ALARMS SHALL BE PROVIDED AS FOLLOWS:

- HIGH ZONE TEMP: IF THE ZONE TEMPERATURE IS GREATER THAN THE COOLING SETPOINT BY A USER DEFINABLE AMOUNT (ADJ.).
- LOW ZONE TEMP: IF THE ZONE TEMPERATURE IS LESS THAN THE HEATING SETPOINT BY A USER DEFINABLE AMOUNT (ADJ.).

#### DEMAND LIMITING - ZONE SETPOINT OPTIMIZATION:

TO LOWER POWER CONSUMPTION, THE ZONE SETPOINTS SHALL AUTOMATICALLY RELAX WHEN THE FACILITY POWER CONSUMPTION EXCEEDS DEFINABLE THRESHOLDS. THE AMOUNT OF RELAXATION SHALL BE INDIVIDUALLY CONFIGURABLE FOR EACH ZONE. THE ZONE SETPOINTS SHALL AUTOMATICALLY RETURN TO THEIR PREVIOUS SETTINGS WHEN THE FACILITY POWER CONSUMPTION DROPS BELOW THE THRESHOLDS.

#### ZONE SETPOINT ADJUST:

THE OCCUPANT SHALL BE ABLE TO ADJUST THE ZONE TEMPERATURE HEATING AND COOLING SETPOINTS AT THE ZONE SENSOR.

#### ZONE OPTIMAL START:

THE UNIT SHALL USE AN OPTIMAL START ALGORITHM FOR MORNING START-UP. THIS ALGORITHM SHALL MINIMIZE THE UNOCCUPIED WARM-UP OR COOL-DOWN PERIOD WHILE STILL ACHIEVING COMFORT CONDITIONS BY THE START OF SCHEDULED OCCUPIED PERIOD.

ZONE UNOCCUPIED OVERRIDE: A TIMED LOCAL OVERRIDE CONTROL SHALL ALLOW AN OCCUPANT TO OVERRIDE THE SCHEDULE AND PLACE THE UNIT INTO AN OCCUPIED MODE FOR AN ADJUSTABLE PERIOD OF TIME. AT THE EXPIRATION OF THIS TIME, CONTROL OF THE UNIT SHALL AUTOMATICALLY RETURN TO THE SCHEDULE.

#### FREEZE PROTECTION:

THE UNIT SHALL SHUT DOWN AND GENERATE AN ALARM UPON RECEIVING A FREEZESTAT STATUS.

# SUPPLY AIR SMOKE DETECTION:

THE UNIT SHALL SHUT DOWN AND GENERATE AN ALARM UPON RECEIVING A SUPPLY AIR SMOKE DETECTOR STATUS.

#### SUPPLY FAN:

THE SUPPLY FAN SHALL RUN ANYTIME THE UNIT IS COMMANDED TO RUN, UNLESS SHUTDOWN ON SAFETIES. TO PREVENT SHORT CYCLING, THE SUPPLY FAN SHALL HAVE A USER DEFINABLE (ADJ.) MINIMUM RUNTIME.

- ALARMS SHALL BE PROVIDED AS FOLLOWS:
- SUPPLY FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
- SUPPLY FAN IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
- SUPPLY FAN RUNTIME EXCEEDED: STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT (ADJ.).

#### ZONE TEMPERATURE CONTROL:

THE CONTROLLER SHALL MEASURE THE ZONE TEMPERATURE AND SHALL MODULATE THE SUPPLY FAN VFD SPEED TO MAINTAIN ZONE TEMPERATURE SETPOINT. THE FAN SPEED SHALL INCREASE AS THE ZONE TEMPERATURE RISES ABOVE COOLING SETPOINT, OR AS THE ZONE TEMPERATURE DROPS BELOW HEATING SETPOINT. THE SUPPLY FAN VFD SPEED SHALL NOT DROP BELOW 30% (ADJ.).

#### COOLING STAGES:

THE CONTROLLER SHALL MEASURE THE ZONE TEMPERATURE AND STAGE THE COOLING TO MAINTAIN ITS COOLING SETPOINT. TO PREVENT SHORT CYCLING, THERE SHALL BE A USER DEFINABLE (ADJ.) DELAY BETWEEN STAGES, AND EACH STAGE SHALL HAVE A USER DEFINABLE (ADJ.) MINIMUM RUNTIME.

#### THE COOLING SHALL BE ENABLED WHENEVER:

- OUTSIDE AIR TEMPERATURE IS GREATER THAN 15°C (ADJ.).
- AND THE ECONOMIZER (IF PRESENT) IS DISABLED OR FULLY OPEN.
- AND THE ZONE TEMPERATURE IS ABOVE COOLING SETPOINT.
- AND THE SUPPLY FAN STATUS IS ON.
- AND THE HEATING IS NOT ACTIVE.

#### GAS HEATING MODULATION:

THE CONTROLLER SHALL MEASURE THE ZONE TEMPERATURE AND MODULATE THE HEATING TO MAINTAIN ITS HEATING SETPOINT. TO PREVENT SHORT CYCLING, THERE SHALL BE A USER DEFINABLE (ADJ.) DELAY BETWEEN STARTS, AND EACH START SHALL HAVE A USER DEFINABLE (ADJ.) MINIMUM RUNTIME.

#### THE HEATING SHALL BE ENABLED WHENEVER:

- OUTSIDE AIR TEMPERATURE IS LESS THAN 18°C (ADJ.).
- AND THE ZONE TEMPERATURE IS BELOW HEATING SETPOINT.
- AND THE SUPPLY FAN STATUS IS ON. • AND THE COOLING IS NOT ACTIVE.

#### ECONOMIZER:

THE CONTROLLER SHALL MEASURE THE ZONE TEMPERATURE AND MODULATE THE ECONOMIZER DAMPERS IN SEQUENCE TO MAINTAIN A SETPOINT 1°C LESS THAN THE ZONE COOLING SETPOINT. THE OUTSIDE AIR DAMPERS SHALL MAINTAIN A MINIMUM ADJUSTABLE POSITION OF 20% (ADJ.) OPEN WHENEVER OCCUPIED.

THE ECONOMIZER SHALL BE ENABLED WHENEVER:

- OUTSIDE AIR TEMPERATURE IS LESS THAN 18°C (ADJ.).
- AND THE OUTSIDE AIR ENTHALPY IS LESS THAN 22BTU/LB (ADJ.).
- AND THE OUTSIDE AIR TEMPERATURE IS LESS THAN THE RETURN AIR TEMPERATURE.
- AND THE OUTSIDE AIR ENTHALPY IS LESS THAN THE RETURN AIR ENTHALPY.
- AND THE SUPPLY FAN STATUS IS ON.
- THE ECONOMIZER SHALL CLOSE WHENEVER:
- MIXED AIR TEMPERATURE DROPS FROM 7°C TO 4°C (ADJ.).
- OR ON LOSS OF SUPPLY FAN STATUS.
- OR FREEZESTAT (IF PRESENT) IS ON.

THE OUTSIDE AND EXHAUST AIR DAMPERS SHALL CLOSE AND THE RETURN AIR DAMPER SHALL OPEN WHEN THE UNIT IS OFF. IF OPTIMAL START UP IS AVAILABLE, THE MIXED AIR DAMPER SHALL OPERATE AS DESCRIBED IN THE OCCUPIED MODE EXCEPT THAT THE OUTSIDE AIR DAMPER SHALL MODULATE TO FULLY CLOSED.

#### MINIMUM OUTSIDE AIR VENTILATION - FIXED PERCENTAGE: THE OUTSIDE AIR DAMPERS SHALL MAINTAIN A MINIMUM POSITION (ADJ.) DURING BUILDING OCCUPIED HOURS AND BE CLOSED DURING UNOCCUPIED HOURS.

# PREFILTER DIFFERENTIAL PRESSURE MONITOR:

THE CONTROLLER SHALL MONITOR THE DIFFERENTIAL PRESSURE ACROSS THE PREFILTER.

# ALARMS SHALL BE PROVI

 PREFILTER CHANG USER DEFINABLE I

#### FINAL FILTER DIFFERENTIA THE CONTROLLER SHALL

FILTER.

ALARMS SHALL BE PROVI

FINAL FILTER CHAN

A USER DEFINABLE MIXED AIR TEMPERATURE

THE CONTROLLER SHALL REQUIRED FOR ECONOMI PRESENT).

# ALARMS SHALL BE PROVID HIGH MIXED AIR TE

(ADJ.). LOW MIXED AIR TEN

#### RETURN AIR HUMIDITY: THE CONTROLLER SHALL ECONOMIZER CONTROL

ALARMS SHALL BE PROVI • HIGH RETURN AIR I 70% (ADJ.).

# LOW RETURN AIR H RETURN AIR TEMPERATUR

### THE CONTROLLER SHALL REQUIRED FOR ECONOMI

ALARMS SHALL BE PROVID HIGH RETURN AIR <sup>-</sup> 32°C (ADJ.).

# LOW RETURN AIR T

# SUPPLY AIR TEMPERATUR THE CONTROLLER SHALL

# ALARMS SHALL BE PROVID

 HIGH SUPPLY AIR T (ADJ.). LOW SUPPLY AIR T

# REFRIGERANT LEAK DETE

THE CONTROLLER SHALL CONFIRMING NO LEAK HAS

# ALARMS SHALL BE PROVID

 REFRIGERANT LEA OCCURED

THE SYSTEM IS TO PREVE

THE UNIT IS TO HAVE THE PER WEEK AND RETAIN TH OVERRIDE IS TO BE INCLU

THE RADIATORS SHALL SHALL BE USED FOR SECO

IDED AS FOLLOWS: GE REQUIRED: PREFILTER DIFFERENTIAL PRESSURE EXCEEDS A LIMIT (ADJ.).	
IAL PRESSURE MONITOR: . MONITOR THE DIFFERENTIAL PRESSURE ACROSS THE FINAL	
IDED AS FOLLOWS: NGE REQUIRED: FINAL FILTER DIFFERENTIAL PRESSURE EXCEEDS E LIMIT (ADJ.).	
E: . MONITOR THE MIXED AIR TEMPERATURE AND USE AS IZER CONTROL (IF PRESENT) OR PREHEATING CONTROL (IF	
IDED AS FOLLOWS: EMP <sup>.</sup> IE THE MIXED AIR TEMPERATURE IS GREATER THAN 32°C.	
EMP: IF THE MIXED AIR TEMPERATURE IS LESS THAN 7°C (ADJ.).	
MONITOR THE RETURN AIR HUMIDITY AND USE AS REQUIRED FOR (IF PRESENT) OR HUMIDITY CONTROL (IF PRESENT).	
IDED AS FOLLOWS: HUMIDITY: IF THE RETURN AIR HUMIDITY IS GREATER THAN	
HUMIDITY: IF THE RETURN AIR HUMIDITY IS LESS THAN 35% (ADJ.).	
IRE: . MONITOR THE RETURN AIR TEMPERATURE AND USE AS IZER CONTROL (IF PRESENT).	
IDED AS FOLLOWS: TEMP: IF THE RETURN AIR TEMPERATURE IS GREATER THAN	
TEMP: IF THE RETURN AIR TEMPERATURE IS LESS THAN 7°C (ADJ.).	
RE: . MONITOR THE SUPPLY AIR TEMPERATURE.	
IDED AS FOLLOWS: TEMP: IF THE SUPPLY AIR TEMPERATURE IS GREATER THAN 48°C	
TEMP: IF THE SUPPLY AIR TEMPERATURE IS LESS THAN 7°C (ADJ.).	
ECTION : . MONITOR FOR A REFRIGERANT LEAK AND OUTPUT A SIGNAL AS BEEN DETECTED.	
IDED AS FOLLOWS: AK: IF THE REFRIGERANT LEAK SENSOR HAS DETERMINES A LEAK	
ENT SIMULTANEOUS HEATING AND COOLING.	
E CAPACITY TO HOLD SCHEDULES FOR 7 DIFFERENT DAY TYPES THE PROGRAM IF POWER IS LOST FOR 10 HOURS. A MANUAL UDED WHICH WILL ALLOW FOR OPERATION FOR 2 HOURS.	
BE USED FOR PRIMARY ZONE HEATING, THE RTU AND VAV BOXES CONDARY ZONE HEATING.	

![](_page_37_Picture_98.jpeg)

	HARDWARE POINTS								
POINT NAME	AI	AO	ві	во	A				
FAN STATUS			Х						
FAN START/STOP				Х					
FAN FAILURE									
FAN IN HAND									
FAN RUNTIME EXCEEDED									
TOTALS	0	0	1	1	(				
TOTAL HARDWARE (2)									

# SEQUENCE OF OPERATION: 1. EXHAUST FAN (TYPICAL OF 2) RUN CONDITIONS - INTERLOCKED: THE FAN(S) EF --- SHALL BE INTERLOCKED TO RUN WHENEVER THE WASHROOM IS OCCUPIED BASED ON BUILDING OCCUPANCY UNLESS SHUTDOWN ON SAFETIES. FAN: THE FAN SHALL HAVE A USER DEFINABLE (ADJ.) MINIMUM RUNTIME.

![](_page_38_Figure_2.jpeg)

- ALARMS SHALL BE PROVIDED AS FOLLOWS:
- FAN IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
- (ADJ.).

![](_page_38_Figure_7.jpeg)

# 1 M5.3 CONTROL SCHEMATIC OF EXHAUST FAN

![](_page_38_Figure_10.jpeg)

![](_page_38_Figure_11.jpeg)

![](_page_38_Figure_12.jpeg)

2 M5.3 CONTROL SCHEMATIC OF VAV WITH REHEAT COIL

ORIGINAL SHEET – ARCH D

![](_page_38_Figure_15.jpeg)

- FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
- FAN RUNTIME EXCEEDED: FAN STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT

![](_page_38_Figure_23.jpeg)

AO - Heating Valve

2 M5.3 CONTROL SCHEMATIC OF CONVECTOR

SEQUENCE OF OPERATION:	STILL ACHIEVING COMFORT CONDITIONS BY THE START OF SCHEDULED OCCUPIED PERIOD.						
1. VARIABLE AIR VOLUME - TERMINAL UNIT (TYPICAL OF 9) RUN CONDITIONS - SCHEDULED: THE UNIT SHALL RUN ACCORDING TO A USER DEFINABLE TIME SCHEDULE IN THE	ZONE UNOCCUPIED OVERRIDE: A TIMED LOCAL OVERRIDE CONTROL SHALL ALLOW AN OCCUPANT TO OVERRIDE THE SCHEDULE AND PLACE THE UNIT INTO AN OCCUPIED MODE FOR AN ADJUSTABLE PERIOD OF TIME. AT THE EXPIRATION OF THIS TIME, CONTROL OF THE UNIT SHALL AUTOMATICALLY						
FOLLOWING MODES:	RETURN TO THE SCHEDULE.						
OCCUPIED MODE: THE UNIT SHALL MAINTAIN	VARIABLE VOLUME TERMINAL UNIT - FLOW CONTROL:						
A 24°C (ADJ.) COOLING SETPOINT	THE UNIT SHALL MAINTAIN ZONE SETPOINTS BY CONTROLLING THE AIRFLOW THROUGH						
A 21°C (ADJ.) HEATING SETPOINT.	ONE OF THE FOLLOWING:						
UNOCCUPIED MODE (NIGHT SETBACK): THE UNIT SHALL MAINTAIN	OCCUPIED:						
A 30°C (ADJ.) COOLING SETPOINT.	WHEN ZONE TEMPERATURE IS GREATER THAN ITS COOLING SETPOINT, THE ZONE						
• A 13°C (ADJ.) HEATING SETPOINT.	DAMPER SHALL MODULATE BETWEEN THE MINIMUM OCCUPIED AIRFLOW (ADJ.) AND THE MAXIMUM COOLING AIRFLOW (ADJ.) UNTIL THE ZONE IS SATISFIED.						
ALARMS SHALL BE PROVIDED AS FOLLOWS:	WHEN THE ZONE TEMPERATURE IS LESS THAN THE COOLING SETPOINT, THE ZONE     DAMPER SHALL MAINTAIN THE MINIMUM REQUIRED ZONE VENTILATION (ADJ.).						
<ul> <li>HIGH ZONE TEMP: IF THE ZONE TEMPERATURE IS GREATER THAN THE COOLING SETPOINT BY A USER DEFINABLE AMOUNT (ADJ.).</li> </ul>	UNOCCUPIED:						
LOW ZONE TEMP: IF THE ZONE TEMPERATURE IS LESS THAN THE HEATING     SETPOINT BY A USER DEFINABLE AMOUNT (ADJ.).	WHEN THE ZONE IS UNOCCUPIED THE ZONE DAMPER SHALL CONTROL TO ITS MINIMUM UNOCCUPIED AIRFLOW (ADJ.).						
RUN CONDITIONS - INTERLOCKED: THE UNIT SHALL RUN UPON RECEIVING A CLEAR SIGNAL FROM THE REFRIGERANT LEAK SENSOR OF THE RTU.	• WHEN THE ZONE TEMPERATURE IS GREATER THAN ITS COOLING SETPOINT, THE ZONE DAMPER SHALL MODULATE BETWEEN THE MINIMUM UNOCCUPIED AIRFLOW (ADJ.) AND THE MAXIMUM COOLING AIRFLOW (ADJ.) UNTIL THE ZONE IS SATISFIED.						
DEMAND LIMITING - ZONE SETPOINT OPTIMIZATION: TO LOWER POWER CONSUMPTION, THE ZONE SETPOINTS SHALL AUTOMATICALLY RELAX WHEN THE FACILITY POWER CONSUMPTION EXCEEDS DEFINABLE THRESHOLDS. THE AMOUNT OF RELAXATION SHALL BE INDIVIDUALLY CONFIGURABLE FOR EACH ZONE. THE ZONE SETPOINTS SHALL AUTOMATICALLY RETURN TO THEIR PREVIOUS SETTINGS WHEN THE FACILITY POWER CONSUMPTION DROPS BELOW THE THRESHOLDS.	HEATING COIL VALVE: THE CONTROLLER SHALL MEASURE THE ZONE TEMPERATURE AND MODULATE THE HEATING COIL VALVE OPEN ON DROPPING TEMPERATURE TO MAINTAIN ITS HEATING SETPOINT.						
ZONE SETPOINT ADJUST: THE OCCUPANT SHALL BE ABLE TO ADJUST THE ZONE TEMPERATURE HEATING AND COOLING SETPOINTS AT THE ZONE SENSOR.	DISCHARGE AIR TEMPERATURE: THE CONTROLLER SHALL MONITOR THE DISCHARGE AIR TEMPERATURE.						
	ALARMS SHALL BE PROVIDED AS FOLLOWS:						
ZONE OPTIMAL START: THE UNIT SHALL USE AN OPTIMAL START ALGORITHM FOR MORNING START-UP. THIS	HIGH DISCHARGE AIR TEMP: IF THE DISCHARGE AIR TEMPERATURE IS GREATER THAN 48°C (ADJ.).						
ALGORITHM SHALL MINIMIZE THE UNOCCUPIED WARM-UP OR COOL-DOWN PERIOD WHILE	LOW DISCHARGE AIR TEMP: IF THE DISCHARGE AIR TEMPERATURE IS LESS THAN 4°C						

# PO

Al - Zone Temp

AIRFLOW DISCHARGE ZONE SETF ZONE TEMP PERIMETER ZONE DAM HEATING V ZONE OVER REFRIGERA INTERLOCK AIRFLOW S COOLING S HEATING S SCHEDULE HIGH DISCH HIGH ZONE LOW DISCH LOW ZONE

	HA	RDWA	re poi	INTS							
POINT NAME	AI	AO	ві	во	AV	вv	LOOP	SCHED	TREND	ALARM	SHOW ON GRAPHIC
ZONE TEMP	Х								Х		Х
HEATING VALVE		Х							Х		Х
HEATING SETPOINT					Х				Х		Х
SCHEDULE								Х			
LOW ZONE TEMP										Х	
TOTALS	1	1	0	0	1	0	0	1	3	1	3
TOTAL HA	RDWARE	E (2)					-	TOTAL S	OFTWARE	E (6)	

SEQUENCE OF OPERATION:

1. CONVECTIVE / FIN TUBE HEATER (TYPICAL OF 14)

RUN CONDITIONS - SCHEDULED: THE UNIT SHALL RUN ACCORDING TO A USER DEFINABLE TIME SCHEDULE IN THE

FOLLOWING MODES: • OCCUPIED MODE: THE UNIT SHALL MAINTAIN A HEATING SETPOINT OF 21°C (ADJ.).

• UNOCCUPIED MODE (NIGHT SETBACK): THE UNIT SHALL MAINTAIN A HEATING SETPOINT OF 18°C (ADJ.).

ALARMS SHALL BE PROVIDED AS FOLLOWS:

 LOW ZONE TEMP: IF THE ZONE TEMPERATURE IS LESS THAN THE HEATING SETPOINT BY A USER DEFINABLE AMOUNT (ADJ.).

HEATING COIL VALVE:

THE CONTROLLER SHALL MEASURE THE ZONE TEMPERATURE AND MODULATE THE HEATING COIL VALVE TO MAINTAIN ITS HEATING SETPOINT.

THE HEATING SHALL BE ENABLED WHENEVER:

 OUTSIDE AIR TEMPERATURE IS LESS THAN 18°C (ADJ.). AND THE ZONE TEMPERATURE IS BELOW HEATING SETPOINT.

	HAR	DWAR	e poi	INTS			SOFT	WARE PC	DINTS		
POINT NAME	AI	AO	BI	во	AV	вv	LOOP	SCHED	TREND	ALARM	SHOW ON GRAPHIC
AIRFLOW	Х								Х		Х
DISCHARGE AIR TEMP	Х								Х		Х
ZONE SETPOINT ADJUST	Х										Х
ZONE TEMP	Х								Х		Х
PERIMETER HEATING VALVE		Х							Х		Х
ZONE DAMPER		Х							Х		Х
HEATING VALVE		Х							Х		Х
ZONE OVERRIDE			Х						Х		Х
REFRIGERANT SENSOR INTERLOCK				х					х		х
AIRFLOW SETPOINT					Х				Х		Х
COOLING SETPOINT					Х				Х		Х
HEATING SETPOINT					Х				Х		Х
SCHEDULE								Х			
HIGH DISCHARGE AIR TEMP										Х	
HIGH ZONE TEMP										Х	
LOW DISCHARGE AIR TEMP										Х	
LOW ZONE TEMP										Х	
TOTALS	4	2	1	0	3	0	0	1	9	4	10

![](_page_38_Picture_42.jpeg)

![](_page_38_Picture_43.jpeg)

WORKSHOP ARCHITECTURE

PROJECT:

CSV PAVILLON DE LA JEUNESSE CHILDCARE ADDITION 105 HIGH STREET HAMILTON, ON

![](_page_38_Picture_47.jpeg)

![](_page_38_Picture_48.jpeg)

AS INDICATED DRAWING NUMBER:

![](_page_38_Picture_50.jpeg)

# 

RC	OFTOP	UNIT SC	CHED	ULE															
		SUPPLY FA	۸N		DEMAND CC	ONTROL VENTILATION			COOLING COIL				GAS HEATI	NG	ELECTRI	CAL (MAIN	POWER)		
TAG	AIR FLOW (L/S)	E.S.P. (IN.WG.)	FRPM	HP	MIN. OUTDOOR AIR FLOW (L/S)	MAX. OUTDOOR AIR FLOW (L/S)	E.A.T. DB/WB (°C)	L.A.T. DB/WB (°C)	REFRIGERANT TOTAL CAP. (MBH)	SENS. CAP. (MBH)	INPUT (MBH)	OUTPUT (MBH)	EFFICIENCY	IEER	мсор мо	CA FLA	VOLTAGE	WEIGHT (LBS)	(BASIS OF DESIGN: CARRIER)
RTU-1	2075	1.00	1700	4.600	659	1318	84.4 / 70.8	72 /63	R-454B 134.03	87.65	200	162	81%	15.10	80 6	5 52.2	208V/3Ø/60Hz	1374	TRANE MODEL: YSK120A3SAM**D5E0A101000000000000000000000000000000000

		SUPPLY AIR	SUPPLY AIR	AIR FL	OW (L/S)	
TAG #	(ROOM No.)	INLET SIZE (ØD INCH)	OUTLET SIZE (W INCH X H INCH )	MAX.	MIN.	(APPROVAL EQUAL: EH PRICE; TITUS)
VVT-1	102 CORRIDOR	10	14 X 12	448	154	TRANE MODEL: VCWF HOT WATER HEATING C/W DISCONNECT SWITCH, 120/24 VOLT TRANSFORMER
VVT-2	103 TODDLE RM 104 TODDLE STORAGE	14	19 X 18	1154	430	TRANE MODEL: VCWF HOT WATER HEATING C/W DISCONNECT SWITCH, 120/24 VOLT TRANSFORMER
VVT-3	105 P STORAGE 107 PRE-SCHOOL RM	16	23 X 18	1473	700	TRANE MODEL: VCWF HOT WATER HEATING C/W DISCONNECT SWITCH, 120/24 VOLT TRANSFORMER
VVT-4	108 OFFICE	8	11 X 10	275	177	TRANE MODEL: VCWF HOT WATER HEATING C/W DISCONNECT SWITCH, 120/24 VOLT TRANSFORMER
VVT-5	116 STAFF	8	11 X 10	181	105	TRANE MODEL: VCWF HOT WATER HEATING C/W DISCONNECT SWITCH, 120/24 VOLT TRANSFORMER
VVT-6	112   SLEEP AREA	10	14 X 12	464	235	TRANE MODEL: VCWF HOT WATER HEATING C/W DISCONNECT SWITCH, 120/24 VOLT TRANSFORMER
VVT-7	113 KITCHEN	6	10 X 8	138	52	TRANE MODEL: VCWF HOT WATER HEATING C/W DISCONNECT SWITCH, 120/24 VOLT TRANSFORMER
VVT-8	114 LAUNDRY 117 UTILITY	8	11 X 10	171	70	TRANE MODEL: VCWF HOT WATER HEATING C/W DISCONNECT SWITCH, 120/24 VOLT TRANSFORMER
VVT-9	109 CUBBIES 110 INFANT RM	14	19 X 18	883	494	TRANE MODEL: VCWF HOT WATER HEATING C/W DISCONNECT SWITCH, 120/24 VOLT TRANSFORMER

TRANE VAV BOX WITH SY210 DDC-BASIC WATER HEAT MODULATING CONTROLS, 120V TO 24V CONTROL TRANSFORMER, WALL MOUNT TEMPERATURE SENSOR WITH LCD DISPLAY, ADJUST AND OVERRIDE, CO2 SENSOR.

GR	ILLES REG	GISTERS DIFFL	JSERS		
TAG	SIZE (MM)	APPLICATION	NECK SIZE (MM)	AIR FLOW RANGE (CFM)	MANUFACTURER AND MODEL (BASIS OF DESIGN: EH. PRICE)
S-1	24"X24"	SUPPLY AIR	AS INDICATED	AS INDICATED	EH. PRICE MODEL: SCD DIFFUSER, WHITE POWDER COAT FINISH, 3 COCNENTRIC CONES
S-2	12"X12"	SUPPLY AIR	AS INDICATED	AS INDICATED	EH. PRICE MODEL: SCD DIFFUSER, WHITE POWDER COAT FINISH, 3 COCNENTRIC CONES
S-3	48''	SUPPLY AIR	AS INDICATED	AS INDICATED	EH. PRICE: SDS75 SERIES. 2-SLOT SURFACE MOUNT WITH CONCEALED PLASTER FRAME. SDB PLEMUN NECK SIZE AS INDICATED. SCREW FASTENING TO SDS .
R-1	AS INDICATED	RETURN AIR	AS INDICATED	AS INDICATED	EH. PRICE MODEL: 80 SERIES, ALUMNIUM CONSTRUCTION, EGGCRATE FACE RETURN, WHITE POWDER COAT FINISH.
E-1	AS INDICATED	EXHAUST	AS INDICATED	AS INDICATED	EH. PRICE MODEL: 80 SERIES, ALUMNIUM CONSTRUCTION, EGGCRATE FACE RETURN, WHITE POWDER COAT FINISH.

LOI	JVERS		
TAG	SIZE (MM)	APPLICATION	MANUFACTURER AND MODEL (BASIS OF DESIGN: EH. PRICE)
L-1	650X200	UNIT VENTILATOR	EH. PRICE MODEL: DE635 C/W BIRDSCREEN

Kľ	TCHEN EXH/	aust h		SCHED	JLE					
No.	AREA SERVED	AIRFLOW L/S (CFM)	S.P. IN.WG.	ELECTRICAL	HOOD LENGTH MM(IN)	DIMENSIC WIDTH TOP MM(IN)	NS WIDTH BOT. MM(IN)	HEIGHT MM(IN)	OPERATING WEIGHT KG(LBS).	MANUFACTURER AND MODEL (BASIS OF DESIGN: GREENHECK)
RH-1	SERVERY 113	236 (500)	0.91	115V/1Ø/60Hz	900 (36)	30 (12)	596(23.5)	317(12.5)	42.2 (93)	GREENHECK GRRS-W-36-T-E-D-N, RESIDENTIAL RANGE HOOD, C/W TOP DISCHARGE INLINE FAN, NFPA COMPLIANT, SURFACE MOUNTED M STATION AND K-CLASS EXTINGUISHER

EXHA	UST FAN SCI	HEDULE								
TAG	LOCATION	AREA SERVED	AIRFLOW (CFM)	E.S.P. (IN.WG.)	W	ELECTR AMPS	ICAL VOLT/PH/Hz	TYPE	FAN RPM	MANUFACTURER AND MODEL (BASIS OF DESIGN: EH PRICE)
EF-2	AS INDICATED	AS INDICATED	140	0.6	46	0.56	115V/1Ø/60Hz	IN-LINE	939	EH PRICE MODEL: CSP-A250 SOLID STATE SPEED CON SHIPPED LOOSE ADJUSTABLE EASY INSTALLATION MO
EF-1, EF-3	AS INDICATED	AS INDICATED	70	0.3	44	0.18	115V/1Ø/60Hz	IN-LINE	937	EH PRICE MODEL: CSP-A125 SOLID STATE SPEED CON SHIPPED LOOSE ADJUSTABLE EASY INSTALLATION MO

EXPANSIC	on tank sc	CHEDULE			
TAG	LOCATION	SERVICE	ТҮРЕ	Tank Volume USG	MANUFACTURER AND MODEL (BASIS OF DESIGN: AMTROL)
ET-1	LAUNDRY ROOM	DHW	DIAPHRAGM	6.4	AMTORL MODEL: ST-12c-dd

WATE	ER HEA	ter scł	HEDULE							
SYMBOL	CAPAC	ity mbh	WATER	TEMP. F°	FLOW	ELECTRICAL		OPERATING WEIGHT		
	INPUT	OUTPUT	ENT.	LVG.	L/S (GPM)	VOLTAGE	(HxWxD)	LBS		
GWH-1	199	191	40	140	3.9	120V/1Ø/60Hz	600x450x290	71	AO SMITH: MODEL ACT-1991-N, C/W CONDENSATE CONCENTRIC TERMINATION KIT, FACTORY INSTALL	

G	GREASE INTERCEPTOR SCHEDULE												
No.	AREA SERVED	FLOW RATE L/S (GPM)	CAPACITY KG (LBS)	LENGTH MM(IN)	MENSIONS WIDTH MM(IN)	HEIGHT MM(IN)	OPERATING WEIGHT KG(LBS).	MANUFACTURER AND MODEL					
GI-1	SERVERY	1.907 (30.226)	32 (70)	819 (32 1/4'')	616 (24 1/4'')	497 (19 1/2'')	78 (172)	ZURN Z1170 - 700 - T GREASE INTERCEPTOR, SIZE 700 C/W RECESSED COVER FOR TILE MATCHING TILE THICKNESS.					
GI-2	SERVERY	.25 (3.963)	6 (14)	438 (17 1/4'')	318 (12 1/2")	343 (13 1/2'')	25 (56)	ZURN Z1170 - 100 - T GREASE INTERCEPTOR, SIZE 100 C/W RECESSED COVER FOR TILE MATCHING TILE THICKNESS.					

ORIGINAL SHEET – ARCH D

PLU	PLUMBING FIXTURE CONNECTION SCHEDULE					
REFER	DESCRIPTION	SANITARY	Sanitary Vent	DHWS	DCWS	M
(VCI)	NON - BARRIER FREE, FLOOR MOUNTED AUTOMATIC FLUSH VALVE WATERCLOSET	75Ø (3"Ø)	38Ø (1-1/2''Ø)	-	25Ø (1"Ø)	A <i>l</i> SL
(VC2)	BARRIER FREE, FLOOR MOUNTED AUTOMATIC FLUSH VALVE WATERCLOSET	75Ø (3"Ø)	38Ø (1-1/2''Ø)	-	25Ø (1''Ø)	A <i>l</i> SL
	BARRIER FREE WALL HUNG, METERED FAUCET, MOUNTED AT LOW LEVEL	32Ø (1-1/4''Ø)	32Ø (1-1/4''Ø)	13Ø (1/2''Ø)	13Ø (1/2"Ø)	A/ MI
(12)	BARRIER FREE WALL HUNG, MANUAL FAUCET	32Ø (1-1/4''Ø)	32Ø (1-1/4''Ø)	13Ø (1/2''Ø)	13Ø (1/2"Ø)	AI M
<u>S1</u>	SINGLE COMPARTMENT, COUNTER MOUNTED, COMMERCIAL SINK	38Ø (1-1/2''Ø)	32Ø (1-1/4''Ø)	13Ø (1/2''Ø)	13Ø (1/2"Ø)	FR 43
<u>\$2</u>	TRIPLE COMPARTMENT, COUNTER MOUNTED, COMMERCIAL SINK	38Ø (1-1/2''Ø)	32Ø (1-1/4''Ø)	13Ø (1/2''Ø)	13Ø (1/2"Ø)	FR B_ VA
<u>\$3</u>	SINGLE COMPARTMENT, WALL MOUNTED, COMMERCIAL SINK	38Ø (1-1/2''Ø)	32Ø (1-1/4''Ø)	13Ø (1/2''Ø)	13Ø (1/2"Ø)	FR
<u>S4</u>	LAUNDRY TUB SINK, FLOOR MOUNTED	75Ø (3''Ø)	38Ø (1-1/2''Ø)	13Ø (1/2''Ø)	13Ø (1/2"Ø)	FR
(IZL)	MOP BASIN, FLOOR MOUNT	75Ø (3''Ø)	38Ø (1-1/2''Ø)	13Ø (1/2''Ø)	13Ø (1/2"Ø)	ST
NFHB	NON-FREEZE HOSE BIBB	-	-	-	19Ø (3/4''Ø)	ZU
FD	FLOOR DRAIN	75Ø (3''Ø)	38Ø (1-1/2''Ø)	13Ø (1/2''Ø)	-	W
FFD	FUNNEL FLOOR DRAIN	75Ø (3''Ø)	38Ø (1-1/2''Ø)	13Ø (1/2''Ø)	-	W
EW	eyewash station	75Ø (3"Ø)	38Ø (1-1/2''Ø)	13Ø (1/2''Ø)	-	-
WF	WATER FOUNTAIN	32Ø (1 1/4''Ø)	32Ø (1-1/4''Ø)	-	10Ø (3/8''Ø)	EL
MV	MIXING VALVE					W
NOTES:	THE CONTRACTOR SHALL SUPPLY AND INSTALL THE ACESSORI	es and trims on	ILY FOR ALL FIXTU	RES SUPPLIED AN	D INSTALLED BY	GENE

NOTES:
HO
Symbol
RH-1
RH-2
RH-3
RH-4

	RH-3	4350 (174)	350	75	50	3.132
	RH-4	1650 (660)	350	75	50	1.173
IANUAL PULL	RH-5	3000 (120)	350	75	50	2.197
	RH-6	5850 (234)	350	75	50	4.255
	RH-7	1200 (48)	350	75	50	0.914
	RH-8	1 500 (60)	350	75	50	1.089

1*5*00 (60)

900 (36)

HOT WATER RADIATOR SCHEDULE

350

350

ACTIVE LENGTH HEIGHT E.W.T. L.W.T. CAPACITY MANUFACTURER AND MODEL

50

50

75

75

MM (IN) MM °C °C KW (BASIS OF DESIGN: GREENHECK)

1.089

0.656

ITROL, 6 AMP, SHIPPED LOOSE, SHIPPED LOOSE ISOLATION KIT, DUNTING BRACKET. ITROL, 6 AMP, SHIPPED LOOSE, SHIPPED LOOSE ISOLATION KIT,
DUNTING BRACKET.

GAS SCHED	ULE
UNIT	CFH
GWH-1	199
RTU-1	180
TOTAL	379

E NEUTRALIZATION KIT, ED POWER CORD

#### 0000, STAGED AIR VOLUME VFD, LOUVERED CONDENSER COIL HAIL GUARD, NON-FUSED DISCONNECT LECONOMIZER, POWER EXHAUST, THRU-THE-BASE POWER CONNECTION, RTU OPEN BACKNET CONTROL ON THE COMPLETE ROOFTOP UNIT, 6TH TO 15TH YEAR HEAT EXCHANGER PARTS WARRANTY.

MANUFACTURER AND MODEL

MERICAN STANDARD 3451001.020 FLOOR MOUNTED TOILET C/W CENTOCO SEAT: 1500STSCCFE-001 SEAT, LOAN FLUSH VALVE: ROYAL 111 ESS-101-OR-HW AND SLOAN POWER KIT EL-154.

AMERICAN STANDARD MADERA FLOOR MOUNTED TOILET C/W CENTOCO SEAT: 1500STSCCFE-001 SEAT, SLOAN FLUSH VALVE: ROYAL 111 ESS-101-OR-HW AND SLOAN POWER KIT EL-154.

AMERICAN STANDARD LUCERNE WALL HUNG BARRIER FREE SINK C/W ZURN Z86100-XL SINGLE BASIN METERING FAUCET, MCGUIRE 155A FIXTURE DRAIN, LFH165LKN3 SUPPLY AND 8872C P TRAP.

AMERICAN STANDARD LUCERNE WALL HUNG BARRIER FREE SINK C/W CHICAGO 420-T45E2805ABCP FAUCET, MCGUIRE 155A FIXTURE DRAIN, LFH165LKN3 SUPPLY AND 8872C P TRAP.

FRANKE: LBS6808P-1-1 SINGLE COMPARTMENT COMMERCIAL COUNTER MOUNTED SINK, C/W/ Chicago 430-ABCP FAUCET, LAWLER 570-86820 MIXING VALVE. RANKE: LBT6407CB-1 TRIPLE COMPARTMENT COMMERCIAL COUNTER MOUNTED SINK, C/W/ T&S BRASS

B\_0133\_ADF12\_B EASYINSTALL PRE-RINSE UNIT WITH WALL BRACKET FAUCET, LAWLER 570-86820 MIXING /ALVE.

RANKE: WSS6713 STANILESS STEEL WALL HUNG WASH BASIN, C/W/ CHICAGO 897-RCF WALL HUNG FAUCET

FRANKE: WTS2025-1 STAINLESS STEEL WALL HUNG UTILITY SINK C/W/ CHICAGO 897-RCF WALL HUNG FAUCET.

STERN WILLIAMS SB-900-T-35-T-40-BP25Ø SINK C/W CHICAGO 897-RCF WALL HUNG FAUCET.

ZURN Z1320XL, NON FREEZE, ANTI SIPHON, WALL HYDRANT.

WATTS FD-100NH-C-A5-1-5-7

WATTS FD-100NH-EG-5-6-7-1

ELKAY LZSDWSLK, EZH20 BOTTLE FILLING STATION, MOUNTED AT LOW HEIGHT FOR USE BY CHILDREN

WATTS/ANCON HY-300-2-VB

RAL TRADES (I.E. SOLID SURFACE, STAINLESS STEEL. ETC.)

ENG AIR P-10, TUBE FIN RADIATOR, 10" ENCLOSURE HEIGHT, 2 1/2" X 3 1/4" 60 FINS/FT ENG AIR P-10, TUBE FIN RADIATOR, 10" ENCLOSURE HEIGHT, 2 1/2" X 3 1/4" 60 FINS/FT ENG AIR P-10, TUBE FIN RADIATOR, 10" ENCLOSURE HEIGHT, 2 1/2" X 3 1/4" 60 FINS/FT ENG AIR P-10, TUBE FIN RADIATOR, 10" ENCLOSURE HEIGHT, 2 1/2" X 3 1/4" 60 FINS/FT ENG AIR P-10, TUBE FIN RADIATOR, 10" ENCLOSURE HEIGHT, 2 1/2" X 3 1/4" 60 FINS/FT ENG AIR P-10, TUBE FIN RADIATOR, 10" ENCLOSURE HEIGHT, 2 1/2" X 3 1/4" 60 FINS/FT ENG AIR WF-5A, TUBE FIN RADIATOR W INVERTED ENCLOSURE, 12" ENCLOSURE HEIGHT, 4" X 4" FINS ENG AIR P-10, TUBE FIN RADIATOR, 10" ENCLOSURE HEIGHT, 2 1/2" X 3 1/4" 60 FINS/FT

PROJECT NORTH STRUCTURAL MECHANICAL ELECTRICAL CIVIL ENGINEERS 15 Foundry Street, Dundas, ON, L9H 2V6 Phone: (905)648-0373 www.manteconpartners.com SEAL REVIEW ALL DRAWINGS AND VERIFY ALL DIMENSIONS AT THE SITE. DO NOT SCALE THE RAWINGS. REPORT ALL DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING WITH ANY CONSTRUCTION OR SHOP FABRICATION. ALL DRAWINGS, SPECIFICATIONS AND RELATED DOCUMENTS ARE THE COPYRIGHT PROPERTY OF 'MANTECON PARTNERS' AND MUST BE RETURNED IPON REQUEST. REPRODUCTION OF DRAWINGS, SPECIFICATIONS AND RELATED DOCUMENTS IN PART OR WHOLE IS FORBIDDEN WITHOUT THE ENGINEER'S WRITTEN PERMISSION. ISSUED FOR TENDER 2024/11/20 J.S. ISSUED FOR PERMIT 2024/10/25 J.S. ISSUED FOR 90% REVIEW 2024/09/11 J.S. 2023/02/17 J.L. ISSUED FOR 80% REVIEW ISSUED FOR 60% REVIEW 2022/11/10 J.S.

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![](_page_39_Picture_38.jpeg)

ISSUED

DATE BY

WORKSHOP ARCHITECTURE

PROJECT:

CSV PAVILLON DE LA JEUNESSE CHILDCARE ADDITION 105 HIGH STREET HAMILTON, ON

## DRAWING TITLE: MECHANICAL SCHEDULES

DRAWN BY: J.S. CHECKED BY: A.M. DATE:

NOV 2022 PROJECT NUMBER: 22-059

SCALE: N.T.S. DRAWING NUMBER:

M6.

November 20, 2024 - 02:40pm Plotted by: jsneek

# ELECTRICAL DRAWING LIST

- LEAD SHEET, GENERAL NOTES & ELECTRICAL LEGENDS E0.0 ELECTRICAL SPECIFICATIONS E0.1
- E0.2 ELECTRICAL SPECIFICATIONS E0.3 OVERALL SITE PLAN
- FIRST FLOOR POWER AND LIGHTING DEMOLITION PLAN E1.0 E2.0 FIRST FLOOR LIGHTING PROPOSED PLAN
  - FIRST FLOOR POWER PROPOSED PLAN
  - EXISTING POWER PLAN SINGLE LINE DIAGRAM

# GENERAL NOTES

E2.1

E2.2

E3.0

- DO NOT SCALE DRAWINGS FOR INSTALLATION PURPOSES. OBTAIN ALL DIMENSIONS FROM THE ARCHITECTURAL PLANS, MANUFACTURER'S SHOP DRAWINGS, AND ON SITE INSPECTIONS.
- PRIOR TO INSTALLATION OF BOXES IN WALLS, VERIFY THAT NO INTERFERENCES EXIST. CHECK ARCHITECTURAL PLANS AND ELEVATIONS.
- MECHANICAL AND ELECTRICAL TRADES SHALL WORK IN CONJUNCTION WITH EACH OTHER SO AS TO AVOID INTERFERENCES BETWEEN PIPING, DUCTWORK, CONDUIT, LIGHTING FIXTURES, ETC.
- WORK IN CONJUNCTION WITH THE ARCHITECTURAL REFLECTED CEILING PLAN WHEN LOCATING LIGHT FIXTURES.
- REVIEW ARCHITECTURAL, MECHANICAL, AND STRUCTURAL DRAWINGS AND PROVIDE ON SITE INSPECTIONS TO DETERMINE FULL EXTENT OF PROJECT PRIOR TO SUBMITTING BID.
- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE ONTARIO BUILDING CODE (OBC), ONTARIO ELECTRICAL SAFETY CODE (OESC) AND THE LOCAL AUTHORITIES REQUIREMENTS. THE ELECTRICAL CONTRACTOR SHALL COORDINATE THE INSTALLATION WITH THE WORK OF
- OTHER TRADES. PROVIDE HORIZONTAL AND/OR VERTICAL OFFSETS AS REQUIRED TO SUIT THIS COORDINATION.
- REFER TO THE ARCHTECTURAL DRAWINGS FOR ALL WIRING DEVICE FINAL HEIGHT AND LOCATION.
- ALL WIRING SHALL BE A MINIMUM #12 AWG IN CONDUIT SUITABLE FOR THE APPLICATION.
- 10. AC90 (BX) SHALL ONLY BE ALLOWED FOR SHORT RUNS OF LESS THAN 5 FEET IN LENGTH, UNLESS OTHERWISE NOTED.
- 1. ALL MATERIALS SHALL BEAR A CSA (CANADIAN STANDARDS ASSOCIATION LABEL.
- 12. ALL INTERIOR LIGHT SWITCHES, RECEPTACLES, AND DATA OUTLETS, INCLUDING CONDUITS SHALL BE "CONCEALED" WITIN THE WALL STRUCTURE.
- 3. ELECTRICAL SWITCHES, OUTLETS, PUSH-BUTTONS ETC. SHALL COMPLY WITH ACCESSIBILITY FOR ONTARIANS WITH DISABILITES ACT (AODA) FOR MOUNTING HEIGHTS AND LOCATION WHERE APPLICABLE.
- 14. EXIT SIGNS SHALL BE GREEN, EDGE-LIT, "RUNNING-MAN" PICTOGRAM C/W LED LIGHT SOURCE, ALUMINUM HOUSING, AND UNIVERSAL MOUNTING. WHERE HIGH CEILING EXIST PROVIDE A PENDANT MOUNT TYPE SUSPENDED FROM A THREADED ROD OR EMT CONDUIT AT THE HEIGHT SPECIFIED.
- 5. BATTERY PACKS SHALL C/W 20% SPARE CAPACITY, 12VOLT, ALUMINUM HOUSING C/W TWO (2) 4-WATT, LED, MR-16, DIE CAST HEADS AND WHITE FINISH. PROVIDE MATCHING REMOTE HEADS.
- ALL UNIVERSAL WASHROOM HARDWARE DEVICES TO BE PROVIDED BY THE ELECTRICAL CONTRACTOR C/W WIRING AND CONDUIT FOR A COMPLETE INSTALLATION, UNLESS OTHERWISE NOTED.
- 7. ALL SECURITY DOOR ACCESS HARDWARE DEVICES SHALL BE SUPPLIED "BY OTHERS". THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL WIRING AND CONDUIT ROUGH-IN FOR A COMPLETE INSTALLATION, UNLESS OTHERWISE NOTED.
- 8. ALL COMMUNICATION CABLING TO BE PROVIDED BY THE ELECTRICAL CONTRACTOR C/W CONDUIT, OUTLET JACKS, AND FACE PLATES FOR A COMPLETE INSTALLATION, UNLESS OTHERWISE NOTED. MAXIMUM LENGTH OF ETHERNET CABLES SHALL BE 300 FEET.
- 9. ALL AUDIO/VISUAL DEVICES SHALL BE SUPPLIED "BY OTHERS". THE ELECTRICAL CONTRACTOR SHALL PROVIDE CONDUIT ROUGH-IN ONLY, UNLESS OTHERWISE NOTED.
- 20. POWER AND CONTROL WIRING FOR MECHANICAL EQUIPMENT ON THE ROOF MUST RISE WITHIN THE CURB UNLESS OTHERWISE NOTED.
- 21. ALL EXTERIOR OUTLET BOXES TO BE "CONCEALED" AND SHALL C/W A VAPOUR BARRIER CHAMBER TO PREVENT AIR LEAKAGE.
- 22. THE ELECTRICAL CONTRACTOR SHALL PROVIDE BALANCED PHASING (A,B,C) FOR ALL EQUIPMENT PANEL LOADS, ADJUST BREAKER SCHEDULES AS REQUIRED.
- 3. PROVIDE FIRE-STOP MATERIAL AS REQUIRED FOR ALL WALL AND FLOOR PENETRATIONS TO MAINTAIN THE SMOKE SEAL AND FIRE RATING. FOR RECESSED JUNCTION BOXES USE HILTI - FIRE BLOK.
- 24. PROVIDE ALL MATERIALS AND ACCESSORIES REQUIRED FOR A COMPLETE GROUNDING SYSTEM AS REQUIRED BY THE GOVERNING AUTHORITIES. GROUND ALL EQUIPMENT AND DEVICES AS REQUIRED AND IN ACCORDANCE WITH THE OESC.
- 25. UPON THE COMPLETION OF THE CONTRACT, ISSUE A FORMAL CERTIFICATE INDICATING THE DATE OF COMPLETION OF WORK. REPAIR OR REPLACE ANY DEFECTS WHICH MAY APPEAR IN ANY OF THE WORK WITHIN ONE (1) YEAR.

# DEMOLITION NOTES

ELECTRICAL SYSTEMS SHOWN ON DEMOLITION PLANS ARE BASED ON INFORMATION OBTAINED FROM ORIGINAL CONSTRUCTION CONTRACT/TENDER DOCUMENTS. THESE DRAWINGS ARE NOT BASED ON 'AS-BUILT RECORD' OR ON EXHAUSTIVE FIELD MEASUREMENT AND ARE PROVIDED TO ASSIST THE CONTRACTOR IN DETERMINING THE EXTENT OF WORK REQUIRED. THE CONTRACTOR SHALL MAKE ALLOWANCE IN THEIR TENDER PRICE FOR THE REMOVAL OF ADDITIONAL ABANDONED SERVICES AND THE PROTECTION OF EXISTING SERVICES THAT MUST REMAIN. RECORD THE LOCATION OF ALL EXISTING SERVICES THAT REMAIN ON AS-BUILT RECORD DRAWINGS.

LEGEND - LIGHTING SYSTEM			
THIS LEGEND OF SY STANDARD LEGEND	MBOLS REPRESENTS MANTECON PARTNERS INC. D. ALL SYMBOLS MAY NOT APPEAR ON DRAWINGS.		
SYMBOL	DESCRIPTION		
	2'x2' FIXTURE		
	2'x4' FIXTURE		
	1'x4' FIXTURE		
	4' STRIP FIXTURE		
	4' STRIP FIXTURE - WALL		
¤	POT LIGHT		
<del>\$</del>	PENDANT		
Q	WALL SCONCE		
$\frac{9}{6}$	TRACK LIGHT		
Ħ	HIGH BAY		
\$	TOGGLE SWITCH		
\$	DUAL TOGGLE SWITCH		
\$	TRIPLE TOGGLE SWITCH		
\$□	DIMMER SWITCH		
\$□	DUAL DIMMER SWITCH		
₿□	TRIPLE DIMMER SWITCH		
\$	LOW VOLTAGE SWITCH		
<u>MS</u>	SWITCH WITH MOTION SENSOR - WALL		
(ISM)	SWITCH WITH PIR MOTION SENSOR - 10 MIN DELAY - CEILING		
MS2	SWITCH WITH DUAL TECH. MOTION SENSOR - 10 MIN DELAY - CEILING		
MS3	SWITCH WITH PIR + DAYLIGHT MOTION SENSOR - 15 MIN DELAY - CEILING		
99	POWER PACK		
	TIME CLOCK		
	PHOTOCELL		
	2'x2' EMERGENCY FIXTURE		
	2'x4' EMERGENCY FIXTURE		
	1'x4' EMERGENCY FIXTURE		
×	EMERGENCY POT LIGHT		
Å	POLE MOUNTED LIGHT		
0	DAYLIGHT SENSOR		
-À-	CHANDELIER		
-			

# LEGEND - POWER SYSTEM

THIS LEGEND OF SYMBOLS REPRESENTS MANTECON PARTNERS INC. STANDARD LEGEND. ALL SYMBOLS MAY NOT APPEAR ON DRAWINGS.		
SYMBOL	DESCRIPTION	
Ф	DUPLEX RECEPTACLE	
	GFCI RECEPTACLE	
¢	20A T-SLOT RECEPTACLE	
Ø	ISOLATED GROUND RECEPTACLE	
0	SINGLE RECEPTACLE	
<b>#</b>	QUAD RECEPTACLE	
Ð	DUPLEX RECEPTACLE - FLOOR MOUNTED	
	QUAD RECEPTACLE - FLOOR MOUNTED	
₽	DUPLEX RECEPTACLE - CEILING MOUNTED	
€	SPLIT RECEPTACLE	
۲	DIRECT CONNECTION	
D	NON FUSED DISCONNECT SWITCH	
	FUSED DISCONNECT SWITCH	
	NON-FUSED DIRECT CONNECTION	
ÓЪ.	MOTOR NON FUSED DISCONNECT	
Ý	MOTOR	
Р	JIFFY/PAC POLE	
JB	JUNCTION BOX	
Ū	CONTROL SWITCH	
R	RELAY	
	ELECTRICAL PANEL	
	GROUND BAR	
0	LIGHTNING AIR TERMINAL	
ŧ	GROUND ROD	
٦	FURNITURE WHIP - POWER	
Φ	DUAL RECEPTACLE WITH USB POWER	
	DAYLIGHT SENSOR	
С	CONTACTOR	

## LEGEND - EMERGENCY SYSTEM

s legend of symbols represents mantecon partners inc. NDARD legend. All symbols may not appear on drawings		
MBOL	DESCRIPTION	
<b>S</b>	EXIT SIGN - SINGLE FACE - CEILING	
	EXIT SIGN - SINGLE FACE - WALL	
$\overline{\bigotimes}$	EXIT SIGN - SINGLE FACE DIRECTIONAL - CEILING	
	EXIT SIGN - DOUBLE FACE DIRECTIONAL - CEILING	
<b>م</b>	SINGLE REMOTE HEAD - CEILING	
•	DOUBLE REMOTE HEADS - CEILING	
2	SINGLE REMOTE HEAD - WALL	
	DOUBLE REMOTE HEADS - WALL	
	BATTERY PACK W/ DOUBLE REMOTE HEADS - WALL	
	BATTERY PACK - WALL	
<b>-</b> •	BATTERY PACK W/ DOUBLE REMOTE HEADS - CEILING	
	EXIT SIGN SELF-POWERED W/ REMOTE HEADS - WALL	

### LEGEND - FIRE ALARM SYSTEM

ND OF SYMBOLS REPRESENTS MANTECON PARTNERS INC. D LEGEND. ALL SYMBOLS MAY NOT APPEAR ON DRAWINGS.
DESCRIPTION
BELL - WALL
BELL AND STROBE - WALL
HORN - WALL
STROBE - CEILING
STROBE - WALL
FIRE ALARM SPEAKER - CEILING
FIRE ALARM SPEAKER AND STROBE- CEILING
FIRE ALARM PULLSTATION
HORN AND STROBE - CEILING
HORN AND STROBE - WALL
SMOKE DETECTOR - CEILING
DUCT SMOKE DETECTOR
SMOKE DETECTOR W/CARBON MONOXIDE - CEILING
HEAT DETECTOR - CEILING
SMOKE ALARM W/CARBON MONOXIDE & STROBE
SMOKE ALARM - CEILING
CARBON MONOXIDE - CEILING
FIRE ALARM PANEL
FLOW SWITCH
PRESSURE SWITCH
SUPERVISORY VALVE
LINE ISOLATOR
END OF LINE RESISTOR

		CVCTEN A
GLIND -	JLCUKIT	212171

DOOR HOLD OPEN

S LEGEND OF SYMBOLS REPRESENTS MANTECON PARTNERS INC. ANDARD LEGEND. ALL SYMBOLS MAY NOT APPEAR ON DRAWINGS.		
MBOL	DESCRIPTION	
ES	ELECTRIC STRIKE	
C	DOOR CONTACT	
мL	MAGLOCK	
CR	CARD READER	
•	PUSH BUTTON	
2	SECURITY PANEL	
_N	SECURITY CAMERA	
D	DOOR CONTROLLER	
●L	BLUE LOCKDOWN BUTTON	

#### **LEGEND - COMMUNICATIONS**

S LEGEND OF SYMBOLS REPRESENTS MANTECON PARTNERS INC. ANDARD LEGEND. ALL SYMBOLS MAY NOT APPEAR ON DRAWINGS.		
MBOL	DESCRIPTION	
$\checkmark$	DATA OUTLET	
▼	TELEPHONE OUTLET	
₽	DATA OUTLET - CEILING	
V	TELEPHONE AND DATA OUTLET	
<b>1</b>	COAXIAL OUTLET	
⊚∕	FURNITURE WHIP - DATA	
2	DIGITAL CLOCK	
9	PUBLIC ADDRESS SPEAKER - CEILING	
S	PUBLIC ADDRESS SPEAKER AND CALL SWITCH	
A	PUBLIC ADDRESS PAGING SPEAKER AND HANDSET	
Т	IT CABINET	
'S	VOICE SWITCH	
AP	WIRELESS ACCESS POINT - CEILING	
(売)	PA SYSTEM DESK HANDSET	

LEGEN	D - INTERCOM SYSTEM	
his legend Ill symbol	OF SYMBOLS REPRESENTS MANTECON PARTNERS INC. STANDARE S MAY NOT APPEAR ON DRAWINGS.	D LEGEND
symbol	DESCRIPTION	MTG. HT
$\mathbf{\nabla}$	INTERCOM SYSTEM SPEAKER C/W WALL SWITCH AND CAMERA	1270 (50'')
$\bigtriangledown_{C}$	INTERCOM SYSTEM SPEAKER C/W REMOTE WALL SWITCH	1270 (50'')
$\bigtriangledown_{\rm E}$	INTERCOM SYSTEM SPEAKER EMERGENCY CALL STATION	809 (24'')
<b>V</b> H	INTERCOM SYSTEM HANDSET	1270 (50'')
<b>V</b> TS	INTERCOM SYSTEM SPEAKER MASTER TELEPHONE STATION W/ SCREEN	457 (18'')
$\bigcirc$	INTERCOM SYSTEM SPEAKER - CEILING	CEILING
H⊘	INTERCOM SYSTEM SPEAKER - WALL	WALL
$\Box \varnothing$	INTERCOM SYSTEM HORN SPEAKER	AS NOTED
ΗĒ	INTERCOM SYSTEM HORN SPEAKER EMERGENCY STATION	AS NOTED
SMS	AI PHONE SUB-MASTER STATION	WALL
MS	AI PHONE MASTER STATION	WALL

LEGEN	LEGEND - ABBREVIATION					
THIS LEGEND OF SYMBOLS REPRESENTS MANTECON PARTNERS INC. STANDARD LEGEND. ALL SYMBOLS MAY NOT APPEAR ON DRAWINGS.						
Symbol	DESCRIPTION					
R	REMOVE					
R/R	REMOVE AND REINSTALL					
ER	EXISTING TO BE RELOCATED					
EX	EXISTING TO REMAIN					
GFI	GROUND FAULT INTERRUPT					
NL	NIGHT LIGHT					
WP	WEATHER-PROOF					
ADO	AUTOMATIC DOOR OPENER					
HD	HAND DRYER					
D/W	DISHWASHER					
F/R	REFRIGERATOR					
M/W	MICROWAVE					
СН	COUNTER HEIGHT					
FACP	FIRE ALARM CONTROL PANEL					
FAAP	FIRE ALARM ANNUNCIATOR PANEL					
W/D	WASHER/DRYER					

LEGEN	LEGEND - SINGLE LINE DIAGRAM					
THIS LEGE STANDAR	THIS LEGEND OF SYMBOLS REPRESENTS MANTECON PARTNERS INC. STANDARD LEGEND. ALL SYMBOLS MAY NOT APPEAR ON DRAWINGS.					
Symbol	DESCRIPTION					
<b>^</b>	BREAKER (MCCB)					
	FUSED DISCONNECT SWITCH					
<i>~</i> .	SWITCH					
	FUSE					
	DRAWOUT BREAKER					
M	METER SOCKET					
$\boxtimes$	TRANSFORMER					
Q	GENERATOR					
DMM	DIGITAL MULTIMETER					
Þ	AUTOMATIC TRANSFER SWITCH (ATS)					
LSI	BREAKER WITH LSI PROTECTION					
LSIG	BREAKER WITH LSIG PROTECTION					
SPD	SURGE PROTECTION DEVICE					

LIGHTING	g schedule		
TYPE	DESCRIPTION	MANUFACTURER	LAMPS
A	6" DOWNLIGHT 2000LM, 4000K, 80CRI, MVOLT CAT:LDN4 ALO2 SWW1 MVOLT UGZ HSG	LITHONIA LIGHTING	LED @ 25W
В	2'X2' LED FLAT PANEL 2400LM, 4000K, 80CRI, MVOLT CAT:CPANL 2X2 ALO1 SWW7 M4	LITHONIA LIGHTING	LED @ 22W
С	20' LINEAR DIRECT FIXTURE WITH SCULPTURED END PLATE 700LMF 4000K, 80CRI, 120V CAT:EGCM4L LLP 20FT MSL4 80CRI 40K 700LMF DARK ZT 120 SCT F2/ C041 CSA	PEERLESS	LED @ 60W
D	48" LINEAR SURFACE MOUNT LIGHT 5000LM, 4000K, 80CRI, MVOLT CAT:CLX L48 5000LM SEF FDL MVOLT GZ10 40K 80CRI	LITHONIA LIGHTING	LED @ 35.4W
E	1'X4' LED FLAT PANEL 3300LM, 4000K, 80CRI, MVOLT CAT:CPANL 1X4 ALO1 SWW7 M4	LITHONIA LIGHTING	LED @ 31W
W	LED WALL PACK 5300LM, 4000K, 80CRI, MVOLT CAT:TWR1 LED ALO SWW2 UVOLT PE DDBTXD	LITHONIA LIGHTING	LED @ 36W
W1	WXP SEMI CUTOFF TRADITIONAL WALL SCONCE, 4942 LUMENS, 3000K, 80 CRI, FIXTURE MOUNTING HEIGHT 11' A.F.G. CAT: WXPM80LSFSUNVDBZ-40W-3000K	COOPER LIGHTING	LED @ 39W
W2	HALO OUTDOOR FE SERIES ENTRY LIGHT, 788 LUMENS, 4000K, 83 CRI, FIXTURE MOUNTING HEIGHT 11' A.F.G. CAT: FE08A40FDB	COOPER LIGHTING	LED @ 7.51W
W3	WPM WALL PACK SELECTABLE LED, 11968 LUMENS, 3000K, FIXTURE MOUNTING HEIGHT 11' A.F.G. CAT: WPMLED25S-90W_SWITCH-3000K_11968Im	COOPER LIGHTING	LED @ 91.5W
S1	MCGRAW-EDISON AREA/SITE LUMINAIRE, 3000K, 70 CRI, FIXTURE MOUNTING HEIGHT 10' A.F.G. CAT: GLEON-SA2A-730-U-SLR	COOPER LIGHTING	LED @ 66W
\$2	MCGRAW-EDISON AREA/SITE LUMINAIRE, 3000K, 70 CRI, FIXTURE MOUNTING HEIGHT 12' A.F.G. CAT: GLEON-SA2B-730-U-SLR	COOPER LIGHTING	LED @ 85W
Cl	12' LINEAR DIRECT FIXTURE WITH SCULPTURED END PLATE 700LMF 4000K, 80CRI, 120V CAT:EGCM4L LLP 12FT MSL4 80CRI 40K 700LMF DARK ZT 120 SCT F2/ C041 CSA	COOPER LIGHTING	LED @ 40W

EMERGENCY LIGHTING SCHEDULE						
TYPE	DESCRIPTION	MANUFACTURER	LAMPS			
R1	MR16 SURFACE MOUNT DOUBLE REMOTE HEADS	STANPRO	LED			
	CAT:MR16-M2-12-24V-6W-LA-WH					
El	EDGELIT RUNNING MAN SIGN WITH 90 MINUTE BATTERY	STANPRO	LED			
	CAT:RMEA-BA-IB					
B1,B2	COMBINATION STEEL COMBO WITH DUAL	STANPRO	LED			
	REMOTES CAT:SLD24720-2M-6LA-WH					

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## ELECTRICAL SPECIFICATIONS

#### PART 1 - GENERAL

- I. DEFINITIONS: FOLLOWING ARE DEFINITIONS OF WORDS FOUND IN THIS SPECIFICATION AND ON ASSOCIATED DRAWINGS. a. "CONCEALED" - HIDDEN FROM NORMAL SIGHT IN FURRED - SPACES, SHAFTS, CEILING
- SPACES, WALLS, UNDERFLOOR, AND PARTITIONS.
- b. "EXPOSED" ALL ELECTRICAL WORK VISIBLE TO BUILDING OCCUPANTS. c. "PROVIDE" - (AND ALL TENSES OF "PROVIDE") SUPPLY INSTALL, WIRE AND CONNECT
- COMPLETE. d. "INSTALL" - (AND ALL TENSES OF "INSTALL") - INSTALL, WIRE AND CONNECT COMPLETE, PRODUCTS AND SERVICES SPECIFIED.
- e. "SUPPLY" SUPPLY ONLY.
- f. "FINISHED AREA" ANY AREA OR PART OF AN AREA WHICH RECEIVES A FINISH SUCH AS PAINT, OR IS FACTORY FINISHED. g. "GOVERNING AUTHORITY" AND/OR "REGULATORY AUTHORITY" AND/OR "MUNICIPAL AUTHORITY" - ALL GOVERNMENT DEPARTMENTS, AGENCIES, STANDARDS, RULES AND REGULATIONS THAT APPLY TO AND GOVERN THE ELECTRICAL WORK AND TO WHICH THE
- WORK MUST ADHERE. h. "OR APPROVED EQUAL" - MATERIAL OR EQUIPMENT PROPOSED BY CONTRACTOR, IN LIEU OF THAT SPECIFIED, AS APPROVED BY CONSULTANT.
- i. "AS INDICATED" AS SHOWN ON DRAWINGS AND/OR NOTED IN SPECIFICATIONS. j. "CONSULTANT" - ARCHITECT OR CONSULTING ENGINEER WHO HAS PREPARED THE
- CONTRACT DOCUMENTS ON BEHALF OF THE OWNER.
- 2. PROVIDE ALL WORK AND MATERIALS IN ACCORDANCE WITH THE LATEST EDITIONS OF THE ONTARIO ELECTRICAL SAFETY CODE, THE ONTARIO BUILDING CODE, APPLICABLE CSA AND ULC STANDARDS, THE REQUIREMENTS OF THE ELECTRICAL SAFETY AUTHORITY AND ALL OTHER APPLICABLE MUNICIPAL AND PROVINCIAL CODES AND REGULATIONS, ANY MATERIALS. EQUIPMENT OR INSTALLATIONS NOT MEETING ALL REQUIREMENTS OF THE APPROPRIATE REGULATORY AGENCIES WILL NOT BE ACCEPTED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THESE REQUIREMENTS ARE MET AND PROVIDE EVIDENCE OF SUCH AS REQUESTED.
- 3. CAREFULLY EXAMINE THE SITE AND TENDER DOCUMENTS FOR THE WORK IN ACCORDANCE WITH THE INSTRUCTIONS TO BIDDERS. VISIT THE EXISTING BUILDING AND BECOME FAMILIAR WITH EXISTING ARCHITECTURAL, STRUCTURAL AND MECHANICAL CONDITIONS, THE LOCATION OF EXISTING ELECTRICAL EQUIPMENT AND INSTALLATIONS, AND OTHER FACTORS RELATED TO THE WORK TO BE DONE. NO EXTRA CHARGES WILL BE CONSIDERED FOR ANYTHING WHICH COULD HAVE BEEN REVEALED IN THE COURSE OF SUCH EXAMINATIONS.
- 4. THE ELECTRICAL CONTRACTOR SHALL BE HELD RESPONSIBLE FOR THE SATISFACTORY COMPLETION OF ALL WORK BEARING UPON THE ELECTRICAL TRADE. PLAN WORK WELL IN ADVANCE TO ELIMINATE DELIVERY AND INSTALLATION DIFFICULTIES. CO-ORDINATE WORK WITH OTHER TRADES TO PREVENT CONFLICTS ON SITE AND RESOLVE INTERFERENCES. PROVIDE WORK IN STAGES AND AT TIMES REQUIRED BY THE PROJECT SCHEDULE.
- 5. ALL ELECTRICAL WORK SHALL BE COMPLETED TO BUILDING OWNER REQUIREMENTS AND BUILDING STANDARDS IN ACCORDANCE WITH THE RELEVANT SECTIONS, ARTICLES AND DETAILS OF THE BASE BUILDING SPECIFICATIONS AND DRAWINGS.
- 6. OBTAIN AND PAY FOR PERMITS REQUIRED BY THE ELECTRICAL SAFETY AUTHORITY (ESA) AND LOCAL INSPECTION AUTHORITIES FOR THIS WORK. PRESENT FINAL CERTIFICATES TO CONSULTANT AND OWNER.
- 7. ALL WORK SHALL BE PROVIDED BY QUALIFIED JOURNEYMAN ELECTRICIANS OR APPRENTICES HOLDING VALID ONTARIO CERTIFICATES OF QUALIFICATION AND BE SUPERVISED BY A COMPETENT FOREMAN.
- 8. PRIOR TO THE CONSULTANT RELEASING THEIR COMPLIANCE LETTER THE WORK MUST BE COMPLETE AND SAFE. THE FOLLOWING DOCUMENTATION MUST BE SUBMITTED WITH NO DEFICIENCIES:
- a. ESA INSPECTION CERTIFICATE
- b. FIRE ALARM VERIFICATION REPORT (WITHOUT EXCEPTIONS)
- c. FIRE ALARM AUDIBILITY REPORT (WITHOUT EXCEPTIONS) d. EMERGENCY LIGHTING TESTING REPORT
- 9. CARRY OUT ALL WORK IN ACCORDANCE WITH ONTARIO ELECTRICAL SAFETY CODE (OESC) REGULATIONS INCLUDING BULLETINS, AND ELECTRICAL SAFETY AUTHORITY INSPECTION REQUIREMENTS.
- 10. PAY ALL FEDERAL AND PROVINCIAL SALES TAXES APPLICABLE.
- 11. ALL EQUIPMENT SHALL BE NEW AND CSA (OR EQUIVALENT PER OESC) APPROVED UNLESS OTHERWISE NOTED.
- 12. MATERIALS SUPPLIED SHALL CONFORM TO MINIMUM PUBLISHED REQUIREMENTS AND RECOMMENDATIONS, OR BETTER, OF APPLICABLE STANDARDS OF:
- CSA CANADIAN STANDARDS ASSOCIATION
- EEMAC ELECTRICAL AND ELECTRONIC MANUFACTURERS' ASSOCIATION OF CANADA NEMA - NATIONAL ELECTRICAL MANUFACTURERS' ASSOCIATION
- ULC UNDERWRITERS LABORATORIES OF CANADA LTD.
- OESC ONTARIO ELECTRICAL SAFETY CODE
- ESA ELECTRICAL SAFETY AUTHORITY OBC - ONTARIO BUILDING CODE
- 13. DRAWINGS WHICH ACCOMPANY THESE SPECIFICATIONS ARE DIAGRAMMATIC AND SHOW THE REQUIRED DISTRIBUTION, NUMBER AND LOCATIONS OF THE ELECTRICAL EQUIPMENT. FIXTURES AND OUTLETS, AND INDICATE SUGGESTED CIRCUITING. DO NOT SCALE DRAWINGS BUT USE ONLY DIMENSIONS WHICH ARE SHOWN. WHERE EXACT BUILDING DIMENSIONS AND DETAILS ARE REQUIRED, USE ONLY DIMENSIONS FROM THE ARCHITECTURAL DRAWINGS OR JOB SITE DIMENSIONS.
- 14. KEEP A COMPLETE AND SEPARATE SET OF PRINTS ON SITE AT ALL TIMES AND NOTE THEREON CLEARLY, NEATLY, ACCURATELY AND PROMPTLY ALL ARCHITECTURAL, STRUCTURAL, MECHANICAL AND ELECTRICAL CHANGES, REVISIONS AND ADDITIONS TO THE WORK AND DEVIATIONS FROM THE CONTRACT DOCUMENTS ACCURATE LOCATIONS DEPTH SIZE AND TYPE OF UNDERGROUND UTILITIES SHALL BE INCLUDED IN THESE RECORD DRAWINGS. INDICATE ALSO ON THE RECORD DRAWINGS THE LOCATION OF ACCESS PANELS OR REMOVABLE CEILING TILES WHICH COVER EQUIPMENT OR JUNCTION BOXES WHICH MAY REQUIRE FUTURE ACCESS OR WHERE CONDUIT OR WIRING FOR FUTURE USE IS LOCATED. THE FINAL AS-BUILT DRAWINGS SHALL BE SUBMITTED AT THE COMPLETION OF THE PROJECT WITH AN APPLICATION FOR A CERTIFICATE OF TOTAL PERFORMANCE. INDICATE IN RED INK ON AS-BUILT DRAWINGS ALL DEVIATIONS AND APPROVED CHANGES FROM THE CONTRACT DRAWINGS.
- 15. SUBMIT FOR REVIEW A SINGLE (1) SET OF SHOP DRAWINGS AND DATA SHEETS IN EITHER .PDF OR HARD COPY FORMAT COVERING ALL ITEMS OR EQUIPMENT TO BE INSTALLED UNDER THE CONTRACT. SHOP DRAWINGS SHALL SHOW ALL RELEVANT PERFORMANCE AND INSTALLATION INFORMATION. EQUIPMENT WILL NOT BE ACCEPTED ON SITE UNTIL REVIEW OF SHOP DRAWINGS IS COMPLETE. SUBMIT SHOP DRAWINGS FOR LIGHTING FIXTURES, EXIT LIGHTS, EMERGENCY LIGHTS AND BATTERY UNITS, DISCONNECT SWITCHES, STARTERS, TRANSFORMERS, NEW PANELS, FIRE ALARM, VOICE/DATA WIRING, AND OTHER SYSTEMS SPECIFIED IN THIS PROJECT TO CONSULTANT FOR REVIEW.
- 16. ARCHITECTURAL SPECIFICATIONS AND DRAWINGS SHALL BE REVIEWED IN CONJUNCTION WITH THESE DRAWINGS AS THEY ARE PART OF THIS WORK.
- 17. COORDINATE WITH ALL TRADES AND ARRANGE EQUIPMENT IN PROPER RELATION WITH OTHER APPARATUS, DUCTS, PIPES, ETC., AND WITH BUILDING CONSTRUCTION AND ARCHITECTURAL FINISHES.
- 18. IN GENERAL, ALL NECESSARY CUTTING AND PATCHING FOR THE ELECTRICAL WORK SHALL BE PROVIDED BY THE APPROPRIATE TRADE AT THE EXPENSE OF THE CONTRACTOR UNLESS INDICATED OTHERWISE ON THE DRAWINGS. HOLES THROUGH EXTERIOR WALLS AND ROOF ARE TO BE PROPERLY FLASHED AND MADE WEATHERPROOF. REPAIR ANY DAMAGE CAUSED BY THE ELECTRICAL TRADE TO EXISTING BUILDINGS OR EQUIPMENT, ETC., TO THE OWNER'S SATISFACTION. IN GENERAL, PAINTING OF ELECTRICAL WORK AND PATCHES AS REQUIRED WILL BE PROVIDED BY THE ELECTRICAL TRADE.
- 19. PROVIDE ALL EXCAVATION, TRENCHING, BACKFILLING, COMPACTION AND CONCRETE REQUIRED FOR THE ELECTRICAL WORK UNLESS OTHERWISE INDICATED. ALL EXCAVATIONS SHALL BE BACKFILLED WITH CLEAN MATERIALS (SAND TO 100 mm (4") COVER ALL AROUND FOR DIRECT BURIED CONDUIT OR CABLES) AND BE POWER COMPACTED TO A MINIMUM OF 100% PROCTOR UNLESS INDICATED OTHERWISE. ALL CONCRETE SHALL BE FORMED IN PLACE, BE RATED MINIMUM 25 MPa AND BE PROVIDED AS A CONTINUOUS POUR. PROVIDE STEEL REINFORCEMENT WHERE INDICATED. CONCRETE ENCASED DUCTS SHALL BE PROVIDED WITH A MINIMUM 75 mm (3") CONCRETE ENVELOPE. RESTORE TO ORIGINAL CONDITION ALL SURFACES, LANDSCAPING, ETC. DISTURBED BY EXCAVATION WORK.
- 20. MATERIALS REMOVED AND NOT REUSED WILL BECOME OWNERS PROPERTY, AND SHALL BE DISPOSED OF FROM THE SITE PRIOR TO COMPLETION OF WORK AS DIRECTED BY OWNER.
- 21. THOROUGHLY CLEAN ALL ELECTRICAL EQUIPMENT DURING CONSTRUCTION AND ON COMPLETION OF CONTRACT. REMOVE ALL ELECTRICAL DEBRIS FROM THE SITE. 22. PROVIDE LEGIBLE SIGNS AND BARRIERS ON OR AROUND ALL LIVE PANELS AND EQUIPMENT
- DURING CONSTRUCTION TO PREVENT INJURY OR SHOCK. 23. TEST ALL EQUIPMENT AND WIRING AT ANY TIME REQUESTED BY THE OWNER AS PART OF THE CONTRACT. PROVIDE ALL METERS, MATERIALS AND LABOUR REQUIRED TO CARRY OUT THIS WORK. PRIOR TO CONNECTION OF ADDITIONAL LOADS TO EXISTING SOURCES, ENSURE THROUGH LOAD MEASUREMENT AND MONITORING THAT THE REQUIRED EXCESS CAPACITY IS AVAILABLE.
- 24. UPON COMPLETION OF THE ELECTRICAL INSTALLATIONS, TRIAL OPERATE ALL EQUIPMENT, SYSTEMS AND DEVICES TO ENSURE CORRECT FUNCTIONING. FOLLOWING SATISFACTORY TRIAL

## ELECTRICAL SPECIFICATIONS

- OPERATION, INSTRUCT THE OWNER'S REPRESENTATIVE REGARDING OPERATION AND MAINTENANCE OF THE SYSTEMS AND EQUIPMENT INSTALLED.
- 25. PERFORM ALL WORK IN SUCH A MANNER AS TO CAUSE AS LITTLE DISTURBANCE OR INCONVENIENCE AS POSSIBLE TO THE EXISTING OPERATIONS. WHERE DEEMED NECESSARY BY THE OWNER OR CONSULTANT, PROVIDE TEMPORARY MEASURES AS REQUIRED TO MAINTAIN SPECIFIC SERVICES AND/OR PROVIDE WORK OUTSIDE REGULAR HOURS AT NO ADDITIONAL COST. DO NOT INTERRUPT ANY ELECTRICAL SERVICES WITHOUT PRIOR AUTHORIZATION.
- 26. PROVIDE ALL SLEEVES, INSERTS, HANGERS AND CORE DRILLING OF SLAB REQUIRED FOR THE ELECTRICAL WORK. TREAT ALL SLEEVES OR HOLES PIERCING ACOUSTICAL SEPARATIONS FOR INSTALLATIONS OF THIS DIVISION TO MAINTAIN ACOUSTICAL RATING, ALL GAPS SHALL BE PACKED WITH ACOUSTICAL INSULATION AND SEALED AT BOTH ENDS WITH ACOUSTICAL CAULKING. PATCH ALL OPENINGS AROUND INSTALLATIONS OF THIS DIVISION PIERCING FIRE OR SMOKE SEPARATIONS WITH AN APPROVED WATERTIGHT SMOKE AND FIRE STOP SEALANT.
- 27. X-RAY FLOOR SLAB OR STRUCTURAL WALLS AND SUBMIT RESULTS TO THE CONSULTANT FOR REVIEW AND APPROVAL, COMPLETE WITH PROPOSED LOCATIONS OF NEW PENETRATIONS, PRIOR TO DRILLING. CORE DRILLING SHALL BE CARRIED OUT AFTER NORMAL WORKING HOURS AT A TIME ACCEPTABLE TO THE OWNER. ALL COSTS ASSOCIATED WITH THIS WORK SHALL BE INCLUDED IN THE BID PRICE.
- 28. PROVIDE ALL ACCESS DOORS REQUIRED FOR THE ELECTRICAL INSTALLATIONS. ACCESS DOOR SIZE, TYPE AND FIRE RATING SHALL BE IN ACCORDANCE WITH THE ARCHITECTURAL SPECIFICATIONS AND CONDITIONS.
- 29. GENERALLY, MOUNT EQUIPMENT AS CLOSE AS PRACTICAL TO THE LOCATION SHOWN ON THE DRAWINGS TAKING INTO CONSIDERATION SITE CONDITIONS. ENSURE ALL EQUIPMENT IS LOCATED IN A MANNER ALLOWING EASY ACCESS FOR MAINTENANCE. REPAIR OR ADJUSTMEN CONFIRM ALL ARCHITECTURAL CONDITIONS SUCH AS GLAZING, DOOR SWINGS, FURNITURE AND EQUIPMENT TYPES AND LAYOUTS, ETC., ON SITE PRIOR TO INSTALLING ANY RELATED ITEM OR WIRING.
- 30. REFER TO LIGHTING CONTROL SEQUENCE OF OPERATION FOR EACH SPACE. CONTRACTOR SHALL PROVIDE A COMPLETE SYSTEM CONSISTING OF ALL CONTROL DEVICES, WIRING, CONNECTIONS.ETC. AS REQUIRED
- 31. THE OWNER RESERVES THE RIGHT TO RELOCATE ANY FIXTURE, OUTLET, DEVICE, EQUIPMENT, FTC. UP TO 3 m (10') PRIOR TO INSTALLATION WITHOUT INCURRING ANY EXTRA COST. CONFIRM LOCATIONS, MOUNTING HEIGHT AND ARRANGEMENT OF ALL OUTLETS ON SITE PRIOR TO
- INSTALLATION 32. PROVIDE SPRINKLERPROOF HOODS AND DOORS FOR ELECTRICAL EQUIPMENT INSTALLED IN SPRINKLERED AREAS
- 33. ARRANGE WITH COMMUNICATIONS SERVICE PROVIDER FOR INSTALLATION OF NEW PHONE/INTERNET/CATV WIRING AND RACEWAYS AS REQUIRED. RACEWAYS SHALL BE EMT IN WALLS AND CEILING SPACES; PVC BELOW FLOOR SLABS ON GRADE.
- 34. IF ASBESTOS MATERIAL IS ENCOUNTERED, STOP WORK IN THE AFFECTED AREA IMMEDIATELY AND NOTIFY THE CONSULTANT AND OWNER.
- 35. GUARANTEE ALL MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM DATE OF ACCEPTANCE BY OWNER/CONSULTANT. PROVIDE WRITTEN GUARANTEE. 36. OWNER RESERVES RIGHT TO TRIAL AND/OR TEMPORARY USAGE PRIOR TO ACCEPTING
- INSTALLATION.
- 37. ON COMPLETION OF PROJECT AND BEFORE FINAL PAYMENT, SUBMIT: a. ONE (1) SET OF AUTOCAD AS-BUILT DRAWINGS WITH ALL CHANGES AND BURIED SERVICES EXACT LOCATIONS NOTED THEREON. ARRANGE COMPUTER FILE IN LAYERS TO EXACTLY
- MATCH THE LAYERING SYSTEM OF THE CONSULTANT. DRAWING SHALL HAVE THE ELECTRICAL CONTRACTORS LOGO AND CONTACT INFORMATION ISSUED FOR AS BUILT WITH THE CURRENT DATE. b. ONE (1) SET OF PDF'S AS-BUILT DRAWINGS WITH ALL CHANGES AND BURIED SERVICES
- EXACT LOCATIONS NOTED THEREON. PLOT USING THE CONSULTANT CTB FILE. DRAWING SHALL HAVE THE ELECTRICAL CONTRACTORS LOGO AND CONTACT INFORMATION, ISSUED FOR AS BUILT WITH THE CURRENT DATE.
- C. SUBMIT THREE (3) COPIES (BOTH ELECTRONIC (CD) AND HARDCOPIES) OF MAINTENANCE DATA AND OPERATING INSTRUCTIONS IN A HARD-BACK, 3 RING BINDER, EACH OF WHICH IS TO INCLUDE:
- 1 COPY OF EACH SHOP DRAWING (REVISED AS PER THE REVIEWED DRAWINGS). • 1 COPY OF EQUIPMENT PARTS LIST.
- 1 COPY OF RECOMMENDED LIST OF SPARE PARTS.
- 1 COPY OF OPERATING AND MAINTENANCE INSTRUCTIONS.
- 1 COPY OF EQUIPMENT INSTALLATION DETAILS, CONSTRUCTION AND PERFORMANCE DATA.
- 1 LIST OF ALL MANUFACTURING AND EQUIPMENT SERVICE DEPOTS INCLUDING TELEPHONE NUMBERS.
- 1 COPY OF THE ELECTRICAL SAFETY AUTHORITY FINAL INSPECTION CERTIFICATE.
- 1 COPY OF THE EMERGENCY LIGHTING TEST RESULTS
- 1 COPY OF THE FIRE ALARM VERIFICATION CERTIFICATE
- 1 COPY OF ANY OTHER CERTIFICATES, APPROVAL LETTERS, ETC. 38. WIRING AND CONDUIT SHALL BE CONCEALED IN WALLS OR ABOVE CEILINGS UNLESS
- OTHERWISE APPROVED.
- 39. SUPPLY, INSTALL, WIRE AND CONNECT ALL EQUIPMENT SHOWN, SPECIFIED OR MENTIONED.
- 39. ARRANGE WITH SUPPLY AUTHORITY FOR INCOMING SERVICE AND PAY ALL SUPPLY AUTHORITY CHARGES.
- 40. PROVIDE WIREGUARD ON DEVICES WHERE INDICATED.

#### PART 2 - PRODUCTS

- DENTIFICATION FOR ELECTRICAL SYSTEMS
- 1. PROVIDE LAMACOID LABELS (3-PLY) WHITE LETTERED ON BLACK BACKGROUND- 1/4" HIGH LETTERING ON ALL ELECTRICAL EQUIPMENT SUPPLIED, MOUNTED AND/OR CONNECTED BY THIS CONTRACT
- 2. PROVIDE BRADY LABELING ON ALL RECEPTACLE COVER PLATES INDICATING PANEL AND CIRCUITING NUMBER CONNECT BY THIS CONTRACT. WIRE AND CABLE
- 3. ALL WIRING SHALL BE COLOUR CODED AS PER OESC AND BE IDENTIFIED WITH BRADY OR EQUIVALENT SELF-STICKING PERMACODE WIRE MARKERS. 4. IN GENERAL, ALL WIRING SHALL BE TYPE R90 XLPE INSTALLED IN CONDUIT OR RACEWAYS UNLESS
- OTHERWISE SPECIFIED. USE ONLY COPPER CONDUCTORS, MINIMUM SIZE NO. 12, SIZED AND COLOUR CODED ACCORDING TO THE ELECTRICAL SAFETY CODE WHERE NOT INDICATED. 5. SIZE ALL WIRING FOR A MAXIMUM OF 3% VOLTAGE DROP IN A FEEDER OR BRANCH CIRCUIT.
- AND 5% VOLTAGE DROP FROM THE SUPPLY SIDE OF THE CONSUMER SERVICE TO THE POINT OF UTILIZATION. 6. T90 NYLON MAY BE USED IN LIEU OF R90 FOR INTERIOR INSTALLATIONS UP TO SIZE #10, HOWEVER,
- CONDUIT FILL SHALL BE BASED ON R90 RATING. 7. THE USE OF FLEXIBLE CABLE (TYPE AC90 ONLY) IS TO BE RESTRICTED TO INTERIOR PARTITION
- WALLS, ACCESSIBLE CEILING SPACES AND FINAL CONNECTIONS TO LIGHT FIXTURES. THE FLEXIBLE CABLE SHALL BE RESTRICTED TO 3600 mm (12') IN LENGTH AND BE SUITABLY CLIPPED AND SUPPORTED EVERY 900 mm (3'). 8. ALL 120 V (SINGLE PHASE) BRANCH CIRCUITS SHALL BE PROVIDED WITH A SEPARATE NEUTRAL
- CONDUCTOR FOR EACH CIRCUIT. PIGTAIL CONNECT NEUTRAL CONDUCTORS AT ALL DEVICES. JOIN ALL CONDUCTORS USING APPROVED SOLDERLESS WING NUT PRESSURE CONNECTORS.
- 9. ALL WIRING SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS, ALL REGULATORY REQUIREMENTS AND SHALL SATISFY ALL APPLICABLE CODES. IT IS THE
- CONTRACTOR'S RESPONSIBILITY TO CHECK AND REPLACE AS REQUIRED ANY EXISTING WIRING BEING RE-USED. 10. FEEDERS AND BRANCH CIRCUITS RATED 100 AMPERES OR GREATER SHALL BE CHECKED WITH A
- 1000 V MEGGAR FOR 15 SECONDS BEFORE ENERGIZATION. 11. WIRE AND CONNECT MOTORS, SUPPLIED BY OTHERS, AS INDICATED.
- 12. BX (AC-90) CABLE IS ONLY PERMITTED TO LIGHT FIXTURES WITH A MAXIMUM LENGTH OF 1500mm.
- 13. PROVIDE VFD CERTIFIED CABLES ON THE LOAD SIDE OF VFD'S TO MOTOR TERMINAL CONNECTIONS. COORDINATE WITH EQUIPMENT AND CABLE SUPPLIER RECOMMENDATIONS TO MATCH MOTOR LOAD REQUIREMENTS.
- DISCONNECT SWITCHES
- 14. FUSED AND NON-FUSED, HEAVY DUTY, VISIBLE BLADES IN THE OFF POSITION, QUICK-MAKE, QUICK-BREAK MECHANISM, LOAD BREAK TYPE WITH DOOR/HANDLE/SWITCHING MECHANISM INTERLOCK WITH OVERRIDE, LOCK-OFF PROVISION, ARC EXTINGUISHERS, SILVER PLATED WIPE ACTION CONTACTS, AND SPRING REINFORCED FUSE CLIPS, OF SIZES INDICATED, CSA CERTIFIED. PROVIDE DISCONNECT SWITCHES AHEAD OF EACH PIECE OF EQUIPMENT WHERE NECESSARY TO MEET CODE REQUIREMENTS.
- 15. FUSIBLE SWITCH UNITS INSTALLED IN EXISTING SWITCHBOARD EXTENSION SHALL HAVE QUICK MAKE-QUICK BREAK MECHANISM WITH PROVISIONS FOR LOCKING IN THE OPEN OR CLOSED POSITION, AND DOOR/HANDLE/SWITCHING MECHANISM INTERLOCK WITH OVERRIDE. ALL FUSIBLE UNITS SHALL BE MODULAR TYPE EQUIPPED FOR HRCI FUSES AND INCLUDE AUXILIARY CONTACTS OR OTHER SPECIAL FEATURES AS NOTED ON THE DRAWINGS.
- 16. SWITCH FUSE HOLDERS SHALL HAVE REINFORCED CLIPS. FUSES SHALL BE EASILY REMOVABLE WHEN THE SWITCH IS IN THE OFF POSITION.
- 17. ALL SWITCHES SHALL HAVE AMPLE GUTTER SPACE FOR TOP OR BOTTOM WIRING AND BE PROVIDED WITH ENCLOSURES TO SUIT THE SPECIFIC APPLICATION.

# ELECTRICAL SPECIFICATIONS

## MOTOR STARTERS, CONTACTORS AND RELAYS

18. PROVIDE MANUAL AND MAGNETIC MOTOR STARTERS FOR MOTORS AND EQUIPMENT AS INDICATED. STARTERS SHALL INCLUDE MANUAL RESET, ADJUSTABLE THERMAL OVERLOAD UNITS WITH INTEGRAL SINGLE PHASE PROTECTION AND BE COMPLETE WITH INTERLOCKS, AUXILIARY RELAYS, CONTROL TRANSFORMERS, TERMINALS, ETC., REQUIRED FOR PROPER OPERATION. REFER TO THE DRAWINGS FOR FURTHER DETAILS OF MECHANICAL EQUIPMENT CONTROL AND WIRING REQUIREMENTS.

19. PROVIDE AC CONTROL RELAYS AND CONTACTORS WITH REQUIRED COIL AND CONTACT RATING AND PILOT LIGHT FOR CONTROL OF EQUIPMENT AND MISCELLANEOUS LOADS AS SHOWN. PROVIDE AUXILIARY COMPONENTS, CONTROL TRANSFORMERS, TERMINALS, SWITCHES, ETC., REQUIRED FOR CONTROL AND CONNECTION.

FUSES

20. PROVIDE 600V 200,000 RMS SYMMETRICAL INTERRUPTING RATING, HRCI TYPE J (600A OR LESS) AND HRCI TYPE L (OVER 600A). FOR MOTOR PROTECTION: TIME DELAY 200.000A RMS SYMMETRICAL RATING, HRCI TYPE J TIME DELAY (600A OR LESS) AND HRCI TYPE L TIME DELAY (OVER 600A)

21. PROVIDE FUSE SIZE AND TYPE COMPATIBLE WITH VFD MANUFACTURER REQUIREMENTS. PANELBOARDS

- 22. PANELS SHALL BE OF THE TYPE WITH VOLTAGE AND CURRENT RATING AS SHOWN ON THE DRAWINGS, SIZED TO ACCOMMODATE BRANCH CIRCUIT BREAKERS AND SPACES AS INDICATED. BUS BRACING SHALL BE PROVIDED TO SUIT THE SHORT CIRCUIT CAPACITY RATING INDICATED ON THE DRAWINGS OR MINIMUM 10 KA AT 208 V, 3 PHASE. RESTRICTIVE DIMENSIONS SHALL BE AS SHOWN. PROVIDE LOCKING DOORS FOR ALL PANELS. ALL PANEL DOORS, TRIM AND SURFACE MOUNT TUBS SHALL BE FINISHED IN LIGHT GRAY ENAMEL PAINT. TUBS FOR FLUSH MOUNT PANELS SHALL BE GALVANIZED.
- 23. PROVIDE PANEL LABELS AND NEATLY TYPEWRITTEN PANEL DIRECTORY INSIDE DOOR IN PLASTIC SLEEVE.
- 24. UNLESS OTHERWISE NOTED ALL BREAKERS SHALL BE RATED MINIMUM 10 KA SYMMETRICAL INTERRUPTING CAPACITY AT 208 VOLTS, 3 PHASE AS APPROPRIATE AND NOT LESS THAN THE SHORT CIRCUIT CAPACITY AS SHOWN ON THE DRAWINGS.
- 25. PROVIDE BREAKER LOCK-ON DEVICES FOR ALL ESSENTIAL AND EQUIPMENT LOADS.
- 26. CONNECT ALL SINGLE PHASE LOADS SUCH THAT THERE IS THE LEAST POSSIBLE IMBALANCE OF PHASES UNDER NORMAL CONDITIONS. 27. PROVIDE LOCKABLE, PAINTED RED BREAKERS FOR FIRE ALARM CONTROL PANEL POWER
- SOURCE RACEWAYS AND BOXES
- 28. PROVIDE OUTLET BOXES OF ADEQUATE SIZE OF TYPE APPROVED FOR THE PARTICULAR APPLICATION AS REQUIRED FOR ALL WIRING DEVICES, LIGHT FIXTURES, ETC., OR AS SHOWN. PROVIDE JUNCTION BOXES, COMPLETE WITH BLANK COVERS AS REQUIRED OR SHOWN FOR ALL WIRING SYSTEMS. INSTALL ALL BOXES TO BE ACCESSIBLE, IF NECESSARY PROVIDE ACCESS PANELS. SECURE ALL BOXES INDEPENDENT OF THE CONDUIT/WIRING SYSTEM.
- 29. IN ALL CASES USE ONLY CONDUIT AND RACEWAYS APPROVED FOR THE PARTICULAR APPLICATION AND OF ADEQUATE SIZE TO SUIT TYPE AND NUMBER OF CONDUCTORS BEING CARRIED. PROVIDE A SEPARATE GROUND CONDUCTOR IN ALL CONDUITS. THE CONDUIT SYSTEM SHALL NOT BE USED AS THE GROUND PATH. WHERE INDICATED, USE CONDUIT AS SPECIFIED. EVERY CONDUIT OR SECTION OF ARMOURED CABLE SHALL BE ADEQUATELY SECURED USING APPROVED SUPPORTS, CLAMPS AND FASTENERS TO ENSURE A SAFE AND SOUND INSTALLATION. ALL CONDUIT OR ARMOURED CABLE RUN IN FINISHED AREAS SHALL BE CONCEALED IN WALLS, CEILINGS OR FURRING UNLESS OTHERWISE INDICATED OR APPROVED BY THE OWNER. ARMOURED CABLE SHALL NOT BE USED WHERE EXPOSED UNLESS OTHERWISE NOTED. 30. BOXES FOR OUTDOOR USE: GALVANIZED CAST FERRALLOY COMPLETE WITH NEOPRENE
- GASKET. 31. BOXES FOR INDOOR USE: CODE GAUGE ELECTRO-GALVANIZED STEEL FOR CONCEALED
- MOUNTING AND GALVANIZED CAST FERRALLOY OR CAST BRUSHED ALUMINUM FOR EXPOSED USE, UNLESS OTHERWISE NOTED. 32. FIXTURE BOXES: ELECTRO-GALVANIZED STEEL 100mm (4") OCTAGON COMPLETE WITH 10mm
- (3/8") FIXTURE STUD WHERE NECESSARY. 33. WHERE OUTLET BOXES ARE INSTALLED IN EXTERIOR WALLS AND/OR INSULATED CEILING HAVING ASSOCIATED VAPOUR BARRIERS ON THE WARM SIDE OF THE INSULATION AND WHERE OUTLET BOXES PERFORATE THE VAPOUR BARRIER, PROVIDE ELECTRICAL BOX VAPOUR BARRIERS BEHIND AND AROUND OUTLET BOXES. VERIFY EXACT REQUIREMENTS ON SITE PRIOR TO PROCEEDING WITH INSTALLATIONS.
- 34. ALL JUNCTION BOXES IN CONCEALED CEILING SPACES SHALL BE LABELED WITH PEN MARKER AS TO CIRCUITS CONTAINED THEREIN.
- 35. SWITCHES AND RECEPTACLE BOXES SHALL BE 1104 TYPE FOR RECESSED MOUNTING.
- 36. RIGID METAL CONDUIT SHALL BE USED WHERE INSTALLED AS AN EXTERIOR BRANCH CIRCUIT ABOVE FINISHED GRADES, ALL FITTINGS MUST BE THREADED TYPE, ALL CONDUIT TERMINATIONS SHALL HAVE BUSHINGS WITH INSULATED PLASTIC LINING. RIGID METAL EXPANSION JOINT -CROUSE HINDS "XJ" SERIES WITH BONDING STRAP OR EQUIVALENT
- 37. IN AREAS WITH SOLID CEILINGS, ELECTRICAL AND SYSTEMS JUNCTION BOXES ALONG WITH ASSOCIATED WIRE AND CONDUIT SHALL BE LOCATED IN AREAS WHERE CEILING ACCESS IS POSSIBLE, OR ACCESS PANELS MAY BE PROVIDED WITH THE APPROVAL OF THE OWNER OR CONSULTANT
- 38. EMT CONDUIT SHALL BE USED FOR WIRING AND CONCEALED WHEREVER POSSIBLE. EMT COUPLINGS AND CONNECTORS SHALL BE STEEL SETSCREW CONCRETE TIGHT OR STEEL COMPRESSION RAIN TIGHT.
- 39. ALL CONDUIT IN PUBLIC AREAS WITH EXPOSED CEILING MUST BE PAINTED EMT. PAINT COLOUR TO BE CONFIRMED BY ARCHITECT.
- EMERGENCY/EXIT LIGHTING
- 40. EXIT SIGNS SHALL BE CSA APPROVED, PICTOGRAM GREEN "RUNNING-MAN" ON WHITE BACKGROUND MADE OF DURABLE EXTRUDED ALUMINUM HOUSING C/W WHITE FINISH, WHITE LED SOURCE, ENERGY EFFICIENT, AND UNIVERSAL MOUNTING.
- 41. REMOTE HEADS SHALL BE 4-WATT HEAD, COMPATIBLE WITH THE VOLTAGE SUPPLIED, IMPACT RESISTANT, FLAME RETARDANT THERMOPLASTIC, ROTATIONAL, SUPPLIED WITH A CANOPY C/W WHITE FINISH.
- 42. PROVIDE COMPLETE 12V DC BATTERY POWERED EMERGENCY LIGHTING SYSTEMS FOR THE BUILDING AREAS INDICATED. SYSTEMS SHALL CONSIST OF FULLY AUTOMATIC BATTERY UNITS (SPECIFIED WATTS FOR 1/2 HOUR) WITH MOUNTING BRACKET AND REMOTE LAMP HEADS AS SHOWN ON DRAWINGS. EMERGENCY BATTERY UNITS SHALL BE C/W BATTERY DISCONNECT SWITCH (70% OF NORMAL VOLTAGE) AND AUTOTEST AND AUTOMATED SELF-DIAGNOSTIC CIRCUITRY COMPLYING WITH C.S.A. AND N.B.C. REQUIREMENTS.
- 43. THE EMERGENCY BATTERIES SHALL BE LONG LIFE LEAD-ACID, CALCIUM ALLOY TYPE IN SEALED PLASTIC CONTAINERS AND BE TOTALLY MAINTENANCE FREE WITH A MINIMUM LIFE EXPECTANCY OF 10 YEARS.
- 44. THE BATTERY CAPACITY SHALL BE SIZED TO SUPPLY THE NUMBER OF FIXTURES INDICATED ON THE DRAWINGS, PLUS HAVE AN ADDITIONAL MINIMUM 10% SPARE CAPACITY FOR FUTURE HEADS. THE BATTERIES SHALL BE CAPABLE OF PROVIDING POWER TO THE FIXTURES FOR THIRTY MINUTES WITHOUT DROPPING BELOW NINETY-ONE (91) PERCENT OF THE RATED BATTERY VOLTAGE.
- 45. PROVIDE GREY COLOURED CONDUCTORS IN A SEPARATE CONDUIT SYSTEM, FOR THE D.C. WIRING. WIRE SYSTEM IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS TO MAINTAIN VOLTAGE DROP TO LESS THAN 5% TO FURTHEST FIXTURE. CONNECT REMOTE LAMP HEADS AND EXIT SIGN EMERGENCY SOCKETS TO BATTERY UNIT INDICATED. INSTALL A SINGLE RECEPTACLE ADJACENT TO BATTERY UNIT FOR CONNECTION TO BATTERY SUPPLY FROM A LOCAL LIGHTING CIRCUIT. MOUNTING PLATFORMS AND ACCESSORIES SHALL BE PROVIDED FOR A PERMANENT AND SAFE INSTALLATION OF THE BATTERY UNITS.

- 46. LED FIXTURES: MINIMUM TEMPERATURE OF 3500K FOR COMMERCIAL AND 4000K FOR EXTERIOR OR NOTED OTHERWISE. ACCEPTABLE MANUFACTURES AS PER LUMINAIRE SCHEDULE.
- 47. PROVIDE ALL LIGHT FIXTURES AS SPECIFIED ON THE DRAWINGS COMPLETE WITH BALLASTS, DRIVERS, LENSES, LAMPS, AUXILIARY COMPONENTS, MOUNTING HARDWARE, ETC., REQUIRED FOR A COMPLETE INSTALLATION. VERIFY ALL CATALOG NUMBERS WITH DESCRIPTIONS GIVEN. CHECK ALL LIGHTING FIXTURES PRIOR TO THEIR INSTALLATION TO ENSURE THAT THEY ARE THE SPECIFIED FIXTURES FOR THE PROJECT.
- 48. LED MONOCHROME LIGHTING FIXTURE SHALL HAVE LIGHTING WITH A MINIMUM CRI OF 85 FOR REGULARLY OCCUPIED SPACES, A MINIMUM CRI OF 70 FOR EXTERIOR, AND A MINIMUM OF 75 FOR ALL OTHER SPACES. THE FIXTURE SHALL HAVE A MINIMUM L70 OF 50,000 HOURS. ALL LIGHTING SHALL HAVE IESNA LM-79 AND LM-80 TESTING REPORTS AND LIFE CALCULATIONS BASED ON TM-21. EXTERIOR AND INTERIOR AREA LIGHTING SHALL HAVE A MINIMUM EFFICIENCY OF 80 LUMENS PER WATT.
- 49. LED DRIVERS SHALL HAVE MINIMUM LIFESPAN EQUAL OR BETTER THAN THE LIFESPAN OF THE L70 LIFESPAN OF THE LED LAMPS IT SERVES. DRIVERS SHALL BE INTEGRATED INTO THE FIXTURE IF SERVING ONLY THAT FIXTURE OR REMOTE IF THE DRIVER SERVES MORE THAN ONE FIXTURE. ALL DRIVERS SHALL BE DIMMABLE USING 0-10V DIMMING TECHNOLOGY UNLESS NOTED OTHERWISE. LED DRIVERS SHALL HAVE HIGH POWER FACTOR. ALL LED LIGHTING AND DRIVERS USED IN EXTERIOR OR UNHEATED APPLICATIONS SHALL PROVIDE START-UP AND OPERATION IN TEMPERATURES FROM -30 °C TO +50 °C.
- 50. THE CONTRACTOR SHALL ENSURE THAT ALL LIGHT FIXTURES ARE ADEQUATELY SUPPORTED. FIXTURES MUST BE SUPPORTED DIRECTLY FROM THE BUILDING STRUCTURAL MEMBERS. CO-ORDINATE THE REQUIREMENTS OF THE LIGHT FIXTURE SUPPORTS WITH THE OTHER TRADES (WHERE APPLICABLE) PRIOR TO FIXTURE INSTALLATION. FIXTURE SAFETY CHAINS OR WIRES SHALL ALSO BE PROVIDED AS REQUIRED BY REGULATORY AGENCIES.
- 51. THE METHOD OF ATTACHING SUSPENSION WIRES AND SAFETY CHAINS TO FIXTURES AND BUILDING ELEMENTS SHALL BE DISCUSSED AND APPROVED BY THE CONSULTANT AND OWNER

# ELECTRICAL SPECIFICATIONS

- PRIOR TO INSTALLATION
- 52. SHOP DRAWINGS FOR LUMINAIRES INDICATING LIGHTING PERFORMANCE DETAILS, FIXTURE CONSTRUCTION DETAILS, AIR CONTROL AND DUCTWORK CONNECTION DETAILS, ETC., AND PICTURES OF EACH TYPE OF LIGHTING FIXTURE SHALL BE SUBMITTED FOR REVIEW.
- 53. SHOP DRAWINGS SHALL BE SUBMITTED FOR LED DRIVERS FOR ALL FIXTURES TO BE INSTALLED. THESE SHALL BE SUBMITTED SEPARATELY FROM THE LIGHTING FIXTURES BEING INSTALLED AND
- SHOULD INDICATE EACH FIXTURE THE PRODUCT IS INSTALLED. 54. FOR APPROVED EQUALS TO BASE DESIGN FIXTURES, SHOP DRAWINGS FOR EXTERIOR LIGHTING SHALL INCLUDE A COMPUTER GENERATED SITE PLAN PLOT POINT-BY-POINT CALCULATIONS AT
- NO LESS THAN 3 m (10') SPACING FOR THE FULL EXTERIOR SPACE UP TO 2 m BEYOND THE PROPERTY LINE INCLUDING ALL SITE LIGHTING FIXTURES. PROVIDE LIGHTING POWER DENSITY FOR ALL PARKING, DRIVEWAY AND ROADWAY AREAS. 55. FIXTURES SHALL NOT BE RELEASED PRIOR TO REVIEW OF THE SHOP DRAWINGS, CANCELLATION
- CHARGES WILL NOT BE PAID FOR CHANGES TO FIXTURES MADE BEFORE THE FIXTURE CUTS HAVE BEEN REVIEWED. OCCUPANCY SENSORS

56. DUAL TECHNOLOGY CEILING AND WALL MOUNT SENSORS.

57. SENSORS SHALL SENSE A PERSON OF AVERAGE SIZE MOVING DISTANCE OF 2" AND RETAIN

LIGHTS IN "ON" STATE. 58. SENSORS SHALL HAVE AN INTEGRAL BYPASS SHUNT SWITCH FOR SERVICE OR MANUAL

- OPERATION. 59. MULTIPLE SENSORS SHALL BE WIRED IN PARALLEL TO OBTAIN COVERAGE NOTED ON
- DRAWINGS.

60. TIME DELAY TO "OFF" SHALL BE ADJUSTABLE FROM 5 TO 30 MINUTES AND THE SENSOR SHALL BE COMPLETE WITH WALK-THROUGH AND TEST MODES.

61. SENSORS SHALL CARRY A 5 YEAR WARRANTY.

62. SENSORS SHALL INTERFACE WITH POWER/RELAY PACKS AS REQUIRED BY THE SAME MANUFACTURER TO CONTROL THE LOADS NOTED ON THE DRAWINGS.

63. CEILING MOUNT OCCUPANCY SENSOR TO HAVE COVERAGE OF 2000 SQUARE FEET.

WIRING DEVICES

64. SWITCHES AND RECEPTACLES: PROVIDE SPECIFICATION GRADE WIRING DEVICES AS SHOWN ON THE DRAWINGS. DEVICES SHALL BE AS MANUFACTURED BY HUBBELL (OR APPROVED EQUAL) AS NOTED BELOW:

- 15 AMP., 120 V TOGGLE SWITCH
- 1201 • 20 AMP., 347 V TOGGLE SWITCH - 18220 • 15 AMP., 120 V DUPLEX RECEPTACLE - 5252
- 5352 20 AMP. DUPLEX RECEPTACLE (T-SLOT) • 15 AMP. GROUND FAULT DUPLEX RECEPTACLE - GF5252
- 20 AMP. GROUND FAULT DUPLEX RECEPTACLE - GF5352
- WEATHERPROOF IN-USE RECEPTACLE COVER - WP826
- DECORATOR STYLE 120 VOLT DEVICES
- 15 AMP., 120 V ROCKER SWITCH 20 AMP., 120 V ROCKER SWITCH
- 15 AMP., 120 V DUPLEX RECEPTACLE
- 20 AMP. DUPLEX RECEPTACLE (T-SLOT)
- 15 AMP. GROUND FAULT DUPLEX RECEPTACLE - GF15
- 20 AMP. GROUND FAULT DUPLEX RECEPTACLE - GF20 67. PROVIDE VERTICALLY BRUSHED STAINLESS STEEL COVERPLATES, COLOURED TO MATCH DEVICE, FOR FLUSH MOUNTED DEVICES OR GALVANIZED STEEL TYPE COVERPLATES WITH ROUNDED CORNERS FOR SURFACE MOUNTED DEVICES AS APPROPRIATE FOR ALL OUTLETS, GANGED TYPE FOR ALL GROUPED OUTLETS. PROVIDE SPECIAL RECEPTACLES AND OUTLET TYPES AS IDENTIFIED ON THE DRAWINGS.

- DS115

- DS120

- DR15

- DR20

- 68. ALL EXTERIOR RECEPTACLES SHALL BE GFCI AND COME WITH WHILE-IN-USE COVERS AS PER
- 69. MOUNT DEVICES AT THE FOLLOWING HEIGHTS UNLESS NOTED OTHERWISE OR TO COMPLY WITH OBC, BARRIER FREE DESIGN:

70. PROVIDE TIME SWITCHES FOR CONTROL OF MECHANICAL AND ELECTRICAL LOADS AND

1. PROVIDE INDIVIDUAL SINGLE CIRCUIT, 120V, 7 DAY/24 HOUR DPST DIGITAL TYPE TIME CLOCKS

C/W PROGRAMMING KEYPAD, LCD DISPLAY, MANUAL OVERRIDE CONTROL, RECHARGEABLE

BATTERY RESERVE POWER AND 15A, 120V RATED CONTACTS FOR CONTROL OF GENERAL LOADS

AS INDICATED ON THE DRAWINGS. PROVIDE 120V, SPDT, 10A, MOMENTARY CONTACT ADAPTER

72. PROVIDE 120V, SPST, 2,000 W RATED ADJUSTABLE LEVEL SETTING PHOTOCELLS FOR CONTROL

OF INTERIOR AND/OR EXTERIOR LIGHTING AS INDICATED ON DRAWINGS. INSTALL UNITS AND

AIM AS INSTRUCTED ON-SITE. CONNECT TO CONTACTORS, TIME CLOCKS, ETC., FOR DESIRED

COMMUNICATIONS AND SPECIAL SYSTEMS (TELEPHONE, SECURITY, PAGING AND COMPUTER)

MOUNTING BACKBOARD TO SUITABLE AREAS OF ACCESSIBLE CEILING SPACES AS SHOWN, TO

TERMINATE CONDUITS WITH AN APPROPRIATE INSULATED BUSHING. FOR EACH GENERAL WALL

OUTLET INDICATED PROVIDE A 19 mm (3/4") EMPTY CONDUIT FROM A STANDARD SINGLE GANG

BOX WITH BLANK COVERPLATE TO AN ACCESSIBLE CEILING SPACE WITHIN 3 m (10') OF THE MAIN

75. REFER TO CONDUIT SYSTEM RISER DIAGRAMS (WHERE PROVIDED) FOR DETAILS OF DISTRIBUTION

CONDUIT AND COMPONENT DETAILS AND TO FLOOR PLANS FOR COMPONENT AND OUTLET

CONDUIT SIZES, OUTLET LOCATIONS AND INSTALLATION DETAILS PRIOR TO PROCEEDING WITH

6. PROVIDE EMPTY CONDUIT/OUTLET BOX SYSTEM AS REQUIRED TO ALLOW THE INSTALLATION OF

MECHANICAL CONTRACTOR AND MECHANICAL DRAWINGS PRIOR TO ROUGH-IN. INSTALL PULL

LOCATIONS. CONTACT OWNER'S SYSTEMS INSTALLATION CONTRACTORS TO VERIFY ALL

THE MECHANICAL CONTRACTOR'S THERMOSTATS, COORDINATE INSTALLATION WITH THE

77. COMPLY WITH CAN/CSA-S524 (INSTALLATION OF FIRE ALARM SYSTEMS), CAN/CSA-S537

78. SUBMIT SHOP DRAWINGS FOR FIRE ALARM CONTROL PANEL, ANNUNCIATOR, SIGNALING

ZONE COMPONENTS AND SIGNAL CIRCUIT COMPONENTS FOR PRESENT AND FUTURE AS

80. DESIGN FIRE ALARM SYSTEM SO THAT THE OPERATION OF ANY ONE OF THE MANUAL FIRE

81. MANUAL FIRE ALARM PULL STATIONS SHALL BE PROVIDED WITH TWELVE (12) SPARE GLASS

a. RATED AT 58°C(135°F) FIXED TEMPERATURE NON-RESTORABLE AND 8°C DEGREES PER

b. RATED AT 88°C(194°F) FIXED TEMPERATURE NON-RESTORABLE AND 8°C DEGREES PER

AMBIENT TEMPERATURES EXCEED 38°C (100°F), BUT DO NOT EXCEED 66°C (150°F).

c. RATED 58°C(135°F) FIXED TEMPERATURE NON-RESTORABLE. USE WHERE VIOLENT

d. RATED 88°C(194°F) FIXED TEMPERATURE NON-RESTORABLE. USE WHERE VIOLENT

MINUTE RATE-OF-RISE. USE WHERE NORMAL TEMPERATURES FLUCTUATIONS EXIST, BUT

TEMPERATURE FLUCTUATIONS EXIST, BUT NORMAL TEMPERATURES DO NOT EXCEED 38°C

TEMPERATURE FLUCTUATIONS EXIST, BUT NORMAL TEMPERATURES EXCEED 38°C (100°F) BUT

MINUTE RATE-OF-RISE. USE WHERE NORMAL TEMPERATURES DO NOT EXCEED 38°C (100°F).

82. AUTOMATIC THERMAL DETECTORS: CONSTRUCTED AS PER CAN/ULC-S530.

79. PROVIDE COMPLETE ELECTRICALLY SUPERVISED, CLOSED CIRCUIT, FIRE ALARM SYSTEM WITH

INDICATED. IF FIRE ALARM IS EXISTING AND WORK DESCRIBED IS TO TIE INTO EXISTING, PROVIDE

ALARM STATIONS OR AUTOMATIC DETECTORS WILL CAUSE ALL FIRE ALARM SIGNALS TO SOUND

74. IN GENERAL, PROVIDE 38 mm  $(1\frac{1}{2})$  EMPTY CONDUITS FROM THE SYSTEM EQUIPMENT

ALLOW INSTALLATION OF TELEPHONE AND COMPUTER SYSTEMS DISTRIBUTION WIRING.

EQUIPMENT AND WIRING AS DETAILED BELOW AND INDICATED ON THE DRAWINGS. INSTALL PULL

73. PROVIDE EMPTY CONDUIT/OUTLET BOX SYSTEM TO ALLOW INSTALLATION OF

- a. SWITCHES - 1200MM (47") b. RECEPTACLES - 450MM (17.7")
- C. COMMUNICATION BACKBOXES 450MM (17.7")
- d. ELECTRICAL PANELS - 1981MM (78") TO TOP
- e. PUSH BUTTONS - 1200MM (47") - ABOVE DOOR OR 2032MM (80") f. EXIT SIGNS

TIME SWITCHES & PHOTOCELLS

CONTROL AS SHOWN.

EMPTY CONDUIT SYSTEMS

RACEWAY

INSTALLATIONS.

FIRE ALARM SYSTEM

CORDS IN ALL EMPTY CONDUITS.

CORDS IN ALL EMPTY CONDUITS.

IF THE SYSTEM IS SINGLE STAGE.

RODS TO BE LEFT WITH OWNER.

DO EXCEED 66°C (150°F).

83. SMOKE DETECTOR:

(VERIFICATION OF FIRE ALARM SYSTEMS), AND OBC.

DEVICES, DETECTION DEVICES, AND PULL STATIONS.

DEVICES COMPATIBLE WITH EXISTING FIRE ALARM SYSTEM.

g. FIRE ALARM PULL STATION - 1150MM (45")

AS REQUIRED FOR CORRECT CONTACTOR INTERFACE.

SYSTEMS AS DESCRIBED BELOW AND IDENTIFIED ON THE DRAWINGS.

### ELECTRICAL SPECIFICATIONS

a. PROVIDE COMPLETE SMOKE DETECTOR SYSTEM AS INDICATED.

- b. MOUNT DETECTORS ON CEILING AS INDICATED, AT THE HIGHEST POINT WHERE VARIATIONS IN CEILING HEIGHT EXIST. DO NOT MOUNT DETECTORS ON SIDES, UNDERSIDES, OR LESS THA 12" (300mm) FROM WALLS, BEAMS, JOISTS, DUCTS, OPEN WEB STEEL JOISTS OR ANY STRUCTURE PROJECTING BELOW ACTUAL CEILING HEIGHT, OR LESS THAN 48" (1220mm) FROM AIR HANDLING OR HEATING OUTLETS. COMPLY WITH CAN/CSA-S524.
- c. SHOULD INTERFERENCE FROM OBSTRUCTION, LAMP POSITIONS, AIR OUTLET OR HEAT RADIATING SURFACES BE ENCOUNTERED IN LOCATING ANY DETECTOR WHERE SHOWN. LOCATE THE DETECTOR AS NEAR AS POSSIBLE TO THE INDICATED POSITION, CLEAR OF OBSTACLES, TO THE SATISFACTION OF THE CONSULTANT, BUT MAINTAIN A CLEAR SPACE OF 24" (610mm), ON THE CEILING, BELOW AND AROUND.PROTECTIVE WIRE GUARDS OR GLASS COVERS FOR DETECTORS IN AREAS PRONE TO DAMAGE OR TAMPER MAY EXIST.
- 84. PHOTO ELECTRIC TYPE SMOKE DETECTORS: PROVIDE RELAY BASE WHEN DETECTORS ARE INSTALLED IN ELEVATOR LOBBIES, MACHINE ROOMS, CONTROL ROOMS, SHAFTS OR ADJACENT TO HOLD OPEN DEVICES.
- 85. STAND-ALONE PHOTO ELECTRIC SMOKE ALARMS: EACH UNIT SHALL HAVE POWER ON INDICATOR LED, DETACHABLE MOUNTING PLATE SUITABLE FOR STANDARD 4" (102mm) OCTAGON/BOX, 85 DB AT TEN FEET PIEZO ELECTRIC ALARM, AND PUSH TO TEST SENSITIVITY TEST BUTTON. INTERCONNECT DRY TYPE CONTACTS SO THAT TRIPPED UNIT SOUNDS CONTINUOUSLY AND ALL OTHER UNITS SOUND INTERMITTENTLY. CONSTRUCTED AS PER CAN/ULC-S531. 86. DUCT SMOKE DETECTOR: PHOTO ELECTRIC TYPE DUCT SMOKE DETECTOR AND HOUSING WITH
- FORM-C SHUT DOWN RELAY AND LED REMOTE INDICATOR AND SAMPLING TUBES TO SUIT DUCT DIMENSIONS. WALL MOUNT REMOTE INDICATOR MINIMUM 300 MM (1 FT) BELOW CEILING AT DETECTOR LOCATION
- 87. PROVIDE COMBINATION CARBON MONOXIDE OPTIONS AS SPECIFIED ON THE DRAWINGS. 88. PROVIDE PROTECTIVE WIRE GUARDS OR GLASS COVERS FOR DETECTORS IN AREAS PRONE TO DAMAGE OR TAMPER.
- 89. FIRE ALARM BELLS OR STROBES: MINIMUM 15CD AND 80 dB @ 3m.
- 90. PROVIDE WIRING, CONNECTION OF SUPERVISED VALVES AND FLOW SWITCHES SPRINKLER VALVES AS INDICATED.
- 91. LOCATE END-OF-LINE RESISTORS IN CONTROL PANEL (CLASS A) OR IN SEPARATE BOX LOCATED NOT MORE THAN 6'-0" (1830mm) ABOVE FINISHED FLOOR BEYOND LAST MANUAL STATION, AUTOMATIC INITIATING DEVICES OR SIGNAL (CLASS B).
- 92. PROVIDE THRID-PARTY VERIFICATION OF FIRE ALARM EQUIPMENT DISTURBED BY THIS WORK, INCLUDING THOSE COMPONENTS NECESSARY TO DIRECT OPERATION OF SYSTEM, SUCH AS MANUAL STATIONS, THERMAL DETECTORS AND CONTROLS AS PER CAN/ULC-S537.
- a. ON COMPLETION OF VERIFICATION AND WHEN ALL ABOVE CONDITIONS HAVE BEEN COMPLIED WITH, MANUFACTURER SHALL ISSUE TO THE OWNER:
- b. COPY OF INSPECTING TECHNICIAN'S REPORT SHOWING LOCATION OF EACH DEVICE AND CERTIFYING TEST RESULTS OF EACH DEVICE.
- C. CERTIFICATE OF VERIFICATION CONFIRMING THAT INSPECTION HAS BEEN COMPETED AND SHOWING CONDITIONS UPON WHICH, SUCH INSPECTION AND CERTIFICATION HAVE BEEN RENDERED.
- 93. PROOF OF LIABILITY INSURANCE FOR INSPECTION. 94. PROVIDE LEGIBLE PERMANENTLY MOUNTED NOTICE AT EACH MANUAL STATION AS PER OBC-3.2.4.7(5).
- 95. FOR RENOVATIONS: INFORM GENERAL TRADE/OWNER OF ANY FIRE ALARM ZONE OR DEVICE WHICH IS DISCONNECTED OR RENDERED INOPERATIVE, TO PREVENT FALSE ALARMS, AT THE BEGINNING OF THE WORKDAY. RECONNECT ALL FIRE ALARM ZONES AND DEVICES AT END OF WORKDAY AND INFORM GENERAL TRADE/OWNER.

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PROJECT NUMBER: 22-059

November 20, 2024 - 06:23pm Plotted by: rlee

# ELECTRICAL SPECIFICATIONS

#### PART 3 - EXECUTION

- 1. PROVIDE ALL GROUNDING REQUIRED BY THE ONTARIO ELECTRICAL SAFETY CODE OR ANY LOCAL AUTHORITIES REGARDLESS OF WHETHER IT HAS BEEN SHOWN. THIS INCLUDES EQUIPMENT GROUNDING AS WELL AS SYSTEM (SERVICE) AND DISTRIBUTION GROUNDING. PROVIDE ADDITIONAL SPECIFIC PROVISIONS AS INDICATED, INCLUDING GROUND CONNECTIONS FOR MAIN ELECTRICAL ROOM AND BUILDING STRUCTURE. PROVIDE THESE INSTALLATIONS ACCORDING TO ELECTRICAL SAFETY CODE REGULATIONS. COLLECT ALL GROUND CONNECTIONS AT A COMMON POINT IN THE MAIN ELECTRICAL ROOM, WHICH IN TURN IS CONNECTED TO THE MAIN SERVICE GROUND.
- 2. ALL GROUNDED FEEDERS AND BRANCH CIRCUITS SHALL BE PROVIDED WITH A SEPARATE GROUND CONDUCTOR SIZED ACCORDING TO THE ELECTRICAL SAFETY CODE REGULATIONS. THE CONDUIT SYSTEM SHALL NOT BE USED AS THE GROUND PATH, HOWEVER ALL CONDUITS Shall be solidly grounded.
- 3. ARRANGE GROUNDS SUCH THAT UNDER NORMAL OPERATING CONDITIONS CURRENT FLOW IN ANY GROUNDING CONDUCTOR IS NOT OBJECTIONABLE AND WILL NOT HARM PERSONNEL OR EQUIPMENT. ARRANGE SERVICE GROUNDS AND DISTRIBUTION GROUNDS TO PROVIDE GROUND RESISTANCE READINGS WITHIN VALUES REQUIRED BY THE ONTARIO ELECTRICAL SAFETY CODE AND THE ELECTRICAL SAFETY AUTHORITY.
- 4. IN GENERAL, PROVIDE ALL POWER SUPPLY WIRING, LINE VOLTAGE CONTROL WIRING AND ELECTRICAL SAFETY CODE REQUIRED DISCONNECT SWITCHES FOR ANY EQUIPMENT INSTALLED BY OTHER TRADES. VERIFY THE ELECTRICAL CHARACTERISTICS AND WIRING REQUIREMENTS OF ALL EQUIPMENT BEFORE PROCEEDING WITH THE ACTUAL INSTALLATIONS. REFER TO THE DRAWINGS FOR A DESCRIPTION OF EQUIPMENT WIRING AND CONTROL REQUIREMENTS AND COMPONENTS TO BE PROVIDED BY THE CONTRACTOR.
- 5. CO-OPERATE WITH ALL OTHER TRADES ON THE JOB SUCH THAT ALL EQUIPMENT CAN BE INSTALLED WITHOUT ANY CONFLICTS OR DELAYS, PROVIDE AND MAINTAIN TEMPORARY WIRING, LIGHTING AND POWER SUPPLY INSTALLATIONS AS REQUIRED BY OTHER TRADES DURING CONSTRUCTION.
- 6. THE CONTRACTOR SHALL VISIT THE SITE TO DETERMINE THE EXTENT OF DEMOLITION, REMOVAL, RELOCATION, RE-ROUTING AND RECONNECTION OF EXISTING ELECTRICAL EQUIPMENT, FIXTURES, OUTLETS AND WIRING REQUIRED FOR THE EXECUTION AND COMPLETION OF THIS PROJECT. IN GENERAL, RELOCATE EXISTING SERVICES AS REQUIRED TO ACCOMMODATE NEW EQUIPMENT AND INSTALLATIONS AND ARCHITECTURAL CHANGES. IN AREAS BEING TOTALLY RENOVATED, PROVIDE ALL ELECTRICAL DEMOLITION WORK AND REPLACE EXISTING INSTALLATIONS WITH NEW AS SHOWN. EXTRA CHARGES FOR PREMIUM TIME LABOUR, IF REQUIRED TO COMPLETE THE PROJECT AS DESCRIBED, SHALL BE INCLUDED IN THE BID PRICE.
- 7. SEQUENCE OF DISCONNECTION AND REMOVAL AND/OR RELOCATION OF EXISTING EQUIPMENT AND WIRING SHALL BE CO-ORDINATED WITH THE OWNER AND OTHER TRADES AND SHALL CONFORM TO THE REQUIREMENTS AND CONDITIONS OUTLINED IN THE SPECIFICATIONS.
- 8. WIRING LOCATED IN AREAS BEING ALTERED BUT FEEDING OUTLETS OR EQUIPMENT IN OTHER AREAS REQUIRED TO REMAIN IN SERVICE, SHALL BE REWORKED, EXTENDED AND RE-ROUTED AS REQUIRED TO MAINTAIN THE CONTINUITY OF THESE SERVICES. PROVIDE ADEQUATE PROTECTION TO EXISTING WIRING AND EQUIPMENT WHICH HAS BECOME EXPOSED TO MECHANICAL INJURY IN THE COURSE OF ALTERATIONS OR NEW INSTALLATIONS.
- 9. INSTALL ALL CONDUIT AND FEEDERS RUNNING THROUGH THE EXISTING BUILDING ALONG ROUTES APPROVED ON SITE BY THE OWNER. NEW INSTALLATIONS WILL NOT NECESSARILY BE ALLOWED ALONG SHORTEST ROUTES BUT SHOULD FOLLOW CORRIDORS OR ROUTES OF EXISTING MAIN RUNS WHERE POSSIBLE.
- 10. IN SOME INSTANCES, NEW OUTLETS AND EQUIPMENT ARE SHOWN IN THE SAME LOCATION AS THE EXISTING OUTLETS. THESE MAY BE FED THROUGH THE EXISTING CONDUITS PROVIDED THAT THE CONDUITS ARE IN GOOD CONDITION AND ARE ACCEPTABLE TO THE ELECTRICAL SAFETY AUTHORITY FOR RE-USE. ALL WIRING TO NEW OUTLETS AND EQUIPMENT SHALL BE NEW UNLESS OTHERWISE INDICATED. ALL UNUSED CONDUIT ENTRANCE OPENINGS SHALL BE SEALED.
- 1. UNLESS NOTED OTHERWISE, ALL EXISTING ELECTRICAL EQUIPMENT WHICH IS NOT TO BE RE-USED SHALL BECOME THE PROPERTY OF THIS CONTRACTOR (FOR DISPOSAL OR REMOVAL FROM THE SITE AS APPLICABLE) AND HAVE AN APPROPRIATE SALVAGE VALUE INCLUDED IN THE CONTRACT. EXISTING ELECTRICAL EQUIPMENT TO BE RE-USED (RELOCATED AND RECONNECTED) SHALL BE CLEANED, PAINTED, REFURBISHED AND REPAIRED AS REQUIRED BEFORE REINSTALLATION. (TURN OVER EXISTING LIGHT FIXTURES, ELECTRICAL PANELS AND STIPULATED DEVICES NOT TO BE RE-USED OR DISPOSED OF TO THE OWNER.)
- 12. IN FINISHED AREAS OF THE EXISTING BUILDING, AS MUCH WIRING AS POSSIBLE SHALL BE CONCEALED. WHERE, IN THE CONTRACTOR'S OPINION IT IS ABSOLUTELY NECESSARY OR ADVANTAGEOUS TO RUN WIRING ON THE SURFACE, (NOT SIMPLY TO AVOID CUTTING WALL OR FLOOR) OBTAIN APPROVAL FROM THE OWNER BEFORE PROCEEDING. ALL SURFACE RACEWAYS INSTALLED SHALL BE AS MANUFACTURED BY WIREMOLD UNLESS OTHERWISE INDICATED. WIREMOLD RACEWAYS SHALL BE SIZED AS INDICATED OR TO SUIT CONDUCTORS BEING CARRIED. USE ONLY APPROVED COMPONENTS, FITTINGS AND METHODS FOR SECURING, JOINING AND SUPPORTING SURFACE RACEWAYS AND OUTLET BOXES. SURFACE MOUNT RACEWAYS SHALL BE PAINTED BY THE CONTRACTOR TO MATCH THE ADJACENT WALL OR CEILING FINISH.
- 3. SERVICE AND DISTRIBUTION SYSTEM POWER INTERRUPTIONS SHALL BE KEPT TO A MINIMUM. POWER INTERRUPTIONS MUST BE CO-ORDINATED WITH THE OWNER AND ALL OTHER TRADES BY THIS CONTRACTOR. WRITTEN APPLICATION FOR ELECTRICAL INTERRUPTIONS MUST BE RECEIVED FROM THE CONTRACTOR INDICATING THE DATE, TIME AND ESTIMATED DURATION OF THE INTERRUPTION. APPLICATION FOR APPROVAL OF THE POWER INTERRUPTIONS MUST BE SUBMITTED TO THE OWNERS AND CONSULTANT AT LEAST TWO WEEKS PRIOR TO THE REQUESTED SHUT-DOWN DATE.
- 14. IN SOME SECTIONS OF THIS SPECIFICATION, MATERIALS AND EQUIPMENT ARE SPECIFICALLY DESCRIBED AND NAMED BY MANUFACTURER FOR THE PURPOSE OF ESTABLISHING A MINIMUM STANDARD OF MATERIALS, PRODUCT QUALITY AND OTHER SPECIFIED REQUIREMENTS.
- 15. THE PROJECT SYSTEMS DESIGN AS PER THE DRAWINGS AND SPECIFICATIONS IS BASED ON THE SPECIFIED MANUFACTURER'S EQUIPMENT BUT IS INTENDED TO BE APPROPRIATE FOR EQUIVALENT EQUIPMENT OF ALL OTHER MANUFACTURERS CONTAINED ON THE "APPROVED MANUFACTURER'S LIST"
- 16. PRODUCTS OF MANUFACTURER'S LISTED AS "ALTERNATES" ARE SUBJECT TO SHOP DRAWING REVIEW TO ENSURE THAT THEY ARE EQUIVALENT TO THE PRODUCTS OF THE SPECIFIED MANUFACTURER. ALTERNATE MANUFACTURER'S EQUIPMENT SHALL CONFORM TO THE SPACE LIMITATIONS IMPOSED BY THE PROJECT AND THE INTENT AS OUTLINED IN THIS SPECIFICATION AND DRAWINGS.
- 7. THE CONTRACTOR MAY SUBMIT ALTERNATIVE PROPOSALS OF MANUFACTURERS NOT LISTED IN THE APPROVED MANUFACTURERS LIST OF PROPOSALS OR MODIFIED DESIGN WITH APPROPRIATE COSTS, DELIVERY, AND SYSTEM DESIGN ADJUSTMENTS WHICH HE FEELS MAY BE ADVANTAGEOUS CONSIDERATIONS FOR THE PROJECT.
- APPROVED MANUFACTURERS LIST

### <u>DIVISION 26</u>

- DISCONNECT SWITCHES, LIGHTING AND POWER PANELS: EATON; SIEMENS; SCHNEIDER ELECTRIC
- MOTOR CONTROLS, RELAYS, CONTACTORS, ETC.: ALLEN-BRADLEY; SIEMENS; EATON; SCHNEIDER ELECTRIC
- FUSES:
- Gould; bussman
- WIRING DEVICES: HUBBELL; PASS AND SEYMOUR; LEVITON

TORK; PARAGON; INTERMATIC

- TIME SWITCHES AND PHOTO ELECTRIC CONTROLS:
- LIGHTING CONTROLS:
- LEGRAND/WATT STOPPER; LEVITON; SENSOR SWITCH/ACCUITY; LUTRON; EATON; PHILIPS
- INTERIOR LIGHT FIXTURES: LITHONIA; EATON; HUBBELL; PHILIPS
- EXTERIOR LIGHT FIXTURES:
- EATON; HOLOPHANE; HUBBELL; LITHONIA; PHILIPS; CREE
- EMERGENCY LIGHTING FIXTURES AND BATTERY UNITS: THOMAS & BETTS; BEGHELLI; STANPRO; AIMLITE
- EXIT SIGNS: THOMAS & BETTS; BEGHELLI; STANPRO; AIMLITE

# DIVISION 27

CLOCKS: MATCH EXISTING SYSTEM

STRUCTURED CABLING:

PA: TELECOR

ORIGINAL SHEET - ARCH D

# ELECTRICAL SPECIFICATIONS

SYSTIMAX

- **DIVISION 28** FIRE ALARM SYSTEM:
- MIRCOM
- SECURITY SYSTEM:

CHUBB

- INTEGRATION:
- ICT DSC
- MOTION DETECTORS: HONEYWELL
- DOOR CONTACTS:
- SENTROL
- SECURITY INTERCOMS AND STATIONS: AIPHONE
- ELECTRIC STRIKE:
- RUTHERFORD CONTROLS
- CARD READER: INTERLOGIX

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![](_page_43_Figure_0.jpeg)

ORIGINAL SHEET – ARCH D

		PROJECT NORTH
SCOPE OF WORK		A CONTRACTOR OF THE STRUCTURAL MECHANICAL ELECTRICAL CIVIL ENGINEERS
		SEAL
	1	REVIEW ALL DRAWINGS AND VERIFY ALL DIMENSIONS AT THE SITE. DO NOT SCALE THE DRAWINGS. REPORT ALL DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING WITH ANY CONSTRUCTION OR SHOP FABRICATION. ALL DRAWINGS, SPECIFICATIONS AND RELATED DOCUMENTS ARE THE COPYRIGHT PROPERTY OF 'MANTECON PARTNERS' AND MUST BE RETURNE UPON REQUEST. REPRODUCTION OF DRAWINGS, SPECIFICATIONS AND RELATED DOCUMENTS IN PART OR WHOLE IS FORBIDDEN WITHOUT THE ENGINEER'S WRITTEN PERMISSION.
G R90 CU + #12 BOND		5         ISSUED FOR TENDER         2024/11/20         P.O.           4         ISSUED FOR PERMIT         2024/10/25         R.L.           3         ISSUED FOR 90% REVIEW         2024/09/11         P.O.           2         ISSUED FOR 80% REVIEW         2023/02/17         R.R.           1         ISSUED FOR 60% REVIEW         2022/11/18         R.R.
DRAWING E2.1 FOR I'CE BOXES AND RELAYS RACK IN UTILITY ROOM 2.1 FOR PROPOSED IT CONTROL PANEL TO 0 P.A. DEVICES IN NEW		<image/>
		WORKSHOP ARCHITECTURE
		PROJECT: CSV PAVILLON DE LA JEUNESSE CHILDCARE ADDITION 105 HIGH STREET HAMILTON, ON
		DRAWING TITLE: OVERALL SITE PLAN
		DRAWN BY: J.J. CHECKED BY: N.A. DATE: NICOL ( 00000
		NOV 2022 PROJECT NUMBER: 22-059

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# DRAWING NOTES

- DEMOLISH EXISTING LIGHT FIXTURE, SURFACE-MOUNTED RECEPTACLES, SECURITY CAMERA, P.A. SPEAKER, AND FIRE ALARM PULLSTATION. REMOVE WIRING/CONDUIT BACK TO SOURCE.
- DISCONNECT EXISTING UNIT VENTILATOR AND MAKE SAFE FOR RELOCATION BY OTHERS. REMOVE WIRING/CONDUIT BACK TO NEAREST JUNCTION BOX. REFER TO MECHANICAL DRAWINGS FOR EXACT LOCATION
- 3 REMOVE EXISTING RUNNING MAN EXIT SIGN AND MAKE SAFE FOR REUSE. WIRING/CONDUIT SHALL BE REMOVED BACK TO SOURCE.

![](_page_44_Picture_7.jpeg)

![](_page_45_Figure_0.jpeg)

FIRST FLOOR LIGHTING AND FIRE ALARM PROPOSED PLAN

![](_page_45_Figure_3.jpeg)

N1       PRESCHOOL ROOM       LIGHTS AUTOMATIC ON TO PARTIAL - ON (50%) WHEN OCCUPANCY IS DETECTED. LIGHTS SH, TURN OFF WITHIN 20MINS OF ALL OCCUPANTS LEAVING THE SPACE. INCLUDE DIMMER SWITC CONTROL LIGHTING LEVELS. DAYLIGHT SENSORS CONTROL THE FIRST COLUMN OF LIGHT FIXTUCOSE TO THE WINDOWS. THE PHOTOCELL SHALL DIM THE LIGHT FIXTURES TO 30%, 60% AND COMPLETELY TURN OFF BASED ON THE AMOUNT OF DAY LIGHT.         N2       OFFICE       LIGHTS AUTOMATIC ON TO PARTIAL - ON (50%) WHEN OCCUPANCY IS DETECTED. FULL RANG DIMMING CONTROL VIA LOCAL DIMMER SWITCH.         N3       WASHROOM       LIGHTS AUTOMATIC ON TO PARTIAL - ON (100%) WHEN OCCUPANCY IS DETECTED.         N4       TODDLER, INFL       INCLUDE DIMMER SWITCH TO CONTROL LIGHTING LEVELS. DAYLIGHT SENSORS CONTROL THE FIRST COLUMN OF LIGHT FIXTURES CLOSE TO THE WINDOWS. THE PHOTOCELL SHALL DIM THE LIGHT FIXTURES TO 30%, 60% AND COMPLETELY TURN OFF BASED ON THE AMOUNT OF DAY LIGHT FIXTURES TO 30%, 60% AND COMPLETELY TURN OFF BASED ON THE AMOUNT OF DAY LIGHTS SHALL TURN OFF WITHIN 20MINS OF ALL OCCUPANTS LEAVING THE SPACE.         N4       TODDLER, INFL       INCLUDE DIMMER SWITCH TO CONTROL LIGHTING LEVELS. DAYLIGHT SENSORS CONTROL THE FIRST COLUMN OF LIGHT FIXTURES CLOSE TO THE WINDOWS. THE PHOTOCELL SHALL DIM THE LIGHT FIXTURES TO 30%, 60% AND COMPLETELY TURN OFF BASED ON THE AMOUNT OF DAY LIGUIGHTS SHALL TURN OFF WITHIN 20MINS OF ALL OCCUPANTS LEAVING THE SPACE.         N5       CORRIDOR       LIGHTS AUTOMATIC ON 100%. LIGHTS SHALL TURN OFF 30 MINS AFTER SCHOOL HOURS. LIGHTS SHALL TURN OFF WITHIN 20MINS DEFORE SCHOOL OPENING TIME. LIGHTS SHALL TURN OFF WITHIN 20MINS DEFORE SCHOOL OPENING TIME. LIGHTS SHALL TURN PARTIAL-ON WEEKENDS (IF LIGHTING CONTROL IS NOT ACTIVATED BY INTRUSION AND ACCESS CONTRO	TAG	ROOM TYPE	DESCRIPTION
A2       OFFICE       LIGHTS AUTOMATIC ON TO PARTIAL - ON (50%) WHEN OCCUPANCY IS DETECTED. FULL RANGE DIMMING CONTROL VIA LOCAL DIMMER SWITCH.         A3       WASHROOM       LIGHTS AUTOMATIC ON TO FULL - ON (100%) WHEN OCCUPANCY IS DETECTED.         M4       TODDLER, INFANT       INCLUDE DIMMER SWITCH TO CONTROL LIGHTING LEVELS. DAYLIGHT SENSORS CONTROL THE FIRST COLUMN OF LIGHT FIXTURES CLOSE TO THE WINDOWS. THE PHOTOCELL SHALL DIM THE LIGHT FIXTURES TO 30%, 60% AND COMPLETELY TURN OFF BASED ON THE AMOUNT OF DAY LICULGHTS SHALL TURN OFF WITHIN 20MINS OF ALL OCCUPANTS LEAVING THE SPACE.         A5       CORRIDOR       LIGHTS AUTOMATIC ON 100%. LIGHTS SHALL TURN OFF 30 MINS AFTER SCHOOL HOURS. LIGHTS SHALL TURN PARTIAL-ON (50%) 30MINS BEFORE SCHOOL OPENING TIME. LIGHTS CAN BE CONTROLLED MANUALLY ON WEEKENDS (IF LIGHTING CONTROL IS NOT ACTIVATED BY INTRUSION AND ACCESS CONTROL).	1	PRESCHOOL ROOM	LIGHTS AUTOMATIC ON TO PARTIAL - ON (50%) WHEN OCCUPANCY IS DETECTED. LIGHTS SHALL TURN OFF WITHIN 20MINS OF ALL OCCUPANTS LEAVING THE SPACE. INCLUDE DIMMER SWITCH TO CONTROL LIGHTING LEVELS. DAYLIGHT SENSORS CONTROL THE FIRST COLUMN OF LIGHT FIXTURES CLOSE TO THE WINDOWS. THE PHOTOCELL SHALL DIM THE LIGHT FIXTURES TO 30%, 60% AND COMPLETELY TURN OFF BASED ON THE AMOUNT OF DAY LIGHT.
A3       WASHROOM       LIGHTS AUTOMATIC ON TO FULL - ON (100%) WHEN OCCUPANCY IS DETECTED.         A4       TODDLER, INFANT       INCLUDE DIMMER SWITCH TO CONTROL LIGHTING LEVELS. DAYLIGHT SENSORS CONTROL THE FIRST COLUMN OF LIGHT FIXTURES CLOSE TO THE WINDOWS. THE PHOTOCELL SHALL DIM THE LIGHT FIXTURES TO 30%, 60% AND COMPLETELY TURN OFF BASED ON THE AMOUNT OF DAY LIC LIGHTS SHALL TURN OFF WITHIN 20MINS OF ALL OCCUPANTS LEAVING THE SPACE.         A5       CORRIDOR       LIGHTS AUTOMATIC ON 100%. LIGHTS SHALL TURN OFF 30 MINS AFTER SCHOOL HOURS. LIGHTS SHALL TURN PARTIAL-ON (50%) 30MINS BEFORE SCHOOL OPENING TIME. LIGHTS CAN BE CONTROLLED MANUALLY ON WEEKENDS (IF LIGHTING CONTROL IS NOT ACTIVATED BY INTRUSION AND ACCESS CONTROL).	12	OFFICE	LIGHTS AUTOMATIC ON TO PARTIAL - ON (50% )WHEN OCCUPANCY IS DETECTED. FULL RANGE DIMMING CONTROL VIA LOCAL DIMMER SWITCH.
M4       TODDLER, INFANT       INCLUDE DIMMER SWITCH TO CONTROL LIGHTING LEVELS. DAYLIGHT SENSORS CONTROL THE FIRST COLUMN OF LIGHT FIXTURES CLOSE TO THE WINDOWS. THE PHOTOCELL SHALL DIM THE LIGHT FIXTURES TO 30%, 60% AND COMPLETELY TURN OFF BASED ON THE AMOUNT OF DAY LIC LIGHTS SHALL TURN OFF WITHIN 20MINS OF ALL OCCUPANTS LEAVING THE SPACE.         A5       CORRIDOR       LIGHTS AUTOMATIC ON 100%. LIGHTS SHALL TURN OFF 30 MINS AFTER SCHOOL HOURS. LIGHTS SHALL TURN PARTIAL-ON (50%) 30MINS BEFORE SCHOOL OPENING TIME. LIGHTS CAN BE CONTROLLED MANUALLY ON WEEKENDS (IF LIGHTING CONTROL IS NOT ACTIVATED BY INTRUSION AND ACCESS CONTROL).	\3	WASHROOM	LIGHTS AUTOMATIC ON TO FULL - ON (100%) WHEN OCCUPANCY IS DETECTED.
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	\$	CORRIDOR	LIGHTS AUTOMATIC ON 100%. LIGHTS SHALL TURN OFF 30 MINS AFTER SCHOOL HOURS. LIGHTS SHALL TURN PARTIAL-ON (50%) 30MINS BEFORE SCHOOL OPENING TIME. LIGHTS CAN BE CONTROLLED MANUALLY ON WEEKENDS (IF LIGHTING CONTROL IS NOT ACTIVATED BY INTRUSION AND ACCESS CONTROL).
A6 EXTERIOR LIGHTS SHALL BE CONTROLLED BY EXISTING BAS SYSTEM.	.6	EXTERIOR	LIGHTS SHALL BE CONTROLLED BY EXISTING BAS SYSTEM.
106 INFANT SLEEP AREA INCLUDE DIMMER SWITCH TO CONTROL LIGHTING LEVELS.	16	INFANT SLEEP AREA	INCLUDE DIMMER SWITCH TO CONTROL LIGHTING LEVELS.
57 STORAGE LIGHTS CAN BE MANUALLY TURNED ON/OFF USING LOW VOLTAGE SWITCH. LIGHTS SHALL TU OFF WITHIN 20MINS OF ALL OCCUPANTS LEAVING THE SPACE.	7	STORAGE	LIGHTS CAN BE MANUALLY TURNED ON/OFF USING LOW VOLTAGE SWITCH. LIGHTS SHALL TURN OFF WITHIN 20MINS OF ALL OCCUPANTS LEAVING THE SPACE.

PROVIDE 1' X 4' LIGHT FIXTURE AS PER DRAWING SHOWN. CUT SHEETS ARE BEING PROVIDED TO BE REVIEWED BY THE CONTRACTOR.

- 2 SWITCH TO CONTROL THE EXHAUST FAN.
- 3 PROVIDE NEW FIRE ALARM DEVICES (ULC APPROVED) AS SHOWN IN THE DRAWING, FIRE ALARM DEVICES SHALL BE CONNECTED TO EXISTING FIRE ALARM CONTROL PANEL.
- 4 LIGHTS AND EXHAUST FANS WITHIN ALARM ZONES SHALL TURN ON WHEN ZONE IS DISARMED. PROVIDE RELAYS AND CONTROL WIRING/CONDUIT AS REQUIRED. 5 KITCHEN RANGE HOOD FIRE SUPPRESSION DRY CONTACT SHALL BE CONNECTED TO THE FIRE ALARM CONTROL PANEL. PROVIDE WIRING AND

# LIGHTING CONTROL NARRATIVE

![](_page_45_Picture_11.jpeg)

![](_page_46_Figure_0.jpeg)

# 1 PROPOSED FIRST FLOOR POWER AND SYSTEMS SCALE: 1/8" = 1'

DR	AWING NOTES
	PROVIDE WIRING/CONDUIT AS REQUIRED TO FEED OVEN RECEPTACLE AND RANGE HOOD. OVEN/STOVE RECEPTACLE SHALL BE DOWNSTREAM OF SWITCH SHIPPED WITH RANGE HOOD TO SHUT OFF POWER TO THE STOVE AND OVEN IN THE EVENT THE FIRE SUPPRESSION SYSTEM IN THE RANGE HOOD IS ACTIVATED. PROVIDE WIRING BETWEEN RANGE HOOD AND SWITCH. OVEN RECEPTACLE AND UPSTREAM SWITCH SHALL BE SURFACE MOUNTED.
2	INDICATED EXHAUST FANS SHALL COME ON WITH WASHROOM LIGHTS.
3	PROVIDE EQUIPMENT INDICATED IN DETAIL 1 ON DRAWING E5.0 IN CLASSROOM CONTROL PANEL.
4	PROVIDE WIRING/CONDUIT AS REQUIRED TO POWER FIRE SHUTTERS. FIRE SHUTTERS SHALL BE TIED TO FIRE ALARM SYSTEM.
5	PROVIDE WIRING/CONDUIT FROM EXISTING IT RACK TO WIRELESS ACCESS POINTS. REFER TO DRAWING E0.3 FOR IT RACK LOCATION. PROVIDE SPARE WIRING TO EACH WIRELESS ACCESS POINT.
6	PROVIDE SECURITY CAMERA AND WIRING/CONDUIT AS REQUIRED TO CONNECT TO EXISTING SURVEILLANCE SYSTEM. FINAL LOCATION TBD.
7	PROVIDE DOOR CONTACT, CARD READER, ELECTRIC STRIKE, AND ALL ASSOCIATED DOOR HARDWARE TO PROPOSED DOOR LOCATIONS. PROVIDE WIRING/CONDUIT AS REQUIRED TO CONNECT DOOR HARDWARE TO PROPOSED DOOR CONTROLLERS.
8	PROVIDE DOOR CONTROLLERS AND WIRING/CONDUIT AS REQUIRED TO TIE PROPOSED DEVICES TO EXISTING ACCESS CONTROL SYSTEM.
9	PROVIDE BLUE LOCKDOWN BUTTONS IN INDICATED LOCATIONS. BUTTONS SHALL BE TIED TO EXISTING P.A. SYSTEM . REFER TO DRAWING E0.3 FOR P.A. SYSTEM LOCATION.
10	PROVIDE WIRING AND CONDUIT TO RECEPTACLE FOR MICROWAVE TO BE PLACED IN UPPER CABINETS. COORDINATE WITH ARCHITECTURAL FOR MOUNTING HEIGHT IN CABINET.
	PROVIDE WIRING AND CONDUIT TO RECEPTACLE FOR THE WATER FOUNTAIN, MOUNTED AT 14 7/16" A.F.F. (MEASURE TO THE CENTER OF A VERTICALLY MOUNTED RECEPTACLE). COORDINATE WITH ARCHITECTURAL FOR EXACT LOCATION OF WATER FOUNTAIN.
12	PROVIDE WIRING AND CONDUIT TO VVT CONTROL TRANSFORMER. COORDINATE WITH MECHANICAL TRADE.
(13)	PROVIDE WIRING AND CONDUIT TO SENSOR ACTIVATED FLUSH VALVE TRANSFORMER. COORDINATE WITH MECHANICAL TRADE.
14	PROVIDE WIRING/CONDUIT AND DISCONNECT TO JOCKEY PUMP AS REQUIRED.
(15)	PROVIDE RECEPTACLE FOR GAS WATER HEATER. COORDINATE WITH MECHANICAL TRADE.
16	RE-FEED RELOCATED UNIT VENTILATOR. PROVIDE WIRING/CONDUIT AS REQUIRED. MAINTAIN EXISTING CIRCUIT.
GE	NERAL NOTES

- PROPOSED P.A. DEVICES SHALL BE TIED BACK TO EXISTING P.A. SYSTEM. REFER TO DRAWING E0.3 FOR P.A. SYSTEM LOCATION. DAYCARE SHALL BE ON SEPARATE ZONE FROM EXISTING BUILDING.
- . PROPOSED FIRE ALARM DEVICES SHALL BE TIED BACK TO EXISTING FACP IN MAIN ELECTRICAL ROOM. DAYCARE SHALL BE ON SEPARATE ZONE FROM EXISTING BUILDING.
- AIPHONE VIDEO INTERCOMS SHALL BE TIED TO PROPOSED MASTER AND SUB-MASTER STATIONS.

![](_page_46_Picture_7.jpeg)

![](_page_47_Figure_0.jpeg)

![](_page_47_Picture_2.jpeg)

![](_page_48_Figure_0.jpeg)

# **DRAWING NOTES**

- PROVIDE 20A GFCI SERVICE RECEPTACLE AND WEATHER-PROOF ENCLOSURE WITH IN-USE COVER.
- PROVIDE WIRING/CONDUIT AS REQUIRED TO FEED RTU-1 FROM EXISTING SWITCHBOARD. COORDINATE WITH MECHANICAL TRADE. REFER TO DETAIL 1 ON DRAWING E3.0

![](_page_48_Picture_5.jpeg)

November 20, 2024 – 06:23pm Plotted by: rlee

![](_page_49_Figure_0.jpeg)

ORIGINAL SHEET – ARCH D

	PA CABLE SCHEDULE				
TYPE/SYMBOL	CABLE DESCRIPTION				
A	2 CONDUCTOR #18 FT6 SPEAKER CABLE				
В	4 PAIR #24 CAT 5E FT6 INTERCOM CABLE				
С	2 CONDUCTOR #16 FT6 CLOCK CABLE				
D	2 CONDUCTOR #22 SHIELDED FT6 DATA CABLE FOR CLOCK				
NOTES: 1. CABLE SIZE AND SPECIFICATION SHALL BE VERIFIED WITH SYSTEM MANUFACTURER PRIOR TO PURCHASE AND INSTALLATION.					

![](_page_49_Figure_3.jpeg)

![](_page_49_Figure_4.jpeg)

	FIRE ALARM ZONE SCHEDULE
TAG	ZONE NAME
Z1	GROUND FLOOR SOUTH
72	GROUND FLOOR NORTH
Z3	CLASSROOM 107
Ζ4	CLASSROOM 108
Z5	CLASSROOM 109
Z6	CLASSROOM 110
27	CLASSROOM 111
Z8	CLASSROOM 112
Z9	PORTABLE CLASSROOM
Z10	DAYCARE ADDITION

November 20, 2024 – 06:23pm Plotted by: rlee

		NOT	TES: -					
FAINEL								
VOLTAGE: AMPERAGE: kA RATING:	VOLTAGE:         120/208V 3PH 4W         PANEL LOCATION:           AMPERAGE:         100A         FED FROM:           kA RATING:         10         10					LOA LC	D (KW): - X RECESSED AD (A): - SPRINKLERPROC MAIN BREAKER FEED-THRU LUG	DF S
							GROUND I.G	
WATTS	DESCRIPTION	BRK	CCT	PH	CCT	BRK	DESCRIPTION	WATTS
	LIGHTING (101,108,110,116)	15	1	А	2	15	LIGHTING (102,113,114,115,117)	
	LIGHTING (103,104,105,112)	15	3	В	4	15	LIGHTING (106,107)	
	ADO (VESTIBULE 115)	15	5	С	6	15	ADO (NEAR VESTIBULE 115)	
	RECEPTACLES (CORRIDOR 101)	20	7	A	8	15	RECEPTACLES	
	RECEPTACLES (OFFICE 102)	15	9	В	10	15	RECEPTACLES (103, 104)	
	REFRIGERATOR (STAFF 103)	15	11	С	12	15	REFRIGERATOR (INFANT 104)	
	RECEPTACLES (107,108)	15	13	A	14	15	MICROWAVE RECEPTACLE (104)	
	RECEPTACLES (PRESCHOOL 107)	15	15	В	16	15	RECEPTACLE (108)	
	MICROWAVE (STAFF 103)	15	17	C	18	15	REFRIGERATOR (SERVERY 109)	
	SIOVE (SERVERY 109)	50	19	A	20	15	RECEPTACLE (WASHROOM 111)	
	RECEPTACLES (SERVERY 109)	15	21	В	22	15	REFRIGERATOR (SERVERY 109)	
	WATER HEATER RECEPTACLE	15	23	C	24	15	RECEPTACLE (WASHROOM 112)	
	ADO (VESTIBULE A1-101)	15	25	A	26	15	RH-1	
	LIGHTING AND EF-1 (115)	15	27	B	28	15	LIGHTING AND EF-2 (106)	
	LIGHTING AND EF-3 (115)	15	29	C	30	15	HD (112)	
	JOCKEY PUMP	20	31	A	32	15	RECEPTACLE (STORAGE 110)	
	EXTERIOR LIGHTS	15	33	B	34	15	WASHER (LAUNDRY)	
	RECEPTACLE (LAUNDRY)	15	35	<u> </u>	36	20	RECEPTACLES (ROOF)	
	ADO (VESTIBULE A1-101)	15	3/	A	38	15	MICROWAVE RECEPTACLE (104)	
	EXILISIGNS	15	39	В	40	15	EMERGENCY LIGHTING BATTERYS	
	EXTERIOR LIGHTS	15	41		42	15		
		2P	43	A	44	30	DRYER (LAUNDRY)	
	SENSOR PLUMBING FIXTURES	15	43	В	46	28		
			4/		48			
			47 E1	A	50			
			51		52			
			55		54			
			57	R	50			
			50	C	50			
			61		62			
-			42	R	61			
			65	C	64			
			67	A	68			
			69	R	70			
			71	C	72			
			73	A	74			
			75	B	76			
			77	C	78			
			79	A	80			
			81	B	82			
			83	C	84			

 Image: Panel 2LP Schedule

 E4.0
 SCALE: 1:100

![](_page_50_Picture_4.jpeg)

![](_page_51_Figure_0.jpeg)

![](_page_51_Picture_2.jpeg)

### **GENERAL NOTES:**

- I. ALL SERVICES TO BE INSTALLED AS PER CITY OF HAMILTON CONSTRUCTION AND MATERIAL SPECIFICATIONS MANUAL (LATEST EDITION) AND MINISTRY OF THE ENVIRONMENT GUIDELINES (LATEST EDITION).
- 2. MINIMUM HORIZONTAL SEPARATION BETWEEN WATER SERVICES/MAINS AND SEWER DRAINS AND MUNICIPAL SEWER MAINS SHALL BE 2.5 m MEASURED FROM THE CLOSEST PIPE EDGE TO CLOSEST PIPE EDGE. VERTICAL SEPARATION WHERE WATER SERVICE/MAIN PASSES OVER A SEWER DRAIN OR MUNICIPAL SEWER MAIN MUST BE A MINIMUM OF 0.25 m UNLESS GREATER SEPARATION IS REQUIRED TO PROVIDE FOR PROPER BEDDING AND STRUCTURAL SUPPORT. WATER SERVICES/MAINS PASSING UNDER SEWER DRAINS OR MUNICIPAL SEWER MAINS MUST HAVE A SEPARATION OF 0.5 m BETWEEN THE INVERT OF THE SEWER MAIN/DRAIN AND THE CROWN OF THE WATERSERVICE/MAIN.
- ALL WATER SERVICES TO BE INSTALLED WITH A MINIMUM OF 1.6 m COVER. SEWER DRAINS TO BE INSTALLED WITH A MINIMUM COVER OF 2.20 m AT THE PROPERTY LINE BELOW THE FINAL ROAD GRADE OR AT SUCH HIGHER ELEVATION ONLY AS MAY BE NECESSITATED BY THE LEVEL OF THE MAIN SEWER. ON PRIVATE PROPERTY THE MINIMUM COVER FOR SEWER DRAINS IS TO BE NO LESS THAN 1.2 m.
- 3. RESTORATION OF ROAD OVER UTILITY CUTS IN HAMILTON TO BE AS PER STANDARD DRAWINGS RD-100.01 AND RD-100.02, WITH GRANULAR "A" BEDDING.
- APPROVAL OF THIS DRAWING IS FOR MATERIAL ACCEPTABILITY AND COMPLIANCE WITH MUNICIPAL AND PROVINCIAL SPECIFICATIONS AND STANDARDS ONLY. APPROVAL AND INSPECTION BY THE CITY OF THE WORKS DOES NOT CERTIFY THE LINE AND GRADE OF THE WORKS AND IT IS THE OWNER'S RESPONSIBILITY TO HAVE THEIR ENGINEER CERTIFY THIS ACCORDINGLY.
   PVC WATER SERVICE/MAIN MATERIAL, CATHODIC PROTECTION, TRACER WIRE ETC.
- MUST BE AS PER FORM 400.
- 6. ALL UNUSED WATER SERVICES ARE TO BE PROPERLY ABANDONED. FOR SERVICES 50mm AND LESS THE FOLLOWING NOTES SHOULD BE INCLUDED ON THE PLAN:
- "WATER SERVICE ABANDONMENT" (i) CLOSE MAIN STOP
- (ii) REMOVE CURB STOP.(iii) CUT AND CRIMP WATER SERVICE AT EITHER END.

FOR WATER SERVICES GREATER THAN 50mm, USING A TEE AND SLEEVE, THE TEE SHALL BE REMOVED AND REPLACED WITH A SECTION OF PIPE AND SLEEVE. THE REPLACEMENT SECTION OF PIPE SHALL BE OF THE SAME MATERIAL AS THE EXISTING MAINLINE WATERMAIN. WHERE A TAPPING VALVE WAS USED THE APPLICANT SHOULD CONTACT THE CITY FOR FURTHER DIRECTION.

ALL EXISTING WATER METERS ON SYSTEMS TO BE ABANDONED MUST BE REMOVED AND SALVAGED BY THE CITY OF HAMILTON. THE SERVICING CONTRACTOR SHOULD CONTACT THE WATER AND WASTEWATER SECTION, PUBLIC WORKS DEPARTMENT AT 905-546-4426 TO ARRANGE FOR THE WORK.

7. ALL EXISTING UNUSED SEWER DRAINS SERVICING A PROPERTY BEING REDEVELOPED, IN WHOLE OR IN PART, MUST BE EITHER REMOVED FROM MUNICIPAL PROPERTY (I.E. ROAD ALLOWANCE ETC., WITH AN APPROPRIATE REPAIR TO THE MUNICIPAL SEWER MAIN TO WHICH THEY CONNECT), AND REMOVED FROM PRIVATE PROPERTY, OR, ALTERNATIVELY, UNUSED SEWER DRAINS MAY BE ABANDONED IN ACCORDANCE WITH CITY MINIMUM REQUIREMENTS I.E. TRENCHLESS ABANDONMENT BY FILLING THE LATERAL WITH GROUT WITHIN THE ENTIRE ROW.

PROVIDE UTILITY CONDUIT FOR ANY EXISTING UTILITIES LOCATED WITHIN THE MUNICIPAL RIGHT OF WAY WHICH INTERCEPT WITH THE LOCATION OF THE SOIL CELL TREE UNITS.

# SEWER SERVICING

SANITARY AND STORM SEWERS

SPECIFICATIONS.

- a) CONSTRUCTION OF SANITARY & STORM SEWERS & PRIVATE DRAINS SHALL BE IN ACCORDANCE WITH CITY STANDARDS & SPECIFICATIONS (LATEST EDITION) AND MINISTRY OF ENVIRONMENT (MOE) GUIDELINES (LATEST EDITION).
- b) COVER AND BEDDING MATERIAL FOR CONCRETE PIPE SHALL BE GRANULAR 'A' MATERIAL AS PER OPSD 802.030 OR 802.033, CLASS 'B' BEDDING.
- c) COVER AND BEDDING MATERIAL FOR PVC PIPE SHALL BE GRANULAR 'A' MATERIAL AS PER OPSD 802.010 OR 802.013.
- d) PVC PIPE WILL REQUIRE SPECIAL CONSTRUCTION PROCEDURES AS PER CITY
- e) ALL SEWERS TO BE FLUSHED PRIOR TO VIDEO INSPECTION.
- f) MANHOLE FRAMES AND COVERS SHALL BE AS PER OPSD 401.010 (STORM-OPEN, SANITARY-CLOSED).
- g) SANITARY SEWER (200mm TO 375mm DIA) SHALL BE PVC PIPE, CSA B182.2. SDR-35.
- h) STORM SEWER (300m TO 600mm DIA.) SHALL BE PVC PIPE, CSA B182.2, SDR-35.
  i) STORM SEWER > 600mm DIA. SHALL BE CONCRETE PIPE, CSA A257.2 (AS
- j) PVC (SANITARY AND STORM) SEWERS ARE TO BE TESTED FOR DEFLECTION (MANDREL PASSAGE) AFTER INSTALLATION. SANITARY SEWERS SHALL ALSO BE TESTED FOR LEAKAGE (LOW AIR PRESSURE). PRIOR TO ASSUMPTION BY THE CITY, PIPE DEFLECTION TESTING SHALL BE REPEATED.
- k) ALTERNATE MATERIALS MAY BE ACCEPTABLE PROVIDED APPROVAL HAS FIRST BEEN OBTAINED FROM THE CITY/ENGINEER.

### 2 PRIVATE DRAINS

Specified)

- a) 'S' DENOTES SINGLE SANITARY PRIVATE DRAIN CONNECTION. 'D' DENOTES DUAL PRIVATE DRAIN CONNECTION (SANITARY & STORM).
- b) TO BE LOCATED 1.5m ON RIGHT SIDE OF CENTERLINE OF LOT OR AS DETAILED AND EXTENDED 1.0m BEYOND THE STREET LINE. THE STORM SERVICE SHALL BE INSTALLED TO THE NORTH OR EAST OF THE SANITARY SERVICE.
- c) PRIVATE DRAINS TO BE 150MM DIA. PVC PIPE, CSA B182.1 M-1983, SDR 28 AS PER FORM 500. STORM PIPE SHALL BE WHITE AND SANITARY SHALL BE ANY COLOUR OTHER THAN WHITE. WOOD MARKING AT END OF SANITARY PRIVATE DRAIN SHALL BE PAINTED RED.
- d) COVER AND BEDDING MATERIAL FOR PRIVATE DRAINS SHALL BE GRANULAR 'A' INSTALLED AS PER OPSD 802.010 OR 802.013.
- e) MINIMUM FALL FOR PRIVATE DRAINS TO BE 2.0%.
- f) TOP OF SANITARY PRIVATE DRAINS AT STREET LINE TO BE 2.2m (MIN.) BELOW CENTERLINE ROAD ELEVATION AT THAT POINT OR AS DETAILED.
- g) TOP OF STORM PRIVATE DRAINS AT STREET LINE TO BE 1.2m (MIN.) BELOW CENTERLINE ROAD ELEVATION AT THAT POINT OR AS DETAILED.
- h) BUILDING RAINWATER LEADERS SHALL NOT BE CONNECTED TO THE STORM PRIVATE DRAIN BUT SHALL DISCHARGE ONTO THE GROUND SURFACE VIA SPLASH
- ) SUMP PUMPS WITH CHECK VALVES SHALL BE INSTALLED IN EACH DWELLING TO PUMP THE BUILDING WEEPING TILES TO THE STORM PRIVATE DRAINS. THE SUMP OUTLET PIPE SHALL EXTEND A MINIMUM OF 150MM ABOVE THE PROPOSED GRADE AT THE DWELLING (BASEMENT CEILING) PRIOR TO DISCHARGING TO THE STORM PRIVATE DRAIN.

# WATER SERVICING

#### 1 WATERMAINS

- a) CONSTRUCTION OF WATERMAINS & PRIVATE SERVICES SHALL BE IN ACCORDANCE WITH CITY STANDARDS & SPECIFICATIONS (LATEST EDITION) AND MINISTRY OF ENVIRONMENT (MOE) GUIDELINES (LATEST EDITION).
- b) TO BE INSTALLED TO A MINIMUM DEPTH OF 1.80m BELOW PROPOSED CENTERLINE ROAD GRADE ON ALL ROADS EXCEPT ON (NAME OF ROAD) WHERE THE MINIMUM DEPTH IS 1.6m.
- c) PVC PIPE IN SIZES 100mm THROUGH 300mm SHALL BE CLASS 150 DR18 CONFORMING TO AWWA C900. FOR 400mm, SEE SECTION 7: SPECIAL NOTES.
- d) TRACER WIRE SHALL BE INSTALLED WITH PVC PIPE IN ACCORDANCE WITH FORM 400. IT SHALL BE 12 GAUGE TW75, TWU75 OR RW90XLPE COATED COPPER AND SHALL BE POSITIONED ALONG THE TOP OF THE PIPE AND FASTENED AT 6 METRE INTERVALS. THE WIRE IS TO BE INSTALLED BETWEEN EACH VALVE AND/OR THE END OF THE NEW PVC WATERMAIN. JOINTS IN THE WIRE BETWEEN VALVES ARE NOT PERMITTED. AT EACH GATE VALVE A LOOP WIRE IS TO BE BROUGHT UP INSIDE THE VALVE BOX TO THE CAP. THE TRACER WIRE SHALL BE BROUGHT TO THE SURFACE AT THE SECONDARY VALVE ON ALL FIRE HYDRANTS. THE TRACER WIRE SHALL ALSO BE CONNECTED TO THE CATHODIC PROTECTION SYSTEM AS REQUIRED.
- e) MOLDED PVC FITTINGS FOR PIPE SIZES 100mm TO 300mm SHALL CONFORM TO AWWA C900 AND CERTIFIED TO CSA B137.2.
- ) FABRICATED FITTINGS 250mm AND 300mm SHALL BE MANUFACTURED FROM SEGMENTS OF AWWA C900, CLASS 150 (DR18) PVC PIPE, BONDED TOGETHER AND OVER-WRAPPED WITH FIBREGLASS-REINFORCED POLYESTER TO MEET THE REQUIREMENTS OF CSA B137.3.
- g) WHERE METAL FITTINGS ARE TO BE USED ON PVC MAINS SUFFICIENT CATHODIC PROTECTION MUST BE PROVIDED AS PER THE FOLLOWING REQUIREMENTS:
   i. MINIMUM OF ONE 11KG ZINC ANODE SHALL BE INSTALLED FOR EVERY
- iii. ONE 11KG ZINC ANODE SHALL BE INSTALLED FOR EACH COPPER WATER
- SERVICE CONNECTION; iii. ONE 11KG ZINC ANODE SHALL BE INSTALLED ON EVERY VALVE, HYDRANT,
- BEND, TEE, SLEEVE, REDUCER, PLUG, CAP, JOINT RESTRAINT, COUPLING, ETC., CONNECTED TO THE PVC PIPE.
- h) BEDDING AND BACKFILL AS PER WM-200.01 AND WM-200.02 GRANULAR 'A' MATERIAL FOR MAINS AND SERVICES GREATER THAN 50mm.
- i) WATERMAIN DEFLECTION FOR PVC PIPE:
- MAXIMUM ALLOWABLE DEFLECTION OF 1.5 DEGREES PER JOINT UP TO 250mm DIAMETER (160mm PER 6.1m PIPE LENGTH) AND 1.2 DEGREES FOR 300mm DIAMETER (128mm PER 6.1m PIPE LENGTH) SHALL NOT BE EXCEEDED.
   ALL JOINTS SHALL BE DEFLECTED AN EQUAL AMOUNT.
- 2 FLUSHING, SWABBING AND TESTING
- a) ALL NEW WATERMAINS ARE TO BE SWABBED IN ACCORDANCE WITH CITY SPECIFICATIONS.
- b) A REDUCED PRESSURE ZONE BACKFLOW PREVENTER (WATTS SERIES 909 OR APPROVED EQUAL) IS REQUIRED ON THE TEMPORARY SUPPLY LINES USED FOR FILLING AND FLUSHING OR SWABBING OF WATERMAINS.
- c) UPON COMPLETION OF INSTALLATION, THE CONTRACTOR SHALL PERFORM A PRESSURE TEST ON THE WATERMAINS AS PER FORM 400. WATERMAIN IS TO BE TESTED PRIOR TO CONNECTION TO EXISTING WATERMAINS USING TEMPORARY CAPS OR PLUGS. PIPE CLOSURES, WHERE REQUIRED, ARE TO BE SUPPLIED BY THE CONTRACTOR. THE CONTRACTOR WILL ALSO SUPPLY AND INSTALL ALL ADAPTOR PIECES IN ORDER TO CONNECT TO EXISTING WATERMAINS.

#### VALVES & VALVE BOXES

- a) ALL VALVE BOXES TO BE SET TO PROPOSED GRADES.b) 100MM TO 300mm GATE VALVE & VALVE BOXES AS PER WM-202.
- 4 ANCHOR BLOCKS
- a) FOR 100mm TO 300mm WATERMAINS STANDARD CONCRETE ANCHOR BLOCKS AS PER WM- 204.01.

# ROAD WORK

- 1 SIDEWALKS AND CURBS & GUTTERS
- a) CONCRETE CURB AND GUTTER AS PER OPSD 600.040 (BARRIER TYPE), MIN. 30 MPA STRENGTH. A 50mm KEY IS REQUIRED FOR ALL LOCATIONS.
- b) CURB DEPRESSION AT DRIVEWAYS AS PER OPSD 600.040 AND OPSD 310-050.
- c) 1.5m WIDE CONCRETE SIDEWALK AS PER OPSD 310.010 (125mm THICKNESS, MIN. 30 MPA STRENGTH WITH GRANULAR 'A' BASE AS REQUIRED TO PROVIDE A LEVELING COURSE FOR THE CONCRETE. AT DRIVEWAYS, CONCRETE DEPTH TO BE MIN. 175mm.
- d) WHEELCHAIR RAMPS REQUIRED AT ALL INTERSECTIONS AS PER OPSD 310.030.
- e) ASPHALT RAMPING SHALL BE PLACED TO SUIT THE WHEELCHAIR RAMPS IF SURFACE COURSE ASPHALT IS NOT INSTALLED AT THE SAME TIME. THESE RAMPS ARE TO BE REMOVED JUST PRIOR TO PLACEMENT OF SURFACE COURSE ASPHALT.
- 2 ROAD SUBDRAINS

STANDARDS.

ENTRAINMENT.

a) 100mm FILTER WRAPPED CORRUGATED SUBDRAINS TO BE INSTALLED CONTINUOUSLY BELOW THE CURB AND GUTTER AND CONNECTED TO THE CBS.

## **CONCRETE CURBS, SIDEWALKS & PADS**

- 1. ALL BARRIER CURB WITHIN SITE TO BE OPSD 600.110, ALL CURB DEPRESSIONS ACROSS ENTRANCE DRIVEWAYS TO BE AS PER CITY STANDARD DRAWING OR MUNICIPAL
- 2. CURBS AT ALL PEDESTRIAN CONNECTIONS/CROSSING TO BE RECESSED CURBS, FLUSH WITH PAVEMENT SURFACE.
- 3. CONCRETE TO BE 35MPa COMPRESSIVE AT 28 DAYS WITH 5% TO 7% AIR
- 4. EXPANSION JOINTS SHALL BE LOCATED AT A MAXIMUM 4.5m ON CENTRE AND WHERE CONCRETE MEETS OTHER HARD SURFACES AND STRUCTURES. (COORDINATE WITH LANDSCAPE/ARCHITECT DRAWINGS)
- 5. CONSTRUCTION JOINTS WITH DOUBLE EDGER IN FRESH CONCRETE THEN SAWCUT TO A DEPTH OF 30mm. JOINTS SHALL BE SPACED AT MAXIMUM 1.5 METRES ON CENTRE. (COORDINATE WITH LANDSCAPE DRAWINGS)
- 6. SLUMP OF CONCRETE SHALL BE 80mm.
- 7. CONCRETE SIDEWALK TO BE AS PER OPSD 310.010

# **COMPACTION REQUIREMENTS**

- a) ALL BEDDING AND BACKFILL MATERIAL, ROAD SUB-GRADES AND GENERALLY ALL MATERIAL USED FOR LOT GRADING AND FILL SECTIONS, ETC., SHALL BE COMPACTED TO MIN. 95% SPD (UNLESS OTHERWISE RECOMMENDED BY THE GEOTECHNICAL ENGINEER). ALL MATERIAL SHALL BE PLACED IN LAYERS NOT EXCEEDING 300mm LIFTS.
- b) ALL GRANULAR ROAD BASE MATERIALS SHALL BE COMPACTED TO 95% SPD.
- c) FOR ALL SEWERS AND WATERMAINS IN FILL SECTIONS, THE COMPACTION SHALL BE CERTIFIED BY A GEOTECHNICAL ENGINEER PRIOR TO LAYING OF PIPE.

#### SITE GRADING

- 1. NATIVE BACKFILL MATERIAL SHALL BE COMPACTED TO 98% STANDARD PROCTOR DENSITY. GRANULAR BACKFILL MATERIAL SHALL BE PLACED IN LAYERS 150mm IN DEPTH AND COMPACTED TO 98% STANDARD PROCTOR DENSITY.
- 2. REFER TO SITE PLAN FOR LAYOUT DIMENSIONS AND DETAILS.
- 3. PAVEMENT SHALL BE AS NOTED BELOW PER PINCHIN LTD. GEOTECHNICAL PROJECT REPORT No. 313695 DATED DECEMBER 06, 2022 RECOMMENDATIONS:

#### PAVEMENT COMPONENT

HEAVY DUTY ASPHALT (DRIVEWAYS)			
LAYER DESCRIPTION	COMPACTION REQUIREMENTS	THICKNESS	
SURFACE COURS ASPHALTIC CONCRETE HL-4 (OPSS 1150)	92% MRD AS PER OPSS 310	35mm	
BINDER COURSE ASPHALTIC CONCRETE HL-8 (OPSS 1150)	92% MRD AS PER OPSS 310	85mm	
BASE COURSE: GRANULAR "A" (OPSS 1010)	100% STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM-D698)	150mm	
SUBBASE COURSE: GRANULAR "B" TYPE I (OPSS 1010)	100% STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM-D698)	450mm	
LIGHT DUTY ASPHALT (PARKIN	IG LOTS)		
SURFACE COURS ASPHALTIC CONCRETE HL-4 (OPSS 1150)	92% MRD AS PER OPSS 310	35mm	
BINDER COURSE ASPHALTIC CONCRETE HL-8 (OPSS 1150)	92% MRD AS PER OPSS 310	55mm	
BASE COURSE: GRANULAR "A" (OPSS 1010)	100% STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM-D698)	150mm	
SUBBASE COURSE: GRANULAR "B" TYPE I (OPSS 1010)	100% STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM-D698)	350mm	

- 4. SUBMIT ASPHALT MIX DESIGN AND TRIAL MIX TEST RESULTS TO CONSULTANT FOR APPROVAL
- PROOF ROLLING OF SUBGRADE SHALL BE INSPECTED BY THE GEOTECHNICAL CONSULTANT.
- 6. PLACE GRANULAR BASE TO COMPACTED THICKNESS AS INDICATED. DO NOT PLACE FROZEN MATERIAL.
- 7. ASPHALT MATERIALS SHALL BE ROLLED AND COMPACTED TO A MINIMUM OF 97%
- 8. PROOF ROLLING OF ASPHALT SHALL BE INSPECTED BY THE GEOTECHNICAL
- CONSULTANT.
- 9. NO PAVING WILL BE ALLOWED DURING RAIN OR WET SUBGRADE AFTER RAIN.

### LOT GRADING NOTES

#### ENERAL GRADING NOTES

- I. ALONG ADJOINING PROPERTIES GRADE TO MEET EXISTING OR PROPOSED ELEVATIONS WITH SODDED SLOPES (MIN. 3H TO 1V) AND/OR RETAINING WALLS AS SPECIFIED.
- 2. ALL RETAINING WALLS, WALKWAYS, CURBS, ETC., SHALL BE PLACED A MIN. OF 0.45m OFF THE PROPERTY LINE. ALL WALLS 1.0m OR HIGHER SHALL BE DESIGNED BY A P ENG
- B. SHOULD A RETAINING WALL BE REQUIRED, THE TOP OF WALL ELEVATIONS SHALL BE SET 150mm ABOVE THE PROPOSED SIDE YARD SWALES.
- 4. RETAINING WALLS 0.6M IN HEIGHT OR GREATER REQUIRE CONSTRUCTION OF A FENCE OR GUARD RAIL AT THE TOP OF THE REAR OF THE WALL. GUARDS FOR RETAINING WALLS SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS OF EXTERIOR GUARDS AS CONTAINED IN THE ONTARIO BUILDING CODE.
- 5. SLOPES OF SWALES FOR BOTH "BACK TO FRONT" AND "SPLIT" DRAINAGE SHALL BE NO LESS THAN 2.0% GRADE AND NO GREATER THAN 33% GRADE (3:1 SLOPES)
- WHEN MATCHING TO EXISTING PROPERTIES WHERE A 2.0% GRADE CANNOT BE ACHIEVED, A 1.5% GRADE IS PERMITTED PROVIDED A 150mm SUB-DRAIN IS INSTALLED BELOW THE BOTTOM OF THE SWALE AND DRAINED TO A SUITABLE OUTLET, (WITH A MINIMUM 0.3m COVER OVER THE SUB-DRAIN), OR OTHER MITIGATION MEASURES.
- MINIMUM GRADE FOR A WRAP-AROUND SWALE IN THE BACKYARD SHALL BE 1.0%.
   UNLESS OTHERWISE NOTED, THE GROUND BETWEEN PROPOSED ELEVATIONS ON SIDE
- 9. TOP OF FOUNDATION WALLS FOR BUILDINGS SHALL BE 150mm (MIN) ABOVE

LOTS SHALL BE GRADED AS A STRAIGHT LINE.

FINISHED GRADE.

- 0. DRIVEWAY SLOPES SHALL NOT BE LESS THAN 2% AND NOT MORE THAN 7.0%. REVERSED SLOPED DRIVEWAYS IN NEW DEVELOPMENTS ARE NOT PERMITTED.
- 1. GARAGE FLOOR ELEV. TO BE SET MINIMUM 0.3m HIGHER THAN BACK OF WALK, UNLESS OTHERWISE SPECIFIED.
- 12. ALL FILL PLACED ON LOTS SHALL BE COMPACTED TO A MINIMUM 95% SPD (UNLESS OTHERWISE RECOMMENDED BY THE GEOTECHNICAL ENGINEER). ALL MATERIAL SHALL BE PLACED IN LAYERS NOT EXCEEDING 300mm LIFTS.
- 13.FOR DELINEATION OF TREE PROTECTION ZONES, BUFFERS, REMOVALS AND PROTECTION SCHEMATICS, ETC., REFER TO TREE PROTECTION PLAN.
- 14.IF GRADING IS REQUIRED ON LANDS ADJACENT TO THE DEVELOPMENT WHICH ARE NOT OWNED BY THE DEVELOPER, THEN THE DEVELOPER MUST OBTAIN WRITTEN PERMISSION FROM THE ADJACENT PROPERTY OWNER TO ALLOW THE DEVELOPER TO GRADE ON THE ADJACENT LANDS, OTHERWISE RETAINING WALLS MUST BE USED.
- 5. THE WRITTEN PERMISSION REQUIRED FROM THE ADJACENT LANDOWNER SHALL BE OBTAINED PRIOR TO ENTERING THE LANDS. SHOULD PERMISSION NOT BE OBTAINED OR IS WITHDRAWN PRIOR TO COMMENCING THE WORK, THEN THE DEVELOPER SHALL LIMIT HIS ACTIVITIES TO THE LIMITS OF THE DEVELOPMENT SITE.
- 6. DRIVEWAY AND DRIVEWAY APPROACHES SHALL BE LOCATED SUCH THAT HYDRO VAULTS AND OTHER STREET FURNITURE ARE A MIN. OF 1.2m FROM THE PROJECTIONS OF THE OUTSIDE GARAGE WALLS.

## SILTATION AND EROSION CONTROL

A. SILTATION CONTROL BARRIERS SHALL BE PLACED AS DETAILED.

GRADING, EXCAVATING, OR DEMOLITION.

- 3. ALL SILTATION CONTROL MEASURES SHALL BE CLEANED AND MAINTAINED AFTER EACH RAINFALL AND ALSO WEEKLY AS DIRECTED AND TO THE SATISFACTION OF THE CITY OF HAMILTON.
- C. ADDITIONAL SILT CONTROL LOCATIONS MAY BE REQUIRED AS DETERMINED BY THE CITY OF HAMILTON.
- D. ALL SILT FENCING TO BE INSTALLED PRIOR TO COMMENCEMENT OF ANY AREA
- E. PROTECT ALL DISTURBED AND EXPOSED AREAS AS A RESULT OF CONSTRUCTION. STORM WATER MEASURES DURING CONSTRUCTION TO BE UTILIZED TO ENSURE SUITABLE DRAINAGE WHILE MINIMIZING EROSION. STOCKPILES ARE TO BE SEEDED OR COVERED WITH VEGETATIVE GROWTH FOR THE DURATION OF CONSTRUCTION.
- . PROTECT ALL MANHOLES, AND PIPE ENDS (EXISTING AND NEW) FROM SEDIMENT INTRUSION WITH GEOTEXTILE CLOTH (TERRAFIX 270r), ALL CATCHBASINS TO HAVE SILTSACK AS PER THE ATTACHED DETAILS.
- G. 4. PREVENT WIND-BLOWN DUST TO THE BEST OF THE CONTRACTORS ABILITY. KEEP SOIL DAMP DURING DRY WHETHER OR BY OTHER MEANS NECESSARY TO COMPLETE THE WORK.
- H. EROSION CONTROL STRUCTURES TO BE MONITORED REGULARLY BY CONTRACTOR AND ANY DAMAGE REPAIRED IMMEDIATELY. SEDIMENTS TO BE REMOVED WHEN ACCUMULATIONS REACH A MAXIMUM OF ONE THIRD (1/3) THE HEIGHT OF THE SILT FENCE.
- I. ALL EROSION CONTROL STRUCTURES TO REMAIN IN PLACE UNTIL ALL DISTURBED GROUND SURFACES HAVE BEEN RE-STABILIZED EITHER BY PAVING OR RESTORATION OF VEGETATIVE GROUND COVER.
- J. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING SEDIMENTS FROM THE MUNICIPAL ROADWAY AND SIDEWALKS AT THE END OF EACH WORK DAY.
- K. MUD MATS OF 50 CRUSHER RUN LIMESTONE OR 75 ASPHALT ON MINMUM DEPTH OF CRUSHER RUN LIMESTONE, (20m LONG, 10m WIDE, 450mm DEEP) SHALL BE PROVIDED ON SITE CONSTRUCTION ENTRANCES,. CONTRACTOR TO ENSURE ALL VEHICLES LEAVE THE SITE VIA THE MUD MAT AND THAT THE MAT IS MAINTAINED IN A MANNER TO MAXIMIZE ITS EFFECTIVENESS AT ALL TIMES. REFERENCE SHOULD BE DRAWN TO LOCATIONS ON DRAWING.

A CALE AND A CALE AND

15 Foundry Street, Dundas, ON, L9H 2V6 Phone: (905)648-0373 www.manteconpartners.com

SEAL

REVIEW ALL DRAWINGS AND VERIFY ALL DIMENSIONS AT THE SITE. DO NOT SCALE THE DRAWINGS. REPORT ALL DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING WITH ANY CONSTRUCTION OR SHOP FABRICATION. ALL DRAWINGS, SPECIFICATIONS AND RELATED DOCUMENTS ARE THE COPYRIGHT PROPERTY OF 'MANTECON PARTNERS' AND MUST BE RETURNED UPON REQUEST. REPRODUCTION OF DRAWINGS, SPECIFICATIONS AND RELATED DOCUMENTS IN PART OR WHOLE IS FORBIDDEN WITHOUT THE ENGINEER'S WRITTEN PERMISSION.

9.	ISSUED FOR TENDER	2024-11-20	Y.T.	
8.	ISSUED FOR PERMIT	2024-10-25	Y.T.	
7.	RE-ISSUED FOR SPA SUBMISSION	2024-10-10	Y.T.	
6.	ISSUED FOR 90% SUBMISSION	2024-09-11	A.A.	
5.	RE-ISSUED FOR SPA SUBMISSION	2024-07-31	Y.T.	
4.	ISSUED FOR SPA SUBMISSION	2023-11-30	Y.T.	
3.	ISSUED FOR 80% SUBMISSION	2023-02-17	C.B.	
2.	ISSUED FOR 60% SUBMISSION	2023-01-19	C.B.	
1.	ISSUED FOR 30% COORDINATION	2022-11-10	Y.T.	
NO.	ISSUED	DATE	BY	
KEY MAP: N.T.S				

![](_page_52_Picture_127.jpeg)

WORKSHOP ARCHITECTURE

PROJECT:

CSV PAVILLON DE LA JEUNESSE CHILDCARE ADDITION 105 HIGH STREET HAMILTON, ON

November 19, 2024 - 10:51am Plotted by: aabuwarda

GENERAL NOTES

DRAWN BY: A.A. CHECKED BY: Y.T. DATE: NOV 2022 PROJECT NUMBER: 22-059

![](_page_52_Picture_133.jpeg)

![](_page_53_Figure_0.jpeg)

![](_page_53_Figure_2.jpeg)

![](_page_53_Figure_3.jpeg)

![](_page_53_Picture_4.jpeg)

STRUCTURAL MECHANICAL ELECTRICAL CIVIL engineers

15 Foundry Street, Dundas, ON, L9H 2V6

Phone: (905)648-0373 www.manteconpartners.com

SEAL

![](_page_54_Figure_0.jpeg)

ile: J: \Drawings\22—059—Ecole Elementaire Pavillon de la jeunesse— Childcare Addition— Workshop Architecture\3—Working Document:

November 19, 2024 - 10:53am Plotted by: aabuwarda

![](_page_55_Figure_0.jpeg)

ORIGINAL SHEET - ARCH D

![](_page_55_Picture_2.jpeg)

![](_page_56_Figure_0.jpeg)

ORIGINAL SHEET - ARCH D

November 20, 2024 - 09:08am Plotted by: aabuwarda

![](_page_57_Figure_0.jpeg)

BENCH	١M,
ELEVATIONS BENCHMARK	ARI ( NO.
<u>BEARIN</u>	<u>G I</u>
BEARINGS REFERENCE OBSERVATIC	ARE POIN NS, L
OBSERVED F (CSRS) (2010 14(2) OF O.R	REFER ). C EG.2
POINT ID	
ORP A	
ORP B	

![](_page_57_Picture_3.jpeg)

22-059

November 20, 2024 - 08:58am Plotted by: aabuwarda

![](_page_58_Figure_0.jpeg)

ORIGINAL SHEET – ARCH D

REFER	DESCRIPTION
	PROPERTY LINE
	EX BUILDING
	NEW BUILDING
	EX ASPHALT
	NEW ASPHALT
	NEW CONCRETE
	NEW GRASS
+ XXX.XX	EX ELEVATION
+[XXX.XX]	NEW ELEVATION
U	EX OVERHEAD SERVICE
СВ	NEW CATCH BASIN
Омн	NEW SEWER MANHOLE
$\Theta$	NEW VALVE BOX
×	PROPOSED SILT FENCE
	PROPOSED SILTATION CONTR
FH	DENOTES FIRE HYDRANT
UP	DENOTES UTILITY POLE
МН	DENOTES MAINTENANCE HOL
	DENOTES CATCHBASIN
СВ	

![](_page_58_Figure_3.jpeg)

PROJECT: CSV PAVILLON DE LA JEUNESSE CHILDCARE ADDITION 105 HIGH STREET HAMILTON, ON

WORKSHOP ARCHITECTURE

DRAWING TITLE: SEDIMENT & EROSION CONTROL PLAN

![](_page_58_Picture_8.jpeg)

IIFNT

SCALE: AS NOTED DRAWING NUMBER:

![](_page_58_Picture_10.jpeg)

November 20, 2024 — 09:13am Plotted by: aabuwarda

![](_page_59_Figure_0.jpeg)

ORIGINAL SHEET – ARCH D

![](_page_59_Picture_2.jpeg)

November 20, 2024 — 09:13am Plotted by: aabuwarda

- RUNOFF COEFFICIENT

![](_page_60_Figure_0.jpeg)

ORIGINAL SHEET - ARCH D

![](_page_60_Picture_2.jpeg)

22-059

November 20, 2024 — 09:14am Plotted by: aabuwarda

- RUNOFF COEFFICIENT

![](_page_61_Figure_0.jpeg)

Date

20 Jan, 2023

24 Feb, 2023

24 Apr, 2023

21 Nov, 2023

11 Sep, 2024

18 Nov, 2024

20 Nov, 2024

![](_page_62_Figure_0.jpeg)

All drawings and relate Aboud & Associates Ind whole or in part without This drawing should no dimensions to be check such dimensions to be	a documents are the property of c, and may not be reproduced in the Landscape Architects perm t be used to calculate areas. All used on site by the contractor and their responsibility. This drawing.	iission.
shall not be used for co "Issued for Construction are to be immediately re	nstruction unless identified as " Drawing errors or discrepanci eported to the Landscape Archit	ies tect.
Rev   D     1   Issued for	escription	<b>Date</b> 20 Jan, 2023
2 Issued for 3 Issued for	80% Review Coordination	24 Feb, 2023 24 Apr. 2023
4 Issued for 5 Issued for	Coordination Site Plan Approval	21 Nov, 2023 06 Dec. 2023
6 Reissued for 7 Issued for	or Site Plan Approval 90% Review	30 May, 2024 11 Sep, 2024
<ul><li>8 Issued for</li><li>9 Issued for</li></ul>	Building Permit Tender	18 Nov, 2024 20 Nov, 2024
LEGEND:		
	EXISTING TREE	
•	PROPOSED DEC	IDUOUS TREES
	PROPOSED TOP	SOIL AND SOD
	PROPOSED ART	IFICIAL TURF
_00	CHAIN LINK FEN PROPOSED 2000	
	TYPE, DESIGN, FINISH, CON WALL BY PROFESSIONAL EN PRACTICE IN THE PROVINCE	NECTION/EMBEDMENT IN NGINEER LICENSED TO E OF ONTARIO
QTY SPE	PLANT KEY	
Consulting Arbor 3-5 Edinburgh Road South . C	ists • Ecologists • Lands Guelph . Ontario . N1H 5N8 . 519.822.	cape Architects .6839 . www.abouding.com
CSV Pa	villon de la	
Jeuness	e Daycare	Addition
105 High Si Hamilton		GARON-14 Overhearto 24P
	NO	NO SLOT
PROJECT CODE	E: SC. 1 :	ale: 100
DATE: 20 Jan, 2023	ST/ B Design D	atus: evelopment
Propose Enlarger	d Landsca nent	pe Plan
North		drawing number
	L	.1.2

- 1. Plant Characteristics, Rootballs, Rootball Standards including minimum rootball diameters specified on these plans are to be in accordance with the Canadian Nursery Landscape Association Canadian Standards for Nursery Stock, current edition
- 2. Planting shall only be performed when weather and soil conditions are suitable for planting the materials specified in accordance with locally accepted practice. Install plant materials during the planting time as described below unless otherwise approved in writing by Landscape Architect. In the event that the Contractor request planting outside the dates of the planting season, approval of the request does not change the requirements of the warranty. • Deciduous Trees: April 1 - June 30 and September 1 – November 15
  - Deciduous Shrubs: April 1 June 30 and September 1 November 15
  - Perennials and Groundcover: April 1 June 30 and September 1 November 15
- Evergreen Trees and Shrubs: March 15 June 30 and September 1 November 15
- Transportation of plants should be restricted to closed vans or trucks covered with mesh tarpaulin or, similar material, to protect the leaves or needles from windburn or desiccation. This may be supplemented by spraying the foliage with an antidesiccant prior to shipping.
- 4. Plant material shall at no time be dropped or handled roughly. 5. Protect plant material from frost, excessive heat, wind and sun following delivery.
- 6. Immediately store and protect plant material, which will not be installed within 1 hour after arrival at site in storage
- location, approved by the Landscape Architect. 7. Protect stored plant material from frost, wind and sun and as follows: For pots and containers, maintain moisture
- level in containers. 8. For balled and burlapped and wire basket root balls, place to protect branches from damage. Maintain moisture level
- in root zones. 9. Topsoil or plantings shall not be placed or installed when in a frozen condition, under adverse field conditions such as high wind, frozen soil or soil covered with snow, ice, or standing water.
- 10. The Landscape Architect and Municipal Staff has the right to reject any and all plant material that does not conform to the requirements of this specification at any time regardless of any previous approval.
- 11. When a plant has been rejected, immediately remove it from the area of the Work and replace it with a plant of the required species, size and quality at the earliest planting period consistent with these specifications. Replacement plant material shall meet all the requirements of this specification. Rejected plants shall be replaced at no cost to the
- 12. Acceptance shall not be given for the planting Work until all plants rejected during the course of the Work are replaced
- 13. Any plant that has the following characteristics shall be cause for rejection:
- 13.1. Only nursery grown plants will be accepted. 13.2. Any plant that has a canopy with 25% or more dead or removed limbs.
- 13.3. Evidence of damage to plant material, which diminishes the aesthetic character/form, biological integrity, or structural integrity of the plant or group of plants .
- 13.4. Evidence of improper digging; inadequate protection following digging; carelessness while in transit; evidence of desiccation or wind-related damage; cold damage; improper handing or storage; root zones that have dried to the point of leaf wilt; cracked, loose, damaged or distorted root balls.
- 13.5. Plants with undersized root balls or containers, kinked or girdling roots, matted roots on the top, and edges of the container, excessive surface adventitious roots, root balls and containers with no structural roots in the top 75mm of the soil.
- 13.6. Plants balled with synthetic, treated or non-biodegradable fabrics.
- 13.7. Any tree that is of a species that characteristically has a dominant central leader, and if the leader is dead or removed, the tree will not have a form consistent with the species.
- 13.8. Any tree that has open wounds (not completely healed over) that penetrates the cambium into the wood on trunks or major limbs the removal of which would result in the loss of 25% or more of the structure and form of the tree

14. Topsoil shall be loose, friable, fertile loamy material that is free from subsoil, weeds, roots, vegetation and other deleterious material greater than 25mm diameter in the greatest dimension. The topsoil shall also be certified by an OMAFRA Accredited Soil Testing Laboratory in Ontario to meet the following requirements:

- 14.1. Topsoil texture shall be loam, sandy loam to sandy clay loam with clay content between 15 and 20% and a
- combined gravel and stone content of no more than 8%. 14.2. Herbicides = No detectable levels
- 14.3. Organic Matter = Minimum of 4.0% content
- 14.4. Phosphorus = Minimum of 30ppm Bray-P1
- 14.5. Potassium = 200ppm, and have a 2.0% or greater base saturation
- 14.6. Magnesium = 10.0% to 20.0% base saturation 14.7. Potassium / Magnesium Ratio (K/Mg) = Ratio Range of 0.2 to 0.35
- 14.8. Calcium = Less than 85.0% base saturation
- 14.9. Sodium = Less than 0.5% base saturation
- 14.10.pH = 6.0 to 7.3 14.11. Micronutrients = High
- 14.12. Shall not have contaminants that adversely affect plant growth.
- 14.13. The cost to amend existing on-site topsoil to be reused shall be paid for by the Owner.
- 14.14. The cost to amend imported topsoil supplied by the Contractor to meet Agronomist written recommendations shall be paid for by the Contractor.
- 15. Water shall not have contaminants or impurities that would adversely affect the germination and growth of vegetation. Proposed plants which come over or under any utility shall be relocated by the Contractor for review by the Landscape Architect, to the satisfaction of the utility provider.
- 16. Mulch shall be chipped hardwood or softwood as specified in the planting details. Free from roots, leaves, twigs, debris, stones, fungus, crabgrass rhizomes, or any material detrimental to plant growth. Material shall be mulching grade, uniform in size and foreign matter. Mulch that has become saturated with water and presents an anaerobic odor shall be rejected.
- 17. Anti-Desiccant shall be emulsion type, film-forming agent similar to Dowax by Dow Chemical Company, or Wilt-Pruf by Nursery Specialty Products, Inc., Croton Falls, New York, designed to permit transpiration but retard excessive loss of moisture from plants. Deliver in manufacturer's fully identified containers and use in accordance with manufacturer's instructions. Submit manufacturers product data for approval.
- 18. Contractor to examine the surface grades and soil conditions for any circumstances that might be detrimental to plant growth, such as deposits of construction-related waste or soil contamination, storage of material or equipment, soil compaction or poor drainage. Contractor to examine the grading, verify all elevations, and notify the Landscape Architect in writing of any unsatisfactory conditions.
- 19. Contractor to inspect each plant after delivery and prior to installation for damage of other characteristics that may cause rejection of the plant.
- 20. Excavate pits, beds, and trenches with vertical sides and with bottom of excavation slightly raised at center to provide proper drainage. When conditions detrimental to plant growth are encountered, such as rubble fill, adverse drainage conditions, or obstructions, notify the Consultant before planting. Dispose of subsoil removed from planting excavations. Do not mix with planting soil or use as backfill. Plants to be planted in prepared planting soil may utilize the soil removed from the planting hole as backfill around the root ball.
- 21. Set edge of the root ball at the elevation of the proposed finish. Consult the grading plan and utilize a builder's level or transit to determine the grade at the tree grade. For trees on sloped surfaces, set the edge of the root ball at the average grade around the tree. Set the plant plumb and in the location indicated on the plan. The root flare and tree graft, if applicable, shall be visible at the top of the root ball, above the grade. Do not place soil on top of the root ball and remove soil pushed above root flare by mechanical potting/balled & burlapping process during transplantation by the nurserv.
- 22. When set, brace root ball by tamping backfilled soil around the lower portion of the root ball. Place additional backfill around base and sides of ball in 150mm lifts. Work each lift to settle backfill and eliminate voids and air pockets. When excavation is approximately two-thirds full, water thoroughly before placing remainder of backfill. Ropes or strings on top of ball shall be cut and removed. Burlap or cloth wrapping shall be cut and removed from the top of the root ball. The top horizontal ring of support wire baskets shall be cut in four places and the top half of the wire basket folded down into the soil.
- 23. Where staking is required, caliper trees shall be supported by wooden stakes driven outside the ball in line with the direction of the prevailing wind. The stakes must be driven a minimum of 70 centimetres below the grade line, leaving a minimum of 5 centimetres between the top of the stakes and the first branch. Tree tie type and installation method to be per planting detail. Stakes shall be 50mm x 50mm hardwood stakes free of knots and of lengths appropriate to the size plant required for to adequately support the plant.
- 24. Tree Guard type and installation per planting detail. 25. Maintain all trees and shrubs in a plumb position throughout the warranty period. Straighten all trees including those not staked. Plants to be straightened shall be excavated and the root ball moved to a plumb position, and then re-backfilled. Do not straighten plants by pulling the trunk with guys.
- 26. Do not apply any fertilizer to plantings during the first year after transplanting, unless soil tests determine that fertilizer or other chemical additives are required. If required, fertilizers shall be applied according to the
- manufacturer's instructions and standard horticultural practices. 27. Pruning shall be done with clean, sharp, rust-free tools. Cuts shall be made flush, leaving no stubs as per ANSI A
- 300 current edition. No tree paint or sealants shall be used. 28. Dead wood, suckers, and broken and badly bruised branches shall be removed. Do not prune plant material that has
- been severely damaged due to transit or handling until viewed by the Landscape Architect. 29. Pruning of broken or dead branches shall be done after planting. Form-corrective pruning may occur when tree has hardened until bud-break in the spring. If corrective pruning dates fall outside the construction schedule, it shall
- remain a punch list (warranty) item. The Contractor shall be responsible for completing this off-season punch list (warranty) item. 30. Mulch top of root balls and planting beds, covering the entire planting bed area.
- 31. Water each plant on the day of installation to saturate the soil around the roots and wash the soil into the root zone. After the soil has drained, reset any settled plants or grades around the plant, adding soil if required.
- $1 \rightarrow$  TREE, SHRUB, AND PERENNIAL INSTALLATION NOTES L1.3

- 2.1. Sod shall be uniform in texture, and in good healthy condition with no sign of decay.
- maximum.

- gravel and stone content of no more than 8%.
- 6.2. Herbicides = No detectable levels 6.3. Organic Matter = Minimum of 4.0% content
- 6.4. Phosphorus = Minimum of 30ppm Bray-P1
- 6.6. Magnesium = 10.0% to 20.0% base saturation
- 6.7. Potassium / Magnesium Ratio (K/Mg) = Ratio Range of 0.2 to 0.35
- 6.9. Sodium = Less than 0.5% base saturation
- 6.10. pH = 6.0 to 7.3 6.11. Micronutrients = High
- paid for by the Contractor

- or soil covered with snow, ice, or standing water.

- 14.3. End joints of adjacent sod pieces shall be staggered.

- 14.7. Joints shall be tamped to a uniform surface.

15. Sod shall be maintained by the Contractor as part of base price during the establishment period (30 Days) following completion of placement. During this period, the placed sod shall be kept healthy, actively growing, and green in colour. This requirement shall be suspended during the winter dormant period defined as November 15 to April 15 inclusive. During the establishment period the Contractor will:

15.4. If chemical means are used, comply with all municipal, provincial, and federal legislation and regulations.

2	SOD INSTALLA
L1.3 /	

1. Sod shall be a No. 3 Commercial Grade Turfgrass Nursery Sod, Kentucky Bluegrass/Fine Fescue according to the Classifications and Use of Turfgrass Sod for Ontario.

2. Sod shall be seeded and established in nursery sod fields as a turfgrass sod.

2.2. There shall be no more than 5 broadleaf weeds per 40 m2 of sod and up to 20% non-specified grass seed. 2.3. Sod shall be of sufficient density that no surface soil is visible. The grass height shall be 30 mm minimum and 70 mm

3. The soil portion of the sod shall be a good mineral type soil with a thickness of 10 mm minimum and 15 mm maximum. 4. Each sod piece shall be well permeated with roots. Individual sod pieces shall be in such condition so that each may be lifted, rolled, transported, and placed without breaking or tearing and without loss of soil under normal handling conditions. 5. Sod shall contain sufficient moisture to maintain its vitality during transportation and placement.

6. Topsoil shall be loose, friable, fertile loamy material that is free from subsoil, weeds, roots, vegetation and other deleterious material greater than 25mm diameter in the greatest dimension. The topsoil shall also be certified by an OMAFRA Accredited Soil Testing Laboratory in Ontario to meet the following requirements:

6.1. Topsoil texture shall be loam, sandy loam to sandy clay loam with clay content between 15 and 20% and a combined

6.5. Potassium = 200ppm, and have a 2.0% or greater base saturation

6.8. Calcium = Less than 85.0% base saturation

6.12. Shall not have contaminants that adversely affect plant growth.

6.13. The cost to amend existing on-site topsoil to be reused shall be paid for by the Owner. 6.14. The cost to amend imported topsoil supplied by the Contractor to meet Agronomist written recommendations shall be

7. Water shall not have contaminants or impurities that would adversely affect the germination and growth of vegetation. 8. Sod shall not be separated from its mineral soil base and not damaged during transportation, handling, and placement. 9. Surface litter and debris shall be removed immediately prior to topsoil or sod placement. 10. Topsoil or sod shall not be placed when in a frozen condition, under adverse field conditions such as high wind, frozen soil

11. Topsoil shall be placed, spread and leveled as required to match grades as indincated in the grading drawings prepared by the Project Civil Engineer and to allow for positive drainage away from pathways and structures.

12. Minimum consistent depth for topsoil in areas to be sodded after settlement shall be 200mm deep, 13. At the time of sodding, all surface areas designated for sodding shall be free of erosion and shall have a fine graded uniform surface. The surface shall be uniformly cultivated to a minimum depth of 50 mm and shall not have surface materials greater

than 25 mm in size, such as stones and clods and weeds or other unwanted vegetation.

14. Sod shall be placed in locations and as specified in the landscape drawings. 14.1. Voids shall not be left between the soil portion of the sod and the underlying ground surface.

14.2. Sod shall be securely placed lengthwise across the face of slopes and parallel to the centreline of ditches.

14.4. The edges of adjacent sod pieces shall be placed tightly against one another without overlapping.

14.5. Sod shall be countersunk to existing grade level at all edges. 14.6. Butt joints will be used where new sod blends with existing grass; lap joints will not be permitted.

14.8. Where required, sod should be staked to the grade to avoid movement.

15.1. Install temporary barriers or signage to be maintained where required to protect newly established sod. 15.2. Water to maintain soil moisture conditions for optimum establishment, growth and health of plant material without causing erosion. In a typical loam soil, optimum soil moisture in planting beds at root depth is 65% of field capacity. 15.3. Mow to a height of 60mm (2.5") when turf reaches height of 80mm (3") at least twice during the establishment period. 15.4. If required to control insects, fungus and disease, use appropriate control methods in accordance with Federal, Provincial and Municipal regulations. Obtain product approval from Consultant prior to application.

15.5. Control outbreaks of perennial weeds and annual weeds by mechanical or chemical means utilizing acceptable integrated pest management practices to meet acceptance/success targets.

TION AND ESTABLISHMENT NOTES

![](_page_63_Figure_117.jpeg)

KEY	QTY	BOTANICAL NAME	COMMON NAME	
SHRU	3S			
Am	35	Aronia x 'Low Scape Mound'	Low Scape Mound Chok	
Js	7	Juniperus sabina 'Calgary Carpet'	Calgary Carpet Juniper	
	42	Total Trees		

![](_page_64_Figure_0.jpeg)

#### CONCEPT DRAWING FOR INFORMATION TO CONVEY DESIGN INTENT ONLY

CONTRACTOR TO PROVIDE SITE SPECIFIC DETAILED SHOP DRAWINGS INDICATING MATERIALS, DIMENSIONS, SIZES, REINFORCING, AND FINISHES DESIGN FOR REVIEW BY THE ARCHITECT, LANDSCAPE ARCHITECT AND CLIENT PRIOR TO FABRICATION AND INSTALLATION CONTRACTOR TO INCLUDE COST OF SHOP DRAWINGS, MATERIALS, FABRICATION AND INSTALLATION AS PART OF BID.

- 1 STORAGE SHED L1.4 / N.T.S.
- NOTES: 1. ALL DIMENSIONS ARE IN MILLIMETERS. DO NOT SCALE DRAWING. 2. EXISTING GRANULAR BASE MATERIAL ON SITE MAY BE REUSED FOR NEW PAVING INSTALLATIONS, PROVIDED THAT MATERIAL IS INSPECTED AND APPROVED IN
- WRITING BY A GEOTECHICAL ENGINEER. 3. AGGREGATE MATERIALS SHALL CONFORM TO OPSS 1001, OPSS 1003 AND OPSS 1010.
- 4. ASPHALT MATERIALS SHALL CONFORM TO OPSS 1150. TACK COAT SHALL BE AN ASPHALTIC EMULSION SS-1, DILUTED WITH AN EQUAL VOLUME OF WATER, CONFORMING TO OPSS 1103.
- MIX, HANDLE, PLACE AND COMPACT ASPHALT IN ACCORDANCE WITH OPSS 310. 7. SPECIFIED DEPTHS OF MULCH, SAFETY SURFACE AND TOPSOIL ARE DEPTHS AFTER SETTLEMENT. SPECIFIED DEPTH OF ASPHALT AND GRANULAR BASES IS
- COMPACTED DEPTH. 8. ENSURE THAT THERE IS A SMOOTH TRANSITION BETWEEN HARD AND SOFT SURFACES (ASPHALT TO SOD AND ASPHALT TO MULCH). 9. CONTRACTOR SHALL PROVIDE GEOTECHNICAL ENGINEER'S WRITTEN APPROVAL OF MATERIALS, COMPACTION AND DENSITY TESTING RESULTS, AS WELL AS VERIFICATION OF DEPTHS, FOR FILL, SUBGRADE, GRANULAR SUBBASE, GRANULAR BASE, ASPHALT BINDER COURSE, AND ASPHALT SURFACE COURSE PRIOR TO
- PROCEEDING TO EACH SUBSEQUENT COURSE.

ASPHALT PATCHING AND SEAMS AT EXISTING ASPHALT NOTES 1. EXISTING PAVEMENT SHALL BE REMOVED OVER ANY UNDERMINING. ALL VERTICAL EDGES TO BE TACK COATED WITH SS-1 EMULSIFIED ASPHALT TO OPSS 310. SURFACE OF ALL EDGES TO BE SEALED WITH A BEAD OF HOT RUBBERIZED ASPHALT.

![](_page_64_Figure_11.jpeg)

![](_page_64_Picture_12.jpeg)

![](_page_64_Figure_14.jpeg)

MASTER PLANT LIST						
KEY	QTY	BOTANICAL NAME	COMMON NAME	SIZE	TYPE	REMARKS
TREES	TREES					
AR	2	Acer rubrum	Red Maple	60mm Caliper	Wire Basket	8m Min. On Centre Spacing
TA	2	Tilia americana	Basswood	60mm Caliper	Wire Basket	8m Min. On Centre Spacing
	4	Total Trees				•
SHRUE	3S					
Am	35	Aronia x 'Low Scape Mound'	Low Scape Mound Chokeberry	50cm Height	3Gal Potted	0.5m On Centre Spacing
Js	7	Juniperus sabina 'Calgary Carpet'	Calgary Carpet Juniper	50cm Spread	5 Gal Potted	1.0m On Centre Spacing
	42	Total Trees				

REVISION DATE 06/30/2021 CADdetails.com

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### Description

Issued for Internal Review	20 Jan, 2023
Issued for 80% Review	24 Feb, 2023
Issued for Coordination	24 Apr, 2023
Issued for Coordination	21 Nov, 2023
Issued for Site Plan Approval	06 Dec, 2023
Reissued for Site Plan Approval	30 May, 2024
Issued for 90% Review	11 Sep, 2024

- 8 Issued for Building Permit 9 Issued for Tender
- 11 Sep, 2024 18 Nov, 2024 20 Nov, 2024

Date

![](_page_64_Picture_29.jpeg)

# CSV Pavillon de la Jeunesse Daycare Addition

![](_page_64_Picture_31.jpeg)

Proposed Landscape Plan Details II

![](_page_64_Picture_33.jpeg)

![](_page_64_Picture_34.jpeg)

![](_page_65_Figure_0.jpeg)

![](_page_65_Figure_5.jpeg)

Set plant plumb in planting bed or centre of pit, except where the plant's character requires variation from this. Position the plant for best viewing.

Plant so that after settlement, the level of the adjacent growing medium surface matches the level of the original growing medium surface in the nursery

100mm Ø mulch free area at stem

100mm depth Shredded Pine Mulch or Composted Pine Mulch Remove and dispose of entire plastic or fibre containers, all wrappings and tags, without disturbing rootball.

600mm depth Growing Medium (Existing Topsoil and/or Imported Topsoil) Placed in 150mm lifts, tamped around rootball. Throughly water growing medium after 2/3 of planting pit is filled to assist with settling and reducing air pockets. After water has been absorbed, place growing medium in remaining portion of planting pit.

Planting pit with sloped sides. Scarify sides and bottom to a depth of 10cm and thoroughly mix to avoid an abrupt texture or glazed interface that could impede root development.

Undisturbed or compacted subgrade to 80% SPMDD below planting bed

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#### Rev Description

- Date
- 1 Issued for Internal Review 20 Jan, 2023 2 Issued for 80% Review 24 Feb, 2023 3 Issued for Coordination 24 Apr, 2023 4 Issued for Coordination 21 Nov, 2023 5 Issued for Site Plan Approval 06 Dec, 2023 6 Reissued for Site Plan Approval 30 May, 2024 7 Issued for 90% Review
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![](_page_65_Picture_21.jpeg)

# CSV Pavillon de la Jeunesse Daycare Addition

![](_page_65_Picture_23.jpeg)

Proposed Landscape Plan Details III

![](_page_65_Picture_25.jpeg)

![](_page_65_Picture_26.jpeg)