

**KAWARTHA PINE RIDGE DISTRICT SCHOOL BOARD**  
**PUR25-049-ITT**  
**Enniskillen Public School Refresh – Phase 2**

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**ADDENDUM NO. 3**

This addendum shall form an integral part of the bid documents for the above noted Bid and shall be read in conjunction therewith. This addendum shall, however, take precedence over all requirements as it pertains to the particular and specific items noted below.

**ADDITIONAL INFORMATION**

**Add (1):** Section 00 01 10, Addendum Form, Pinchin File No. 34917.020, prepared by Pinchin, (8 pages)

**Add (2):** Section 00 91 13, Addendum 2, prepared by Salter Pilon Architecture, Drawing A601, (16 pages)

**Delete (3):**

**1.5 ITT Timetable**

**1.5.1 Key Dates**

Issue date for ITT	<b>April 16, 2025</b>
Mandatory Site Meeting	<b>April 23, 2025 at 4:00 PM local time</b>
Deadline for Questions	<b>April 30, 2025 at 2:00:00 PM local time</b>
Deadline for Issuing Addenda	<b>May 6, 2025</b>
Submission Deadline	<b>May 13, 2025 at 2:00:00 PM local time</b>
On Site Construction Start Date	<b>June 30, 2025</b>
Occupancy Date	<b>August 22, 2025</b>
Substantial Performance of the Work Date	<b>August 21, 2025</b>
Ready-for-Takeover Date	<b>August 28, 2025</b>
Construction Total Completion Date	<b>August 29, 2025</b>
Irrevocability Period	<b>60 (Sixty) Days</b>

**Add (3):**

**1.5 ITT Timeline**

**1.5.1 Key Dates**

Issue date for ITT	<b>April 16, 2025</b>
Mandatory Site Meeting	<b>April 23, 2025 at 4:00 PM local time</b>
Deadline for Questions	<b>April 30, 2025 at 2:00:00 PM local time</b>
Deadline for Issuing Addenda	<b>May 7, 2025</b>
Submission Deadline	<b>May 14, 2025 at 11:00:00 AM local time</b>
On Site Construction Start Date	<b>June 30, 2025</b>
Occupancy Date	<b>August 22, 2025</b>
Substantial Performance of the Work Date	<b>August 21, 2025</b>
Ready-for-Takeover Date	<b>August 28, 2025</b>
Construction Total Completion Date	<b>August 29, 2025</b>
Irrevocability Period	<b>60 (Sixty) Days</b>

**END OF ADDENDUM NO. 3**

**Part 1 General**

**1.1 ADDENDUM FORM**

- .1 This Addendum forms part of the Contract Documents and modifies the Bidding Documents dated February 2025, with amendments and additions noted below.
- .2 This addendum consists of two (2) pages plus the following list of drawings:

No.	Drawing Title	Issue Date
HM-01	Asbestos Specifications	May 2, 2025

**1.2 CLARIFICATION OF SCOPE OF WORK**

- .1 Classroom 01 (Loc. 10) and Classroom 02 (Loc. 9) have been removed from the scope of work for the project.
- .2 Previously presumed asbestos-containing floor mastic in Classroom 114A (Loc. 33) and Classroom 114B (Loc. 32) has been sampled and analyzed and found to be non-asbestos. Asbestos abatement procedures are no longer required for removal.
- .3 Type 2 removal of drywall bulkheads with asbestos-containing joint compound in Classroom 143 (Loc. 28), Corridor (Loc. 25), and Classroom 114B (Loc. 32) has been added to the scope of work.

**1.3 CHANGES TO THE PROJECT MANUAL**

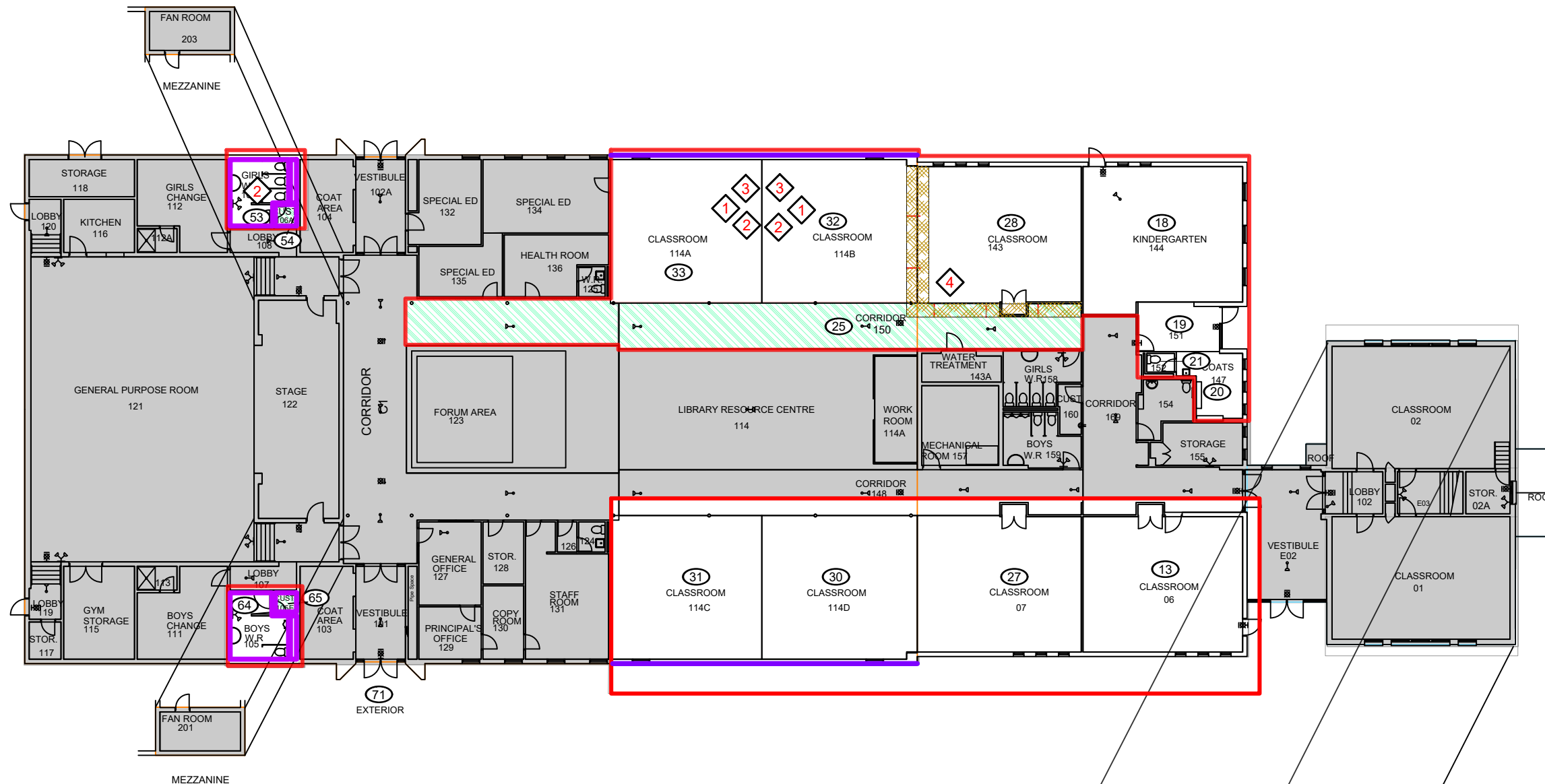
- .1 DOCUMENT 02 81 00 – HAZARDOUS MATERIALS – GENERAL PROVISIONS
  - .1 Refer to Article 1.2, remove item:
    - .1 Paragraph .3.1.1
    - .2 Paragraph .3.2
  - .2 Refer to Article 1.3, remove item:
    - .1 Paragraph .5.2
    - .2 Paragraph .5.6
  - .3 Refer to Article 1.9, Paragraph .2 revise to state:
    - .1 All workers completing Type 1 or 2 asbestos abatement must be trained in compliance with Section 19 of O.Reg. 278/05.
  - .4 Refer to Article 1.9, remove item:
    - .1 Paragraph .2.1
  - .5 Refer to Article 1.13, Paragraph .9.4 revise to state:
    - .1 Milestone Review – Post Abatement Sampling
  - .6 Refer to Article 1.13, remove item:
    - .1 Paragraph .9.4.2
  - .7 Refer to Article 1.14, remove item:
    - .1 Paragraph .4

- .8 Refer to Article 1.18
  - .1 Remove Article in its entirety.
- .2 DOCUMENT 02 81 00.01 – ASBESTOS ABATEMENT – TYPE 1 PRECAUTIONS
  - .1 Refer to Article 3.5
    - .1 Remove Article in its entirety.
- .3 DOCUMENT 02 81 00.03 – ASBESTOS ABATEMENT – TYPE 3 PRECAUTIONS
  - .1 Remove document in its entirety.

#### **1.4 CHANGES TO DRAWINGS**

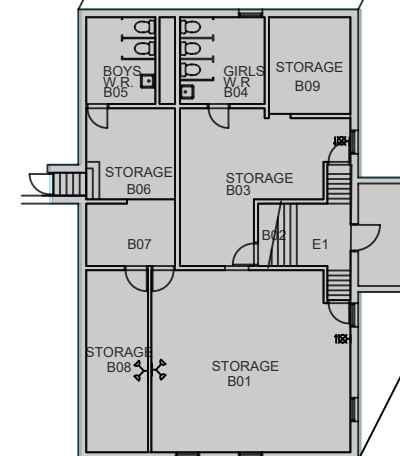
- .1 DRAWING HM-01 – Asbestos Specifications
  - .1 Classroom 01 (Loc. 10) and Classroom 02 (Loc. 9) have been removed from the assessed area.
  - .2 Presumed asbestos-containing floor mastic in Classroom 114A (Loc. 33) and Classroom 114B (Loc. 32) has been removed from the drawing.
  - .3 Clarifies asbestos containing drywall joint compound to be abated in Classroom 143 (Loc. 28), Corridor (Loc. 25), and Classroom 114B (Loc. 32).

**END OF ADDENDUM NUMBER NO. 349417.020-01**

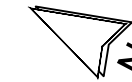


## SCOPE OF WORK

- FOLLOWING TYPE 1 ASBESTOS PROCEDURES, AS PER O.REG. 278/05, REMOVE BASEBOARDS AND TACKBOARD MASTIC FROM MASONRY WALLS WITH ASBESTOS CONTAINING PAINT.
- FOLLOWING TYPE 2 ASBESTOS PROCEDURES, AS PER O.REG. 278/05, REMOVE/INSTALL MECHANICALLY FIXED ITEMS TO BLOCK WALLS WITH ASBESTOS CONTAINING PAINT USING POWER TOOLS WITH HEPA FILTER.
- FOLLOWING TYPE 2 PROCEDURES, AS PER O.REG. 278/05, REMOVE BLOCK MASONRY WALLS WITH ASBESTOS-CONTAINING PAINT USING POWER TOOLS WITH A HEPA FILTER.
- FOLLOWING TYPE 2 PROCEDURES, AS PER O.REG. 278/05, REMOVE ASBESTOS CONTAINING DRYWALL JOINT COMPOUND FROM BULKHEAD



BASEMENT FLOOR PLAN



### LEGEND

- PINCHIN LOCATION NUMBER
- ASSESSED AREA
- OUTSIDE ASSESSMENT SCOPE

### ASBESTOS-CONTAINING MATERIALS:

- PAINT ON WALL
- JOINT COMPOUND ON BULKHEAD
- PARGING CEMENT

FOR CLARITY, THE FOLLOWING ASBESTOS-CONTAINING MATERIALS, ARE PRESENT IN THE ASSESSED AREA, BUT HAVE NOT BEEN HATCHED ON THE DRAWING:

- BASEBOARD ADHESIVE
- EXPANSION JOINT CAULKING
- DRYWALL JOINT COMPOUND ON WALLS AND COLUMNS

LEGEND IS COLOUR DEPENDENT.  
NON-COLOUR COPIES MAY ALTER INTERPRETATION.

BASE PLAN PROVIDED BY CLIENT.



PROJECT NAME:  
ASBESTOS ABATEMENT SPECIFICATIONS

CLIENT NAME:  
KAWARTHA PINE RIDGE  
DISTRICT SCHOOL BOARD

PROJECT LOCATION:  
ENNISKILLEN PUBLIC SCHOOL  
8145 OLD SCUGOG ROAD  
ENNISKILLEN, ONTARIO

FIGURE NAME:  
FIRST FLOOR

PROJECT NUMBER:  
349417.020

SCALE:  
NOT TO SCALE

DRAWN BY:  
DP

REVIEWED BY:  
NR

DATE:  
FEBRUARY 2025

FIGURE NUMBER:  
HM-01



## Pinchin Ltd. Asbestos Laboratory *Certificate of Analysis*

<b>Project Name:</b>	<b>KPRDSB, Enniskillen PS, 71 Bridge St, Lakefield, ON</b>		
<b>Project No.:</b>	<b>0349417.020</b>		
<b>Prepared For:</b>	<b>S. Yeo</b>		
<b>Lab Reference No.:</b>	<b>b336308</b>		
<b>Analyst(s):</b>	<b>A. Kaur</b>		
<b>Date Received:</b>	<b>April 25, 2025</b>	<b>Samples Submitted:</b>	<b>3</b>
<b>Date Analyzed:</b>	<b>May 2, 2025</b>	<b>Phases Analyzed:</b>	<b>15</b>

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The Pinchin Ltd. Mississauga asbestos laboratory is accredited by the National Institute of Standards and Technology, National Voluntary Laboratory Accreditation Program (NVLAP Lab Code 101270-0) for the 'EPA – 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples,' and the 'EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials'; and meets all requirements of ISO/IEC 17025:2017. The Pinchin asbestos laboratory uses the aforementioned methods of analysis for all bulk materials. Please be advised that bulk materials do not include debris, dust, and tape-lift samples, and the analysis and reporting of these materials does not conform with Pinchin Ltd.'s NVLAP accreditation.

Bulk samples are checked visually and scanned under a stereomicroscope. Slides are prepared and observed under a Polarized Light Microscope (PLM) at magnifications of 40X, 100X or 400X as appropriate. Asbestos fibres are identified by a combination of morphology, colour, refractive index, extinction, sign of elongation, birefringence and dispersion staining colours. A visual estimate is made of the percentage of asbestos present. A reported concentration of less than (<) the regulatory threshold indicates the presence of confirmed asbestos in trace quantities, limited to only a few fibres or fibre bundles in an entire sample. This method complies with provincial regulatory requirements where applicable. Multiple phases within a sample are analyzed and reported separately.

All bulk samples submitted to this laboratory for asbestos analysis are retained for a minimum of three months. Samples may be retrieved, upon request, for re-examination at any time during that period.

This report relates only to the items tested.

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## Pinchin Ltd. Asbestos Laboratory *Certificate of Analysis*

Project Name: KPRDSB, Enniskillen PS, 71 Bridge St, Lakefield, ON  
Project No.: 0349417.020  
Prepared For: S. Yeo

Lab Reference No.: b336308  
Date Analyzed: May 2, 2025

### **BULK SAMPLE ANALYSIS**

SAMPLE IDENTIFICATION	SAMPLE DESCRIPTION	% COMPOSITION (VISUAL ESTIMATE)	
		ASBESTOS	OTHER
0046A Classroom 114A - Location 33 - Floor Mastic	5 Phases:		
	a) Homogeneous, white, consolidated, vinyl floor tile.	None Detected	Non-Fibrous Material > 75%
	b) Homogeneous, yellow, brittle, mastic material.	None Detected	Non-Fibrous Material > 75%
	c) Homogeneous, black, soft, tar material.	None Detected	Tar and other Non-Fibrous Material > 75%
	d) Homogeneous, colourless, soft, sticky material.	None Detected	Non-Fibrous Material > 75%
	e) Homogeneous, grey, levelling compound.	None Detected	Cellulose 5-10% Non-Fibrous Material > 75%
Comments:	Phases a) and d) are small in size. Synthetic fibres and hair are present on the surface of this sample.		



**Pinchin Ltd. Asbestos Laboratory**  
***Certificate of Analysis***

Project Name: KPRDSB, Enniskillen PS, 71 Bridge St, Lakefield, ON  
Project No.: 0349417.020  
Prepared For: S. Yeo

Lab Reference No.: b336308  
Date Analyzed: May 2, 2025

**BULK SAMPLE ANALYSIS**

SAMPLE IDENTIFICATION	SAMPLE DESCRIPTION	% COMPOSITION (VISUAL ESTIMATE)	
		ASBESTOS	OTHER
0046B Classroom 114A - Location 33 - Floor Mastic	5 Phases:		
	a) Homogeneous, white, consolidated, vinyl floor tile.	None Detected	Non-Fibrous Material > 75%
	b) Homogeneous, yellow, brittle, mastic material.	None Detected	Non-Fibrous Material > 75%
	c) Homogeneous, black, soft, tar material.	None Detected	Tar and other Non-Fibrous Material > 75%
	d) Homogeneous, colourless, soft, sticky material.	None Detected	Non-Fibrous Material > 75%
	e) Homogeneous, grey, levelling compound.	None Detected	Cellulose 5-10% Non-Fibrous Material > 75%
Comments:	Phases a) and d) are small in size. Synthetic fibres and hair are present on the surface of this sample.		





**Pinchin Ltd. Asbestos Laboratory**  
***Certificate of Analysis***

Project Name: KPRDSB, Enniskillen PS, 71 Bridge St, Lakefield, ON  
Project No.: 0349417.020  
Prepared For: S. Yeo

Lab Reference No.: b336308  
Date Analyzed: May 2, 2025

**BULK SAMPLE ANALYSIS**

SAMPLE IDENTIFICATION	SAMPLE DESCRIPTION	% COMPOSITION (VISUAL ESTIMATE)	
		ASBESTOS	OTHER
0046C Classroom 114B - Location 32 - Floor Mastic	5 Phases:		
	a) Homogeneous, white, consolidated, vinyl floor tile.	None Detected	Non-Fibrous Material > 75%
	b) Homogeneous, yellow, brittle, mastic material.	None Detected	Non-Fibrous Material > 75%
	c) Homogeneous, black, soft, tar material.	None Detected	Tar and other Non-Fibrous Material > 75%
	d) Homogeneous, colourless, soft, sticky material.	None Detected	Non-Fibrous Material > 75%
	e) Homogeneous, grey, levelling compound.	None Detected	Cellulose 5-10% Non-Fibrous Material > 75%
Comments:	Phases a), c) and d) are small in size. Synthetic fibres and hair are present on the surface of this sample.		

Reviewed by:

Digitally signed  
by Pinchin Ltd.  
Date: 2025.05.02  
11:54:38-04'00'

Reporting Analyst:

Digitally signed  
by Pinchin Ltd.  
Date: 2025.05.02  
11:55:11-04'00'



Analyzed by: A Kaur  
Reviewed by: HB  
Report Sent by: YQ

**Pinchin Ltd. - Asbestos Laboratory**  
**Internal Asbestos Bulk Sample Chain of Custody**

Client Name:	KPRDSB	Project Address:	71 Bridge St, Lakefield, ON
Portfolio/Building No:	Enniskillen PS	Pinchin File:	349417.020
Submitted by:	Spencer Yeo	Email:	<a href="mailto:syeo@pinchin.com">syeo@pinchin.com</a>
CC Results to:	Cal Cathcart	CC Email:	<a href="mailto:ccathcart@pinchin">ccathcart@pinchin</a>
Date Submitted:	April 25 2025	Required by:	May 1 2025
# of Samples:	3	Priority:	5 Day Turnaround
Year of Building Construction (Mandatory Field):	1972		
Do NOT Stop on Positive (Sample Numbers):			
Pinchin Group Company (Mandatory Field):	Pinchin		

To be Completed by Lab Personnel Only: <u>6336308 u.</u>					
Lab Reference #:	<u>APR 25 2025</u>		Time:	24 hour clock	
Received by:			Date:	Month	Day 2021
Name(s) of Analyst(s):	<u>A Kaur</u>			<u>May</u>	<u>2 2025</u>
Sample Prefix	Sample No.	Sample Suffix	Sample Description/Location (Mandatory)		
	0046	A	Classroom 114A - Location 33 - Floor Mastic <u>a) ND b) ND c) ND d) ND e) ND</u>		
	0046	B	Classroom 114A - Location 33 - Floor Mastic <u>a) ND b) ND c) ND d) ND e) ND</u>		
	0046	C	Classroom 114B - Location 32 - Floor Mastic <u>a) ND b) ND c) ND d) ND e) ND</u>		

(15)

THE BID DOCUMENTS, CONDITIONS OF CONTRACT, DRAWINGS AND SPECIFICATIONS ARE HEREBY AMENDED, AS FOLLOWS:

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**Amendment 1**  
**Revised Architectural Drawings**

- 1.1 Replace Architectural Drawing “A601 – Reflected Ceiling Plan, Door & Window Schedule” previously issued with those issued herewith.

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**Amendment 2**  
**Electrical Addendum E-1**

- 2.1 Electrical Addendum E-1, prepared by Quasar Consulting Group issued herewith.

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**Amendment 3**  
**Q&A**

- 3.1 Please refer to the following for responses to questions:

**Question 1:**

On drawings A601 there are 2 aluminum windows detailed W1 and W2. Can you please provide the specifications for these windows.

**Answer 1:**

Specifications were provided in Architectural Addendum 01.

**Question 2:**

D114C and D11D note to modify existing frame to suit new door height. Can you please provide more details, is the glazing to be replaced and what modifications are to be made?

**Answer 2:**

Please refer to Architectural Addendum 02. A601 now includes an elevation with notes to clarify.

**Question 3:**

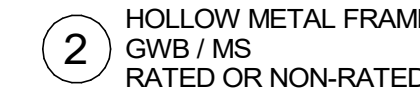
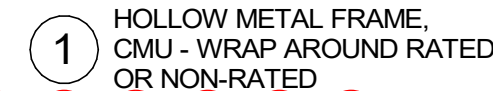
Need single line drawing for new panel  
Need location of splitter and new panel (not indicated on drawing)  
Need clock specs and number of clocks if electrician is supplying  
Is integrated testing required for this project?

**Answer 3:**

1. No SLD is required, new circuits are being extended from an existing panel 'G' as shown on drawing E-002. There is no new panelboard being added.
2. There is no new splitter required or new panel. Panel LP-G is an existing panel as noted on drawing E-002 and should be labelled as existing panel within panel schedule on drawing E-301.
3. Clocks are to be provided by Electrical Contractor and match existing types on site – for pricing purposes, include for American Time model #SQ56BADD304BP. Contractor to verify existing model on site prior to ordering. Each new control panel to have a clock.
4. Please refer to Electrical Addendum E-1.

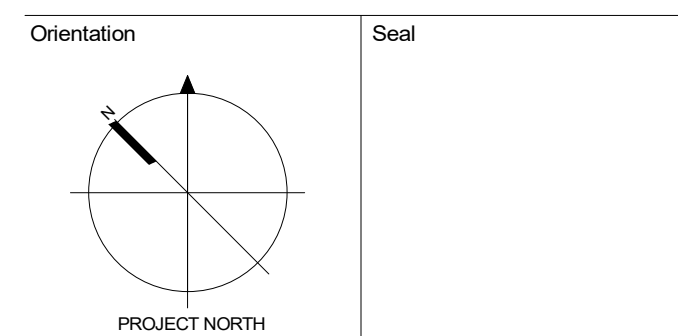
**END OF ADDENDUM 2**





**DOORS & FRAMES GENERAL NOTES:**

1. FOR DOOR & FRAME TYPES REFER TO SCHEDULES.
2. FOR TECHNICAL CONSTRUCTION DETAILS FOR DOORS REFER TO DRAWINGS.
3. ALL HM FRAMES SET IN MASONRY TO BE FILLED SOLID WITH MORTAR UNLESS NOTED OTHERWISE.
4. ALL EXTERIOR DOORS & FRAMES TO BE FILLED WITH INSULATION AS SPECIFIED.
5. FOR GLASS TYPES REFER TO DRAWING SCHEDULE.
6. DOOR & GLASS PROFILES & SIZES ARE SHOWN DIAGRAMMATIC ONLY. ACTUAL SIZES TO COMPLY WITH THE MAXIMUM LIMITS AS PERMITTED UNDER THE O.B.C. FOR INDIVIDUAL DOOR REQUIREMENTS.
7. FOR METAL STUD SIZES AND GYPSUM BOARD THICKNESSES, REFER TO WALL TYPES LEGEND AND DETAIL DRAWINGS.
8. FOR DOORS AND SCREENING WITH FULL HEIGHT GLAZING, NO SMALL MULLIONS PROVIDED. A 10mm x 10mm DRINKIE FILM FOR THE WIDTH OF THE GLAZING MOUNTED HORIZONTALLY AT

[illegible]

All dimensions to be checked and verified on the job by the Contractor. Any discrepancies are to be reported to the Consultant prior to action. Only the latest approved drawings to be used for construction in conformance with all applicable codes, by-laws and regulations. All drawings remain the property of the Consultant.

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salterpilon  
architecture

151 Ferris Lane, Suite 400  
salterpilon.com

# Enniskillen Public School Renovation

8145 Old Scugog Road, Hampton, ON, L0B  
1J0

For  
Kawartha Pine Ridge District School Board

Drawing Title

Reflected Ceiling Plan,  
Door & Window Schedule

Date	Project No	Drawing No
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2025-05-02

Drawn by Author	24018	A60
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<b>Project Name:</b>	KPRDSB – Enniskillen Public School Renovation	<b>Date Issued:</b>	May 6, 2025
<b>Quasar Project #:</b>	ED-23-078		

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**Distribution**

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Salter Pilon Architecture	Samantha Dopheide	<a href="mailto:sdopheide@salterpilon.com">sdopheide@salterpilon.com</a>

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**Addendum #:** E-1**Revision #:** 0

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This Addendum forms part of the Contract Specifications and Drawings, and modifies the Bidding Documents, with Amendments and Additions noted below. This Addendum shall be added to the front of the specifications as issued. Bidders shall acknowledge receipt of this Addendum in the space provided in the Bid Form and include in bid amount.

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This addendum includes modifications to the drawings and specifications as summarized below. Unless otherwise noted, all drawings and/or specifications listed below are attached herewith.

**Changes to Specifications****1. Section 28 01 80.71 – Revisions and Upgrades of Fire Detection and Alarm:**

a. Revised section has been appended to this document. The following changes have been provided.

1. Delete item #3.03.11.

**2. Section 28 08 46.00 – Commissioning of Fire Detection and Alarm:**

a. Revised section has been appended to this document. The following changes have been provided.

1. Delete article 1.03.
2. Delete item #3.01.1.
3. Delete item #3.02.1.

## **1 General**

### **1.01 SECTION INCLUDES**

- .1 Modifications to existing fire alarm system, including provision of new zones as indicated, [relocating and] new fire alarm devices as indicated on the drawings, and system verification. Complete systems shall be left ready for continuous and efficient satisfactory operation.
- .2 Update annunciators / passive graphic to include additions and renovated areas, as applicable.
- .3 New devices connected directly to the existing fire alarm system shall be of the manufacturer's current product selection, and to match the existing system.

### **1.02 RELATED REQUIREMENTS**

- .1 Section 26 05 33.13 – Conduit for Electrical Systems.
- .2 Section 26 05 33.16 – Boxes for Electrical Systems.
- .3 Section 26 05 33.23 – Surface Raceways for Electrical Systems.
- .4 Latest fire alarm verification or annual inspection report.

### **1.03 REFERENCES**

- .1 The publications listed below form a part of this specification. The publications are referenced in text by the basic designation only. Comply with latest edition/amendment referenced Code/Publication.
  - .1 2012 Ontario Building Code.
  - .2 2007 Ontario Fire Code.
  - .3 CAN/ULC-S524-14, Standard for Installation of Fire Alarm Systems.
  - .4 CAN/ULC-S537-13, Standard for Verification of Fire Alarm Systems.
  - .5 CSA C22.1:21, Canadian Electrical Code, Part 1 (25th Edition), Safety Standard for Electrical Installations.
  - .6 Ontario Electrical Safety Code (28th edition/2021).
  - .7 All requirements of the Authority Having Jurisdiction (AHJ).

### **1.04 SUBMITTALS**

- .1 Provide submittals to the Consultant for review in accordance with Section 01 33 00.
- .2 Submit to the Fire Department, drawings showing bells, manual pull stations, complete wiring diagrams and annunciator details and obtain their approval.
- .3 Shop Drawings
  - .1 Include sufficient information, clearly presented, to determine compliance with drawings and specifications.
  - .2 Include manufacturer's name(s), model numbers, ratings, power requirements, equipment layout, and device arrangement.
  - .3 Show annunciator layout and main control panel module layout, configurations and terminations.

- .4 Show device layout, complete riser diagram, and auxiliary functions.
- .5 The supplier of the system shall prepare a complete zoning schedule and artwork layout for active graphic to be included with submittal package.
- .4 Manuals
  - .1 Submit complete operating and maintenance manuals listing the manufacturer's name(s) including technical data sheets (with model numbers to be used indicated).
  - .2 Wiring diagrams indicating terminals and the interconnections between the items of equipment.
  - .3 Provide a clear and concise description of operation which gives, in detail, the information required to properly operate the equipment.

#### **1.05 CLOSEOUT SUBMITTALS**

- .1 Fire Alarm Verification Report.
- .2 Operation and Maintenance Manual.
- .3 Training session attendance list.

#### **1.06 QUALITY ASSURANCE**

- .1 Approvals
  - .1 The system shall have proper listing and/or approval from the following nationally recognized agencies:
    - .1 ULC Underwriters Laboratories Canada.
  - .2 The fire alarm control, panel shall meet the modular listing requirements of ULC. Each subassembly of the FACP, including all printed circuit boards, shall include the appropriate ULC modular label.
- .2 All devices/components shall be suitable for the locations, environment, temperatures in which they are to be installed.

#### **1.07 WARRANTY**

- .1 All work performed and all material and equipment furnished under this contract shall be free from defects and shall remain so for a period of at least one (1) year from the date of acceptance.

### **2 Products**

#### **2.01 EXISTING SYSTEM**

- .1 The existing Fire Alarm System is as indicated on drawings Mircom FX-2000 series single-stage fire alarm system.
  - .1 The location of the Fire Alarm Control Panel is as indicated on the drawings.
  - .2 There is one passive graphic annunciator to be updated.

#### **2.02 MANUFACTURERS**

- .1 The system components shall be selected so as to match and be compatible with the existing Fire Alarm system.



## **2.03 EQUIPMENT AND MATERIAL, GENERAL**

- .1 Review latest verification report, and review existing system during tender walkthrough and note all required modifications.
- .2 All equipment and components shall be new, and the manufacturer's current model.
- .3 All equipment and components shall be installed in strict compliance with manufacturers' recommendations.
- .4 All Equipment shall be attached to walls and ceiling/floor assemblies and shall be held firmly in place. (e.g., detectors shall not be supported solely by suspended ceilings). Fasteners and supports shall be adequate to support the required load.

## **2.04 CONDUIT AND WIRE**

- .1 Existing conventional zone wiring is existing to remain.
- .2 New conduit and wire for new zones and new devices to Section 27 15 01.19.
- .3 Conduit
  - .1 Conduit shall be in accordance with the Electrical Safety Authority (ESA), local and provincial requirements.
  - .2 All wiring shall be installed in conduit or raceway to Section 26 05 33.13 and Section 26 05 33.23.
- .4 Wire
  - .1 All fire alarm system wiring to suit new devices shall be new.
  - .2 Wiring shall be in accordance with local, provincial and national codes and as recommended by the manufacturer of the fire alarm system. Number and size of conductors shall be as outlined in the Ontario Electrical Safety Code and as recommended by the fire alarm system manufacturer.
  - .3 All wire and cable shall be listed and/or approved by a recognized testing agency for use with a protective signalling system, as outlined in the Ontario Electrical Safety Code.
- .5 Terminal Boxes, Junction Boxes and Cabinets:
  - .1 All boxes and cabinets shall be listed for their purpose and use.

## **2.05 MAIN FIRE ALARM CONTROL PANEL**

- .1 Add new zones, zone modules, etc., for new work as required, and connect all new devices to Fire Alarm Control Panel.
- .2 Remote Annunciator and Passive Graphic
  - .1 Connect all new zones for the new work to annunciators.
  - .2 Provide new passive graphic, multicolour, under plexiglass with anodized frame and concealed tamperproof mounting.

## **2.06 COMPONENTS**

- .1 Programmable Electronic Sounders:
  - .1 Electronic sounders shall match existing system.

- .2 Shall be flush mounted as required.
- .3 Mini horns shall be provided in all [Classroom] areas etc. and where shown.
- .2 Audible/Visual Combination Devices:
  - .1 Shall meet the applicable requirements of sounders listed above for audibility.
  - .2 Shall have a built-in strobe, 15 candela.
- .3 Strobe Synchronizing Modules:
  - .1 Synchronize strobes at 1 Hz and horns at temporal over single wire pan.
- .4 Manual Fire Alarm Stations
  - .1 Manual fire alarm stations shall be non-coded, non-breakable glass type.
  - .2 Stations must be designed such that after an actual activation, they cannot be restored to normal without the use of a special tool.
  - .3 An operated station shall automatically condition itself so as to be visually detected, as operated, at a minimum distance of 30.5 m (100 feet) front or side.
  - .4 Manual stations constructed of metal, with operating instructions provided on the cover. The word FIRE shall appear on the manual station in letters 12.7 mm (1/2 inch) in size or larger.
  - .5 Manual stations shall be c/w polycarbonate vandal covers.
- .5 Conventional Photoelectric Area Smoke Detectors
  - .1 Photoelectric smoke detectors shall be two wire, ceiling-mounted, light scattering type using an LED light source.
  - .2 Each detector shall contain a remote LED output and a built-in test switch.
  - .3 Detector shall be provided on a twist-lock base.
  - .4 It shall be possible to perform a calibrated sensitivity and performance test on the detector without the need for the generation of smoke. The test method shall test all detector circuits.
  - .5 A visual indication of an alarm shall be provided by dual latching Light Emitting Diodes (LEDs), on the detector, which may be seen from ground level over 360 degrees. These LEDs shall flash every 10 seconds, indicating that power is applied to the detector.
  - .6 The detector shall not go into alarm when exposed to air velocities of up to 914.4 m (3000 feet) per minute.
  - .7 The detector screen and cover assembly shall be easily removable for field cleaning of the detector chamber.
  - .8 All field wire connections shall be made to the base through the use of a clamping plate and screw.
- .6 Duct Smoke Detectors
  - .1 Duct smoke detectors shall be complete with visual alarm and power indicators, and a reset switch. Each detector shall be installed upon the with properly sized air sampling tubes.
- .7 Automatic Conventional Heat Detectors

- .1 Automatic heat detectors shall have a combination rate of rise and fixed temperature rated at 135 degrees F (57.2 degrees C) for areas where ambient temperatures do not exceed 100 degrees F (37.7 degrees C), and 200 degrees F (93.33 degrees C) for areas where the temperature does not exceed 150 degrees F (65.5 degrees C).
- .2 Automatic heat detectors shall be a low profile, ceiling mount type with positive indication of activation.
- .3 The rate of rise element shall consist of an air chamber, a flexible metal diaphragm, and a factory calibrated, moisture-proof, trouble free vent, and shall operate when the rate of temperature rise exceeds 15 degrees F (9.4 degrees C) per minute.
- .4 The fixed temperature element shall consist of a fusible alloy retainer and actuator shaft.
- .5 Automatic heat detectors shall have a smooth ceiling rating of 2 500 square feet (762 square metres).

## 2.07 OPERATION SEQUENCES

- .1 The fire alarm system shall be a [Zoned Single Stage Non-Coded System] as defined in the Ontario Building Code.
- .2 Basic Performance:
  - .1 Initiation Device Circuits (IDC) shall be wired Class A.
  - .2 Notification Appliance Circuits (NAC) shall be wired Class B (NFPA Style Y).
  - .3 Alarm signals arriving at the main FACP shall not be lost following a power failure (or outage) until the alarm signal is processed and recorded.
- .3 Basic System Functional Operation:
  - .1 An alarm is caused by actuation of any one of the following devices:
    - .1 Pulling a manual station
    - .2 Operation of an automatic fire alarm detector
    - .3 Operation of a sprinkler flow switch
    - .4 Operation of a smoke detector
  - .2 If, in any area of the building, an alarm is caused by actuation of the aforementioned devices, the following shall occur:
    - .1 Signals in the building shall sound.
    - .2 Annunciators shall indicate exact zone where alarm originated
    - .3 Fans shall be automatically turned off.
  - .3 Central station shall be automatically alerted via telephone lines connected for fire alarm system.
  - .4 If, in any area of the building, supervised valves of the sprinkler, systems are operated or exhibit short or open circuits, the following shall occur:
    - .1 The annunciator shall identify, as a separate zone, the item causing the trouble signal.
    - .2 The trouble buzzer on the annunciator(s) shall sound.

- .3 The signals in the building shall not be sounded.

### **3 Execution**

#### **3.01 EXAMINATION**

- .1 Do not disturb any existing devices unless absolutely necessary to facilitate installation of a new device. No existing devices are to be disturbed without specific authorization by the Project Manager.
- .2 Conduct an impedance test of initiation and signal circuits, and submit report to the Consultant. Report any discrepancies in circuit loading.

#### **3.02 INSTALLATION**

- .1 Maintain continuity of the existing fire alarm system at all times. In the event that a shutdown is required of the fire alarm system, provide a fire watch.
- .2 Install fire alarm system devices in accordance with applicable codes, and manufacturer's instructions.
- .3 Entire installation shall be done under supervision of manufacturer. Upon completion of installation, check entire system to approval and correct any malfunction immediately.
- .4 Standpipe System Connections.
  - .1 Refer to Section 21 12 00.
  - .2 Connect contact of supervisory switches to fire alarm zones indicated.
- .5 Sprinkler System Connections.
  - .1 Refer to Section 21 13 00.
  - .2 Connect contact of sprinkler flow switches and supervisory switches to fire alarm zones indicated.
- .6 Align alarm devices and signals, where grouped together, one above the other.
- .7 Mount devices at the following heights unless otherwise shown:
  - .1 Signal devices:
    - .1 300 mm below finished ceiling
    - .2 2050 mm above floor in unfinished areas.
  - .2 Manual Pull Stations:
    - .1 1200 mm above finished floor level.
  - .3 In areas with separate signal devices for fire suppression and/or pre-action, provide a lamacoid nameplate for base building signalling devices.
- .8 Manufacturer shall examine Drawings and Specifications prior to award of Contract to ensure that detectors, control panels and miscellaneous devices being supplied will provide a satisfactory working installation.

#### **3.03 FIELD QUALITY CONTROL**

- .1 Testing and Verification

- .1 Test each automatic detector to ensure correct wiring and zoning by setting off its rate of rise component and sounding the bells or by ringing it out. Test each smoke detector, sprinkler system and standpipe valves to ensure correct wiring.
  - .2 Provide the service of a competent, factory trained engineer or technician authorized by the manufacturer of the fire alarm equipment to technically supervise and participate during all of the adjustments and tests for the system. All testing shall be in accordance with CAN/ULC-S537.
  - .3 Check for correct connections and test for short circuits, ground faults, continuity, and insulation.
  - .4 Perform audibility test of space and provide annunciation devices to suit ambient sound levels. Ensure coverage for fire alarm signalling devices on base building fire alarm system. Provide audible test of signaling devices after other systems have been commissioned to verify operation at computer room ambient sound level.
  - .5 [Verify activation of all relocated devices, including flow switches, trouble, and supervisory signals from the relocated pre-action assembly.]
  - .6 Provide the service of a competent, factory-trained engineer or technician authorized by the manufacturer of the fire alarm equipment to technically supervise and participate during all of the adjustments and tests for the system.
  - .7 All initial testing shall be in accordance with CAN/ULC-S537. A representative of the electrical contractor shall be present to participate and assist the manufacturer representative during the course of the verification. The electrical contractor shall make good any deficiencies discovered during the verification. All devices, new and existing, shall be verified. The electrical contractor shall provide one person for assistance with the verification.
  - .8 Include associated costs in Tender Price.
  - .9 Carry out a complete audibility test and submit report.
  - .10 On completion of the verification the manufacturer shall supply a certificate, together with detailed inspection record sheets showing location of each device and certifying the test results per unit, confirming that the system is installed, supervised and operational.
- .2 Manufacturer Services
- .1 The manufacturer(s) of the fire alarm shall make a complete inspection of all [existing and] new components installed for system(s), such as manual stations, horns, and annunciators and sprinkler and standpipe valves and smoke detectors to ensure the following:
    - .1 That the system is complete in accordance with Specifications.
    - .2 That the system is connected according to ULC requirements.
    - .3 That the system is connected in accordance with the Manufacturer's recommendations.
    - .4 That the regulations concerning the supervision of components have been adhered to (e.g. stations, detectors, supervised valves, bells), and are properly wired and supervised.
    - .5 That all valves are properly connected and displayed correctly on each annunciator.
    - .6 That any subsequent changes necessary to conform to the above will be carried out with technical advice supplied by the manufacturer.
    - .7 That all thermal detectors, smoke detectors and manual pull stations have been operated and are in good working order.

- .8 That all sprinkler system and standpipe system valves have been operated and are in good working order.
- .9 That all annunciators correctly pinpoint the origin of any fire alarm.
- .10 That actual smoke concentration of sufficient density, have been applied to each smoke detector to cause the detector to be set off and that the sensitivity of each smoke detector has been set.
- .11 That all existing devices are in good working order. Include for replacement of any defective/damaged devices at no extra cost to Owner.
- .12 That signal audibility is acceptable in all areas. Submit audibility readings for every room.
- .13 If existing audible signal devices have been discontinued by the manufacturer (for example mechanical horns), allow for replacement of all audible devices so that all devices generate similar sounds and sound patterns when activated.

### **3.04 CLOSEOUT ACTIVITIES**

- .1 At the final inspection a factory trained representative of the manufacturer of the major equipment shall demonstrate that the systems function properly in every respect.
- .2 Provide instruction as required to the building personnel and fire and safety personnel. "Hands-on" demonstrations of the operation of the system shall be provided.

**End of Section**

**1 General**

**1.01 SUMMARY**

- .1 Provide commissioning of fire alarm and interconnected systems to verify that installations are in accordance with project requirements, and to ensure proper system operation.

**1.02 RELATED REQUIREMENTS**

- .1 Section 01 91 13 – Commissioning.

**1.03 SUBMITTALS**

- .1 Commissioning plan.

**1.04 CLOSEOUT SUBMITTALS**

- .1 Final commissioning and functional test report.

**1.05 QUALIFICATIONS**

- .1 Commissioning Organizations:
  - .1 Certified member of Electrical Contractors Association of Ontario (ECAO) or Canadian Fire Alarm Association (CFAA).

**2 Products – Not Used**

**3 Execution**

**3.01 SITE TESTS AND INSPECTIONS**

- .1 Follow manufacturer's recommendations for testing.
- .2 Inspect wiring connections to all devices comprising the system.
- .3 Verify supervision of wiring at every device connection to a supervised circuit.
- .4 Test operation of every device on a system to verify its function.
- .5 Examine equipment for any apparent damage or tampering that may interfere with its intended operation.
- .6 Test equipment with capabilities for field adjustment to establish that it functions as intended under the conditions prevailing at its point of installation.
- .7 Examine devices for evidence of damage or obstructions which may interfere with their operating mechanisms.
- .8 Test automatic devices by simulating an operating condition.
- .9 Wiring:
  - .1 Inspect every device and test to demonstrate that disconnection of the device from the circuit or malfunction of the equipment or wiring activates the required supervisory signals. Inspection shall include verification that:
    - .1 Supervisory signals operate in response to open circuits, short circuits, ground faults and disconnection of plug-in components;

- .2 Terminations of conductors entering and leaving equipment have been made;
  - .3 Circuit polarities are in accordance with the system design, where applicable.
- .2 In addition, test to establish that the power supplied to any device is within its recommended operating range and that the required voltage levels are maintained and that the fusing is correct.
- .10 Initiating Devices - Manual:
  - .1 Inspect manual alarm stations in consideration of the following:
    - .1 The device shall be mounted with sufficient clearance to facilitate ease of access and proper operation;
    - .2 Operate each manual alarm station, toggle switch and key switch to verify proper functions.
- .11 Automatic heat detectors:
  - .1 Use a heat source reproducible in its intensity, as recommended by the manufacturer of the device, to initiate an alarm.
  - .2 Test equipment - Heat lamp or Air heater. DO NOT USE AN OPEN FLAME HEAT SOURCE.
  - .3 Apply heat source as to not damage or operate fusible disc parts.
- .12 Automatic heat detectors - non-resettable:
  - .1 Test by simulating its electrical operation by jumpering the wiring points (creating a short) adjacent to its operating mechanism.
- .13 Automatic smoke detectors - area type:
  - .1 Test by introducing smoke into its detecting chamber. This may consist of actual smoke from burning materials or artificially generated smoke aerosol spray as recommended by the manufacturer. The sensitivity should be noted and adjusted if necessary.
- .14 Automatic smoke detectors:
  - .1 Examine the air sampling arrangements of the detectors under actual conditions of balanced air circulation by conducting a check of the field sensitivity and a check of the air velocity in accordance with the manufacturers' recommendations.
  - .2 Test gas to be used similar to Automatic Smoke Detector.
- .15 Alarm signals - audible:
  - .1 Test on main power supply and standby power supply with the maximum expected load on the system.
  - .2 The audible signalling appliances shall function as intended and shall be audible throughout the building over the background noise present.
  - .3 Decibel recordings in each area covering 100 sq. metres shall be taken.
  - .4 The level of sound should usually be 15 dB above ambient noise level.
- .16 Alarm signals - visual:
  - .1 The visual signal appliances shall function as intended and shall be clearly visible.



- .17 Fire suppression supervision:
  - .1 Coordinate with the requirements of Section 21 13 00.
  - .2 Sprinkler and standpipe trade to active each sprinkler and standpipe supervisory and alarm device by operating valves and producing flows as required in conjunction with fire alarm technician to observe activation of flow switches, pressure switches, supervised valves, etc.
- .18 Annunciators, printers and workstations:
  - .1 Inspect and operate to establish that their operation in conjunction with the control equipment and other system components, is as intended. The equipment shall be inspected to ensure:
    - .1 The zone of each alarm initiating device is properly indicated;
    - .2 The legend is clearly visible;
    - .3 Adequate voltage under local conditions is present;
    - .4 Wiring connections have been made in a workmanlike manner.
    - .5 Proper care must be taken to establish that each item is complete and satisfactory.
- .19 Standby power supplies - batteries:
  - .1 Examine batteries for possible damage and consideration of the following:
    - .1 The charging system functions as intended;
    - .2 The installation has not resulted in the bypassing of a fuse or a similar protective device;
    - .3 The installation protects the batteries from accidental or mechanical damage.
    - .4 The batteries must be able to operate the fire alarm system with the charger input disconnected for one rated load cycle.
- .20 Control equipment and transponders:
  - .1 Test to establish that they function as intended. The following examinations and tests shall be performed:
    - .1 A visual and physical inspection of all cables, plug interconnections, plug-in circuit components, lamps, sockets and controls to establish that their mechanical and electrical connections and mounting are as required for intended function and, where applicable, to confirm electrical supervision;
    - .2 Verification that all field wiring is terminated in a workman-like manner;
    - .3 All lamps and indicators shall be tested for operation and intended function;
    - .4 All keypad functions shall be tested for operation and intended function;
    - .5 All control unit functions shall be operated to verify appropriate response including all software routines and programme functions are simulated;
    - .6 Simulation of open circuits, short circuits and ground faults on all relevant internal circuits in order to confirm the appropriate supervisory response;
  - .2 Commissioning Report:

- .1 Provide in accordance with requirements of Section 01 91 13, supplemented as specified herein.
- .2 Report to include relevant information of the system including:
- .3 Each system part described.
- .4 How the system is operated.
- .5 What functions the system performs.
- .6 Requirements for tests and service.
- .7 Itemization of all devices connected on the system, their general location.
- .8 The date of the performed tests.
- .9 All pertinent details of the report sheets requested.
- .3 Verification:
  - .1 The Commissioning Report to be submitted to the Commissioning Manager upon completion of commissioning and will be subject to verification by the Commissioning Manager.

**End of Section**