

Sheridan

**Invitation to Tender (ITT)
for
Trafalgar B244 Classroom Renovation**

Invitation to Tender No.: **3187**

Issued: **November 21, 2024**

Submission Deadline: **December 06, 2024, at 2:00 P.M..ET**

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Attachment 1 – TRAF B244 – Tender Drawings (31 pages)

Attachment 2 – TRAF B244 – Architectural/Mechanical/Electrical Specifications (255 pages)

PART 1 – INVITATION AND SUBMISSION INSTRUCTIONS

1.1 Invitation to Bidders

This Invitation to Tender (the “ITT”) is an invitation by Sheridan College (“Sheridan”) to prospective bidders to submit bids for **Trafalgar B244 Classroom Renovation**, as further described in Section A of the ITT Particulars (Appendix D) (the “Deliverables”).

All bidders must have a vendor account and register with Sheridan’s portal on the Bonfire electronic bidding platform at <https://sheridancollege.bonfirehub.ca>

The renovation of TRAF B244 classrooms will include (but not limited to) the following:

1. New architectural wall to separate large room into two new classrooms
2. New insulation and drywall on all surrounding walls
3. New electrical outlets to accommodate new classroom furniture and podium
4. Install new data to support audio/visual equipment
5. Install two new Variable Air Volume (VAV) units.
6. Upgrading mechanical components and controls to separate one space into two new classrooms
7. Install new ceiling grid, light fixtures, lighting system and controls
8. Flooring, window blinds, FF&E replacements

Mobilization like hoarding will commence between January 6-10, 2025, and actual work will start January 13, 2025.

1.1.1 About Sheridan

Sheridan is one of Ontario’s leading postsecondary institutions, serving over 23,000 full-time students and 35,000 continuing education students at three (3) campuses in the West Greater Toronto Area. We offer over 120 diplomas, certificate, and bachelor degree programs in the fields of arts, business, community service, health, technology and the skilled trades. Sheridan’s faculty, staff, programs, students and alumni have garnered many national and provincial awards of excellence, including Premier’s Awards, Co-op Student of the Year awards, and Canada Skills Competition medals, to name a few. Our alumni also include a long list of nominees and winners of Academy Awards, Emmy Awards, Canadian Screen Awards and Annie Awards.

Sheridan is distinguished by its Creative Campus philosophy, which is based on the premise that creativity resides in people, programs and places. Put into practice, this means providing our students across all disciplines with the opportunity to foster their creativity and creative problem-solving skills to better prepare them for a shifting economic landscape and variable workplace demands.

Sheridan’s site locations are as follows:

- **Trafalgar Campus (TRA)** **1430 Trafalgar Road, Oakville, ON**
- Davis Campus (DAV) 7899 McLaughlin Road, Brampton, ON
- Hazel McCallion (HMC) Campus 4180 Duke of York Boulevard, Mississauga, ON

1.2 ITT Contact

To contact Sheridan in relation to this ITT, bidders must initiate the communication electronically to the ITT Contact listed. Sheridan will not accept any bidder's communications by any other means, except as specifically stated in this ITT.

For the purposes of this procurement process, the "ITT Contact" will be:

Name: Hafsa Malik
Title/Department: Strategic Sourcing Specialist, Procurement Services
Email: hafsa.malik@sheridancollege.ca

Bidders should only contact the ITT Contact where specifically instructed to in this ITT.

Bidders and their representatives are not permitted to contact any employees, officers, agents, officials, or other representatives of Sheridan, other than the ITT Contact, concerning matters regarding this ITT. Failure to adhere to this rule may result in the disqualification of the bidder and the rejection of the bidder's bid.

1.3 Contract for Deliverables

1.3.1 Type of Contract

The selected bidder will be required to enter into an agreement with Sheridan for the provision of the Deliverables in the form attached as Appendix A to the ITT (the "Agreement"). It is Sheridan's intention to enter into the Agreement with only one (1) legal entity.

1.3.2 Term of Contract

The term of the contract is to be for a period of four (4) months, with an option in favour of Sheridan to extend the contract on the same terms and conditions for an additional term of up to two (2) months.

1.4 ITT Timetable

1.4.1 Key Dates

Need to revise dates

Issue Date of ITT	November 21, 2024
Site Visit / Pre-Bid Meeting	November 25, 2024, at 11:00 a.m. ET
Deadline for Questions	November 28, 2024, by 2:00 p.m. ET
Deadline for Issuing Addenda	November 29, 2024
Submission Deadline	December 06, 2024, 2 p.m. ET
Anticipated Execution Date for Agreement	December 13, 2024
Rectification Period	Three (3) Days after closing
Irrevocability Period	Ninety (90) days

The ITT timetable is tentative only and may be changed by Sheridan at any time.

1.4.2 Site Visit / Pre-Bid Meeting

Sheridan has scheduled a **mandatory proponents information site meeting visit** to be held on:

At Sheridan College – Trafalgar Campus on November 25, 2024, at 11:00 a.m.

DATE: November 25, 2024

TIME: 11:00 A.M. ET

LOCATION: 1430 Trafalgar Road, Oakville. Security Desk, B-wing.

The meeting will include an overview of this ITT Document as well as an opportunity for proponents to ask questions.

Interested proponents must attend the Mandatory Site Visiting to familiarize themselves with the Project and ascertain the extent of the work required. Proposals submitted by proponents that did not attend the mandatory site meeting will result in the disqualification of your submission. Proponents attending the meeting must sign in and clearly indicate in the sign in sheet the name of the firm they are representing.

Sheridan, at its sole discretion, may not permit proponents to attend the Mandatory Site Visit meeting at the time of late arrival and may therefore not be eligible to submit a proposal to the ITT. A proponent shall be deemed late when arrival is ten (10) minutes after the start of the scheduled meeting time.

All bidders attending the site reviews will be required to:

- watch the Sheridan Occupational Health and Safety Training Video (approx. 15 minutes). Sheridan Occupational Health and Safety Video can be found at the following link:
https://www.youtube.com/watch?v=f5cQZSJmxco&t=6s&ab_channel=SheridanCollege
and;
- confirm in writing to the ITT Contact that they have met this requirement.

If bidders fail to confirm training in advance, they will not be permitted to attend this voluntary site reviews meeting.

1.5 Submission of Questions

All questions must be submitted through Bonfire prior to the date indicated in 1.4.1 Key Dates. No other questions will be addressed through another intake process.

1.6 Submission of Bids

1.6.1 Bids to be Submitted Electronically

Bids must be submitted through Sheridan's Bonfire portal at:

<https://sheridancollege.bonfirehub.ca>

Submissions by other methods will not be accepted.

Bidders should contact Bonfire at Support@GoBonfire.com for technical questions related to submissions, or visit Bonfire's help forum at <https://bonfirehub.zendesk.com/hc>.

1.6.2 Bids to be Submitted on Time

Bids must be uploaded and finalized on or before the Submission Deadline set out in the ITT Timetable.

Late submissions will not be accepted.

Uploading large documents may take significant time, depending on file size and Internet connection speed. Bidders are advised to allow sufficient time to upload and finalize their submissions and to resolve any issues that may arise.

Bidders will receive an email confirmation receipt upon finalizing their submissions.

1.6.3 Bids to be Submitted in Prescribed Format

Submission materials must be prepared in the file formats listed under Requested Information for this opportunity in the Bonfire portal. The maximum upload file size is 1000 MB.

Documents should not be embedded within uploaded files, as the embedded files will not be accessible or evaluated.

1.6.4 Amendment of Bids

Bidders may amend their bids prior to the Submission Deadline by un-submitting an already submitted bid in accordance with the instructions provided in the Bonfire portal and submitting a new bid in accordance with the submission instructions set out above.

1.6.5 Withdrawal of Bids

Bidders may withdraw their bids prior to the Submission Deadline by un-submitting the bid in accordance with the instructions provided in the Bonfire portal.

1.6.6 Bids Irrevocable after Submission Deadline

Bids shall be irrevocable for a period of **90 (Ninety)** days running from the moment that the Submission Deadline passes.

1.7 ITT Documentation

If this is an open tender, Sheridan shall post only the **ITT Bidding Notification** on the Biddingo tendering portal (www.biddingo.com). All other 2nd stage VOR requests will be sent via direct invitation to bid from Bonfire.

All other ITT documentation will be posted on Bonfire including all addenda and documents pertaining to this ITT. <https://sheridancollege.bonfirehub.ca>

The failure of any proponent to receive or examine any document, form, addendum, or agreement issued by Sheridan, or visit any site(s) to become familiar with existing conditions, shall not relieve the proponent of any obligation with respect to its proposal or any executed agreement.

[End of Part 1]

PART 2 – EVALUATION AND AWARD

2.1 Stages of Evaluation

Sheridan will conduct the evaluation of bids in the following stages:

Stage I – Mandatory Submission Requirements

Stage I will consist of a review to determine which bids comply with all of the mandatory submission requirements. Bids that do not comply with all of the mandatory submission requirements as of the Submission Deadline will, subject to the express and implied rights of Sheridan, be disqualified and not evaluated further. The mandatory submission requirements are listed in Section C of the ITT Particulars (Appendix D).

- No Amendment to Forms - Other than inserting the information requested on the mandatory submission forms set out in the ITT, a bidder may not make any changes to any of the forms. Any bid containing any such changes, whether on the face of the form or elsewhere in the bid, may be disqualified.

Stage II – Mandatory Technical Requirements

Stage II will consist of a review to determine which bids comply with all of the mandatory technical requirements. Bids that do not comply with all of the mandatory technical requirements as of the Submission Deadline will, subject to the express and implied rights of Sheridan, be rejected. The mandatory technical requirements are listed in Section D of the ITT Particulars (Appendix D).

Stage III – Pricing

Stage III will consist of a scoring of the submitted pricing of each compliant bid in accordance with the evaluation method set out in Pricing (Appendix C). The evaluation of price will be undertaken after the evaluation of mandatory requirements has been completed.

2.2 Selection of Lowest Compliant Bidder

Subject to Sheridan's reserved rights, the compliant bidder with the lowest pricing will be selected to enter into the Agreement in accordance with the following section. In the event of a tie, the selected bidder will be determined by way of a coin toss.

2.3 Notice to Bidder and Execution of Agreement

Notice of selection by Sheridan to the selected bidder shall be in writing. The selected bidder shall execute the Agreement in the form attached as Appendix A to this ITT and satisfy any other applicable conditions of this ITT, including the pre-conditions of award listed in Section E of the ITT Particulars (Appendix D), within fifteen (15) days of notice of selection. This provision is solely for the benefit of Sheridan and may be waived by Sheridan.

2.4 Failure to Enter into Agreement

If a selected bidder fails to execute the Agreement or satisfy any applicable conditions within fifteen (15) days of notice of selection, Sheridan may, without incurring any liability, proceed with the selection of another bidder and pursue all other remedies available to Sheridan.

[End of Part 2]

PART 3 – TERMS AND CONDITIONS OF THE ITT PROCESS

3.1 General Information and Instructions

3.1.1 ITT Incorporated into Bid

All of the provisions of this ITT are deemed to be accepted by each bidder and incorporated into each bidder's bid. A bidder who submits conditions, options, variations, or contingent statements to the terms as set out in this ITT, including the terms of the Agreement in Appendix A, either as part of its bid or after receiving notice of selection, may be disqualified. If a bidder is not disqualified despite such changes or qualifications, the provisions of this ITT, including the Agreement set out in Appendix A, will prevail over any such changes or qualifications in the bid.

3.1.2 Bidders to Follow Instructions

Bidders should structure their bids in accordance with the instructions in this ITT. Where information is requested in this ITT, any response made in a bid should reference the applicable section numbers of this ITT.

3.1.3 Bids in English

All bids are to be in English only.

3.1.4 No Incorporation by Reference

The entire content of the bidder's bid should be submitted in a fixed format, and the content of websites or other external documents referred to in the bidder's bid but not attached will not be considered to form part of its bid.

3.1.5 Intellectual Property

Bidders must not use or incorporate in their bids any information, concepts, products or processes that are subject to copyright, patents, trademarks or other intellectual property rights of third parties, unless the bidder has permission for the incorporation of any such information, concepts, products or processes and has or will obtain the right to use such information, concepts, products or processes without cost to Sheridan in the provision of the Deliverables.

3.1.6 Past Performance

In the evaluation process, Sheridan may consider the bidder's past performance or conduct on previous contracts with Sheridan or other institutions.

3.1.7 Information in ITT Only an Estimate

Sheridan and its advisers make no representation, warranty, or guarantee as to the accuracy of the information contained in this ITT or issued by way of addenda. Any quantities shown or data contained in this ITT or provided by way of addenda are estimates only and are for the sole purpose of indicating

to bidders the general scale and scope of the Deliverables. It is the bidder's responsibility to obtain all the information necessary to prepare a bid in response to this ITT.

3.1.8 Bidders to Bear Their Own Costs

The bidder will bear all costs associated with or incurred in the preparation and presentation of its bid, including, if applicable, costs incurred for interviews or demonstrations.

3.1.9 Bid to be Retained by Sheridan

Sheridan will not return the bid or any accompanying documentation submitted by a bidder.

3.1.10 No Guarantee of Volume of Work or Exclusivity of Contract

Sheridan makes no guarantee of the value or volume of work to be assigned to the successful bidder. The Agreement will not be an exclusive contract for the provision of the described Deliverables. Sheridan may contract with others for goods and services the same as or similar to the Deliverables or may obtain such goods and services internally.

3.1.11 Holdbacks

Subject to the requirements of any Payment Legislation including but not limited to the Construction Act, each payer upon a contract or subcontract under which a lien may arise shall retain a holdback equal to ten per cent (10%) of the price of the services or materials as they are actually supplied under the contract or subcontract until all liens that may be claimed against the holdback have expired or been satisfied, discharged or otherwise provided for under this Act. R.S.O. 1990, c. C.30, s. 22 (1); 2017, c. 24, s. 17 (1), 66.

3.2 Communication after Issuance of ITT

3.2.1 Bidders to Review ITT

Bidders shall promptly examine all of the documents comprising this ITT, and shall report any errors, omissions or ambiguities. Bidders may direct questions or seek additional information on or before the Deadline for Questions. No such communications are to be sent or initiated through any other means. Sheridan is under no obligation to provide additional information, and Sheridan is not responsible for any information provided by any other source or obtained through any other means. It is the responsibility of the bidder to seek clarification from the ITT Contact on any matter it considers to be unclear. Sheridan is not responsible for any misunderstanding on the part of the bidder concerning this ITT or its process.

3.2.2 All New Information to Bidders by Way of Addenda

This ITT may be amended only by addendum in accordance with this section. If Sheridan, for any reason, determines that it is necessary to provide additional information relating to this ITT, such information will be communicated to all bidders by addendum posted on the tendering portal where the original documents were downloaded. Each addendum forms an integral part of this ITT and may

contain important information, including significant changes to this ITT. Bidders are responsible for obtaining all addenda issued by Sheridan.

3.2.3 Post-Deadline Addenda and Extension of Submission Deadline

If Sheridan determines that it is necessary to issue an addendum after the Deadline for Issuing Addenda, Sheridan may extend the Submission Deadline for a reasonable period of time. Bidders should check the portal up until the Submission Deadline to ensure that they have received all addenda.

3.2.4 Verify, Clarify, and Supplement

When evaluating bids, Sheridan may request further information from the bidder or third parties in order to verify, clarify, or supplement the information provided in the bidder's bid. The response received by Sheridan shall, if accepted by Sheridan, form an integral part of the bidder's bid.

3.3 Notification and Debriefing

3.3.1 Notification to Other Bidders

Once the Agreement is executed by Sheridan and a bidder, the other bidders will be notified of the outcome of the procurement process.

3.3.2 Debriefing

Bidders may request a debriefing after receipt of a notification of the outcome of the procurement process. All requests must be in writing to the ITT Contact and must be made within sixty (60) days of such notification.

3.3.3 Procurement Protest Procedure

If, subsequent to attending a debriefing, a bidder wishes to challenge the ITT process, the bidder should follow Sheridan's procurement protest procedures set out below:

(a) The bidder is to file their protest with the Director, Procurement, by certified mail, within 15 business days of the debriefing meeting. The bidder's filing should include:

- The name and address of the bidder
- Identification of the contract or bid solicitation being protested
- Detailed and factual statement of the grounds for protest
- Supporting documentation
- Desired relief, action or ruling

(b) The Director, Procurement will respond to the bidder, by certified mail, within 20 business days of receiving the protest notice.

- (c) If a resolution cannot be met, the bidder must contact the AVP Business Services and copy the Director, Procurement, by certified mail, within 10 business days of receiving the first response from the Director, Procurement.
- (d) The AVP Business Services will respond to the bidder, by certified mail, within 20 business days of receiving the protest notice.
- (e) If a resolution cannot be met, the bidder can direct their complaint to the VP Finance and Administration and CFO (copying both the AVP Business Services and the Director, Procurement) within 10 business days of receiving the response from the AVP Business Services.
- (f) The decision of the VP Finance and Administration and CFO is final and will be provided within 20 business days of the VP Finance and Administration and CFO receiving the protest.

3.4 Conflict of Interest and Prohibited Conduct

3.4.1 Conflict of Interest

For the purposes of this ITT, the term “Conflict of Interest” includes, but is not limited to, any situation or circumstance where:

- (a) in relation to the ITT process, the bidder has an unfair advantage or engages in conduct, directly or indirectly, that may give it an unfair advantage, including but not limited to
 - (i) having, or having access to, confidential information of Sheridan in the preparation of its bid that is not available to other bidders;
 - (ii) having been involved in the development of the ITT, including having provided advice or assistance in the development of the ITT;
 - (iii) receiving advice or assistance in the preparation of its response from any individual or entity that was involved in the development of the ITT;
 - (iv) communicating with any person with a view to influencing preferred treatment in the ITT process (including but not limited to the lobbying of decision makers involved in the ITT process); or
 - (v) engaging in conduct that compromises, or could be seen to compromise, the integrity of the open and competitive ITT process or render that process non-competitive or unfair; or
- (b) in relation to the performance of its contractual obligations under a contract for the Deliverables, the bidder’s other commitments, relationships, or financial interests
 - (i) could, or could be seen to, exercise an improper influence over the objective, unbiased, and impartial exercise of its independent judgement; or

- (ii) could, or could be seen to, compromise, impair or be incompatible with the effective performance of its contractual obligations.

3.4.2 Disqualification for Conflict of Interest

Sheridan may disqualify a bidder for any conduct, situation or circumstances, determined by Sheridan, in its sole and absolute discretion, to constitute a Conflict of Interest as defined above.

3.4.3 Disqualification for Prohibited Conduct

Sheridan may disqualify a bidder, rescind a notification of selection, or terminate a contract subsequently entered into if Sheridan determines that the bidder has engaged in any conduct prohibited by this ITT.

3.4.4 Prohibited Bidder Communications

Bidders must not engage in any communications that could constitute a Conflict of Interest and should take note of the Conflict-of-Interest declaration set out in the Submission Form (Appendix B).

3.4.5 Bidder Not to Communicate with Media

Bidders must not at any time directly or indirectly communicate with the media in relation to this ITT or any agreement entered into pursuant to this ITT without first obtaining the written permission of the ITT Contact.

3.4.6 No Lobbying

Bidders must not, in relation to this ITT or the evaluation and selection process, engage directly or indirectly in any form of political or other lobbying whatsoever to influence the selection of the successful bidder(s).

3.4.7 Illegal or Unethical Conduct

Bidders must not engage in any illegal business practices, including activities such as bid-rigging, price-fixing, bribery, fraud, coercion, or collusion. Bidders must not engage in any unethical conduct, including lobbying, as described above, or other inappropriate communications; offering gifts to any employees, officers, agents, officials or other representatives of Sheridan; deceitfulness; submitting bids containing misrepresentations or other misleading or inaccurate information; or any other conduct that compromises or may be seen to compromise the competitive process provided for in this ITT.

3.4.8 Past Performance or Past Conduct

Sheridan may prohibit a supplier from participating in a procurement process based on past performance or based on inappropriate conduct in a prior procurement process, including but not limited to the following:

- (a) illegal or unethical conduct as described above;
- (b) the refusal of the supplier to honour submitted pricing or other commitments; or

- (c) any conduct, situation or circumstance determined by Sheridan, in its sole and absolute discretion, to have constituted a Conflict of Interest.

3.5 Confidential Information

3.5.1 Confidential Information of Sheridan

All information provided by or obtained from Sheridan in any form in connection with this ITT either before or after the issuance of this ITT

- (a) is the sole property of Sheridan and must be treated as confidential;
- (b) is not to be used for any purpose other than replying to this ITT and the performance of the Agreement;
- (c) must not be disclosed without prior written authorization from Sheridan; and
- (d) must be returned by the bidder to Sheridan immediately upon the request of Sheridan.

3.5.2 Confidential Information of Bidder

Bidders are advised that Sheridan is governed by Ontario's *Freedom of Information and Protection of Privacy Act* ("FIPPA") and any information submitted to Sheridan by a bidder may be subject to disclosure in accordance with FIPPA. Bidders should clearly identify any information in its bid or any accompanying documentation regarding trade secrets, commercial, financial, labour relations, technical or other aspects of the bid, which in the bidder's opinion are of a proprietary or confidential nature. Sheridan will use reasonable efforts to maintain the confidentiality of such information, except as otherwise required by law or by order of a court or tribunal. Bidders are advised that their bids will, as necessary, be disclosed, on a confidential basis, to advisers retained by Sheridan to advise or assist with the ITT process, including the evaluation of bids. Bidders are also advised that their name, business address and proposed pricing will not be treated as confidential information and may be publicly disclosed. If a bidder has any questions about the collection and use of personal information pursuant to this ITT, questions are to be submitted to the ITT Contact.

3.6 Sustainability

Bidders must read, understand and abide by the following Sheridan policies as included in the following links:

- (a) Sheridan's Sustainability Policy:

<https://missionzero.sheridancollege.ca/about/publications/sustainability-policy/>

- (b) Waste-Free Ontario Act (2016):

<https://www.ontario.ca/laws/statute/S16012>

- (c) Waste-free Ontario: Building the Circular Economy (2017):

<https://www.ontario.ca/page/strategy-waste-free-ontario-building-circular-economy>

(d) Sheridan's Procurement Policy – on the sustainability principle of procurement, that is,

“Sheridan supports the values of sustainability, social responsibility and fair labour practices. Sheridan will be guided by our Sustainability Policy and our Mission Zero Energy and Zero Waste and Carbon Plan, where practical. In support of these documents and institutional targets, Sheridan will endeavor to incorporate sustainability into all formal bid opportunities.”

3.7 Accessibility for Ontarians with Disability Act

Sheridan complies with [Ontario Regulation 191/11](#) made under the [Accessibility for Ontarians with Disabilities Act](#) (“AODA”). This includes:

Where practicable, Sheridan will incorporate accessibility design, criteria and features when making purchasing decisions. Therefore, whenever appropriate, we will consider the following general principles:

Accessibility: can a person with a disability use the goods, service or facility at all?

Equitable: can a person with a disability use the good or service as quickly and easily as a person without a disability?

Adaptable: can a person configure the item to meet their specific needs and preferences and will it work with common assistive technologies?

As a supplier to Sheridan assigned to provide goods, services, or facilities on Sheridan's behalf, Sheridan requires that your employees undertake training prior commencing work at Sheridan.

- Go to [“AODA Training Document for Suppliers”](#) (red box) and download this document to understand your obligations as a provider of goods, services or facilities on Sheridan's behalf

Maintain records of the dates on which this training material was distributed, and the number of employees to whom it was distributed and keep this record. You may be contacted by Sheridan for the record of training any time during the year and will be required to produce this document within fourteen (14) business days.

3.8 Reserved Rights and Limitation of Liability

3.8.1 Reserved Rights of Sheridan

Sheridan reserves the right to

- (a) make public the names of any or all bidders;
- (b) make changes, including substantial changes, to this ITT provided that those changes are issued by way of addendum in the manner set out in this ITT;

- (c) request written clarification or the submission of supplementary written information in relation to the clarification request from any bidder and incorporate a bidder's response to that request for clarification into the bidder's bid;
- (d) assess a bidder's bid on the basis of: (i) a financial analysis determining the actual cost of the bid when considering factors including quality, service, price, and transition costs arising from the replacement of existing goods, services, practices, methodologies, and infrastructure (howsoever originally established); and (ii) in addition to any other evaluation criteria or considerations set out in this ITT, consider any other relevant information that arises during this ITT process;
- (e) waive formalities and accept bids that substantially comply with the requirements of this ITT;
- (f) verify with any bidder or with a third party any information set out in a bid;
- (g) check references other than those provided by any bidder;
- (h) disqualify a bidder, rescind a notice of selection, or terminate a contract subsequently entered into if the bidder has engaged in any conduct that breaches the process rules or otherwise compromises or may be seen to compromise the competitive process;
- (i) select a bidder other than the bidder whose bid reflects the lowest cost to Sheridan;
- (j) cancel this ITT process at any stage;
- (k) cancel this ITT process at any stage and issue a new ITT for the same or similar deliverables;
- (l) accept any bid in whole or in part; or
- (m) reject any or all bids;

and these reserved rights are in addition to any other express rights or any other rights that may be implied in the circumstances.

3.8.2 Limitation of Liability

By submitting a bid, each bidder agrees that

- (a) neither Sheridan nor any of its employees, officers, agents, officials, advisors, or representatives will be liable, under any circumstances, for any claim arising out of this ITT process including but not limited to costs of preparation of the bid, loss of profits, loss of opportunity, or for any other claim; and
- (b) the bidder waives any right to or claim for any compensation of any kind whatsoever, including claims for costs of preparation of the bid, loss of profit, or loss of opportunity by reason of Sheridan's decision not to accept the bid submitted by the bidder, to enter into an agreement with any other bidder, or to cancel this bidding process, and the bidder shall be deemed to have agreed to waive such right or claim.

3.9 Governing Law and Interpretation

These Terms and Conditions of the ITT Process (Part 3)

- (a) are intended to be interpreted broadly and independently (with no particular provision intended to limit the scope of any other provision);
- (b) are non-exhaustive and shall not be construed as intending to limit the pre-existing rights of Sheridan; and
- (c) are to be governed by and construed in accordance with the laws of the province of Ontario and the federal laws of Canada applicable therein.

[End of Part 3]

APPENDIX A – FORM OF AGREEMENT

Sheridan intends to use the CCDC 2–2020 Stipulated Price Contract as the basis for the Agreement with the successful bidder. This ITT will be included as supplemental conditions to the CCDC 2 document. If there is a conflict between the terms and conditions noted in the CCDC 2 document and this ITT document, this ITT document terms and conditions will supersede the terms and conditions noted in the CCDC 2–Stipulated Price Contract.

Bidders shall refer to the attached 'ITT **3187** CCDC 2 Stipulated Price Contract', attached as a separate document with the ITT.

APPENDIX B – DECLARATION FORM

1. Bidder Information

Please fill out the following form, naming one person to be the bidder’s contact for the ITT process and for any clarifications or communication that might be necessary.	
Full Legal Name of Bidder:	
HST Number (MANDATORY)	
Any Other Relevant Name under which Bidder Carries on Business:	
Street Address:	
City, Province/State:	
Postal Code:	
Phone Number:	
Company Website (if any):	
Bidder Contact Name and Title:	
Bidder Contact Phone:	
Bidder Contact Email:	

2. Offer

The bidder has carefully examined the ITT documents and has a clear and comprehensive knowledge of the Deliverables required under the ITT. By submitting a bid, the bidder agrees and consents to the terms, conditions, and provisions of the ITT, including the Form of Agreement, and offers to provide the Deliverables in accordance therewith at the rates set out in its bid.

3. Rates

The bidder has submitted its rates in accordance with the instructions in the ITT and in Pricing (Appendix C) in particular. The bidder confirms that it has factored all of the provisions of Appendix A, including insurance and indemnity requirements, into its pricing assumptions and calculations.

4. Addenda

The bidder is deemed to have read and accepted all addenda issued by Sheridan prior to the Deadline for Issuing Addenda. The onus is on bidders to make any necessary amendments to their bids based on the addenda.

5. No Prohibited Conduct

The bidder declares that it has not engaged in any conduct prohibited by this ITT.

6. Supplier Diversity

Sheridan College's Procurement Department (in alignment with Sheridan's vision) is embarking on a benchmarking exercise that will allow us to identify existing and future diverse vendors and social enterprises.

Sheridan is actively embedding values of equity, diversity and inclusion (EDI) into policies, procedures and decision-making at all levels of the institution, while recognizing that this is an ongoing process fueled by collective dedication and commitment.

Procurements first step in this exercise is to identify diverse vendors. We will be doing this by partnering with York University and their newly launched Social Procurement Vendor Portal Directory and by asking our vendor community that feels they would be considered a diverse vendor or social enterprise to register on this portal <https://www.yorku.ca/procurement/social-procurement-vendor-application-form/>

The Social Procurement Vendor Portal program is an opportunity for diverse vendors and social enterprises to register their interest in having their business listed on York University's Social Procurement Vendor Directory. York University community members and our Ontario partner institutions (Colleges and Universities) will be able to search the publicly available Directory when seeking to purchase goods and services. The registration of vendors and use buy the public is free. It provides fair and equitable access to vendors to register and for institutions like Sheridan College to seek out vendors for our opportunities.

This initiative does not bypass any legislation or Trade Agreements around Procurement for Sheridan College but allows us to execute on the fair and just treatment of all community members through the creation of opportunities and the removal of barriers to address historic and current disadvantages for equity-seeking and marginalized groups.

7. Conflict of Interest

The bidder must declare all potential Conflicts of Interest, as defined in section 3.4.1 of the ITT. This includes disclosing the names and all pertinent details of all individuals (employees, advisers, or individuals acting in any other capacity) who (a) participated in the preparation of the bid; **AND** (b) were employees of Sheridan within twelve (12) months prior to the Submission Deadline.

If the box below is left blank, the bidder will be deemed to declare that (a) there was no Conflict of Interest in preparing its bid; and (b) there is no foreseeable Conflict of Interest in performing the contractual obligations contemplated in the ITT.

Otherwise, if the statement below applies, check the box.

- The bidder declares that there is an actual or potential Conflict of Interest relating to the preparation of its bid, and/or the bidder foresees an actual or potential Conflict of Interest in performing the contractual obligations contemplated in the ITT.

If the bidder declares an actual or potential Conflict of Interest by marking the box above, the bidder must set out below details of the actual or potential Conflict of Interest:

8. Building Ontario Business Initiatives Act (BOBIA)

Sheridan College, in an effort to comply with the Building Ontario Business Initiatives Act, 2022, S.O. 2022, c. 2, Sched. 2 (“BOBI”), is seeking to identify whether our existing and future vendors qualify as an Ontario Business as defined in legislation under Regulation 422/23.

Schedule F is a BOBI Attestation that must be filled out and submitted as a separate document in the submission.

9. Supplier Code of Conduct

Sheridan College is committed to transparency, accountability, and a strategic approach to procurement and expects suppliers to maintain and continually improve responsible, ethical, and sustainable business practices, operations, and processes, whether deliverables are produced in Canada or elsewhere.

Schedule H is the Supplier Code of Conduct and by signing this Appendix B Declaration the proponent acknowledges and agrees to comply with all expectations set out in the Supplier Code of Conduct document.

10. Disclosure of Information

The bidder hereby agrees that any information provided in this bid, even if it is identified as being supplied in confidence, may be disclosed where required by law or by order of a court or tribunal. The bidder hereby consents to the disclosure, on a confidential basis, of this bid by Sheridan to the advisers retained by Sheridan to advise or assist with the ITT process, including with respect to the evaluation of this bid.

11. Bid Irrevocable

The bidder agrees that its tender shall be irrevocable for a period of ninety (90) days following the Submission Deadline.

12. Change Orders

Please be advised that it is the exclusive responsibility of all Bidders to thoroughly review the scope of work and seek necessary clarifications where required. This is to ensure a comprehensive understanding of the project requirements as outlined in the original tender.

Following the award of the bid, no change orders will be accepted for any scope that was included in the original tender. This is to maintain the integrity of the bidding process and ensure fairness to all parties involved.

Sheridan reserves the right, at its sole discretion, to accept a change order under specific circumstances. These may include changes initiated by Sheridan or situations where Sheridan determines that the original tender did not provide sufficient detail or information for an accurate bid.

13. Execution of Agreement

The bidder agrees that in the event its bid is selected by Sheridan, in whole or in part, it will finalize and execute the Agreement in the form set out in Appendix A to this ITT in accordance with the terms of this ITT.

Signature of Bidder Representative

Name of Bidder Representative

Title of Bidder Representative

Date

I have the authority to bind the bidder.

APPENDIX C – PRICING

1. Instructions on How to Provide Pricing

- (a) Bidders should provide the information requested under section 3 below (“Required Pricing Information”) by reproducing and completing the table below in their bids, or, if there is no table below, by completing the attached form and including it in their bids.
- (b) Rates must be provided in Canadian funds, inclusive of all applicable duties and taxes except for HST, which should be itemized separately.
- (c) Rates quoted by the bidder must be all-inclusive and must include all labour and material costs, all travel and carriage costs, all insurance costs, all costs of delivery to Sheridan, all costs of installation and set-up, including any pre-delivery inspection charges, and all other overhead, including any fees or other charges required by law.

2. Evaluation of Pricing

The lowest or any bid shall not necessarily be accepted.

Pricing is worth **100** points.

Pricing will be scored based on a relative pricing formula using the rates set out in the pricing form. Each bidder will receive a percentage of the total possible points allocated to price, which will be calculated in accordance with the following formula:

$$\text{lowest price} \div \text{proponent's price} \times \text{weighting} = \text{proponent's pricing points}$$

3. Required Pricing Information

All prices as submitted shall include all costs such as, but not limited to, labour, travel time, equipment, truck charges, materials, overheads, warranty and profits, disbursements, and other related charges in the performance of the work. No further changes shall be permitted by any bidders beyond the prices provided in the bid.

1. All prices must be quoted in Canadian Funds, inclusive of all applicable duties and all foreseeable costs required for the fulfilment of this contract.
2. All prices are F.O.B. destination, freight prepaid to whichever campus has been identified unless otherwise specified.
3. It is mandatory that the bidders complete on the Bid Form any Itemized Prices listed thereon. These prices are to be included in the base bid.

4. Bidders will provide on the Bid Form all Separate Prices requested thereon. These prices are not to be included in the Base Bid; and the amounts shown, if desired by the Sheridan, may be added to the base bid to arrive at a revised Bid Price.
5. Bidders will provide on the Bid Form any Unit Prices requested thereon. These prices serve as a basis for computing the value of additional or omitted work. Work to only be performed or allowed for at the submitted prices upon the written instructions of the Sheridan. Unit Prices to include labour, material and applicable taxes but to be exclusive of overhead and profit.
6. The award shall be based on the STIPULATED LUMP SUMS submitted by the closing date and time indicated in this tender. The LUMP SUMS shall include all labour, materials, all costs for the co-ordination of the work and all clean-up, temporary removal and replacement of all Items which will affect the Work, making good all finishes affected by the Work, overhead, profit and statutory charges. The itemized cost breakdown of Work into sections (if requested in this ITT) will be used solely for the purpose of assessing bids unless otherwise stated on the Bid Form.
7. For Work under STIPULATED LUMP SUMS, the bidder is to make his/her own assessment as necessary to establish quantities of materials, etc.
8. It shall be the bidder responsibility to ensure that all items have been included and that no repetition of items appears in the Bid.
9. Front end paying/deposits are not permitted, unless otherwise noted in this ITT.
10. Subcontractors' and bidders' Names
 - a. Parties submitting a bid shall furnish with their bid a list of names of all subcontractors and bidders whose prices they have carried for the respective sub-trades defined in the Specifications.
 - b. The selected bidders shall not change the firms listed without written consent of Sheridan.
 - c. Sheridan reserves the right to reject a proposed subcontractor for reasonable cause.

BID FORM

.1 SCHEDULE FOR BID PRICES AND QUANTITIES

Having examined the Contract Documents, Specifications/Drawings, and Addenda for:

ITT 3187

As well as the premises and conditions affecting the work, we offer to furnish all plant, labour, equipment and materials necessary for the work of all trades for the prices stated herein in **Canadian Funds**.

(A) STIPULATED LUMP SUM

The base bid price includes overhead and profit, insurance, warranties, transportation charges F.O.B. job site with freight prepaid and allowed, and all applicable taxes (except Harmonized Sales Tax, which shall be shown separately).

Base Bid Price: \$ _____

Harmonized Sales Tax: \$ _____

STIPULATED LUMP SUM: \$ _____

(B) PROVIDE THE FOLLOWING ITEMIZED BREAKDOWN (WITHOUT HST)

Items below that do not apply to this project shall be marked "N/A". The total of all following itemized prices shall **SUM TO THE BASE BID PRICE** above.

Description of Work	Price
Mobilization and general requirements	\$
Architectural:	\$
Ceiling	\$
Painting & Preparation	\$
Drywall & insulation	\$
Flooring	\$
Roller blinds	\$
Doors & hardware	\$
Electrical:	\$
Lighting & devices	\$
New power receptacles/circuits	\$
New floor boxes / poke through power	\$
Pathways for power and data cables	\$
IT Communications:	\$
New CAT-6 data cables and terminate	\$

Install new audio/visual equipment	\$
Mechanical:	\$
Install four new VAV units	\$
Install new HVAC system, controls, radiant heat panels	\$
Commissioning	\$
Other:	
Cleaning	\$
Cost of Performance Bond (50% of Bid Price)	\$
Cost of Labour and Material Payment Bonds (50% of Bid Price)	\$
Others: Specify below (if any)	
Base Bid Price	\$

.2 UNIT PRICES

Provide unit prices for the following, based on complete assemblies, including associated hardware, fittings, and finishes. Price shall include all markup for overhead and profit, HST excluded.

Description of Work	Price
Specify (if any)	
	\$

.3 HOURLY RATES REQUIRED:

Description of Work	Price
Specify (if any)	
	\$

.4 SEPARATE PRICES REQUIRED:

Description of Work	Price
Spray foam insulation on all exterior walls	\$
Specify (Other)	\$

.5 ALTERNATIVE PRICES:

The following are our prices for Alternative Work listed hereunder. Such Alternative Work and amounts are **NOT** included in our stipulated price.

Item	Manufacturer	Addition	Deduction
Specify (if any)			

.6 PROPOSED SCHEDULE:

START DATE:	
COMPLETION DATE:	
ESTIMATED PROJECT DURATION (IN WEEKS)	

Note: Bidders to submit construction schedule in MS Project format, or approved equivalent, within five (5) days of award notification.

.7 ADDITIONS AND DEDUCTIONS

The valuation of additions to, and deductions from, the Estimated Contract Amount shall be made as follows.

All items and costs thereof shall be all inclusive, in place and complete.

1. The prices in the SCHEDULE FOR BID PRICES AND QUANTITIES shall apply where appropriate.
2. If the prices in SCHEDULE OF BID PRICES AND QUANTITIES are not appropriate, valuation will be made by one of the following methods:
 - a) Sheridan may ask the bidders for a Lump Sum or Unit Price quotation for the proposed work.
 - b) If the quotation referred to in (a) above is not accepted by the Sheridan, the actual cost of the work will be determined as the total of only the following:
 - i. Actual cost of labour, including such items as Workers' Compensation and Unemployment Insurance.
 - ii. Actual cost of materials to be incorporated into the work, including such items as freight and taxes. H.S.T. to be shown separately.
 - iii. Rental of equipment and plant having a new value greater than \$300.

Whenever extra work is being performed under subsection (b) above, unit costs for labour, materials and equipment will be agreed to before the work is started. Reports shall be submitted daily in writing

indicating the total chargeable quantities of labour, material, and equipment. Valuation of the extra work being so performed will be made only on the basis of the agreed unit costs and the daily reports certified by the Engineer.

.8 LIST OF PROPOSED SUB-CONTRACTORS, SUPPLIERS AND PRODUCTS

Sheridan reserves the right to approve all proposed sub-contractor and where Sheridan objects to the use of any proposed sub-contractor, the bidders shall use another sub-contractor acceptable to Sheridan. Any proposed changes to the approved list of sub-contractors subsequent to Contract Award shall be subject to the approval of Sheridan.

The bidders may be required to produce a schedule of references for all or any proposed sub-contractor.

Where applicable, the bidders shall only use those sub-contractors approved by Sheridan College and shall be held fully responsible to Sheridan College for the acts and omissions of its sub-contractor.

As required in the Information to bidders, the name of each proposed sub-contractor, supplier or product is given in the following list.

If the bidders propose to sublet a part of the work that is not listed below, they shall add the sub-trade and the proposed sub-contractor's name to the list below.

Failure by a bidder to comply with the foregoing requirements may result in their bid being rejected as an informal Bid.

State OWN FORCES if a Sub-Contractor is not required for any of the trades listed; otherwise, name work and sub-contractor tractor proposed to be used.

(If not used, bar and initial the space below.)

TRADE	SUB-CONTRACTOR	CONTACT NAME & TEL
Ceiling		
Mechanical		
Electrical		
Flooring		
Painting		
Window blinds		

Door hardware		
Information Technology		
Drywall		

APPENDIX D – ITT PARTICULARS

A1. THE DELIVERABLES

The intent of this ITT is to invite and receive bids to furnish all labour, materials, services, transportation and incidentals for the general construction of 1 large classroom at the Trafalgar campus.

The B244 classroom renovation at Trafalgar will include (but not limited to) the following:

A.1 Scope of work

Architectural:

1. Repair and retrofit all interior partitions with new insulation and drywall
2. Supply and install new flooring and wall base
3. Scan and core existing concrete slabs for new floor boxes / poke through power
4. Prep and paint all walls, columns, window frames, doors/door frames
5. Supply and install new suspended ceiling tiles and grid system
6. Supply and install automatic door openers
7. Supply and install new whiteboards
8. Supply and install black out roller blinds
9. Supply and install new doors & hardware

Electrical:

7. Supply and install floor boxes / poke through power
8. Install new power receptacles/circuits to support classroom furniture, podium and equipment
9. Provide pathways for both power and data cables
10. Supply and install new DALI light fixtures, lighting system and controls

Mechanical:

10. De-commission and demolish existing HVAC system and existing mechanical components.
Dispose and remove mechanical components, coordinate with Sheridan Operations to turn on the compressor to decommission the pneumatic lines.
11. Supply and install new HVAC system, controls, radiant heat panels and four Variable Air Volume (VAV) units
12. Commission new HVAC system. Heating/Cooling functionality to be commissioned during summer/winter season prior to construction completion

IT:

13. Supply and install new CAT-6 data cables and terminate
14. Install new audio/visual equipment provided by Sheridan

Security:

15. Install card access readers on three doors. Card reader devices supplied by Sheridan

Others:

16. Vacuum / wipe / clean room

17. Remove and dispose of all construction waste off site

*Sheridan is NOT responsible for any storage or disposal related to this construction project

Mobilization like hoarding will commence between January 6 - 10, 2025 and actual work will start January 13, 2025.

A2. Insurance

The bidders hereby covenants and agrees to obtain and maintain in full force and effect throughout the Term, at its own cost, insurance satisfactory to Sheridan with financially sound and reputable insurance companies licensed to underwrite insurance in the Province of Ontario. The bidder shall be responsible for payment of all amounts within the deductible or self-insured retention under each policy of insurance. All insurance policies required pursuant to this clause shall be primary and shall not call into contribution any insurance available to Sheridan.

.1 The insurance shall include but not be limited to:

Ontario Workplace Safety and Insurance Board coverage certificate;

- a. Ontario Workplace Safety and Insurance Board coverage certificate;
- b. Commercial general liability insurance in respect of the bidder and all obligations and operations of the bidder as outlined in the Contract, against claims for bodily injury, including personal injury and death, and property damage or loss, indemnifying and protecting the bidder, their respective employees, servants, volunteers, agents and invitees, to the inclusive limit of not less than Five Million Dollars (\$5,000,000.00) per occurrence with a minimum Ten Million Dollars (\$10,000,000.00) annual aggregate. Such insurance shall specifically state by its wording or by endorsement that:
 - i. Sheridan, its board of governors, trustees, officers, employees, servants and agents are included as an additional insured under the policy with respect to the operations and obligations of the bidder as outlined in this Work;
 - ii. The policy includes contractual liability, SPF. 6 Non-Owned Automobile Liability and SEF. 94 Legal Liability for Damage to Hired Automobiles coverage, products and completed operations coverage, advertising injury liability, contingent employer's liability, and employees as additional insured's;
 - iii. The policy contains a cross-liability clause which shall have the effect of insuring each person, firm or corporation named in the policy as an insured in the same manner and to the same extent as if a separate policy had been issued to each; and
 - iv. The policy shall contain a waiver of subrogation against Sheridan, its board of governors, trustees, officers, employees, servants and agents;
- c. Automobile Liability insurance with limits of not less than Five Million Dollars (\$5,000,000.00) per occurrence. The policy must provide coverage for bodily injury or property damage arising out of the ownership, use or operation of all automobiles owned and/or leased by the bidder; and

- d. All Risk Property and machinery insurance coverage on a replacement cost basis to adequately cover the bidder's equipment and other such property in the care, custody and control of the bidder. The policy shall contain a waiver of rights of subrogation against Sheridan, its board of governors, trustees, officers, employees, servants and agents.

Such policies shall not be terminated, cancelled, or materially altered unless written notice of such termination, cancellation or material change is given by the insurers to Sheridan at least thirty (30) days before the effective date thereof.

A3. Work Schedule

Construction must commence in an expedient manner to complete all non-lead time construction. Construction schedules submitted by the bidder shall include a breakout of work that can complete without delay and any long lead items that will require either a second mobilization or delayed progress of work.

- a. The bidder shall be prepared to commence the work as soon as possible or as per the schedule in order to meet the required date of completion. Work should proceed in an expeditious manner and to be coordinated with the Sheridan College Project Manager.
- b. The bidder shall not interfere, interrupt, or inconvenience any program or operations in Sheridan College or cause it to be done so by others, unless one (1) weeks' notice is given and only at a time approved by Sheridan.
- c. The bidder is to work all hours deemed necessary in order to meet the required schedule (work site is available to the successful bidder 24hrs/day and 7 days/week). Sheridan will not accept any claims and will not pay for additional overtime charges. After hours work may be required to perform any activities that may be disruptive to the occupants of the occupied buildings. All afterhours work and shutdowns to be coordinated with Sheridan Project Manager with appropriate notice.
- d. The work associated with this project must commence no later than **January 6th, 2025**.
- e. The construction shall be completed **March 21st, 2025**, and all deficiencies no later than **April 30th, 2025**, to allow TSSA review and to allow internal trades and stakeholders complete their necessary work before granted occupancy for start of term.
- f. All buildings are occupied from 0700-2200h Monday – Friday. During occupied times, there must be no disruptions to occupants (e.g. dust, smell, temperature, safety hazards, etc.)

A4. SURETY BONDS

- a. Bidders shall be required to submit an Agreement to Bond from a duly incorporated surety company authorized to transact business in the Province of Ontario shall be submitted with the Bid verifying that the said bidder is capable of satisfying the security requirements to obtain the Bonding as prescribed above.

- b. Bidders shall be required to submit a Performance Bond and a Labour and Material Bond. It will be in the form of a 50% Performance Bond and 50% Labour and Materials Payment Bond. These Bonds shall also include the one-year warranty period, or such longer periods as may be specified.
- c. Bonds shall be issued by a duly incorporated surety company authorized to transact business in the Province of Ontario and shall be properly executed by both the bidders and Surety Company.
- d. Form of Bond shall be in the format as required by s. 85 of the Construction Act of Ontario and must be acceptable to Sheridan.

B. MATERIAL DISCLOSURES

B1. Proponents shall refer to the following, attached as separate documents, for details:

- **ITT 3187 - Specification, Documents & Drawings**
- Attachment 1 – TRA B244 Classroom – Tender Drawings (31 pages)
 - Architectural demolition plan
 - Architectural proposed floor plan
 - Architectural proposed furniture Plan
 - Architectural existing reflected ceiling plan
 - Architectural proposed reflected ceiling plan
 - Architectural existing elevations
 - Architectural proposed elevations
 - Electrical lighting demolition plan
 - Electrical lighting proposed plan
 - Electrical power & systems demolition plan
 - Electrical power & systems proposed plan
 - Electrical communications demolition plan
 - Electrical proposed communications plan
 - Mechanical HVAC demolition plan
 - Mechanical HVAC proposed plan
 - Mechanical HVAC hydronics demolition plan
 - Mechanical HVAC hydronics proposed plan
- Attachment 2 – TRA B244 Classroom – Architectural/Mechanical/Electrical Specifications (255 pages)
 - Door & door hardware specifications
 - Card reader, hardware and installation specifications
 - Flooring & installation specification
 - Ceiling tile, grid specification and installation manual
 - Paint material specification
 - Electrical testing protocol production check list
 - Pinchin Hazardous material report (potential asbestos) and remediation report
 - Pinchin Asbestos abatement completion letter
 - Floor box specification
 - Communications infrastructure design guide
 - Wall base specification

- Light fixture specifications

B2. Insurance

During the Term of the Agreement, bidders must maintain insurance certificates which match or exceed the coverage listed in the Section A2. If bidder's insurance coverage does not comply with the Section A2, the bidder will be responsible to adjust their policy accordingly at their own costs.

C. MANDATORY SUBMISSION REQUIREMENTS

C1. Declaration Form (Appendix B)

Each bid must include a Declaration Form (Appendix B) completed and signed by an authorized representative of the bidder. This Declaration includes acknowledgement of the Schedule H - Sheridan Supplier Code of Conduct.

C2. Pricing (Appendix C)

Each bid must include pricing information that complies with the instructions contained in Pricing (Appendix C).

C3. Proof of Bonding Letter

Each bid shall include a proof of Surety Bonds from a reputable Bonding Company in the Province of Ontario that confirms the bidder bonding meets the minimum requirements set forth in Section A4 above.

The successful bidder shall hereby covenant and agree to obtain and submit the surety bonds no later than five (5) business days from the day of request.

C4. Start & Completion Dates

Proponents must submit a letter on company letterhead stated the following:

The work associated with this project must commence no later than **January 6th, 2025**.

The construction shall be completed **March 21st, 2025**, and all deficiencies no later than **April 30th, 2025**, to allow TSSA review and to allow internal trades and stakeholders complete their necessary work before granted occupancy for start of term than five (5) business days from the day of request.

C5. APPENDIX F – Ontario Vendor Attestation

Each bid must include an Ontario Vendor Attestation (Appendix F) completed and signed by an authorized representative of the bidder.

C6. APPENDIX G – Subcontractor Qualifications & Experience

Each bid must include a Subcontractor Qualifications & Experience Form (Appendix g) completed and signed by an authorized representative of the bidder.

C7. APPENDIX H – Supplier Code of Conduct

Each bid must include an Supplier Code of Conduct (Appendix H) completed and signed by an authorized representative of the bidder.

C8. Insurance

Each proponent shall provide proof of insurance as outlined in **A2. Insurance**

C9. Other Mandatory Submission Requirements

- Submit proof of training in workplace-safety hazards
- Submit proof of working at heights training card

D. MANDATORY TECHNICAL REQUIREMENTS

[N/A]

E. PRE-CONDITIONS OF AWARD

E1. Proof of Financial Viability

Prior to entering into an agreement with the selected bidder, Sheridan may require the bidder to provide detailed financial information to demonstrate and confirm its financial viability. Sheridan may choose not to enter into an agreement with any bidder that is unable to demonstrate its financial viability to the satisfaction of Sheridan.

E2. Contractor Health and Safety Program

Upon notification of intent to award the contract and within ten (10) business days, the selected bidder shall provide to Sheridan completed and signed copies of Appendix B and Appendix C found at the following link.

Go to <https://policy.sheridanc.on.ca/dotNet/documents/?docid=1118> and click on “Visit our Public Site”.

It is the selected bidder’s responsibility to review and abide by Sheridan’s Contractor Health and Safety Program.

E3. Proof of WSIB Clearance Certificate

The selected bidder must submit Proof of WSIB Clearance Certificate

APPENDIX E – SUPPLEMENTARY CONDITIONS

E1. Workplace Safety and Insurance Board

The bidder shall provide Sheridan with a current “Clearance Certificate” from the Workplace Safety and Insurance Board and the municipality may, at any time during performance of the contract or upon its completion, require a further declaration that assessments or compensation required to be paid pursuant to the Workers’ Compensation Act have been paid.

- Safety in the workplace is accomplished by:
- removal of, or safeguarding against, environmental health and physical hazards,
- establishment of safe working practices,
- provision of safety devices,
- provision, use and maintenance of personal protective devices,
- provision and participation in appropriate training, and
- Compliance with the Occupational Health and Safety Act and Regulations.

E2. Insurance Claims

- a. The bidder shall retain an independent adjuster who will determine the bidder’s liability for all third-party claims and advise the claimant in writing of the determination of liability within sixty (60) days of service of the claim on the bidder. Copies of such determination of liability shall be forwarded to Sheridan.

- b. If the bidder or the bidder’s independent adjuster fails to respond within the time noted in (a) or responds in a manner inconsistent with the evidence at hand, Sheridan reserves the right to have another independent adjuster review the claim and determine liability, therefore any monies incurred by Sheridan to investigate, defend and satisfy any third-party claim where it was determined that the bidder was liable will be deducted from monies owing to the bidder by Sheridan.

- c. If a claim is settled to the satisfaction of the claimant, the bidder shall provide Sheridan College with a copy of the claimant’s release. The claimant’s release shall cover the interests of the bidder and Sheridan, its employees, agents and anyone for whom it is in law responsible.

E3. Default

Where an act or event of default by the bidder occurs, Sheridan may terminate the Contract by giving forty-eight (48) hours written notice to that effect and enforce any Performance Bond, Letter of Credit or other performance security provided by the bidder. Alternatively, Sheridan may hold back any amount payable (on this or any other contract with Sheridan College) as in the opinion of Sheridan is reasonably required to secure timely completion of the work.

Acts or events of default by the bidder may include but not be limited to the following:

- a. The bidder fails or neglects to commence or to proceed with the Project, Work or Supply diligently and at a rate of progress that in the opinion of Sheridan will ensure entire completion within the time provided for in the contract documents.
- b. Sheridan determines reasonably that the bidder has abandoned the work, the determination of which Sheridan shall be the sole judge.
- c. The bidder is adjudged bankrupt or becomes insolvent, or a petition in bankruptcy is filed against the bidder, or where the bidder makes an assignment for the general benefit of creditors or applies for relief under the Companies' Creditors Arrangement Act, or where proceedings of any type are instituted in any jurisdiction in respect of the alleged insolvency or bankruptcy of the bidder.
- d. Where any formal or informal proceeding for the dissolution of, liquidation of, or winding up of, the affair of the bidder is instituted by or against the bidder, or where a resolution is passed or any other act undertaken for the winding up of the bidder.
- e. The bidder ceases or threatens to cease to carry on its business, or the bidder makes or agrees to make a bulk sale of its assets.
- f. A receiver, manager or trustee is appointed in respect of the business or assets of the bidder, or any part of thereof, by a court of competent jurisdiction, or under an agreement.
- g. The bidder defaults in payment of any indebtedness or liability to a bank or other lending institution, or an approved subcontractor whether secured or not.
- h. The bidder defaults in the completion of the work or the bidder fails or refuses to remedy any unsatisfactory or defective work or to remove any unsatisfactory or condemned material when so ordered by Sheridan College in writing.
- i. The bidder persists in any course in violation of any of the provisions of the contract documents after receiving written notice from Sheridan to correct that violation.

The remedies provided in this section are in addition to all other legal, equitable or statutory remedies to which Sheridan College is otherwise entitled, and the taking of any one remedy shall not preclude the taking of any other remedy.

In addition, where there is a default by the bidder under the contract, Sheridan may waive that default by written notice to that effect. A waiver of a default shall not extend to or be taken in any manner whatsoever to affect the rights of Sheridan with respect to any subsequent default, whether similar or not.

In the event that the bidder fails to properly, promptly, and fully carry out the work required by these documents, Sheridan College reserves the right to notify the bidder to discontinue all work under this contract, to advertise for new bids or carry out the work in any way as Sheridan College may, at its sole discretion, deem best. The bidder further agrees to save and hold harmless Sheridan College and/or its officers, agents, or servants from all loss, damage, liability, cost, charge or expense whatsoever which it, they or any of them may suffer, incur or be put to by reason of such default or failure.

E4. Termination

In the event that the bidder fails to comply with any provision of the contract or otherwise fails to perform its obligations hereunder in a competent manner satisfactory to Sheridan, Sheridan may issue a verbal

warning outlining the deficiency in supply or other aspects of performance and requiring the bidder to correct those deficiencies within such period of time as stated.

If the deficiency is not corrected within the time specified, or there is a further instance of deficient performance, Sheridan may issue a written notice to the successful bidder, identifying the deficiency in performance and setting a final date or time period for its correction

In the event that the bidder has not remedied its failure by the final date or within that time period, Sheridan shall be entitled to exercise any one or more of the following remedies:

- a. Sheridan may terminate the contract without further notice, and exercise its rights to the performance security provided by the bidder;
- b. Sheridan may withhold any payment due to the bidder hereunder until the bidder has remedied its failure;
- c. Sheridan may engage the services of another bidder to remedy the bidder's failure and obtain reimbursement therefore from the original bidder. The said reimbursement may be obtained either through deduction from any amounts owing to the bidder hereunder, or through any other legal means available to Sheridan College; or
- d. Sheridan may assert any other remedy available to it in law or equity.

Unless Sheridan expressly agrees to the contrary, any failure of Sheridan to exercise any of the foregoing remedies, or the granting of any extension or indulgences, shall not be prejudicial to any right of Sheridan to subsequently obtain such remedies.

Termination of any contract can be immediate depending on the severity of the default.

E5. Termination for Changes in Legislation or Funding

- a. Either party may terminate this Agreement, in whole or in part, if there are material changes to applicable government legislation or funding that affect the execution or cost of the services under this Agreement.
- b. The party seeking to terminate this Agreement shall provide the other party with written notice of such intention, detailing the changes in legislation or funding that have led to this decision.
- c. Upon receipt of such notice, the parties shall meet within seven (7) days to negotiate in good faith any modifications to this Agreement necessary to address the impact of the change in legislation or funding.
- d. If the parties are unable to agree on such modifications within fourteen (14) days of receipt of the notice, either party may terminate this Agreement upon providing a further thirty (30) days' written notice to the other party.

In the event of termination under this clause, the parties will settle any outstanding payments for services rendered up to the date of termination, and any costs reasonably incurred as a result of the termination.

E6. Inspection

All shipments shall be subject to final inspection after receipt by Sheridan College at destination. Delivery to Sheridan is not to be an acceptance unless inspected and approved by Sheridan and subject to rejection based upon:

- a. defective products or workmanship discovered within one year of the date of receipt; and
- b. latent defects, frauds and mistakes

E7. Rejection

- a. If any of the goods are found at any time to be defective in material, workmanship, quality, quantity or otherwise not in strict conformity with the specifications or requirements of the original bid request and any subsequent order, Sheridan in addition to any rights to which it may have under warranties or otherwise shall have the right to reject and return such goods for full credit. All freight charges are to be at the bidder's expense.
- b. Without limiting the foregoing right of rejection, Sheridan shall have the right to require prompt replacement, repair or correction of defective work or goods at the risk and expense of the bidder. If the bidder is unable or unwilling to affect such replacement, repair or correction Sheridan may do so by using its own workers, goods or facilities or by outside contract and shall be entitled to charge the original bidder for excess costs directly or indirectly occasioned thereby.

E8. Bidder's Responsibilities

Acceptance of a Purchase Order issued by Sheridan for a bid, or any part of a bid shall constitute a contract between Sheridan College and the bidder which shall bind the bidder on his part to furnish and deliver the goods or services at the prices given and in accordance with the conditions of the bid and these Terms and Conditions.

E9. Contract and Bidder Requirements

The bidder hereby covenants and agrees that if their bid or any part thereof is accepted by Sheridan, they:

- a. Shall perform the contract in accordance with the specifications, terms and conditions under which it is awarded.
- b. Shall use due care that no person is injured, and that no property is damaged in the performance of the work.
- c. Shall not, except with the consent of Sheridan in writing, release information relating to any subsequent order for advertising, promotional or technical purposes or otherwise give it publicity in any fashion, nor shall the name of Sheridan be used for, or in connection with, any advertising or promotional purpose of the bidder.

- d. Bidders are to treat information gained while working with Sheridan confidentially and not use it for any other project and return it to Sheridan if requested with no copies to be retained.,
- e. Shall provide a complete list of all controlled products, hazardous materials, products containing hazardous materials, and all biological or chemical agents or devices or equipment producing or emitting a physical agent and any substance, compound, product or physical agent that is deemed to be, or contains, a designated substance as defined under the Act and the Regulations, which will be supplied or used in the work, before commencing. The bidder shall provide appropriate information and **Material Safety Data Sheets**, where required, with the shipment
- f. Shall ensure that bidders, sub-contractor, and all of their employees are trained in W.H.M.I.S.

E10. Deliveries

- a. Deliveries to the Davis Campus are to be made between the hours of 8:00am and 4:30 pm local time, Monday through Friday. All shipments should be directed to Dock B1 – 7899 McLaughlin Road, Brampton, Ontario L6Y 5H9
- b. Deliveries to Trafalgar campus are to be made between the hours of 8:30 a.m. and 4:00 p.m. local time, Monday through Friday. The Trafalgar campus has one (1) dock: Dock # 2 – General Shipping and Receiving. Most items will generally be shipped to Dock # 2, unless stated differently in the document. For Dock # 2, the truck should not be longer than 40 feet.

E11. Invoice Requirements

The bidder will submit to Sheridan, Finance – Accounts Payable (ap@sheridancollege.ca), an invoice for payment upon completion of work.

All applicable taxes are to be itemized separately on invoices, i.e. H.S.T.

Include the Purchase Order number on each invoice. (Invoices will be returned if this information is omitted.)

E12. Payment Terms

Sheridan College will pay correct invoices Net 30 days after receipt of the invoice unless a discount for quick payment is offered. No other terms of payment will be accepted whether stated/implied without written approval. Payment may be delayed if the invoice is incorrect or goods or services are not acceptable to Sheridan.

HOLD BACK: Sheridan College reserves the right to retain a hold-back of ten (10) percent of the total amount due on this contract for sixty (60) days past completion as security against a construction lien or other claims.

Payments shall be subject to the holdback and other provisions of the Construction Act.

E13. Occupational Health and Safety Act (OHSA) Requirements

The following requirements and conditions shall be included in all agreements with bidder (and sub-contractor) engaged by or on behalf of Sheridan:

- a. Bidders with known poor safety records or with inadequate qualifications or equipment will not be considered for Award;
- b. Bidders acknowledge that they regularly read and understand the Occupational Health and Safety Act R.S.O. 1990, C. 0.1 ("OHSA") and regulations, made under that statute;
- c. Bidder shall comply with all health and safety requirements established by the Occupational Health and Safety Act and regulations. Any such requirements established by Sheridan College shall be included in the Bid Documents and the Bidder agrees to assume full responsibility for the enforcement of same;
- d. Bidder shall participate in a pre-project meeting to verify its full understanding of the major contractual requirements and expectations in the area of health and safety before the start of any work;
- e. Bidder shall allow access to the work site on demand to representatives of Sheridan provided that they are in full compliance of the Occupational Health and Safety Act and Regulations;
- f. Sheridan will take all action necessary to support the bidder's health and safety efforts and to ensure that Sheridan owned and controlled environments in the vicinity of the project are free from hazards;
- g. Bidder acknowledges and agrees that any serious breach or breaches of health and safety requirements, whether by the bidder or any of its subcontractor may permit Sheridan to elect to cancel the contract; and
- h. Bidder acknowledges and agrees that any damages or fines that may be assessed against Sheridan by reason of a breach or breaches of the OHSA by the bidder or any of its subcontractor will entitle Sheridan to set-off the damages so assessed against any monies that Sheridan may from time to time owe the bidder under the contract or any other contract whatsoever
- i. Bidder shall provide a list of all controlled hazardous materials or products containing hazardous materials, all physical agents or devices or equipment producing or emitting physical agent(s) and any substance, compound, product or physical agent that is deemed to be or contains a designated substance in accordance with the Workplace Hazardous Materials Information System (WHMIS) as defined under the OHSA and shall provide appropriate Material Health and Safety Data Sheets for these substances used for the performance of the required work, all prior to the performance of said work.
- j. Where hazardous materials, physical agents and/or designated substances are used in the performance of the required work, the bidder shall ensure that the requirements of the OHSA and associated regulations are complied with.
- k. Bidder shall follow Workplace Hazardous Materials Information Systems (WHMIS) requirements and ensure all employees are given required training and support.
- l. Bidder shall have a clearly defined safety plan/rescue plan for its workers involved in hazardous activities. This plan shall include, but not be limited to, procedures for entering a confined space on the work site.
- m. Bidder agrees at all times to comply with Occupational Health and Safety Standards in the workplace and further agrees to adhere to Health and Safety Standards set out in applicable statutes and regulations and to comply with written Health and Safety Policies of Sheridan.

E14. Toxic and Hazardous Substances

If the bidder encounters unidentified toxic or hazardous substances at the place of the work, or has reasonable grounds to believe that unidentified toxic or hazardous substances are present at the place of the work, the bidder shall take all reasonable steps, including stopping the work to ensure that no person suffers injury, sickness or death, and that no property is injured or destroyed as a result of exposure to the presence of the substances, and immediately report the circumstance to Sheridan in writing.

E15. Licenses and Permits

The bidder will be responsible for applications and fees associated with any and all licences and permits required by any and all governing bodies unless otherwise stipulated in the bid request document. A copy of all permits, and any other required documentation will be forwarded to Sheridan's designate for Sheridan records.

E16. Evidence of Quality

It is the bidder's responsibility to prove their product/service quality meets Sheridan requirements and bidders may be required to submit evidence in a form acceptable to Sheridan. Substitution of materials equipment or methods different from that outlined in the specifications / terms of reference will not be accepted unless provided for within the bid request document or without the written approval of Sheridan.

E17. Labour Disputes

The obligations of the bidder hereunder shall continue unchanged throughout the occurrence of any labour disputes (including strike or lockout), whether the same occurs with respect to the employees of Sheridan, the bidder, or otherwise.

E18. Guaranteed Maintenance and Warranty

- a. Upon completion of the work, the bidder shall maintain the work for a warranty period of Twenty-four (24) Months after the date of substantial completion to the satisfaction of Sheridan /or Consultant, if any, both acting reasonably. The bidder shall correct any imperfections due to material or workmanship. The decision of Sheridan /or Consultant, if any, both acting reasonably, as to the nature and cause of any imperfections and the necessity for the type of repair shall be final.
- b. The warranty given pursuant to this section shall not limit extended or other warranties on any items of equipment or material called for elsewhere in the contract.
- c. The bidder shall, before final payment is applied for, to the extent permitted by the manufacturer and supplier, assign to Sheridan the benefit of any warranty by any manufacturers or suppliers in addition to the warranty as mentioned above.
- d. The bidder agrees to correct promptly, at their own expense, defects or deficiencies in the work which appear prior to and during the period of two (2) years from the date of substantial performance of the work or such longer periods as may be specified for certain products or work.

- e. If after seven (7) days' notice, the bidder fails to carry out any repairs as directed by Sheridan, Sheridan may proceed with such and charge the same against any monies that are outstanding to the bidder. If no monies are being held by Sheridan, Sheridan reserves the right to bill such repairs back to the bidder or to make a claim against performance security that is being held for the work in question.
- f. The bidder agrees to correct or pay for damage resulting from corrections made under the requirements of the warranty.
- g. The decision of Sheridan shall be final as to the nature and imperfection of guaranteed work, and the necessary remedy of same.
- h. The bidder shall use only new, first-class materials, and shall cause their suppliers to do the same. The bidder shall correct or replace any defective work or material at its own expense, upon the direction of Sheridan. Where the bidder refuses or neglects to remove any defective work or material supplied by it in accordance with a written notice by Sheridan, such work or material may be removed by order of Sheridan at the bidder's expense. Sheridan reserves the right to deduct the cost and expense of such removal from any moneys due to or that become due to the bidder on any account.
- i. The equipment shall include a minimum two (2) year maintenance and service contract including preventative maintenance and repair.

E19. Existing Services

The position of utility pole lines, underground conduits and services, watermains, sewers and other underground and over ground utilities and structures are not necessarily known, and the accuracy of the position of such utilities and structures on any reference documents is not guaranteed. Sheridan will not be responsible for damages or extra work caused or occasioned by the bidder relying on this or any other information or records.

Before starting work, the bidder shall familiarize themselves of the exact location of all such utilities and structures and shall assume all liability for damage to them. Where extra measures are required to support utility poles during construction either by the utility involved or the bidder himself, the costs involved shall be borne by the Bidder. The bidder will be responsible for any fees that may be associated with these services.

E20. Inspection and Control of Site

SHERIDAN COLLEGE'S INSPECTION AND SUPERVISION – A representative of Sheridan (appointed by Sheridan) reserves the right to enter the site at any time for the purpose of review & inspection. The presence of a said representative does not indicate satisfaction or compliance unless these comments are made by the representative and submitted to the bidder in written form.

E21. Bidder's Use of Site

Sheridan will provide storage areas as required. The bidder use of Sheridan property is limited to areas for work and storage as directed by Sheridan. Perishable, stainable, or damageable products shall be placed above grade and adequately protected from the elements of nature accordingly.

Except where expressly permitted by Sheridan, materials and/or equipment must not be stored within four metres of the travelled portion of any roadway. Notwithstanding the foregoing, the bidder shall, at their own expense, remove any equipment or material, which, in Sheridan's opinion, constitutes a traffic hazard.

Access to washrooms and food services is permitted unless noted otherwise.

All Waste generated through this project must be disposed of in compliance with all laws and regulations, by the bidder, using services supplied by and paid for by the bidder.

The bidder is responsible for damage caused to surrounding facilities, and for the protection of the public. Facilities and/or surroundings damaged by the bidder shall be repaired and paid for in full by the bidder at no cost to Sheridan.

E22. Emergency and Maintenance

The care of the works until completed, delivered to and accepted by Sheridan rests solely with the bidder who shall assume all risk of damage to the work.

For the purpose of Emergency and Maintenance measures, the name, address, and telephone number of a responsible official of the contracting firm shall be given to Sheridan's contact person in charge of the project. This official shall be available at all times and have the necessary authority to mobilize workers and machinery and to take any action as directed by Sheridan in the event emergency or maintenance measures are required, regardless of the fact that the emergency or requirement of maintenance may have been caused by the bidder's negligence, Act of God, or any cause whatsoever.

Should the bidder be unable to carry out the required immediate remedial measures, Sheridan may carry out the necessary repairs and the costs for this work shall be deducted from payments due to the bidder.

E23. Brand Name or Equivalent

Bid submissions of a comparable product will be considered if it meets Sheridan's requirements.

- a. Any reference to the brand name or a particular manufacturer shall be understood to have been made solely for the purpose of establishing and describing required performance and quality levels of the product to be supplied, unless specified otherwise.
- b. No reference to the brand name of a particular manufacturer shall be construed to restrict bidders to that manufacturer, but bids shall be deemed to be invited for equivalent and comparable equipment of any manufacturer.
- c. Despite subsection (2), if an item is other than the one specified in bid, it is the bidder's responsibility to demonstrate that the product bid meets the specifications, and the bidder shall submit brochures or samples upon request, and provide full specifications in detail on the item(s) bid. Sheridan College shall be the sole judge (in its absolute discretion) as to whether a product meets specifications.

- d. Bidders wishing to bid on an alternate product would need to compare Sheridan's specifications to their alternate product. It will not be Sheridan's responsibility to perform this comparison.

If there are disparities between the two products, the bidder can contact the Purchasing Department in writing prior to submitting a bid and identify all items of concern. If Sheridan is willing to consider the product with its differences, it could then be communicated in the form of an addendum prior to the closing date.

The acceptability of any alternate products will remain at the sole discretion of Sheridan. In the event a demonstration of the product is required to confirm equivalency, it will be conducted after the bid has closed.

The cost of any testing requirements to establish acceptable equivalent or comparable products will be borne by the bidder, unless otherwise stated by Sheridan.

E24. Campus Parking

Paid parking is available at the Oakville and Brampton Campus. Any bids received by bidders shall be considered an all-inclusive price and must include parking arrangements for the various trades, subcontractor, etc.

Parking areas and fees shall be as directed by Sheridan. Park only in designated parking spots. Do not obstruct entrances, stairs, fire exits or fire routes. Maintain free access routes at all times for ambulances, fire emergency vehicles, garbage trucks, etc. If required, bidder shall phase operations to accommodate Sheridan operations and shall provide traffic control measures and directional signs to the satisfaction of Sheridan.

1. Pass Types & Payment Methods:

- a. A daily pay-by-plate pass may be purchased through the blue pay-by-plate kiosk. Payment methods: coins and credit cards.
- b. A multi-day pass, monthly pass or bi-weekly pass may be purchased through the bookstore. Payment methods: cash, credit and debit.
- c. Single semester, two-semester or annual permits are available through the Security office. Payment Methods: business cheque, certified cheque, debit and money order.

2. Designated Bidder Parking Spots:

There are a number of designated bidder parking spots available at the Davis campus and Trafalgar campus locations.

- a. If a bidder purchases a pay-by-plate pass they can bring the receipt to Security. Security will mark the receipt and the bidder can display this receipt in the dash of their vehicle which will then allow them to park in a designated bidder spot.
- b. If a bidder purchases a multi-day pass through the bookstore, they can bring the pass to Security who will then mark/identify the hang tag to allow the bidder to use the designated bidder spots.

- c. If bidders purchase an annual or semester permit through the Security office, the hang tag will be marked and this will allow the bidders to park in the designated bidder spots.

3. Notes & Comments:

- a. Bidders may park in any regular parking spot in addition to the designated bidder spots.
- b. Bidders are not permitted to park in preferred parking spots, car pool spots, any other signed spot, short term parking spots, the visitor parking lot, fire routes, roadways or other non-parking spots. In addition, Bidders are not permitted to park in Lot 1a (Residence parking lot) at Trafalgar.
- c. Multi-day/semester/annual parking passes are transferrable however security will need to be updated on the license plate #'s for the bidders parking in the designated bidder spots.
- d. Fee schedule is available online through Sheridan's website
- e. (<http://parking.sheridancollege.ca>).

At the Mississauga campus, paid parking is available through the City of Mississauga. Sheridan does not provide parking at the Mississauga campus.

E25. Smoke Free Sheridan Policy

Sheridan is a Smoke-Free Environment. In accordance with the Smoke-Free Sheridan Policy, smoking any form of tobacco and/or cannabis, vaping and the use of e-cigarettes and smokeless tobacco (commonly known as chewing tobacco) is not permitted anywhere on Sheridan campuses.

E26. Sexual Assault and Sexual Violence Policy

All bidders must read and understand the Sheridan Sexual Assault and Sexual Violence Policy. In addition, all employees and sub-contractors engaged by the successful bidder to perform work at Sheridan must read and understand the Sheridan Sexual Assault and Sexual Violence Policy.

The policy is located here <https://www.sheridancollege.ca/-/media/files/www/about/respectful-and-safe-communities/sexual-assault-and-sexual-violence-protocol-2017.ashx> .

E27. Codes and Standards

The following codes and standards shall apply to the work and are deemed to be part of this ITT. Provision for meeting the most current edition of these requirements is deemed to be included in all pricing submitted under this ITT.

- OBC 2012: Ontario Building Code Requirements.
- NFPA: National Fire Protection Association
- Fire Marshal Act
- Electrical Safety Codes
- Ontario Water Resources Act
- Gas Utilization Code

- Environmental Protection Act
- Ontario Hydro
- Municipal Bylaws
- Ontario Occupation Health and Safety Regulation
- All other applicable codes and/or bylaws affected by this project

E28. Shop Drawings

All shop drawings as may be required to complete the work in accordance with the contract documents shall be submitted to Sheridan for review prior to commencement of work. Shop drawings are to include overall layout, actual dimensions, material profile & other related works. Refer also to drawing specifications and notes.

E29. Record Drawings (As-Builts)

Bidder is required to document the “as-built” location and condition of all construction related items throughout the duration of the project. This includes but is not limited to any “field changes” as instructed by Sheridan or dictated by site conditions. A drawing record of the “as-built” condition of the completed work is to be submitted to Sheridan no later than two (2) weeks upon contract completion.

E30. Extra Work and Additional Costs

Any work that is deemed by the bidder to be extra work is to be evaluated and approved by Sheridan Project Manager before proceeding. If bidder proceeds without written consent or approval from Sheridan, they do so at their own risk. Evaluation of additional work will be based on current market pricing and unit rates and shall be restricted to five percent (5%) overhead and five percent (5%) profit applied to the labour and material cost. The same percentages shall apply to subcontractors and/or their agents. A breakdown of the additional work is to be provided for all claims.

E31. Close Out Documents

1. The purpose of this document is to mark the completion of this ITT with ITT reference number by collecting the requested close out documentation listed below and confirming that all essential contractual and other project closure activities have been completed.
2. Upon project completion, general bidder shall provide Sheridan Project Manager with close-out documentation via electronic copy for initial review. Once reviewed and revised, bidder shall provide two (2) hard copies and one (1) electronic copy of the complete package no later than two (2) weeks past the projection completion date.
3. Close out documentation to include:
 - Letter of Warranty for all labour, material and products from trades and vendors
 - Contact information of all sub trades and vendors (to include at a minimum; name, phone number, email and company name and address)
 - A copy of the following from all applicable sub trades and vendors
 - Permits
 - Certification

- Panel and Diagram Schedules
- Air Balancing
- Test Reports
- Product Data
- Maintenance and operation sheets
- Shop drawings
- Commissioning Reports
- As-built drawings

E32. Application for Payment

1. The application for progress payment may be made monthly and shall be sufficiently broken down in order for the College to evaluate its contents, and shall indicate a ten percent (10%) holdback which shall be deducted from each application amount.
2. Sheridan reserves the right to request further evidence of breakdown or documentation to establish a fair and reasonable evaluation of the application. Should such information be required, the receipt date of application shall be adjusted accordingly.
3. All applications for payment, other than the first, shall be accompanied by a statutory declaration.
4. Final payment and release of holdback shall be released as noted in the CCDC 2.

E33. Security Access

As required Sheridan may arrange for Security access to specific areas involved in this project. The Sheridan Project Manager may arrange this with the bidder and Security Services. Any keys that are signed-out to the bidder must be returned prior to the bidder leaving Sheridan.

E34. Traffic and Pedestrian Control

Traffic and pedestrian control shall be in accordance with OPSS 543, Ontario Traffic Manual (OTM) Book 7 (Temporary Conditions), and the Occupational Health and Safety Act (OHSA).

The bidder shall be responsible for the supply, installation, maintenance and removal of all signs required for entrance detours and restrictions, including signs on private property, barricades and construction fencing. As required, the bidder is responsible for preventing pedestrian access to site using methods such as placing chain link fence and posting signs.

E35. Environmental Protection Act

No persons shall use any facilities or equipment for the storage, handling, treatment, collection, transportation, processing or disposal of waste that is not part of a waste management system for which a certificate of approval has been issued and accept in accordance with the terms and conditions of such certificate in compliance with the provisions of the EPA and its Regulations. The persons or corporation shall advise Sheridan of any spills in accordance with the Spills Response Program as required under the Environmental Protection Act.

E36. Asbestos

As required under R.R.O. 838, the regulation respecting Asbestos on Construction Projects and in Buildings made under the Occupational Health and Safety Act, an asbestos register will be available upon request for the particular area under construction.

If asbestos is encountered during the project stop work immediately and contact the Sheridan Project Manager.

E37. Temporary Services

It shall be the responsibility of the bidder to provide temporary services if required (i.e. hydro, water, heat, etc.). Where work is being carried out in an existing building, the bidder shall make application to Sheridan for utilization of such facilities.

E38. Cleanup and Disposal

Bidders shall keep the premises in a clean and orderly condition at all times during construction. The project site is to be kept tidy on a daily basis. Upon completion of the work, all surplus material and garbage of every description incidental to the work shall be cleared leaving the project neat and orderly. All waste and unusable material shall be promptly removed and disposed offsite at the bidder's expense. Bidders are not to use Sheridan garbage disposal bins at any times.

It is the responsibility of the bidder to restore the site to its original condition to the satisfaction of Sheridan after work has been completed.

E39. Dust Control

Bidder shall control dust from construction operations to the complete satisfaction of Sheridan as well as to municipal and provincial regulations. Bidder shall wash/sweep roads as required.

E40. Code of Professionalism and Civility

All bidders must abide by the Sheridan College Code of Professionalism and Civility.

Each member of the Sheridan community has the right to be treated with dignity and respect. The Code of Professionalism and Civility, in coordination with other related policies, is intended to provide guiding principles and rules for behavior that, when followed, contributes to a respectful,

supportive and safe place to work and learn. In the same manner that citizens of a community are responsible for their actions, so too are employees, bidders, consultants, visitors, volunteers, and any other person in our environment. As such, all members of our community are obligated to acknowledge and accept the responsibilities for good citizenship. Good citizenship is expressed as behavior which respects the duties, obligations and functions of a citizen as set out in this Code.

The Sheridan Code of Professionalism and Civility can be accessed through the following link: <https://www.sheridancollege.ca/-/media/files/www/working-at-sheridan/careers-at-sheridan/new-hires/code-of-prof-and-civility.ashx?la=en&hash=5FD7EC472857489F0FF66FFF1408E2175D3F24A7>

E41. Assignment of Contract

The bidders shall not assign the whole or any part of the resulting contract without the prior written consent of the Sheridan Project Manager.

E42. Bidder Performance

At project completion, the Project Manager will conduct an evaluation of the bidder's overall performance with input from consultants if applicable. Recommendations will be put forward as to the bidder's overall suitability for future Sheridan College work. It must also be noted that while overall performance is being evaluated, Sheridan reserves the right to suspend a bidder for extreme or repeated inadequate grades on any issues related to health and safety.

E43. LIENS

In the event that a construction lien is registered against the Project by or through a subcontractor or supplier, and provided Sheridan College has paid all amounts properly owing under the Agreement, the bidder shall, at its own expense:

1. within ten (10) working days, ensure that any and all construction liens and certificates of action are discharged, released or vacated by the posting of security; and
2. in the case of written notices of lien, ensure that such notices are withdrawn, in writing.
3. In the event that the bidder fails to conform with these requirements, Sheridan may set off and deduct from any amount owing to the bidder, all costs and associated expenses, including the costs of borrowing the appropriate cash, letter of credit or bond as security and legal fees and disbursements. If there is no amount owing by Sheridan to the bidder, then the bidder shall reimburse Sheridan for all of the said costs and associated expenses.

E44. Pre-Qualified Subcontractors

The successful bidder is responsible to contact and coordinate with the below pre-qualified subcontractors for all documentation, revisions, site walks, and mandatory site meetings.

Sheridan has mandated the following pre-qualified subcontractors to provide services as outlined below.

E44.1 IT Cabling

All contract work must adhere to:

- Sheridan College Standards for Communications Infrastructure Revised V5 (August 26, 2013);
- Base Classroom Technology Design Guide v.1.7.3 (Oct. 2012);
- Meeting Room Technology Design Guide v. 1.5 (Apr. 2013)

Cable Assembly Systems Ltd.

4 Sharp Road, P.O. Box 607
Brantford ON N3T 5P9
Email: bmanese@cableassembly.ca

CaTECH Systems Ltd.

201 Whitehall Drive Unit 4
Markham ON L3R 9Y3
Email: rpinho@catech-systems.com

The State Group Inc.

3206 Orlando Drive
Mississauga ON L4V 1R5
Email: a.blackborow@stategroup.com

E43.2 Campus Fire and Sprinkler Systems

Hamilton Fire Control

Tel: 905-527-7042, Fax: 905-527-7044, Cell: 289-339-7598
Frank Tracey
Email: frank@hamiltonfirecontrol.ca

E43.3 Roofing Contractors

Atlas-Apex Roofing

65 Disco Road,
Etobicoke, ON M9W 1M2
Phone: (416) 421-6244
Mr. Jim McKillip
Email: JMckillip@atlas-apex.com

Nortex Roofing

40 Bethridge Road,
Etobicoke, ON M9W 1N1
Phone: (416) 8047-0967
Mr. Mark Dovale
Email: mark@nortexroofing.com

Nedlaw Roofing Ltd.

5179 Fountain Street North, A
Breslau, ON N0B 1M0

Adam Duke

Chief Estimator

(519) 648-2218

Email: adam@nedlawroofing.com

Always Roofing

3-23 Creditstone Road,
Concord, ON L4K 1N4

Phone: (905) 669-9990

Mr. Syed Hussain (Estimator)

Email: syed@always-roofing.com

Flynn Canada Ltd.

890 Arvin Avenue,
Stoney Creek, ON L8E 5Y8

Phone: (905) 643-9515

Mr. Joseph Raposo

Email: jraposo@flynn.ca

GRRC Roofing

Sean Gill

240 Beach Road,
Hamilton, ON L8L 4B2

(905) 393-7989

Email: sean@grrc.ca

Trio Roofing Systems Inc.

4 West Drive,

Brampton, ON L6T 4T2

Phone: (416)-817-2041

Email: paulo@trioroofing.ca

Semple-Gooder Roofing

1365 Martin Grove Road
Toronto, Ontario M9W 4X7

Phone: (416) 743-5370

Email: ccoelho@semplegooder.com

Eileen Roofing Inc.

1825 Wilson Avenue
North York, Ontario M9M 1A2
Phone 416-888-8483 / 416-762-1819
Email: dee@eileenroofing.com or rui@eileenroofing.com

E43.4 Door Hardware (Automatic Door Operators, Electromagnetic Door Holders, Hands-free Switches/Sensors for Doors , etc.)

Brunet- Goulard Agencies Inc.

115 Sharer Rd., # 2
Woodbridge, Ontario L4L 8Z3
Contact: Cathie Rusnell
Phone : 647-529-7072
Email: crusnell@bdgdistribution.ca

E44. Preferred Subcontractors

The successful bidder may contact and coordinate with the below preferred subcontractors for all documentation, revisions, site walks, and mandatory site meetings.

Sheridan prefers the following subcontractors to provide services as outlined below; however, the successful bidder may choose to select their own subcontractors. All subcontractors must be included on the Bid Form.

E44.1 Delta Controls Installation

Ramco Electric

Tel: 416-887-4411
Rob Morvillo
rmorvillo@ramcoelectric.ca

Ainsworth Inc

Tel: 647- 362-5817
Mike bullock
mike.bullock@ainsworth.com

DDC Controls

Tel: 416-948-2397
Mike Jossa
ddccontrols@bellnet.ca

E44.2 Delta Controls Commissioning

Ainsworth Inc

Tel: 647- 362-5817
Mike bullock
mike.bullock@ainsworth.com

E44.3 Whiteboard modification and installation

ASI Group Canada

437-236-6531

Carolyn Hou

chou@asigroup-canada.com

E44.4 Electrical

BTCI (Best Trade Contractors Inc.)

519-750-4479

Kevin Norris

knorris@lancastergroup.ca

APPENDIX F – ONTARIO VENDOR ATTESTATION

Sheridan

Sheridan College
Brampton | Mississauga | Oakville
Trafalgar Road Campus, 1430 Trafalgar
Road Oakville, Ontario L6H 2L1
905-845-9430 x8377
Carol.izzio1@sheridancollege.ca
sheridancollege.ca



Dear Recipient,

Sheridan College, in an effort to comply with the *Building Ontario Business Initiatives Act, 2022, S.O. 2022, c. 2, Sched. 2* (“BOBI”), is seeking to identify whether our existing and future vendors qualify as an Ontario Business as defined in legislation under Regulation 422/23.

Based on the definition in Appendix A, Sheridan would ask that you attest to the following statement:

According to the definition put out in BOBI, O. Reg 422/23, _____ is considered an Ontario business.

Yes ___ No ___

I, _____ have the authority to respond to this attestation and therefore bind the organization,
_____.

Company Rep Signature

Position

Email

Phone #

APPENDIX F - Ontario Vendor Attestation – CONTINUED -

BOBI, O. Reg. 422/23: GENERAL (Section 1-7 come into force on April 1, 2024.)

Definitions

1. In this Regulation,

“Business structure” includes a sole proprietorship, partnership, corporation or other business structure; (“structure d’entreprise”)

Ontario business

2. (1) A business that meets the following requirements is considered to be an Ontario business for the purposes of the Act:

1. The business is a supplier, manufacturer or distributor of any business structure that conducts its activities on a permanent basis in Ontario.
2. The business either,
 - i. has its headquarters or main office in Ontario, or
 - ii. has at least 250 full-time employees in Ontario at the time of the applicable procurement process.

(2) In determining whether a business is considered to be an Ontario business for the purposes of the Act, a public sector entity may rely on a representation by the business that it meets the requirements of subsection (1).

B. Link to full regulation:

<https://www.ontario.ca/laws/regulation/r23422#:~:text=A%20public%20sector%20entity%20is,r espect%20of%20the%20procurement%20process.>

APPENDIX G - SUBCONTRACTOR QUALIFICATIONS AND EXPERIENCE

Utilize the form to provide information on three (3) projects of similar scope and complexity in an occupied building. Include one (1) Appendix per project referenced.

Please provide a copy of the proposed Project Manager and Site Supervisor resume with your submission.

PROJECT MANAGER ASSIGNED TO THIS PROJECT:
SITE SUPERVISOR ASSIGNED TO THIS PROJECT:

Project Number:	
Project Name:	
Prime Consultant / Lead:	
Project Location:	
Project Scope of Work:	
Project Gross Floor Area:	Date Started / Completed:
Total Contract Value to the Prime Consultant (CDN): \$	Form of Contract / Construction Delivery Method:
Total Construction Value (CDN) Completed: \$	
Project Owner:	
Contact Name:	Title:
Phone:	
Email Address:	
Name of General Contractor:	
Contact Name:	Title:
Phone:	
Email Address:	

APPENDIX H – SUPPLIER CODE OF CONDUCT

Introduction

Sheridan College is committed to transparency, accountability, and a strategic approach to procurement and expects suppliers to maintain and continually improve responsible, ethical, and sustainable business practices, operations, and processes, whether deliverables are produced in Canada or elsewhere.

Sheridan College Supplier Code of Conduct (“the Code”), supports our Procurement Policy and sets out the minimum standards for our suppliers and their subcontractors/suppliers to promote ethical business conduct, safe and healthy workplaces, fair labour practices, and social and environmental responsibility.

Sheridan College expects all its suppliers to affirm their compliance with the standards in this Code and ensure the standards are being upheld by any of their subcontractors. Stated compliance with all provisions set out in this Code will proclaim that the supplier is compliant with the core labour conventions of the International Labour Organization (ILO) and other applicable regulations in the countries in which they operate. Suppliers are expected to comply with all applicable laws and regulations of, including those laws relating to labour, worker health and safety, and the environment. Where the provisions of law and the Code address the same issue, the most stringent provision will apply.

Sheridan College reserves the right to audit suppliers and request additional documentation to ensure compliance with all applicable laws and standards as well as this SCC.

Sheridan College reserves the right to discontinue business with suppliers who are not responsive to requests to address concerns around workplace practices and instances of non-compliance with these minimum ethical standards and business conduct for suppliers.

Supplier Standards

Employee Treatment, Harassment, and Abuse

The supplier’s employees shall be treated with respect and dignity and the supplier’s disciplinary policies and procedures shall be clearly defined and communicated to employees before application. There shall be no harsh and inhumane treatment, including any physical, sexual, psychological, verbal harassment or abuse, or corporal punishment; nor is there to be the threat of any such treatment.

Non-Discrimination

The supplier shall ensure no person is subject to any discrimination in employment, including hiring, compensation, advancement, discipline, termination, or retirement, based on race, color, age, gender, sexual orientation, ethnicity, nationality, disability, place of origin, ancestry, religion, political affiliation, union membership, family status or marital status.

Forced Labor

There shall be no use of forced labor, including prison labor, indentured labor, bonded labor, or other forms of forced labor. All work shall be voluntary, and workers shall be free to leave upon reasonable notice.

Child Labor

No persons shall be employed under the age of 15 or younger than the age for completing compulsory education in the country of manufacture, whichever is higher. Workers under the age of 18 shall not perform work that is likely to jeopardize the health or safety of young workers.

Health and Safety

The supplier shall provide a safe and healthy working environment to prevent accidents and injury to health arising out of, or linked with, or occurring in the course of work or because of the operation of the supplier's facilities. Workers must have health and safety training, access to clean washroom facilities, and potable water.

Freedom of Association and Collective Bargaining

The supplier shall recognize and respect the right of employees to freedom of association and collective bargaining. Workers and employers shall have the right to establish and join labor organizations of their own choosing and elect their representatives, for the purpose of furthering and defending the interests of workers or of employers.

Wages and Benefits

The supplier shall pay all employees at least the minimum wage or the appropriate prevailing wage in its country of origin, whichever is higher, comply with all legal requirements on wages, and provide any benefits required by law or contract. Deductions from wages as a disciplinary manner shall not be permitted and payment shall occur in a timely manner with pay stub or similar documentation.

Hours of Work

The supplier shall not require workers to work more than the regular and overtime hours allowed by the law of the country where the workers are employed. The regular work week shall not exceed 48 hours. Employers shall allow workers at least 24 consecutive hours of rest in every seven-day period.

Overtime Compensation

Every worker has a right to compensation for a regular work week that is sufficient to meet the worker's basic needs and provide some discretionary income. The supplier shall be compensated for overtime hours at such premium rate as is legally required in the country of manufacture or, in those countries where such laws do not exist, at a rate at least equal to their regular hourly compensation rate.

Anti-Corruption Business Practices and Bribery

The supplier will not, directly, or indirectly, pay, give, offer, or promise anything of value to any local or foreign government official (or to any person for the benefit of a government official) for the purpose of corruptly causing the government official to improperly act or use his or her influence in obtaining or retaining any business or securing any improper advantage for the College or the Supplier.

Environmental Responsibility

The supplier shall take responsibility to reduce the environmental impact of their products and services as well as their overall operations or 'in-house' practices. Suppliers must not violate any national or provincial environmental regulations. Suppliers should be adopting responsible measures to mitigate negative environmental impacts.

Supplier Compliance

Subcontractors and Sources

The College requires all supplier subcontractors, manufacturers, or sources of goods to comply with all of the same policies stated in the College's Code. All subcontractors and suppliers are required to comply with all applicable and national laws. Direct suppliers must monitor the subcontractors, manufacturers, or sources of goods for meeting or exceeding the Code and supply chains are expected to be transparent and traceable.

Informed Workers

The Supplier shall ensure that employees are educated in the contents of this Code using the language(s) of the employees.

Transparency

The Suppliers shall cooperate and engage regularly to actively mitigate negative impacts from operations and resolve findings that may affect the lives of workers, the environment, or the surrounding communities. Suppliers shall not use unauthorized subcontracting or homework, and Suppliers must provide access to the College to fully cooperate with any audits or investigations.

Effective Grievance Mechanism

The Supplier shall implement procedures that allow employees to raise and address workplace grievances confidentially, anonymously, and/or directly, without fear of reprisal or retaliation. The procedure shall be clearly communicated to all employees. Suppliers must promptly respond to employees' concerns.

Implementation

The College expects all its suppliers to respect its Supplier Code of Conduct and to actively do their utmost to achieve the College's standards. The College believes in cooperation and is willing to work with its suppliers to improve performance where necessary. The College may require that suppliers provide details on factory and production facility locations of suppliers and subcontractors and may make this information publicly available (i.e. annual reports, website postings, etc.). The College reserves the right to ask for proof of compliance with all applicable labor, health, safety, and environmental laws, and may inspect working conditions, at any time (or request independent verification of compliance). Suppliers must maintain current and sufficiently detailed records to substantiate their compliance and the College may ask that they are independently verified at the supplier's expense.

Signatures

The College will require all contracted suppliers to sign the Supplier Code of Conduct to commit to the provisions contained herein and acknowledge that they have read and understood, and agree to abide by, all of the standards and compliance set out in the Supplier Code of Conduct above.

Signatories

The person signing the Appendix B – Declaration Form, certifies that they are a duly authorized representative of the supplier with the authority to sign this acknowledgment and commit the supplier to the provisions contained herein and (ii) on behalf of the supplier and without personal liability, acknowledges and agrees that the supplier has read and understood, and agrees to abide by, all of the standards set out in the Supplier Code of Conduct above.

Trafalgar Campus
1430 Trafalgar Rd
Oakville, ON
L6H 2L1

Trafalgar Campus - B244 Classroom Renovation Issued For Tender on November 21st 2024

GENERAL NOTES

- ALL CONTRACTORS MUST MAKE AN ON SITE INSPECTION WITH SHERIDAN COLLEGE'S PROJECT COORDINATOR PRIOR TO SUBMITTING ANY TENDERS. NO EXTRAS WILL BE ALLOWED AFTER THE LETTING OF THE CONTRACT FOR ANY EVENTUALITIES WHICH MAY HAVE BEEN FORESEEN BY SUCH PRIOR INSPECTION.
- THE WORK SITE IS LOCATED AT THE TRAFALGAR CAMPUS IN OAKVILLE.
- THE CONTRACTOR IS TO VERIFY ALL DIMENSIONS ON SITE AND REPORT ANY DISCREPANCIES TO SHERIDAN P.C. PRIOR TO TENDER CLOSING. WRITTEN DIMENSIONS ARE TO TAKE PRECEDENCE OVER SCALED DIMENSIONS.
- ALL CONTRACTORS AND SUBCONTRACTORS SHALL ADHERE TO LATEST EDITION OF THE PLUMBING CODE, ONTARIO ELECTRICAL SAFETY CODE, ONTARIO BUILDING CODE AND MUNICIPAL REGULATIONS.
- PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN BY WORKERS AT ALL TIMES (IE. SAFETY FOOTWEAR, HATS, GLASSES, ETC.) WHERE APPLICABLE. FAILURE TO DO SO MAY RESULT IN SUSPENSION OR CONTRACT TERMINATION.
- SHERIDAN COLLEGE BUILDING AND PROPERTIES CONTAIN HAZARDOUS ELECTRICAL LINES & EQUIPMENT. SHERIDAN COLLEGE MUST BE INFORMED AHEAD OF TIME OF ANY SITE VISITS, INSPECTIONS OR WORK BY CONTRACTORS AT ALL TIMES IN OR AROUND COLLEGE. PRIOR TO CONSTRUCTION, UNDER NO CIRCUMSTANCES SHALL A CONTRACTOR, THEIR REPRESENTATIVES OR WORKERS ENTER COLLEGE PROPERTY WITHOUT SIGNING IN WITH SECURITY. THESE RESTRICTIONS APPLY TO ALL SUBCONTRACTORS EMPLOYED BY THE GENERAL CONTRACTOR. PLEASE CONTACT SHERIDAN COLLEGE'S PROJECT COORDINATOR TO MAKE ARRANGEMENTS.
- UPON AWARD OF CONTRACT, CONTRACTOR TO PROVIDE DETAILED CONSTRUCTION SCHEDULE.
- SUBMIT ALL SHOP DWGS + SPECIFICATIONS TO SHERIDAN P.C. FOR REVIEW AND APPROVAL.
- SHERIDAN TO BE NOTIFIED OF ALL NOISY ACTIVITIES WHICH MAY DISTURB SURROUNDING; STUDENTS, FACULTY + STAFF. COORDINATE W/ SHERIDAN.
- WORK SHALL BE EXECUTED BY EXPERIENCED WORKERS WITH RESPECT TO THE DUTIES FOR WHICH THEY ARE EMPLOYED.
- KEEP PREMISES FREE FROM ACCUMULATION OF WASTE MATERIALS & RUBBISH. UPON COMPLETION OF WORK, CLEAN AND REMOVE FROM WORK SITE ALL DEBRIS, SURPLUS MATERIAL, TOOLS & EQUIPMENT OF THE TRADES. LEAVE THE BUILDING AND THE SITE IN A NEAT AND TIDY CONDITION TO THE SATISFACTION OF THE PROJECT COORDINATOR.
- ANY FINISHES THAT MAY BE DAMAGED DURING THE COURSE OF THIS WORK TO BE MADE GOOD AS PER EXISTING AND THE SATISFACTION OF SHERIDAN COLLEGE'S PROJECT COORDINATOR.
- REFER TO THE TECHNICAL REQUIREMENTS ON DRAWINGS.
- CONTRACTOR(S) ARE RESPONSIBLE TO PAY FOR ON-SITE DAILY PARKING PERMIT(PAY-BY-PLATE) AND TO PARK IN THE CONTRACTOR DESIGNATED PARKING SPACES ONLY, UNLESS OTHERWISE NOTED. FAILURE TO OBTAIN PARKING PERMIT MAY RESULT IN FINES TO THE CONTRACTOR(S) NOT AT THE EXPENSE OF SHERIDAN COLLEGE.
- CONTRACTOR(S) ARE RESPONSIBLE TO SIGN IN AND SIGN OUT AT THE SECURITY DESK ON A DAILY BASIS.
- UPON PROJECT COMPLETION, GENERAL CONTRACTOR SHALL PROVIDE SHERIDAN WITH CLOSE-OUT DOCUMENTATION (2 HARD COPIES AND 1 ELECTRONIC COPY SUBMISSION OF DRAWINGS, LETTER(S) OF WARRANTY, SUB-TRADE CONTRACT INFORMATION, AS-BUILT(S), TEST REPORTS, INSPECTIONS, PERMITS, SHOP DRAWINGS, MAINTENANCE AND OPERATION MANUALS, PRODUCT DATA SHEETS, SCHEDULES, ETC.)

DRAWING INDEX

ARCHITECTURAL:

DWG No.	DWG TITLE
A-1	SITE AND KEY PLAN
A-2	ARCHITECTURAL NOTES & SPECIFICATIONS
A-3	DEMOLITION FLOOR PLAN
A-4	PROPOSED FLOOR PLAN
A-5	PROPOSED FURNITURE PLAN
A-6	EXISTING REFLECTED CEILING PLAN
A-7	PROPOSED REFLECTED CEILING PLAN
A-8	EXISTING ELEVATIONS
A-9	PROPOSED ELEVATIONS

POWER AND SYSTEMS:

DWG No.	DWG TITLE
E-1	NOTES & LEGENDS
E-2	ELECTRICAL SCHEDULES AND DETAILS
E-3	DALI LIGHTING CONTROLS, DETAILS AND LUMINARE SCHEDULE
E-4	LIGHTING DEMOLITION PLAN ELECTRICAL
E-5	PROPOSED LIGHTING PLAN ELECTRICAL
E-6	POWER & SYSTEMS DEMOLITION PLAN
E-7	PROPOSED POWER & SYSTEMS PLAN
E-8	COMMUNICATIONS DEMOLITION PLAN
E-9	PROPOSED COMMUNICATIONS PLAN

MECHANICAL:

DWG No.	DWG TITLE
M-0	KEYPLAN & TITLE SHEET
M-1.1	MECHANICAL LEGEND
M-1.2	MECHANICAL SPECIFICATIONS 1
M-1.3	MECHANICAL SPECIFICATIONS 2
M-1.4	MECHANICAL SPECIFICATIONS 3 AND SEQUENCE OF OPERATIONS
M-1.5	MECHANICAL SCHEDULES
M-1.6	MECHANICAL DETAILS 1
M-1.7	MECHANICAL DETAILS 2
M-2.1	SECOND FLOOR PLAN - HVAC DEMOLITION
M-2.2	SECOND FLOOR PLAN - HVAC PROPOSED
M-2.3	SECOND FLOOR PLAN - HYDRONICS DEMOLITION
M-2.4	SECOND FLOOR PLAN - HYDRONICS PROPOSED

CONTACT INFORMATION

SHERIDAN COLLEGE PROJECT MANAGER
NICOLE WHITESIDE, FACILITIES PROJECTS
(647) 385-6519
Nicole.whiteside@sheridancollege.ca

Trafalgar Campus
 1430 Trafalgar Road
 Oakville, ON
 (905) 845-9430

Consultant(s):

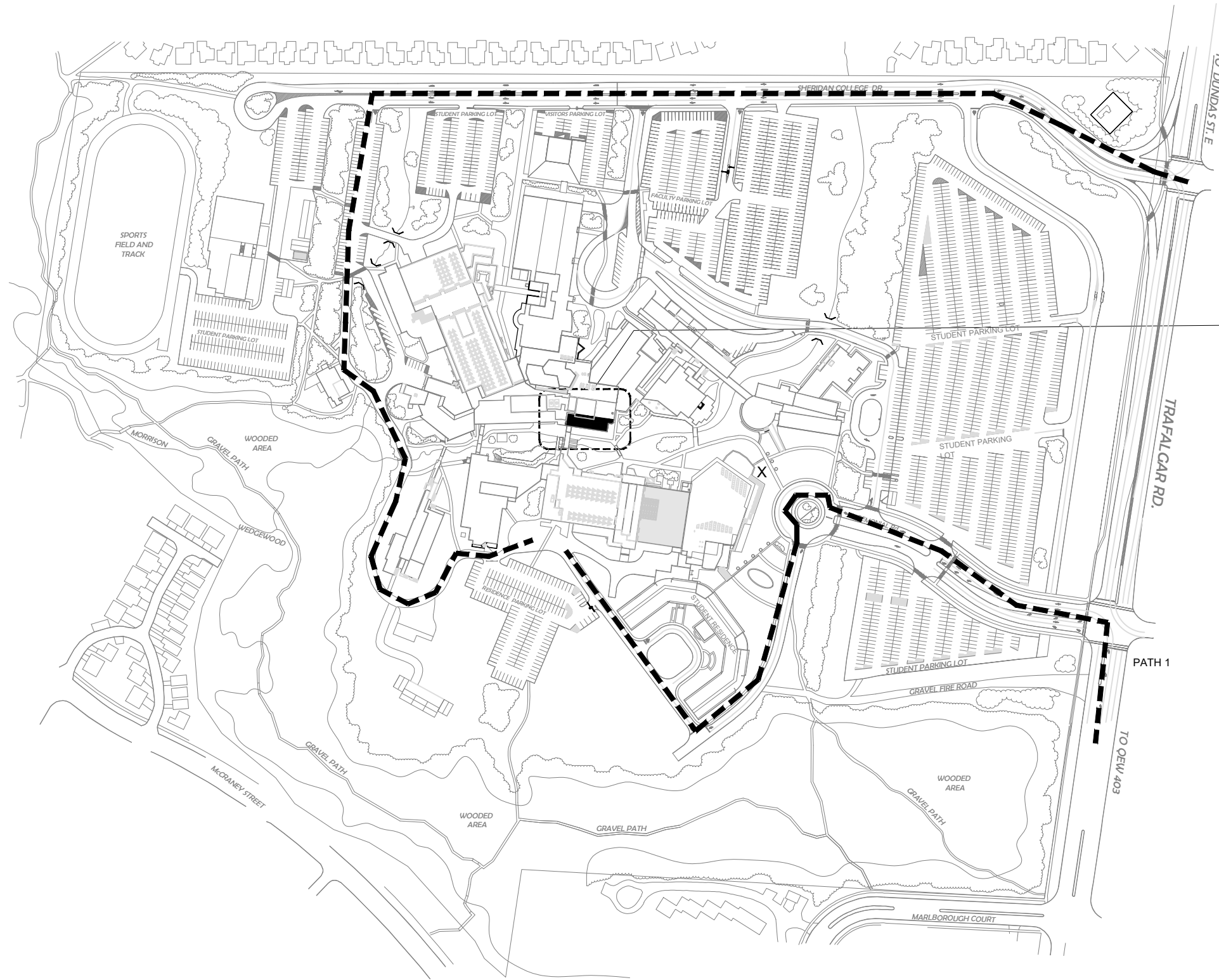
Construction North True North

General Notes:

- Drawings are meant to be read, and not scaled
- Dimensions to be verified on site
- Contractors must check and verify all dimensions and report discrepancies to the Project Coordinator before commencing with work
- All drawings remain the property of Sheridan College and shall not be reproduced or reused without written consent

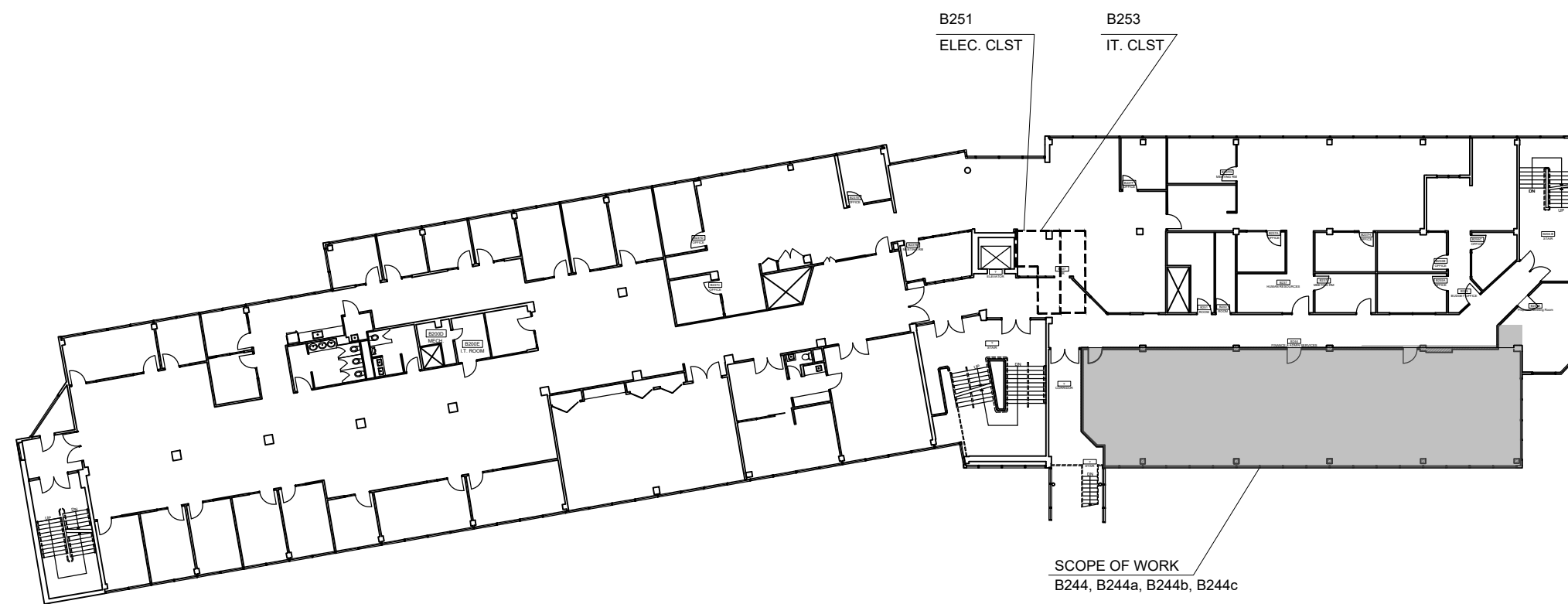
Project Specific:

- Dispose of all material and debris within scope of work offsite
- Make good of all areas affected by work to Sheridan Standards
- Coordinate all required testing and inspections
- Protect furniture, equipment and items to remain (ie. flooring) during construction
- Electrical Contractor shall verify capacity and location of electrical panel required to complete scope of work
- Data Contractor shall verify capacity and location of wiring closet required to complete scope of work
- Refer to tender, specifications, instructions and all other documents related to scope of work to complete project



PROJECT LOCATION
 B-WING 2ND FLOOR

1 TRAFALGAR SITE PLAN
 A1 NTS



2 PROJECT LOCATION
 A1 NTS

1 ISSUED FOR TENDER November 2024

No. Issues/Revisions Date

Project Name: Trafalgar Campus - B244 Classroom Renovation

Seal:

Sheet Name:
 Key and Site Plan

Drawn By: N.W.

Issued Date: 21 / 11 / 2024

Revision: - Scale: AS NOTED

Drawing No.:

ABBREVIATIONS:

SYMBOL	DEFINITION	SYMBOL	DEFINITION	SYMBOL	DEFINITION	SYMBOL	DEFINITION
ACT	ACOUSTICAL TILE/PANEL	FD	FLOOR DRAIN	K	DENOTES KEY OPERATED	SS	STAINLESS STEEL
AFF	ABOVE FINISHED FLOOR			L	DENOTES LOCAL NETWORK (RELATES TO DATA DROP REQUIREMENTS)	S	DENOTES SHERIDAN NETWORK (RELATES TO DATA DROP REQUIREMENTS)
B/S	BOTH SIDES	G	GAS	MW	DENOTES DEVICE TO BE FLUSH MOUNTED IN MILLWORK	TEL	TELEPHONE
CA	COMPRESSED AIR	GWB	GYPSUM WALLBOARD	NTS	NOT TO SCALE	TL	DENOTES TWIST LOCK
C/C	CENTRE ON CENTRE	GWG	GEORGIAN WIRED GLASS	O/C	ON CENTRE (s)	TV	TELEVISION
CCT	CIRCUIT	GFI	GROUND FAULT INTERRUPTER	O/SJ	OPEN WEB STEEL JOIST	TYP	TYPICAL
CH	DENOTES DEVICE TO BE MOUNTED COUNTER HEIGHT	HW	HOT WATER	QTY	QUANTITY	UIS	UNDERSIDE
CW	COLD WATER	HVAC	HOLLOW METAL HEATING/ VENTILATION/ AIR CONDITIONING	R	DENOTES EXISTING TO BE RELOCATED	V	VACUUM
D	DENOTES EXISTING TO BE REMOVED			RB	RUBBER BASE	W	WITH
DIA	DIAMETER			RO	REVERSE OSMOSIS	WG	DENOTES WIRE GUARD
DWG	DRAWING			RP	DENOTES EXISTING IN RELOCATED POSITION	WP	DENOTES WEATHERPROOF
E	DENOTES EXISTING TO REMAIN						
EQ	EQUAL						

LEGENDS:

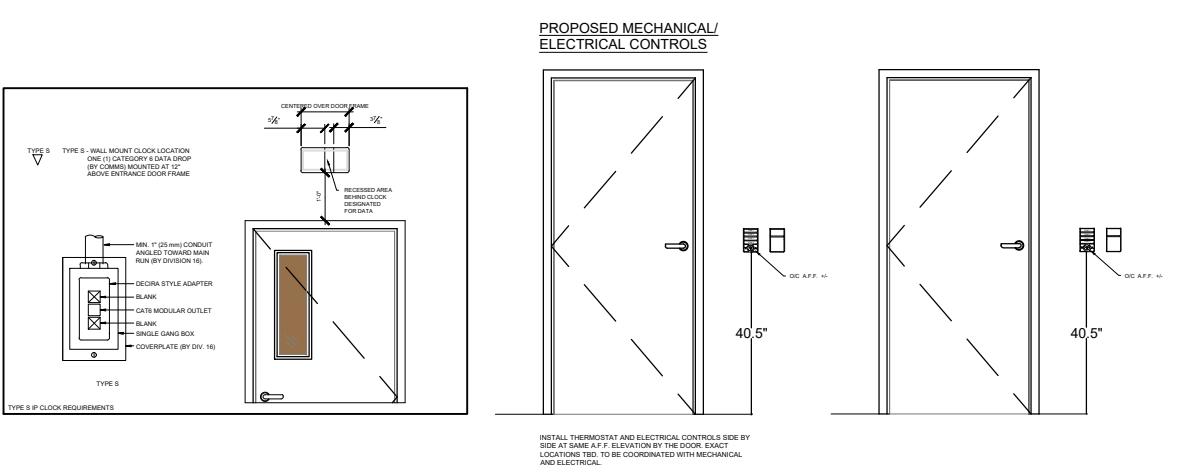
ARCHITECTURAL:

SYMBOL	DEFINITION
[Symbol]	SPECIFICATION / MATERIAL TAG
[Symbol]	INTERIOR ELEVATION MARKER
[Symbol]	CEILING HEIGHT MARKER
[Symbol]	SECTION MARKER
[Symbol]	DETAIL CALL OUT
[Symbol]	PARTITION / WALL TAG
[Symbol]	PAINT COLOR TAG
[Symbol]	FLOOR TYPE TAG
[Symbol]	WINDOW TAG
[Symbol]	DOOR TAG
[Symbol]	EXISTING ELEVATION
[Symbol]	NEW ELEVATION
[Symbol]	ROOM TAG
[Symbol]	EXISTING WALL ASSEMBLY TO REMAIN
[Symbol]	NEW WALL ASSEMBLY
[Symbol]	EXISTING WALL ASSEMBLY TO BE DEMOLISHED
[Symbol]	LINE TYPE DENOTES EXISTING OBJECT TO REMAIN
[Symbol]	LINE TYPE DENOTES EXISTING OBJECT TO BE DISPOSED OFFSITE OR DISASSEMBLED AND RELOCATED - REFER TO NOTES FOR FURTHER INSTRUCTION
[Symbol]	BATT INSULATION (PLAN VIEW)

MISCELLANEOUS:

SYMBOL	DEFINITION
[Symbol]	DENOTES REFER TO NOTE (s)
[Symbol]	DENOTES GENERAL TASK (s) FOR SCOPE OF WORK AREA

SHERIDAN STANDARDS:



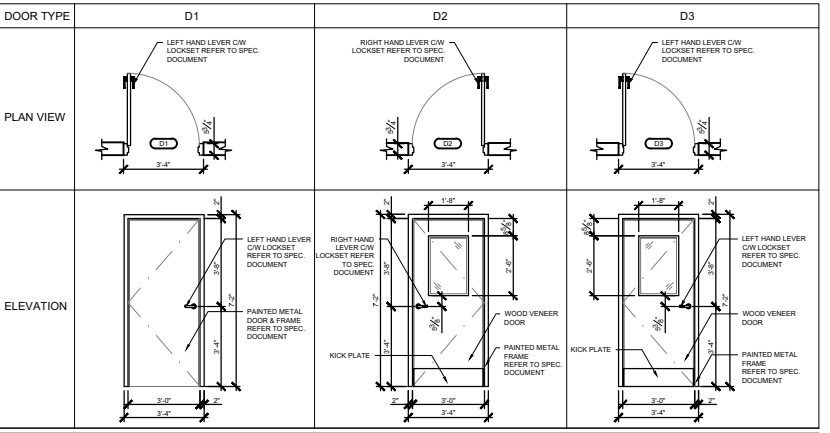
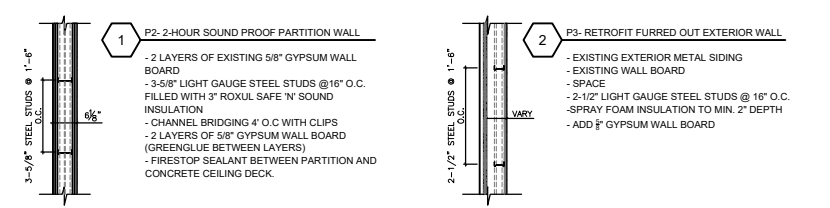
DOOR, WINDOW, PAINT, FINISH, FLOOR AND WALL STANDARDS/SCHEDULES:

PAINT SCHEDULE	FLOOR SCHEDULE	CEILING SCHEDULE	WINDOW SCHEDULE
<p>P1 WALL & CONDUITS SHERWIN WILLIAMS ALABASTER 700P COLOUR: GLACIER-GREY EGGSHELL FINISH</p> <p>P2 ACCENT COLOUR #1 SHERWIN WILLIAMS SW1177 'SALTY DOG' EGGSHELL FINISH</p> <p>P3 ACCENT COLOUR #2 SHERWIN WILLIAMS SW6602 'CALYPSO BLUE' EGGSHELL FINISH</p> <p>P4 DOOR FRAMES, WINDOW SHERWIN WILLIAMS SW7645 'THUNDER GRAY' SEMI-GLOSS FINISH</p>	<p>F1 CARPET TILE MANUFACTURE: MILKLEN COLLECTION COLOR FIELD COLOR: GLACIER-GREY COL 193-100 TILE SIZE: 25CM X 1M INSTALLATION METHOD: BRICK</p> <p>F2 CARPET TILE MANUFACTURE: MILKLEN COLLECTION COLOR FIELD COLOR: AERO COL 06 TILE SIZE: 25CM X 1M INSTALLATION METHOD: BRICK</p> <p>F3 VINYL WALLBASE MANUFACTURE: JOHNSONITE PROFILE: TRADITIONAL VINYL 4 1/2" COLOUR: THUNDER GREY</p> <p>F4 TRANSITION STRIP MANUFACTURE: TARKETT COLLECTION METAL EDGE PROFILE: 'DETERMINE ONSITE AFTER REVIEW EXISTING FLOORING</p>	<p>C1 CEILING TILE MANUFACTURE: ARMSTRONG ULTIMA HIGH NRC SQUARE LAY-IN WITH PREHUNG LITE 151P 1540 FINE TEXTURE, WHITE 24" X 24" X 1"</p> <p>C2 CEILING SYSTEM MANUFACTURE: ARMSTRONG 1515P PREHUNG AL SUSPENSION SYSTEM IN LIGHT GREY</p>	<p>W1 WINDOW COVERING MANUFACTURE: GLAMOUR LITE SINGLE MANUAL BLACKOUT BLINDS PAINTABLE BLACKOUT GREY 909 CASSETTE IN CLEAR ANODIZED ALUMINUM SIZES VARY - CONFIRM ON SITE</p>

GENERAL NOTE: THE PAINT COLOURS LISTED ABOVE ARE ONLY MEANT FOR COLOUR CODES. PAINT BASE MUST BE BENJAMIN MOORE ULTRA SPEC 500 INTERIOR IN EGGSHELL FINISH FOR ALL PARTS UNLESS OTHERWISE SPECIFIED. PAINT BASE FOR DOORS, DOOR FRAMES, WINDOW FRAMES, RAILINGS, AND GUARDRAILS MUST BE BENJAMIN MOORE SCUF 1X IN SEMI-GLOSS FINISH. PRIMER SHALL BE APPLIED BEFORE PUTTING NEW PAINT ON EXISTING SURFACE.

GENERAL NOTE: REFER TO THE ATTACHED SPECIFICATIONS FOR INSTALLATION GUIDE. USE THE MANUFACTURER APPROVED GLUE FOR INSTALLING THE NEW FLOORING. FLOORING CONTRACTOR IS RESPONSIBLE FOR MOISTURE TEST PRIOR TO INSTALL. PROVIDE RESULTS TO SHERIDAN PM.

WALL ASSEMBLY SCHEDULE



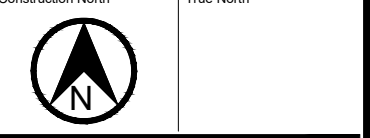
DOOR	NO.	SIZE	DOOR	FRAME	HARDWARE	NOTES
D1	001	36" X 80"	SWANSON	SWANSON	SWANSON	LOCKER AND DOOR CLOSER AS SPEC.
D2	002	36" X 80"	SWANSON	SWANSON	SWANSON	DOOR CLOSER AS SPEC.
D3	003	36" X 80"	SWANSON	SWANSON	SWANSON	LOCKER AND DOOR CLOSER AS SPEC.

GENERAL CONSTRUCTION NOTES

- MATERIALS, CONSTRUCTION & INSTALLATION METHODS SHALL COMPLY WITH THE LATEST EDITION OF THE ONTARIO BUILDING CODE CONTAINING O. REG. 390/03, REGIONAL MUNICIPALITY PUBLIC WORKS DEPARTMENT AND THE LOCAL BUILDING DEPARTMENT AND FIRE DEPARTMENT BY-LAWS DESIGN CRITERIA, CONSTRUCTION STANDARDS AND SPECIFICATIONS. ALL WORK SHALL ALSO COMPLY WITH OTHER CODES, STANDARDS AND REGULATIONS REFERRED TO IN THE ABOVE DOCUMENTS AND ADOPTED BY THE AUTHORITIES HAVING JURISDICTION.
- IF DRAWINGS & SPECIFICATIONS CONFLICT WITH REGULATIONS & BY-LAWS, CONTRACTOR(S) SHALL NOTIFY CONSULTANT IN WRITING FOR CLARIFICATION. IN NO INSTANCE SHALL REGULATIONS OR STANDARDS BE APPLIED TO ANY CODES OR STANDARDS. ALL MATERIALS AND METHODS MUST AT ALL MATCH EXISTING BASE BUILDING STANDARDS - BUILDING OWNER / OPERATOR TENANT MECHANICAL REQUIREMENTS FORM AN INTEGRAL PART OF THESE SPECIFICATIONS.
- DRAWINGS ONLY SHOW GENERAL INTENT AND SCOPE OF WORK AND NOT EXACT DETAILS OF INSTALLATION. CONTRACTOR SHALL PROVIDE ALL MATERIALS & ACCESSORIES NECESSARY FOR COMPLETE AND FULLY OPERATIONAL MECHANICAL SYSTEMS SHOWN. BEFORE SUBMITTING PRICES, CONTRACTORS SHALL REVIEW ALL PERTINENT DRAWINGS & ANY RELEVANT ON-SITE CONDITIONS TO VERIFY THAT WORK CAN BE CARRIED OUT AS SHOWN ON DRAWINGS. NO CLAIMS FOR EXTRA PAYMENTS WILL BE CONSIDERED FOR FAILURE TO DO SO. CONTRACTOR(S) WILL ALSO MAKE ALLOWANCES IN TENDERING FOR SPACE LIMITATIONS & THE SIMULTANEOUS WORKING OF DIFFERENT TRADES. ANY DRAWING OF FLOOR SLABS MUST BE CARRIED OUT AS PER BUILDING MANAGER'S STANDARDS, WITH X-RAY IF REQUIRED.
- THE CONSULTANT RESERVES THE RIGHT TO MAKE REASONABLE CHANGES REQUIRED TO ACCOMMODATE CONDITIONS ARISING DURING THE PROGRESS OF THE WORK, AT NO EXTRA COST TO THE OWNER.
- CONTRACTORS SHALL MAINTAIN MARKED-UP PRINTS OF "AS-BUILT" CONDITIONS AS THE JOB PROGRESSES AND, AT THE END OF CONSTRUCTION, CONTRACTOR SHALL OBTAIN & PAY FOR ONE SET OF REPRODUCIBLE DRAWINGS AND TRANSFER ALL "AS-BUILT" CONDITIONS TO THESE DRAWINGS. THESE DOCUMENTS, SHOWING APPROXIMATE FINAL LOCATIONS & ELEVATIONS OF ALL MECHANICAL SYSTEMS, ESPECIALLY ANY BURIED & CONCEALED WORKS, SHALL BE PROVIDED TO THE CONSULTANT FOR REVIEW & RECORD. CONTRACTORS SHALL PROVIDE SIX COPIES OF CLEARLY IDENTIFIED, PROJECT SPECIFIC, SHOP DRAWINGS FOR ALL FIXTURES AND EQUIPMENT FOR APPROVAL BEFORE ORDERING. EQUIPMENT, DEVICES & FIXTURES SHALL BE SUPPLIED WITH ALL ACCESSORIES REQUIRED FOR A COMPLETE INSTALLATION. CONTRACTOR WILL REVIEW SHOP DRAWINGS PRIOR TO SUBMISSION, THIS INDICATING THAT HE HAS DETERMINED & VERIFIED THAT ALL MATERIALS, CATALOG NUMBERS ETC., PERFORMANCES, SIZES AND AVAILABLE SPACE AND FIELD CONDITIONS MEET THE REQUIREMENTS OF THE CONTRACT DOCUMENTS. ALL MATERIALS USED MUST BE NEW, CLEAN AND FREE OF DEFECTS.
- AT THE END OF THE PROJECT, CONTRACTORS SHALL PROVIDE 4 OPERATING AND MAINTENANCE INSTRUCTION MANUALS WITH WARRANTIES, CERTIFICATIONS, REPORTS, OPERATING INSTRUCTIONS AND A COPY OF CONSULTANT REVIEWED SHOP DRAWINGS.
- CONTRACTORS SHALL ONLY MAINTAIN QUALIFIED PERSONNEL & SUPPORTING STAFF, AT THE SITE, WHO ARE EXPERIENCED IN COMPARABLE PROJECTS. IF THE BUILDING MANAGER REQUIRES WORK TO BE DONE AFTER HOURS, THIS MUST BE ALLOWED FOR AND ARRANGEMENTS MADE BY THE CONTRACTOR FOR ACCESS. CONTRACTORS SHALL BE RESPONSIBLE FOR MAINTAINING GOOD ORDER AND DISCIPLINE AMONG THEIR EMPLOYEES, AND FOR REMOVING DEBRIS AND MAINTAINING A CLEAN WORK AREA, DURING, AND UPON COMPLETION OF THE PROJECT.
- CONTRACTORS SHALL WARRANT HIS WORK, PARTS AND LABOR, FOR A PERIOD OF 1 YEAR FROM THE DATE OF ACCEPTANCE BY THE OWNER.

Trafalgar Campus
1430 Trafalgar Road
Oakville, ON
(905) 845 - 9430

Consultant(s):



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Project Specific:

- Dispose of all material and debris within scope of work office
- Make good of all areas affected by work to Sheridan Standards.
- Coordinate all required testing and inspections
- Protect furniture, equipment and items to remain (ie. flooring) during construction.
- Electrical Contractor shall verify capacity and location of electrical panel required to complete scope of work.
- Data Contractor shall verify capacity and location of wiring closet required to complete scope of work.
- Refer to tender, specifications, instructions and all other documents related to scope of work to complete project.

1 ISSUED FOR TENDER November 2024

No. Issues/Revisions Date
Project Name: **Trafalgar Campus - B244 Classroom Renovation**

Sheet Name:
Arch Notes & Specs

Drawn By: N.W. Checked By:
Issued Date: 21/11/2024
Revision: Scale: AS NOTED
Drawing No.:

Consultant(s)

Construction North True North

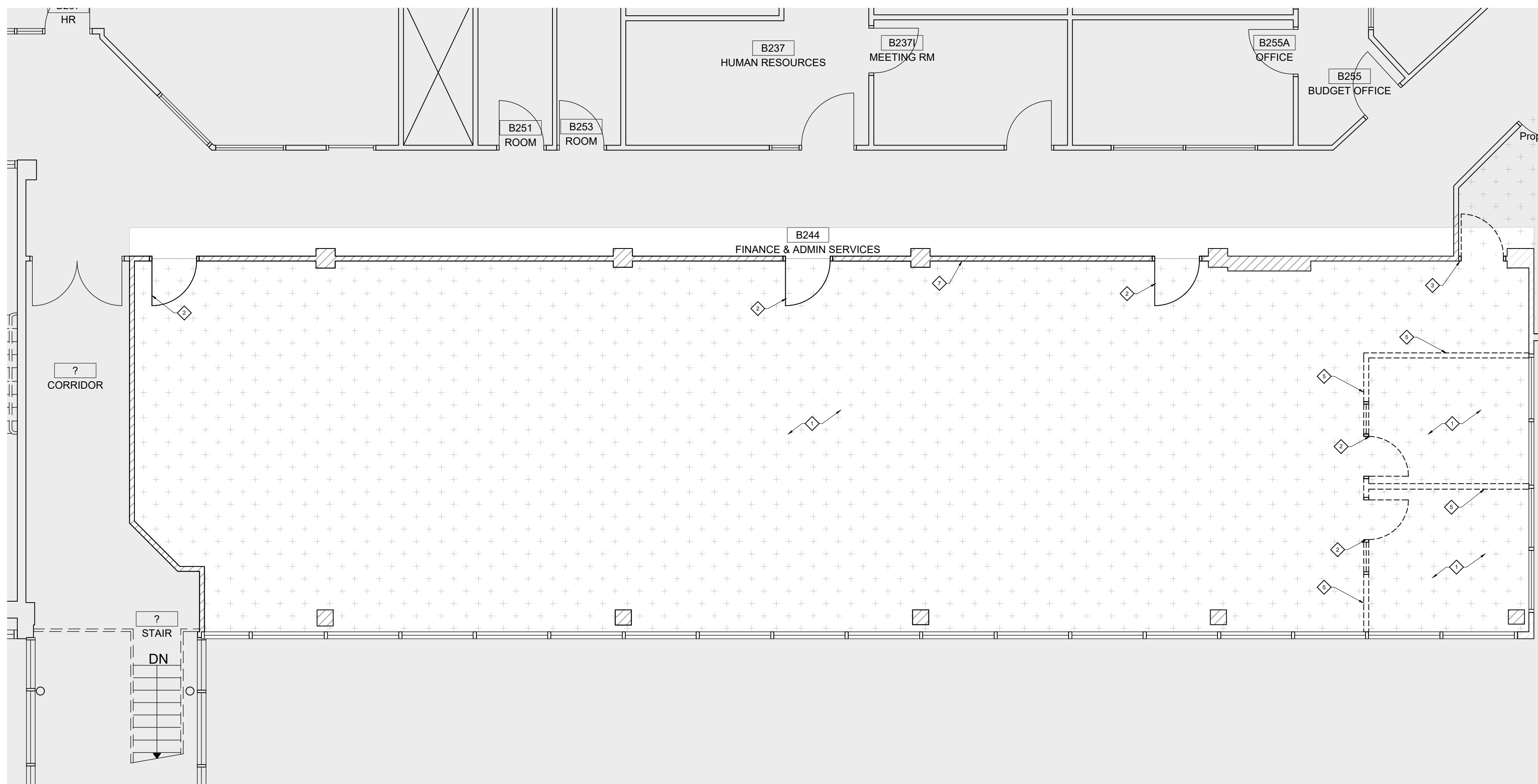


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1 B244 DEMOLITION PLAN
A3 3/16" = 1'-0"

DEMOLITION FLOOR PLAN:

- 1 REMOVE EXISTING FLOOR ADHESIVE AND PREP CONCRETE SLAB FOR NEW FLOORING. REFER TO PROPOSED PLAN.
- 2 REMOVE AND DISPOSE OFFSITE DOOR. FRAME TO REMAIN. HAND OVER EXISTING HARDWARE (LEVERS & LOCKSET) TO SHERIDAN PM.
- 3 REMOVE AND DISPOSE OFFSITE DOOR AND FRAME. HAND OVER EXISTING HARDWARE (LEVERS & LOCKSET) TO SHERIDAN PM.
- 4 REMOVE AND HAND OVER EXISTING DOOR SIGNAGE.
- 5 DEMOLISH EXISTING WALL PARTITION AS SHOWN ON DRAWINGS AND DISPOSE ALL DEBRIS OFF SITE.
- 6 REFER TO PROVIDED PINCHIN ENVIRONMENTAL REPORT REGARDING ASBESTOS CORRESPONDING PROCEDURES FOR REMOVAL PRIOR TO DEMOLITION.
- 7 CONFIRM WATER LINE HAS BEEN SHUT OFF. REMOVE AND DISPOSE OF ABANDONED WATER LINE FROM WALL.

1 ISSUED FOR TENDER November 2024

No. Issues/Revisions Date

Project Name Trafalgar Campus - B244 Classroom Renovation

Seal

Sheet Name:
DEMOLITION FLOOR PLAN

Drawn By: N.W. Checked By:

Issued Date: 21 / 11 / 2024

Revision: - Scale: AS NOTED

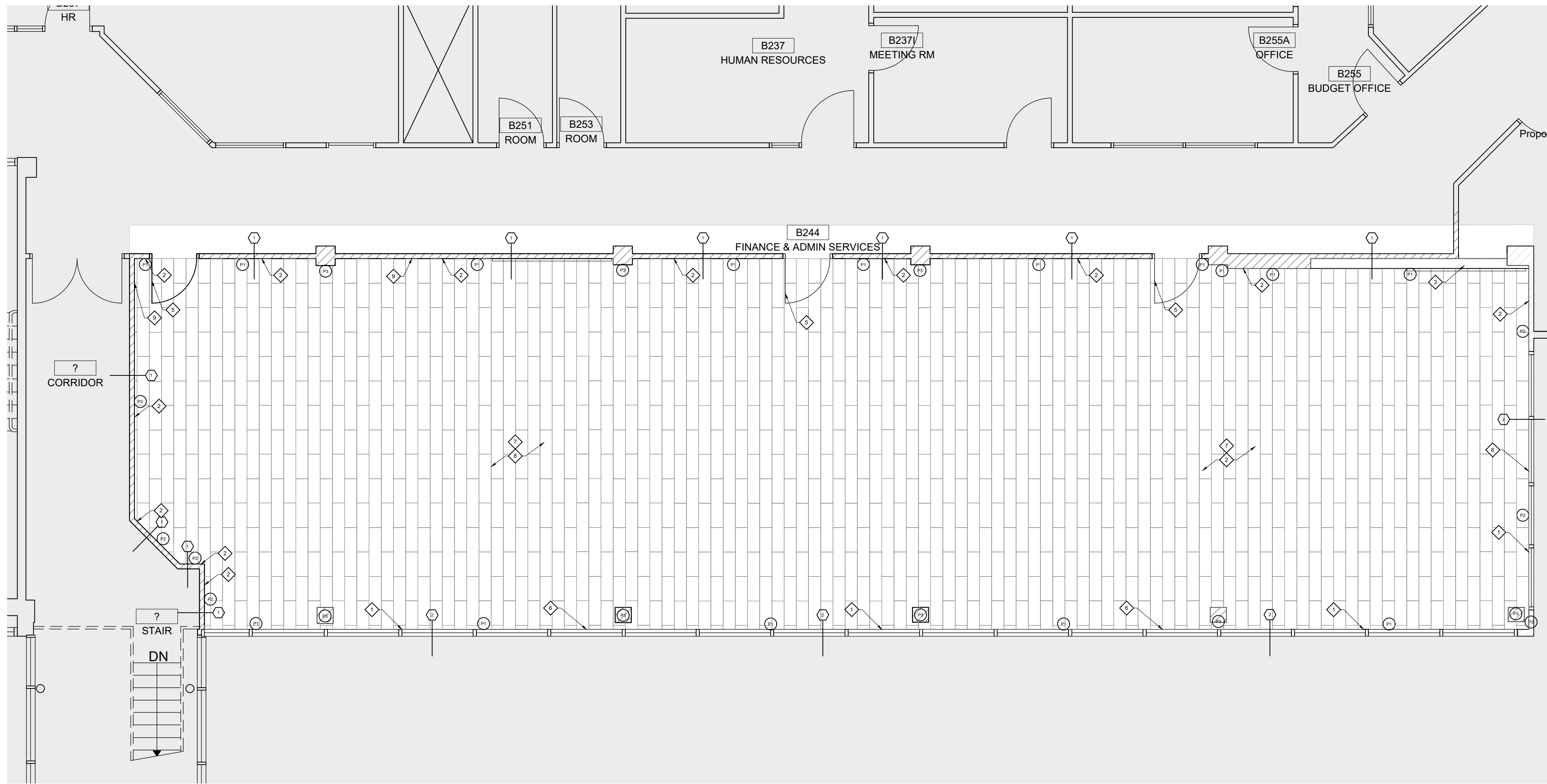
Drawing No.

A3



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- Dispose of all material and debris within scope of work offsite
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1 B244 FLOOR PROPOSED FLOOR PLAN
A3 3/16" = 1'-0"

PROPOSED FLOOR PLAN:

- 1 CONSTRUCT, FRAME AND BUILD OUT DRYWALL PARTITIONS - PARTITION WALLS SHOULD EXTEND TO U/S OF SLAB, REFER TO ELEVATIONS AND SCHEDULE
- 2 SUPPLY AND INSTALL INSULATION AND DRYWALL ON EXISTING PARTITIONS - REFER TO PARTITION SPECS
- 3 FUR OUT EXISTING PARTITION TO LEVEL WALL BEHIND FIRE HOUSE CABINET - REFER TO PARTITION SPECS
- 4 PATCH, PREP, PRIME AND PAINT ALL WALLS, DOORS AND COLUMNS - REFER TO PAINT SCHEDULE
- 5 INSTALL NEW DOOR AND HARDWARE, DOOR FRAME REMAINS - REFER TO DOOR SCHEDULE AND SPECS
- 6 SUPPLY AND INSTALL NEW BLACK OUT WINDOW COVERINGS TO ALL WINDOWS AS SPECIFIED (W1) - MANUAL OPERATED ROLLER SHADES WITH CASSETTE IN CLEAR ANODIZED ALUMINUM
- 7 PREP EXISTING SUBFLOOR PRIOR TO INSTALLING NEW FLOORING. GENERAL CONTRACTOR TAKES RESPONSIBILITY TO VERIFY EXISTING CONDITION ON SITE TO DETERMINE IF LEVELING / SKIMMING / SANDING WORK IS NEEDED BEFORE BID SUBMISSION.
- 8 SUPPLY AND INSTALL NEW CARPET TILE AND WALL BASE AS PER FLOOR SCHEDULE
- 9 REPAIR PARTIAL RE-FRAMING WHERE REQUIRED. CONFIRM WITH SHERIDAN P.M. PRIOR TO INSTALLATION
- 10 RE-FRAME, REPAIR AND INSTALL NEW DRYWALL AND INSULATION IN WALL OPENING WHERE REQUIRED ONCE EXISTING HVAC DUCTWORK HAS BEEN REMOVED. CONFIRM WITH SHERIDAN P.M. PRIOR TO INSTALLATION
- 11 PATCH AND MAKE IT LOOK GOOD PRIOR TO PAINTING AND PAINT ALL WALLS THAT WERE AFFECTED FROM ARCHITECTURAL, MECHANICAL, AND ELECTRICAL WORK (IE. WALLS, LIGHT SWITCHES, AND SERVICES ETC.) THIS SCOPE INCLUDES ALL AREAS OF THE SITE AND INCLUDING PERIMETER CORRIDOR.

1 ISSUED FOR TENDER November 2024

No. Issues/Revisions Date

Project Name Trafalgar Campus -
B244 Classroom Renovation

Seal:

Sheet Name:
Proposed Floor Plan

Drawn By: N.W. Checked By:

Issued Date: 21 / 11 / 2024

Revision: - Scale: AS NOTED

Drawing No. A4

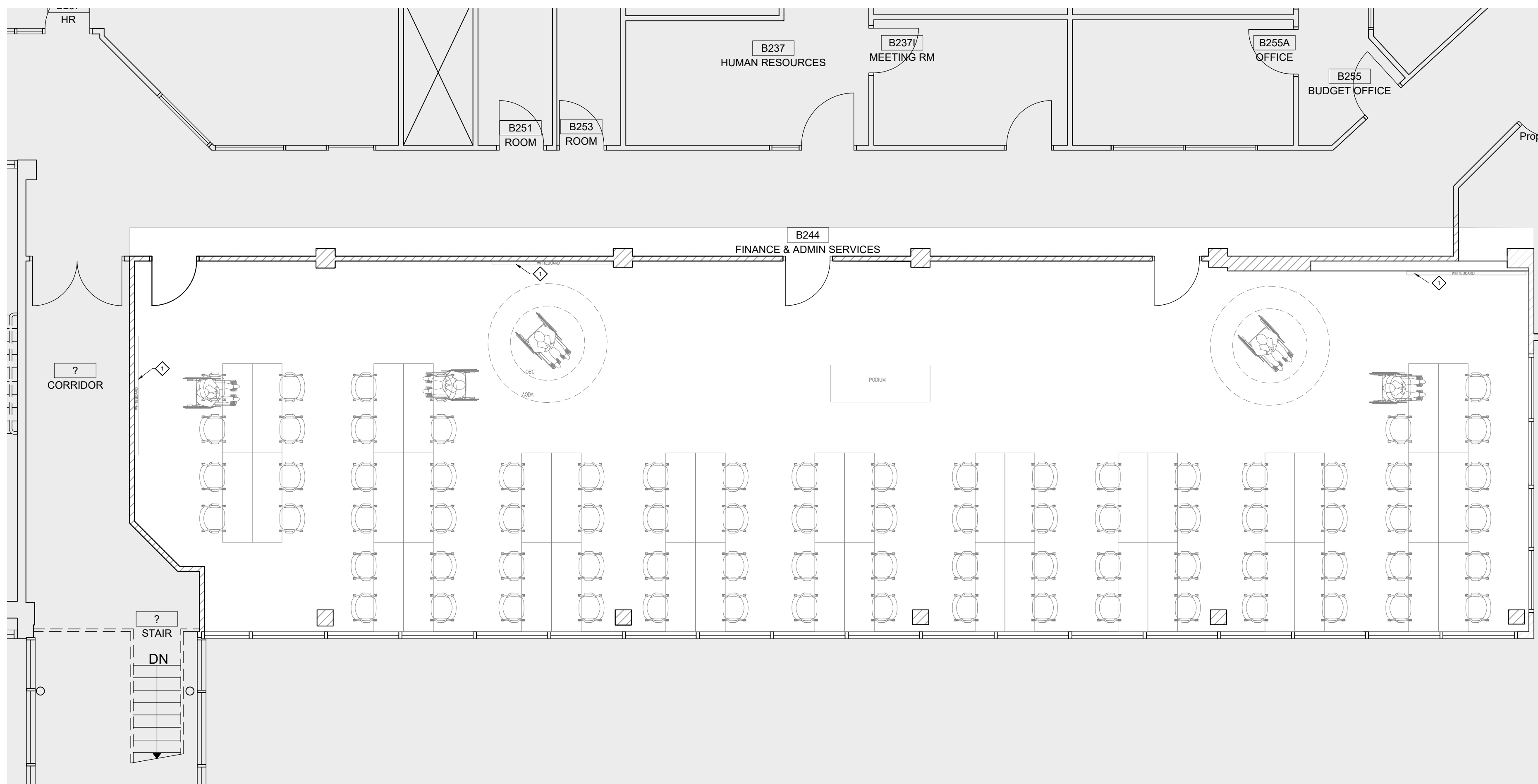
Consultant(s)



Construction North

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- Project Specific:
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1 B244 PROPOSED FURNITURE PLAN
A3 3/16" = 1'-0"

PROPOSED FURNITURE PLAN:

1 SUPPLY AND INSTALL THREE NEW 4'-0" X 8'-0" WHITEBOARDS

2 SHERIDAN TO SUPPLY NEW STUDENT TABLES, CHAIRS AND PODIUM - COORDINATE DELIVERY & INSTALLATION WITH SHERIDAN P.M.

1 ISSUED FOR TENDER November 2024

No. Issues/Revisions Date

Project Name: Trafalgar Campus - B244 Classroom Renovation

Seal:

Sheet Name:

Proposed Furniture Plan

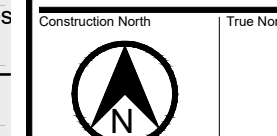
Drawn By: N.W. Checked By:

Issued Date: 21 / 11 / 2024

Revision: - Scale: AS NOTED

Drawing No.

Consultant(s)

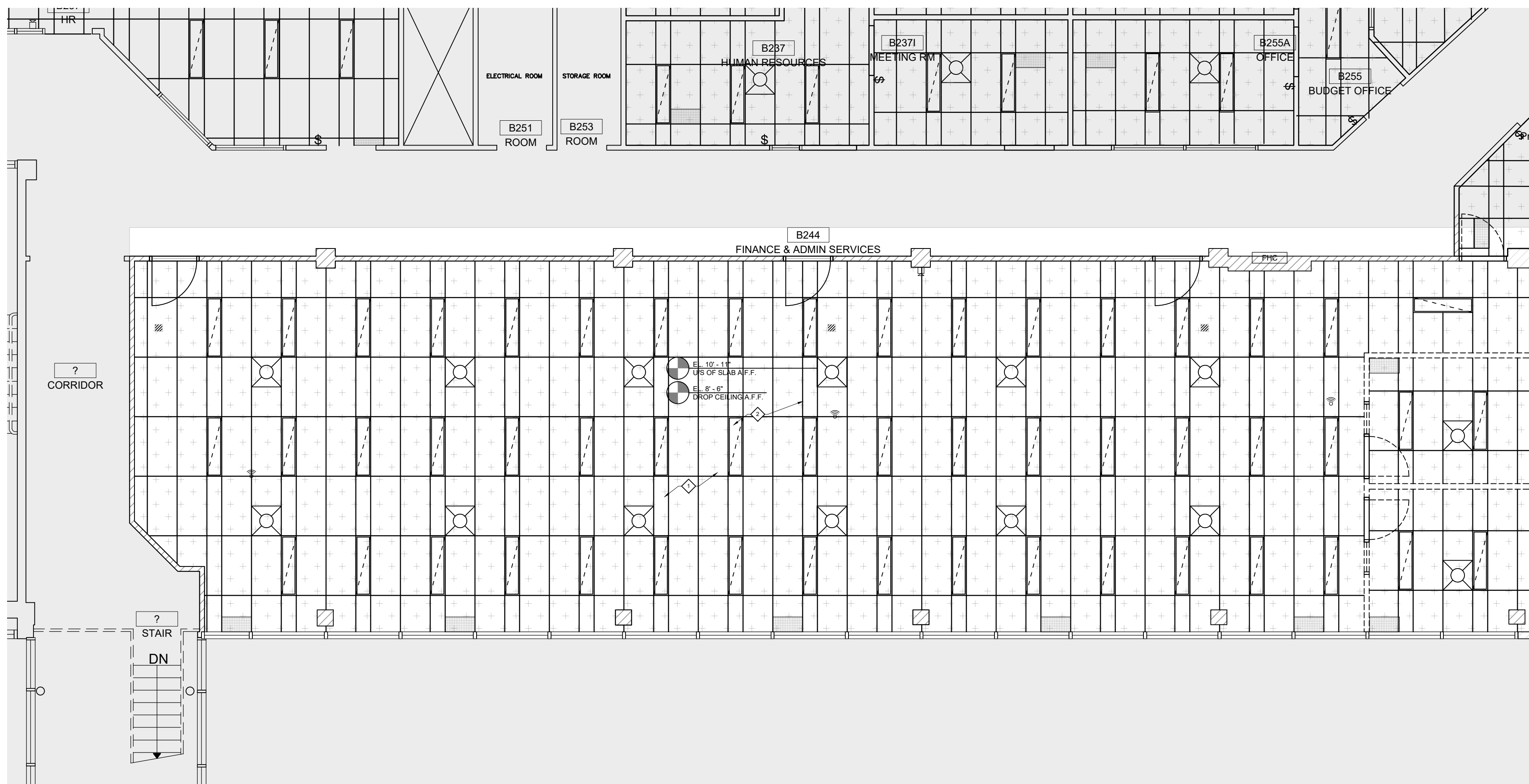


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1 B244 EXISTING REFLECTED CEILING PLAN
A3 3/16" = 1'-0"

EXISTING REFLECTED CEILING PLAN:

- ◇ REMOVE AND DISPOSE OFF SITE EXISTING CEILING TILES AND T-BAR
- ◇ REMOVE AND DISPOSE OFF SITE EXISTING LIGHT FIXTURES

1 ISSUED FOR TENDER November 2024

No. Issues/Revisions Date

Project Name Trafalgar Campus - B244 Classroom Renovation

Seal:

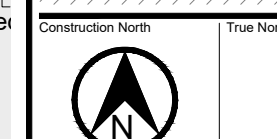
Sheet Name:
Existing Reflected Ceiling Plan

Drawn By: N.W. Checked By:

Issued Date: 21 / 11 / 2024

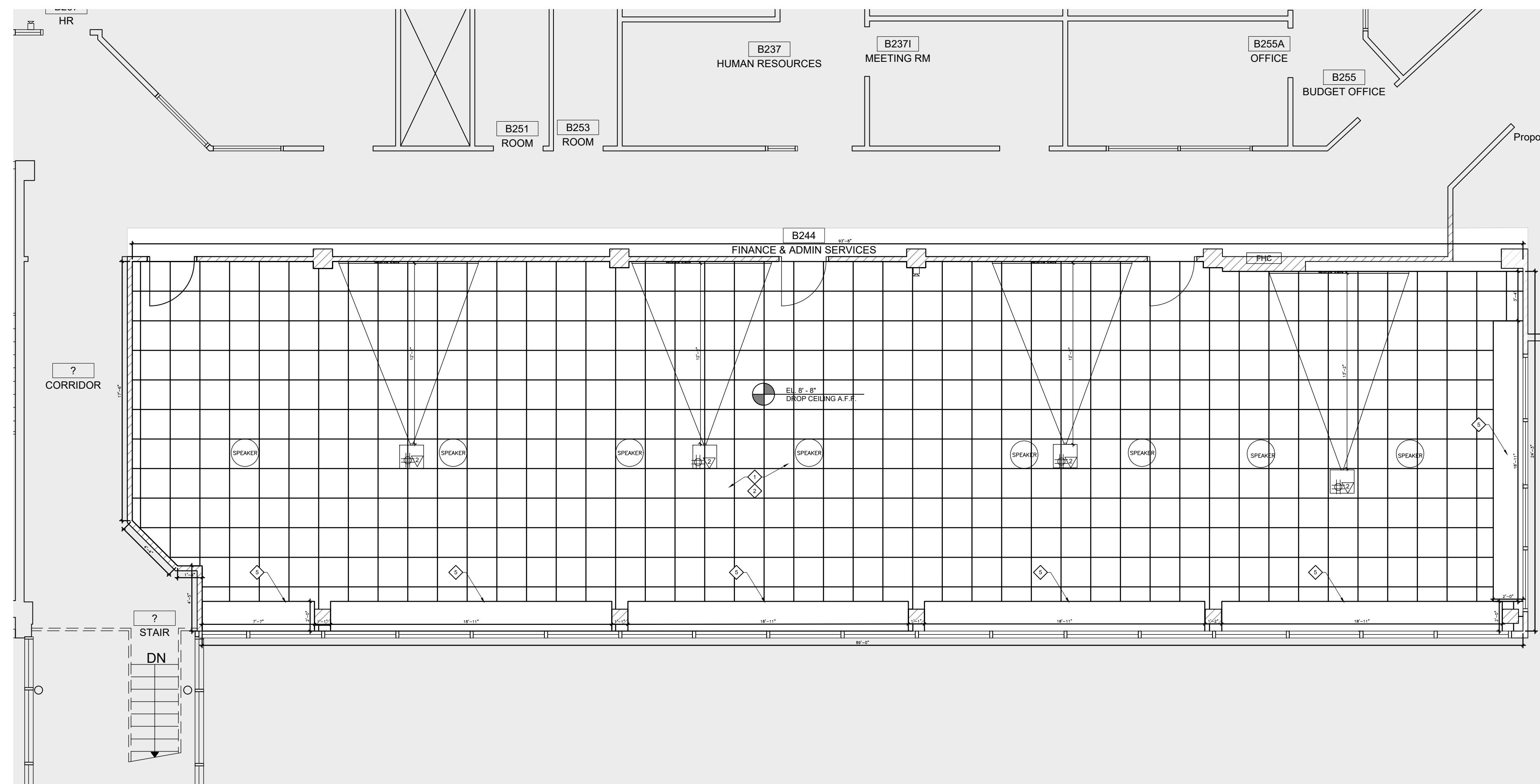
Revision: - Scale: AS NOTED

Drawing No. A6



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- Project Specific:
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1 B244 PROPOSED REFLECTED CEILING PLAN
A3 3/16\"/>

PROPOSED REFLECTED CEILING PLAN:

- 1 SUPPLY AND INSTALL NEW CEILING GRID AS PER SPEC; (C2). ARMSTRONG 3/8\"/>
- 2 SUPPLY AND INSTALL NEW CEILING TILES AS PER SPEC; (C1). ARMSTRONG OPTIMA SQUARE LAY-IN 3152 - WHITE - 22\"/>
- 3 T-BAR LAYOUT TO MATCH DRAWING, COORDINATE WITH PROPOSED LIGHTING LAYOUT AND VERIFY WITH SHERIDAN P.M. PRIOR TO INSTALLATION
- 4 GENERAL CONTRACTOR IS FULLY RESPONSIBLE FOR DISCONNECTION AND RECONNECTION OF EXISTING FIRE/SMOKE DETECTORS RELATED TO CEILING REPLACEMENT. SHERIDAN OPERATIONS AND SECURITY REQUIRE MIN. 5 BUSINESS DAYS FOR FIRE INTERFERENCE.
- 5 PROVIDE INDICATED T-BAR OPENINGS FOR RADIANT PANELS TO BE INSTALLED FLUSH WITH THE T-BAR HEIGHT AS PER THE PROPOSED MECHANICAL DRAWINGS AND SPECIFICATIONS.
- 6 WHEN INSTALLING T-BAR AND TILES REFER TO DRAWINGS FOR FINISHED HEIGHTS. COORDINATE FINAL HEIGHTS WITH P.M. PRIOR TO INSTALL.

1 ISSUED FOR TENDER November 2024

No. Issues/Revisions Date

Project Name: Trafalgar Campus - B244 Classroom Renovation

Seal:

Sheet Name:
Proposed Reflected Ceiling Plan

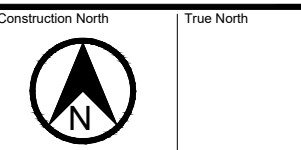
Drawn By: N.W. Checked By:

Issued Date: 21 / 11 / 2024

Revision: - Scale: AS NOTED

Drawing No. **A7**

Consultant(s)

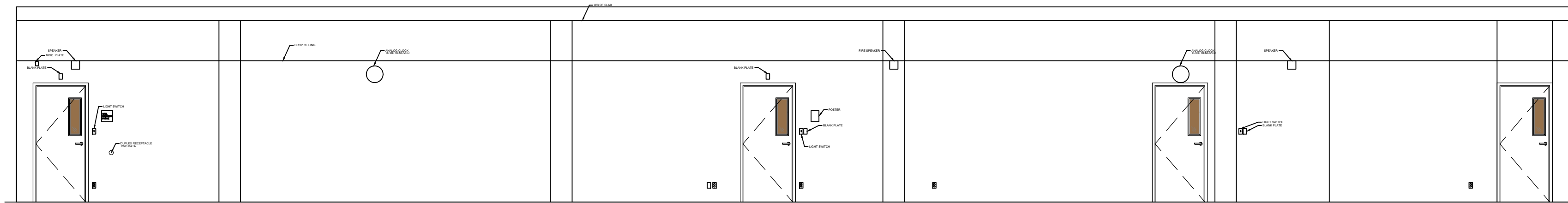


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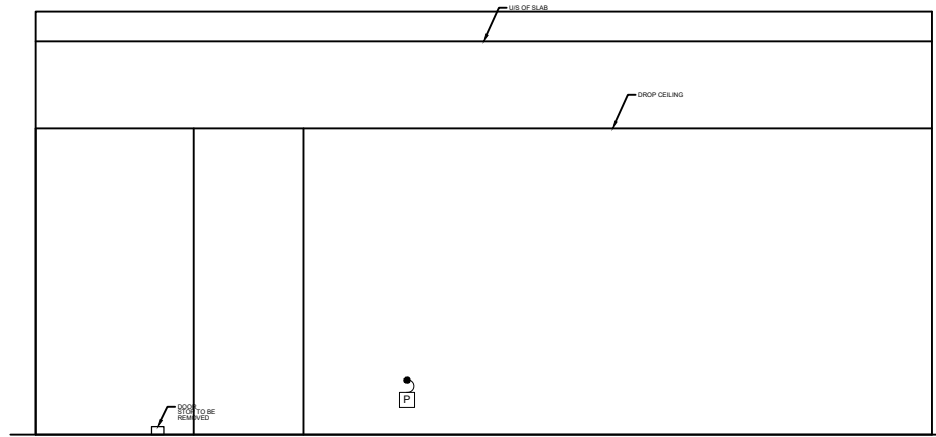
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Project Specific:

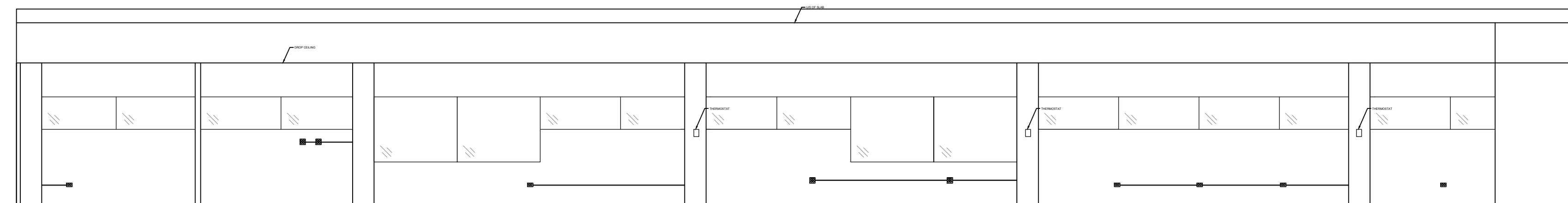
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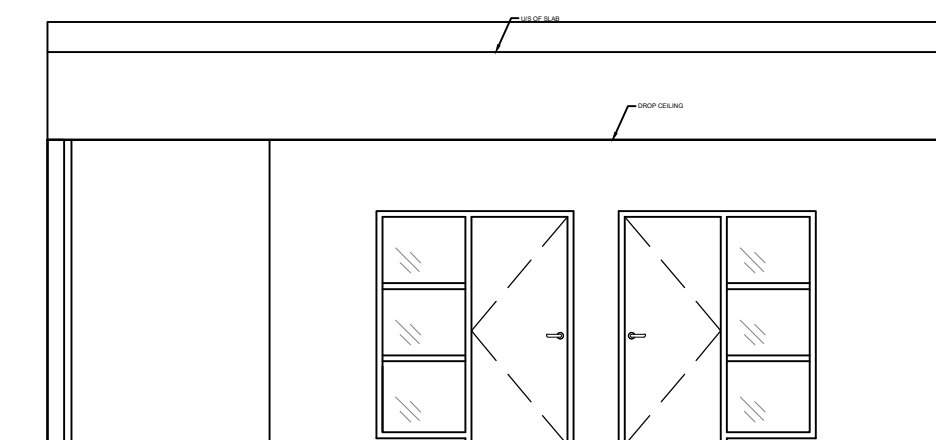
EXISTING ELEVATION B244 – NORTH WALL



EXISTING ELEVATION B244 – WEST WALL



EXISTING ELEVATION B244 – SOUTH WALL



EXISTING ELEVATION B244 – EAST WALL

1 B244 EXISTING ELEVATIONS
A3 3/16" = 1'-0"

EXISTING ELEVATIONS:

1 ISSUED FOR TENDER November 2024

No. Issues/Revisions Date

Project Name: Trafalgar Campus - B244 Classroom Renovation

Seal:

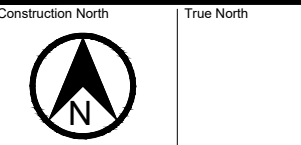
Sheet Name:
Existing Elevations

Drawn By: N.W. Checked By:

Issued Date: 21 / 11 / 2024

Revision: - Scale: AS NOTED

Drawing No. A8

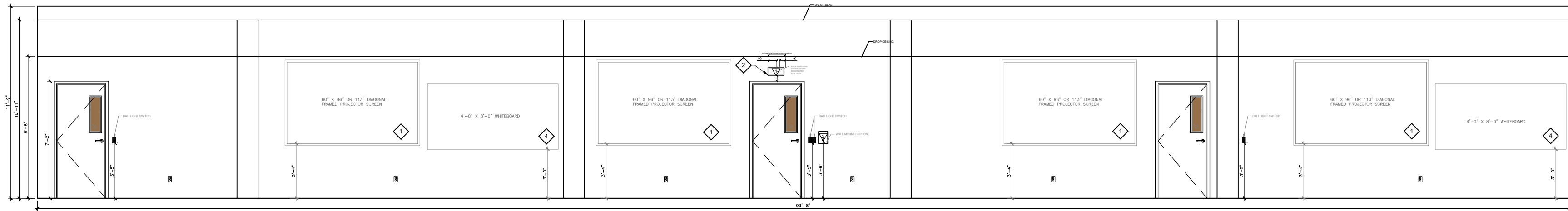


General Notes:

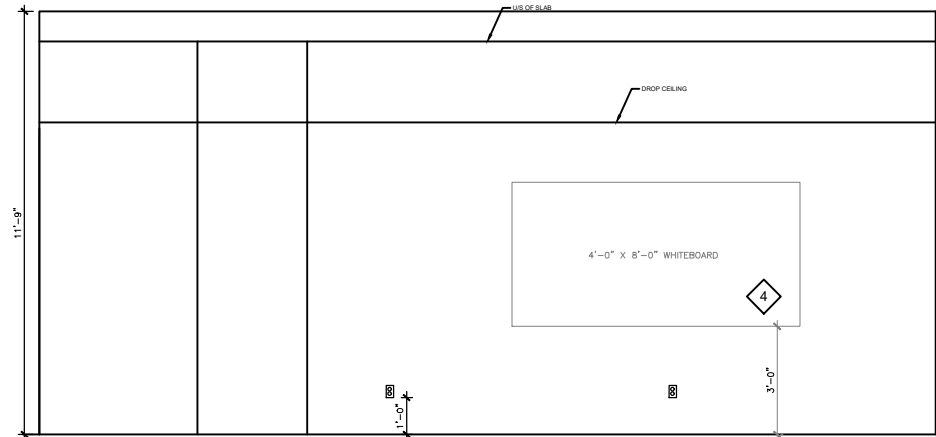
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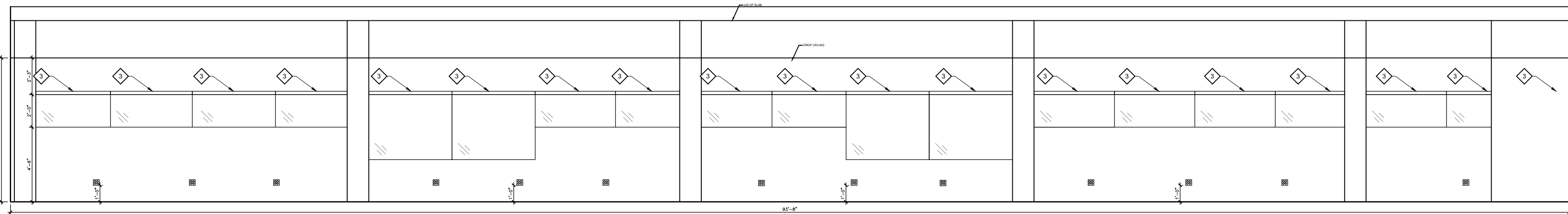
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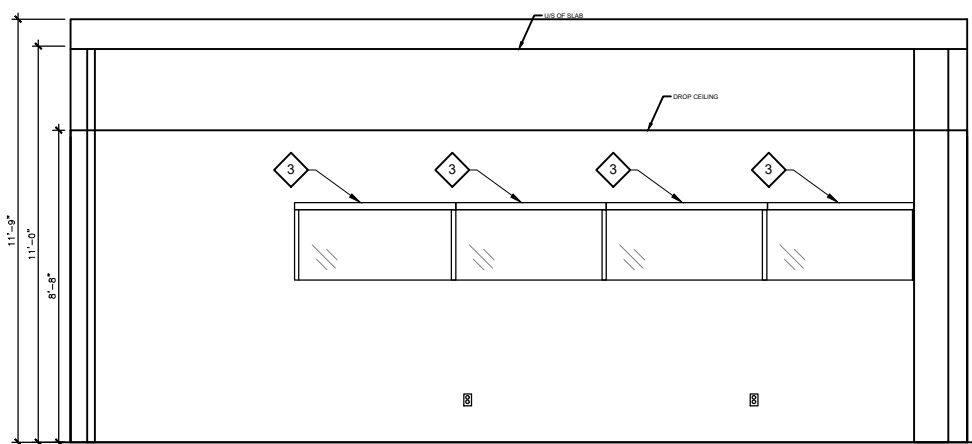
PROPOSED ELEVATION B244 – NORTH WALL



PROPOSED ELEVATION B244 – WEST WALL



PROPOSED ELEVATION B244 – SOUTH WALL



PROPOSED ELEVATION B244 – EAST WALL

1 B244 PROPOSED ELEVATIONS
A3 3/16\"/>

PROPOSED ELEVATIONS:

- 1 SHERIDAN TO SUPPLY PROJECTOR SCREENS - COORDINATE INSTALLATION WITH SHERIDAN AV TEAM AND P.M.
- 2 SHERIDAN TO SUPPLY I.P. CLOCKS - COORDINATE INSTALLATION WITH SHERIDAN I.T. TEAM AND P.M.
- 3 SUPPLY AND INSTALL NEW ROLLER BLINDS - REFER TO WINDOW SCHEDULE
- 4 SUPPLY AND INSTALL NEW WHITEBOARDS
- 5 CONFIRM ON SITE ALL DEVICE AND SERVICES MOUNTING HEIGHTS WITH SHERIDAN P.M.

1 ISSUED FOR TENDER November 2024

No. Issues/Revisions Date

Project Name: Trafalgar Campus - B244 Classroom Renovation

Seal:

Sheet Name:
PROPOSED ELEVATIONS

Drawn By: N.W. Checked By:

Issued Date: 21 / 11 / 2024

Revision: - Scale: AS NOTED

Drawing No. A9



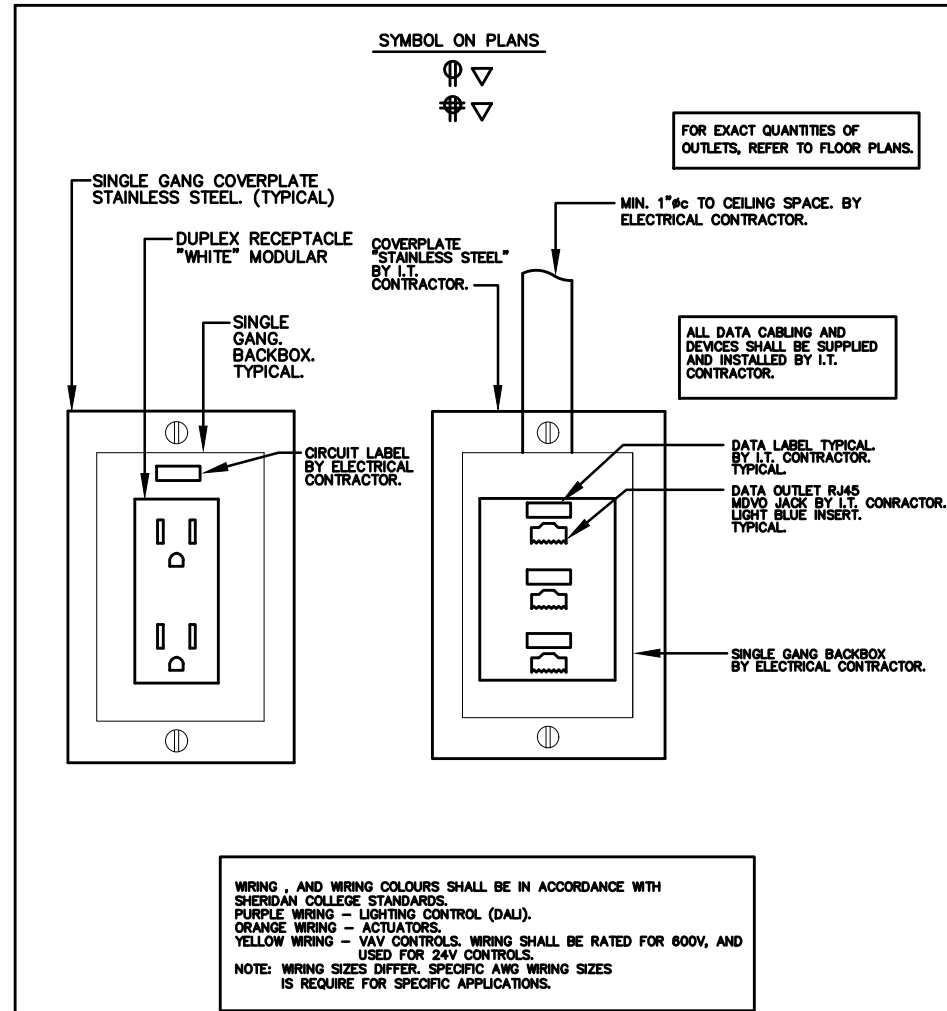
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PANEL : PP-2A				SURFACE FLUSH			
120/208V	■	1φ - 3W	□	120/208V	■	1φ - 3W	□
347/600V	□	3φ - 4W	■	347/600V	□	3φ - 4W	■
100A	□	OTHER	□	TYPE :	WESTINGHOUSE	NQB	
225A	■						
LOCATION : ELECT. ROOM				NEW EXISTING			
DESCRIPTION	BRKR SIZE	CCT NO.	PH	CCT NO.	BRKR SIZE	DESCRIPTION	
FLOOR RECEPT RM B244	15A	A 1	A	2	A 15A	RECEPT RM 206	
FLOOR RECEPT RM B244	15A	B 1	A	2	B 15A	PROJECTOR RM B244	
FLOOR RECEPT RM B244	15A	A 3	B	4	A 15A	RECEPT RM 206/207	
FLOOR RECEPT RM B244	15A	B 3	B	4	B 15A	RECEPT RM B244	
SPARE	15A	A 5	C	6	A 15A	RECEPT RM 207	
RECEPT RM B244	15A	B 5	C	6	B 15A	RECEPT RM B244	
EXISTING	15A	A 7	A	8	A 15A	RECEPT RM 208	
SPARE	15A	A 9	B	10	A 15A	PROJECTOR RM B244	
SPARE	15A	B 9	B	10	B 15A	RECEPT RM 208/209	
SPARE	15A	A 11	C	12	A 15A	RECEPT RM 209	
RECEPT RM B244	15A	A 13	A	14	A 15A	T.V RECEPT	
RECEPT RM 224	15A	B 13	B	14	B 15A	PROJECTOR RM B244	
RECEPT RM B244	15A	A 15	B	16	A 15A	LIGHTS ROOM 211	
MICROWAVE - RECEPT KITCHEN B237	15A	B 17	C	18	20A	PRINTER RM 255A	
COUNTER RECEPT KITCHEN B237	15A	A 19	A	20	15A	RECEPT RM B244	
RECEPT RM B244	15A	A 21	B	22	15A	I.T RECEPT	
RECEPT RM B244	15A	A 23	C	24	15A	T.V RECEPT ROOMS 211/212/213	
RECEPT RM 224 SOUTH WALL	15A	A 25	A	26	60A		
RECEPT ROOMS 227/211	15A	A 27	B	28		PANEL PP-2B	
RECEPT RM B244	15A	A 29	C	30	3P		

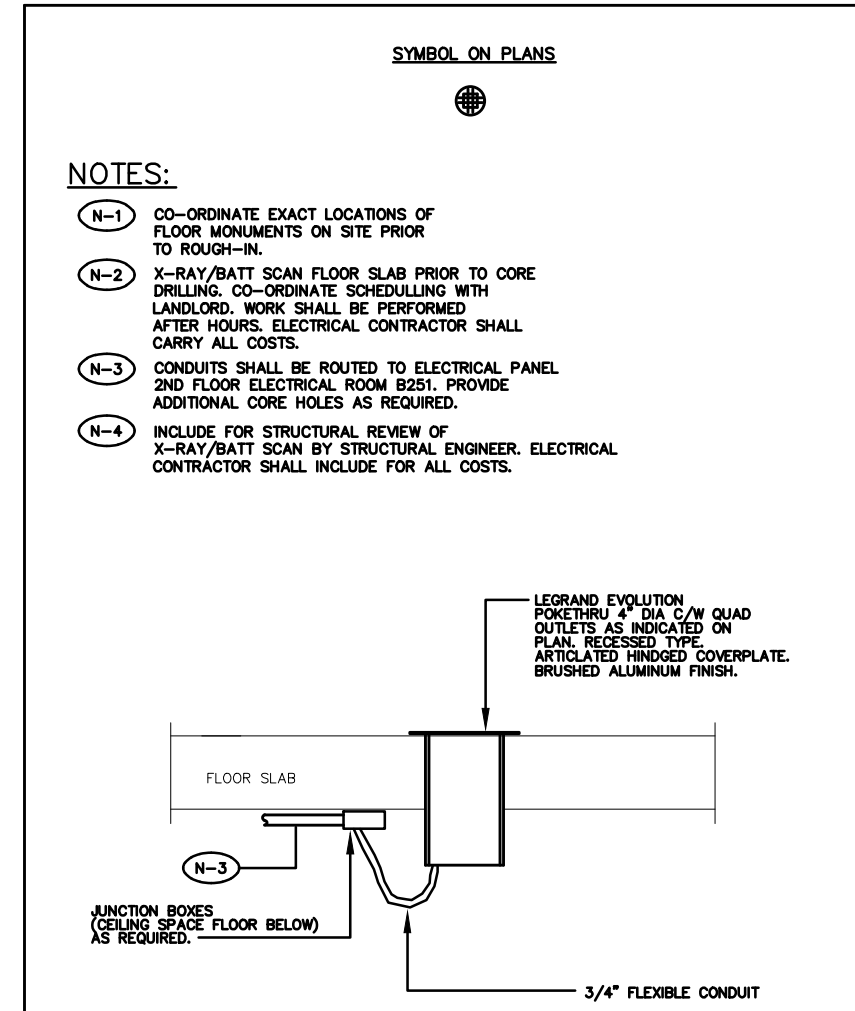
LINETYPE/SYMBOL LEGEND
 _____ LINETYPE DENOTES: EXISTING.
 _____ LINETYPE DENOTES: NEW BY ELECTRICAL CONTRACTOR.

PANEL : PP-2B				SURFACE FLUSH			
120/208V	■	1φ - 3W	□	120/208V	■	1φ - 3W	□
347/600V	□	3φ - 4W	■	347/600V	□	3φ - 4W	■
100A	□	OTHER	□	TYPE :	SQUARE	D	
225A	■						
LOCATION : ELECT. ROOM				NEW EXISTING			
DESCRIPTION	BRKR SIZE	CCT NO.	PH	CCT NO.	BRKR SIZE	DESCRIPTION	
RECEPT RM B255C	15A	1	A	2	15A	RECEPT RM B255C	
RECEPT RM B255B	15A	3	B	4	15A	RECEPT RM B255B	
RECEPT RM B255A	15A	5	C	6	15A	RECEPT RM B255A	
RECEPT RM B255	15A	7	A	8	15A	RECEPT RM B255	
RECEPT RM B255	15A	9	B	10	15A	RECEPT RM B255	
MICROWAVE RECEPT ROOM B255	15A	13	A	14	15A	RECEPT RM B255	
RECEPT RM B244	15A	A 17	C	18	15A	RECEPT RM B244	
RECEPT RM B244	15A	B 17	C	18	15A	RECEPT RM B244	
PROJECTOR RECEPT ROOM B255A	15A	19	A	20	15A	EXISTING	
SPIDER BOXES ROOM B255A	15A	21	B	22	15A	EXISTING	
AUTO DOOR OPENER	15A	23	C	24	A 15A	RECEPT RM B244	
					B 15A	RECEPT RM B244	

LINETYPE LEGEND
 _____ LINETYPE DENOTES: EXISTING.
 _____ LINETYPE DENOTES: NEW BY ELECTRICAL CONTRACTOR.



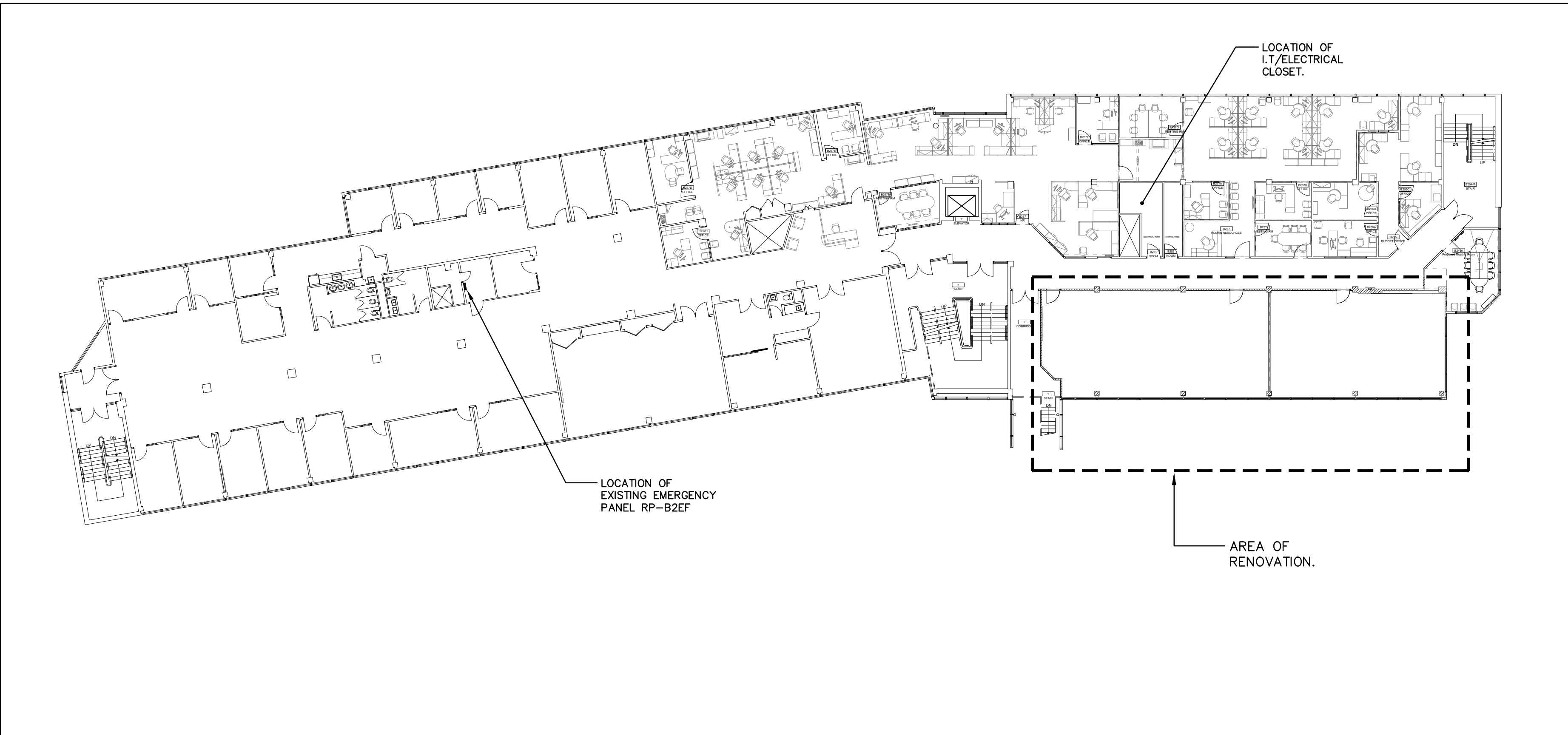
3 TYPICAL WALL OUTLET DETAIL
E-2 SCALE: N.T.S.



4 RECESSED FLOOR OUTLET DETAIL (4" DIA)
E-2 SCALE: N.T.S.

1 PANEL SCHEDULE PP-2A
E-2 SCALE: N.T.S.

2 PANEL SCHEDULE PP-2B
E-2 SCALE: N.T.S.



5 SECOND FLOOR VICINITY PLAN-ELECTRICAL
E-2 SCALE: N.T.S.

4	ISSUED FOR TENDER	NOV21/24
3	RE-ISSUED FOR 100% REVIEW	NOV15/24
2	ISSUED FOR 100% REVIEW	NOV06/24
1	ISSUED FOR REVIEW	OCT15/24

No. Issues/Revisions Date

Project Name:
Trafalgar Campus - B244 Classroom Renovation

Scale: 3/16"=1'-0"



24 040

Sheet Name:
ELECTRICAL SCHEDULES, AND DETAILS

Drawn By: STAFF Checked By: TM

Issued Date: 11-09-2024

Revision: - Scale: 3/16"=1'-0"

Drawing No.: E-2



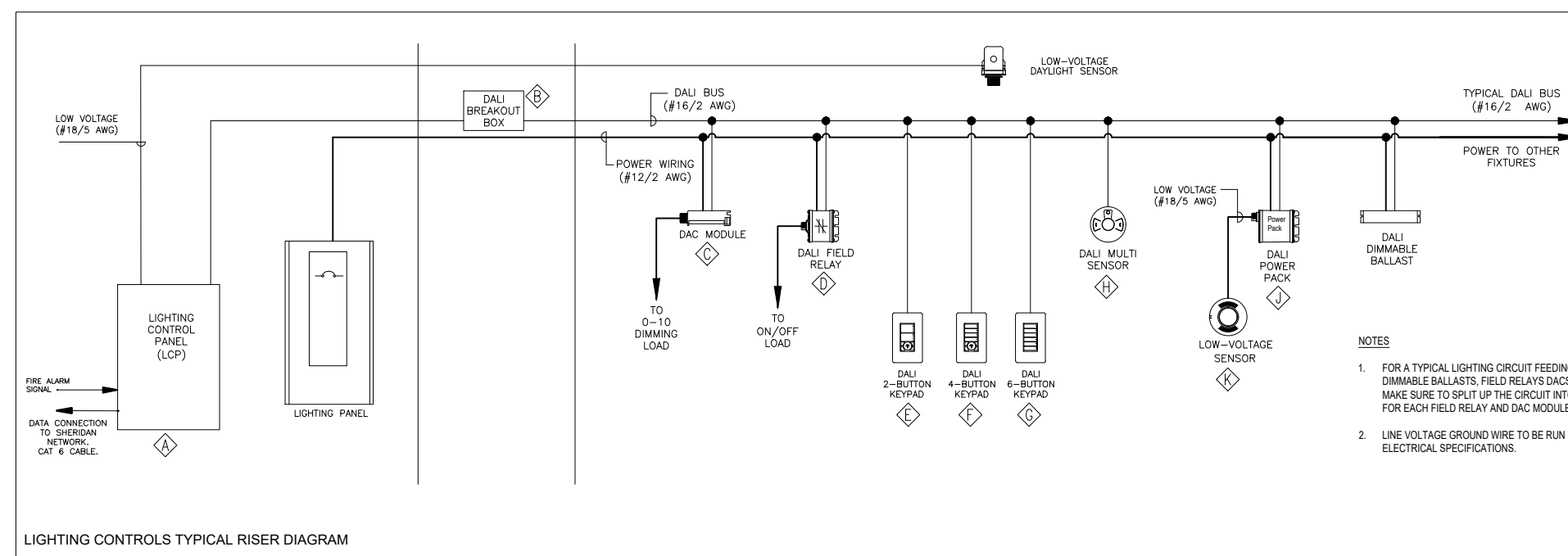
- General Notes:
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- Project Specific:
- Dispose of all material and debris within scope of work offsite.
 - Make good of all areas affected by work to Sheridan Standards.
 - Coordinate all required testing and inspections.
 - Protect furniture, equipment and items to remain (ie. flooring) during construction.
 - Electrical Contractor shall verify capacity and location of electrical panel required to complete scope of work.
 - Data Contractor shall verify capacity and location of wiring closet required to complete scope of work.
 - Refer to tender, specifications, instructions and all other documents related to scope of work to complete project.

LUMINAIRE SCHEDULE

TYPE	LAMP	DESCRIPTION	MANUFACTURER
'C'	29W LED 4000K	RECESSED T-BAR 2 X 2 LED INDIRECT LUMINAIRE. 347 VOLT. 0-5V DALI DIMMING.	METALUX #22EN-LD2-34-347-LB40-SLTD-1-U
'C1'	29W LED 4000K	RECESSED T-BAR 2 X 2 LED INDIRECT LUMINAIRE. 120 VOLT. 0-5V DALI DIMMING.	METALUX #22EN-LD2-34-120-LB40-SLTD-1-U

2 LUMINAIRE SCHEDULE
E-3 SCALE:N.T.S.

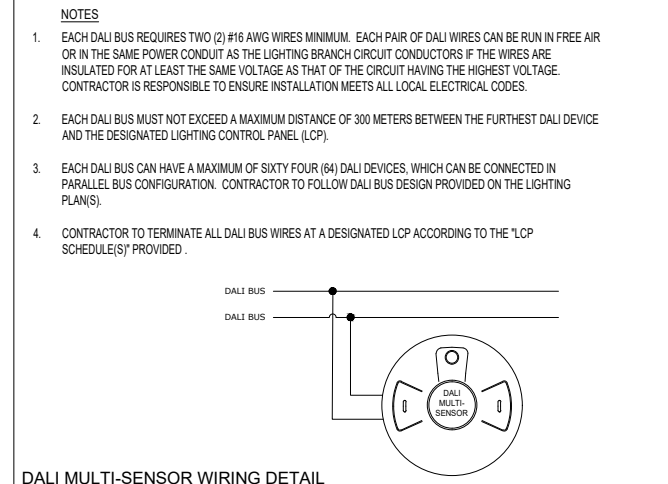
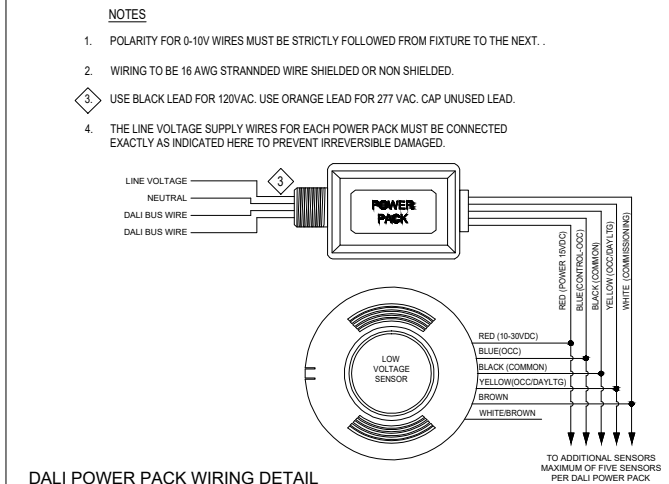
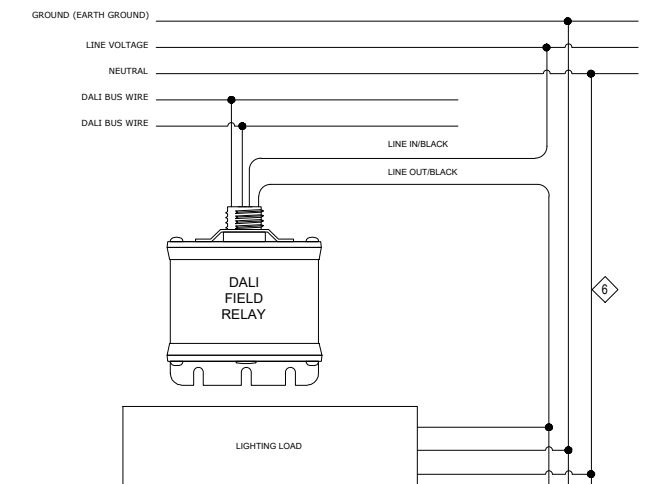


LIGHTING CONTROLS TYPICAL RISER DIAGRAM

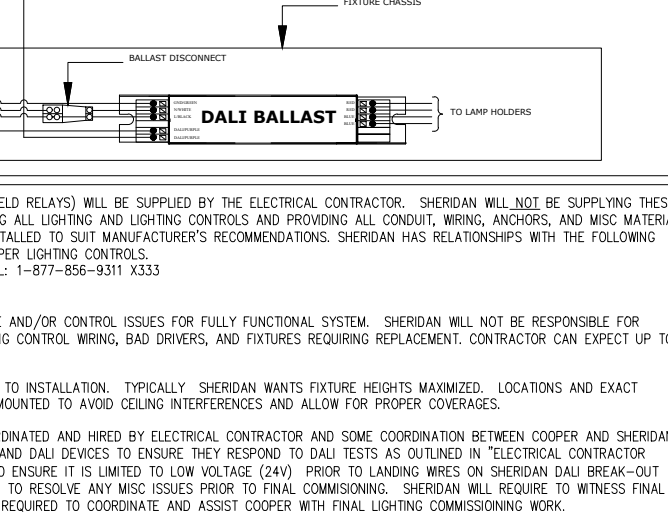
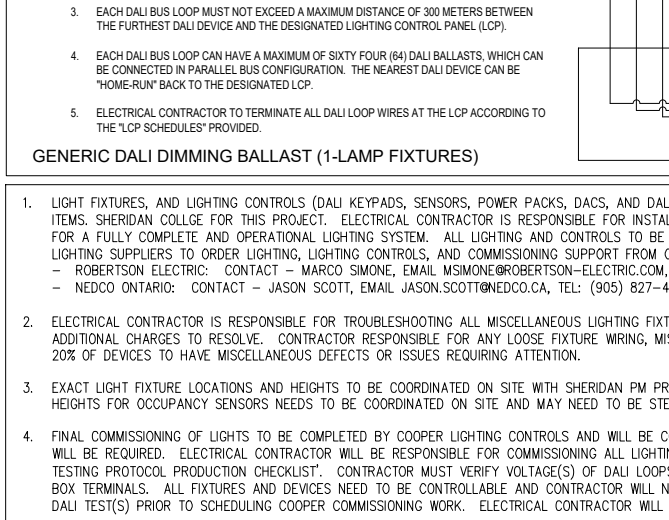
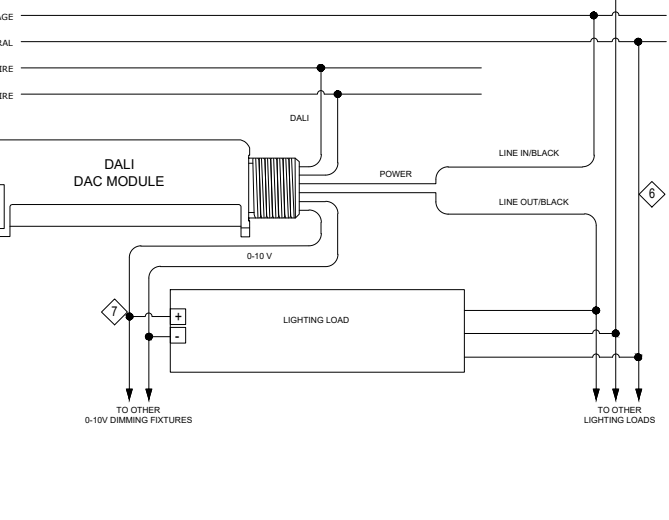
LEGEND	DESCRIPTION	COOPER PART #
[LCP]	LIGHTING CONTROL PANEL	-
[BB]	DALI BREAKOUT BOX	-
[DAC]	DALI TO 0-10V CONVERTER	FLT-DAC-DALI-DC1
[DFR]	DALI FIELD RELAY	FLT-HPRS-DALI
[KP2D]	DALI 2-BUTTON KEYPAD	FDW-2TLB-RL-W
[KP4D]	DALI 4-BUTTON KEYPAD	FDW-4TSB-RL-W
[KP6]	DALI 6-BUTTON KEYPAD	FDW-6TSB-W
[CC]	DALI MULTI-SENSOR	OC1 - SHORT RANGE OC2 - LONG RANGE OC3 - SHORT RANGE OC4 - LONG RANGE OC5 - WALL MOUNT VERSION
[DPP]	DALI POWER PACK	FOR 347V APPLICATION FOR 120V APPLICATION
[CS]	LOW VOLTAGE SENSOR	OC3 - SHORT RANGE OC4 - LONG RANGE OC5 - WALL MOUNT VERSION

- NOTES
1. FOR A TYPICAL LIGHTING CIRCUIT FEEDING A COMBINATION OF DALI DIMMABLE BALLASTS, FIELD RELAYS DACS AND DIMMING MODULES, MAKE SURE TO SPLIT UP THE CIRCUIT INTO DIFFERENT BRANCHES FOR EACH FIELD RELAY AND DAC MODULES.
 2. LINE VOLTAGE GROUND WIRE TO BE RUN INDEPENDENTLY AS PER ELECTRICAL SPECIFICATIONS.

- NOTES
1. EACH DALI BUS REQUIRES TWO (2) #16 AWG WIRES MINIMUM. EACH PAIR OF DALI WIRES CAN BE RUN IN FREE AIR OR IN THE SAME POWER CONDUIT AS THE LIGHTING BRANCH CIRCUIT CONDUCTORS IF THE WIRES ARE INSULATED FOR AT LEAST THE SAME VOLTAGE AS THAT OF THE CIRCUIT HAVING THE HIGHEST VOLTAGE. CONTRACTOR IS RESPONSIBLE TO ENSURE INSTALLATION MEETS ALL LOCAL ELECTRICAL CODES.
 2. EACH DALI BUS MUST NOT EXCEED A MAXIMUM DISTANCE OF 300 METERS BETWEEN THE FURTHEST DALI DEVICE AND THE DESIGNATED LIGHTING CONTROL PANEL (LCP).
 3. EACH DALI BUS CAN HAVE A MAXIMUM OF SIXTY FOUR (64) DALI DEVICES, WHICH CAN BE CONNECTED IN PARALLEL BUS CONFIGURATION. CONTRACTOR TO FOLLOW DALI BUS DESIGN PROVIDED ON THE LIGHTING PLANS(S).
 4. CONTRACTOR TO TERMINATE ALL DALI BUS WIRES AT A DESIGNATED LCP ACCORDING TO THE LCP SCHEDULE(S) PROVIDED.
 5. FOR A LIGHTING CIRCUIT FEEDING A COMBINATION OF DALI BALLASTS, FIELD RELAYS, DAC AND DIMMING MODULES, MAKE SURE TO SPLIT UP THE CIRCUIT INTO DIFFERENT BRANCHES FOR EACH FIELD RELAY AS SPECIFIED ON THE LIGHTING PLANS(S).
- NEUTRAL AND GROUND WIRES ARE NOT REQUIRED FOR EACH FIELD RELAY.



- NOTES
1. EACH DALI BUS REQUIRES TWO (2) #16 AWG WIRES MINIMUM. EACH PAIR OF DALI WIRES CAN BE RUN IN FREE AIR OR IN THE SAME POWER CONDUIT AS THE LIGHTING BRANCH CIRCUIT CONDUCTORS IF THE WIRES ARE INSULATED FOR AT LEAST THE SAME VOLTAGE AS THAT OF THE CIRCUIT HAVING THE HIGHEST VOLTAGE. CONTRACTOR IS RESPONSIBLE TO ENSURE INSTALLATION MEETS ALL LOCAL ELECTRICAL CODES.
 2. EACH DALI BUS MUST NOT EXCEED A MAXIMUM DISTANCE OF 300 METERS BETWEEN THE FURTHEST DALI DEVICE AND THE DESIGNATED LIGHTING CONTROL PANEL (LCP).
 3. EACH DALI BUS CAN HAVE A MAXIMUM OF SIXTY FOUR (64) DALI DEVICES, WHICH CAN BE CONNECTED IN PARALLEL BUS CONFIGURATION. CONTRACTOR TO FOLLOW DALI BUS DESIGN PROVIDED ON THE LIGHTING PLANS(S).
 4. CONTRACTOR TO TERMINATE ALL DALI BUS WIRES AT A DESIGNATED LCP ACCORDING TO THE LCP SCHEDULE(S) PROVIDED.
 5. FOR A LIGHTING CIRCUIT FEEDING A COMBINATION OF DALI BALLASTS, FIELD RELAYS, DAC AND DIMMING MODULES, MAKE SURE TO SPLIT UP THE CIRCUIT INTO DIFFERENT BRANCHES FOR EACH DALI ANALOG CONVERTER (DAC) MODULE AS SPECIFIED ON THE LIGHTING PLANS(S).
- NEUTRAL AND GROUND WIRES ARE NOT REQUIRED FOR EACH DAC MODULE.
- POLARITY FOR 0-10V WIRES MUST BE STRICTLY FOLLOWED FROM ONE FIXTURE TO THE NEXT.



- GENERAL LIGHTING CONTROL NOTES
1. LIGHT FIXTURES, AND LIGHTING CONTROLS (DALI KEYPADS, SENSORS, POWER PACKS, DACS, AND DALI FIELD RELAYS) WILL BE SUPPLIED BY THE ELECTRICAL CONTRACTOR. SHERIDAN WILL NOT BE SUPPLYING THESE ITEMS. SHERIDAN COLLEGE FOR THIS PROJECT. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR INSTALLING ALL LIGHTING AND LIGHTING CONTROLS AND PROVIDING ALL CONDUIT, WIRING, ANCHORS, AND MISC MATERIALS FOR A FULLY COMPLETE AND OPERATIONAL LIGHTING SYSTEM. ALL LIGHTING AND CONTROLS TO BE INSTALLED TO SUIT MANUFACTURER'S RECOMMENDATIONS. SHERIDAN HAS RELATIONSHIPS WITH THE FOLLOWING LIGHTING SUPPLIERS TO ORDER LIGHTING, LIGHTING CONTROLS, AND COMMISSIONING SUPPORT FROM COOPER LIGHTING CONTROLS.
 - ROBERTSON ELECTRIC: CONTACT - MARCO SIMONE, EMAIL: MIMONE@ROBERTSON-ELECTRIC.COM, TEL: 1-877-856-9311 X333
 - NEDCO ONTARIO: CONTACT - JASON SCOTT, EMAIL: JASON.SCOTT@NEDCO.CA, TEL: (905) 827-4421
 2. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR TROUBLESHOOTING ALL MISCELLANEOUS LIGHTING FIXTURE AND/OR CONTROL ISSUES FOR FULLY FUNCTIONAL SYSTEM. SHERIDAN WILL NOT BE RESPONSIBLE FOR ADDITIONAL CHARGES TO RESOLVE. CONTRACTOR RESPONSIBLE FOR ANY LOOSE FIXTURE WIRING, MISSING CONTROL WIRING, BAD DRIVERS, AND FIXTURES REQUIRING REPLACEMENT. CONTRACTOR CAN EXPECT UP TO 20% OF DEVICES TO HAVE MISCELLANEOUS DEFECTS OR ISSUES REQUIRING ATTENTION.
 3. EXACT LIGHT FIXTURE LOCATIONS AND HEIGHTS TO BE COORDINATED ON SITE WITH SHERIDAN PM PRIOR TO INSTALLATION. TYPICALLY SHERIDAN WANTS FIXTURE HEIGHTS MAXIMIZED. LOCATIONS AND EXACT HEIGHTS FOR OCCUPANCY SENSORS NEEDS TO BE COORDINATED ON SITE AND MAY NEED TO BE STEM MOUNTED TO AVOID CEILING INTERFERENCES AND ALLOW FOR PROPER COVERAGES.
 4. FINAL COMMISSIONING OF LIGHTS TO BE COMPLETED BY COOPER LIGHTING CONTROLS AND WILL BE COORDINATED AND HIRED BY ELECTRICAL CONTRACTOR AND SOME COORDINATION BETWEEN COOPER AND SHERIDAN WILL BE REQUIRED. ELECTRICAL CONTRACTOR WILL BE RESPONSIBLE FOR COMMISSIONING ALL LIGHTING AND DALI DEVICES TO ENSURE THEY RESPOND TO DALI TESTS AS OUTLINED IN "ELECTRICAL CONTRACTOR TESTING PROTOCOL PRODUCTION CHECKLIST". CONTRACTOR MUST VERIFY VOLTAGE(S) OF DALI LOOPS TO ENSURE IT IS LIMITED TO LOW VOLTAGE (24V) PRIOR TO LAMPING WIRES ON SHERIDAN DALI BREAK-OUT BOX TERMINALS. ALL FIXTURES AND DEVICES NEED TO BE CONTROLLABLE AND CONTRACTOR WILL NEED TO RESOLVE ANY MISC ISSUES PRIOR TO FINAL COMMISSIONING. SHERIDAN WILL REQUIRE TO WITNESS FINAL DALI TEST(S) PRIOR TO SCHEDULING COOPER COMMISSIONING WORK. ELECTRICAL CONTRACTOR WILL BE REQUIRED TO COORDINATE AND ASSIST COOPER WITH FINAL LIGHTING COMMISSIONING WORK.
 5. LIGHTING AND LIGHTING CONTROLS TO BE CONCEALED AND MECHANICALLY PROTECTED IN MINIMUM 3/4" CONDUIT FOR ALL EXPOSED AREAS. SHERIDAN STANDARDS REQUIRE ALL DALI WIRING TO HAVE PURPLE JACKET AND ALL 0-10V WIRING TO HAVE GREY JACKET. PREFERRED SHERIDAN INSTALLATION HAS CONTRACTOR PULLING IN PURPLE (VOLT) 190 N/EN 14 AWG CONDUCTORS WITH SAME INSULATION RATING AS POWER WIRING. FOR DROP CEILING, FLENUM RATED BLDEN 600XIE.007.1000 WITH PURPLE JACKET CABLE CAN BE UTILIZED. DALI WIRING NEEDS TO BE NEATLY DRESSED AND TE-WRAPPED TO POWER WIRING AND CANNOT BE LAYING ON TOP OF DROP CEILING. CONTRACTOR RESPONSIBLE FOR PROVING ALL DALI HOME RUNS BACK TO SHERIDAN LCP AS DIRECTED BY COOPER CONTROLS/SHERIDAN COLLEGE.
 6. NO MARRETS ALLOWED FOR ANY LIGHTING CONTROLS (DALI OR 0-10V) WIRING TERMINATIONS. USE ONLY PUSH-IN WIRE CONNECTORS (WAGO 221 SERIES OR IDEAL) RATED FOR 600V. ALL WIRING TERMINATIONS TO BE CONCEALED IN ELECTRICAL BOXES.

1 DALI LIGHTING CONTROL DETAILS
E-3 SCALE:N.T.S.

No.	Issues/Revisions	Date
4	ISSUED FOR TENDER	NOV21/24
3	RE-ISSUED FOR 100% REVIEW	NOV15/24
2	ISSUED FOR 100% REVIEW	NOV06/24
1	ISSUED FOR REVIEW	OCT15/24

Project Name:
Trafalgar Campus -
B244 Classroom Renovation



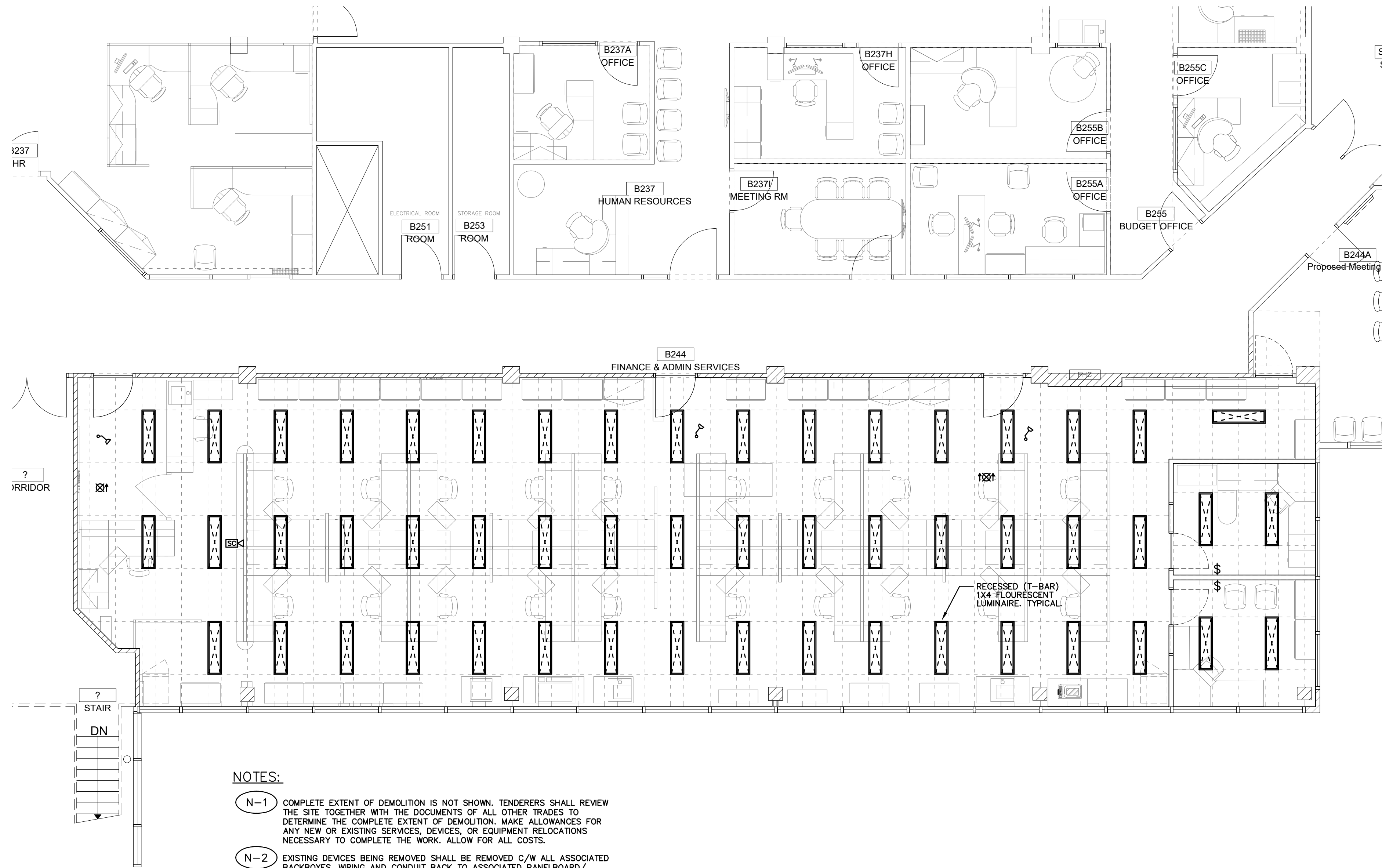
Sheet Name:
DALI LIGHTING CONTROL DETAILS,
AND LUMINAIRE SCHEDULE

Drawn By: STAFF Checked By: TM
Issued Date: 11-09-2024

Revision: - Scale: 3/16"=1'-0"
Drawing No.: E-3



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 - Refer to tender, specifications, instructions and all other documents related to scope of work to complete project.



NOTES:

- N-1 COMPLETE EXTENT OF DEMOLITION IS NOT SHOWN. TENDERERS SHALL REVIEW THE SITE TOGETHER WITH THE DOCUMENTS OF ALL OTHER TRADES TO DETERMINE THE COMPLETE EXTENT OF DEMOLITION. MAKE ALLOWANCES FOR ANY NEW OR EXISTING SERVICES, DEVICES, OR EQUIPMENT RELOCATIONS NECESSARY TO COMPLETE THE WORK. ALLOW FOR ALL COSTS.
- N-2 EXISTING DEVICES BEING REMOVED SHALL BE REMOVED C/W ALL ASSOCIATED BACKBOXES, WIRING AND CONDUIT BACK TO ASSOCIATED PANELBOARD/ CEILING MOUNTED JUNCTION BOX.
- N-3 ALL DEMOLISHED MATERIALS AND EQUIPMENT SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED ENTIRELY FROM THE SITE UNLESS OTHERWISE NOTED.
- N-4 ALL LUMINAIRES, ASSOCIATED CONTROLS, DEVICES, AS NOTED SHALL BE REMOVED C/W ALL ASSOCIATED WIRING. EXISTING CIRCUITS SHALL BE RE-USED FOR NEW LIGHTING.

No.	Issues/Revisions	Date
4	ISSUED FOR TENDER	NOV21/24
3	RE-ISSUED FOR 100% REVIEW	NOV15/24
2	ISSUED FOR 100% REVIEW	NOV06/24
1	ISSUED FOR REVIEW	OCT15/24

Project Name:
Trafalgar Campus -
B244 Classroom Renovation



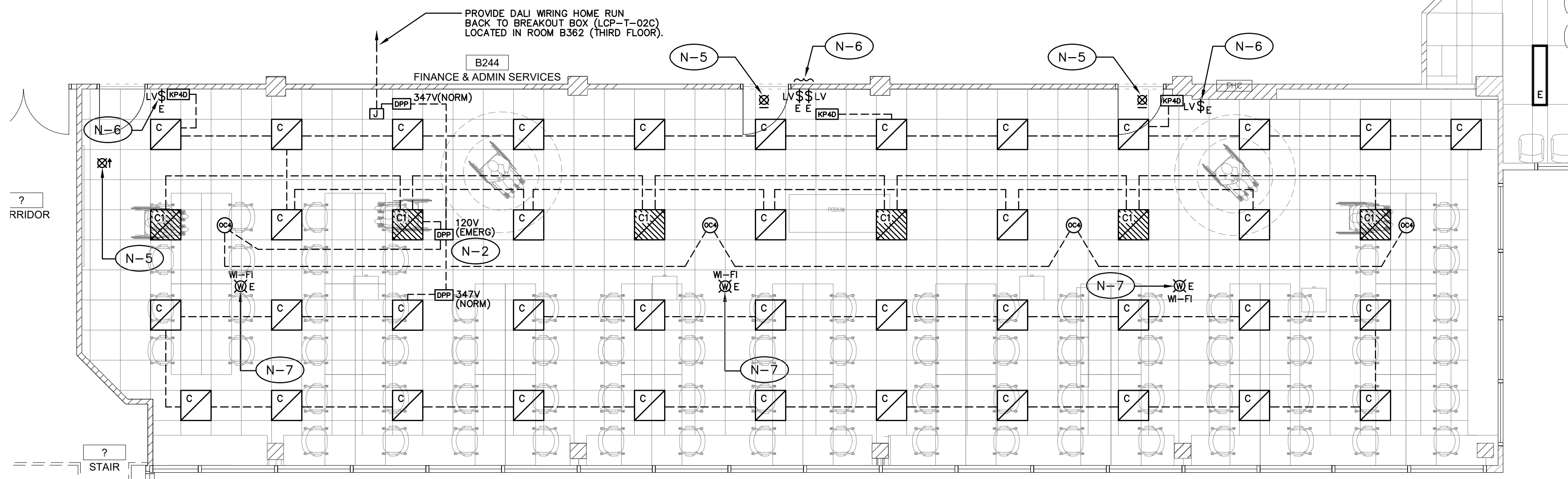
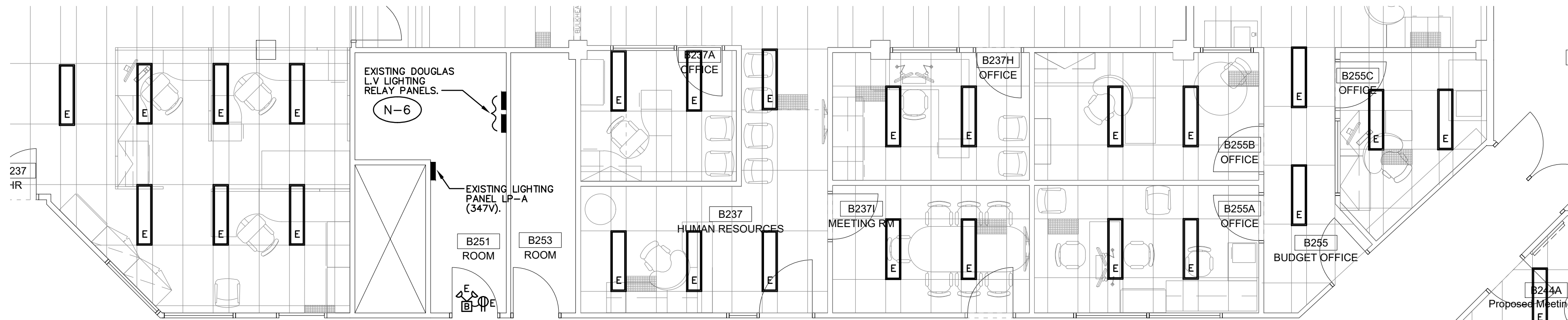
24 040
Sheet Name:
LIGHTING DEMOLITION PLAN
ELECTRICAL

Drawn By: STAFF Checked By: TM
Issued Date: 11-09-2024
Revision: - Scale: 3/16"=1'-0"

Drawing No.:
E-4



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NOTES:

- (N-1) FOR EXACT LOCATIONS, AND MOUNTING HEIGHTS, REFER TO INTERIOR CONSULTANTS DRAWINGS, AND DETAILS.
- (N-2) PROVIDE NEW 120V EMERGENCY LIGHTING CIRCUIT FROM EXISTING PANEL RP-B2EF (ROOM 200E). REFER TO DRAWING #E-2 FOR LOCATION OF EXISTING PANEL RP-B2EF. PROVIDE NEW 15A-1P BREAKER, AND UPDATE PANEL DIRECTORY. INDICATE, AND RECORD EXACT EMERGENCY CIRCUIT UTILIZED, AND INDICATE ON AS BUILT/RECORD DRAWINGS.
- (N-3) UTILIZE EXISTING LIGHTING CIRCUITS (347V) NORMAL TO FEED NEW NORMAL LIGHTING. PROVIDE NEW 120V EMERGENCY POWER CIRCUIT TO FEED LUMINAIRES ON EMERGENCY POWER. ALL LIGHTING SHALL BE CONTROLLED VIA DALI LIGHTING CONTROL SYSTEM.
- (N-4) ALL DALI DEVICES SHALL BE INTERCONNECTED AND HOME RUN CABLING BACK TO EXISTING DALI BREAK-OUT BOX.
- (N-5) EDGE LIT EXIT LIGHT. RUNNING MAN, PICTOGRAM DIRECTIONS AND FACES AS NOTED. PROVIDE STANPRO #RMTE-1-UM-WH-120V. CONNECT TO NEW EMERGENCY LIGHTING CIRCUIT. SUPPLIED AND INSTALLED BY ELECTRICAL CONTRACTOR.
- (N-6) EXISTING LOW VOLTAGE LIGHTING SWITCHES SHALL BE REMOVED, AND TURNED OVER TO SHERIDAN COLLEGE. WIRING TO BE MADE SAFE. PROVIDE STAINLESS STEEL BLANK COVERPLATE. AT EXISTING DOUGLAS L.V. LIGHTING RELAY PANELS, ELECTRICAL CONTRACTOR SHALL JUMPER RELAYS CURRENTLY CONTROLLING LIGHTING CIRCUITS TO ALLOW FOR NEW LIGHTING CONTROLS VIA DALI SYSTEM.
- (N-7) EXISTING CEILING WI-FI TRANSMITTER(S) SHALL BE RE-MOUNTED TO NEW CEILING.
- (N-8) ALL DALI LIGHTING CONTROL WIRING SHALL BE PURPLE FOR EASE OF IDENTIFYING BY SHERIDAN COLLEGE.

No.	Issues/Revisions	Date
4	ISSUED FOR TENDER	NOV21/24
3	RE-ISSUED FOR 100% REVIEW	NOV15/24
2	ISSUED FOR 100% REVIEW	NOV06/24
1	ISSUED FOR REVIEW	OCT15/24

Project Name: Trafalgar Campus - B244 Classroom Renovation



Sheet Name: PROPOSED LIGHTING PLAN ELECTRICAL

Drawn By: STAFF Checked By: TM
Issued Date: 11-09-2024

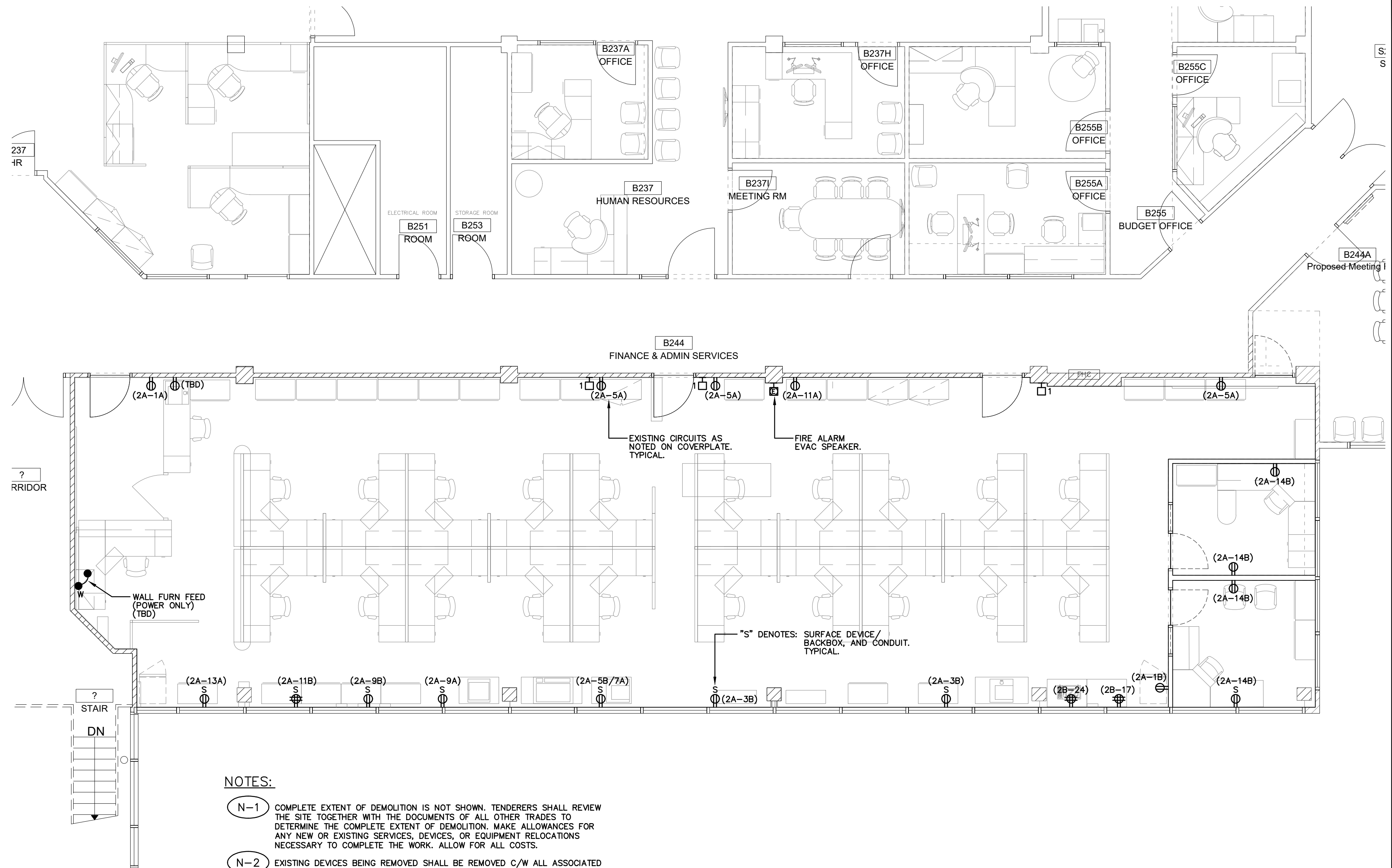
Revision: - Scale: 3/16"=1'-0"

Drawing No.: E-5



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 - Data Contractor shall verify capacity and location of wiring closet required to complete scope of work.
 - Refer to tender, specifications, instructions and all other documents related to scope of work to complete project.



NOTES:

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- (N-2) EXISTING DEVICES BEING REMOVED SHALL BE REMOVED C/W ALL ASSOCIATED BACKBOXES, WIRING AND CONDUIT BACK TO ASSOCIATED PANELBOARD/CEILING MOUNTED JUNCTION BOX.
- (N-3) ALL DEMOLISHED MATERIALS AND EQUIPMENT SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED ENTIRELY FROM THE SITE UNLESS OTHERWISE NOTED.
- (N-4) ALL DEVICES, AND CONNECTIONS INDICATED SHALL BE REMOVED C/W BACKBOXES, AND WIRING BACK TO SOURCE.

No.	Issues/Revisions	Date
4	ISSUED FOR TENDER	NOV21/24
3	RE-ISSUED FOR 100% REVIEW	NOV15/24
2	ISSUED FOR 100% REVIEW	NOV06/24
1	ISSUED FOR REVIEW	OCT15/24

Project Name: Trafalgar Campus - B244 Classroom Renovation



24 040

Sheet Name: POWER & SYSTEMS DEMOLITION PLAN ELECTRICAL

Drawn By: STAFF Checked By: TM

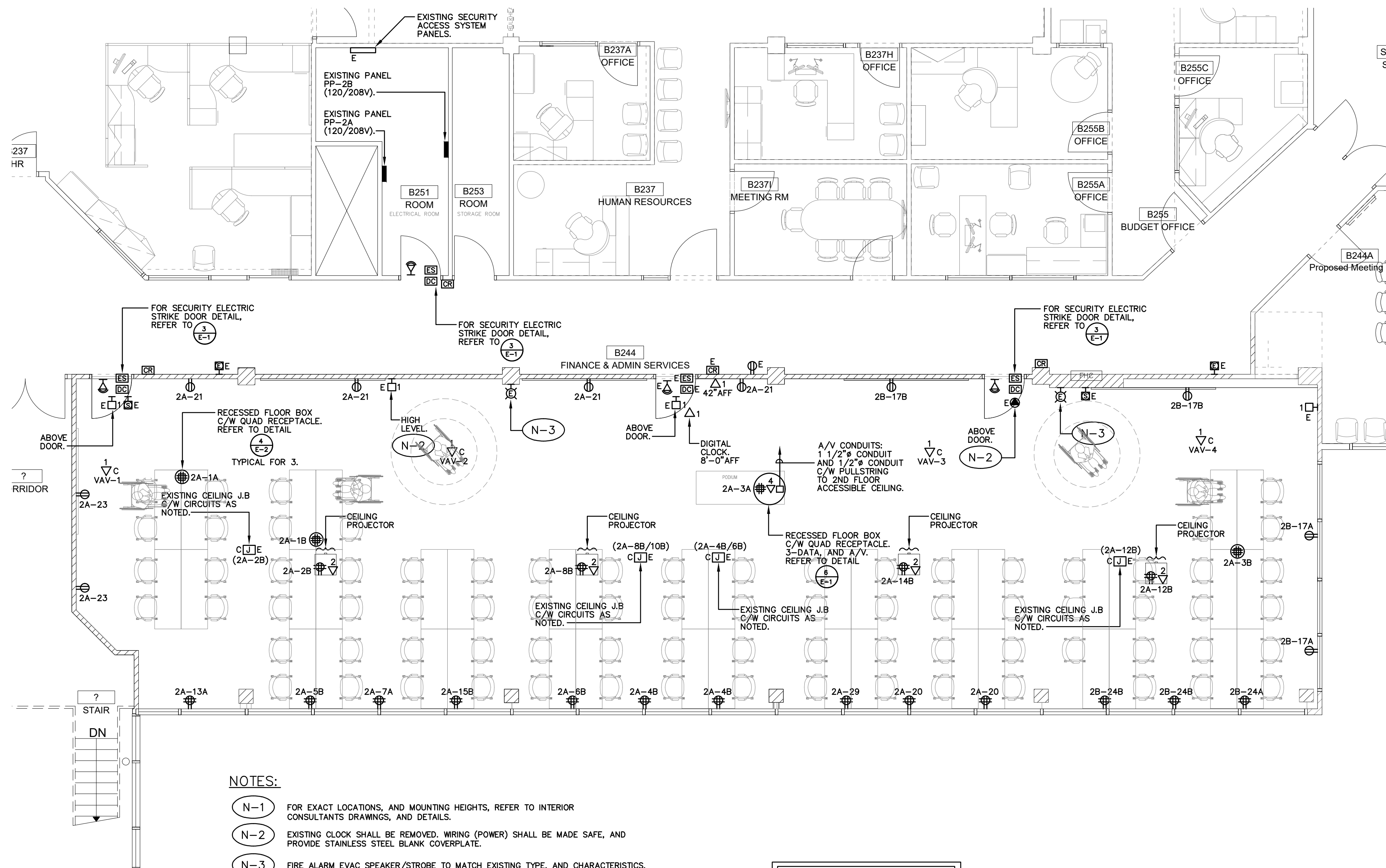
Issued Date: 11-09-2024

Revision: - Scale: 3/16"=1'-0"

Drawing No.: E-6



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 - Data Contractor shall verify capacity and location of wiring closet required to complete scope of work.
 - Refer to tender, specifications, instructions and all other documents related to scope of work to complete project.



NOTES:

- (N-1) FOR EXACT LOCATIONS, AND MOUNTING HEIGHTS, REFER TO INTERIOR CONSULTANTS DRAWINGS, AND DETAILS.
- (N-2) EXISTING CLOCK SHALL BE REMOVED. WIRING (POWER) SHALL BE MADE SAFE, AND PROVIDE STAINLESS STEEL BLANK COVERPLATE.
- (N-3) FIRE ALARM EVAC SPEAKER/STROBE TO MATCH EXISTING TYPE, AND CHARACTERISTICS. CO-ORDINATE EXACT REQUIREMENTS AND EXACT DEVICE, WIRING (TIE-IN/UPGRADE), LOCATION, PROGRAMMING, AND DEVICE VERIFICATION WITH BASE BUILDING FIRE ALARM SYSTEM VERIFYING AGENT (HAMILTON FIRE CONTROL Co.). ELECTRICAL CONTRACTOR SHALL CARRY THE COSTS OF THE BASE BUILDING FIRE ALARM SYSTEM VERIFYING AGENT "HAMILTON FIRE CONTROL Co. (905) 527-7237". SUBMIT FIRE ALARM VERIFICATION/ CERTIFICATE AT COMPLETION OF WORK.

EXACT LOCATION OF DATA AND POWER RECEPTACLES TO BE DETERMINED ON SITE.

4	ISSUED FOR TENDER	NOV21/24
3	RE-ISSUED FOR 100% REVIEW	NOV15/24
2	ISSUED FOR 100% REVIEW	NOV06/24
1	ISSUED FOR REVIEW	OCT15/24

No. Issues/Revisions Date

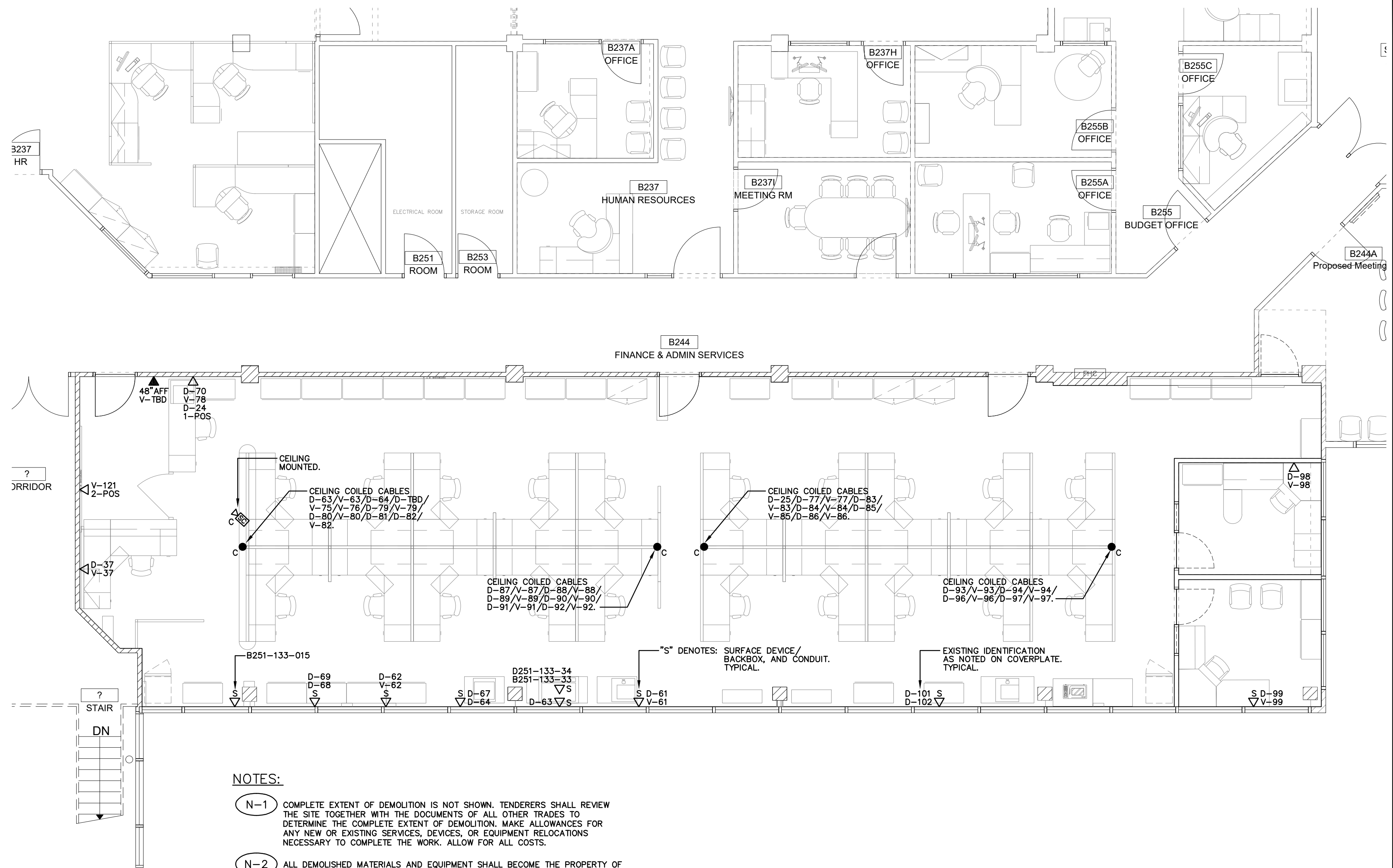
Project Name:
Trafalgar Campus -
B244 Classroom Renovation





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 - Coordinate all required testing and inspections.
 - Protect furniture, equipment and items to remain (ie. flooring) during construction.
 - Electrical Contractor shall verify capacity and location of electrical panel required to complete scope of work.
 - Data Contractor shall verify capacity and location of wiring closet required to complete scope of work.
 - Refer to tender, specifications, instructions and all other documents related to scope of work to complete project.

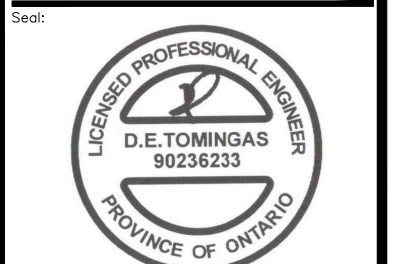


NOTES:

- N-1 COMPLETE EXTENT OF DEMOLITION IS NOT SHOWN. TENDERERS SHALL REVIEW THE SITE TOGETHER WITH THE DOCUMENTS OF ALL OTHER TRADES TO DETERMINE THE COMPLETE EXTENT OF DEMOLITION. MAKE ALLOWANCES FOR ANY NEW OR EXISTING SERVICES, DEVICES, OR EQUIPMENT RELOCATIONS NECESSARY TO COMPLETE THE WORK. ALLOW FOR ALL COSTS.
- N-2 ALL DEMOLISHED MATERIALS AND EQUIPMENT SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED ENTIRELY FROM THE SITE UNLESS OTHERWISE NOTED.
- N-3 EXISTING CAT 6 CABLING MAY BE RE-USED FOR NEW REQUIREMENTS PROVIDING LENGTH IS SUITABLE. CAREFULLY PULL BACK TO CEILING CABLE TRAY FOR RE-USE. DATA CABLING BEING RE-USED SHALL BE APPROVED BY SHERIDAN COLLEGE I.T REPRESENTATIVE. ALL DATA CABLING CONDUIT SMALLER THAN 1" SHALL BE REPLACED WITH 1" OR SIZE TO SUIT (40% FILL).
- N-4 ALL REDUNDANT DATA CABLING SHALL BE REMOVED BACK TO DATA RACK, AND REMOVED FROM PATCH PANEL.
- N-5 ALL DEVICES, AND CONNECTIONS INDICATED SHALL BE REMOVED C/W BACKBOXES, AND WIRING BACK TO SOURCE.

No.	Issues/Revisions	Date
4	ISSUED FOR TENDER	NOV21/24
3	RE-ISSUED FOR 100% REVIEW	NOV15/24
2	ISSUED FOR 100% REVIEW	NOV06/24
1	ISSUED FOR REVIEW	OCT15/24

Project Name:
Trafalgar Campus -
B244 Classroom Renovation



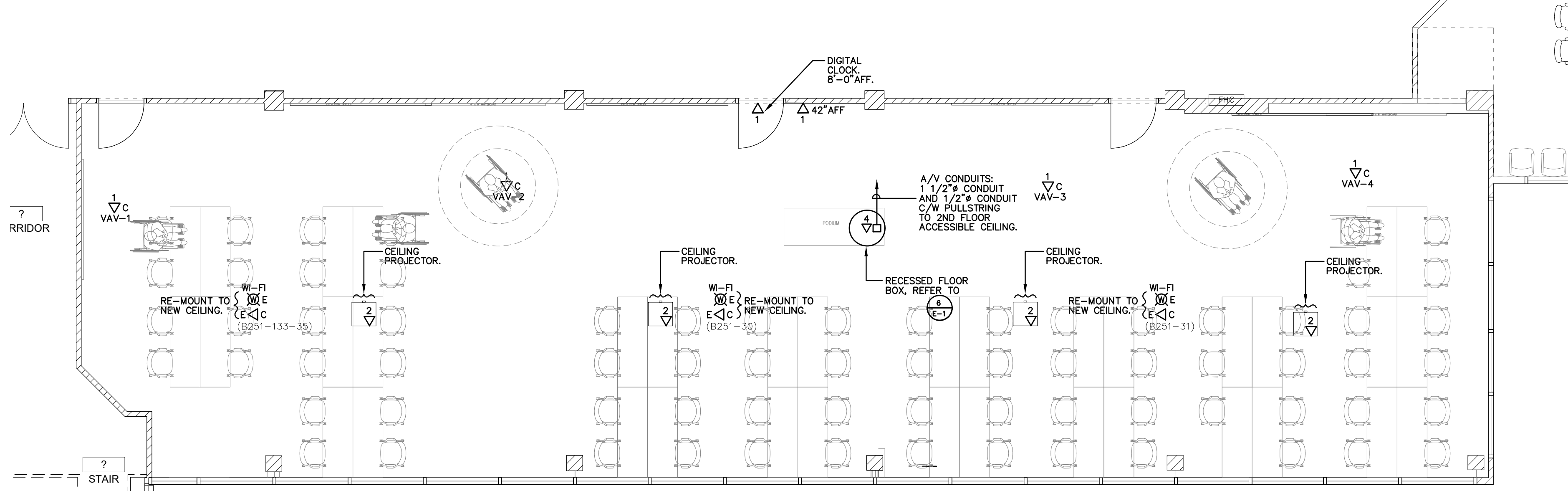
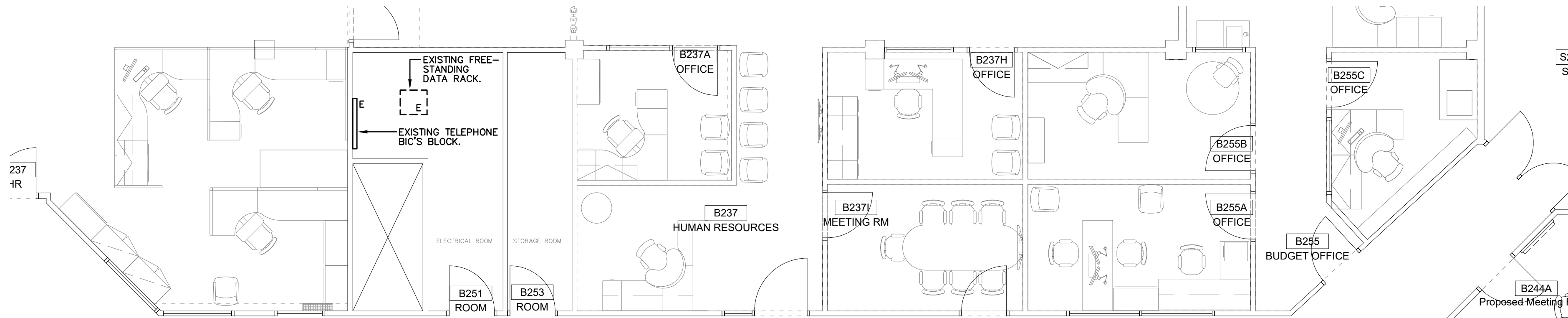
24 040
Sheet Name:
COMMUNICATIONS DEMOLITION PLAN
ELECTRICAL

Drawn By: STAFF Checked By: TM
Issued Date: 11-09-2024
Revision: - Scale: 3/16"=1'-0"

Drawing No.:
E-8



- General Notes:
- Drawings are meant to be read, and not scaled.
 - Dimensions to be verified on site.
 - Contractors must check and verify all dimensions and report discrepancies to the Project Coordinator before commencing work.
 - All drawings remain the property of Sheridan College and shall not be reproduced or reused without written consent.
- Project Specific:
- Dispose of all material and debris within scope of work offsite.
 - Make good of all areas affected by work to Sheridan Standards.
 - Coordinate all required testing and inspections.
 - Protect furniture, equipment and items to remain (ie. flooring) during construction.
 - Electrical Contractor shall verify capacity and location of electrical panel required to complete scope of work.
 - Data Contractor shall verify capacity and location of wiring closet required to complete scope of work.
 - Refer to tender, specifications, instructions and all other documents related to scope of work to complete project.



NOTES:

- N-1** FOR EXACT LOCATIONS, AND MOUNTING HEIGHTS, REFER TO INTERIOR CONSULTANTS DRAWINGS, AND DETAILS.
- N-2** PRIOR TO ANY I.T. WORK, GENERAL CONTRACTOR AND I.T. CONTRACTOR SHALL MEET WITH SHERIDAN I.T. REPRESENTATIVES AS LISTED BELOW TO CO-ORDINATE ALL WORK AND METHODS.
- DARKO RADMAN T (905)845-9430 x2322
C (647)234-4196
darko.radman@sheridancollege.ca
- MARTIN NOWAKOWSKI T (905)845-9430 x2645
C (416)577-4969
martin.nowakowski@sheridancollege.ca
- N-3** ALL DATA OUTLETS NOTED C/W CABLING (CAT 6) SHALL BE NEW. PROVIDE DEVICES, AND CABLING IN ACCORDANCE WITH SHERIDAN COLLEGE "COMMUNICATIONS INFRASTRUCTURE DESIGN GUIDE V5.01 (MARCH 24 2020)".
- N-4** MINIMUM SIZE DATA CONDUIT SHALL BE 1"Ø. ANY EXISTING CONDUITS SMALLER THAN 1"Ø SHALL BE REMOVED, AND REPLACED. CONDUIT SIZING SHALL BE SIZED FOR A MAXIMUM FILL RATE NOT TO EXCEED 40% (I.E. 1" CONDUIT MAXIMUM FILL RATIO: 6 CABLE X 0.40=2.4 CABLES).
- | TRADE SIZE | 3/4" | 1" | 1-1/4" | 1-1/2" | 2" | 2-1/2" | 3" | 4" |
|------------|--------|--------|--------|--------|--------|--------|--------|--------|
| INSIDE Ø | 0.824" | 1.049" | 1.380" | 1.610" | 2.067" | 2.469" | 3.068" | 4.026" |
| MAXIMUM | 6 | 10 | 15 | 20 | 30 | 40 | - | - |
- N-5** ALL CABLING AND OUTLETS SHALL BE TESTED, AND CERTIFIED. SUBMIT VERIFICATION SHEETS AT COMPLETION OF WORK. BY I.T. CONTRACTOR. PROVIDE ELECTRONIC COPIES OF BOTH SUMMARY AND TEST RESULTS TO SHERIDAN P.M..
- N-6** UPON COMPLETION OF WORK, SUBMIT DATA CABLING, AND DATA OUTLET LABELING AS-BUILT IN PDF AND CAD. BY I.T. CONTRACTOR.

- N-7** ELECTRICAL CONTRACTOR SHALL SUPPLY AND INSTALL ALL PATHWAYS/CONDUIT/ CABLE TRAY/RACEWAYS FOR COMMUNICATIONS SYSTEMS. CONTRACTOR SHALL DISCUSS WITH SHERIDAN P.M. EXACT LOCATIONS, METHODS, AND SIZES OF CONDUITS. WRITTEN APPROVAL FROM SHERIDAN P.M. IS REQUIRED PRIOR TO ANY ROUGH-INS. WITH SHERIDAN P.M. EXACT LOCATIONS, METHODS, AND SIZES OF CONDUITS.
- N-8** PROVIDE WARRANTY CERTIFICATE UPON COMPLETION OF WORK TO SHERIDAN P.M..
- N-9** COMMUNICATIONS CONTRACTOR SHALL VERIFY CAPACITY AND LOCATION OF WIRING CLOSET REQUIRED TO COMPLETE THE WORK.
- N-10** COMMUNICATIONS CONTRACTOR SHALL SUPPLY AND INSTALL STAINLESS STEEL DECORA COVERPLATES.
- N-11** ALL DATA SHALL BE FED FROM WIRING CLOSET ROOM B251. PROVIDE 1'-0" LIGHT BLUE CAT6 BELDEN CERTIFIED PATCH CABLE AT CLOSET, AND 7'-0" AT DEVICE END. LIGHT BLUE MDVO SHALL BE USED UNLESS OTHERWISE NOTED. WRITTEN APPROVAL FROM SHERIDAN P.M. IS REQUIRED PRIOR TO ANY ROUGH-INS. WITH SHERIDAN P.M. EXACT LOCATIONS, METHODS, AND SIZES OF CONDUITS.
- N-12** ALL DATA DEVICES SHALL BE LABELED AS FOLLOWS: WIRING CLOSET#-"U" #-PORT# (LOCATION ON PATCH PANEL). I.E. B251-115-47.

ALL WORK SHALL BE IN ACCORDANCE WITH SHERIDAN COLLEGE "COMMUNICATIONS INFRASTRUCTURE DESIGN GUIDE V5.01" (MARCH 24,2020)

EXACT LOCATION OF DATA DEVICES TO BE DETERMINED ON SITE.

No.	Issues/Revisions	Date
4	ISSUED FOR TENDER	NOV21/24
3	RE-ISSUED FOR 100% REVIEW	NOV15/24
2	ISSUED FOR 100% REVIEW	NOV06/24
1	ISSUED FOR REVIEW	OCT15/24

Project Name:
Trafalgar Campus -
B244 Classroom Renovation



Sheet Name:
PROPOSED COMMUNICATIONS PLAN
ELECTRICAL

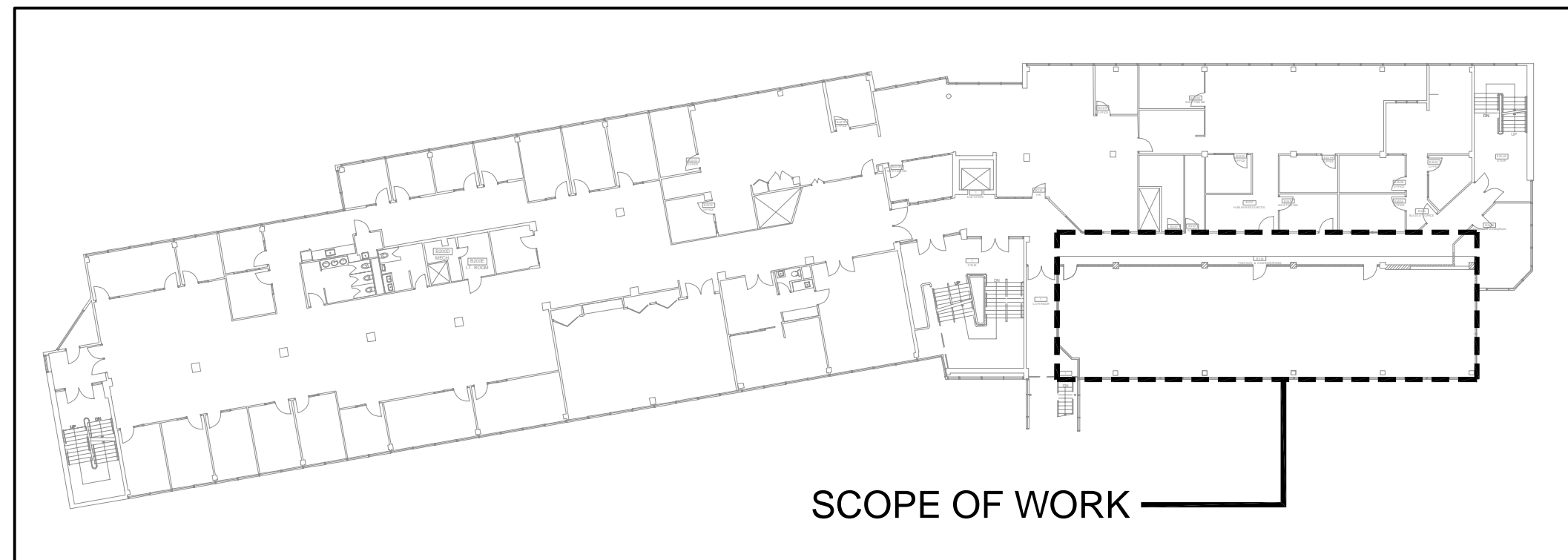
Drawn By: STAFF Checked By: TM
Issued Date: 11-09-2024

Revision: - Scale: 3/16"=1'-0"
Drawing No.: E-9

SHERIDAN TRAFALGAR CAMPUS - B244 CLASSROOM RENOVATION

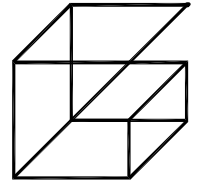
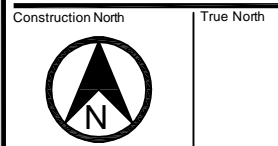
1430 TRAFALGAR ROAD
OAKVILLE, ON

MECHANICAL DRAWINGS



1 2ND FLOOR UKEYPLAN
M-0 NTS

DRAWING LIST	
DWG. NO.	DRAWING NAME
M-0	TITLE SHEET
M-1.1	MECHANICAL SPECIFICATIONS I
M-1.2	MECHANICAL SPECIFICATIONS II
M-1.3	MECHANICAL SPECIFICATIONS III AND SEQUENCE OF OPERATIONS
M-1.4	MECHANICAL LEGEND
M-1.5	MECHANICAL SCHEDULES
M-1.6	MECHANICAL DETAILS I
M-1.7	MECHANICAL DETAILS II
M-2.1	SECOND FLOOR PLAN – HVAC DEMOLITION
M-2.2	SECOND FLOOR PLAN – HVAC NEW
M-2.3	SECOND FLOOR PLAN – HYDRONICS DEMOLITION
M-2.4	SECOND FLOOR PLAN – HYDRONICS NEW



DISCLAIMER

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This drawing shall be read in conjunction with the architectural, structural, electrical and all other consultant's drawings prior to proceeding with the work. Do not scale the drawings.

The contractor is to verify and accept responsibility for all dimensions and conditions on site and must notify GIALONARDO ENGINEERING INC. of any variations from the drawings.

Consultant Seal

4 ISSUED FOR TENDER 2024-11-20

3 RE-ISSUED FOR 100% REVIEW 2024-11-19

2 ISSUED FOR 100% REVIEW 2024-11-05

1 ISSUED FOR REVIEW 2024-10-23

No. Issues/Revisions Date

Project Name: Trafalgar Campus - B244 Classroom Renovation

Seal:

Sheet Name:
TITLE SHEET

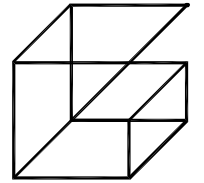
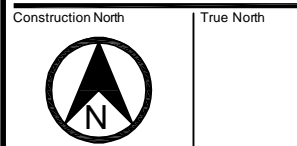
Drawn By: G.G. Checked By: J.H.

Issued Date: 11-09-2024

Project Number: 24-168 Scale: AS NOTED

Drawing No:

M-0



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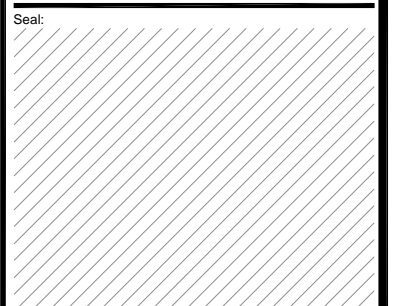
The contractor is to verify and accept responsibility for all dimensions and conditions on site and must notify GIALONARDO ENGINEERING INC. of any variations from the drawings.

Consultant Seal

4	ISSUED FOR TENDER	2024-11-20
3	RE-ISSUED FOR 100% REVIEW	2024-11-19
2	ISSUED FOR 100% REVIEW	2024-11-05
1	ISSUED FOR REVIEW	2024-10-23

No. Issues/Revisions Date

Project Name: Trafalgar Campus - B244 Classroom Renovation



MECHANICAL LEGEND

Drawn By: G.G. Checked By: J.H.
Issued Date: 11-09-2024
Project Number: 24-168 Scale: AS NOTED
Drawing No:

M-1.1

HVAC LEGEND

	EXISTING DUCTWORK/EQUIPMENT
	EXISTING DUCTWORK/EQUIPMENT TO BE REMOVED
	NEW RIGID DUCTWORK
	EXISTING FLEXIBLE DUCTWORK
	NEW FLEXIBLE DUCTWORK
	SUPPLY AIR DUCTWORK UP
	SUPPLY AIR DUCTWORK DOWN
	RETURN AIR DUCTWORK UP
	RETURN AIR DUCTWORK DOWN
S/A	'SUPPLY AIR'
R/A	'RETURN AIR'
F/D	'FIRE DAMPER'
L BD	'BALANCING DAMPER'
BDD	'BACKDRAFT DAMPER'
M/D	'MOTORIZED DAMPER'
	SQUARE SUPPLY AIR DIFFUSER
	SUPPLY AIR GRILLE
	RETURN AIR GRILLE
	THERMOSTAT
	WALL SWITCH
A-6"Ø 150CFM	DIFF TYPE/SIZE AIR CAPACITY
TYP.	'TYPICAL'
X-XX	EQUIPMENT TAG
CTE	'CONNECT TO EXISTING'
	VAV TERMINAL UNIT
	CABINET EXHAUST FAN
	INLINE EXHAUST FAN
	CIRCULAR EXHAUST FAN
	BASEBOARD HEATER
	DUCTWORK WITH ACOUSTIC OR THERMAL INSULATION (SEE SPECS.)
	DUCTWORK WITH ACOUSTIC INSULATION
	DUCTWORK WITH THERMAL INSULATION
	CONTINUATION OF DUCTWORK/PIPING
	EXISTING CONTROL WIRING
	NEW CONTROL WIRING
	SPIN-ON DUCT CONNECTION WITH BALANCING DAMPER
	DRAWING NOTE
CAP	CAP ON DUCTWORK
	BRANCH ON DUCTWORK

PIPING LEGEND

	EX.HWS	EXISTING HEATING WATER SUPPLY
	EX.HWR	EXISTING HEATING WATER RETURN
	HWS	HEATING WATER SUPPLY
	HWR	HEATING WATER RETURN
	EX.CHWS	EXISTING CHILLED WATER SUPPLY
	EX.CHWR	EXISTING CHILLED WATER RETURN
	CHWS	CHILLED WATER SUPPLY
	CHWR	CHILLED WATER RETURN
	EX.CWS	EXISTING CONDENSER WATER SUPPLY
	EX.CWR	EXISTING CONDENSER WATER RETURN
	CWS	CONDENSER WATER SUPPLY
	CWR	CONDENSER WATER RETURN
	REFL	REFRIGERANT LIQUID LINE
	REFS	REFRIGERANT SUCTION LINE
		3-PORT CONTROL VALVE
		2-WAY CONTROL VALVE
		GATE VALVE
		GLOBE VALVE
		CHECK VALVE
		CIRCUIT BALANCING VALVE
		BALL VALVE
		SAFETY RELIEF VALVE
		STRAINER
		UNION
		CONCENTRIC REDUCER
		ECCENTRIC REDUCER
N.O.		'NORMALLY OPEN'
N.C.		'NORMALLY CLOSED'
		PRESSURE GAUGE
		THERMOMETER
		AQUASTAT
AAV		AUTOMATIC AIR VENT
		BUTTERFLY VALVE
		TEST PORT
		PUMP
CAP		CAP ON PIPING
		DRAWING NOTE
		ISOLATION VALVE
HB		HOSE BIBB

GENERAL SPECIFICATIONS

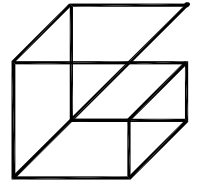
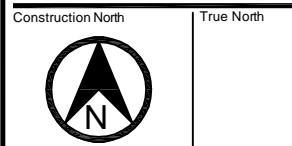
1. **GENERAL**
 - 1.1. ALL WORK PERFORMED SHALL BE IN ACCORDANCE WITH LATEST EDITION OF THE ONTARIO BUILDING CODE, CSA, ASHRAE, NFPA, ETC. WHERE CODES/STANDARD ARE PRESENT FROM MULTIPLE SOURCES, THE MOST STRINGENT SHALL BE UTILIZED.
 - 1.2. THE FOLLOWING SPECIFICATIONS FORM AN ESSENTIAL PART OF THE CONTRACT DOCUMENTS. REFER AND COORDINATE WITH ALL OTHER DIVISIONS, SECTIONS AND SPECIFICATIONS TO PROVIDE A COMPLETE AND OPERATIONAL INSTALLATION.
 - 1.3. FOR THE PURPOSE OF THESE SPECIFICATIONS, DRAWINGS AND CONTRACT DOCUMENTS, THE WORD "PROVIDE" REFERS TO THE SUPPLY, INSTALLATION AND TESTING OF THE RESPECTIVE EQUIPMENT/COMPONENTS.
 - 1.4. CONTRACTOR IS TO REPORT ALL APPARENT DISCREPANCIES BETWEEN DRAWINGS AND SPECIFICATIONS OF ALL DIVISIONS PRIOR TO TENDER SUBMISSION. NO EXCEPTIONS WILL BE GIVEN TO CONTRACTORS WHO DO NOT COMPLETELY UNDERSTAND THE SCOPE OF WORK.
 - 1.5. ALL DIV.23 WORK SHALL BE COORDINATED AND SCHEDULED WITH ALL OTHER DIVISIONS.
 - 1.6. THIS CONTRACTOR SHALL VISIT THE SITE AND COMPLETELY INVESTIGATE AND UNDERSTAND THE EXISTING CONDITIONS AND THEIR RELATION TO THE DESIGN DRAWINGS/DOCUMENTS. NO CONSIDERATION WILL BE GIVEN TO THE CONTRACTOR FOR ANY HINDRANCES TO THE MECHANICAL INSTALLATION FROM SITE CONDITIONS WHICH EXISTED PRIOR TO TENDER SUBMISSION. AS SUCH AND WHERE REQUIRED, THE CONTRACTOR SHALL PROVIDE INTERFERENCE DRAWINGS AND SHALL SUBMIT THEM TO THE CONSULTANT FOR REVIEW.
 - 1.7. PROVIDE NEW MATERIALS AND EQUIPMENT OF ACCEPTABLE QUALITY THAT ARE MANUFACTURED IN CANADA OR THE UNITED STATES AND BEAR THE APPROVAL OF RECOGNIZED NORTH AMERICAN STANDARD ASSOCIATIONS SUCH AS CSA, ASME, ETC. THE CONTRACTOR SHALL MAXIMIZE THE UTILIZATION OF CANADIAN EQUIPMENT, MATERIALS, ETC.
 - 1.8. ALL EQUIPMENT, MATERIALS, ETC. SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND RECOMMENDATIONS.
 - 1.9. THE MECHANICAL DRAWINGS DISPLAY A GENERAL DESIGN AND INSTALLATION. THEREFORE THE CONTRACTOR SHALL OBTAIN CLARIFICATION FROM THE CONSULTANT PRIOR TO INSTALLATION.
 - 1.10. THESE DRAWINGS HAVE BEEN PREPARED FOR DIV.23 AND DO NOT ACCURATELY DISPLAY ALL ELECTRICAL, STRUCTURAL AND ARCHITECTURAL ELEMENTS. REFER TO OTHER DIVISION'S DRAWINGS FOR CLARIFICATION.
 - 1.11. IN NO CASE SHALL THESE DRAWINGS BE SCALED. ALL ROUGH-IN'S SHALL BE COORDINATED WITH OTHER DIVISIONS.
 - 1.12. DO NOT PROCEED WITH WORK OUTSIDE THE SCOPE OF THE DESIGN DRAWINGS AND SPECIFICATIONS WITHOUT WRITTEN CONSENT FROM THE OWNER. THIS APPLIES TO ALL DIV.23 CHANGE NOTICES AS ISSUED BY THE CONSULTANT.
 - 1.13. IN REGARDS TO DIV.23 CHANGE NOTICES, CONTRACTOR SHALL PROVIDE A BREAKDOWN INCLUDING, BUT NOT LIMITED TO, MATERIALS, LABOUR, MARK-UP, ETC. QUOTATIONS SHALL BE BASED ON ALLPRISER FOR EQUIPMENT AND THE MECHANICAL CONTRACTORS OF AMERICA, SMAGNA, AND NATIONAL ELECTRICAL CONTRACTORS FOR LABOUR RATES.
 - 1.14. WHERE EQUIPMENT HAS BEEN PRE-PURCHASED, DIV.23 SHALL ACCEPT ALL RESPONSIBILITY FOR EQUIPMENT DELIVERY, INSTALLATION, TESTING AND WARRANTY, SIMILAR TO AS IF THE EQUIPMENT WAS PURCHASED BY DIV.23.
 - 1.15. THE CONTRACTOR SHALL WARRANTY ALL MATERIALS, EQUIPMENT, INSTALLATION AND QUALITY OF WORKMANSHIP FOR A MINIMUM OF ONE (1) YEAR UNLESS OTHERWISE NOTED.
 - 1.16. IT IS THE MECHANICAL CONTRACTOR'S RESPONSIBILITY TO PAY FOR ALL CHARGES AND DAMAGES ASSOCIATED WITH EQUIPMENT THAT IS NOT PROVIDED AS SPECIFIED AND INCLUDES NOT MEETING THE MANUFACTURER'S RATINGS, PUBLISHED DATA AND/OR THE APPLICABLE GOVERNING STANDARDS.
 - 1.17. THE CONTRACTOR MAY SUBMIT FOR ALTERNATE MATERIALS AND EQUIPMENT ONLY WHEN THE SPECIFIED ARE NOT AVAILABLE OR WILL ADVERSELY IMPACT THE COMPLETION SCHEDULE. THE CONTRACTOR SHALL COMPENSATE THE CONSULTANT FOR THEIR TIME REQUIRED TO REVIEW THE ALTERNATE SUBMITTALS.
2. **SUBMITTALS**
 - 2.1. THE CONTRACTOR SHALL SUBMIT THREE (3) HARD COPIES OF MECHANICAL SHOP DRAWINGS TO THE CONSULTANTS FOR REVIEW. ELECTRONIC SUBMISSION OF SHOP DRAWINGS SHALL BE DEEMED ACCEPTABLE UPON APPROVAL FROM CONSULTANT. THE CONTRACTOR SHALL BEAR ALL COSTS ASSOCIATED WITH THE DOCUMENT SUBMITTAL PROCESS.
 - 2.2. ALL SHOP DRAWINGS SUBMITTED FOR REVIEW MUST BEAR THE REVIEW STAMP OF THE MECHANICAL CONTRACTOR SHOP DRAWINGS THAT DO NOT BEAR THE CONTRACTOR'S STAMP WILL, WITHOUT QUESTION, BE REJECTED BY THE CONSULTANT.
 - 2.3. SHOP DRAWINGS SHALL INCLUDE ALL INFORMATION REQUIRED FOR THE CONSULTANT TO PERFORM A REASONABLE REVIEW OF THE SUBMITTALS AS THEY PERTAIN TO THE MECHANICAL DESIGN DRAWINGS AND SPECIFICATIONS.
 - 2.4. SHOP DRAWINGS SHALL HAVE THE SAME IDENTIFYING NUMBER AS NOTED IN THE MECHANICAL DRAWINGS.
 - 2.5. PROVIDE SHOP DRAWINGS WITH TECHNICAL SUBMITTALS ON ALL TYPES OF INSULATION TO BE INSTALLED.
 - 2.6. THE CONTRACTOR SHALL MAINTAIN ON SITE ONE (1) RECORD OF MECHANICAL DRAWINGS THAT SHALL INDICATE WITH RED LINES ALL PROJECT CONDITIONS, LOCATIONS, CONFIGURATIONS AND ANY OTHER CHANGES OR DEVIATIONS WHICH MAY VARY FROM THE ORIGINAL CONTRACT DOCUMENTS AND DRAWINGS. IN ADDITION, THIS SET SHALL INCLUDE REVISIONS AS A RESULT OF ALL ADDENDAS, CHANGE NOTICES, SITE INSTRUCTIONS, ETC. UPON COMPLETION OF THE PROJECT, THE CONTRACTOR SHALL SUBMIT TO THE OWNER AND ENGINEER ONE (1) COPY EACH OF A HARDCOPY AND ELECTRONIC COPY (PDF) FOR REVIEW. ONE (1) SET OF BOTH COPIES SHALL ALSO BE INCLUDED IN THE CLOSEOUT DOCUMENT PACKAGE.
 - 2.7. TWO (2) COPIES OF OPERATION AND MAINTENANCE MANUALS SHALL BE SUBMITTED TO THE CONSULTANT FOR REVIEW UPON PROJECT COMPLETION. THE

GENERAL SPECIFICATIONS

- MANUALS SHALL CONTAIN THE FOLLOWING WHERE APPLICABLE:
- DESCRIPTION OF EACH SYSTEM
 - DESCRIPTION OF EACH MAJOR COMPONENT OF SYSTEM
 - ALL SHOP DRAWINGS WITH APPROVAL STAMPS
 - EQUIPMENT MANUFACTURER'S INSTALLATION AND OPERATION MANUALS AND SPARE PARTS LIST
 - WIRING DIAGRAMS
 - LUBRICATION SCHEDULE
 - EQUIPMENT IDENTIFICATION LIST WITH SERIAL NUMBERS
 - VALVE TAG SCHEDULES AND FLOW DIAGRAMS
 - FINAL AND REVIEWED BALANCING REPORTS (AIR AND WATER)
 - WATER TREATMENT PROCEDURE AND TESTS
 - CONTROL DRAWINGS AND SEQUENCES OF OPERATION
 - AS-BUILT DRAWINGS (HARDCOPY AND ELECTRONIC)
 - WARRANTY DOCUMENTATION
3. **EXECUTION**
 - 3.1. PERIODIC INSPECTIONS OF THE WORK WILL BE CONDUCTED OVER THE COURSE OF THE PROJECT. ALL REPORTED DEFICIENCIES SHALL BE RECTIFIED BY THE CONTRACTOR IN A TIMELY FASHION. FAILURE TO DO SO WILL RESULT IN THE CONTRACTOR NOT MEETING THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.
 - 3.2. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE ALL INSPECTIONS WITH CITY AND/OR MUNICIPAL OFFICIALS AND ALL OTHER AUTHORITIES HAVING JURISDICTION.
 - 3.3. IN REGARDS TO TEMPORARY SERVICES, PROVIDE, AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION, TEMPORARY FIRE PROTECTION SYSTEMS. REFRAIN FROM USING INSTALLED SYSTEMS FROM THE CONTRACT DOCUMENTS AS A TEMPORARY SERVICES. THIS SHALL APPLY TO ALL MECHANICAL SYSTEMS INCLUDING HVAC, PLUMBING AND DRAINAGE, ETC.
 - 3.4. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING, PATCHING AND RESTORATION. WHERE REQUESTED, THE CONTRACTOR SHALL CONTRACT THE SERVICES OF THE BASE BUILDING TRADES AT DIV.23 EXPENSE.
 - 3.5. PROVISIONS SHALL BE MADE FOR THE PROTECTION OF DIV.23 WORK UNTIL THE COMPLETION OF THE PROJECT. THIS MAY INCLUDE, BUT NOT LIMITED TO, COVERING OF EQUIPMENT OPENINGS AND DUCTWORK, PLUMBING FIXTURES, FLOOR DRAINS, ETC.
 - 3.6. UPON COMPLETION OF CONSTRUCTION, CONTRACTOR SHALL MAKE ALL FINAL ADJUSTMENTS TO EQUIPMENT AS WELL AS REMOVE ALL PROTECTION. ALL INSTALLATIONS SHALL BE CLEANED THOROUGHLY AND TESTED FOR PROPER OPERATION. CHANGE ALL AIR AND WATER FILTERS AS REQUIRED.
 - 3.7. IN REGARDS TO INTERRUPTION OF SERVICES, THE CONTRACTOR SHALL CARRY OUT THEIR WORK IN A MANNER THAT CAUSES THE LEAST DISTURBANCE TO THE OWNER. PROVIDE NOTIFICATION TO THE OWNER IN WRITING WITH AT LEAST 72 HOURS OF THE SCHEDULED INTERRUPTION.
 - 3.8. ARRANGE AND PAY FOR THE SAFE DISPOSAL OF REMOVED ITEMS AS SPECIFIED. PROVIDE PROOF OF SAFE DISPOSAL FOR ITEMS SUCH AS HVAC REFRIGERANT. COORDINATE THE TIME AND METHOD OF DISPOSAL WITH THE OWNER. FOR EXAMPLE, CLEARLY INDICATE THE ROUTE THAT WILL BE TAKEN FROM THE INSIDE OF THE BUILDING TO THE OUTDOORS, AS WELL AS THE STORAGE LOCATION OUTDOORS IF APPLICABLE.
 - 3.9. WHERE COMPONENTS ARE TO BE REUSED, THE CONTRACTOR SHALL CLEAN AND TEST THE COMPONENT TO ENSURE PROPER OPERATION. THE CONSULTANT SHALL BE NOTIFIED IN THE EVENT THERE IS A DEFICIENCY WITH THE COMPONENT.
 - 3.10. PERFORM WORK SO AS TO CAUSE MINIMAL DISTURBANCE TO OWNER AND/OR ADJACENT AREAS. MINIMIZE DUST AND NOISE AND PROVIDE TEMPORARY AIR FILTERS ON AIR HANDLING SYSTEMS AFFECT BY THE AREA OF WORK. ALL COSTS ASSOCIATED WITH DAMAGES AS A RESULT OF THE MECHANICAL INSTALLATION SHALL BE COVERED BY DIV.23. MAINTAIN SAFETY STANDARDS AND PROVIDE ADEQUATE SIGNAGE FOR BOTH WORKERS AND OCCUPANTS.
 - 3.11. WHERE CUTTING OR CORE DRILLING OF THE EXISTING CONCRETE STRUCTURE IS REQUIRED, THE MECHANICAL CONTRACTOR SHALL CONTRACT THE SERVICES OF AN EXPERIENCED AND REPUTABLE COMPANY TO CARRY OUT X-RAYING. THE RESULTS SHALL BE SUBMITTED TO THE BASE BUILDING STRUCTURAL ENGINEER AND NOT CUTTING OR CORING SHALL TAKE PLACE UNTIL WRITTEN APPROVAL IS RECEIVED. THE CONTRACTOR SHALL PROVIDE A WRITTEN REQUEST TO PERFORM X-RAYING WITH AT LEAST 72 HOURS IN ADVANCE.
 4. **IDENTIFICATION OF MECHANICAL SERVICES**
 - 4.1. PROVIDE SMS WRAP-MARK ON ALL PIPE COVERINGS WITH FLOW ARROW AND ALTERNATING WORDING. COVERING COLOURS SHALL MATCH BASE BUILDING. IN THE CASE WHERE THERE IS NO EXISTING STANDARD, INDUSTRY STANDARDS SHALL BE FOLLOWED.
 - 4.2. USE STENCILS AND STENCIL PAINT ON DUCTWORK AND DUCTWORK INSULATION WITH BLACK CAPITALIZED LETTERS 2" (50 MM) HIGH AND SOLID BLACK FLOW ARROWS.
 - 4.3. IDENTIFICATION OF PIPING AND DUCTWORK SHALL BE PROVIDED AT THE FOLLOWING LOCATIONS:
 - AT LEAST ONCE IN EACH ROOM
 - AT EACH PIECE OF EQUIPMENT
 - AT EACH BRANCH CLOSE TO THE CONNECTION POINT AT MAIN
 - AT NOT GREATER INTERVALS OF 50 FT. (15 M) ON STRAIGHT RUNS OF EXPOSED PIPING AND DUCTWORK.
 - AT ENTRY AND LEAVING POINT TO PIPE AND DUCT CHASES, OR OTHER CONCEALED SPACES
 - BOTH SIDES WHERE PIPING AND DUCTWORK PASSES THROUGH WALL, PARTITIONS AND FLOORS
 - ON VERTICAL PIPES AND DUCTS APPROXIMATELY 6 FT. (1800 MM) A.F.F.
 - BEHIND EACH ACCESS DOOR AND PANEL
 - 4.4. PROVIDE IDENTIFICATION FOR PIPING CONTAINING ELECTRICAL HEAT TRACING.
 - 4.5. TAG ALL VALVES, EXCEPT SMALL VALVES ISOLATING EQUIPMENT, WITH BRASS TAGS AND HIGH DIE-STAMPED BLACK LETTERS ATTACHED TO VALVES WITH 4" BRASS CHAINS.
 - 4.6. PROVIDE IDENTIFICATION FOR ALL NEW EQUIPMENT, STARTERS AND REMOTE CONTROL DEVICES WITH LAMACOID LABELS ENGRAVED WITH WHITE LETTERING AND A BLACK BACKGROUND. THE MINIMUM LETTERING SIZE SHALL BE 3/8" (10 MM).
 5. **ACCESS DOORS AND PANELS**
 - 5.1. PROVIDE ADEQUATE ACCESS TO CONCEALED EQUIPMENT AND COMPONENTS THAT

GENERAL SPECIFICATIONS

- REQUIRE ACCESS FOR MAINTENANCE, ADJUSTMENT AND INSPECTION. PROVIDE MARKING TO THE OWNER'S SATISFACTION THE LOCATIONS WHERE CONCEALED EQUIPMENT IS LOCATED.
- 5.2. ENSURE THAT THE SIZE OF THE DOOR COMPLIES WITH THE MANUFACTURER'S SUGGESTED ACCESS REQUIREMENTS.
 - 5.3. COORDINATE ALL ACCESS DOOR AND PANEL SIZES AND LOCATIONS WITH ARCHITECT/INTERIOR DESIGNER.
 6. **FLASHING, CURBS AND CONCRETE**
 - 6.1. FLASHING SHALL BE CARRIED OUT AS SHOWN ON ARCHITECTURAL AND/OR STRUCTURAL DRAWINGS AT THE EXPENSE OF DIV.23.
 - 6.2. ALL CURBS REQUIRED FOR MECHANICAL EQUIPMENT SHALL BE CARRIED OUT AS SHOWN ON ARCHITECTURAL AND/OR MECHANICAL DRAWINGS AT THE EXPENSE OF DIV.23. CURBS SHALL BE INSTALLED AT LEAST 14" ABOVE THE ROOF LEVEL.
 - 6.3. PREMANUFACTURED EQUIPMENT CURBS SHALL BE SUPPLIED BY THE EQUIPMENT MANUFACTURER.
 - 6.4. PROVIDE 4" (100 MM) THICK CONCRETE HOUSEKEEPING PADS WHERE INDICATED ON ARCHITECTURAL AND/OR STRUCTURAL DRAWINGS.
 7. **FIRESTOPPING**
 - 7.1. PROVIDE FIRE STOPPING SYSTEMS AND PRODUCTS FOR ALL DUCTS, PIPING, ETC. PENETRATING FIRE SEPARATIONS THAT ARE ULC LISTED AND COMPLY WITH CAN4-S115S AND THE AUTHORITIES HAVING JURISDICTION.
 - 7.2. MAINTAIN ALL FLOOR AND WALL FIRE RATINGS TO COMPLY WITH BASE BUILDING STANDARDS AND THE AUTHORITIES HAVING JURISDICTION.
 8. **PIPE, DUCT AND EQUIPMENT INSTALLATION**
 - 8.1. INSTALL ALL PIPING, DUCTWORK AND EQUIPMENT TO PROVIDE ADEQUATE CLEARANCES FOR SERVICING AS WELL AS MAXIMUM USABLE SPACE FOR ALL OTHER DIVISIONS.
 - 8.2. INSTALL PIPING AND DUCTWORK STRAIGHT, IN A NEAT AND CLEAN FASHION AND TIGHT TO STRUCTURES ABOVE (UNLESS OTHERWISE NOTED).
 - 8.3. TAKE MEASURES TO PROTECT COPPER PIPING CORROSION FROM CONTACT WITH DISSIMILAR METALS.
 9. **HANGERS AND SUPPORTS**
 - 9.1. PROVIDE HANGER SYSTEMS FOR ALL DUCTWORK, PIPING AND EQUIPMENT TO RENDER A SAFE AND FUNCTIONAL INSTALLATION. HANGER RODS SHALL BE ATTACHED DIRECTLY TO THE STRUCTURE AND IN NO WAY SHALL BE ATTACHED TO OTHER MECHANICAL COMPONENTS OR CEILING SYSTEMS. WHERE COMPONENTS ARE TO BE SUSPENDED BETWEEN JOISTS OR BEAMS, PROVIDE AUXILIARY STEEL CHANNELS TO SUIT.
 - 9.2. FOR GENERAL CONDITIONS, PROVIDE ROUND STEEL THREADED RODS CONFORMING TO ASTM A-36. WHERE SPECIAL CONDITIONS EXIST, SUCH AS HIGH HUMIDITY OR EXPOSURE TO ELEMENTS, PROVIDE HANGER COMPONENTS TO SUIT.
 - 9.3. IN REGARDS TO ALL PIPING, PROVIDE SUPPORTS AT CONNECTION (SUCH AS HUB) AND AT EVERY CHANGE IN DIRECTION.
 10. **STRUCTURAL AND SEISMIC**
 - 10.1. WHERE THERE IS NO STRUCTURAL DIVISION AS PART OF THE PROJECT, IT SHALL BE THE MECHANICAL CONTRACTOR'S RESPONSIBILITY TO PROVIDE STRUCTURAL REINFORCING FOR ALL DIV.23 INSTALLATIONS. THE CONTRACTOR SHALL OBTAIN THE SERVICES OF A LICENSED PROFESSIONAL ENGINEER WHO IS TO PROVIDE A DESIGN BEARING THEIR PROFESSIONAL SEAL. THE CONTRACTOR SHALL APPLY FOR BUILDING PERMIT AND ASSUME ALL RESPONSIBILITY AND COST FOR THE PERMIT PROCESS. UPON COMPLETION OF WORK, CONTRACTOR SHALL SUBMIT A LETTER FROM THE STRUCTURAL ENGINEER COMPLETE WITH PROFESSIONAL SEAL TO INDICATE THAT THE WORK HAS BEEN COMPLETED TO THE ONTARIO BUILDING CODE, ALL OTHER RELEVANT CODES AND STANDARDS AND TO THE AUTHORITIES HAVING JURISDICTION.
 - 10.2. IT IS THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR TO COORDINATE THE REQUIREMENTS FOR SEISMIC BRACING AND SUPPORTS WITH STRUCTURAL DRAWINGS. DIV.23 SHALL CONTRACT THE SERVICES OF A LICENSED PROFESSIONAL ENGINEER TO DESIGN SUPPORTS AND BRACING IN ACCORDANCE WITH ALL CURRENT CODES AND THAT MATCHES THE REQUIREMENT OF THE LOCATION IN WHICH THE SYSTEMS ARE BEING INSTALLED. UPON COMPLETION OF THE PROJECT, SEISMIC ENGINEER SHALL PROVIDE A LETTER BEARING THEIR PROFESSIONAL SEAL INDICATING THAT THE INSTALLATION MEETS THE SEISMIC DESIGN DOCUMENT AND CONFORMS TO THE BUILDING CODE AND THE AUTHORITIES HAVING JURISDICTION.
 11. **ELECTRICAL**
 - 11.1. ALL ELECTRICAL MOTORS, STARTERS, CONTACTORS, DISCONNECT SWITCHES AND CONTROL DEVICES FOR DIV.23 WORK SHALL BE PROVIDED BY DIV.23.
 - 11.2. DIV.26 SHALL BE RESPONSIBLE FOR POWERING LOAD SIDE OF STARTERS AND CONTACTORS, POWER FOR ELECTRICAL HEAT TRACING AND CONTROLS, LINE SIDE POWER TO LOOSE STARTERS AND DISCONNECTS.
 - 11.3. ALL LOW VOLTAGE WIRING AND CONNECTION IS TO BE PROVIDED BY THE MECHANICAL CONTRACTOR.
 - 11.4. WHERE THERE IS NO DIV.26 (ELECTRICIAN) AS PART OF THE PROJECT, THE MECHANICAL CONTRACTOR SHALL CONTRACT THE SERVICES OF A LICENSED ELECTRICAL CONTRACTOR AND OBTAIN THE APPROPRIATE INSPECTIONS AND APPROVALS FOR THE INSTALLATION OF ALL ELECTRICAL WORK REQUIRED FOR MECHANICAL SYSTEMS.
 12. **PROJECT CLOSEOUT**
 - 12.1. PRIOR TO THE ISSUING OF A PROJECT COMPLETION NOTICE OR A SIGN-OFF LETTER, THE FOLLOWING DOCUMENTS, AT A MINIMUM, MUST BE PROVIDED TO THE ENGINEER FOR REVIEW:
 - AIR BALANCING REPORT
 - NFPA-13 LETTER
 - APPLICABLE SYSTEM/EQUIPMENT TESTING REPORT



DISCLAIMER

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This drawing shall be read in conjunction with the architectural, structural, electrical and all other consultant's drawings prior to proceeding with the work. Do not scale the drawings.

The contractor is to verify and accept responsibility for all dimensions and conditions on site and must notify GIALNONARDO ENGINEERING INC. of any variations from the drawings.

Consultant Seal

4 ISSUED FOR TENDER 2024-11-20

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No. Issues/Revisions Date

Project Name: Trafalgar Campus -

B244 Classroom Renovation

Seal:

Sheet Name:

MECHANICAL
SPECIFICATIONS I

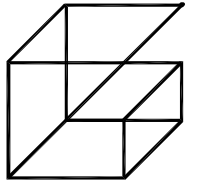
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M-1.2



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Consultant Seal

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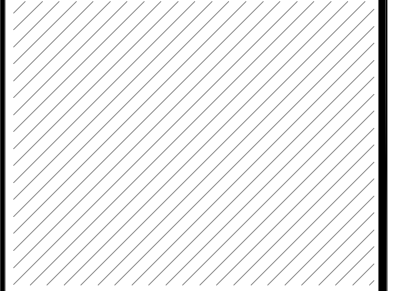
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MECHANICAL SPECIFICATIONS II

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Project Number: 24-188 Scale: AS NOTED

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M-1.3

HVAC SPECIFICATIONS

1. PROVIDE ALL LABOUR AND MATERIALS TO SUPPLY AND INSTALL THE DUCTWORK AND SHEET METAL SYSTEMS AS INDICATED ON MECHANICAL DRAWINGS. THIS INCLUDES INSTALLING THE DUCTWORK, ACCESSORIES, ASSOCIATED ITEMS AND ALL NECESSARY CONNECTIONS TO OUTLETS, INLETS AND EQUIPMENT TO PROVIDE A COMPLETE SYSTEM.
2. UNLESS OTHERWISE NOTED, FABRICATE ALL DUCTWORK SYSTEMS, INCLUDING DUCTWORK, HOUSINGS, DAMPERS AND ACCESS DOORS, WITH GALVANIZED STEEL SHEET METAL MEETING ASTM A653 AND A924. CONSTRUCTION OF THE DUCTWORK SYSTEMS SHALL BE IN STRICT ACCORDANCE WITH SMACNA, SMACNA DUCT CLEANLINESS AND ASHRAE. ALL DUCTWORK SHALL BE SMOOTH ON THE INSIDE AND SHALL BE FREE FROM RATTLING OR VIBRATION. DUCTWORK NOT MEETING THESE STANDARDS WILL BE REPLACED AT NO EXTRA CHARGE TO THE OWNER.
3. CONSTRUCT DUCTWORK AND SEAL ACCORDING TO THE APPROPRIATE SMACNA STANDARDS. LOW PRESSURE DUCTWORK SHALL BE CONSTRUCTED WITH THE ONE (1) INCH PRESSURE CLASSIFICATION AND ALL OTHER DUCTWORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE THREE (3) INCH CLASSIFICATION. DUCT PRESSURES SHALL BE CLASSIFIED AS FOLLOWS:
 - 3.1. LOW: DUCT PRESSURES (LOW) OF 1/2" TO 2" W.C. AND NOT EXCEEDING AN AIR VELOCITY OF 2000 FPM.
 - 3.2. MEDIUM: DUCT PRESSURES EXCEEDING 2" W.C. OR AND AIR VELOCITY OF 2000 FPM.
 - 3.3. THREE INCH: ALL VARIABLE AIR VOLUME (VAV) SUPPLY AIR DUCT SYSTEMS AND AIR DUCTWORK SYSTEMS EXPOSED TO THE OUTDOORS.
4. FLEXIBLE DUCTWORK
 - 4.1. PROVIDE, WHERE INDICATED ON MECHANICAL DRAWINGS, FLEXIBLE DUCTWORK EQUAL TO FLEXMASTER TRIPLE LOCK ALUMINUM DUCTWORK. THE PRESSURE RATING OF THE DUCTWORK SHALL MATCH THE DUCTWORK SYSTEM TO WHICH IT IS ATTACHED. MATCH THE DUCTWORK SIZE TO THE CONNECTION OUTLET OF THE AIR TERMINAL.
 - 4.2. SECURE FLEXIBLE DUCTWORK USING GEAR CLAMPS WITH AN ADJUSTING WORM DRIVE TYPE SCREW. SEAL AROUND CONNECTION WITH DUCT TAPE TO OBTAIN THE APPROPRIATE SMACNA SEAL CLASS.
 - 4.3. MAXIMUM LENGTH OF FLEXIBLE DUCTWORK PERMITTED IN LOW PRESSURE SYSTEMS IS 10'-0" AND 4'-0" IN ALL OTHER HIGHER PRESSURE SYSTEMS.
5. ALL DUCT DIMENSIONS SHOWN ON DRAWINGS ARE CLEAR INSIDE DIMENSIONS. CONTRACTOR TO TAKE INTO ACCOUNT DUCT LINERS, ETC. WHEN PERFORMING TAKE-OFFS.
6. MAKE ALL DUCT CONNECTIONS, CONCENTRIC AND ECCENTRIC TRANSITIONS, ETC., IN ACCORDANCE WITH SMACNA.
7. PROVIDE DUCT ACCESS DOORS AT LOCATIONS AS SHOWN ON DRAWINGS, AS WELL AS AT THE LINKAGE SIDE OF AUTOMATIC DAMPERS, FIRE DAMPERS AND ANY OTHER SERVICE, BALANCE OR CONTROL DEVICE REQUIRING PERIODIC MAINTENANCE. THE DOORS SHALL BE CONSTRUCTED IN ACCORDANCE WITH SMACNA AND SHALL MATCH THE PRESSURE RATING OF THE DUCTWORK SYSTEM TO WHICH IT IS BEING INSTALLED.
8. PROVIDE FLEXIBLE CONNECTIONS AT THE INLET AND OUTLET CONNECTION FOR EACH FAN BETWEEN DUCTWORK AND INLET AND OUTLET COLLARS. FLEXIBLE CONNECTIONS SHALL BE CONSTRUCTED OF NON-COMBUSTIBLE NEOPRENE COATED FIBERGLASS FABRIC. FOR OUTDOOR CONNECTIONS, PROVIDE A CONNECTOR THAT IS SUITABLE FOR EXPOSURE TO SUNLIGHT AND THE ELEMENTS.
9. PROVIDE FIRE DAMPERS WHERE INDICATED ON MECHANICAL DRAWINGS. ALL DAMPERS SHALL BE SELECTED TO SUIT THE RATING OF THE FLOOR OR WALL ASSEMBLY IN WHICH IT WILL BE INSTALLED. FIRE DAMPERS SHALL BE ULC LISTED AND INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS, NFPA 90A AND THE AUTHORITIES HAVING JURISDICTION. TYPE A FIRE DAMPERS ARE PERMITTED FOR NON-DUCTED TRANSFER DUCTWORK. TYPE B FIRE DAMPERS SHALL BE USED IN ALL OTHER CASES UNLESS OTHERWISE NOTED.
 - 9.1. REMOVABLE DUCT SECTIONS FOR FIRE AND SMOKE DAMPER ACCESS: WHERE A MINIMUM 12"x12" ACCESS PANEL CAN NOT BE INSTALLED ON DUCTWORK, A REMOVABLE DUCTWORK SECTION FOR DAMPER INSPECTION AND MAINTENANCE SHALL BE PROVIDED. REMOVABLE DUCTWORK SECTION TO FUNCTION WITHOUT THE USE OF TOOLS AND SHALL NOT BE MORE THAN 4" AWAY FROM THE FIRE DAMPER SLEEVE BREAK AWAY CONNECTION.
10. MANUAL BALANCING DAMPERS INSTALLED IN DUCTWORK NOT EXCEEDING 12" ON THE LONGEST SIDE SHALL BE CONSTRUCTED AS PER SMACNA. PROVIDE OPPOSED BLADE DAMPERS WHERE THE DIMENSION OF THE LONGEST SIDE OF THE DUCTWORK EXCEEDS 12", OPPOSED BLADE DAMPERS SHALL BE OF GALVANIZED STEEL CONSTRUCTION WITH LOCK SCREWS AT OPPOSITE ENDS. PROVIDE BALANCING DAMPERS WHERE SHOWN ON DRAWING AS WELL AS ON BRANCHES OFF OF MAIN DUCTWORK WITH ADEQUATE ACCESS.
11. PROVIDE ALL DIFFUSERS, REGISTERS, GRILLES, ETC. OF TYPE AND SIZE AS INDICATED ON MECHANICAL DRAWINGS. CONFIRM ALL AIR TERMINAL COLOURS WITH ARCHITECT/INTERIOR DESIGNER, REGARDLESS OF SPECIFICATION ON MECHANICAL DRAWINGS. MECHANICAL CONTRACTOR IS TO COORDINATE INSTALLATION OF DOOR GRILLES WITH ARCHITECTURAL DRAWINGS AND GENERAL CONTRACTOR.
12. PROVIDE DUCTWORK INSULATION AND LINERS WHERE NOTED ON MECHANICAL DRAWINGS, AS PER THE FOLLOWING:
 - 12.1. ACOUSTIC LINING:
 - 12.1.1. DUCT LINING SHALL COMPLY WITH NFPA 90A AND DUCT LINER MATERIALS STANDARD OF THE THERMAL INSULATION MANUFACTURER'S ASSOCIATION.
 - 12.1.2. RECTANGULAR DUCTWORK: PROVIDE ONE INCH (1") THICK ACOUSTIC LINING EQUAL TO JOHNS MANVILLE LINACOUSTIC RC COMPLETE WITH PERMACOTE ACRYLIC ANTI-MICROBIAL COATING.
 - 12.1.3. SPIRAL DUCTWORK: PROVIDE ONE INCH (1") THICK ACOUSTIC LINING EQUAL TO JOHNS MANVILLE SPINACOUSTIC PLUS ROUND DUCT LINER SYSTEM

HVAC SPECIFICATIONS

- COMPLETE WITH PERMACOTE ANTI-MICROBIAL COATING.
- 12.1.4. PROVIDE ACOUSTIC LINING AS SPECIFIED ON ALL SUPPLY, RETURN AND EXHAUST FAN EQUIPMENT FOR 10'-0" (3.0 M) FROM THE INLET/OUTLET.
 - 12.2. THERMAL INSULATION
 - 12.2.1. PROVIDE THERMAL INSULATION WHERE NOTED ON MECHANICAL DRAWINGS. INSULATE ALL DUCTWORK LEAVING OR ENTERING THE BUILDING FOR THE FIRST 6 FT. FROM THE BUILDING PENETRATION WITH 2" OF THERMAL INSULATION.
 - 12.2.2. RECTANGULAR DUCTWORK: PROVIDE ONE INCH (1") JOHNS MANVILLE SERIES 814 SPIN-GLAS FIBER GLASS DUCT BOARD INSULATION WITH FSK FACING. IMPALE ON MECHANICALLY FASTENED PINS LOCATED AT NOT MORE THAN 12" ON CENTRE, AND SECURE WITH SPEED WASHERS.
 - 12.2.3. RIGID ROUND (SPIRAL) DUCTWORK: PROVIDE ONE INCH (1") JOHNS MANVILLE MICROLITE EQ FSK FIBER GLASS DUCT WRAP INSULATION WHERE INDICATED ON DRAWINGS. ADHERE INSULATION TO DUCT SURFACE AND LAP ALL EDGES AT LEAST 2". SEAL JOINTS WITH 4" WIDE ALUMINUM FOIL TAPE.
 - 12.2.4. FLEXIBLE DUCTWORK: PROVIDE ONE INCH (1.25") JOHNS MANVILLE FLEX-GLAS EQ FLEXIBLE DUCTWORK INSULATION WITH FSK FACING. LAP JOINTS AND SEAL WITH 4" WIDE ALUMINUM FOIL TAPE.
 - 12.2.5. WHERE DUCTWORK IS INSTALLED OUTSIDE THE BUILDING OR EXPOSED TO THE ELEMENTS, PROVIDE TWO INCHES (2") OF THERMAL INSULATION, BUTT JOINTS TIGHTLY TOGETHER AND SEAL WASHERS, BREAKS AND JOINTS WITH SELF-ADHERING FOUR INCHES (4") WIDE PLAIN ALUMINUM TAPE, OR ADHERE FOIL WITH CHILDERS CP82 OR BAKELITE 230-39 ADHESIVE.
 - 12.3. JACKETING
 - 12.3.1. RECOVER ALL DUCTWORK OUTSIDE THE BUILDING OR EXPOSED TO THE ELEMENTS WITH ALUMINUM JACKETING TO ASTM B209 WITH MOISTURE BARRIER, THICKNESS 0.50MM SHEET, STUCCO EMBOSSED FINISH, JACKET BANDING AND MECHANICAL SEALS 12MM WDE AND 0.5MM THICK STAINLESS STEEL.
 13. HVAC BALANCING
 - 13.1. PROVIDE BALANCING OF ALL AIR AND WATER SYSTEMS AS INDICATED ON MECHANICAL DRAWINGS. THE BALANCING CONTRACTOR SHALL HAVE A MINIMUM OF FIVE (5) YEARS EXPERIENCE AND BE NEBB CERTIFIED. ALL BALANCING, TESTING ADJUSTING AND REPORTING SHALL BE CARRIED OUT IN ACCORDANCE WITH NEBB, PROCEDURAL STANDARDS FOR TESTING, ADJUSTING AND BALANCING OF ENVIRONMENTAL SYSTEMS. WHERE APPLICABLE, THE MECHANICAL CONTRACTOR SHALL CONTRACT THE SERVICES OF THE BASE BUILDING APPROVED TAB CONTRACTOR.
 - 13.2. PERFORM TESTING AND BALANCING PROCEDURES ON EACH SYSTEM ACCORDING TO THE CURRENT EDITION OF THE NEBB STANDARDS. MARK EQUIPMENT AND BALANCING DEVICE SETTING WITH PAINT OR OTHER SUITABLE PERMANENT IDENTIFICATION MATERIAL TO SHOW FINAL SETTINGS.
 - 13.3. BALANCE AIRFLOW AND HYDRONIC FLOW QUANTITIES WITHIN +/- 10% OF THE DESIGN CRITERIA. IN THE EVENT THAT A CONDITION OR DEFICIENCY IS PREVENTING THE ACCEPTANCE RANGE FROM BEING ACHIEVED, IT SHALL BE NOTED WITH DESCRIPTION ON THE TAB REPORT. UPON COMPLETION, SUBMIT A FINAL TAB REPORT TO THE CONSULTANT FOR REVIEW.
 14. CONTROLS
 - 14.1. PROVIDE ALL CONTROLS, WIRING, CONDUIT, ACCESSORIES, ETC. AND INTERLOCK WITH EQUIPMENT/STARTERS AS INDICATED ON DRAWINGS.
 - 14.2. WHEN INSTALLED IN CEILING PLENUMS, CABLE MAY BE FREE-AIR, UNLESS OTHERWISE NOTED, PROVIDING THE WIRING IS FT-6 PLENUM RATED.
 - 14.3. WHEN INSTALLED IN OPEN AREAS, PROVIDE EMT CONDUIT, FITTINGS, MOUNTING ACCESSORIES, ETC. TO DELIVER A NEAT AND CLEAN INSTALLATION.
 - 14.4. MOUNTING HEIGHTS:
 - 14.4.1. OCCUPANT ADJUSTABLE: MOUNT AT 3'-11" (1200 MM) A.F.F.
 - 14.4.2. NON-AJUSTABLE (SENSOR ONLY): MOUNT AT 5'-0" (1500 MM) A.F.F.

****CONFIRM MOUNTING HEIGHTS WITH CONSULTANT PRIOR TO INSTALLATION.**

 - 14.5. COORDINATE INSTALLATION OF ALL CONTROL DEVICES/SENSORS WITH ARCHITECTURAL DRAWINGS.
 - 14.6. INSTALL CONTROL DEVICES/SENSORS CLEAR OF DIMMERS SO AS TO AVOID INTERFERENCE.
 - 14.7. THE MECHANICAL CONTRACTOR SHALL TEST ALL CONTROLS/INTERLOCKS FOR GOOD OPERATION PRIOR TO PROJECT CLOSE-OUT. PROVIDE A REPORT FOR REVIEW TO THE ENGINEER INDICATING DEFICIENCIES.
 - 14.8. WIRE ALL DEVICES TO THEIR RESPECTIVE MAGNETIC STARTERS AND PROVIDE POWER TO DIV.23 CONTROL PANELS FROM NEAREST AND MOST SUITABLE ELECTRICAL PANEL.
 - 14.9. CONTRACT THE SERVICES OF THE BASE BUILDING APPROVED CONTROLS CONTRACTOR WHERE APPLICABLE.
 - 14.10. PNEUMATIC CONTROLS
 - 14.10.1. PROVIDE TYPE M SEAMLESS COPPER TUBING THAT COMPLIES WITH ASTM B280, WROUGHT COPPER FITTINGS THAT COMPLY WITH ANSI/ASME B16.22, AND JOINTS THAT COMPLY WITH ANSI/ASTM B32.
 - 14.10.2. CONCEAL TUBING, UNLESS LOCATED IN MECHANICAL ROOMS, AND MECHANICALLY FASTEN TO SUPPORTING STRUCTURES. PURGE TUBING WITH OIL-FREE COMPRESSED AIR BEFORE CONNECTING TO CONTROL INSTRUMENTS.

HYDRONIC SYSTEMS SPECIFICATIONS

1. PRODUCTS
 - 1.1. PIPE
 - 1.1.1. PROVIDE SCHDULE 40 (NPS) STEEL PIPE CONFORMING TO ASTM-A53/A53M, GRADE B
 - 1.2. PIPE JOINTS
 - 1.2.1. FOR NPS 2"Ø AND SMALLER, USE SCREWED FITTING WITH PTFE TAPE OR LEAD-FREE PIPE DOPE.
 - 1.2.2. FOR NPS 2-1/2"Ø AND OVER: WELDED FITTINGS AND FLANGES TO CAN/CSA-W48.
 - 1.2.3. ROLL GROOVED: RIGID COUPLINGS TO CSA B242.
 - 1.2.4. FLANGES: PLAIN ASME B16.1, RAISED FACE, SLIP-ON OR WELD NECK TO ASME B16.5.
 - 1.2.5. ORIFICE FLANGES: SLIP-ON RAISED FACE, 2100 kPa.
 - 1.2.6. FLANGE GASKETS TO AWWA C111
 - 1.2.7. PIPE THREAD SHALL BE TAPERED.
 - 1.2.8. BOLTS AND NUTS TO ASME B18.2.1 AND ASME B18.2.2.
 - 1.2.9. ROLL GROOVED COUPLING GASKETS: NPS 2"Ø TO 8"Ø, TYPE EHP, EPDM HIGH PERFORMANCE, -40°C TO 120°C FOR CONTINUOUS OPERATION.
 - 1.3. FITTINGS
 - 1.3.1. SCREWED FITTINGS SHALL BE MALLEABLE IRON CONFORMING TO ASME B16.3, CLASS 150.
 - 1.3.2. PIPE FLANGES AND FLANGED FITTINGS:
 - 1.3.2.1. CAST IRON TO ASME B16.1, CLASS 125
 - 1.3.2.2. STEEL TO ASME B16.5
 - 1.3.3. BUTT-WELDED FITTINGS, STEEL, TO ASME B16.9.
 - 1.3.4. UNIONS SHALL BE MALLEABLE IRON CONFORMING TO ASTM-A47/A47M AND ASME B16.3.
 - 1.3.5. FITTINGS FOR ROLL GROOVED PIPING, MALLEABLE IRON TO ASTM-A47/A47M, DUCTILE IRON TO ASTM-A536.
 - 1.4. VALVES
 - 1.4.1. CONNECTIONS:
 - 1.4.1.1. NPS 2"Ø AND SMALLER: SCREWED ENDS.
 - 1.4.1.2. NPS 2-1/2"Ø AND LARGER: FLANGED OR GROOVED ENDS.
 - 1.4.2. GATE VALVES TO MSS-SP-70 AND MSS-SP-80 FOR ISOLATING EQUIPMENT, CONTROL VALVES, ETC.
 - 1.4.2.1. NPS 2"Ø AND SMALLER: BRONZE, CLASS 125 RISING STEM, SOLID WEDGE DISC.
 - 1.4.2.2. NPS 2-1/2"Ø AND OVER: CAST IRON, RISING STEM, SOLID WEDGE DISC, LEAD FREE BRONZE TRIM.
 - 1.4.3. BUTTERFLY VALVES TO MSS-SP-67 FOR ISOLATING CELLS OR SECTIONS OF MULTIPLE COMPONENT EQUIPMENT. FOR NPS 2-1/2"Ø AND OVER: LUG TYPE OR GROOVED ENDS.
 - 1.4.4. GLOBE VALVES TO MSS-SP-80 AND 85 FOR THROTTLING, FLOW CONTROL AND EMERGENCY BYPASS.
 - 1.4.4.1. NPS 2"Ø AND SMALLER: BRONZE, WITH PLUG DISC.
 - 1.4.4.2. NPS 2-1/2"Ø AND OVER: CAST IRON, COMPOSITION BRONZE DISC AND BRONZE TRIM.
 - 1.4.5. BALANCING FOR TAB
 - 1.4.5.1. NPS 2"Ø AND SMALLER: COPPER ALLOY BODY THREADED, 2.1 MPa RATING, GLOBE STYLE, SELF SEALING MEASURING PORTS FOR TEMPERATURE AND PRESSURE PROBES, LOCKING TAMPER PROOF SETTING, WITH PLUG DISC. COMBINATION BALANCING VALVE, STRAINER AND DRAIN BALL VALVE MAY ALSO BE USED IN LIEU OF STANDARD VALVE.
 - 1.4.5.2. NPS 2-1/2"Ø AND OVER: DUCTILE IRON BODY, FLANGED OR GROOVED CONNECTIONS, 1700 kPa RATING MINIMUM, GLOBE STYLE, SELF-SEALING MEASUREMENT PARTS FOR TEMPERATURE OR PRESSURE PROBES, LOCKING TAMPER PROOF SETTING.
 - 1.4.6. DRAIN VALVES BRONZE, GATE, CLASS 125 NON-RISING STEM, SOLID WEDGE DISC.
 - 1.4.7. SWING CHECK VALVES TO MSS-SP-71
 - 1.4.7.1. NPS 2"Ø AND SMALLER: BRONZE, CLASS 125 SWING WITH COMPOSITION DISC.
 - 1.4.7.2. NPS 2-1/2"Ø AND OVER: CAST IRON, FLANGED OR GROOVED ENDS.
 - 1.4.8. BALL VALVES FOR NPS 2"Ø AND SMALLER, USE SCREWED END BALL VALVES CONSTRUCTED OF CAST HIGH TENSILE BRONZE CONFORMING TO ASTM-B16 OR ASTM-B62. SCREWED ENDS SHALL CONFORM TO ANSI-B1.20.1 WITH HEX SHOULDERS. BALL SHALL BE REPLACEABLE AND CONSTRUCTED OF EITHER STAINLESS STEEL OR HARD CHROME.

HYDRONIC SYSTEMS SPECIFICATIONS

2. INSTALLATION OF PIPEWORK

2.1. EXECUTION

- 2.1.1. MAKE ALL CONNECTIONS TO EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- 2.1.2. PROVIDE VALVES AND UNIONS AT CONNECTION FOR MAINTENANCE/REPLACEMENT PURPOSES.
- 2.1.3. PROVIDE DRAINS AT SYSTEM LOW POINTS, EQUIPMENT AND ISOLATING SECTIONS. INSTALL NPS 3/4" GATE OR GLOBE VALVE WITH HOSE END MALE THREAD, CAP AND CHAIN.
- 2.1.4. PROVIDE AUTOMATIC AIR VENTS AT SYSTEM HIGH POINTS COMPLETE WITH ISOLATING VALVE.

- 2.2. CLEARANCES PROVIDE THE REQUIRED CLEARANCES AROUND EQUIPMENT, PIPING, SYSTEMS, ETC. TO RENDER THE NECESSARY SPACE REQUIREMENTS FOR SERVICE, INSPECTION, OPERATION, REPLACEMENT AND MAINTENANCE. REFER TO ALL MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR REQUIRED AND RECOMMENDED CLEARANCES.

- 2.3. DIELECTRIC FITTINGS WHERE DISSIMILAR METALS ARE JOINED, PROVIDE DIELECTRIC ISOLATING FITTINGS (COMPLETE WITH THERMOPLASTIC LINER), UNIONS OR BRONZE VALVES.

2.4. PIPEWORK INSTALLATION

- 2.4.1. SCREWED FITTING CONNECTIONS SHALL BE COMPLETE WITH PIPE DOPE OR TEFLON TAPE.
- 2.4.2. PROTECT ALL SYSTEM OPENINGS DURING CONSTRUCTION TO PREVENT THE ENTRY OF FOREIGN MATERIAL.
- 2.4.3. INSTALL ALL PIPING, EQUIPMENT, ETC. TO BE PARALLEL OR PERPENDICULAR WITH BUILDING LINES.
- 2.4.4. PROPERLY REAM AND REMOVE SCALE AND FOREIGN MATERIAL PRIOR TO ASSEMBLY.

2.4.5. VALVES

- 2.4.5.1. INSTALL ALL VALVES IN ACCESSIBLE LOCATIONS FOR MAINTENANCE WITHOUT REMOVING ADJACENT PIPING.
- 2.4.5.2. USE BALL OR BUTTERFLY VALVES AT BRANCH TAKE-OFFS FOR ISOLATING PURPOSES EXCEPT WHERE OTHERWISE SPECIFIED.
- 2.4.5.3. INSTALL BUTTERFLY VALVES ON CHILLED WATER AND RELATED CONDENSER WATER SYSTEMS ONLY.
- 2.4.5.4. INSTALL BALL VALVES FOR GLYCOL SERVICE.
- 2.4.5.5. USE CHAIN OPERATORS ON VALVES NPS 2-1/2" AND LARGER WHERE INSTALLED MORE THAN 2400 MM ABOVE FLOOR IN MECHANICAL ROOMS.

2.4.6. CHECK VALVES

- 2.4.6.1. INSTALL SILENT CHECK VALVES ON DISCHARGE OF PUMPS AND IN VERTICAL PIPES WITH DOWNWARD FLOW AND ELSEWHERE INDICATED.
- 2.4.6.2. INSTALL SWING CHECK VALVES IN HORIZONTAL LINES ON DISCHARGE OF PUMPS AND ELSEWHERE AS INDICATED.

- 2.4.7. WHERE PIPING PASSES THROUGH MASONRY, FIRE-RATED ASSEMBLIES, FOUNDATION WALLS, POURED WALLS, ETC., PROVIDE PIPE SLEEVES CONSTRUCTED OF SCHEDULE 40 BLACK STEEL PIPE. ALLOW FOR 0.25" OF CLEARANCE BETWEEN INSIDE OF SLEEVE AND OUTSIDE OF PIPE/INSULATION. SEAL WITH A FIRE RETARDANT AND WATERPROOF NON HARDENING MASTIC. WHERE SLEEVE IS INSTALLED IN A FIRE RATED ASSEMBLY, PROVIDE FIRESTOPPING CONFORMING TO ULC.

- 2.4.8. PROVIDE ESCUTCHEON PLATES ON PIPING PASSING THROUGH FINISHED WALLS, FLOOR AND CEILINGS.

- 2.4.9. PROPERLY FLUSH AND CLEAN SYSTEM AND REMOVE ALL FOREIGN MATTER PRIOR TO SYSTEM STARTUP. PREPARATORY TO ACCEPTANCE, CLEAN AND REFURBISH EQUIPMENT AND LEAVE IN OPERATING CONDITION, INCLUDING REPLACEMENT OF FILTERS IN PIPING SYSTEMS.

- 2.4.10. PRESSURE TEST SYSTEM AND MONITOR FOR PRESSURE LOSS FOR A MINIMUM OF 4 HOURS, UNLESS OTHERWISE SPECIFIED.

2.5. HANGERS AND SUPPORTS

- 2.5.1. UTILIZE PIPE HANGERS AND SUPPORTS CONSTRUCTED OF GALVANIZED STEEL.
- 2.5.2. INSTALL HANGERS SO THAT RODS ARE VERTICAL. ENSURE LOAD EQUALIZATION WITH ROD ADJUSTMENT.
- 2.5.3. FOR RISER CLAMPS, PROVIDE GALVANIZED BLACK CARBON STEEL, ULC LISTED OR FM APPROVED WHERE REQUIRED. BOLTS AND NUTS SHALL CONFORM TO ASTM-A307 AND ASTM-A563, RESPECTIVELY.
- 2.5.4. FOR BASE-MOUNTED EQUIPMENT, PROVIDE CONCRETE HOUSE-KEEPING PADS 4" TALL AND 6" OF SPACE AROUND EQUIPMENT AND CHAMFERED EDGES.

2.5.5. HANGER SPACING

- 2.5.5.1. PROVIDE HANGERS AT SPACING INDICATED BELOW AND AT EVERY JOINT AND CHANGE OF DIRECTION.

HYDRONIC SYSTEMS

- 2.5.5.2. PROVIDE HANGERS FOR VARIOUS PIPE SIZES AT THE FOLLOWING SPACING: 1-1/4" - 1.8 m, 1-1/2" - 2.4 m AND 2" - 2.7 m.

2.6. PIPING INSULATION

- 2.6.1. PROVIDE PIPING INSULATION FOR THE HYDRONIC SYSTEMS AS FOLLOWS:

- 2.6.1.1. HEATING WATER (HWS/HWR): TYPE 'A', UP TO 1" - 1" THICK, 1-1/4" AND LARGER - 1-1/2" THICK.
- 2.6.1.2. CHILLED WATER (CHWS/CHWR): TYPE 'A', UP TO 1" - 1" THICK, 1-1/4" AND LARGER - 1-1/2" THICK. RECOVER WITH PVC JACKETING AS SPECIFIED BELOW.
- 2.6.1.3. CONDENSER WATER (INDOOR CWS/CWR): NOT REQUIRED
- 2.6.1.3. CONDENSER WATER (OUTDOOR, CWS/CWR): TYPE 'A', ALL SIZES - 1" THICK. RECOVER WITH PVC JACKETING AS SPECIFIED BELOW.

- 2.6.2. TYPE 'A': JOHNS MANVILLE MICRO-LOK FIBRE GLASS PIPE INSULATION COMPLETE WITH JACKET AND VAPOUR RETARDER. CONNECT SECTIONS OF INSULATION WITH SELF-ADHESIVE BUTT STRIPS SUPPLIED BY THE INSULATION MANUFACTURER.

- 2.6.3. WHERE NOTED, RECOVER INSULATION WITH HEAVY-GAUGE UV-RESISTANT PVC FITTINGS, COVER AND JACKETING EQUAL TO JOHNS MANVILLE ZESTON 300 SERIES.

- 2.6.4. PROVIDE PRE-FORMED INSULATION FOR FITTINGS AND VALVES.

3. SYSTEM CHEMICAL TREATMENT

- 3.1. PROVIDE SYSTEM CHEMICAL TREATMENT AFTER THE SYSTEM HAS BEEN CLEANED AND STARTED UP IN ACCORDANCE WITH THE MECHANICAL SPECIFICATIONS. THIS CONTRACTOR SHALL PAY FOR AND CONTRACT THE SERVICES OF THE BASE BUILDING CHEMICAL TREATMENT CONTRACTOR TO CARRY OUT THE CHEMICAL TREATMENT PROCESS.

VAV SEQUENCE OF OPERATIONS

1. GENERAL

- 1.1. THE VAV SYSTEM PROVIDES COOLING, HEATING AND VENTILATION TO THE SPACE.
- 1.2. THE PERIMETER HEATING ELEMENT PROVIDES HEAT TO THE SPACE.

2. MODES OF OPERATION

- 2.1. THE OCCUPIED AND UNOCCUPIED MODES ARE DETERMINED BY A TIME OF DAY SCHEDULE.

3. OCCUPIED MODE

- 3.1. OVERVIEW: THE VAV BOX WILL PROVIDE VARIABLE AIRFLOW TO THE SPACE TO MAINTAIN THE SPACE TEMPERATURE AT SETPOINT. THE SPACE TEMPERATURE SETPOINT WILL BE SET TO 23 DEG C. A BIAS OF +/- 1 DEG C WILL BE APPLIED TO THE SPACE TEMPERATURE SETPOINT TO ALLOW FOR HEATING AND COOLING CONTROL. COLD AIR FROM THE AIR HANDLING UNIT PROVIDES COOLING TO THE SPACE. PERIMETER HEATING AND THE REHEAT COIL (WHERE APPLICABLE) WILL PROVIDE SOURCES OF HEAT FOR THE SPACE.

- 3.2. AIRFLOW SETPOINT: THE CONTROLLER WILL READ IN VELOCITY PRESSURE AND CONVERT IT TO AIRFLOW BASED ON THE BOX SIZE. THE AIRFLOW SETPOINT IS AUTOMATICALLY CALCULATED BETWEEN THE MINIMUM AND MAXIMUM VALUES TO MAINTAIN THE SPACE TEMPERATURE AT SETPOINT. WHEN THE AIR HANDLING UNIT IS OPERATING, SETPOINT WILL INCREASE TO PROVIDE MORE COOLING AND DECREASE TO PROVIDE LESS COOLING. NOTE IN CASES WHERE THE RHC REQUIRES MORE AIRFLOW THAN THE BOX MIN, THE AIRFLOW SETPOINT WILL INCREASE TO A MAXIMUM OF 50% OF THE COOLING MAX WHEN THE RHC IS FULLY OPEN AND ADDITIONAL HEAT IS REQUIRED.

- 3.3. DAMPER MODULATION: THE DAMPER WILL MODULATE TO MAINTAIN THE AIRFLOW AT SETPOINT.

- 3.4. REHEAT COIL VALVE: THE REHEAT COIL VALVE WILL MODULATE TO MAINTAIN THE SPACE TEMPERATURE AT SETPOINT ONCE THE VAV BOX IS AT THE MINIMUM HEATING AIRFLOW SETPOINT. IF THE BOX IS EQUIPPED WITH PERIMETER HEATING, THE REHEAT COIL VALVE MODULATION WILL BE HELD OFF UNTIL THE PERIMETER HEATING VALVE IS OPEN.

- 3.5. PERIMETER HEATING VALVE: THE PERIMETER HEATING VALVE WILL MODULATE TO MAINTAIN THE SPACE TEMPERATURE AT SETPOINT ONCE THE VAV BOX IS AT THE MINIMUM HEATING AIRFLOW SETPOINT.

4. UNOCCUPIED MODE

- 4.1. OVERVIEW: WHEN THE AIR HANDLING UNIT IS RUNNING THE VAV BOX WILL PROVIDE VARIABLE AIRFLOW TO THE SPACE TO MAINTAIN THE SPACE TEMPERATURE AT THE UNOCCUPIED SETPOINTS. THE SPACE TEMPERATURE HEATING SETPOINT WILL BE SET TO 18 DEG C AND THE SPACE TEMPERATURE COOLING SETPOINT WILL BE SET TO 28 DEG C. COLD AIR FROM THE AIR HANDLING UNIT PROVIDES COOLING TO THE SPACE. PERIMETER HEATING (WHERE APPLICABLE) WILL PROVIDE HEATING TO THE SPACE. IF THE AIR HANDLING UNIT IS RUNNING THE REHEAT COIL (WHERE APPLICABLE) WILL PROVIDE HEAT FOR THE SPACE.

- 4.2. AIRFLOW SETPOINT: THE CONTROLLER WILL READ IN VELOCITY PRESSURE AND CONVERT IT TO AIRFLOW BASED ON THE BOX SIZE. THE AIRFLOW SETPOINT IS AUTOMATICALLY CALCULATED BETWEEN THE UNOCCUPIED MINIMUM AND MAXIMUM VALUES TO MAINTAIN THE SPACE TEMPERATURE AT SETPOINT. WHEN THE AIR HANDLING UNIT IS OPERATING, AIRFLOW SETPOINT WILL INCREASE TO PROVIDE MORE COOLING AND DECREASE TO PROVIDE LESS COOLING. NOTE IN CASES WHERE THE RHC REQUIRES MORE AIRFLOW THAN THE BOX MIN, THE AIRFLOW SETPOINT WILL INCREASE TO A MAXIMUM OF 50% OF THE COOLING MAX WHEN THE RHC IS FULLY OPEN AND ADDITIONAL HEAT IS REQUIRED.

- 4.3. DAMPER MODULATION: THE DAMPER WILL MODULATE TO MAINTAIN THE AIRFLOW AT SETPOINT. IF THE AIR HANDLING UNIT IS OFF THE DAMPER WILL BE FULLY OPEN.

- 4.4. REHEAT COIL VALVE: IF THE AHU IS ON THE REHEAT COIL VALVE WILL MODULATE TO MAINTAIN THE SPACE TEMPERATURE AT SETPOINT ONCE THE VAV BOX IS AT THE MINIMUM HEATING AIRFLOW SETPOINT. IF THE BOX IS EQUIPPED WITH PERIMETER HEATING THE REHEAT COIL VALVE MODULATION WILL BE HELD OFF UNTIL THE PERIMETER HEATING VALVE IS OPEN.

- 4.5. PERIMETER HEATING VALVE: THE PERIMETER HEATING VALVE WILL MODULATE TO MAINTAIN THE SPACE TEMPERATURE AT SETPOINT ONCE THE VAV BOX IS AT THE MINIMUM HEATING AIRFLOW SETPOINT (UNLESS THE AHU IS OFF IN WHICH CASE THE PH VALVE WILL SIMPLY MODULATE TO MAINTAIN TEMPERATURE).

5. INTEGRATION WITH OTHER SYSTEMS

- 5.1. A STARVED BOX (AIRFLOW) FLAG IS SET WHEN THE DAMPER IS FULLY OPEN AND AIRFLOW IS BELOW SETPOINT.

6. CRITICAL EVENTS

- 6.1. THE SPACE TEMPERATURE DROPS BELOW 10 DEG C.

7. NON-CRITICAL EVENTS

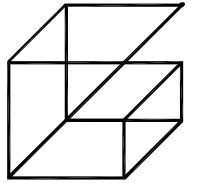
- 7.1. THE SPACE TEMPERATURE IS MORE THAN 2 DEG C ABOVE OR BELOW SETPOINT (30 MINUTE DELAY).
- 7.2. MANUAL OVERRIDES ARE PLACED ON THE SYSTEM.

8. TRENDS

- 8.1. ALL INPUTS AND OUTPUTS WILL BE TRENDED AT 30 MINUTE INTERVALS FOR 3 DAYS.

- 8.2. ADDITIONALLY THE FOLLOWING WILL ALSO BE TRENDED:

- 8.2.1. AIRFLOW SETPOINT.
- 8.2.2. SPACE TEMPERATURE SETPOINT.



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4 ISSUED FOR TENDER 2024-11-20

3 RE-ISSUED FOR 100% REVIEW 2024-11-19

2 ISSUED FOR 100% REVIEW 2024-11-05

1 ISSUED FOR REVIEW 2024-10-23

No. Issues/Revisions Date

Project Name: Trafalgar Campus -
B244 Classroom Renovation

Seal:

MECHANICAL
SPECIFICATIONS III AND
SEQUENCE OF
OPERATIONS

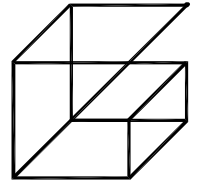
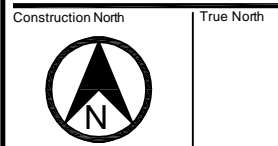
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Drawing No.:

M-1.4



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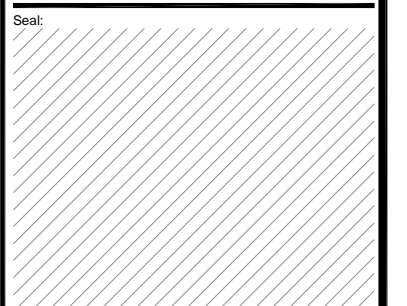
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Project Name: Trafalgar Campus - B244 Classroom Renovation



Sheet Name:
MECHANICAL SCHEDULES

Drawn By: G.G. Checked By: J.H.
Issued Date: 11-09-2024
Project Number: 24-168 Scale: AS NOTED
Drawing No:

M-1.5

RADIANT PANEL SCHEDULE

REF.	TYPE	MANU.	MODEL	CONFIG.	PANEL WIDTH (IN.)	ACTIVE LENGTH (IN.)	ROWS	HEATING OUTPUT DENSITY (BTU/FT)	HEATING WATER			TOTAL CAPACITY (MBH)	WPD (FT.H2O)	REMARKS
									FLOW RATE (GPM)	EWT (°F)	LWT (°F)			
A	RH-1	ENGINEERED AIR	HEF-2	CEILING MOUNTED	24	90.0	4	389	0.292	180	160	2.92	0.11	CEILING MOUNTED RADIANT PANEL HEATER, 24 INCHES WIDE, CONSTRUCTED FROM ALUMINUM EXTRUSIONS, EXACT PANEL LENGTH FIELD CUT ON SITE TO SUIT INSTALLATION CONDITIONS. THERMOSTAT AND CONTROLS SHALL BE PROVIDED BY CONTROLS CONTRACTOR TO MATCH BASE BUILDING.
B	RH-2 RH-3 RH-4 RH-5	ENGINEERED AIR	HEF-2	CEILING MOUNTED	24	227.0	4	389	0.735	180	160	7.35	1.28	CEILING MOUNTED RADIANT PANEL HEATER, 24 INCHES WIDE, CONSTRUCTED FROM ALUMINUM EXTRUSIONS, EXACT PANEL LENGTH FIELD CUT ON SITE TO SUIT INSTALLATION CONDITIONS. THERMOSTAT AND CONTROLS SHALL BE PROVIDED BY CONTROLS CONTRACTOR TO MATCH BASE BUILDING.
C	RH-5	ENGINEERED AIR	HEF-2	CEILING MOUNTED	24	220.0	4	389	0.712	180	160	7.12	1.24	CEILING MOUNTED RADIANT PANEL HEATER, 24 INCHES WIDE, CONSTRUCTED FROM ALUMINUM EXTRUSIONS, EXACT PANEL LENGTH FIELD CUT ON SITE TO SUIT INSTALLATION CONDITIONS. THERMOSTAT AND CONTROLS SHALL BE PROVIDED BY CONTROLS CONTRACTOR TO MATCH BASE BUILDING.
D	RH-6	ENGINEERED AIR	HEF-2	CEILING MOUNTED	24	216.0	4	389	0.700	180	160	7.00	2.8	CEILING MOUNTED RADIANT PANEL HEATER, 24 INCHES WIDE, CONSTRUCTED FROM ALUMINUM EXTRUSIONS, EXACT PANEL LENGTH FIELD CUT ON SITE TO SUIT INSTALLATION CONDITIONS. THERMOSTAT AND CONTROLS SHALL BE PROVIDED BY CONTROLS CONTRACTOR TO MATCH BASE BUILDING.

NOTES:

- CONNECT CONTROL VALVE TO BAS AND MATCH DEVICES AND CONTROL STRATEGIES TO BASE BUILDING. WHERE NO CONTROL STRATEGY EXISTS, REFER TO SEQUENCE OF OPERATIONS.
- FLOOR PLANS ONLY DEPICT ACTIVE LENGTHS, PROVIDE BLANK OFF SECTIONS ACROSS COLUMNS FOR CONTINUOUS PANEL INSTALLATION. CONTRACTOR TO FIELD CUT ON SITE TO ACCOMMODATE COLUMNS AND OTHER OBSTRUCTIONS.

DIFFUSER SCHEDULE

TAG	MAKE/MODEL	FINISH	REMARKS
A	EH PRICE MODEL SPD 24/24 SQUARE S/A DIFFUSER	-	SQUARE PLAQUE DIFFUSER, STEEL CONSTRUCTION FOR T-BAR LAY-IN. SIZE NECK AND BALANCE AS INDICATED ON DRAWING.
B	EH PRICE MODEL 80 EGG CRATE GRILLE	-	CORE ONLY, 1/2"x1/2"x1/2" ALUMINUM GRID CORE, FOR T-BAR LAY-IN. SIZE AS INDICATED ON DRAWINGS.

NOTES:

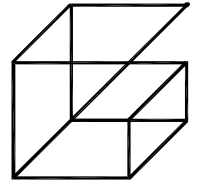
- SIZE ALL GRILLES, DIFFUSERS, ETC. AS PER MECHANICAL DRAWINGS.
- CONFIRM ALL FINISHES WITH ARCHITECT/INTERIOR DESIGNER.

VAV TERMINAL UNIT SCHEDULE

TAG	MANU.	MODEL NO.	INLET SIZE DIA. (IN.)	MAX (CFM)	MIN (CFM)	HEATING COIL PERFORMANCE				CONTROLS TYPE	REMARKS
						AIRFLOW (CFM)	WATER (GPM)	CAP. (MBH)	EWT/LWT (°F)		
VAV-1	EH PRICE	SDV	10"ø	1000	300	500	2.0	19.6	180/160	DIGITAL	PRESSURE INDEPENDENT VAV TERMINAL UNIT C/W 3'-0" SOUND ATTENUATOR AND HIGH CAPACITY 1 ROW MULTI CIRCUIT HYDRONIC REHEAT COIL. CONTROLS PROVIDED BY CONTROLS CONTRACTOR TO MATCH BASE BUILDING. PROVIDE BELIMO ZONE TIGHT 2-WAY CONTROL VALVE WITH ELECTRONIC ACTUATOR.
VAV-2	EH PRICE	SDV	10"ø	1000	300	500	2.0	19.6	180/160	DIGITAL	PRESSURE INDEPENDENT VAV TERMINAL UNIT C/W 3'-0" SOUND ATTENUATOR AND HIGH CAPACITY 1 ROW MULTI CIRCUIT HYDRONIC REHEAT COIL. CONTROLS PROVIDED BY CONTROLS CONTRACTOR TO MATCH BASE BUILDING. PROVIDE BELIMO ZONE TIGHT 2-WAY CONTROL VALVE WITH ELECTRONIC ACTUATOR.
VAV-3	EH PRICE	SDV	10"ø	900	270	450	2.0	16.8	180/160	DIGITAL	PRESSURE INDEPENDENT VAV TERMINAL UNIT C/W 3'-0" SOUND ATTENUATOR AND STANDARD CAPACITY 1 ROW MULTI CIRCUIT HYDRONIC REHEAT COIL. CONTROLS PROVIDED BY CONTROLS CONTRACTOR TO MATCH BASE BUILDING. PROVIDE BELIMO ZONE TIGHT 2-WAY CONTROL VALVE WITH ELECTRONIC ACTUATOR.
VAV-4	EH PRICE	SDV	10"ø	900	270	450	2.0	16.8	180/160	DIGITAL	PRESSURE INDEPENDENT VAV TERMINAL UNIT C/W 3'-0" SOUND ATTENUATOR AND STANDARD CAPACITY 1 ROW MULTI CIRCUIT HYDRONIC REHEAT COIL. CONTROLS PROVIDED BY CONTROLS CONTRACTOR TO MATCH BASE BUILDING. PROVIDE BELIMO ZONE TIGHT 2-WAY CONTROL VALVE WITH ELECTRONIC ACTUATOR.

NOTES:

- COORDINATE ALL REQUIRED POWER AND LOCATIONS WITH DIV.26.
- INCLUDE FOR ALL WORK ASSOCIATED WITH CONNECTION TO BAS SYSTEM.
- CONTROLS WORK SHALL BE CARRIED OUT BY THE BASE BUILDING CONTROLS CONTRACTOR AT THE EXPENSE OF DIV.23.
- ALL TERMINAL UNITS SHALL BE PROVIDED WITH FACTORY-SUPPLIED 3'-0" SOUND ATTENUATOR, UNLESS NOTED OTHERWISE.
- ALL VAV'S COMPLETE WITH REHEAT COIL AS SPECIFIED.



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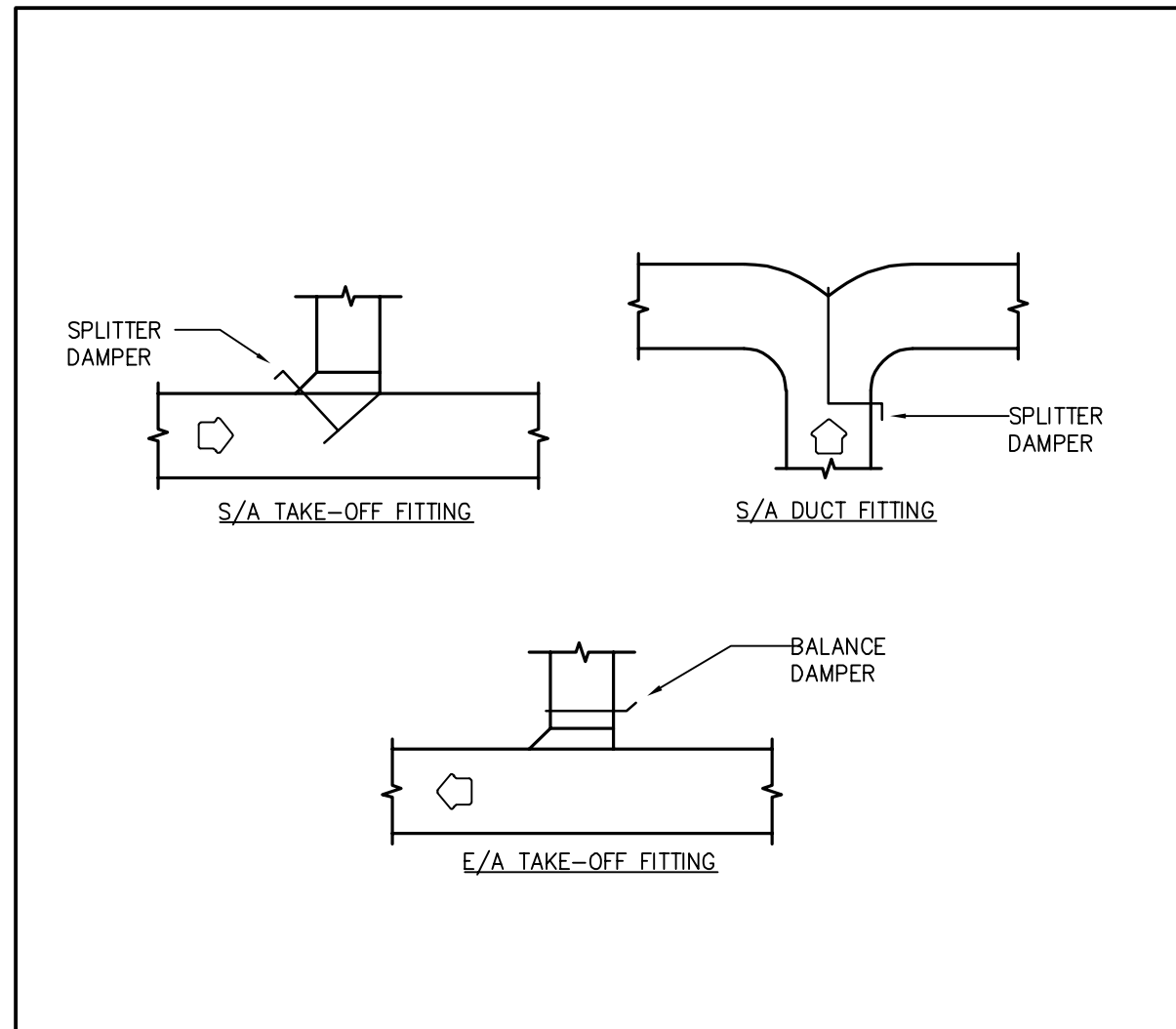
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MECHANICAL DETAILS I

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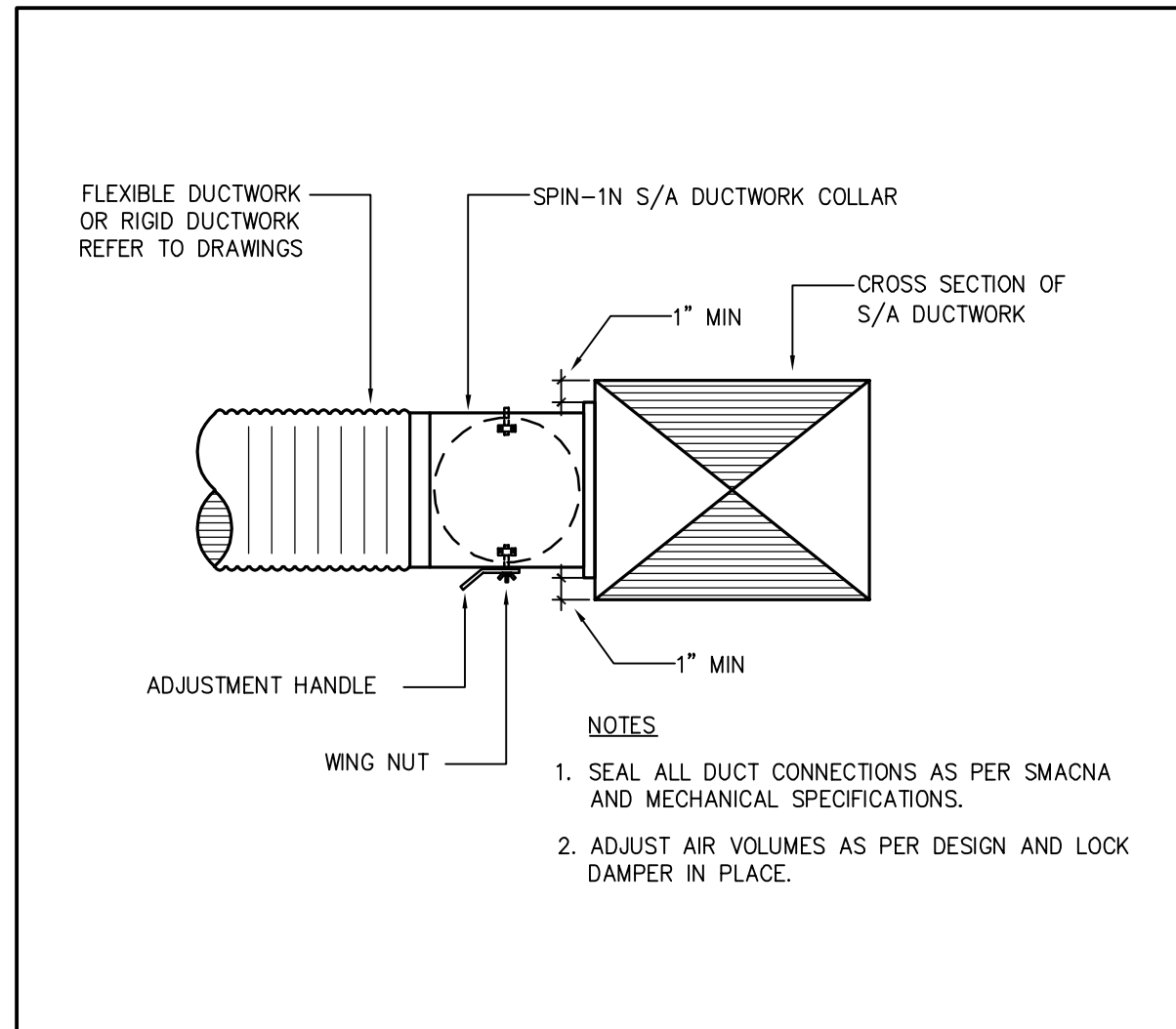
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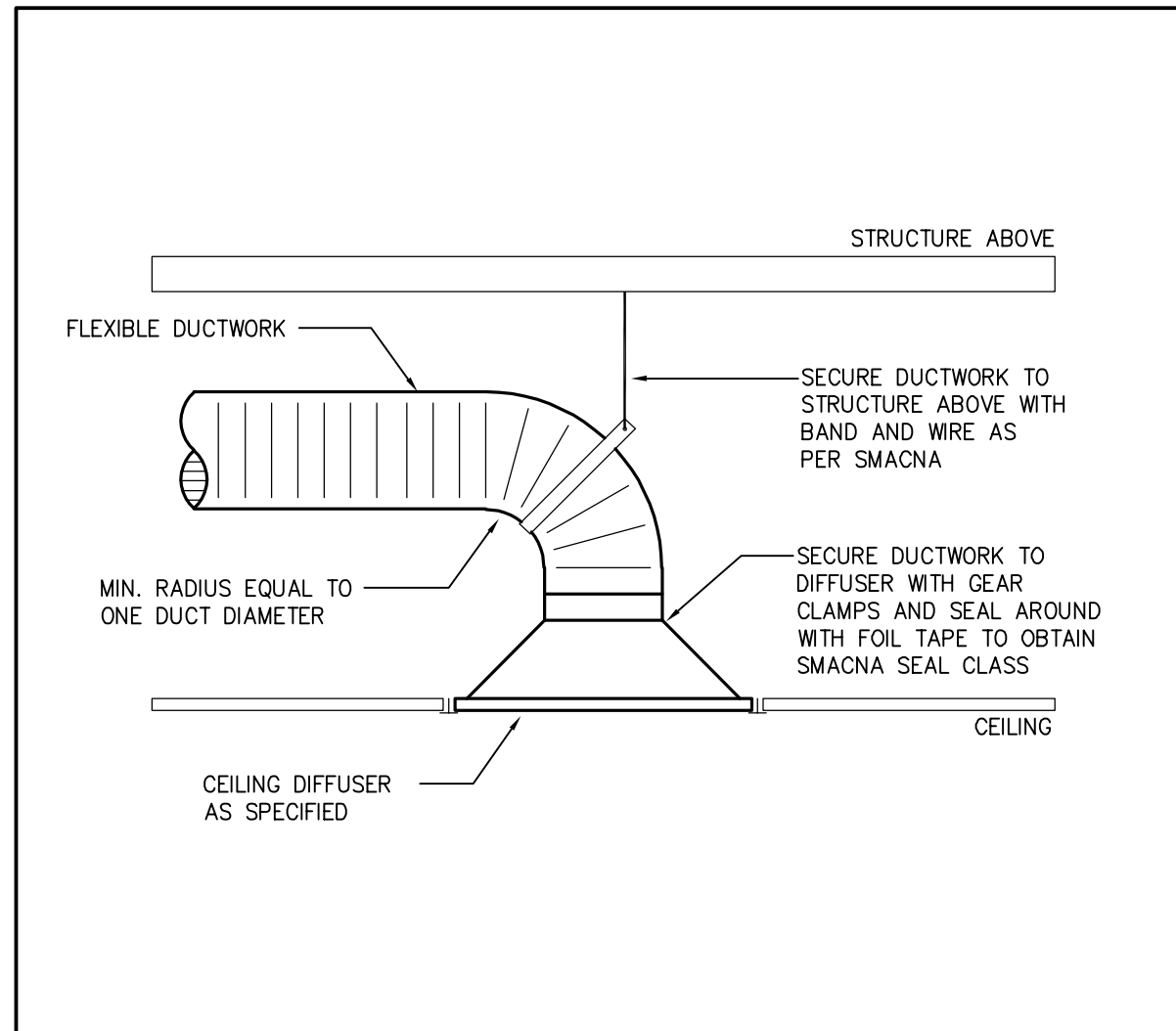
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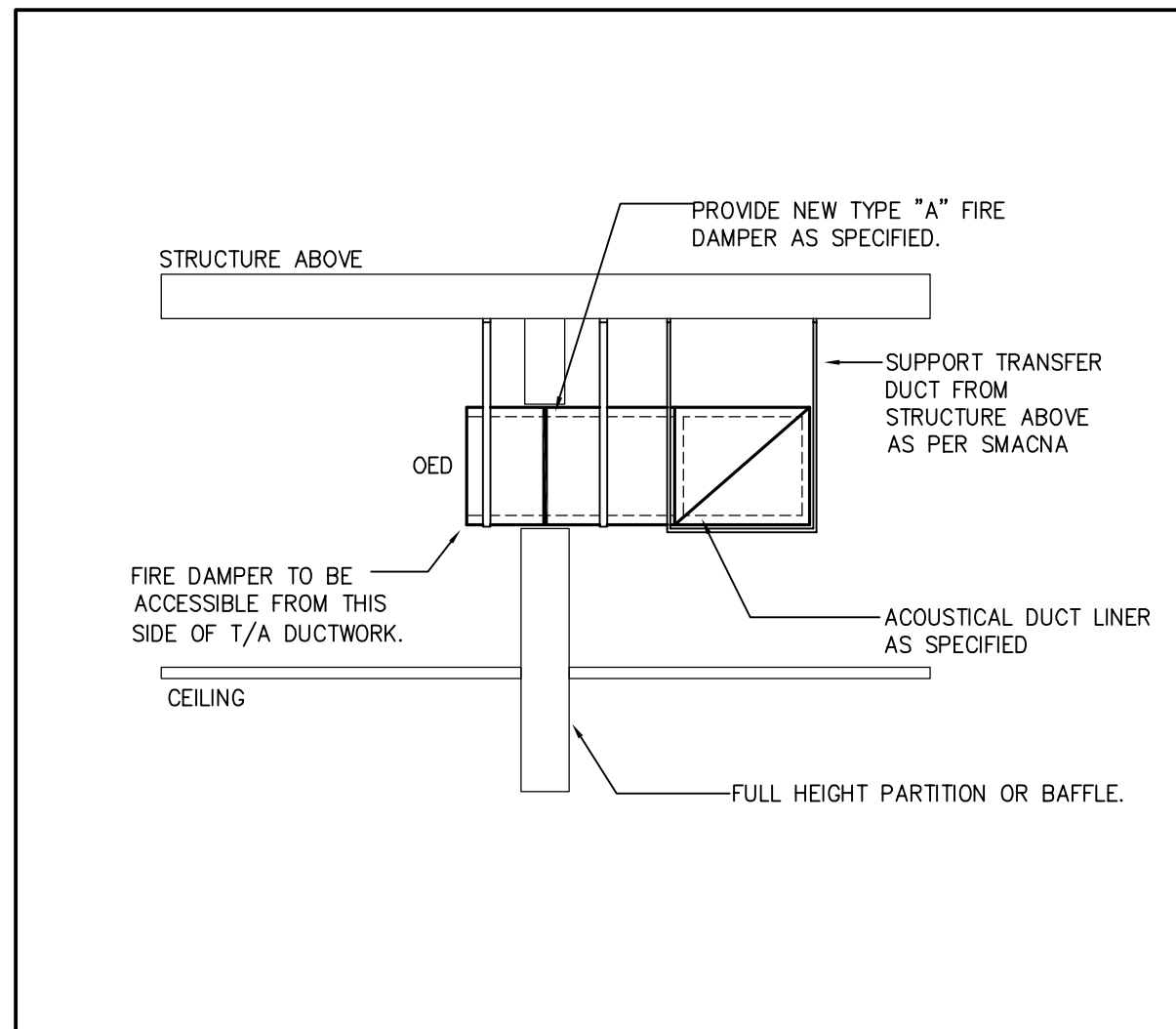
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M-1.6 NTS



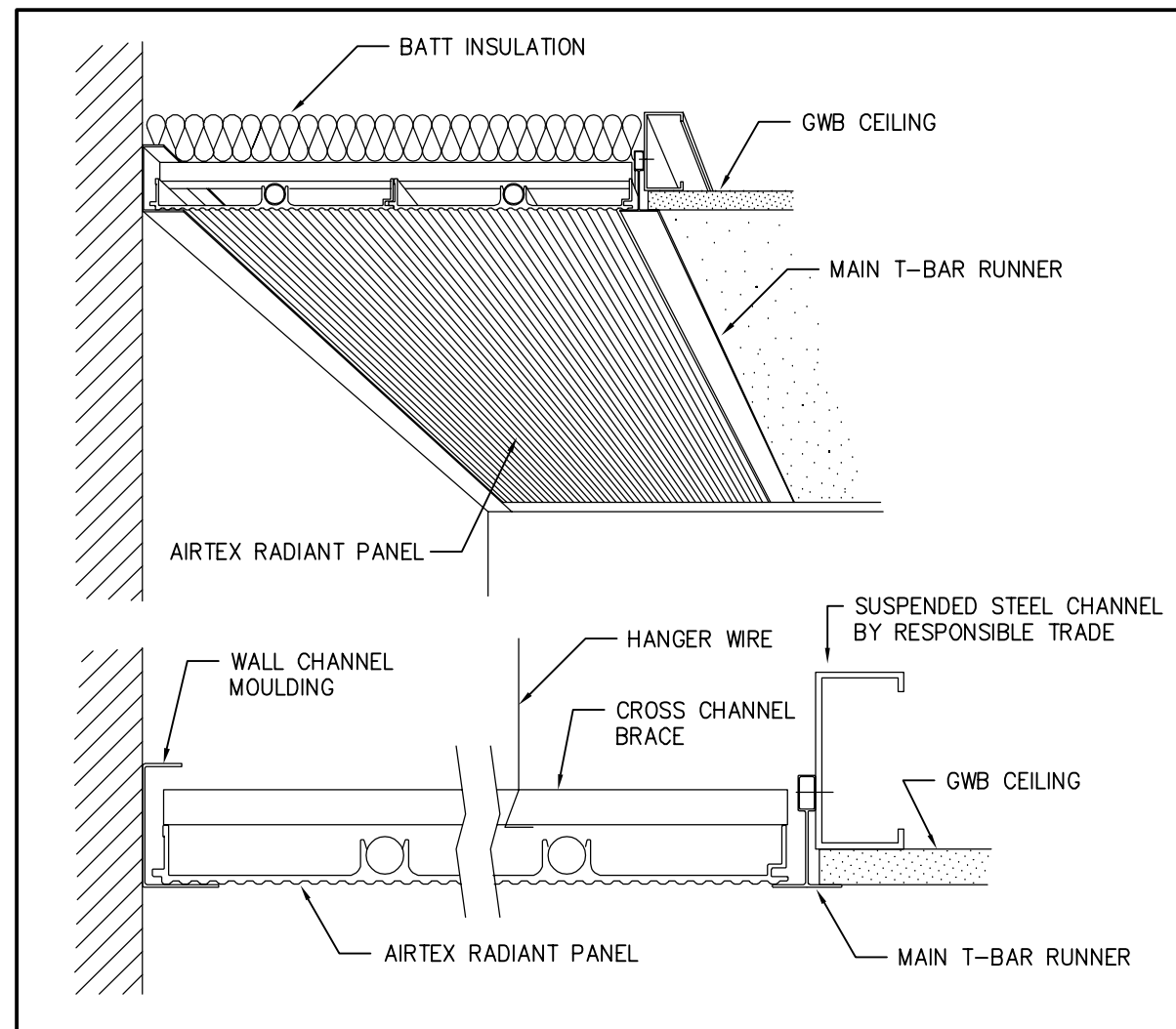
2 SPIN-IN DUCT COLLAR CONNECTION DETAIL
M-1.6 NTS



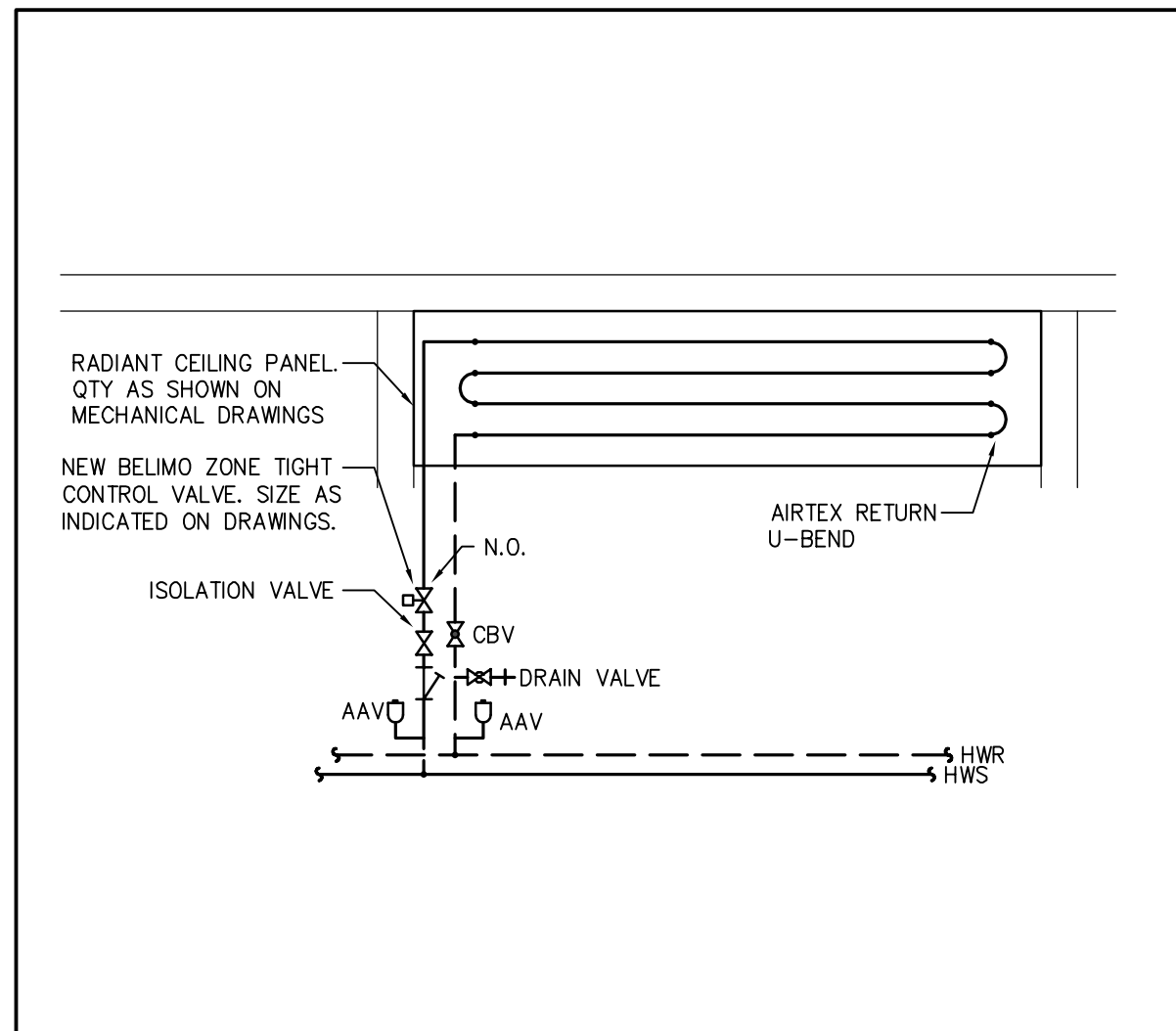
3 DIFFUSER SUPPORT DETAIL
M-1.6 NTS



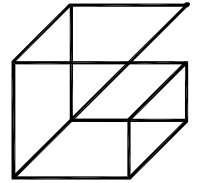
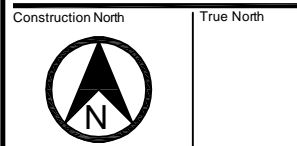
4 TRANSFER DUCTWORK DETAIL
M-1.6 NTS



5 RADIANT CEILING PANEL INSTALLATION DETAIL
M-1.6 NTS



6 RADIANT PANEL PIPING DETAIL
M-1.6 NTS



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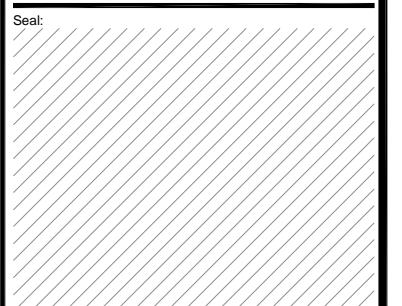
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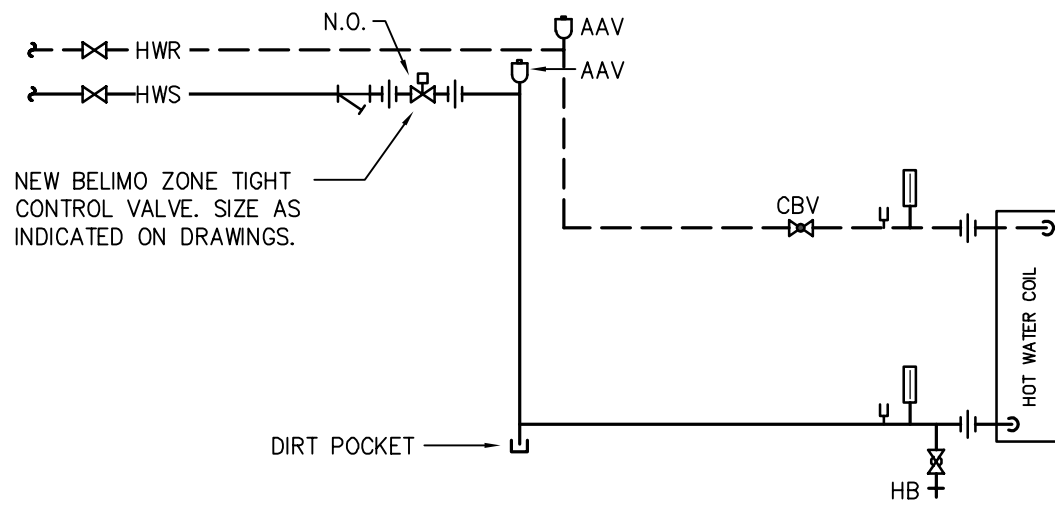
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M-1.7

NOTES

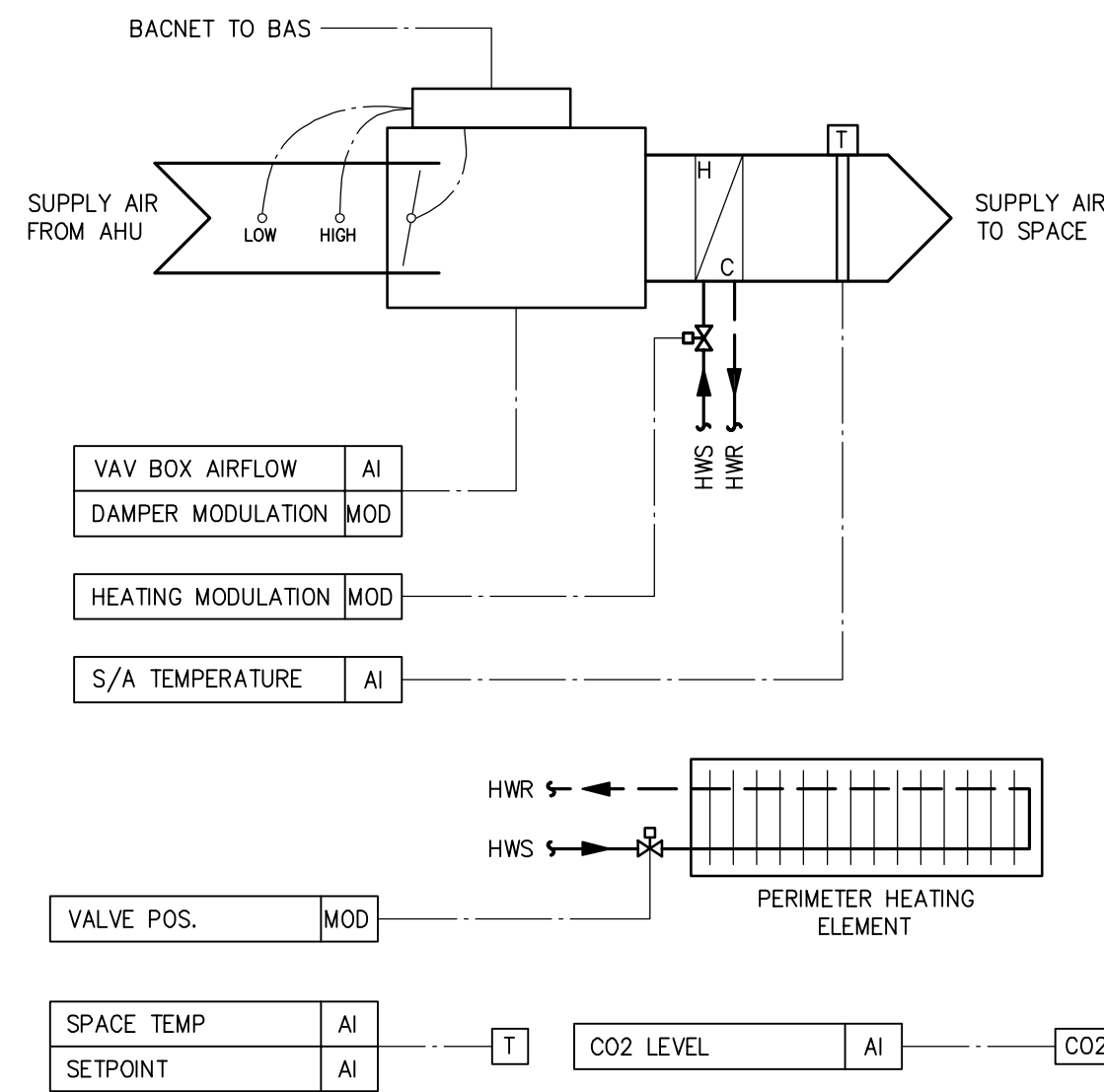
1. GENERAL INSTALLATION DETAIL SHOWN.
2. INSTALL IN STRICT ACCORDANCE WITH MANUFACTURER INSTALLATION INSTRUCTIONS.



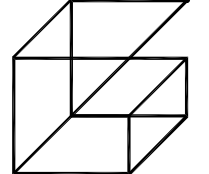
1 VAV REHEAT COIL CONNECTION DETAIL
M-1.7 NTS

NOTES

1. ALL CONTROLS WORK TO BE CARRIED OUT BY BASE BUILDING CONTROLS CONTRACTOR AT THE EXPENSE OF DIV. 23.



2 TYPICAL CONTROLS SCHEMATIC
M-1.7 NTS



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Consultant Seal

4	ISSUED FOR TENDER	2024-11-20
3	RE-ISSUED FOR 100% REVIEW	2024-11-19
2	ISSUED FOR 100% REVIEW	2024-11-05
1	ISSUED FOR REVIEW	2024-10-23

No. Issues/Revisions Date

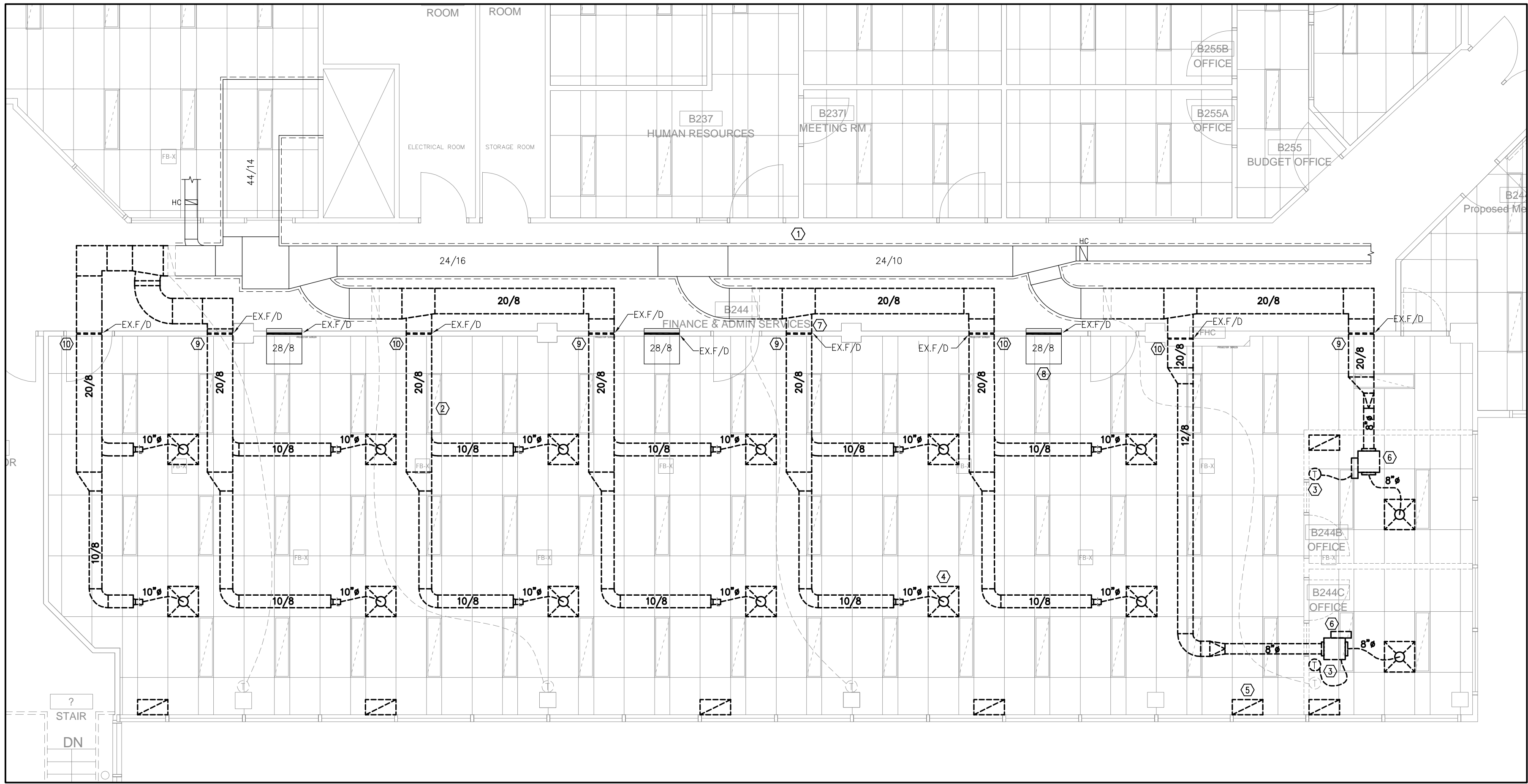
Project Name: **Trafalgar Campus - B244 Classroom Renovation**

Seal:

Sheet Name:
SECOND FLOOR PLAN - HVAC DEMOLITION

Drawn By: G.G. Checked By: J.H.
Issued Date: 11-09-2024
Project Number: 24-188 Scale: AS NOTED
Drawing No:

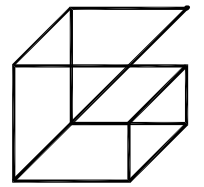
M-2.1



1 SECOND FLOOR PLAN - HVAC DEMOLITION
M-2.1

- HVAC NOTES**
- ① EXISTING S/A DUCTWORK TO REMAIN (TYPICAL).
 - ② EXISTING S/A DUCTWORK TO BE REMOVED AND DISPOSED OF (TYPICAL).
 - ③ EXISTING SIEMENS THERMOSTAT AND ASSOCIATED PNEUMATIC TUBING TO BE REMOVED, DECOMMISSIONED AND DISPOSED OF.
 - ④ EXISTING S/A DIFFUSER AND ASSOCIATED FLEXIBLE DUCTWORK TO BE REMOVED AND DISPOSED OF (TYPICAL).
 - ⑤ EXISTING R/A GRILLE TO BE REMOVED AND DISPOSED OF (TYPICAL).
 - ⑥ EXISTING VVT BOX AND ASSOCIATED PNEUMATIC TUBING TO BE REMOVED, DECOMMISSIONED AND DISPOSED OF.
 - ⑦ EXISTING FIRE DAMPER AT S/A DUCTWORK PENETRATION THROUGH WALL TO BE REMOVED AND DISPOSED OF (TYPICAL).
 - ⑧ EXISTING T/A DUCTWORK TO REMAIN.
 - ⑨ EXISTING OPENING IN RATED PARTITION ABOVE CEILING TO BE PATCHED TO BASE BUILDING STANDARDS.
 - ⑩ EXISTING OPENING IN RATED PARTITION ABOVE CEILING TO REMAIN FOR NEW DUCT PENETRATION. ENLARGE PENETRATION AS REQUIRED TO SUIT NEW S/A DUCT SIZE. REFER TO NEW HVAC PLANS.

- GENERAL HVAC NOTES**
1. WHERE COMPONENTS ARE TO BE REUSED, THE CONTRACTOR SHALL CLEAN AND TEST THE COMPONENT TO ENSURE PROPER OPERATION. THE CONSULTANT SHALL BE NOTIFIED IN THE EVENT THERE IS A DEFICIENCY WITH THE COMPONENT.
 2. PERFORM DEMOLITION WORK SO AS TO CAUSE MINIMAL DISTURBANCE TO OWNER AND/OR ADJACENT AREAS. MINIMIZE DUST AND NOISE AND PROVIDE TEMPORARY AIR FILTERS ON AIR HANDLING SYSTEMS AFFECTED BY THE AREA OF WORK. ALL COSTS ASSOCIATED WITH DAMAGES AS A RESULT OF THE MECHANICAL DEMOLITION SHALL BE COVERED BY DIV.23. MAINTAIN SAFETY STANDARDS AND PROVIDE ADEQUATE SIGNAGE FOR BOTH WORKERS AND OCCUPANTS.
 3. THE MECHANICAL DRAWINGS DISPLAY A GENERAL DESIGN AND INSTALLATION. THEREFORE, IF REQUIRED, THE CONTRACTOR SHALL OBTAIN CLARIFICATION FROM THE CONSULTANT PRIOR TO INSTALLATION.
 4. THESE DRAWINGS HAVE BEEN PREPARED FOR DIV.23 AND DO NOT ACCURATELY DISPLAY ALL ELECTRICAL, STRUCTURAL AND ARCHITECTURAL ELEMENTS. REFER TO OTHER DIVISION'S DRAWINGS FOR CLARIFICATION.
 5. THIS CONTRACTOR SHALL VISIT THE SITE AND COMPLETELY INVESTIGATE AND UNDERSTAND THE EXISTING CONDITIONS AND THEIR RELATION TO THE DESIGN DRAWINGS/DOCUMENTS. NO CONSIDERATION WILL BE GIVEN TO THE CONTRACTOR FOR ANY HINDRANCES TO THE MECHANICAL INSTALLATION FROM SITE CONDITIONS WHICH EXISTED PRIOR TO TENDER SUBMISSION. AS SUCH AND WHERE REQUIRED, THE CONTRACTOR SHALL PROVIDE INTERFERENCE DRAWINGS AND SHALL SUBMIT THEM TO THE CONSULTANT FOR REVIEW.



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Consultant Seal

4 ISSUED FOR TENDER 2024-11-20

3 RE-ISSUED FOR 100% REVIEW 2024-11-19

2 ISSUED FOR 100% REVIEW 2024-11-05

1 ISSUED FOR REVIEW 2024-10-23

No. Issues/Revisions Date

Project Name: **Trafalgar Campus - B244 Classroom Renovation**

Seal:

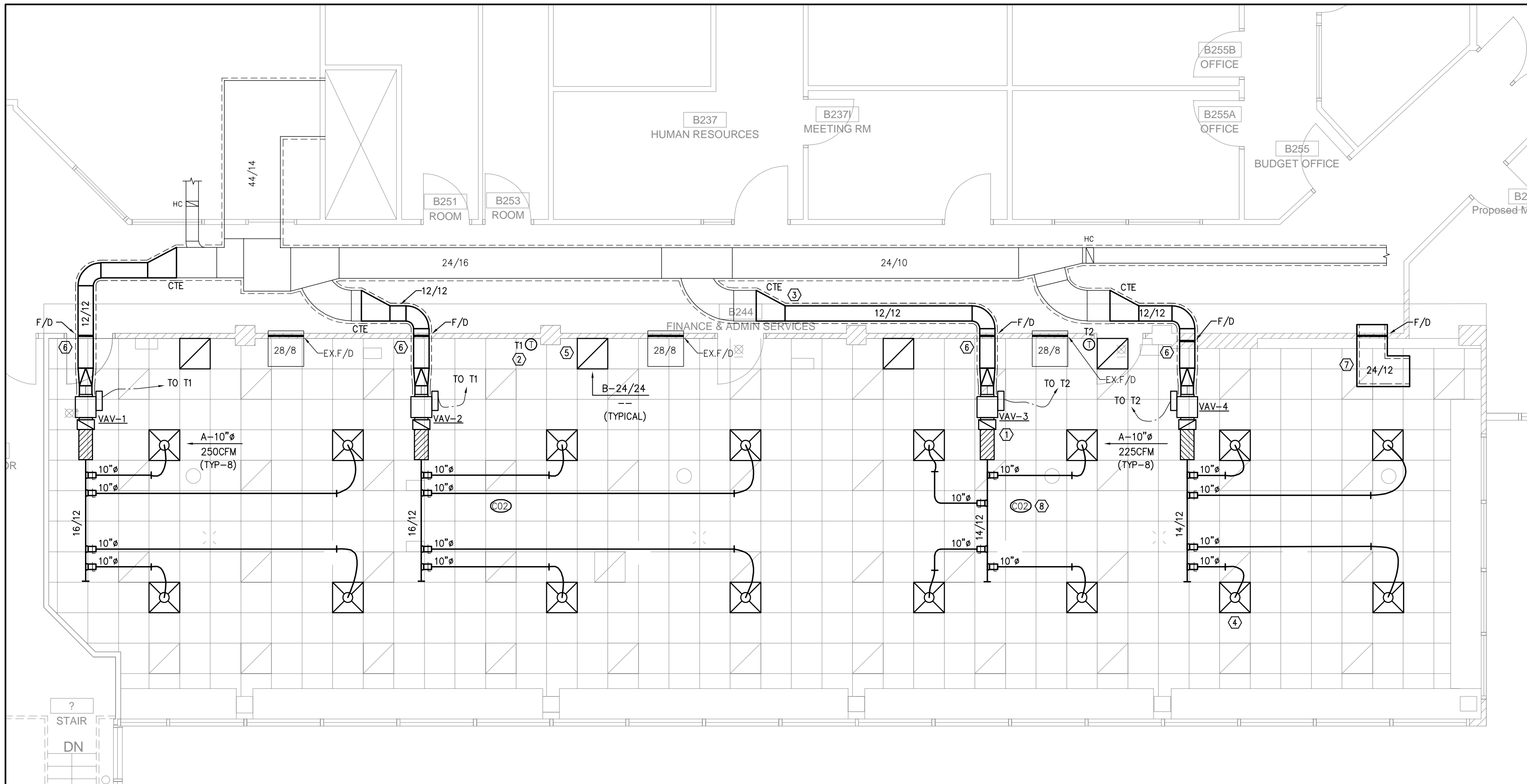
Sheet Name:
SECOND FLOOR PLAN - HVAC NEW

Drawn By: G.G. Checked By: J.H.

Issued Date: 11-09-2024

Project Number: 24-188 Scale: AS NOTED

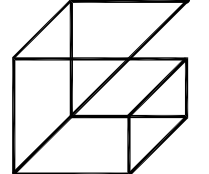
Drawing No.: **M-2.2**



1 SECOND FLOOR PLAN - HVAC NEW
M-2.2

- HVAC NOTES**
- ① PROVIDE NEW VAV C/W REHEAT COIL AS SPECIFIED AND INTERLOCK WITH BAS. BALANCE AS INDICATED IN MECHANICAL SCHEDULES (TYPICAL).
 - ② PROVIDE NEW SHERIDAN STANDARD DELTA THERMOSTAT WHERE SHOWN SERVING VAV TERMINAL UNITS. EXACT LOCATION TO BE COORDINATED ON SITE WITH CLIENT (TYPICAL).
 - ③ PROVIDE NEW THERMALLY INSULATED S/A DUCTWORK. CONNECT TO EXISTING WHERE SHOWN AND PROVIDE TRANSITION AS REQUIRED TO SUIT EXISTING DUCTWORK (TYPICAL).
 - ④ PROVIDE NEW SQUARE S/A PLAQUE DIFFUSER AS SPECIFIED (TYPICAL).
 - ⑤ PROVIDE NEW R/A GRILLE AS SPECIFIED (TYPICAL).
 - ⑥ NEW S/A DUCTWORK TO PENETRATE WALL IN SAME LOCATION OF EXISTING PENETRATION. PROVIDE NEW FIRE DAMPER AT RATED WALL. MODIFY SIZE OF EXISTING PENETRATION AS REQUIRED TO SUIT NEW DUCT SIZE.
 - ⑦ PROVIDE NEW ACOUSTICALLY LINED T/A DUCTWORK C/W FIRE DAMPER AT CORRIDOR PENETRATION. ENSURE FIRE DAMPER IS FULLY ACCESSIBLE FROM CORRIDOR SIDE.
 - ⑧ PROVIDE NEW CEILING MOUNTED CO2 SENSOR TO MATCH BASE BUILDING. CONTROLS AND GRAPHICS TO MATCH BASE BUILDING CONTROLS SEQUENCE (TYPICAL).

- GENERAL HVAC NOTES**
1. WHERE COMPONENTS ARE TO BE REUSED, THE CONTRACTOR SHALL CLEAN AND TEST THE COMPONENT TO ENSURE PROPER OPERATION. THE CONSULTANT SHALL BE NOTIFIED IN THE EVENT THERE IS A DEFICIENCY WITH THE COMPONENT.
 2. PERFORM DEMOLITION WORK SO AS TO CAUSE MINIMAL DISTURBANCE TO OWNER AND/OR ADJACENT AREAS. MINIMIZE DUST AND NOISE AND PROVIDE TEMPORARY AIR FILTERS ON AIR HANDLING SYSTEMS AFFECT BY THE AREA OF WORK. ALL COSTS ASSOCIATED WITH DAMAGES AS A RESULT OF THE MECHANICAL DEMOLITION SHALL BE COVERED BY DIV.23. MAINTAIN SAFETY STANDARDS AND PROVIDE ADEQUATE SIGNAGE FOR BOTH WORKERS AND OCCUPANTS.
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 6. HEATING/COOLING FUNCTIONALITY SHALL BE COMMISSIONED DURING SUMMER/WINTER SEASON PRIOR TO CONSTRUCTION COMPLETION.
 7. ALL CONTROLS WORK TO BE CARRIED OUT BY BASE BUILDING CONTROLS CONTRACTOR AT THE EXPENSE OF DIV. 23.



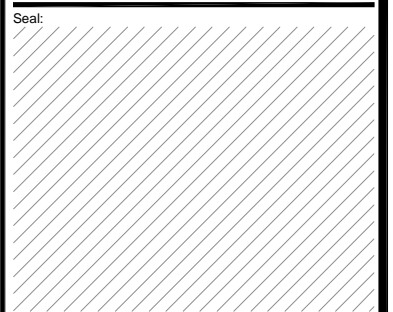
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2	ISSUED FOR 100% REVIEW	2024-11-05
1	ISSUED FOR REVIEW	2024-10-23

No. Issues/Revisions Date

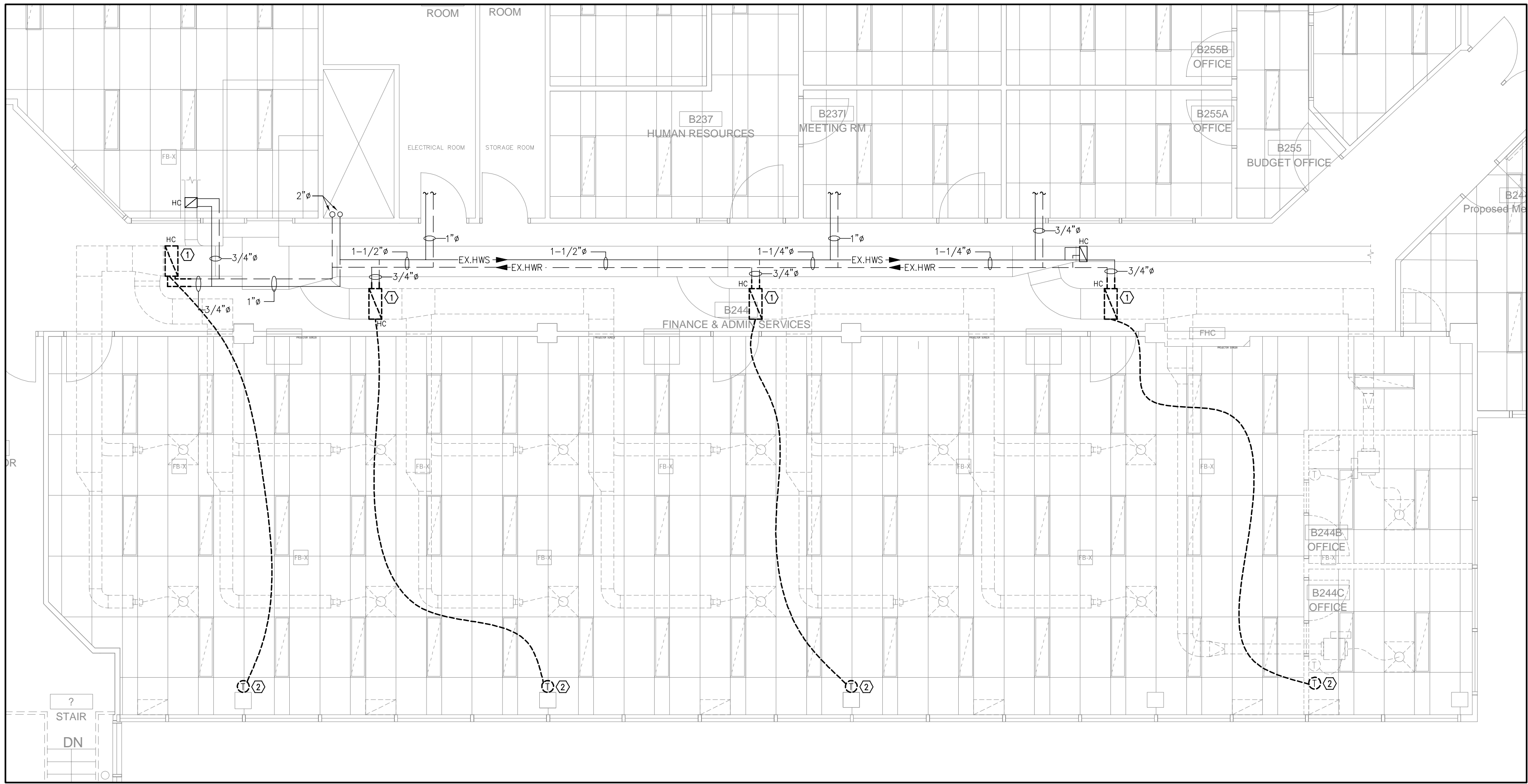
Project Name: Trafalgar Campus - B244 Classroom Renovation



Sheet Name:
SECOND FLOOR PLAN - HYDRONICS DEMOLITION

Drawn By: G.G. Checked By: J.H.
Issued Date: 11-09-2024
Project Number: 24-188 Scale: AS NOTED
Drawing No:

M-2.3



1 M-2.3 SECOND FLOOR PLAN - HYDRONICS DEMOLITION

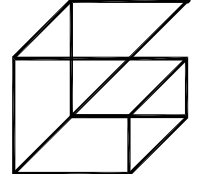
HVAC NOTES

① EXISTING HYDRONIC REHEAT COIL AND ALL ASSOCIATED VALVES TO BE REMOVED AND DISPOSED OF. REMOVE EXISTING HWS/HWR PIPING BACK TO WHERE SHOWN. PREPARE FOR NEW CONNECTION.

② EXISTING THERMOSTAT AND ASSOCIATED CONTROL WIRING/PNEUMATIC TUBING TO BE REMOVED AND DISPOSED OF.

GENERAL HVAC NOTES

- WHERE COMPONENTS ARE TO BE REUSED, THE CONTRACTOR SHALL CLEAN AND TEST THE COMPONENT TO ENSURE PROPER OPERATION. THE CONSULTANT SHALL BE NOTIFIED IN THE EVENT THERE IS A DEFICIENCY WITH THE COMPONENT.
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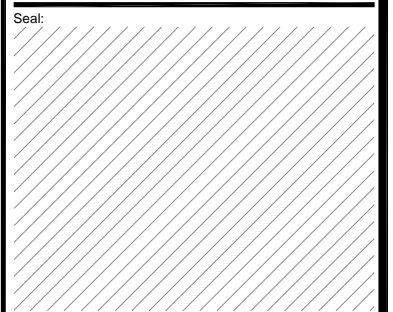
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1	ISSUED FOR REVIEW	2024-10-23

No. Issues/Revisions Date

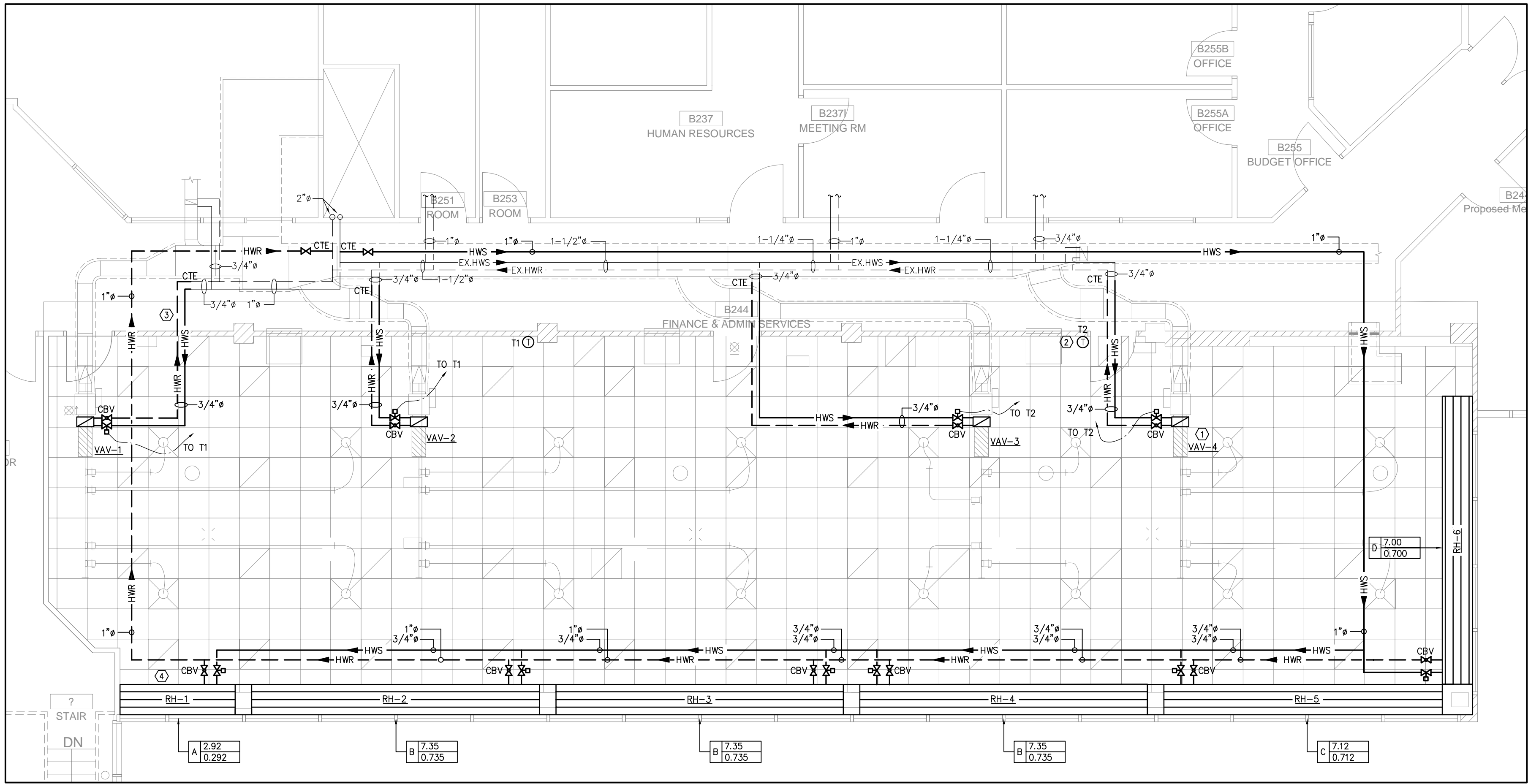
Project Name: Trafalgar Campus - B244 Classroom Renovation



Sheet Name:
SECOND FLOOR PLAN - HYDRONICS NEW

Drawn By: G.G. Checked By: J.H.
Issued Date: 11-09-2024
Project Number: 24-188 Scale: AS NOTED
Drawing No:

M-2.4



1 SECOND FLOOR PLAN - HYDRONICS NEW
M-2.4

HVAC NOTES

- 1) PROVIDE NEW VAV C/W REHEAT COIL AS SPECIFIED AND INTERLOCK WITH BAS. BALANCE AS INDICATED IN MECHANICAL SCHEDULES (TYPICAL).
- 2) PROVIDE NEW SHERIDAN STANDARD DELTA THERMOSTAT WHERE SHOWN SERVING VAV TERMINAL UNITS. EXACT LOCATION TO BE COORDINATED ON SITE WITH CLIENT (TYPICAL).
- 3) PROVIDE NEW HYDRONIC PIPING IN CEILING SPACE (TYPICAL).
- 4) PROVIDE NEW CEILING MOUNTED RADIANT PANEL AS SPECIFIED C/W ALL HANGERS AND SUPPORTS AS REQUIRED. REFER TO DETAILS (TYPICAL).

GENERAL HVAC NOTES

1. WHERE COMPONENTS ARE TO BE REUSED, THE CONTRACTOR SHALL CLEAN AND TEST THE COMPONENT TO ENSURE PROPER OPERATION. THE CONSULTANT SHALL BE NOTIFIED IN THE EVENT THERE IS A DEFICIENCY WITH THE COMPONENT.
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7. ALL CONTROLS WORK TO BE CARRIED OUT BY BASE BUILDING CONTROLS CONTRACTOR AT THE EXPENSE OF DIV. 23.

*** PRICING FIRM UNTIL FEBRUARY 2025

Door Hardware Submission List		
Description	Specification	Lead Time (Weeks)
Exit Devices	Sargent 8888	1 day
	Sargent 8888-12 (Fire Rated)	1 day
	Sargent NB8700 (NB-8715-F- ETJ-96)	1 week
	Sargent NB8700-12 (Fire Rated) (12-NB-8715-F-ETJ-96)	1 week
Mortice Locks	Schlage L9000. Storeroom function 9080L (03B 6330/626)	1 week
	KL11-422 (used with electric strike)	3-4 weeks
Leversets	Marks 195 SURVIVOR series 195F/26D-G3. Gr 1. 626 Finish	1 day
Key Cylinders	Medeco Bi-Axial (H3 Keyway)	restricted, priced on application
	Schlage Paracentric (1456 and 1458 Series)	restricted, priced on application
Cylinder Guard	CGC Security Collar C26d (Keed-k24LA 26D)	1 day
Door Closers	LCN 4040xp	1 day
	LCN 1460 (large swing)	1 day
Door Stays	Glynn Johnson (90 Series) (904H32d)	1 day
Elec. Door Closers	LCN Sentronic	1 day
Elec. Strikes	Folger Adam 700 Series (LMB, 24VDC 32d Finish)712-lcbma	2-3 weeks
	Folger Adam 300 Series (LMB, 24VDC 32d Finish)310-4-lcbma	2-3 weeks
Barrier Free Operations	Micom Smart Swing SW800	2 weeks
Operator Buttons	Camden CM60/4.	1 day
	Camden CM45/X54	2 weeks
	Camden CM45/X55	2 weeks
Weatherstrip	W38S Door Sweeps 3ft	1 day
	W20S Weatherstrip 20'4"	2 weeks
Threshold	CT Series (Thermally Broken 36" x 5")CT-45	1 day
	CT Series (36" x 5") CT-10	1 day

SHERIDAN CARD ACCESS INSTALLATION STANDARDS

Typical door requirements

Card Reader:

HID Signo 40 wall mounted reader (P/N 40TKS-02-0022HM) or;

HID Signo 20 mullion mount reader (P/N 20TKS-02-0022HM)

.

The above reader(s) part number must be ordered as the firmware is exclusive to Sheridan

Reader is to be placed on the wall adjacent to the knob, not the hinge side;

Bottom of reader must be 38" to 40" above the finished floor;

The edge of the reader must be at least 2" from the door frame.

Electric strike:

Folger Adams 700 series electric strike fail secure with LBM option (12/24 volt rated); or HES 9600 series fail secure with LBM for rim mount.

Door Contact:

Sentrol 1078 or equivalent

To be mounted on top of the door with 1k ohm double end of line, normally closed termination.

Must be tied in series with strike LBM.

To be secured in place with glue or silicone.

Request to Exit (REX):

Kantech TREX or equivalent

To be mounted on the top edge secure side of door frame;

Should be above the door handle and aimed to view approx. 3" from the base of door.

RM4 Door Control module/ Door strike relay:

Software House RM4 module/ ARM-1 or compatible relay

Must be secured in a small steel keyed enclosure.

Must be mounted in the ceiling above door where drop tile is installed, or on drywall above door if there is no drop tiles.

Cabling standards

iStar to RM4 comm cable: 3 pair individually shielded 18AWG stranded copper cable (plenum rated)

Relay (for lock) to Lock power supply: 1 pair 18AWG stranded copper cable

Lock to RM4 relay: 2 pair shielded 18AWG stranded copper cable

Door Contact to RM4: 2 pair 22AWG stranded cable

REX to RM4: 2 pair 22AWG stranded cable

Reader to RM4: 6 conductor shielded 22AWG copper cable

Other Equipments/ Devices

Controller: Software House iStar Ultra SE

Controller Power Supply: Software House PSX-150-E1 or equivalent

Lock Power Supply: Altronix AL600ULX or equivalent



HID® Signo™ Readers

Models: 20, 40, 20K, 40K

READY FOR THE FUTURE NOW

- Mobile-ready by default, including Apple's Enhanced Contactless Polling (ECP) to support credentials in Apple Wallet
- Sleek, innovative design to suit modern architecture
- Integrated OSDP for secure authentication and configuration post installation
- Built on a hardware platform designed to be adaptable to support future technology
- Designed to seamlessly integrate into the HID Origo® ecosystem

THE SIGNATURE LINE OF READERS FROM HID GLOBAL

- **Highly Versatile** — Support for the widest range of credential technologies, including HID Mobile Access® via native Bluetooth and Near Field Communication (NFC).
- **Unparalleled Performance** — Ultra secure storage of cryptographic keys on certified secure element hardware, plus a new surface detection feature that enables the reader to automatically recalibrate and optimize read range performance.
- **Connected to the Future** — All readers include out-of-the-box support for Open Supervised Device Protocol (OSDP) for secure bidirectional communication.

HID Signo™ is the signature line of physical access control readers from HID Global. The versatility, performance and connected capabilities of HID Signo readers set a new industry benchmark for the most highly adaptable, interoperable and secure approach to electronic access control.

Offering an unparalleled breadth of functionality, HID Signo affords security system installers and administrators a simple and effective approach to secure access control for almost any scenario.

With support for the widest array of credential technologies — past, present and future — HID Signo is the perfect choice for those looking to make the transition to a secure authentication technology.

HID Signo readers transcend the traditional approach to security by being designed to be connected and managed remotely without needing to physically touch each device. This functionality empowers access control systems to dynamically respond as new needs, configurations or threats arise.

POWERFULLY SECURE

- Multi-Layered security to ensure data authenticity and privacy
- EAL6+ Certified Secure Element Hardware
- Native OSDP secure channel capability
- Trusted secure authentication using the SIO data model
- Supports iCLASS Elite™ and Corporate 1000 Programs

MEET EVERY NEED, ADAPT TO ANY SITUATION

- Go mobile with native Bluetooth and NFC support
- Integrated 125 kHz credential read support for easy migration
- Supports over 15 common credential technologies
- Flush mount terminal block and pigtail wiring options
- Robust outdoor performance with an IP65 rating

MANAGE, UPGRADE AND CONFIGURE

- Easily and securely managed using HID Reader Manager®
- Configure via a mobile device or OSDP
- Update firmware in response to threats
- Personalize by configuring audio visual or keypad settings
- Deactivate legacy credential technology to conclude secure migration

SPECIFICATIONS

HID Signo Reader Model	20	20K	40	40K
2.4 GHz (Bluetooth) Credential Compatibility	Mobile Credentials powered by Seos® (HID Mobile Access)			
13.56 MHz (NFC) Credential Compatibility	Seos, iCLASS SE®, iCLASS SR®, iCLASS®, MIFARE Classic, MIFARE DESFire EV1/EV2, Mobile Credentials powered by Seos (HID Mobile Access)			
125 kHz Credential Compatibility	HID Proximity®, Indala Proximity®, AWID Proximity, and EM Proximity			
Typical Read Range¹	Seos®, MIFARE Classic, MIFARE DESFire EV1/EV2 & ISO14443A Single Technology Cards - 4 to 10 cm (1.6 to 4 in) HID / AWID Proximity®, Indala Proximity®, EM Proximity & 125 kHz Single Technology Cards - 6 to 10 cm (2.4 to 4 in)			
Mounting	Suited for mullion-mount door installations or any flat surface mounting		Suited to mount and cover single gang switch boxes with a slotted mounting plate for alternate back-box spacing	
Color	Black bezel with silver trim baseplate ²			
Keypad	No	Yes (2 x 6 layout)	No	Yes (3 x 4 layout)
Dimensions (width x length x depth)	45 mm x 121.5 mm x 19.5 mm (1.77 in x 4.78 in x 0.77 in)	45 mm x 121.5 mm x 21.5 mm (1.78 in x 4.79 in x 0.85 in)	80 mm x 121.5 mm x 19.5 mm (3.15 in x 4.78 in x 0.77 in)	80 mm x 121.5 mm x 21.5 mm (3.16 in x 4.79 in x 0.85 in)
Product Weight	Pigtail: 95 g (3.35 oz) Terminal: 75 g (2.65 oz)	Pigtail: 110 g (3.88 oz) Terminal: 90 g (3.17 oz)	Pigtail: 140 g (4.94 oz) Terminal: 120 g (4.23 oz)	Pigtail: 160 g (5.64 oz) Terminal: 140 g (4.94 oz)
Operating Voltage	12V DC			
Current Draw³	NSC ⁴ : 60 mA Peak: 250 mA Max. Avg: 70 mA IPM ⁵ : 45 mA	NSC ⁴ : 65 mA Peak: 250 mA Max. Avg: 75 mA IPM ⁵ : 48 mA	NSC ⁴ : 65 mA Peak: 250 mA Max. Avg: 75 mA IPM ⁵ : 45 mA	NSC ⁴ : 70 mA Peak: 250 mA Max. Avg: 80 mA IPM ⁵ : 55 mA
Device Input and Output	Input: Tri-color LED, Buzzer, Hold @ Active Low Output: Tamper Relay 0-60V DC @ 100mA Max (Dry Contact)			
Operating Temperature & Humidity	-35° C to +66° C (-31° F to +150° F) 0% to 95% non-condensing			
Storage Temperature	-40° C to +85° C (-40° F to +185° F)			
Environmental Rating	UL294 Outdoor and Indoor rated, IP65			
Transmit Frequency	125 kHz, 13.56 MHz, and 2.4 GHz			
Communications & Panel Connection	Wiegand and RS-485 Half Duplex (OSDP) via Pigtail (18 in / 0.5 m) or Terminal Strip			
Device Management	HID Reader Manager / OSDP configuration			
Certifications	UL294/cUL (US), FCC (US), IC (Canada), CE (EU), RCM (Australia, New Zealand), SRRC (China), KCC (Korea), NCC (Taiwan), iDA (Singapore), RoHS, MIC (Japan), GreenCircle, Bluetooth SIG, and additional regions. www.hidglobal.com/certifications			
Security Ratings	EAL 6+ Certified Secure Element Hardware			
Patents	www.hidglobal.com/patents			
Housing Materials	Polycarbonate - UL94 V0			
UL Reference Number	20	20K	40	40K
Warranty	Limited Lifetime			

- 1 Read range listed is statistical mean rounded to nearest centimeter increment for ID-1 or clamshell credentials. HID Global testing occurs in open air. Form factor, technology and environmental conditions, including metallic mounting surface, can degrade read range performance; plastic spacers are recommended to improve performance on metallic mounting surfaces.
- 2 Black trim baseplate & reader spacers available as an additional accessory at an additional cost.
- 3 Measured in accordance with UL294 standards; see Installation Guide for details.
- 4 NSC - Normal Standby Current; see Installation Guide for details.
- 5 Intelligent Power Management (IPM) - Reduces reader current consumption up to 43%, based on model, compared to standard operating mode.

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2019-12-19-pacs-signo-reader-ds-en PLT-04831



hidglobal.com

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Toll Free: 1 800 237 7769
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Asia Pacific: +852 3160 9800
Latin America: +52 55 5081 1670

An ASSA ABLOY Group brand



ASSA ABLOY

Major door hardware approved for use at Sheridan College

January 2022

Exit Devices: Sargent 80 series exit devices with ETJ trim if applicable. The specific series within the line will be determined by the door configuration and application however typically rim devices are 8888 series and vertical rod are NB8700 series

Mortice locks: Schlage L9000 series with 03B 630/626 trim are used in new building Construction as well as renovations within buildings where they are predominant. (XL11-422 option when used with an electric strike)

Cylindrical locks: Marks cylindrical leversets, Survivor series with American style lever Typically Grade one, 626 finish. These are used in retrofits and renovations within Buildings where cylindrical locks are predominant.

Key Cylinders: Sheridan has two key systems; new buildings have Medeco restricted Bi-axial keys and cylinders (H3 end user Keyway) and older ones have Schlage restricted paracentric systems. Some global door groups have Medeco cylinders within Schlage buildings as well. Confirm the requirements with the project coordinator if you plan to be providing key cylinders.

Cylinder guard CGC security collar C26d

Door closers: LCN 4040xp series closer are used in all applications unless there is an issue where the door swing requires a greater range of motion that the closer can provide, the particular door design does not have sufficient area to apply the closer or the closer will interfere with other hardware. The substitute is the LCN 1460 is to be used if one of the above issues exist.

Door Stays Glynn Johnson sized to suit application

Electric door closer/holders: the LCN Sentronic product line. Govern your choice by the door and frame conditions

Electric strikes folger adam 700 series or 300 series LBM option,24 VDC 32d finish

Barrier Free door operators: The Micom Smart Swing SW800. This is to be used on exterior doors and interior doors. Although they are classed as low energy, additional safety sensors must be used if a safety issue is perceived with any installation. Sliding doors always require safety sensors. All applications require qualified personnel to determine the exact requirements. Activation switches: Camden CM60/4 which is a 6" round fully active switch with logo/text. Barrier free washrooms incorporate the 4" square switches with "AURA" illuminated enclosures for occupancy indication

Weatherstrip Crowder (KNC)
Thresholds Crowder (KNC)

Card Access: the system components are to be supplied and installed by the security system integrator who must be a Softwarehouse Dealer and be certified to supply, install and maintain the systems. Components: iClass card readers, Folger Adam strikes, Sentrol door contacts and T-rex exit sensors

COLOR FIELD

Color Field - Eco Low Embodied Carbon Version

Modular Tile

Construction

Tufted, Textured Loop

Tile Size

25 cm x 1 m (9.84" x 39.4")

Yarn Type

ECONYL® Recycled Nylon

Stain Resist / Soil Release

StainSmart®

Dye Method

PrintWorks™ Precision Dyeing

Gauge

1/10

Stitches Per Inch

14.4

Tufts

144.0/in² (2,230/100 cm²)

Finished Pile Thickness

0.103" (2.62 mm)

Standard Backing

PVC-Free WellBAC® Comfort

Cushion

Available with TractionBack®

Recycled Content by Total Weight

Standard Backing: 47.9% Pre-Consumer, 7.1% Post-Consumer
NSF 140 Platinum Backing Option: 37.0% Pre-Consumer, 18.1% Post-Consumer

Embodied Carbon

9.4 (kg CO₂e)/m²

Nominal Total Thickness

0.310" (7.9 mm)

Nominal Total Weight

86.7 oz/yd² (2,940 g/m²)

Flammability (Radiant Panel

ASTM-E-648)

≥ 0.45 (Class I)

Smoke Density (NFPA-258-T or

ASTM-E-662)

≤ 450

Methenamine Pill Test (CPSC FF-1-70

or ASTM D 2859

Self-Extinguishing

Lightfastness (AATCC 16E)

≥ 4.0 at 80 Hours

Crocking (AATCC 165)

≥ 4.0 Wet or Dry

Static Electricity (AATCC-134) 20% R.H., 70° F.

≤ 3.5 KV, Permanent Conductive Fiber

Texture Appearance Retention Rating (TARR)

Severe Traffic End-Use Applications

Recommended Maintenance

MilliCare® Textile and Carpet Care Service Network

Indoor Air Quality—CRI Green Label Plus™

GLP0793, Carpet Category 5Y

Recommended Installation Method(s)

Planks

WARRANTIES

Lifetime Face Fiber Wear
Lifetime Antistatic
Lifetime Floor Compatibility
Lifetime Color Pattern Permanency
Lifetime Floor Release

Lifetime Cushion Resiliency
Lifetime Moisture Resistance
Lifetime Delamination of Backing
Lifetime Staining/Soiling (StainSmart®)
Lifetime Dimensional Stability

Lifetime Tuft Bind
Lifetime Edge Ravel
Flammability



Declare.



This cushion-back carpet tile product is covered by one or more patents, published applications and/or patents pending. Specifications are subject to normal manufacturing tolerances and may be changed without prior notice. Copies of actual test results are available upon request.

COLOR FIELD

Color Field

Modular Tile

Construction

Tufted, Textured Loop

Tile Size

25 cm x 1 m (9.84" x 39.4")

Yarn Type

Milliken-Certified WearOn® Nylon

Stain Resist / Soil Release

StainSmart®

Dye Method

PrintWorks™ Precision Dyeing

Tufted Face Weight

15.0 oz/yd² (508.6 g/m²)

Gauge

1/12

Stitches Per Inch

9.8

Tufts

117.6/in² (1,821/100 cm²)

Finished Pile Thickness

0.080" (2.03 mm)

Average Density (Finished)

6,541

Standard Backing

PVC-Free WellBAC® Comfort Cushion

Available with TractionBack®

Recycled Content by Total Weight

Standard Backing: 39.3% Pre-Consumer, 0.0% Post-Consumer
NSF 140 Platinum Backing Option: 28.6% Pre-Consumer, 10.7% Post-Consumer

Embodied Carbon

14.4 (kg CO₂e)/m²

Nominal Total Thickness

0.280" (7.1 mm)

Nominal Total Weight

89.2 oz/yd² (3,024 g/m²)

Flammability (Radiant Panel

ASTM-E-648)

≥ 0.45 (Class I)

Smoke Density (NFPA-258-T or

ASTM-E-662)

≤ 450

Methenamine Pill Test (CPSC FF-1-70 or ASTM D 2859

Self-Extinguishing

Lightfastness (AATCC 16E)

≥ 4.0 at 80 Hours

Crocking (AATCC 165)

≥ 4.0 Wet or Dry

Static Electricity (AATCC-134) 20% R.H., 70° F.

≤ 3.5 KV, Permanent Conductive Fiber

Texture Appearance Retention Rating (TARR)

Severe Traffic End-Use Applications

Recommended Maintenance

MilliCare® Textile and Carpet Care Service Network

Indoor Air Quality—CRI Green Label Plus™

GLP0793, Carpet Category 5Y

Recommended Installation Method(s)

Planks

WARRANTIES

Lifetime Face Fiber Wear
Lifetime Antistatic
Lifetime Floor Compatibility
Lifetime Color Pattern Permanency
Lifetime Floor Release

Lifetime Cushion Resiliency
Lifetime Moisture Resistance
Lifetime Delamination of Backing
Lifetime Staining/Soiling (StainSmart®)
Lifetime Dimensional Stability

Lifetime Tuft Bind
Lifetime Edge Ravel
Flammability



Declare.



This cushion-back carpet tile product is covered by one or more patents, published applications and/or patents pending. Specifications are subject to normal manufacturing tolerances and may be changed without prior notice. Copies of actual test results are available upon request.



































COLOR FIELD

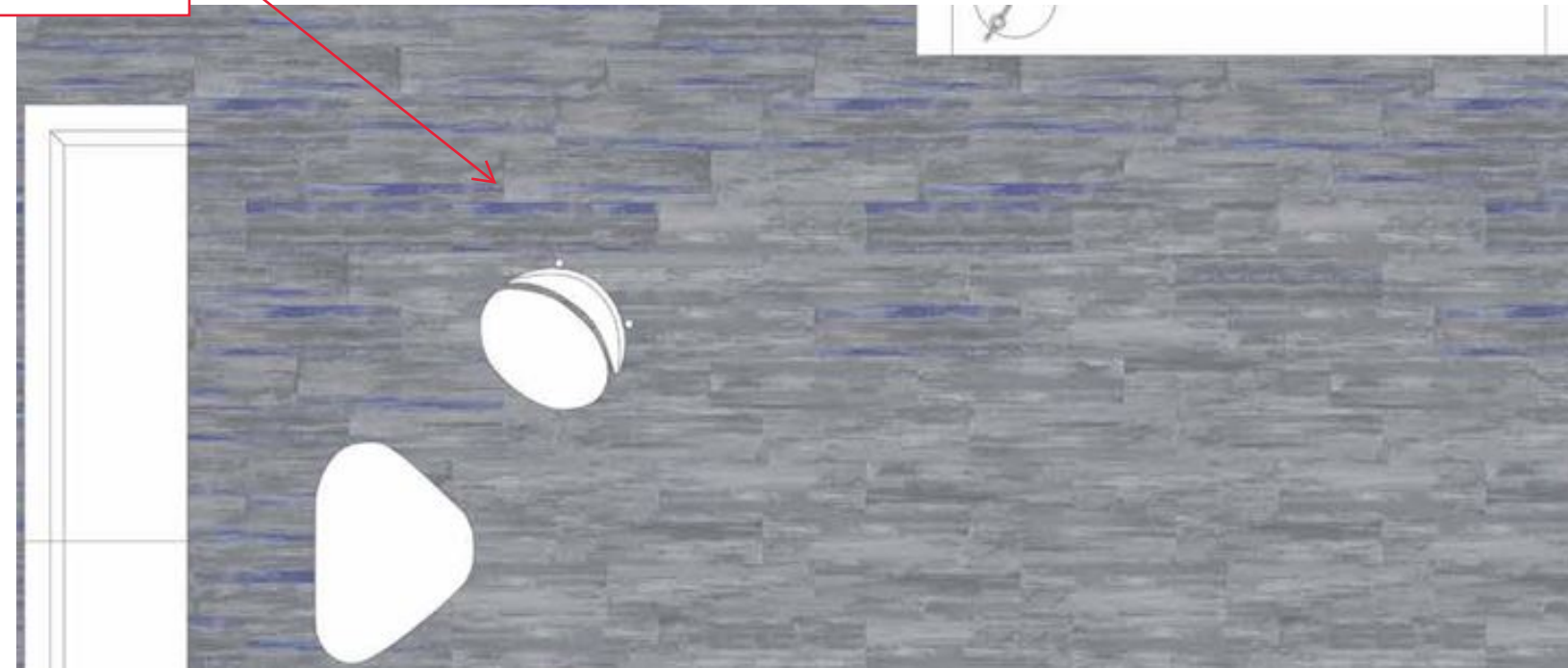
Milliken™

Volume II Colors

The 16 colors in Color Field have 4 different levels of intensity and movement to help create the exact look and feel envisioned. Even using just one hue's family, you can create unique floors—perfectly coordinated. Creativity soars when you mix your favorite combination from the 64 colors in a variety of plank installation methods.

ALTERNATING TWO COLOURS

							
COL106 AERO	COL154 RUNE	COL118 COMET	COL5 FELT GREY	COL108 CHELSEA FOG	COL86 CHAETURA	COL12 HAY BALE	COL15 MIDDLESTONE
							
COL193-106 GLACIER GREY	COL170-154 CLOUDBURST	COL19-118 DOWNPOUR	COL126-5 DRY DOCK	COL201-108 GREY TEAL	COL187-12 BRONZESHEEN	COL141-86 BLUE REED	COL20-15 WOODBINE
							
COL193 NIGHTSHADE	COL170 BLUE HEAVEN	COL19 FATHOM	COL126 OCEAN MIST	COL201 MALLARD	COL141 CELANDINE	COL172 AQUA SMOKE	COL20 BUTTERNUT
							
COL170-192-193 COTINGA	COL182-94-48 OIL BLUE	COL118-199-38 DARK NAVY	COL196-201-199 BLUE AGAVE	COL120-202-65 SULPHUR SPRING	COL195-75-141 COBALT GREEN	COL172-134-12 STREAMSIDE	COL33-21 GRAND BARA



Color Field in Rune, 25cm x 1m ashlar tile installation

Visualize now at
millikenfloors.com



COLOR FIELD

Construction

Tufted, Textured Loop

Tile Size

25 cm x 1 m (9.84" x 39.4")

Yarn Type

Milliken-Certified WearOn®Nylon

Stain Resist / Soil Release

StainSmart®

Finished Pile Height

0.13" (3.30 mm)

Finished Pile Thickness

0.08" (2.03 mm)

Average Density

6,541

Standard Backing

PVC-Free WellBAC® Cushion

Available with TractionBack®

Texture Appearance Retention Rating (TARR)

Severe Traffic End-Use Applications

Recommended Installation Method



PLANKS

SUSTAINABLE FEATURES

Color Field is manufactured with WellBAC® Comfort cushion backing and is certified NSF-140 Gold with 39.3% pre-consumer recycled content by total product weight. **Color Field** is also available with our NSF-140 Platinum backing option. All Milliken modular carpets carry Environmental Product Declarations and Health Product Declarations, which contribute to LEED certification. Additionally, Milliken modular carpets carry Declare® transparency labels and comply with the Red List Imperative of the Living Building Challenge.™



Images in this brochure are approximate for color and pattern scale. Please use actual carpet samples to make your final selections.

SHOWN ON THE COVER

(Front) Color Field in Rune.

(Back) Color Field in Mallard and Grey Teal.



Modular Carpet Installation Instructions - TractionBack®

The following document describes the correct method for installing Milliken modular carpet manufactured with TractionBack® adhesion backing.

APPLICABLE CRI INSTALLATION METHODS: Except where exceeded or modified by this instruction, Milliken recognizes the CRI™ Carpet Installation Standard 104 Standard for Installation of Commercial Carpet, September 2015 as the minimum acceptable standard for the installation of its carpet products.

NOTE: The installation contractor is responsible for reasonable inspection of the product prior to installation and for maintenance of dye lot integrity during installation. Milliken will not be responsible for visible defects after carpet has been installed.

GENERAL: Milliken modular carpet with TractionBack® is designed for installation without the general use of adhesive. However, the TractionBack adhesion backing system will ONLY function properly when the stringent floor preparation and installation guidelines outlined below are followed. For this reason, it is VERY important that a qualified installation contractor install this product. Milliken **strongly recommends** the use of a **Milliken Certified Installation Contractor** to install TractionBack modular carpets. As an alternate source, Floor Covering Installation Board (**FCIB**) certified contractors as well as companies that can document that they employ installers certified at the C-2 level or higher by the International Certified Floorcovering Installers Association (**CFI**) are also recognized as viable sources of quality installation.

TILE ORIENTATION: Some Milliken designs require specific installation methods (Quarter-turn, Ashlar, etc.) to achieve the intended appearance.

PRIOR TO INSTALLATION, always consult your local Milliken sales representative or Milliken Technical Services (1-800-528-8453 Option 3) if you have questions or concerns about the correct installation method. Due to the nature and construction of solution-dyed nylon, we are able to provide very unique, tufted design patterns. From time to time during installation, these products may require that tiles be shifted within the layout in order to avoid a dark line in one tile being positioned next to a dark line in another tile. The dark seam is not a carpet manufacturing defect and can be avoided by attention during the installation phase.

SDN and multi tile pattern products require additional shuffling during installation. Tiles must be mixed up when pulling off the pallet to assure randomization on the floor when installing. Should repeating design elements be observed during installation, the repetitive tiles should be shifted or replaced with other tiles to alleviate the repetitive visual that may occur.

FLOOR PREPARATION:

NOTE: The following are guidelines only. The Flooring Contractor has responsibility to assure compliance. Financial responsibility for bringing any floor into conformance with these guidelines must be determined prior to beginning work.

- Subfloor: Subfloor must be structurally sound, clean, dust free, smooth and level. Cracks and holes in excess of 1/8" (3.2mm) should be filled with a Portland Cement based floor patching material such as W.W. Henry® 547 Unipro™, DAP Webcrete® 98, Mapei® Planipatch®, Ardex Featherfinish® or similar. Gypsum based compounds are not recommended.
- Sealing of Floor: Sealing or other post treatment of concrete floors is at the discretion of the installation contractor. In general, properly cured (90 days minimum) steel trowel finished concrete requires no additional treatment. Excessively porous or dusty concrete slabs are the only exceptions. Please call Milliken Technical Services if you have questions. Durabond D250 is a recommended product should this type of treatment be deemed necessary; however, any non-silicone-based sealer will work acceptably with non-PVC backings. **This treatment is NOT intended to be a corrective for out-of-specification water vapor transmission levels.**
- Old Adhesive: Milliken modular carpet backings are non-reactive and contain no PVC or plasticizers, so it is typically not necessary to remove old adhesive from the floor prior to installing Milliken modular carpet with TractionBack®. No chemical incompatibility exists between Milliken modular carpet with TractionBack and any existing floor covering adhesive. This includes "cutback", asphalt emulsion, general-purpose adhesive, epoxy and any other commonly found flooring adhesives. The only physical requirement for existing adhesive films is that they be smooth, non-tacky, and that residual trowel notches be reduced to 1/32" (0.8mm) or less. In most cases the removal of the existing floor covering accomplishes this with only normal sweeping, cleaning, and patching required prior to beginning installation. Milliken is not responsible for subfloor conditions. The installer has the responsibility for obtaining a successful installation.
- Dust Removal: For TractionBack to effectively prevent lateral movement, it is REQUIRED that ALL dust and dirt MUST be removed from the floor prior to installation. A thorough wet mopping of the floor surface is REQUIRED prior to beginning installation of TractionBack.
- Sweeping Compounds: Oil or silicone based sweeping compounds and similar products, except where specifically approved, must not be used during floor preparation. TractionBack must not be installed over surfaces contaminated with oily residues.
- Oily Residue/Asbestos Abatement: If your subfloor is contaminated with an oily residue either from removal of "cutback" during asbestos abatement or from a previous end use such as metal fabrication, this residue MUST be totally removed or covered prior to applying modular adhesive and carpet. In addition, if residual adhesive - either "cutback" or general purpose - has been damaged/reactivated by previously installed PVC-backed carpet, call Milliken Technical Services for guidance. NEVER scrape, sand or mechanically abrade any exposed black adhesive or any existing resilient floor. These may contain asbestos. If residual adhesive is **not** black, scrape or sand until smooth and non-tacky as required above and follow with a thorough mopping as directed above. If additional smoothing is required and residual adhesive is black (cutback or asphalt emulsion) smoothing **must** be accomplished by applying a very thin layer of one of the above patching compounds.
- Level Floor: Protruding objects must be removed. Floor must be flat (not undulating) to within 1/4" in 12' (6.4mm across 3.66m) with no abrupt changes. This is very critical with TractionBack since there can be no differential adjustment of corner alignment as is possible when a general coverage of adhesive is present.
- When working with a Gyp-Crete or Gypsum subfloor, Milliken recommends sealing with a gypsum floor sealer prior to installation. Failure to do so will result in an unacceptable installation. Gyplock Sealer by Cornerstone Coatings International Inc. is a suitable sealer.
- Carpet Storage and Conditioning: Carpet should be stored between 40°F and 100°F (4°C to 38°C) and must be conditioned to between 60°F and 90°F (15°C and 32°C) for at least 24 hours prior to and during installation.
- Installation Temperature and Humidity: Floor temperature should be 60°F (15°C) minimum for proper performance of TractionBack. Floor temperature should not exceed 90°F.
- Relative humidity of the slab should not exceed 85% as measured by the RH Probe Test (ASTM F2170).
- Floor pH should not exceed 10.0. If the pH is above 10, it must be corrected by application of a primer such as Prelude by XL Brands.
- On all TractionBack projects where the use of any supplemental adhesive materials may be necessary as a locking mechanism, and the Relative Humidity of the slab exceeds 85%RH as determined by the In-Situ relative humidity probe test. Milliken recommends the use of the applicable Milliken Non-Reactive Standard or Milliken Moisture Extreme adhesives.

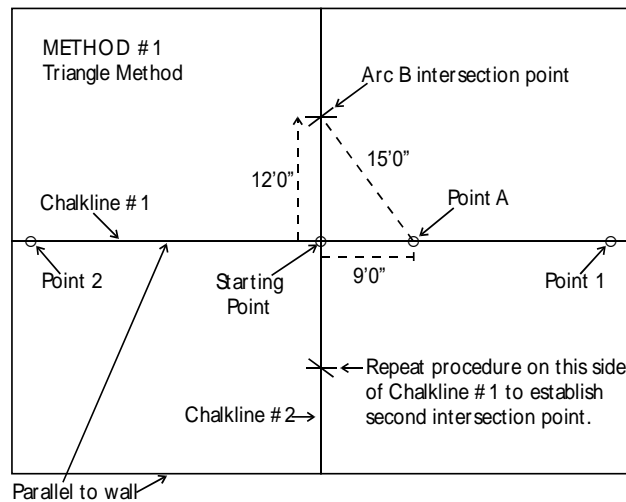
INSTALLATION INSTRUCTIONS:

GENERAL: The most important part of any modular installation occurs before the first tile goes on the floor or any adhesive is applied. **Proper planning and layout is crucial to the success of all modular installation.** Floor preparation should be verified before beginning installation. Milliken Technical Services should be contacted for assistance if problems are encountered.

1. Place a carpet tile on the cleaned floor and press the entire tile down firmly. Kneel beside the module and attempt to slide it across the floor by grasping the opposite edge and pulling. The tile should not move laterally.
2. Lift a corner of the tile and then lift the tile from the floor. The tile should easily separate from the floor surface.

CHALKLINE APPLICATION: Once floor preparation is completed and the floor thoroughly mopped, two working chalklines must be applied to the floor to insure a straight, square, and properly aligned installation. These chalklines intersect at the starting point and are exactly 90° to each other. Following are two methods for applying chalklines:

METHOD #1 - TRIANGLE METHOD:



Chalkline #1: Regardless of method, chalkline one – also referred to as the “baseline” - is snapped roughly parallel to some architectural feature (outside wall, column line, etc.) and generally runs the longer dimension of the area. This is done by placing two and only two points on the floor as far apart as possible within the area at the same distance from the selected architectural feature. (See Point 1 and Point 2 on the diagram.) This distance is determined by the installer to optimize cut sizes and minimize waste.

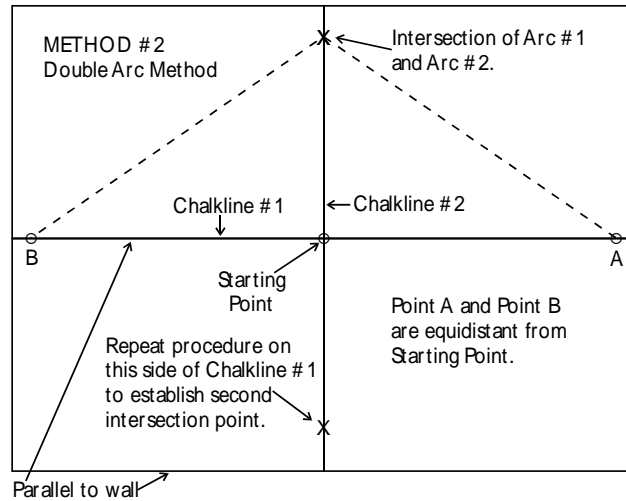
Starting point and Chalkline #2: Select a starting point somewhere on Chalkline #1. Location of starting point is usually but not always close to the true center of the area. It may be offset to optimize cut sizes. Using the largest possible multiple of a 3-4-5 triangle (6-8-10, 9-12-15, 12-16-20, 15-20-25, 18-24-30, 30-40-50 etc.), construct a chalkline through the starting point exactly 90° to chalkline #1 as follows:

Note: In this example we will use a 9-12-15 triangle measured in feet and inches, however, units of measure used do not affect the validity of the procedure.

Construct Chalkline #2 as follows:

1. Measure exactly 9'0" from the starting point along chalkline #1.
2. Measure exactly 12'0" from the starting point approximately perpendicular to the line #1. Mark an arc (line) on the floor parallel to chalkline #1 four to five inches long as indicated by Arc "B".
3. Measure exactly 15'0" diagonally from point "A" to Arc "B" as indicated.
4. That point on Arc "B" exactly 15'0" from point "A" when connected with the starting point gives a line exactly 90° to chalkline #1. For maximum accuracy, this procedure should be repeated on the opposite side of chalkline #1. A chalkline or a dry line should be stretched between the two intersection points created. If measurements are accurate, the string will go directly across the starting point.

METHOD #2 - DOUBLE ARC METHOD:



Chalkline #1 - Same as in Triangle Method.

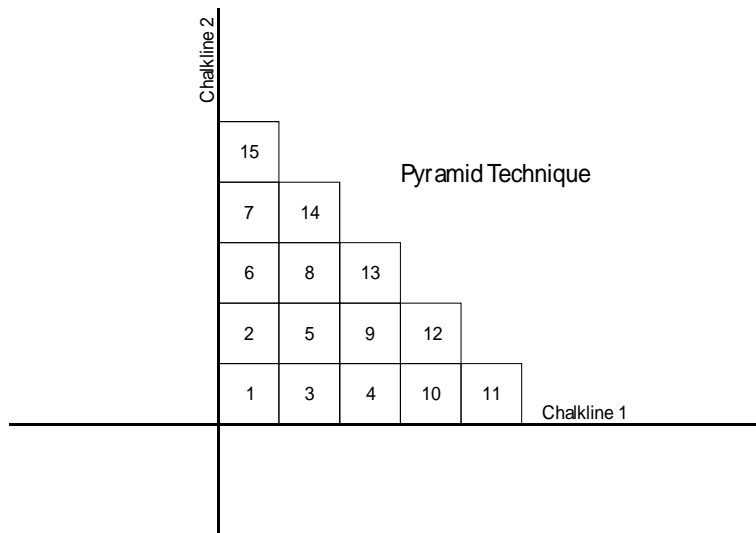
Chalkline #2 - Select starting point same as triangle method and proceed as follows:

1. From the starting point, measure any convenient distance in both directions along chalkline #1 and mark point A & B on the floor (see diagram). These points should be as close as possible to the end walls of the area and must be the same distance from the starting point.
2. From points A & B, measure diagonally as indicated by the dotted lines allowing the tape measure to feed out until you are close to the side wall. Place a framing square or a carpet module at the starting point aligned with chalkline #1 to act as a visual guide to tell you when you are close to 90 degrees. Once you feel you are close, pick a distance and remember it.
3. Strike an arc (Arc #1) measuring the distance determined above from point "A". Now working from point "B", measure diagonally using exactly the same distance used to strike Arc #1 and strike Arc #2. This intersection point connected to the starting point is a 90° angle to line #1.
4. As in the Triangle Method, this procedure should be repeated on the opposite side of line #1. Once accurate chalklines are applied, begin installation at the intersection point of the two chalklines.

When working with TractionBack®, it is necessary to move across the newly placed modules very carefully until the installation can be locked in at the perimeter.

GENERAL:

- The pyramid technique (see diagram below) gives three alignment checkpoints on each tile placed and should be used on ALL products regardless of module size or backing. This technique also helps control spacing or "growth" and keeps the entire layout closely referenced to the chalklines. Strict attention should be paid to corner alignment. Tiles out of alignment by more than 1/16" (1.6mm) on 50cm product or 1/8" (3.2 mm.) on 36" or 1m product should not be installed. Some "wandering" of edges due to undulation in the floor is unavoidable. This will be gradual and tend to come and go randomly, however, if corners become misaligned and this misalignment continues to increase, this indicates an out of square condition. The problem should be immediately determined and corrected.

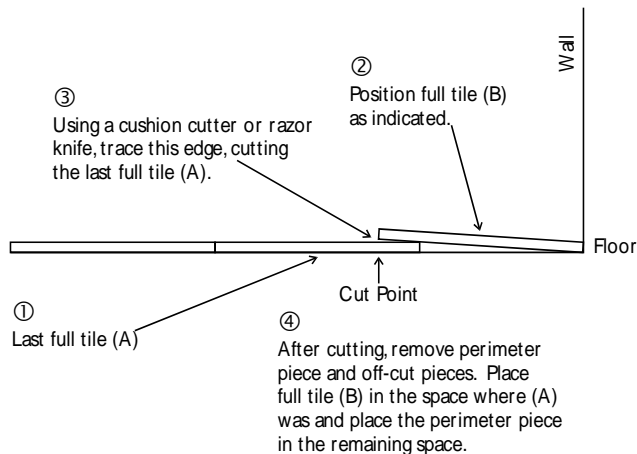


- Always **SLIDE** each module into position from the side to prevent trapped yarn. Set each module by firmly rubbing both joints. Should the TractionBack become contaminated with dust, the back of the tile should be wiped with a damp cloth to remove the contamination and restore the effectiveness of the TractionBack.
- Modules should be tight but not compressed. Peaking will occur when modules are too tight. Too loose an installation will never achieve the best possible overall appearance and can show gaps over time as the looseness accumulates in one area.

- Tightness or “growth” should be determined by measuring the distance covered by 11 full modules (10 joints). This measurement should be no more than 1/8” (3.2mm) over the calculated distance for eleven tiles. In some cases, this distance may be less than calculated. This distance may also vary between the length and width of the product. Once this “growth” figure is determined, it must be maintained throughout the installation.
- Directional arrows are applied to the back of each tile indicating pile direction. This allows the customer/installation contractor to choose the method of installation preferred: Quarter-Turned, Monolithic (Corner-to-Corner or Ashlar), Random, 180-Degree Turned, Checkerboard, Mosaic or a mixture. **Some Milliken designs REQUIRE that specific installation methods be used to achieve the desired visual. Always check with your Milliken representative or call Technical Services if there is any question.**
- Whenever possible it is recommended that arrows be run parallel to major traffic lanes. Unless it is unavoidable, arrows should not run across hallways.
- Installations receiving heavy rolling traffic should be locked in every 30’.
- When installing Milliken modular carpet with TractionBack® on inclined surfaces, a locking mechanism (Milliken Pressure Sensitive Adhesive) must be used for the entire incline area.

CUTTING:

- The parallel or “scribe” cutting technique is one method of easily and accurately cutting modular carpet. (See diagram below.) This method is valid regardless of backing system and yields a good vertical cut that is snug but not compressed. Any method that achieves this result is acceptable.



- A fixed and unmoving perimeter is mandatory to insure the performance of the finished installation. To avoid tile movement or shifting, each tile must be firmly fitted (within 1/16”) to all wall lines or fixed building structures. When this is not practical, the product must be securely anchored using a perimeter adhesive (18” to 24” wide) or double-faced tape. Adhesive or double-faced tape should be used under all partial or cut tiles measuring less than 12” in any single direction.
- In situations where vertical abutments do not extend to (connect with) the floor, or cutting techniques do not yield a snug fit to the wall, Milliken recommends the use of a locking mechanism. A minimum of two strips of double faced carpet tape or a 12” wide application of Milliken pressure sensitive adhesive applied along the walls are acceptable locking mechanisms.
- Properly installed installations with TractionBack can begin receiving foot and rolling traffic as soon as they are finished and locked into the perimeter of the area. Exposed edges should be protected when rolling heavy loads such as pallets of carpet across the installed portion. Plywood or Masonite should be positioned on the carpet when heavy furniture or supplies are moved.
- The recommended casters for desk chairs should have a tread width of 3/4” to 1” (19mm to 25mm), and a wheel diameter of 2”- 2 1/2” (5cm - 6cm) tapered. Hard polyolefin composition is recommended. For more detailed information, contact Milliken Technical Services.

TRANSITIONS AND STAIRS:

- For the most attractive finish with its modular products Milliken recommends the use of top set cove base after carpet installation is completed.
- Appropriate transition strips **MUST** be installed wherever there is a potential for an edge to be exposed or where Milliken modular carpet finishes to another flooring type. The total thickness of Milliken modular carpet with WellBAC™ cushion requires a transition treatment capable of accepting the carpet without the necessity of modifying or adapting the edge. Johnsonite’s EG-XX-W edge guard and CRS-XX-D reducer have proven successful for edge protection for products with WellBAC™ cushion. Equivalent products from other manufacturers are also acceptable.
- For best long-term performance on stairs, a double undercut nosing such as Johnsonite part SVCD-XX-A or equal should be applied to each step with modules cut to fit on both the tread and the riser. This method of installation on stairs protects the carpet from receiving the impact present at the nose and helps in holding the riser carpet in place. Generally, a Cove Base type adhesive is also used to adhere the riser and tread piece to ensure that the carpet stays in place.
- It is possible to install modular carpet with WellBAC cushion on stairs without the use of a separate nosing. This requires modifying and/or removing the backing and results in placing a structurally compromised product directly on the nose of the stair with no protection from the severe impact and abrasion that will occur. This is not recommended.
- Johnsonite transition treatments, stair nosings and similar products from other manufacturers are sold through distributors. For the location of the nearest Johnsonite distributor, call 800-899-8916. When obtaining transition/nosing treatments from other manufacturers, always be sure to specify the total thickness of the carpet product being installed to insure the correct transition product is used. **USE OF IMPROPER AND/OR INADEQUATELY INSTALLED TRANSITION TREATMENTS WILL RESULT IN EDGE FAILURE. SELECTION AND INSTALLATION OF THESE PRODUCTS IS THE RESPONSIBILITY OF THE INSTALLATION CONTRACTOR.**

PROTECTING CARPET AFTER INSTALLATION:

Milliken recognizes the CRI™ Carpet Installation Standard 104 Standard for Installation of Commercial Carpet, September 2015 as the standard guideline for protecting carpet and associated materials after installation. The CRI™ Standard specifically states: "It is recommended that carpet be the last trade on any job site. However, if it is required to protect the finished floor covering from soil or paint, or if any additional work is required to be done after installation, the carpet should be covered with a non-staining building material paper. Protect the installation from rolling traffic by using sheets of hardboard or plywood in potentially affected areas." Also, CRI™ cautions: "Self-adhering plastic films may leave residues that result in rapid soiling after removal. Do not place plastic sheeting over any carpet installation because it may present a slip hazard. Most importantly, plastic coverings will trap moisture, retard adhesive curing and may promote mold growth."

NOTE: THE ABOVE INSTALLATION INSTRUCTIONS ARE GENERAL IN NATURE AND ARE NOT COMPLETE FOR EVERY MILLIKEN MODULAR CARPET PATTERN. SOME MILLIKEN PATTERNS REQUIRE SPECIFIC INSTALLATION METHODS (QUARTER-TURNED, ASHLAR, ETC.) TO ACHIEVE THE DESIRED APPEARANCE. ALWAYS CONSULT YOUR MILLIKEN REPRESENTATIVE OR TECHNICAL SERVICES IF THERE ARE QUESTIONS ABOUT THE CORRECT INSTALLATION METHOD.

This information is supplied by Milliken & Company
300 Lukken Industrial Drive West, LaGrange, Georgia 30240
BACKED BY THE LARGEST, MOST PRODUCTIVE RESEARCH AND DEVELOPMENT FACILITY IN THE CARPET INDUSTRY.
Call Technical Services Team Toll Free 1-800-528-8453 – Select Option #2

The above instructions represent the best available data and are deemed to be correct and complete; however, Milliken assumes no liability for installation-related problems.

05/2021



Modular Carpet Installation Instructions

These instructions are for use **ONLY** with WellBAC® Comfort Plus cushion back and WellBAC® Comfort cushion back modular carpet. **DO NOT** use these instructions or any Milliken Adhesive to install carpet containing PVC.

APPLICABLE CRI INSTALLATION METHODS: Except where exceeded or modified by this instruction, Milliken recognizes the CRI Carpet Installation Standard 104 Standard for Installation of Commercial Carpet, September 2015 as the minimum acceptable standard for the installation of its carpet products.

NOTE: Installation contractor is responsible for reasonable inspection of the product prior to installation and for maintenance of dye lot integrity during installation. Should problems be discovered during inspection, please contact your local Milliken sales representative or call Toll Free 1-800-528-8453 - Select Option #2. Milliken will not be responsible for visible defects after carpet has been installed.

GENERAL: All Milliken modular carpet is designed for installation without permanent adhesives. This allows easy removal and reinstallation. Installation contractor should review these instructions before starting the actual installation. As a first preference, Milliken **strongly recommends** the use of a **Milliken Certified Installation Contractor** to install its products. As an alternate source, companies that can document that they employ installers certified at the C-2 level or higher by the International Certified Floorcovering Installers Association (**CFI**) are also recognized as viable sources of quality installation.

TILE ORIENTATION: Some Milliken designs require specific installation methods (**Quarter-turn, Ashlar, etc.**) to achieve the intended appearance.

PRIOR TO INSTALLATION, always consult your local Milliken sales representative or Milliken Technical Services (1-800-528-8453 Option 3) if you have questions or concerns about the correct installation method. Due to the nature and construction of solution-dyed nylon (SDN), we are able to provide very unique, tufted design patterns. From time to time during installation, these products may require that tiles be shifted within the layout in order to avoid a dark line in one tile being positioned next to a dark line in another tile. The dark seam is not a carpet manufacturing defect and can be avoided by attention during the installation phase.

SDN and multi tile pattern products require additional shuffling during installation. Tiles must be mixed up when pulling off the pallet to assure randomization on the floor when installing. Should repeating design elements be observed during installation, the repetitive tiles should be shifted or replaced with other tiles to alleviate the repetitive visual that may occur.

FLOOR PREPARATION:

NOTE: The following are guidelines. The Flooring Contractor has responsibility to assure compliance. Financial responsibility for bringing any floor into conformance with these guidelines must be determined prior to beginning work.

- Floor preparation in accordance with ASTM F710 (current version) unless specifically allowed per this document.
- All topical membrane forming concrete curing compounds must be removed prior to application of adhesive.
- Concrete subfloors must be structurally sound, clean, dust free, smooth, trowel finish (not burnished) and level. Cracks and holes in excess of 1/8" (3.2mm) should be filled with a Portland Cement based floor patching material such as W.W. Henry 547 Unipro™, DAP "Webcrete 98", Maipei "PlaniPatch", Ardex "Featherfinish" or similar. **Gypsum based compounds are not recommended.**
- Milliken modular carpet backings are non-reactive and contain no P.V.C. or plasticizers. This greatly simplifies the floor preparation process and typically eliminates the necessity of old adhesive removal. See adhesive Technical Data Sheet for specifics. All Milliken Modular carpets carry the "Lifetime Floor Compatibility" warranty. **Milliken is not responsible for subfloor conditions.** The installer has the responsibility for obtaining a successful installation.
- No chemical incompatibility exists between Milliken modular carpet or Milliken Non-Reactive Standard Modular Carpet Adhesive and any existing floor covering adhesive. This includes "cutback", asphalt emulsion, general-purpose adhesive, epoxy and any other commonly found flooring adhesives.
- The only physical requirement for existing adhesive films is that they be smooth, non-tacky, and that residual trowel notches be reduced to 1/32" (0.8mm) or less. In most cases the removal of the existing floor covering accomplishes this with only normal sweeping, cleaning, and patching required prior to beginning installation.
- Regardless of adhesive type, the existing layer should have minimal residual tack. There is no chemical reaction; however, excessive tack may cause the carpet modules to become bonded too aggressively to the floor over time. This tack can be minimized or eliminated by sifting Portland cement-based patch powder into the existing film and sweeping away the excess or by applying a very thin layer of Portland patch.
- If installing with Milliken Mosaic Moisture XT or Milliken Mosaic 98 -Spray adhesives, existing adhesive film must be removed to a stain.
- If additional smoothing is required and residual adhesive is black (cutback or asphalt emulsion) smoothing **must** be accomplished by applying a very thin layer of one of the above patching compounds.
- NEVER scrape, sand or mechanically abrade any exposed black adhesive or any existing resilient floor. These may contain asbestos.
 - Please follow applicable safety protocols and have adhesive tested for asbestos before proceeding.
- If residual adhesive is **not** black, scrape or sand until smooth and non-tacky as required.
- Protruding objects must be removed. Floor must be flat (not undulating) to within 1/4" in 12' (6.4mm across 3.66m) with no abrupt changes.
- Sealing or other post treatment of concrete floors is at the discretion of the installation contractor. In general, properly cured (90 days minimum) steel trowel finished concrete requires no additional treatment. Excessively porous or dusty concrete slabs are the only exceptions. Please call Milliken Technical Services if you have questions. XL Brands Prelude is a recommended product should treatment of porous or dusty concrete slab be deemed necessary; however, any non-silicone based sealer will work acceptably with non-PVC backings. **This treatment is NOT intended to be a corrective for out-of-specification water vapor transmission levels.**
- When working with a Gyp-Crete or Gypsum subfloor, Milliken recommends sealing with a gypsum floor sealer prior to installation. Failure to do so will result in an unacceptable installation. Gyplock Sealer by Cornerstone Coatings International Inc. is a suitable sealer.
- Carpet should be stored between 40°F and 100°F (4°C to 38°C) and must be conditioned to between 60°F and 90°F (15°C and 32°C), or applicable service conditions prior to and during installation.
- Floor temperature should be 60°F (15°C) minimum for proper adhesive curing and performance.

NOTE: If your subfloor is contaminated with an oily residue either from removal of “cutback” during asbestos abatement or from a previous end use such as metal fabrication, this residue **MUST** be totally removed or covered prior to applying modular adhesive and carpet. In addition, If residual adhesive – either “cutback” or general purpose – has been damaged/reactivated by previously installed PVC-backed carpet, call Milliken Technical Services for guidance. **The “Lifetime Floor Compatibility” warranty does NOT apply in these situations.**

RECOMMENDED ADHESIVES:

- **Milliken Non-Reactive Standard Adhesive, packaged in 4-gallon (15.1 liter) pails** is recommended for the installation of all Milliken modular products with WellBAC® Comfort Plus & WellBAC® Comfort backing systems when:
 - **New Pour:**
 - 1. It is a new pour >45 days.
 - 2. No visible water on the surface.
 - 3. Acclimatized to service conditions.
 - 4. Bond test required with archived photo documentation.
 - **Renovation** – On grade, Above grade or Below grade
 - 1. No visible water on the surface.
 - 2. Acclimatized to service conditions.
 - 3. Bond test required with archived photo documentation.

ADDITIONAL CONSIDERATIONS:

- See each corresponding adhesive specification sheet for full technical data and detailed instructions for use.
- **Use of non-Milliken adhesives does not affect carpet product warranties, however, any claim related to adhesive performance, bond, floor releasability, or workmanship and any damage caused by this would be the total responsibility of the party responsible for using the non-recommended product.**
- Milliken Non-Reactive adhesive is especially formulated to give superior performance with Milliken’s non-PVC backing systems, contain no hazardous ingredients, and provide the best indoor air quality environment available. Adhesive should be purchased with the carpet for maximum convenience and lowest total cost.

COVERAGE RATES/APPLICATION METHODS:

Recommended target coverage rates are averages based on years of performance experience with various backing types and end use environments. The installation contractor **MUST** determine and be responsible for the exact coverage rate for a particular project. When **estimating** adhesive requirements for a project, it is recommended that the lower end of the coverage rate range be used. It is always better to have an extra pail or can than to run short. **As a general rule when installing modular carpets, use the LEAST adhesive that will satisfy the requirements of the “adhesive verification” test outlined below.**

- **Milliken Non-Reactive Standard** adhesive is applied with a long nap (3/4 to 1 inch – 19mm to 25mm) paint roller or a 1/32” x 1/32” x 1/16” (0.8mmx0.8mmx1.6mm) notched trowel.
- **If coverage is required in square feet to conform to NIST standards, simply multiply square yards by 9 or square meters by 10.72.**
- **Milliken Non-Reactive Standard** adhesive is a mint green coloration out of the container. It will dry to a translucent green tint. **This change in coloration is one of the indicators that the adhesive film is ready to receive carpet.**
- **In ALL situations, adhesive is allowed to dry completely before installing carpet – See “Bond Test Procedure” outlined later in these instructions for details on determining exactly when an adhesive film is ready to receive carpet. These coverage rates apply regardless of whether the adhesive is applied with a paint roller or trowel.**

TARGET COVERAGE RATES BY PRODUCT:

Milliken Non-Reactive Standard: WellBAC® Comfort Plus cushion back and WellBAC® Comfort cushion back full spread for all tile sizes: 35 to 40 sq. yds./gallon (9.5 to 10 sq. m./liter). In extreme environments - such as casinos and convention centers - which will routinely experience extreme rolling loads in excess of 5,000lbs (2272Kg.), a heavier full spread of adhesive is recommended. Target coverage for this end use is 20 to 25 sq. yds./gallon (5 to 6 sq. m./liter) for the **Milliken Non-Reactive Standard** product.

INSTALLATION INSTRUCTIONS:

GENERAL: The most important part of any modular installation occurs before the first module goes on the floor or any adhesive is applied. **Proper planning and layout are crucial to the success of all modular installation.**

Due to the nature and construction of solution-dyed nylon (SDN), we are able to provide very unique, tufted design patterns. From time to time during installation, these products may require that tiles be shifted within the layout in order to avoid a dark line in one tile being positioned next to a dark line in another tile. The dark seam is not a carpet manufacturing defect and can be avoided by attention during the installation phase. SDN products require additional shuffling during installation to insure random installation.

From time to time, our products will experience pile crush from the packaging process. This may cause some tiles to look light & dark during initial installation. This is not a manufacturing defect, and will acclimate with time, traffic and vacuuming.

ADHESIVE READINESS SHOULD BE VERIFIED AS FOLLOWS BEFORE BEGINNING INSTALLATION.

A bond test is a mock-up installation done prior to the general installation of the Modular Carpet tile to indicate whether the adhesive will bond satisfactorily to the substrate and floor covering. Bond testing will aid in identifying both the working characteristics of the adhesive, such as the appropriate open and working time for the site conditions, and also any potential bonding problems to the substrate.

Bond Test Procedure:

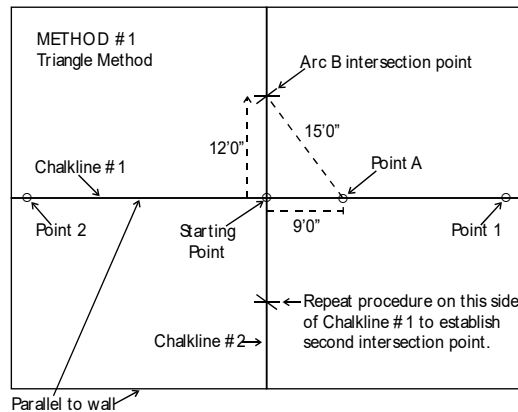
1. Select an approximately 6’ x 6’ area (approx. 4. square meters) in a typical location on the substrate or slab. The floor should be prepped and consistent with the installation plan per Milliken Modular carpet installation instructions.
2. Milliken modular carpet adhesives should be applied to the substrate for a releasable installation in the recommended manner (trowel or roller) and application rate. The adhesive should be allowed to dry completely prior to installation of modular carpet.
3. Observe the adhesive drying time, which will vary with the floor porosity and ambient conditions. Properly dried adhesive will not transfer to the finger and will have a tacky feel.

4. After placing the carpet tile on the dried adhesive apply downward pressure to assure contact with the substrate. Tiles should be immediately locked in place inhibiting lateral movement.
 5. After 24 hours, observe the mock-up installation to see if any obvious problems may exist. The modular carpet should be adequately bonded to the substrate, and inhibit lateral movement with adhesive remaining firmly bonded to the substrate. To test this attempt to slide each tile. Now lift each carpet tile and check backing for adhesive transfer. All adhesive should remain on the floor. There should be no adhesive transfer to the back of the tile.
- Document with photos that show floor prep, floor with adhesive, and back of tile upon tile removal after 24hr period.
 - Testing should be conducted approximately 72 hrs prior to installation.
 - If installation covers multiple floors a bond test should be conducted on grade.

NEVER INSTALL ANY MILLIKEN MODULAR CARPET INTO WET ADHESIVE.

CHALKLINE APPLICATION: Once floor preparation is completed, two working chalklines must be applied to the floor to insure a straight, square, and properly aligned installation. These chalklines intersect at the starting point and are exactly 90° to each other. Following are two methods for applying chalklines:

METHOD #1 - TRIANGLE METHOD:



Chalkline #1: Regardless of method, chalkline one - also referred to as the “baseline” - is snapped roughly parallel to some architectural feature (outside wall, column line, etc.) and generally runs the longer dimension of the area. This is done by placing two and only two points on the floor as far apart as possible within the area at the same distance from the selected architectural feature. (See Point “1” and Point “2” on the diagram.) This distance is determined by the installer to optimize cut sizes and minimize waste.

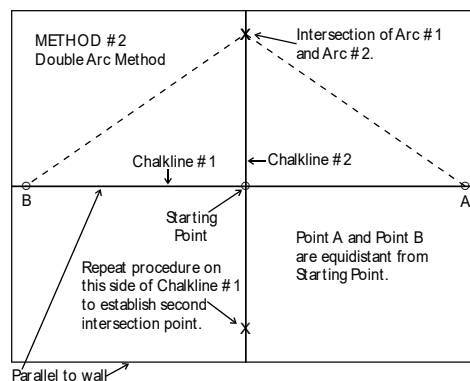
Starting point and Chalkline #2: Select a starting point somewhere on Chalkline #1. Location of starting point is usually but not always close to the true center of the area. It may be offset to optimize cut sizes. Using the largest possible multiple of a 3-4-5 triangle (6-8-10, 9-12-15, 12-16-20, 15-20-25, 18-24-30, 30-40-50 etc.) construct a chalkline through the starting point exactly 90° to chalkline #1 as follows:

Note: in this example we will use a 9-12-15 triangle measured in feet and inches, however, units of measure used do not affect the validity of the procedure.

Construct Chalkline #2 as follows:

1. Measure exactly 9’0” from the starting point along chalkline #1.
2. Measure exactly 12’0” from the starting point approximately perpendicular to the line #1. Mark an arc (line) on the floor parallel to chalkline #1 four to five inches long as indicated by Arc “B”.
3. Measure exactly 15’0” diagonally from point “A” to Arc “B” as indicated.
4. That point on Arc “B” exactly 15’0” from point “A” when connected with the starting point gives a line exactly 90° to chalkline #1. For maximum accuracy, this procedure should be repeated on the opposite side of chalkline #1. A chalkline or a dry line should be stretched between the two intersection points created. If measurements are accurate, the string will go directly across the starting point.

METHOD #2 - DOUBLE ARC METHOD:



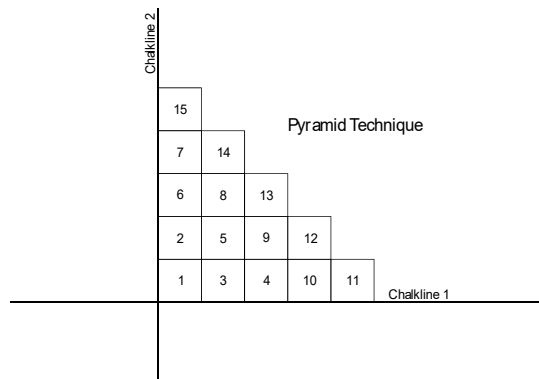
Chalkline #1 - same as in triangle method.

Chalkline #2 - select starting point same as triangle method and proceed as follows:

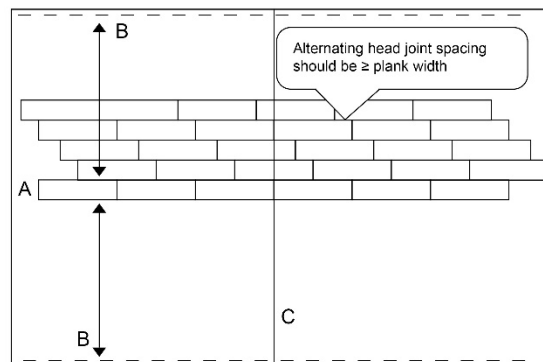
1. From the starting point, measure any convenient distance in both directions along chalkline #1 and mark point A & B on the floor (see diagram). These points should be as close as possible to the end walls of the area and must be the same distance from the starting point.
2. From points A & B, measure diagonally as indicated by the dotted lines allowing the tape measure to feed out until you are close to the side wall. Place a framing square or a carpet module at the starting point aligned with chalkline #1 to act as a visual guide to tell you when you are close to 90 degrees. Once you feel you are close pick a distance and remember it.
3. Strike an arc (Arc #1) measuring the distance determined above from point "A". Now working from point "B", measure diagonally using exactly the same distance used to strike Arc #1 and strike Arc #2. This intersection point connected to the starting point is a 90-degree angle to line #1.
4. As in the triangle method, this procedure should be repeated on the opposite side of line #1. Once accurate chalklines are applied, put down adhesive and install carpet as follows:

GENERAL:

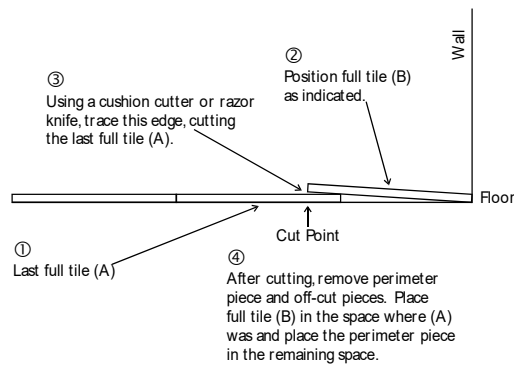
- The **pyramid technique** (see diagram below) gives three alignment checkpoints on each tile placed and should be used on ALL products regardless of module size or backing. This technique also helps control spacing or "growth" and keeps the entire layout closely referenced to the chalklines. Strict attention should be paid to corner alignment. Tiles out of alignment by more than 1/8" (3.2mm) on 50cm or 1m product should not be installed. Some "wandering" of edges due to undulation in the floor is unavoidable. This will be gradual and tend to come and go randomly, however, if corners become misaligned and this misalignment continues to increase, this indicates an out of square condition. The problem should be immediately determined and corrected.



- Always **SLIDE** each module into position from the side to prevent trapped yarn. Set each module by firmly rubbing both joints. With 1m x 1m and 36" x 36" (.91m x .91m) products, a very fine mist of water applied to the dry adhesive will facilitate sliding and positioning the product. Do not over wet. It should not be possible to slide the module after 30 to 40 seconds.
- Modules should be tight but not compressed. Peaking will occur when modules are too tight. Too loose an installation will never achieve the best possible overall appearance and, on grid installations, modules can slip, "snowplow" and create obvious gaps with use.
- Tightness or "growth" should be determined by measuring the distance covered by 11 full modules (10 joints). This measurement should be no more than 1/8" (3.2mm) over the calculated distance for eleven tiles. In some cases this distance may be less than calculated. This distance may also vary between the length and width of the product. Once this "growth" figure is determined, it must be maintained throughout the installation.
- Directional arrows are applied to the back of each tile indicating pile direction. This allows the customer/installation contractor to choose the method of installation preferred - Parquet (Quarter-Turned), Monolithic (Corner-to-Corner or Ashlar), Random, 180-Degree Turned, Checkerboard, Mosaic or a mixture. **Some Milliken designs REQUIRE that specific installation methods be used to achieve the desired visual. Always check with your Milliken representative or call Technical Services if there is any question.**
- Whenever possible it is recommended that arrows be run parallel to major traffic lanes. Unless it is unavoidable, arrows should not run across hallways.
- The **plank installation technique** (see diagram below) utilizing alternate head joint spacing.



- Construct a primary chalk line (Chalkline #1) in the center of a room typically running parallel with the longer wall of a given area. (A)
- Measure from the chalk line over the parallel wall to verify that the finish pieces will be at least one-half plank width or larger (≥ 12.5 cm for 25cm wide planks) (B)
- [If finish pieces measure out to less than half-plank width, primary chalk line should be shifted in either direction the distance equivalent to one-half of the plank width]
- Construct a secondary chalk line (Chalkline #2) (C) perpendicular to Chalkline #1 (A) (Additional parallel lines may be needed depending on the desired installation method). Chalkline #2 will be used to determine head joint placement of planks as well as dictating size of end cuts. Placement of this line(s) should be where resulting end cuts will be at least 25cm in length.
- After adhesive is applied and allowed to dry completely, install the first row against Chalkline #1 (A) ensuring proper alignment. Install subsequent rows in the same manner ensuring that head joint spacing is at least 25cm apart from the previous row's head joint.



- Off-cut pieces should be used elsewhere if possible. NOTE: Always mark an arrow on the back of off-cut pieces to facilitate using them in another area. Any piece that is large enough to fill the available space and maintain arrow direction and pattern match should be trimmed and used. It is permissible to carefully re-trim a cut piece and use this field cut edge to butt to a factory edge. Quality of cut and pattern match MUST be maintained for this to be done.
- Properly installed full spread installations can begin receiving foot and rolling traffic immediately. Exposed edges should be protected when rolling heavy loads such as pallets of carpet across the installed portion. Plywood or Masonite should be positioned on carpet when heavy furniture or supplies are moved on jobs.
- The recommended casters for desk chairs should have a tread width of 3/4" to 1" (19mm to 25mm), and a wheel diameter of 2"- 2 1/2" (5cm - 6cm) tapered. Hard polyolefin composition is recommended. For more detailed information, contact Milliken Technical Services.

TRANSITIONS AND STAIRS:

- For the most attractive finish with its modular products Milliken recommends the use of top set cove base after carpet installation is completed.
- Appropriate transition strips MUST be installed wherever there is a potential for an edge to be exposed or where Milliken modular carpet finishes to another flooring type. The increased total thickness of **WellBAC® Comfort Plus cushion back and WellBAC® Comfort cushion back modular carpet** products requires a transition treatment capable of accepting the carpet without the necessity of modifying or adapting the edge. Johnsonite's EG-XX-W edge guard and CRS-XX-D reducer have proven successful for edge protection for **WellBAC® Comfort Plus cushion back and WellBAC® Comfort cushion back modular carpet** products. Equivalent products from other manufacturers are also acceptable.
- For best long-term performance on stairs, a double undercut nosing such as Johnsonite part SVCD-XX-A or equal should be applied to each step with modules cut to fit on both the tread and the riser. This method of installation on stairs protects the carpet from receiving the impact present at the nose and helps in holding the riser carpet in place. Generally, a Cove Base type adhesive is also used to adhere the riser and tread piece to ensure that the carpet stays in place.
- It is possible to install both **WellBAC® Comfort Plus cushion back and WellBAC® Comfort cushion back modular carpet** backed modules on stairs without the use of a separate nosing. This requires modifying and/or removing the backing and results in placing a structurally compromised product directly on the nose of the stair with no protection from the severe impact and abrasion that will occur. This is not recommended.
- Johnsonite transition treatments, stair nosings and similar products from other manufacturers are sold through distributors. For the location of the nearest Johnsonite distributor, call 800-899-8916. When obtaining transition/nosing treatments from other manufacturers, always be sure to specify the total thickness of the carpet product being installed to ensure the correct transition product is used. **USE OF IMPROPER AND/OR INADEQUATELY INSTALLED TRANSITION TREATMENTS WILL RESULT IN EDGE FAILURE. SELECTION AND INSTALLATION OF THESE PRODUCTS IS THE RESPONSIBILITY OF THE INSTALLATION CONTRACTOR.**

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02/2024



INSTALLATION INSTRUCTIONS - ADDENDUM

Milliken's Barrier Coating for Installation of Milliken Modular Carpet and Milliken Resilient Flooring on Chemically Abated Concrete

1. Chemically abate - recommend petroleum distillate-based chemistries.
2. Clean slab - clean/mop with water and mild detergent (blue dawn).
3. Prep slab - apply Milliken Barrier Coating (2 coats) & necessary patch.
4. Install Milliken Modular carpet or FlexForm 2.5mm & 5.0mm resilient flooring.
5. Utilize applicable adhesives as outlined below.

○ APPROVED SUBSTRATES

- Dry, chemically abated, completely cured concrete
- For Milliken Modular Carpet, all abatement chemistries are approved.
- For Milliken 5mm Flexform Resilient Flooring, abatement chemistries limited to petroleum distillate-based and citrus-based. Soybean oil-based abatement chemistries are not approved.

○ FLOOR PREPARATION:

- Chemical abatement: Removal of Asbestos Adhesives/"Cutback"/Residual Adhesives; if your subfloor is contaminated with old adhesives and you choose a chemical abatement method to remove them, NEVER scrape, sand, or mechanically abrade any exposed black adhesive or any existing resilient floor. These may contain asbestos. The floor should be chemically abated in accordance with all Federal, State, and Local regulations. Clean well and dry as specified in the manufacturers' abatement procedures. No oily residue should remain on the concrete.
- Subfloor: Subfloor must be structurally sound, clean, dust free, smooth, and level. The subfloor must be cleaned according to the abatement chemical manufactures specification. To assure removal of cleaning residues and remaining contaminates, the subfloor must be clean/mopped with water and mild detergent (Blue Dawn). Allow the floor to dry.
- Dust Removal: Prior to sealing the floor, it is REQUIRED that ALL dust and dirt MUST be removed. If not, poor adhesion of the coating can result.

○ MOISTURE: **Subfloor condition must be tested prior to determining installation method and any further subfloor slab preparation.**

- Milliken Modular Carpet – all abatement chemistries approved
 - In-situ RH \leq 95% per ASTM F2170 (Relative Humidity Probe Test)
 1. Milliken Barrier Coating
 2. Moisture resistant cementitious patch like ARDEX MRF or equivalent
 3. Milliken Non-Reactive Standard Adhesive
 - In-situ RH $>$ 95% per ASTM F2170 (Relative Humidity Probe Test)
 1. Milliken Barrier Coating
 2. Moisture resistant cementitious patch like ARDEX MRF or equivalent
 3. TractionBack Plus Adhesive System (connectors)
- Milliken Resilient Flooring (FlexForm 2.5mm & 5.0mm only) – abatement chemistries limited to petroleum distillate-based and citrus-based. Soybean oil-based is not approved.
 - In-situ RH \leq 85% per ASTM F2170 (Relative Humidity Probe Test)
 1. Milliken Barrier Coating
 2. Moisture resistant cementitious patch like ARDEX MRF or equivalent
 3. Milliken LVT Moisture XT Adhesive.
 - In-situ RH $>$ 85% per ASTM F2170 (Relative Humidity Probe Test)
 1. Please contact Milliken Technical and Quality Assurance Team at 1-800-528-8453, option #2. These conditions require more extensive subfloor preparation, only covered under a case-by-case basis.

INSTALLATION INSTRUCTIONS - ADDENDUM

- SEALING FLOOR WITH MILLIKEN BARRIER COATING:
 - Room Preparation for Sealing: The room should be prepared by applying painter’s tape to any walls or flooring abutments that will not be later covered with trim to prevent the Milliken Barrier Coating from coating/coloring those surfaces.
 - Sealing of Floor: Mix the Milliken Barrier Coating with a mixing shaft and drill until well mixed. The coating is water-based and cleans up in water. Using a large paint brush (3-6” is suggested), cut in around the edge of the floor at the wall/floor edge if trim will not cover the wall or door surface.
 - Next, using a 3/8” nap paint roller, roll the Barrier Coating over the floor. The roller can be dipped into the bucket to cover with coating and then applied to the floor. Where trim will cover the wall, the roller should spread coating right into the corner where the floor and wall meet. Coat cracks well. Do not pour the coating on the floor and roll out as uneven coverage result. Use a W pattern with the roller to get uniform coating. Coat the entire floor and allow to fully dry before proceeding. It will be a creamy pink appearance while wet but dries to a solid red color in about 1-2 hours.
 - Once dry, repeat the roller coating procedure to give the floor **TWO** coats.
 - A 5-gallon bucket of Milliken Barrier Coating should cover approximately 200 sq. yds. with two coats.

- PATCH FLOOR WITH MOISTURE RESISTANT PORTLAND CEMENT-BASED FLOOR PATCHING MATERIAL
 - Cracks and holes more than 1/8” (3.2mm) should be filled with a moisture-resistant Portland Cement based floor patching material. Gypsum based compounds are not allowed. Protruding objects must be removed. Floor must be flat (not undulating) for LVT.

- APPLICATION / INSTALLATION OF FLOORING
 - Modular Carpet - Follow Milliken Modular Carpet Installation guidelines.
 - Resilient Flooring (FlexForm 2.5mm & 5.0mm) Install with Milliken LVT Moisture XT Adhesive
 - LVT Moisture XT is a wet-set adhesive. **Do not** walk, kneel, or work directly on top of flooring without the proper use of knee-boards for at least 60 minutes after flooring is installed.
 - For special LVT layout orientations like herringbone, Ashlar, etc., please see detailed installation instructions at: https://floors.milliken.com/docs/default-source/americas-documents/technical-documents/installation-instructions/installation_instructions_milliken_flexform_2-0-2-5.pdf?sfvrsn=7152e94c_4
 - **Plan, layout, and install from strategic starting spot;** please see Figure 1 as an example. Since the installer cannot put weight on tiles and must install from the unlaidd side, the adhesive applicator must apply at a 2-tile width for the installer to reach far enough to place the tile. With a strategic layout, the “glue spreader person” can continuously keep moving from spot-to-spot while the “tile layer person” installs the tile. The “tile layer person” waits about 10 minutes for the adhesive to “firm-up” and “level-out” to then lay tile, again moving from spot-to-spot. Near edges, the tile layer must first cut and dry lay fit the tile before adhesive is applied. The installation must finish at an exit door.

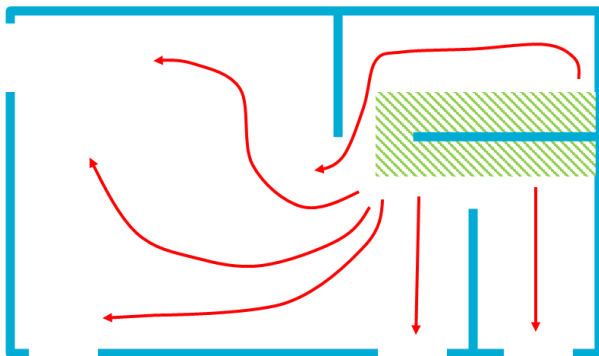


Figure 1: Strategic starting point

- The proper conditions of the room are between 60-90°F (15-35°C), and 30-65% relative humidity.
- Spread adhesive using a 1/16” x 1/32” x 1/32” (1.6mm x .8mm x .8mm) U Notch trowel.



INSTALLATION INSTRUCTIONS - ADDENDUM

- Wait 10 minutes after adhesive is spread to build surface tack and reduce movement. Adhesive ridges will dissipate and level-out during that time.
- Working time is approximately 45 min.
- Use a hand roller and apply normal pressure to ensure a good bond.
- Periodically lift flooring material to verify proper transfer of adhesive to tile.
- Wait a minimum of 1 hour, but no more than 2 hours, after the installation to roll and cross roll floor with a 75-100 lbs. (34-45 kg) roller to ensure proper transfer of adhesive.
- Do not wet mop the floor for 6 hours after the install is complete.



Tufted Broadloom Installation Instructions – Millitron® Patterned, Non-Patterned and Attached Cushion

Milliken **strongly recommends** the use of a **Milliken Certified Installation Contractor** to install all broadloom products. Installation contractors certified by the Floor Covering Installation Board (**FCIB**) as well as firms that can document the employment of installers certified by the International Certified Floor Covering Installers Association (**CFI**) at the R2, C2 or Master level are also recognized as sources of good quality installation labor.

APPLICABLE CRI INSTALLATION METHODS: Except where exceeded or modified by this instruction, Milliken recognizes the CRI™ 104 Standard for Installation of Commercial Carpet, and CRI™ 105 Standard for Installation of Residential Carpet September 2015 as the minimum acceptable standards for the installation of its carpet products.

NOTICE: Dealer and/or installer must inspect carpet prior to installation. Milliken **cannot be responsible** for visible defects after carpet has been cut and installed.

STRETCH-IN (OVER CUSHION) INSTALLATION:

As in all broadloom carpet installations, lay the carpet flat, remove wrinkles and allow the carpet to condition sufficiently at room temperature, which should not be less than 65 degrees F (18 degrees C). Extra effort will be required to stretch the carpet if installed below this minimum temperature. Carpet should be maintained after installation between 65 and 85 degrees F (18 to 30 degrees C). Drastic changes in temperature and humidity can cause wrinkling in installed carpet.

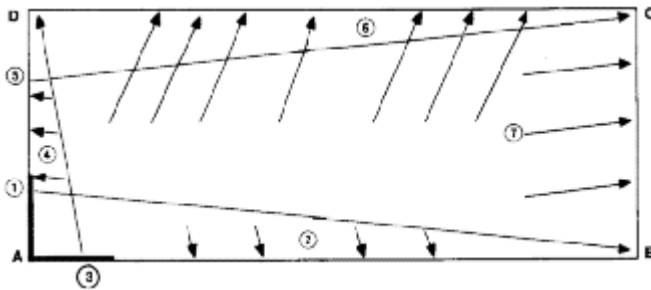
STRETCH THE CARPET

- Stretch synthetic-backed (Endura-Loc™) carpet more than jute-backed carpet. Don't worry about overstretching.
- Stretch selvage-to-selvage just as much as end-to-end.
- Stretch at least 1% in **both** directions (length and width).
- A good rule of thumb is to stretch 1 ½" per 12 feet (3.81 cm per 3.66 m).
- See the seven-step stretching procedure below.

STRETCHING AND HOOKING PROCEDURE

Below is a 7-step technique for successfully power stretching a room. (See diagram.)

1. Using a knee kicker, hook carpet in corner A as indicated by heavy lines and power stretch from A to B at a 15-degree angle. Hook carpet in corner B.
2. Using a knee kicker, hook wall AB firmly onto the tack strip working from A to B at a slight angle.
3. Power stretch from wall AB into corner D at a 15-degree angle. Hook carpet in corner D.
4. Using a knee kicker, hook wall AD firmly onto the tack strip.
5. Power stretch from wall AD into corner C at a 15-degree angle. Hook carpet in corner C. Note: This is a temporary tensioning stretch, which allows stretching into wall DC.
6. Power stretch from wall AB into wall DC, working at a 15-degree angle toward corner C. Stretcher head should be moved no more than 2 head widths between each successive stretch. Approximately 2 to 3 stretches before reaching corner C, unhook the tensioning stretch taken in step 5 and complete stretching into corner C.
7. Power stretch from wall AD to wall BC, working toward corner C at a slight angle.



Caution: Make sure carpet is uniformly stretched at least 1% in both directions. To aid you, we suggest you chalk (white chalk) a line across the carpet close to the wall and measure the distance this mark travels toward the wall.

Note: Carpet stretched in over existing carpet is not recommended or guaranteed.

In large areas, the use of a commercial stretcher is recommended (Roberts 10-222 Senior Stretcher). Large areas should be subdivided into smaller, roughly rectangular areas with each area stretched as described above.

CUSHION RECOMMENDATIONS:

RESIDENTIAL: Maximum Thickness is 7/16" or 11.2 mm (nominal) regardless of type cushion chosen.

- Bonded Polyurethane: Minimum Density 6.5#/cu. ft.
- Prime and "Densified Prime" Polyurethane: Minimum Density 2.8#/cu. ft.
- Needled Synthetic (felt): Minimum Density 32 oz./sq. yd. (1.1 Kg/sq. m.)

COMMERCIAL:

- **Needled Synthetic:** Minimum Density 40 oz./sq. yd. (1.35 Kg/sq. m.), Maximum Thickness 3/8" (9.5 mm.)
- **Slab Rubber (vulcanized synthetic rubber such as TredMor®):** Minimum Density 18#/cu. ft., Maximum Thickness ¼" (6.4 mm.)

Note: Improper cushion is a leading cause of re-stretch callbacks, seam failure, unsatisfactory carpet performance and poor appearance retention.

SEAMING PROCEDURE:

1. All methods of seaming are acceptable, however, the thermoplastic or “hot melt” method gives the strongest seam in the least amount of time and is the recommended procedure. Wider 6” (15cm) tapes are available where seam peaking is a concern. Always use a premium quality seaming tape.
2. The following seaming tapes are recommended:
 - Super 3 (Stretch-in only) and K-80 for direct and “double stick” - **Orcon Corp., 510-489-8100.**
 - GT-350 (Stretch-in only) - **Roberts Consolidated Industries (a QEP Company), 800-423-6545.**
 - The seaming iron should be equipped with a heat shield to prevent damage to backing and face yarns. Seams should be made on a hard, flat surface.

All cut edges **MUST** be sealed. Milliken Barrier Bond® seam sealer is recommended. Refer to Material ID 3000015511 when ordering. This product is packaged in 8-ounce squeeze bottles with a standard “Yorker” tip. One (1) case is the minimum order. Each 8-ounce bottle will cover 200 linear feet of seam. Thermoplastic chemistry is also an acceptable method for preparing/sealing seam edges. This can be accomplished using a number of available hot melt guns and applicator tips designed for this purpose. Gundlach (618-233-1781) and Orcon (# above) are the most widely available sources for this technology.

CUTTING PROCEDURE:

- For cut pile non-patterned carpet, the preferred method of cutting is to row cut both breadths, however, on tufted carpet the rows are occasionally not straight enough to allow this. If this is the case, carpet should be chalk-lined and straight-edge cut from the back using a sharp razor knife.
- When cutting from the back, care should be taken to just cut through the backings. Cutting too deeply can damage the face yarns and cause an unsightly seam.
- On **non-patterned** loop pile carpet, row cut both breadths if possible. If not, row cut one breadth, overlap and scribe cut the second breadth using a cushion back cutter.
- **Remember that seam sealing is mandatory on all carpet.**
- On patterned carpet, regardless of construction, cut along complementary patterns. **DON NOT ROW CUT MILLIKEN PATTERNED CARPET.** Cut from the face using a “cushion back cutter” and straight edge or Gundlach’s #295 UniCutter and Hang Over Straight Edge.
- An alternate method for patterned carpet is to slit the carpet approximately every 3’ (1m) from the face along complementary pattern points and cut between slits from the back.



Milliken Millitron® patterned carpet should be cut on the face.
DO NOT ROW CUT.

PATTERN MATCH TECHNIQUE:

- Trim both breadths to be seamed along complementary pattern points as directed above. **DO NOT ROW CUT MILLIKEN PATTERNED CARPET.**
- For best results and maximum ease of installation, lengthwise pattern repeat, pattern bow and pattern bias should be measured on all rolls to be installed. These measurements are made as part of the final inspection process in manufacturing and are available on roll tags and on the packing list that comes with each shipment. Site measurement of these properties allows the contractor to “fine tune” the sequence of installation. Measure these as follows:

1. LENGTHWISE PATTERN REPEAT (L.P.R.):

- Divide published length pattern dimension into 144” for 12’ (3.66m) wide material or 162” for 13’6” (4.1m) wide material. This answer will generally be a whole number. If not, round up to the next higher number. Example: On 13’6” (4.1m) wide material having a 40.5” length repeat, 40.5 goes into 162 four (4) times.
- Measure along both selvages on each roll the number of pattern repeats obtained above (four in this example). This measurement will typically be slightly larger or smaller than 144” or 162” (3.66m or 4.1m). **In any dye lot, all measurements obtained in this way will vary no more than 2” (5cm).**

2. PATTERN BOW (WIDTH AND LENGTH):

- For width bow, pick two identical pattern points on the same widthwise pattern line – one at the left edge and one at the right.

- Pull a chalk line or tightly stretched string between these points across the width (12' or 13'6", 3.66m or 4.1m). Measure the distance between the chalk line or string and the same pattern point at the point of greatest separation. **This will be no more than 1" (2.5cm) across 12' or 13'6" (3.66m or 4.1m).**
- For length bow (also called "trueness of edge"), use the same procedure connecting common pattern points 40 feet (12.6m) apart along the edge of the carpet. **The pattern will be no more than ½" (12.8mm) from the string or chalk line.**

3. PATTERN BIAS:

- Starting at the same pattern points isolated in the width bow measurement – call these "A" and "B" – measure lengthwise along both selvage edges exactly 9' and mark these points with a small piece of tape. Call these points "C" and "D".
- Measure from point A diagonally to point C and from point B diagonally across to point D. **The difference between these measurements will not exceed 2 3/8" (6.0cm).** More detailed information sheets on each of these criteria are available if needed.

4. GENERAL PATTERN PROCEDURES – STRETCH-IN INSTALLATIONS:

- Group rolls and cuts working from the longest pattern repeat gradually down to the shortest.
- Shift trimmed breadths to achieve a match near the midpoint of the seam.
- Insert hot melt tape under the seam.
- Melt together that portion of the seam that is visually acceptable.
- Using a power stretcher or knee kicker, stretch along the "short" side (smaller pattern repeat) in 3 to 5 foot (1 to 1.6m) sections.
- As each small section of the seam is matched, insert the seaming iron and prepare that section. Leave stretcher locked in position until each section cools.
- Do not complete any section of seam that does not match.
- Once all seams are matched and complete, the entire installed area is stretched as described in the above diagram.
- Width Pattern Bow up to ½" (1.2cm) and all pattern bias is dealt with during the power stretching process.
- Width Pattern Bow between ½" and 1" (1.2cm to 2.5cm) must be dealt with as the seams are assembled, working both sides of the seam simultaneously with the knee kicker, power stretcher OR "crab" stretcher as required.
- Patterned Corridor Carpets (runners and caps) are subject to the same variations and are cut, pattern-matched and installed using the techniques above. **Maximum pattern width variation is ½" in 6' (1.3cm in 1.8m).** For best results, keep right side runners with right side caps and left side runners with left side caps.
- These same procedures also apply on all end or "cross" seams. These seams are usually assembled from one side to the other across the width of the material.

DIRECT GLUE-DOWN INSTALLATION:

RECOMMENDED ADHESIVES:

Milliken Broadloom Carpet Adhesive – Material ID 3000015604, 4-gallon pail – is the **ONLY** recommended adhesive for all Milliken broadloom products and should be ordered with the carpet. This applies to all products having the Endura-Loc™ secondary and to all attached cushion products. This adhesive product carries the CRI™ "Green Label" and is specifically designed to provide optimum performance with all Milliken broadloom products regardless of the installation method chosen.

COVERAGE:

- Direct glue, Endura-Loc™ and attached cushion: 10 to 15 sq. yds. per gallon using a 1/8" x 1/8" x 1/16" (3.2mm x 3.2mm x 1.6mm) "V" notched trowel.
- Double stick between cushion and carpet: 6 to 8 sq. yds. per gallon using a 1/8" x 3/16" x 1/8" (3.2mm x 4.8mm x 3.2mm) "U" notched trowel or as recommended by the manufacturer of the double stick system being used.

FLOOR PREPARATION:

- All dust, foreign matter, non-compatible adhesive residues, grease, paint, wax, oil, dirt, etc. should be removed.
- Cracks, holes and depressions should be filled with a Portland cement based patching material. Protrusions should be removed.
- Floor surface should be smooth and non-undulating to within 1/8" (3.2mm) in 10 feet (3.0m) in conformance with ACI standards.
- Standard alkalinity and moisture tests should be performed. Concrete slab pH should not exceed 9.0. Excessive moisture will interfere with the curing/performance of the adhesive. Water vapor transmission should not exceed 3#/1000 sq. ft. (1.4 Kg/93 sq. m.)/24-hour period as determined by the anhydrous calcium chloride test performed in accordance with ASTM F-1869-98. Milliken subscribes to the industry position that this testing should be performed by an independent agency trained and certified to perform this testing.
- "Sealing" of concrete floors is at the discretion of the flooring contractor. In general, properly cured and dried (90 days minimum) steel trowel finished concrete requires no additional treatment. Excessively porous or dusty concrete slabs are the only exceptions. Please call Technical Services if you have questions. KURE-N-SEAL WB from Sonneborn (800-243-6739) is a recommended product should this type of treatment be deemed necessary. This type of "sealing" is not a curative for excessive water vapor emission. If out of tolerance emission levels are encountered, call Technical Services for assistance.

INSTALLATION PROCEDURES – ADHESIVE INSTALLATION:

- Trowel notch size, shape and adhesive coverage rate **MUST** be maintained as noted above. Insufficient adhesive is the #1 cause of failure in all adhesive installations.
- Proper open time must be allowed. Temperature and relative humidity influence adhesive open time.
- If patterned carpet is being installed, installation sequence **MUST** be determined based on pattern repeat size as described above. There is no requirement for roll number sequence to be followed. **L.P.R. Bow and Bias amounts are printed on the packing list and roll tag for added convenience.**
- On non-patterned, loop pile carpets, row-cut one of the breadths to be seamed, overlap this edge over the second breadth and scribe cut to the row-cut edge. This method does **NOT** apply to patterned carpets. These must be cut along complementary pattern characteristics to insure a proper match. The use of hotmelt seaming tape to achieve and secure pattern match is strongly recommended on all double stick installations and is very helpful on direct cement installations where repeat variation is significant. **Orcon K-80** seam tape is the recommended product for both direct and double stick applications.
- Obtain a net seam – do not compress. Use knee kicker or "crab" stretcher to position.

- Bead all edges with seam sealer on all carpets regardless of construction. (See previous section on seaming procedures and recommended products.)
- Avoid air entrapment. Lay carpet into adhesive working in both directions from center. Depending on the amount and type of pattern variation present, it is sometimes necessary to vary the way the carpet is placed back into the adhesive. For severe bow or bias, it is more efficient to roll the carpet into the adhesive end-to-end in short sections, working and straightening each section before proceeding. Where significant pattern repeat variation is present, it is generally easiest to assemble the seams "dry" using the K-80 seaming tape noted earlier and then roll the carpet sideways to expose the floor under the seam. The backing paper on the K-80 is then removed and adhesive spread. The carpet is rolled back into the adhesive once the proper open time is observed.
- Roll with 75 lb. (34 Kg) roller in both length and width directions or as directed by the cushion manufacturer in double stick applications.
- Restrict heavy traffic and furniture movement for 24 hours.

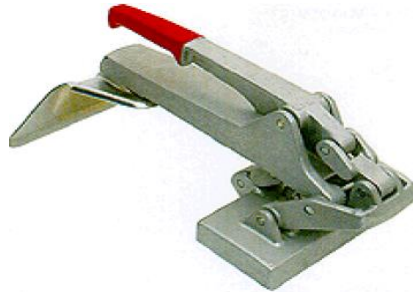
Power stretcher, crab stretcher, deadman, and dry lines should all be utilized to assure proper pattern alignment.



PATTERN MATCHING TOOLS:



Power Stretcher



Mini or crab stretcher



Deadman & dry line



Stay Nails

PROTECTING CARPET AFTER INSTALLATION:

Milliken recognizes the CRI™ 104 Standard for Installation of Commercial Carpet, and CRI™ 105 Standard for Installation of Residential Carpet September 2015 as the standard guidelines for protecting carpet and associated materials after installation. The CRI™ Standard specifically states: "It is recommended that carpet be the last trade on any job site. However, if it is required to protect the finished floor covering from soil or paint, or if any additional work is required to be done after installation, the carpet should be covered with a non-staining building material paper. Protect the installation from rolling traffic by using sheets of hardboard or plywood in potentially affected areas." Also, CRI™ cautions: "Self-adhering plastic films may leave residues that result in rapid soiling after removal. Do not place plastic sheeting over any carpet installation because it may present a slip hazard. Most importantly, plastic coverings will trap moisture, retard adhesive curing and may promote mold growth."

Milliken cannot be responsible for pattern match in direct glue-down installations. This includes all double stick methods. If a consumer desires an adhesive installation, carpet must be inspected for visible manufacturing defects prior to installation. Once installed, Milliken will decline all complaints except for latent defects. Sequencing of rolls by pattern repeat is mandatory for success when installing patterned carpet in any direct glue or double stick application.

Milliken and Company, Floor Covering Business
Installation Services Dept., 300 Lukken Industrial Drive West, LaGrange, GA 30240
BACKED BY THE LARGEST, MOST PRODUCTIVE RESEARCH AND DEVELOPMENT FACILITY IN THE CARPET INDUSTRY.
Call Technical Services Team Toll Free 1-800-528-8453 – Select Option #2

The above instructions represent the best available data and are deemed correct and complete. However, Milliken assumes no liability for installation-related problems.

03/2016

ULTIMA®
ULTIMA® High NRC
 Square Lay-in
 fine texture



A smooth visual ceiling with Total Acoustics™ performance, sound absorption, and blocking needed for today's flexible spaces

KEY SELECTION ATTRIBUTES

- Get total noise control and design flexibility with Total Acoustics™ ceiling panels: NRC + CAC = Total Acoustics™ Performance
- Smooth, clean, durable finish – Washable, Impact-resistant, Scratch-resistant, Soil-resistant
- Excellent sound absorption and blocking for Total Acoustics™ performance
- Ceiling-2-Ceiling™ Post-consumer Recycled Content options: items 1910HRC, 1913HRC. 71% Pre-consumer; 15% Post-consumer
- USDA Certified Biobased Product – 88%
- Available with AirGuard™ Coating
- Visual coordinates with Optima® panels for mixed (open/closed plan) applications
- Items 1910 and 1935 available with Create!™ printed images and patterns – see pages 175-177
- Non-directional visual reduces scrap and installation time
- Compatible with TechZone® Ceiling Systems (Pgs. 251-257)
- 30-Year Limited System Warranty against visible sag, mold, and mildew

TYPICAL APPLICATIONS

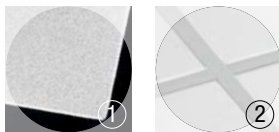
- Offices – closed spaces for privacy and confidentiality; open spaces for focus, collaboration, and teaming
- Healthcare – assists in addressing HIPAA, HCAHPS, and FGI acoustical requirements
- Classrooms
- Corridors
- Lobbies/reception areas
- Department stores/retail

COLOR



White

DETAILS



1. Ultima Square Lay-in
2. Ultima Square Lay-in with Prelude 15/16" suspension system

ULTIMA® ULTIMA® High NRC

Square Lay-in
fine texture

USDA
CERTIFIED
BIOBASED
PRODUCT



CEILING-2-CEILING™
HRC items contain 15%
or greater post-consumer
recycled ceilings

UP TO **86%** RECYCLED CONTENT

LEED®

- energy management
- construction waste mgmt
- regional materials
- design for flexibility
- EPD
- recyclable/extended producer resp.
- biobased materials
- recycled content
- sourcing of raw materials
- material ingredient reporting
- low emitting materials
- lighting quality
- acoustics

Calculate LEED contribution at
armstrong.com/greengenie

VISUAL SELECTION

Edge Profile	Susp. Dwg. Pgs. 295-299 armstrong.com/catdws	Item No.	Dimensions (Inches)
ULTIMA® High NRC			
15/16" Square Lay-in		1940	24 x 24 x 1"
		1943	24 x 48 x 1"
		Other Size Panels	W: 12" - 24" / L: 24" - 60" 1" Thick
ULTIMA®			
15/16" Square Lay-in		1420	6 x 48 x 3/4"
		1425	6 x 60 x 3/4"
		1990	12 x 48 x 3/4"
		1991	12 x 60 x 3/4"
		1992	12 x 72 x 3/4"
		1910 1910HRC	24 x 24 x 3/4" 24 x 24 x 3/4"
		1913 1913HRC	24 x 48 x 3/4" 24 x 48 x 3/4"
		1984	24 x 60 x 3/4"
		1980	24 x 72 x 3/4"
		FS FastSize™ Panels	W: 4" - 24" / L: 4" - 72" 3/4" Thick
ULTIMA® with AirGuard™ Coating			
15/16" Square Lay-in		1900	24 x 24 x 3/4"
		1903	24 x 48 x 3/4"

PERFORMANCE SELECTION

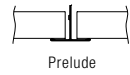
Dots represent high level of performance.

UL Classified Acoustics		Total Acoustics ¹	Articulation Class	Fire Rating	Light Reflect	Anti-Mold & Mildew	Sag Resist	Certified Low VOC Emissions	Water Repel	Wash	Scrub	Impact	Scratch	Soil	Recycled Content	Recycle Program	30-Yr Warranty
NRC	CAC	NRC + CAC	α	Class	Light	Bio-Block	Humi-Guard+										
0.80	35	BEST	170	Class A	0.87	•	•	•	•	•	•	•	•	•	•	•	•
0.80	35	BEST	170	Class A	0.87	•	•	•	•	•	•	•	•	•	•	•	•
N/A	N/A	-	-	Class A	0.87	•	•	•	•	•	•	•	•	•	•	•	•
N/A	N/A	-	-	Class A	0.90	•	•	•	•	•	•	•	•	•	•	•	•
N/A	N/A	-	-	Class A	0.90	•	•	•	•	•	•	•	•	•	•	•	•
0.65	35	GOOD	-	Class A	0.90	•	•	•	•	•	•	•	•	•	•	•	•
0.65	35	GOOD	-	Class A	0.90	•	•	•	•	•	•	•	•	•	•	•	•
0.65	35	GOOD	-	Class A	0.90	•	•	•	•	•	•	•	•	•	•	•	•
0.75	35	BETTER	-	Class A	0.90	•	•	•	•	•	•	•	•	•	•	•	•
0.75	35	BETTER	-	Class A	0.90	•	•	•	•	•	•	•	•	•	•	•	•
0.75	35	BETTER	-	Class A	0.85	•	•	•	•	•	•	•	•	•	•	•	•
0.75	35	BETTER	-	Class A	0.90	•	•	•	•	•	•	•	•	•	•	•	•
0.75	35	BETTER	-	Class A	0.90	•	•	•	•	•	•	•	•	•	•	•	•
0.75	35	BETTER	-	Class A	0.90	•	•	•	•	•	•	•	•	•	•	•	•

¹ Total Acoustics™ ceiling panels have an ideal combination of noise reduction and sound-blocking performance in one product. **FS FastSize:** Factory-finished, made-to-order sizes, shipped fast (1 carton min). **GOOD** (NRC 0.60-0.65; CAC 35+) **BETTER** (NRC 0.70-0.75; CAC 35+) **BEST** (NRC 0.80+; CAC 35+) HRC items not available in FastSize or other size panels.

SUSPENSION SYSTEMS

Blizzard White – Suspension System Finish
A color and texture coordinated suspension system to complement Ultima ceiling panels for a monolithic look and feel.



PHYSICAL DATA

Material
Wet-formed mineral fiber with DuraBrite® acoustically transparent membrane

Surface Finish
DuraBrite scrim with factory-applied latex paint

Fire Performance
ASTM E84 and CAN/ULC S102 surface burning characteristics. Flame Spread Index 25 or less. Smoke Developed Index 50 or less. (UL labeled).

ASTM E1264 Classification
Type IV, Form 2, Pattern E
Fire Class A

Humidity/Sag Resistance
HumiGuard® Plus ceiling panels maintain superior sag resistance. Recommended for areas subject to high humidity, up to, but not including, standing water and outdoor applications.

Anti-Mold/Mildew
Ceiling panels with BioBlock® coating contain a mold-inhibiting agent that resists the growth of mold and mildew.

VOC Emissions
Third-party certified compliant with California Department of Public Health CDPH/EHLB/Standard Method Version 1.1, 2010. This standard is the guideline for low emissions in LEED, CalGreen Title 24, ANSI/ASHRAE/USGBC/IES Standard 189; ANSI/GBI Green Building Assessment Protocol.

Acoustical Performance
CAC testing conducted using Prelude XL suspension system.

Primary (Embodied) Energy
See all LCA information on our EPD's.

High Recycled Content
Contains greater than 50% total recycled content. Total recycled content based on product composition of post-consumer and pre-consumer (post-industrial) recycled content per FTC guidelines.

Insulation Value
R Factor – 2.2 (BTU units)
R Factor – 0.39 (Watts units)

30-Year Performance Guarantee & Warranty
When installed with Armstrong® Suspension System. Details at armstrong.com/warranty

Weight; Square Feet/Carton
1420, 1425 – 1.05 lbs/SF; 24 SF/ctn
1910, 1913, 1900, 1903, – 1.08 lbs/SF; 48 SF/ctn
1940 – 1.14 lbs/SF; 40 SF/ctn
1943 – 1.125 lbs/SF; 48 SF/ctn
1980 – 1.08 lbs/SF; 72 SF/ctn
1984 – 1.08 lbs/SF; 80 SF/ctn
1990 – 1.08 lbs/SF; 24 SF/ctn
1991 – 1.08 lbs/SF; 30 SF/ctn
1992 – 1.08 lbs/SF; 36 SF/ctn

Minimum Order Quantity
1 carton

Metric Items Available
1910M, 1913M, 1940M, 1943M – Metric items are subject to extended lead times and minimum quantities. Contact your representative for more details.

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armstrong.com/commceilings
(search: ultima)
BPCS-4595-1015

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MINERAL FIBER

PRELUDE® XL® and PRELUDE XL High Recycled Content (HRC) Exposed Tee Suspension System



CONTAIN CLEAN PROTECT



▲ Prelude XL suspension system

This hot-dipped galvanized steel 15/16" suspension system offers high recycled content for improved LEED® credits.

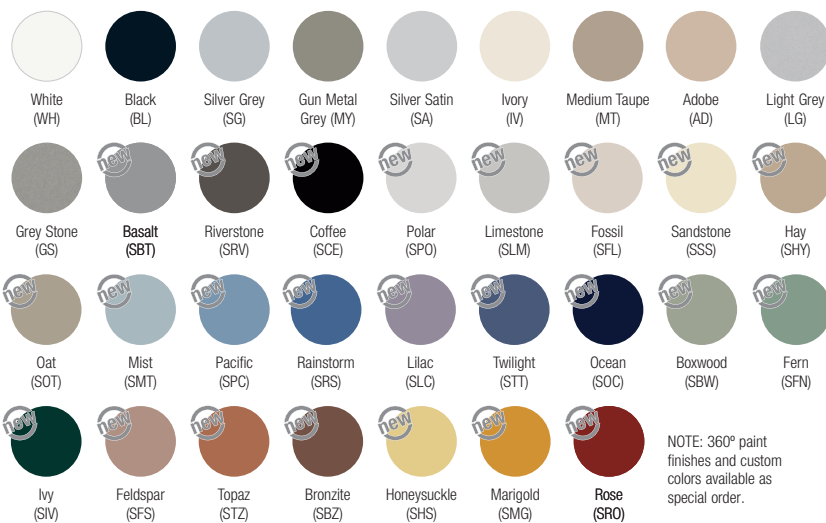
KEY SELECTION ATTRIBUTES

- Seismic Rx® Suspension System saves time and money; Armstrong Ceilings offers an ICC-ES approach to installations (ESR-1308)
- Prelude® XL® is part of the Sustain™ portfolio and meets the most stringent industry sustainability compliance standards today
- CleanAssure™ family of products – includes disinfectable panels, suspension systems, and trim (Cleaning and CDC-approved disinfecting options available on armstrongceilings.com/cleaning)
- PeakForm® profile increases strength and stability for improved performance during installation
- SuperLock™ main beam clip is engineered for a strong, secure connection and fast, accurate alignment confirmed with an audible click; easy to remove/relocate
- Hot-dipped galvanized coating inhibits red rusting better than electrogalvanized or painted systems
- 10-Year Limited System Warranty; 30-Year Limited Ceiling Systems Warranty when used with HumiGuard® Plus products
- Made-to-order main beams and cross tees can be ordered for your project needs in one carton minimum
- Available with coating that resists dirt, bacteria, mold, mildew, and color fading
- XL® staked-on end detail provides secure locked connection: easy to remove, reuse, and relocate
- Fire Guard™ options offer UL® design fire-rated performance
- Some items available in metric sizes
- Blizzard White and Charcoal Black powder-coated finish
- Linear lighting integration is easy with made-to-order main-beam-to-cross-tee adapters, rout spacing, miter spacing, and short cross tees (3" to 6" lengths)
- 10-Year replacement items available



COLORS Due to printing limitations, shade may vary from actual product.

Standard



Premium



Powder-Coated Finishes



NOTE: 360° paint finishes and custom colors available as special order.

* Colors that are pre-qualified to meet Sustain™ portfolio requirements are available upon request. Other made-to-order colors must be evaluated if sustainability criteria is required. Lead time will increase.

VISUAL SELECTION

Item No. ♦	Description	Rout Spacing	Dimensions (Inches)	LOAD TEST DATA (LBS./LIN. FT.)	
				L/360 4 Ft.	L/360 5 Ft.
PRELUDE® XL® 15/16"	7301 --- 7301HRC 8301	12' HD Main Beam 6" O.C.	144 x 15/16 x 1-11/16"	16.73	8.73
(Red Numbers are Fire Guard™ items)	7300 _ ♦ 8300 _ ††	12' ID Main Beam 6" O.C.	144 x 15/16 x 1-11/16"	13.5	6.35
	7305 _ ♦	140" HD Main Beam 10" O.C.	140 x 15/16 x 1-11/16"	16.73	8.73

NOTE: Additional Prelude XL items for TechZone® Ceiling Systems are listed in the TechZone Technical Guide (BPCS-4486), and available online at armstrongceilings.com/techzone

* Simple Span

** Hanger Wire Support Mid-Span

♦ When specifying or ordering items with a color or finish, add the two- or three-letter suffix to the end of the item number (e.g. 7301 L G _ - Light Grey)

♦ Available in White (WH), and Blizzard White (ZW) and Charcoal Black (ZB) powder-coated finishes only

†† Available in Black (BL) and White (WH) only

††† Available in Black (BL), White (WH), and Blizzard White (ZW) and Charcoal Black (ZB) powder-coated finishes only

PERFORMANCE

Fire Guard™	Seismic Category	CleanAssure™ Disinfectable Grid		
		Fog	Spray	Wipe
N/A	•	•	•	•
N/A	•	•	•	•
•	•	•	•	•
N/A	N/A	•	•	•
•	N/A	•	•	•
N/A	•	•	•	•

Dots represent high level of performance.

PACKAGING

Pieces/Carton	LFT/Carton
20	240
20	240
20	240
20	240
20	240
20	233

ASTM Class
HD - Heavy-duty
ID - Intermediate-duty
LD - Light-duty

SUSPENSION SYSTEMS - Standard

TechLine 877 276-7876

armstrongceilings.com/preludexl



PRELUDE® XL® and PRELUDE XL High Recycled Content (HRC) Exposed Tee Suspension System



Declare.

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LOCATION DEPENDENT

WELL Building Standard™ (WELL)
Living Building Challenge® (LBC)

VISUAL SELECTION

Item No. ◆	Description	Rout Spacing	Dimensions (Inches)	LOAD TEST DATA (LBS./LIN. FT.)	
				L/360 4 Ft.	L/360 5 Ft.
PRELUDE® XL® 15/16" <i>(Red Numbers are Fire Guard™ items)</i>					
7306_ _◆	132" HD Main Beam	10", 30", 50", 56", 76", 96", 116", 122" O.C.	132 x 15/16 x 1-11/16"	16.73	8.73
7307_ _◆	126" HD Main Beam	10", 30", 50", 70", 90", 110", 116" O.C.	126 x 15/16 x 1-11/16"	16.73	8.73
7302_ _◆	10" ID Main Beam	6" O.C.	120 x 15/16 x 1-11/16"	13.5	6.35
XL7380_ _◆	8" Cross Tee	12" O.C.	96 x 15/16 x 1-11/16"	12.12**	N/A
XL7357_ _◆	5" Cross Tee	6", 12", 24", 30", 36", 48", 54" O.C.	60 x 15/16 x 1-11/16"	N/A	7.61
XL7390_ _◆	6" Cross Tee	12" O.C.	72 x 15/16 x 1-11/16"	12.24*	N/A
XL7341_ _◆ XL7341HRC XL8341	4" Cross Tee	12" O.C.	48 x 15/16 x 1-11/16"	16.89	N/A
XL7340_ _◆ XL8340_ _ ††	4" Cross Tee	12" O.C.	48 x 15/16 x 1-11/16"	12.25	N/A
XL7342_ _	4" Cross Tee	12" O.C.	48 x 15/16 x 1-1/2"	7.8	N/A
XL7348_ _◆	4" Cross Tee	12" O.C.	48 x 15/16 x 1-3/8"	6.78	N/A
XL7330_ _ †††	3" Cross Tee	N/A	36 x 15/16 x 1-11/16"	20.3 at 3'	N/A
XL7378_ _◆	30" Cross Tee	N/A	30 x 15/16 x 1-3/8"	16.54 at 2.5'	N/A
XL7328_ _◆ XL8323_ _ ††	2" Cross Tee	N/A	24 x 15/16 x 1-3/8"	36.0 at 2'	N/A
XL8320HRC XL8320	2" Cross Tee	N/A	24 x 15/16 x 1-11/16"	61.33 at 2'	N/A
XL7368_ _◆	20" Cross Tee	N/A	20 x 15/16 x 1-3/8"	36.0 at 1.67'	N/A
XL7398_ _◆	18" Cross Tee	N/A	18 x 15/16 x 1-3/8"	N/A	N/A
XL7318_ _◆	1" Cross Tee	N/A	12 x 15/16 x 1-3/8"	36.0 at 1'	N/A
XL7304_ _◆	4" Cross Tee	N/A	4 x 15/16 x 1-11/16"	N/A	N/A
XL7306_ _◆	6" Cross Tee	N/A	6 x 15/16 x 1-11/16"	N/A	N/A
Size Capabilities	1 Ctn Min FASTSIZE 2 WEEKS order to ship	15/16" Prelude® XL® Main Beams Length	N/A	N/A	N/A
NOTE: Up to 6 weeks for color and size combinations.		36" – 144" Rout spacing 6" from ends, 6" thereafter			

Made-to-order main beams and cross tees can be ordered with special sizes, rout spacing, and colors for your project needs in one carton minimums.
◆ When specifying or ordering items with a color or finish, add the two- or three-letter suffix to the end of the item number (e.g. XL7342 L G _ – Light Grey)
◆ Available in White (WH), and Blizzard White (ZW) and Charcoal Black (ZB) powder-coated finishes only
†† Available in Black (BL) and White (WH) only
††† Available in Black (BL), White (WH), and Blizzard White (ZW) and Charcoal Black (ZB) powder-coated finishes only

PERFORMANCE

Fire Guard™ Seismic Category DEF	CleanAssure™ Disinfectable Grid			Fog Spray Wipe	Pieces/ Carton	LFT/ Carton
	Fog	Spray	Wipe			
N/A	•	•	•	•	20	220
N/A	•	•	•	•	20	210
N/A	N/A	•	•	•	20	200
N/A	•	•	•	•	20	160
N/A	•	•	•	•	60	300
N/A	•	•	•	•	20	120
N/A	•	•	•	•	60	240
N/A	•	•	•	•	60	240
N/A	•	•	•	•	60	240
N/A	•	•	•	•	60	240
N/A	•	•	•	•	60	240
N/A	•	•	•	•	60	180
N/A	•	•	•	•	60	150
N/A	•	•	•	•	60	120
N/A	•	•	•	•	60	120
N/A	•	•	•	•	60	100
N/A	•	•	•	•	60	90
N/A	•	•	•	•	120	120
N/A	•	•	•	•	60	20
N/A	•	•	•	•	60	30
N/A	N/A	N/A	N/A	N/A	Varies	Varies

Dots represent high level of performance.

VISUAL SELECTION

Item No. ◆	Face Profile	Description	Dimensions (Inches)	LOAD TEST DATA (LBS./LIN. FT.)		Pieces/ Carton	LFT/ Carton	
				4 Ft.	5 Ft.			
Prelude XL Painted Grid to Match Axiom® Trim (360° Painted – Powder Coated Paint)	AX73003_ _	15/16"	12" ID Main Beam, Routs 6" O.C.	144 x 15/16 x 1-11/16"	13.5	6.35	20	240
	AX73013_ _	15/16"	12" HD Main Beam, Routs 6" O.C.	144 x 15/16 x 1-11/16"	16.73	8.73	20	240
	AX73423_ _	15/16"	4" Cross Tee, Routs 12" O.C.	48 x 15/16 x 1-1/2"	7.8	N/A	60	240
	AX73283_ _	15/16"	2" Cross Tee	24 x 15/16 x 1-3/8"	36.0 @ 2'	N/A	60	120
	AX73183_ _	15/16"	1" Cross Tee	12 x 15/16 x 1-3/8"	36.0 @ 1'	N/A	120	120
	AX73583_ _	15/16"	5" Cross Tee Routs 6", 20", and 30" from ends	60 x 15/16 x 1-1/2"	7.61	N/A	60	300
	AX73783_ _	15/16"	30" Cross Tee	30 x 15/16 x 1-3/8"	16.54 @ 2.5	N/A	60	150
	AX83403_ _	15/16"	4" Cross Tee, Routs 12" O.C.	48 x 15/16 x 1-1/2"	N/A	N/A	60	N/A
	AXAL7220_ _	15/16"	2" Cross Tee	24 x 15/16 x 1-1/2"	N/A	N/A	60	120

◆ When specifying or ordering items with a color or finish, add the two- or three-letter suffix to the end of the item number (e.g. 7301 L G _ – Light Grey)

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SUSPENSION SYSTEMS – Standard

PRELUDE® XL® and PRELUDE XL High Recycled Content (HRC) Exposed Tee Suspension System



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LOCATION DEPENDENT

WELL Building Standard™ (WELL)
Living Building Challenge® (LBC)

VISUAL SELECTION

Item No.	Face Profile	Description	Rout Spacing	Dimensions (Inches)	LOAD TEST DATA (LBS./LIN. FT.)	
					L/360 4 Ft.	L/360 5 Ft.
Continuous Load Path (CLP)						
CLP7301	15/16"	N/A	N/A	6 x 15/16"	N/A	N/A
7396	15/16"	9' 6" Main Beam	6" O.C.	114 x 15/16"	16.5	8.73
7376	15/16"	7' 6" Main Beam	6" O.C.	90 x 15/16"	16.5	8.73

PERFORMANCE

Fire Guard™	Seismic Category	CleanAssure™ Disinfectable Grid		
		Fog	Spray	Wipe
N/A	•	•	•	•
N/A	•	•	•	•
N/A	•	•	•	•

PACKAGING

Pieces/ Carton	LFT/ Carton
20	240
20	190
20	150

Dots represent high level of performance.

ASTM Class
HD - Heavy-duty
ID - Intermediate-duty
LD - Light-duty

VISUAL SELECTION

Item No. ♦	Description	Length	(A) Flange	(B) Flange	(C) Reveal	(D) Reveal	Pieces/	LFT/
							Carton	Carton
7800_ _ _ _ † 7800HRC	12' Hemmed Angle Molding	144"	7/8"	7/8"	N/A	N/A	30	360
7808_ _ ❖	10' Hemmed Angle Molding	120"	2"	2"	N/A	N/A	10	100
780812_ _ ❖	12' Hemmed Angle Molding	144"	2"	2"	N/A	N/A	10	120
7807	10' Hemmed Angle Molding	120"	2"	1"	N/A	N/A	10	100
7875_ _ ❖	10' Shadow Molding	120"	3/4"	15/16"	1/2"	N/A	30	300
7877_ _ ❖***	10' Shadow Molding	120"	15/16"	15/16"	1/4"	N/A	30	300
7878_ _ ***†	10' Shadow Molding	120"	15/16"	15/16"	3/8"	N/A	30	300
7897_ _ ❖***	10' Shadow Molding	120"	15/16"	15/16"	1/2"	N/A	30	300
7888	10' Shadow Molding	120"	9/16"	15/16"	3/8"	1/4"	30	300
7850_ _ ❖	10' Hemmed Angle Molding	120"	1-1/8"	7/8"	N/A	N/A	30	300
7851_ _ ❖	12' Hemmed Angle Molding	144"	1-1/8"	7/8"	N/A	N/A	30	360

* Simple Span ** Hanger Wire Support Mid-Span *** Suitable for IBC Category D,E,F installations using Armstrong® Seismic Rx® suspension system and BERC2 Clp
 ♦ When specifying or ordering items with a color or finish, add the two- or three-letter suffix to the end of the item number (e.g. XL7342 L G _ - Light Grey)
 ❖ Available in White (WH), and Blizzard White (ZW) and Charcoal Black (ZB) powder-coated finishes only
 † Not available in Silver Grey (SG), Gun Metal Grey (MY), or Silver Satin (SA)
 ‡ Available in White (WH), Black (BL), Silver Grey (SG), Silver Satin (SA), and Blizzard White (ZW) and Charcoal Black (ZB) powder-coated finishes only

MAXIMUM FIXTURE WEIGHT

	Configuration		Item No.	Fixture		Planning Module		Hanger Spacing		Maximum Weight	
	A	B		A	B	A	B	A	B	A	B
Main Beam to Main Beam			7300/8300/7302 7301/8301	24" x 48"	24" x 48"	48" x 48"	48" x 48"	48"	48"	69.27 lbs.	49.27 lbs.
				24" x 48"	24" x 48"	48" x 48"	48" x 48"	48"	48"	72.32 lbs.	72.32 lbs.
			7300/8300/7302 7301/8301	12" x 48"	12" x 48"	48" x 48"	48" x 48"	48"	48"	54.26 lbs.	47.17 lbs.
Cross Tee to Cross Tee			7300/8300/7305 7301/8301	24" x 48"	20" x 60"	60" x 60"	60" x 60"	48"	48"	56.47 lbs.	43.21 lbs.
				24" x 48"	20" x 60"	60" x 60"	60" x 60"	48"	48"	56.47 lbs.	65.46 lbs.
Cross Tee to Cross Tee			XL8340/XL7340 XL7342 XL8341/XL7341	24" x 48"	24" x 24"	64" x 60"	48" x 48"	48"	48"	69.27 lbs.	80.55 lbs.
				24" x 48"	24" x 24"	64" x 60"	48" x 48"	48"	48"	40.89 lbs.	52.26 lbs.
Cross Tee to Cross Tee			XL8340/XL7340 XL8341/XL7341	24" x 48"	12" x 48"	48" x 48"	48" x 48"	48"	48"	49.27 lbs.	42.17 lbs.
				24" x 48"	12" x 48"	48" x 48"	48" x 48"	48"	48"	72.32 lbs.	63.32 lbs.

Main beams tested as follows: 7300 tested at 13.0 lbs./LF to 1/360 of 4' span; 7301 tested at 16.5 lbs./LF to 1/360 of 4' span; 8500 tested at 13.3 lbs./lin. ft. to 1/360 of 4' span. 48" cross tee tested at 10.34 lbs./lin. ft. to 1/360 of 4' span.

Fixtures weighing more than 56 lbs. should be independently supported. Fixture weight is based on single fixture only. For end-to-end fixtures or other configurations not shown, consult your Armstrong Ceilings representative.
 NOTE: The above data is based on 48" hanger wire spacing, board weight of 1 lb./SF, maximum deflection of tees not to exceed 1/360 of the span, and suspension system installed in accordance with ASTM C636.



PRELUDE® XL® and PRELUDE XL High Recycled Content (HRC) Exposed Tee Suspension System



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energy management, construction waste mgmt, regional materials, design for flexibility, EPD, recyclable/excise producer resp., biobased materials, recycled content, sourcing of raw materials, material ingredient reporting, low emitting materials, lighting quality, acoustics

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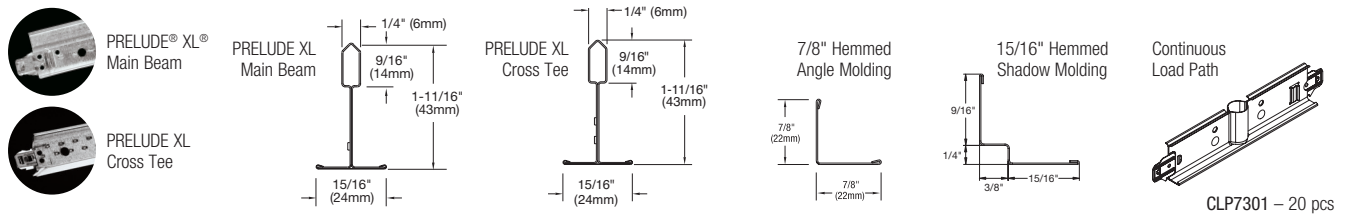
WELL Building Standard™ (WELL) Living Building Challenge® (LBC)

LOCATION DEPENDENT

ACCESSORIES

Item No.	Description	Pieces/ Carton	Item No.	Description	Pieces/ Carton
BERC2	2" Beam-End Retaining Clip Allows you to create a code-compliant Seismic D, E, F ceiling installation while eliminating the need to use 2" wall molding or spreader bars.		ES4	Expansion Sleeves For 15/16" Prelude	
BERC2	Steel	200	ES4		200
FZBERC2	Steel	50	FZES4		50
ALBERC2	Aluminum	200	GCWA	Grip Clip Wall Attachment Joins main beam or cross tee to wall molding via locking barbs without pop rivets or screws.	
FZALBERC2	Aluminum	50	GCWA		250
STAC	Single-Tee Adapter Clip Used to create code-compliant non-seismic and seismic C and D, E, F off-module main beam to cross tee connections.		FZGCWA		50
STAC		120			
FZSTAC		50			

DETAILS



SEISMIC PERFORMANCE

Main Beams
7301, 7301HRC, 7306, 7307, 8301
Minimum Lbs. To Pull Out Compression/Tension
335.0
330.0

Cross Tees
All XL cross tees exceed 300 lbs. in both compression and tension.

ICC Reports
For areas under ICC jurisdiction, see ICC evaluation report number ESR-1308 for allowable values and/or conditions of use concerning the suspension system components listed on this page. The report is subject to re-examination, revisions, and possible cancellation.

PHYSICAL DATA

Material
G30 hot-dipped galvanized steel

Surface Finish
Baked polyester paint or powder coated
Manufactured and tested in accordance with ASTM C635

Face Dimension
15/16"

Profile
Exposed tee

Cross Tee/Main Beam Interface
Override

Design Considerations
Physical product samples for standard and custom colors are available upon request. Please refer to the physical product sample prior to making a final selection. While we strive to ensure exact color matches, various factors such as differences in materials, texture, substrate porosity, painting processes, lighting, and observer subjectivity can all affect how paint colors appear on ceiling and wall panels, suspension systems, and trim products. Due to these and other differences, ceiling and wall panels, trim products, and suspension systems with the same color name will coordinate but may not be an exact color match. Product is dye-lotted. Order sufficient initial quantities and attic stock to minimize possible color variation.

End Detail
Main Beam: Staked-on clip
Cross Tee: Staked-on clip

Duty Classification
Intermediate or Heavy-duty

Cleaning & Disinfecting
Cleaning and CDC-approved disinfecting options available on armstrongceilings.com/cleaning

STANDARD SUSPENDED CEILINGS

Assembly and Installation Instructions

1. GENERAL

- 1.1** This installation document is intended as a general application overview, covering essential steps of a suspended ceiling installation. This document represents standard methods as supported by the manufacturer and are in addition to following the standards outlined in ASTM C636. These standards represent the manufacturers recommendations; however, all installations are subject to requirements set forth by the authority having jurisdiction.
- 1.2** These instructions should be supplemented with Armstrong's *"The 20 Minute Ceiling Installer"* video for examples of the installation steps, as well as the product specific installation instructions of the product being installed.

2. TOOLS REQUIRED

- 2.1** Here is a list of the most common tools needed for installing a suspended ceiling. Required tools and materials may vary based on job-specific conditions.
- PPE: Cut resistant gloves, safety glasses, hard hat, steel-toe boots
 - Ladder(s), rolling scaffold
 - Lasers: horizontal line leveling, vertical alignment, point
 - String line: control/dry line
 - Chalk line
 - Tape measure
 - Carpenter pencil
 - Cordless drill with screw tips and drill bits
 - Snips: metal cutting tin snips
 - Rout hole punch
 - Pop riveter, aluminum white pop rivets
 - Lineman pliers with wire cutter
 - Hammer



- Screwdrivers: slotted, Phillips
- Spring clamps: 5 to 7 (small)
- Utility knife
- Tool belt
- Hole saw
- Fasteners: wall molding attachment

3. INSTALLATION LAYOUT

3.1 Grid Layout

3.1.1 There are many different grid layouts used for different products, panel sizes, or fixture integration. Below are guidelines for some of the more typical layouts.

3.1.1.1 Standard 2' x 4' (Fig 1)

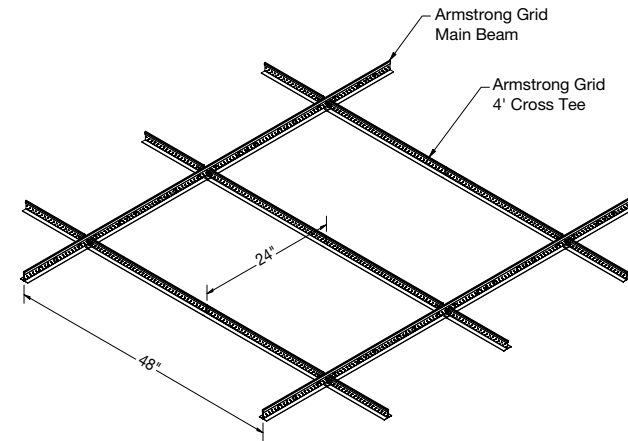
- Main beams spaced 48" O.C.
- 4' cross tees shall intersect the main beams at 90° every 24" O.C.

3.1.1.2 Standard 2' x 2' (Fig 2)

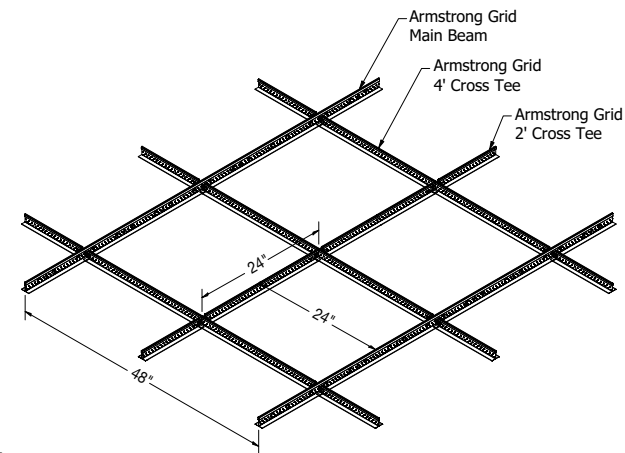
- Main beams spaced 48" O.C.
- 4' cross tees shall intersect the main beams at 90° every 24" O.C.
- 2' cross tees shall be installed at the midpoints of the 4' cross tees, creating 24" x 24" modules.

3.1.1.3 H-Layout / Cross-Hatch (Fig 3)

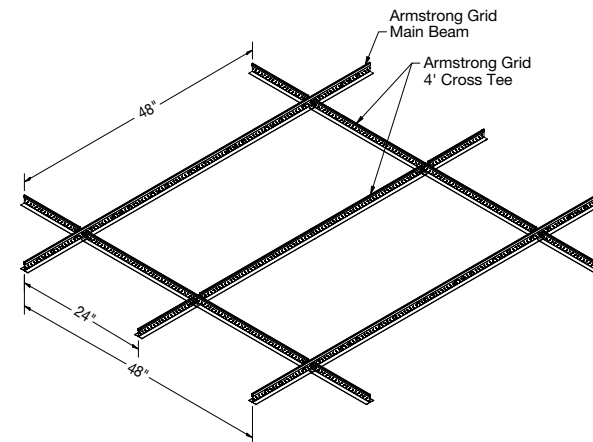
- Cross-hatched layouts differ from standard layouts by increasing the spacing of the cross tees that span the mains (typically 24" O.C.) to a distance equal to or greater than the hanger spacing along the mains (typically 48" O.C.).
- When using cross-hatched layouts, cross tees should be equivalent to mains in load carrying capacity (Lbs/LF) since they are now carrying the same load as the mains based on spacing. Refer to grid product data pages for load test data of grid components.



(Fig 1)



(Fig 2)



(Fig 3)

3.1.1.4 Plank Sizes

Grid layouts for plank sizes can be constructed in three different ways. The end solution may be chosen based on the desired panel orientation in relation to the mains and load on the grid components:

1. Main spacing equal to panel length (panel length perpendicular to mains), cross tees spanning the mains at spacing equal to panel width (*Fig 4*).
2. Main spacing equal to panel width (mains parallel to panel length), cross tees spanning the mains at spacing equal to panel length (*Fig 5*).
3. Cross-hatching of the grid components, allowing panel length to run parallel with mains without main spacing being equal to panel width (*Fig 6*).

When cross-hatching, consider the increased load on the cross tees, especially the cross tees spanning the mains. Refer to the grid product data pages for load test data specific to the length of cross tee being used. Supplemental wires may be required based on the span of the grid and weight of the ceiling product being installed.

3.1.1.5 Running Bond / Staggered

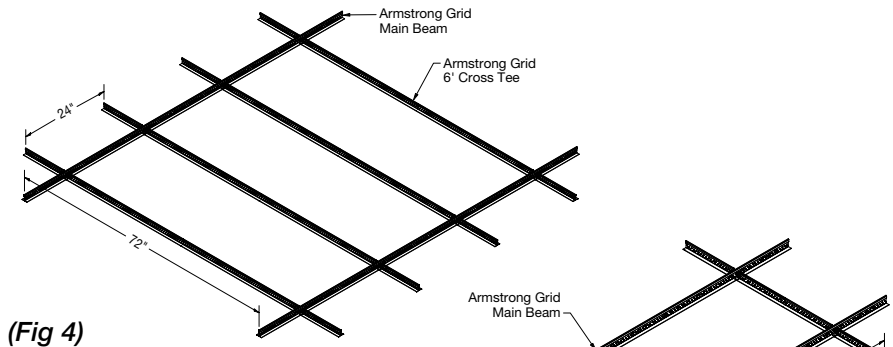
Running bond or staggered layouts differ from standard layouts by alternating the grid openings between different rows of mains. This results in single cross tees occupying rout holes. These single cross tee connections must be reinforced to meet code requirements for connection strength. Armstrong's recommended solution is the Single Tee Adapter Clip (STAC) (*Fig 7*).

3.2 Room Layout

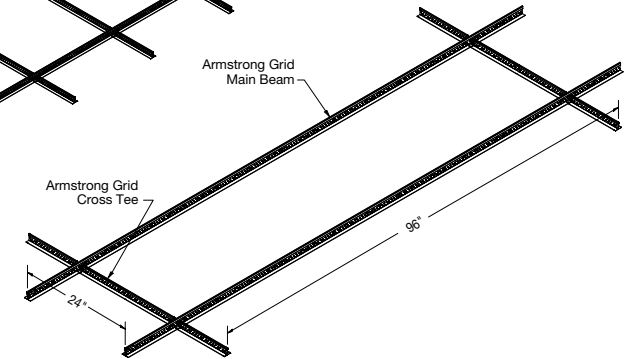
Proper layout within a space is crucial for a good installation. Some layouts may have a starting point established by the architect noted on the prints. Examples of starting points may be for a specific border dimension, full size borders, or referenced from lights or columns. It is important to check the project plans before installation.

3.2.1 Calculating Equal Borders

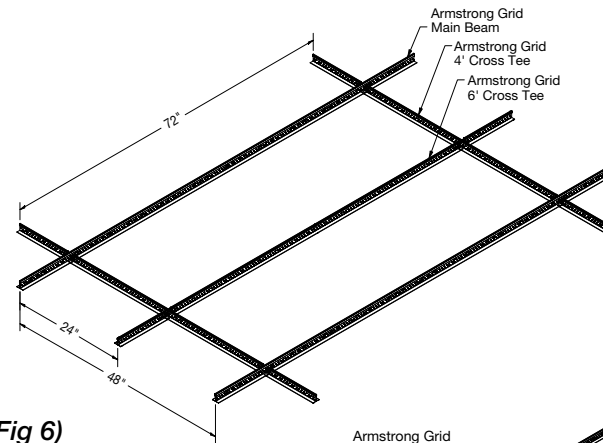
The most pleasing visual is achieved when the border panels are no less than 10" wide, and the opposite wall has the exact same size border panel achieving proper room balance. For installations that require equal borders, the following steps will help you layout an installation with equal borders on opposite sides of the space.



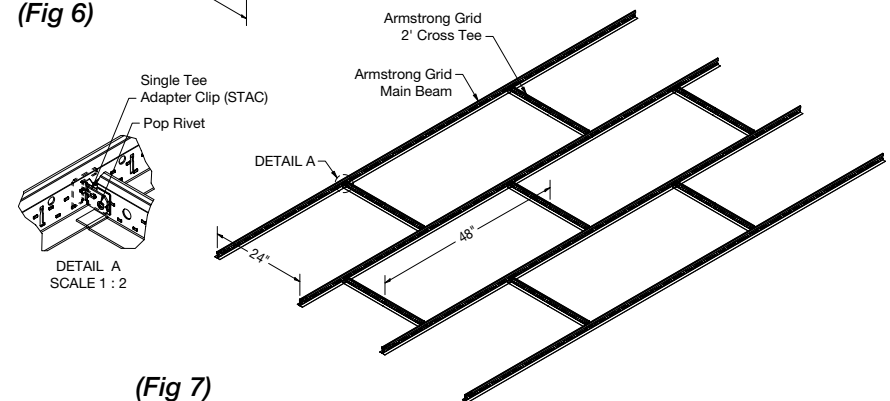
(Fig 4)



(Fig 5)



(Fig 6)



(Fig 7)

- Determine the direction of the main beams and panel length.
- Divide each dimension of the space (length and width) by the panel length in that direction.

Ex: 28' 9" (room width) / 2' (panel width) = 14 full size panels and a 9" remainder

- Divide the remainder to get even opposite border panels. If this results in border panels less than 10" you will need to add a full panel to the remainder so that the border panels are greater than 10".

Ex: 9" (remainder) / 2 (borders) = 4-1/2" border (too small)

24" (full panel width) + 9" = 33" (new remainder)

33" / 2 (borders) = 16-1/2" borders with 13 full size panels

3.3 Plenum

Allow at least 3" below the old ceiling, duct work, pipes, or wiring as clearance to maneuver a ceiling panel into the opening of the grid.

4. WALL MOLDING

4.1 Wall molding is not considered a load bearing component of most suspended ceiling systems, but it must be securely attached to the wall every 16" - 24" O.C.

4.2 Mitered Corners

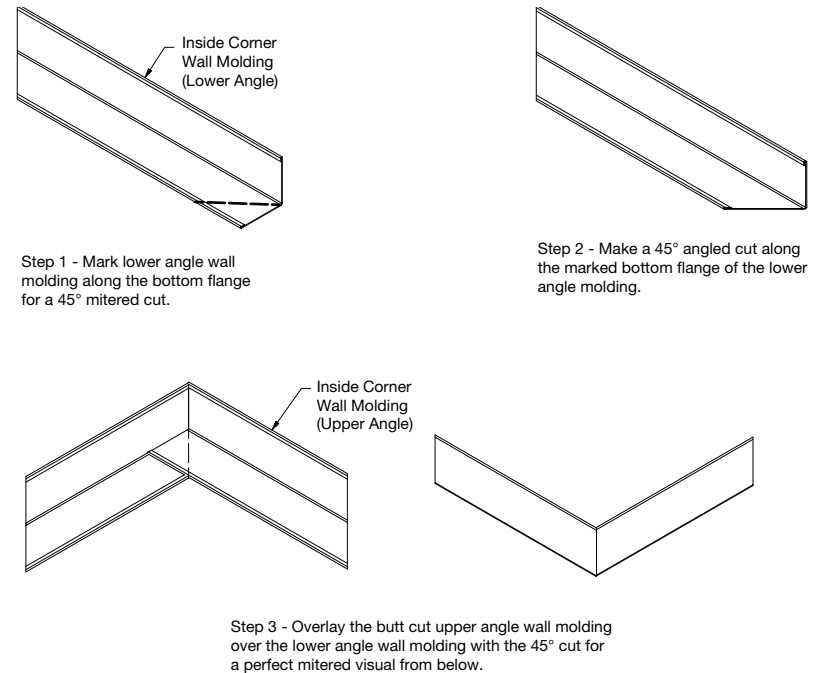
4.2.1 Inside Corners

When you get to your inside corners, a finished 45° miter is a much more pleasing visual than simply overlaying butt cuts. All you have to do is mark and cut 45° on the lower angle then overlay the butt cut upper angle for a perfect mitered visual from below (Fig 8).

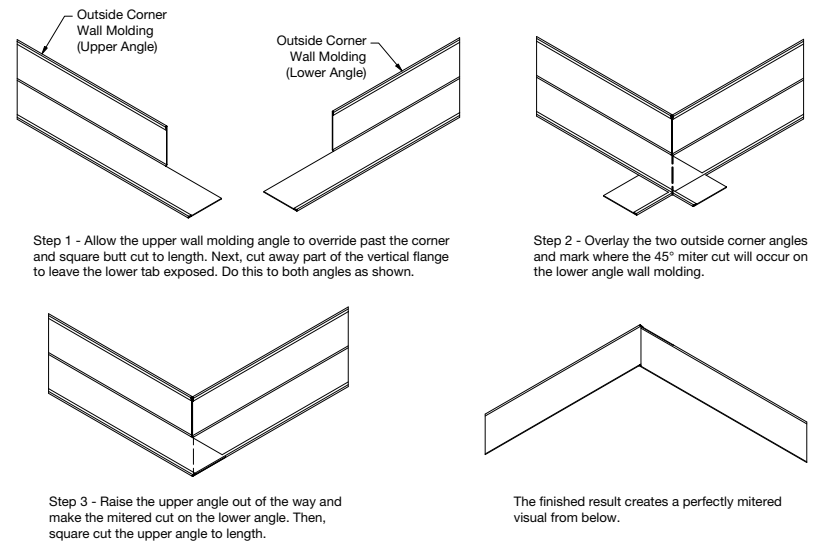
4.2.2 Outside Corners

The outside corners require a little more attention, but are still easy to achieve a clean mitered visual. Simply let the angle override past the corner, then square butt cut to length.

Next, cut away the vertical flange, leaving an exposed horizontal tab. Do this to both angles that approach the outside corner. After overlaying them at the corner, mark where the 45° miter cut will occur on the lower angle. Raise your upper angle and make the 45° cut on the lower angle only. Square cut the upper angle to length and you're finished with a corner that looks perfectly mitered, but is structurally sound. A spring clamp will hold the corner into place while you do the final attachment to the wall (Fig 9).



(Fig 8)



(Fig 9)

4.3 Some systems may require the use of a Structural Wall Molding, with additional instructions on installation requirements for this component.

5. SUSPENSION POINTS

5.1 The suspension system must be supported with hanger wire attached to the structure.

5.2 Holding power tests certified by the manufacturer of the fasteners must be available upon request.

5.3 Hanger wires should be a minimum 12-gauge galvanized, soft-annealed, mild steel wire.

5.4 The minimum drop for hanger wire is 4", which is from the bulb of the grid to the structure. This will allow enough room to wrap your wire as well as remove ceiling panels. There is not a maximum length for suspending acoustical ceilings with 12 gauge hanger wire, unless restrictions are in place by your local code authority. Hanger wire splices are available when wire extension is necessary.

5.5 Hanger wires are typically spaced no more than 4' O.C. along the main beams, but may be spaced further if allowed by local code officials and if it is in compliance with load carrying capabilities.

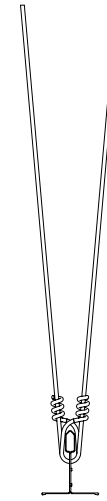
5.6 Each hanger wire must not be more than one in six out of plumb, which means there should be at least 6" of vertical drop for every 1" of lateral movement (Fig 10). For example, if you move a wire 2" out of plumb, you must have at least 12" of vertical drop. When this standard is not met, an equally sloped counter splay wire must be added in the opposing direction to maintain symmetry (ASTM C636) (Fig 11).

5.7 Hanger wire must be wrapped around itself a minimum of three full turns within 3" (ASTM C636 – subject to additional codes) (Fig 12).

5.8 When installing fire rated main beams, all fire expansion relief cut outs must have a hanger wire within three inches (ASTM C636) (Fig 13).



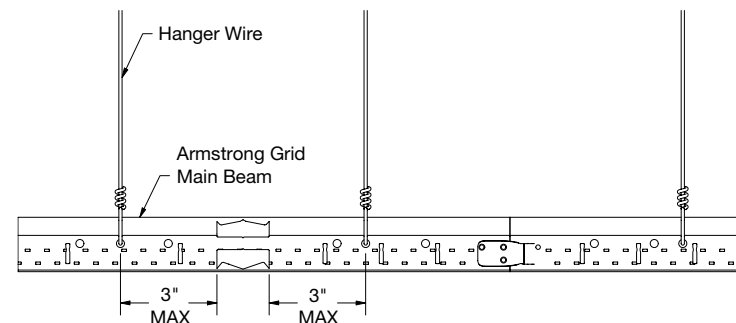
(Fig 10)



(Fig 11)



(Fig 12)



(Fig 13)

6. SUSPENSION SYSTEM INSTALLATION STANDARDS

- 6.1** Suspension systems, whether 9/16" or 15/16", shall be installed to meet the minimum requirements established in the ASTM C636 standard, and any other requirements established by local code.
- 6.2** All grid components used must be rated to carry the appropriate load per ASTM C635 and E3090. Consult the grid product data page for load carrying capabilities.
- 6.3** Main beams must be level to within 1/4" in 10', determined by measurements taken below the hanger points with the hanging wires tied tight. This process can be aided with the use of a level laser.
- 6.4** Certain products may call out a specific squareness requirement to ensure a satisfactory installation. Ensuring the grid installation is square can be done with perpendicular dry lines (control lines) or a 90° alignment laser to install the grid off of. Squareness of individual modules can also be verified by measuring opposite diagonals within an opening. The measurements of the opposite diagonals will be the same if they are square. If the grid is not square, push the module's cross tees to the right and clamp to remove slack and measure again.

7. CEILING PANEL INSTALLATION

7.1 Edge Detail Types

There are several different types of edge details for panels. Refer to the product data page for edge profile type and Suspension Drawing number that can be referenced in the back of the Specifier's Reference. Some common edge details are:

7.1.1 Square Lay-in

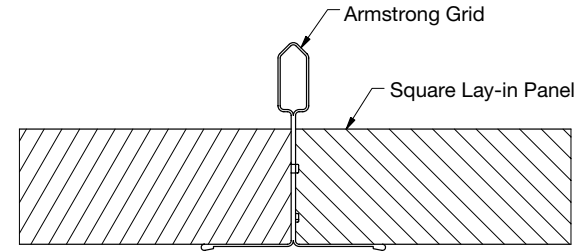
Square lay-in panels do not have any cuts on the edges. Each edge will provide a 90° corner. They install above the grid and should generally be installed in 15/16" grid (*Fig 14*).

7.1.2 Tegular

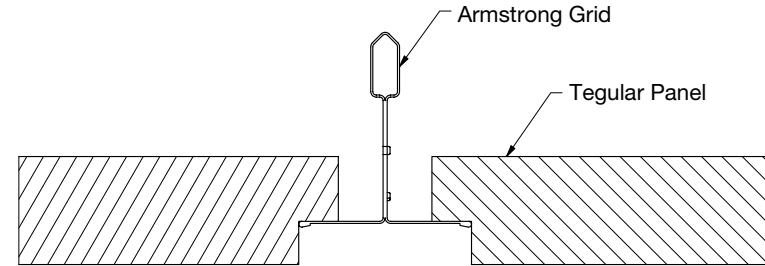
Tegular panels will have a step cut out around the edge. They will also install above the grid. Tegular edge details can vary in several characteristics, such as square or beveled, or for 9/16" or 15/16". Refer to the product data page for details regarding a specific product (*Fig 15*).

7.1.3 Vector/Concealed

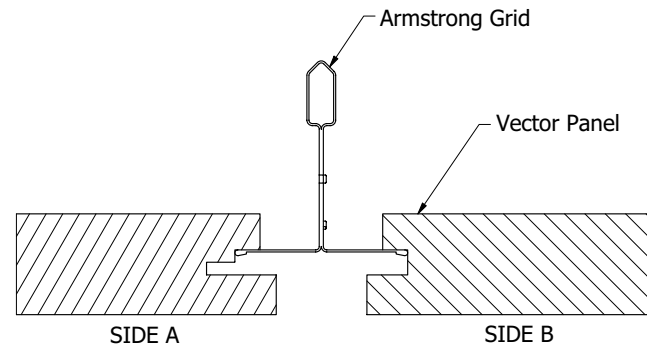
Vector and Concealed panels install from below the grid. Each panel will have an A/B side and a C/D side. Only the A/B sides will engage with the grid (*Fig 16*). The C/D sides will act as a reverse tegular edge and will butt up next to the grid flange, but not engage with it. Refer to product specific installation instructions for information on Vector and Concealed panel edge details.



(Fig 14)



(Fig 15)



(Fig 16)

7.2 Perimeter Treatment

7.2.1 Perimeter panels less than full size shall be installed either by concealing the cut edge on the horizontal flange of a perimeter molding (option A), or by re-cutting the Tegular edge detail (option B).

7.2.2 Option A: Panel Face Resting on Molding

For option A, when the face of the panel rests on the molding, Spring Border Clips (item 7870) should be used for proper panel alignment and to prevent the possibility of the panel shifting toward the wall far enough to permit the opposite edge to drop off the grid flange (*Fig 17*).

7.2.3 Option B: Re-cut the Edge Detail

For option B, the suspension system rests directly on the horizontal flange of the molding. Tegular edges will have to be field-cut to allow the panel face to drop 1/4" below the grid. All field-cut edges "exposed to view" should be colored to match the factory finish. Armstrong SuperCoat Ceiling Panel Touch-up Paint is recommended (*Fig 18*).

7.3 Cleaning

7.3.1 Remove dust or loose dirt with a brush or vacuum with an attachment used for upholstery. Always clean in one direction to avoid rubbing dirt or debris into the tile.

7.3.2 Remove pencil marks, smudges, and stubborn dirt with an ordinary art gum eraser.

7.3.3 Most mineral fiber and fiberglass ceilings may be cleaned with a damp cloth or sponge and mild soap. Use as little water as possible and wipe the soapy film off with a clean, damp cloth or sponge.

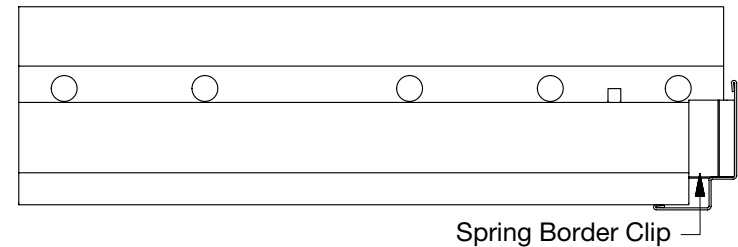
7.3.4 Some ceilings can withstand scrubbing, moisture, and germicidal cleaners. Be sure to reference the product specific data page to read the performance features of the ceiling panel.

7.4 Touch-up Paint

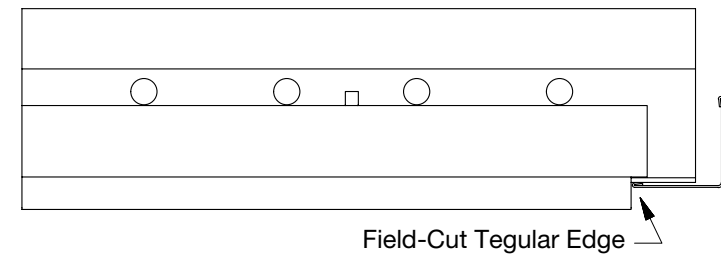
7.4.1 Armstrong cannot guarantee the printed performance of a ceiling panel after it has been repainted. Repainting can impact performance features such as light reflectance, fire resistance, acoustical performance, anti-sag, and any mold-inhibiting or retarding treatment.

7.4.2 All warranties will be voided by field painting.

7.4.3 Armstrong SuperCoat Ceiling Panel Touch-up Paint is recommended to cover any blemishes or deeper gouges.



(Fig 17)



(Fig 18)

8. LIGHTING LAYOUT CONSIDERATIONS

- 8.1** Lighting may impact the grid layout by either requiring an H-layout/ cross-hatching or by creating single cross tee connections (unopposed cross tees). These conditions must be addressed by following the instructions in sections 3.1.1.3 (H-Layout / Cross-Hatch) and 3.1.1.5 (Running Bond / Staggered).
- 8.2** All light fixtures must be independently supported unless noted otherwise in the product specific installation instructions.
- 8.3** Follow the lighting manufacturer installation instructions and contact your local lighting manufacturer representative with any questions.

9. HELPFUL ACCESSORIES AND CLIPS

9.1 BERC2 – 2" Beam End Retaining Clip

Joins main beam or cross tee to wall molding via locking barbs without pop rivets or screws (*Fig 19*).

9.2 XTAC – Cross Tee Adapter Clip

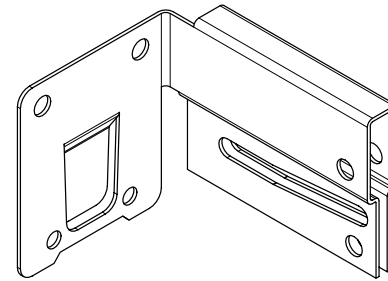
Used to attach field cut cross tees to main beams (*Fig 20*).

9.3 GC3W – Grip Clip 3-Way

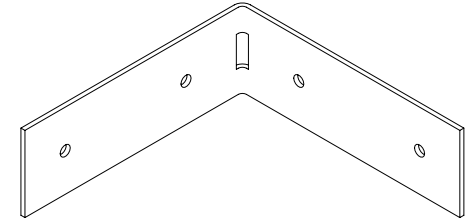
Joins main beams to cross tee via locking barbs without pop rivets or screws (*Fig 21*).

9.4 GCWA – Grip Clip Wall Attachment

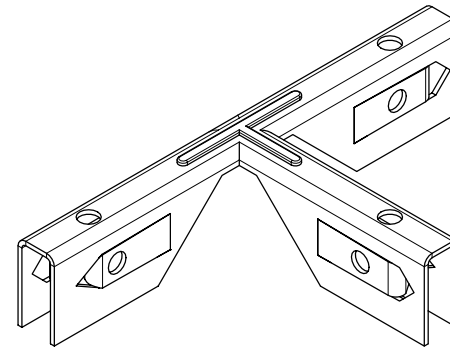
Joins main beam or cross tee to wall molding via locking barbs without pop rivets or screws (*Fig 22*).



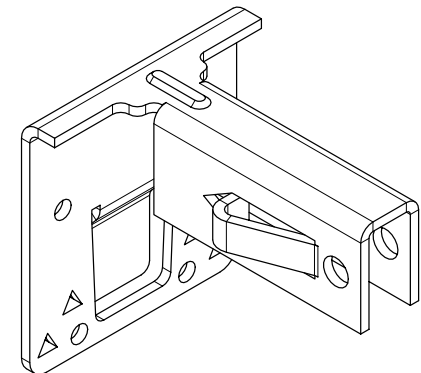
(Fig 19)



(Fig 20)



(Fig 21)



(Fig 22)

9.5 STAC – Single Tee Adapter Clip

Used to create code compliant non-seismic and seismic C, D, E, and F off-module main beam to cross tee connections. Refer to Single Tee Adapter Clip (STAC) installation guide for full instructions (*Fig 23*).

9.6 Stabilizer Bars

Used to maintain uniform spacing of suspension system components (main beams and cross tees) (*Fig 24*).

9.7 Stabilizer Clips

Used to maintain uniform spacing of grid components when Stabilizer Bars cannot be used due to lay-in panels. Refer to Large Format Ceiling Panels instructions for details (*Fig 25*).

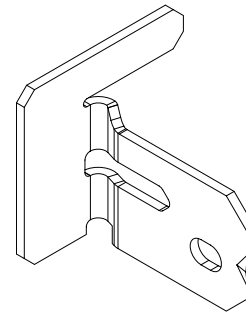
9.8 WS12 – Wire Splice

Used to splice a new hanger wire to an existing hanger wire, or if an extra-long hanger wire is needed (*Fig 26*).

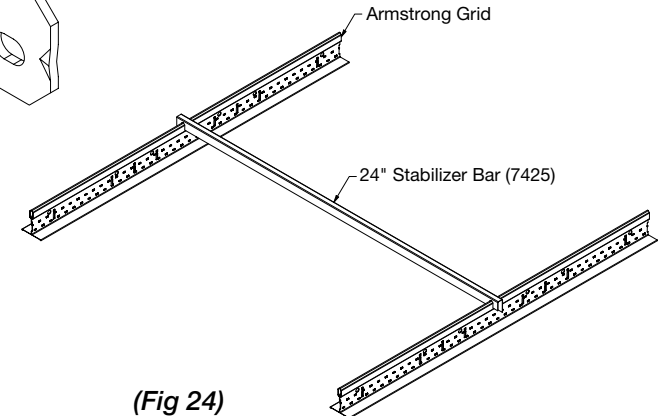
10. SEISMIC

10.1 Installations occurring in seismic design categories C, D, E, or F must be in compliance with the methods described in the Seismic Design: What You Need to Know document. This document outlines the Armstrong Seismic Rx methods for installing suspended ceilings in compliance with the International Building Code (IBC) requirements for seismic design categories C, D, E, and F.

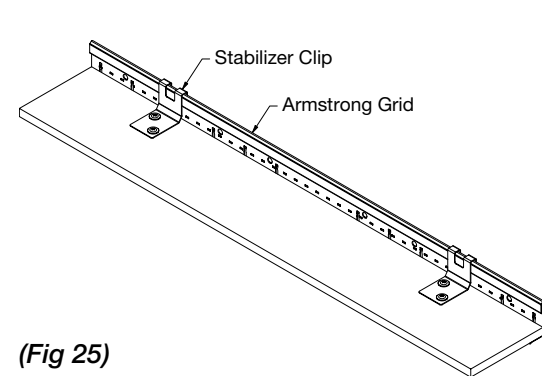
10.2 Reference the product specific installation instructions of the product being installed for any seismic installation requirements.



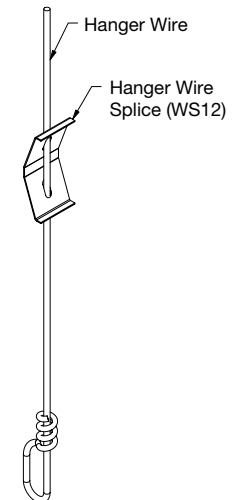
(Fig 23)



(Fig 24)



(Fig 25)



(Fig 26)

MORE INFORMATION

For more information, or for an Armstrong Ceilings representative, call 1 877 276 7876.

For complete technical information, detail drawings, CAD design assistance, installation information, and many other technical services, call TechLine customer support at 1 877 276 7876 or FAX 1 800 572 TECH.

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ULTRA SPEC[®] 500

INTERIOR EGGSHELL FINISH

K538

Features

- Zero VOC
- Low odour
- Excellent hiding
- Great touch up
- Spatter resistant
- Decorative and uniform eggshell finish
- Quick dry
- Easy application
- Soap and water clean up
- MPI Approved
- Washable
- Qualifies for LEED[®] v4 credit

Recommended For

Interior wall and ceiling surfaces in commercial and institutional environments where eggshell finish is desired. For use on primed or previously painted drywall, masonry, plaster, wood, metal and wallpapered surfaces.



General Description

A professional-quality interior waterborne eggshell finish based on a proprietary acrylic resin that tints on the Gennex[®] zero VOC colorant system. This waterborne interior eggshell provides a decorative scrubbable finish that qualifies for LEED[®] v4 credit and passes the most stringent environmental standards in any colour. Because it tints on our Gennex[®] waterborne colorant system all Ultra Spec[®] 500 finishes are available in any colour without an increase in VOC.

Limitations

- Do not apply when air and surface temperatures are below 10 °C (50 °F)

Product Information

Colours — Standard: White (01)		Technical Data[◇]		White								
— Tint Bases: Benjamin Moore [®] Gennex [®] bases 0X, 1X, 2X, 3X & 4X		Vehicle Type		Acrylic Copolymer								
— Special Colours: Contact your Benjamin Moore representative		Pigment Type		Titanium Dioxide								
Certifications & Qualifications: VOC compliant in all regulated areas Zero VOC according to EPA Method 24 Class A (0-25) over non-combustible surfaces when tested in accordance with ASTM E-84 Master Painters Institute MPI # 52, 52 X- Green [™] , 145, 145 X-Green [™] Master Painters Institute High Performance # 139, 139 X-Green [™]		Volume Solids		42 ± 2%								
 <p>Cradle to Cradle Certified[™] Silver</p>		Coverage per 3.79 L at		32.5 – 37.1 sq. m. (350 – 400 sq. ft.)								
		Recommended Film Thickness										
 <p>Benjamin Moore's Green Promise[®] designation is our company's assurance that this product meets – and often exceeds – rigorous environmental and performance criteria regarding VOCs, emissions, application, washability, scrubbability and packaging, while also delivering the premium levels of performance you expect from Benjamin Moore.</p>		Recommended Film Thickness		– Wet 4.3 mils – Dry 1.8 mils								
		<p>Depending on surface texture and porosity. Be sure to estimate the right amount of paint for the job. This will ensure colour uniformity and minimize the disposal of excess paint.</p>										
<table border="1"> <tr> <td>Qualifies for LEED[®] v4 Credit</td> <td>CDPH v1 Emission Certified</td> <td>Qualifies for CHPS low emitting credit (Collaborative for High Performance Schools)</td> <td>VOC (in any colour)</td> </tr> <tr> <td>YES</td> <td>YES</td> <td>YES</td> <td>0 g/L</td> </tr> </table>		Qualifies for LEED[®] v4 Credit	CDPH v1 Emission Certified	Qualifies for CHPS low emitting credit (Collaborative for High Performance Schools)	VOC (in any colour)	YES	YES	YES	0 g/L	Dry Time @ 25 °C (77 °F) @ 50% RH		– To Touch 2 Hours – To Recoat 2-3 Hours
		Qualifies for LEED[®] v4 Credit	CDPH v1 Emission Certified	Qualifies for CHPS low emitting credit (Collaborative for High Performance Schools)	VOC (in any colour)							
YES	YES	YES	0 g/L									
<p>This Benjamin Moore product has been tested by independent third parties and meets or exceeds the published chemical restriction and performance criteria of the Green Seal[™] GS-11 2015 standard</p>		Painted surfaces can be washed after two weeks. High humidity and cool temperatures will result in longer dry, recoat and service times.										
		Dries By		Coalescence								
<p>Customer Information Centre: 1-800-361-5898, info@benjaminmoore.ca, www.benjaminmoore.ca</p>		Viscosity		95 ± 5 KU								
		Flash Point		N/A								
<p>Volatile Organic Compounds (VOC) 0 g/L Zero VOC post tint (any base and any colour)</p>		Gloss / Sheen		Eggshell (10-12 @ 60°) (10-21 @ 85°)								
		Surface Temperature at Application		– Min. 10 °C (50 °F) – Max. 32.2 °C (90 °F)								
<p>[◇]Reported values are for White. Contact Benjamin Moore for values of other bases or colour.</p>		Thin With		See Chart								
		Clean Up Thinner		Clean Water								
<p>Weight Per 3.79 L</p>		Weight Per 3.79 L		4.9 kg (10.8 lbs)								
		Storage Temperature		– Min. 4.4 °C (50 °F) – Max. 32.2 °C (90 °F)								

Surface Preparation

Surfaces to be painted must be clean, dry, and free of dirt, dust, grease, oil, soap, wax, scaling paint, water-soluble materials, and mildew. Remove any peeling or scaling paint and sand these areas to feather edges smooth with adjacent surfaces. Glossy areas should be dulled. Drywall surfaces must be free of sanding dust.

New plaster or masonry surfaces must be allowed to cure 30 days before applying base coat. Cured plaster should be hard, have a slight sheen and maximum PH of 10; soft, porous or powdery plaster indicates improper cure. Never sand a plaster surface; knife off any protrusions and prime patching before and after applying patching compound. Poured or pre-cast concrete with a very smooth surface should be etched or abraded to promote adhesion, after removing all form release agents and curing compounds. Remove any powder or loose particles before priming. Wood substrates must be thoroughly dry.

Difficult Substrates: Benjamin Moore® offers a variety of specialty primers for use over difficult substrates such as bleeding woods, grease stains, crayon markings, hard glossy surfaces, galvanized metal or other substrates where paint adhesion or stain suppression is a particular problem. Your Benjamin Moore® retailer can recommend the right problem-solving primer for your special needs.

WARNING! If you scrape, sand, or remove old paint, you may release lead dust. LEAD IS TOXIC. EXPOSURE TO LEAD DUST CAN CAUSE SERIOUS ILLNESS, SUCH AS BRAIN DAMAGE, ESPECIALLY IN CHILDREN. PREGNANT WOMEN SHOULD ALSO AVOID EXPOSURE. Wear a NIOSH approved respirator to control lead exposure. Clean up carefully with a HEPA vacuum and a wet mop. Before you start, find out how to protect yourself and your family by logging onto Health Canada @ http://www.hc-sc.gc.ca/ewh-semt/contaminants/lead-plomb/asked_questions-questions_posees-eng.php (updating to <https://www.canada.ca/en/health-canada/services/environmental-workplace-health/environmental-contaminants/lead/lead-information-package-some-commonly-asked-questions-about-lead-human-health.html>)

Primer/Finish Systems

New surfaces should be fully primed, and previously painted surfaces may be primed or spot primed as necessary. For best hiding results, tint the primer to the approximate shade of the finish coat, especially when a significant colour change is desired. **Special Note:** Certain custom colours require a Deep Colour Base Primer tinted to a special prescription formula to achieve the desired colour. Consult your retailer.

Wood and Engineered Wood Products

Primer: Ultra Spec® 500 Interior Latex Primer (K534) or Fresh Start® All-Purpose Alkyd Primer (F024)

Finish: 1 or 2 coats Ultra Spec® 500 Interior Eggshell Finish (K538)

Drywall

Primer: Ultra Spec® 500 Interior Latex Primer (K534) or Fresh Start® Multi-Purpose Latex Primer (F023)

Finish: 1 or 2 coats Ultra Spec® 500 Interior Eggshell Finish (K538)

Plaster (Cured)

Primer: Ultra Spec® 500 Interior Latex Primer (K534) or Fresh Start® Multi-Purpose Latex Primer (F023)

Finish: 1 or 2 coats Ultra Spec® 500 Interior Eggshell Finish (K538)

Rough or Pitted Masonry

Primer: Ultra Spec® Masonry Interior/Exterior Hi-Build Block Filler (K571)

Finish: 1 or 2 coats Ultra Spec® 500 Interior Eggshell Finish (K538)

Smooth Poured or Precast Concrete

Primer: Ultra Spec® Masonry Interior / Exterior 100% Acrylic Masonry Sealer (K608) or Fresh Start® Multi-Purpose Latex Primer (F023)

Finish: 1 or 2 coats Ultra Spec® 500 Interior Eggshell Finish (K538)

Ferrous Metal (Steel and Iron)

Primer: Ultra Spec® HP Acrylic Metal Primer (FP04) or Super Spec HP® Alkyd Metal Primer (KP06)

Finish: 1 or 2 coats Ultra Spec® 500 Interior Eggshell Finish (K538)

Non-Ferrous Metal (Galvanized & Aluminum)

All new metal surfaces must be thoroughly cleaned with Corotech® Oil & Grease Emulsifier (V600) to remove contaminants. New shiny non-ferrous metal surfaces that will be subject to abrasion should be dulled with very fine sandpaper or a synthetic steel wool pad to promote adhesion.

Primer: Ultra Spec® HP Acrylic Metal Primer (FP04)

Finish: 1 or 2 coats Ultra Spec® 500 Interior Eggshell Finish (K538)

Repaint, All Substrates: Prime bare areas with the primer recommended for the substrate above.

Application

Stir thoroughly before use. Apply one or two coats. For best results, use a Benjamin Moore® Professional custom-blended nylon/polyester brush, Benjamin Moore® Professional roller, or a similar product. This product can also be sprayed.

Thinning/Clean Up

Conditioning with Benjamin Moore® K518 Extender may be necessary under certain conditions to adjust open time or spray characteristics. The chart below is for general guidance		
	Mild conditions	Severe conditions
	Humid (RH> 50%) with no direct sunlight & with little to no wind	Dry (RH<50%), in direct sunlight, or windy conditions
Brush: Nylon / Polyester	No thinning necessary	Add K518 Extender or water: Max of 236 ml to a 3.79 L of paint Never add other paints or solvents.
Roller: Premium Quality 10 mm roller cover		
Spray: Airless Pressure: 2,000 -2,800 psi Tip: 0.013-0.017		

Thinning is unnecessary, but if required to obtain desired application properties, a small amount of clean water may be added. Never add other paints or solvents.

Clean up: Use soap and water. Spray equipment should be given a final rinse with mineral spirits to prevent corrosion.

Environmental, Health & Safety Information

May cause allergic skin reaction.

Do not get on skin or clothing.

Use only in a well ventilated area. Keep container closed when not in use. In case of spillage, absorb with inert material and dispose of in accordance with local regulations. Wash thoroughly after handling.

**KEEP OUT OF REACH OF CHILDREN
PROTECT FROM FREEZING**

Refer to Safety Data Sheet for additional health and safety information.



ULTRA SPEC[®] 500

INTERIOR SEMI-GLOSS FINISH

K539

Features

- Zero VOC
- Low odour
- Excellent hiding
- Spatter resistant
- Decorative and uniform semi-gloss finish
- Quick dry
- Easy application
- Soap and water clean up
- MPI Approved
- Washable
- Qualifies for LEED[®] v4 credit

Recommended For

Interior door, trim, cabinet, wall and ceiling surfaces in commercial and institutional environments where a washable semi-gloss finish is desired. For use on primed or previously painted drywall, plaster, wood, metal and wallpapered surfaces.



General Description

A professional-quality interior waterborne semi-gloss finish based on a proprietary acrylic resin that tints on the Gennex[®] zero VOC colorant system. This waterborne interior semi-gloss has excellent stain release so it washes clean easily. The product qualifies for LEED[®] v4 credit and passes the most stringent environmental standards in any colour. Because it tints on our Gennex[®] waterborne colorant system all Ultra Spec[®] 500 finishes are available in any colour without an increase in VOC.

Limitations

- Do not apply when air and surface temperatures are below 10 °C (50 °F)

Product Information

Colours — Standard: White (01)		Technical Data[◇]		White								
— Tint Bases: Benjamin Moore [®] Gennex [®] bases 1X, 2X, 3X & 4X		Vehicle Type		Acrylic Copolymer								
— Special Colours: Contact your Benjamin Moore representative		Pigment Type		Titanium Dioxide								
Certifications & Qualifications: VOC compliant in all regulated areas Zero VOC according to EPA Method 24 Class A (0-25) over non-combustible surfaces when tested in accordance with ASTM E-84 Master Painters Institute MPI # 43, 43 X-Green [™] , 146, 146 X-Green [™] Master Painters Institute High Performance # 140, 140 X-Green [™]		Volume Solids		41 ± 2%								
 <p>Cradle to Cradle Certified[™] Silver</p>		Coverage per 3.79 L at		32.5 – 37.1 sq. m.								
		Recommended Film Thickness		(350 – 400 sq. ft.)								
 <p>Benjamin Moore's Green Promise[®] designation is our company's assurance that this product meets – and often exceeds – rigorous environmental and performance criteria regarding VOCs, emissions, application, washability, scrubability and packaging, while also delivering the premium levels of performance you expect from Benjamin Moore.</p>		Recommended Film Thickness		– Wet 4.3 mils								
		– Dry		1.8 mils								
<table border="1"> <tr> <td>Qualifies for LEED[®] v4 Credit</td> <td>CDPH v1 Emission Certified</td> <td>Qualifies for CHPS low emitting credit (Collaborative for High Performance Schools)</td> <td>VOC (in any colour)</td> </tr> <tr> <td>YES</td> <td>YES</td> <td>YES</td> <td>0 g/L</td> </tr> </table>		Qualifies for LEED [®] v4 Credit	CDPH v1 Emission Certified	Qualifies for CHPS low emitting credit (Collaborative for High Performance Schools)	VOC (in any colour)	YES	YES	YES	0 g/L	Depending on surface texture and porosity. Be sure to estimate the right amount of paint for the job. This will ensure colour uniformity and minimize the disposal of excess paint.		
		Qualifies for LEED [®] v4 Credit	CDPH v1 Emission Certified	Qualifies for CHPS low emitting credit (Collaborative for High Performance Schools)	VOC (in any colour)							
YES	YES	YES	0 g/L									
<p>Painted surfaces can be washed after two weeks. High humidity and cool temperatures will result in longer dry, recoat and service times.</p>		Dry Time @ 25 °C (77 °F) @ 50% RH		– To Touch 2 Hours – To Recoat 4 Hours								
		Dries By		Coalescence								
<p>Benjamin Moore's Green Promise[®] designation is our company's assurance that this product meets – and often exceeds – rigorous environmental and performance criteria regarding VOCs, emissions, application, washability, scrubability and packaging, while also delivering the premium levels of performance you expect from Benjamin Moore.</p>		Viscosity		93 ± 3 KU								
		Flash Point		N/A								
<p>This Benjamin Moore product has been tested by independent third parties and meets or exceeds the published chemical restriction and performance criteria of the Green Seal[™] GS-11 2015 standard</p>		Gloss / Sheen		Semi-Gloss (20-35 @ 60°)								
		Surface Temperature at Application		– Min. 10 °C (50 °F) – Max. 32.2 °C (90 °F)								
<p>Customer Information Centre: 1-800-361-5898, info@benjaminmoore.ca, www.benjaminmoore.ca</p>		Thin With		See Chart								
		Clean Up Thinner		Clean Water								
<p>Volatile Organic Compounds (VOC)</p> <p>0 g/L</p> <p>Zero VOC post tint (any base and any colour)</p>		Weight Per 3.79 L		5.1 kg (11.2 lbs)								
		Storage Temperature		– Min. 4.4 °C (40 °F) – Max. 32.2 °C (90 °F)								

[◇]Reported values are for White. Contact Benjamin Moore for values of other bases or colour.

Surface Preparation

Surfaces to be painted must be clean, dry, and free of dirt, dust, grease, oil, soap, wax, scaling paint, water-soluble materials, and mildew. Remove any peeling or scaling paint and sand these areas to feather edges smooth with adjacent surfaces. Glossy areas should be dulled. Drywall surfaces must be free of sanding dust.

New plaster or masonry surfaces must be allowed to cure 30 days before applying base coat. Cured plaster should be hard, have a slight sheen and maximum PH of 10; soft, porous or powdery plaster indicates improper cure. Never sand a plaster surface; knife off any protrusions and prime plaster before and after applying patching compound. Poured or pre-cast concrete with a very smooth surface should be etched or abraded to promote adhesion, after removing all form release agents and curing compounds. Remove any powder or loose particles before priming. Wood substrates must be thoroughly dry.

Difficult Substrates: Benjamin Moore offers a variety of specialty primers for use over difficult substrates such as bleeding woods, grease stains, crayon markings, hard glossy surfaces, galvanized metal or other substrates where paint adhesion or stain suppression is a particular problem. Your Benjamin Moore® retailer can recommend the right problem-solving primer for your special needs.

WARNING! If you scrape, sand, or remove old paint, you may release lead dust. LEAD IS TOXIC. EXPOSURE TO LEAD DUST CAN CAUSE SERIOUS ILLNESS, SUCH AS BRAIN DAMAGE, ESPECIALLY IN CHILDREN. PREGNANT WOMEN SHOULD ALSO AVOID EXPOSURE. Wear a NIOSH approved respirator to control lead exposure. Clean up carefully with a HEPA vacuum and a wet mop. Before you start, find out how to protect yourself and your family by logging onto Health Canada @ http://www.hc-sc.gc.ca/ewh-sem/contaminants/lead-plomb/asked_questions-questions_posees-eng.php (updating to <https://www.canada.ca/en/health-canada/services/environmental-workplace-health/environmental-contaminants/lead/lead-information-package-some-commonly-asked-questions-about-lead-human-health.html>)

Primer/Finish Systems

New surfaces should be fully primed, and previously painted surfaces may be primed or spot primed as necessary. For best hiding results, tint the primer to the approximate shade of the finish coat, especially when a significant colour change is desired. **Special Note:** Certain custom colours require a Deep Colour Base Primer tinted to a special prescription formula to achieve the desired colour. Consult your retailer.

Wood, and engineered wood products

Primer: Ultra Spec® 500 Interior Latex Primer (K534) or Fresh Start® All-Purpose Alkyd Primer (F024)

Finish: 1 or 2 coats Ultra Spec® 500 Interior Semi-Gloss Finish (K539)

Drywall

Primer: Ultra Spec® 500 Interior Latex Primer (K534) or Fresh Start® Multi-Purpose Latex Primer (F023)

Finish: 1 or 2 coats Ultra Spec® 500 Interior Semi-Gloss Finish (K539)

Plaster (Cured)

Primer: Ultra Spec® 500 Interior Latex Primer (K534) or Fresh Start® Multi-Purpose Latex Primer (F023)

Finish: 1 or 2 coats Ultra Spec® 500 Interior Semi-Gloss Finish (K539)

Rough or Pitted Masonry

Primer: Ultra Spec® Masonry Interior/Exterior Hi-Build Block Filler (K571)

Finish: 1 or 2 coats Ultra Spec® 500 Interior Semi-Gloss Finish (K539)

Smooth Poured or Precast Concrete

Primer: Ultra Spec® Masonry Interior / Exterior 100% Acrylic Masonry Sealer (K608) or Fresh Start® Multi-Purpose Latex Primer (F023)

Finish: 1 or 2 coats Ultra Spec® 500 Interior Semi-Gloss Finish (K539)

Ferrous Metal (Steel and Iron)

Primer: Ultra Spec® HP Acrylic Metal Primer (FP04) or Super Spec HP® Alkyd Metal Primer (KP06)

Finish: 1 or 2 coats Ultra Spec® 500 Interior Semi-Gloss Finish (K539)

Non-Ferrous Metal (Galvanized & Aluminum)

All new metal surfaces must be thoroughly cleaned with Corotech® Oil & Grease Emulsifier (V600) to remove contaminants. New shiny non-ferrous metal surfaces that will be subject to abrasion should be dulled with very fine sandpaper or a synthetic steel wool pad to promote adhesion.

Primer: Ultra Spec® HP Acrylic Metal Primer (FP04)

Finish: 1 or 2 coats Ultra Spec® 500 Interior Semi-Gloss Finish (K539)

Repair, All Substrates: Prime bare areas with the primer recommended for the substrate above.

Application

Stir thoroughly before use. Apply one or two coats. For best results, use a Benjamin Moore® Professional custom-blended nylon/polyester brush, Benjamin Moore® Professional roller, or a similar product. This product can also be sprayed.

Conditioning with Benjamin Moore® K518 Extender may be necessary under certain conditions to adjust open time or spray characteristics. The chart below is for general guidance		
	Mild conditions	Severe conditions
	Humid (RH> 50%) with no direct sunlight & with little to no wind	Dry (RH<50%), in direct sunlight, or windy conditions
Brush: Nylon / Polyester	No thinning necessary	Add K518 Extender or water: Max of 236 ml to a 3.79 L of paint Never add other paints or solvents.
Roller: Premium Quality 10 mm roller cover		
Spray: Airless Pressure: 1,500 -2,500 psi Tip: 0.013-0.017		

Thinning/Clean Up

Thinning is unnecessary, but if required to obtain desired application properties, a small amount of clean water may be added. Never add other paints or solvents.

Clean up: Use soap and water. Spray equipment should be given a final rinse with mineral spirits to prevent corrosion.

USE COMPLETELY OR DISPOSE OF PROPERLY. Dry empty containers may be recycled in a can recycling program. Local disposal requirements vary; consult your sanitation department or state-designated environmental agency on disposal options.

Environmental Health & Safety Information

May cause allergic skin reaction.

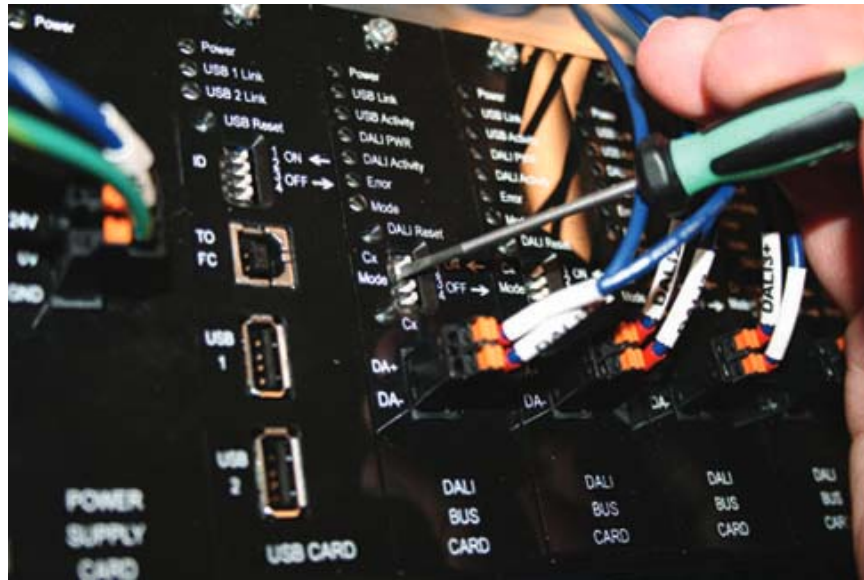
Do not get on skin or clothing.

Use only in a well ventilated area. Keep container closed when not in use. In case of spillage, absorb with inert material and dispose of in accordance with local regulations. Wash thoroughly after handling.

**KEEP OUT OF REACH OF CHILDREN
PROTECT FROM FREEZING**

**Refer to Safety Data Sheet for additional
health and safety information.**

Electrical Contractor Testing Protocol Production Check List



Contents

Description	Page
Lighting Control Panel Power Test.....	2
Cat5e Network Test.....	3
DALI Communication Bus Test.....	4
Appendix A.....	6



Powering Business Worldwide



DANGER

Line voltage is present in the areas covered with a red block in the picture below



IMPORTANT

Prior to energizing any fixture(s) ensure that there are no shorts between the following:

- The two DALI wires
- Each DALI Bus wire and ground
- Each DALI Bus wire and the line voltage wiring



IMPORTANT

Terminate the DALI Bus wires in the Lighting Control Panel (LCP) first, before energizing the lighting circuits. After the lighting circuits are energized, ensure the line voltage is not present on the DALI Bus wires.

- Ensure that all lighting loads are powered
- Use a meter to check for line voltage on the wires as follows:
 - Between either DALI wire to ground
 - Across both DALI wires
- There should be a maximum of 24 VDC between the DALI wires and ground



IMPORTANT

All LCP connections must be verified for proper terminations according to the corresponding LCP schematics. For safety purposes, ensure that there are no faulty connections between line voltage, neutral and ground wires. Be sure that all low voltage wiring is connected or secured before energizing the LCP.

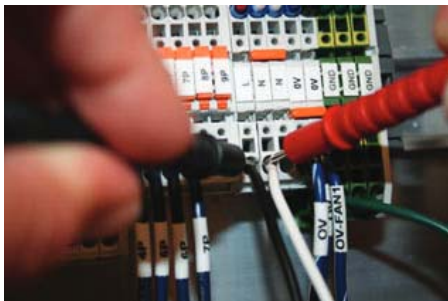
Table 1. Lighting Control Panel Power Test



Step 1:

Completed

Ensure all circuit breakers, all branch breakers and all circuit protection within all LCPs are in the Off position.



Step 2:

Completed

Energize the LCP by turning On the branch circuit breaker feeding the LCP. Verify that 120 VAC power is incoming at the LCP by measuring the voltage between the terminal blocks labeled "L" for line voltage and "N" for neutral.



Step 3: Completed

Turn the 120 VAC breaker labeled "CB1" inside the LCP to the On position.



Step 4: Completed

Verify that 24 VDC is present between the terminal blocks "0V" and "1P" off the power supply secondary.

Step 5: Completed

Ensure all LCPs have a suitable ground connection and that neutral (0 VDC) and ground are at the same potential.

Step 6: Completed

Repeat the steps 1-5 for all LCPs in the building.

Table 2. Cat5e Network Test

Step 1: Completed

The LCP requires Ethernet connections for communication with the Lighting Management Software and other integration pieces. Verify that Cat5e cabling has been pulled and terminated to each designated LCP location and that a connection has been provided between the Fifth Light system and the main network switch.

Step 2: Completed

Verify that the data drops are in the correct locations (i.e. the data racks or inside the LCP).

Step 3: Completed

Using a network cable tester, verify that each Cat5e cable is functional and data can pass through it.

Table 3. DALI Communication Bus Test



Step 1:

Completed

Energize the DBC by turning circuit breaker "CB2" to the On position.



Step 2:

Completed

1. Review the LED indicators on the DALI Bus Card:

- "DALI PWR": Should be illuminated. If not, verify the DALI Power Card is connected and that the supply breakers are On.
- "DALI Activity": Should be Off or flashing intermittently. If on solid, there is a short on the DALI Bus that should be rectified.
- "Error": The "Error" LED should be fading in and out or "breathing".

Note: If it is blinking, note the blink pattern and refer to the "DALI Card LED Error Table" in Appendix A.

2. Once the LEDs are verified to be in proper operation, proceed to Step 3 in this section.



Step 3:

Completed

Test Dimmable Devices – (This includes DALI Ballast/ Drivers, Dimming Modules and DACs).

1. On the DALI Bus Card for the bus under test, set the DIP Switch setting to Commissioning Mode 1 (shown circled) with DIP Switch 1 set to On and 2, 3, 4 set to the Off position.

Then press and hold the commissioning button, labeled Cx, (shown boxed) until the "Mode" LED Turns On. Next, follow the steps below:

- All lamps in the fixtures should dim down to a low light level output. The lamps should then increase in light output and continue to cycle light output every 5 seconds.
- Verify that all dimmable fixtures that should be connected to the DALI Bus are cycling with this mode.
- If any lamps in the fixtures do not dim, turn the power Off to the affected fixture and to the DBC. Recheck all connections including the DALI Bus wire connection; then repeat the test.

If the problem persists for a second time, set the device aside to be sent to Fifth Light to determine if the device is faulty.
- If fixtures are dimming that are not supposed to be connected to the DALI Bus under test, turn the power Off to the fixture and to the DBC. Recheck all connections to ensure they are connected to the correct DALI Bus, then repeat the test.

2. To exit Commissioning Mode press and hold the commissioning button (shown boxed) until the "Mode" LED turns Off.

Note: Ensure that the Mode 1 DIP Switch is switched back to Off before entering another Commissioning Mode.



Step 4:

Completed

Test DALI Field Relays

1. On the DALI Bus Card for the bus under test, set the DIP Switch setting to Commissioning Mode 2 (shown circled) with DIP Switch 2 set to On and 1, 3, 4 set to the Off position.

Then press and hold the Commissioning button, labeled Cx, (shown boxed) until the "Mode" LED turns On. Next, follow the steps below:

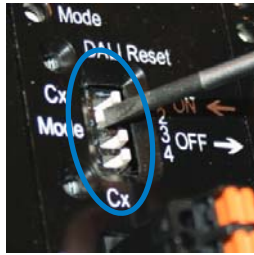
- Once Commissioning Mode 2 takes effect, all fixtures including the fixtures connected to a DALI Field Relay will turn On and Off every 5 seconds.
- Verify that all fixtures/relays that should be connected to the DALI Bus are cycling with this mode.
- If the fixtures do not turn On and Off, turn their power Off and turn Off power to the DBC. Recheck connections and repeat the test.

If the problem persists for a second time, set the device aside for further investigation by Fifth Light.

- If fixtures are switching that are not supposed to be connected to the DALI Bus under test, turn the power to the fixture and the DBC Off. Recheck all connections to ensure they are connected to the correct DALI Bus then repeat the test.

2. To exit Commissioning Mode, press and hold the commissioning button (shown boxed) until the "Mode" LED turns Off.

Note: Ensure that the Mode 1 DIP Switch is switched back to Off before entering another Commissioning Mode.



Step 5:

Completed

Test DALI Multi-Sensors and Wallstations

1. On the DALI Bus Card for the bus under test set the DIP Switch to Commissioning Mode 2 (shown circled) with DIP Switch 2 set to On and 1, 3, 4 set to the Off position.

Then press and release the commissioning button (shown boxed). Follow the steps below to start the test:

- Once Commissioning Mode 2 takes effect, the LEDs on all of the DALI Multi-Sensors and wallstations on this DALI Bus will blink 5 times rapidly every 5 seconds.
- Verify that all Multi-Sensors and wallstations that should be connected to the DALI Bus are cycling their LEDs with this mode.
- If the DALI Multi-Sensor's or wallstation's LEDs do not blink, recheck connections; then repeat the test.

If the problem persists for a second time, set the device aside for further investigation by Fifth Light.

- If Multi-Sensors and wallstations that are not supposed to be connected to this DALI Bus are blinking their LED's recheck all connections to ensure they are connected to the correct DALI Bus, then repeat the test.

2. To exit Commissioning Mode, press and hold the commissioning button (shown boxed) until the "Mode" LED turns Off.

Note: Ensure that the Mode 1 DIP Switch is switched back to Off before entering another Commissioning Mode.



Appendix A

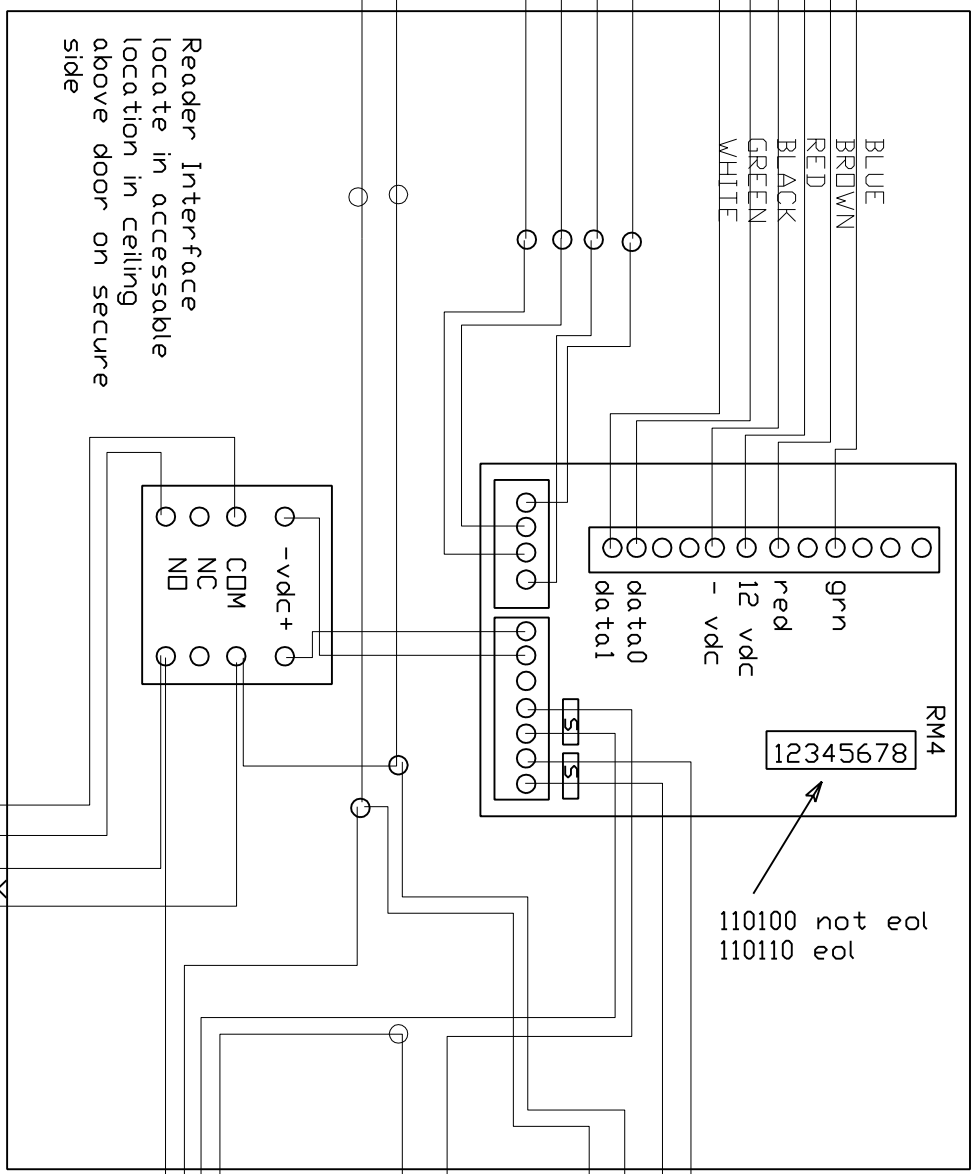
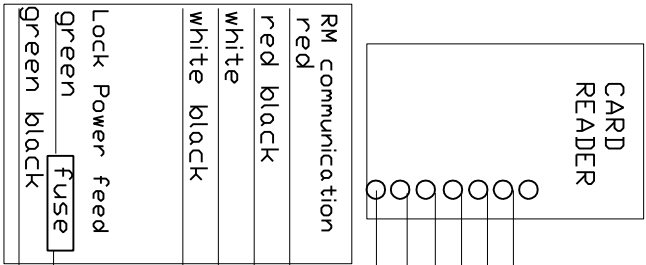
Table 4. DALI Card LED Error Table

Priority	Condition Identified	Status LED Pattern	Caused By
1 (highest)	Critical fault	100ms On, 100ms Off (periodic)	Non-volatile memory (EEPROM) data error detected Equipment requires service or replacement
2	Over-voltage condition on DALI Bus	4 short 250ms blinks separated by a 250ms Off time followed by 1750ms Off (periodic)	An over voltage condition has recently been or is currently being sensed on the DALI interface circuitry
3	USB communications watchdog time-out	3 short 250ms blinks separated by a 250ms Off time followed by 1750ms Off (periodic)	Interval between receiving two valid USB commands exceeded watchdog timer interval
4	DALI Bus fault	2 short 250ms blinks separated by a 250ms Off time followed by 1750ms Off (periodic)	DALI Power Supply absent on DALI Bus device holding DALI Bus in active state DALI Bus held in a sustained active state by short circuit fault on DALI Bus
5 (lowest)	Normal operation (default)	50ms On, 1950ms Off (periodic)	No other fault or status conditions to display

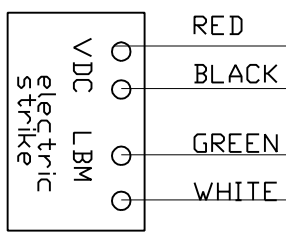
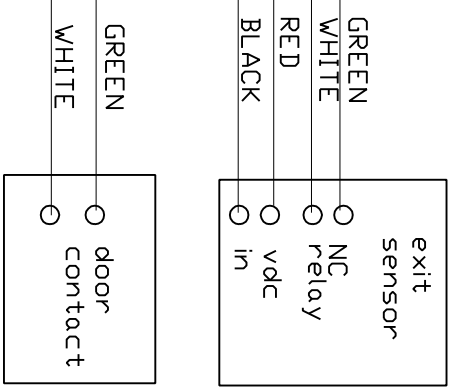
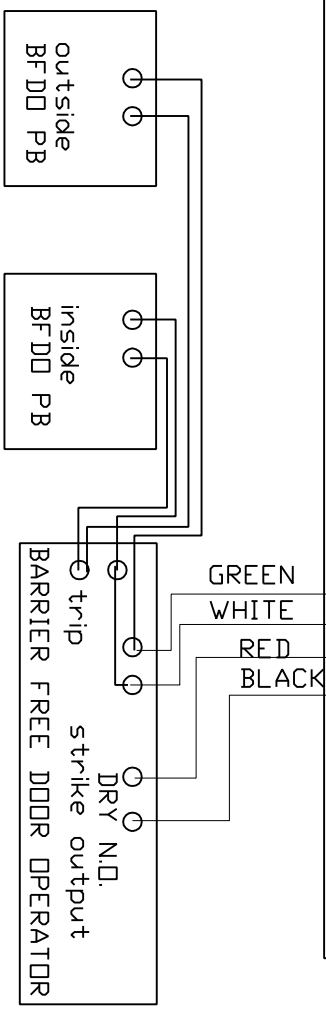
Eaton
1000 Eaton Boulevard
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United States
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Eaton's Cooper Controls Business
203 Cooper Circle
Peachtree City, GA 30269
coopercontrol.com

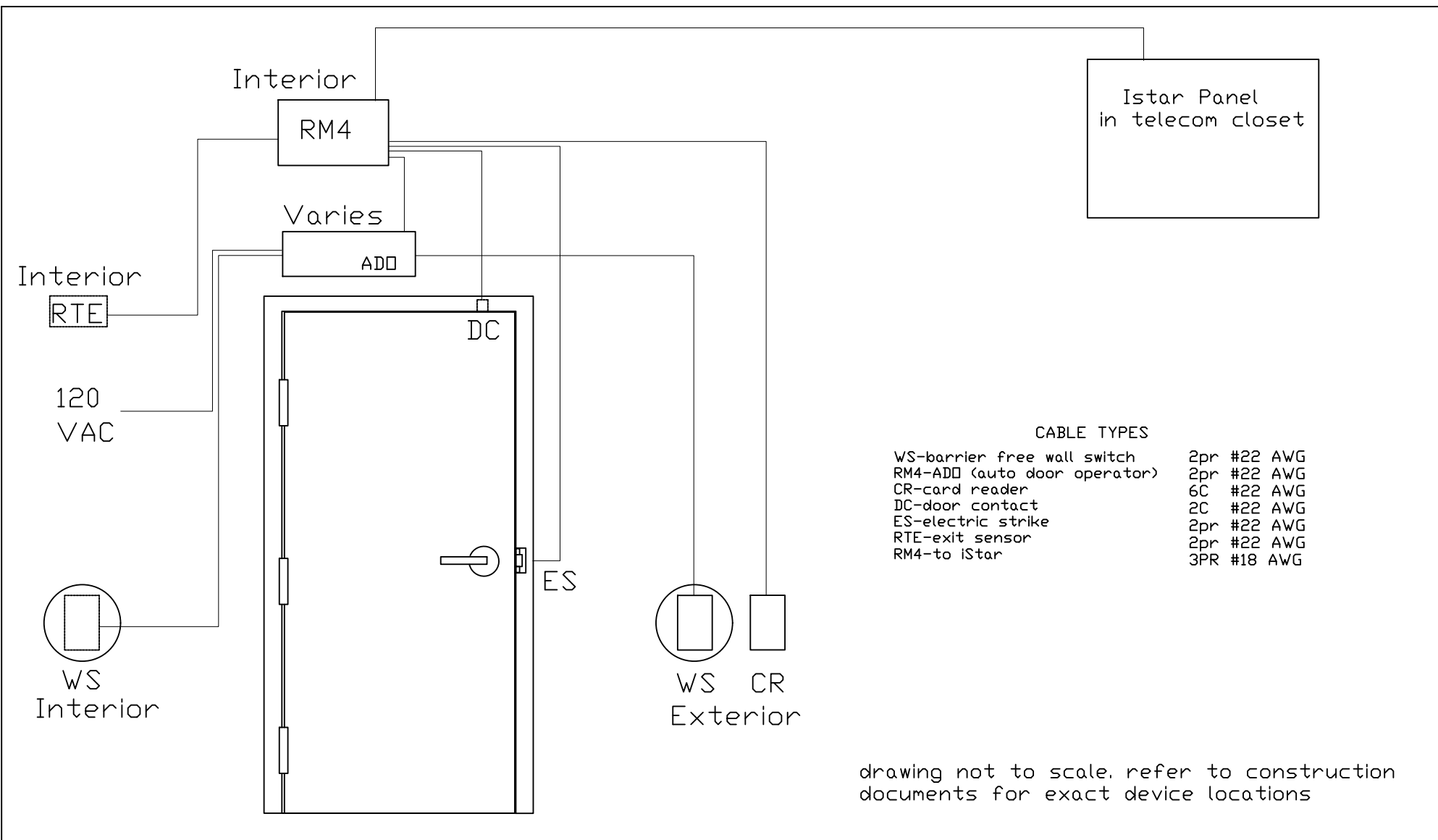
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Publication No. ACC140094
May 2, 2014



Reader Interface
locate in accessible
location in ceiling
above door on secure
side



RM-4 interface detail 1
ADD, ES, DC, RTE, CR
required supervision
not shown, see detail
June 10 2015
by Merit Security



Sheridan College Campus

Single door typical ADD with card reader

security device cable and conduit

drawing by Merit Security 2022



Hazardous Building Materials Assessment (Pre-Construction)

Rooms B244, B237, and B255
Trafalgar Campus, B-Wing
1430 Trafalgar Road,
Oakville, Ontario

Prepared for:

Sheridan College
1430 Trafalgar Road
Oakville, ON L6H 2L1

September 20, 2024

Pinchin File: 336577.015



Issued to: Sheridan College
Issued on: September 20, 2024
Pinchin File: 336577.015
Issuing Office: Hamilton, ON
Primary Pinchin Contact: Leslie Heywood, BEng Mgt.
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Project Technologist

Reviewer: _____
Leslie Heywood, BEng Mgt.
Senior Project Manager



EXECUTIVE SUMMARY

Sheridan College (Client) retained Pinchin Ltd. (Pinchin) to conduct a hazardous building materials assessment at Trafalgar Campus, B-Wing located at 1430 Trafalgar Road, Oakville Ontario. Pinchin performed the assessment on September 13, 2024.

The objective of the assessment was to identify specified hazardous building materials in preparation for building renovation activities. The proposed work as identified by the Client includes renovations to Rooms B244 (Financial Services, Location 80), B237 (Human Resources, Organizational Development & OH&S, Location 79), and B255 (Human Resources, Location 124).

The results of this assessment are intended for use with a properly developed scope of work or performance specifications and safe work procedures.

SUMMARY OF FINDINGS

The following is a summary of significant findings; refer to the body of the report for detailed findings:

Asbestos:

- Drywall joint compound

Lead:

- Lead is present in paints and coatings.
- Batteries of emergency lights may contain solid lead.

Silica: Crystalline silica is present in concrete and other materials such as masonry.

Mercury: Mercury vapour may be present in lamp tubes.

Polychlorinated Biphenyls (PCBs): PCBs are not present.

Mould and Water Damage: Visible mould and water damage was not observed.



SUMMARY OF RECOMMENDATIONS

The following is a summary of significant recommendations; refer to the body of the report for detailed recommendations.

1. Conduct further investigation of the following items, which was not completed during this assessment:
 - a. Any items listed as exclusions in this report, prior to disturbance.
2. Prepare a scope of work or specifications and safe work procedures for the hazardous materials removal required for the planned work.
3. Do not disturb suspected hazardous building materials discovered during the planned work, which have not been identified in this report and arrange for further evaluation and testing.
4. Remove and properly dispose of asbestos-containing materials prior to renovation activities.
5. Recycle mercury-containing lamp tubes when removed from service.
6. Follow appropriate safe work procedures when handling or disturbing asbestos, lead, and silica.

This Executive Summary is subject to the same standard limitations as contained in the report and must be read in conjunction with the entire report.



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APPENDICES

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APPENDIX II-A	Asbestos Analytical Certificates
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APPENDIX V	Hazardous Materials Summary Report / Sample Log
APPENDIX VI	HMIS All Data Report



1.0 INTRODUCTION AND SCOPE

Sheridan College (Client) retained Pinchin Ltd. (Pinchin) to conduct a hazardous building materials assessment at Trafalgar Campus, B-Wing located at 1430 Trafalgar Road, Oakville Ontario.

Pinchin performed the assessment on September 13, 2024. The surveyor was accompanied by a representative of the Client during the assessment. The assessed area was unoccupied at the time of the assessment.

The objective of the assessment was to identify specified hazardous building materials in preparation for building renovation activities. The proposed work as identified by the Client includes interior renovations to Rooms B244 (Financial Services, Location 80), B237 (Human Resources, Organizational Development & OH&S, Location 79), and B255 (Human Resources, Location 124)..

The results of this assessment are intended for use with a properly developed scope of work or performance specifications and safe work procedures.

1.1 Scope of Assessment

The **assessed area** is limited to the portion(s) of the building to be renovated, as described by the Client, and identified in the drawings in Appendix I.

The assessment was performed to establish the type of specified hazardous building materials, locations and approximate quantities incorporated in the structure(s) and its finishes.

For the purpose of the assessment and this report, hazardous building materials are defined as follows:

- Asbestos
- Lead
- Silica
- Mercury
- Polychlorinated Biphenyls (PCBs)
- Mould

The following Designated Substances are not typically found in building materials in a composition/state that is hazardous and were not included in this assessment:

- Arsenic
- Acrylonitrile
- Benzene



- Coke oven emissions
- Ethylene oxide
- Isocyanates
- Vinyl chloride monomer

2.0 METHODOLOGY

Pinchin conducted a room-by-room assessment to identify the hazardous building materials as defined in the scope.

The assessment included limited demolition of wall and ceiling finishes (drywall or plaster) to view concealed conditions at representative areas as permitted by the current building use. Limited destructive testing of flooring was conducted where possible (under ceramic tiles, carpets, or multiple layers of flooring). Demolition of exterior building finishes, masonry walls (chases, shafts etc.), and structural surrounds was not conducted.

Limited demolition of masonry block walls (core holes) was conducted to investigate for loose fill vermiculite insulation. Sampling of roofing materials was not conducted.

For further details on the methodology including test methods, refer to Appendix III.

3.0 BACKGROUND INFORMATION

3.1 Building Description

Description Item	Details
Use	Post-secondary school
Number of Floors	The building is 3 storeys plus 1 level below grade (assessed area limited to portions of the second floor)
Total Area	The assessed area is approximately 5,194 square feet.
Year of Construction	The portion of the building assessed was constructed in the 1970s.
Structure	Concrete
Exterior Cladding	Concrete, glass, and masonry
HVAC	Forced air
Roof (Outside of Scope)	Not assessed
Flooring (Assessed Area)	Carpet
Interior Walls (Assessed Area)	Drywall and masonry
Ceilings (Assessed Area)	Acoustic ceiling tiles

3.2 Existing Reports

The HMIS Online database was referenced and relied upon where applicable.

4.0 FINDINGS

The following section summarizes the findings of the assessment and provides a general description of the hazardous building materials identified. For details on approximate quantities, condition, friability, accessibility, and locations of hazardous building materials; refer to the Hazardous Material Summary / Sample Log and All Data Report in Appendices V and VI.

Any quantities listed in this report or data tables are estimated based on visual approximations only and are subject to variation.

4.1 Asbestos

4.1.1 Pipe Insulation

Pipes in the assessed area are either uninsulated or insulated with non-asbestos fiberglass or other non-asbestos insulation such as mineral fibre or elastomeric foam insulation (photo 1).

Pipes insulated with asbestos-containing insulations may be present in inaccessible spaces such as above solid ceilings, in chases, in column enclosures and within shafts.



Photo 1

4.1.2 Duct Insulation and Mastic

Ducts are either uninsulated or insulated with non-asbestos fiberglass (foil-faced or canvas jacketing, photos 1 and 2).

Mastic was not observed on exterior sections of ducts assessed.



Photo 1



Photo 2

4.1.3 Mechanical Equipment Insulation

Mechanical equipment was not found in the assessed area.


4.1.4 Vermiculite

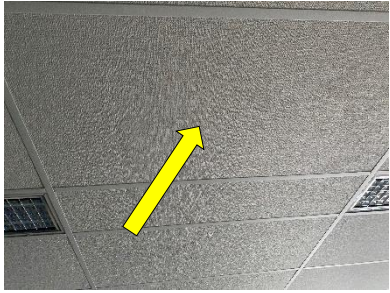
Destructive testing was conducted of a representative selection of masonry block walls, including creating penetrations at one location. The locations of destructive testing have been indicated on the drawings in Appendix I.

Loose fill vermiculite was not observed within the cavities.

4.1.5 Acoustic Ceiling Tiles

The following is a summary of acoustic ceiling tiles sampled, for a complete list of locations, refer to Appendix V.

Description	Sample Location	Date Code or Material Composition	Asbestos	Photo
2'x4', lay-in, random pinholes	Not sampled	Dated 10/30/97 and 07/23/03	None*	

Description	Sample Location	Date Code or Material Composition	Asbestos	Photo
2'x4', lay-in, rough surface	Not sampled	Fibreglass composition	None**	

*Ceiling tiles are presumed to be non-asbestos based on the date of manufacture determined from the date stamp applied to the top of the tiles. The tiles were manufactured after asbestos stopped being used in acoustic ceiling tiles.

**All ceiling tiles are presumed to be non-asbestos based on the composition of the tiles (e.g., fibreglass, wood fibre, gypsum).

4.1.6 Drywall Joint Compound




Drywall joint compound, containing asbestos, is present on bulkhead and wall finishes throughout the assessed area (samples S0120A-G and previous HMIS samples V0020, photo 1).



Photo 1

4.1.7 Sealants, Caulking, and Putty

The following is a summary of sealants, caulking, and putties sampled, for a complete list of locations, refer to Appendix V.

Material, Description and Application	Sample Location (Location #)	Sample Number	Asbestos	Photo
Glazing putty, black on interior door and window frames	B237 - Human Resources Organizational Development & OH&S (Location 79)	S0121A-C	No	
Caulking, white on concrete deck structure	B237 - Human Resources Organizational Development & OH&S (Location 79)	S0123A-C	No	
Sealant, black on exterior windows	Not sampled	N/A	None*	

*The material is presumed to be non-asbestos based on the date of installation (2019) and composition of the material (rubber).

4.1.8 Other Building Materials

The following is a summary of other materials sampled, for a complete list of locations, refer to Appendix V.

Description	Sample Location (Location #)	Sample Number	Asbestos	Photo
Carpet mastic	Human Resources Organizational Development & OH&S (Location 79)	S0122A-G	No	
Paint/coating on concrete deck structure	Human Resources Organizational Development & OH&S (Location 79)	S0124A-C	No	

4.1.9 Excluded Materials

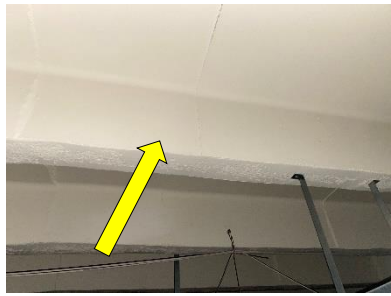
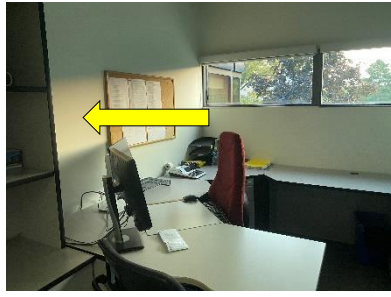

The following is a list of materials which may contain asbestos and was excluded from the assessment. These materials are presumed to contain asbestos until otherwise proven by sampling and analysis:

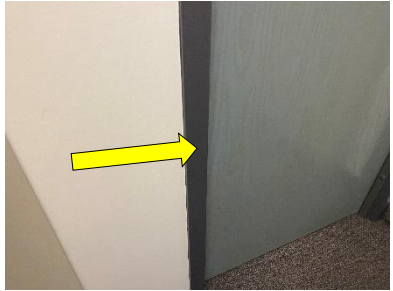
- Roofing felts and tar, mastics
- Electrical components
- Vermiculite
- Ropes and gaskets in cast-iron bell and spigot joints
- Sealants on pipe threads
- Inaccessible/concealed materials
- Materials outside of the assessed area

4.2 Lead

4.2.1 Paints and Surface Coatings

The following table summarizes the analytical results of paints sampled.

Sample Number	Colour, Substrate Description	Sample Location	Lead (%)	Photo
L0009 (HMIS)	White on concrete deck	Classroom (HMIS Location 97)	0.0043	
L0015	Aqua blue on drywall walls	B244 - Financial Services (Location 80)	<0.00023	
L0016	White on drywall walls	B244 - Financial Services (Location 80)	0.0051	
L0017	White/Orange on poured concrete columns (composite)	B244 - Financial Services (Location 80)	0.011	

Sample Number	Colour, Substrate Description	Sample Location	Lead (%)	Photo
L0018	Brown/Blue on metal door and window frames (composite)	B237 - Human Resources Organizational Development & OH&S (Location 79) B244 - Financial Services (Location 80)	<0.0018	

Results less than or equal to 0.1% (1,000 mg/kg), but equal to or greater than 0.009% (90 mg/kg), are considered low-level lead paints or surface coatings in accordance with the EACC guideline.

Results below the threshold of 0.009% (90 mg/kg) are assumed to be insignificant.

4.2.2 Lead Products and Applications

Lead-containing batteries may be present in emergency lighting (photo 1).



Photo 1

4.2.3 Excluded Lead Materials

Lead is known to be present in several materials which were not assessed or sampled. The following materials, where found, should be presumed to contain lead.

- Electrical components, including wiring connectors, grounding conductors, and solder
- Solder on pipe connections

4.3 Silica

Crystalline silica is assumed to be a component of the following materials where present in the building.

- Concrete
- Masonry and mortar

4.4 Mercury

4.4.1 Lamps

Mercury vapour may be present in fluorescent lamp tubes.

4.4.2 Mercury-Containing Devices

Thermostats inspected did not contain liquid mercury ampules (photo 1).






Photo 1

4.5 Polychlorinated Biphenyls

4.5.1 Caulking and Sealants

The following table presents a summary of caulking sampled:

Material, Colour, Application	Sample Location (Location #)	Sample Number	PCB (mg/kg)	Photo
Glazing putty, black on interior door and window frames	Financial Services (Location 80)	P0006	<0.2	
Caulking, white on concrete deck structure	Human Resources Organizational Development & OH&S (Location 79)	P0007	<0.2	
Sealant, black on exterior windows	Not sampled	N/A	None*	

The material is considered a PCB solid based on the threshold (50 mg/kg).

*The material is presumed to be a non-PCB solid based on the composition of the material (rubber).

4.5.2 Lighting Ballasts

Based on visual observations (e.g., evidence of T-8 and LED fixtures with electronic ballasts) the fixtures will not contain PCB ballasts.



4.5.3 Transformers

Transformers were not found during the assessment.

4.6 Mould and Water Damage

Visible mould growth and water damage was not found during the assessment.

5.0 RECOMMENDATIONS

5.1 General

1. Prepare scope of work or performance specifications for hazardous material removal required for the planned work. The specifications should include safe work practices, personal protective equipment, respiratory protection, and disposal of waste materials.
2. If suspected hazardous building materials are discovered during the planned work, which are not identified in this report, do not disturb, and arrange for further testing and evaluation.
3. Conduct further investigation of the following items, areas, or locations, which were not completed during this assessment:
 - a. Any items listed as exclusions in this report, prior to disturbance.
4. Provide this report and the detailed plans and specifications to the contractor prior to bidding or commencing work.
5. Retain a qualified consultant to specify, observe and document the successful removal of hazardous materials.
6. Update the asbestos inventory upon completion of the abatement and removal of asbestos-containing materials and any other relevant findings.

5.2 Remedial Work

Remedial work is not required.

5.3 Building Renovation Work

The following recommendations are made regarding renovation involving the hazardous materials identified.



5.3.1 *Asbestos*

Remove asbestos-containing materials (ACM) prior to renovation, alteration, or maintenance if ACM may be disturbed by the work. If the identified ACM will not be removed prior to commencement of the work, any potential disturbance of ACM must follow asbestos precautions appropriate for the type of work being performed.

Asbestos-containing materials must be disposed of at a landfill approved to accept asbestos waste.

5.3.2 *Lead*

For paints identified as having low levels of lead (i.e., equal to or above 0.009% (90 mg/kg) but less than or equal to the EACC guideline of 0.1% (1,000 mg/kg) for lead-containing paints) special precautions are not recommended unless aggressive disturbance (grinding, blasting, torching) is planned. Exposure from construction disturbance of paints containing lead less than 0.009% (90 mg/kg) is assumed to be insignificant.

Lead-containing items should be recycled when taken out of service.

5.3.3 *Silica*

Construction disturbance of silica-containing products may result in excessive exposures to airborne silica, especially if performed indoors and dry. Cutting, grinding, drilling or demolition of materials containing silica should be completed only with proper respiratory protection and other worker safety precautions that comply with applicable regulations and guidelines.

5.3.4 *Mercury*

Do not break lamps. Recycle and reclaim mercury from fluorescent lamps when taken out of service. Mercury is classified as a hazardous waste and must be disposed of in accordance with applicable regulations.

6.0 **TERMS AND LIMITATIONS**

This work was performed subject to the Terms and Limitations presented or referenced in the proposal for this project.

Information provided by Pinchin is intended for Client use only. Pinchin will not provide results or information to any party unless disclosure by Pinchin is required by law. Any use by a third party of reports or documents authored by Pinchin or any reliance by a third party on or decisions made by a third party based on the findings described in said documents, is the sole responsibility of such third parties.



Pinchin accepts no responsibility for damages suffered by any third party as a result of decisions made or actions conducted. No other warranties are implied or expressed.

7.0 REFERENCES


The following legislation and documents were referenced in completing the assessment and this report:

1. Asbestos on Construction Projects and in Buildings and Repair Operations, Ontario Regulation 278/05.
2. Designated Substances, Ontario Regulation 490/09.
3. Lead on Construction Projects, Ministry of Labour Guidance Document.
4. The Environmental Abatement Council of Canada (EACC) Lead Guideline for Construction, Renovation, Maintenance or Repair.
5. Ministry of the Environment Regulation, R.R.O. 1990 Reg. 347 as amended.
6. Ministry of the Environment Regulation, R.R.O. 1990 Reg. 362 as amended.
7. Silica on Construction Projects, Ministry of Labour Guidance Document.
8. Alert – Mould in Workplace Buildings, Ontario Ministry of Labour.
9. PCB Regulations, SOR/2008-273, Canadian Environmental Protection Act.
10. Surface Coating Materials Regulations, SOR/2016-193, Canada Consumer Product Safety Act.
11. Consolidated Transportation of Dangerous Goods Regulations, including Amendment SOR/2019-101, Transportation of Dangerous Goods Act.
12. Mould Guidelines for the Canadian Construction Industry, Standard Construction Document CCA 82 – 2004 (Revised 2018), Canadian Construction Association.
13. Canada Occupational Health and Safety Regulation, SOR/86-304
14. Technical Guideline to Asbestos Exposure Management Programs.

APPENDIX I
Drawings



LEGEND

-  PINCH LOCATION NUMBER
-  ASBESTOS BULK SAMPLE
-  LEAD BULK SAMPLE
-  PCB BULK SAMPLE
-  VERMICULITE DRILLHOLE

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

- DRYWALL JOINT COMPOUND BULK HEAD AND WALLS

NOT ALL KNOWN OR SUSPECTED HAZARDOUS BUILDING MATERIALS MAY BE DEPICTED ON THE DRAWING. REFER TO THE HAZARDOUS BUILDING MATERIALS ASSESSMENT REPORT FOR A COMPLETE LIST OF KNOWN AND SUSPECTED HAZARDOUS BUILDING MATERIALS.

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

BASE PLAN PROVIDED BY CLIENT.



PROJECT NAME:
HAZARDOUS BUILDING MATERIAL ASSESSMENT

CLIENT NAME:
SHERIDAN COLLEGE

PROJECT LOCATION:
**TRAFALGAR CAMPUS, B-WING
1430 TRAFALGAR ROAD
OAKVILLE, ONTARIO**

FIGURE NAME:
SECOND FLOOR PLAN

PROJECT NUMBER:
336577.015

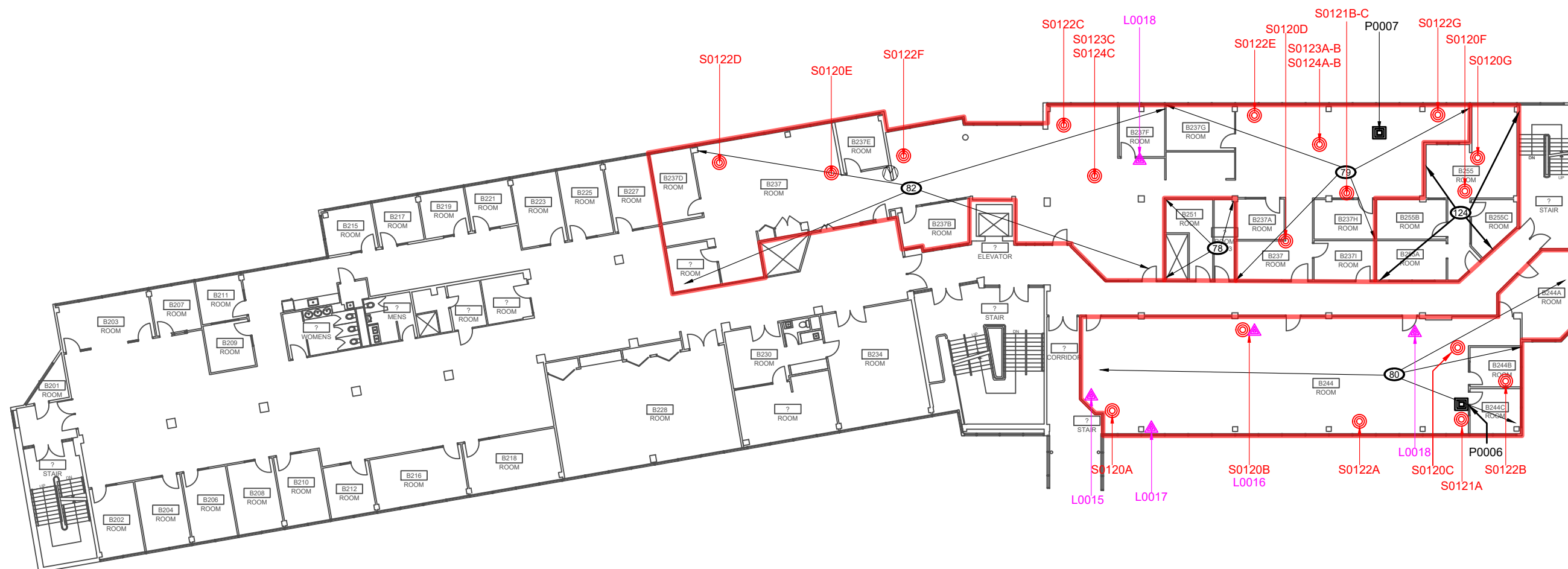
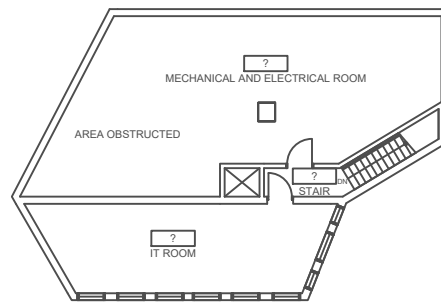
SCALE:
NOT TO SCALE

DRAWN BY:
WB

REVIEWED BY:
AL

DATE:
SEPTEMBER 2024

FIGURE NUMBER:
1 OF 1



APPENDIX II-A
Asbestos Analytical Certificates



Pinchin Ltd. Asbestos Laboratory *Certificate of Analysis*

Project Name: Sheridan College, Trafalgar Campus
Project No.: 0336577.015
Prepared For: A. Lazette / L. Heywood

Lab Reference No.: b323123
Analyst(s): J. Dacquel

Date Received: September 13, 2024 **Samples Submitted:** 23
Date Analyzed: September 16, 2024 **Phases Analyzed:** 35

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.

This report relates only to the items tested and is valid only when signed with a protected, authorized, electronic signature. This report may not be reproduced, except in full, without the written approval of Pinchin Ltd. The client may not use this report to claim product endorsement by NVLAP or any agency of the U.S. Government. Internal verification studies, quality assurance / control data and laboratory documentation on measurement uncertainty are available upon request.



Pinchin Ltd. Asbestos Laboratory Certificate of Analysis

Project Name: Sheridan College, Trafalgar Campus
Project No.: 0336577.015
Prepared For: A. Lazette / L. Heywood

Lab Reference No.: b323123
Date Analyzed: September 16, 2024

BULK SAMPLE ANALYSIS

SAMPLE IDENTIFICATION	SAMPLE DESCRIPTION	% COMPOSITION (VISUAL ESTIMATE)			
		ASBESTOS		OTHER	
S0120A Wall, Drywall And Joint Compound, Loc:80, Financial Services	a) Homogeneous, beige, drywall joint compound.	Chrysotile	0.5-5%	Non-Fibrous Material	> 75%
	b) Homogeneous, brown, brittle, adhesive material.	None Detected		Non-Fibrous Material	> 75%
S0120B Wall, Drywall And Joint Compound, Loc:80, Financial Services	Homogeneous, white, drywall joint compound.	None Detected		Non-Fibrous Material	> 75%
S0120C Wall, Drywall And Joint Compound, Loc:80, Financial Services	a) Homogeneous, beige, drywall joint compound.	Chrysotile	0.5-5%	Non-Fibrous Material	> 75%
	b) Homogeneous, white, drywall joint compound.	None Detected		Non-Fibrous Material	> 75%
Comments:	Phase a) is very small in size. Cellulose is present on the surface of this sample.				
S0120D Wall, Drywall And Joint Compound, Loc:79, Human Resources Organizational Development & OH&S	a) Homogeneous, off-white, drywall joint compound.	None Detected		Non-Fibrous Material	> 75%
	b) Homogeneous, white, drywall joint compound.	None Detected		Non-Fibrous Material	> 75%
Comments:	Another phase is present but there was insufficient material submitted to analyze.				
S0120E Wall, Drywall And Joint Compound, Loc:79, Human Resources Organizational Development & OH&S	Homogeneous, white, layered, drywall joint compound.	None Detected		Non-Fibrous Material	> 75%
Comments:	Another phase is present but there was insufficient material submitted to analyze.				



Pinchin Ltd. Asbestos Laboratory Certificate of Analysis

Project Name: Sheridan College, Trafalgar Campus
Project No.: 0336577.015
Prepared For: A. Lazette / L. Heywood

Lab Reference No.: b323123
Date Analyzed: September 16, 2024

BULK SAMPLE ANALYSIS

SAMPLE IDENTIFICATION	SAMPLE DESCRIPTION	% COMPOSITION (VISUAL ESTIMATE)	
		ASBESTOS	OTHER
S0120F Ceiling, Bulkhead, Drywall And Joint Compound, Loc:124, Human	Homogeneous, white, drywall joint compound.	None Detected	Non-Fibrous Material > 75%
S0120G Wall, Drywall And Joint Compound, Loc:124, Human Resources	Homogeneous, white, drywall joint compound.	None Detected	Non-Fibrous Material > 75%
Comments:	Another phase is present but there was insufficient material submitted to analyze.		
S0121A Wall, Window Frame, Putty, Black Glazing On Interior Door Window Frames, Loc:80, Financial Services	Homogeneous, black, soft, sticky material.	None Detected	Cellulose 0.5-5% Non-Fibrous Material > 75%
S0121B Wall, Window Frame, Putty, Black Glazing On Interior Door Window Frames, Loc:79, Human Resources Organizational Development & OH&S	Homogeneous, black, soft, sticky material.	None Detected	Cellulose 0.5-5% Non-Fibrous Material > 75%
S0121C Wall, Window Frame, Putty, Black Glazing On Interior Door Window Frames, Loc:79, Human Resources Organizational Development & OH&S	Homogeneous, black, soft, sticky material.	None Detected	Cellulose 0.5-5% Non-Fibrous Material > 75%
S0122A Floor, Mastic, Loc:80, Financial Services	Non-homogeneous, yellow, brittle and sticky, adhesive material.	None Detected	Non-Fibrous Material > 75%
Comments:	Cellulose, hair and synthetic fibres are present on the surface of this sample.		



Pinchin Ltd. Asbestos Laboratory Certificate of Analysis

Project Name: Sheridan College, Trafalgar Campus
Project No.: 0336577.015
Prepared For: A. Lazette / L. Heywood

Lab Reference No.: b323123
Date Analyzed: September 16, 2024

BULK SAMPLE ANALYSIS

SAMPLE IDENTIFICATION	SAMPLE DESCRIPTION	% COMPOSITION (VISUAL ESTIMATE)	
		ASBESTOS	OTHER
S0122B Floor, Mastic, Loc:80, Financial Services	Non-homogeneous, yellow, brittle and sticky, adhesive material.	None Detected	Non-Fibrous Material > 75%
Comments:	Cellulose, hair and synthetic fibres are present on the surface of this sample.		
S0122C Floor, Mastic, Loc:79, Human Resources Organizational Development & OH&S	Non-homogeneous, brittle and sticky, adhesive material.	None Detected	Non-Fibrous Material > 75%
Comments:	Cellulose, hair and synthetic fibres are present on the surface of this sample.		
S0122D Floor, Mastic, Loc:79, Human Resources Organizational Development & OH&S	Non-homogeneous, brittle and sticky, adhesive material.	None Detected	Non-Fibrous Material > 75%
Comments:	Cellulose, hair and synthetic fibres are present on the surface of this sample.		
S0122E Floor, Mastic, Loc:79, Human Resources Organizational Development & OH&S	Non-homogeneous, brittle and sticky, adhesive material.	None Detected	Non-Fibrous Material > 75%
Comments:	Cellulose, hair and synthetic fibres are present on the surface of this sample.		
S0122F Floor, Mastic, Loc:79, Human Resources Organizational Development & OH&S	Non-homogeneous, brittle and sticky, adhesive material.	None Detected	Non-Fibrous Material > 75%
Comments:	Cellulose, hair and synthetic fibres are present on the surface of this sample.		



Pinchin Ltd. Asbestos Laboratory Certificate of Analysis

Project Name: Sheridan College, Trafalgar Campus
Project No.: 0336577.015
Prepared For: A. Lazette / L. Heywood

Lab Reference No.: b323123
Date Analyzed: September 16, 2024

BULK SAMPLE ANALYSIS

SAMPLE IDENTIFICATION	SAMPLE DESCRIPTION	% COMPOSITION (VISUAL ESTIMATE)	
		ASBESTOS	OTHER
S0122G Floor, Mastic, Loc:79, Human Resources Organizational Development & OH&S	Non-homogeneous, brittle and sticky, adhesive material.	None Detected	Non-Fibrous Material > 75%
Comments:	Cellulose, hair and synthetic fibres are present on the surface of this sample.		
S0123A Structure, Deck, Caulking, White On Concrete Structure, Loc:79, Human Resources Organizational Development & OH&S	2 Phases: a) Homogeneous, white, drywall joint compound. b) Homogeneous, white, caulking material.	None Detected None Detected	Non-Fibrous Material > 75% Non-Fibrous Material > 75%
Comments:	Phase a) is very small in size. For more reliable results, a larger sample is required.		
S0123B Structure, Deck, Caulking, White On Concrete Structure, Loc:79, Human Resources Organizational Development & OH&S	2 Phases: a) Homogeneous, white, drywall joint compound. b) Homogeneous, white, caulking material.	None Detected None Detected	Non-Fibrous Material > 75% Non-Fibrous Material > 75%
Comments:	Phase a) is very small in size. For more reliable results, a larger sample is required.		
S0123C Structure, Deck, Caulking, White On Concrete Structure, Loc:79, Human Resources Organizational Development & OH&S	2 Phases: a) Homogeneous, white, drywall joint compound. b) Homogeneous, white, caulking material.	None Detected None Detected	Non-Fibrous Material > 75% Non-Fibrous Material > 75%
Comments:	Phase a) is very small in size. For more reliable results, a larger sample is required.		



Pinchin Ltd. Asbestos Laboratory Certificate of Analysis

Project Name: Sheridan College, Trafalgar Campus
 Project No.: 0336577.015
 Prepared For: A. Lazette / L. Heywood

Lab Reference No.: b323123
 Date Analyzed: September 16, 2024

BULK SAMPLE ANALYSIS

SAMPLE IDENTIFICATION	SAMPLE DESCRIPTION	% COMPOSITION (VISUAL ESTIMATE)	
		ASBESTOS	OTHER
S0124A Structure, Paint, On Concrete Deck, Loc:79, Human Resources Organizational Development & OH&S	3 Phases: a) Non-homogeneous, off-white, coating material.	None Detected	Non-Fibrous Material > 75%
	b) Homogeneous, white, drywall joint compound.	None Detected	Non-Fibrous Material > 75%
	c) Homogeneous, white, caulking material.	None Detected	Non-Fibrous Material > 75%
Comments:	Another phase is present but was not analyzed.		
S0124B Structure, Paint, On Concrete Deck, Loc:79, Human Resources Organizational Development & OH&S	3 Phases: a) Non-homogeneous, off-white, coating material.	None Detected	Non-Fibrous Material > 75%
	b) Homogeneous, white, drywall joint compound.	None Detected	Non-Fibrous Material > 75%
	c) Homogeneous, white, caulking material.	None Detected	Non-Fibrous Material > 75%
Comments:	Another phase is present but was not analyzed.		
S0124C Structure, Paint, On Concrete Deck, Loc:79, Human Resources Organizational Development & OH&S	3 Phases: a) Non-homogeneous, off-white, coating material.	None Detected	Non-Fibrous Material > 75%
	b) Homogeneous, white, drywall joint compound.	None Detected	Non-Fibrous Material > 75%
	c) Homogeneous, white, caulking material.	None Detected	Non-Fibrous Material > 75%
Comments:	Another phase is present but was not analyzed.		

Reviewed by:

Reporting Analyst:

Digitally signed
by Pinchin Ltd.
Date: 2024.09.16
10:55:57-04'00'

Digitally signed by
Pinchin Ltd.
Date: 2024.09.16
10:56:07-04'00'

Analyzed by: [Signature] (35)
 Reviewed by: _____
 Report Sent by: _____

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

Special Instructions:

Client Name:	Sheridan College	Project Address:	Trafalgar Campus
Portfolio/Building No:		Pinchin File:	0336577.015
Submitted by:	Adam Lazette	Email:	alazette@pinchin.com
CC Results to:	Leslie Heywood	CC Email:	lheywood@pinchin.com
Date Submitted:	September 13 2024	Required by:	September 16 2024
# of Samples:	23	Priority:	Rush Turnaround
Year of Building Construction (Mandatory, Years ONLY):			
Do NOT Stop on Positive (Sample Numbers):	S0120A-G, S0122A-G		
Pinchin Group Company (Mandatory Field):	Pinchin		
HMIS2 Building Reference #:	139142/202481396917344		

To be Completed by Lab Personnel Only:

Lab Reference #:	b32312329	Time:	24 hour clock
Received by:		Date:	Month Day Year
Name(s) of Analyst(s):	SEP 13 2024 [Signature]		SEPT. 16, 2024

Sample Prefix	Sample No.	Sample Suffix	Sample Description/Location (Mandatory)
S	0120	A	Wall, Drywall And Joint Compound, Loc:80, Financial Services a.) CH 0.55% b.) NID
S	0120	B	Wall, Drywall And Joint Compound, Loc:80, Financial Services NID
S	0120	C	Wall, Drywall And Joint Compound, Loc:80, Financial Services a.) CH 0.55% b.) NID
S	0120	D	Wall, Drywall And Joint Compound, Loc:79, Human Resources Organizational Development & OH&S a.) NID b.) NID
S	0120	E	Wall, Drywall And Joint Compound, Loc:79, Human Resources Organizational Development & OH&S NID
S	0120	F	Ceiling, Bulkhead, Drywall And Joint Compound, Loc:124, Human Resources NID
S	0120	G	Wall, Drywall And Joint Compound, Loc:124, Human Resources NID

b323123

Sample Prefix	Sample No.	Sample Suffix	Sample Description/Location (Mandatory)
S	0121	A	Wall,Window Frame,Putty,Black Glazing On Interior Door Window Frames,Loc:80,Financial Services ND
S	0121	B	Wall,Window Frame,Putty,Black Glazing On Interior Door Window Frames,Loc:79,Human Resources Organizational Development & OH&S ND
S	0121	C	Wall,Window Frame,Putty,Black Glazing On Interior Door Window Frames,Loc:79,Human Resources Organizational Development & OH&S ND
S	0122	A	Floor,Mastic,Loc:80,Financial Services ND
S	0122	B	Floor,Mastic,Loc:80,Financial Services ND
S	0122	C	Floor,Mastic,Loc:79,Human Resources Organizational Development & OH&S ND
S	0122	D	Floor,Mastic,Loc:79,Human Resources Organizational Development & OH&S ND
S	0122	E	Floor,Mastic,Loc:79,Human Resources Organizational Development & OH&S ND
S	0122	F	Floor,Mastic,Loc:79,Human Resources Organizational Development & OH&S ND
S	0122	G	Floor,Mastic,Loc:79,Human Resources Organizational Development & OH&S ND
S	0123	A	Structure,Deck,Caulking,White On Concrete Structure,Loc:79,Human Resources Organizational Development & OH&S a.)ND b.)ND
S	0123	B	Structure,Deck,Caulking,White On Concrete Structure,Loc:79,Human Resources Organizational Development & OH&S a.)ND b.)ND
S	0123	C	Structure,Deck,Caulking,White On Concrete Structure,Loc:79,Human Resources Organizational Development & OH&S a.)ND b.)ND
S	0124	A	Structure,Paint,On Concrete Deck,Loc:79,Human Resources Organizational Development & OH&S a.)ND b.)ND c.)ND
S	0124	B	Structure,Paint,On Concrete Deck,Loc:79,Human Resources Organizational Development & OH&S a.)ND b.)ND c.)ND
S	0124	C	Structure,Paint,On Concrete Deck,Loc:79,Human Resources Organizational Development & OH&S a.)ND b.)ND c.)ND

(25)

APPENDIX II-B
Lead Analytical Certificates



Your Project #: 0336577.015
 Site Location: TRAFALGAR CAMPUS
 Your C.O.C. #: N/A

Attention: Leslie Heywood

Pinchin Ltd
 151 York Boulevard
 Suite 200
 Hamilton, ON
 CANADA L8R 3M2

Report Date: 2024/09/17
 Report #: R8323818
 Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C4S8596

Received: 2024/09/16, 11:33

Sample Matrix: Solid
 # Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Metals in Paint	4	2024/09/17	2024/09/17	CAM SOP-00408	EPA 6010D m

Remarks:
 Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, EPA, APHA or the Quebec Ministry of Environment.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested. This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.



Your Project #: 0336577.015
Site Location: TRAFALGAR CAMPUS
Your C.O.C. #: N/A

Attention: Leslie Heywood

Pinchin Ltd
151 York Boulevard
Suite 200
Hamilton, ON
CANADA L8R 3M2

Report Date: 2024/09/17
Report #: R8323818
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C4S8596

Received: 2024/09/16, 11:33

Encryption Key



**AUTHORIZED REPORT
RAPPORT AUTORISÉ**

Bureau Veritas

17 Sep 2024 17:38:03

Please direct all questions regarding this Certificate of Analysis to:

Nilushi Mahathantila, Project Manager
Email: Nilushi.Mahathantila@bureauveritas.com
Phone# (905) 817-5700

=====

This report has been generated and distributed using a secure automated process.

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.



BUREAU
VERITAS

Bureau Veritas Job #: C4S8596
Report Date: 2024/09/17

Pinchin Ltd
Client Project #: 0336577.015
Site Location: TRAFALGAR CAMPUS
Sampler Initials: AL

ELEMENTS BY ATOMIC SPECTROSCOPY (SOLID)

Bureau Veritas ID		ACXR99		ACXS00		ACXS01		
Sampling Date		2024/09/13 08:00		2024/09/13 08:00		2024/09/13 08:00		
COC Number		N/A		N/A		N/A		
	UNITS	L0015, AQUA BLUE ON DRYWALL, LOC:80, FINANCIAL SERVICES	RDL	L0016, WHITE ON DRYWALL, LOC:80, FINANCIAL SERVICES	RDL	L0017, WHITE/ORANGE ON POURED CONCRETE, LOC:80, FINANCIAL SERVICES	RDL	QC Batch

Metals								
Lead (Pb)	%	<0.00023	0.00023	0.0051	0.00022	0.011	0.00016	9642587

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		ACXS02		
Sampling Date		2024/09/13 08:00		
COC Number		N/A		
	UNITS	L0018, BROWN/BLUE ON METAL DOOR AND WINDOW FRAMES, LOC:80, FINANCIAL SERVICES	RDL	QC Batch

Metals				
Lead (Pb)	%	<0.0018	0.0018	9642587
RDL = Reportable Detection Limit QC Batch = Quality Control Batch				



GENERAL COMMENTS

Sample ACXR99 [L0015, AQUA BLUE ON DRYWALL,LOC:80,FINANCIAL SERVICES] : Metal Analysis: Due to limited amount of sample available for analysis, a smaller than usual portion of the sample was used. Detection limits were adjusted accordingly.

Sample ACXS00 [L0016, WHITE ON DRYWALL,LOC:80,FINANCIAL SERVICES] : Metal Analysis: Due to limited amount of sample available for analysis, a smaller than usual portion of the sample was used. Detection limits were adjusted accordingly.

Sample ACXS01 [L0017, WHITE/ORANGE ON POURED CONCRETE,LOC:80,FINANCIAL SERVICES] : Metal Analysis: Due to limited amount of sample available for analysis, a smaller than usual portion of the sample was used. Detection limits were adjusted accordingly.

Sample ACXS02 [L0018, BROWN/BLUE ON METAL DOOR AND WINDOW FRAMES,LOC:80,FINANCIAL SERVICES] : Metal Analysis: Due to limited amount of sample available for analysis, a smaller than usual portion of the sample was used. Detection limits were adjusted accordingly.

Results relate only to the items tested.



BUREAU
VERITAS

Bureau Veritas Job #: C4S8596
Report Date: 2024/09/17

Pinchin Ltd
Client Project #: 0336577.015
Site Location: TRAFALGAR CAMPUS
Sampler Initials: AL

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
9642587	JGC	Matrix Spike	Lead (Pb)	2024/09/17		NC	%	75 - 125
9642587	JGC	QC Standard	Lead (Pb)	2024/09/17		98	%	75 - 125
9642587	JGC	Method Blank	Lead (Pb)	2024/09/17	<0.00010		%	
9642587	JGC	RPD	Lead (Pb)	2024/09/17	7.4		%	35

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)



BUREAU
VERITAS

Bureau Veritas Job #: C4S8596
Report Date: 2024/09/17

Pinchin Ltd
Client Project #: 0336577.015
Site Location: TRAFALGAR CAMPUS
Sampler Initials: AL

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Supervisor-Afternoon Shift

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DIICL 6740 Campobello Road, Mississauga, Ontario L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5779 Toll Free: 800-563-6266
CAM FCD-01191/6

CHAIN OF CUSTODY RECORD

Invoice Information		Report Information (if differs from invoice)				Project Information (where applicable)				Turnaround Time (TAT) Required						
Company Name: Pinchin Ltd.		Company Name: _____				Quotation #: _____				<input type="checkbox"/> Regular TAT (5-7 days) Most analyses						
Contact Name: Adam Lazette / Leslie Heywood		Contact Name: _____				P.O. #/ AFE#: _____				PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS						
Address: 151 York Blvd., Suite 200		Address: _____				Project #: 0336577.015				Rush TAT (Surcharges will be applied)						
Hamilton, Ontario		Address: _____				Site Location: Trafalgar Campus				<input checked="" type="checkbox"/> 1 Day <input type="checkbox"/> 2 Days <input type="checkbox"/> 3-4 Days						
Phone: 613.449.0399 Fax: _____		Phone: _____ Fax: _____				Site #: _____				Date Required: Sept 16 2024						
Email: alazette@pinchin.com / lheywood@pinchin.com		Email: _____				Site Location Province: _____ ON				Rush Confirmation #:						
MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE BUREAU VERITAS DRINKING WATER CHAIN OF CUSTODY																
Regulation 153 <input type="checkbox"/> Table 1 <input type="checkbox"/> Res/Park <input type="checkbox"/> Med/ Fine <input type="checkbox"/> Table 2 <input type="checkbox"/> Ind/Comm <input type="checkbox"/> Coarse <input type="checkbox"/> Table 3 <input type="checkbox"/> Agri/ Other <input type="checkbox"/> Table _____ FOR RSC (PLEASE CIRCLE) Y / N		Other Regulations <input type="checkbox"/> CCME <input type="checkbox"/> Sanitary Sewer Bylaw <input type="checkbox"/> MISA <input type="checkbox"/> Storm Sewer Bylaw <input type="checkbox"/> PWQO Region _____ <input type="checkbox"/> Other (Specify) _____ <input type="checkbox"/> REG 558 (MIN. 3 DAY TAT REQUIRED) <input type="checkbox"/> REG 406 Table _____				Analysis Requested # OF CONTAINERS SUBMITTED FIELD FILTERED (CIRCLE) Metals / Hg / CrVI BTEX/ PHC F1 PHCs F2 - F4 VOCs REG 153 METALS & INORGANICS REG 153 ICPMS METALS REG 153 METALS (Hg, Cr VI, ICPMS Metals, HWS - B) Lead (Pb) in Paints PCBs				LABORATORY USE ONLY CUSTODY SEAL Y / N Present Intact COOLING MEDIA PRESENT: Y / N						
SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS																
SAMPLE IDENTIFICATION		DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX	# OF CONTAINERS SUBMITTED	FIELD FILTERED (CIRCLE) Metals / Hg / CrVI	BTEX/ PHC F1	PHCs F2 - F4	VOCs	REG 153 METALS & INORGANICS	REG 153 ICPMS METALS	REG 153 METALS (Hg, Cr VI, ICPMS Metals, HWS - B)	Lead (Pb) in Paints	PCBs	HOLD- DO NOT ANALYZE	COMMENTS
L0015, Aqua Blue On Drywall, Loc:80, Financial Services		2024-09-13	8:00	BULK								X				
L0016, White On Drywall, Loc:80, Financial Services		2024-09-13	8:00	BULK								X				
L0017, White/orange On Poured Concrete, Loc:80, Financial Services		2024-09-13	8:00	BULK								X				
L0018, Brown/blue On Metal Door And Window Frames, Loc:80, Financial Services		2024-09-13	8:00	BULK								X				
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	BV JOB #								
<i>Adam Lazette</i>		2024-09-13	12:00	<i>MAURICE</i>		2024-09-16	11:37									

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Bureau Veritas' standard Terms and Conditions. Signing of this Chain of Custody acceptance of our terms available at <https://www.bvna.com/coc-terms-and-conditions>



NONT-2024-09-3077

APPENDIX II-C
PCB Analytical Certificates

Certificate of Analysis

Adam Lazette / Leslie Heywood

Pinchin Ltd. (Hamilton)
151 York Blvd., Suite 200, Hamilton, ON L8R 3L4

Date of Issue: Sep 19, 2024

Report Description: 2 solid samples were submitted for the following chemical analysis

Project Name: Trafalgar Campus
Project No.: 336577.015
Site Location:

Date Sampled: Sep 13, 2024
Date Tested: Sep 18, 2024
Sampled by:

Report Number: 24-1175

No.	Analyte	Result	Units	MDL	Comments	Technique / Test Method
1	<u>Sample ID:</u> P0006 Putty, black glazing on interior window frames, Loc: 80					
	PCBs in Solid	<0.2	mg/Kg	0.2		LAB-M06 (EPA 3550C/8082A modified)
2	<u>Sample ID:</u> P0007 Caulking, white on concrete structure, Loc:79					
	PCBs in Solid	<0.2	mg/Kg	0.2		LAB-M06 (EPA 3550C/8082A modified)

Results apply to the sample(s) as received.

Approved By:

Son C.H. Le, (Chem.)
Lab Manager
Phone: (519) 740-1333 Ext.: 1030
Fax: (519) 740-2320
Email: SonLe@aevitas.ca

The Analytical Chemistry Laboratory of Aevitas Inc. (Ayr) is accredited for specific tests in accordance with the recognized International Standard ISO/IEC 17025:2017, by the Canadian Association for Laboratory Accreditation (CALA) Inc. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017). The laboratory quality management system of Aevitas Inc. (Ayr) also operates in accordance with the principles of ISO 9001.

All Analytical data is subject to uncertainty which, may vary with sample matrices, sample preparation techniques and instrumental parameters. As a general guideline, uncertainty may be expressed as approximately +/- 50% of the reported value at or near the Method Detection Limit (MDL) and +/-10% or less, of the reported result that is greater than 10 times the MDL. Method Detection Limits are defined as approximately 3 times the standard deviation value (at 99% confidence level), which is obtained from replicate analysis of a low-level standard as per the Ontario MOE - MISA Protocol for the Sampling and Analysis of Industrial / Municipal Wastewater (2016). MDL determination is based on undiluted samples with relatively low matrix interferences. Where dilutions are required, the reported MDL value will be scaled proportionally.

All testing procedures follow strict guidelines and quality assurance / quality control (QA/QC) protocols. QA/QC data is available for review at any time upon client's request.

APPENDIX III
Methodology



1.0 GENERAL

An inspection was conducted to identify the type of Hazardous Building Materials incorporated in the structure and its finishes.

Information regarding the location and condition of hazardous building materials encountered and visually estimated quantities were recorded. The locations of any samples collected were recorded on small-scale plans. As-built drawings and previous reports were referenced where provided.

Sample collection was conducted in accordance with our Standard Operating Procedures.

1.1 Asbestos

The inspection for asbestos included friable and non-friable asbestos-containing materials (ACM). A friable material is a material that when dry can be crumbled, pulverized or powdered by hand pressure.

A separate set of samples was collected of each type of homogenous material suspected to contain asbestos. A homogenous material is defined by the US EPA as material that is uniform in texture and appearance, was installed at one time, and is unlikely to consist of more than one type or formulation of material. The homogeneous materials were determined by visual examination and available information on the phases of construction and prior renovations.

Samples were collected at a rate that is in compliance with the requirements of local regulations and guidelines. The sampling strategy was also based on known ban dates and phase out dates of the use of asbestos; sampling of certain building materials is not conducted after specific construction dates. In addition, to be conservative, several years past these dates are added to account for some uncertainty in the exact start / finish date of construction and associated usage of ACM. In some cases, manufactured products such as asbestos cement pipe were visually identified without sample confirmation.

The asbestos analysis was completed using a stop-positive approach. Only one result meeting the regulated criteria was required to determine that a material is asbestos-containing, but all samples must be analyzed to conclusively determine that a material is non-asbestos. The laboratory stopped analyzing samples from a homogeneous material once a result equal to or greater than the regulated criteria is detected in any of the samples of that material. All samples of a homogeneous material were analyzed if no asbestos is detected. In some cases, all samples were analyzed in the sample set regardless of result.

The analysis was performed in accordance with Test Method EPA/600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials, July 1993.

Analytical results were compared to the following criteria.

Jurisdiction*	Friable	Non-Friable
BC	0.5% ¹	0.5%
Alberta	Any Amount ²	Any Amount ²
Saskatchewan	>0.5% ¹	>1%
Manitoba	0.1% ¹	1%
Ontario	0.5%	0.5%
Nova Scotia	0.5% ¹	0.5%
New Brunswick, Prince Edward Island, Newfoundland and Labrador	1%	1%
Yukon, Nunavut, Northwest Territories	1%	1%
Federal	1%	1%

* If there is a conflict between federal and provincial criteria, the more stringent will apply.

Where building materials are described in the report as “non-asbestos” or “does not contain asbestos”, this means that either no asbestos was detected by the analytical method utilized in any of the multiple samples or, if detected, it is below the lower limit of an asbestos-containing material in the applicable regulation. Additionally, these terms are used for materials which historically are known to not include asbestos in their manufacturing.

1.2 Lead

Samples of distinctive paint finishes, and surface coatings present in more than a limited application, where removal of the paint is possible was collected. The samples were collected by scraping the painted finish to include base and covering applications.

Analysis for lead in paints or surface coatings was performed in accordance with EPA Method No. 3050B/Method No. 7420; flame atomic absorption.

Analytical results were compared to the following criteria.

Jurisdiction*	Units (%)	Units (ppm) / (mg/kg)
BC	None	None
Alberta	0.009	90
Saskatchewan	0.009	90

¹ Or any amount if vermiculite

² The Government of Alberta in their guideline document entitled the “Alberta Asbestos Abatement Manual” (August 2019), defines an Asbestos-Containing Material as a product or building material that contains asbestos in any quantity or percentage.

Manitoba	0.009	90
Ontario	0.1	1000
Nova Scotia	0.009	90
New Brunswick	0.009	90
Prince Edward Island	0.009	90
Newfoundland	0.009	90
Yukon	0.009	90
Nunavut, Northwest Territories	0.1	1000
Federal	0.009	90

* If there is a conflict between federal and provincial criteria, the more stringent will apply.

Other lead building products (e.g. batteries, lead sheeting, flashing) were identified by visual observation only.

1.3 Silica

Building materials known to contain crystalline silica (e.g. concrete, cement, tile, brick, masonry, mortar) were identified by visual inspection only. Pinchin did not perform sampling of these materials for laboratory analysis of crystalline silica content.

1.4 Mercury

Building materials, products or equipment (e.g. thermostats, barometers, pressure gauges, lamp tubes), suspected to contain mercury was identified by visually inspection only. Dismantling of equipment suspected of containing mercury was not performed. Sampling of these materials for laboratory analysis of mercury content was not performed.

1.5 Polychlorinated Biphenyls

The potential for light ballast and oil filled transformers to contain PCBs was based on the age of the building, a review of maintenance records and examination of labels or nameplates on equipment, where present and accessible. The information was compared to known ban dates of PCBs and Environment Canada publications.

Dry type transformers were presumed to be free of dielectric fluids and hence non-PCB.

Caulking, sealants, or paints were sampled and submitted for PCB analysis following EPA 3550C/8082A.

Fluids (mineral oil, hydraulic, Aroclor or Askarel) in transformers or other equipment were not sampled for PCB content.



1.6 Visible Mould

The presence of mould or water damage was determined by visual inspection of exposed building surfaces. If any mould growth or water damage was concealed within building cavities it was not addressed in this assessment.

Template: Methodology for Hazardous Building Materials Assessment, HAZ, January 26, 2023

APPENDIX IV
Location Summary Report

Client: Sheridan College
 Building Name: B Wing
 Survey Date: 2024-09-13
 Building Phases: A: 1970

Site: 1430 Trafalgar Road, Oakville, ON

Last Re-Assessment:

Location No.	Name or Description	Area ft ²	Floor No.	Bldg. Phase	Notes
79	Human Resources Organizational Development & OH&S, room no. B237-A-B-C- D-E-F-G	2030	2	A	
80	Financial Services, room no. B244-A-B-C	2514	2	A	
124	Human Resources, room no. B255-A-B-C	650	2	A	

APPENDIX V

Hazardous Materials Summary Report / Sample Log

Client: Sheridan College

Site: 1430 Trafalgar Road, Oakville, ON

Building Name: B Wing

Survey Date: 2024-09-13

HAZMAT	Sample No	System/Component/Material/Sample Description	Locations	Bldg. Phase	LF	SF	EA	%	Type	Positive	Friability
Asbestos	V0020	Wall Drywall And Joint Compound Wall, All, Drywall Compound, Loc. 78., Loc., 80., Loc. 82	79,80	A	0	4544	0	0	Chrysotile	Yes	NF
Asbestos	S0120 ABCDEFG	Ceiling, Wall Bulkhead Drywall And Joint Compound	79,80,124	A	0	5944	0	0	Chrysotile	Yes	NF
Asbestos	S0121 ABC	Wall Window Frame Putty Black Glazing On Interior Door Window Frames	79,80,124	A	250	0	0	0	None Detected	No	
Asbestos	S0122 ABCDEFG	Floor Mastic	79,80,124	A	0	5194	0	0	None Detected	No	
Asbestos	S0123 ABC	Structure Deck Caulking White On Concrete Structure	79,80	A	0	800	0	0	None Detected	No	
Asbestos	S0124 ABC	Structure Deck Paint On Concrete Deck	79,80	A	0	800	0	0	None Detected	No	
Asbestos	V0000	Ceiling Ceiling Tiles (lay-in) 2x4 Random Pinholes, Dated 10/30/97 & 07/23/03	79,80,124	A	0	2597	0	0	Non Asbestos	No	
Asbestos	V0000	Ceiling Ceiling Tiles (lay-in) 2x4 Rough Surface, Fibreglass Composition	79,80,124	A	0	2597	0	0	Non Asbestos	No	
Asbestos	V0000	Wall Window Sealant Black Sealant On Exterior Windows	80,124	A	400	0	0	0	Non Asbestos	No	
Asbestos	V0000	Wall Window Sealant Black Rubber On Exterior Windows	79	A	300	0	0	0	Non Asbestos	No	
Paint	V0009	Structure Concrete (poured) Off-white On Deck	79,80	A	0	800	0	0		No	-
Paint	L0015	Wall Drywall And Joint Compound Aqua Blue On Drywall	79,80	A	0	800	0	0		No	-
Paint	L0016	Wall Drywall And Joint Compound White On Drywall	79,80,124	A	0	9588	0	0		No	-
Paint	L0017	Wall Concrete (poured) White/orange On Poured Concrete	79,80	A	0	900	0	0	Lead (Low)	Yes	-
Paint	L0018	Wall Metal Brown/blue On Metal Door And Window Frames	79,80,124	A	0	710	0	0		No	-
PCB	P0006	Caulking Black Glazing Putty On Interior Door Window Frames	79,80,124	A	250	0	0	0	-	No	-
PCB	P0007	Caulking White On Concrete Structure	79,80	A	0	800	0	0	-	No	-
PCB	V0000	Caulking	79,80,124	A	700	0	0	0	-	No	-
Hg	V9500	Light Fixture	79,80,124	A	0	0	0	100	Presumed Hg	Yes	-
Hg	V0000	Thermostat	79,80,124	A	0	0	0	100	-	No	-

Legend:

Sample number		Units		
S####	Asbestos sample collected	SF	Square feet	NF Non Friable material.
L####	Paint sample collected	LF	Linear feet	F Friable material
P####	PCB sample collected	EA	Each	PF Potentially Friable material
M####	Mould sample collected	%	Percentage	
V####	Material visually similar to numbered sample collected			
V0000	Known non Hazardous Material			
V9000	Material is visually identified as Hazardous Material			
V9500	Material is presumed to be Hazardous Material			
[Loc. No.]	Abated Material			

APPENDIX VI
HMIS All Data Report

Client: Sheridan College
Location: #79 : Human Resources Organizational Development & OH&S
Survey Date: 2024-09-13

Site: 1430 Trafalgar Road, Oakville, ON
Floor: 2

Building Name: B Wing
Room #: B237-A-B-C-D-E-F-G
Area (sqft): 2030
Last Re-Assessment: 0000-00-00

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling		Ceiling Tiles (lay-in), 2x4 rough surface, fibreglass composition			C	Y		1015			SF	V0000	Non-Asbestos		None	
Ceiling		Ceiling Tiles (lay-in), 2x4 random pinholes, dated 10/30/97 & 07/23/03			C	Y		1015			SF	V0000	Non-Asbestos		None	
Duct		Fibreglass		Foil Face	C	N										
Duct		Not Insulated			C	N										
Floor		Concrete (poured)		Carpet	D	N		2030			SF					
Floor		Mastic		Carpet	D	N		2030			SF	S0122CDE FG	None Detected	N.D.	None	
Mechanical Equipment	Not Found															
Piping		Fibreglass	Fitting	Paper	C	N										
Piping		Fibreglass	Straight	Paper	C	N										
Structure	Deck	Concrete (poured)			C	N										
Structure	Deck	Concrete (poured)		Paint	C	N										
Structure	Deck	Paint, On concrete deck			C	N		600			SF	S0124ABC	None Detected	N.D.	None	
Structure	Deck	Caulking, White on concrete structure			C	N		600			SF	S0123ABC	None Detected	N.D.	None	
Wall		Drywall and joint compound		Paint	A	Y		2030(7)			SF	V0020	Chrysotile	0.5-5%	Confirmed Asbestos	NF
Wall		Drywall and joint compound		Paint	A	Y		2030(7)				S0120DE	Chrysotile	0.5-5%	Confirmed Asbestos	NF
Wall		Masonry			A	Y										
Wall	Window	Sealant, black rubber on exterior windows			A	Y		300			LF	V0000	Non-Asbestos		None	
Wall	Window Frame	Putty, Black glazing on interior door window frames			A	Y		140				S0121BC	None Detected	N.D.	None	

Client: Sheridan College
Location: #79 : Human Resources Organizational Development & OH&S
Survey Date: 2024-09-13

Site: 1430 Trafalgar Road, Oakville, ON
Floor: 2

Building Name: B Wing
Room #: B237-A-B-C-D-E-F-G
Area (sqft): 2030
Last Re-Assessment: 0000-00-00

PAINT									
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard	
Wall	Drywall and joint compound	500		SF	V0015	Aqua blue on drywall	Pb: <0.00023 %	No	
Wall	Drywall and joint compound	3560		SF	V0016	White on drywall	Pb: 0.0051 %	No	
Wall	Concrete (poured)	600		SF	V0017	White/orange on poured concrete	Pb: 0.011 %	Lead (Low)	
Wall	Metal	300		SF	L0018	Brown/blue on metal door and window frames	Pb: <0.0018 %	No	
Structure	Concrete (poured)	600		SF	V0009	Off-white on deck	Pb: 0.0043 %	No	

Client: Sheridan College
Location: #79 : Human Resources Organizational Development & OH&S

Site: 1430 Trafalgar Road, Oakville, ON
Floor: 2

Building Name: B Wing
Room #: B237-A-B-C-D-E-F-G
Area (sqft): 2030

Development & OH&S
Survey Date: 2024-09-13

Last Re-Assessment: 0000-00-00

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture	100	%	V9500	Presumed
Thermostat	100	%	V0000	

Client: Sheridan College
Location: #79 : Human Resources Organizational
Development & OH&S
Survey Date: 2024-09-13

Site: 1430 Trafalgar Road, Oakville, ON
Floor: 2

Building Name: B Wing
Room #: B237-A-B-C-D-E-F-G
Area (sqft): 2030
Last Re-Assessment: 0000-00-00

PCB						
Component	Quantity	Unit	Sample	Sample Description	Amount	PCB
Caulking	600	SF	P0007	White on concrete structure	<0.2 mg/kg	No
Caulking	140	LF	V0006	Black glazing putty on interior door window	<0.2 mg/kg	No
Caulking	300	LF	V0000	black rubber sealant on exterior windows		No

Client: Sheridan College
Location: #80 : Financial Services
Survey Date: 2024-09-13

Site: 1430 Trafalgar Road, Oakville, ON
Floor: 2

Building Name: B Wing
Room #: B244-A-B-C
Last Re-Assessment: 0000-00-00

Area (sqft): 2514

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling		Ceiling Tiles (lay-in), 2x4 rough surface, fibreglass composition			C	Y		1257			SF	V0000	Non-Asbestos		None	
Ceiling		Ceiling Tiles (lay-in), 2x4 random pinholes, dated 10/30/97 & 07/23/03			C	Y		1257			SF	V0000	Non-Asbestos		None	
Duct		Fibreglass		Foil Face	C	N										
Duct		Not Insulated			C	N										
Floor		Concrete (poured)		Carpet	D	N		2514			SF					
Floor		Mastic		Carpet	D	N		2514				S0122AB	None Detected	N.D.	None	
Mechanical Equipment	Not Found															
Piping		Fibreglass	Fitting	Paper	C	N										
Piping		Fibreglass	Straight	Paper	C	N										
Structure	Deck	Concrete (poured)			C	N										
Structure	Deck	Concrete (poured)		Paint	C	N										
Structure	Deck	Paint, On concrete deck			C	N		200			SF	V0124	None Detected	N.D.	None	
Structure	Deck	Caulking, White on concrete structure			C	N		200			SF	V0123	None Detected	N.D.	None	
Wall		Drywall and joint compound		Paint	A	Y		2514(7)			SF	V0020	Chrysotile	0.5-5%	Confirmed Asbestos	NF
Wall		Drywall and joint compound		Paint	A	Y		2514(7)				S0120ABC	Chrysotile	0.5-5%	Confirmed Asbestos	NF
Wall	Window	Sealant, Black sealant on exterior windows			A	Y		300			LF	V0000	Non-Asbestos		None	
Wall	Window Frame	Putty, Black glazing on interior door window frames			A	Y		50			LF	S0121A	None Detected	N.D.	None	

Client: Sheridan College
Location: #80 : Financial Services
Survey Date: 2024-09-13

Site: 1430 Trafalgar Road, Oakville, ON
Floor: 2

Building Name: B Wing
Room #: B244-A-B-C
Last Re-Assessment: 0000-00-00

Area (sqft): 2514

PAINT									
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard	
Wall	Drywall and joint compound	300		SF	L0015	Aqua blue on drywall	Pb: <0.00023 %	No	
Wall	Drywall and joint compound	4728		SF	L0016	White on drywall	Pb: 0.0051 %	No	
Wall	Concrete (poured)	300		SF	L0017	White/orange on poured concrete	Pb: 0.011 %	Lead (Low)	
Wall	Metal	300		SF	L0018	Brown/blue on metal door and window frames	Pb: <0.0018 %	No	
Structure	Concrete (poured)	200		SF	V0009	Off-white on deck	Pb: 0.0043 %	No	

Client: Sheridan College
Location: #80 : Financial Services
Survey Date: 2024-09-13

Site: 1430 Trafalgar Road, Oakville, ON
Floor: 2

Building Name: B Wing
Room #: B244-A-B-C
Last Re-Assessment: 0000-00-00

Area (sqft): 2514

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Thermostat	100	%	V0000	
Light Fixture	100	%	V9500	Presumed

Client: Sheridan College
Location: #80 : Financial Services
Survey Date: 2024-09-13

Site: 1430 Trafalgar Road, Oakville, ON
Floor: 2

Building Name: B Wing
Room #: B244-A-B-C
Last Re-Assessment: 0000-00-00

Area (sqft): 2514

PCB						
Component	Quantity	Unit	Sample	Sample Description	Amount	PCB
Caulking	50	LF	P0006	Black glazing putty on interior door window f	<0.2 mg/kg	No
Caulking	300	LF	V0000	black rubber sealant on exterior windows		No
Caulking	200	SF	V0007	White on concrete structure	<0.2 mg/kg	No

Client: Sheridan College
Location: #124 : Human Resources
Survey Date: 2024-09-13

Site: 1430 Trafalgar Road, Oakville, ON
Floor: 2

Building Name: B Wing
Room #: B255-A-B-C
Last Re-Assessment: 0000-00-00

Area (sqft): 650

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling		Ceiling Tiles (lay-in), 2x4 rough surface, fibreglass composition			C	Y		325			SF	V0000	Non-Asbestos		None	
Ceiling		Ceiling Tiles (lay-in), 2x4 random pinholes, dated 10/30/97 & 07/23/03			C	Y		325			SF	V0000	Non-Asbestos		None	
Ceiling	Bulkhead	Drywall and joint compound		Paint	C	Y		100(7)			SF	S0120F	Chrysotile	0.5-5%	Confirmed Asbestos	NF
Duct		Fibreglass		Foil Face	C	N										
Duct		Not Insulated			C	N										
Floor		Concrete (poured)		Carpet	D	N		650			SF					
Floor		Mastic		Carpet	D	N		650			SF	V0122	None Detected	N.D.	None	
Mechanical Equipment	Not Found															
Piping		Fibreglass	Fitting	Paper	C	N										
Piping		Fibreglass	Straight	Paper	C	N										
Structure	Deck	Concrete (poured)			C	N										
Wall		Drywall and joint compound		Paint	A	Y		1300(7)			SF	S0120G	Chrysotile	0.5-5%	Confirmed Asbestos	NF
Wall	Window	Sealant, Black sealant on exterior windows			A	Y		100			LF	V0000	Non-Asbestos		None	
Wall	Window Frame	Putty, Black glazing on interior door window frames			A	Y		60			LF	V0121	None Detected	N.D.	None	

Client: Sheridan College
Location: #124 : Human Resources
Survey Date: 2024-09-13

Site: 1430 Trafalgar Road, Oakville, ON
Floor: 2

Building Name: B Wing
Room #: B255-A-B-C
Last Re-Assessment: 0000-00-00

Area (sqft): 650

PAINT									
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard	
Wall	Drywall and joint compound	1300		SF	V0016	White on drywall	Pb: 0.0051 %	No	
Wall	Metal	110		SF	V0018	Brown/blue on metal door and window frames	Pb: <0.0018 %	No	

Client: Sheridan College
Location: #124 : Human Resources
Survey Date: 2024-09-13

Site: 1430 Trafalgar Road, Oakville, ON
Floor: 2

Building Name: B Wing
Room #: B255-A-B-C
Last Re-Assessment: 0000-00-00

Area (sqft): 650

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture	100	%	V9500	Presumed
Thermostat	100	%	V0000	

Client: Sheridan College
Location: #124 : Human Resources
Survey Date: 2024-09-13

Site: 1430 Trafalgar Road, Oakville, ON
Floor: 2

Building Name: B Wing
Room #: B255-A-B-C
Last Re-Assessment: 0000-00-00

Area (sqft): 650

PCB						
Component	Quantity	Unit	Sample	Sample Description	Amount	PCB
Caulking	100	LF	V0000	black rubber sealant on exterior windows		No
Caulking	60	LF	V0006	Black glazing putty on interior door window f	<0.2 mg/kg	No

Legend:



Sample number		Units		Other	
S####	Asbestos sample collected	SF	Square feet	A	Access
L####	Paint sample collected	LF	Linear feet	V	Visible
P####	PCB sample collected	EA	Each	AP	Air Plenum
M####	Mould sample collected	%	Percentage	F	Friable material
V####	Material is visually identified to be identical to S####	LF	Linear feet	NF	Non Friable material
V0000	Known non hazardous material			PF	Potentially Friable material
V9000	Material visually identified as a Hazardous Material			Pb	Lead
V9500	Material is presumed to be a hazardous material			Hg	Mercury
				As	Arsenic
				Cr	Chromium

Access	
A	Accessible to all building occupants
B	Accessible to maintenance and operations staff without a ladder
C	Accessible to maintenance and operations staff with a ladder. Also rarely entered, locked areas
D	Not normally accessible

Condition	
Good	No visible damage or deterioration
Fair	Minor, repairable damage, cracking, delamination or deterioration
Poor	Irreparable damage or deterioration with exposed and missing material

Visible	
Y	The material is visible when standing on the floor of the room, without the removal or opening of other building components (e.g. ceiling tiles or access panels).
N	The material is not visible to view when standing on the floor of the room and requires the removal of a building component (e.g. ceilings tiles or access panels) to view and access. Includes rarely entered crawlspaces, attic spaces, etc. Observations will be limited to the extent visible from the access points.
L	The material is partially visible to view when standing on the floor of the room and requires the removal of a building component (e.g. ceiling system or access panels) to view completely and access. Includes partially viewed access points to crawlspaces, attic spaces, etc. without entering. Observations are limited to the extent visible from the access points.

Air Plenum	
Yes or No	The material is in a return air plenum or in a direct airstream or there is evidence of air erosion (e.g. duct for heating or cooling blowing directly on or across an ACM). This field is only completed where Air Plenum consideration is required by regulation.

Colour Coding	
	The material is a hazardous material, either by analytical results or by visible identification.
	The material is presumed to be a hazardous material, based on visual appearance, and was not sampled due to limited access or the non-destructive nature of sampling.

Action					
(1)	Clean up of ACM Debris	(2)	Precautions for Access Which may Disturb ACM Debris	(3)	ACM removal
(4)	Precautions for Work Which may Disturb ACM in Poor Condition	(5)	Proactive ACM removal (Minimum repair required for fair condition)	(6)	ACM repair
(7)	Management program and surveillance				



Site Review Report

Project Information

Date: October 22, 2024	Pinchin Representative: Adam Lazette	Report Number: 1 Pinchin File: 336577.017
Project Name: Asbestos Abatement - Rooms B244, B237, and B255	Site Address: 1430 Trafalgar Road, Oakville, Ontario	
Client: Sheridan College	Client File Number: P01955	
Contractor: Alliance Environmental	Arrival on Site: 4:30pm Number of Workers: 4	

Distribution:

cc:	Nicole Whiteside	Sheridan College	nicole.whiteside@sheridancollege.ca
	Lisa Tucker	Sheridan College	lisa.tucker@sheridancollege.ca
	James Burns	Alliance Environmental	JBurns@allianceenvironmental.com
	Dean Power	Alliance Environmental	Dean.Power@allianceenvironmental.com

Description of Work in Progress

Material	Work Area	Work in Progress	Type of Review	Status
Asbestos	Work Area: B244, B244B and B244C (HMIS Location 80)	Type 2 removal and disposal of drywall bulkheads and walls finished with asbestos-containing joint compound.	Clean Site Preparation	Acceptable
			Bulk Removal and Air Monitoring	Acceptable

Discussion Points and Action Items

Pinchin found the containment setup to be acceptable. The contractor was given approval to commence with the contaminated work.

Asbestos Air Samples Collected and Results, as Available

Samples were analyzed in accordance with NIOSH 7400 Method, Issue 3, June 14, 2019

Sample No.	Sample Type	Location Description	Start Time	Average Flow Rate (L/min)	Duration (Minutes)	Air Volume (L)	Reportable Result (f/cc)
424116	Occupied	Corridor, adjacent to B244	October 22, 2024, 4:45 PM	15.2	180	2,736	0.002
424117	Occupied	Corridor, adjacent to B244	October 22, 2024,	15.2	180	2,736	0.004



Asbestos Air Samples Collected and Results, as Available

Samples were analyzed in accordance with NIOSH 7400 Method, Issue 3, June 14, 2019

Sample No.	Sample Type	Location Description	Start Time	Average Flow Rate (L/min)	Duration (Minutes)	Air Volume (L)	Reportable Result (f/cc)
			4:45 PM				
415690	Occupied	Corridor, adjacent to B244	October 22, 2024, 4:45 PM	15.2	180	2,736	0.003
415700	Field Blank	Field Blank	-	-	-	-	<5.5 fibres detected

f/cc - fibre per cubic centimetre

Calibration of air sampling pump checked before and after sample collection.

Observations – Work Area 1: B244, B244B and B244C (HMIS Location 80)

Other	Acceptable	<p>Pinchin performed a clean site preparation review prior to the Type 2 removal and disposal of drywall bulkheads and walls with asbestos-containing joint compound (Photos 1 and 2). The containment setup was found to be acceptable.</p> <p>Pinchin performed a bulk removal and air monitoring review during the Type 2 removal and disposal of drywall bulkheads and walls with asbestos-containing joint compound. The work being completed was found to be acceptable.</p>
Site Isolation & Facilities/Equipment	Acceptable	<p>Site isolation was acceptable and consisted of an enclosure constructed with polyethylene sheeting and tape. A combined worker and decontamination (decon) facility was located at the entrance to the work area.</p> <p>The contractors were observed to have proper equipment which included a vacuum with HEPA filters, amended water, airless sprayers, lockdown agent, tape, rags, hand tools, ladders, etc.</p> <p>Two (2) negative air units were observed to be exhausting air indoors. Negative air units were D.O.P tested on Oct 21, 2024 (Photo 3).</p> <p>An asbestos warning sign was posted on the entrance on the exterior flap of the decon facility (Photo 4).</p>
Personal Protective Equipment	Acceptable	All workers performing the contaminated work were observed wearing the proper PPE, which includes full body disposable coveralls with a hood and elastic cuffs and at a minimum a half-face respirator with P100 filters.
Waste Handling	Acceptable	All asbestos-containing waste is to be placed in yellow asbestos labelled bags and double bagged prior to removal from the work area.
Samples and Testing	Acceptable	Pinchin collected three occupied air samples outside of the enclosure. One field blank was also collected for quality control purposes. All the samples were collected using high volume pumps calibrated to a

Observations – Work Area 1: B244, B244B and B244C (HMIS Location 80)

	<p>minimum of 15.2 litres of air per minute and ran for 180 minutes, collecting an average of 2,736 litres of air.</p> <p>Phase Contrast Microscopy (PCM) analysis of the collected air samples showed all sampled to be below the criteria of 0.01 fibres per cubic centimeter of air. PCM analysis of the field blank showed <5.5 fibres. PCM analysis was performed following the NIOSH 7400 method.</p>
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Photo 1



Photo 2

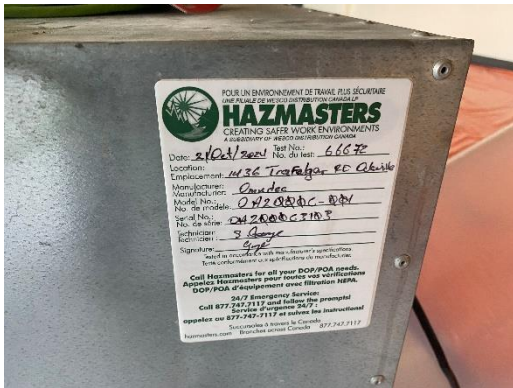


Photo 3



Photo 4

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Template: Site Review Report Template HAZ, January 8, 2024



Site Review Report

Project Information

Date: October 25, 2024	Pinchin Representative: Adam Lazette	Report Number: 2 Pinchin File: 336577.017
Project Name: Asbestos Abatement - Rooms B244, B237, and B255	Site Address: 1430 Trafalgar Road, Oakville, Ontario	
Client: Sheridan College	Client File Number: P01955	
Contractor: Alliance Environmental	Arrival on Site: 7:30pm Number of Workers: 4	

Distribution:

cc:	Nicole Whiteside	Sheridan College	nicole.whiteside@sheridancollege.ca
	Lisa Tucker	Sheridan College	lisa.tucker@sheridancollege.ca
	James Burns	Alliance Environmental	JBurns@allianceenvironmental.com
	Dean Power	Alliance Environmental	Dean.Power@allianceenvironmental.com

Description of Work in Progress

Material	Work Area	Work in Progress	Type of Review	Status
Asbestos	Work Area: B244, B244B and B244C (HMIS Location 80)	Type 2 removal and disposal of drywall bulkheads and walls finished with asbestos- containing joint compound.	Visual Clearance	Acceptable
			Clearance Sampling	Acceptable

Discussion Points and Action Items

Pinchin found the work completed to be acceptable.

Asbestos Air Samples Collected and Results, as Available

Samples were analyzed in accordance with NIOSH 7400 Method, Issue 3, June 14, 2019

Sample No.	Sample Type	Location Description	Start Time	Average Flow Rate (L/min)	Duration (Minutes)	Air Volume (L)	Reportable Result (f/cc)
415688	Clearance	Enclosure	October 25, 2024, 8:30 PM	15.2	60	912	0.004
424115	Clearance	Enclosure	October 22, 2024, 8:30 PM	15.2	60	912	0.006



Asbestos Air Samples Collected and Results, as Available

Samples were analyzed in accordance with NIOSH 7400 Method, Issue 3, June 14, 2019

Sample No.	Sample Type	Location Description	Start Time	Average Flow Rate (L/min)	Duration (Minutes)	Air Volume (L)	Reportable Result (f/cc)
424112	Clearance	Enclosure	October 22, 2024, 8:30 PM	15.2	60	912	0.006
415672	Field Blank	Field Blank	-	-	-	-	<5.5 fibres detected

f/cc - fibre per cubic centimetre

Calibration of air sampling pump checked before and after sample collection.

Observations – Work Area 1: B244, B244B and B244C (HMIS Location 80)

Other	Acceptable	Pinchin performed a visual clearance and clearance sampling review following the Type 2 removal and disposal of drywall bulkheads and walls with asbestos-containing joint compound (Photos 1 and 2). The work performed was found to be acceptable.
Site Isolation & Facilities/Equipment	Acceptable	Site isolation remained acceptable at the time of the site review. The Work Area consisted of an enclosure constructed with polyethylene sheeting and tape. A combined worker and decontamination (decon) facility was located at the entrance to the work area.
Waste Handling	Acceptable	All asbestos waste had been removed from the Work Area prior to this site review.
Samples and Testing	Acceptable	Pinchin collected three clearance air samples outside of the enclosure. One field blank was also collected for quality control purposes. All the samples were collected using high volume pumps calibrated to a minimum of 15.2 litres of air per minute and ran for 60 minutes, collecting an average of 912 litres of air. Phase Contrast Microscopy (PCM) analysis of the collected air samples showed all sampled to be below the criteria of 0.05 fibres per cubic centimeter of air. PCM analysis of the field blank showed <5.5 fibres. PCM analysis was performed following the NIOSH 7400 method.



Observations – Work Area 1: B244, B244B and B244C (HMIS Location 80)



Photo 1



Photo 2

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Trafalgar Campus 1430 Trafalgar Rd SHERIDAN Oct 25 2024.docx

Template: Site Review Report Template HAZ, January 8, 2024



Site Review Report

Project Information

Date: October 28, 2024	Pinchin Representative: Adam Lazette	Report Number: 3 Pinchin File: 336577.017
Project Name: Asbestos Abatement - Rooms B244, B237, and B255	Site Address: 1430 Trafalgar Road, Oakville, Ontario	
Client: Sheridan College	Client File Number: P01955	
Contractor: Alliance Environmental	Arrival on Site: 5:30pm Number of Workers: 2	

Distribution:

cc:	Nicole Whiteside	Sheridan College	nicole.whiteside@sheridancollege.ca
	Lisa Tucker	Sheridan College	lisa.tucker@sheridancollege.ca
	James Burns	Alliance Environmental	JBurns@allianceenvironmental.com
	Dean Power	Alliance Environmental	Dean.Power@allianceenvironmental.com

Description of Work in Progress

Material	Work Area	Work in Progress	Type of Review	Status
Asbestos	Work Area: Corridor (HMIS Location 77)	Type 2 glove bag removal and disposal of pipe fittings and straight sections of piping with asbestos-containing thermal insulation.	Other	Acceptable

Discussion Points and Action Items	Pinchin and the Contractor reviewed the ceiling space in the Corridor (HMIS Location 77) and did not identify any asbestos-containing thermal insulation around pipe fittings or straight sections of piping within the Work Area.
-------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Observations – Work Area 1: Corridor (HMIS Location 77)

Other	Acceptable	Pinchin and the Contractor reviewed the ceiling space in the Corridor (HMIS Location 77) and referenced the drawings, but did not identify any asbestos-containing thermal insulation around pipe fittings or straight sections of piping within the Work Area. All insulation observed was non-asbestos fibreglass with foil or paper jacketing (Photo 1).
Cleaning	Acceptable	The Work Area was vacuumed and cleaned after reviewing the ceiling space.



Observations – Work Area 1: Corridor (HMIS Location 77)



Photo 1

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Template: Site Review Report Template HAZ, January 8, 2024



March 23, 2017

Sheridan College
1430 Trafalgar Road
Oakville, Ontario N3H 4R6

E-mail: kelly.kwon@sheridancollege.ca

Attention: Kelly Kwon
Occupational Health and Safety Specialist

Re: Asbestos-Containing Materials Reassessment
B-Wing, Trafalgar Campus, 1430 Trafalgar Road, Oakville, Ontario
Pinchin File: 200417.003

Sheridan College retained Pinchin Ltd. (Pinchin) to conduct an asbestos-containing building materials reassessment of B-Wing, Trafalgar Campus, 1430 Trafalgar Road, Oakville, Ontario. This reassessment was performed for the purpose of long-term management of asbestos and not for construction or renovation purposes. Additional intrusive investigations and testing may be required prior to construction or renovation.

Evan Faubert of Pinchin performed the reassessment on February 27, 2017. The previous reassessment was performed on March 1, 2016. The complete findings for this site are documented on the HMIS online database.

1.0 SCOPE

The scope of the re-assessment survey includes building materials containing friable and non-friable asbestos-containing materials (ACM) that were identified in the original assessment report or previous reports. The re-assessment is subjected to the same exclusions as the original assessment.

2.0 METHODOLOGY

Pinchin made reference to the existing ACM report(s) for the site and HMIS data. Pinchin inspects all accessible areas where ACM were previously identified. As per the original assessment, concealed locations such as ceiling spaces above solid ceilings, shafts and chases are accessed via existing access panels. Pinchin does not conduct demolition of walls, solid ceilings, structural items, interior finishes or exterior building finishes, to determine the presence of concealed materials.



3.0 FINDINGS

For full information on location, condition, access, etc. of ACM refer to report "*HMIS Confirmed Asbestos & Presumed Asbestos Material*" present in Appendix I.

Refer to the original assessment reports for excluded/not sampled presumed ACM, these materials are not listed in HMIS.

The following areas of the building were not accessible due to access limitations:

- Location 13: Room B17 - Records Storage
- Location 15: Room B15 - Men's Locker Room
- Location:102: Room B334 - Office
- Location 109: Room 364 - Office

3.1 Friable ACM

All of the friable ACM was found to be in good condition with the exception of damaged ACM listed in Section 4.0 below.



3.2 Non-Friable ACM

All of the non-friable ACM was found to be in good condition.

4.0 RECOMMENDATIONS

Perform a re-assessment of asbestos materials on an annual basis. Perform the next re-assessment of ACM prior to February 2018 to remain in compliance.

Perform the remedial work outlined in the table below to comply with existing regulations, due to the condition and location of the material:

Location, Quantity/Material and Recommended Procedure	Photographs
<p>Location 112: 1 damaged elbow fitting on green pipe near entrance, Type 2 repair</p>	
<p>Location 117: 1 damaged elbow fitting on white pipe near door to roof, Type 2 repair</p>	

5.0 LIMITATIONS

This work was performed subject to the Terms and Limitations presented or referenced in the proposal for this project.

Information provided by Pinchin is intended for Client use only. Pinchin will not provide results or information to any party unless disclosure by Pinchin is required by law. Any use by a third party of reports or documents authored by Pinchin or any reliance by a third party on or decisions made by a third



party based on the findings described in said documents, is the sole responsibility of such third parties. Pinchin accepts no responsibility for damages suffered by any third party as a result of decisions made or actions conducted. No other warranties are implied or expressed.

6.0 CLOSURE

Should you have any questions or concerns regarding the contents of this letter, please contact the undersigned.

Yours truly,

Pinchin Ltd.

Prepared by:

Reviewed by:

Evan Faubert, B.Sc.
Project Technologist
289.339.8567
efaubert@pinchin.com

Damian Palus, CET.
Operations Manager
905-577-6206 ext. 1725
dpalus@pinchin.com

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Asbestos Reassessment Letter B Wing, Trafalgar Campus Sheridan College March 22, 2017.docx

Template: Master Letter Template, January 3, 2017

APPENDIX I

CONFIRMED AND PRESUMED ASBESTOS REPORT



Client: Sheridan College

Site: Trafalgar Campus

Building Number(s):

Confirmed Asbestos and Presumed Asbestos Report

Building #: Building Name: B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22

Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert

Location #: 1 **Location Name:** Machinery Room 7 **Floor:** B **Room #:** BB24 **Square ft:** 904

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Mechanical Equipment		Mastic	Joint		B	Y	200	(7)		LF	S0026	Confirmed Asbestos	Non-Friable

Note: Abatement of tanks and damaged fittings completed as part of Dec 2015 work. Pinchin File #104462.008. Abatement of fittings associated with heat exchanger upgrades completed March 2016, Pinchin file #104462.026. Abatement of remaining parging cement on pipe fittings and parging cement firestopping completed December 2016, Pinchin File: 115297.008.

Building #: Building Name: B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22

Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert

Location #: 2 **Location Name:** Men's Washroom **Floor:** B **Room #:** **Square ft:** 77

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Walls		Drywall and joint compound			A	Y	100	(7)		%	V0002	Confirmed Asbestos	Non-Friable

Note: Parging cement on pipe fittings abated in December 2016, Pinchin File: 115297.008.

Building #: Building Name: B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22

Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert

Location #: 5 **Location Name:** Daycare Office **Floor:** B **Room #:** B22 **Square ft:** 373

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Walls	All	Drywall and joint compound		N/A	A	Y	100	(7)		%	S0002	Confirmed Asbestos	Non-Friable



Client: Sheridan College

Site: Trafalgar Campus

Building Number(s):

Confirmed Asbestos and Presumed Asbestos Report

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22
Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert
Location #: 6 **Location Name:** Storage **Floor:** B **Room #:** 22A **Square ft:** 58

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Floor	All	VAT and Mastic Adhesive	Not Applicable	N/A	A	Y	58	(7)		SF	S0003	Confirmed Asbestos	Non-Friable
Walls	All	Drywall and joint compound	Not Applicable	N/A	A	Y	100	(7)		%	V0002	Confirmed Asbestos	Non-Friable

Note: Parging cement on pipe fittings abated in December 2016, Pinchin File: 115297.008.

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22
Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert
Location #: 11 **Location Name:** Parking Services Office and Storage **Floor:** B **Room #:** B 19 **Square ft:** 983

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Walls		Drywall and joint compound			A	Y	100	(7)		%	V0002	Confirmed Asbestos	Non-Friable

Note: Abatement of fittings completed March 2016, Pinchin file #104462.032. Parging cement firestopping abated in December 2016, Pinchin File: 115297.008.

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22
Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert
Location #: 12 **Location Name:** Maintenance Room **Floor:** B **Room #:** B 18 **Square ft:** 1439

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Walls		Drywall and joint compound			B	Y	100	(7)		%	V0002	Confirmed Asbestos	Non-Friable
Duct		Mastic			C	Y	100	(7)		%	S0024	Confirmed Asbestos	Non-Friable



Client: Sheridan College

Site: Trafalgar Campus

Building Number(s):

Confirmed Asbestos and Presumed Asbestos Report

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22
Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert
Location #: 13 **Location Name:** Records Storage **Floor:** B **Room #:** B 17 **Square ft:** 722
No access to room

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action				Units	Sample	Hazard	Friability
							Good	Fair	Poor					

Note: 2017 Reassessment Pinchin project#200417.003 Dec 2015 - removed 2 fittings Pinchin File 104462.008

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22
Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert
Location #: 14 **Location Name:** Cafeteria Locker **Floor:** B **Room #:** B 16 **Square ft:** 396
Room

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action				Units	Sample	Hazard	Friability
							Good	Fair	Poor					

Walls		Drywall and joint compound			A	Y	100	(7)		%	V9500	Presumed Asbestos	Non-Friable
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Note: VSF is non-asbestos based on the date of installation. Parging cement on pipe fittings abated in December 2016, Pinchin File: 115297.008.

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22
Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert
Location #: 15 **Location Name:** Men's Locker Room - Cafeteria **Floor:** B **Room #:** b 15 **Square ft:** 226
No access to room

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action				Units	Sample	Hazard	Friability
							Good	Fair	Poor					

Walls	All	Drywall and joint compound		N/A	A	Y	100	(7)		%	V0002	Confirmed Asbestos	Non-Friable
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Note: 2017 Reassessment pinchin project #200417.003 VSF is non-asbestos based on dated of installation. Parging cement on pipe fittings abated in December 2016, Pinchin File: 115297.008.

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22
Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert
Location #: 16 **Location Name:** Office **Floor:** B **Room #:** B 15 **Square ft:** 295

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action				Units	Sample	Hazard	Friability
							Good	Fair	Poor					

Walls	All	Drywall and joint compound		N/A	A	Y	100	(7)		%	V0002	Confirmed Asbestos	Non-Friable
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Client: Sheridan College

Site: Trafalgar Campus

Building Number(s):

Confirmed Asbestos and Presumed Asbestos Report

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22
Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert
Location #: 19 **Location Name:** East Corridor **Floor:** B **Room #:** **Square ft:** 2431

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Walls		Drywall and joint compound			A	Y	100	(7)		%	V9500	Presumed Asbestos	Non-Friable
Piping		Parging Cement	Fitting		C	N	20	(7)		EA	V0001	Confirmed Asbestos	Friable
Other	Fire Stop	Parging Cement	Not Applicable	N/A	C	N	10	(7)		SF	S0005	Confirmed Asbestos	Friable

Note: 2017 Reassessment pinchn proj#200417.003 (See Note Loc. 13, AT-01).

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22
Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert
Location #: 21 **Location Name:** Building Operations & Floor: B Ministry/Brand Strategy **Room #:** BB13 **Square ft:** 2071

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Walls	All	Drywall and joint compound	Not Applicable	N/A	A	Y	100	(7)		%	V9500	Presumed Asbestos	Non-Friable

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22
Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert
Location #: 22 **Location Name:** Facilities Maintenance **Floor:** B **Room #:** BB 11 **Square ft:** 1710

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Piping	All	Parging Cement	Fitting	Canvas	C	N	5	(7)		EA	V0001	Confirmed Asbestos	Friable

Note: Abated drywall during 2014 renovation.



Client: Sheridan College

Site: Trafalgar Campus

Building Number(s):

Confirmed Asbestos and Presumed Asbestos Report

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22
Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert
Location #: 23 **Location Name:** Media Arts Room **Floor:** B **Room #:** BB 10 **Square ft:** 320

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Walls	All	Drywall and joint compound	Not Applicable	N/A	A	Y	100	(7)		%	V9500	Presumed Asbestos	Non-Friable
Piping	All	Parging Cement	Fitting	Canvas	C	N	10	(7)		EA	V0001	Confirmed Asbestos	Friable

Note: RENO: locations 23 & 24 have been merged

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22
Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert
Location #: 26 **Location Name:** Janitor Storage **Floor:** B **Room #:** BB 32 **Square ft:** 377

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Piping	All	Parging Cement	Fitting	Canvas	C	Y	30	(7)		EA	V0001	Confirmed Asbestos	Friable

Note: 2017 Reassessment pinchin proj#200417.003 Dec 2015 removed 5 fittings and VFT removed and replaced. Pinchin File #104462.008

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22
Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert
Location #: 27 **Location Name:** Security Office **Floor:** B **Room #:** BB 31 **Square ft:** 234

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Piping	All	Parging Cement	Fitting	Canvas	C	Y	8	(7)		EA	V0001	Confirmed Asbestos	Friable



Client: Sheridan College

Site: Trafalgar Campus

Building Number(s):

Confirmed Asbestos and Presumed Asbestos Report

Building #:		Building Name: B Wing		Surveyor: Heather Obruchkov			Survey Date: 2007-08-22						
Reassessment Date: 2017-02-27		Reassessment Surveyor: Evan Faubert			Room #: BB28/BB29			Square ft: 757					
Location #: 29		Location Name: Office Space		Floor: B		Condition, Quantity & Action			Units	Sample	Hazard	Friability	
System	Component	Material	Item	Covering	Access	Visible	Good	Fair	Poor				
							Walls	All	Drywall and joint compound				
Piping	All	Parging Cement	Fitting	Canvas	C	N	10	(7)		EA	V0001	Confirmed Asbestos	Friable
Piping	All	Parging Cement	Fitting	Canvas	C	Y	8	(7)		EA	V0001	Confirmed Asbestos	Friable

Building #:		Building Name: B Wing		Surveyor: Heather Obruchkov			Survey Date: 2007-08-22						
Reassessment Date: 2017-02-27		Reassessment Surveyor: Evan Faubert			Room #: BB 27			Square ft: 381					
Location #: 30		Location Name: Office		Floor: B		Condition, Quantity & Action			Units	Sample	Hazard	Friability	
System	Component	Material	Item	Covering	Access	Visible	Good	Fair	Poor				
							Piping	All	Parging Cement				

Building #:		Building Name: B Wing		Surveyor: Heather Obruchkov			Survey Date: 2007-08-22						
Reassessment Date: 2017-02-27		Reassessment Surveyor: Evan Faubert			Room #: BB 26			Square ft: 1950					
Location #: 31		Location Name: Classrooms		Floor: B		Condition, Quantity & Action			Units	Sample	Hazard	Friability	
System	Component	Material	Item	Covering	Access	Visible	Good	Fair	Poor				
							Walls	All	Drywall and joint compound				
Piping	All	Parging Cement	Fitting	Canvas	C	N	35	(7)		EA	V0001	Confirmed Asbestos	Friable

Note: Reno: locations 31 & 32 have been merged (all one room now) Walls all New- Renovation August 2007



Client: Sheridan College

Site: Trafalgar Campus

Building Number(s):

Confirmed Asbestos and Presumed Asbestos Report

Building #: Building Name: B Wing Surveyor: Heather Obruchkov Survey Date: 2007-08-22

Reassessment Date: 2017-02-27 Reassessment Surveyor: Evan Faubert

Location #: 33 Location Name: Service Tunnels Floor: B Room #: Square ft: 1557

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Piping	All	Parging Cement	Fitting	Canvas	B	Y	200	(7)		EA	S0001	Confirmed Asbestos	Friable

Note: Dec 2015 repaired 5 fittings. Pinchin File #104462.008. June 2016 removed 7 fittings Pinchin file#115297.001

Building #: Building Name: B Wing Surveyor: Heather Obruchkov Survey Date: 2007-08-22

Reassessment Date: 2017-02-27 Reassessment Surveyor: Evan Faubert

Location #: 36 Location Name: Pipe Chase & Janitor Closet Floor: 1 Room #: Square ft: 124

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Piping	All	Parging Cement	Fitting	Canvas	B	Y	10	(7)		EA	V0001	Confirmed Asbestos	Friable

Note: Dec 2015 repaired 1 fitting. Pinchin File #104462.008

Building #: Building Name: B Wing Surveyor: Heather Obruchkov Survey Date: 2007-08-22

Reassessment Date: 2017-02-27 Reassessment Surveyor: Evan Faubert

Location #: 38 Location Name: Corridor Floor: 1 Room #: Square ft: 7312

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Ceiling	All	Drywall and joint compound	Not Applicable	N/A	C	Y	100	(7)		%	S0015	Confirmed Asbestos	Non-Friable
Piping	All	Parging Cement	Fitting	Canvas	C	Y	25	(7)		EA	V0001	Confirmed Asbestos	Friable



Client: Sheridan College

Site: Trafalgar Campus

Building Number(s):

Confirmed Asbestos and Presumed Asbestos Report

Building #: Building Name: B Wing Surveyor: Heather Obruchkov Survey Date: 2007-08-22
 Reassessment Date: 2017-02-27 Reassessment Surveyor: Evan Faubert
 Location #: 39 Location Name: Grenville Copy Centre Floor: 1 Room #: Square ft: 800

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Walls	All	Drywall and joint compound	Not Applicable	N/A	A	Y	100	(7)		%	V9500	Presumed Asbestos	Non-Friable
Piping	All	Parging Cement	Not Applicable	Canvas	C	Y	5	(7)		EA	V0001	Confirmed Asbestos	Friable

Building #: Building Name: B Wing Surveyor: Heather Obruchkov Survey Date: 2007-08-22
 Reassessment Date: 2017-02-27 Reassessment Surveyor: Evan Faubert
 Location #: 40 Location Name: Student Services Floor: 1 Room #: B104/B106 Square ft: 3629

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Walls	All	Drywall and joint compound	Not Applicable	N/A	A	Y	100	(7)		%	S0013	Confirmed Asbestos	Non-Friable

Building #: Building Name: B Wing Surveyor: Heather Obruchkov Survey Date: 2007-08-22
 Reassessment Date: 2017-02-27 Reassessment Surveyor: Evan Faubert
 Location #: 41 Location Name: Office Area Floor: 1 Room #: B101-B103 Square ft: 5460

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Floor		VAT and Mastic Adhesive			A	Y	150	(7)		SF	V0003	Confirmed Asbestos	Non-Friable
Walls	All	Drywall and joint compound	Not Applicable	N/A	A	Y	100	(7)		%	S0013	Confirmed Asbestos	Non-Friable

Note: Ceiling Tile At-08 was not sampled, due to manufacture date of Dec. 2004. VFT in Kitchen.



Client: Sheridan College

Site: Trafalgar Campus

Building Number(s):

Confirmed Asbestos and Presumed Asbestos Report

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22
Reassessment Date:2017-02-27 **Reassessment Surveyor:** Evan Faubert
Location #: 42 **Location Name:** Grassroots **Floor:** 1 **Room #:** **Square ft:** 241

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Walls	All	Drywall and joint compound	Not Applicable	N/A	A	Y	100	(7)		%	V0013	Confirmed Asbestos	Non-Friable

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22
Reassessment Date:2017-02-27 **Reassessment Surveyor:** Evan Faubert
Location #: 45 **Location Name:** Tim Horton's **Floor:** 1 **Room #:** **Square ft:** 826

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Walls	All	Drywall and joint compound	Not Applicable	Ceramic Tiles	A	Y	100	(7)		%	V0013	Confirmed Asbestos	Non-Friable

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22
Reassessment Date:2017-02-27 **Reassessment Surveyor:** Evan Faubert
Location #: 46 **Location Name:** Sound Stage **Floor:** 1 **Room #:** B 122 **Square ft:** 1390

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Walls	All	Drywall and joint compound	Not Applicable	N/A	A	Y	100	(7)	10 (7)	LF	V0013	Confirmed Asbestos	Non-Friable



Client: Sheridan College

Site: Trafalgar Campus

Building Number(s):

Confirmed Asbestos and Presumed Asbestos Report

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22

Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert

Location #: 47 **Location Name:** Auditorium **Floor:** 1 **Room #:** B 124 **Square ft:** 1056

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Ceiling	All	Drywall and joint compound	Not Applicable	N/A	C	Y	100	(7)		%	V0015	Confirmed Asbestos	Non-Friable
Walls		Drywall and joint compound			A	Y	100	(7)		%	V0015	Confirmed Asbestos	Non-Friable
Piping	N/A	Parging Cement	Fitting	N/A	C	N	X			%	V9500	Presumed Asbestos	Friable

Note: Ceiling space inaccessible due to elevated height.

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22

Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert

Location #: 48 **Location Name:** Auditorium **Floor:** 1 **Room #:** B 125 **Square ft:** 1430

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Ceiling	All	Drywall and joint compound	Not Applicable	N/A	C	Y	100	(7)		%	V0015	Confirmed Asbestos	Non-Friable

Note: Ceiling space inaccessible due to elevated height.

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22

Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert

Location #: 49 **Location Name:** Equipment Pick-up Area **Floor:** 1 **Room #:** B 122a **Square ft:** 82

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Floor	All	VAT and Mastic Adhesive	Not Applicable	N/A	A	Y	82	(7)		SF	V0003	Confirmed Asbestos	Non-Friable
Walls	All	Drywall and joint compound	Not Applicable	N/A	A	Y	100	(7)		%	V0013	Confirmed Asbestos	Non-Friable



Client: Sheridan College

Site: Trafalgar Campus

Building Number(s):

Confirmed Asbestos and Presumed Asbestos Report

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22
Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert
Location #: 50 **Location Name:** Media Equipment **Floor:** 1 **Room #:** B 122d **Square ft:** 593
Storage

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Walls	All	Drywall and joint compound	Not Applicable	N/A	A	Y	100	(7)		%	V0013	Confirmed Asbestos	Non-Friable

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22
Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert
Location #: 51 **Location Name:** Classroom **Floor:** 1 **Room #:** B 115 **Square ft:** 720

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Walls	All	Drywall and joint compound	Not Applicable	N/A	A	Y	100	(7)		%	S0013	Confirmed Asbestos	Non-Friable

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22
Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert
Location #: 52 **Location Name:** Classroom **Floor:** 1 **Room #:** B115 a **Square ft:** 634

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Walls	All	Drywall and joint compound	Not Applicable	N/A	A	Y	100	(7)		%	S0013	Confirmed Asbestos	Non-Friable

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22
Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert
Location #: 53 **Location Name:** Viewing Room **Floor:** 1 **Room #:** b115 B **Square ft:** 225

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Walls	All	Drywall and joint compound	Not Applicable	N/A	A	Y	100	(7)		%	S0013	Confirmed Asbestos	Non-Friable



Client: Sheridan College

Site: Trafalgar Campus

Building Number(s):

Confirmed Asbestos and Presumed Asbestos Report

Building #:		Building Name: B Wing		Surveyor: Heather Obruchkov		Survey Date: 2007-08-22							
Reassessment Date: 2017-02-27		Reassessment Surveyor: Evan Faubert											
Location #: 54		Location Name: Editing Room		Floor: 1		Room #: B115e		Square ft: 201					
System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Floor		VAT and Mastic Adhesive			A	Y	201	(7)		SF	V0003	Confirmed Asbestos	Non-Friable
Ceiling	Bulkhead	Drywall and joint compound	Not Applicable	N/A	D	Y	100	(7)		%	V0015	Confirmed Asbestos	Non-Friable
Walls	All	Drywall and joint compound	Not Applicable	N/A	C	Y	100	(7)		%	V0013	Confirmed Asbestos	Non-Friable

Note: Ceiling Tile not Sampled (AT-06) due to manufacture date, May 2001.

Building #:		Building Name: B Wing		Surveyor: Heather Obruchkov		Survey Date: 2007-08-22							
Reassessment Date: 2017-02-27		Reassessment Surveyor: Evan Faubert											
Location #: 55		Location Name: Offices		Floor: 1		Room #: B115 c		Square ft: 385					
System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Ceiling	All	Drywall and joint compound	Not Applicable	N/A	C	Y	385	(7)		SF	S0015	Confirmed Asbestos	Non-Friable
Walls	All	Drywall and joint compound	Not Applicable	N/A	C	Y	100	(7)		%	V0013	Confirmed Asbestos	Non-Friable

Building #:		Building Name: B Wing		Surveyor: Heather Obruchkov		Survey Date: 2007-08-22								
Reassessment Date: 2017-02-27		Reassessment Surveyor: Evan Faubert												
Location #: 56		Location Name: Production Office		Floor: 1		Room #: B115d		Square ft: 201						
System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability	
							Good	Fair	Poor					
Floor	All	VAT and Mastic Adhesive	Not Applicable	N/A	A	Y	201	(7)		SF	S0016	Confirmed Asbestos	Non-Friable	
Walls	All	Drywall and joint compound	Not Applicable	N/A	A	Y	100	(7)	4	(7)	LF	V0013	Confirmed Asbestos	Non-Friable



Client: Sheridan College

Site: Trafalgar Campus

Building Number(s):

Confirmed Asbestos and Presumed Asbestos Report

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22
Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert
Location #: 57 **Location Name:** Storage for Sound **Floor:** 1 **Room #:** B122b **Square ft:** 154
Studies

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Floor	All	VAT and Mastic Adhesive	Not Applicable	N/A	A	Y	82	(7)		SF	V0003	Confirmed Asbestos	Non-Friable

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22
Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert
Location #: 58 **Location Name:** Projection Room **Floor:** 1&2 **Room #:** B 122c **Square ft:** 139

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Floor	All	VAT and Mastic Adhesive	Not Applicable	N/A	A	Y	39	(7)		SF	S0003	Confirmed Asbestos	Non-Friable
Walls		Drywall and joint compound			A	Y	100	(7)		%	V0013	Confirmed Asbestos	Non-Friable

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22
Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert
Location #: 60 **Location Name:** Offices **Floor:** 1 **Room #:** B116-B118 **Square ft:** 1200

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Walls	A	Drywall and joint compound	Not Applicable	N/A	A	Y	100	(7)		%	V0013	Confirmed Asbestos	Non-Friable



Client: Sheridan College

Site: Trafalgar Campus

Building Number(s):

Confirmed Asbestos and Presumed Asbestos Report

Building #:		Building Name: B Wing		Surveyor: Heather Obruchkov		Survey Date: 2007-08-22								
Reassessment Date: 2017-02-27		Reassessment Surveyor: Evan Faubert												
Location #: 61		Location Name: Offices		Floor: 1		Room #: B119, B120			Square ft: 209					
System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action				Units	Sample	Hazard	Friability
							Good	Fair	Poor					
Ceiling	All	Drywall and joint compound	Not Applicable	N/A	A	Y	200	(7)			SF	S0015	Confirmed Asbestos	Non-Friable
Walls	A	Drywall and joint compound	Not Applicable	N/A	A	Y	100	(7)			%	V0013	Confirmed Asbestos	Non-Friable

Building #:		Building Name: B Wing		Surveyor: Heather Obruchkov		Survey Date: 2007-08-22								
Reassessment Date: 2017-02-27		Reassessment Surveyor: Evan Faubert												
Location #: 62		Location Name: Office		Floor: 1		Room #: B121			Square ft: 106					
System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action				Units	Sample	Hazard	Friability
							Good	Fair	Poor					
Walls	All	Drywall and joint compound	Not Applicable	N/A	A	Y	100	(7)			%	V0013	Confirmed Asbestos	Non-Friable

Building #:		Building Name: B Wing		Surveyor: Heather Obruchkov		Survey Date: 2007-08-22								
Reassessment Date: 2017-02-27		Reassessment Surveyor: Evan Faubert												
Location #: 63		Location Name: Corridor (Media)		Floor: 1		Room #:			Square ft: 853					
System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action				Units	Sample	Hazard	Friability
							Good	Fair	Poor					
Walls		Drywall and joint compound			A	Y	100	(7)	4	(7)	%	V0013	Confirmed Asbestos	Non-Friable

Building #:		Building Name: B Wing		Surveyor: Heather Obruchkov		Survey Date: 2007-08-22								
Reassessment Date: 2017-02-27		Reassessment Surveyor: Evan Faubert												
Location #: 64		Location Name: Office/Drop In Centre		Floor: 1		Room #: B 114			Square ft: 649					
System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action				Units	Sample	Hazard	Friability
							Good	Fair	Poor					
Walls	All	Drywall and joint compound	Not Applicable	N/A	A	Y	100	(7)			%	V0013	Confirmed Asbestos	Non-Friable



Client: Sheridan College

Site: Trafalgar Campus

Building Number(s):

Confirmed Asbestos and Presumed Asbestos Report

Building #: Building Name: B Wing Surveyor: Heather Obruchkov Survey Date: 2007-08-22
Reassessment Date: 2017-02-27 Reassessment Surveyor: Evan Faubert
Location #: 65 Location Name: Bookstore Floor: 1 Room #: B136 Square ft: 5950

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Walls	All	Drywall and joint compound	Not Applicable	N/A	A	Y	100	(7)		%	V0013	Confirmed Asbestos	Non-Friable
Piping	All	Parging Cement	Fitting	Canvas	C	Y	5	(7)		EA	V0001	Confirmed Asbestos	Friable

Building #: Building Name: B Wing Surveyor: Heather Obruchkov Survey Date: 2007-08-22
Reassessment Date: 2017-02-27 Reassessment Surveyor: Evan Faubert
Location #: 66 Location Name: Bookstore Stock & Office Floor: 1 Room #: B 138 Square ft: 876

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Walls	All	Drywall and joint compound	Not Applicable	N/A	A	Y	100	(7)		%	V9500	Presumed Asbestos	Non-Friable
Piping	All	Parging Cement	Fitting	Canvas	C	N	5	(7)		EA	V0001	Confirmed Asbestos	Friable

Building #: Building Name: B Wing Surveyor: Heather Obruchkov Survey Date: 2007-08-22
Reassessment Date: 2017-02-27 Reassessment Surveyor: Evan Faubert
Location #: 67 Location Name: Bookstore Corridor & Storage Floor: 1 Room #: Square ft: 504

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Walls	All	Drywall and joint compound	Not Applicable	N/A	A	Y	100	(7)		%	V0013	Confirmed Asbestos	Non-Friable
Piping		Parging Cement			C	Y	4	(7)		EA	V0001	Confirmed Asbestos	Friable

Note: Dec 2015 repaired 1 fittings. Pinchin File 104462.008.



Client: Sheridan College

Site: Trafalgar Campus

Building Number(s):

Confirmed Asbestos and Presumed Asbestos Report

Building #: Building Name: B Wing Surveyor: Heather Obruchkov Survey Date: 2007-08-22

Reassessment Date: 2017-02-27 Reassessment Surveyor: Evan Faubert

Location #: 68 Location Name: Office Floor: 1 Room #: B 141 Square ft: 259

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Walls	All	Drywall and joint compound	Not Applicable	N/A	A	Y	100	(7)		%	V0013	Confirmed Asbestos	Non-Friable

Building #: Building Name: B Wing Surveyor: Heather Obruchkov Survey Date: 2007-08-22

Reassessment Date: 2017-02-27 Reassessment Surveyor: Evan Faubert

Location #: 69 Location Name: Box Office Floor: 1 Room #: B 126 Square ft: 175

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Walls	All	Drywall and joint compound	Not Applicable	N/A	A	Y	100	(7)		%	V0013	Confirmed Asbestos	Non-Friable
Piping	All	Parging Cement	Fitting	Canvas	C	Y	2	(7)		EA	V0001	Confirmed Asbestos	Friable

Building #: Building Name: B Wing Surveyor: Heather Obruchkov Survey Date: 2007-08-22

Reassessment Date: 2017-02-27 Reassessment Surveyor: Evan Faubert

Location #: 70 Location Name: Aboriginal Initiatives Floor: 1 Room #: B 127 Square ft: 303

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Walls	All	Drywall and joint compound	Not Applicable	N/A	A	Y	100	(7)		%	V0013	Confirmed Asbestos	Non-Friable
Piping	All	Parging Cement	Fitting	Canvas	C	N	8	(7)		EA	V0001	Confirmed Asbestos	Friable



Client: Sheridan College

Site: Trafalgar Campus

Building Number(s):

Confirmed Asbestos and Presumed Asbestos Report

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22

Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert

Location #: 71 **Location Name:** Health Clinic **Floor:** 1 **Room #:** B 129 **Square ft:** 342

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Floor	All	VAT and Mastic Adhesive	Not Applicable	N/A	A	Y	242	(7)		SF	V0003	Confirmed Asbestos	Non-Friable
Walls	All	Drywall and joint compound	Not Applicable	N/A	A	Y	100	(7)		%	V0013	Confirmed Asbestos	Non-Friable
Piping	All	Parging Cement	Fitting	Canvas	C	N	20	(7)		EA	V0001	Confirmed Asbestos	Friable

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22

Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert

Location #: 72 **Location Name:** Janitor's Closet and Electrical Room **Floor:** 1 **Room #:** B 130 **Square ft:** 143

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Piping	All	Parging Cement	Fitting	Canvas	B	Y	10	(7)		EA	V0001	Confirmed Asbestos	Friable

Note: Dec 2015 removed 1 fittings. Pinchin File 104462.008.

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22

Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert

Location #: 77 **Location Name:** East Corridor **Floor:** 2 **Room #:** **Square ft:** 1112

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Walls	All	Drywall and joint compound	Not Applicable	N/A	A	Y	100	(7)		%	V0020	Confirmed Asbestos	Non-Friable

Note: Ceiling Tile AT-01 not Sampled, due to Manufactured date of August 2001



Client: Sheridan College

Site: Trafalgar Campus

Building Number(s):

Confirmed Asbestos and Presumed Asbestos Report

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22
Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert
Location #: 78 **Location Name:** Electrical/Storage **Floor:** 2 **Room #:** B 251 **Square ft:** 280

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action				Units	Sample	Hazard	Friability
							Good	Fair	Poor					
Floor	All	VAT and Mastic Adhesive	Not Applicable	N/A	A	Y	280	(7)			SF	V0003	Confirmed Asbestos	Non-Friable
Walls	All	Drywall and joint compound	Not Applicable	N/A	A	Y	100	(7)			%	S0020	Confirmed Asbestos	Non-Friable

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22
Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert
Location #: 79 **Location Name:** Human Resources **Floor:** 2 **Room #:** B255/B237 **Square ft:** 2030
Organizational Development & OH&S

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action				Units	Sample	Hazard	Friability
							Good	Fair	Poor					
Walls	All	Drywall and joint compound	Not Applicable	N/A	A	Y	100	(7)			%	V0020	Confirmed Asbestos	Non-Friable

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22
Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert
Location #: 80 **Location Name:** Financial Services **Floor:** 2 **Room #:** B 244 **Square ft:** 2514

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action				Units	Sample	Hazard	Friability
							Good	Fair	Poor					
Walls	All	Drywall and joint compound	Not Applicable	N/A	A	Y	100	(7)			%	S0020	Confirmed Asbestos	Non-Friable



Client: Sheridan College

Site: Trafalgar Campus

Building Number(s):

Confirmed Asbestos and Presumed Asbestos Report

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22
Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert
Location #: 82 **Location Name:** Human **Floor:** 2 **Room #:** B 237 **Square ft:** 2479
Resources/Payroll

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability	
							Good	Fair	Poor					
Walls	All	Drywall and joint compound	Not Applicable	N/A	A	Y	96	(7)	4	(7)	%	S0020	Confirmed Asbestos	Non-Friable

Note: 2017 Reassessment pinchin proj#200417.003 - 10 LF of damaged drywall at corner near B237 entrance

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22
Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert
Location #: 83 **Location Name:** Administration Offices **Floor:** 2 **Room #:** B200 **Square ft:** 6000

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability	
							Good	Fair	Poor					
Walls	All	Drywall and joint compound	Not Applicable	N/A	A	Y	100	(7)	1	(7)	SF	S0020	Confirmed Asbestos	Non-Friable
Piping	All	Parging Cement	Fitting	Canvas	C	N	35	(7)			EA	V0001	Confirmed Asbestos	Friable

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22
Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert
Location #: 84 **Location Name:** President's Boardroom **Floor:** 2 **Room #:** B 228 **Square ft:** 917

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability	
							Good	Fair	Poor					
Walls	All	Drywall and joint compound	Not Applicable	Carpet	A	Y	100	(7)			%	S0020	Confirmed Asbestos	Non-Friable



Client: Sheridan College

Site: Trafalgar Campus

Building Number(s):

Confirmed Asbestos and Presumed Asbestos Report

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22
Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert
Location #: 85 **Location Name:** Electrical Closet **Floor:** 2 **Room #:** B200e **Square ft:** 92

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Walls	All	Drywall and joint compound	Not Applicable	N/A	A	Y	100	(7)		%	V0020	Confirmed Asbestos	Non-Friable
Piping	All	Parging Cement	Fitting	Canvas	C	Y	6	(7)		EA	V0001	Confirmed Asbestos	Friable

Note: No floor in adjacent chase.

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22
Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert
Location #: 86 **Location Name:** Men's & Women's Washrooms **Floor:** 2 **Room #:** B200 a **Square ft:** 226

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Walls	All	Drywall and joint compound	Not Applicable	N/A	A	Y	100	(7)		%	S0020	Confirmed Asbestos	Non-Friable

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22
Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert
Location #: 90 **Location Name:** Janitor's Closet **Floor:** 3 **Room #:** **Square ft:** 46

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Walls	All	Drywall and joint compound	Not Applicable	N/A	A	Y	100	(7)		%	V0024	Confirmed Asbestos	Non-Friable

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22
Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert
Location #: 91 **Location Name:** Classrooms and Office **Floor:** 3 **Room #:** **Square ft:** 4217

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Walls	All	Drywall and joint compound	Not Applicable	N/A	A	Y	100	(7)		%	V0024	Confirmed Asbestos	Non-Friable



Client: Sheridan College

Site: Trafalgar Campus

Building Number(s):

Confirmed Asbestos and Presumed Asbestos Report

Building #: Building Name: B Wing Surveyor: Heather Obruchkov Survey Date: 2007-08-22

Reassessment Date: 2017-02-27 Reassessment Surveyor: Evan Faubert

Location #: 92 Location Name: Offices Floor: 3 Room #: Square ft: 189

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Walls	All	Drywall and joint compound	Not Applicable	N/A	A	Y	100	(7)		%	V0024	Confirmed Asbestos	Non-Friable

Note: Ceiling Tile AT-01 not Sampled, due to Manufacture date of August 2001

Building #: Building Name: B Wing Surveyor: Heather Obruchkov Survey Date: 2007-08-22

Reassessment Date: 2017-02-27 Reassessment Surveyor: Evan Faubert

Location #: 93 Location Name: Men's Washroom Floor: 3 Room #: Square ft: 113

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Walls	All	Drywall and joint compound	Not Applicable	Ceramic Tiles	A	Y	100	(7)		%	V0024	Confirmed Asbestos	Non-Friable

Building #: Building Name: B Wing Surveyor: Heather Obruchkov Survey Date: 2007-08-22

Reassessment Date: 2017-02-27 Reassessment Surveyor: Evan Faubert

Location #: 94 Location Name: Pipe Chase/Electrical Closet Floor: 3 Room #: Square ft: 37

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Walls	All	Drywall and joint compound	Not Applicable	N/A	A	Y	100	(7)		%	V0024	Confirmed Asbestos	Non-Friable

Note: Reno: The following locations are now merged into one room (95, 103, 104, 105 & 107)

Building #: Building Name: B Wing Surveyor: Heather Obruchkov Survey Date: 2007-08-22

Reassessment Date: 2017-02-27 Reassessment Surveyor: Evan Faubert

Location #: 95 Location Name: Corridor Floor: 3 Room #: Square ft: 3580

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Walls	All	Drywall and joint compound	Not Applicable	N/A	A	Y	100	(7)		%	S0024	Confirmed Asbestos	Non-Friable

Note: this location is now merged with 103, 104, 105 and 107



Client: Sheridan College

Site: Trafalgar Campus

Building Number(s):

Confirmed Asbestos and Presumed Asbestos Report

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22
Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert
Location #: 96 **Location Name:** Photocopy Room **Floor:** 3 **Room #:** B302 **Square ft:** 241

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Walls	All	Drywall and joint compound	Not Applicable	N/A	A	Y	100	(7)		%	V0024	Confirmed Asbestos	Non-Friable

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22
Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert
Location #: 97 **Location Name:** Classroom **Floor:** 3 **Room #:** B3011 **Square ft:** 987

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Walls	All	Drywall and joint compound	Not Applicable	N/A	A	Y	100	(7)		%	V0024	Confirmed Asbestos	Non-Friable

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22
Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert
Location #: 98 **Location Name:** School of Business **Floor:** 3 **Room #:** B 326 **Square ft:** 2532
Offices

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Walls	All	Drywall and joint compound	Not Applicable	N/A	A	Y	100	(7)		%	S0024	Confirmed Asbestos	Non-Friable

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22
Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert
Location #: 100 **Location Name:** Return Air Shaft **Floor:** 3 **Room #:** **Square ft:** 68

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Walls	All	Drywall and joint compound	Not Applicable	N/A	A	Y	100	(7)		%	V0024	Confirmed Asbestos	Non-Friable



Client: Sheridan College

Site: Trafalgar Campus

Building Number(s):

Confirmed Asbestos and Presumed Asbestos Report

Building #: Building Name: B Wing Surveyor: Heather Obruchkov Survey Date: 2007-08-22

Reassessment Date: 2017-02-27 Reassessment Surveyor: Evan Faubert

Location #: 101 Location Name: Womens Washroom Floor: 3 Room #: Square ft: 181

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Walls	All	Drywall and joint compound	Not Applicable	N/A	A	Y	100	(7)		%	S0024	Confirmed Asbestos	Non-Friable

Building #: Building Name: B Wing Surveyor: Heather Obruchkov Survey Date: 2007-08-22

Reassessment Date: 2017-02-27 Reassessment Surveyor: Evan Faubert

Location #: 102 Location Name: Office Floor: 3 Room #: B 334 Square ft: 693

No access to room

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				

Note: 2017 Reassessment Pinchin proj#200417.003

Building #: Building Name: B Wing Surveyor: Heather Obruchkov Survey Date: 2007-08-22

Reassessment Date: 2017-02-27 Reassessment Surveyor: Evan Faubert

Location #: 108 Location Name: Office Floor: 3 Room #: B342 Square ft: 598

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Walls	All	Drywall and joint compound	Not Applicable	N/A	A	Y	100	(7)		%	S0024	Confirmed Asbestos	Non-Friable

Building #: Building Name: B Wing Surveyor: Heather Obruchkov Survey Date: 2007-08-22

Reassessment Date: 2017-02-27 Reassessment Surveyor: Evan Faubert

Location #: 109 Location Name: Office Floor: 3 Room #: B364 Square ft: 166

No access to room

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				

Note: 2017 Reassessment Pinchin proj#200417.003



Client: Sheridan College

Site: Trafalgar Campus

Building Number(s):

Confirmed Asbestos and Presumed Asbestos Report

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22
Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert
Location #: 110 **Location Name:** Electrical Room **Floor:** 3 **Room #:** B340 **Square ft:** 80

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Walls	All	Drywall and joint compound	Not Applicable	N/A	A	Y	100	(7)		%	S0024	Confirmed Asbestos	Non-Friable

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22
Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert
Location #: 112 **Location Name:** Machinery Room # 4 **Floor:** 4 **Room #:** B 401 **Square ft:** 2752

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability	
							Good	Fair	Poor					
Piping	All	Parging Cement	Fitting	Canvas	C	Y	25	(7)	1	(6)	EA	V0001	Confirmed Asbestos	Friable
Mechanical Equipment	Heating Water Tank	Parging Cement	Not Applicable	Canvas	B	Y	200	(7)			SF	V0001	Confirmed Asbestos	Friable

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22
Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert
Location #: 113 **Location Name:** Elevator Machinery Room **Floor:** 4 **Room #:** **Square ft:** 112

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability	
							Good	Fair	Poor					
Piping	All	Parging Cement	Fitting	Canvas	B	Y	4	(7)			EA	V0001	Confirmed Asbestos	Friable



Client: Sheridan College

Site: Trafalgar Campus

Building Number(s):

Confirmed Asbestos and Presumed Asbestos Report

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22
Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert
Location #: 114 **Location Name:** Corridor **Floor:** 4 **Room #:** **Square ft:** 383

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Walls		Drywall and joint compound			A	Y	100	(7)		%	V0024	Confirmed Asbestos	Non-Friable
Piping	All	Parging Cement	Fitting	Canvas	C	Y	35	(7)		EA	V0001	Confirmed Asbestos	Friable
Other	Fire Stop	Parging Cement	Not Applicable	N/A	B	Y	1	(7)		SF	S0005	Confirmed Asbestos	Friable

Note: June 2016 removed 4 fittings Pinchin file#115297.001

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22
Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert
Location #: 115 **Location Name:** Machinery Penthouse 5Floor: 4 **Room #:** **Square ft:** 1714

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Piping	All	Parging Cement	Fitting	Canvas	B	Y	45	(7)		EA	V0001	Confirmed Asbestos	Friable

Note: Dec 2015 removed 5 fittings. Pinchin File 104462.008. Abatement of fittings associated with heat exchanger upgrades completed March 2016, Pinchin file #104462.026.

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22
Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert
Location #: 116 **Location Name:** South Stairwell **Floor:** 4 **Room #:** **Square ft:** 414

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Walls		Drywall and joint compound			A	Y	100	(7)		%	V0024	Confirmed Asbestos	Non-Friable



Client: Sheridan College

Site: Trafalgar Campus

Building Number(s):

Confirmed Asbestos and Presumed Asbestos Report

Building #: Building Name: B Wing Surveyor: Heather Obruchkov Survey Date: 2007-08-22

Reassessment Date: 2017-02-27 Reassessment Surveyor: Evan Faubert

Location #: 117 Location Name: Machinery Room # 6 Floor: 1 Room #: Square ft: 1200

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action				Units	Sample	Hazard	Friability
							Good	Fair	Poor					
Piping	All	Parging Cement	Fitting	Canvas	B	Y	74	(7)	1	(6)	EA	V0001	Confirmed Asbestos	Friable

Note: Dec 2015 removed 4 fittings. Pinchin File 104462.008.

Building #: Building Name: B Wing Surveyor: Heather Obruchkov Survey Date: 2007-08-22

Reassessment Date: 2017-02-27 Reassessment Surveyor: Evan Faubert

Location #: 118 Location Name: Projection Room Floor: 2 Room #: B224 Square ft: 200

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action				Units	Sample	Hazard	Friability
							Good	Fair	Poor					
Floor	All	VAT and Mastic Adhesive	Not Applicable	N/A	A	Y	143	(7)			SF	V0003	Confirmed Asbestos	Non-Friable
Piping	All	Parging Cement	Fitting	Canvas	C	Y	1	(7)			EA	V0001	Confirmed Asbestos	Friable

Building #: Building Name: B Wing Surveyor: Heather Obruchkov Survey Date: 2007-08-22

Reassessment Date: 2017-02-27 Reassessment Surveyor: Evan Faubert

Location #: 119 Location Name: Administration Offices Floor: 2 Room #: Square ft: 1000

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action				Units	Sample	Hazard	Friability
							Good	Fair	Poor					
Walls	All	Drywall and joint compound			A	Y	100	(7)			%	V0020	Confirmed Asbestos	Non-Friable

Building #: Building Name: B Wing Surveyor: Heather Obruchkov Survey Date: 2007-08-22

Reassessment Date: 2017-02-27 Reassessment Surveyor: Evan Faubert

Location #: 120 Location Name: Administration Offices Floor: NA Room #: Square ft: 1200

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action				Units	Sample	Hazard	Friability
							Good	Fair	Poor					
Walls	All	Drywall and joint compound			A	Y	100	(7)			%	V0020	Confirmed Asbestos	Non-Friable



Client: Sheridan College

Site: Trafalgar Campus

Building Number(s):

Confirmed Asbestos and Presumed Asbestos Report

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22

Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert

Location #: 121 **Location Name:** Administration Offices **Floor:** NA **Room #:** **Square ft:** 100

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Walls	All	Drywall and joint compound			A	Y	100	(7)		%	V0020	Confirmed Asbestos	Non-Friable

Building #: **Building Name:** B Wing **Surveyor:** Heather Obruchkov **Survey Date:** 2007-08-22

Reassessment Date: 2017-02-27 **Reassessment Surveyor:** Evan Faubert

Location #: 122 **Location Name:** West Corridor **Floor:** B **Room #:** **Square ft:** 1000

System	Component	Material	Item	Covering	Access	Visible	Condition, Quantity & Action			Units	Sample	Hazard	Friability
							Good	Fair	Poor				
Walls		Drywall and joint compound			A	Y	100	(7)		%	V0002	Confirmed Asbestos	Non-Friable

Note: Parging cement on pipe fittings abated in December 2016, Pinchin File: 115297.008.



November 8, 2024
Sheridan College
130 Trafalgar Road
Oakville, Ontario, L6H 2L1

Re: Asbestos Abatement Completion Letter
Room B244
1430 Trafalgar Road, Oakville, Ontario
Pinchin File: 336577.017

This letter has been provided to document that the asbestos abatement project conducted at the above referenced site is complete.

The following documents relevant to this project have been issued under separate cover:

- Hazardous Building Materials Assessment, dated September 20, 2024, Pinchin File No. #336577.015.

The scope of work involved the following:

- Removal and disposal of drywall bulkheads and walls finished with asbestos-containing joint compound following Type 2 procedures.

The abatement work was carried out between October 22, 2024 to October 28, 2024 by Alliance Environmental (Contractor) under contract to the Owner.

HMIS information has been updated to reflect the post-abatement conditions.

The abatement work was performed successfully in compliance with the scope of work and acceptable standards.

The site review reports and air sample results have been attached for your records.

TERMS AND LIMITATIONS

This work was performed subject to the Terms and Limitations presented or referenced in the proposal for this project.

Information provided by Pinchin is intended for Client use only. Pinchin will not provide results or information to any party unless disclosure by Pinchin is required by law. Any use by a third party of reports or documents authored by Pinchin or any reliance by a third party on or decisions made by a third party based on the findings described in said documents, is the sole responsibility of such third parties.



Pinchin accepts no responsibility for damages suffered by any third party as a result of decisions made or actions conducted. No other warranties are implied or expressed.

CLOSURE

Should you have any questions or concerns regarding the contents of this letter, please contact the Project Manager at 289.237.4294 or lheywood@pinchin.com.

Yours truly,

Pinchin Ltd.

Prepared by:

Reviewed by:

Angela Coric, HBESc., EPT.
Project Coordinator

Leslie Heywood, BEng Mgt.
Senior Project Manager

Encl: Appendix I - Site Review Reports

\\pinchin.com\ham\Job\336000s\0336577.000 SHERIDANCOLLEGE,2024Projects,CONS\0336577.017 SHERIDAN,TRC,B244,B237,B255,HAZ,SRs\Deliverables\Completion Letter\336577.017 Completion Letter Rm B244 TRC SHERIDAN Nov 8 2024.docx
Template: Asbestos Abatement Completion Letter (Short Version), HAZ, July 2, 2024

APPENDIX I
Site Review Reports



Site Review Report

Project Information

Date: October 22, 2024	Pinchin Representative: Adam Lazette	Report Number: 1 Pinchin File: 336577.017
Project Name: Asbestos Abatement - Rooms B244, B237, and B255	Site Address: 1430 Trafalgar Road, Oakville, Ontario	
Client: Sheridan College	Client File Number: P01955	
Contractor: Alliance Environmental	Arrival on Site: 4:30pm Number of Workers: 4	

Distribution:

cc:	Nicole Whiteside	Sheridan College	nicole.whiteside@sheridancollege.ca
	Lisa Tucker	Sheridan College	lisa.tucker@sheridancollege.ca
	James Burns	Alliance Environmental	JBurns@allianceenvironmental.com
	Dean Power	Alliance Environmental	Dean.Power@allianceenvironmental.com

Description of Work in Progress

Material	Work Area	Work in Progress	Type of Review	Status
Asbestos	Work Area: B244, B244B and B244C (HMIS Location 80)	Type 2 removal and disposal of drywall bulkheads and walls finished with asbestos- containing joint compound.	Clean Site Preparation	Acceptable
			Bulk Removal and Air Monitoring	Acceptable

Discussion Points and Action Items

Pinchin found the containment setup to be acceptable. The contractor was given approval to commence with the contaminated work.

Asbestos Air Samples Collected and Results, as Available

Samples were analyzed in accordance with NIOSH 7400 Method, Issue 3, June 14, 2019

Sample No.	Sample Type	Location Description	Start Time	Average Flow Rate (L/min)	Duration (Minutes)	Air Volume (L)	Reportable Result (f/cc)
424116	Occupied	Corridor, adjacent to B244	October 22, 2024, 4:45 PM	15.2	180	2,736	0.002
424117	Occupied	Corridor, adjacent to B244	October 22, 2024,	15.2	180	2,736	0.004



Asbestos Air Samples Collected and Results, as Available

Samples were analyzed in accordance with NIOSH 7400 Method, Issue 3, June 14, 2019

Sample No.	Sample Type	Location Description	Start Time	Average Flow Rate (L/min)	Duration (Minutes)	Air Volume (L)	Reportable Result (f/cc)
			4:45 PM				
415690	Occupied	Corridor, adjacent to B244	October 22, 2024, 4:45 PM	15.2	180	2,736	0.003
415700	Field Blank	Field Blank	-	-	-	-	<5.5 fibres detected

f/cc - fibre per cubic centimetre

Calibration of air sampling pump checked before and after sample collection.

Observations – Work Area 1: B244, B244B and B244C (HMIS Location 80)

Other	Acceptable	<p>Pinchin performed a clean site preparation review prior to the Type 2 removal and disposal of drywall bulkheads and walls with asbestos-containing joint compound (Photos 1 and 2). The containment setup was found to be acceptable.</p> <p>Pinchin performed a bulk removal and air monitoring review during the Type 2 removal and disposal of drywall bulkheads and walls with asbestos-containing joint compound. The work being completed was found to be acceptable.</p>
Site Isolation & Facilities/Equipment	Acceptable	<p>Site isolation was acceptable and consisted of an enclosure constructed with polyethylene sheeting and tape. A combined worker and decontamination (decon) facility was located at the entrance to the work area.</p> <p>The contractors were observed to have proper equipment which included a vacuum with HEPA filters, amended water, airless sprayers, lockdown agent, tape, rags, hand tools, ladders, etc.</p> <p>Two (2) negative air units were observed to be exhausting air indoors. Negative air units were D.O.P tested on Oct 21, 2024 (Photo 3).</p> <p>An asbestos warning sign was posted on the entrance on the exterior flap of the decon facility (Photo 4).</p>
Personal Protective Equipment	Acceptable	All workers performing the contaminated work were observed wearing the proper PPE, which includes full body disposable coveralls with a hood and elastic cuffs and at a minimum a half-face respirator with P100 filters.
Waste Handling	Acceptable	All asbestos-containing waste is to be placed in yellow asbestos labelled bags and double bagged prior to removal from the work area.
Samples and Testing	Acceptable	Pinchin collected three occupied air samples outside of the enclosure. One field blank was also collected for quality control purposes. All the samples were collected using high volume pumps calibrated to a

Observations – Work Area 1: B244, B244B and B244C (HMIS Location 80)

	<p>minimum of 15.2 litres of air per minute and ran for 180 minutes, collecting an average of 2,736 litres of air.</p> <p>Phase Contrast Microscopy (PCM) analysis of the collected air samples showed all sampled to be below the criteria of 0.01 fibres per cubic centimeter of air. PCM analysis of the field blank showed <5.5 fibres. PCM analysis was performed following the NIOSH 7400 method.</p>
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Photo 1



Photo 2



Photo 3



Photo 4

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Template: Site Review Report Template HAZ, January 8, 2024



Site Review Report

Project Information

Date: October 25, 2024	Pinchin Representative: Adam Lazette	Report Number: 2 Pinchin File: 336577.017
Project Name: Asbestos Abatement - Rooms B244, B237, and B255	Site Address: 1430 Trafalgar Road, Oakville, Ontario	
Client: Sheridan College	Client File Number: P01955	
Contractor: Alliance Environmental	Arrival on Site: 7:30pm Number of Workers: 4	

Distribution:

cc:	Nicole Whiteside	Sheridan College	nicole.whiteside@sheridancollege.ca
	Lisa Tucker	Sheridan College	lisa.tucker@sheridancollege.ca
	James Burns	Alliance Environmental	JBurns@allianceenvironmental.com
	Dean Power	Alliance Environmental	Dean.Power@allianceenvironmental.com

Description of Work in Progress

Material	Work Area	Work in Progress	Type of Review	Status
Asbestos	Work Area: B244, B244B and B244C (HMIS Location 80)	Type 2 removal and disposal of drywall bulkheads and walls finished with asbestos- containing joint compound.	Visual Clearance	Acceptable
			Clearance Sampling	Acceptable

Discussion Points and Action Items

Pinchin found the work completed to be acceptable.

Asbestos Air Samples Collected and Results, as Available

Samples were analyzed in accordance with NIOSH 7400 Method, Issue 3, June 14, 2019

Sample No.	Sample Type	Location Description	Start Time	Average Flow Rate (L/min)	Duration (Minutes)	Air Volume (L)	Reportable Result (f/cc)
415688	Clearance	Enclosure	October 25, 2024, 8:30 PM	15.2	60	912	0.004
424115	Clearance	Enclosure	October 22, 2024, 8:30 PM	15.2	60	912	0.006



Asbestos Air Samples Collected and Results, as Available

Samples were analyzed in accordance with NIOSH 7400 Method, Issue 3, June 14, 2019

Sample No.	Sample Type	Location Description	Start Time	Average Flow Rate (L/min)	Duration (Minutes)	Air Volume (L)	Reportable Result (f/cc)
424112	Clearance	Enclosure	October 22, 2024, 8:30 PM	15.2	60	912	0.006
415672	Field Blank	Field Blank	-	-	-	-	<5.5 fibres detected

f/cc - fibre per cubic centimetre

Calibration of air sampling pump checked before and after sample collection.

Observations – Work Area 1: B244, B244B and B244C (HMIS Location 80)

Other	Acceptable	Pinchin performed a visual clearance and clearance sampling review following the Type 2 removal and disposal of drywall bulkheads and walls with asbestos-containing joint compound (Photos 1 and 2). The work performed was found to be acceptable.
Site Isolation & Facilities/Equipment	Acceptable	Site isolation remained acceptable at the time of the site review. The Work Area consisted of an enclosure constructed with polyethylene sheeting and tape. A combined worker and decontamination (decon) facility was located at the entrance to the work area.
Waste Handling	Acceptable	All asbestos waste had been removed from the Work Area prior to this site review.
Samples and Testing	Acceptable	Pinchin collected three clearance air samples outside of the enclosure. One field blank was also collected for quality control purposes. All the samples were collected using high volume pumps calibrated to a minimum of 15.2 litres of air per minute and ran for 60 minutes, collecting an average of 912 litres of air. Phase Contrast Microscopy (PCM) analysis of the collected air samples showed all sampled to be below the criteria of 0.05 fibres per cubic centimeter of air. PCM analysis of the field blank showed <5.5 fibres. PCM analysis was performed following the NIOSH 7400 method.



Observations – Work Area 1: B244, B244B and B244C (HMIS Location 80)



Photo 1



Photo 2

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Trafalgar Campus 1430 Trafalgar Rd SHERIDAN Oct 25 2024.docx

Template: Site Review Report Template HAZ, January 8, 2024



Site Review Report

Project Information

Date: October 28, 2024	Pinchin Representative: Adam Lazette	Report Number: 3 Pinchin File: 336577.017
Project Name: Asbestos Abatement - Rooms B244, B237, and B255	Site Address: 1430 Trafalgar Road, Oakville, Ontario	
Client: Sheridan College	Client File Number: P01955	
Contractor: Alliance Environmental	Arrival on Site: 5:30pm Number of Workers: 2	

Distribution:

cc:	Nicole Whiteside	Sheridan College	nicole.whiteside@sheridancollege.ca
	Lisa Tucker	Sheridan College	lisa.tucker@sheridancollege.ca
	James Burns	Alliance Environmental	JBurns@allianceenvironmental.com
	Dean Power	Alliance Environmental	Dean.Power@allianceenvironmental.com

Description of Work in Progress

Material	Work Area	Work in Progress	Type of Review	Status
Asbestos	Work Area: Corridor (HMIS Location 77)	Type 2 glove bag removal and disposal of pipe fittings and straight sections of piping with asbestos-containing thermal insulation.	Other	Acceptable

Discussion Points and Action Items	Pinchin and the Contractor reviewed the ceiling space in the Corridor (HMIS Location 77) and did not identify any asbestos-containing thermal insulation around pipe fittings or straight sections of piping within the Work Area.
-------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Observations – Work Area 1: Corridor (HMIS Location 77)

Other	Acceptable	Pinchin and the Contractor reviewed the ceiling space in the Corridor (HMIS Location 77) and referenced the drawings, but did not identify any asbestos-containing thermal insulation around pipe fittings or straight sections of piping within the Work Area. All insulation observed was non-asbestos fibreglass with foil or paper jacketing (Photo 1).
Cleaning	Acceptable	The Work Area was vacuumed and cleaned after reviewing the ceiling space.



Observations – Work Area 1: Corridor (HMIS Location 77)



Photo 1

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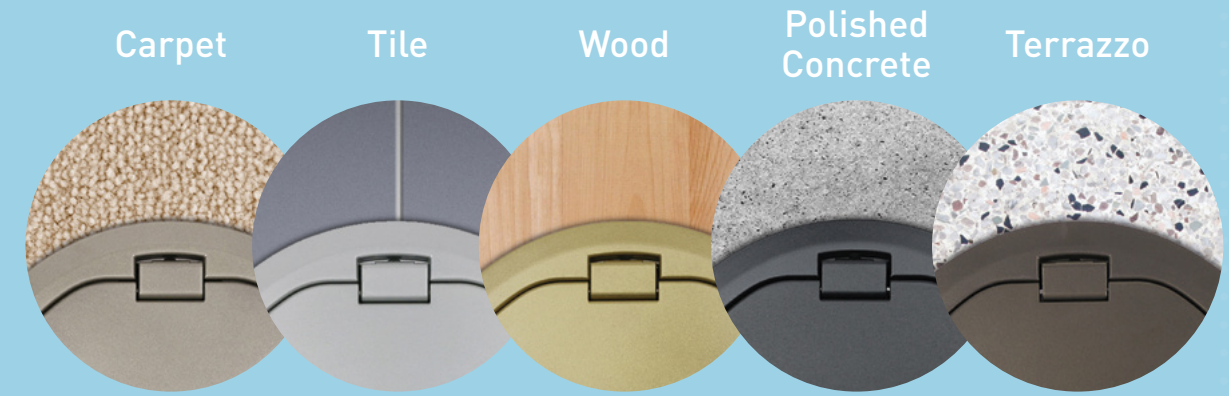
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VERSION 5.01

MARCH 24, 2020

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REVISIONS:

1.0 April 02, 2008

1.1 Initial Draft Creation IT Master Guideline

2.0 February 15, 2010

2.1 Revisions to IT

2.1.1 Additions of Classroom Types

2.1.2 Additions of Detail Sketches

2.1.3 Addition of Paging Systems Section

3.0 February 11, 2011

3.1 Revisions to IT

4.0 March 31, 2012

4.1 Reformat of Entire Document

4.2 Revisions to IT

4.2.1 Removal of Division 27 Samples

4.2.2 Updates to Classroom Types

4.2.3 New Detail Sketches

4.2.4 Updates to Paging Systems

4.2.5 Fibre Upgrades

4.3 Addition of Audio Visual IT Requirements Section

4.4 Addition of Security IT Requirements Section

May 15, 2012

4.5 Revision of Audio Visual IT Requirements Section

4.6 Revision to Paging Requirements Section

October 15, 2012

4.7 Revisions to IT

- 4.7.1 Revisions to Plug Types
- 4.7.2 Additions to Plug Types
- 4.7.3 Revisions to Breakout/Study Rooms
- 4.7.4 Revisions to Meeting Rooms
- 4.7.5 Revisions to Classrooms

November 28, 2012

4.8 Revisions to IT

- 4.8.1 Redefining Plug Types
- 4.8.2 Revisions to Meeting Rooms

5.0 August 25, 2013

5.0 Revision to IT

- 5.0.1 Update of all Codes, Standards, & Acronyms
- 5.0.2 Revisions to Administrative Staff & Titles
- 5.0.3 Addition of Copper Patch Cords
- 5.0.4 Addition of Fibre Patch Cords
- 5.0.5 Revision to 20A Plug Configuration
- 5.0.6 Update for Inclusion of all Revised Detail Sketches

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1.0 FOREWORD:

The sole purpose of this document is to guide Telecommunication Consultants in their design requirements when producing Tender Drawings and Specifications for contractors bidding various projects and expansions that Sheridan Institute of Technology and Advanced Learning may be undertaking.

Its main focus will be the IT infrastructure, components, installation recommendations, testing procedures and parameters. With telecommunications cabling being utilized in so many other disciplines, we are expanding version 5.0 of the Master Guidelines for Communications Infrastructure to include cabling for Paging, Audio Visual (A/V), and Security components.

All detail drawings or images that pertain to only one section of the master outline will be listed and included at the end of that section.

Manufacturer cut sheet samples will be provided at the end of the document in appendix 14.3

2.0 ACKNOWLEDGEMENTS:

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Other Sources

BICSI (Building Industry Consulting Service International)

3.0 DEFINITIONS:

ANSI	American National Standards Institute
ASTM	American Society for Testing Materials
BICSI	Building Industry Consulting Services International
CEC	Canadian Electrical Code
CLECs	Competitive Local Exchange Carriers
CRTC	Canadian Radio & Television Telecommunications Commission
CUL	Canadian Underwriters Laboratories, Inc.
ICEA	Insulated Cable Engineer's Association
ICT	Information Communication Technology (IT)
IDF-1	Intermediate Distribution Frame Type 1 – Communications Closet
IDF-2	Intermediate Distribution Frame Type 2 – Co-Locate Closet
IEEE	Institute of Electrical and Electronics Engineers
MCC	Main Cross Connect
MCR	Main Computer Room
MDF	Main Distribution Frame
NEC	National Electric Code
NEMA	National Electrical Manufacturer's Association
NFPA	National Fire Protection Agency
POP	Point of Presence
SIREN	Sheridan Incident Reporting & Emergency Notification
SITAL	Sheridan Institute of Technology and Advanced Learning
TIA	Telecommunications Industry Association

4.0 APPLICABLE STANDARDS:

Unless specifically indicated otherwise in this document, all telecommunications infrastructure shall be design in accordance with the following standards including all appropriate addendums and revisions:

ANSI/TIA-455	Test Procedures for Fibre Optics, Cables and Transistors
ANSI/TIA-568-C.0-2008	Generic Commercial Building Telecommunications Cabling Standard
ANSI/TIA-568-C.1-2009	Commercial Building Telecommunications Cabling Standard
ANSI/TIA-568-C.2-2009	Balanced Twisted Pair Telecommunications Cabling and Components Standard
ANSI/TIA-568-C.3-2008	Optical Fibre Cabling Components Standard
ANSI/TIA-568-C.4-2011	Broadband Coaxial Cabling and Components Standard
ANSI/TIA-569-C-2012	Telecommunications Pathways and Spaces Cabling Standard
ANSI/TIA-598-D	Optical Fibre Colour Coding (Draft)
ANSI/TIA-604-3	FOCIS 3 Fibre Optic Connector Intermateability Standard
ANSI/TIA-604-5-D	Fiber Optic Connector Intermateability Standard, Type MPO
ANSI/TIA-604-10-B	FOCIS 10B Fiber Optic Connector Intermateability Standard Type LC
ANSI/TIA-606-B	Administrative Standard for Commercial Telecommunications Infrastructure
ANSI/TIA-607-B-2011	Generic Telecommunications Bonding and Grounding (Earthing) for Customer Premises
ANSI/TIA-758-B-2012	Customer Owned Outside Plant Telecommunications Infrastructure Standard
ANSI/TIA-862-A-2011	Building Automation Systems Cabling Standard
ANSI/TIA-942-2005	Telecommunications Infrastructure Standard for Data Centres
ANSI/TIA-1005-2009	Telecommunications Infrastructure Standard for Industrial Premises

ANSI/TIA-1152-2009	Requirements for Field Test Instruments and Measurements for Balanced Twisted-Pair Cabling
ANSI/BICSI-002-2011	Data Centre Design and Implementation Best Practices
ANSI/ICEA S-83-596	Fibre Optic Premises Distribution Cable
ANSI/ICEA S-83-640	Fibre Optic Outside Plant Communications Cable
ANSI/IEEE-110-1992	Powering and Grounding Sensitive Electronic Equipment.
ANSI/NECA/BICSI 568-2006	Standard for Installing Commercial Building Telecommunications Cabling
ANSI/NECA/BICSI-568	Standard for Installing Commercial Building Telecommunications Cabling
ANSI/NFPA 70	National Electrical Code.
ANSI/NFPA 70-1987	Standard for Paging Punch Block and Cable Sizing Requirements
ANSI Z136.2	American Standards for the Safe Operation of Fiber Optic Communications Systems Utilizing Laser Diode and LED Sources
BICSI	Network Design Reference Manual, 7 th Edition
BICSI	Network Systems and Commissioning (NSC) Reference, 1 st Edition
BICSI AVDRM	AV Design Reference Manual, 1 st Edition
BICSI DCDI	Data Center Design and Implementation Best Practices
BICSI ESS	Electronic Safety and Security Design Reference Manual, 2 nd Edition
BICSI ITSI	Information Transport Systems Installation Methods Manual, 6 th Edition
BICSI OPDRM	Outside Plant Design Reference Manual, 5 th Edition
BICSI WDRM	Wireless Design Reference Manual, 3 rd Edition
BICSI TCIM	Telecommunications Cabling Installation Manual

BICSI TDMM	Telecommunications Distribution Methods Manual, 12 th Edition
CISCA	Recommended Test Procedures for Access Floors
CSA C22.1	Canadian Electric Code Part 1 Ontario Hydro Electric Safety Code
CSA C22.2 No. 182.4-M90	Plugs, Receptacles, and Connectors for Communications Systems
CSA C22.2 No. 214-94	Communications Cables
CSA C22.2 No. 232-M	Fibre Optic Cables
ICEA S 104 696	Insulated Cable Engineers Association
IEEE Std. 446	Recommended Practice for Emergency and Standby Power Systems for Industrial and Commercial Applications
IEEE Std. 1100	Recommended Practice for Powering and Grounding Electronic Equipment
NECA/BICSI 607-2011	Standard for Telecommunications Bonding and Grounding Planning and Installation Methods for Commercial Buildings
NFPA-75	Protection of Electronic Computer Data Processing Equipment.
NFPA-297	Guide on Principles and Practices for Communication Systems.
NRC-CNRC	National Building Code of Canada
(RUS) 7 CFR 1755.900	Rural Utilities Service
TIA TSB-155-A-2006	Guidelines for the Assessment and Mitigation of Installed Category 6 Cabling to Support 10BASE-T
TIA TSB-162-2006	Telecommunications Cabling Guidelines for Wireless Access Points
TIA TSB-184-2009	Guidelines for Supporting Power Delivery Over Balanced Twisted-Pair Cabling
TIA TSB-185-2009	Environmental Classification (MICE) Tutorial
TIA TSB-190-2011	Guidelines on Shared Pathways and Shared Sheaths

5.0 TELECOMMUNICATIONS DESIGN GUIDELINES

5.1 DESIGN DELIVERABLES

5.1.1 Programming;

With specific input from Information Communication Technologies, generate outlet schedule based on functional use summary of the needs/program statement.

- Provide preliminary area requirements for entrance facility and telecommunication rooms.
- Identify extent of site work necessary to bring services to building.
- Provide \$/sq.ft. budgetary number.
- Where wireless networks are to be the primary connection to the network, either a Sheridan IT person or an independent consultant with demonstrated expertise in wireless systems shall be commissioned to provide access point layout, equipment selection and input on other construction methods that may affect wireless transmissions.

5.1.2 Schematic Design:

Concept Sketches showing preliminary telecommunications rooms and sizes and zone plan showing areas served by rooms.

- Preliminary backbone riser diagrams showing interrelationships
- Concept sketch showing major pathways for backbone and horizontal cabling

5.1.3 Design Development:

Preliminary drawings identifying device layouts for typical spaces

- Preliminary drawing showing main cable tray layouts
- Preliminary drawing showing communication backbone riser.
- Preliminary drawing showing communication grounding riser.

5.1.4 Construction Documents:

Identify all device locations on scaled plan drawings

- Identify outlet configurations by unique symbol and/or schedule
- Identify all intended pathways and raceways for horizontal and backbone cable.
- Provide enlarged telecommunications room plans indicating placement of racks, cable runway, wall-mounted systems, and ground bus locations.
- Provide rack elevations indicating all patch panel placement, cable management, structural supports, ground connections and space allocated for owner provided network electronics and any owner supplied UPS/power conditioners.

- Provide backboard elevations indicating space allocated for wall fields, equipment, etc.
- Indicate location and provide details for all grounding apparatus.
- Provide CSI format specifications for cable, connectors, cable management hardware, etc.

5.1.5 Construction:

Review shop drawings for cable, connectors, and hardware for:

- Administration compliance with project specifications and Sheridan Institute of Technology & Advanced Learning requirements
- Make periodic construction visits to observe the installation for conformance to project specifications and proper installation practices.
- Perform final punch list including follow-up to verify punch list items have been completed.

5.1.6 Prequalified Manufacturer/Vendor:

Sheridan Institute of Technology & Advanced Learning has mandated that only Belden/CDT shall be an acceptable manufacturer. Any other bid submissions or alternates for cost savings shall not be viewed and any such submissions shall disqualify the bidder. Any bidding Contractor must be a CSV in good standing with Belden/CDT. A copy of certification is required with every bid submission.

5.1.7 Prequalified Contractors:

Sheridan Institute of Technology & Advanced Learning has mandated that only the following Contractors shall be invited to the bid. Any alternates or sub-contract work is not acceptable. The list is closed at:

- Cable Assembly Systems Limited.
4 Sharp Road, P.O. Box 607
Brantford, ON N3T 5P9
Tel: 519-759-4401
Fax: 519-759-4931
- CaTech Systems Limited
201 Whitehall Drive, Unit 4
Markham, ON L3R 9Y3
Tel: 905-944-0000
Fax: 905-944-4844

- The State Group Inc.
3206 Orlando Drive.
Mississauga, ON L4V 1R5
Tel: 905-293-07419
Fax: 905-293-7548

5.2 FINAL DOCUMENTATION DELIVERABLES:

5.2.1 Testing and Documentation:

Testing Criteria:

- Comply minimally with EIA/TIA testing requirements
- Provide certification from manufacturer.
- Testing shall demonstrate compliance with manufacturer's stated performance.

Documentation:

- Provide warranty certificate upon completion.
- Provide hard copy of summary test results.
- Provide bound hardcopy of test results (ONLY for fewer than 25 drops).
- Provide electronic copy of both summary and test results (for all jobs)

As-builts:

- The Cabling Contractor is required to provide as-built drawing(s) of the cable installation. It shall include all horizontal cabling required to service the space as defined on the drawings.
- The as-built drawing(s) shall include all additional cables (i.e. change notices) installed during the project.
- The as-built drawings shall reflect all termination locations, labeling, elevation detail of final rack layout for horizontal cabling (digital photos are acceptable), elevation details of backboards (digital photos are acceptable), and all cabletray and support structure routing.
- Upon completion of the installation the Cabling Contractor shall provide eight (8) copies of the as-built drawing(s) to the Client. As-built drawings must be forwarded to Client's office **within 5 business days** of the completion of the

project. An additional copy of the as-built drawing is to be posted on the wall in the main distribution rooms

- All changes to drawings shall be engineer drafted standards.

5.2.2 Package Requirements:

Communications Contractor must provide 5 burned CD's with the following information:

- UTP Test Results in Microsoft Excel format or in a format that is easily interpreted by any text reader (i.e. '.txt' extension). DO NOT submit paper test results for projects greater than 25 drops. Testing requirements are outlined further in this document.
- Fibre Test results in Microsoft Excel format or in a format that is easily interpreted by any text reader (i.e. '.txt' extension). DO NOT submit paper test results for projects greater than 25 drops. Testing requirements are outlined further in this document.
- Digital pictures in '.jpg' or '.gif' format. Pictures shall include all relevant information such as top/bottom picture of all racks and cabinets (both front and rear), backboard elevations of all main backboards, all secondary backboards and all riser backboards that are utilized, as well as consolidation points (if applicable).
- Enough room shall be left on the CD for Client to burn as-built drawings onto them.

5.2.3 Warranty and Certification Requirements

- The manufacturer is required to provide minimum 20-year parts and labour Warranty for the entire Structured Cabling Platform, including both UTP copper and fibre. Response time for Warranty items is to be 24 hours. The Cabling Contractor may be required to repair deficient cabling system components outside regular working hours. Bidders are to include a statement of Warranty terms and conditions with their response.
- The Warranty for the Performance Cabling must be such that the cable meets or exceeds the requirements of EIA/TIA-568-A and EIA/TIA-568-A-5 'Transmission Performance Specifications for 100 Ohm 4-pair Category Cabling' including all Standards stated in this Contract.

- If a Warranty issue arises for the cabling the Warrantor must make arrangements to undertake the repair or replacement of Warranty issues within 24 hours of notification. This may require the repair/replace of cabling components outside regular working hours. Bidders are to include a statement of Warranty terms and conditions with their response.

- The Cabling Contractor shall forward the Structured Cabling Platform certification request form(s) to the proper authority and ensure that a Plaque or Certificate is issued to the Project Manager along with the Structured Cabling Platform user manual. The successful bidder will provide a certification number within two weeks of award of this project. Please note that the Plaque/Certificate must have the Project Managers Client name on the Plaque/Certificate.

- The Cabling Contractor will provide letter(s) of Certification within two weeks of substantial completion of the project to the Communications Consultant. This document will include the following: verification of the performance of the installed system, identification of the installation by location and project number and a copy of the Warranty.

- Upon award of contract, the Cabling Contractor shall forward copies of the Structured Cabling Platform certification request for Certification form complete with certification number(s) for the project to Communications Consultants office within 7 days of the award of contract. Provide a copy of the form with Specification submission.

- Upon request and at no additional cost to the Project Manager the Cabling Contractor must provide a manufacturer's technical representative to conduct an on-site visit to ensure complete technical compliance.

- The Cabling Contractor must ensure that a Warranty plaque and letter of certification is issued to the Project Managers Client along with a user manual for the Warranty. The letter must be issued within 2 weeks of substantial completion of the project. This document will include the following: verification of the performance of the installed system, identification of the installation by location and project number and a copy of the Warranty to the Communications Consultant.

- The Cabling Contractor must supply a sample (at the time of bidding) of the Warranty including all related terms and conditions. This sample will be the standard to which the Warranty will be held. No changes will be accepted unless it is deemed to benefit the Project Managers Client. Any proposed changes to the Warranty must be submitted in writing to the Project

Manager/their representative for review. The changes will then be accepted or declined by the Project Authority at their discretion. This is to remain valid for the entire Warranty period.

6.0 SYSTEM AND PERFORMANCE:

6.1 Data System:

Designed to support 1Gbps Ethernet to the desktop over UTP copper cable.

- Intra-building backbone shall support 10Gbps Ethernet
- Inter-building backbone shall support DWDM (Dense Wave Division Multiplexing)

6.2 Voice System:

Specific design to be coordinated with Sheridan Institute of Technology & Advanced Learning Information Communication Technologies. Typically Sheridan College uses VoIP and all cable pulls terminate in the same patch panels.

6.3 Wireless Networks:

Specific design to be coordinated with Sheridan Institute of Technology & Advanced Learning Information Communication Technologies.

6.4 Paging Networks:

Specific design to be coordinated with Sheridan Institute of Technology & Advanced Learning Information Communication Technologies.

6.5 Audio Visual Networks:

Specific design to be coordinated with Sheridan Institute of Technology & Advanced Learning Audio Visual Department.

6.6 Security Networks:

Specific design to be coordinated with Sheridan Institute of Technology & Advanced Learning Security Department.

7.0 SITE AND SERVICE CONSIDERATIONS

7.1 CABLE PATHWAYS

7.1.1 Entrance Cable Pathways:

It is strongly recommended that diverse entrances including multiple conduits from multiple carriers are established at Sheridan Institute of Technology and Advanced Learning Campus Locations. For existing buildings with existing carrier entrance facilities it is strongly recommended that a diverse carrier method be established to eliminate single point of failure.

For buildings with existing carrier entrance facilities where Sheridan Institute of Technology and Advanced Learning is not the sole building tenant, it is strongly recommended that diverse conduit pathways be established between the existing entrance facility and Sheridan Institute of Technology and Advanced Learning main communications room.

Typically, provide minimum of two (2) banks of three (3) 4" (100mm) conduits from nearest telecommunications manhole, tunnel, etc. into service entrance facility. The quantity /size of conduits can vary depending on project requirements. These can be defined on a project-to-project basis. It is also encouraged that the service provider be pressed to extend the demarcation directly to the Sheridan Institute of Technology and Advanced Learning's main communications room.

- Provide three 1 ¼" inner ducts in one of the service entrance conduits.
- Coordinate with Information Communication Technologies for further definition of design requirements.
- Minimum of 1 240V dedicated circuit.
- Minimum of 1 120V dedicated circuit.

REFERENCE FIGURE 01 – INCOMING CONDUIT BANK

7.1.2 Inter-Building Cable Pathways:

It is strongly recommended that two diverse cable pathways between Sheridan Institute of Technology and Advanced Learning occupied buildings be established. These pathways should be physically separated from each other as much as it is practical to prevent a single disaster from affecting both pathways.

Where the intra-building cable pathways enter each building a Sheridan Institute of Technology and Advanced Learning controlled building entrance room is required, as electrical protection devices need to be installed as close to the point of entry as possible. A telecommunications grounding busbar should be located within this room.

Sizes and quantities of intra-building conduit depend on the individual requirements of each project.

REFERENCE FIGURE 02 – CAMPUS ENVIRONMENT

7.1.3 Intra-Building Cable Pathways:

These pathways typically consist of conduit, sleeves and cable tray or ladder rack.

- Between Sheridan Institute of Technology and Advanced Learning Main Communications Room (MCR) and the Intermediate Distribution Frame (IDF) a.k.a. Communications Closet or Co-Locate Closet. There must be two (2) diverse cable pathways established. Typically these would be conduit paths. Quantity of conduits varies according to project requirements.
- Between two communications closets on the same floor there should be a cable pathway installed.
- Within a communications closet or main communications room that does not have raised floor, an overhead raceway is required. This raceway is typically ladder rack or cable tray.
- Sleeves or slots should be installed from the wall mounted telecommunications outlet boxes to above the access ceiling. Typically a 1-gang outlet box with a single faceplate is required for the wall mounted telecommunication outlet; with a minimum of one (1”) conduit stub-up. When utilizing Deco adapters, locations with more than 3 outlets at a single location must go to a 2-two gang outlet box with a dual faceplate and the minimum conduit size shall increase to 1-1/4”. If utilizing Belden/CDT cover plates, utilize 4-port cover over single gang box.
- In the offices, flexible conduit is required from the modular furniture feed point (either wall or floor) to the modular furniture. This pathway can be either flexible conduit, spiral wrap, split loom tubing, or loom tubing. It must be cut to length and cover the entire length of the exposed cable. It must be secured at both ends as not to expose cable when furniture is bumped or moved. The communications contractor typically installs this.
- In offices for case goods (non modular furniture), a typical 1-gang outlet can be utilized.
- Where case goods are utilized, and communications outlet is located behind furniture, communications contractor must label with a small, removable, coloured sticky dot on the ceiling directly above the location of the outlet.
- All empty conduits must have a pull string (or rope) installed with a minimum breaking tension of 200 lbs.
- All conduits must be reamed at both ends to avoid any sharp edges that may cut or damage cable being installed. Any conduit not de-burred must be reported immediately to the acting GC. Failure to do so will place onus on the communications contractor for any damaged cable.
- All conduits must be grounded as per local codes.

- Conduits may not be routed adjacent to hot water or steam lines or through areas where flammable materials are installed.
- Bends in the conduit are undesirable and must be kept to a minimum. The minimum inside bend radius permitted is six (6) times the inside diameter of the conduit for conduits smaller than two (2") inches. And ten (10) times the inside diameter of conduits larger than two (2") inches.
- Pull boxes must be installed when there are more than two (2) 90° bends in the conduit run, there is a reverse in the conduit run, or the run exceeds one hundred (100') feet.
- Conduits must be aligned on opposite ends of the pull box. Adjacent side (90°) stub ins on pull boxes are not permitted.
- Pull boxes must be in a strait section of conduit run and are not permitted to be used in lieu of a turn, bend, or corner.
- Pull boxes for communications should not be used for any other type of cabling (i.e. security, paging, sound masking).
- Pull boxes outside of Sheridan Institute of Technology and Advanced Learning spaces are undesirable and should be avoided.
- The preference for Sheridan Institute of Technology and Advanced Learning is to have all wiring closets stacked vertically for ease of cable pulls between floors. This is a recommendation and not a requirement.

7.1.4 Intra Building Pathway Requirements:

Backbone:

- Provide minimum of four (4) 4" sleeves through floors in stacked rooms. Cap any unused conduits. All populated conduits shall be fire stopped according to local codes.
- Where rooms are not stacked, provide minimum (4) 4" conduits continuous between rooms, or as required. Cap any unused conduits. All populated conduits shall be fire stopped according to local codes.
- Connect Communications Closets on same floor with a minimum of two (2) 4" conduits.
- Conduit between rooms shall have no more than (2) 90 degree bends without pull box. Pull boxes shall be sized per the amount of conduits.
- Sleeves shall consist of GRS conduit with bushings and stub above the floor a minimum of 4".
- Horizontal backbone routing shall only be through secure cabletray or 4" conduit. No substitutions shall be allowed.

REFERENCE FIGURE 03 – INTERFLOOR CORE REQUIREMENTS

7.1.4a Breakout Room Pathways Requirements:

Four (4) Person Breakout Room:

- Provide two (2) 1¼” conduits, one (1) from each 2-gang back box at wall locations on the two short walls of the room to the centre of the table location.
- At the wall, the conduit shall be bushed, reamed and left with a grommetted bushing as not to damage any future cabling being installed.
- At the table, the conduit shall be stubbed up a minimum of 12” from the slab. This conduit shall be bushed and reamed only not to leave sharp edges but otherwise left unfinished as it will be cut on site to accommodate specific requirements.
- Routing of conduit can be in slab or in conduit if located in ceiling space below.
- All penetrations must be fire-stopped according to code.

Six (6) Person Meeting Room:

- Provide two (2) 2” conduits, one (1) from each 2-gang back box at wall locations on the two short walls of the room to the centre of the table location.
- At the wall, the conduits shall be bushed, reamed and left with a grommetted bushing as not to damage any future cabling being installed.
- At the table, the conduits shall be stubbed up a minimum of 12” from the slab. These conduits shall be bushed and reamed only not to leave sharp edges but otherwise left unfinished as it will be cut on site to accommodate specific requirements.
- Routing of conduits can be in slab or in conduit if located in ceiling space below.
- All penetrations must be fire-stopped according to code.

Eight (8) Person Meeting Room:

- Provide two (2) 2” conduits, one (1) from each 2-gang back box at wall locations on the two short walls of the room to the centre of the table location.
- At the wall, the conduits shall be bushed, reamed and left with a grommetted bushing as not to damage any future cabling being installed.
- At the table, the conduits shall be stubbed up a minimum of 12” from the slab. These conduits shall be bushed and reamed only not to leave sharp edges but otherwise left unfinished as it will be cut on site to accommodate specific requirements.
- Routing of conduits can be in slab or in conduit if located in ceiling space below.
- All penetrations must be fire-stopped according to code.

Ten to Twelve (10-12) Person Meeting Room:

- Provide two (2) 2” conduits, one (1) from each 2-gang back box at wall locations on the two short walls of the room to the centre of the table location.
- At the wall, the conduits shall be bushed, reamed and left with a grommetted bushing as not to damage any future cabling being installed.
- At the table, the conduits shall be stubbed up a minimum of 12” from the slab. These conduits shall be bushed and reamed only not to leave sharp edges but otherwise left unfinished as it will be cut on site to accommodate specific requirements.
- Routing of conduits can be in slab or in conduit if located in ceiling space below.
- All penetrations must be fire-stopped according to code.

Fourteen Plus (14+) Person Meeting Room:

- Provide two (2) 2” conduits, one (1) from each 2-gang back box at wall locations on the two long walls and the wall where the television shall reside to the centre of the table location.
- At the wall, the conduits shall be bushed, reamed and left with a grommetted bushing as not to damage any future cabling being installed.
- At the table, the conduits shall be stubbed up a minimum of 12” from the slab. These conduits shall be bushed and reamed only not to leave sharp edges but otherwise left unfinished as it will be cut on site to accommodate specific requirements.
- Routing of conduits can be in slab or in conduit if located in ceiling space below.
- All penetrations must be fire-stopped according to code.

7.1.5 Minimum Fill Capacities:

- The following tables are to be referenced for all cable maximum fill ratios for communications cables routed through EMT conduit. If not referenced in tender specification, ownership of overfill recommendations and costs associated to remedy shall fall on the consultant and/or contractor.
- Please note that the conduit fill ratios do not apply to RMC, Inner duct, or Corlon style pathways. Consultant must reference internal diameter of these pathways and use the conduit fill formula listed below.
- Conduits under one (1”) are not allowed without written expression from Sheridan Institute of Technology and Advanced Learning IT Department.
- Keep in mind when designing and utilizing fill charts below that recommended fill ratios will vary depending on the number of cables. This easy fill table should always be referenced once number of cables are determined for a conduit run or drop location:

Number of Conductors	1	2	>2
Percentage Fill	53%	31%	40%

If you cannot find the corresponding table, please utilize the conduit fill formula:

$A_{\text{conduit}} \times (1 - 1 \times 0.4) / A_{\text{cable}}$, where $A = \pi \times d^2 / 4$

For 4-pair copper cabling please utilize the following tables:

4-pair Category 5E (typical cable O.D. 0.22")

Trade Size	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"
Inside ϕ	.824"	1.049"	1.380"	1.610"	2.067"	2.469"	3.068"	4.026"
Maximum	-	7	12	16	22	36	50	-

4-pair Category 6 (typical cable O.D. 0.24")

Trade Size	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"
Inside ϕ	.824"	1.049"	1.380"	1.610"	2.067"	2.469"	3.068"	4.026"
Maximum	-	6	10	15	20	30	40	-

4-pair Category 6A (typical cable O.D. 0.29")

Trade Size	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"
Inside ϕ	.824"	1.049"	1.380"	1.610"	2.067"	2.469"	3.068"	4.026"
Maximum	-	3	6	7	14	17	20	-

For multi pair Category 5 copper backbone cables please utilize the following tables:

25-pair Category 5 - (typical cable O.D. 0.39")

Trade Size	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"
Inside ϕ	.824"	1.049"	1.380"	1.610"	2.067"	2.469"	3.068"	4.026"
Maximum	-	1	2	3	6	8	12	24

50-pair Category 5 - (typical cable O.D. 0.58")

Trade Size	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"
Inside ϕ	.824"	1.049"	1.380"	1.610"	2.067"	2.469"	3.068"	4.026"
Maximum	-	-	1	1	3	3	6	12

100-pair Category 5 - (typical cable O.D. 0.78")

Trade Size	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"
Inside ϕ	.824"	1.049"	1.380"	1.610"	2.067"	2.469"	3.068"	4.026"
Maximum	-	-	-	1	2	3	6	7

For Fibre Optic Cables please utilize the following tables:

12 Strand Fibre Optic Cable (typical cable O.D. 0.25")

Trade Size	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"
Inside ϕ	.824"	1.049"	1.380"	1.610"	2.067"	2.469"	3.068"	4.026"
Maximum	-	5	9	14	18	27	36	-

24 Strand Fibre Optic Cable (typical cable O.D. 0.48")

Trade Size	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"
Inside ϕ	.824"	1.049"	1.380"	1.610"	2.067"	2.469"	3.068"	4.026"
Maximum	-	2	5	7	9	16	20	-

7.1.6 Horizontal, Accessible Ceiling Spaces:

- Provide cable trays for bundles of cable exceeding 24 cables.
- Provide J-Hooks for cable bundles of 24 and below.
- Route main cable runs through accessible corridor spaces and drop off into each room from the main runs.
- Do not route main cable trays or cable bundles through classrooms or offices.
- Maintain 18" minimum between cable tray fluorescent lighting.

7.1.7 Manholes & Handholes:

Provide additional manholes and/or hand holes to minimize cable pulls to 400', and two 90 degree bends.

- Where required, provide 4'w x 8'l x 4'd manholes
- Where required, provide 24"w x 42"d x 36"l "Quazite" hand holes. (locate hand holes in green space only)

7.1.8 Communications Cable Tray:

- It is mandatory that any new build or retrofit for cabletray be coordinated with all electrical and mechanical drawings and signed off for clear and unrestricted access for ease of use once installed. Minimum clearances around

cabletray must be maintained as well. (i.e. two (2') at the sides and one (1') above where possible).

- All cable trays shall be WBT PW (Pewter Powder Coated Finish) or BL (Black Powder Coated Finish) Series; or Sheridan Institute of Technology and Advanced Learning approved equivalent. WBT tray is made from documented recycled steel; it offers over 400% increase in cable support and 68% reduction in cabling pressure/strain over traditional round wire trays. It is a continuous, rigid, T-welded steel wire mesh cable management system with the following requirements:

REFERENCE FIGURE 04 – WBT MONOMESH TRAY

- Mesh system permits continuous ventilation of cables and maximum dissipation of heat.
- Wire mesh welded at all intersections.
- Wire Diameter: 0.197-inch (5mm) minimum on all mesh sections.
- All mesh sections must have at least one (1) bottom longitudinal wire along entire length.

UL Classification and CUL Listed:

- 2" deep straight sections in 6, 8, 12, 16, 18, 20 and 24 inch widths
- 4" deep straight sections in 6, 8, 12, 16, 18, 20 and 24 inch widths
- 6" deep straight sections in 8, 12, 16, 18, 20, 22, and 24 inch widths
- 8" deep straight sections in 8, 12, 16, 18, and 20" inch widths

Notes: Sheridan Institute of Technology and Advanced Learning preferences 2 and 4 inch depths and 8, 12, and 18 inch widths.

Specify pewter Powder Coated Finish or Black Powder Coated Finish. Stainless Steel (304L and 316S) is also available but Stainless steel wire is used primarily in corrosive environments and food processing facilities.

Stainless steel does not require additional surface treatment. Consult WBT representative for assistance in selecting finish for specific applications (if required).

Nominal Dimensions:

- Mesh: 2 x 4 inches (50 x 100 mm).
- Straight Section Length: 118 inches (3,000 mm).
- Non-Standard widths and depths are available upon request.

Notes: Refer to drawings for size requirements at various locations. Other sizes are only for reference and must be pre-approved for installation due to interference issues. They must also be installed in multiples to add up to the minimum width required on drawings.

Refer to drawings for sizes required

Fittings:

- Field fabricated, (in accordance with manufacturer's instructions), from straight sections.

Hardware:

- Hardware, including splice connectors and support components available from manufacturer.

Accessories:

- Covers: Solid covers, pre-galvanized steel, width to match tray.

Grounding:

- Grounding Clip is available for continuous ground of cable management system. [aluminum]
- Grounding of the Cabletray shall be the responsibility of the Communications Contractor.

Installation:

- Communications Contractor shall supply and install all required cable tray for horizontal distribution as outlined on drawings.
- All Cable trays and fittings shall conform to ANSI NFPA 70, Article 318- Cable Trays.
- Supply and install all sections of tray including required coupling/joining hardware, support and attachment hardware, and dropouts (waterfalls) where required.
- The radii on all fittings shall match tray width.
- The inside of the cable tray must be free of burrs, sharp edges, or projections, which can damage the cable insulation.
- Supply and install all required rods for support of cabletray structure. Cabletray shall be supported on trapeze clips and a support must be placed within 2 feet (600mm) on each side of any connection to a fitting.
- All metallic cable trays must be grounded. Clearly mark any tray that is used as an equipment grounding conductor, as specified in ANSI/NFPA 70, Section 318-3 (c).
- Communications Contractor must follow routing laid out on the Communications drawings for all cable tray in the computer room and on the floors.
- All cabletrays must be installed above bulkheads where possible.

7.1.9 Communications Cable Support - All Other Locations

- For bundles of up to 16 cables utilise Erico Part Number CAT12, UPC Number 33178 J-hook assemblies. All cabling shall be separated into separate bundles

on each side of the rod. There shall be a maximum of 2 hooks per rod. These are to be supplied and installed by Communications Contractor.

- For bundles between 16 and 24 cables utilise Erico Part Number CAT21, UPC Number 30015 J-hook assemblies. All cabling shall be separated into separate bundles on each side of the rod. There shall be a maximum of 2 hooks per rod. These are to be supplied and installed by Communications Contractor.
- All J-hooks shall be supported by Erico Cablecat UPC Number 30245, CATHBA Angled Hanger Bracket. These are to be supplied and installed by Communications Contractor.
- All horizontal cabling designated as floor monuments shall be routed through underslab conduits (supplied and installed by Div.16) and through the floor into floor boxes and furniture feed points (supplied and installed by Div.16).

REFERENCE FIGURE 05 – ERICO J-HOOK DETAIL

7.1.10 Grounding:

- Well-designed grounding systems reduce the risk of damage to telecommunications equipment from stray voltages. The communications grounding system shall be used for the communications ONLY. Bonding and grounding conductors shall be C.U.L listed for the purposes intended. All bonding conductors shall be insulated copper with green insulation.
- The minimum inside bend radius of a grounding conductor shall be eight (8) times the diameter of that conductor. Bonding conductors should not be placed in ferrous metal conduit.
- Telecommunications grounding for each room type shall be defined in that section.

REFERENCE FIGURE 06 – COPPER GROUNDING BUSBAR

7.1.11 Telecommunications Main Grounding Busbar:

- The telecommunications main grounding busbar (TMGB) is the dedicated extension of the building grounding system for telecommunications. It serves as the master ground bar or central point for the telecommunications grounding system. The TMGB shall be mounted in the main Sheridan Institute of Technology and Advanced Learning communications room of a building. The TMGB shall be connected to the building's service equipment power ground for the building with an insulated stranded cable at least 3/0 AWG in size. This conductor should be continuous in length (no splices) and as straight as possible. Each building shall have a telecommunications main grounding busbar.
- All telecommunications grounding busbars (one in each communications closet or co-location space) will connect to the telecommunications main grounding busbar via the telecommunications bonding busbar (TBB).
- This busbar must be sized to handle a minimum of thirty (30) connections and be 6mm thick and 100mm high. It shall be pre-drilled with standard NEMA spacing.

- The TMGB must be installed on two (2”) inch insulating spacers.
- All connections to the TMGB must be made using 2 hole lugs and silver epoxy. Connecting hardware must be at least 6mm copper or copper alloy and tin plated bolts and nuts.
- Do not route bonding backbone within 18” of electrical feeders.

7.1.12 Telecommunications Bonding Backbone:

- The telecommunications bonding backbone (TBB) connects the telecommunications main grounding busbar with each of the telecommunication grounding busbars. There will be one telecommunication grounding busbar in each telecommunication closet.
- The telecommunication bonding backbone shall be insulated stranded copper, 3/0 AWG in size.
- Splices should be kept to a minimum and where necessary should be located in accessible telecommunications spaces.
- Provide a 3/0 AWG insulated copper bonding backbone from the main ground bus in the service entrance facility (MDF) to the intermediate rooms (IDF) with 6 AWG jumper to TGB’s.

7.1.13 Telecommunications Grounding Busbar:

- One (1) telecommunications grounding busbar will be located in each telecommunications closet. See the communications closet section for more information.
- Bond all equipment, racks, cabinets, etc to ground busbar in each telecommunications room with 6 AWG insulated ground conductor.
- Minimum performance shall be 2ohms.

7.2 TELECOMMUNICATIONS ROOM FUNCTIONS:

7.2.1 Main Distribution Frame (MDF)

AKA: Main Cross Connect

Main Cross Connect will provide telecommunications services to a building or campus environment. It is a distribution frame on one part of which terminate the permanent outside lines entering the central office building and on another part of which terminate the subscriber line multiple cabling, trunk multiple cabling, etc.

- Provide minimum of one (10’ x 12’) MDF telecommunications room per building.
- This room is the connection point to all other building in a campus environment.
- This room is where all entrance protectors are located.
- The room is typically lined with plywood.
- This room is located on the exterior wall of the building closest to the Main Computer room facility in the campus environment.
- A grounding system must be provided as outlined in the grounding section.

7.2.2 Main Computer Room (MCR)

The Main Computer Room is the Central Location for all computer services in a campus environment and all other buildings in a campus environment shall connect to this room through their own MCC location.

Room sizes for MDF's, MCR's and IDF's listed in this document are for reference only. All consultants and contractors must adhere to architectural drawings for each project.

The Main Computer Room at larger facilities must be a minimum of 12' x 20' in size.

REFERENCE FIGURE 07 – 12' x 20' COMPUTER ROOM LAYOUT

The Main Computer Room at smaller facilities must be a minimum of 7' x 12' in size.

REFERENCE FIGURE 08 – 7' x 12' COMPUTER ROOM LAYOUT

The Main Computer Room at remote sites must be a minimum of 7' x 8' in size.

REFERENCE FIGURE 09 – 7' x 8' COMPUTER ROOM LAYOUT

7.2.2.1 Main Computer Room General:

- The Main Communication Room must be a maximum of 500' (horizontal and vertical run combined) from the furthest Communications Closet that the Room serves.
- In campus environments these Main Rooms serving the building may be further but distances must be defined to ensure fiber lengths are accurate.
- The Main Communications Room may not be located on the exterior of the building.
- The Main Communications Room may not have windows.
- Equipment racks within the room must have at least four (4') feet clearance in front and from a wall mounted cable termination field and three (3') feet on the rear and clearance from any other wall or obstruction.
- Entrance doors to the closet should swing inward still maximizing the usable space within the room.
- Entrance doors shall have direct access to hallways (i.e. never through a classroom, office or other building services utility rooms.

- Entrance doors shall not have any windows.
- Door and a half width shall be a minimum of 54" wide and 84" high. This shall comprise of two doors, one a full width 36" door and the other a ½ width 18" width door.
- There shall be no door sill in the entrance doorway.

- Doors should be fitted with automatic closers and have either card access or keypad access only.
- The closet shall not be adjacent to any washrooms, janitor's closets, or kitchen spaces. Generally, no plumbing piping, fixtures, or HVAC equipment that could produce leaks or where water may permeate into the room should be located within the confines of the communications closets.
- The closet shall not be directly below or adjacently below any of the rooms defined above.
- No water pipes except for sprinklers shall pass through the ceiling space of the communications closet.
- The Main Communications Room size will vary from campus to campus and sizes shall be defined by Sheridan Institute of Technology and Advanced Learning IT department. The minimum size for this room shall be twelve (12') feet by twenty (20') feet.
- Main Computer Room should be centrally located within the physical area that they serve.
- The Main Computer Room may be stacked with Communication closets wherever possible.
- Adjust room sizes accordingly for additional systems (video, security, access control, etc.)
- Main Computer Room shall feed all fibre and copper backbone to Communications Closets or Co-Locate Closets.

7.2.2.2 Main Computer Room Ceilings:

- Main Computer Room does not require, nor is it recommended that they have finished ceilings. Closets without finished ceilings must have fireproofing encapsulated to reduce dust in the room.
- The minimum clear ceiling height in the Main Computer Room is 9'-6" clear from the finished floor. The only suspended fixture permitted below the 9'-6" clear is the communications cable tray, should it be required. Heights and clearances for this are defined in this document.
- Sprinkler heads within the Main Computer Room should be provided with protective cages to prevent accidental operation.

REFERENCE FIGURE 10 – TYPICAL SPRINKLER CAGES

7.2.2.3 Main Computer Room Floors:

- Main Computer Room requires the installation of anti-static Vinyl Composite Tile (VCT).
- Floors should be level, free of high/low spots that would interfere with floor mounting bolts for equipment such as racks or cabinets.

7.2.2.4 Main Computer Room Walls

- Walls should be 'slab-to-slab' partitions to satisfy one (1) hour fire rating or as local code requires in achieving that one (1) hour fire rating.

- Each wall of the closet (facing accessible ceiling areas) shall have either sleeves or a framed slot installed above the general ceiling height to allow cable to enter the closet overhead, while making the installation of the fire stop materials possible once cabling is installed.

- One wall of the Main Computer Room will have a telecommunications plywood backboard. This shall be in sheets of 4'-0" x 8'-0" x 3/4" fire rated plywood stamped accordingly. The use and space on this backboard shall be reserved to backbone cabling, sound masking, or paging. All plywood shall be G1S, free of any imperfections and mounted good side out. If raising of backboard is required, it shall be done on wood 2" x 6" x 8'-0" studs mounted on 16" centers to create a vertical cable chase behind the plywood. Horizontal bracing or blocking is not allowed.
- On another, either adjacent or opposite wall there shall be a requirement for a security backboard. This shall be one (1) sheet of 4'-0" x 8'-0" x 3/4" fire rated plywood stamped accordingly. The use and space on this backboard shall be reserved for security cabling and/or building environmental controls as required. All plywood shall be G1S, free of any imperfections and mounted good side out. If raising of backboard is required, it shall be done on wood 2" x 6" x 8'-0" studs mounted on 16" centers to create a vertical cable chase behind the plywood. Horizontal bracing or blocking is not allowed.
- Drywall walls within the room are to be painted a light color to enhance room lighting.

7.2.2.5 Main Computer Room Heating, Cooling and Ventilation:

- The Main Computer Room will require 24/7 climate control.
- The air conditioning unit will maintain a positive pressure in the room with a minimum of one air change per hour.
- The air conditioning units shall be located outside the communications closet where possible and the air conditioned air shall be ducted into the closet.
- Room temperature shall be maintained at 18°C to 24°C.
- Air conditioning unit should be backed up by the emergency power generator where available but should not be on the UPS system.
- If air conditioning is inside room, all condensate pipes must be routed to a drain located outside the room.

7.2.2.6 Main Computer Room Power:

- Each Main Computer Room shall have a UPS supplied by Sheridan Institute of Technology and Advance Learning. All rack circuits and plugs shall be on building EPS (Emergency Power System) or Generator. The UPS panel will support equipment only and not lighting circuits or air conditioning equipment, as those should be on a panel backed up by the generator.
- Air Conditioning within any IT space should be backed up on building EPS or Generator.

- All electrical panels within the Main Computer Room should support power within the Main Computer Room only. There should be no panels mounted in the Main Computer Room that support any equipment/lighting outside of the closet.
- All active equipment in the Main Computer Room must be connected to building EPS (generator power) if it is available.
- There should only be one (1) utility electrical receptacle on each wall that does not have plywood on it or a door on it. These receptacles are not on the UPS panel and do not require generator back up.
- The Main Computer Room shall contain freestanding racks or cabinets that will require UPS power for LAN switches. If raised floor is installed in the facility, they can be under the raised floor. Type and quantity shall be defined for each project.
- UPS receptacles in the Main Computer Room should be identified as such to distinguish them from other receptacles.
- All receptacles reserved for power on the racks shall be mounted at the bottom, back of the rack at the right hand side (not on vertical cable management).

Power shall be located at the bottom of the racks on the right hand side as not to impede the mounting of equipment. It shall not impede the cable management.

REFERENCE FIGURE 11 – C.R. RACK CROSS SECTION

7.2.2.7 Main Computer Room Lighting:

- Lighting intensity within the Main Computer Room should be a minimum of 50 foot candles measured at three (3') feet above the finished floor. Additional lighting should be provided over the wall field termination plywood. Low ratio frequency emission fluorescent lighting should be used.
- Lighting should be powered from a separate power source than the critical network equipment. Lighting should be on back up generator power but not on UPS.
- Lighting should be located a minimum 12" from the front and rear of the rack as not to obstruct cabletrays and access to cabletrays. Lighting should be mounted a minimal 12" above the highest point on the cabletray.

7.2.2.8 Main Computer Room Grounding and Bonding:

- All Main Computer Room shall have a telecommunications grounding busbar (TGB). The TGB shall be 6mm thick and 5ohm high and sufficient width to accommodate fifteen (16) lugs. The TGB shall connect to the telecommunications bonding backbone (TBB) with a minimum 3/0 AWG copper cable. See grounding section of this document for more information on the telecommunication bonding backbone.
-
- All racks and cabinets including metal cable termination frames within the Main Computer Room shall have their frames individually (NOT serially)

connected to the telecommunication grounding busbar via a 6 AWG insulated copper grounding conductor.

- All conduit, ladder rack or cabletray in the Main Computer Room shall be bonded to the telecommunication grounding busbar via a 6 AWG insulated copper grounding conductor. The conduit and ladder rack or cabletray may be serially connected to the TGB. Grounding strips should be used to connect separate sections of ladder rack or cabletray to ensure continuity.
- Metallic cable sheath should be connected to the telecommunication grounding busbar using 14 AWG insulated copper conductors.
- Typically, the telecommunication grounding busbar will be mounted at the lower right corner of the plywood cable termination wall field. The bar should be mounted on insulated stand-offs as defined in the grounding section.

7.2.2.9 Main Computer Room Rack Requirements

- Middle Atlantic RL10-45 racks are made of 11-gauge steel and are 10-32 tapped to standard EIA spacing. They also come standard with U markings and rack screws. All racks can easily be ganged together with or without cable managers.
- Included, are provisions for bolting units to the floor and standard mounting widths are all available. Optionally, Power bars and cable managers are easily fitted to suit the end use.
- All racks shall be **black** only. Upon request, custom colors and sizes are available.
- Additional components shall be required including VDC10-45 10” vertical managers when ganging racks and VDC6-45 on each side. Vertical or zero U power bars will also be required but must be verified with each project.
- Standard Features Include:
 - Heavy gauge steel, Welded or knockdown
 - Universal EIA hole spacing
 - Various heights available
 - Only 19” mounting is required, with rack height of 45U
 - Ganging capabilities with or without vertical cable managers
 - Available tapped both sides
 - Optional heavy duty kits increase footprint to 36”

REFERENCE FIGURE 12 – RACK ELEVATION DETAIL A

REFERENCE FIGURE 13 – RACK ELEVATION DETAIL B

7.2.2.10 Main Computer Room Cabinet Requirements

- Middle Atlantic MRK-4436 cabinets are made with 11-gauge steel and have a static weight capacity of 10,000 lbs. They come with 10-32 tapped to standard EIA spacing. Additional rear Z rails are required
- The tops are configurable for any scenario.
- All cabinets shall be black only. Upon request, custom colors and sizes are available.
- Additional requirements for cabinets shall be defined for each individual project.

7.2.3 Intermediate Distribution Frame Type I (IDF I) AKA: Communications Closets

Communications Co-Locate Closets will provide the IT services to the general area in which the closet is located. Each floor of each Sheridan Institute of Technology and Advanced Learning occupied building must have at least one (1) communications closet or communications co-locate closet. Cabling serving offices, classrooms, other services on a particular floor must be terminated in a communications closet or communications co-locate on the same floor.

REFERENCE FIGURE 14 – 5' x 8' I.T. CLOSET

REFERENCE FIGURE 15 – 7' x 6' I.T. CLOSET

REFERENCE FIGURE 16 – I.T. CLOSET CROSS SECTION 'A'

REFERENCE FIGURE 17 – I.T. CLOSET CROSS SECTION 'B'

REFERENCE FIGURE 18 – 4.5' x 6' SHALLOW I.T. CLOSET

7.2.3.1 Communications Closet General:

- Each closet must be a maximum of 235' (horizontal run) from the furthest telecommunications outlet that the closet serves. The remaining 60' is reserved for vertical cable run and patch cords. Please note that these lengths are for cable distance, NOT drawing scale distance.
- Equipment racks within the room must have at least four (4') feet clearance from a wall mounted cable termination field and three (3') feet of clearance from any other wall or obstruction.
- Entrance doors to the closet should swing outward where possible maximizing the usable space within the room.
- Entrance doors shall have direct access to hallways (i.e. never through a classroom, office or other building services utility rooms.
- Entrance doors shall not have any windows.
- Door width shall be a minimum of 36" wide and 84" high.
- There shall be no door sill in the entrance doorway.
- Doors should be fitted with automatic closers and have either card access or keypad access only.

- The closet shall not be adjacent to any washrooms, janitor's closets, or kitchen spaces. Generally, no plumbing piping, fixtures, or HVAC equipment that could produce leaks or where water may permeate into the room should be located within the confines of the communications closets.
- The closet shall not be directly below or adjacently below any of the rooms defined above.
- No water pipes except for sprinklers shall pass through the ceiling space of the communications closet.
- The minimum closet size is 8'-0" x 10'-0" (80 sq. ft.). These are minimum width x length requirements (i.e. a room with 4'-0" x 20'-0" is not acceptable)
- Communications closets should be centrally located within the physical area that they serve.
- Stack rooms wherever possible.
- Provide one room for every 100 to 20,000 sq.ft. and less than 295 ft. in length of cable.
- Adjust room sizes accordingly for additional systems (video, security, access control, etc.)

7.2.3.2 Communications Closet Ceilings:

- Communications closets do not require, nor is it recommended that they have finished ceilings. Closets without finished ceilings must have fireproofing encapsulated to reduce dust in the room.
- The minimum clear ceiling height in the communications closet is 9'-6" clear from the finished floor. The only suspended fixture permitted below the 9'-6" clear is the communications cable tray, should it be required. Heights and clearances for this are defined in this document.
- Sprinkler heads within the room should be provided with protective cages to prevent accidental operation.

7.2.3.3 Communications Closet Floors:

- Communications closets require the installation of anti-static Vinyl Composite Tile (VCT).
- Floors should be level, free of high/low spots that would interfere with floor mounting bolts for equipment such as racks or cabinets.

7.2.3.4 Communications Closet Walls

- Walls should be 'slab-to-slab' partitions to satisfy one (1) hour fire rating or as local code requires in achieving that one (1) hour fire rating.
- Each wall of the closet (facing accessible ceiling areas) shall have either sleeves or a framed slot installed above the general ceiling height to allow cable to enter the closet overhead, while making the installation of the fire stop materials possible once cabling is installed.
- One wall of the Communications Closet will have a telecommunications plywood backboard. This shall be in sheets of 4'-0" x 8'-0" x 3/4" fire rated plywood stamped accordingly. The use and space on this backboard shall be reserved to backbone cabling, sound masking, or paging. All plywood shall be

G1S, free of any imperfections and mounted good side out. If raising of backboard is required, it shall be done on wood 2" x 6" x 8'-0" studs mounted on 16" centers to create a vertical cable chase behind the plywood. Horizontal bracing or blocking is not allowed.

- On another, either adjacent or opposite wall there shall be a requirement for a security backboard. This shall be one (1) sheet of 4'-0" x 8'-0" x 3/4" fire rated plywood stamped accordingly. The use and space on this backboard shall be reserved for security cabling and/or building environmental controls as required. All plywood shall be G1S, free of any imperfections and mounted good side out. If raising of backboard is required, it shall be done on wood 2" x 6" x 8'-0" studs mounted on 16" centers to create a vertical cable chase behind the plywood. Horizontal bracing or blocking is not allowed.
- Drywall walls within the room are to be painted a light color to enhance room lighting.

7.2.3.5 Communications Closet Heating, Cooling and Ventilation:

- All communications closets will require 24/7 climate control.
- The air conditioning unit will maintain a positive pressure in the room with a minimum of one air change per hour.
- The air conditioning units shall be located outside the communications closet where possible and the air conditioned air shall be ducted into the closet.
- Room temperature shall be maintained at 18°C to 24°C.
- Air conditioning unit should be backed up by the emergency power generator where available but should not be on the UPS system.
- If air conditioning is inside room, all condensate pipes must be routed outside the room.
- The relative humidity in the room must be kept at 40%

7.2.3.6 Communications Closet Power:

- Each communications closet shall have a UPS supplied by Sheridan Institute of Technology and Advance Learning. All rack circuits and plugs shall be on building EPS (Emergency Power System) or Generator. The UPS panel will support equipment only and not lighting circuits or air conditioning equipment, as those should be on a panel backed up by the generator.
- All electrical panels within the telecommunications closet should support power within the communications closet only. There should be no panels mounted in the closet that support any equipment/lighting outside of the closet.
- There should only be one (1) utility electrical receptacle on each wall that does not have plywood on it or a door on it. These receptacles are not on the UPS panel and do not require generator back up.
- The communications closet shall contain free standing racks or cabinets that will require UPS power for LAN switches. If raised floor is installed in the facility, they can be under the raised floor. Type and quantity shall be defined for each project.

- UPS receptacles in the room should be identified as such to distinguish them from other receptacles.
- All receptacles reserved for power on the racks shall be mounted at the bottom, back of the rack at the right hand side (not on vertical cable management).

7.2.3.7 Communications Closet Lighting:

- Lighting intensity within the room should be a minimum of 50 foot candles measured at three (3') feet above the finished floor. Additional lighting should be provided over the wall field termination plywood. Low ratio frequency emission fluorescent lighting should be used.
- Lighting should be powered from a separate power source than the critical network equipment. Lighting should be on back up generator power but not on UPS.
- Lighting should be located a minimum 12" from the front and rear of the rack as not to obstruct cabletrays and access to cabletrays. Lighting should be mounted a minimal 12" above the highest point on the cabletray.
- Lighting should not interfere, cross or be installed perpendicular to the cable tray within the room.

7.2.3.8 Communications Closet Grounding and Bonding:

- All telecommunications closets shall have a telecommunications grounding busbar (TGB). The TGB shall be 6mm thick and 50mm high and sufficient width to accommodate fifteen (16) lugs. The TGB shall connect to the telecommunications bonding backbone (TBB) with a minimum 3/0 AWG copper cable. See grounding section of this document for more information on the telecommunication bonding backbone.
- All racks and cabinets including metal cable termination frames within the closet shall have their frames individually (NOT serially) connected to the telecommunication grounding busbar via a 6 AWG insulated copper grounding conductor.
- All conduit, ladder rack or cabletray in the communications closet shall be bonded to the telecommunication grounding busbar via a 6 AWG insulated copper grounding conductor. The conduit and ladder rack or cabletray may be serially connected to the TGB. Grounding strips should be used to connect separate sections of ladder rack or cabletray to ensure continuity.
- Metallic cable sheathe should be connected to the telecommunication grounding busbar using 14 AWG insulated copper conductors.
- Typically, the telecommunication grounding busbar will be mounted at the lower right corner of the plywood cable termination wall field. The bar should be mounted on insulated stand-offs as defined in the grounding section.

7.2.3.9 Communications Closet Rack Requirements

- Middle Atlantic RL10-45 racks are made of 11-gauge steel and are 10-32 tapped to standard EIA spacing. They also come standard with U markings and rack screws. All racks can easily be ganged together with or without cable managers.

- Included, are provisions for bolting units to the floor and standard mounting widths are all available. Optionally, Power bars and cable managers are
- easily fitted to suit the end use.
- All racks shall be black only. Upon request, custom colors and sizes are available.
- Additional components shall be required including VDC10-45 10” vertical managers when ganging racks and VDC6-45 on each side. Vertical or zero U power bars will also be required but must be verified with each project.
- Standard Features Include:
 - Heavy gauge steel
 - Welded or knockdown
 - Universal EIA hole spacing
 - Various heights available
 - Only 19” mounting is required, with rack height of 44U
 - Ganging capabilities with or without vertical cable managers
 - Available tapped both sides
 - Optional heavy duty kits increase footprint to 36”

7.2.4 Intermediate Distribution Frame Type II (IDF II) AKA: Communications Co-Locate Closets

Communications co-locate closets will provide the IT services to the general area in which the closet is located. Each floor of each Sheridan Institute of Technology and Advanced Learning occupied building must have at least one (1) communications closet or communications co-locate closet. Cabling serving offices, classrooms, other services on a particular floor must be terminated in a communications closet or communications co-locate on the same floor.

7.2.4.1 Communications Co-Locate Closet General:

- Each co-locate closet must be a maximum of 235’ (horizontal run) from the furthest telecommunications outlet that the co-locate closet serves. The remaining 60’ is reserved for vertical cable run and patch cords. Please note that these lengths are for cable distance, NOT drawing scale distance.
- All co-locate closets will utilize four post, two section, front and rear lockable and vented cabinets.
- Equipment cabinets within the room must have at least four (4’) feet clearance from a wall mounted cable termination field and three (3’) feet of clearance from any other wall or obstruction.
- Entrance doors to the co-locate closet should swing inward where possible maximizing the usable space within the room.
- Entrance doors shall have direct access to hallways (i.e. never through a classroom, office or other building services utility rooms.
- Entrance doors shall not have any windows.
- Door width shall be a minimum of 36” wide and 84” high.
- There shall be no door sill in the entrance doorway.

- Doors should be fitted with automatic closers and have either card access or keypad access only.
- The co-locate closet shall not be adjacent to any washrooms, janitor's closets, or kitchen spaces. Generally, no plumbing piping, fixtures, or HVAC equipment that could produce leaks or where water may permeate into the room should be located within the confines of the co-locate closets.
- The co-locate closet shall not be directly below or adjacently below any of the rooms defined above.
- No water pipes except for sprinklers shall pass through the ceiling space of the co-locate closet.
- The minimum IT portion of the co-locate closet size is 8'-0" x 10'-0" (80 sq. ft.). These are minimum width x length requirements (i.e. a room with 4'-0" x 20'-0" is not acceptable)
- Co-locate closets should be centrally located within the physical area that they serve.
- Stack rooms wherever possible.
- Provide one co-locate closet for every 100 to 20,000 sq.ft. and less than 295 ft. in length of cable.
- Adjust room sizes accordingly for additional systems (video, security, access control, etc.)

7.2.4.2 Communications Co-Locate Closet Ceilings:

- Co-locate closets do not require, nor is it recommended that they have finished ceilings. Co-locate closets without finished ceilings must have fireproofing encapsulated to reduce dust in the room.
- If in row cooling is not being used at a co-locate closet, only then will a dropped T-bar ceiling be acceptable as a return air plenum.
- The minimum clear ceiling height in the communications closet is 9'-6" clear from the finished floor. The only suspended fixture permitted below the 9'-6" clear is the communications cable tray, should it be required. Heights and clearances for this are defined in this document.
- Sprinkler heads within the room should be provided with protective cages to prevent accidental operation.

7.2.4.3 Communications Co-Locate Closet Floors:

- Co-locate closets require the installation of anti-static Vinyl Composite Tile (VCT).
- Floors should be level, free of high/low spots that would interfere with floor mounting bolts for equipment such as racks or cabinets.

7.2.4.4 Communications Co-Locate Closet Walls

- Walls should be 'slab-to-slab' partitions to satisfy one (1) hour fire rating or as local code requires in achieving that one (1) hour fire rating.
- Each wall of the co-locate closet (facing accessible ceiling areas) shall have either sleeves or a framed slot installed above the general ceiling height to

allow cable to enter the closet overhead, while making the installation of the fire stop materials possible once cabling is installed.

- One wall of the co-locate closet will have a telecommunications plywood backboard. This shall be in sheets of 4'-0" x 8'-0" x 3/4" fire rated plywood stamped accordingly. The use and space on this backboard shall be reserved to backbone cabling, sound masking, or paging. All plywood shall be G1S, free of any imperfections and mounted good side out. If raising of backboard is required, it shall be done on wood 2" x 6" x 8'-0" studs mounted on 16" centers to create a vertical cable chase behind the plywood. Horizontal bracing or blocking is not allowed.
- On another, either adjacent or opposite wall there shall be a requirement for a security backboard. This shall be one (1) sheet of 4'-0" x 8'-0" x 3/4" fire rated plywood stamped accordingly. The use and space on this backboard shall be reserved for security cabling and/or building environmental controls as required. All plywood shall be G1S, free of any imperfections and mounted good side out. If raising of backboard is required, it shall be done on wood 2" x 6" x 8'-0" studs mounted on 16" centers to create a vertical cable chase behind the plywood. Horizontal bracing or blocking is not allowed.
- Drywall walls within the room are to be painted a light color to enhance room lighting.

7.2.4.5 Communications Co-Locate Closet Heating, Cooling and Ventilation:

- All co-locate closets will require 24/7 climate control.
- The air conditioning unit will maintain a positive pressure in the room with a minimum of one air change per hour.
- The air conditioning units shall be located outside the communications closet where possible and the air conditioned air shall be ducted into the closet.
- Room temperature shall be maintained at 18°C to 24°C.
- Air conditioning unit should be backed up by the emergency power generator where available but should not be on the UPS system.
- If air conditioning is inside room, all condensate pipes must be routed outside the room.
- The relative humidity in the room must be kept at 40%

7.2.4.6 Communications Co-Locate Closet Power:

- Each co-locate closet shall have a UPS supplied by Sheridan Institute of Technology and Advance Learning. All rack circuits and plugs shall be on building EPS (Emergency Power System) or Generator. The UPS panel will support equipment only and not lighting circuits or air conditioning equipment, as those should be on a panel backed up by the generator.

- All electrical panels within the co-locate closet should support power within the co-locate closet only. There should be no panels mounted in the closet that support any equipment/lighting outside of the closet.
- There should only be one (1) utility electrical receptacle on each wall that does not have plywood on it or a door on it. These receptacles are not on the UPS panel and do not require generator back up.
- The co-locate closet shall contain free standing cabinets that will require UPS power for LAN switches. If raised floor is installed in the facility, they can be under the raised floor. Type and quantity shall be defined for each project.
- UPS receptacles in the room should be identified as such to distinguish them from other receptacles.
- All receptacles reserved for power on the cabinets shall be mounted inside the IT section of the cabinet.

7.2.4.7 Communications Co-Locate Closet Lighting:

- Lighting intensity within the co-locate closet should be a minimum of 50 foot candles measured at three (3') feet above the finished floor. Additional lighting should be provided over the wall field termination plywood. Low ratio frequency emission fluorescent lighting should be used.
- Lighting should be powered from a separate power source than the critical network equipment. Lighting should be on back-up generator power but not on UPS.
- Lighting should be located a minimum 12" from the front and rear of the rack as not to obstruct cabletrays and access to cabletrays. Lighting should be mounted a minimal 12" above the highest point on the cabletray.
- Lighting should not interfere, cross or be installed perpendicular to the cable tray within the room.

7.2.4.8 Communications Co-Locate Closet Grounding and Bonding:

- All co-locate closets shall have a telecommunications grounding busbar (TGB). The TGB shall be 6mm thick and 50mm high and sufficient width to accommodate fifteen (16) lugs. The TGB shall connect to the telecommunications bonding backbone (TBB) with a minimum 3/0 AWG copper cable. See grounding section of this document for more information on the telecommunication bonding backbone.
- All cabinets including metal cable termination frames within the closet shall have their frames individually (NOT serially) connected to the telecommunication grounding busbar via a 6 AWG insulated copper grounding conductor.
- All conduit, ladder rack or cabletray in the communications closet shall be bonded to the telecommunication grounding busbar via a 6 AWG insulated copper grounding conductor. The conduit and ladder rack or cabletray may be serially connected to the TGB. Grounding strips should be used to connect separate sections of ladder rack or cabletray to ensure continuity.
- Metallic cable sheath should be connected to the telecommunication grounding busbar using 14 AWG insulated copper conductors.

- Typically, the telecommunication grounding busbar will be mounted at the lower right corner of the plywood cable termination wall field. The bar should be mounted on insulated stand-offs as defined in the grounding section.

7.2.4.9 Communications Co-Locate Closet Cabinet Requirements

- Middle Atlantic MRK-4436 cabinets are made with 11-gauge steel and have a static weight capacity of 10,000 lbs. They come with 10-32 tapped to standard EIA spacing. Additional rear Z rails are required
- The tops are configurable for any scenario.
- All cabinets shall be black only. Upon request, custom colors and sizes are available.
- Co-Locate cabinets must have lockable secured doors both front and rear.

8.0 ROOM FUNCTION:

All classrooms will receive a whiteboard. The sizes and number of whiteboards will vary depending on room size and function. Exact size will be defined by the consultant and/or contractor and supplied only by the successful communications contractor. Mounting heights and sizes are defined in the reference sketch.

REFERENCE FIGURE 19 – WHITEBOARD DETAILS

8.1 STANDARD CLASSROOM

Function: Standard classrooms are designed with seating for 48, 36 or 24 students. These students sit at desks that can be moved or reconfigured. The podium where all the teaching equipment will be held will also be re-locatable. There will be no dedicated AV cabling in these rooms, instead all Audio/Video/Control signals will be sent over the network using any of the data jacks in the floor monuments and received by the projectors or sound system using devices that are also connected to our network.

REFERENCE FIGURE 20 – STANDARD CLASSROOM

8.2 SPLIT CLASSROOM

Function: Split classrooms are paired side by side with a moveable wall separating the two of them. Individually, Split rooms are designed the same way as standard rooms. However when the moveable wall is opened the two rooms become one, thus making the podiums act differently. One podium will act as the “master” and be able to take control of the Audio Visual equipment in both rooms. The other podium becomes the “slave” and can no longer control any of the equipment in either room. There will be no whiteboards or projectors mounted onto the moveable wall.

REFERENCE FIGURE 21 – SPLIT CLASSROOM

8.3 MEETING ROOMS

Function: Meeting rooms accommodate up to 14+ people at rectangular or wedge-shaped tables located in the center of the room. These rooms are similar to the group study rooms where the technology is used for presentation purposes but also may be used for video conferencing. These rooms are equipped with a minimum of one LCD screen mounted on the wall near the end of the table. The control device shall be mounted in or on the table to give the users the capability to control and display the LCD. All AV cabling for this room will run from the LCD to the table, so that there is easy access to display any laptop/tablet on the screen.

REFERENCE FIGURE 22 – 4-6 PERSON BREAKOUT ROOM

REFERENCE FIGURE 23 – 8 PERSON BREAKOUT ROOM

REFERENCE FIGURE 24 – 10-12 PERSON BREAKOUT ROOM

REFERENCE FIGURE 25 – 14+ PERSON BREAKOUT ROOM

8.4 LABS

Function: Labs accommodate multiple groups of students at lab style desks in rows. The number of students will depend on the size of the Lab. Depending on function of the lab, these desks may accommodate between two (2) and four (4) students each and not necessarily facing the front of the class. Labs are specialized classrooms. They are set up like a standard classroom but will have to accommodate specialized equipment on a case by case basis. They should include all the base functionality of a classroom with special needs layered on top.

REFERENCE FIGURE 26 – LAB

8.5 BREAKOUT/GROUP STUDY ROOMS

Function: These rooms are designed to allow a small group of students to meet and work collaboratively at a peninsula-style table that is connected to one of the walls. These rooms are equipped with an LCD screen on the opposite wall of the desk for presenting, as well as a wall jack and control device on the same wall to give the students the capability to control and display a laptop/tablet.

REFERENCE FIGURE 27 – BREAKOUT/GROUP STUDY ROOM

8.6 LECTURE HALLS

Function: Auditoriums and lecture halls are intended for large class sizes or special events. These rooms will have tiered seating and state of the art technology. Long throw projectors will be needed to allow for a large bright image to be displayed. All AV equipment will be stored in an AV room located in the back of the auditorium or in the podium at the front of the room.

REFERENCE FIGURE 28 – LECTURE HALL

REFERENCE FIGURE 29 – LECTURE HALL DETAILS

8.7 ADMINISTRATION OFFICES

Function: The need for AV in office spaces is the same as open or public spaces. Strategically placed LCDs are installed for digital signage purposes. The sizes of screens and placement height will vary throughout.

8.8 PUBLIC SPACES

Function: The need for AV in public spaces is very minimal at the college. Usually this only entails strategically placed LCDs around the campus for digital signage use. The sizes of screens and placement height will vary throughout.

8.9 PLUG CONFIGURATIONS

Plug configuration will vary throughout the Sheridan spaces. They are listed below with requirements for each one.

REFERENCE FIGURE 30 – OUTLET TYPES

Type A – Convenience Location

- 2-gang back box and cover plate (by Division 16)
- 1/2" conduit for electrical wiring
- 1" conduit to ceiling space for communications wiring
- Internal barrier between electrical and communications
- One (1) 15A duplex receptacle
- Two (2) Category 6 Modular outlets on Decora strap
- One (1) blank insert
- Mounted at 12" A.F.F.

REFERENCE FIGURE 31 – TYPE 'A'

Type B – Printer Location

- 2-gang back box and cover plate (by Division 16)
- 1/2" conduit for electrical wiring
- 1" conduit to ceiling space for communications wiring
- Internal barrier between electrical and communications
- One (1) 20A duplex receptacle
- One (1) Category 6 Modular outlet on Decora strap
- Two (2) blank inserts
- Mounted at 12" A.F.F.

REFERENCE FIGURE 31 – TYPE 'B'

Type C – Projector Location

- 2-gang back box and cover plate (by Division 16)
- 1" conduit for communications wiring
- Internal barrier between electrical and communications
- One (1) 15A duplex receptacle
- One (1) Category 6 Modular outlet on Decora strap
- Two (2) blank inserts
- Mounted at 111" A.F.F.

REFERENCE FIGURE 32 – TYPE ‘C’

Type D – Podium Location

3-gang back box and cover plate (by Division 16)
1” conduit for communications wiring
Internal barrier between electrical and communications
Two (2) 15A duplex receptacles
Two (2) Category 6 Modular outlets on Decora strap

- one of the 2 drops requires to be a purple jack.

One (1) blank inserts
Mounted in floor monument 6’ off each wall and/or centre of room as defined on classroom sketches

REFERENCE FIGURE 32 – TYPE ‘D’

Type E – Wireless Access Point Location

1-gang back box and cover plate (by Division 16)
One (1) Category 6 Modular outlet on Decora strap
Two (2) blank inserts
Mounted above finished ceiling

REFERENCE FIGURE 33 – TYPE ‘E’

Type F – Above Ceiling Outlet

3-gang back box and cover plate (by Division 16)
Internal barrier between electrical and communications
Two (2) 15A duplex receptacles
Three (3) Category 6 Modular outlets on Decora strap
Mounted above finished ceiling outside of classroom as defined on classroom sketches

REFERENCE FIGURE 33 – TYPE ‘F’

Type G – Wall Mount Phone Location

1-gang back box and cover plate (by Division 16)
1” conduit to ceiling space for communications wiring
One (1) Category 6 Modular outlets on Decora strap
Two (2) blank inserts
Mounted at 48” A.F.F.

REFERENCE FIGURE 34 – TYPE ‘G’

Type H – Lecture Capture Camera Location

2-gang back box and cover plate (by Division 16)
1/2” conduit for electrical wiring
1” conduit to ceiling space for communications wiring
Internal barrier between electrical and communications
One (1) 15A duplex receptacle
One (1) Category 6 Modular outlet on Decora strap
Two (2) blank inserts
Mounted at 12” under finished ceiling

REFERENCE FIGURE 34 – TYPE ‘H’

Type J – LCD Location

2-gang recessed back box and cover plate (by Division 16)
1/2” conduit for electrical wiring
1” conduit to ceiling space for communications wiring
Internal barrier between electrical and communications
One (1) 15A duplex receptacle
One (1) Category 6 Modular outlet on Decora strap
Two (2) blank inserts
Mounted at 72” A.F.F.

REFERENCE FIGURE 35 – TYPE ‘J’

Type K – Spider Mfg. PHA2 Table Location

PHA2 Spider box mounted in table
1” conduit for communications wiring
Internal barrier between electrical and communications
One (1) 15A duplex receptacle
Two (2) Category 6 Modular outlets on Decora strap
Four (4) blank inserts

REFERENCE FIGURE 35 – TYPE ‘K’

Type L – Under Table Surface Mount Location

3-gang surface mount box and cover plate (by Division 16)
1” conduit for communications wiring
Internal barrier between electrical and communications
Two (2) 15A duplex receptacles
Two (2) Category 6 Modular outlets on Decora strap
One (1) blank insert
Mounted to underside of table

REFERENCE FIGURE 36 – TYPE ‘L’

Type M – Podium Lecture Stand Location

3-gang back box and cover plate (by Division 16)
1/2” conduit to floor monument for electrical wiring
2” conduit to A/V Control Room for communications wiring
Internal barrier between electrical and communications
Two (2) 15A duplex receptacles
Three (3) Category 6 Modular outlets on Decora strap
Mounted inside podium

REFERENCE FIGURE 36 – TYPE ‘M’

Type N – Lecture Hall Projector Location

3-gang back box and cover plate (by Division 16)
1/2” conduit for electrical wiring
2” conduit A/V Control Room for communications wiring
Internal barrier between electrical and communications
Two (2) 15A duplex receptacles
Two (2) Category 6 Modular outlets on Decora strap
One (1) blank insert
Mounted above finished ceiling

REFERENCE FIGURE 37 – TYPE ‘N’

Type P – A/V Closet Location

4-gang back box and cover plate (by Division 16)
1/2” conduit for electrical wiring
Two (2) 1” conduits to ceiling space for communications wiring
Internal barrier between electrical and communications
Two (2) 15A duplex receptacle
Four (4) Category 6 Modular outlets on Decora strap
Two (2) blank inserts

REFERENCE FIGURE 37 – TYPE ‘P’

Type Q – Spider Mfg. PHA2 Table Location

PHA2 Spider box mounted in table
1” conduit for communications wiring
Internal barrier between electrical and communications
Two (2) 15A duplex receptacles
Four (4) Category 6 Modular outlets on Decora strap
Two (2) blank inserts

REFERENCE FIGURE 38 – TYPE ‘Q’

Type R – Spider Mfg. PHA2 Table Location

PHA2 Spider box mounted in table
2 @ 1” conduits for communications wiring
Internal barrier between electrical and communications
One (1) 15A duplex receptacles
Two (2) Category 6 Modular outlets on Decora strap
Two (2) blank inserts

REFERENCE FIGURE 38 – TYPE ‘R’

Type S – Wall Mount Clock Location

1-gang back box and cover plate (by Division 16)
1” conduit for communications wiring
One (1) Category 6 Modular outlets on Decora strap
Two (2) blank inserts
Mounted at 12” Above Door Frame at classroom entrance

REFERENCE FIGURE 39 – TYPE ‘S’

Type T – Sheridan TV Outlet

3-gang back box and cover plate (by Division 16)
1” conduit for communications wiring
Internal barrier between electrical and communications
Two (2) 15A duplex receptacles
Two(2) Category 6 Modular outlets on Decora strap
One (1) Blank insert
Mounted 108” A.F.F.
Locations will be defined during design phase

REFERENCE FIGURE 39 – TYPE ‘T’

9.0 INFRASTRUCTURE FOR I.T.

9.1 CABLING – FIBRE

All fibre optic related sketches will be in the format of cut sheets attached to the appendices this document.

9.1.1 Inter Building

- Minimum 24 strand 8.3/125 μ single mode fibre terminated on LC connectors (glass fiber as manufactured by corning, jacketed under Corning) between hub buildings
- Provide 30' slack loop in manhole.
- Provide 15' slack loop in telecommunications room.

9.1.1.1 Single Mode Fibres

- .1 Low-Water-Peak Single-Mode Fiber (SMF-28e®)
 - Primary Application: Industry standard fiber used to support campus and building backbone cabling systems comprising local area networks (LANs).
 - The cabled optical fiber shall support industry-standard multi-gigabit Fibre Channel physical interface specifications.
- .2 Outdoor Loose Tube (ALTOS®) All-Dielectric Gel-Free Cable, 2-288 Fibers
 - Outside plant cable for outdoor duct or aerial overlash installation.
 - Cable shall be Corning Cable Systems part number _____ U4-T41____ D20
- .3 Outdoor Loose Tube (ALTOS®) Armored Gel-Free Cable, 2-288 Fibers
 - Rugged outside plant cable for direct burial, outdoor duct or aerial overlash installation.
 - Cable shall be Corning Cable Systems part number _____ U C-T41____ D20.
- .4 Indoor/Outdoor Loose Tube (FREEDM®) Gel-Free Cable, 2-288 Fibers
 - Campus and building backbone in lieu of transitioning from unlisted cable to NEC listed cable
 - Cable shall be Corning Cable Systems part number _____ UF-T41____ D20.

9.1.1.2 Rack Mountable Hardware

- .1 Closet Connector Housing (CCH)
 - Provide interconnect or cross-connect capabilities between outside plant, riser or distribution cables, and the opto-electronics.
 - Housing shall be Corning Cable Systems Part number CCH-01U or CCH-02U or CCH-03U or CCH-04U, according to the required fiber capacity.
- .2 LANscape® Solutions Connector Panels
 - The panels are used with field-installable connectors or in applications where the pre-connectorized cables are routed directly from the equipment to the piece of interconnect hardware.
 - Housing shall be Corning Cable Systems Part number CCH-01U or CCH-02U or CCH-03U or CCH-04U, according to the required fiber capacity.
 - Panel part number shall be Corning Cable Systems CCH-CPXX-YY (where the XX is the fiber count and the YY is the adapter code). Example YY code is A9 --- LC Duplex for SM fiber.

9.1.1.3 Fiber Optic Connectors

- .1 No-Epoxy and No-Polish (Unicam)
 - LC UniCam® Standard Single-Mode Connector (duplex format required)
 - Rapid termination of interbuilding indoor/outdoor and outdoor optical fiber cables that contain single-mode optical fiber.
 - Single-Mode LC Connector shall be Corning Cable Systems part number 95-200-99.

9.1.1.4 Fiber Optic Cable Fan-Out Kits

- .1 Buffer Tube Fan-Out Kits
 - Indoor Buffer Tube Fan-Out Kits
 - Furcation of optical fiber stranded loose tube cables to terminate individual fibers with field-installable connectors.
 - Corning Cable Systems Buffer Tube Fan-Out Kit part numbers are the following:
 - i. FAN-BT25-06 Buffer-Tube Fan-Out Kit with (6) 25in color-coded tubes
 - ii. FAN-BT47-06 Buffer-Tube Fan-Out Kit with (6) 47in color-coded tubes
 - iii. FAN-BT25-12 Buffer-Tube Fan-Out Kit with (12) 25in color-coded tubes
 - iv. FAN-BT47-12 Buffer-Tube Fan-Out Kit with (12) 47in color-coded tubes

9.1.1.5 Single Mode Fiber Optic Patch Cords

.1 Single-mode 2-fibre Patch Cord

- Patch Cord connectors shall be measured for insertion loss with the following values for each connector: typical of 0.1 dB and a maximum of 0.3 dB dB and guaranteed reflectance of less than or equal to -55 dB for UPC. Manufacturer shall be ISO 9001 and TL 9000 registered. Connectors shall be single mode LC UPC. Connector ferrule material shall be ceramic. Optical fiber cable type shall be zipcord construction suitable for use in indoor spaces and shall contain a riser-rated or plenum-rated jacket. Patch Cord shall be constructed with reverse-pair positioning as per TIA TSB-125. Patch Cord shall contain single-mode fibers compliant with TIA/EIA 568-B.3 and applicable TIA/EIA-604 document. Patch Cord jacket color shall be yellow. Patch Cord shall be available in different lengths. Manufacturer shall manufacture both cable and connectors used to manufacture patch cord.
- Patch Cord shall be made by Corning Cable Systems with the following part number: 040402R5120xxxM, where 'xxx' is the length in metres.
- Required cords:
 - i. 110% coverage based on fibre count to room, where;
 - 80% are 5m in length
 - 30% are 10m in length

9.1.2 Intra Building

- Minimum 12 strand 50/125 μ multi-mode and 12 strand multimode (glass fiber as manufactured by corning, jacketed under Belden/CDT) between hub and endpoint buildings.
- Provide 15' slack loop in each telecommunications room.
- Single, composite cable is preferred.

9.1.2.1 Multimode Fiber

.1 Pretium™ 300 - 850 nm Laser-Optimized 50 μ m Multimode Fiber for 300 m @ 10GbE

- Industry-standard multimode fiber supports 10 Gb/s serial transmission for a guaranteed distance of 300 m using 850 nm VCSEL sources. Fiber supports current network requirements from 10 Mb/s to 622 Mb/s using LED-based protocols and enables cost-effective migration to laser-based protocols such as 10 Gigabit Ethernet, Gigabit Ethernet and 10 Gigabit Fibre Channel (10GFC). Bandwidth-intensive applications and congested backbone links requiring scalability are cost-effectively supported through premises intrabuilding and interbuilding optical fiber cable plant including local area networks (LANs), storage area networks (SANs) and data centers.

- The cabled optical fiber shall support industry-standard multi-gigabit Fibre Channel physical interface specifications.
- .2 Pretium™ 550 - 850 nm Laser-Optimized 50 µm Multimode Fiber for 550 m @ 10GbE
- Industry-standard multimode fiber supports 10 Gb/s serial transmission for a guaranteed distance of 550 m using 850 nm VCSEL sources. Fiber supports current network requirements from 10 Mb/s to 622 Mb/s using LED-based protocols and enables cost-effective migration to laser-based protocols such as 10 Gigabit Ethernet, Gigabit Ethernet and 10 Gigabit Fibre Channel (10GFC). Bandwidth-intensive applications and congested backbone links requiring scalability are cost-effectively supported through premises intrabuilding and interbuilding optical fiber cable plant including local area networks (LANs), storage area networks (SANs) and data centers.
 - The cabled optical fiber shall support industry-standard multi-gigabit Fibre Channel physical interface specifications.

9.1.2.2 EDGE Plug & Play

- .1 EDGE Universal Preconnectorized MTP Indoor Trunk Cable Assembly
- 12 fiber MTP® Connectors pre-terminated on both ends for termination into pre-assembled connector modules and/or MTP adapter panels
 - A representative part number shall be G7575xxyPNDDUzzzF, where “xx” is replaced with 12, 24, 36, 48, 96 or E4 (144) strand counts), “y” is replaced with “T” for OM3 50/125 or “Q” for OM4 50/125 and the length is designated in “yyy” feet.
- .2 EDGE Universal Preconnectorized MTP Indoor Trunk Cable Assembly
- 12 fiber MTP® Connectors pre-terminated on both ends for termination into pre-assembled connector modules and/or MTP adapter panels
 - A representative part number shall be G7575xxyPNDDUzzzF, where “xx” is replaced with 12, 24, 36, 48, 96 or E4 (144) strand counts), “y” is replaced with “T” for OM3 50/125 or “Q” for OM4 50/125 and the length is designated in “yyy” feet.

9.1.2.3 Modules

- .1 Low Loss Plug & Play Universal Systems Closet Connector Housing (CCH) Modules
- Low loss modular patching for Data Center environments where pair wise polarity is maintained by the design of the module and trunk cable assemblies used. Modules allow quick connector changes in the front plane without re-termination of the backbone cable. The low loss Universal modules are mated to both ends of a Universal Trunk Cable

Assembly completing a Corning Cable Systems Universal Wiring System where pair-wise polarity is ensured.

- Modules shall be Corning Cable Systems part number EDGE-UM12-05-93x, where “x” is replaced with “T” for OM3 or “Q” for OM4

9.1.2.3 Multi-mode Fibre Optic Patch Cords

.1 Low- Loss 850-nm Laser-Optimized 50/125 μm 2-Fiber Patch Cord

- Patch Cord connectors shall be measured for insertion loss with the following values for each connector: typical of 0.2 dB and maximum of 0.3 dB. Connector reflectance shall be less than or equal to -20 dB. Boot color shall be aqua. Manufacturer shall be ISO 9001 and TL 9000 registered. Connectors shall be multimode LC. Available optical fiber cable types shall be suitable for use in indoor spaces and be listed as OFNR. Patch Cord shall contain OM3 50/125 μm 850 nm laser-optimized, EMB multimode fiber and shall comply with TIA/EIA-568-B.3 and applicable TIA/EIA-604 document. Patch Cord jacket and connector color shall be aqua. The manufacturer shall have an in-depth knowledge, and more than 10 year history, of manufacturing optical fiber Patch Cords. Manufacturer shall manufacture both cable and connectors used to manufacture Patch Cord. Patch Cord shall be available in different lengths.
- Patch Cord shall be made by Corning Cable Systems with the following part number: 050502T5120xxxM, where ‘xxx’ is the length in metres
- Required cords:
 - i. 110% coverage based on fibre count to room, where;
 - 80% are 5m in length
 - 30% are 10m in length

9.2 CABLING – COPPER

All copper related sketches will be in the format of cut sheets attached to the appendices this document.

9.2.1 Horizontal Cabling

9.2.1.1 Category 6 (FT6) UTP cable. (refer to standard specifications)

- Terminate on patch panel on rack.
- Cable shall be white and jacks shall be blue.
- Provide cable and connectors only from Sheridan Institute of Technology & Advanced Learning preferred manufacturers (Belden/CDT). Alternates will not be acceptable.

9.2.1.2 Category 6 (FT6) UTP Patch Cord.

.1 GigaFlex PS6+ Modular Cord

- The GigaFlex PS6+ Modular Cords are 4-pair 23 AWG UTP modular cords designed for the use with the Belden IBDN Systems 2400 and 4800LX, providing bandwidths of 250 MHz and 500 MHz, respectfully. The GigaFlex PS6+ Modular Cords have been designed to provide mated-connection performance that exceeds the Category 6 requirements.
- The GigaFlex PS6+ Modular Cord's patented design, with a very small footprint, makes them fully compatible with any of the highest density hubs with RJ45 jack connections.
- Patch Cord shall be made by Belden/CDT with the following part number: AX3500xx, where 'xx' defines the length and colour.
- Required cords:
 - i. 130% coverage based on copper count to room, where;
 - 110% are 1'-0" in length, blue in colour
 - 20% are 7'-0" in length, black in colour

9.2.1.3 Multi-pair Category 5 (FT6) UTP cable (a.k.a. pigtails)

- Minimum 25-pair cable
- Terminate on plywood backboard on BIX frame at one end.
- Terminate on 1U 24-port patch panel on the rack at other end.
- Cable shall be gray and patch panel jacks shall be black.
- Design adequate slack loops in closets to relocate if racks move in future.
- Provide cable and connectors only from Sheridan Institute of Technology & Advanced Learning preferred manufacturers (Belden/CDT). Alternates will not be acceptable.
 - (1) Provide 1 patch cord per cable run.
 - (2) Ten (10'-0") foot cord for active end.
 - (3) Provide 1- pair cross-connect wire.
 - (4) Designate FT4/FT6 to meet code requirements.

9.3 REQUIREMENTS BASED ON ROOM FUNCTION

Rooms:

Please refer to individual room type detail sketches for drop counts and types.

General:

Unless noted otherwise, a typical outlet shall consist of (1) cable run unless otherwise specified.

- Every enclosed space shall be provided with a minimum of (1) cable run.

REFERENCE FIGURE 40 – VERTICAL CONDUIT REQUIREMENT

10.0 INFRASTRUCTURE FOR PAGING

All paging related sketches will be in the format of cut sheets attached to the appendices this document.

Related Sheridan Institute of Technology and Advanced Learning Guidelines

- Sheridan Institute of Technology and Advanced Learning Technical Guidelines.
- Tender Specification by Consultant related to current project.

Coordination Requirements

- Sheridan Institute of Technology and Advanced Learning Information Communication Technologies

Description

- This section covers requirements for Paging Control Systems. The Paging Control System is installed by successful contractor. General Requirements for this system for Consultants and Contractors will be provided by consultant.
- These guidelines provide reference to particular types, grades and models of products. In general, the references include both generic descriptions and specific product details. These references shall not be construed as a directive to sole-source products from any particular vendor except where this is specifically stated.
- Paging shall include the following:
 - .1 Telephone Access Modules
 - .2 Indoor Speakers
 - .3 Outdoor Speakers

10.1 EQUIPMENT

All equipment will be defined by Consultant, supplied and carried by Communications Contractor.

Main module to consist of a Viking FXI-1 universal paging interface. Features are listed below.

10.2 CABLING

All cabling for paging system is defined under speaker requirements. Any cabling required for network are defined in IT section of this document.

10.3 REQUIREMENTS BASED ON TELECOMMUNICATION ROOM FUNCTION

10.3.1 Main Computer Room

- Telephone Access Modules are designed to provide telephone access to most commonly available paging systems. Provides telephone and paging system connections, input and modular page port connector, as well as mode setting switches and adjustment control.
- All main paging modules shall be located in the main computer room where possible.
- The paging system must be connected to the PABX station port.
- The typical installation shall be a Viking FXI-1 with the following features:
 - a. Integrate your paging system with virtually any POTS, Centrex, Digital or IP phone system
 - b. Suppress background music during paging
 - c. Provides contact closure to activate paging system if not provided by the phone system
 - d. Add pre-announce tone to your paging system
 - e. Features
 - f. Select: FXO (loop start), FXS (ring trip) or paging port (VOX relay) interface mode
 - g. No power supply required in FXS interface mode
 - h. Up to 6 units can be powered from one adapter in the FXO or VOX mode
 - i. 26V DC talk battery for interfacing with FXO or unused phone system line input/trunk port
 - j. Floating 600 ohm paging output with volume control
 - k. Normally open or closed relay for external paging amp activation or interfacing the paging amp with an external background music source
 - l. 800 Hz pre-announce page tone (on/off)
 - m. Compatible with 24 to 48 volt FXS operation
 - n. Calling party control (CPC) detection for immediate disconnect
 - o. Busy signal detect disconnect
 - p. 2.5 to 5 second VOX silence disconnect timer
 - q. Programmable VOX trigger sensitivity
 - r. 16 or 36 second default disconnect timer
 - s. Screw terminal block connections
 - t. Wall mount housing: (2) #6x3/4 panhead screws included

10.3.2 Communications Hub Room

- Additional Viking FXI-1 can be installed in Hub Rooms but all main paging modules shall be located in the main computer room where possible.
- The paging system must be connected to the PABX station port.
- The typical installation shall be a Viking FXI-1

10.3.3 Co-Locate Hub Room

- Additional Viking FXI-1 can be installed in Co-locate Hub Rooms but all main paging modules shall be located in the main computer room where possible.
- The paging system must be connected to the PABX station port.
- The typical installation shall be a Viking FXI-1

10.4 REQUIREMENTS BASED ON LOCATION FUNCTION

10.4.1 Indoor Paging

2 conductor 16 AWG or 18AWG cable. (refer to standard specifications)

- Terminate on BIX frame located on the backboard.
- Provide cable and connectors only from Sheridan Institute of Technology & Advanced Learning preferred manufacturers (Belden/CDT). Alternates will not be acceptable.
- All intra building zones shall be wired back to a central location on a single floor closet regardless of number of floors in the building.
- ONLY split termination if maximum distance requirements are exceeded.

10.4.2 Outdoor Paging

Category 6 (FT6) UTP cable. (refer to standard specifications)

- Terminate on BIX frame located on the backboard.
- Provide cable and connectors only from Sheridan Institute of Technology & Advanced Learning preferred manufacturers (Belden/CDT). Alternates will not be acceptable.
- All outdoor paging cables shall be enclosed in minimum 1” EMT conduit entire length of run.
- All intra building zones shall be wired back to a central location on a single floor closet regardless of number of floors in the building.
- ONLY split termination if maximum distance requirements are exceeded.

10.4.3 Indoor Speakers

Typical requirements for indoor paging speakers shall consist of:

- Arnscoff part number A460K (speaker)
- Arnscoff part number SE40SB (enclosure)
- Arnscoff part number G70W (grill)
- Arnscoff part number A70-4 (transformer)

REFERENCE FIGURE 41 – INDOOR SPEAKERS

10.4.4 Outdoor Speakers

Typical requirements for outdoor paging speakers shall consist of:

- Bogen part number SPT15A

REFERENCE FIGURE 42 – INDOOR SPEAKERS

11.0 INFRASTRUCTURE FOR SECURITY

All Security related sketches will be provided by the security vendor on a project to project requirement.

Related Sheridan Institute of Technology and Advanced Learning Guidelines

- Sheridan Institute of Technology and Advanced Learning Technical Guidelines.
- Tender Specification by Consultant related to current project.

Coordination Requirements

- Sheridan Institute of Technology and Advanced Learning Electronic Systems and Secure Access (ESSA).

Description

- This section covers requirements for Access Control Systems. The Access Control System is installed by ESSA. General Requirements for this system for Consultants and Contractors will be provided by consultant.
- These guidelines provide reference to particular types, grades and models of products. In general, the references include both generic descriptions and specific product details. These references shall not be construed as a directive to sole-source products from any particular vendor except where this is specifically stated.
- IP based system that monitors both live and recorded events for security access shall include the following:
 - .1 IP cameras.
 - .2 Power transformers.
 - .3 Card Readers

11.1 EQUIPMENT

All equipment will be defined, supplied and carried by Sheridan Security, Parking & Emergency Preparedness.

11.2 CABLING

For all Security installations the following wiring specifications apply

- All cables runs must be free of breaks and splices
- Use only stranded conductor
- Multi-pair cables must have individually shielded pairs
- IP Cameras: PoE fed over FT6 PLENUM RATED CATEGORY 6 cable
- Interior PTZ housings: 1 pair #16 stranded copper shielded cable
- Exterior PTZ housings: 1 pair #12 stranded copper shielded cable
- RM-4 to controller: 3 pair individually shielded #18 stranded copper cable
- Relay (for lock) to Lock Power Supply: 1 pair #18 stranded copper cable

- Lock to RM-4: 2 pair individually shielded #18 stranded cable
- D.C. to RM-4: 2 pair #22 Stranded copper cable
- REX to RM-4: 2 pair #22 Stranded copper cable
- READER to RM-4: 6 conductor #22 shielded copper cable

11.3 REQUIREMENTS BASED ON TELECOMMUNICATION ROOM FUNCTION

11.3.1 Main Computer Room

11.3.2 Communications Hub Room

11.3.3 Co-Locate Hub Room

11.4 REQUIREMENTS BASED ON DOOR FUNCTION

11.4.1 Single Door

.1 Card Reader

- Install junction box with a ¾” conduit leading to RM-4
- Reader is to be placed on the wall adjacent to the knob. Not hinge side.
- Bottom of reader positioned between 38” and 40” above floor level
- Edge of reader positioned at least 2” from the door frame

.2 Electric Lock

- Install ¾”conduit to RM4 enclosure (Share with Reader conduit if on same wall)
- Commercial Grade
- ¾” keeper depth
- 12/24VDC operating range
- Fail Secure
- Built in LBM required (Latch Bolt Monitor)

.3 Door Contact

- Share conduit with REX module
- 1k DEOL (1k ohm Double end of line Normally Closed configuration)
- Tied in series with LBM
- Mounted on top of door frame not the side
- Center of D.C. must be drilled from 1.5” to 3.5” from edge of door (Latch side)
- Contact and Magnet must be lightly glue into place using silicone

- .4 Request to Exit
 - Install ¾” conduit from top of door frame (Latch Side) to RM-4 Enclosure
 - Mount REX to top edge of door frame on secure side
 - Should be mounted above door knob/handle
 - Aim REX to view 3’ away from the base of the door

- .5 RM-4 Door Control Module
 - Must be located within 10’ of door (suggested but can reach 20’-25’)
 - A separate relay (arm-1 or comparable) must be mounted with RM-4
 - Mount in ceiling above door (if drop tiles are available)
 - Mount above door on drywall (For locations with no nearby drop-tiles)
 - Secure in small steel enclosure (White 6”x8” KEYED Enclosure)
 - Conduits from Door Lock/Reader and REX/D.C lead into enclosure and a single conduit leads out back to main controller in closet.

11.4.2 Double Doors

Requirements match those of the Standard however some additions/modifications exist.

- .1 Card reader conditions reflect those of the double door

- .2 Electric Lock
 - Independent conduit for Lock is to be placed on the non-swing door
 - Transfer hinge must be installed to route power and status to lock
 - Conditions b.1. – b.vi. apply

**NOTE: for a.i. CONDUIT CANNOT BE SHARED WITH READER AS THEY NO LONGER SHARE the SAME WALL IN THIS SCENARIO*

- .3 Door Contact
 - Install door contact on both doors (Following conditions c.i. – c.vi)

- .4 Request to exit conditions reflect those of the Standard Door Requirements

- .5 RM-4 conditions reflect those of the Standard Door Requirements

12.0 INFRASTRUCTURE FOR AUDIO VISUAL

12.1 EQUIPMENT

The room will be equipped with a standard, easy-to-use instructor interface. The audio/video (A/V) system will be controlled by a control system with the control panel mounted on the instructor station. System parameters can be monitored, administered, and controlled over the campus network. The A/V equipment will be located in an equipment rack inside of the instructor station.

It is important for Sheridan Institute of Technology and Advanced Learning to implement a standard operating protocol so faculty can depend on a standard, familiar interface in each classroom.

The audio system (exact type to be determined by room requirements) will be designed to fit the room's environment with an appropriate speaker system (with instructor speech reinforcement as required). The program sources are the same as for the video system. Large classrooms and auditoriums will have audience microphone capability provided throughout the student seating area.

The room will incorporate speech reinforcement with a wired or wireless microphone included on an as-needed basis according to room requirements. A line-level audio output jack (RCA) will be available on the front of the equipment rack for interfacing hearing assist or other equipment.

12.2 CABLING

The room will be equipped with Gigabit Ethernet connectivity. The junction box for AV connectivity shall be a Panduit PZICEA and shall come with four data jacks and a 15A duplex receptacle mounted inside the housing as a minimum.

Wireless Access Points in the classroom shall provide 802.11b wireless networking capability.

12.3 DEVICES

12.3.1 Hardware Devices

All hardware devices shall be defined, supplied, and installed by others on a project to project basis.

12.3.2 I/O Connections

All I/O connections shall be defined, supplied, and installed by others on a project to project basis.

12.4 REQUIREMENTS BASED ON ROOM FUNCTION

12.4.1 General

12.4.1.1 Instructor Station

The room will be equipped with a special lectern/instructor stations and shall be specified by others on a case-by-case basis. These lectern/instructor stations shall be relocatable to any position in the room.

12.4.1.2 A/V Power Requirements

A 20A un-switched dedicated circuit shall be provided for the A/V system, with duplex outlets located in the cabling junction box and at a dedicated wall projector locations. A green wire ground shall be required on all new wall projector locations.

12.4.1.3 A/V Conduit Requirements

Access to wiring connections shall be at the cabling junction box.

12.4.1.4 Cabling Junction Box

The room will be equipped with a Panduit Ceiling Mounted Media Rack.

- Designed to accept up to 2 RU of active electronics as deep as 17.5" and up to 6 RU of standard 19" passive connectivity (PZICEA only)
- Designed to accept up to 8 RU standard 19" passive connectivity (PZICE only)
- Thermal management design optimizes air flow for improved heat dissipation; ideal for high heat load PoE enabled switch applications
- Mount in 2' x 2', 2' x 4', and 2' x 6' drop ceilings
- 50 pound door weight capacity
- Include doorplate, equipment mounting bracket, integrated horizontal cable slack manager
- AC power ready – receptacle not included (PZICEA only)
- Includes low decibel 60 CFM fan (PZICEA only)

12.4.1.5 Data Requirements

The room will be equipped with Gigabit Ethernet connectivity. The cabling junction box shall house four data jacks as a minimum.

12.4.1.6 Wireless Requirement

Wireless access points in each classroom shall provide wireless networking capability. A requirement for a minimum of four (4) wireless nodes in each classroom (1 per quadrant) shall be required.

12.4.1.7 Telephone

A wall-mounted campus phone, with restricted ringing and calling capabilities, shall be located near the instructor station at ADA recommended height. The main function of the phone shall be communication with the Classroom Support Hotline.

12.4.1.8 Audio System

The monaural audio system (exact type to be determined by room requirements) will be designed to fit the room's environment with an appropriate speaker system (with instructor speech reinforcement as required). The program sources are the same as for the video system. Large classrooms and auditoriums will have audience microphone capability provided throughout the student seating area.

The room will incorporate speech reinforcement with a wired or wireless lavalier microphone included on an as-needed basis according to room requirements. A line-level audio output jack (RCA) will be available on the front of the equipment rack for interfacing hearing assist or other equipment.

12.4.1.9 Control System

All functionality for the control system in standard classrooms shall be able to control Automated screens (where applicable), lighting, and blinds.

12.4.2 Large Classroom Supplemental Information

12.4.2.1 Projection Capability

Large classrooms, lecture halls, and auditoriums require additional Projection Capable Classroom technology infrastructure, which will be individually specified on a case-by-case basis. Requirements may include:

- Increased data connectivity/bandwidth
- Separate AV booth
- Additional AV equipment closets
- Dual projection systems
- Additional I/O modules and systems

- Additional internal future growth conduit
- Auto-tracking cameras
- Auto-balancing sound system
- Audience microphone locations
- Secondary instructor station(s)

12.4.2.2 Control System

The networking option will consist of an integrated controller located in the instructor station. An eight-button panel will be located on the instructor station. The control system will have an optional network connection to allow remote support from Classroom Technical Services. The following functions will be programmed into the system:

- Video projector power control
- Projector source selection
- Volume control
- Video mute
- Audio mute

A level of automation will be programmed into the system in order to simplify room operation for the user. In order to save video projector lamp life, the system will be programmed to shut down after a specified amount of time with no user activity. The room will also be programmed to prevent system operation after hours. The system operation can be controlled by day or by week at OCM-specified access times.

12.4.2.3 Monitoring Option

The networked control system option allows the OCM Classroom Support Hotline operator to monitor and troubleshoot the operating characteristics of the room technology and to assist the instructor with any problems. Remote control and operation of the room equipment is enabled to facilitate the remote resolution of problems during actual classroom teaching activity. The control systems communication protocols permit 24-hour monitoring of system parameters and enhance proactive problem solving to eliminate system down time. A software-based automated management program oversees the operating parameters of the classroom systems, sends repair and maintenance alerts, and allows monitoring and analysis of system operation.

12.4.2.4 Standard Classroom

- Whiteboards to be mounted 39" AFF to the bottom of the whiteboard.
- One duplex and 1 data jack located behind each projector wall locations.

- The noise criteria (NC) should be NC25 and Reverberation Time (RT) should be between 0.6 and 0.7 sec
- Walls between classrooms should be designed to STC-60 standard and walls between classrooms and washrooms should be designed to STC-50 standard.
- Ambient noise to the room should not exceed 25db
- Zoned lighting is needed to darken the area near the projectors to eliminate any fading of the projected image.
- Blackout blinds are needed to control the amount of ambient light coming into the room.
- All lighting and blinds should be controllable using low voltage relay device that our room controllers can connect too.
- All lighting shall be independently controlled from either a wall switch or at the lectern location (quasi 3-way functionality)

12.4.2.5 Split Classroom

- Whiteboards to be mounted 39" AFF to the bottom of the whiteboard.
- One duplex and 1 data jack located behind each projector wall locations.
- The noise criteria (NC) should be NC25 and Reverberation Time (RT) should be between 0.6 and 0.7 sec
- Walls between classrooms should be designed to STC-60 standard and walls between classrooms and washrooms should be designed to STC-50 standard.
- Ambient noise to the room should not exceed 25db
- Zoned lighting is needed to darken the area near the projectors to eliminate any fading of the projected image.
- Blackout blinds are needed to control the amount of ambient light coming into the room.
- All lighting and blinds should be controllable using low voltage relay device that our room controllers can connect too.
- All lighting shall be independently controlled from either a wall switch or at the lectern location (quasi 3-way functionality)

12.4.2.6 Meeting Rooms

- Blocking or reinforced walls are needed to support LCD TV.
- Two duplex and 2 data jacks located behind each LCD.
- All power and data behind LCD's will be recessed into the wall.
- One (1), Two (2) or Three (3) 2" RMC conduits are needed from wall locations to the meeting table. These are defined in each meeting room type.
- Depending on ceiling height all meeting room LCDs should be mounted 4' AFF to the bottom of the LCD

- System control touch panels should be mounted in the table for all meeting rooms.
- Data and Power to be delivered to Spider box at table. Reference to room size must be made for quantities.
- Data at ceiling location for Wireless Access Point. Reference to room size must be made for quantities.

12.4.2.7 Labs

Labs will be treated the same as standard classrooms and may require project specific requirements that will be provided if necessary.

12.4.2.8 Breakout/Group Study Rooms

- Blocking or reinforced walls are needed to support each LCD TV.
- Two duplex and 2 data jacks located behind each LCD.
- All power and data behind LCD's will be recessed into the wall.
- 2" RMC conduit is needed from LCD location to the other wall where input wall plate will be terminated. There should be a break in the conduit where the touch panel will be located above the table.
- Depending on ceiling height all group study LCDs should be mounted 4' AFF to the bottom of the LCD
- System control touch panels should be mounted 4' AFF

12.4.2.9 Auditoriums/Lecture Halls

- 2" RMC conduit is needed from podium location in front of room to AV room located at the back of the auditorium
- Blackout blinds are needed to be able to control the ambient light.
- Zoned lighting is needed to darken the area near the projectors to eliminate any fading of the projected image.
- The noise criteria (NC) should be NC25 and Reverberation Time (RT) should be between 0.6 and 0.7 sec

12.4.2.10 Administration Offices

- Blocking or reinforced walls are needed to support each LCD TV.
- Two duplex and 2 data jacks located behind each LCD.
- All power and data behind LCD's will be recessed into the wall.

12.4.2.11 Public Spaces

- Blocking or reinforced walls are needed to support each LCD TV.
- Two duplex and 2 data jacks located behind each LCD.
- All power and data behind LCD's will be recessed into the wall.

13.0 APPENDICES

13.1 LABELLING CONVENTIONS

13.1.1 Numbering Format:

The new numbering format is based on the CAN/CSA-T568-93 standard with minor adaptations for Sheridan's environment.

Format: [campus]-[tc designation]-[rack][panel position]-[jack position]

Detail:

[campus]

Single character value; range: A through Z.

Denotes the Campus.

Currently defined values would be:

- "D" for Davis Campus;
- "S" for Skills Training Centre;
- "T" for Trafalgar Campus;
- "M" for Mississauga Campus.

[tc designation]

Variable-length character value

Refer to [Telecommunication Closet Designations](#).

[rack]

Single character value; range: 1 through Z.

Each data rack in a TC will be assigned a unique value in the range.

[panel position]

Double-digit numeric value; range: 01 through 44.

Panel Position in rack identified by top of panel in rack in vertical units. Numbering begins at 01 closest to the floor. Refer to *Default TC Rack Layouts*.

[jack position]

Double-digit numeric value; range: 01 through 24 or 48.

This identifies the jack position within the panel based on manufacturer numbering. 1U panels will number 01 through 24, 2U panels 01 through 48, etc.

[daisy-chain] (for indoor paging speakers)

Double-digit alpha-numeric value; range: A-Z and 1-5.

This identifies the indoor speaker location based on the chain identifier (A) and the speaker in the chain (3). Both the BIX frame and speaker will have matching identifiers for easy recognition.

[home run] (for outdoor paging speakers)

Double-digit alpha-numeric value; range: labeled identical to closest outside door location. (i.e. P3 or D7).

This identifies the outdoor speaker location based on the closest exterior door with an existing tag. Both the BIX frame and speaker will have matching identifiers for easy recognition.

13.1.2 Label Configuration:

There are two allowable configurations for labels. In both cases, only 10 characters will be required in the jack labeling; the campus designation will be inferred and used in documentation only. However, the full 12 characters would be entered in the switch port description to ensure the jack has a unique reference across the entire network.

For the workstation end, a double line layout would be used to conserve space. The single line layout can be used on single jack faceplates where space permits.

Single Line:

[tc designation]-[rack]-[U-position]-[panel position]-[jack position]

Double Line:

[tc designation]-[rack]-[U-position]
[panel position]-[jack position]

There will be no need for jack labeling in the TC. There will be labels required for the rack and the vertical units, but since the patch panels come pre-numbered by the manufacturer, generated labels are not required.

Examples:

B103-134-26	This drop terminates in TC-B103, on the 1st rack, in the patch panel at 34U, in the 26th jack position. (label on faceplate)
SC112-1 42-44	This drop terminates in TC-SC112, on the 1st rack, in the patch panel at 42U, in the 44th jack position. (label on faceplate)
D-C205-125-06	This drop is at the Davis Campus, terminates in TC-C205, on the 1st rack, in the patch panel at 25U, in the 06th jack position. (port description field on switch)
BR-D7	Brampton Campus – Door Location, would reference an outdoor speaker at the Brampton campus near door B4.
T-A3	Trafalgar Campus - would reference a chain of speakers ‘A’ in this example, with the 3 rd speaker in the chain being identified.

14.0 DETAIL DRAWINGS

All Detail Drawings pages included herein are defined in the document. Page numbers are not included as the drawings themselves and number of drawings may be revised during periodic Master Document updates.

15.0 MANUFACTURER CUT SHEETS

All Manufacturer Cut Sheet pages included herein are NOT defined in the document; they are a simple reference only. Page numbers are not included as the manufacturers themselves and number of drawings may be revised during periodic Master Document updates.

Contractor shall be responsible to supply manufacturer cut sheets or catalogue technical papers for all recommended products to the Consultant and Client for approval prior to commencing the project.

The following pages are samples only for:

- Belden/CDT
- Corning
- WBT
- APC
- Middle Atlantic
- Viking
- Bogen
- Arnscoff

TECHNICAL AND ENVIRONMENTAL SPECIFICATIONS
CHARACTERISTICS & TECHNICAL PERFORMANCE

	Standard	Tarkett value
Type of product	-	Wall base
Length	-	4 ft (1.2 m), 100 ft (30.5 m), 120 ft (36.6 m)
Heat stability	ASTM F1514	$\Delta E \leq 8.0$
Total thickness	ASTM F386	0.125 " (3.18 mm)
Profile	-	Please refer to the product page.
Length per box	-	120 ft (36.58 m), 100 ft (30.48 m)
Pattern	-	Solid
Commercial warranty	-	2 year limited
Chemical Resistance	ASTM F925	Good
Light Stability	ASTM F1515	$\Delta E \leq 8.0$
Flammability	ASTM E648 (CRF)	Class 1 (≥ 0.45 W/cm ²)
Smoke Density	ASTM E662	< 450
Flame Spread/Smoke Density	ASTM E84	Class B < 450 smoke

SUSTAINABILITY, ENVIRONMENT & INDOOR AIR QUALITY

	Standard	Tarkett value
Total recycled content	-	14 %
ReStart®	-	Yes
Phthalate - free	-	Phthalate-free
Floorscore certified	-	Yes
Recycled Content - Production Waste	-	14 %

INTRODUCTION

These instructions are written as a guide to be used by professional installers when installing Tarkett products. These instructions, combined with our adhesives and flooring products, create a system. Utilizing this system will ease the installation process and provide the customer with a completed product that will perform to its intended purpose. Always visit www.tarkettna.com for the most current installation and maintenance instructions. Technical videos and tip sheets are also available. Contact Tarkett Technical Services at (800)-899-8916 with any questions.

HANDLING AND STORAGE

1. All Tarkett products must be stored in an indoor, climate controlled space and be protected from the elements. Temperature must be maintained between 65°F (18.3°C) and 85°F (29.4°C) with a relative humidity between 40% and 60%.
2. All cartons must be stored on a dry, flat, level surface. Cartons must be carefully stacked squarely on top of one another and never be stored on edge. Take caution not to over stack the cartons and never double stack pallets. Always protect carton corners from damage by tow-motors and other traffic.
3. Care must be taken not to stretch the wall base when removing it from the cartons or while unrolling the coils. **The wall base will not shrink, but it will relax to its original length, if stretched.** To assist with the installation process, coils should be unrolled and allowed to relax for a minimum of 24 hours prior to installation.
4. Tarkett flooring and adhesives must be site conditioned at room temperature for 48 hours prior to, during, and after installation. Room temperature must be maintained between 65°F (18.3°C) and 85°F (29.4°C) and the ambient relative humidity must be between 40% and 60%. We strongly recommend the permanent HVAC system be fully operating. **NOTE:** If a system other than the permanent HVAC source is utilized, it must provide proper control of both temperature and humidity to recommended or specific levels for the appropriate time duration as stated above.
5. Once the installation is completed, the service temperature of the space must never fall below 55°F (12.8°C).
6. In areas that are exposed to intense or direct sunlight, the product must be protected during the conditioning, installation, and adhesive curing periods, by covering the light source.
7. Tarkett products are not recommended for exterior use. Exposure to excessive UV rays can result in fading, degradation, and/or color variation.
8. The highest quality of materials and workmanship is employed in the manufacture of Tarkett Flooring and careful inspection is made before shipment. A quality installation is the responsibility of the installer. It is the installer's responsibility to verify the accuracy of the order and to ensure the materials are checked for damage, defects, and satisfactory color match. An authorized Tarkett distributor or Tarkett representative must be notified of any defects before installation proceeds. **Tarkett will not pay for labor or material costs claimed on installed materials with visual defects.**
9. Tarkett cannot accept responsibility for any loss or damage that may result due to processing or working conditions and/or workmanship outside our control.
10. Users are advised to confirm the suitability of this product by their own tests.

GENERAL SUBFLOOR PREPARATION

1. **All walls** must be permanently dry, clean, smooth, and structurally sound. The surface must be free of all dust, loose particles, solvents, paint, grease, oil, wax, alkali, sealing/curing compounds, old adhesive, and any other foreign material, which could affect the installation and adhesive bond to the substrate. Permanent and non-permanent markers, pens, crayons, paint, or similar marking tools used to mark the substrate or the back of the wall base material will cause migratory staining. Substrate contamination or markings that bleed through the wall base material causing discoloration or staining are excluded from the Tarkett Limited Warranty. All substrate contaminants must be mechanically removed prior to the installation of the flooring material. **NOTE: Do not use liquid solvents or adhesive removers.**

Minimum temperature of the substrate must be 60°F (15.6 °C). Substrate temperature should be a minimum of 5°F higher than the dew point temperature.

Fill all depressions, cracks, and other surface irregularities with a good quality patching compound appropriate for this purpose.

2. **Do not install** Johnsonite Resilient Wall Base over vinyl wallcoverings.
3. **Do not install** Johnsonite Resilient Wall Base over non-porous surfaces with Tarkett 960 Wall Base Adhesive. Utilize Tarkett 946 Premium Contact Adhesive following the non-porous application instructions for all non-porous surface installations.
4. Never install Johnsonite Resilient Wall Base on surfaces that will be exposed to drastic temperature changes or moisture.
5. **Terrazzo and Ceramic wall** surfaces must be thoroughly sanded to remove all glaze and waxes. Remove or replace all loose tiles and clean the grout lines. Use a Portland cement based leveling compound to fill all grout lines and other depressions.
6. **Steel** wall surfaces must be mechanically abraded to assist with the adhesive bond. The wall must be cleaned to remove all dirt, rust and other contaminants. When applying adhesive the non-porous installation instructions must be followed

INSTALLATION

1. **Adhesive Application:** See adhesive chart below and follow adhesive label instructions for proper use.
2. **Installation Procedures:**
 - a. Allow coiled wall base to lay flat for at least 24 hours, between 65° and 85°F (18.3° and 29.4°C) with HVAC system operating, prior to installation.

- b. For installations on porous wall surfaces, apply Tarkett 960 Wall Base Adhesive to the ribbed surface (back) of the wall base with a 1/8" square-notched trowel. The adhesive should cover 80% of the back surface. Leave a 1/4" (6.35mm) uncovered space at the top of the wall base to prevent the adhesive from oozing onto the wall above the base when installed.
 - c. For installations on non-porous wall surfaces (i.e.: metal, epoxy paint, ceramics, etc.) apply Tarkett 946 Premium Contact Adhesive to both the wall surface and the back of the wall base. Allow adhesive to thoroughly dry to the touch.
- NOTE:** Once contact is made to the wall surface, the wall base cannot be moved.
- d. Position wall base on wall surface and roll with a small hand roller. **Always roll back to starting point to prevent stretching the wall base.**
 - e. Use a clean white cloth dampened with water to remove wet adhesive from wall base, substrate, floor covering and tools.
 - f. Dried adhesive may require the use of denatured alcohol applied to a clean white cloth. (Follow manufacturer's precautions when using denatured alcohol.)

CORNER INSTALLATION

1. Factory Made Outside Corners:

- a. Install factory made corners before installing wall base.
- b. Trowel adhesive to ribbed back of wall base corner.
- c. Position corner in place and roll to ensure proper adhesive bond.
- d. Attention should be given to a tight and even fit to the corner.

NOTE: Tarkett 946 Premium Contact Adhesive may be used to ensure a faster setup at the corner.

2. Field-Made Inside Corners:

- a. Install wall base and terminate into the corner.
- b. Position another piece of wall base on opposing wall, without adhesive, approximately 1" from the installed piece.
- c. Utilize dividers; place one pin at the top of the installed piece and one pin at the top of the uninstalled piece. Carefully, move the dividers downward in a straight vertical motion, allowing the pin of the dividers to follow the profile of the installed piece. At the same time, place adequate pressure on the pin to transfer and/or scribe the profile onto the surface of the uninstalled piece.
- d. Use a utility knife to cut the scribe line on the uninstalled wall base, apply adhesive, and position the trimmed section into place.

3. Field-Made Outside Corners

- a. Stop application of adhesive to wall base approximately 18" (45cm) from the outside corner of the wall.
- b. Position the wall base at the corner and pencil line the back of the wall base where the bend is required.
- c. Lay the wall base on the floor with the back up. Utilizing a top-set or pull-type gouge tool, make a shallow notch along the pencil line.
- d. **Note:** The notch depth should not exceed one-quarter the total thickness of the wall base.
- e. Reposition the wall base corner on the wall. The corner of the wall should fit snugly into the notched recess on the back of the wall base.
- f. Apply adhesive and roll firmly into place.

NOTE: Tarkett 946 Premium Contact Adhesive may be used to ensure a faster setup at the corner.

ADHESIVE CLEAN UP

Excess adhesive should be removed during the installation process.

960™ Wall Base Adhesive

946™ Premium Contact Adhesive

- Use a clean white cloth dampened with water to remove wet adhesive from floor covering and tools.
- Dried adhesive may require the use of denatured alcohol applied to a clean white cloth. (Follow manufacturer's precautions when using denatured alcohol.)

MAINTENANCE

1. Wait 72 hours after installation before performing initial cleaning.
2. A regular maintenance program must be started after the initial cleaning.
3. Tarkett Resilient Wall Base is maintained with regular wiping using a wet, clean, soft, white cloth.
4. A mild detergent may be added to the water.
5. Coarse scrubbing media or harsh cleaning chemicals may damage the surface of the wall base.

ADHESIVE SELECTION CHART

Products	Adhesive	Application and Coverage		Moisture / pH Limits			Notes
		Porous	Non-Porous	RH%	CaCl ₂	pH	
Cove and Toeless	960 Wall Base Adhesive	1/8 x 1/8 x 1/8 SQ 4" = 200-250 lf. 6" = 100-150 lf. 2.5" = 300-350 lf.	USE 946 PREMIUM CONTACT ADHESIVE	N/A	N/A	N/A	POROUS ONLY
Cove and Toeless	946 Premium Contact Adhesive	Applied with Brush or Roller	Applied with Brush or Roller	N/A	N/A	N/A	Coverage based on both sides
		1 qt. unit 24 – 36 sq. ft.	1 qt. unit 24 – 36 sq. ft.				
		1 gal. unit 144 – 215 sq. ft.	1 gal. unit 144 – 215 sq. ft.				

Tarkett North America

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DESCRIPTION

The Encounter™ redefines ambient lighting by being the first fixture to blend modern contemporary styling with the innovative WaveStream™ technology to deliver exceptional performance and superior energy savings. Encounter's highly efficient LED system with advance optical design delivers an unparalleled combination of optimal light uniformity for enhanced visual comfort and superior efficiency for greater energy savings.

Encounter is compatible with all of today's popular ceiling systems and available in a variety of configurations for application versatility. Its perfect balance of form and function make it an ideal choice for commercial office spaces, schools, hospitals, retail and other indoor ambient applications.

SPECIFICATION FEATURES

Construction

Shallow 3-1/4" deep housing is extruded aluminum frame and injected molded composite end plates. End plates are securely attached with screws for strength and rigidity and the elimination of gaps. End plates have accessory grid-lock feature for safety and convenience. Four auxiliary fixture end suspension points are provided. Large access plate for supply connection.

Controls

The Encounter LED is Powered by Fifth Light, with standard a 0-10V continuous dimming driver that works with any 0-10V control/dimmer. Or, go digital with the Digital Addressable Lighting Interface (DALI) drivers, dimmable down to 1% using the HD option. Combine with energy-saving products like occupancy sensors, daylighting controls, and lighting relay panels from Cooper Controls (www.coopercontrol.com) to maximize energy savings.

Electrical

Long-life LED system coupled with electrical driver to deliver optimal performance. LED's available in 3000K, 3500K or 4000K with a typical CRI ≤ 85. Projected life is 60,000 hours at 85% lumen output. Electronic drivers are available for 120-277V applications.

Driver Access

Drivers can be accessed via plenum.

Finish

Durable frame has high reflectance baked matte white enamel finish for luminous uniformity.

Catalog #		Type	
Project		Date	
Comments			
Prepared by			

Optics

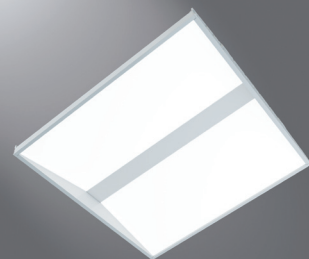
Precision formed optical assembly with positively retained high optical grade acrylic lenses provide a directed optical distribution using WaveStream technology.

Compliance

Components are UL recognized. Indoor luminaires are cULus and CSA listed for 25° C ambient environments, RoHS compliant, and comply with IESNA LM-79. LEDs comply with LM-80 standards. DesignLights™ Consortium Qualified. Refer to www.designlights.org Qualified Products List under Family Models for details.

Warranty

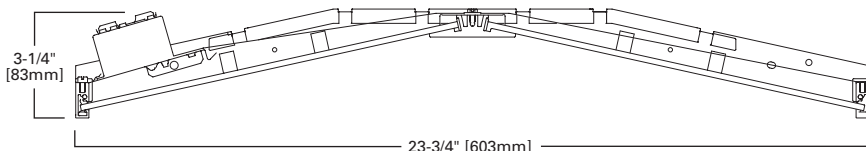
Five year warranty.



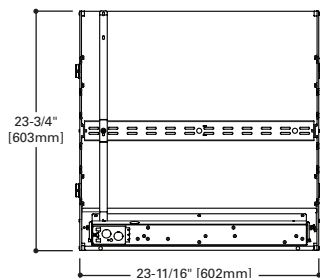
22EN LED

2' X 2' TROFFER
LED MODULE

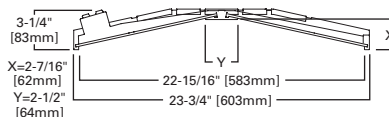
Specification Grade Troffer



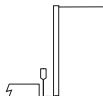

MOUNTING DATA



LAMP CONFIGURATIONS



CEILING COMPATIBILITY

G Grid/Lay-in Standard	F Drywall Frame Kit	Ceiling Type	Trim Type
		Exposed Grid	G
		Concealed T	G or T
		Slot Grid	G or T
		Flange	*

CERTIFICATION DATA

cULus - 1598 and 2043**
 Lamp Location Listed
 CSA
 IC Rated
 LM79/LM80 Compliant
 ROHS Compliant
 DesignLights™ Consortium Qualified
 Title 24

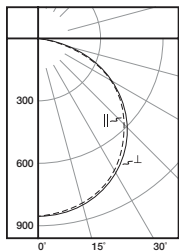
*See Drywall Frame Kit Accessory in Ordering Information section.

**Fixture construction is suitable for use in Air-handling and plenum rated spaces in accordance with Section 300.22 (C) of the National Electrical Code, Section 4.3.11.2.6.5 of NFPA 90A and Section 602.2.1.4 of ICC.

LINEAR DISCONNECT
 Safe and convenient means of disconnecting power



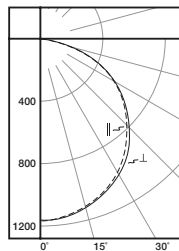
PHOTOMETRICS



22EN-LD1-25-UNV-L835-CD1-U
 Electronic Driver
 Linear LED 3500K
 Spacing criterion:
 (II) 1.2 x mounting
 height, (⊥) 1.3 x
 mounting height
 Lumens: 2537
 Input Watts: 25.5W
 Efficacy: 100 LPW
 Test Report:
 22EN-LD1-25-UNV-
 L835-CD1-U.IES

Candlepower

Angle	Along II	45°	Across ⊥
0	850	850	850
5	847	847	850
10	836	836	842
15	818	820	828
20	795	796	808
25	764	767	780
30	727	730	746
35	686	688	706
40	637	640	658
45	586	588	606
50	529	531	547
55	469	465	483
60	401	396	414
65	332	324	343
70	260	255	253
75	185	178	152
80	114	96	104
85	42	43	44
90	0	0	0



22EN-LD1-34-UNV-L835-CD1-U
 Electronic Driver
 Linear LED 3500K
 Spacing criterion:
 (II) 1.2 x mounting
 height, (⊥) 1.3 x
 mounting height
 Lumens: 3424
 Input Watts: 34.9W
 Efficacy: 98 LPW
 Test Report:
 22EN-LD1-34-UNV-
 L835-CD1-U.IES

Candlepower

Angle	Along II	45°	Across ⊥
0	1156	1156	1156
5	1152	1150	1156
10	1136	1137	1144
15	1111	1112	1123
20	1078	1079	1094
25	1035	1037	1055
30	984	986	1007
35	927	929	952
40	861	865	887
45	791	791	815
50	715	712	738
55	630	626	649
60	542	534	558
65	449	439	463
70	346	342	345
75	247	238	204
80	152	129	139
85	57	58	58
90	0	0	0

Coefficients of Utilization

rc rw RCR	Effective floor cavity reflectance 20%																							
	80%				70%				50%				30%				10%				0%			
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100						
1	109	104	99	95	106	101	97	94	97	94	91	93	90	88	90	87	85	83						
2	98	90	83	77	96	88	82	76	85	79	74	81	77	73	78	74	71	69						
3	90	79	71	64	87	77	70	63	74	68	62	71	66	61	69	64	60	58						
4	82	70	61	54	80	68	60	54	66	59	53	63	57	52	61	56	51	49						
5	75	62	53	46	73	61	52	46	59	51	45	57	50	45	55	49	44	42						
6	69	56	47	40	67	55	46	40	53	45	40	51	45	39	50	44	39	37						
7	64	51	42	35	63	50	41	35	48	41	35	47	40	35	45	39	34	32						
8	60	46	37	32	58	45	37	31	44	37	31	43	36	31	42	35	31	29						
9	56	42	34	28	54	42	34	28	40	33	28	39	33	28	38	32	28	26						
10	52	39	31	26	51	38	31	26	37	30	25	36	30	25	36	30	25	23						

Coefficients of Utilization

rc rw RCR	Effective floor cavity reflectance 20%																							
	80%				70%				50%				30%				10%				0%			
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100						
1	109	104	99	95	106	101	97	94	97	94	91	93	91	88	90	87	85	83						
2	98	90	83	77	96	88	82	76	85	79	75	81	77	73	78	75	71	69						
3	90	79	71	64	87	77	70	63	74	68	62	72	66	61	69	64	60	58						
4	82	70	61	54	80	68	60	54	66	59	53	63	57	52	61	56	51	49						
5	75	62	53	46	73	61	52	46	59	51	46	57	50	45	55	49	45	42						
6	69	56	47	40	67	55	46	40	53	45	40	51	45	39	50	44	39	37						
7	64	51	42	36	63	50	41	35	48	41	35	47	40	35	45	39	35	33						
8	60	46	38	32	58	45	37	31	44	37	31	43	36	31	42	35	31	29						
9	56	42	34	28	54	42	34	28	41	33	28	39	33	28	38	32	28	26						
10	52	39	31	26	51	38	31	26	37	30	26	37	30	25	36	30	25	23						

Zonal Lumen Summary

Zone	Lumens	%Fixture
0-30	667	26.3
0-40	1100	43.4
0-60	1976	77.9
0-90	2537	100.0
0-180	2537	100.0

Luminance Data

Angle in Deg	Average 0-Deg cd/sm	Average 45-Deg cd/sm	Average 90-Deg cd/sm
45	2229	2237	2305
55	2200	2181	2265
65	2113	2062	2183
75	1923	1850	1580
85	1296	1327	1358

Zonal Lumen Summary

Zone	Lumens	%Fixture
0-30	904	26.4
0-40	1489	43.5
0-60	2669	77.9
0-90	3424	100.0
0-180	3424	100.0

Luminance Data

Angle in Deg	Average 0-Deg cd/sm	Average 45-Deg cd/sm	Average 90-Deg cd/sm
45	3009	3009	3100
55	2955	2936	3044
65	2858	2794	2947
75	2567	2474	2120
85	1759	1790	1790

LUMEN MAINTENANCE

Ambient Temperature	TM-21 Lumen Maintenance (60,000 hours)	Theoretical L70 (Hours)
25°C	> 85%	>163,000

ENERGY AND PERFORMANCE DATA BY CATALOG NUMBER

Stock or MTO*	Catalog Logic	Delivered Lumens	Watts	Efficacy (LPW)
MTO	22EN-LD1-19-UNV-L830-CD1-U	1903	18.8	101
MTO	22EN-LD1-19-UNV-L835-CD1-U	1936	18.7	104
MTO	22EN-LD1-19-UNV-L840-CD1-U	1955	18.8	104
MTO	22EN-LD1-25-UNV-L830-CD1-U	2487	25.5	97
Stock	22EN-LD1-25-UNV-L835-CD1-U	2537	25.5	99
Stock	22EN-LD1-25-UNV-L840-CD1-U	2627	25.5	103
MTO	22EN-LD1-30-UNV-L830-CD1-U	2907	30.3	96
MTO	22EN-LD1-30-UNV-L835-CD1-U	3002	30.4	99
MTO	22EN-LD1-30-UNV-L840-CD1-U	3072	30.3	102
MTO	22EN-LD1-34-UNV-L830-CD1-U	3276	34.8	94
Stock	22EN-LD1-34-UNV-L835-CD1-U	3424	34.9	98
Stock	22EN-LD1-34-UNV-L840-CD1-U	3466	34.8	100
MTO	22EN-LD1-39-UNV-L830-CD1-U	3799	41.6	91
MTO	22EN-LD1-39-UNV-L835-CD1-U	3915	41.7	94
MTO	22EN-LD1-39-UNV-L840-CD1-U	4018	41.7	96
MTO	22EN-LD1-43-UNV-L830-CD1-U	4207	47.4	89
MTO	22EN-LD1-43-UNV-L835-CD1-U	4396	47.6	92
MTO	22EN-LD1-43-UNV-L840-CD1-U	4452	47.4	94

*Made to order (MTO) requires a four week lead time.

ORDERING INFORMATION

SAMPLE NUMBER: 22EN-LD1-34-UNV-L835-CD1-U

Rating Blank=Standard ATW-SW4=Chicago Rated ⁽¹⁰⁾	Lamp Type LD1=LED 1.0	Optics Blank=Standard	Driver Type CD=0-10V Dimming Driver (Standard) SD=Step-dim Driver ⁽⁶⁾ 5LTD=Fifth Light DALI Driver (10% - 100% Dimming) ⁽³⁾ 5LTHD=Fifth Light DALI Driver (1% - 100% Dimming) ⁽³⁾	Packaging U=Unit Pack PALC=Job Pack, in carton
Series⁽⁹⁾ 22EN=2' x 2' Encounter Series	Stock Lumen Outputs 25=2500 Lumens ⁽⁴⁾ 34=3400 Lumens MTO Lumen Outputs⁽⁸⁾ 19=1900 Lumens ⁽⁴⁾ 30=3000 Lumens 39=3900 Lumens 43=4300 Lumens	Voltage⁽¹⁾ 347V=347 Volt ⁽⁷⁾ UNV=Universal Voltage 120-277	Number of Drivers 1=1 Driver	
		Options Emergency EL=Emergency Installed, 700 Lumens ⁽⁵⁾ EL14=Emergency Installed, 1400 Lumens ^{(2), (5)} EL10W=Emergency Installed, 10 Watts ⁽¹¹⁾ CCT L830=3000K L835=3500K L840=4000K Flex Multiple Configurations Available	ACCESSORIES T3A END E.Q. BRACKET PARTS BAG (Standard with fixture) DF-22-W=2' x 2' Drywall Frame Kit MS-SR-22=2' x 2' Surface Mount Kit	

NOTES: ⁽¹⁾Products also available in non-US voltages and frequencies for international markets. ⁽²⁾Must specify voltage (120V or 277V) when selecting EL option. ⁽³⁾For a complete listing of Fifth Light Technology products and other solutions from Cooper Controls, visit www.coopercontrol.com. ⁽⁴⁾1900 and 2500 lumen option are not available with a Fifth Light DALI (5LTD) driver. ⁽⁵⁾EL test switch and light must be remote mounted. EL700 option requires standard switch box. ⁽⁶⁾Step-dim driver not available with 1900, 2500 and 3000 lumen option. ⁽⁷⁾347V emergency option not available. ⁽⁸⁾Made-to-order (MTO) requires four week lead time. ⁽⁹⁾DesignLights™ Consortium Qualified (all lumen packages). Refer to www.designlights.org Qualified Products List under Family Models for details. ⁽¹⁰⁾Chicago rated version does not allow for row mounting. ⁽¹¹⁾For delivered lumens, take lumens per watt of desired fixture and multiply by 10 watts (100 lp/W x 10 = 1000 lumens delivered).

Specifications & dimensions subject to change without notice. Consult your Cooper Lighting Representative for availability and ordering information.

SHIPPING DATA

Catalog No.	Wt.
22EN-LD1-25	14 lbs.
22EN-LD1-34	14 lbs.