UNIVERSITY OF TORONTO

OFFICE OF THE GOVERNING COUNCIL

FOR APPROVAL **PUBLIC** **OPEN SESSION**

TO: Academic Board

SPONSOR: Professor Scott Mabury, Vice-President, Operations and
CONTACT INFO: Real Estate Partnerships
416-978-2031, scott.mabury@utoronto.ca

PRESENTER: See Sponsor.

CONTACT INFO:
DATE: May 21, 2026 for May 28, 2026

AGENDA ITEM: 4

ITEM IDENTIFICATION:

Capital Project (Level 2): Report of the Project Planning Committee for the University of Toronto Faculty of Dentistry Clinic 2 Renewal – **Project Scope and Sources of Funding**

JURISDICTION INFORMATION:

The Planning and Budget Committee considers reports of project planning committees and recommends to the Academic Board approval in principle of projects (i.e. space plan, site, overall cost and sources of funds) with a capital cost as specified in the 'Policy on Capital Planning and Capital Projects.'" (Planning and Budget Committee Terms of Reference, Section 4.2.3; Academic Board Terms of Reference, Section 5.1).

The "Policy on Capital Planning and Capital Projects" provides that capital projects with costs between $10 million and $50 million (Approval Level 2) on the St. George campus, will first be considered by the Planning & Budget Committee, which shall recommend approval to Academic Board. Such projects will be confirmed by the Executive Committee of the Governing Council on the recommendation of the Academic Board [Section 3(b)(ii)(1)(a)]. The Policy further states that "any financing will be approved by the Business Board". [Section 3(c)].

GOVERNANCE PATH:

A. Project Planning Report
1. Planning & Budget [for recommendation] (May 6, 2026)
2. **Academic Board [for approval] (May 28, 2026)**
3. Business Board [for approval, for financing] (June 18, 2026)
4. Executive Committee [for confirmation] (June 15, 2026)

B. Execution of the Project:

1. Business Board [For approval] (June 18, 2026)

PREVIOUS ACTION TAKEN:

In December of 2018, the Capital Project and Space Allocation Committee (CaPS) approved the development of a Clinic Renewal Master Plan for spaces within 124 Edward Street. The approval included the implementation of the first phase of the Clinic renewal; the Medical Device Reprocessing unit (MDR). The Clinic Master Plan was initiated by the Faculty in 2019 to identify phased renovations to the Facilities at the Faculty of Dentistry. Due to increased awareness and regulatory pressures regarding control of aerosol generating activities in dentistry under COVID-19, proposed pedagogical shifts and the compromised condition of the existing facilities, the Faculty of Dentistry identified the renovation of Clinic 2 and the Pre-Clinical Simulation Lab 4 as the next priority phase of the master plan.

At the June 2020 meeting of the Capital Project and Space Allocation (CaPS) Executive Committee, the project Terms of Reference for the Clinic 2 and Pre-Clinical Simulation Lab 4 was approved. Subsequently the project was split into two capital projects – the Pre-Clinical Simulation Lab 4 project (completed 2025) and the current Clinic 2 Renewal Project.

At the April 1, 2021 meeting of the Capital Project and Space Allocation (CaPS) Executive Committee, the project request for consultant fees to the end of Design Development for the Clinic 2 Renewal project was approved.

From May to August 2021, a Request for Supply Qualifications (RFSQ) and a Request for Proposal (RFP) procurement process was implemented to engage consultant design services for the Clinic 2 Renewal to the end of Design Development. Montgomery Sisam Architects Inc. with Kahler Slater Architects Inc. were successfully retained. Schematic Design for the Clinic 2 Renewal project was completed and a Class ‘C’ construction cost estimate confirmed the project to be significantly over the available project budget. In December of 2022 the Clinic 2 Renewal project was suspended.

On April 10, 2024 a revised scope of work was issued for additional design consultant fees to the end of the tender phase for the Clinic 2 Renewal project to Montgomery Sisam Architects Inc. with Kahler Slater Architects Inc. The TPC increase was based on the revised design fees reflective of the new project scope. On September 26, 2024, the CaPS Executive Committee approved the increase to the TPC and the Clinic 2 Renewal project revised scope of work began design.

HIGHLIGHTS:

Previous Administrative Actions

At the June 2020 meeting of the Capital Project and Space Allocation (CaPS) Executive Committee, the project Terms of Reference was approved.

At the April 1, 2021 meeting of the Capital Project and Space Allocation (CaPS) Executive Committee, the project request for consultant fees to the end of Design Development for $1,250,846 was approved.

At the September 26th, 2024 meeting of the Capital Project and Space Allocation (CaPS) Executive Committee, a Total Project Cost in the amount of $4,378,605 was approved to increase the consultant design fees based on the April 10, 2024 revised scope of work fees for design work from Schematic

Design through to the end of the Tender phase. (Including the original TPC approved on April 1, 2021) The approved TPC also included Site Investigation and Dental Equipment Design Assist, Building Permit as well as UPDC Project Management Fees

Project Plan

This project will include the implementation of Phase 7b of the Clinic Master Plan to renovate the second floor Clinic 2 space. The project will also include the renovation of the Elm Street Patient entrance and reception (Phase 4) and the addition of an AODA compliant passenger elevator and egress stair to improve vertical connections, accessibility and wayfinding between all patient clinic spaces.

The Clinic 2 Renewal project scope has been revised since the April 2021 CaPS Exec approval of consultant fees. The previous scope of work included the creation of a third Clinic by infilling the existing Clinic 2 double height space with a new third floor area. This scope included 120 enclosed operatories. Reductions in the cost of construction as well as the success of clinic scheduling at the Satellite Clinic at 777 Bay Street and the relaxing of the enclosure requirements for dental chairs by the Royal College of Dental Surgeons Ontario (RCDSO) have provided the Faculty of Dentistry with the confidence to proceed with a revised scope to the Clinic 2 Renewal project. The significantly revised scope requires additional consultant design fees as design work will need to restart with Schematic Design.

The current revised scope includes the following:

- Clinic 2 will expand its current space to the North to maximize clinical space within the east wing of the second floor.
- The newly renovated Clinic 2 will consolidate undergraduate clinical instruction and provide 15 multi-purpose enclosed operatories and 60 open operatory chairs for patient care. The project will renovate a total of 1,460 sm of inventory space. The project Space Program generates a project area of 1,056 nasms.
- Included in the project is 404 sm of non-assignable space for a new Clinic Patient elevator, elevator lobby and a Clinic egress/convenience stair.
- Necessary upgrades to building infrastructure, services and energy performance will be included in the renovations in conformance with the Tri-campus Energy Modelling & Utility Performance Standard as well as coordination with Project LEAP 2.0.

This current application seeks approval of the Total Project Cost to end of project competition.

Schedule

The proposed schedule for the project is as follows:

Milestone	**Date**
Cycle 1 CaPS Exec Approval for Increase in Consultant Fees	September 26, 2024
Schematic Design Phase & Early Site Investigation	November 2024– February 2025
Costing at 100% SD / University Review (Class C)	March 2025
Design Development Phase & Dental Equipment Design Assist	April – May 2025
Costing at 100% DD / Review (Class B)	June 2025
80% Construction Documents	July - October 2025

University Review of 80% CD's	November 2025
Finalize Construction Documents	December – January 2025
Costing at 100% CD's (Class A)	January - February 2025
VE if required	March 2025
Permit Application	December 2025 – March 2026
University Final Review of 100% CD's	February – March 2026
Cycle 5: Full Governance Approval of Full Project Costs	April 10, 2026 – June 25, 2026
Tender	June – July 2026
Construction Phase	July 2026 – March 2028
Fit Out	Mid-January 2028 – March 2028
Occupancy / Ready-for-Takeover	April 2028

FINANCIAL IMPLICATIONS:

Discussion of overall costs and sources of funds can be found in the "In Camera" document for this project.

RECOMMENDATIONS:

Be It Resolved:

THAT, subject to confirmation by the Executive Committee,

THAT the project scope of the Faculty of Dentistry Clinic 2 Renewal project as identified in the "Report of the Project Planning Committee for University of Toronto Faculty of Dentistry Clinic 2 Renewal, dated April 3, 2026 be approved in principle; and,

THAT the project totaling approximately 2,945 square metres (sm) of renovated space, with a total project scope area of 3,168 sm, be approved in principle, to be funded by the Faculty of Dentistry Major Capital Projects Reserves and Future Faculty Reserves as well as by Clinic 2 Capital Donations, Central University Matching, ongoing Fundraising and Financing.

DOCUMENTATION PROVIDED:

- Project Planning Report for the Faculty of Dentistry Clinic 2 Renewal, dated April 3, 2026.

Report of the Project Planning Committee for

University of Toronto
Faculty of Dentistry

Clinic 2 Renewal

April 3, 2026

Clinic 2 – Image by Montgomery Sisam Architects Inc. + Kahler Slater Inc.

I. Executive Summary

The Dentistry building, located south-east of the main St. George Campus at 124 Edward Street was built in 1959, with an addition to the north side of the original building in 1985. The building houses the majority of the Faculty of Dentistry functions, including educational classrooms, wet and dry research labs, student activity spaces, administration spaces, as well as the Library and Dental Museum. The Faculty also provides dental care to the community through their public clinics which are also located at 124 Edward Street.

The Dentistry Building's existing space is challenged to meet the academic and clinical initiatives of the Faculty for the coming decades. The Faculty needs to meet the standards necessary for educational innovation and growth for all their space including clinical space. In addition to its teaching and research programs, Dentistry's academic mission must also provide a health-care service as part of its clinical program. While other faculties can train students within hospital facilities, the Faculty of Dentistry must operate an independent oral health care facility that maintains a patient base of approximately 15,000 patients, providing care at both the general practice and specialty levels. The Faculty of Dentistry clinics are heavily used by the community and serves over 90,000 patient visits annually, many whom have difficulty accessing care from private practices.

A Clinic Master Plan was initiated by the Faculty in 2019 to identify opportunities for providing the Faculty of Dentistry students - and its patients - modern clinic space to process patients effectively and efficiently as well as meet current clinic practice standards. The Master Plan provides a reorganization of the Basement, 1st, 2nd and 3rd level clinics, classrooms, office and support space programs to target improved patient flow, wayfinding, operational efficiency and pedagogical requirements within the available space at 124 Edward Street. In order to achieve Clinic renewal and reorganization, the Master Plan included an 8 stage implementation phasing program. Clinical dentistry has evolved significantly from both infection prevention/control and technological standards and regulations surrounding infection control have been redefined in response to the COVID-19 pandemic. Due to increased awareness and regulatory pressures in regards to control of aerosol generating activities in dentistry, proposed pedagogical shifts and the compromised condition of the existing facilities, the Faculty of Dentistry identified the renovation of Clinic 2 and the Pre-Clinical Simulation Lab 4 as the next priority phase of the master plan.

In June of 2020 the Capital Project and Space Allocation Committee (CaPS Exec) approved the Terms of Reference for the renovations of Clinic 2 and Lab 4.

In November of 2020, CaPS Executive approval was given to create a temporary off-site dental clinic to be operational by September 1, 2021. This Satellite Clinic provides the Faculty of Dentistry and its community patients with 40 purpose built COVID-19 regulation compliant operatories and accompanying support spaces. In addition to providing a facility for students to complete their Clinical Hours during the COVID-19 pandemic, the Satellite Clinic will provide the Faculty with the minimum amount of operational swing space to allow the completion of the Clinic 2 renovations and future Master Plan implementation renovations.

This project will include the implementation of Phase 7b of the Clinic Master Plan to renovate the second floor Clinic 2 space. The project will also include the renovation of the Elm Street Patient entrance and reception (Phase 4) and the addition of an AODA compliant passenger elevator and egress stair to improve vertical connections, accessibility and wayfinding between all patient clinic spaces.

Clinic 2 will expand its current space to the North to maximize clinical space within the east wing of the second floor. The newly renovated Clinic 2 will consolidate undergraduate clinical instruction and provide 15 multi-purpose enclosed operatories and 60 open operatory chairs for patient care. With changes to clinic appointment scheduling and based on the operational success of the FoD Satellite Clinic, Clinic 2, even with a net reduction of dental chairs from the existing is anticipated to increase the overall potential number of weekly patient appointments and student clinic hours.

At the April 1, 2021 meeting of the Capital Project and Space Allocation (CaPS) Executive Committee, the project request for consultant fees to the end of Design Development was approved.

From May to August 2021, a Request for Supply Qualifications and a Request for Proposal procurement process was implemented to engage consultant design services for the Clinic 2 Renewal to the end of Design Development. Montgomery Sisam Architects with Kahler Slater Architects were successfully retained. Schematic Design for the Clinic 2 Renewal project was completed and a Class ‘C’ construction cost estimate confirmed the project to be significantly over the available project budget. In December of 2022 the Clinic 2 Renewal project was suspended.

On April 10, 2024 a revised scope of work was developed and issued for additional design consultant fees to the end of the tender phase for the Clinic 2 Renewal project to Montgomery Sisam Architects with Kahler Slater Architects.

The project will renovate at total of 2,046 square metres (sm) of inventory space, with a total project scope area of 3,085 sm. The project Space Program generated a project area of 1,056 nasms while the contract documents include 1,128.14 nasm of space. Included in the project is 403 sm of non-assignable space for a new Clinic Patient elevator, patient stair and a Clinic convenience stair. Necessary upgrades to building infrastructure, services and energy performance will be included in the renovations, in particular work will include accommodation of Project Leap 2.0 scope of work. The Contract Documents identify a direct area of work of 2,945 sm with an impacted area of work of 3,168 sm.

The Clinic 2 Revitalization project is currently completing the Contract Document stage and will be seeking full governance approval to proceed with tendering, construction and contract management of the project through to competition and occupancy.

Table of Contents

II. Project Background

a) Membership

Laura Tam, Interim Dean and Associate Dean Undergraduate Education, Faculty of Dentistry

Daniel Haas, Dean, Faculty of Dentistry (Former member)

Arleen Morrin, Chief Administrative Officer, Faculty of Dentistry

Mary Choi, Assistant Dean Administration, Faculty of Dentistry (Former member)

Danielle Churchill, Manager, Building Operations & Services (Former member)

Jim Lai, Vice Dean Education, Faculty of Dentistry

James Posluns, Assistant Dean, Clinics, Faculty of Dentistry

Laura Tam, Associate Dean Undergraduate Education, Faculty of Dentistry

Margaret Provenza, Manager Clinics, Faculty of Dentistry

Jennifer Vatta, Manager Clinics, Faculty of Dentistry

Grace De Souza, Associate Professor, Faculty of Dentistry

Mariam Mousavi, Team Lead for Lab 4

James Fiege, Director IITS, Faculty of Dentistry

Luis Migule Valencia, DDS 2 Student, Undergraduate

Frederic Rochon, DDS 2 Student, Undergraduate

Ryan Noh, Graduate Student, recent DDS graduate

Ron Saporta, Chief Operations Officer, Property Services and Sustainability, Facilities & Services

Gordon Robins, Director, Utilities and Building Operations, Facilities &Services (Former Member)

Mary Byrne, Director, Property Management Group, Facilities & Services

Costas Catsaros, Director, Project Development, UPDC

Rajko Jakovic, Project Development Manager, Project Development & Controls, UPDC

Adam Trotter, Senior Planner, University Planning, UPDC

b) Terms of Reference

1. Report on the detailed space program and floor plan to accommodate the teaching, research and associated support space on the Basement and 2nd Floor of the Dentistry Building within Lab 4 and Clinic 2 respectively.
2. Review the demand for increased and improved space and infection control in response to revisions in regulatory requirements, pedagogical shifts and improved patient experience to support the renovation of Clinic 2.
3. Define a project area of work including a review of existing base building and systems conditions and provide recommendations for potential upgrades within the scope of work of the project.

4. Determine the secondary effects of the project including staging and sequencing in order for facilities to remain operational during renovations.
5. Identify the equipment and moveable furnishings necessary to the project and their estimated cost.
6. Identify requirements for networking and other electronic and data communications and their integration into the architecture of the building and their related costs.
7. Identify all security, occupational health and safety and accessibility requirements and their related costs.
8. Review and identify structural capacity for a 'mezzanine' level within the double height Clinic 2 space to accommodate additional operatories and provide flexibility as identified in the space program.
9. Review and provide recommendations for the improvement of the clinic patient entrance, accessibility, vertical circulation and wayfinding.
10. Recommend an overall building space plan that accommodates all users during the various construction phases to achieve the planned renovations and any necessary building infrastructure upgrades.
11. Demonstrate that the proposed space program will take into account the Council of Ontario Universities' and the University's own Space Standards.
12. Plan to realize maximum flexibility of space to permit future reallocation as programmatic needs and regulatory requirements change.
13. Determine a total project cost (TPC) estimate for the project, including costs of implementation in phases if required, and costs associated with secondary effects.
14. Identify all sources of funding for the capital project and report on any changes to operating costs once the project is complete.
15. Report by August 26th, 2020.

c) Background Information

The Dentistry building, located south-east of the main St. George Campus at 124 Edward Street was built in 1959, with an addition to the north side of the original building in 1985. The building houses the majority of the Faculty of Dentistry functions, including educational classrooms, wet and dry research labs, student activity spaces, administration spaces, as well as the Library and Dental Museum. The Faculty also provides dental care to the community through their public clinics which are also located at 124 Edward Street.

The Dentistry Building’s existing space is challenged to meet the academic and clinical initiatives of the Faculty for the coming decades. The Faculty needs to meet the standards necessary for educational innovation and growth for all their space including clinical space. In addition to its teaching and research programs, Dentistry’s academic mission must also provide a health-care service as part of its clinical program. While other faculties can train students within hospital facilities, the Faculty of Dentistry must operate an independent oral health care facility that maintains a patient base of approximately 15,000 patients, providing care at both the general practice and specialty levels. The Faculty of Dentistry clinics are heavily used by the community and serves over 90,000 patient visits annually, many whom have difficulty accessing care from private practices.

A Clinic Master Plan was initiated by the Faculty in 2019 to identify opportunities for providing the Faculty of Dentistry students - and its patients - modern clinic space to manage patients effectively and efficiently as well as to meet current clinic practice standards. The Master Plan provides a reorganization of the Basement, 1st, 2nd and 3rd level clinics, classrooms, office and support space programs to target improved patient flow, wayfinding, operational efficiency and pedagogical requirements within the available space at 124 Edward Street. In order to achieve Clinic renewal and reorganization, the Master Plan included an 8 stage

implementation phasing program with a centralized Medical Device Reprocessing Unit (MDR) implementation identified as the first phase. The Faculty has identified the next priority for clinic renewal as the Elm Street Patient Entrance and Clinic 2.

Clinical dentistry has evolved significantly from both infection prevention/control and technological standards and regulations surrounding infection control have been redefined in response to the COVID-19 pandemic. Due to increased awareness and regulatory pressures in regards to control of aerosol generating activities in dentistry, proposed pedagogical shifts and the compromised condition of the existing facilities, the Faculty of Dentistry identified the renovation of Clinic 2 as a priority phase of the master plan.

In June of 2020 the Capital Project and Space Allocation Committee (CaPS Exec) approved the Terms of Reference for the renovations of Clinic 2 and Lab 4.

In November of 2020, CaPS Executive approval was given to create a temporary off-site dental clinic to be operational by September 1, 2021. This Satellite Clinic provides the Faculty of Dentistry and its community patients with 41 purpose built COVID-19 regulation compliant operatories and accompanying support spaces. In addition to providing a facility for students to complete their Clinical Hours during the COVID-19 pandemic, the Satellite Clinic will provide the Faculty with the minimum amount of operational swing space to allow the completion of the Clinic 2 renovations and future Master Plan implementation renovations.

Because of the affordances the Satellite Clinic will provide the Faculty of Dentistry, a strategic decision was made to move the Lab 4 renovation forward in order to utilise the existing Clinic 2 space as swing space. After completion of the Lab 4 renovation the Clinic 2 renovation will begin. Subsequent phases of the Clinic Master Plan will be prioritized and implemented using the Satellite Clinic during its 10 year lease period.

This project will include the implementation of Phase 7b of the Clinic Master Plan to renovate Clinic 2. The project will also include the renovation of the Edward Street Patient entrance and reception (Phase 4) to improve vertical connections, accessibility and wayfinding in conjunction with the newly renovated Clinic 2.

At the April 1, 2021 meeting of the Capital Project and Space Allocation (CaPS) Executive Committee, the project request for consultant fees to the end of Design Development was approved.

From May to August 2021, a Request for Supply Qualifications and a Request for Proposal procurement process was implemented to engage consultant design services for the Clinic 2 Renewal to the end of Design Development. Montgomery Sisam Architects with Kahler Slater Architects were successfully retained. Schematic Design for the Clinic 2 Renewal project was completed and a Class ‘C’ construction cost estimate confirmed the project to be significantly over the available project budget. In December of 2022 the Clinic 2 Renewal project was suspended.

On April 10, 2024 a revised scope of work was developed and issued for additional design consultant fees to the end of the tender phase for the Clinic 2 Renewal project to Montgomery Sisam Architects with Kahler Slater Architects. The project will renovate at total of 2,046 square metres (sm) of inventory space, with a total project scope area of 3,0856 sm. The project Space Program generated a project area of 1,056 nasms while the contract documents include 1,128.14 nasm of space. Included in the project is 403 sm of non-assignable space for a new Clinic Patient elevator, patient stair and a Clinic convenience stair.

The project has also coordinated deferred maintenance and existing condition of base building services including Air Handling Units for sustainability upgrades related to Facilities & Services Climate Positive Campus initiative Project Leap 2.0.

d) Existing Space

Existing space

The original Dentistry building was a shallow U-shaped, 5-storey (with basement), International Style, buff brick building completed in 1959 with a total gross floor area (gfa) of approximately 17,000 sq.m. The courtyard was filled in when an extension was put on the building in 1985 on the north and west sides, increasing the building size to approximately 24,550 gross square meters (gsm). The basement has a gross area footprint of 4,693 gsm, with a usable area of 1,918 nasm and 2,774 sq.m of non-assignable space; much of the basement is devoted to mechanical space, a loading facility and a parking garage.

Photo 01_124 Edward Street Building 065 South Elevation

Table 1.1: Existing Space Inventory Faculty of Dentistry

COU Cat.	Category Description	Nasms
1.0	Classroom Facilities	1,413.70
2.0	Laboratory - Undergraduate	4,963.36
3.0	Research Laboratory Space	4,842.96
4.0	Academic Dept Offices And Related Space	3,087.80
9.0	Plant Maintenance	104.93
11.0	Non-Library Study Space	150.59
14.0	Common Use And Student Activity	310.86
15.0	Assembly And Exhibition Facilities	149.51
16.0	Non-Assignable	7,684.37
	Totals	**22,708.08**

The Faculty of Dentistry currently occupies a total of 13,452.65 net assignable square meters (nasm) of space in the Dentistry Building, 197.98 nasms of leased space at 123 Edward Street, 785 nasms of lease space at the Satellite Clinic at 777 Bay Street (leased space), 71.57 nasms of lease space held at the Medical Sciences Building Comparative Medicine in rooms 3363 and 3363B – on loan to Dentistry and 411.58 of space within the MaRS building. The current space inventory for the Faculty of Dentistry is summarized as follows:

Table 1.2 Existing space – Dentistry Space Inventory 2019-2020

COU Space Category	Category Description	124 Edward Street	777 Bay	123 Edward Street	MSB	Other	Total Nasm
1.0	Classroom Facilities	1,401.70	12.00				
2.0	Laboratory - Undergraduate	4,283.36	680.00				
3.0	Research Laboratory Space	4,398.00		31.87	61.33	351.76	
4.0	Academic Dept Offices and Related Space	2,758.63	93.00	166.11	10.24	59.82	
11.0	Non-Library Study Space	150.59					
14.0	Common Use and Student Activity	310.86					
15.0	Assembly and Exhibition Facilities	149.51					
	Total Nasm	**13,452.65**	**785.00**	**197.98**	**71.57**	**411.58**	**14,918.78**
	Clinic Related	5,657.18	785.00				6,442.18
	Other	7,795.47		197.98	71.57	411.58	8,476.60

The Dentistry Building is solely for the Faculty's use. The total existing net assignable area of the Dentistry Building is 14,159 nasm; 13,453 nasm dedicated to the Faculty of Dentistry, 602 nasm dedicated to the dentistry library (University Toronto Library division) and 105 nasm dedicated to plant maintenance for grounds-related storage and custodial accommodation. The net to gross factor is 1.7 which is quite low for a building of this type.

Elm Street Patient Entrance

Room Description	Rm. No.	Qty.	Seats	Total Nasm
Vestibule	M200V	1	12	13.71
Waiting Area	M200	1	12	140.02
Reception	M205	1		32.00
Clinic Administrative Office	M206	1	1	14.63
Clinic Administrative Office	M206A	1	1	12.34
Storage	M204	1		15.92
Total				**228.62**

Elm Street Patient Entrance

While the Edward Street entrance serves as the academic & student entrance to the building, the front entrance along Elm Street is the functional and symbolic entrance for all patients needing to access the clinic. The current entrance is accessed via steps or a non-compliant ramp from street level to the mezzanine level. The Mezzanine Level is comprised of a Waiting Area, Patient Reception and medical files room, two Clinic administration offices, a janitor's closet and locker room, Clinic Storage and Men's and Women's washrooms. To access the ground floor or the second floor clinics from the entrance mezzanine, patients are required to navigate a non-compliant ramp.

Currently, patient access is hampered through non-compliant accessibility provisions and unclear wayfinding. The Clinic Master Plan identified the Elm Street Patient Entrance as Phase 4 and recommended that it includes the elimination of patient record storage and a complete renovation to patient reception. Clear wayfinding and improved access via a new elevator are to be considered for the renovation of the Patient Entrance.

The Exterior Ramp will remain outside of the current project's scope. The existing Clinic Entrance Doors were recently upgraded and will also be excluded from the project scope. The patient waiting area will be renovated to create a new, contemporary and welcoming environment. A portion of the Patient Waiting Area will be converted into a multi-disciplinary seminar type room accessed from Level 1.

Photo 02_Patient Entrance, Reception, Waiting and Access Ramp

Patient Access

Along with the renovations to the Clinic Entrance the current project will include a new patient elevator to with stops at the Clinic 1 Entrance, Main Clinic Waiting Mezzanine Level, and Clinic 2 Entrance. The Elevator will be sized to meet AODA requirements as well as be sized to accommodate a medical stretcher.

An existing stair connecting Clinics 1, 2 and the existing 3rd floor will be partly replaced with a new stair to serve as a convenience stair between all three Clinics.

Photo 03_Elm Street Patient Entrance and Exterior Ramp

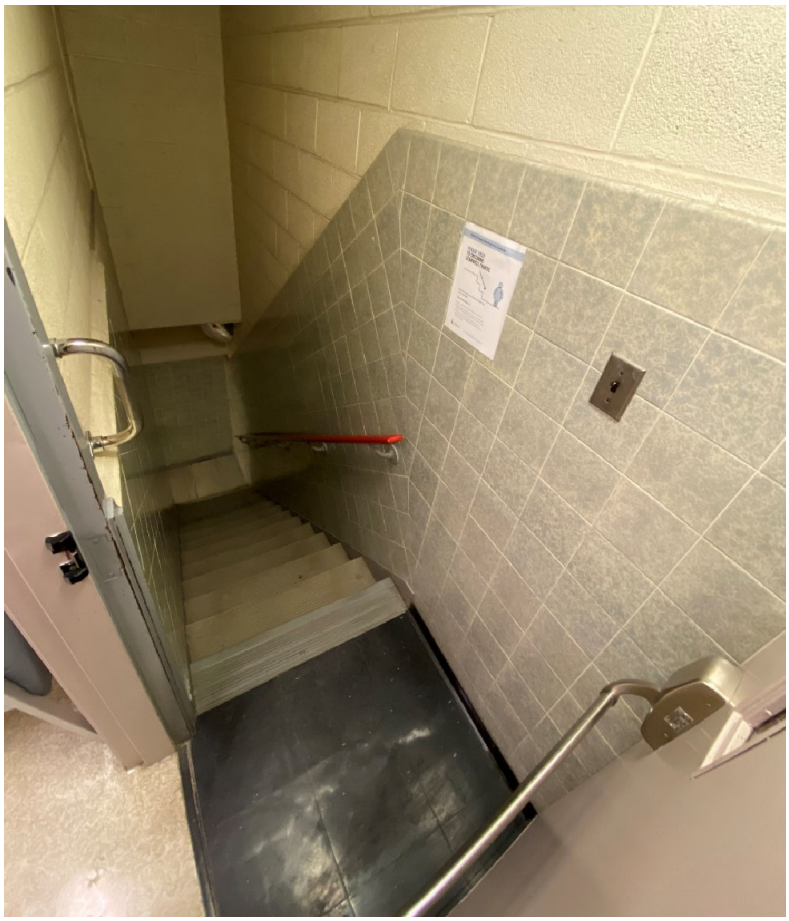


Photo 04_124 Existing Egress Stair connecting Clinic 1 to 3rd Floor

Classrooms

Category 1.0 – Classrooms

COU Category	Program Description	2019/20	COU Input Measure	COU Generated Space	Existing Space Inventory	% P/G
1.0	**Classrooms**	**FTE**	**1.11**	(nasm)	(nasm)	
1.0	Classrooms	432	1.11	479.52	1,413.70	295%

Currently at a total of 1,401.75 nasm, the Faculty of Dentistry has almost three times the standard allocated space for classroom facilities. This over-allocation is often the case for programs that are physically separated from the main campus since they do not have access to the central ACE inventory of classrooms.

Classroom bookings for Dentistry indicate fairly low usage levels, with an average utilization of approximately 11 hrs per week over the course of the 30 weeks in the school year. This is significantly under a recommended utilization rate of 34 hours per week, even when factoring in weekend and extra-curricular usage which averages approximately 2-3 hrs per week. Seminar rooms are less frequently booked than the large lecture rooms, ranging between 4-18 hours per week. It should be noted that usage levels of the classrooms varies considerably from week to week. At peak times classrooms can be booked for up to 30 hours per week, while at slow times, bookings run sometimes only 3 hours per week. Overall the clinic schedule dictates the lecture schedule as students are often in Clinic at the same time.

This large discrepancy between COU generated space and existing space brings to light several issues concerning Dentistry's Classroom Facilities:

- Average Classroom Station Size: The COU standard assumes a range of classroom station sizes, from 1.16 nasm to 3.56 nasm depending on size, configuration and furnishing, with an average station size of 2.1 nasm per student in a mix of room capacities and instruction delivery types (lecture, seminar, active learning). This is the result of a large number of seminar style rooms, whose layouts demand more space than classrooms or tiered lecture theatres with rows of closely spaced seats. The flat floor auditorium which is programmed at 2.02 nasm per station can accommodate term tests and exams, similar to the rooms in the new Exam Centre.

- Classroom Utilization: The COU guideline recommends 34 hours per week of scheduled classroom use (Monday through Friday) with scheduled evening use of 4 hours per week. As demonstrated by the classroom bookings, the academic program for the Faculty of Dentistry is not consistent with this standard. Scheduling between lectures and clinics appears to be a large hurdle for the Faculty in resolving its space issues. Currently it is necessary for DDS students and graduate students in clinical programs to take most of their lectures in the early mornings or over the lunch hours and attend their laboratory and clinical sessions the rest of the day. This is particularly difficult for 3rd and 4th year DDS students who are in clinic most of the day. Dental students are required to work with patients in the Clinics at set times each week, which often results in at least three years and occasionally all four years accommodated in the classrooms at the same time. Using other university classroom space is not a viable option as the time it takes getting between the Dentistry Building and St. George campus proper cannot be accommodated in the students' packed curriculum. The result is scheduling limitations and the provision of more than the standard number of classroom spaces. The COU guideline also does not address weekend use, which is typical for the Faculty of Dentistry.

- Quality of Space: Currently the Faculty uses most of the seminar rooms as breakout space from larger classes and specialty groups, with 10-12 people scheduled an average of 11 hours per week with some additional hours booked in other specialty meeting rooms. Many of these seminar rooms are former administrative meeting rooms and do not make optimal instructional spaces - students are at a disadvantage when classes are held within them. The use of these meeting rooms as classrooms has put a strain on the availability of meeting space for administrative and faculty use.

Undergraduate Teaching Laboratories

The Undergraduate Teaching Laboratories space category includes labs, clinics and support spaces. 79% of Dentistry's total Undergraduate Teaching Laboratories space is clinic-related. Clinics are also dedicated for Graduate Student use which for the purposes of analysis are classified under the COU as Research Laboratories.

Teaching Laboratories

There are two scheduled undergraduate teaching labs, one unscheduled teaching lab and various lab support spaces, all housed in the Dentistry Building. The Preclinical Simulation Lab (Lab 4) is equipped with 128 clinic simulator stations used mainly for simulated operative dentistry. The Biological Sciences Teaching Lab (Lab 216) is equipped with 124 stations, originally designed to support basic microscopy. Today, these stations mainly support instruction in histology and pathology using standard laptop computer. The room is also routinely booked for full class lectures. The unscheduled Undergraduate Senior Student Lab I (Room 113), formerly equipped with 124 stations, is currently being converted into the centralized Medical Device Reprocessing Unit (MDR). Senior Lab activities have been consolidated into two rooms within the Preclinical Lab 4 in Rooms 3 and 4. As per the faculty's 2019/20 academic calendar, scheduled lab bookings total 45.50 hours per week for DDS1 and DDS2 courses (at time of project planning). DDS3 and DDS4 courses do not require any scheduled teaching lab hours but instead the course work is delivered largely in the teaching clinics. DDS 3 and 4 courses periodically require access to lab support spaces.

The teaching labs are primarily pre-clinical and used for students to practice skills in a simulated environment, typically on mannequin heads, prior to working on actual patients. In the dentistry labs, students work at stools situated perpendicular to mannequin heads placed in a prone position, compared to traditional science teaching labs where undergraduate students generally work in pairs, side by side facing a bench top. The COU space factor of 0.60 for Dentistry Teaching Labs is intended to reflect this additional space requirement. Further consideration of additional station space to accommodate new technology, including monitors, is to be factored into the determination of station size.

Undergraduate and Graduate Clinics and Related Spaces

The Dentistry clinics and the spaces necessary to support their function warrant a discussion separate from the teaching and research laboratory space. Unlike most other health care related divisions of the University, the Faculty of Dentistry must provide in addition to its teaching programs a health-care service in order to fulfil its academic mission. While other faculties can train students within hospital facilities, the Faculty of Dentistry must operate an independent oral health care facility that maintains a patient base of approximately 15,000 active cases at any one time, providing care at both the general practice and specialty levels. Currently, the clinic handles in excess of 90,000 patient visits annually and this provisions requires a substantial amount of space. 5,544.48 nasm or 41% of Dentistry's total space at 124 Edward Street is dedicated to clinic or clinic-related function (including administration and support). Currently, 100% of Dentistry's total clinic space is

located in the Dentistry Building alone. In September 2021, the temporary Satellite Clinic space at 777 Bay Street will provide an additional 785 nasms of Clinical related space.

In the Dentistry Building, patient treatment space totals 1,938 nasm (undergraduate) + 898 nasm (graduate) and clinic support space is a further 1,252 nasm (undergraduate) + 1,109 nasm (graduate). Clinic space consists of patient treatment spaces (dental chairs and surgical bays), clinic support spaces (dispensaries, storage, sterilizers, recovery rooms, equipment rooms etc.). Graduate Student offices, Administrative offices for clinic staff or clinical faculty (including reception desks), and administrative support space (waiting rooms, meeting rooms, locker rooms, admin storage, staff lounges etc.) account for an additional 348 nasm. There are also two 12-seat seminar spaces that double as x-ray viewing and consult rooms.

Clinics are most heavily used by DDS3 and DDS4 students as well as the professional stream (specialty) Masters students. There are 2 large general clinics, primarily serving undergraduate students, and 10 ancillary and specialty clinics, with number of chairs or surgical bays noted below. Some specialties require more space than others. Periodontics, Endodontics, Orthodontics, taught at the undergraduate and graduate levels result in additional space requirements within the clinic setting. Surgical suites as well as Paediatric clinics, designed for both teaching and patient comfort, also require some additional space.

Optimal chair sizes have been defined for the patient treatment areas as well as efficient support space by clinic staff. The two existing general clinics have open operatories with 143 dental chairs, each occupying an average of 10 nasm per chair. This is a typical chair size for use in open or semi-enclosed operatories. The current planning, initiated by Covid-19 mitigation response regulations requires that operatories become enclosed. Enclosed operatories and surgical bays require more space for additional equipment as well as AODA compliant accessibility space allowances. Optimal size for enclosed operatories was determined during the Clinic Master Plan design process to be 12 nasms, with 15 nasms reserved for AODA compliant enclosed operatories.

Clinics are held at set days and times during the week. Constrained scheduling of clinic time for students results in a number of class years vying for classroom and teaching lab space at the same time. In some instances, all four years are receiving instruction at the same time during the day. This results in an increased load on teaching labs, and thus an increase in required space. Potential adoption of the Group Practice model and an increase in the number of daily shifts may also contribute to improving instructional scheduling.

New technologies used in the study of dentistry are increasing the type of equipment used in the profession. The use of digital scans are commonplace, as is the digitization of x-rays and other equipment. The addition of the computer in a clinic setting adds some space to each operatory. Being electronically connected can aid the student in their work, and allow the instructor to view the work of a student remotely. The present facilities at the Dentistry Building do not easily allow for modernization or growth.

The patient population, of approximately 15,000 active cases in any given month, is largely from the lower socioeconomic strata, with over 85% of patients reporting an annual income of less than $40,000.00 per year. Most would be unable to obtain adequate oral health care were it not for these clinics. Over 90,000 patients visit the clinics annually. Thus, in addition to a training and general health service component, the Faculty of Dentistry clinics also provide a much needed social service, but in an antiquated public clinic environment that physically defies the provision of privacy, and complicates infection control.

The majority of the school’s faculty teach in clinic, as well as 600 Instructors in Dentistry - primarily practicing professional dentists who come in for various hours every week to supervise students working in clinics. 117.60 FTE staff support the clinics, including hygienists, technicians, nurses, and clinic managers. Only 52 FTE of these staff require workstations, with the rest of the staff requiring lockers only. Prior to COVID-19, the Clinics were primarily operational from September to April with DDS 3 running into July and

specialty Clinics running year round. Since the pandemic, clinics and the simulation lab have been open year round at a reduced capacity.

Clinic 2

Clinic 2 is a large, open concept double-height clinical area that contains 78 dental units for use by undergraduate dental students during all 4 years of the program, pre-COVID-19. The Clinic also contains 16 semi-enclosed Prosthodontic and Endodontic operatories, one Implant Prosthodontic Unit and 1 Endodontic Surgery Suite for Graduate Student use. The clinic has been updated and modernized over time in order to meet current standards of practice, but basic layout of the clinic has remained unchanged since the clinic first became operational in 1959.

Photo 06_Existing Clinic 2 from the North-East Corner

Existing Space Inventory – 124 Edward Street, Clinic 2 Area

COU Space Category	Category Description	Clinic 2
1.0	Classroom Facilities	55.79
2.0	Teaching Laboratory Space	812.23
3.0	Research Laboratory Space	557.25
4.0	Academic Dept Offices and Related Space	201.19
9.0	Plant Maintenance	20.42
16.0	Non-Assignable	405.09
	Total Nasm	**2,051.97**

The current Clinic 2 undergraduate dental units were updated with KAVO equipment in the early 2000s. The units are laid out in rows, separated horizontally by stand-alone desks that contain a computer terminal and a small work-surface table. Individual dental chairs share the double height space on the second floor of the 1959 building.

Existing Space Use – 124 Edward Street, Clinic 2 Area

Room Description	Qty.	Area Nasm
Clinical Examination	4	1,018.78
Clinical Special Treatment	3	42.93
Clinical Sterilization	1	13.14
Clinical Storage	4	52.56
Clinic Reception	1	16.24
Clinic Waiting Room	1	28.62
Seminar Room	2	55.79
Laboratory - Research	2	21.02
Laboratory - General	1	15.00
Laboratory Support	2	22.46
Laboratory Office	1	9.71
Laboratory Storage	2	17.52
Laboratory Lockers	1	14.64
Faculty Office	1	15.25
Admin Office - Single	6	89.54
Admin Office - Multi	1	15.92
Office Storage	1	1.71
Locker Room	3	125.87
Staff Room/Lounge	3	59.20
Clinic 2 Total		**1,635.90**

The COVID-19 pandemic has had a direct effect on the clinic renovation. Since COVID, the practice of dentistry has faced immense operational challenges, with new requirements for aerosol-generating procedures (AGPs), which make up approximately 75% of clinical care. This is having a huge impact on large open clinics, such as Clinic 2, which is where the bulk of the school's clinical teaching is carried out. Specifically to this latter point, on October 14, 2020, the provincial dental regulatory authority (RCDSO) issued guidelines stating that AGPs must be performed within a fully enclosed room for each patient in locales where the COVID positivity infection rate is not low. Outside of COVID-19 concerns, current practice and accreditation committee comments point to potential challenges in infection control within Clinic 2 with the existing minimal chair spacing. To this point, the most recent (2019) Accreditation site visit included a mandatory Recommendations that stated "That Faculty administration continue to work with University administration to seek funding . . . to renovate/modernize . . . preclinical labs and clinics". In order to meet current COVID-19 regulations and provide improved infection control and efficiency of use for the future; the Faculty of Dentistry is planning to replace the open clinic with enclosed operatories for each dental chair. Because of the increase need for space to accommodate access, egress and partitions; the average size of 6.4 nasms per chair will need to increase to 15.4 sm per chair (12 nasms per operatory + corridor space). This increase in operatory size has the detrimental effect of reducing the number of chairs available to Students and Patients within the current Clinic 2 space. In order to maintain adequate quantities of operatories the Clinic 2 renovation will increase the Clinic area on the second floor by taking over existing spaces on the north and south extents of the clinic area.

Existing Clinic 2 Operatories

Operatory	Qty.	Operatory Area	Total Area (Nasm)
Undergraduate Open	78	6.44	502.32
Graduate Semi-Closed	16	9.81	156.96
Graduate Enclosed	2	16.20/17.95	34.15
Clinic 2 Total	**94**		**693.43**

Clinical instruction and the Undergraduate Clinic is based on the availability and quantity of patient appointments. Students are scheduled a specific number of hours and are required to successfully attain competency when performing a stipulated range of treatments in the Clinic. In order to provide the opportunity for students to complete their clinical curriculum it is advantageous to maximize the number of patient appointments per term. Prior to COVID-19, Clinic 2 was used continuously to full capacity from September to March each academic year, with slightly reduced usage in May and June running in two shifts per day allowing for a maximum of 156 patient appointments per day. The clinic is staffed by one Team Leader, one clinical receptionist, one dispensary assistant, one infection control assistant and 9 dental assistants and approximately 16 instructors.

Included in the Clinic 2 Renovation will be the necessary staging of the existing Graduate Clinic Spaces. These operatories will be accommodated through the upgrading of existing operatories in the Emergency Clinic – Room 253 - to provide x-ray capabilities serving Graduate student needs.

Existing Emergency Operatories

Operatory	Qty.	Operatory Area	Total Area (Nasm)
Emergency Clinic – Semi - Enclosed	8	8.81	70.47
Room 253 Total	**8**		**70.47**

Graduate Research Labs

The Clinic 2 space contains graduate Clinic Operatories for Endodontic and Prosthodontic procedures as well as 2 operating rooms and graduated research labs and support spaces.

Existing Graduate Research Lab Inventory

Room Description	Rm. No.	Total Nasm
Endo/Prostho Clinic	207	299.15
Lab Support	207A	8.66
Operating Room	207B	16.20
Operating Room	207C	17.95
Model Lab	225	22.46
Model Lab	2225A	10.69
Plaster Room	226E	10.58
Lab Workroom	226	15.00
Clinic Admin Office	226C	10.44
Lab Office	226D	9.71
Total		**420.84**

The current Endo/Prostho Clinics are semi-enclosed and contained within the larger open Clinic 2 space on a raised floor with servicing below. These clinics require the same enclosed operatory conditions as described above for the rest of Clinic 2. Endo/Prostho Clinic operatories are to be relocated to the existing Emergency Clinic (Room 253) where minimal renovations to 6 existing operatories for X-Ray use regulatory compliance will be required. This work has been identified as a secondary effect and will be completed outside of the scope of the Lab 4/Clinic 2 Renovation project.

The third floor space contains graduate Clinic for Orthodontics and Periodontics, a research lab and support spaces. These facilities will be included in construction phasing to minimize disruption and maintain operation during renovations to the second floor Clinic space. Future accommodation of the Orthodontic and Periodontal Clinics will require staging in other clinical spaces in anticipation of the Clinic 1 renovation phase.

Existing Graduate Clinics

Room Description	Rm. No.	Total Nasm	Notes
Orthodontic Clinic	315, 316, 319	178.21	10 Open Chairs/3 Enclosed Ops
Periodontal Clinic	324, 326, 327, 330,331, 332, 333, 334,335, 336,337	140.13	11 Enclosed Ops
Clinic Support	319,320, 320A, 322,325, 328, 329,338	100.37	
Residents Room	320A	16.90	
Total		**435.61**	

Emergency Clinic Operatories (Room 253)

Operatory	Qty.	Operatory Area	Total Area (Nasm)
Emergency Clinic –Enclosed	6	8.66	51.93
Existing Semi-Open Operatories to Remain	2	8.26	16.51
Room 253 Total	**8**		**68.44**

The Clinic Master Plan envisions a co-location of Graduate Clinics and Labs on Level 1 in the current Clinic 1 space. While this work is identified as a distinct phase of the master plan (Phase 7D) it is not included in the Clinic 2 / Lab 4 renovation scope of work with the exception of renovations to 6 operatories in the Emergency Clinic Room 253. The Clinic 2 renovations include the removal of the Endo/Prostho and the two surgical rooms on the second floor and the Perio & Ortho Clinics on the third floor. During renovations to Clinic 2, graduate clinical work will need to be completed in Clinic 1, Pediatric Clinic, Satellite Clinic, Oral Diagnosis and Emergency, and the existing Level 1 Oral Surgery Suite. Scheduling and capacity of these spaces will require further review and scheduling in conjunction with construction phasing.

Initial discussions include phasing the Clinic 2 implementation to allow the third floor Ortho/Perio clinics to remain operational until spaces are operational within Clinic 2 to allow UG use, freeing up the Satellite Clinic for Ortho and Perio. Further review with Consultants and Contractors is required to determine a critical path phasing plan.

The Surgical Suites were renovated approximately 15-20 years ago. Since that time, the standard practice for procedures previously designated for surgical suites are currently being performed within Standard Operatories, leaving surgical suite use for more specific and less frequent procedures. The Faculty looks to renovate the surgical suite as outlined in the Clinic Master Plan (Phase 7D) and will analyse Graduate use of Undergraduate standard operatories for surgical procedures at that time. The analysis will inform pro-rating of space use for documentation in the Space Inventory at 124 Edward Street.

Satellite Clinic

The Satellite Clinic on the 22nd Floor of 777 Bay Street was initiated in November of 2020 in response to COVID-19 and the requirement by the RCDSO and PHO to require enclosed operatories for all Aerosol Generating Procedures (AGP) in dental care. The Satellite Clinic works in conjunction with the Clinics at 124 Edward Street to provide students with the minimum necessary COVID-19 regulation compliant facilities to achieve Clinical Hours towards graduation. The Satellite Clinic is leased space with a 10 year timeframe allowing it to act as temporary clinic space during the renovations to Clinic 2 and other phases of implementation of the Clinic Master Plan.

The following space program the space program for the Dentistry Satellite Clinic.

Space Program

COU Category	Cat. Description	Program	Quantity	Nasm
1.0	Classroom			
1.2	Non-Tiered Classroom	Seminar Room	1	12
2.0	Teaching Laboratory			
2.1	Teaching Laboratory	Enclosed Operatory	36	432
		AODA Operatory	4	60
2.2	Laboratory Support	Donning/Doffing	1	6
		Cart Storage	1	10
		Dispensary	1	15
		Sterilization	1	30
		Clean Storage	1	10
		Support Lab	1	12
		Brushing Stations/Computer Stations	6	12
		Computer Stations	4	8
		Waiting Room	1	30
4.0	Faculty and Administration Offices			
4.1	Faculty Office	Private Office	1	10
4.4	Administrative Staff Office	Reception	2	15
		Staff Workstation	5	25
4.5	Office Support	Staff Locker Room	1	5
		Staff Change Room	2	6
		Lounge/Lunch Room	1	20
		Storage - Supplies	1	12
14.0	Student Space	Student Locker Room	1	40
		Student Change Room	3	15
16.0	Non-Assignable	IT Switch Room	1	12

N.B. Satellite Clinic Space program as approved in principal by CaPS Exec. November 2020 to be updated with completion of project.

In order for the Satellite Clinic to provide enough Clinical curricular hours with a minimum amount of operatories the Faculty of Dentistry changed the current clinic schedule from 2 shifts per day, 5 days a week and assigned each clinical appointment to 2 students instead of 1. The analysis of instructional laboratory use looks at Weekly Scheduled Contact Hours (WSCH) which is the product of the number of lab enrolments x the number of scheduled lab hours. In a typical COU space program generation, the WSCH is multiplied by a COU determined/department specific space use factor to determine space need. In the case of the dentistry clinics, the analysis looks at the combination of number of operatory units and the available number of shifts per week to ascribe possible appointments per student per week. Using 40 enclosed operatories, 2 shifts and 2 students per appointment, the Satellite Clinic affords the following operational capacity and WSCH.

Satellite Clinic Operational Capacity

Hours per Shift	Shifts per Day	Students per Shift per Operatory	# of Operatories	Number of Appointments per Day	Scheduled Contact Hours per Day	Weekly Scheduled Contact Hours (5 Days)
2.5	2	2	40	80	400	2000

In addition to the Satellite Clinic operatories, the Faculty of Dentistry has converted spaces within 124 Edward Street to enclosed operatories. Added to existing enclosed operatories these new spaces provide a total of 25 enclosed operatories at the existing Dentistry building.

During renovation of Clinic 2, should AGP regulations continue to require enclosed operatory procedures the Satellite Clinic, enclosed operatories and existing Clinic 1 operatories will be required to provide for the required curricular hours in Clinical work.

Occupant profile

Academic Staff Profile

The following FTE figures and analysis are current from the time of project planning and represented the operation and projected growth of FTEs of the Faculty of Dentistry at that time. Further, review of FTE projections and associated space analysis is recommended in concert with implementation of subsequent phases of the Clinic Master Plan.

In the 2019/2020 academic year 69.67 FTE Faculty (including 36 part-time faculty equating to 20.65 FTE Part-time faculty, 49.02 FTE full-time faculty), 15.00 FTE Research Associates and 26.0 FTE Post-Doctoral fellows or Visiting Scientists were appointed at the Faculty. It is not expected for faculty to expand beyond current numbers; research associate and post- doctoral fellow positions will be contingent on available space and funding. Each full-time appointed academic staff is to be provided a single private office, with part-time faculty sharing space. Two cross appointed faculty are currently accommodated within their home-base, 2 FTE (PI) are located in leased space at 123 Edward Street and 0.6 FTE (PI) is located at MSB.

Existing Faculty Compliment

Faculty	FTE 2017/18	FTE 2019/20
Appointed Faculty	70.56	69.67
Research Associates	11.00	15.00
Post-Doctoral Fellows / Visiting Scholars	24.00	26.00
Total academic Appointed Staff	**105.56**	**110.67**

Sessional Staff Profile

There are currently 600 (headcount, not FTE) Instructors in Dentistry - primarily practicing professional dentists that support the DDS and Specialty programs. The majority of their efforts are in clinical teaching, while they also support the faculty through the provision of pre-clinical (simulation) teaching, seminars and lectures. Sessional staff do not generate (COU) nor require work space however those at St. George campus require approximately 50 purse-size lockers and a small dedicated lounge, requiring ~ 120 nasm of space in total.

Non-Academic PM & Confidential Staff Profile

Currently there are a total of 19.00 FTE PM & Confidential staff. All are appointed full-time staff. Administrative staff levels are expected to remain consistent despite the planned enrolment expansion.

Non-Academic PM & Confidential Staff

Staff	FTE 2016/17	FTE 2019/20
Administrative Staff requiring private offices	17	17

Administrative Staff requiring shared offices	2	2
Total PM & Confidential Staff	**19.00**	**19.00**

Non Academic Support Staff Profile

The Faculty of Dentistry has a large complement of support staff including dental assistants, lab technicians, dispensary staff, clinic receptionists and faculty administration staff. Over half of the support staff work in Clinics at dental chairs or in labs and many do not require work space, although they may require locker room and support space. Some of the support staff require work spaces in either shared or private office space. 4 FTE (1 PM and 3 USW) for Continuing Dental Education (self-funded unit) are located in a leased spa~~ce (1~~23 Edward St) in private offices.

Non Academic Support Staff

Staff	FTE 2016/17	FTE 2019/20
Non-Clinical Staff requiring private offices	17.00	17.00
Non-Clinical Staff requiring shared work space	29.00	29.00
Clinic Staff requiring private offices	20.00	20.00
Clinic Staff requiring shared work space	32.20	32.20
Clinic staff NOT requiring work space	65.40	65.40
Total Non-Academic Staff	**163.60**	**163.60**

Student Profile

Dentistry's student enrolment is as follows:

Student Cohort

Students	Count 2016/17	Count 2019/20
DDS 1st year	96.00	96.00
DDS 2nd year*	96.00	96.00
DDS 3rd year*	120.00	120.00
DDS 4th year*	120.00	120.00
IDAPP	24.00	24.00
Total Undergrad	**456.00**	**456.00**
MSc	14.00	14.00
MSc (w. Specialty Training)	77.00	77.00
PhD	22.00	22.00
PhD (w. Specialty Training)	2.00	2.00
Total Grad	**115.00**	**115.00**
TOTAL STUDENT	**571.00**	**571.00**

* Students in the International Dentist Advanced Placement Program, 24 FTE, transfer into the DDS program in year 3 and are not part of the DDS program until that time. During the academic year the IDAPP students are present and often join the class for the second half of DDS2 raising the total DDS count by 24 from January to June.

In addition to the total student count above, there are 13.00 post-graduate positions available in the Hospital Dental Residency Program. Residents undertake supervised clinical experience in hospital dentistry as well as other hospital departments. These students have been excluded from the Total Student count as they do not generate any space requirements.

Clinical spaces are most heavily used by DDS3 and DDS4 students as well as the professional stream (specialty) Masters students. There are 2 large general clinics, primarily serving undergraduate students, and 10 specialty and ancillary clinics, with a number of chairs or surgical bays noted below. Some specialties require more space than others. Periodontics, Endodontics, Orthodontics, taught at the undergraduate and graduate levels result in additional space requirements within the clinic setting. Surgical suites as well as Paediatric Dentistry clinics, designed for both teaching and patient comfort, also require some additional space.

The majority of the school's faculty teach in clinic, as do 600 Instructors in Dentistry – primarily practicing professional dentists who come in for a few hours every week to supervise students working in clinics: typically 50 to 100 Instructors attend clinics in a given day. 117.60 FTE staff support the clinics, including dental hygienists, dental technicians, dental assistants, a select number of registered nurses, and clinic managers. Approximately 52 FTE of these staff require workstations, with the rest of the staff requiring lockers only. Prior to COVID-19, most clinics were operational from September to April with DDS3 extending to July, and most graduate specialty clinics and the Emergency clinics that are operational all year.

Space analysis for this project is only taking into consideration faculty, students, and staff involved in the preclinical undergraduate lab and Clinic 2 teaching, as they will be the primary users of the Labs/Clinic. A space audit (2017) and Clinic Master Plan (2019) of the whole Faculty of Dentistry community was recently completed by University Planning. FTE faculty, staff and students for 2019/20 involved in preclinical teaching were used as input measures in the space analysis.

Due to the nature of the work done at the Faculty of Dentistry clinics, it is difficult to compare the needs of the Clinic to the COU space standards which do not have a specific category for clinic space. Thus, we have utilized the average amount of space required by each station including support space and compare to COU categories 2.0 and 3.0 (Teaching Labs and Research Labs).

Aerosol Generating Procedures (AGP) occur within Clinic 1, Clinic 2, Pediatric, Endodontic, Orthodontic, Prosthodontic, Periodontic, Oral and Maxillofacial Surgery, Emergency and the Anaesthesia Surgicentre Clinics. With RCDSO and PHO COVID 19 AGP regulations, the strategy for the redevelopment of the Faculty of Dentistry Clinics will be to replace existing open operatories with enclosed operatories designed to meet the RCSO/PHO regulations as well as provide for the Faculty's pedagogical needs in the future. The implementation of enclosing all Clinical operatories was determined to not be required, with the provision of a percentage of total operatories to be enclosed to allow for flexible use by Undergraduates and Graduate students for various procedures within the renovation of Clinic 2.. Current student Weekly Scheduled Contact Hours (WSCH) will be compared to minimum pedagogically required Clinic hours and available Weekly Schedule Patient Hours, or appointments within the capacities of the renovated Clinics.

III. Project Description

a) Vision Statement

The Faculty of Dentistry Clinical Practice is a robust multi-disciplinary Clinical Program with Clinics in all specialty areas. Clinical Practice provides treatment for a large and diverse patient population, many of whom have difficulty accessing care. The Practice also engages in Hospital and Community partnerships to add additional expertise and exposure to the student experience. The vision of Clinical Care as per the latest Faculty of Dentistry Strategic Plan is to, "Optimize our practices to provide outstanding clinical care for our community". In order to achieve this vision, the following are the primary goals of the Clinical mandate:

1. Deliver outstanding care and service for all patients; and
2. Enrich the students' clinical learning.

The Clinic 2 Renewal seeks to support the clinic mandate, while also implementing upgrades to meet the objectives of its academic mission and current regulatory requirements within the profession of dentistry and dental education in Ontario.

Clinical teaching methodology is limited by an inflexible and constrained environment. The development and application of innovative and modern electronic and other teaching methods available is limited by the current design of the clinics, teaching laboratories, seminar rooms and lecture theatres severely compromising the student experience. The Dentistry Building poses further challenges to modernization of the clinics because of limitations related to items of deferred maintenance.

High Level Vision for the Clinic 2 Renewal:

- Improved teaching environment;
- Responsive to current technologies and practices;
- Implementation of enhance infection control including a percentage of operatories to be RCDSO/PHO COVID-19 compliant enclosed;
- Provision of X-ray equipment within enclosed operatories ;
- Patient friendly;
- Operational efficiency;
- Greater shared space;
- Aesthetically pleasing;
- Well-designed layout;
- Durable;
- Implementable while being an occupied building;
- Affordable;
- Accessible;
- Amenable to future advancements

The Clinic 2 renovation is necessary as modernization is essential to enable the Faculty's core educational mission to continue. Specifically, its clinical teaching and learning, through its concurrent provision of patient care, must meet all expected standards – both those of the public and those of the accreditation bodies. While the future is uncertain, all signs point to enhanced infection control precautions going forward. From an infrastructure standpoint, these include provision of fully enclosed operatories in addition to standard open

operatory chairs that are appropriately spaced. The existing design of Clinic 2 no longer allows for adequate utilization, and the Faculty of Dentistry must move forward with its renovation.

b) Statement of Academic Plan

Our Faculty's philosophy is a commitment to the development of a high standard of student clinical competence through the experience of providing multi-disciplinary patient-centered comprehensive dental care in Faculty Clinics within an "evidence-based" overall educational curriculum. A number of defined core clinical experiences are required to ensure that students have been exposed to a minimum basic range of clinical practice in all clinical disciplines. Emphasis in all clinics is on the provision of appropriate and rational care for assigned patients according to patients' needs.

Clinic 2 will be the primary center for undergraduate student training to provide comprehensive dental care to adult patients. Its enclosed operatories will meet anticipated new standards required for dental care delivery, in particular, for aerosol-generating-dental-procedures. A multi-functional arrangement of groups of 10 dental chairs, with glass windows, will allow for close supervision of a group of students performing a variety of examination, treatment planning, periodontal, restorative, endodontic, prosthodontic and emergency procedures by a team of instructors in the Comprehensive Care Program. 120 DDS3/DDS4 student pairs will be scheduled to provide care for up to 60 patients during each of the 2 daily sessions, 8am – 7:00pm, Mon-Fri, Sept-July. As well, Clinic 2 will be used for rotating clinical practicums that will include DDS1 students to observe and assist as part of their pre-clinical training, DDS2 students to provide preventive and periodontal check-ups and care to our adult patient care population, and DDS3 and DDS4 students to provide general practice treatments to our pediatric patients. The size of the rotating clinical practicum groups will vary between 10-30 students. The clinical practicums will take place within the multi-functional arrangement of groups of 10 dental chairs.

One of Dentistry's strengths is clinical outcomes and education. The Faculty of Dentistry has a comprehensive Doctor of Dental Surgery (DDS), which is a 4 year undergraduate program, as well as graduate programs, MSc and PhD, both with Dental Specialty Training, graduating strong clinicians. Dentistry's Clinical practice Mission is to shape the future of dentistry and promote optimal health by:

1. Preparing the next generation of clinicians and leaders in the profession; and
2. Promoting comprehensive and patient-centred care from disease prevention to management

Ways to enrich the student experience include:

1. Better sized dental chair areas to support patient and student privacy;
2. Flexible clinical space to allow restructuring
3. Application and integration of innovative and modern electronic technology; and
4. Better integration across general (undergraduate) and speciality (graduate) clinics.

Because of the number of rotations to various clinics, it is extremely challenging to ensure all students have a balanced and equitable clinical experience throughout their four years of dental school. While the Faculty boasts an impressive number of individual dental chairs, the availability of space in conjunction with the academic and scheduling poses constraints. Students must rotate through the various clinics on a regular basis. However, the number of chairs in a given space limits scheduling options available to students and the program.

DDS Undergraduate Program

Pre Renovation

The undergraduate program is supported by the following chair count:

Pre Renovation Chair Count

Clinic	Chair Count
Clinic 1	65
Clinic 2	78
Pediatrics	24
Oral Diagnosis	10
Emergency	8
Radiology	13
Oral Surgery	8
Total	**206**

Currently, 50 percent of the clinical program in DDS years 3 and 4 is assigned to the Comprehensive Care Program (CCP) in Clinic 1 and 2. CCP is representative of the core components of general dentistry; Operative dentistry (fillings), periodontal treatment (cleanings) and simple prosthodontics (removable and fixed dentures). Students schedule their own assigned patients in these clinics. The number of dental chairs allocated to CCP is 143.

On any given day, the other 50 percent of clinic time is allotted to clinical rotations, or ancillary clinics, that include Pediatrics, Oral Diagnosis, Emergency, Radiology and Oral Surgery. Reception staff schedules patients in these clinics. The number of dental chairs allocated to the ancillary clinics is 63.

In total, the undergraduate DDS program is allocated 206 dental chairs.

Post Renovation

The undergraduate program will supported by the following chair count:

Post Renovation Chair Count

Clinic	Chair Count
Clinic 1	65
Clinic 2	75
Pediatrics	24
Oral Diagnosis	10
Emergency	8
Radiology	13
Oral Surgery	8
Total	**203**

Pre Renovation

Shift	Clinic 1	Clinic 2	
AM	65	78	

PM	65	78	
Total	**130**	**156**	**286 Appts/day**

Post Renovation 2 shifts per day

Shift	Clinic 1	Clinic 2	
AM	65	75	
PM	65	75	
Total	**130**	**150**	**280 Appts/day**

Post Renovation 3 shifts per day (Hypothetical, if needed in the future)

Shift	Clinic 1	Clinic 2	
AM	65	75	
PM 1	65	75	
PM 2	65	75	
Total	**195**	**225**	**420 Appts/day**

As a result of the renovation, the CCP program will experience a net reduction of 3 chairs (143 existing – 140 proposed). In addition, the Oral Diagnosis, Emergency and Pediatric Dentistry ancillary rotations will continue in the CCP clinic. To be clear, these rotations will continue as part of the curriculum, but will not be held in distinct, rotation- specific clinics. In addition to the net loss of 3 chairs, the CCP clinic will be required to allocate a subset of its remaining chairs to the three aforementioned clinical rotations.

The Academic Program is fluid. While clinical time is allocated to CCP and ancillary clinics, it is, in reality, one large rotation with a common objective, that being, student experience in clinical dentistry. Further, the assignment of time and what exactly is produced during this time, is also arbitrary, in accordance with the Association of Canadian Faculties of Dentistry (ACFD) educational framework for the development of competency in dental programs (Proposal to revise the "Competencies for a Beginning Dental Practitioner" – revised 1 May 2012 (acfd.ca)) and the accreditation guidelines published by the Commission on Dental Accreditation of Canada (CDAC) (GUIDE TO ACCREDITATION (cda-adc.ca)). In other words, these documents provide oversight to the program but do not stipulate the number of hours assigned to a particular aspect of clinical care. That decision is made by the institutional curriculum committee.

Faculty Senior Leadership has examined the undergraduate clinical program in detail and has developed a strategy to accommodate the net loss of 3 dental chairs. This strategy includes:

1. A thorough review of the curriculum to re-evaluate measures of clinical competency.
2. An increase in daily clinical sessions is possible, if necessary, from 2 to 3 at least 2 days per week. This increases the number of appointments available to dental students by 120 per day with appointments ranging between 30 and 36 hours per week depending on 2.5 hour or 3 hour procedures. However, the faculty is currently planning to maintain capacity at only 2 shifts per day.
3. A continuation of the pairing up of students to promote greater clinical exposure in a reduced number of chairs.
4. Consideration to the relocation of majority of clinical treatment planning to seminar rooms to free up chairs for clinical procedures.
5. Implementation of the Group Practice Model method of clinical education that incorporates real time scheduling by trained faculty employees. Using this model, CCP becomes a rotation. Patients are assigned to the groups, not to the students. Appointments are scheduled according to how much time

they require, resulting in significant reductions in unused chair time. Using this model, the clinical curriculum has the potential be delivered in a more efficient manner.

6. Similar to private practice, patients would attend one clinic for diagnosis, emergency and regular care. Children would be scheduled as required. All aspects of the clinical curriculum would continue to be covered.

Faculty Senior Leadership is confident that through the implementation of these efficiencies, the requirements of the academic program can continue to be met. The reduction of the CCP and ancillary chairs represent an approximate net reduction of 3 dental chairs to the undergraduate program. If only the third shift is added to the program, the students will have 30 percent additional appointment time and 94 more appointments than they had prior to the renovation.

Pedagogical Changes

Currently, the Department is looking to allow for more flexibility and efficiency through the implementation of a "Group Practice Model". In order for this model to function effectively, the clinic must consist of a number of dental cubicles grouped together in "pods" rather than chairs lined up in a number of rows. The advantage of having a large, open clinic with pods of cubicles is more flexibility in utilization; whereby freeing up areas of cubicles or pods not in use to be booked for other clinical needs. Each cubicle is generic to allow multiple treatments to be performed in each chair, which allows for a reduction in the number of chairs and better use of space. The pod design allows dental students, dental support staff and the faculty member to operate as a team to better support the learning environment for all. The Group Practice Model facilitates better integration of all years of undergraduate dental students (DDS 1-4) through "vertical" engagement, bolstering critical thinking skills and teamwork.

The "Group Practice Model" has currently been adopted in the majority of smaller dental faculties in Canada including the UBC, Alberta, McGill and Dalhousie, to ensure that students are exposed to the most appropriate patient pool as they develop their clinical skills. Although not currently practiced at the Faculty of Dentistry, the Clinic Renewal Master Plan will test drive/fit the Group Practice Model in the overall space planning, which will help the Faculty better understand implications of the program shift in terms of: space, curriculum, staff resources and scheduling to prepare for future planning.

The Role of the Group Practice Model in Undergraduate Dentistry

The Group Practice Model involves the following features:

1. Allows for integrated clinical education of all years of Undergraduate dental students (DDS years 1, 2, 3, 4,)
2. Requires an integrated "vertical" approach to the curriculum that encourages engagement of students in the upper years with students in the lower years.
3. Is supported by a clinical layout that groups chairs into "pods" that resemble a number of smaller, multi chair private practice. This layout facilitates teaching comprehensive care to a group of students by a single faculty member.
4. Each Pod is overseen by a Faculty member
5. Each Pod has an assigned receptionist/treatment coordinator.
6. Each Pod has staff assigned (eg Dental Assistant or Dental Hygienist)
7. Patients are assigned to the group overseen by the Faculty member. It is the Faculty member's responsibility that all assigned patients are managed appropriately and that there is an equitable distribution of clinical procedures amongst the assigned students.
8. The Faculty member screens the patient and assess the patients' needs.

9. The Faculty member informs the Treatment Coordinator on these needs. He/she then books the patient with an available student in the group for examination, diagnosis and treatment planning.
10. The patient then sees a number of students that are assigned to the Pod for their treatment needs:

a.	Sanative/scaling	DDS 2
b.	Simple operative dentistry	DDS 3
c.	Complex operative dentistry	DDS 4
d.	Prosthetic dentistry	DDS 4
e.	Endodontics	DDS 3/4

c) Space Requirements, Program and Functional Plan

Space Requirements

Classrooms

The Clinic 2 area contains two seminar rooms each accommodating 12 students.

Room Description	Rm. No.	Qty.	Seats	Total Nasm
Seminar Room	226A	1	12	20.75
Instructional Lab	226B	1	12	35.04
Total				**55.79**

Within the current Clinic 2 space, there are two existing seminar rooms each with 12 person capacity. These rooms are used for scheduled instruction. However, their proximity to the existing Clinic 2 space facilitates their use for unscheduled breakout and consult functions supporting the Clinics. The two seminar rooms accommodate a combined 24 seats and 55.79 nasms of space.

The proposed Clinic 2 renovation proposes to retain the existing 12 seat seminar room 226A and convert the Instructional Lab 226B into a storage room serving the Clinic. The use of the seminar room as an unscheduled teaching and break-out space by the clinic will be augmented by use of un-occupied enclosed operatories within each 'pod' providing for future re-allocation should the use of operatories prove more effective. Additional lab space, such as the CAD/CAM room, will provide areas for instruction. Furthermore, faculty & student touch-down space will be located throughout the Clinic to support the Group Practice Model.

Undergraduate Teaching Laboratories

The Undergraduate Teaching Laboratories space category includes labs, clinical space and associated support spaces. 3,200 nasms or 70% of Dentistry's total Undergraduate Teaching Laboratories space is clinic-related. Thus, with regards to the space utilization analysis it is important to note the following factors:

- Dentistry clinics are unlike traditional teaching labs as they provide oral care services to ambulatory patients. Space needs are specific to the number of patients seen, the size of dental chairs and the operatory type based on the service being offered.

- It is difficult to differentiate exactly between undergraduate and graduate clinics; there is the general clinic for general dentistry (DDS students) and also the specialty clinics, traditionally considered graduate student clinics but DDS students also use these spaces for their specialty rotations.
- With the partial replacement of open operatories with enclosed operatories; operatory specialization will become increasingly obsolete as specialized dental procedures will be accommodated by the enclosed operatory
- The adoption of the group practice model further supports non-specialized operatories able to accommodate various dental procedures

With regards to functionality, Dentistry's existing teaching labs/clinics are outdated; they are not equipped with modern technology found in today's practices and the existing building infrastructure of the Dentistry Building impairs their easy installation. Even if the existing spaces were to be retrofitted they will be undersized to properly accommodate new technologies and AGP procedural requirements.

The following analysis of Undergraduate Teaching Laboratories is divided into Pre-clinical and Clinical Teaching Laboratory spaces.

Space Analysis

The COU lab analysis is based on a typical station size based on discipline from which a space factor applied to Undergraduate lab WSCHs. Dentistry is categorized under Group X with a space factor of 0.6. This factor is based on a typical station size of 10.8 nasms factored through an 18 hour week at 75% occupancy. The 18 hours accounts for an additional 2 hours per week of lab prep time or unscheduled work beyond the standard 16 hours per week of a full course load.

COU Lab Space Factor Formula

Nasms/Lab WSCH = Average Station Size (nasm) / Scheduled Hrs per Wk x Seat Utilization

COU Analysis Teaching Laboratories*

Category of Space	Inventory (I) NASM	Input Measure (WSCH)	Space Factor	COU Generated (G) NASM	% I/G
2.0 Laboratory - Undergraduate	4,283.36	6,391.50	0.60	3,834.90	112%

*Excludes the Satellite Clinic at 777 Bay as it is a temporary space which should not be factored into end state facility planning

The 6,391.50 total Weekly Scheduled Contact Hours (WSCH) for teaching laboratories at the faculty of dentistry produces a COU derived space need of 3,834.90 nasm which is less than the current Category 2.0 inventory at 124 Edward Street. This total teaching lab number is further refined by reviewing Clinic and non-clinic related space use.

2019/2020 Academic Schedule WSCH (2019-2020 1 Term)
(Concurrent with project planning)

Year	Clinical Hours/Wk	Laboratory Hours/Wk	Enrolment	Clinic WSCH	Lab WSCH	Total WSCH
DDS1	1.9	12.5	96	185.60	1,198.00	1,383.60
DDS2	3.5	11.6	96	337.30	1,116.30	1,453.70
DDS3	12.2	0	120	1,463.70	0	1,463.80
DDS4	13.9	0.5	120	1,665.60	58.10	1,723.70
IDAPP	1.6	12.9	24	58.3	308.6	366.90
Total	**33.1**	**37.5**	**456**	**3,710.50**	**2,681.00**	**6,391.50**

N.B. 30 weeks assumed per year

The total Weekly Scheduled Contact Hours (WSCH) for the Clinics is 3,710.50 and 2,681.00 for Non- Clinic Teaching Labs.

Pre-Clinical Teaching Laboratories

Dentistry is a profession that requires a high degree of psychomotor skills and manual dexterity. During the first two years of the four-year program, a significant proportion of time in the curriculum is dedicated to the development of technical skills in a pre-clinical teaching laboratory. In this pre-clinical laboratory, first and second year students develop their technical skills on plastic teeth mounted in simulated patients prior to performing actual procedures on live patients in the clinic.

The pre-clinical teaching laboratory in the Faculty of Dentistry is used on a daily basis by 192 Undergraduate Doctor of Dental Surgery (DDS) Years 1 & 2 and 24 International Dentist Advanced Placement Program (IDAPP) students throughout the academic year. The IDAPP program begins in the winter term of the second year with integration into the general DDS3 class at the start of the following term. In this teaching laboratory, first and second year dental students make use of dental simulators known as manikins to develop their technical skills in operative dentistry, prosthodontics, endodontics, pediatric dentistry and biomaterials.

The main objective of modernizing the teaching laboratory is to better prepare students to provide dental care to members of the community. At present, many students struggle with the transition from the pre-clinical to the clinical environment, mainly due to a lack of continuity between the pre-clinical and the clinical learning environments, poor lighting and ergonomics.

A modernization of the teaching laboratory is necessary for learners to take full advantage of their time to develop the skills they critically need prior to provide treatment on live patients. Increased formative and summative feedback are integral to improved comprehension of the fundamentals of general dentistry.

There have been significant advances in dental technology since the current pre-clinical laboratory was constructed. The digital three-dimensional intraoral scan is quickly replacing the traditional alginate impression and plaster pour-up that has been the standard for more than a century. Tomorrow's practitioners must be proficient in this technology to provide state of the art care for their patients upon graduation. It is anticipated that the traditional method of making impressions and the fabrication of indirect restorations as it is currently taught will be removed from the curriculum by the early 2020's. In its place, the use of digital scanners to obtain an 'impression' of the mouth and three dimensional printing to construct the indirect restoration will be the standard of practice. The Faculty must therefore, begin preparing to incorporate this technology now to remain in the forefront of dental education. The pre-clinical Lab 4, as it currently stands, cannot support this emerging technology.

Clinical Teaching Laboratories

Clinic WSCH by Course for 2019/2020 (Concurrent with Project Planning)

Course	WSCH					Total
	DDS1	DDS2	DDS3	DDS4	IDAPP	
CCP	185.6	263.3	1,200	1,556.1		3,205.0
Anesthesia		41.1	25.7	51.4	3.4	121.6
Endodontics			51.4			51.4
Orthodontics			133.3	58.1		191.4
Restorative			53.3			53.3
Oral Diagnosis		32.9			20.6	53.5
Periodontics					34.3	34.3
Total	185.6	337.3	1,463.7	1,665.6	58.3	**3,710.50**

N.B. WSCH averaged over year based on 30 weeks.

Existing pre-Covid 19 clinical use totalled 3,710.50 WSCH.

Existing Clinic Inventory Analysis (COU Cat. 2.0)

Clinic Inventory (I) NASM	Input Measure (Clinic WSCH)	Space Factor	COU Generated (G) NASM	% I/G
3,241.45	3,710.50	0.6	2,226.30	146%

Existing Undergraduate Teaching Laboratory use is greater than that recommended by the COU. This is somewhat accounted for by discrepancies in stations size and scheduling between COU and the Faculty's operational reality. (COU allows for 18 scheduled hours per week while the Pre-Covid Clinics operated on a 34 hours per week schedule based on 2 Patient Appointments periods per day.) The existing use is also based on support spaces which are required to accommodate equipment and specialized facilities which may not be account for by COU recommended station size space factors.

Patient Treatment Space Analysis (COU Cat. 2.1)

Patient Treatment (CCP) space accounts for 57% of Undergraduate Clinic space within 124 Edward Street. The Clinic treatment areas include the open clinics as well as specialized treatment spaces.

Existing Clinic Patient Treatment Space 124 Edward Street

COU Subcategory	Room Code	Room Name	Area (nasm)
2.1	133	CLINIC - Clinic 1	740.23
	152	CLINIC -Operatory	10.20
	153	CLINIC -Operatory	10.20
	154	CLINIC -Operatory	10.20
	155	CLINIC -Operatory	10.20
	156	CLINIC -Operatory	10.20
	158	CLINIC -Operatory	10.20
	159	CLINIC -Operatory	10.20

	207	CLINIC -UG Clinic 2 (Endodontic/Prosthodontic)	698.01
	232	CLINIC - Diagnostic Room	84.88
	233	CLINIC - Extra Oral Imaging (Skull) Room	22.60
	234A	CLINIC -IntraOral Imaging Room	10.37
	235	CLINIC - Special Procedures & Panoramic Imaging	6.83
	236	CLINIC - Special Procedures - (Sialography)	6.71
	237	CLINIC - IntraOral Imaging Room (Radiology)	6.83
	238	CLINIC - IntraOral Imaging Room (Radiology)	6.71
	239	CLINIC - IntraOral Imaging Room (Radiology)	6.83
	240	CLINIC - IntraOral Imaging Room (Radiology)	6.71
	241	CLINIC - IntraOral Imaging Room (Radiology)	6.83
	242	CLINIC - IntraOral Imaging Room (Radiology)	6.71
	243	CLINIC - IntraOral Imaging Room (Radiology)	6.71
	244	CLINIC - IntraOral Imaging Room (Radiology)	6.71
Total			**1,695.07**

The COU lab analysis for the CCP clinic space (Clinic 1 and 2) demonstrates that the current space at 124 Edward street is less than that generated by the COU. Again, this is based on station sizes and weekly scheduled operational hours than the COU space formula derivation.

UG Clinic Treatment Inventory (I) NASM	Input Measure (Clinic WSCH)	Space Factor	COU Generated (G) NASM	% I/G
1,695.07	3,205.0	0.6	1,923.00	88%

The basis for Clinical operations is based on the quantity of available dental chairs to allow for scheduled patient appointments. Currently (Pre-COVID-19) there are a total of 201 dental chairs within the Undergraduate Clinic Patient Treatment Space and a total of 143 chairs within the CCP Clinics. These chairs are distributed throughout the various clinic spaces and are used for both general patient treatment and specialized treatments such as x-rays. The existing distribution is as follows:

Clinic Patient Treatment Area	No. of Chairs	Area (nasm)	Area per Chair
Clinic 1	65	740.23	11.39
Clinic 2	78	698.01	8.95
Pediatric Clinic	29	147	5.07
Operatories	7	71.40	10.20
Oral Imaging (Intra, Extra, Pano & Saliography)	12	100.55	8.38
Diagnostic	10	84.88	8.49
Total/Average	**201**	**1,842.07**	**8.75**

The Clinic Masterplan and Faculty review of enclosed operatory sizes has determined that a standard enclosed operatory is to be a minimum of 12 nasm with AODA compliant enclosed operatories having a minimum area of 15 nasm. It is immediately apparent that the shift to 12 nasm enclosed operatories presents and accommodation challenge given that the average chair area within the patient treatment areas of the clinics is 8.75 nasm. Adding assignable corridor space to the standard enclosed operatory the average size increases to between 14.25 and 15 nasm. (average of 14.6 nasm)

Clinic Patient Treatment Area	No. of Chairs	Area per Chair (nasm)	Area Required (nasm)	Delta from Existing Area (nasm
Clinic 1	65	14.6	949.00	208.77
Clinic 2	78	14.6	1,138.8	440.79
Pediatric Clinic	29	14.6	423.40	276.4
Operatories	7	14.6	102.20	30.8
Oral Imaging (Intra, Extra, Pano & Saliography)	12	14.6	175.20	74.65
Diagnostic	10	14.6	146.00	61.12
Total/Average	**201**	**14.6**	**2,934.60**	**1,092.53**

Note: The above table does not account for AODA sized operatories. An additional 68 nasm is required increasing the total need to 3,002.60 nasm with a delta from the existing of 1,160.53.

The current project is to renovate Clinic 2 to provide new operatories and a percentage of enclosed operatories for Undergraduate and Graduate use. Ostensibly, it would appear from the above analysis that 1,092.53 nasms of additional space is required.

The Faculty has determined that the following measures are required to provide sufficient capacity in the Undergraduate Clinics to maintain instructional and patient services;

1. Shift to the Group Practice Models with enclosed operatories equipped for multiple procedure types and special treatment including x-ray. This will allow the need for specialized imaging space to be reduced.
2. Revise the Clinic operating schedule to 2 shifts per day for a minimum of 5 days per week (10 shifts per week total), effectively increasing the number of operationally available chairs by 20%.
3. Provide only 15 enclosed operatories each of which is to be equipped with x-ray capabilities; 20% or 3 enclosed operatories are to be AODA compliant accessible.
4. Renovate the open clinic and provide 60 new modern dental chairs; dental chairs to be divided by low modular partitions and equipped with bottle fed sinks. A minimum of 20% of dental chairs are to be AODA compliant accessible.

The Academic Planning analysis presented earlier in this report is based on number of operatories related to patient appointments. It states that at total of 280 dental chairs (Clinics 1 & 2 only) for clinical us coupled with an average minimum of 12 shift per week schedule will generate more patient appointments per week than the current operations. The current gross-up from Clinic Patient Treatment Space to Undergraduate Clinic space is 1.76x (3,241.45/1,842.07 nasm). Applying this to the average enclosed operatory size of 9.5 nasm for a standard operatory and 10.5 nasm for an enclosed operatory the following space need is calculated.

Operatory Type	Operatory Size (nasm)	Quantity	Total Area (nasm)	Support Space Factor	Total Clinic Space Required (nasm)
Standard	8	48	384	1.76	675.84
Standard AODA	11	12	132	1.76	232.32
Enclosed	10	12	120	1.76	211.2
Enclosed AODA	12	3	36	1.76	63.36
Total		**75**	**678**		**1,182.72**

For comparison, the Satellite Clinic at 777 Bay Street is currently in operation with the following operatory sizes.

Operatory Type	Operatory Size (nasm)
Enclosed	11.15
Enclosed AODA	15.05

While the Satellite Clinic enclosed operatories are larger than the current Clinic 2 planning proposal, further review with consultant and manufacturer's input to maximize efficiency in the Clinic 2 layout and still achieve the pedagogical and patient goals of the Clinic was completed during design. The resulting operatory sizes are as follows:

100% Contract Documents Design Operatory Sizes

Operatory Type	Operatory Size (nasm) (Average)
Enclosed – Xray - AODA	13.57
Enclosed – Xray - Standard	9.59
Open - AODA	8.73
Open - Standard	7.45

To maximize efficiency, the Faculty determined that a mix of enclosed and open operatories would best serve the Clinic needs within the existing Clinic 2 space. The open operatories consist of partial height walls on three sides which provide privacy and contain support elements such as shared sinks, infrastructure and storage.

Existing Undergraduate Clinic 2 Patient Treatment space (Rm 207) and proposed use of existing operating rooms (207B, 207C), Staff Lounge (207E), and existing support spaces along the west perimeter or Rm 207 (207A,207D,207F,207V, 208,210,212,217, 218) includes 1,185.22 nasm which provides a surplus of 2.5 nasm to accommodate the proposed 75 enclosed operatories. Some loss of area will be required with the creation of a proposed corridor separating the Clinics from the Faculty Offices at the south perimeter of Rm 207.

The existing support space will be renovated in place to provide for the new proposed support space program. As existing space within 124 Edward Street is heavily utilized and generally below COU standard, additional new space and consolidation of existing space via flexibility of use, scheduling and efficiencies must be found to accommodate the enclosed undergraduate operatories.

Operating Rooms

The existing operating rooms 207B and 207C will be removed and replaced by enclosed AODA operatories. These rooms will continue to support dental operations.

The existing room configurations will need to be revised and coordinated with Staff Lounge 207E which is to be converted to an enclosed AODA operatory, Corridor 207K and with existing supply rooms 207A and 207F to accommodate the proposed program.

Room	Area (nasm) at 1.7x	Area Required (nasm)	Δ
207B	16.20	12.00	4.20
207C	17.95	12.00	5.95
207E	8.59	12.00	-3.41
Total Area	**42.74**	**36**	**6.74**

The proposed Clinic Space (Clinic 2) analyzed against COU standard shows that the proposed is in alignment with COU.

Planned Clinic Space (P) NASM	Design (100% CD) Clinic Space (D) NASM	Input Measure (Clinic WSCH)	Space Factor	COU Generated (G) NASM	% D/G
1,055.81	970.16	3,710.50	0.6	2,226.30	44%

The above COU analysis along with the existing Clinic space use and review of station size need and gross-up to include support spaces has demonstrated that the proposed area of work assigned to the undergraduate clinics is undersized, requiring that efficient design, flexibility of use and scheduling be employed to accommodate the new program requirements. Office Space (COU Cat. 4.0)

The following tables indicate broad range of office space allocations. Many individual offices are significantly oversized due to their date of construction; the average academic private office size in the existing Dentistry Building is 11.54nasm. COU standards have trended toward smaller office size allocations. New offices in the program area are proposed at 11 nasm or less, in line with the University's new, more efficient planning standard. Despite this, the Faculty is currently reviewing office allocation for Clinic administrative support looking to amalgamate space use where possible through shared office spaces. Office space is somewhat relegated to the material realities of the existing building – elements such as window spacing and column locations tend to predicate potential sizes for offices which will need to be considered during the design phase to look for efficiencies where possible.

This process may result in some disparity between the space generated by the current COU standards and the existing accommodations provided to Departments. Included in the below analysis is Office space at 124 Edward Street and 777 Bay Street.

Space Program

Space Program

Program	Area (Nasm)	Quantity	Total Area (Nasm)	Occupancy	Notes
Basement					
	NA				Elevator Pit
Level 1			**28.49**		
Multifunctional Training Room	28.49	1	28.49	NA	
Patient Entrance / Mezzanine			**137.315**		
Patient Waiting Area 1	137.15	1	137.15	TBD	
Clinic 2			**804.52**		Total Nasm Clinic 2 - 713.15
Patient Waiting Area 2	33.23	1	33.23	32	
Patient Waiting Area 3	13.26	1	13.26	16	
Clinic 2 Reception & Storage	9.55	1	9.55	3	3 work stations - intake & outtake
Patient Waiting Area 4	2.42	1	2.42	12	
Patient Waiting Area 5	4.82	1	4.82		
Storage	19.75	1	19.75	na	Centralized Storage
Enclosed Operatories – AODA (X-ray)	13.57	3	40.70	2-3	Average Size
Enclosed Operatories (X-Ray) - Standard	9.59	12	115.06	2-3	Average Size
Open Operatories - AODA	8.73	9	78.54	2-3	Average Size
Open Operatories - Standard	7.45	51	380	2-3	Average Size
Faculty/Student Touchdown/Storage/Sink	1.82	13	23.69	1 to 3	Average Size
Dirty Dispensary	20.01	1	20.01	2 to 3	Access from Clinic
Clean Dispensary	37.05	1	37.05	2 to 3	Access from Clinic
Cad/Cam Lab	21.82	1	21.82	5	Access from Clinic
Storage	4.62	1	4.62	NA	Centralized Storage
Level 3			**1.15**		
Storage	1.15	1	1.15	NA	Centralized Storage
Total			**971.31**		Total Incl. Clinic 2 - 1,202.23 nasm

The Interior of Clinic 2 space (Room 207) includes 713.15 nasm, irrespective of open operatories, their partitions, and adjacent corridor space. Using this metric the total Clinic 2 Revitalization space program includes 1,202.23 nasm of space.

The overall gross area of work included in the project scope is 3,085.91 sm which includes the removal and replacement of Clinic 1 and Pediatric Clinic Ceilings to install new servicing to Clinic 2 operatories above. Removing the Clinic 1 and Pediatric Clinic space from the overall area of scope the gsm is recued to 2,049.96 sm.

At the 124 Edward Street Building the existing Gross to Nasm ratio is 1.7. The above proposed Clinic 2 renovations are slightly greater at a gross-up factor of 2.11, not including Clinic 1 and the Pediatric Clinic,

primarily due to internal Clinic 2 corridors and partitions and the inclusion of the new elevator and patient and clinic stairs.

Similarly programmed buildings form the University of Toronto St. George campus have the following comparative gross to nasm ratios. It should be noted that with the exception of a currently planned Pharmacy Clinic, Clinical space is unique to Dentistry at the St. George Campus.

Building	Gross to Nasm Ratio
Medical Sciences Building	2.1
Dentistry Building	1.7
Ramsay Wright Laboratories	1.8
Las Miller Chemical Laboratories	1.7
McLennan Physical Laboratories	1.9
Rehabilitation Sciences Building	1.7
Terrence Donnelly Centre for Cellular & Bio-molecular Research	2.1
Leslie L. Dan Pharmacy Building	2.1
Health Sciences Building	1.9
Average	**1.9**

The following is a breakdown of existing Clinical space on the St. George Campus.

Room Standard	Number of Rooms	Total Area (Nasm)	Area per Room (Nasm)
Clinical Examination	60	2,872.67	47.88
Clinical Special Treatment	76	1625.50	21.39
Waiting Room & Reception	35	811.78	23.19
Clinical Storage	37	738.29	19.95
Total	**208**	**6,048.24**	**29.08**

Dentistry accounts for 72.9% of Clinical Space on Campus as follows:

Room Standard	Number of Rooms	Total Area (Nasm)	Area per Room (Nasm)
Clinical Examination	24	2,516.62	104.86
Clinical Special Treatment	41	984.24	24.01
Waiting Room & Reception	10	325.77	32.58
Clinical Storage	26	583.17	22.43
Total	**101**	**4,409.80**	**43.66**

The Current Clinic 2 Space Programs Propose the following comparative metrics:

Room Standard	Number of Rooms	Total Area (Nasm)	Area per Room (Nasm)
Clinical Examination*	16	771.13	48.20
Clinical Special Treatment**	16	102.57	6.41
Waiting Room & Reception	6	200.43	33.41
Clinical Storage	3	25.52	8.51
Total	**41**	**1,099.65**	**26.82**

*Includes individual Enclosed Operatories and general Clinic 2 area inclusive of open operatories

** Includes Dispensaries and Support Labs within Scope of Work

In the above comparative table the proposed space program alters Dentistry's metrics and appears to provide smaller average room sizes. This is representative of the shift to include enclosed operatories as well as partitioned dental chairs within Clinic 2. Previously, the large open Clinic 2 space would have counted as a single room, thus generating a large Area per Room. As the proposed enclosed operatories within Clinic 2 are counted as individual rooms, the area per room is reflective. The proposed Clinic Storage area per room is also less thanthe Campus average due to efficiencies in providing storage within the operatories and perimeter touch-down spaces.. The Waiting areas and reception included in the proposed space program is slightly largerthan the campus and Dentistry Building averages , likely representative of current accessibility standards as well as the new patient screening and staging process afforded by the new Clinic 2 layout. (previously, one waiting room served the clinic, whereas the proposed plan includes several staged waiting areas.).

Not included in the above space program are non-assignable spaces. The following is a program of project essential non-assignable areas to support the above space program elements. Standard non-assignable elements such as corridors, washrooms, egress, structure, MEP have not been included and will be carried within the gross-up for planning purposes.

Program	Area (Nasm)	Quantity	Total Area (Nasm)
Basement			**12.35**
Elevator	5.27	1	5.27
Level 1			**29.95**
Elevator	5.27	1	5.27
Patient Stair	16.34	1	16.34
Clinic Stair	3.89	1	3.89
Stair 113S	4.45	1	4.45
Mezzanine			**20.06**
Elevator	5.27	1	5.27
Patient Stair	14.79	1	14.79
Clinic 2	-	-	**304.57**
Elevator	5.27	1	5.27
Patient Stair	6.25	1	6.25
Clinic Stair	18.29	1	18.29
IT Switch Room	5.41	1	5.41
Universal Washroom	13.20	1	13.20
Corridor/ Clinic Entrance	9.06	1	9.06
Gender Neutral Private Washroom	2.90	1	2.90
Gender Neutral Private Washroom Barrier Free	4.70	1	4.70
Electrical Room	7.28	1	7.28
Electrical Room	5.59	1	5.59
Vestibule	5.29	1	5.29
Corridor	32.40	1	32.40
Corridor	61.32	1	61.32
Corridor	11.87	1	11.87
Corridor	42.80	1	42.80
Corridor	21.45	1	21.45
Corridor	19.73	1	19.73
Corridor	21.47	1	21.47
Corridor	10.29	1	10.29
Clinic 3			**231.39**
Elevator Hoistway	23.74	1	**23.74**

Operatory Ceiling	195.58	1	**195.58**
Clinic Stair	12.07	1	**12.07**
Total			**598.32**

The Contract Documents identify a direct area of work of 2,945 sm with an impacted area of work of 3,168 sm. The impacted area of work includes for base building servicing runs, upgrades and secondary work supporting the Clinic Renewal.

Functional Plan

Clinic 2 Renewal Guiding Principles

1. Reconfigure existing Undergraduate Clinical Space on floors 2;
    - Instructional space on level 2 affected by the reconfiguration can be re- located or consolidated into new spaces within floors 2;
2. Undergraduate Clinics will be connected vertically;
3. 15 Undergraduate Operatories are to be fully enclosed with servicing in conformance with the regulations issued by the RCDSO and PHO during the COVID 19 pandemic
4. Allow for varying degrees of visual and auditory privacy for patients suitable to room specific program while allowing for instructor supervision;
5. Allow for AODA compliant accessible Operatories, Washrooms including Universal Washrooms, path of travel and other Clinic services;
6. Improve access to daylight and visual connection/wayfinding between areas;
7. Identify any space that was freed-up as part of the reconfiguration; and
8. Achieve the six key elements identified in the Clinical Renewal Working Group (see below).

In August 2017, a Clinical Renewal Working Group was formed to develop an overall clinical renewal plan that is efficient and meets all users and stakeholders. After nine months of consultation and an external review, the Faculty of Dentistry resulted in the following Clinical Renewal plan objectives to:

1. Improve the Student Experience;
2. Improve the Patient Experience; and
3. Improve Operational Efficiency.

To obtain these objectives, six key elements were identified:

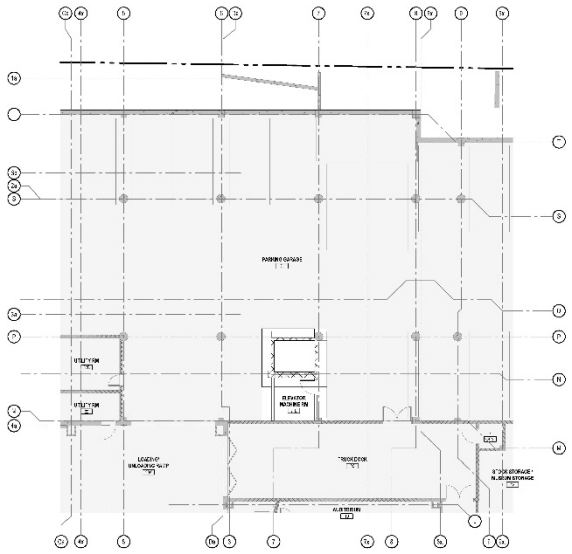
1. Medical Device Reprocessing Unit (MDR)
    - The plan must include the centralization of medical device reprocessing that utilizes a documented workflow to receive, process and deliver instruments to all clinics in a safe and efficient manner. This goal was implemented in 2019 and the MDR Unit will be operational in 2021.
2. The Student Experience
    - The plan must provide for the required number of ideal-sized operatories with improvements particularly in the areas of layout, delivery and radiological services.
3. The Patient Experience
    - The plan must include a layout that is easy for use by the public and provides for a clear demarcation between the clinical and the non-clinical areas.
4. Collaboration
    - The plan must include allowances for greater collaboration between the disciplines,

particularly in the areas of graduate specialty education. For example, certain disciples are naturally collaborative (i.e. oral surgery and anesthesia, periodontics and prosthodontics, orthodontics and paediatric dentistry), the closer these clinical disciples are practices, the more efficient collaboration can occur.

5. Efficiency of Operation
   - The plan must include significant use of shared spaces designed for multiple use to promote an efficiency of operation throughout the Faculty.
   - Reduce redundancy and increase greater utilization of clinical resources (i.e. chairs)
6. Flexibility
   - The plan must make provision for flexible use of program area both within existing clinics and for new clinical spaces in the future. Flexibility includes the ability to improve and adapt to new technologies and pedagogy.

Floor Plans

Basement: Coordinated implementation of new passenger elevator with basement level machine room located within existing parking area. Secondary effects include loss of one parking space from UofT inventory.



Basement Partial Floor Plan – Montgomery Sisam Architects Inc. + Kahler Slater Inc.

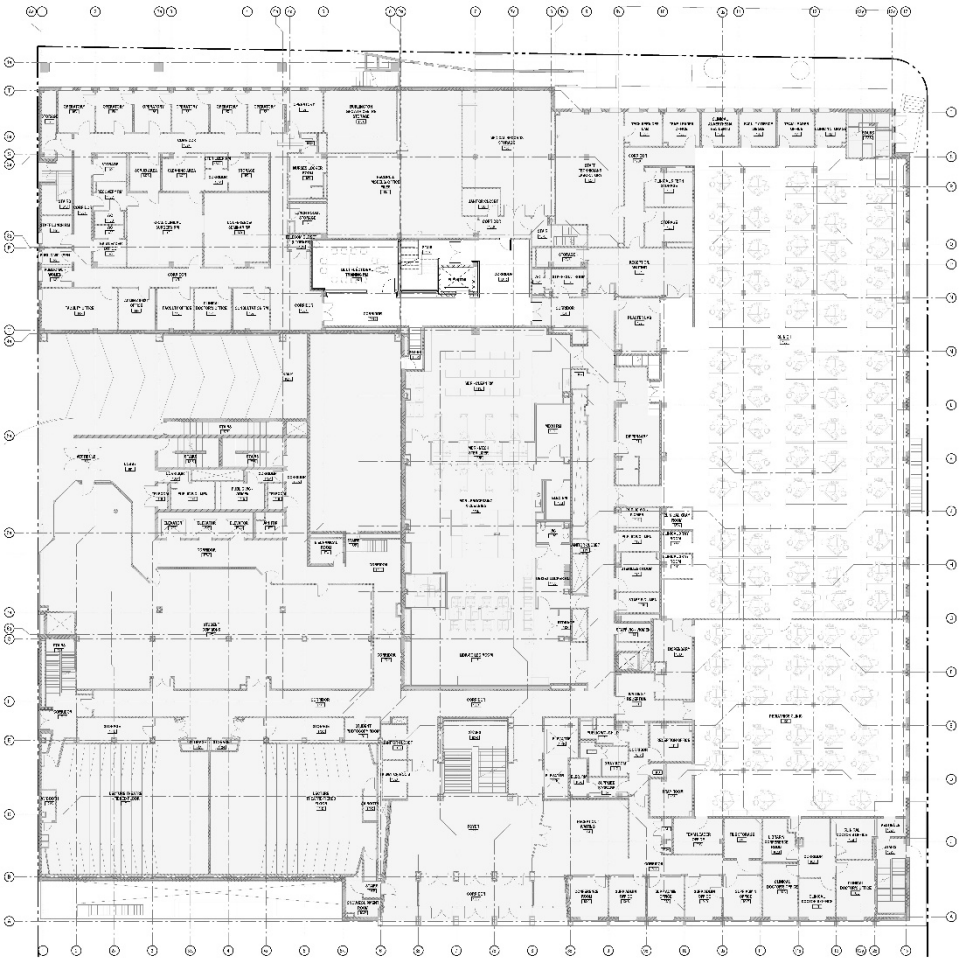
Level 1: Remove existing ramp.

New passenger elevator stop, stair and lobby connecting the Existing Clinic 1 with the Elm Street Patient Entrance (Mezzanine Level).

New Multifunctional Training Room located where existing ramp removed.

Enclose and existing convenience stair connection between Clinic 1 and Clinic 2.

Required structural and building service work to accommodate renovation.



Level 1 Floor Plan – Montgomery Sisam Architects Inc. + Kahler Slater Inc.

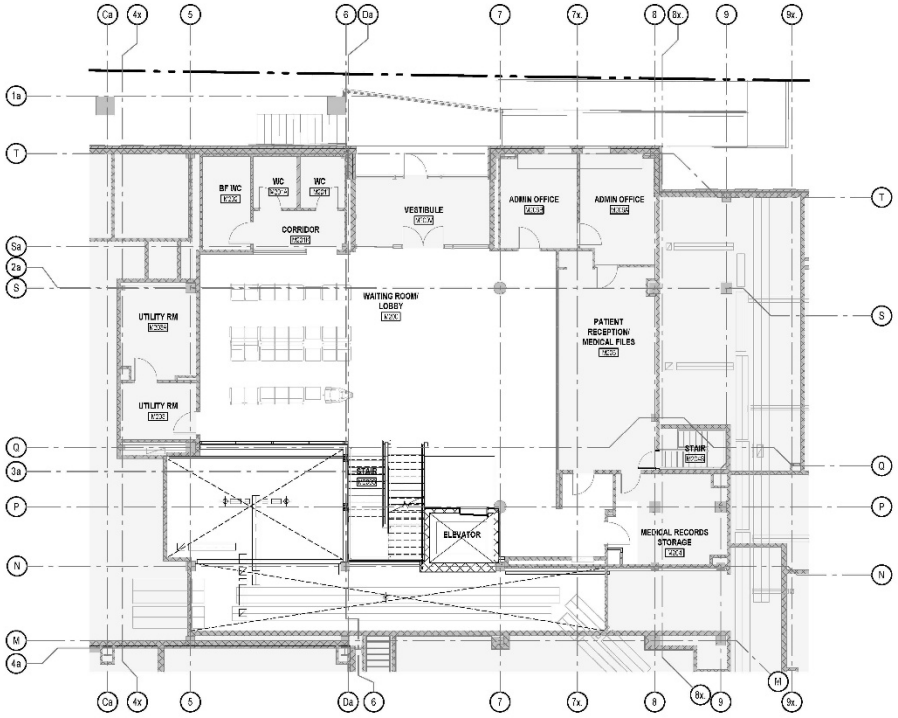
Mezzanine Level:

Renovation of Existing Patient Waiting Area including Wheel Trans Waiting Space. Renovation to include new finishes, furniture and wayfinding signage.

Remove existing patient ramp.

New Multifunctional Training Room partially located where existing ramp removed.(Accessed from Level 1)New passenger elevator stop, stair and lobby connecting the Existing Clinic 1 (Level 1) with the Elm Street Patient Entrance (Mezzanine Level) and Clinic 2 (Level 2).

Required structural and building service work to accommodate renovation work.



Mezzanine Level Floor Plan – Montgomery Sisam Architects Inc. + Kahler Slater Inc.

Level 2:

Renovation and expansion of existing Clinic 2 space to include 15 enclosed operatories and 60 open operatories (partitioned dental chairs)

Renovation of existing Clinic 2 support spaces

Required structural and building service work to accommodate Clinic 2 renovation.

Relocation of Prosthodonics and Endodontics Graduate Clinics.

New passenger elevator stop, stair and lobby connecting the Existing Clinic 1 (Level 1) with the Elm Street Patient Entrance (Mezzanine Level) and Clinic 2 (Level 2).

New patient waiting space overlooking mezzanine adjacent to new passenger elevator & stair.

New Clinic egress/convenience stair connection between Clinic 2 and level 3.

New Patient Reception and Waiting areas

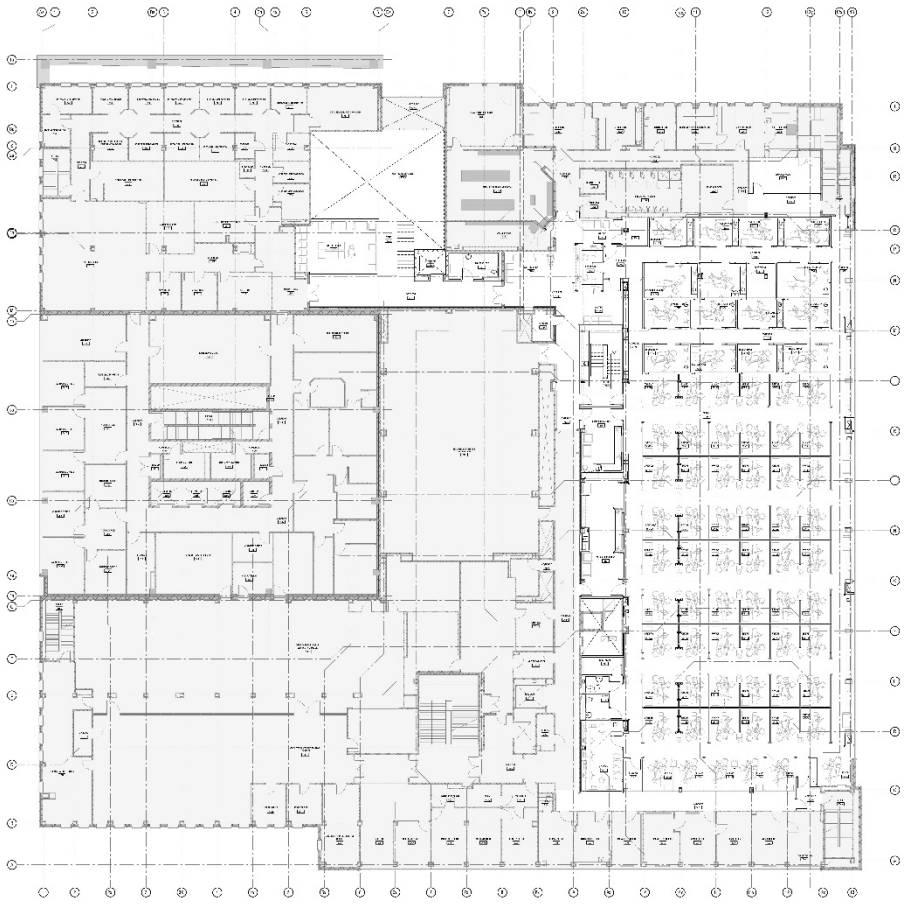
Renovation of first aid room to Universal Washroom.

Renovation of washroom vestibule.

Renovation of storage rooms to IT Switch Room.

New Clinic 2 support spaces (Dispensaries, Storage Rooms, Cad/Cam Lab,– refer to space program)

Renovation of existing Classroom/Seminar Room to storage and reconfiguration of North-East Egress corridors.



Level 2 Floor Plan – Montgomery Sisam Architects Inc. + Kahler Slater Inc.

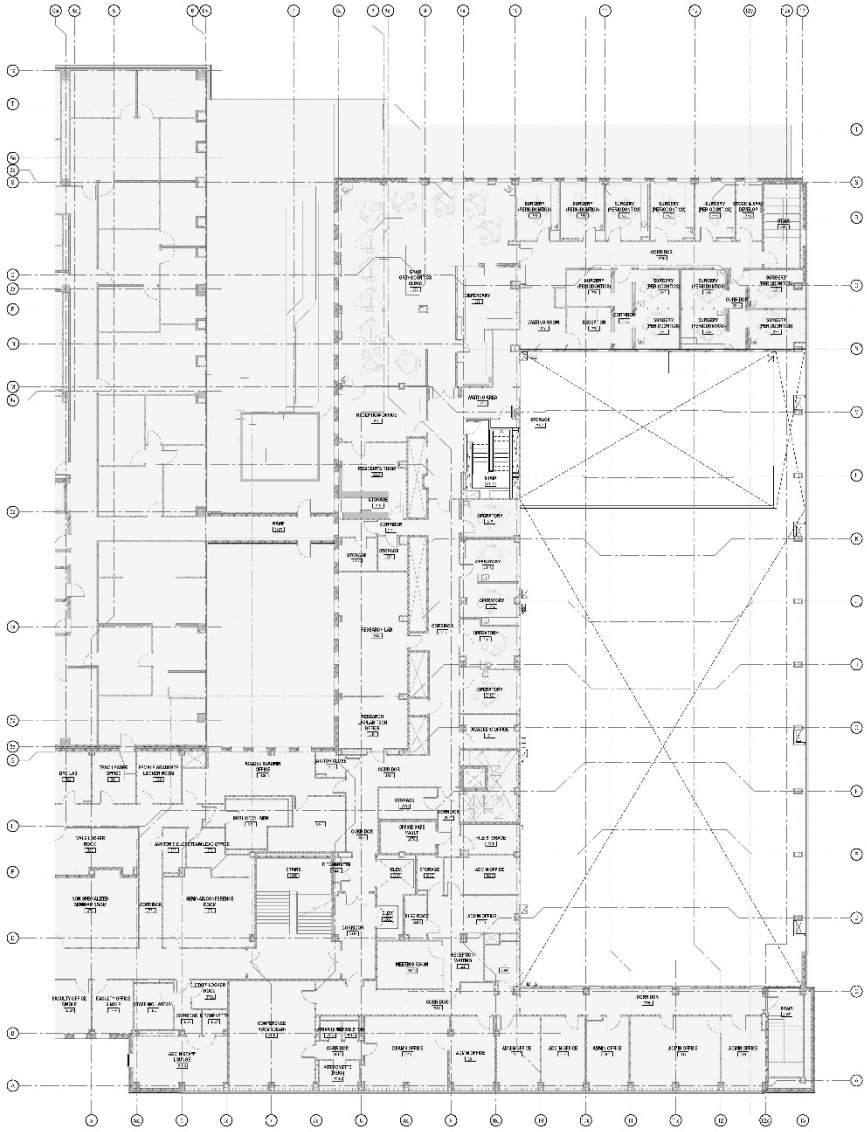
Level 3: New Ceiling for enclosed Clinic 2 operatories.

Relocation of existing Clinic waiting area (Rm 319)

New Clinic egress/convenience stair connection between Clinic 2 and level 3.

Required structural and building service work to accommodate renovation work.

New Elevator Hoistway at Level 3 roof. Coordinate with existing rooftop equipment.



Level 3 Partial Floor Plan – Montgomery Sisam Architects Inc. + Kahler Slater Inc.

Description of Space Program Elements

Clinic Entrance

While the Edward Street entrance serves as the academic & student entrance to the building, the front entrance along Elm Street is the functional and symbolic entrance for all patients needing to access the clinic. Consideration of clear wayfinding to the respective areas to be examined in order to ensure that the needs of patients accessing clinics from Elm Street are met.

Elm Street Patient Reception & Patient Waiting

The existing main Patient Waiting Area is located on the mezzanine level at the Elm Street Patient Entrance and Patient Reception. This Waiting Area will continue to serve as the main patient intake, providing patient staging and overflow for the Clinic Waiting areas. Renovations to the Patient Waiting Area are to be coordinated with renovations to the vertical transportation proposed for the south side of the patient waiting area. These renovations may include:

- New finishes throughout
- New Multi-functional Training Space
- New wayfinding & Donor Recognition
- New Lighting

The existing interior ramping from Level 1 to Level 2 will be removed. A new 3 stop passenger elevator sized to UofT standard will be located within the area of the removed ramping to reduce structural and servicing impact of the new elevator. The proposed elevator will stop at Level 1, Mezzanine Level, and Level 2. An accompanying patient access stair will be co-located with the passenger elevator to provide access between: Level 1, Mezzanine Level and Level 2.

Clinic Entrance, New Patient Stair, New Patient Elevator and Donor Wall – Montgomery Sisam Architects Inc. + Kahler Slater Inc.

Multi-functional Training Space

At the South side of the Elm Street Patient Entrance Waiting Room, the removal of the existing interior ramping and the creating of the Level 2 Patient Waiting Area 2 and Passenger Elevator/Stair Lobby provides the opportunity to provide a new Multi-functional Training Space. This space is envisioned as an enclosed room capable of use as a seminar room, meeting room and community/patient outreach facility. The Multi-functional Training Space will be located on Level 1 with the vertical volume of the room extending into the mezzanine level.

Previous faculty plans had included the request for an Oral Health and Wellness Centre (OHWC). While not a specifically required use of the Multi-functional Training Space, the OHWC is indicative of the type of use this space may provide for.

The aspiration for the Oral Health Wellness Center was to put the promotion of oral health into the forefront at the Faculty of Dentistry for students, Faculty and staff, researchers and the patient community. The OHWC was to educate patients in oral health diagnosis, prevention, treatment, management and its impact on systemic health. The goal of the OHWC was to improve treatment outcomes and prevent further dental disease by teaching, emphasizing and demonstrating preventive practices that are customized for each patient.

The OHWC was to also provide opportunities for students to learn and practice patient communication for dental prevention at an earlier stage of their education with a dedicated space for students to engage in preventive practices that does not compete space-wise or time-wise with other treatment modalities.

Key components and systems of the Multi-Functional Training Space include:

1. Place to lock up materials and hands-on teaching aids.
2. Acoustic separation from the adjacent patient waiting area with direct access and direct visual access to patient waiting area.
3. Audiovisual hardware and content- eg. videos, online caries risk assessment monitoring.
4. Floor monument power for flexible furniture arrangements.

Undergraduate Clinic

The Level 2 Clinic 2 will be reorganized into a Group Practice Model operating in 15 fully enclosed AGP regulation compliant operatories and 60 partitioned dental chairs within the existing double height Clinic 2 space. The Clinic will renovate the existing Clinic 2 space to:

- Expand the available floor area within Clinic 2 north and south
- New servicing to dental chairs/operatories from the Clinic 1 ceiling below.
- Provide renovations to adjacent spaces and support spaces to provide necessary Clinical Support space adjacencies to the undergraduate Clinics 2
- Provide new internal clinic vertical access and new patient accessible access to the clinics via a new clinic stair, passenger elevator and patient stair.
- New wayfinding
- New lighting

The new Clinic 2 will provide the Faculty of Dentistry a minimum of 15 enclosed, multi-functional operatories equipped for x-ray use which can be scheduled to provide patient care and student instruction within the Group Practice Model as well as for Graduate Student use for operations.

The new Clinic 2 will also provide 60 new dental chairs separated by half heigh partitions and provided with integrated storage and bottle-fed faucets and sinks.

Clinic 2 – Montgomery Sisam Architects Inc. + Kahler Slater Inc.

Surgical Suites/ Staff Lounge

The existing staff lounge and surgical suites (3) located along the north perimeter wall of the second floor of the East wing will be renovated or re-assigned as part of the Clinic 2 renovation. The existing storage room 207A, surgical suites 207B and 207C and staff lounge 207E are to be converted to Clinic 2 facing enclosed AODA operatories. The Surgical Suites were renovated approximately 15-20 years ago. Since that time, the standard practice for procedures previously designated for surgical suites are currently being performed within Standard Operatories, leaving surgical suite use for more specific and less frequent procedures. The Faculty looks to renovate the surgical suite as outlined in the Clinic Master Plan (Phase 7D) and will analyse Graduate use of Undergraduate standard operatories for surgical procedures at that time. The analysis will inform pro-rating of space use for documentation in the Space Inventory at 124 Edward Street.

Medical Device Reprocessing (MDR) Unit (Not included in Current Project)

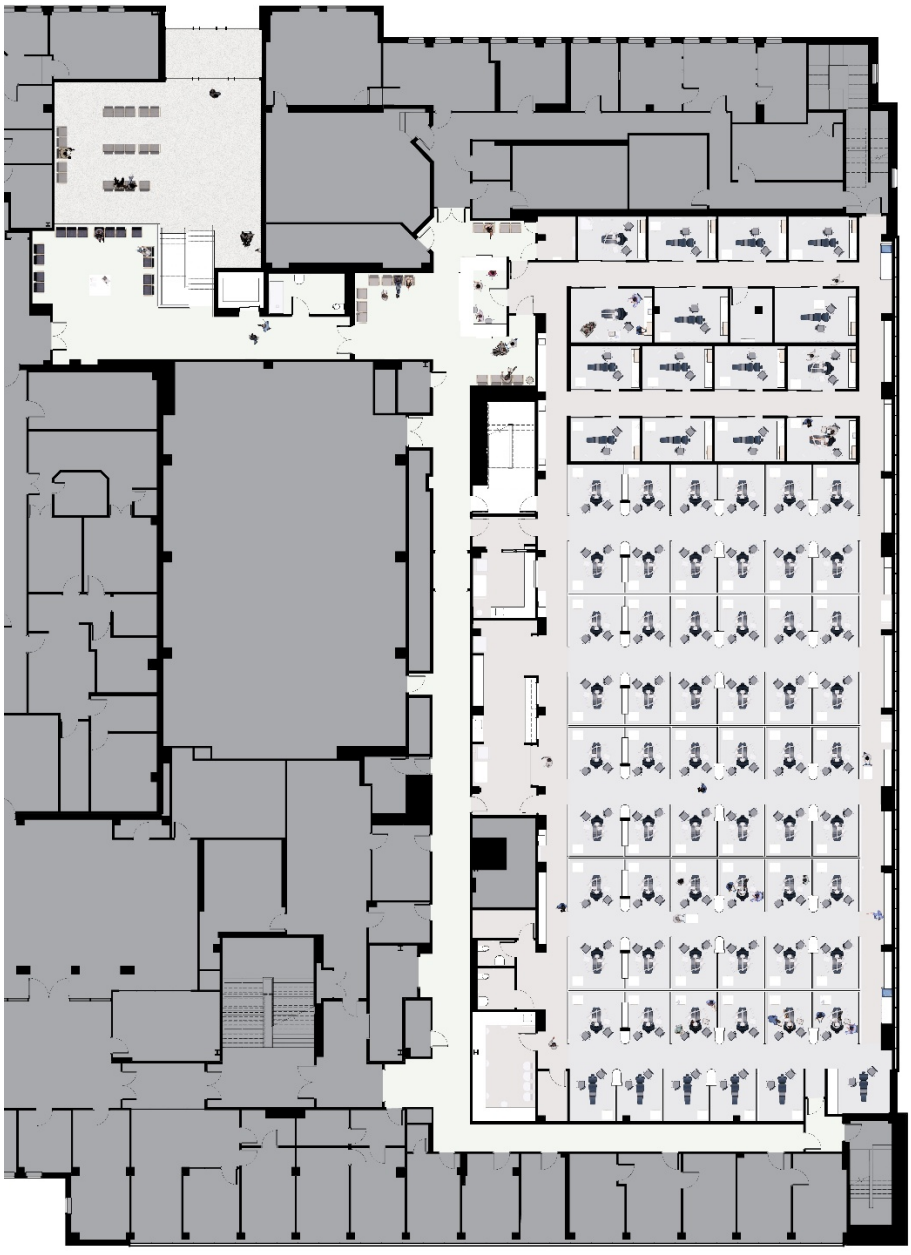
The MDR was the first phase of the Clinic Master Plan to be implemented and will be completed in 2021 as a central element to the safe and efficient running of the public clinics. The MDR unit is responsible for, decontamination, preparation and packaging, sterilization and storage of reusable medical devices used in provision of health care in the Clinics. The MDR unit is essential to the prevention of transmission of infections from reusable medical devices used on patients.

The MDR is located on Level 1 in the central area immediately North of the Edward Street main staircase and in proximity to the existing freight elevator.

The clinics are supported by Clinic dispensaries located with the clinical areas. This will allow for ease of access by students to the instruments and pharmaceuticals that they may require during a clinical visit with a patient. Location of Clinic dispensaries is to consider access pathway from the MDR to the dispensary.

Operatory/Chair Pods

The Faculty's shift to a group practice model manifests in the organization of Clinic Operatories into groups or 'Pods' of 12. The ideal arrangement of the Operatory (Chair) Pods is to have the open (glazed / open entrance) faces of the operatories or chairs facing each other separated by a corridor. This organization allows an instructor to monitor the 12 operatories from the corridor. Each enclosed Operatory will be equipped and constructed for x-ray use. In addition, one pod in Clinic 2 will be fully equipped with radiology dedicated for use by Endodontics.



Clinic 2 Floor Plan – Montgomery Sisam Architects Inc. + Kahler Slater Inc.

Standard Operatories (Dental Chair Cubicles)

7.37 Nasm

The majority of the Clinic 2 dental chairs will be maintained within the open clinic space. The 51 new chairs will be separated by lower partitions composed of casework with an open entrance side facing a corridor. Each dental chair ‘cubicle’ will contain a toe-in dental chair facing, casework integrated storage and work surfaces for patient records and equipment storage and an integrated bottle fed sink and faucet located in the casework separating the head of back-to-back dental chairs.

While chair designation through standard room numbering will be required; each chair ‘cubicle’ is to be equipped with an outward facing whiteboard to designate current room use/booking. All chair ‘cubicles’ will be designed to be ambidextrous.

Hand wash sinks in all clinical areas to be wall mounted or freestanding rather than dropped into counters for reasons of infection control; faucets to be hand-free.

All dental chair ‘cubicles will be finished with durable and easily maintained surfaces. Bright and calming colour schemes are preferred. Appropriate lighting and lighting control are to be provided with regards to supporting use, accessibility and patient comfort.

AODA Operatories (Dental Chair Cubicles)

8.83 Nasm

Within the open clinic area, 9 dental chair ‘cubicles’ will be provided with greater area for accessible access to the dental chair. The dental chair and all access space including turning radii will be sized to accessibility standards under AODA and UofT requirements such that a patient in a wheelchair is able to transfer to the dental chair with the help of his/her assistant. The AODA operatories will be distributed throughout the open clinic space with attention paid to ensuring provision for both right and left handed access. Accessible compliant wayfinding and designation of AODA compliant dental chair ‘cubicles’ shall be provided and coordinated with the overall Clinic wayfinding strategy.

Enclosed (X-Ray) Operatories

8.78 Nasm

The Faculty of Dentistry has committed to placing 12 clinical dental chairs in enclosed operatories. These operatories will require full height walls, ceilings and regulated and filtered mechanical servicing. Each operatory is to have the entrance wall fully glazed and equipped with a sliding glazed door facing an adjacent corridor. All cabinetry and support equipment will be coordinated to fit within each operatory. While operatory designation through standard room numbering will be required; each operatory is to be equipped with an exterior whiteboard to designate current room use/booking as enclosed operatories will be interchangeable for a variety of clinical care and instruction including:

- All aspects of general and specialist dentistry including operative dentistry, periodontics, endodontics, fixed and removable prosthodontics, radiology (if equipped), minor oral surgery, orthodontics and pediatric dentistry.
- all operatories will be designed to be ambidextrous;

Hand wash sinks s in the operatories of all clinical areas to be wall mounted or freestanding rather than dropped into counters for reasons of infection control; faucets to be hand-free.

All operatories will be finished with durable and easily maintained surfaces. Bright and calming colour schemes are preferred. Operatories are to acoustically separated from adjacent spaces.

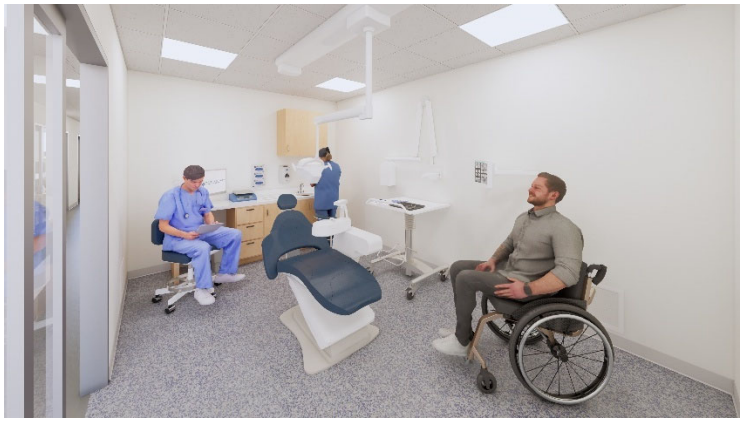
All enclosed operatories will be equipped and constructed for x-ray use. The type of x-ray operatory (Standard or AODA) will need to be determined based on Operatory organization. The x-ray operatories will require lead lining in partitions and leaded glass to meet all regulatory requirements. The entrance doors will be configured and constructed to meet all x-ray facility regulations.

Enclosed Operatory – Montgomery Sisam Architects Inc. + Kahler Slater Inc.

Enclosed (X-Ray) AODA Operatories

11.22 Nasm

Three (3) enclosed operatories will be designed to accessibility standards under AODA and UofT requirements such that a patient in a wheelchair is able to transfer to the dental chair with the help of his/her assistant. Accessible compliant wayfinding and designation of AODA compliant operatories shall be provided and coordinated with the overall Clinic wayfinding strategy.



AODA Enclosed Operatory – Montgomery Sisam Architects Inc. + Kahler Slater Inc

Student Stations / Instructor Station

Distributed throughout the Clinic 2 space and ideally serving each Operatory (or chair) Pod will be a Student Station and an Instructor Station. This station will provide a touch down area for students and instructors and will be equipped with:

- Counter
- Computer Terminal and Monitor
- Electrical Outlets and WiFi
- Casework with Lockable Storage for Student Tools (10 qty.)
- Whiteboard
- PPE Storage and Disposal (small – ie; gloves and masks, larger PPE to be disposed of in the Donning & Doffing room)
- Hand Wash Sinks (evenly distributed throughout)

Clinical Support Spaces

Program elements can be distributed across the Clinic based on best functional relationships. The Clinic Master Plan identified the existing North-South bank of program spaces separating the main N-S axial corridors from the Clinic 1 and Clinic 2 spaces as being the ideal location for Clinical Support Spaces. This area currently contains some support spaces including dispensaries, washrooms and waiting area facilities. Clinic support spaces in this area will need to be coordinated with the Clinic Operatory and Chair layout and general Clinic Access and Egress.

Clinic 2 Reception

A new Clinic 2 patient reception will be located at the main Clinic entrance so that it is easily visible by patients approaching from the new patient elevator. Patients will be required to enter and exit the Clinic via the Clinic Reception. The Reception will be staffed who will greet and process patients; direct them to the patient waiting area; provide supervision of the Clinic Entrance; and process patient payment at the end of treatment.

The reception is to allow for a minimum of 4 staff –with stations at the counter and forrecord processing and appointment coordination. The reception space is to include: a Reception Counter; Security Shutters (as Required); Access to Patient Waiting Area; 4 work stations; minimal records storage as the faculty uses

axiUm system for patient records.; Patient Payment area (within Clinic) including financial transaction equipment; Clinic Entrance Doors; Security connections.

Clinic 2 Reception & Waiting – Montgomery Sisam Architects Inc. + Kahler Slater Inc

Patient Waiting

The existing main Patient Waiting Area is located on the mezzanine level at the Elm Street Patient Entrance and Patient Reception. Patients will be directed to the Clinic 2 patient waiting areas from the main reception. The mezzanine patient waiting area will be used for staging and overflow patient waiting.

Clinic 2 will require a dedicated Patient Waiting areas. These areas will be Co-located with the Patient Elevator Lobby and Clinic Reception. The removal of the patient entrance ramps provides the potential opportunity to create a Level 2 patient waiting area with overlook to the main mezzanine patient waiting area to provide a visual connection and supports passive wayfinding.

As the clinic contains 75 operatories/chairs, an assumption of approximately 70% use results in a need to accommodate 107 patients in total. Waiting areas are to be equipped with durable and easily maintainable finishes and furnishings and are to provide a calm and welcoming environment.

Patient Waiting Areas are to have access to washroom facilities.

Clinic 2 Waiting – Second Floor - New Patient Stair, New Patient Elevator – Montgomery Sisam Architects Inc. + Kahler Slater Inc

CAD/CAM Lab

Within the bank of Support spaces a Cad Cam Lab will be provided at Levels 2 to serve Clinic 2. The CAD/CAM milling Lab will require direct access to the Clinic with glazed vision panels in either the door or the adjacent wall. Each of these rooms will be equipped with a hand sink and appropriately configured building services. Appropriate exhaust and ventilation for the lab will be required. Acoustic isolation and is to be considered in scale to the type of milling and machinery.

Clinic Dispensaries – Clean and Dirty

Dispensaries are to be located within the support area serving the Clinic 2 space. Dispensaries are to be located in proximity to the existing Freight Elevator with a minimal need for use of the main N-S Axial corridor.

Access to each dispensary will be required from within the Clinic to provide Students with access to materials at the beginning of clinical rotations.

The Clean Dispensary will provide for clean cart intake and storage from the Level 1 MDR.

The Dirty Dispensary will provide for a dirty cart return storage.

Access to the Clean and Dirty Dispensaries from the Freight Elevator and from the Clinic is to be sized appropriately.

Dispensaries are to be secured spaces with security shutters and a service counter at the Clinic interface. Security measures will need to be in place due to the housing of sterile surgical instrumentation.

Dispensaries in Clinical areas are to include eyewash stations, wall mounted or freestanding sinks rather than dropped into counters for reasons of infection control and hands free faucets.

Lockers / Staff Room

Student lockers are currently located in the basement.

Instructor lockers are currently located on Level 2 near the Edward Street main stair and passenger elevator in proximity to Clinic 2.

The existing staff room to the north of Clinic 2 is to remain in place.

Seminar Rooms

The existing seminar room on Level 2 north of the existing Clinic 2 space in Room 226A is to remain. 226B is to be converted to a storage room to accommodate a new egress corridor 226L connecting the existing corridor 226K with the North-East Exit Stair 226S.

Clinic Administration Office Space

Existing Offices 201, 202,,203, 204, 204A, 204C, 205 and 206 are to remain. A new corridor is proposed north of these offices, separating the offices from the Clinic 2 space. The proposed corridor will provide a path of egress from Vestibule 200V to the South-East Exit Stair 206S from the Offices and from the Clinic 2 Space. The construction of the proposed corridor is intended to:

1. Provide separation between the offices and the Clinic 2 space to allow use of the offices during construction.
2. Provide wall space to allow for additional Student Stations / Instructor Stations within Clinic 2
3. Provide acoustic separation between the offices and the Clinic 2 space.

Clinic Storage Spaces

Rooms 207A and 226B are proposed to be renovated to provide storage for the Clinics. The storage spaces will be primarily accessible from the Clinic 2 space with further access requirements to be determined.

Adequate storage for mannequins will be provided within these rooms.

Non-Assignable Clinic Spaces

Washrooms

The clinic is to be served by washrooms as required by the Ontario Building Code and the AODA regulations. Washrooms are to be provided for general patient use in proximity to patient waiting areas as well as within the Clinic. Separate washrooms for Students and Staff are to be provided with access directly from the Clinic Space. Washroom finishes, fixtures, equipment and accessories are to be to UofT Standards.

Existing washrooms 223A is to remain with some renovation to close an existing south doorway at vestibule 223.

Existing washrooms 219 and 220 are to be removed to accommodate the new Clinic Stair.

Washroom/First-Aid Room 221 and 221A is to be renovated to a Universal Washroom to UofT, AODA and OBC standards.

A new Gender Neutral Private Washroom and Gender Neutral Accessible Washroom are to be located in the west service bank area serving Clinic 2 directly accessible from within the Clinic.

Patient Elevator

A new Patient Elevator will provide access directly from the Mezzanine Level Elm Street Patient entrance, reception and waiting area to Level 1: Clinic 1, and Level 2: Clinic 2. The new patient elevator is to be sized to accommodate a hospital stretcher and conform to all regulations including the AODA. The new passenger elevator is to conform to all UofT Standards.and will require an Elevator Machine Room co-located with the elevator pit in the Basement level. The Elevator is expected to require a roof top hoistway enclosure at Level 3 roof. Coordination with existing rooftop equipment and adjacent program areas will be required.

New Clinic Stair

The existing stair serving as a vertical connection between the third floor N-S axial hallway at patient waiting area 319 area to Levels 2 and 1 will be removed and replaced with a new egress stair sized to accommodate the occupant load of Clinic, 2 and Level 3. This stair will be accessible from both the Clinic and adjacent circulation corridor and will be used by Students, Faculty and Staff as a convenience stair. The existing stair between levels 1 and 2 will be enclosed and abandoned.

Corridors

New and refinished corridor spaces are to be sized appropriately to use and to building code requirements. Existing terrazzo corridors will be repaired and refinished as required. New corridors will be finished to UofT standards in durable and easily maintained materials.

Existing corridors affected by the Clinic 2 renovation shall be refinished accordingly. Coordination of servicing runs, new wayfinding and egress shall be determined within the scope of the Clinic 2 renovation.

Custodian/Janitorial Rooms

Janitorial Rooms are to be either retained in place or provided new as required by the Clinic layout. Janitorial Rooms will be access from public corridors.

Miscellaneous

Eyewash stations are required in all clinical and clinical support areas.

d) Building Considerations & Sustainability

Standards of construction

A recent Facilities and Services Deferred Maintenance Report (2018) states the Dentistry building is ranked 4th highest in terms of total deferred maintenance cost, but ranked 27th in terms of the facilities condition index for St. George campus.

As this is a renovation, the standards of construction apply mostly to the interior. Finishes should be durable and of mid-range quality. All finishes are to be selected for durability, ease of maintenance and appropriate alignment with infection control regulations and procedures.

Building system and envelope elements such as windows are to be of high-quality for sustainability and durability.

Building Characteristics and Massing

The original Dentistry building is a Six-storey, masonry brick building with concrete lintels and base. The existing Floor to Floor height varies throughout the building. The existing Clinic 2 space is a double height space for the majority of its floor area.

The walls appear to be uninsulated. The majority of the exterior envelope appears in good physical condition, particularly for a building of this age. There is some deterioration of the existing concrete ramp, base, columns and metal louvres along the Elm Street façade.

The 1985 infill/addition is compose mostly of mirrored glazing / curtain wall with aluminium pressure caps, exposed concrete columns and panelized pre- finished metal banding.

Improving thermal performance will require the addition of thermal insulation to the interior wall surfaces. The appropriate insulation value is to be reviewed and selected that maximizes the thermal performance of the wall, while mitigating any potential damage to the existing masonry.

The majority of the existing windows in the south wing are thin framed aluminum fixed or operable units of varying ages. These should be replaced with modern, thermally broken, double-glazed insulated glass units with a low-e coating. They should match as close as possible the original windows that were designed for the building.

The existing structural system for the original U-shaped building consists of discrete concrete spread footings at each column location, and concrete strip footings running along the perimeter of the building below the exterior walls. The vertical load-bearing elements include interior concrete columns of varying sizes and perimeter load-bearing masonry walls. Floor systems of the building consist of concrete joists formed with blocks of clay tile to create the cavities, topped with structural concrete slabs, framing between concrete beams and/or load bearing masonry elements. Structural changes as a result of the building's use are expected to be restricted to the east building wing and roof where new mechanical systems dictate a need.

The existing floor finish is worn and requires replacement.

A feasibility report was prepared by U of T Property Management, Design and Construction in 1999 to see the viability of adding additional floors to the Northwest 1985 addition. The report determined that an additional 1,430 gsm could be added to the 6th floor with an additional 706 gsm possible 7th floor addition. The report states that the cost and disruption to services would prohibit any vertical additions to the existing 1959 building. These assumptions should be re-evaluated in today's current marketplace conditions to determine the impact / viability of vertical additions to the existing facility. As part of the Clinic Master Plan, the potential to create a third floor infill within the double-height undergraduate clinic space was considered. (Refer to appendices for PMDC1999 report)

A structural review report was prepared for the Faculty in 2020 to assess the potential of adding a third floor infill within the double height space of clinic 2. The report found that the existing structure was adequate to support an infill floor and provide preliminary recommendations. The Structural Report is available for review upon request. Due to construction costs, the third floor infill was determined to not be a project requirement at this time.

A new sprinkler system may be required with the reconfigured Clinic 2 enclosed operatories.

Elevators

The existing building contains 5 elevators: 2 elevators located adjacent to the Edward Street Entrance including a passenger elevator and a larger freight elevator and three passenger elevators located in the centre of the 1985 infill/addition.

The elevators are in good condition with the exception of the original freight elevator and passenger elevators, which are considered to be in fair condition. The freight elevator is proposed to be modernized and upgraded in support the expected increase in use once the MDR renovation project is completed in 2021. No major work is required on the South Passenger elevator at this time. Elevators are not out of compliance.

The Clinic Master Plan identified locations for two new AODA compliant passenger elevators serving the Elm Street Clinic Entrance Lobby in lieu of the existing non-compliant ramp providing direct access to the clinics. A new AODA compliant MLR passenger elevator with capacity for an ambulance stretcher is proposed to serve the Elm Street Patient Waiting Area, Basement Level, Clinic 1 on the first floor, and Clinic 2 on the second floor.

The new patient elevator is to conform to UofT Standards. Coordination of elevator requirements including foundations, elevator pit and hoist way are to be included in the current project scope. Coordination within existing space, structure, equipment, finishes and building envelope in the basement, 3rd floor rooftop space and equipment to be determined depending on new passenger elevator location. The basement level pit and machine room will be located within the parking garage, with coordination with Ancillary Services, Transportation Services, required for the loss of one parking space.

The existing freight elevator is to be reviewed for potential to serve the second floor of Clinic 2 providing necessary vertical connections between the basement loading dock, the first floor MDR and the Clinic Dispensaries.

In support of the current MDR project, a modernization and upgrade to the existing Freight Elevator is proposed, as the current elevator has exceeded its theoretical lifespan. Potential upgrades may include automating the door closure function if the existing hoistway can accommodate the space required for additional devices.

Sustainable Design and Energy Conservation

The University of Toronto is committed to reducing its scope 1 and 2 greenhouse gas (GHG) emissions by at least 37% below its 1990 level of 116,959 tonnes eCO_2 by 2030, targeting a better than net-zero climate positive) institution by 2050. To accomplish this, the University has retired the previous Energy Performance and Modelling Standard (April 1, 2019) and introduced this now-governing Tri-Campus Energy Modelling & Utility Performance Standard (refer to links listed at the end of this section). This new standard provides project-specific energy and water efficiency targets, used to calculate energy and GHG project budgets, and necessary to achieve the 2030 goal, while also introducing a streamlined modelling and documentation submission approach.

This standard is meant to inspire innovative designs based on energy and GHG targets that are used to calculate energy and GHG performance budgets according to when the building is going to be constructed and building programming. The targets become more stringent over time as cost-effective technologies and delivery methods improve in conjunction with regulatory compliance changes..

The tool used to define the targets and budgets is called the "Charter" and completed by U of T staff before design procurement commences. The energy and GHG performance targets for new construction are defined for the year that occupancy is scheduled in the project planning reports. The energy modelling procedures defined in the Tri-Campus Energy Modelling and Utilities Performance Standard will be used to calculate the energy and GHG performance for the designs and compared to the Charter targets throughout the design stages.

These Standards and resulting models are not post-occupancy energy or GHG predictions. They are to be used to establish and track the compliance of energy and GHG indices during the design process and as a comparative tool for building baseline and performance evaluation.. Post-occupancy evaluation will be completed (12 – 14 months post-occupancy) by the U of T facilities staff and compared to the final performance model results.
All applicable Codes, Guidelines or Standards referenced in the standard are to be applicable to the current regulations within the project timeframe defined in the Charter. Estimates of the impact of any foreseeable future standards, codes and guidelines may be required and shall be presented to the U of T Implementation Team for consideration. In all cases, higher performance targets shall be the preferred targets.

The Dentistry Clinic 2 project scope has been coordinated with the scope of work for Project Leap 2.0 as part of the base building upgrades and decarbonization included in UofT's Climate Positive Campus initiative.

Utility Performance Requirements for Capital Projects

New construction projects and Major Renovation Projects must meet the project-specific energy performance targets established in the Project Charter. The requirements will be calculated using the Charter's archetype targets and project information, including: planned building space use, year of occupancy, presence of a connection to the U of T district steam or low temperature heating, and district chilled water energy systems. For buildings with mixed uses, the targets are area-weighted using the Project Charter to determine a set of performance targets that are representative of the building programming.
The renovation of existing buildings plays a critical part in U of T's plan to achieve its established 2030 GHG emissions reduction target. UofT's Standard also identifies utility performance requirements and targets for renovation projects of varying scopes and complexities through a prescriptive pathway for minor renovations and performance pathway for major renovation projects.

For Feasibility Studies, the project Charter will be developed within the scope of the feasibility study to inform design feasibility decision making. The developed charter(s) will be calibrated to the predictive timeline(s) of construction included in the project costing and feasibility report.
The Project Consultant Team must complete and submit to UofT all the deliverables listed in the *Project Charter Submissions Checklist* including energy simulation files and report, key performance indicators (e.g. % EUI reduction, TEUI, TEDI, GHGI) with associated documentation at each stage of the design process to demonstrate ongoing compliance with these performance targets. At the completion of the commissioning, the energy model simulation must be updated to reflect the as-constructed building characteristics. This will form the basis of the project's baseline performance.

The targets will be revisited and adjusted regularly to ensure U of T remains in a leadership position. The progression of targets depends on numerous factors, many of which are outside U of T's direct control (e.g., the rate at which new technologies come to market). However, projects should anticipate the adjustments to the targets for 2022-2026 and 2026-2030 for all key performance indicators included in the standard to account for increased capabilities of designers, technologies and industry practices to meet net zero targets by 2030 in many jurisdictions, including the City of Toronto.
Beyond energy, additional performance levels may include:

- 50% reduction in indoor water use over the LEED™ version 4 baseline;
- 60% reduction in outdoor water use over the LEED™ version 4 baseline; and
- Complete whole-building air tightness testing following the US Army Corps of Engineers Air Leakage Test Protocol for Building Envelopes and submit air leakage testing report. (Refer to links listed at the end of this section).

The above targets are combined with project-specific information to establish unique energy and water efficiency targets for every building based on floor area and different space use types. The project-specific goals are established as part of the Project Planning Report (PPR) using the separately enclosed Project Charter. The Project Charter outlines key project information, performance targets, and serves as a reference point throughout the project to ensure the performance goals are clearly understood by all involved parties and ultimately achieved.

To further ensure projects are developing in accordance with these performance requirements, documentation must be completed by the Project Consultant Team and/or the U of T Implementation Committee at each project stage. For each documentation item, the expectations and responsible parties are outlined in the Standard.

In addition to the energy performance, utilities performance and water efficiency targets mandated by the University through this standard, other regulatory authorities and certification processes will be included within the planning, design and implementation of all projects. The intent of these additional regulatory processes is to ensure that the high-performance building required by the energy and water performance targets of this standard is part of a holistic approach to sustainable building practices.
The following Certifications and regulations will be mandatory for all New Construction and Renovation projects: LEED™ Silver minimum (non-certified); and the Minimum required Toronto Green Standard Tier. The minimum requirements for these certifications and regulations are not to supersede the energy, utilities and water efficiency performance targets of this standard. The consultant is required to provide a memo demonstrating LEED™ Silver minimum (non-certified) shadowing and Toronto Green Standard response. This memo is to be developed in consultation with University of Toronto Facilities and Services and is to include at standard LEED™ checklist identifying all achievable and potential credits.

On-site renewable energy requirements included in the Project Charter will be determined on a project-to-project basis in consultation between the Project Planning Committee and the Facilities and Services Sustainability Office. Considerations of the affordances of the capital project (i.e.. roof area, exposure) and campus wide energy planning and utilities master plans may impact the decision for inclusion of photovoltaics, wind turbines, and other on-site renewables. The following is the definition of on-site renewable energy generation included in the Tri-Campus Energy Modelling and Utilities Performance Standard:

Site Renewable Energy Generation:

Energy generated on site from renewable sources, such as solar photovoltaics (PV), wind, or solar thermal. Where a site is not able to send energy off-site (e.g. connected to the electricity grid), only energy that can be consumed (or stored and then ultimately consumed) on site shall be counted as Site Renewable Energy Generation. Site Renewable Energy Generation can be used to reduce Site Energy Use before calculating TEUI and GHGI. The U of T is not considering the purchase of renewable energy or other carbon offset packages.

In the case that excess on-site renewable energy generation (or heat recovery) beyond the building's demand can be exported to surrounding buildings or district energy systems, that exported energy will be counted as a credit to the TEUI and GHGI metrics.

Geo-exchange and other heat exchange strategies and technologies may be considered as on-site renewable if used in conjunction with other on-site renewable energy generating initiatives of the above listed items. **Consultation with the Facilities and Services Sustainability Office on the proposed on-site renewable strategy will be required.**

Other Considerations

New construction will increasingly include multiple uses and occupancies resulting in "mixed use buildings". As indicated, the energy performance targets and resulting budgets will be based on the area weighted aggregate as calculated by the Charter. Care is required when assigning the use areas when completing the Charter. **Coordination between University Planning, the end users and Facilities and Services Sustainability Office is to determine the appropriate assignment of Charter Archetypes to the space program.**

District Energy Systems (DES) includes heating and cooling energy supplied from our central or nodal plants. For networks supplied from low temperature heating sources (heat pumps, heat reclaim energy) the non-district system targets and factors will be used. **The Facilities and Services Sustainability Office (F&S SO) is to inform the PPC and University Planning of the project's connection (or not) to a DES.** The intent of the charter is to determine energy use at time of occupancy. Coordination with the F&S SO is required to ensure that the capital project will meet future energy and carbon planning targets.
The Project Planning Committee is to review the City of Toronto Green Standard and City of Mississauga By-Laws for Electric Vehicle parking requirements for appropriateness and alignment with our vision, use, campus Master Plans, and utilities as well as project capital and operating budgets for the project.
The decision to pursue full certification or higher levels of LEED™ and TGS or additional standards such as WELL™ Building Standard will be at the **discretion of the Project Planning Committee in consultation with University of Toronto Facilities and Services. The decision to include the above is to be included in the Project Planning Report for inclusion in the Capital Project's scope of work and preliminary costing.**

Photovoltaic-ready initiatives are to be considered where possible to allow for the future installation of photovoltaics where current project scope may not allow for the full installation of a photovoltaic array. Considerations of structural loading and provision of electrical conduit and servicing may be included in the capital project scope.

Project Planning, Implementation and Consultant teams are encouraged to address the embodied energy, embodied carbon and other emissions associated with building materials. Reporting of the embodied emissions of the building's structural and envelope materials using life-cycle assessment (LCA) software in compliance with the Canadian Green Building Council's recommended methodology is to be **reviewed in consultation with University of Toronto Facilities and Services on a project to project basis.** The decision to include the above is to be included in the Project Planning Report for inclusion in the Capital Project's scope of work.

The University of Toronto Facilities and Services is to be contacted to provide historical utilities data to the consultant team for the purposes of life cycle costing and energy modelling.

The University of Toronto Sustainability Standards

The University of Toronto Environmental Standard [University of Toronto Design Standards: Part One / Environment / Environment (draft revision)] was developed in 2011 and revised in 2018. A new and expanded University of Toronto Sustainable Building Design Standard is currently under development and targeted for

release in the winter of 2023/2024. The new sustainability standard uses several external standards as a baseline from which to take a leadership position in holistic sustainable building design. The Project Planning Committee and consultants are encourage to **consult with the University of Toronto Facilities and Services Sustainability Office** to ensure that longer term project planning is anticipatory and inclusive of the new sustainable building design standard requirements, Tri-Campus Energy Modelling and Utility Performance Standard requirements, and Toronto Green Standard requirements.

The new sustainable design standard will supersede the requirement for LEED™ Silver minimum (non-certified) described above.

Sustainable strategies to be considered during the design phase to achieve the project charter targets may include:

- Envelope
  - High performance envelope and glazing
  - Improved air tightness. For renovations with limited envelope scope, qualitative envelope assessment and targeted sealing and/or aerosolized envelope sealant technology to be considered.
  - Low window to wall ratio at building facades with Low-E triple glazed insulated glazing units

- Water
  - Rainwater harvesting systems for flushing toilets and urinals, and for landscape watering systems
  - Water-efficient fixtures and combined water fountains/bottle-filling stations

- Heat Recovery
  - Exhaust air heat recovery actively using heat pumps (preference for ventilation rates – e.g. lab buildings) or passively
  - Heat recovery chiller for simultaneous heating and cooling loads
  - Heat recovery ventilation
  - Wastewater heat recovery

- Energy efficiency
  - DLC-rated LED lighting with central lighting controls and advanced control strategies including daylight harvesting, occupancy sensing, scheduling, zoning, high-end trim.
  - Energy Star appliances, office equipment, electronics, and commercial food service equipment
  - Building automation systems integrated into the University's EMRS
  - Demand control ventilation based on CO_2 or contaminant sensors in lab spaces
  - Occupancy sensors controlling HVAC and lighting
  - Zoned HVAC control where possible
  - Ultra-low flow, energy efficient fume cabinets in laboratories (with variable volume air flow and automated sashes)
  - Thermal or battery storage for resiliency and peak shaving

- Renewable energy
  - Geothermal
  - Solar thermal, Photovoltaic including Building Integrated Photovoltaics
  - Wind

- RNG

- Roofs and landscaping
  - Green roofs (to improve rainwater absorption, mitigate local heat island effect, decrease the building's solar heat gain, and to increase the available habitat and help offset the impact of habitat loss associated with the new building)
  - Roofs suited to the incorporation of solar thermal water and/or photovoltaic arrays and 'Solar Ready' provisions for future installation if not included in project scope.
  - Low maintenance native plantings

- Materials
  - Durable, local materials with renewable and/or recycled content
  - Low-embodied carbon building materials
  - Provision of recycling depots for source-separation of waste throughout the building to meet the needs of the University's recycling and waste reduction programs and vehicular access to these sites
  - life cycle analysis (LCA) and embodied carbon reporting

Other Standards and Certifications to consider

- Passive House
- WELL™ Building Standard Certification / Shadowing
- Toronto Green Standard tiers above minimum requirement
- LEED™ Certification and/or shadowing above minimum requirement
- CAGBC's Zero Carbon Building™ Standard / Shadowing

Other considerations

- Transportation (i.e. support of active and lower carbon commuting (e.g. cycling)
- Location (i.e. Landscaping, Biodiversity, Light Pollution, Trees, Heat Island)
- Indoor Environment (i.e. Air, Lighting, Acoustics)
- Equity, Diversity & Inclusion (i.e. safe spaces, inclusive design)
- Health & Well-Being

UofT Climate Positive Campus
https://climatepositive.utoronto.ca/
UofT Tri-Campus Energy Modelling & Utility Performance Standard:
https://www.fs.utoronto.ca/wp-content/uploads/2022/06/Tri-Campus-Energy-Modelling-Utility Performance-Standard-July-2020.pdf
UofT Overall Design Standards:
https://www.fs.utoronto.ca/projects/design-standards-and-project-forms/
Toronto Green Standard Version 4:
https://www.toronto.ca/city-government/planning-development/official-plan-guidelines/toronto-green-standard/toronto-green-standard-version-4/

Refer to project Renovation Charter in the appendices attached to this Report.

Photo 07_Existing Second and Third Floor Windows at East and North Façade

Wellbeing and Mental Health

The University of Toronto identifies mental health as a priority through the University's value statements and strategic goals and adopts a systems approach in creating supportive and inclusive conditions for students to flourish. A systems approach recognizes the reciprocal relationship between wellness and academic achievement and considers an academic environment that sustains health. Physical spaces have a role to play in supporting cognitive and emotional health through design, technology, and treatment strategies. In addition, the built environment can help mitigate adverse mental health outcomes through policies, programs, and design.

Strategies to consider when incorporating space that promotes mindfulness and wellbeing include:

- Design that promotes calm through consideration of finishes, natural elements, and daylight.
- Design which focuses on stress prevention and healthy lifestyle.
- Spaces that enable focused work by reducing distraction and managing stimuli through the use of intrusive noise and sound masking and visual privacy.
- Providing increased access to therapeutic spaces.
- Including welcoming spaces that provide peer support and wellness programming related to mental health education, reducing stigma and promoting health literacy.
- Providing access to nature.
- Allowing for restorative indoor and/or outdoor spaces designed for contemplation, relaxation and relief from mental fatigue or stress.

Refer to the *Presidential & Provostial Task Force on Student Mental Health Final Report & Recommendations* for additional recommendations.

Accessibility

The University is committed to equitable access to all of the building's facilities by the whole campus community. A Universal Design Consultant typically will be retained early in the design process to ensure that the consultant's recommendations will be incorporated into the built project.

The Clinic 2 renovation project seeks to improve patient access to clinical treatment through:

- A new passenger elevator with the capacity for an ambulance stretcher connecting the main patient entrance to the Clinic 1 , Patient Entrance and Clinic 2 spaces
- Accessible detailing at new proposed Patient and Clinic stairs.
- Accessible operatories, dental chair cubicles, lab benches, sink stations and other lab and clinic facilities are to be provided in the renovation project.
- New wayfinding, lighting and finishes are to be designed to University of Toronto accessibility standards.
- New Universal Washroom serving Clinic 2
- New Gender Neutral Private washrooms serving Clinic 2

To address the broad diversity of people who will use the facilities, the signage system will be designed to assist individuals with disabilities in identifying spaces (e.g. Braille, high contrast) and wayfinding. Attention will be given to the layout of the space and the materials used and the Manager of the Accessibility Resource Centre will be consulted throughout the design process.

An amendment to the Ontario Building Code (2012) related to Accessibility was filed on December 27, 2013 (Ontario Regulation 368/13). Effective for applications submitted after January 1, 2015, the requirements are more stringent and impact the following areas relevant to this project: barrier-free path of travel, visual fire safety devices, washrooms, and seating in assembly spaces.

New or redeveloped exterior, and some interior (i.e. service counters, fixed queuing guides, and waiting areas), public space, must comply with Part IV.1, Design of Public Spaces Standards (Accessibility Standards for the Built Environment, Integrated Accessibility Standards of the Integrated Accessibility Standards, O.Reg. 191/11, https://people.utoronto.ca/inclusion/accessibility/policies/) This would include approaches to new buildings. Refer to OBC and Section 4.0 of the FADS for exceptions to requirements for accessibility; however, consider areas that may be overlooked such as storage rooms, kitchenettes, staff spaces, and private corridors. Consider the number of usability of a space, the number of users in a space, and the potential for crowding.

Public space projects affecting exterior paths of travel, recreational trails, outdoor play spaces, or accessible on-street parking must include consultation with the public and persons with disabilities pursuant to aforementioned standards.

For additional information and policies review the University of Toronto's AODA Office website:
https://people.utoronto.ca/inclusion/accessibility/
https://teaching.utoronto.ca/resources/universal-design-for-learning/
https://people.utoronto.ca/inclusion/edi-at-u-of-t/

Facilities & Services in review with University stakeholders has developed a standard to provide guidance for the accessible design of campus facilities. Design standards apply to new construction, renovation, renewal, and maintenance projects.
Facility Accessibility Design Standard (June 2023)

Personal safety and security

The building design must allow its students, faculty, staff and visitors' access as required and as allowed, safely and easily. At the same time, the design must be sensitive to the needs of those whose activities require security after hours. Limited areas of this building could be operational throughout the week for 24 hours a day.

A detailed security plan will need to be developed for each room, zone or floor, and factored into the design of the building to ensure that accessibility, security and functional objectives are all met simultaneously. Specific security requirements have been identified in the Room Data Sheets.

Personal safety is of paramount consideration. Transparent common rooms and public areas, including stairwells, are specified to be glazed where possible to allow for visual access.

Any exterior lighting should be abundant and provide for ease of movement around the exterior of the complex at all times of the day.

The Clinical entrance, reception, waiting and public areas will have secured access to the academic areas of the Dentistry building. Integrated wayfinding and security for visitors and patients is to be considered by the consultant.

The design should allow for controlled flow throughout the clinical areas with a maximized flow for students throughout the building. A computerized card-entry system is to be reviewed, while still making significant considerations for personal safety and security at every opportunity. Doors to individual offices should be individually keyed, as should storage areas, and common & study lounges.

Dispensaries and stock and store rooms, radiology, patient records storage and sterilization facilities are to employ significant security measures to be reviewed in consultation with the Faculty of Dentistry and with Police Services and the Community Safety Office.

High security restricted access to stock and store rooms, patient records and Patient Payment stations is required. Eye wash stations are to be provided within Clinical spaces.

Signage, donor recognition

This project will need to provide all necessary signage, wayfinding and donor recognition associated with the building. Interior signage includes not only those signs mandated by the Ontario Building Code but also departmental identifications, room names and numbers, room schedules (as required) and interior wayfinding. Exterior signage includes building identification, street and road signage for pedestrian and vehicular wayfinding, and other site-specific signage (e.g. parking, loading dock instructions, etc.). As well, building may utilize digital signage for the cycling of campus information, events, student services, etc.

All signage and wayfinding are to be compliant with University of Toronto Accessibility standards and AODA compliant.

UofT has specifications and standards for both interior, exterior and digital signage that the design team will be required to implement on this project. Exterior donor recognition signage will be subject to the University of Toronto Design Review Committee review.

One of the goals of the Elm Street Patient Entrance and Clinic 2 renovations is to provide a clarity of organization and use to the public clinics within the demanding constraints of the existing building. The spatial organization and finishes of the renovation are to be considered in developing a significant wayfinding and signage system for both the public and academic spaces within the Dentistry building and project scope boundary. Existing signage on the recently renovated 4th and 5th floors will need to be considered as a starting point along with consultation with Faculty and departmental stakeholders.

Naming valuations for the renovated spaces as well as elements within, such as operatories are currently being valued with the UofT Department of University Advancement's stewardship team. A significant Donor to the project will be honored with an updated donor wall at the Mezzanine Level Patient Entrance and Waiting Area.

Non-assignable space

The existing loading dock is accessed from Elm Street at the West Façade of the building. The loading dock is at the basement level.

New and renovated areas within the building must include appropriate provision for or renovation of caretaking closets on each floor. The project features new or renovated washrooms to serve the Clinics on the second and third floors.

Caretaking design standards are posted on the web site http://www.fs.utoronto.ca/wp-content/uploads/2015/05/caretaking-standard.pdf .

Mechanical/ Electrical and Data

Mechanical

The building is served with an 8" (200mm) steam line from Enwave District Heating at approximately 100 PSI. Annual peak demand prior to major 4th and 5th floor renovations in 2016 through 2018 was approximately 7,000 MBH. Steam is used for heating, process equipment (autoclave, sterilizers, etc.), domestic hot water and humidification. Heat exchangers convert he steam to hot water and glycol is used for perimeter heating and air handlers respectively. Steam to steam converters are used for air humidification for the recently renovated 4th and 5th floor.

During the 2017/2018 4th and 5th floor renovations, new steam lines and associated heat exchangers for the new air handling units and duct mounted re-heat coils serving those floors, as well as the replacement for the existing AH-21 steam heating were added. The existing steam line serving the AH-21 heating coil was capped and a new line was connected to the incoming steam line in the basement. The existing heating lines serving other floors were re-used for perimeter heating.

The steam piping is original to the building, except where added as part of the 4th and 5th floor renovations. Testing to determine wall thickness is required. The perimeter heating requires upgrade as it is original to the building. The water heat exchangers are past expected life as are a number of the distribution components such as pumps and valves. The Enwave abandoned high pressure condensate line and the condensate line is being returned via pumped condensate line, except at the 4th and 5th floor renovation, where it is temporarily being sent to drain.

There is no single, master document that incorporates all the changes done to the steam/heating system over the years. The creation of the as-built master drawing is recommended to be included as part of the Master Plan either in the planning or implementation phase of the project.

The areas to be addressed in the Clinic 2 renewal and the recently completed Lab 4 renovation are served by multiple existing air handling units. The air handlers are mainly original to the building and are well maintained, based on the equipment age. The units should however all be replaced or rebuilt dependent on air handler box integrity and requirements for the space (outside air requirements, cooling, temperature control, humidification, etc.). Some units have chilled water cooling some are DX cooling. They all have glycol heating and do not have humidification. The AHU 21 was slowed down as it is no longer serving the 4th and 5th floor and the steam heating was replaced with glycol heating. The distribution ducts serving the laboratories are lined, the liner material has deteriorated and does enter the occupied areas in particulate form. It is recommended that these ducts be replaced. Air handling units are to be reviewed and considered as follows:

1. Air handling units and ductwork/devices serving affected areas will be replaced with new
2. AHU S-16&17 will be refurbished and updated to DDC controls
3. AHU 3 full replacement to support Lab 4 renovation
4. AHU 13 an 15 full replacement to support the Clinic 2 renovations

The chiller plant in the assessment, serves the areas identified in the master plan. There are two 250 tonne chillers, both are in good condition operated seasonally. The usual maximum load observed is around 350 ton. The cooling towers on the roof are in fair condition but require overhaul and possible replacement. A new 500-ton chiller / cooling tower plant replacement is to be reviewed and considered within the scope of the project.

During 4th and 5th floor lab renovation project the 200 tonne air controlled DX chiller was added on the roof. The maximum load has not yet been experienced as the labs have not been fully utilized.

The compressed air system is served by 3 units, each approximately 200 scfm; two units are oil free and one unit is lubricated with oil removal filtration. The lubricated unit is only used as a backup. These units are in generally good condition. There is no single, master document that incorporates all the changes done to the compressed air system generation and distribution over the years.

There used to be RO system serving the building, but it has been decommissioned and replaced with point of use polishing station.

There is a wet vacuum system serving clinics 1 & 2 (approximately 275 chairs) and lab 4 9approx. 120 chairs), and a dry system serving small clinic on the 2nd floor. The wet vacuum system pumps were replaced in 2018 using a quadriplex system with 350 scfm @ 22” Hg vacuum per pump, amalgam separators were added at that time. There is no single, master document that incorporates all the changes done to the vacuum distribution over the years.

There is limited use of natural gas in the building at the fume hoods. There is no single, master document that incorporates all the changes done to the natural gas distribution over the years.

The Building Automation System on the 4th and 5th floors is a brand new DDC Siemens integrated into enterprise level remote building automation and energy monitoring system (EMRS). The lower floors are managed using a number of systems, including CCMS, pneumatic and Automated Logic. These systems require replacement including changes in the sequence of operations, hardware and end devices to more effectively manage the building, reduce operating costs by incorporating into EMRS.

The incoming plumbing and drainage is original to the building, except where renovations took place. There is no lab drainage treatment although piping material is acid resistant to minimize adverse effect of the incidental spill. There is no single, master document that incorporates all the changes done to the plumbing and drainage distribution over the years.

There is presently a project to incorporate secondary domestic water feed to the building for improved resilience. This should be competed by early 2019.

The building fire safety systems located in the 1981 construction included sprinklers as per the code. The original 1950 construction has a stand pipe with no sprinklers except on floors 4 and 5. The alarm panel is a new CHUBB system.

Enclosed operatories are to consider the following system requirements:

1. Plan for one operatory that will have fan assisted HEPA return diffuser, to be confirmed during design.
2. If 35 min fallow time is required the AHU should be sized based on 13 ACH of total supply air, considering the ACH eq of 12 the assumption for unit sizing: OA min 15% , final filter MERV 13
3. 13ACH for sizing the AHU serving operatories. Design of the unit to be as outlined in the CSA requirements, with MERV 13 filters as a final ones. The exact number to be determined during design. No need for HEPA on the supply air.
4. The lobby area is also part of the renovation. Based on the recent conversations, the scope needs to include looking at the existing HVAC serving the area to address temperature and ventilation issues.

Refer to the 2019 Clinic Master Plan and Existing AHU audit and balancing report attached as an appendix to this report.

Electrical

The main service to the building is two 13.8-kV feeds from Toronto Hydro, installed in 1983. The existing HV switchgear and transformers are in good condition and serviceable. The main 600/347-volt switchboard installed in 1983 was manufactured by FPE. The breakers are HL-frame Air Circuit Breaker technology, and are obsolete and no longer serviceable. The breakers in the main switchboard must be replaced, and all the exiting bus and bus-duct feeders serviced. The existing 600-12/208-volt transformers and bus-duct shall be cleaned and serviced. The existing 120/208-volt switchboard is obsolete and not serviceable. This switchboard must be removed and replaced with a new switchboard with main tie main configuration and sized to suite the building load and transformer capacity. The electrical risers are a combination of copper bus bars and cables. All copper bus bars risers should be inspected and serviced. Distribution to local laboratories and clinics requires assessment and replacement. All conduit and wire feeders and local panels more than 25 years old should be replaced.

Due to changes n the electrical Code and Building Code the electrical series to all surgical and clinical activities on the site, must be upgraded to meet current code requirements. The site electrical emergency generator will require assessment for capacity, due to the process load requirements from the surgical and clinical activities.

The following is an outline of additional electrical scope of work:

1. The generator is fixed and the design team will have to assess the available capacity of the emergency distribution system and extend the life safety and non-life safety distribution to accommodate the project needs.

2. The normal power main service from Toronto Hydro does have adequate capacity however, ALL of the legacy distribution equipment downstream of the main switchboard will have to be removed and new equipment provided.
3. The breakers in the main switchboard are old and retrofit replacement breakers will be required in the main switchboard.
4. The 120/2018 volt legacy switchboard and transformers will have to be removed and new distribution transformers and switchboard designed and provided and part of the project.
5. Existing fire alarm system is a mix of legacy and new devices and control panels; review and upgrades to be included as required.
6. The design team will need to review and assess the normal power load for the new project. If there is a substantial increase in load to the existing main service, an application for increase capacity will have to be submitted to Toronto Hydro for verification of the capacity of the existing feeders and provide a cost for increasing the feeder capacity, if required.
7. New LE Lighting is to be provided throughout renovated areas.
8. Snow melting to be provided at Elm Street exterior entrance ramp.

Refer to appendices: 2018_Dentistry Building Memorandum dated August 27, 2018.

An electrical audit of the existing electrical panels is to be completed by U of T trades prior to any commencement of construction work.

Refer to the 2019 Clinic Master Plan is attached as an appendix to this report.

Fire Alarm

The current Fire Alarm System is an EST III addressable system. The system was recently upgraded approximately two years ago with a resulting system a mix of legacy and new devices and control panels. A condition review report for the fire alarm and sprinkler system will be required to be included in the project. The recommendations of the report will be implemented as required to serve the project areas.

The most recent annual fire alarm test will be provided by U of T Fire Prevention Services which will provide information on the current status of the system and provide a list of all devices on the system and their location.

Refer to the 2019 Clinic Master Plan is attached as an appendix to this report.

Data & ITS

The existing wired networking infrastructure at 124 Edward Street is managed by the Faculty of Dentistry's in-house Information and Instructional Technology Services Department (I&ITS). The Wi Fi network is managed by the University's ITS central networking division. Access PoE ethernet switches can be found in LAN closets located throughout both the North and South towers of the Dentistry building with networking from each terminating in the Faculty's Data Centre, room 413, on the 4th floor in the middle of the North Tower where core switches connect to the University backbone. In addition to housing I&ITS switches, some closets have University managed ITS switches to support the Wi Fi infrastructure and some have University managed Facilities and Services switches to control and monitor building services.

Due to rapid expansion of networking demands in the clinics over the past 5 years a number of closets are reaching physical capacity and their network switches are reaching maximum port density, therefore, it will be necessary to construct several new LAN closets or upgrade existing LAN closets to service the newly created spaces. In particular, a new LAN closet must be incorporated into the plans to replace the existing LAN closet

in Clinic 2 that will be demolished and, given the net-new computing requirements in the Simulation Lab, an additional LAN closet will be required to service that area as well. A new LAN closet currently being built to service the MDR project may provide sufficient room for racking of additional PoE ethernet access switches to meet some of the new demand, however, given the scope of this multi-phase project, an assessment of the network infrastructure servicing the existing clinics must be undertaken to ensure there is adequate access to strategically located switches to meet the networking needs of the various phases of this project while futureproofing for potential density growth post-construction.

All new PoE network access switches must be in conformity with the University's ITS recommendations and it is a requirement that LAN closets have sufficient power as well as adequate heat dissipation and cooling for all of the equipment. The closets must include uninterruptible power supplies (UPS) in order to provide battery backup power to Ethernet switches, particularly if they are powering PoE devices such as VoIP phones. This is usually sufficient to ride out power fluctuations and very short-term (5-7 minute) power outages.

Once the new LAN closet locations have been identified or existing closets upgraded, new EMT conduit paths with strategically placed pull boxes for network cables must be run from the PoE access switches to the networked devices in the new clinic and lab spaces. The designated substances report summary for 124 Edward Street confirms asbestos materials are found throughout the building in various locations, therefore, an abatement phase must be scheduled before networking infrastructure installation can occur. When installing new copper unshielded-twisted-pair (UTP) CAT6 (or better) network paths, it is highly recommend pulling a minimum of two cables to each location. The cost of installing an additional UTP cable is low when compared to the labour charges for pulling the cable. These extra cables can be reserved for future use and also provide redundancy in the event of future cable failure.

Rapid expansion of networking demands leading to switch density saturation and the presence of asbestos in parts of the building has resulted in cable runs that transgress floors and sometimes terminate in LAN closets that are not in ideal proximity to the area being serviced. Consideration must be given to this as the construction phases roll out to ensure network service continuity is maintained in areas of the building out of scope for this project.

Environmental Health and Safety

The designated substances report summary for 124 Edward Street confirms asbestos materials are found throughout the building in various locations: fireproofing, ceiling tiles, light fixtures, on piping systems, mechanical equipment and duct insulation, within vinyl flooring and mastic, and in drywall joint compound. Asbestos is also suspected to be contained within locations that are presently hidden or are inaccessible, such as plaster, roofing materials, electrical wiring jacket, door liners, electrical panel backing, fire stop, window and door caulking, window glazing putty, cable trench & equipment and gaskets.

Lead contamination is presumed to be present within paint, solder on joints between copper pipe and fittings, solder on wire connections of electrical components, and metal coverings on older high voltage wires as well as glazing on ceramic tiles. Mercury is present in the electro-thermal switching devices, and vapours in the fluorescent light tubes and incandescent mercury bulbs.

Free crystalline silica is present in construction sand and concrete and masonry products.

The building has not been used for any manufacturing and no above-ground or below-ground fuel storage tanks are present within the building.

As the scope of work of the proposed project will involve disturbance of some asbestos-containing materials or other designated substances, an abatement phase should be scheduled for all known and accessible areas in advance the first phase of construction. Some additional abatement will likely be necessary as hidden or inaccessible areas are uncovered throughout the project.

Additional potential hazardous materials located within the building at 124 Edward Street may include hazardous laboratory chemicals, biological agents and radiological materials.

Consideration of the following is to be included in the Clinic Master Plan renewal project:

- Safety (supply ventilation, chemical hazard quantity, specialized equipment and venting requirements)
- Special safety hazards (biological, radiological, highly toxic chemicals)
- Special considerations for venting or sewage traps for hazardous chemicals
- Environmental health and safety
- Infection Prevention & Control (IPAC)

Further Environmental Health and Safety aspects to be considered included:

- Lighting appropriate to task and incompliance with Health and Safety, AODA and other authority requirements as well as all industry standard guidelines
- Ventilation safety (supply ventilation, chemical hazard quantity, specialized equipment and venting requirements including sewage traps for hazardous chemicals)
- Special safety hazards (biological, radiological, highly toxic chemicals)

During the Design phase the following studies will be reviewed and if not available will be required to be provided by the Consultants:

- Facility condition assessment
- Deferred maintenance issues
- Building systems improvement requirements
- Code and environmental requirements
- Hazardous materials disposal
- Decommission of Laboratories
- Environmental health and safety
- supply ventilation controls
- hazardous emissions to environment
- use incompatibility
- pre-approval from CNSC for radioisotope work
- preapproval from Public Health Agency of Canada for biological work
- laboratory change of use detail

- Impact on existing occupants

e) Site Considerations

Site context

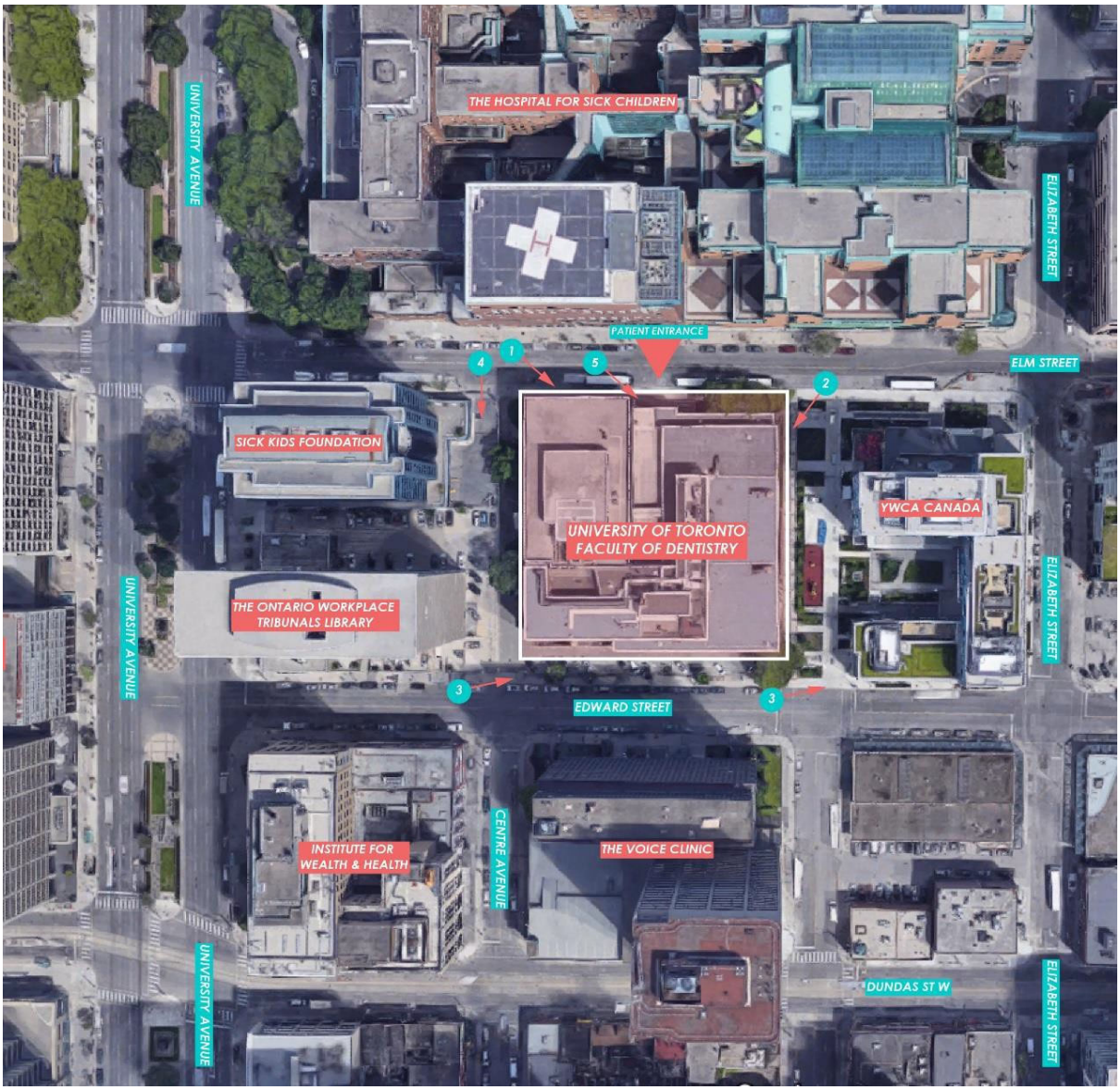
The Faculty has been housed at 124 Edward street for over 60 years. The building is located between Elm and Edward Streets to the North and South and through block pedestrian pathways to the East and a vehicular driveway to the West. The Hospital for Sick Children is located across Elm Street to the north and YWCA Canada is located directly to the East of the building. The western neighbour is 505 University Avenue, at 20+ storey building. 123 Edward Street is an 18+ storey building directly south.

History of Built Form on the Site

The Faculty's academic programme has developed significantly over the greater than 60 years that they have been located at 124 Edward Street. In addition, the building has had to accommodate on-going changes in standards of care, infection control, environmental and occupational health and safety, accessibility, fire and life safety, et cetera. As these various types of changes have occurred, one major building addition and many renovations have been made to the facility.

The original building occupied by the Faculty of Dentistry at 124 Edward Street was constructed in 1959. In 1985, the Faculty built a substantial addition to the building to accommodate changing needs, effectively maximizing the footprint of the building on the site and building up to 5 floors on the west side of the building. Numerous smaller renovations have occurred over time and have resulted in a rather confusing and inefficient layout of space.

In 1999, a study was undertaken by the University of Toronto's department of Property Management, Design & Construction, to determine the feasibility of building additional floor space on top of the existing building. Due to the existing structure of the original building and the flight path of the paramedical helicopters that serve the Hospital for Sick Children, it was determined that the "new wing" of the Dentistry building could accommodate one additional floor, plus an additional half floor above this would be feasible, providing it was constructed from lightweight materials and restricted to office/classroom use. This proposal, one and one half stories of office space, would have provided an additional 1,580 nasm. Given the need for research laboratory space, this addition would not be adequate to provide the Faculty of Dentistry with sufficient space to grow both in size and in technology.



1. Clinical Entrance - Stairs
2. Chestnut Street/Pedestrian Path
3. Surface Parking
4. Access to Loading and Underground Parking
5. Clinical Entrance - Ramp

Master Plan

124 Edward Street is not included within the 2017 St. George Secondary Plan area and is subject to City of Toronto Zoning By-laws.

The 2019 Clinic Master Plan is attached as an appendix to this report.

Zoning regulations

Zoned Q T5.0 (institutional, 5x coverage)

A review of the current zoning by-law for the site indicates that, although the site is zoned to a maximum of 46 metres in height (approximately 10 storeys) and 5 times coverage of the lot, there are restrictions due to the site being at the low point of the flight path of the helicopters used by Sick Children's Hospital. Specifically, even should there be a major fire or act of God destroying the existing building, the site would not be allowed to be built back up to anything greater in non-residential floor area or building height than what existed on the site in 1993, i.e., the current building. It may be possible to apply for a re- zoning of the site, but the flight path issue would have to be resolved in order to have these restrictions removed.

The UofT Parking By-law states that in addition to the minimum/maximum required motor vehicle parking spaces on the St. George Campus, the University of Toronto shall provide not less than 20 motor vehicle parking spaces on the lands known municipally in 1996 as No. 124 Edward Street.

Site access

Access to the Dentistry Building is from either Edward Street or Elm Street.

Edward Street

There are 20 existing surface parking spaces in a parking lot running along the South and South Western Edward Street extent of the building. These spaces are identified in the St. George Campus Secondary Plan Zoning By-law parking inventory as 'in addition' to the minimum/maximum required motor vehicle parking spaces on the St. George Campus, the University of Toronto shall provide not less than 20 motor vehicle parking spaces on the lands known municipally in 1996 as No. 124 Edward Street.

The main academic entrance to the building is from Edward Street. The entrance is at grade.

Elm Street

The below grade loading area on the west side of the building and at grade south parking lot are entered via a north-south laneway accessed from Elm Street at the North-West corner of the site.

The main Clinic entrance to the building is from Elm Street. The entrance is at elevated and accessed by either one flight of steps or an exterior ramp. The existing exterior ramp is to be reviewed further for AODA and building code compliance.

Heritage status

The Dentistry building is not currently identified as being of Heritage status.

Site servicing; existing and proposed

Site servicing information to be provided upon request. Refer to appendices: 2018_Dentistry Building Memorandum dated August 27, 2018.

Designated Substances

The University of Toronto will investigate and identify designated substances and other site-specific hazardous materials present within the project area as per appropriate regulations and the Ontario Occupational Health and Safety Act.

The Faculty of Dentistry is responsible for ensuring that all hazardous waste associated with their occupancy is removed and disposed of as per current regulatory and University standards.

f) Campus Infrastructure Considerations

Utilities (electrical capacity, water, gas, steam lines)

Refer to appendices: 2018_Dentistry Building Memorandum dated August 27, 2018.

Bicycle parking

Bicycle parking post and ring stations are located:

At the east end of the parking lot at the South-East corner of the site. The existing capacity is for approx. 20 bicycles.

At the west side of the Elm Street entrance. The existing capacity is for approx.. 16 bicycles.

There is currently secured and covered bicycle parking at the North-west corner of the building. The capacity is to be confirmed.

g) Secondary Effects

Secondary Effects of the project are to be determined with confirmation of construction phasing and operational requirements and scheduling. The following secondary effects are to be considered:

- The building will be occupied. Clinics are open all year with the exception of August. In August, there is little academic scheduling with most clinics closed, with exception of Emergency, Oral

Surgery and specific graduate clinics. Academic planning activities are all year round

- Renovation of Emergency Clinic to create 6 x-ray compliant operatories for Graduate Clinic use upon loss of Endo/Prostho Clinics in existing Clinic 2 space
- Loss of 1 parking spaces in basement to be coordinated with new Passenger Elevator Installation and Transportation Services –Cost for Parking Space purchase is to be included in the Total Project Cost.
- Removal of existing spaces within 124 Edward Street causing potential disruption
- Access to building services to serve new renovated areas; temporary disruption of operations possible
- During installation of the new Passenger Elevator the Elm Street patient entrance may need to be temporarily relocated to the Edward Street Entrance with vertical access provided by the South Passenger Elevator. Temporary wayfinding and communications strategies to be developed to inform Clinic Patients.
- Use of Satellite Clinic to maintain operations will vary depending on phase and scope of work. Curricular scheduling to be determined.
- Construction staging area to be determined: may require reduction in surface parking to accommodate trailer and lay down area.
- Disruptions to departmental deliveries possible during construction due to interference, staging and electrical/mechanical shutdowns. These will be coordinated/scheduled with the Faculty to minimize disruption to services and operations.
- Noise, dust and other construction effects to be limited to daytime and to consider existing neighbors to the East of 124 Edward Street

Scope of work identifying Primary Scope and Potential Secondary Effects to 124 Edward Street

Floor	Room No.	Room Cat.	Sub-category	Room Name	Area (Nasm)	Scope	Scope Description	Notes
Basement					25.11			
	21	16.0	16.4	Parking Garage	25.11	Primary Scope	New Patient Elevator Pit & Machine Room to replace parking space; new concrete slab finish; pedestrian marking & signage to building entrance / elevator: Nasm is approximate	Total Nasm of Parking Garage Rm 21 = 1,227.51
Level 1					1,193.36			
	121	2.0	2.3	CLINIC - Dispensary	24.62	Primary Scope	New Clinic Stair (Stair 3) replacement; Renovate Rm 121 to suite.	
	121S	16.0	16.2	Stairs	3.02	Primary Scope	Remove existing Stair 121S; replace w/ New Clinic Stair (Stair 3)	
	133	2.0	2.1	CLINIC - Clinic 1	740.23	Secondary Effect	New Clinic Stair (Stair 3) replacement; new stair access door from Rm 133 (Clinic 1); Make good	
	134K	16.0	16.2	Corridor	35.94	Secondary Effect	New Patient Elevator, Stair & Multi-Functional Training Space; Secondary effects to	

							accommodate; Make good	
	134R	16.0	16.2	Ramp	46.95	Primary Scope	Remove existing Ramp 134R; New Patient Elevator & Stair	
	137	2.0	2.3	CLINIC - Records /Models/ Office Files	105.81	Secondary Effect	New Patient Elevator & Stair; Secondary effects to accommodate; Make good	
Mezzanine					202.22			
	M200	3.0	3.2	CLINIC - Waiting Room/Lobby	140.02	Secondary Effect	New Patient Elevator, Stair & Multi-functional Training Space; Secondary effects to accommodate; Make good	
	M200V	16.0	16.2	Corridor	13.71	Secondary Effect	New Entrance Doors & Automatic Door Operators; New Finishes as Required; Secondary effects to accommodate; Make good	
	M227R	16.0	16.2	Ramp	47.84	Primary Scope	Remove existing Ramp M227R; New Patient Elevator & Stair; New Elevator/Stair Lobbies; New Multi-Functional Training Space	
Level 2					1,500.86			
	202	4.0	4.4	CLINIC - Manager's Office	15.00	Secondary Effect	Secondary Effect to new corridor; Make good	
	202K	16.0	16.2	Corridor	9.94	Primary Scope	Renovate existing; Extend existing corridor with renovation to Clinic 2	
	203	4.0	4.4	CLINIC - Manager's Office	15.00	Secondary Effect	Secondary Effect to new corridor; Make good	
	204	4.0	4.4	CLINIC - Admin Office Multi	15.92	Secondary Effect	Secondary Effect to new corridor; Make good	
	204A	4.0	4.4	CLINIC - Manager's Office	14.29	Secondary Effect	Secondary Effect to new corridor; Make good	
	204C	4.0	4.4	CLINIC - Team Leader	15.25	Secondary Effect	Secondary Effect to new corridor; Make good	
	205	4.0	4.4	CLINIC - Admin Office Single	15.00	Secondary Effect	Secondary Effect to new corridor; Make good	
	206	4.0	4.1	CLINIC - Faculty Office Single	15.25	Secondary Effect	Secondary Effect to new corridor; Make good	

	206S	16.0	16.2	Stairs	12.82	Secondary Effect	Secondary Effect to new corridor; Make good	
	207	3.0	3.1	CLINIC - UG Clinic 2 (Endodontic/Prosthodontic)	997.16	Primary Scope	Renovate for new Clinic 2	
	207A	3.0	3.2	CLINIC - Operating Room	8.66	Primary Scope	Renovate to enclosed AODA operatory	
	207B	3.0	3.2	CLINIC - Operating Room	16.20	Primary Scope	Renovate to enclosed AODA operatory	
	207C	3.0	3.2	CLINIC - Operating Room	17.95	Primary Scope	Renovate to enclosed AODA operatory	
	207D	2.0	2.3	CLINIC - X-ray Room	12.96	Primary Scope	Renovate to new Donning/Doffing Day Lockers	
	207E	2.0	2.3	CLINIC - Staff Lounge	8.59	Primary Scope	Renovate to enclosed AODA operatory	
	207F	3.0	3.2	CLINIC - Supply Room	3.77	Primary Scope	Renovate to new Expanded IT Switch Room	
	207K	16.0	16.2	Corridor	4.68	Primary Scope	Renovate; Secondary effect with renovation of new Clinic 2	
	207V	3.0	3.2	CLINIC - Reception/Waiting	28.62	Primary Scope	Renovate: New Clinic 2 Reception/Storage; Clinic 2 Entrance; Patient Waiting 4	
	208	2.0	2.3	CLINIC - Storage	13.14	Primary Scope	Renovate to New Clinic 2 Storage; Secondary effect with renovation of new Clinic 2	
	210	2.0/3.0	2.3/3.2	CLINIC - Dispensary	15.12	Primary Scope	Renovate to New Clinic 2 Cad Cam Lab	
	210K	16.0	16.2	Corridor	65.48	Secondary Effect	New finishes, Adjust doors as required; Secondary effect with renovation of new Clinic 2; new patient waiting; new Clinic Stair 3	
	212	2.0	2.3	CLINIC - Clinical Sterilizer	13.14	Primary Scope	Renovate to New Gender Neutral Washrooms	
	216K	16.0	16.2	Corridor	23.92	Secondary Effect	New finishes, Adjust doors as required; Secondary effect with renovation of new Clinic 2; new patient waiting; new Clinic Stair 3	
	217	2.0	2.3	CLINIC - Dispensary	33.67	Primary Scope	Renovate to New Clinic 2 Dispensary	

	218	2.0	2.3	CLINIC - Reception/Waiting	16.24	Primary Scope	Renovate to New Clinic 2 Dirty Dispensary / New Clinic Stair 3	
	218S	16.0	16.2	Stairs	8.53	Primary Scope	Remove existing Stair 218S; replace w/ New Clinic Stair (Stair 3)	
	219	16.0	16.2	Public Toilet-Women	4.21	Primary Scope	Renovate: New Clinic 2 Patient Waiting 4	
	220	16.0	16.2	Public Toilet-Men	5.94	Primary Scope	New Clinic Stair (Stair 3) replacement; Renovate Rm 219 to suit.	
	221	4.0	4.5	First Aid Room	8.78	Primary Scope	Renovate to New Universal Washroom (w. 221A)	
	221A	16.0	16.2	Public Toilet-Men Women	2.16	Primary Scope	Renovate to New Universal Washroom (w. 221)	
	223	16.0	16.2	Corridor	4.51	Primary Scope	Renovate; New Clinic 2 Reception	
	223A	16.0	16.2	Public Toilet-Women	22.93	Secondary Effect	Secondary Effect to New Clinic 2 Renovation	
	224	16.0	16.2	Janitor's Closet	4.37	Secondary Effect	Secondary Effect to New Clinic 2 Renovation	
	224K	16.0	16.2	Corridor	39.23	Primary Scope	Renovate; New Clinic 2 Reception	
	226B	1.0	1.2	Seminar Room	35.04	Primary Scope	Renovate: Clinic Storage & Egress Corridor 226L	
	226K	16.0	16.2	Corridor	12.36	Primary Scope	Renovate; New Clinic 2	
	227K	16.0	16.2	Corridor	53.91	Primary Scope	Renovate; New Patient Waiting Area 3; New Patient Elevator & Stair; New Lobby	
	227R	16.0	16.2	Ramp	32.19	Primary Scope	Renovate; Remove Ramp; New Patient Waiting Area 3; New Patient Elevator & Stair; New Lobby	
Level 3					20.77			
	319	3.0	3.2	CLINIC - Waiting Room	34.33	Primary Scope	Renovate; New Clinic Stair (Stair 3)	
	319S	16.0	16.2	Stairs	2.60	Primary Scope	Remove existing Stair 319S; replace w/ New Clinic Stair (Stair 3)	
	321K	16.0	16.2	Corridor	12.02	Primary Scope	Renovate; New Clinic Stair (Stair 3)	
	207 Upper				146.00	Primary Scope	Clinic 2 Enclosed Operatory Ceiling	Double Height Space: Approx. Area

	Roof				10.00	Primary Scope	New Patient Elevator overrun (hoistway); Coordinate with Existing Rooftop Mech.	Roof - Approx. Area
			Total		**2,942.32**			
			Primary Scope Total		**1,202.23**			
			Secondary Effect Total		**1,740.09**			

Phasing

The Faculty of Dentistry must remain operational during renovations to Clinic 2. Operations include Instruction, Research and Administrative functions as well as Clinical Patient Care. This requires that the scope of work for these project include a complex phasing plan which will rely on existing spaces within 124 Edward Street and the Satellite Clinic at 777 Bay Street. Academic Units and associated facilities will require temporary staging and relocation in conjunction with the renovation work. During renovations a maximum number of functioning operatories for undergraduate and graduate use will be required.

The existing condition of the Dentistry Building is also to be considered in the phasing as areas of work may affect unrelated areas within the building via building service upgrades and environmental health and safety.

A Phasing and construction management plan has been developed by the consultant team and will be included in the tendered documents.

Refer to Appendices for a comprehensive operational phasing and construction management plan.

h) Schedule

Project Milestone Schedule

Milestone	Date
Cycle 1 CaPS Exec Approval for Increase in Consultant Fees	September 26, 2024
Schematic Design Phase & Early Site Investigation	November 2024– February 2025
Costing at 100% SD / University Review (Class C)	March 2025
Design Development Phase & Dental Equipment Design Assist	April – May 2025
Costing at 100% DD / Review (Class B)	June 2025
80% Construction Documents	July - October 2025
University Review of 80% CD's	November 2025
Finalize Construction Documents	December – January 2025
Costing at 100% CD's (Class A)	January - February 2025
VE if required	March 2025
Permit Application	December 2025 – March 2026
University Final Review of 100% CD's	February – March 2026

Cycle 5: Full Governance Approval of Full Project Costs	April 10, 2026 – June 25, 2026
Tender	June – July 2026
Construction Phase	July 2026 – March 2028
Fit Out	Mid-January 2028 – March 2027
Occupancy / Ready-for-Takeover	April 2028

a) Total Project Cost Estimate

The project will have a TPC for the Clinic 2 Renewal. The total estimated cost for the project includes estimates or allowances for:

1. Consultant fees for construction administration through to completion and warranty;
2. Construction costs & construction contingency;
3. Secondary effects, hazardous waste removal;
4. Building permits;
5. Insurance, legal fees & UPDC project management fees;
6. Furniture & equipment, IT, audio-visual, dental equipment and furniture
7. Signage – interior wayfinding and donor signage
8. Security & access systems
9. Project contingency

b) Operating Costs

As the Clinic 2 Renewal project is a renovation in-place without significant programmatic change, the Faculty of Dentistry does not expect any significant changes to the operating costs after the renovation as most of instruments and materials used in the lab are purchased by students through student instrument fees. The Faculty is optimistic that there may be operational savings from utilities due to base building systems and exterior envelope efficiency upgrades.

c) Other Related Costs

Other related costs include the staging cost of leasing 777 Bay St. including the lease cost and other incidental costs, (e.g. instrument transportation and additional staffing) including Moving and Staging.

d) Funding Sources

The Total Project Costs for the Clinic 2 Renewal to project competition will be funded by the Faculty of Dentistry Major Capital Projects Reserves and Future Faculty Reserves as well as by Clinic 2 Capital Donations, Central University Matching, ongoing Fundraising and Financing.

APPENDICES:

1. Existing Space Inventory
2. Space Program
3. Room Data Sheets (on request)
4. Total Project Cost Estimate (on request to limited distribution)
5. UofT Sustainability Standards PPR Charter
6. Background reports/studies:
    1. 2019 Clinic Master Plan (on request)
    2. Draft Operational Phasing Plan (on request)
    3. Entuitive - University of Toronto Faculty of Dentistry Clinic 2 Level 3 Mezz Structural Study Draft Report June 30, 2020 (on request)
    4. Solucore, Vertical Transportation Inspection Report, October 21, 2020 (on request)
    5. Enviro Balance – Air Audit Report (on request)
    6. Royal College of Dental Surgeons of Ontario: *COVID-19: Managing Infection Risks During In-Person Dental Care January 14, 2 021*
    7. Facilities & Services Dentistry Building Memorandum (on request)
    8. 1999 Structural Report by UofT Property Management (on request)