The following Motions and Documents were considered by the GFC Facilities Development Committee at its Thursday, May 22, 2014 meeting:

Agenda Title: **Accommodation Plan for Repurposing the Telus Centre For Use as An International Centre**

CARRIED MOTION: THAT the GFC Facilities Development Committee approve, under delegated authority from General Faculties Council and on the recommendation of Planning and Project Delivery, the proposed Accommodation Plan for the repurposing of the Telus Centre for use as an International Centre (as set forth in Attachment 1), excluding specifics related to the siting of this facility, as the basis for further planning and design.

Final Item: 4.

Agenda Title: **Saskatchewan Drive Students' Residence – Design Development Report**

CARRIED MOTION: THAT the GFC Facilities Development Committee approve, under delegated authority from General Faculties Council and on the recommendation of Planning and Project Delivery, the proposed Saskatchewan Drive Students' Residence – Design Development Report (as set forth in Attachment 2) as the basis for further engineering and development of contract documents.

Final Item: 5.

FINAL Item No. 4

OUTLINE OF ISSUE

Agenda Title: **Accommodation Plan for Repurposing the Telus Centre For Use as An International Centre**

Motion: THAT the GFC Facilities Development Committee approve, under delegated authority from General Faculties Council and on the recommendation of Planning and Project Delivery, the proposed Accommodation Plan for the repurposing of the Telus Centre for use as an International Centre (as set forth in Attachment 1), excluding specifics related to the siting of this facility, as the basis for further planning and design.

Item

Action Requested	☒Approval ☐Recommendation ☐Discussion/Advice ☐Information
Proposed by	Associate Director, Accommodation Planning and Programming, Office of the University Architect, Facilities and Operations
Presenters	Britta Baron, Vice-Provost and Associate Vice-President (International); Lorna Baker Perri, Associate Director, Accommodation Planning and Programming, Office of the University Architect, Facilities and Operations; and Shannon Loughran, Planning Officer, Accommodation Planning and Programming, Office of the University Architect, Facilities and Operations
Subject	Accommodation Plan for repurposing the Telus Centre for use as an International Centre

Details

Responsibility	Vice-President (Facilities and Operations)
The Purpose of the Proposal is (please be specific)	To seek approval for the Accommodation Plan for repurposing the Telus Centre for use as an International Centre.
The Impact of the Proposal is	To transform the Telus Centre for use as an International Centre which will allow the University to achieve its vision, accommodate the international portfolio in a centralized, consolidated venue, gain a prominent presence, and improve space efficiencies. Repurposing the Telus Centre provides many benefits for the University with regard to space alignment for departments and effective use of space. It establishes a cohesive presence for the University's international portfolio, refocuses the use of the Telus Centre, enlivens the currently-underutilized atrium, addresses outstanding programming and growth requirements for the key occupants, and alleviates facility space pressures in other locations across the North Campus.
Replaces/Revises (eg, policies, resolutions)	N/A
Timeline/Implementation Date	Target date to begin: November, 2014.
Estimated Cost	N/A
Sources of Funding	N/A
Notes	N/A

Alignment/Compliance

Alignment with Guiding Documents	*Dare to Discover*; Academic Plan (*Dare to Deliver*); University of Alberta Comprehensive Institutional Plan (CIP)
Compliance with Legislation, Policy and/or Procedure	1. ***Post-Secondary Learning Act* (*PSLA*)**: The *PSLA* gives GFC responsibility, subject to the authority of the Board of Governors, over

Relevant to the Proposal (please quote legislation and include identifying section numbers)	academic affairs (Section 26(1)) and provides that GFC may make recommendations to the Board of Governors on a building program and related matters (Section 26(1) (o)). Section 18(1) of the *PSLA* give the Board of Governors the authority to make any bylaws "appropriate for the management, government and control of the university buildings and land." Section 19 of the *Act* requires that the Board "consider the recommendations of the general faculties council, if any, on matters of academic import prior to providing for (a) the support and maintenance of the university, (b) the betterment of existing buildings, (c) the construction of any new buildings the board considers necessary for the purposes of the university [and] (d) the furnishing and equipping of the existing and newly erected buildings [.] […]" Section 67(1) of the *Act* governs the terms under which university land may be leased. 2. **GFC Facilities Development Committee (FDC) Terms of Reference – Section 3. Mandate of the Committee:** "[…] 2. **Delegation of Authority** Notwithstanding anything to the contrary in the terms of reference above, the Board of Governors and General Faculties Council have delegated to the Facilities Development Committee the following powers and authority: **A. Facilities** 1. To approve proposed General Space Programmes (Programs) for academic units. 2. (i) To approve proposals concerning the design and use of all new facilities and the repurposing of existing facilities and to routinely report these decisions for information to the Board of Governors. (ii) In considering such proposals, GFC FDC may provide advice, upon request, to the Provost and Vice-President (Academic), Vice-President (Facilities and Operations), and/or the University Architect (or their respective delegates) on the siting of such facilities. (GFC SEP 29 2003) **B. Other Matters** The Chair of FDC will bring forward to FDC items where the Office of the Provost and Vice-President (Academic) and/or the Office of the Vice-President (Facilities and Operations), in consultation with other units or officers of the University, is seeking the advice of the Committee. […]" 3. **UAPPOL Space Management Policy and Space Management Procedure:** The respective roles of GFC FDC and the Vice-President (Facilities and Operations) with regard to institutional space management are set out in this Board-approved Policy and attendant Procedure.

	To access this policy suite on line, go to: www.uappol.ualberta.ca.

Routing (Include meeting dates)

Consultative Route (parties who have seen the proposal and in what capacity)	• University of Alberta International (UAI): Vice-Provost and Associate Vice-President (International), Administrative Officer, Executive Director for Student Programs and Services; • China Institute at the University of Alberta (CIUA): Director, Associate Director; • Prince Takamado Japan Centre: Director; • Centre for Teaching and Learning (CTL): Interim Director; • Library Services and Information: Facilities Director, Vice-Provost and Chief Librarian; • Information Services and Technology: Team Lead Network Operations, Team Lead Depot Operations and Classroom Technology; • Facilities and Operations: Team Members from Planning and Project Delivery
Approval Route (Governance) (including meeting dates)	GFC Facilities Development Committee (May 22, 2014) – for approval
Final Approver	GFC Facilities Development Committee

Attachments

1. Attachment 1 (pages 1 – 38) - Accommodation Plan for Repurposing the Telus Centre for Use as An International Centre (May 22, 2014)

Prepared by: Shannon Loughran, Planning Officer, Accommodation Planning and Programming, Office of the University Architect, Planning and Project Delivery, Facilities and Operations, shannon.loughran@ualberta.ca

Attachment 1

ACCOMMODATION PLAN FOR REPURPOSING THE TELUS CENTRE FOR USE AS AN INTERNATIONAL CENTRE

MAY 22, 2014

TABLE OF CONTENTS

Letter of Support from University of Alberta International

UNIVERSITY OF ALBERTA Interdepartmental Correspondence

University of Alberta International
3-600 Enterprise Square
10230 Jasper Avenue
Edmonton, Alberta, Canada T6G 2E1

Tel: 780.492.3600
Fax: 780.492.1488
info@international.ualberta.ca
www.international.ualberta.ca

Date: Tuesday, January 7, 2014

To: Dr. Colleen Skidmore
Vice-Provost & Associate Vice-President (Academic)

From: Britta Baron
Vice-Provost & Associate Vice-President (International)

Re: Letter of Support for TELUS space allocation to University of Alberta International (UAI)

Dear Colleen,

On behalf of University of Alberta International, I am writing in support of the proposed allocation of TELUS space and usage to UAI. Allotment of space within TELUS will enable UAI to consolidate to one location on North Campus, while providing an exceptional gathering space for international students, faculty and staff.

International activities at the University of Alberta are of key importance for the overall development of the University. The University's international reputation depends to a significant extent on our ability to build meaningful and productive international partnerships and research collaborations and to attract highly qualified international students and faculty to our campus. High quality education abroad programs will be critical to the success of our domestic recruitment efforts and will attract excellent students from all over Canada to the University.

Currently UAI is spread out in three locations: Enterprise Square, HUB, and TELUS. The allocation of space in TELUS will bring all UAI units together, for increased collaboration and enhanced international student services. Also, as a service unit for Faculties and students, UAI will benefit from a north campus location. UAI's services include supporting institutional level development and implementing international strategy including managing partnerships and Faculty-based plans and initiatives which further the University of Alberta's international goals and objectives.

In order to continue to contribute effectively and to further enhance its impact with a view to strengthening the UofA's academic success and its national and international reputation, UAI will benefit from a unified location that is easily accessible on campus to faculty members, students, administrators and visitors.

Please contact me if you have any questions.

Sincerely,

B. Baron

Britta Baron
Vice-Provost and Associate Vice-President (International)

1.0 EXECUTIVE SUMMARY

The senior executive team of the University of Alberta has recently developed a new vision to transform the Telus Centre for use as an international centre. The Telus Centre initiative aligns with the strategic goals outlined in the institution's academic plan by building our international portfolio with a centralized, consolidated venue for international student services and programming. It will consolidate existing and emerging international institutes to strengthen their collective presence and support their outreach and research initiatives.

Repurposing the Telus Centre provides many benefits for the university with regard to space alignment for departments, and effective use of space. It establishes a cohesive presence for the university's international portfolio, refocuses the use of the Telus Centre, enlivens the currently under-utilized atrium, addresses outstanding programming and growth requirements for the key occupants, and alleviates facility space pressures in other locations across campus.

Targeted occupants who specialize in international activities share common space requirements ranging from holding special events, seminars, conferences, hosting international visitors and welcoming students from abroad. Level 1 will predominantly house a large portion of shared event space dedicated to these services and programs. The recommended anchor occupant is the department of University of Alberta International (UAI) who will occupy a large portion of Level 2. The international institutes, as a collective, are a highly complementary occupant group to UAI. These groups will be encouraged to work together to achieve common goals and advance the presence of the international portfolio. The Telus Centre initiative will provide a facility that is a welcoming, consolidated, collaborative and effective working environment for international students, staff, researchers and visitors.

Related to the Telus Centre initiative, the Centre for Teaching and Learning (CTL) will be relocated from the Telus Centre to Cameron Library. This relocation will accommodate CTL's supported program and growth requirements in appropriate space.

2.0 INTRODUCTION

2.1 Acknowledgements

The preparation of this document was a collaborative effort with contributions from:

Britta Baron, Vice-Provost and Associate Vice-President (International) UAI

Doug Weir, Director, International Student Services, UAI

Amber Holder, Administrative Office, Office of the Vice-Provost and Associate Vice-Provost and Associate Vice-President (International), UAI

Gordon Houlden, Director, China Institute, CIUA

Jia Wang, Associate Director, China Institute, CIUA

Dr. Kaori Kabata, Director, Prince Takamado Japan Centre for Teaching and Research

Lorna Baker Perri, Associate Director, Accommodation Programming and Planning, Planning and Project Delivery, F & O

Shannon Loughran, Accommodation Planner, Accommodation Programming and Planning, Planning and Project Delivery, F & O

Jodi DeAlexandra, Architectural and Planning Technologist, Design and Technical Services, Planning and Project Delivery, F & O

2.2 Purpose

The purpose of this document is to recommend the approval of the accommodation plan that will allow the targeted international departments to reach the university's vision of repurposing the Telus Centre for use as an international centre. The accommodation plan is based on each unit's supported programmatic space requirements. This document will present project goals, space requirements for the key recommended occupants, and recommended space allocations. It will also summarize overall benefits achieved by the Telus Centre repurposing initiative.

2.3 Background

2.3.1 Location

The Telus Centre is located in a prominent location at the east entrance of campus along 87 Avenue. It is across the street from International House, a residence exclusively housing a mix of international students and other students who are looking for internationally-related experiences. This residence is within two blocks of HUB Mall, which houses a large number of undergraduate international students. The proximity of the Telus Centre to these internationally-focused student residences provides optimal access for international student services, support and community events.

2.3.2 Physical Space

The Telus Centre is an open concept facility originally constructed to serve as a conference centre for professional programs. It has two levels and has a total gross building area of approximately 5,500 square metres. Its unique architecture features a large, curved, glass atrium, which is abundant in natural light, providing a bright and uplifting atmosphere.

2.4 Project Goals

Building on the University of Alberta's vision and strategic goals for internationalization, the senior executive at the University of Alberta is intent on creating a centralized location for all international affairs. This will include a new international concierge-like service area that will, in effect, become an International Student Welcome Centre.

In order to reach the vision of creating an International Centre, the accommodation plan follows a holistic approach to ensure the benefits are comprehensive for the entire university.

The primary goals of this project are to:

- consolidate the presence of the international portfolio;
- centralize services to international students;
- enhance international community connections;
- ensure space adjacencies in the building are functionally appropriate;
- utilize this architecturally significant building with existing event space for prominent events and hosting international visitors; and
- relieve space pressures in other buildings across campus by consolidating related occupants who require similar type of space.

2.5 Overview of Recommended Occupants

2.5.1 University of Alberta International (UAI)

UAI's mandate is to support the institution's internationalization strategy. It provides a variety of services and programs to international and domestic students, institutional partnerships, and faculty initiatives.

The department of UAI is comprised of five units:

1. Office of the Associate Vice-Provost and Associate Vice-President, International (OAVP): provides leadership and administrative support to the department.
2. International Relations and Recruitment (IRR): works with international partners in developing and transitional countries to promote knowledge exchange and active learning approaches to build capacities in educational institutions, professional bodies and government decisions.
3. International Student Services (ISS): provides critical support to international students to assist in the transition to Canada, Edmonton and the University of Alberta.
4. Education Abroad Program (EAP): aligns students with opportunities to study, work and/or volunteer abroad.
5. Global Education Program (GEP): provides educational opportunities for students, faculty, staff and the community to explore issues of global importance and to gain the knowledge,

skills and understanding required to become global citizens. GEP also hosts the flagship event, International Week, which takes place annually.

UAI estimates that through its programming activities, an attendance of approximately 27,000 students, colleagues and visitors is expected in the coming years.
(*See Appendix C for a detailed list of the types of services and activities programmed and hosted by the respective UAI units, pages 35-36)*

2.5.2 The China Institute

The China Institute at the University of Alberta (CIUA) constitutes one of the most prominent international institutes at the University of Alberta. Its mandate is "to advance scholarship at the University of Alberta, to enhance and support new teaching and research activities between Canada and China, and to promote strong academic linkages between the University of Alberta and Chinese universities" (http://www.china.ualberta.ca/About.aspx). They host an annual conference and offer many seminars throughout the year to scholars and students. CIUA's staff complement is currently comprised of 13 staff members, which includes: a director, an associate director, three visiting scholars, a post-doctorate fellow, four research assistants and three administrative staff.

2.5.3 The Prince Takamado Japan Centre for Teaching and Research (Japan Centre)

The Japan Centre offers support and outreach to researchers and students whose work specialty focuses around Japan. Currently the administration consists of a full-time administrative assistant and a part-time director. Eventually, the director position will become full-time and additional administrative and/or research assistant positions may be added.

2.5.4 The India Institute and Other Emerging Institutes

The India Institute offers support and outreach to researchers and students whose work specialty focuses around India. It has a part-time director who presently conducts his institute work in his faculty office. Future projected positions include the addition of a full-time administrative assistant.

2.5.5 Existing Occupants to Remain

The 300 seat lecture theatre on the north-east side of the building as well as the Level 1 classrooms 134, 143 and 145 will remain centrally-scheduled and managed by the Office of the Registrar. The department of Museums and Collections Services (MACS) manages the south-west portion of Level 1 which accommodates a large U of A collection. These groups will remain as occupants in their existing spaces.

3.0 FUNCTIONAL PROGRAM

Each department's functional program is based on thorough discussions of their respective space needs and function within the Telus Centre. All groups have a common requirement for administrative space as well as event space to host frequent and diverse conferences, seminars, information sessions, etc. Dedicated departmental space will be allocated to focus on their respective day to day operational functions and shared space will be allocated to accommodate student services, hosting and educational requirements. The shared space is intended to encourage effective use of space, as well as foster collegiality and collaboration where possible.

3.1 University of Alberta International (UAI)

UAI's departments have been spread across campus since its inception in 1991. They are presently accommodated in an office suite in HUB Mall, a portion of the 2nd floor of the Telus Centre and an office suite in Enterprise Square. While UAI has adapted to this arrangement, it has been detrimental to the scope and efficiency of its services and administrative processes.

In 2010, General Faculties Council Facilities Development Committee (FDC) approved the General Space Program (GSP) for UAI, which described its existing space accommodation, projected vision and related growth. The total projected space requirement from the 2010 GSP was 1417.0 net square metres, based on a model of departmental consolidation.

One of UAI's top priorities is to consolidate the department under one roof in the Telus Centre to increase opportunity for cross-collaboration and administrative efficiencies. Consolidating UAI in the Telus Centre allows for many space efficiencies, improves the physical layout of space as well as the provides opportunity to consolidate support space such as, copy rooms, waiting areas, and storage and meeting rooms.

Another significant gain in space efficiency is the shift away from having large amounts of UAI-dedicated event space to a shared event-space model. This is afforded due to the amount and configuration of existing event space on Level 1 of the Telus Centre.

The total departmental space requirement for UAI to consolidate into the Telus Centre is 907.5 net square metres. This reflects changes in staffing levels since 2010 and includes growth projections. The table below compares the projected space requirements from the 2010 General Space Program to the functional space requirements for UAI to consolidate into the Telus Centre. (*See Appendix A for UAI's detailed space program, pages 16-19).*

UAI Work Units	Projected Space Requirement from 2010 General Space Program (NSM*)	Functional Space Program subtotals for UAI Consolidation in to Telus Centre (NSM*)
Office of the Associate Vice-President (OAVP)	112.0	81.0
International Relations and Recruitment (IRR)	203.0	169.5
International Student Services (ISS)	229.0	146.5
Education Abroad Program (EAP)	225.0	78.5
Global Education Program (GEP)	91.0	58.0
Support Space	557.0	374.0
TOTAL NSM*	**1417.0**	**907.5**
*NSM: Net Square Metres		

3.2 The China Institute at the University of Alberta (CIUA)

CIUA's projected space program requirement is 173.1 net square metres for the office components. This does not include meeting and event space requirements which would be accommodated in the shared event/meeting space on Level 1 and a smaller, shared meeting room on Level 2.

(*See Appendix A for CIUA's detailed space program, pages 20-21).*

3.3 The Prince Takamado Japan Centre for Teaching and Research (Japan Centre)

The Japan Centre's projected space program requirement is 20.5 net square metres for the office components. An additional 36.8 net square metres is required for a shared copy area and small meeting room.

(*See Appendix A for the Japan Centre's detailed space program, page 22).*

3.4 The India Institute and Other Emerging Institutes

The India Institute's projected space program requirement is 20.5 net square metres plus the aforementioned 36.8 net square metres for a shared copy area and small meeting room.

(*See Appendix A for India Institute's detailed space program, page 23).*

4.0 RECOMMENDED ACCOMMODATION PLAN

4.1 Recommended Space Allocations

The following table compares the functional space program requirements to the recommended space allocations for the targeted occupants for the proposed international centre.

Functional Requirements compared to Proposed Locations in the Telus Centre

International Centre Occupants	Program Req's	Program Req's marked up	Location/Allocated Space within Telus	
	NASM*	CGSM**		CGSM**
UAI:				
OAVP	81.0	109.4	Level 2	1000.0
IRR	169.5	228.8	Level 2	incl.
ISS	146.5	197.8	Level 2	incl.
EAP	78.5	106.0	Level 2	incl.
GEP	58.0	78.3	Level 2	incl.
Support Space Level 2	374.0	504.9	Level 2	incl.
Support Space Level 1	incl.	incl.	Level 1	257.7
	907.5	**1225.1**		**1257.7**
International Institutes:				
China Institute	173.1	233.7	Suite 203	332.8
Japan Centre	20.5	27.7	Suite 201	119.0
India Institute	20.5	27.7	Suite 201	incl.
Shared Copy Area	8.0	10.8	Suite 201	incl.
Shared Mtg Rm.	28.8	38.9	Suite 201	incl.
	250.9	**338.7**		**451.8**
Shared Meeting/Event Space (Centrally scheduled)			NW Level 1 & atrium	**641.9**

**NASM= net square metres*

***CGSM= component gross square metres which includes 35% mark-up for circulation*

(*See Appendix B for Proposed Space Allocation Diagrams, pages 27-28).*

4.2 Recommended Functional Space Use Plan

In order to achieve the consolidation of UAI into the Telus Centre, the recommended Functional Space Use Plan is as follows:

4.2.1 Level 1

The atrium is intended to accommodate concierge services for visitors to the building. The central part of the atrium will be set up as a common lounge space for international students. It will transform into a multipurpose space for event socials, open houses, presentations and/or symposiums, when required.

The atrium and the north-east portion of Level 1 will remain as existing, shared event/meeting/classroom space, managed by the Office of the Registrar's central booking system, with the recommendation that building occupants are provided the opportunity for first priority booking. The existing shared computer lab and video conference rooms on Level 1 will continue to be available for campus-wide booking and may be re-assessed in the future to accommodate additional international institutes as space requirements continue to grow.

The north end of the atrium will be used for hoteling, study and/or meeting space; the south end of the atrium will have a dedicated UAI reception desk to welcome and assist students/visitors. This area will also have a computing area for advisors to help international students who may need assistance with their visas, housing options, local amenities, etc. UAI will be allocated Suite 1-40 for up to five advising rooms to allow staff advisors to meet with students privately. Room 1-40A has an existing kitchen that will be allocated to UAI for the international student community's use and will be available for all building occupants to book for special events.

(See Appendix B for Proposed Space Allocation Diagram for Level 1, page 27).

4.2.2 Level 2

The north-east portion of Level 2 will be allocated to UAI to accommodate their consolidated department. Their management team will be housed in enclosed offices and their support staff in open workstations. A large meeting room will allow UAI to host international visitors, staff meetings and hold larger group functions. A project room will allow for the preparation of major annual events such as Welcome Week and International Week. Other support space includes a copy/storage room, and a student hoteling area.

The south-west portion of Level 2 will house the China Institute, consolidated into Suite 2-03. Suite 2-01 will house the Japan Centre, India Institute and other emerging international institutes. Further discussion with the institutes will facilitate the layout for the shared portions of the international institute space.

(See Appendix B for Proposed Space Allocation Diagram for Level 2, page 28).

5.0 SUMMARY

Repurposing the Telus Centre for use as an international centre supports the overall vision of the University of Alberta, and also achieves the following comprehensive benefits:

- **Pertaining to the University of Alberta's international portfolio:**
  - increases international student services and programming;
  - allows for international students to connect with other foreign students, Canadian students, staff and researchers;
  - improves convenient access for students who reside in adjacent student housing;
  - provides a featured Visitor's Meeting Room for international guests; and
  - provides significant event space with inherent to host a wide variety of events.

- **Pertaining to the campus-wide facility accommodation plan:**
  - improves functional use and space allocation of the Telus Centre;
  - provides growth space for all targeted and future occupants related to the international portfolio;
  - consolidates UAI to support their operations and services;
  - consolidates for the China Institute to support their operations;
  - improves the Japan Centre and India Institute's presence;,
  - relocates Centre for Teaching and Learning (CTL) to a more central, improved location and accommodates their programmed growth; and
  - eases space pressures in Enterprise Square, HUB Mall and the future Dent Pharm accommodation programming.

6.0 FINAL RECOMMENDATION

Approve the recommended accommodation plan for repurposing the Telus Centre for use as an international centre.

7.0 APPENDICES OVERVIEW

The following appendices are organized as follows:

7.1 Appendix A: Detailed Space Programs

- UAI Space Program
- China Institute Space Program
- Japan Centre Space Program
- India Institute Space Program

7.2 Appendix B: Related Floor Plans

- Existing Space Allocation Diagrams, Levels 1 & 2
- Proposed Space Allocation Diagrams, Levels 1 & 2
- UAI Program Fit, Levels 1 & 2
- Occupancy Movement Diagrams

7.3 Appendix C: Other Background Information

- Projected Numbers of Participants to Annual UAI Events
- Excerpts from Dare to Discover and Dare to Deliver Regarding: Internationalization, Research Support and Student Experience

7.1 Appendix A: Detailed Space Programs

Please see the following space programs for:

- University of Alberta International (UAI)
- China Institute
- Japan Centre
- India Institute

UAI Functional Program, Consolidation in Telus

Detailed Listing of Current and Space Program Requirements

	Position	Individual	Existing BLDG	EXISTING SPACE Room	Type	NSM	FUNCTIONAL PROGRAM Type	NSM
1.0 Vice Provost and Associate Vice-President (International) [OAVP]				**Reference 2010 General Space Program**				
1.1	Vice Provost and Associate Vice-President (Int'l)	Britta Baron					closed	14.0
1.2	Administrative Officer	Amber Holder					closed	12.0
1.3	Senior Manager Int'l Project & Program Dev'mt	Sherilyn Trompetter					open	12.0
1.4	Financial Administrator	Margarita Bizina					open	6.5
1.5	Communications Specialist	Randy Lievers					open	6.5
1.6	Executive Assistant to the VP	Vacant					open	6.5
1.7	Budget & Finance Supervisor	Joan Wigmore					open	6.5
1.8	Human Resources & Office Coordinator	Sharon Schultz					open	6.5
1.9	Receptionist / Clerk (hold space)	vacant					open	6.5
1.10	Student / Intern 1	vacant					open	4.0
							Subtotal	**81.0**
2.0 International Relations and Recruitment [IRR]								
2.1	Executive Director International Relations & Recruitment	Cen Huang	ES				closed	12.0
2.2	Assistant Director International Relations	Danielle Scott	ES				closed	10.0
2.3	Assistant Director Recruitment Services	John Soltice	ES				closed	10.0
2.4	Regional Manager (Asia)	Jinjia Xu	ES				closed	10.0
2.5	Regional Manager (Europe)	Katie Petersen	ES				closed	10.0
2.6	Regional Manager (Americas)	Cristian Gonzalez-Paez	ES				closed	10.0
2.7	Regional Manager (Mid-East/Africa)	Sky McLaughlin	ES				closed	10.0
2.15	Special Projects Manager	Greg Mack	ES				closed	10.0
2.8	Recruitment Coordinator (Asia)	Joni Gill	ES				open	6.5
2.9	Recruitment Coordinator (Asia)	Guofan Hao	ES				open	6.5
2.10	Recruitment Coordinator (Americas)	Giovana Bianchi	ES				open	6.5
2.11	Recruitment Coordinator (World)	Khadija Jetha	ES				open	6.5
2.12	International Partnerships Coordinator	Shannon Derrick	ES				open	6.5
2.13	Marketing and Communications Coordinator	Julia Jones-Bourque	ES				open	6.5

	Position	Individual	Existing BLDG	EXISTING SPACE Room	Type	NSM	FUNCTIONAL PROGRAM Type	NSM
2.14	Coordinator 2	vacant	ES				open	6.5
2.15	Special Projects Manager	Greg Mack	ES				open	6.5
2.16	IRR Office Coordinator	Yune Zhou	ES				open	6.5
2.17	GALD Coordinator	Wei Liu	ES				open	6.5
2.18	Recruitment Assistant	Ami Fujimoto	ES				open	6.5
2.19	Student/Intern 1	vacant	ES				open	4.0
2.20	Student/Intern 2	vacant	ES				open	4.0
2.21	Student/Intern 3	vacant	ES				open	4.0
2.22	Student/Intern 4	vacant	ES				open	4.0
							Subtotal	**169.5**
3.0	**International Student Services**							
3.1	Executive Director, Student Programs and Services	Doug Weir					closed	12.0
3.2	Associate Director	Kumarie Achaibar-Morrison					closed	10.0
3.3	Manager, Sponsored Student Program	Dan Fredrick					closed	10.0
3.4	Manager, Visiting Students Program	Gretchen Dubois-Phillips					closed	10.0
3.5	VSCP Student Advisor	Rod Loyola					open	6.5
3.6	International Student Specialist	Leslie Heirath					open	6.5
3.7	International Student Specialist	Lubna Ahmad					open	6.5
3.8	International Student Specialist	Nora Lambrecht					open	6.5
3.9	International Student Specialist	Vacant (to be posted immediately)					open	6.5
3.10	International Student Specialist	Vacant (require at least one more by 2016/17)					open	6.5
3.11	Work Programs Coordinator	Julia Szweda					open	6.5
3.12	SSP Student Coodinator	Lidiane Cunha					open	6.5
3.13	Co-Curriculum Coordinator	Scott MacDonald					open	6.5
3.14	Communications Coordinator	Vacant - will be filled by 2016-17					open	6.5
3.15	CALDO Coordinator (Support 1)	Abiola Sunmonu					open	6.5
3.16	ISA by 2017/18	additional in ssp					open	6.5
3.17	Support 3	additional in iss					open	6.5
3.18	Student / Intern 1	filled summer 2013 (Aymen)					open	4.0
3.19	Student / Intern 2	filled 2013-14 (Ruslan)					open	4.0
3.20	Student / Intern 3	filled 2013-14 (Denis)					open	4.0
3.21	Student / Intern 4	filled 2013-14 (Leo)					open	4.0
3.22	Student / Intern 5	posted summer/fall 2013 (vscp)					open	4.0
							Subtotal	**146.5**

	Position	Individual	Existing BLDG	EXISTING SPACE Room	Type	NSM	FUNCTIONAL PROGRAM Type	NSM
4.0	**Education Abroad Program [EAP]**							
4.1	Director, Education Abroad	Kate Jennings					closed	12.0
4.2	Associate Director	Zhi Jones					closed	10.0
4.3	Orientation and Risk Management Coordinator	Nikolai Thomas					open	6.5
4.4	Summer & Group Study Program Coordinator	Xiao Zhang					open	6.5
4.5	Exchange Programs Coordinator	Caroline Lawson					open	6.5
4.6	International Intership Coordinator	Bola Fakuade					open	6.5
4.7	International Intership Coordinator	Ciara Sheridan					open	6.5
4.8	Student Mobility and Communications Coordinator	Vacant					open	6.5
4.9	EAP Scholarship Assistant (Support 1)	Markus Vuorensola					open	6.5
4.10	Support 2	AB Abroad - vacant					open	6.5
4.11	Support 3 - required by 2016-17 (internships)	Vacant					open	6.5
4.12	Student / Intern 1	required					open	4.0
4.13	Student / Intern 2	required					open	4.0
4.14	Student / Intern 3	required					open	4.0
4.15	Student / Intern 4	required					open	4.0
4.16	Student /Intern 5	required					open	4.0
							Subtotal	**78.5**
5.0	**Global Education Program [GEP]**							
5.1	Director, GEP	Nancy Hannemann					closed	12.0
5.2	Global Education Coordinator	Leslie Weigl					open	6.5
5.3	Global Education Coordinator	Vacant					open	6.5
5.4	Global Education Coordinator	by 2016-17 requried ILC					open	6.5
5.5	Support	required ILC					open	6.5
5.6	Student / Intern 1	required					open	4.0
5.7	Student / Intern 2	required					open	4.0
5.8	Student / Intern 3	required					open	4.0
5.9	Student / Intern 4	required					open	4.0
5.10	Student / Intern 5	required					open	4.0
							Subtotal	**58.0**

	Position	Individual	Existing BLDG	EXISTING SPACE Room	Type	NSM	FUNCTIONAL PROGRAM Type	NSM
6.0	**Consolidated Office Support Space**							
6.1	Waiting Area		-	-	-	-	closed	10.0
6.2	Large Meeting Room		ES	3-602	closed	29.6	closed	42.0
6.7	Advising Room 1		-	-	-	-	closed	10.0
6.8	Advising Room 2		-	-	-	-	closed	10.0
6.9	Advising Room 3		-	-	-	-	closed	10.0
6.10	Advising Room 4		-	-	-	-	closed	10.0
6.11	Advising Room 5		-	-	-	-	closed	10.0
6.12	Collaboration Area		-	-	-	-	Open	10.0
6.13	Collaboration Area		-	-	-	-	Open	10.0
6.14	Photocopy / Project Work Room / Packing		ES	3-615	closed	23.1	closed	40.0
6.15	Storage		ES	3-607	closed	12	closed	18.0
6.16	Filing Room		ES	3-611	closed	25.6	closed	35.0
							Subtotal	**215.0**
7.0	**Other Support Spaces**							
7.1	Reception Desk for UAI 'Welcome Ambassador'							18.3
7.2	Delegation/Visitor's Meeting Room		H	172-A	closed	7.3	closed	66.5
7.3	Computer Assistance Area for students						open	66.5
7.4	Staff Kitchen		H	172-E	closed	17.2	closed	26.0
7.5	Storage Room (Equip, Chair and Events)		H	180	closed	8.6	TBD	0.0
							Subtotal	**159.0**
				UAI Allocation Total				**907.5**

China Institute at the University of Alberta

Detailed Listing of Current and Space Program Requirements

Position	Existing Space in Telus: Occupant	Room No.	No. Occ.	Area NSM	Projected Need (2018): No. Occ.	Unit Allow	Area NSM	Type of Space
A. General Office								
Director (reporting directly to Provost)	Gordon Houlden	203L	1	20.9	1	14.0	14.0	Closed
Associate Director	Jia Wang	203K	1	10.0	1	12.0	12.0	Closed
Deputy Director (Academic)	future 2015	n/a	n/a	0	1	12.0	12.0	Closed
Communciations Coordinator	Jingjing Zheng	203H	1	4.7	1	6.5	6.5	Open
Administrative Assistant	Qian Tang	203A	2	13.5	1	6.5	6.5	Open
Administrative Assistant	Megan Yu	203A (sh)	shared	-	1	6.5	6.5	Open
Postdoctoral Fellow	Nong Hong	203J	1	12.1	1	6.0	6.0	Open
Postdoctoral Fellow	future 2014	n/a	n/a	n/a	1	6.0	6.0	Open
Postdoctoral Fellow	future 2015	n/a	n/a	n/a	1	6.0	6.0	Open
Research Associate	Ning Cao	203C	1	7.6	1	6.0	6.0	Open
Research Associate	Ruotao Tang	203D	1	7.5	1	6.0	6.0	Open
Research Associate	Heather Schmidt	203M	2	15.7	1	6.0	6.0	Open
Research Associate	Yongjie Wang	203M (sh)	shared	0.0	1	6.0	6.0	
Future R.A.	future 2015?	203Q	shared	7.5	1	6.0	6.0	
Senior Research Fellow (hotelling space)	Ron McIntosh	241 (sh)	3	30.2	1	6.0	6.0	Open
Senior Research Fellow (hotelling space)	Ken Sunquist	241 (sh)	shared	0	1	6.0	6.0	Open
Senior Research Fellow (hotelling space)	Robert Wright	241 (sh)	shared	0	1	6.0	6.0	Open
Hoteling for Research Associates/Visiting Scholars	future 2015	239	3	22.1	3	6.0	18.0	Open
		Subtotal		**151.8**			**141.5**	

Position	Occupant	Existing Space in Telus: Room No.	No. Occ.	Area NSM	Projected Need (2018): No. Occ.	Unit Allow	Area NSM	Type of Space
B. Support Spaces								
Meeting Room (to use shared meeting space, see Japan Centre)					0	0.0	0.0	
Copy Area		203R	1	7.5	1	7.5	7.5	Closed
Kitchenette/Work Room/Storage (to be shared with other institutes)		203S	1	20.1	1	20.1	20.1	Closed
Waiting Area for 3 people		203	1	4.0	1	4.0	4.0	Open
		Subtotal		**31.6**			**31.6**	
		TOTAL DEPARTMENT		**183.4**			**173.1**	

Notes:

1 Program requirements are independent of physical space.

2 Level 1 Meeting rooms and Event Space to be shared building-wide

3 All final space requirements to be confirmed and signed off by the China Institute.

Prince Takamado Japan Centre for Teaching and Research

Detailed Listing of Current and Space Program Requirements

Position	Occupant	Existing Space in Telus: Room No.	No. Occ.	Area NSM	Projected Need (2018): No. Occ.	Unit Allow	Area NSM	Type of Space
A. General Office								
Director	Kaori Kabata	203W	1	12.5	1	14.0	14.0	Closed
Administrative Assistant	Caelan Marr	203B	1	15.2	1	6.5	6.5	Open
		Subtotal		**27.7**			**20.5**	
B. Support Spaces								
Copy Area (shared with India Institute)		203R	1	7.5	1	8.0	8.0	Open
Kitchenette/Work Room/Storage (shared, see China Institute)		203S		20.1	-	-	-	
Shared Meeting Space (shared with India Institute)		n/a			12	2.4	28.8	Closed
		Subtotal		**27.6**			**36.8**	
	TOTAL DEPARTMENT			**55.3**			**57.3**	

Notes:

1 Program requirements are independent of physical space.

2 Level 1 Meeting rooms and Event Space to be shared building-wide

India Institute

Detailed Listing of Current and Space Program Requirements

Position	Occupant	Existing Space Room No.	Existing Space No. Occ.	Existing Space Area NSM	Projected Need (2018) No. Occ.	Unit Allow	Area NSM	Type of Space
A. General Office								
Director	using faculty office	n/a	n/a		1	14.0	14.0	Closed
Administrative Assistant	future	n/a	n/a		1	6.5	6.5	Open
		Subtotal		**0.0**			**20.5**	
B. Support Spaces								
Copy Area (shared, see Japan Centre)					-	-	-	
Kitchenette/Work Room/Storage (shared, see China Institute)		203S			-	-	-	
Shared Small Meeting Space (shared, Japan Centre)					-	-	-	
		Subtotal		**0.0**			**0.0**	
	TOTAL DEPARTMENT			**0.0**			**20.5**	

Notes:

1 Program requirements are independent of physical space.

2 Level 1 Meeting rooms and Event Space to be shared building-wide

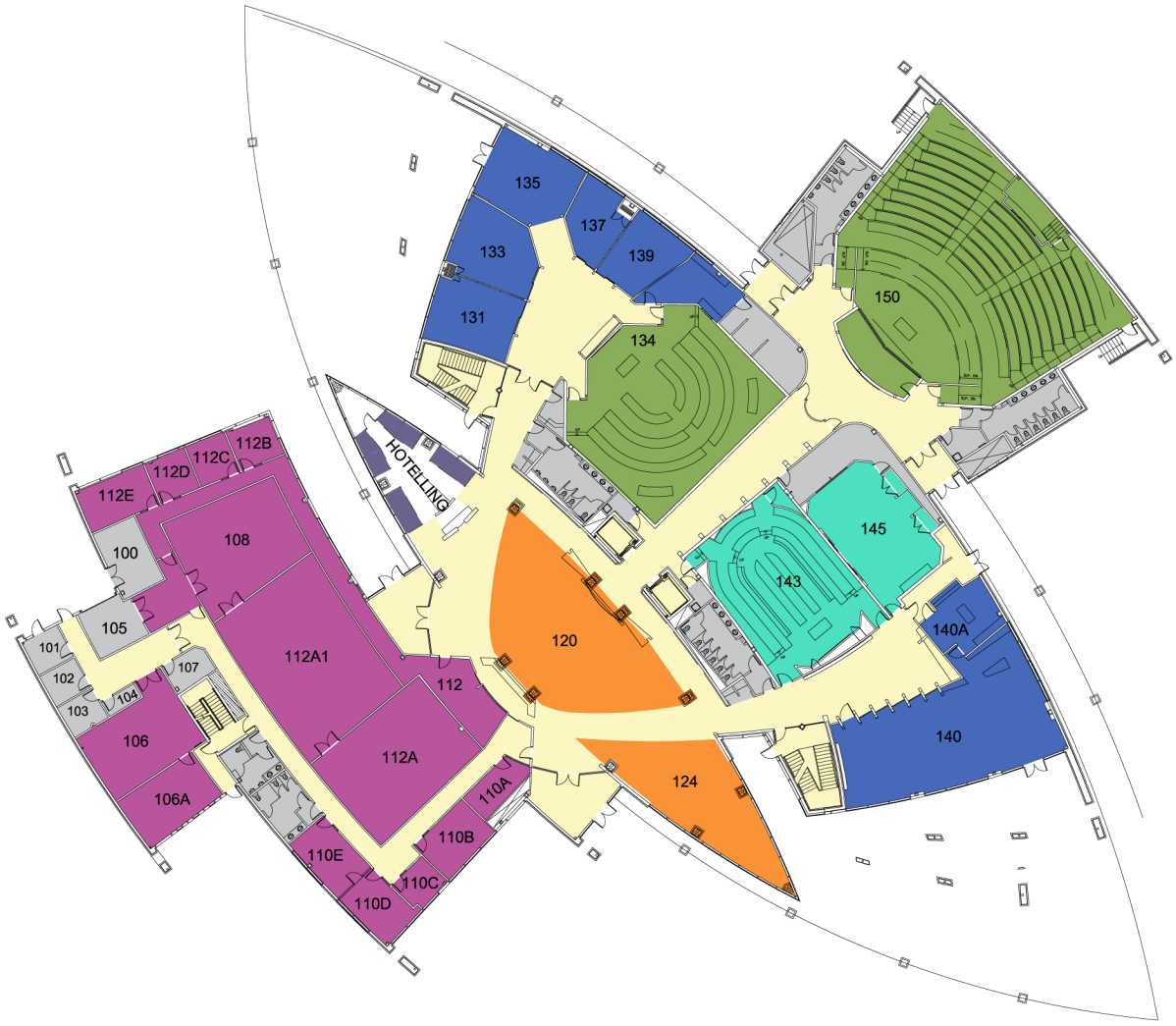
7.2 Appendix B: Related Floor Plans

Please see the following floor plans:

- Existing Space Allocation Diagrams,
- Proposed Space Allocation Diagrams,
- Program Fit for UAI, and
- Occupancy Movement Diagrams

EXISTING SPACE ALLOCATION DIAGRAM

TELUS CENTRE
LEVEL ONE



TENANT	SQ. M.
Centrally Scheduled	532.6
Main Circulation Space	n/a
Base Building Service Space	n/a
Centre for Teaching & Learning (CTL)	369.0
IST Tech Support	202.2
Museums & Collections	624.1
Public Assembly Space	236.0
Office of the University Architect	19.6

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EXISTING SPACE ALLOCATION DIAGRAM

TELUS CENTRE
LEVEL TWO

TENANT	SQ. M.
Centrally Scheduled	370.9
Main Circulation Space	n/a
Base Building Service Space	n/a
Shared Space	144.7
University of Alberta International (UAI)	217.7
China Institute	306.1
Japan Centre	26.7
Centre for Teaching & Learning (CTL)	25.3
IST Tech Support	119.0

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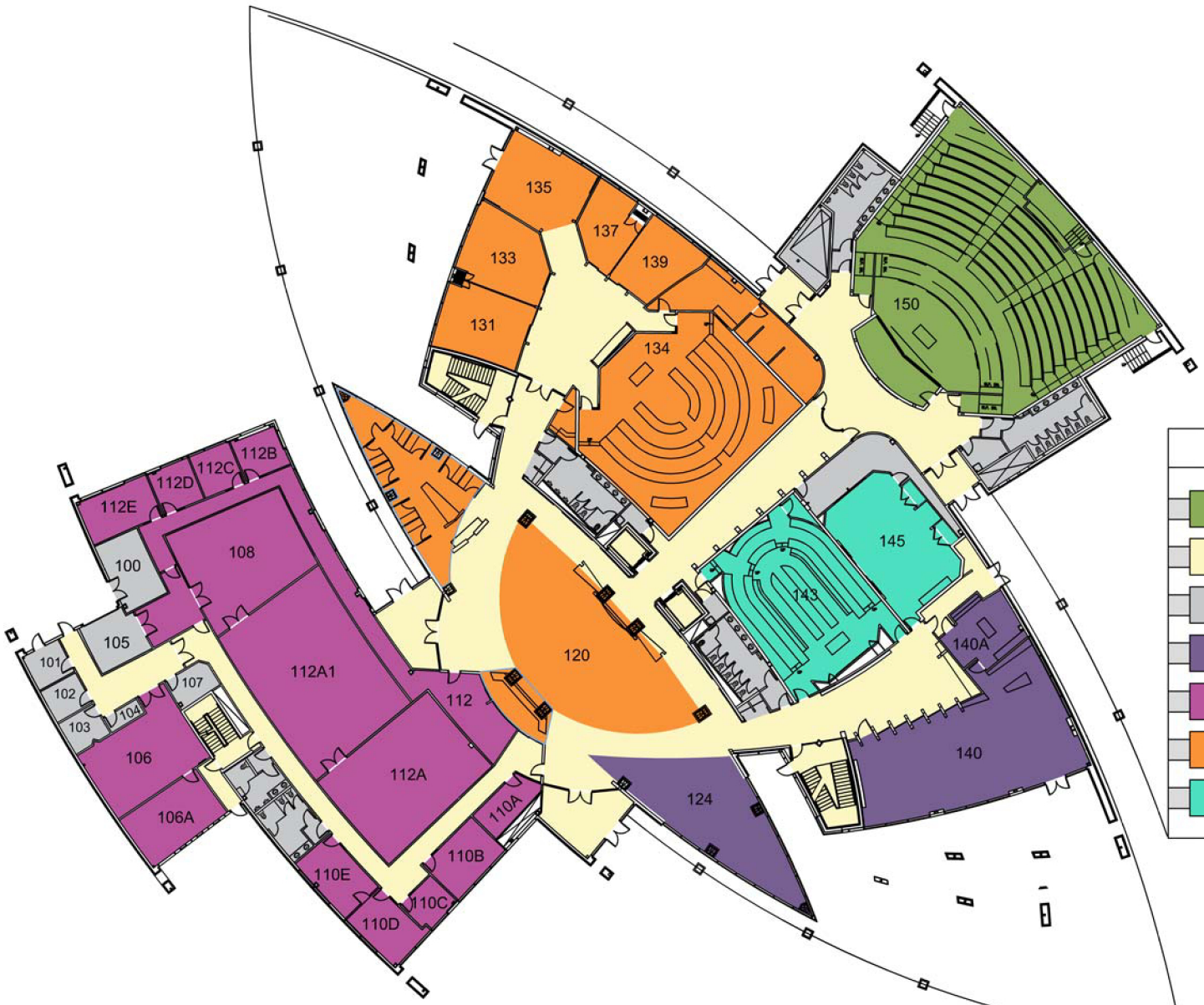
PROPOSED SPACE ALLOCATIONS

TELUS CENTRE
LEVEL ONE



TENANT	SQ. M.
Existing Centrally Scheduled Lecture Theatre	350.7
Main Circulation Space	n/a
Base Building Service Space	n/a
Proposed UAI space	257.7
Existing Museums & Collections	624.1
Shared Meeting / Event Space	641.9
IST Tech Support (Future Institute Development)	202.2

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PROPOSED SPACE ALLOCATIONS

TELUS CENTRE
LEVEL TWO

TENANT	SQ. M.
Proposed UAI space	~1000.0
Main Circulation Space	n/a
Base Building Service Space	n/a
China Institute	332.8
Japan Centre, India & Other Institutes	119.0

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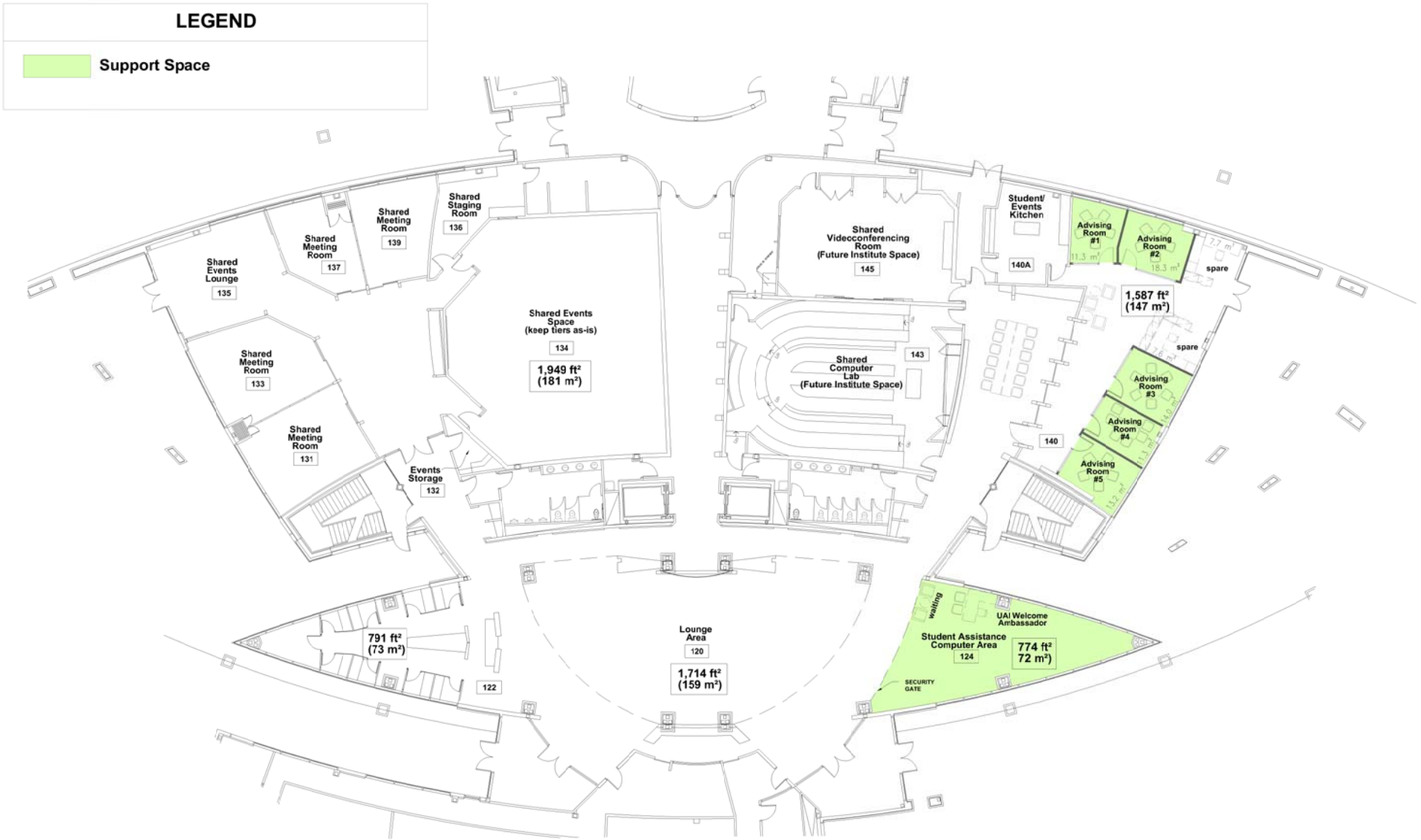
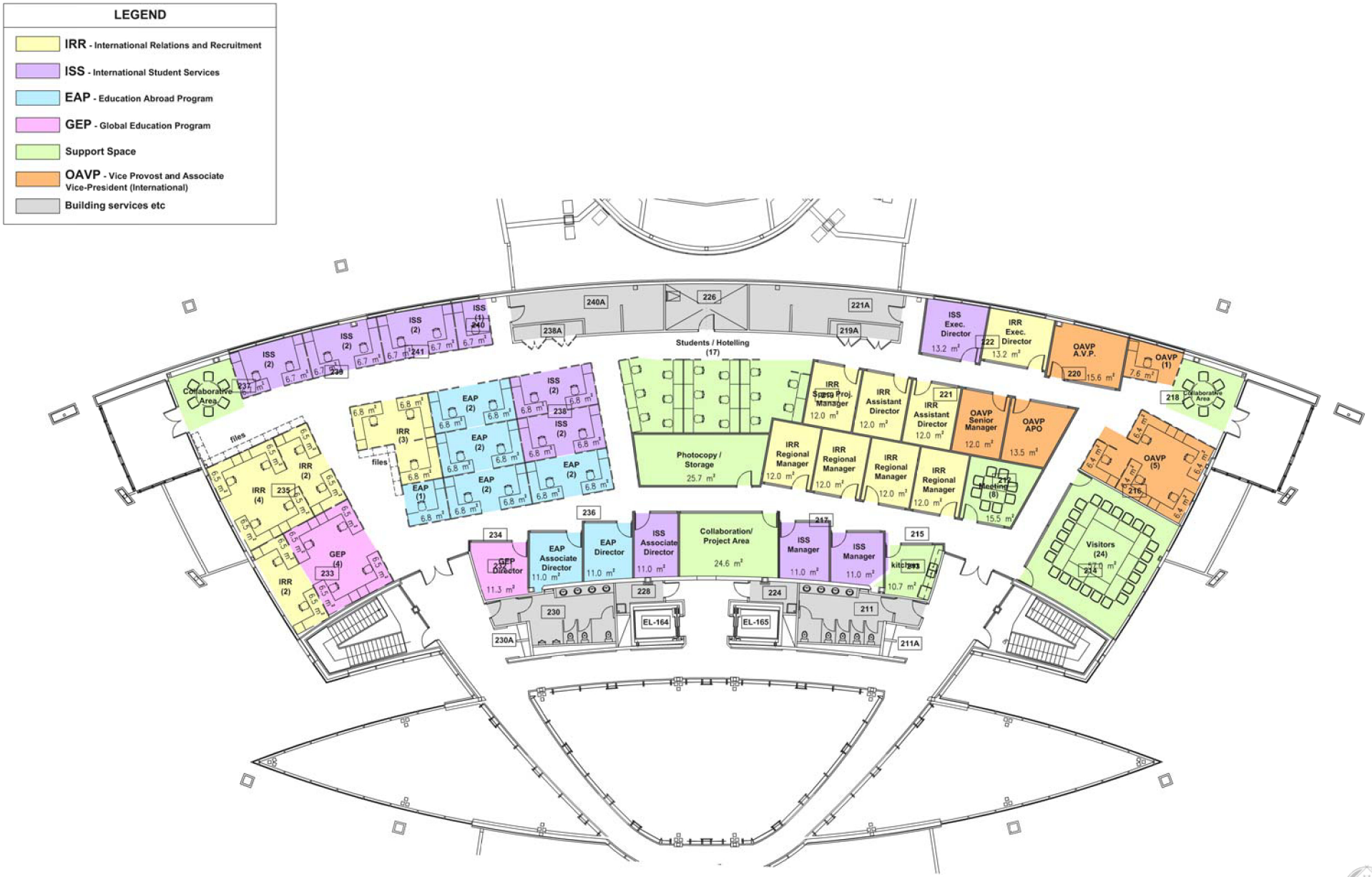
UAI PROGRAM FIT - FINAL CONCEPT

TELUS CENTRE
LEVEL ONE



UAI PROGRAM FIT - FINAL CONCEPT

TELUS CENTRE
LEVEL TWO



STEPS

STEP 1:

- Move Library Services & Information (all) **OUT** of suite 5-02, Cameron Library.
- Move Library Services & Information (HR/Personnel, Facilities, NEOS & Copyright) **IN** to suite 5-07, Cameron Library.
- Move Library Services & Information (Aquisitions) **IN** to open area on 5th floor, Cameron Library.

STEP 2:

- Renovate suite 5-02, Cameron Library (for CTL).

STEP 3:

- Move Centre for Teaching & Learning (CTL) **OUT** of rooms 131 thru 139 & suite 1-40, Telus Centre.
- Move CTL **OUT** of room 2-39, Telus Centre.
- Move CTL **IN** to renovated suite 5-02, Cameron Library.

STEP 4:

- Move China Institute **OUT** of rooms 240 & 241, Telus Centre.
- Move University of Alberta International (UAI) **OUT** of rooms 214 thru 222, Telus Centre.
- Move Information Services & Technology (IST) **OUT** of suite 201, Telus Centre.
- Move China Institute **IN** to rooms 137 & 139, Telus Centre (temporary decant).
- Move UAI **IN** to Level 2 HUB Mall.

STEP 5:

- Renovate northeast side of Level 2, Telus Centre for UAI.
- Renovate suite 140, Telus Centre for UAI Advising Rooms.
- Renovate suite 201 for Japan Centre and other international institutes.

STEP 6:

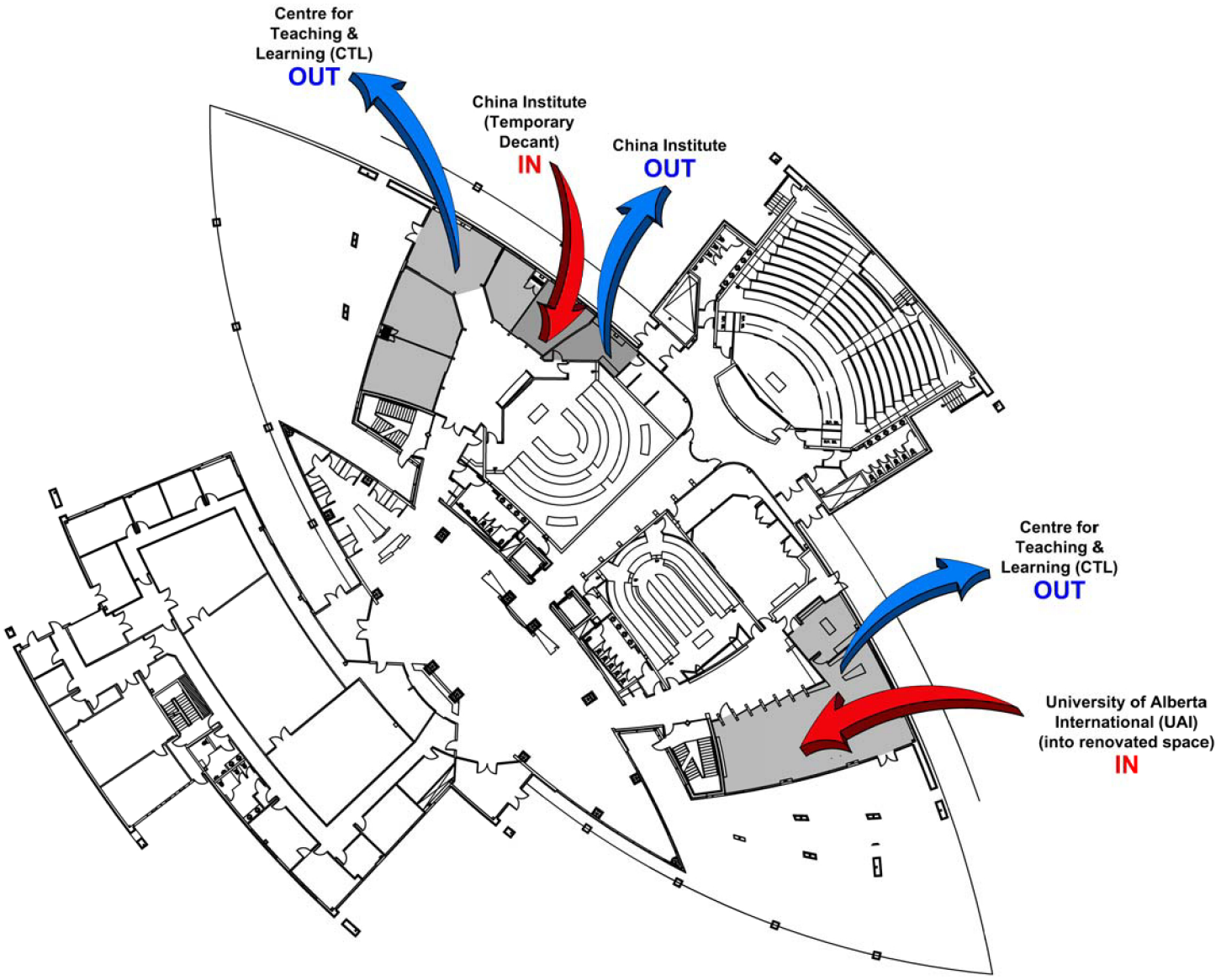
- Move Japan Centre **OUT** of rooms 203B & 203W, Telus Centre.
- Move Japan Centre (and other institutes) **IN** to suite 201, Telus Centre.
- Move China Institute **OUT** of rooms 137 & 139, Telus Centre.
- Move China Institute **IN** to rooms 203B & 203W, Telus Centre.
- Move UAI **OUT** of Level Three, Enterprise Square.
- Move UAI **OUT** of Level One, HUB Mall.
- Move UAI **OUT** of Level Two, HUB Mall
- Move UAI **IN** to northeast side of Level 2, Telus Centre.
- Move UAI Advising Rooms **IN** to Suite 140, Telus Centre.

OCCUPANCY MOVEMENT DIAGRAM

CAMERON LIBRARY
5TH FLOOR

OCCUPANCY MOVEMENT DIAGRAM

TELUS CENTRE
FIRST FLOOR



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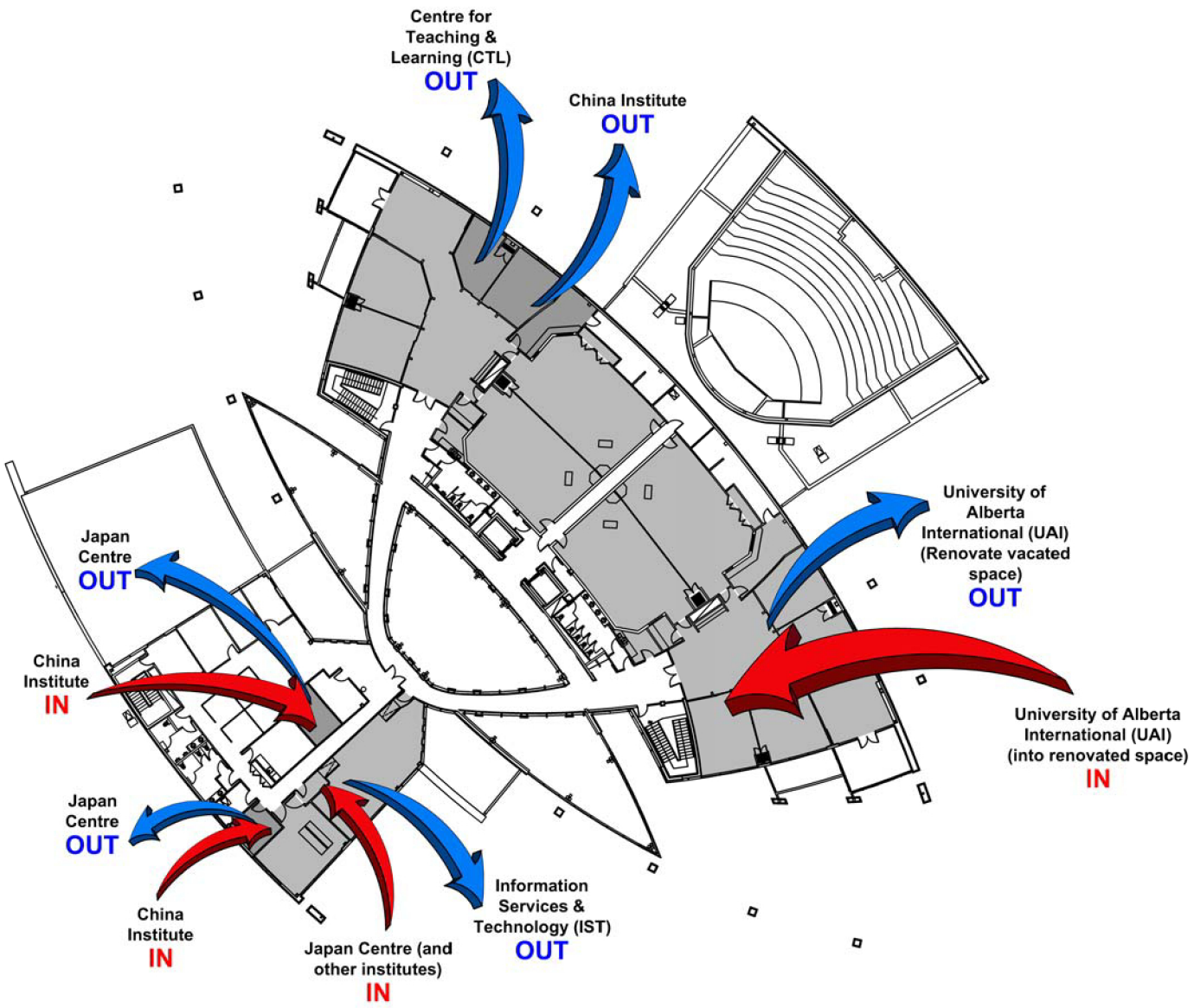
OCCUPANCY MOVEMENT DIAGRAM

TELUS CENTRE
SECOND FLOOR



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7.3 Appendix C: Other Background Information

7.3.1 Projected Numbers of Participants to Annual UAI Events

Department	Activity/Event	Participants (per year)
International Student Services (ISS)	Daily advising and services	5,000
ISS	Workshops (~25/year)	500
ISS	Volunteer training (~8/yr)	320
ISS	Programming (3-5/week)	4,784
Education Abroad Program (EAP)	Daily advising and services	2,500
EAP	Go Abroad Fair	1,000
	Pre-departure orientation	1,000
	U-ARE orientations	225
	U-ARE Certificate Ceremonies	160
	U-ARE poster symposium sessions	325
	EA Info Sessions	1,600
	EA Returned Student Poster Symposium	175
	EA Returned Student Conference	200
Global Education Program (GEP)	I-Week	3,000
	Films, panel discussions, etc. (~1/week)	500
	Info sessions/ consultations	500
	Orientation and meeting space for International House residents	250
	Intercultural communication training	600
	Certificate in International Learning	250
	International House hosts World Music Cafes (community concerts) and performance during cultural celebrations, i.e. mid-autumn festival, Asian New Year, etc.	700
	International Week volunteer appreciation	100

International Relations and Recruitment (IRR)	Delegations & visits (60/year)	400
	International Faculty and Staff Development Program – which runs for 12 weeks per group of trainees	150
Sponsored Students Program (SSP)	Orientation for new sponsored students	250
	Focus group workshops with sponsored student cohorts	50
	Sponsor visits	50
Visiting Student Program (VSP)	Non-academic seminars, workshops and orientations	150
In collaboration with departments, centres and institutes across campus	Events and meetings dealing with international topics, such as events with China Institute, Wirth Institute, Middle-Eastern and Africa Studies, etc.. President's International Lecture Series.	2,500
Total Participants		**27,000**

7.3.2 Excerpts from Dare to Discover and Dare to Deliver Regarding: Internationalization, Research Support and Student Experience

"Dare to Discover: A Vision for a Great University," outlines the University of Alberta's values, vision and mission. The vision is based on four cornerstones:

1. Talented people,
2. Learning, Discovery, and Citizenship
3. Connecting Communities
4. Transformative Organization and Support

Dare to Deliver 2011-2015, the Academic Plan for the University of Alberta, expands on the four cornerstones, outlining specific framework and strategies to help guide the University in achieving its vision. It includes the following key strategic concepts that support the vision to transform the Telus Centre in to an International Centre:

- *Welcome Centers:* Supporting the creation of physical and virtual welcomes centres for students and alumni (Page 4).
- *Recruitment:* Recruiting exceptional students, staff and faculty, locally, nationally and internationally (Page 4).
- *Research Culture:* Fostering a collegial research culture that attracts and engages undergraduate and graduate students, post-doctoral fellows and faculty to extend the frontiers of knowledge within and across disciplines (Page 4).
- *Leadership and Citizenship Values:* Cultivating Canadian citizenship values of engagement, equality, respect, diversity and community across the University and beyond ((Page 7).
- *Advising and Mentorship:* Creating a seamless advising infrastructure for all students across the University (Page 8).
- *Research Constellations:* Encouraging scholars to establish innovative research networks within and across faculties, as well as nationally and internationally, particularly in areas of existing and emerging strength (Page 8).
- *International Expertise:* Strengthening international and intercultural dimensions in teaching and learning in curricular and extra-curricular programming, to prepare students for an increasingly international and intercultural range of career opportunities (Page 9).
- *Global Engagement:* Cultivating a body of globally engage students, alumni and faculty who understand the diverse historical and cultural perspectives of current international issues and relationships and are able to work with integrity and purpose within globalized contexts (Page 9).

- *International scholars:* Celebrating the presence of international students and faculty on our campuses and assisting them with the best possible support for their success and wellbeing (Page 9).
- *International Research:* Nurturing strong international research linkages, collaborations and consortia (Page 10).
- *Social Spaces:* Encouraging the development of social spaces on our campuses that promote interaction and collaboration among members of the University community (Page 10).
- *International Student Services:* Easing the transition for international students into the University of Alberta, and assisting them throughout their programs (Page 13).

OUTLINE OF ISSUE

Agenda Title: **Saskatchewan Drive Students' Residence – Design Development Report**

Motion: THAT the GFC Facilities Development Committee approve, under delegated authority from General Faculties Council and on the recommendation of Planning and Project Delivery, the proposed Saskatchewan Drive Students' Residence – Design Development Report (as set forth in Attachment 2) as the basis for further engineering and development of contract documents.

Item

Action Requested	☒Approval ☐Recommendation ☐Discussion/Advice ☐Information
Proposed by	Doug Dawson, Executive Director, Ancillary Services, Facilities and Operations
Presenters	Doug Dawson, Executive Director, Ancillary Services, Facilities and Operations; Kelly Hopkin, Senior Campus Planner (Architecture), Office of the University Architect, Facilities and Operations; Anastasia Lim, Executive Director, University Relations; and Martin Jones, Principal, GEC Architecture
Subject	Saskatchewan Drive Students' Residence – Design Development Report

Details

Responsibility	Vice-President (Facilities and Operations)
The Purpose of the Proposal is (please be specific)	This project will increase the amount of purpose-built student housing on campus in alignment with the University's goal of accommodating 25% of students in residence housing. Students who reside in purpose-built on-campus housing with supportive programming tend to have a more fulfilling and enriching academic experience at the University than those who do not. Expanding on-campus housing assists the University in meeting institutional goals and objectives by providing a learning environment conducive to personal and academic success. Providing smart growth development enhances community building, student life, and campus experience while reducing greenhouse gas emissions. The development will be a financially-viable project that will enhance the residence portfolio through resource stewardship and reduce deferred maintenance cost.
The Impact of the Proposal is	The University proposes to construct 143 new student spaces in a multi-purpose building on Saskatchewan Drive between 110 Street and 111 Street in ECV. This development will be a multi-purpose residential building featuring bedroom configurations of one and two bedrooms. The residence will have common areas, a dining hall, and the appropriate amount of amenity and programmable space to deliver support services and host lectures. In order to foster a sense of community, students will take meals together in a dining hall (meal plan) to be designed as a "flex" space able to accommodate guest speakers and host functions. A total of seven (7) houses along Saskatchewan Drive between 110 and 111 Streets will be removed to accommodate this development. All students and faculty affected by the construction will be accommodated elsewhere within the institutional building inventory. The proposed residence will contribute 9.6% additional beds towards the 1500 bed full build out of the ECV district. A total of seven (7) houses (11025, 11029, 11039, 11045 and 11051 Saskatchewan Drive and 11044 and 11050 – 90 Avenue) between

	Saskatchewan Drive and 90 Avenue and between 110 Street and 111 Street will be impacted as *per* the Preservation Plan and Sector Plan.
Replaces/Revises (eg, policies, resolutions)	N/A
Timeline/Implementation Date	Initial Concept Design – September, 2013 to February, 2014; Schematic Design (now approved) to the GFC Facilities Development Committee – February 27, 2014; Design Development (for approval) to the GFC Facilities Development Committee – May 22, 2014; Construction Start – Fall, 2014; Occupancy – September 2016
Estimated Cost	N/A
Sources of Funding	N/A
Notes	N/A

Alignment/Compliance

Alignment with Guiding Documents	*Dare to Discover*; Academic Plan (*Dare to Deliver*); Preservation Plan; Long Range Development Plan (LRDP); University of Alberta Comprehensive Institutional Plan (CIP)
Compliance with Legislation, Policy and/or Procedure Relevant to the Proposal (please quote legislation and include identifying section numbers)	1. ***Post-Secondary Learning Act* (*PSLA*)**: The *PSLA* gives GFC responsibility, subject to the authority of the Board of Governors, over academic affairs (Section 26(1)) and provides that GFC may make recommendations to the Board of Governors on a building program and related matters (Section 26(1) (o)). Section 18(1) of the *PSLA* give the Board of Governors the authority to make any bylaws "appropriate for the management, government and control of the university buildings and land." Section 19 of the *Act* requires that the Board "consider the recommendations of the general faculties council, if any, on matters of academic import prior to providing for (a) the support and maintenance of the university, (b) the betterment of existing buildings, (c) the construction of any new buildings the board considers necessary for the purposes of the university [and] (d) the furnishing and equipping of the existing and newly erected buildings [.] […]" Section 67(1) of the *Act* governs the terms under which university land may be leased. 2. **GFC Facilities Development Committee (FDC) Terms of Reference – Section 3. Mandate of the Committee:** "[…] 2. **Delegation of Authority** Notwithstanding anything to the contrary in the terms of reference above, the Board of Governors and General Faculties Council have delegated to the Facilities Development Committee the following powers and authority: **A. Facilities** 1. To approve proposed General Space Programmes (Programs) for academic units. 2. (i) To approve proposals concerning the design and use of all new facilities and the repurposing of existing facilities and to routinely report these decisions for information to the Board of Governors. (ii) In considering such proposals, GFC FDC may provide

	advice, upon request, to the Provost and Vice-President (Academic), Vice-President (Facilities and Operations), and/or the University Architect (or their respective delegates) on the siting of such facilities. (GFC SEP 29 2003) **B. Other Matters** The Chair of FDC will bring forward to FDC items where the Office of the Provost and Vice-President (Academic) and/or the Office of the Vice-President (Facilities and Operations), in consultation with other units or officers of the University, is seeking the advice of the Committee. […]" 3. **UAPPOL Space Management Policy and Space Management Procedure:** The respective roles of GFC FDC and the Vice-President (Facilities and Operations) with regard to institutional space management are set out in this Board-approved Policy and attendant Procedure. To access this policy suite on line, go to: www.uappol.ualberta.ca. 4. **UAPPOL Preservation of University Facilities and Grounds Policy:** The University of Alberta is committed to preserving its history while planning for the continued growth and expansion that facilitates its mission and vision. To access this policy suite on line, go to: www.uappol.ualberta.ca .

Routing (Include meeting dates)

Consultative Route (parties who have seen the proposal and in what capacity)	• March, 2005 to September, 2008 – 12 facilitated community dialogues with Garneau resulting in the creation of the Design Guidelines for Infill Development • Open House Sector 7 and 8 Sector Plans – March 19, 2012 • Formalization of Sector Plans for Sectors 7 and 8 – March 28, 2013 • Garneau Community League Focus Group *per* East Campus Village Implementation Plan – September 16, 2013 • GFC Facilities Development Committee *per* East Campus Village Implementation Plan – October 24, 2013 • Residence Life and Residence Operations *per* East Campus Village Implementation Plan – November 12, 2013 • Ancillary Services met with the University of Alberta Students' Union and Graduate Students' Association on January 8, 2014 • University of Alberta's Internal and External Community Open Houses *per* East Campus Village Implementation Plan for substantial development – January 8, 2014 • GFC Facilities Development Committee *per* East Campus Village Leadership Residence and Proposed Preliminary Functional Program and Concept Plans – (For Discussion) – January 30, 2014 • Leadership Residence Project Steering Committee – February 12, 2014

	• Leadership College Academic Coordinating Committee – February 13, 2014
Approval Route (Governance) (including meeting dates)	GFC Facilities Development Committee – May 22, 2014 (for final approval of the proposed Saskatchewan Drive Students' Residence – Design Development Report)
Final Approver	GFC Facilities Development Committee

Attachments:
1. Attachment 1 (pages 1 – 3) - Briefing Note
2. Attachment 2 (pages 1 – 174) - Saskatchewan Drive Students' Residence – Design Development Report (May, 2014)

Prepared by: Kelly Hopkin, Senior Campus Planner (Architecture), Office of the University Architect, Facilities and Operations, kelly.hopkin@ualberta.ca

Saskatchewan Drive Students' Residence Design Development Report

Attachment 1

Background

University historical data indicates that at no time in the last 10 years has the demand for on-campus residence beds been met. In fact, between 2007 and 2011, the number of applicants has exceeded 5,000. Due to the number of returning students each term there are only approximately 2,500 spots available.

The University of Alberta is proposing to build a cohort student residence focusing on leadership development. The university proposes to construct 143 new student spaces in a multi-purpose building on Saskatchewan Drive between 110 Street and 111 Street in East Campus Village (ECV).

This building has a courtyard typology with an interior perimeter corridor. The massing of the building has been enhanced to reflect a change to the reorganization of the buildings cohort groupings from 12 groupings of 12 students to 13 groupings of 11 students in bedroom configurations of one and two bedroom units. The buildings incorporate appropriate amounts of amenity or programmable space required to deliver support services for students, and host lectures and special events in the evenings and on weekends. In order to foster a sense of community, students will take meals together in a dining hall (meal plan) which has been designed as a "flex" space able to accommodate guest speakers and host functions.

A total of seven houses along Saskatchewan Drive between 110 and 111 Streets will be removed to accommodate this development. All students and faculty affected by the construction have been accommodated elsewhere within the institutional building inventory. The building represents a 9.6 per cent increase towards the targeted 1,500 bed spaces allocated within the ECV district.

No additional parking provisions would be required beyond current surface lots between 111 and 110 Streets (Lots 87, 88 and 89). Furthermore, Lot U (the south east portion of the large surface lot east of HUB) is dedicated to visitor parking, capacity 224 stalls, and there is also visitor capacity on 90 Avenue.

Issues

The University is proposing to construct a new student residence building in the ECV district. The building will be located on an existing lot currently occupied by seven homes which will be removed as part of the Preservation Plan for Sector 8. The new building will align with the ECV Design Guidelines for Infill Development. The development will be an innovative new building typology to support an innovative program without constraining property lines. The residence will provide pleasant and commodious interior design including welcoming entrances, natural light and functional social spaces for residents; integrating them with active outdoor spaces for the wider university community. The new residence will anchor and further develop the ECV into an inviting, walkable, student focused and vibrant neighbourhood connecting the campus to adjoining amenities.

The proposed design development includes 143 bed spaces in one and two bedroom configurations, common areas include; a main floor, common living room and social spaces on the residential floors, large laundry, quiet study area, and a large inspirational space (City Room) with video conferencing capabilities,

for social gatherings, lectures and seminars. Also included are outdoor amenity space, large and flexible dining hall, fitness and recreation rooms, conference room and other programmable space to build community and deliver support services to students.

The schematic design report was completed in February 2014, with the final report approved by the General Faculties Council (GFC) Facilities Development Committee (FDC) on February 27, 2014. During the design development phase, the design team met with the Project Steering Committee on a bi-weekly schedule to confirm user requirements, review design progress, and confirm technical requirements. Additional meetings were held with key stakeholder groups to review specific aspects of the project such as the Energy Management Program managers, Aramark (the university's current food service provider) and the university's utilities department.

In the course of the February 2014, schematic design presentation to FDC, the Committee had comments on the detailed design of the Saskatchewan Drive Residence and asked the Project Team to review the following:

Confirmation of the need for a Fitness Area
The Project Team consulted with Residence Services and Operations, and determined that the Fitness Area is a required program element to enhance the student residence experience, and promote health and wellness. Past experience and survey have indicated that modest fitness amenities within student residences are highly desired by potential occupants and help to distinguish the Ancillary Student Housing portfolio in the market.

Café addition to invite public into the Residence
The Project Team consulted with Residence Services and Operations, and determined that a café was not warranted at this time and that a 'Provisions on Demand' (POD) kiosk will be provided adjacent to the main entry lobby. There is nothing in the current design that precludes the accommodation of a café in the future. The Project team is currently looking at fridge and microwave capacity in the student residence rooms.

Location of loading, and waste/recycling collection
The location of the loading and waste/recycling collection areas have to remain co-located adjacent to the food service functions. The design of this space has been improved with the addition of both hard and soft landscaping. A hard surfaced plaza space has been incorporated into the entrance to create a formal entry forecourt along 90 Avenue and also provides paving for vehicular movements. Additionally, efforts have been made to improve the relationship of the waste and recycling entries such that they angle away from the courtyard entrance and reduce their impact on pedestrian movements. Waste containers will be housed inside the facility until disposal.

Width of courtyard entry on 90 Avenue
The courtyard entry along 90 Avenue has been widened through a reduction in the number of guest suites and structural support columns removed to create a more inviting entry for the surrounding community. An exterior fireplace in the courtyard has been located on axis with the 90 Avenue opening into the courtyard.

Consideration of acoustics from Social Spaces to adjacent suites
The design of the social spaces has been refined to include wooden barn door entries with associated glazed sidelights. This allows a level of acoustical privacy when required while still maintaining a visual connection.

Functional operations of City Room

The City Room and associated rooftop terrace have been reoriented on the fifth floor as part of the design development. This placed the rooftop terrace on the western corner of the fifth floor and shifted the City Room to the east. This reorientation allowed for the inclusion of a new pre-function area and coat closet to better service special events. This also allowed the City Room to expand and fill the width of the fifth floor creating a more functional space while also providing views into the central courtyard. Dedicated storage space has been allocated in the basement to service the City Room which is accessible directly from the elevators.

Focus on inviting Community into the Residence

The Main Building Entry on the northwest corner of 111 Street and the mid-block entry on Saskatchewan Drive (special event access to the Dining Hall) will feature up lighted canopies. Entrance openings into the courtyard at the south west corner and mid-block along 90 Avenue will feature warm coloured wood soffits that are also illuminated and welcoming in the winter and evenings. The main floor is 'public friendly' to the extent possible to maintain a balance between residence security and accommodate a variety of anticipated public functions and cohort interactions.

Recommendation

THAT the GFC Facilities Development Committee approve the proposed Saskatchewan Drive Students' Residence – Design Development Report.

gec architecture

University of Alberta

Saskatchewan Drive Residence

Design Development Report

May, 2014

View from the Proposed Fifth Floor City Room

Saskatchewan Drive Residence

Design Development Report

May, 2014

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Executive Summary

This report summarizes the Design Development phase of the Saskatchewan Drive Residence. The Design Development refines the technical requirements as well as building system's integration against approved priorities and program objectives. Key deliverables for the Design Development of the Saskatchewan Drive Residence include:

- 143 student residence beds in 1 and 2 bed unit configurations
- Residence units are arranged in 13 cohort groups of 11 students
- A Dining Hall that provides seating for 160 students within a flexible space that supports a variety of programming options
- A fifth floor City Room to accommodate events, lectures, presentations and receptions
- Meet the University of Alberta's accessible and safety standards
- Meet a Green Globe, 4 glodes sustainability standard

The Architectural Guiding Principles and Design Principles that were established in collaboration with the Project Steering Committee continue to inform the Design Development. The Architectural Guiding Principles include:

- Engaging the Identity of a Place
- Interpreting the Context
- Creating a Third Place: Activate Community Building
- Transcending the Present: Traditional and Modern

Project Steering Committee

A Project Steering Committee was established in the Schematic Design Phase to provide input and direction to the design team. The design team continued to meet with the Project Steering Committee during the Design Development phase on a biweekly basis to confirm user requirements, review design progress, and confirm technical requirements. The Project Steering Committee's roles and responsibilities, as defined in the Project Charter are:

- Ensure the project scope aligns with the agreed requirements of the project sponsor and key stakeholder groups
- Provide those directly involved in the project with guidance on project issues
- Ensure efforts and expenditures are appropriate to stakeholder expectations
- Take on responsibility for the project achievement of outcomes
- Address any issue which has major implication for the project
- Manage project scope and if issues emerge propose changes to be considered
- Ensure that strategies to address potential risks have been identified and mitigation plans provided
- Ensure that compliance with governance is maintained
- Reconcile differences in opinions, approach and resolve disputes arising from them
- Report on project progress as deemed required
- Escalate issues to appropriate levels if and when required
- Support committee members and project inputs

The Project Steering Committee is comprised of the following representatives, whose valuable contribution to the Design Development of the Saskatchewan Drive Residence is acknowledged and greatly appreciated.

Project Steering Committee
Todd Werre, Director, Project Management Office, P&PD (Chair)
John Ferguson, Project Sponsor
Doug Dawson, Executive Director, Ancillary Services
Terrence Sperling, Associate Director, Residence Operations, Ancillary Services
Sarah Wolgemuth, Assistant Dean of Students (Residence Life)
Joshua Le, Vice-President, Operations and Finance, Students' Union
Marc Dumouchel, General Manager, Students' Union
Kelly Hopkin, Senior Campus Planner, Office of the University Architect, P&PD

Design Team
Peter Osborne, Partner (GEC Architecture)
Martin Jones, Partner (GEC Architecture)
Julian Wylegly, Intern Architect (GEC Architecture)
Lacey Pearn, Interior Designer (GEC Architecture)
Ian Boyle, Structural Engineer (Fast + Epp)
Patrick Fleming, Mechanical Engineer (KFR Engineering)
Derek Ciezki, Electrical Engineer (SMP Engineering)
Janet Rosenberg, Landscape Architect (Janet Rosenberg & Studio)
Paul Seal, Civil Engineer (Urban Systems)
Jim Little, Food Service Consultant (Cini+Little)

Pre-construction Advisors
Terry Kirstiuk (Chandos)
Randy Dupree (Chandos)

Program

Space program elements have been refined during the Design Development phase and have resulted in an overall net programmed area and total gross area decrease as compared to the Schematic Design space program. The building's net to gross efficiency has also been improved as part of the design progress. This is primary due to the reorganization of residence suites into 13 cohort groupings of 11 students, which allowed for an overall reduction in the building footprint while maintaining the original design intent.

The general allocation of program elements has remained consistent with the Schematic Design Report. The main floor remains primarily an amenity level with direct connections to the exterior courtyard. The three residence floors remain; however, the fourth floor has been expanded along 111th Street to accommodate the additional cohort grouping. Finally, the fifth floor remains dedicated programmatically to the City Room and its associated support spaces.

Site Design

Plan design remains consistent with the Schematic Design. The landscape plan continues to see the river valley ecology wrap up from the banks of the North Saskatchewan River around and through the central courtyard.

The reduced footprint of the Saskatchewan Drive Residence has allowed the building to be set further back from Adair Park and Saskatchewan Drive. This has allowed for improved streetscapes and landscape connections to Adair Park. Similarly, the mid-block courtyard access along 90th Avenue has been further developed. The entry condition has been widened, structural column supports have been removed, and the opening has been better aligned with the proposed mid-block pedestrian pathway through the East Campus Village. In addition, the loading and waste collection areas along 90th Avenue have been integrated with a new hard surfaced plaza that has a dual function as a forecourt to the mid-block entry as well as a surface for vehicular movements.

Building Design

The Saskatchewan Drive Residence continues to be organized around a central courtyard which has been designed to create a sense of community for the students who live in the residence as well as function as a neighbourhood amenity for students within East Campus Village. The design responds to the East Campus Village Design Guidelines for Infill Development, and the Sector 8 Sector Plan.

The interior design concepts were further developed during the Design Development phase, and include material and furniture selections as well as interior partition assemblies. The interior design concepts were largely informed by Marion Kirby Alexander's original inspiration for the University of Alberta's two official colours: green and gold. Like the design of the Saskatchewan Drive Residence, Marion drew her inspiration from Edmonton's river valley, prairie landscape and golden harvest fields. The design is a balance between providing consistent unifying design elements with variable elements to define cohort groupings and personalizable student space.

The Saskatchewan Drive Residence suite design continues to support social interaction, academic achievement and helps foster a sense of community amongst residents. The Design Development of the residence suite focused on technical outcomes and included a detailed review of interior partition assemblies. This is critical step in the design as the accumulative effects of late changes to partition thicknesses can have a significant impact on the overall building footprint or the integration of building systems.

The building envelope's technical and aesthetic parameters have been established with an emphasis on durable, low-maintenance materials. Specific exterior assemblies have been confirmed in conjunction with the energy model to ensure they respond to the project's energy targets as well as constructability reviews.

Sustainability

The Saskatchewan Drive Residence is targeting Green Globes certification with a focus on incorporating durable, reliable, proven and cost effective sustainable strategies and technologies. The design team is working with the University's Energy Management Program to identify various sustainable strategies that are eligible for funding.

Structural

The Design Development phase has refined the integration of the structural framing plan with the architectural layouts. This included finalizing a strategy to transfer structure between the second floor and main floor architectural layouts. Through review of the geotechnical report, foundations were able to be reduced and we were able to proceed with strip footings for basement areas and slabs-on-grade for areas of the main floor that do not have a basement below.

Mechanical

The mechanical systems have been further developed and refined to a single mechanical room in the basement of the Saskatchewan Drive Residence. Main distribution strategies were coordinated with architectural ceiling heights, and riser size and locations were confirmed and incorporated into student residence suite designs.

Electrical

The development of the electrical system through this phase of the project focused on the selection of lighting both interior and exterior, and the location and size of electrical and communication rooms. AV/IT infrastructure has been proposed for amenity spaces throughout the Saskatchewan Drive Residence to provide a high level of connectivity.

Next Steps

Continued design progress is required on a select scope of work as the project moves forward into the next stage of detailed design. These include:

- Refining the food service technical and operational requirements through continued consultation with the University's food service provider
- Conduct a Crime Prevention Through Environmental Design review
- Refine and confirm the AV/IT strategies

1.0 Project Charter and Deliverables

1.1 Introduction

The following report is intended to document the Design Development phase for the Saskatchewan Drive Residence. The Design Development phase is largely a technical advancement of the project to refine the design intent of the Schematic Design. The main focus of the exercise is to work within the design intent staying true to the Project's Architectural Guiding Principles to integrate building systems and complete a detailed analysis of proposed building materials and assemblies.

The Saskatchewan Drive Residence continues to provide an impactful, and intentional residential experience utilizing a cohort housing model. A diverse set of program elements that provide a wide range of student oriented amenity and support spaces will help foster positive social interaction, academic achievement and establish a sense of community. The Saskatchewan Drive Residence approach to building form, massing and site planning remains consist with the Schematic Design with a reduced area of 7,925 gross square meters.

The overall plan and program distribution for the Saskatchewan Drive Residence is consistent with the Schematic Design Report. A courtyard building typology and perimeter corridor remain the defining characteristics of the building's massing. The massing has been refined in response to a reorganization of the building's cohort groupings from 12 groupings of 12 students to 13 groupings of 11 students. While this has provided an overall reduction in the building footprint it has also added an additional cohort grouping which has been located on the fourth floor along 111th Street. The massing along 90th Avenue remains lower at three floors to respond to its relationship with existing and proposed developments in East Campus Village. The Dining Hall remains adjacent to Adair Park and provides the lowest single story massing.

The main building entry remains located along 111th Street adjacent to a proposed new urban plaza space that forms a gateway to the Campus. Secondary entries are located along Saskatchewan Drive to allow for special event access to the Dining Hall, and entries are located within the courtyard space to allow students to engage this community amenity space. Guest and Faculty Suites located on the main floor continue to have at-grade front entries to engage with and support the infill residential nature of the East Campus Village. The City Room remains as the single program use on the fifth floor to provide a flexible space for social gatherings, lectures and seminars. Located on the northwest cohort block of the fifth floor, its location will enjoys panoramic views of the North Saskatchewan River Valley and Edmonton's Downtown. An outdoor terrace is located on the northwest corner adjacent to a pre-function space and provides overflow for social gatherings or an informal social space during regular operations.

1.2 Goals

The project goals established by the University of Alberta remain consistent as stated in the Schematic Design Report, and include:

- Support the University's goal of accommodating twenty five percent of the University's full-time enrolment on campus in purpose built student housing.
- Support students' academic success, leadership development, engagement, recruitment, retention and enduring relationship with Alma Mater with a new attractive cohort residence.
- Implement sector plan guidelines and provide smart growth development – reduce greenhouse gas, integrated neighbourhood and enhance livability.
- Build a financially viable project to enhance the University's residence portfolio per resource stewardship while reducing deferred maintenance costs.

Architectural Guiding and Design Principles established early in the design process continue to inform the design development of the Saskatchewan Drive Residence. The project continues to "Engage the Identity of a Place" and "Interpret Context" through connections to the North Saskatchewan River Valley, the North Campus and East Campus Village embodied in the project's landscape and building design. "Creating a Third Place" that provides quality student oriented spaces is established by the building's courtyard typology and supported by the amenity focused main floor. The desire that the architecture "Transcend the Present", balancing traditional and modern aesthetics, continues to be expressed in both the interior and exterior building material selections.

1.3 Design Development Phase

The Schematic Design Report was completed in February 2014 with the final report approved by the Facilities Development Committee (FDC) on February 27, 2014. During the Design Development phase, our team continued to meet with the Project Steering Committee biweekly to confirm user requirements, review design progress, and confirm technical requirements. Additional, meetings were held with key stakeholder groups to review specific aspects of the project such as the Energy Management Program managers, Aramark (the University's current food service provider) and the University's utilities department.

In the course of the February 2014 Schematic Design presentation to FDC, the Committee had comments on the detailed design of the Saskatchewan Drive Residence and asked the Project Team to review the following:

Confirmation of the need for a Fitness Area

- The Project Team consulted with Residence Services and Operations, and determined that the Fitness Area is a required program element to enhance the student residence experience, and promote health and wellness. Past experience and survey have indicated that modest fitness amenities within student residences are highly desired by potential occupants.

Café addition to invite public into the Residence

- The Project Team consulted with Residence Services and Operations, and determined that a café was not warranted at this time and that a 'Provisions on Demand' (POD) kiosk will be provided adjacent to the main entry lobby. There is nothing in the current design that precludes the accommodation of a café in the future.

Location of loading, and waste/recycling collection

- The location of the loading and waste/recycling collection areas have to remain co-located adjacent to the food service functions. The design of this space has been improved with the addition of both hard and soft landscaping. A hard surfaced plaza space has been incorporated into the entrance to create a formal entry forecourt along 90 Avenue and also provides paving for vehicular movements. Additionally, efforts have been made to improve the relationship of the waste and recycling entries such that they angle away from the courtyard entrance and reduce their impact on pedestrian movements. Waste containers will be housed inside the facility until disposal.

Width of courtyard entry on 90th Avenue

- The courtyard entry along 90 Avenue has been widened through a reduction in the number of guest suites and structural support columns removed to create a more inviting entry for the surrounding community. An exterior Fireplace in the courtyard has been located on axis with the 90 Avenue opening into the courtyard.

Consideration of acoustics from Social Spaces to adjacent suites

- The design of the Social Spaces has been refined to include wooden barn door entries with associated glazed sidelights. This allows a level of acoustical privacy when required while still maintaining a visual connection.

Functional operations of City Room

- The City Room and associated rooftop terrace have been reoriented on the fifth floor as part of the Design Development. This placed the rooftop terrace on the western corner of the fifth floor and shifted the City Room to the east. This reorientation allowed for the inclusion of a new pre-function area and coat closet to better service special events. This also allowed the City Room to expand and fill the width of the fifth floor creating a more functional space while also providing views into the central courtyard. Dedicated storage space has been allocated in the basement to service the City Room which is accessible directly from the elevators.

Focus on inviting community into Main Floor of the Residence

- The Main Building Entry on the NW corner of 111 Street and the mid-block Entry on Saskatchewan Drive (special event access to the Dining Hall) will be marked with up lighted canopies. Entrance openings into the courtyard at the SW corner and mid-block along 90th Avenue will feature warm coloured wood soffits that are also illuminated and welcoming in the winter and evenings. The Main Floor is 'public friendly' to the extent possible to maintain a balance between residence security and accommodate a variety of anticipated public functions.

Balance between residents and guests

- As a development from the Schematic Design, the number of guest suites have been reduced but remain located off of 90th Avenue. Guests suites have been designed to be an integrated part of the Saskatchewan Drive Residence, but retain street fronting entrances along 90th Avenue that reflect the infill nature of the East Campus Village. It is anticipated that guests of the Residence will also have access to the Dining Hall and all other main floor amenity spaces. Current design options being reviewed by the project team anticipate conversion of this area into a flexible social space.

Additionally, at the start of the Design Development phase, GEC Architecture led a value analysis workshop which included our full sub-consultant team, BTY the design team's cost consultant, Chandos Construction our pre-construction advisor, and representatives from Facilities and Operations. Results from this workshop were presented to the Project Steering Committee for direction and approval. The selected strategies helped to provide key direction for the refinement of the Schematic Design.

1.4 Opportunities and Challenges

The following are key opportunities and challenges presented by the Saskatchewan Drive Residence Design Development.

Opportunities

- Innovative new building typology to support an innovative program without constraining property lines
- Provide pleasant and commodious interior design including welcoming entrances, natural light and functional social spaces for residents; integrating them with active outdoor spaces for the wider University community
- Sustainable design through building footprint, massing and efficiency while reducing parking requirements on North Campus
- Further develop of the East Campus Village into a safe, walkable, student-focused, vibrant neighbourhood that connects the campus to adjoining amenities

Challenges

- Support an intentional but evolving interdisciplinary cohort community as academic, residential and operational programs are being developed and confirmed
- Balance functionality, flexibility, student life, capital cost, architectural design integrity, operations/maintenance cost and curb appeal
- Distribute a functional program that is necessarily flexible on an irregular site to satisfy design guidelines, sector plan and LRDP
- Exemplifying design excellence in contemporary architectural design vocabulary while being contextual and respecting the character of the Garneau neighbourhood and East Campus Village
- Not negatively impacting the quality of the surrounding natural landscape, including the adjacent City Owned Adair Park

2.0 Campus Planning

2.1 Sector Vision & Planning Guidelines

The Saskatchewan Drive Residence resides within Sector 8 or the East Campus Village. Sector 8 will be developed as a vibrant and integrated student-residential neighbourhood, while meeting the student residence needs of the University and respecting the character of the neighbourhood. In order to meet this vision, Sector 8 will include:

- Increased student residences at sufficient densities;
- Minimized vehicular access to and within the Sector;
- Preservation and enhancement of the street and avenue grid network;
- Provide open space of differing types and sizes;
- Provide diversity of residents;
- Support student services in the surrounding neighbourhood;
- Provide affordable housing in terms of capital, operating, maintenance, and student rental; and
- Integration and connectivity between Sector 7 and 8.

These elements will support place-making in a campus context. The University will celebrate the area's social history and ensure that new development is sensitive to the East Campus Villages aesthetic character and maintains the existing grid system, as well as mature landscaping along corridors.

Development within the Sector must respond to the University of Alberta's Design Guidelines for Infill Development. The Saskatchewan Drive Residence's Design Development continues to align with and respond to the Design Guidelines and has been refined to continue to provide a positive addition to the East Campus Village. The project is also accounted for in the East Campus Village Implementation Plan, and has been a part of public consultation related to development in East Campus Village.

River District

The Saskatchewan Drive Residence resides within the River District.

Based on its location and analysis, the River District has been chose as a potential development site for a mixed-use leadership collage, an honours student residence, with housing and support space for 300-400 students with 150-200 residents. It also is well-located near surrounding amenities and could provide excellent views of and connection to the river.

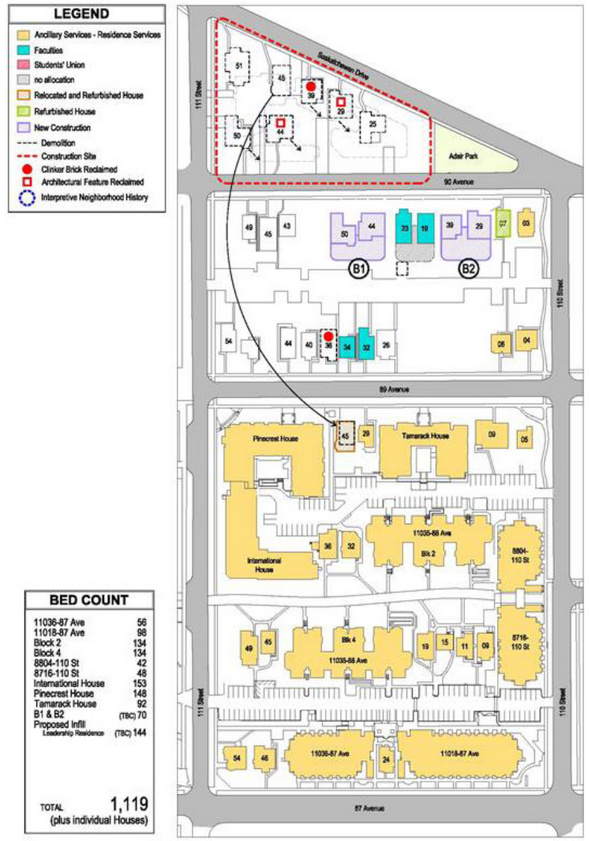
Development Guidelines

- Integrate internally and externally, including 111th Steeet and Sector 7, the North Saskatchewan River Valley, Adair park and the adjacent East Cmpus Village Districts through pathway connections, signage, architecture, landscaping and public art.
- Leverage existing parks and open spaces and river valley access points.
- Major node and gathering place.
- Student housing and support space for 300-400 students and 150-200 residents as part of Leadership Collage (Saskatchewan Drive Residence).

Pathways

- 111 Street - "The Urban Boulevard"
  - Support development guidelines from the Sector 7 Plan that enhances 111 Street as a median separated "Urban Boulevard" that integrates east/west corridor nodes, existing and future building edges and streetscape improvements to provide a transition zone and connector between Sector 7 and East Campus Village.
  - Ensure new development along 111 Street in East Campus Village considers Sector 7 development guidelines and redevelopment potential in relation to 111 Street.
  - Retain adequate building setbacks that can be utilized to strengthen north/south pedestrian movement and the urban streetscape.
- 90 Avenue
  - Maintain the streetscape along the south side of 90 Avenue, including setbacks, massing, and boulevard trees.
  - Consider creating a one-way east to limit traffic on 110 Street and service area from 111 Street.
- Saskatchewan Drive
  - Encourage promenade development along the south side of Saskatchewan Drive to define the boundary of the Campus and to connect scenic viewpoints along the North Saskatchewan River Valley.
  - Coordinate with the City of Edmonton the provision of wide boulevard walks for multi-use and site furnishings, signage and public art, and a defined crosswalk across Saskatchewan Drive from the Saskatchewan Drive Residence site.

Sector 8 Plan



East Campus Village Implementation Plan

- Explore options for connecting to City of Edmonton bicycle network.
- Encourage formal viewpoints.
- Consider the introduction of streetscape feature and interpretive and directional signing.
- Maintain open and unrestricted access to Adair Park for local community use and enjoyment.

Edges

- 111 Street - "The Urban Boulevard"
  - Support the development of 111 Street as a boulevard, as detailed in the Sector 7 Plan. This access to East Campus Village should be architecturally defined and aesthetically integrated to emphasize key approaches and surrounding existing and future proposed residential and academic development.
- Proposed New Buildings
  - Consider active engagement and pedestrian friendliness at grade-level of any new buildings.
  - Ensure the edges of new buildings consider the provision of an appropriate transition for height, setback, and massing along edges with which they share with others forms of development.

Key Design features that respond to the Sector Development Guidelines include the following:

- General alignment of the Saskatchewan Drive Residence's 90th Avenue courtyard entrance with the proposed mid-block pedestrian corridor through East Campus Village.
- Provides a new urban plaza space at the corner of Saskatchewan Drive and 111th Street which supports identified activity nodes and campus gateway entrances.
- Provides at-grade entrances with associated grade separated terraces off of 111th Street and 90th Avenue for any main floor residence suites.
- Continues to provide a stepback to the overall building massing along 90th Avenue and the Adair Park facades with the maximum height of 5 storeys on the western 1/3 of the site as defined in the Infill Design Guidelines.
- Supports the University's goal of accommodating 25% of the University's full-time enrolment on campus in purpose built student housing.
- Contributes to the overall goal of providing housing for 1500 students within the East Campus Village.

3.0 Building Code Analysis

Project Background

The Leadership Residence is a student dormitory for 143 students in addition to three potential guest suites and one professor in residence. The building houses dormitory rooms as well as common gathering spaces, a dining hall and a gathering space on the upper level.

- Building Height: 5 storeys + basement
- Building Area: 2,135 square meters.
- Facing three streets
- Non-combustible Construction
- Fully-Sprinklered.

Applicable Building Code

The applicable code document is the Alberta Building Code 2006.

Major Use and Occupancy

- Group A, Division 2 – Assembly Occupancy (Recreation Centre and Library)
- Group C – Residential Occupancy

Occupant Load Calculations

Refer to excel spreadsheet

Classification and Construction Requirements

The major occupancies within the building are A-2 and C. The construction requirements for Group A Division 2 are the same as that for Group C (Per 3.2.2.24); given this the building has been classified per Group C article 3.2.2.43.

The building is classified per Article 3.2.2.43, Group C, up to 6 Storeys, Sprinklered.

3.2.2.43. Group C, up to 6 Storeys, Sprinklered

- The building shall not be greater than 7,200 sq.m. if 5 storeys in building height.
- The building shall be constructed of Non-combustible construction, and
  - Floor assemblies shall be fire separations with a fire-resistance rating not less than 1 hour,
  - Mezzanines shall have a fire-resistance rating not less than 1 hour,
  - Loadbearing walls, columns and arches shall have a fire resistance rating not less than 1 hour.

3.2.2.16. Heavy Timber Roof Permitted

In a building up to 2 storeys in building height the roof assembly is permitted to be of heavy timber construction, provided the building is sprinklered throughout. Structural members in the storey immediately below the roof assembly are permitted to be of heavy timber construction. Variance to be provided for glulam support in dining hall – this portion of the building is one storey in building height while the remainder of the building is five stories.

Limiting Distance Calculations & Minimum Construction Requirements for Exposing Building Faces

Per Tables 3.2.3.1.C. and 3.2.3.7.

West Face – 11 meters to centre of 111th Street

- Building Face Greater than 150 square meters
- 100% unprotected opening s permitted.
- No fire-resistance rating required.
- Wall can be constructed of combustible or non-combustible construction with combustible or non-combustible cladding.

North Face – 11 meters to centre of Saskatchewan Drive

- Building Face Greater than 150 square meters
- 100% unprotected opening s permitted.
- No fire-resistance rating required.
- Wall can be constructed of combustible or non-combustible construction with combustible or non-combustible cladding.

East Face – 3 meters to property line of park. As no building will be built on park over 10m.

- Building Face 68 square meters.
- 100% unprotected opening s permitted.
- No fire-resistance rating required.
- Wall can be constructed of combustible or non-combustible construction with combustible or non-combustible cladding.

South Face – 10 meters to centre of 90th Avenue.

- Building Face Greater than 150 square meters
- 100% unprotected opening s permitted.
- No fire-resistance rating required.
- Wall can be constructed of combustible or non-combustible construction with combustible or non-combustible cladding.

Fire Separations and Fire Resistance Ratings

- Residential suites shall be separated from each other and the remainder of the building by a fire separation with a 1 hour fire resistance rating as per article 3.3.4.2.(1). Closures shall be rated 20 minutes per table 3.1.8.10.(1)
- Separation of Major Occupancies: A-2 to C occupancies shall be separated by a fire separation with a 1 hour fire resistance rating per table 3.1.3.1. Closures shall be rated 45 minutes per table 3.1.8.4.
- Public Corridor – as per article 3.3.1.4.(2) public corridors are required to be separated by a fire separation with a fire resistance rating of 45 minutes.
- Exits – as per article 3.4.4.1. exits are required to be separated by a fire separation with a fire resistance rating of 1 hours. Closures shall be rated 45 minutes as per table 3.1.8.4.
  *The north east exit stair is designed to be open to the main floor during regular operations. In the event of a fire a fire shutter will close providing a one hour fire separation between the main public space and the exit stair.
- Elevator Hoistway: - as per Table 3.5.3.1. elevator hoistways are to be separated by a fire separation with a fire resistance rating of 1 hour.
- Vertical Service Spaces – as per article 3.6.3.1. and table 3.6.3.1. vertical services spaces are required to be separated by a fire separation with a fire resistance rating of 45 minutes.
- Janitor rooms – as per article 3.3.1.21.(3) janitor rooms are required to be separated by a fire separation with no fire resistance rating.
- Common Laundry Rooms – as per article 3.3.1.22.(3) common laundry rooms are required to be separated by a fire separation with no fire resistance rating.
- Storage rooms – as per article 3.3.1.26. and 3.3.4.2. storage rooms are required to be separated by a fire separation with a 1 hour fire resistance rating. Closures shall be rated 45 minutes as per table 3.1.8.4.
- Service Rooms – as per articles 3.6.2.1.(1) & (6) service rooms and fuel fired equipment services rooms are required to be separated by a fire separation with a fire resistance rating of 1 hour. Closures shall be rated 45 minutes as per table 3.1.8.4.

- Refuse Storage – as per article 3.6.2.5. the garbage room is required to be separated by a fire separation with a fire resistance rating of 1 hour. Closures shall be rated 45 minutes as per table 3.1.8.4.
- Emergency Generator – as per article 3.2.6.8. a room containing an emergency generator is required to be separated by a fire separation with a fire resistance rating of 2 hours. Closures shall be rated 90 minutes as per table 3.1.8.4.

Cooking Equipment – As per article 3.3.1.2.(2) cooking equipment producing grease laden vapours shall be designed and installed in conformance with Part 6 of the Alberta Building Code 2006.

Exiting and Means of Egress

Means of Egress:

- As per article 3.3.1.5 – 2 means of egress are required where:
  - Occupant load is over 60 people
  - When the area of the room exceeds 200m², or
  - Where travel distance to an egress door exceeds 25m.

Distance between Exits – as per article 3.4.2.3. the least distance between two exits shall be one half the maximum diagonal dimension of the floor area, but not less than 9 meters.

Location of Exits – as per article 3.4.2.5 (1)(c) exits shall be located so that the travel distance to one exit is not more than 45m from any point within the floor area.

Exit Width – as per article 3.4.3.2.(1)

- Required exit width for doorways, corridors and passageways @ 6.1mm per person
- Required exit with for stairs @ 8mm per person.
- As per article 3.4.3.2.(8) the width of an exit shall not be less than 1,100mm for corridors and 800mm for doorways.

Refer to attached excel spreadsheet for required and provided exit widths.

Washroom Calculations

Dining Hall & City Room Water Closet Calculations

- Water Closet Calculations per Table 7.2.2.6.B
  Occupant Load = Dining Hall (160) + Kitchen & Servery (29) + Conference Room (19) + Fifth Floor (240)
  = 448 people = 224 of each sex.

Required = 5 male; 7 female

Residential Common Space Water Closet Calculations

- Water Closet Calculations per Table 7.2.2.9
  Occupant Load = Entry (46) + Quiet Study (36) + Living Room (46) + Recreation Room (15) = 143 people = 72 of each sex.

Required = 4 male; 4 female

Water closets for dormitory rooms and adjacent social spaces are provided in student residence rooms. 6 water closets are provided for every 11 occupants.

Total Required Water Closets in Common areas = 9 male; 11 female.

Total Provided Water Closets in Common areas = 8 male; 10 female; 3 unisex.

Provisions for Fire Fighting

- Access route is required to the principal entrance & must be not less than 3m and not more than 15m from the closest portion of route to face of building, as per 3.2.5.5
- Access route must have clear width of 6m, centerline radius not less than 12m, overhead clearance of 5m, change of gradient not more than 1:12.5 over 15m, as per 3.2.5.6
- A fire hydrant is to be located to be not less than 45m from fire department connection, as per 3.2.5.16(1)
- The fire department connection shall be not less than 3m and not more than 15m from the principal entrance, as per 3.2.5.16(3)

Barrier Free Requirements

The building design shall meet the requirements of Section 3.8 – Barrier Free Design.

- Not less than 50% of the pedestrian entrances shall be designed for barrier free access as per article 3.8.1.2 as outlined in 3.8.3.3.
- Barrier-free paths of travel shall be designed per article 3.8.1.3.
  - Unobstructed width not less than 920mm,
  - Walking surfaces shall be firm and slip resistant with no opening greater than 13mm in diameter, and be provided with sloped floors or ramps at changes in level more than 13mm.
  - The width of a barrier free path of travel that is more than 30m long shall be increased to not less than 1500mm for a length of 1500mm at intervals not exceeding 30m.
- Building controls including switches, intercoms, thermostats, and elevator controls that are intended to be operated by occupants and are located within the barrier free path of travel shall be mounted between 400 and 1200mm above finished floor as per 3.8.1.5.
- A barrier-free path of travel is not required to service rooms, service spaces, janitor rooms or roof spaces per 3.8.2.1.(2).
- A barrier-free path of travel shall be provided from the entrance to the exterior parking area per 3.8.2.2.(1)
- The parking area shall contain 6 designated parking stalls for use by persons with physical disabilities per Table 3.8.2.2. 6 designated parking spaces are provided.
- All doorways in barrier-free path of travel shall have clear width not less than 800mm, as per 3.8.3.3
- All washrooms in a barrier-free path of travel shall be barrier free, as per 3.8.2.3, 3.8.3.8 to 3.8.3.12
- Applicable to passenger-elevating devices, as per 3.8.3.5
- At least one shower stall in each group of showers shall be barrier free (not less than 1500mm wide & 900mm deep), as per 3.8.3.13
- Public counters shall have at least one barrier-free section not less than 760mm long, not more than 865mm above the floor, as per 3.8.3.14
- At least one barrier-free drinking fountain, as per 3.8.3.16

Flame Spread Ratings of Interior Finishes

As per article 3.1.5.10

- Combustible interior wall finishes can't be more than 25mm thick and have a flame spread rating not more than 150 on any exposed surface
- Combustible interior ceiling finishes can't be more than 25mm thick and have a flame spread rating not more than 25 on any exposed surface
- Fire retardant treated wood in not more than 10% of the ceiling area is permitted to have a flame spread rating not more than 150

As per article 3.3.1.27.

- Drapes, curtains and other decorative materials, including textiles and films, used in a building shall meet the requirements of the Alberta Fire Code 2006.

Fire Stopping

As per article 3.1.9.1 – Electrical and mechanical service penetrations through fire separations shall be sealed by a fire separation system that has an F rating when tested with CAN/ULC-A115 "Fire Tests of Firestop Systems"

4.0 Program Analysis

4.1 Program Status

The following program summary outlines the current status of the space requirements for the Saskatchewan Drive Residence. The current space program is in alignment with the preliminary program requirements provided during the RFP process and builds off of the design progress during the Schematic Design phase.

The overall net programmed area and total gross area has decreased as compared to the Schematic Design space program. This is primarily due to a reorganization of residence suites into 13 cohort groupings of 11 students. This allowed for an overall reduction to the building footprint while maintaining the original design intent.

Several program elements were refined during a value analysis workshop held with the Project Steering Committee. The following is a summary of key program refinements:

- provide 13 cohort groupings of 11 students. Each cohort grouping will contain 5 two-bedroom suites and 1 one-bedroom suite;
- the Dining Hall area was changed to accommodate seating for 160 people;
- reduce food service and waste management space to align with the revised Dining Hall capacity and food delivery model;
- reduce the Residence Service office requirements to accommodate 1 Residence Service office and 1 Students' Association office;
- reduce the Administrative Office area to accommodate a reception area, 2 open offices and a dedicated copy room;
- combine the Residence Service and Administrative Offices into a single area;
- reduce the number of Guest Suites to 1 barrier-free one-bedroom suite and 2 studio suites;
- remove the servery from the fifth floor City Room;
- relocate the City Room storage to the basement;
- reduce the capacity of the City Room to accommodate an 80 person lecture; and,
- reduce the outdoor terrace area on the fifth floor.

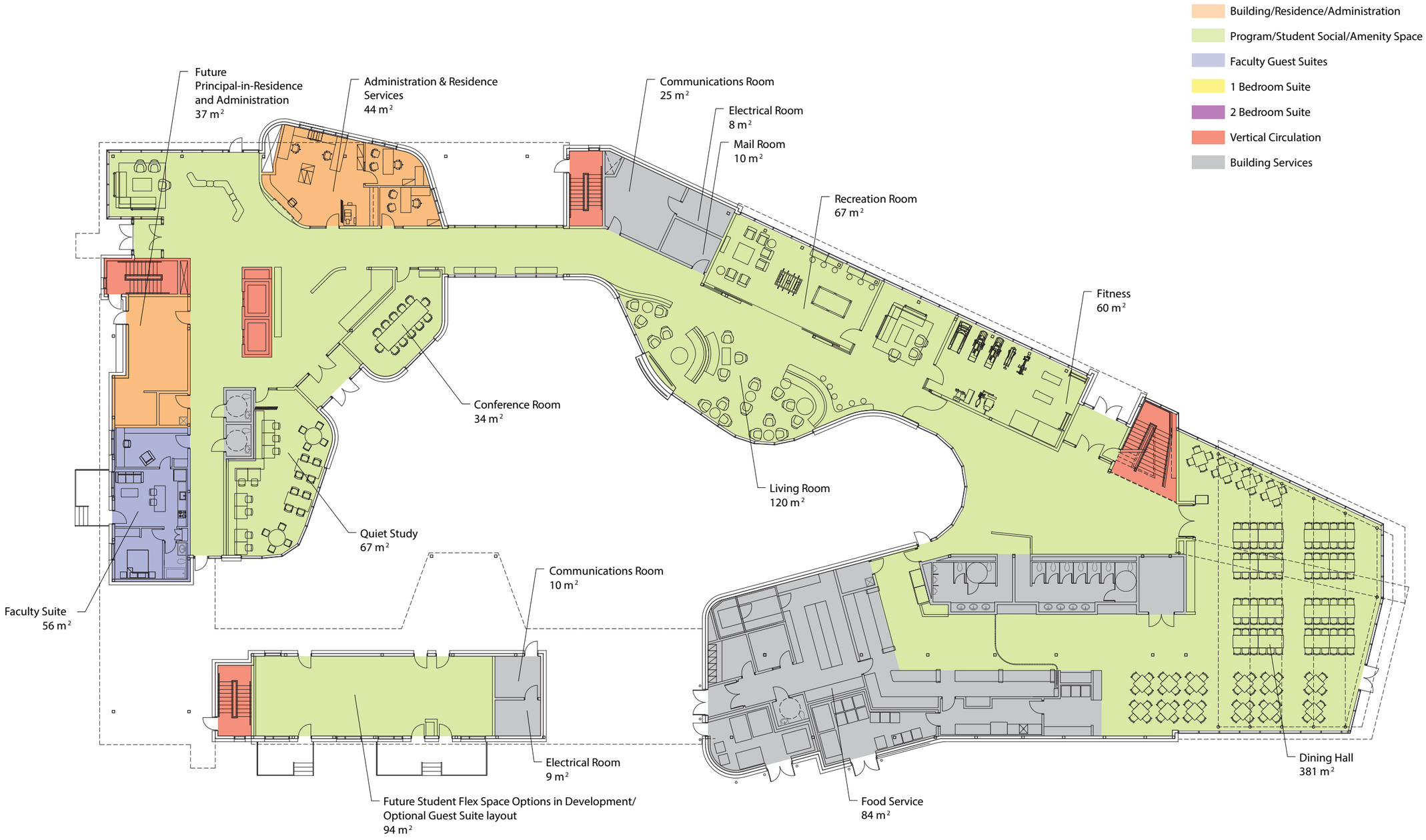
4.2 Program Accomodation

The general allocation of program elements has remained consistent with the Schematic Design. The main floor remains primarily an amenity level combining administrative functions with student focused social and dining spaces. The upper residence floors have been reorganized into 13 cohort groupings of 11 students which resulted in an additional cohort grouping needing to be accommodated on the fourth floor along the 111th Street façade. The fifth floor remains dedicated programmatically to the City Room and its associated outdoor terrace space.

Recycling, waste handling and loading areas are located near the mid-block courtyard entrance along 90th Avenue. They are located in close proximity to the food preparation and storage areas for the Dining Hall. It is anticipated that major bulk food loading and storage will occur at Lister Hall with frequent small deliveries to the Saskatchewan Drive Residence. This has helped reduce the size and scale of the loading and garbage areas to align with the residential scale of the East Campus Village.

The following drawings illustrate the general distribution of program elements through the building.

		Design Development Space Program							Schematic Design		Preliminary Program per RFP	
	Room Type	Net Area		# of Rooms	Capacity		Total Net Area		Total Net Areas		Total Net Areas	
		m2	ft2		Per Room	Total	m2	ft2	m2	ft2	m2	ft2
Residence	Bedroom - Single	18	193	10	1	10	179	1,927	365	3,927	535	5,760
	Bedroom - Barrier Free	24	253	3	1	3	71	759	72	774	-	-
	Bedroom - Double	32	343	65	2	130	2,071	22,291	1,990	21,420	2,202	23,700
	Subtotal			78		143	2,320	24,977	2,427	26,121	2,737	29,460
	Guest Suite - 1 Bedroom (barrier-free)	46	495	1	2	2	46	495	118	1,275	186	2,000
	Guest Suites - Studio	24	258	2	1	2	48	517	123	1,320	-	-
	Faculty Suite - 1 Bedroom	56	603	1	1	1	56	603	74	793	70	750
	Subtotal			4		5	150	1,615	315	3,388	255	2,750
Program/Student Social/Amenity Space	Social Spaces	39	417	13	12	156	503	5,415	408	4,392	446	4,800
	City Room (Gathering Hall)	106	1,139	1	127	127	106	1,139	95	1,019	93	1,000
	Conference Room	34	367	1	14	14	34	367	33	350	33	350
	Fitness Room	60	640	1	17	17	60	640	74	800	74	800
	Recreation Room	67	716	1	36	36	67	716	67	725	67	725
	Quiet Study	67	724	1	25	25	67	724	60	650	60	650
	Living Room	120	1,286	1	40	40	120	1,286	124	1,338	74	800
	Pre-Function Space	194	2,088	1			194	2,088	135	1,457	-	-
	Entry Lobby	199	2,142	1	20	20	199	2,142	206	2,220	35	375
	Residence Corridor Seating	493	5,307	1			493	5,307	501	5,395	-	-
	Residence Study Room	54	581	2			108	1,163	-	-	-	-
	Subtotal						1,950	20,987	1,704	18,346	883	9,500
Admin	Resident Services	44	474	1	3	3	44	474	93	1,000	93	1,000
	Residence Life / Student Association	23	244	2	1	2	45	489	52	560	52	560
	Subtotal						89	962	145	1,560	145	1,560
Food Service	Kitchen (Services/Storage)	246	2,648	1			246	2,648	184	1,984	84	900
	Dining Hall	335	3,606	1		160 seats	335	3,606	310	3,334	353	3,800
	Provisions on Demand (POD)	16	172	1			16	172	8	87	46	500
	City Room Servery	-	-	-	-	-	-	-	17	178	-	-
	Subtotal						597	6,426	519	5,583	483	5,200
Facilities	Stairs	12	133	16			198	2,136	185	1,995	84	900
	Feature Stair	22	237	4			88	947	-	-	-	-
	Elevator	13	140	12			156	1,679	297	3,200	19	200
	Mail	10	105	1			10	105	11	123	14	150
	Washrooms - Main Floor Public Men's	19	208	1			19	208	52	564	56	600
	Washrooms - Main Floor Public Women's	29	308	1			29	308	51	546	56	600
	Washrooms - Main Floor Universal	4	45	2			8	90	-	-	-	-
	Washrooms - City Room Men's	13	144	1			13	144	-	-	-	-
	Washrooms - City Room Women's	16	175	1			16	175	-	-	-	-
	Subtotal						538	5,793	597	6,428	228	2,450
Building Services	Mechanical	169	1,823	1			169	1,823	63	683	35	375
	Electrical	76	818	1			76	818	125	1,350	67	720
	Data/Telecom	115	1,238	1			115	1,238	72	775	67	720
	Laundry	27	285	1			27	285	24	260	56	600
	Bicycle Storage	37	399	1			37	399	56	605	-	-
	Building Storage (Basement)	75	807	1			75	807	55	593	98	1,050
	City Room Storage (Basement)	22	238	1			22	238	-	-	-	-
	Storage (Dinning Hall)	13	140	1			13	140	28	300	28	300
	Elevator Room	4	41	1			4	41	-	-	-	-
	Janitorial Room (Basement)	8	86	1			8	86	-	-	-	-
	Janitorial Closet (Main Floor)	5	52	2			10	103	-	-	-	-
	Building Waste/Recycling	26	277	1			26	277	21	225	28	300
	Subtotal						585	6,294	445	4,791	378	4,065
							m2	**ft2**	**m2**	**ft2**	**m2**	**ft2**
						TOTAL NET PROGRAMMABLE AREA	**6,230**	**67,054**	**6,152**	**66,217**	**5,108**	**54,985**
						TOTAL GROSS BUILDING AREA	**7,925**	**85,304**	**8,166**	**87,900**	**6,130**	**65,982**

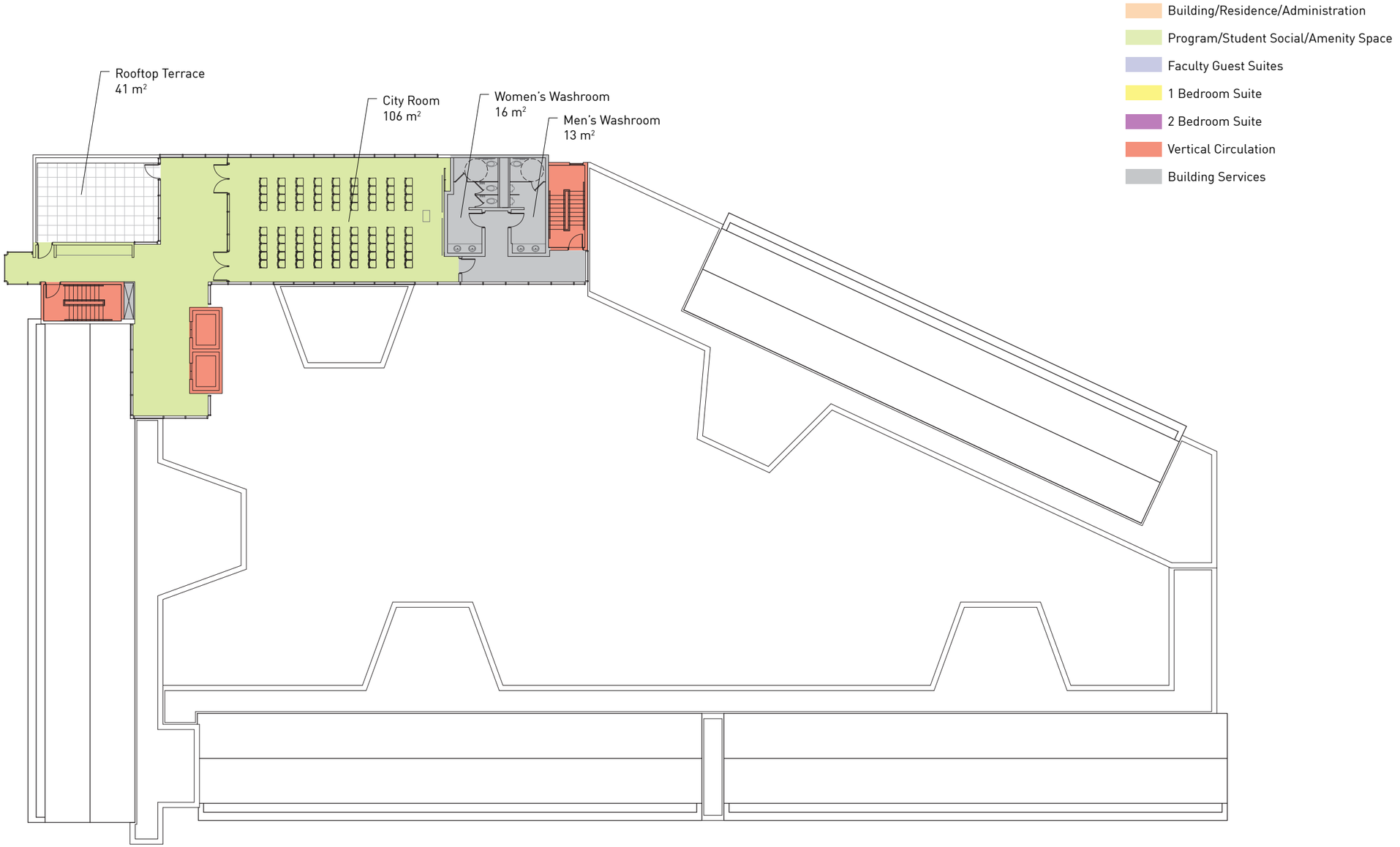


Main Floor Plan

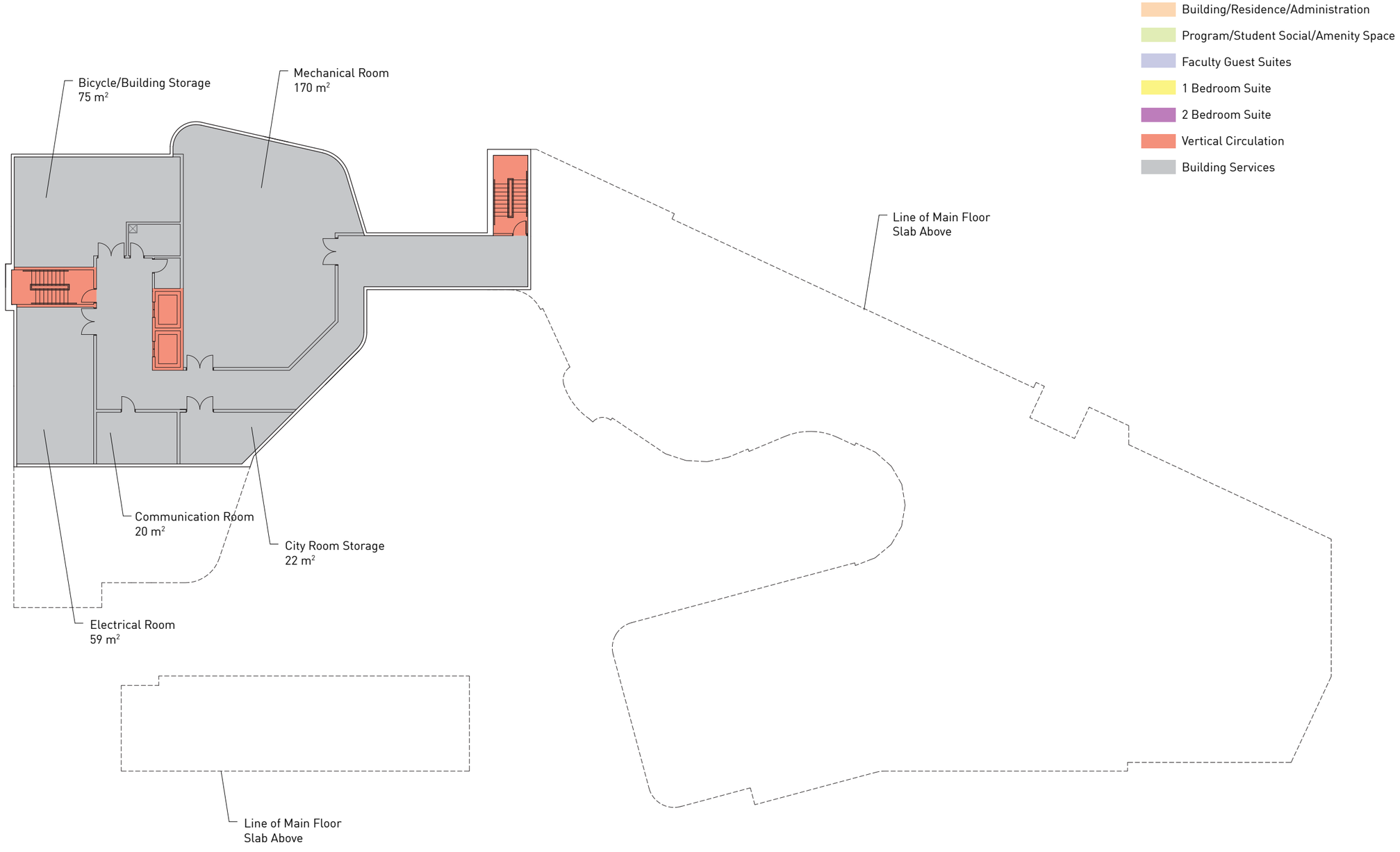
Second Floor Plan

Third Floor Plan

Fourth Floor Plan



Fifth Floor Plan



Basement Plan

5.0 Site Design

The site design for the Saskatchewan Drive Residence remains consistent with the Schematic Design. The focus during the Design Development phase has been to refine the site grading, streetscapes and building entrance designs.

5.1 Site Analysis

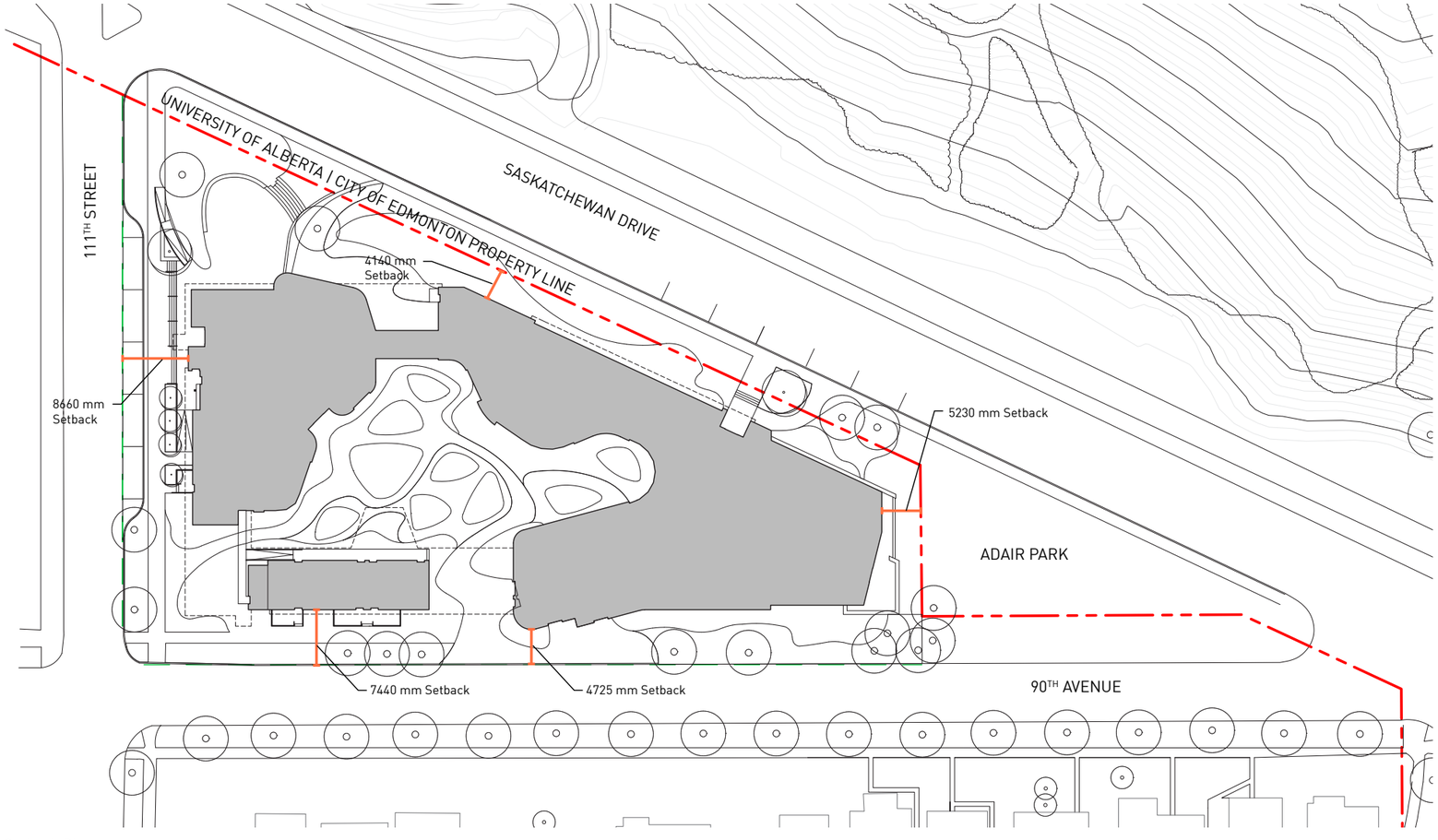
Building Setbacks
The reorganization of the cohort grouping to 13 groupings of 11 students reduced the overall footprint of the Saskatchewan Drive Residence and also reduced the overall size of the exterior courtyard. The reduction in the overall building footprint has allowed the building to be set further back from Adair Park and Saskatchewan Drive. This has allowed for an improved relationship between the Dining Hall and the Park, and provides the opportunity to develop an outdoor seating area with views of the Park. The increased setback from Saskatchewan Drive provides relief from the building and the proposed Saskatchewan Drive promenade as well as the ability to provide additional landscaping along Saskatchewan Drive without encroaching on City of Edmonton property. The relationship and setbacks along 111th Street and 90th Avenue remain consistent with the Schematic Design. The slight reduction in the exterior courtyard was offset by the reduced program area on the main floor. This has allowed the courtyard to continue to provide a variety of program opportunities and maintain its flexibility as a student gathering space and East Campus Village amenity.

111th Street Streetscape
The main entrance to the Saskatchewan Drive Residence remains on 111th Street. Working with the existing grading in relation to the proposed main floor slab elevation has meant an approximate 500mm grade separation is required between the sidewalk on 111th and the entry to the Residence. A set of stairs and a barrier-free ramp have been incorporated into the front entry. The entry stairs extend north to provide access to the urban plaza space on the corner of 111th Street and Saskatchewan Drive.

Saskatchewan Drive Streetscape
The proposed improvements to the City of Edmonton sidewalk along Saskatchewan drive have been removed from the site design and the project now integrates with the existing conditions. Similar to the main entry condition, the existing grades around the Saskatchewan Drive entry necessitate the inclusion of a set of stairs and barrier-free ramp. This will provide accessible access to the Dining Hall from the drop-off along Saskatchewan Drive. The stairs to the urban plaza have been setback from Saskatchewan Drive to reside completely on University property. Barrier-free access to the plaza is off of 111th Street.

90th Avenue Streetscape
The location and size of the 90th Avenue courtyard entrance has been expanded and refined to better align with the proposed mid-block pedestrian pathway through East Campus Village. The courtyard entrance structure has been refined to allow the removal of all structural support columns. This has significantly opened pedestrian access to the courtyard and provided a welcoming entrance to the rest of East Campus Village. The location of the exterior fireplace has also be refined to be on axis with the entrance bringing seasonal activities in the courtyard into view along 90th Avenue. A hard surface plaza space has been incorporated into the entrance to create a formal entry forecourt and also provide paving for food service loading, waste and recycling areas which are adjacent the entry. Efforts have been made to improve the relationship of the waste and recycling entries such that they angle away from the courtyard entrance and reduce their impact on pedestrian movements.

The new sidewalk along 90th Avenue has been reduced and now ends mid-block at the intersection of the proposed mid-block pedestrian pathway and the courtyard entrance. This allows for the preservation of several mature trees that are adjacent Adair Park, and also maintains existing relationships with the City owned park.



Setback Plan

5.2 Landscape Design

Approach, Constraints & Opportunities

Located at 111th Street and 90th Avenue, the Residence sits at the top of the Riverbank, and is a gateway into the campus and a symbol of leadership & sustainability. The landscape vision for the Saskatchewan Drive Residence will see the riverbank ecology wrap up from the banks of the river around and through the building, encompassing the entire site.The architecture and landscape will intimately connect and immerse the students, faculty and visitors in the beauty, seasonality, colour and texture of the landscape thus benefiting inhabitants of the residence through biohillic design.

The landscape design will be a stylized reinterpretation of the North Saskatchewan River's morphology, mimicking its bends and undulations. It will be a functional resource and a learning ground. Carved out depressions in the ground plane will form bioswales and rain gardens to capture and store stormwater. The stormwater can percolate slowly into the ground or to be reused for irrigation. In addition, mounded berms will offer visual interest and create intimate spaces and casual seating. An emphasis will be placed on plants and trees native to the North Saskatchewan River Valley ecology. The glazing of the architecture will mirror the surrounding river bank forest and the sky, marking the passing of time and season. The idea of the sinuous 'river' pathway within the courtyard area is a gesture of unifying the area with the existing riverbank recreation trail to the north and with the adjacent city sidewalks. The dynamic pathways will be composed of a coloured concrete paving bordered by natural plantings.

A central courtyard will be designed to function as an extension of interior academic space, offering spaces for contemplation, group discussions and study as well as Residence events. The courtyard can be viewed and accessed from the shared faculty rooms on the main floor, and will celebrate the seasons, providing a functional and aesthetically beautiful space 12 months of the year. The courtyard has been designed to provide microclimate amelioration, through the use of berms, trees and building orientation. Elements such as an outdoor fireplace will stretch the seasonal use of the courtyard into the shoulder seasons. A central water feature surrounding a sculptural piece will be animated by cooling mist spray in summer and form an evolving ice sculpture in winter. Dramatic LED lighting in the evenings will lend stunning visual effect to the courtyard space. A lacy canopy of trees will cast dappled shadows on a palette of natural materials including stone, wood and natural plantings. An exterior dining terrace will extend to the east of the building, surrounded by the adjacent Adair Park. The dining hall and terrace will capitalize on views to the park space, and the forested river edge beyond. Throughout the Residence, a seamless indoor-outdoor flow will be established, reinforcing connections with the natural world.

An urban pedestrian plaza at the north corner of 111th Avenue and Saskatchewan Drive will welcome people to the building and serve as a gateway to the north campus. A large organic planting bed will be framed by a custom curved bench and be used to define an upper courtyard. A curved retaining wall will mirror the stylized 'river' pathway which runs through the building and site. A uniform paving strategy will extend from the plaza to the streetscape allowing the space to be experienced as a unified ground plane. The existing street trees will be augmented with additional Ash and Elm street trees to reinforce the treed allees seen throughout the Garneau and East Campus Village. These tree lined allees form a significant part of the University's cultural landscape, and speak to the history, identity and character of the campus. A south corner plaza at 111th Avenue and 90th Avenue will flow seamlessly into the courtyard, connecting the Residence building with the broader campus network.

Accessibility & Safety

The landscape design will be barrier free—designed to accommodate people of all ages and ability. The design considers the principles of CPTED (Crime Prevention Through Environmental Design), including lighting strategy and placement, planting design and height, walkways and view corridors, and consideration of windows to the landscape from the surrounding building ('eyes on the street').

Additional design features sympathetic to safety and accessibility include the following:

- change of materiality (metal edging around planting areas) to indicate a change in surfaces, and
- joints between paving materials will be flush.

Site Furnishings

A unified palette of durable site furnishings will be used throughout the residence utilizing materials including wood and steel. Proposed furnishings include: built-in seatwall, a loose arrangement of 'lounge' chairs (around the exterior fire place) and waste receptacles.

Lighting Design

Lighting will be used throughout the site to provide a welcoming and safe environment, as well as a source of visual interest and art. Colour changing LED lighting will be used to highlight the sculpture in the centre of the water feature in the central courtyard. Elsewhere, a unified lighting strategy comprised of bollards and recessed in-ground lighting, following an indirect low-lighting scheme, will be used to light pathways and planting with a subtle glow without producing glare.

Plant Selection

The Studio has developed a planting design that supports a connection to the Riverbank ecology and that will also provide seasonal interest and texture. Our approach to planting design involves using large masses of perennials, shrubs, grasses and trees that will add volume, scale and presence to the design with consideration to required maintenance. We have reviewed the University of Alberta's suggested plant list regarding indigenous species, and have added additional species and varieties that we feel will complement this list and the Zone 3b climate.

Our proposed planting list has been selected for naturalized appearance to mimic natural planting at the river's edge. Both native and non-native species are included in this list. The list includes seasonal interest (evergreens, variable bloom times, variety of fall colours, berries etc.) This list can be reduced as required when planting is finalized through the Construction Document phase.

Deciduous Trees

- Acer – Manitoba Maple (Acer negundo), Norway Maple (Acer platanoides)
- Betula papyrifera – White Birch
- Ulmus americana – American Elm
- Crataegus coccinea – Hawthorn
- Malus 'Pink Spires' – Crabapple

Coniferous Trees

- Picea glauca – White Spruce
- Larix occidentalis – Western Larch (wet locations)
- Pinus banksiana – Jack Pine
- Thuja occidentalis 'Brandon' – Brandon Cedar (wet locations)

Deciduous Shrubs

- Aesculus parviflora – Bottlebrush Buckeye
- Amelanchier – Serviceberry (wet locations)
- Clethra alnifolia 'Hummingbird' – Clethra
- Cornus sericea – Red Twig Dogwood (wet and shady locations)
- Forsythia ovate 'Northern Gold – Forsythia
- Hypericum prolificum – Shrubby St. Johns Wort
- Pruns virginaiana 'Canada Red' – Chokecherry (shady locations)
- Rosa 'Morden Blush' – Morden Blush Rose (or other Morden varieties)
- Sambucus – Elderberry (wet locations)
- Salix repens – Creeping Willow (wet locations)
- Salix purpurea 'Nana' – Dwarf Arctic Willow (wet locations)
- Syringa - Lilac
- Viburnum dentatum – Arrow Wood Viburnum
- Viburnum lentago – Nannyberry (Shady locations)

Evergreen Shrubs

- Juniperus - Juniper
- Microbiata decussate – Siberian Carpet Cypress (shady locations)

Grasses

- Andropogon scoparius – Little Bluestem
- Calamagrostis acutiflora – Feather Reed Grass

Perennials

- Amsonia tabernaemontana – Willow Blue Star
- Aster
- Bergenia
- Geranium macrorrhizum – Big Root Geranium
- Hemerocalis – Daylily (light shady locations)
- Hosta (shady locations)
- Iris versicolor – Blue Flag Iris (wet locations)

Ferns

- Athyrium filix-mas – Lady Fern (shady locations)
- Dennstaedtia punctiloba - Hay Scented Fern (shady locations)

Sustainability

The design weaves elements of green and blue infrastructure through the entire design. Key sustainable strategies include:

- Stormwater collected and filtered in bioswales/rain gardens
- LED lighting strategy (in-direct low lighting strategy)
- Paving materials that have a high SRI value (lighter in colour to reflect rather than absorb sunlight, in order to mitigate the heat island effect)
- Planting & Tree Canopy:
  - A predominantly native planting strategy is used throughout the design.
  - Mounded berms allow for root growth, which in turn will help to establish a canopy of mature trees on the site.
  - The tree canopy will cast natural shade for the courtyard and landscape.

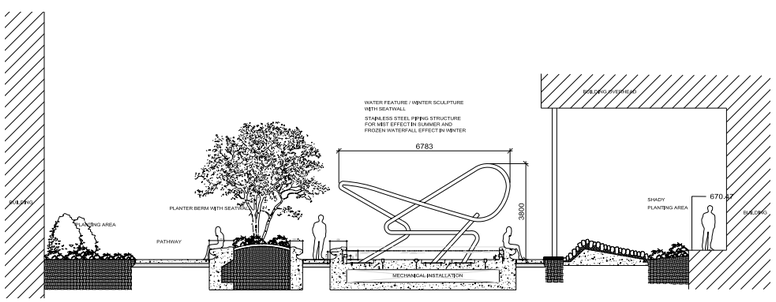
Proposed Landscape Maintenance Plan, Water Conservation Strategy and Irrigation

A detailed landscape maintenance plan will be provided as a guideline for the future maintenance of the caretakers or contractors. This includes setting the benchmark of the landscape maintenance quality to follow, which includes areas of site, maintenance schedule, pest control, irrigation and public safety etc.

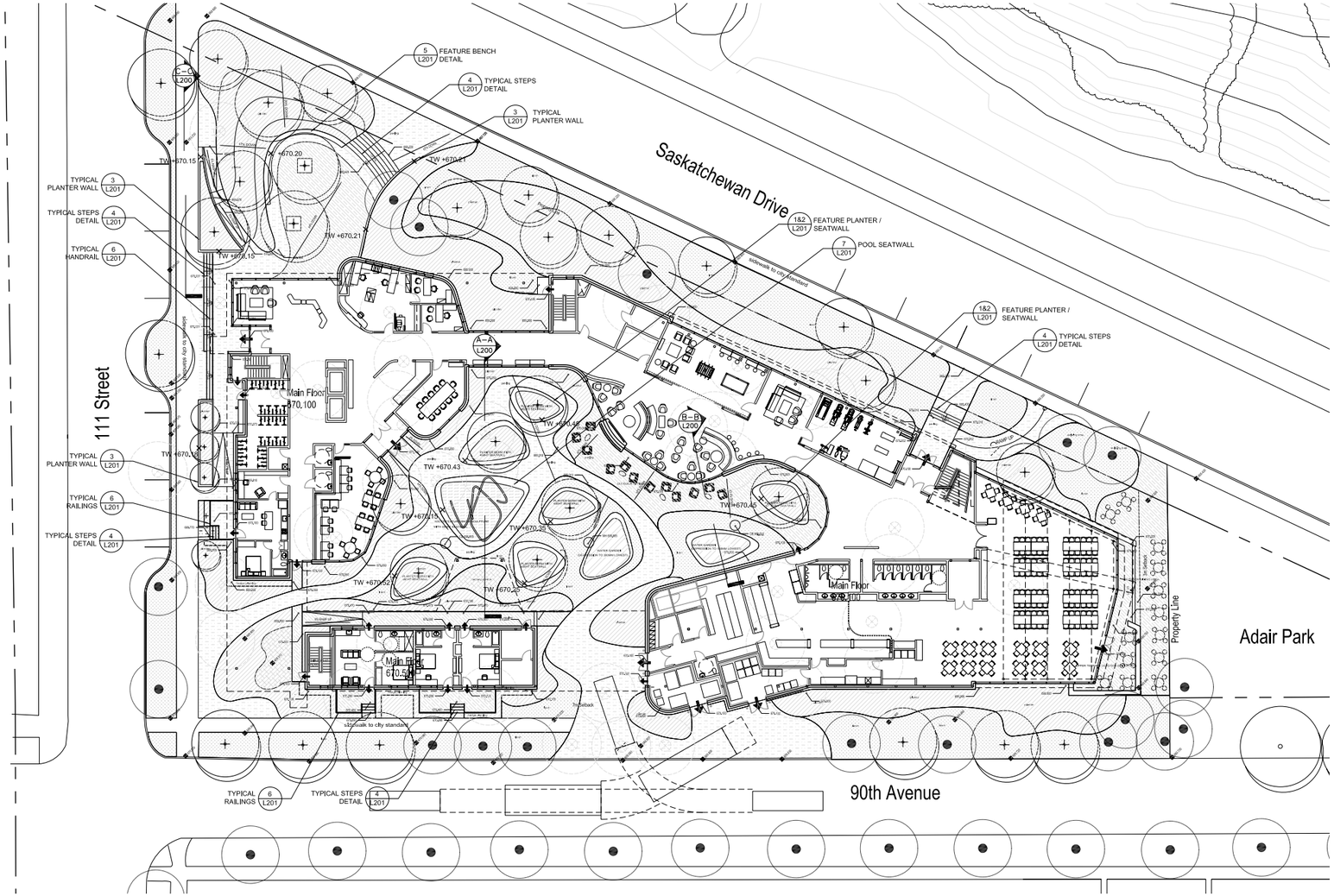
An automatic irrigation system will be used to efficiently control the amount of moisture in the planting beds and lawn. Local water gardens and cisterns can collect and store away the stormwater. With the use of central controller, rain sensor, filters, appropriate sprinklers and drip pipes as specified by the irrigation designer, the need for irrigation water can be reduced to a minimum while supplying all greens with sufficient water for healthy growth.

Site Construction

Using the dynamic river course as the landscape design theme, pathways and planting beds will be constructed in free forms and curvy lines. Cast in place concrete will be used for paving and seat wall construction to reduce cutting and odd sizes in the finishing materials. Various colours and texture will be used to provide contrast and patterns used in the design. Interesting sculptural profile of the seat-wall can be casted and produced with concrete. A basic light sandblast finish on the concrete will make sure all surfaces to be smooth and even.



Landscape Section



Landscape Plan

LEGEND

- PLANTING BED
- LAWN
- ROCKERY GARDEN
- WATER GARDEN
- CONCRETE PAVEMENT 1
- CONCRETE PAVEMENT 2
- POOL
- PROPOSED TREE WITHIN SITE = 34 NOS.
- EXISTING TREE TO REMAIN WITHIN SITE = 15 NOS.
- EXISTING TREE TO REMOVE WITHIN SITE = 42 NOS.
- × + 670.15 PROPOSED FINISH GRADE
- × TW +670.15 TOP OF WALL FINISH GRADE

Landscape Plan

Design for Winter

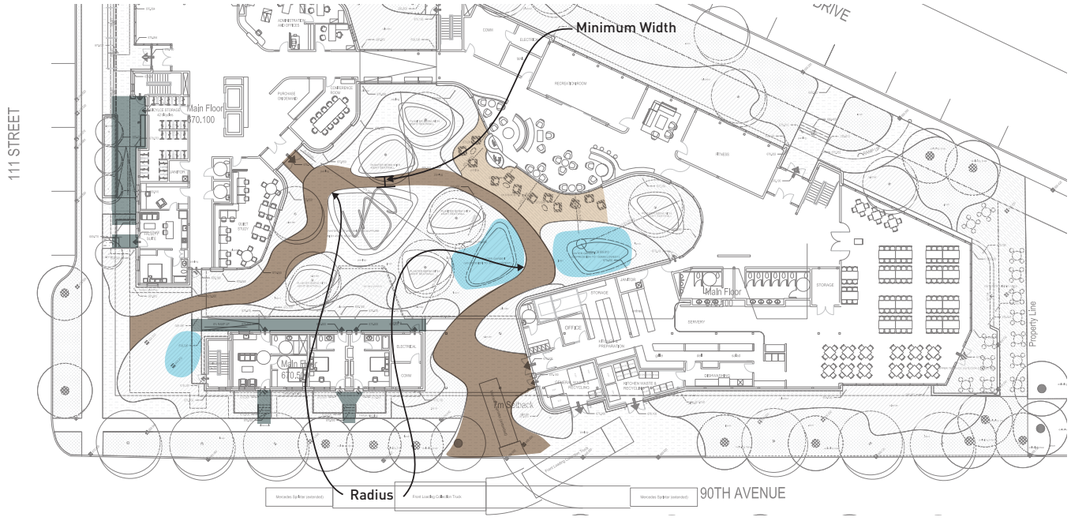
As part of its mandate to be a building that is both evocative of and responsive to its Alberta location, the Saskatchewan Drive Residence has been designed to embrace winter in ways that are formal, technical, and celebratory. The courtyard form created by the assemblage of lower scale building mass on the south (higher on the north) will create a sheltered microclimate that catches low angle winter sun, creating a pleasant outdoor environment in the shorter seasons as well as throughout the winter. The sculptural fountain is intended to be an attractive feature in winter as well as summer, and we are exploring technical solutions that will allow it to freeze into an ice sculpture. This feature will have a complement in the form of an outdoor fireplace, so winter may be celebrated by the presence of fire and ice in the courtyard. The south facing glass of the residence block corridors and gathering spaces will have linear sunshades of a spacing, angle, and depth that admit winter sun for passive solar gain, while shading the glass from high angle summer sun.

Due to the long hours of darkness in winter months, lighting and building materials have been carefully considered in the design. The courtyard will be lit with low level bollard mounted lights that emphasize pathways and plantings. These will be complemented by more dramatic up-lighting of the fountain sculptural feature, and of course, by the flames in the outdoor fireplace. Generous openings and glazed expanses on the ground floor will provide views of these features to passers-by as well as residents and guests. Physical ground floor openings will themselves be lit with up-lighting and recessed lighting that highlights the wood soffit material that will provide visual warmth to the building. These wood surfaces will be complemented by the wood panel lining of the residence unit window seats, which will themselves glow with warmth when lit from within and viewed from outside. Other areas of generous ground floor glazing will, when lit from within, reveal the warmth and life within the building. In particular, these areas include main entry and lobby, living room and above the dining hall with its wood roof structure clearly visible from Saskatchewan Drive, Adair Park, and 90th Avenue. Finally, the City Room will act as a lantern on top of the building when viewed from nearby or from a distance.

Plant material will be chosen to provide winter colour as well as formal interest through the use of both coniferous species and deciduous varieties that provide colour through their bark as well as variety and interest in their form and texture.

View of Courtyard

View of Courtyard



Snow Clearing Plan

Snow Stockpile
Plaza Cleared (Machine & Hand)
Pathway Cleared (Machine)
Pathway Cleared (Hand)

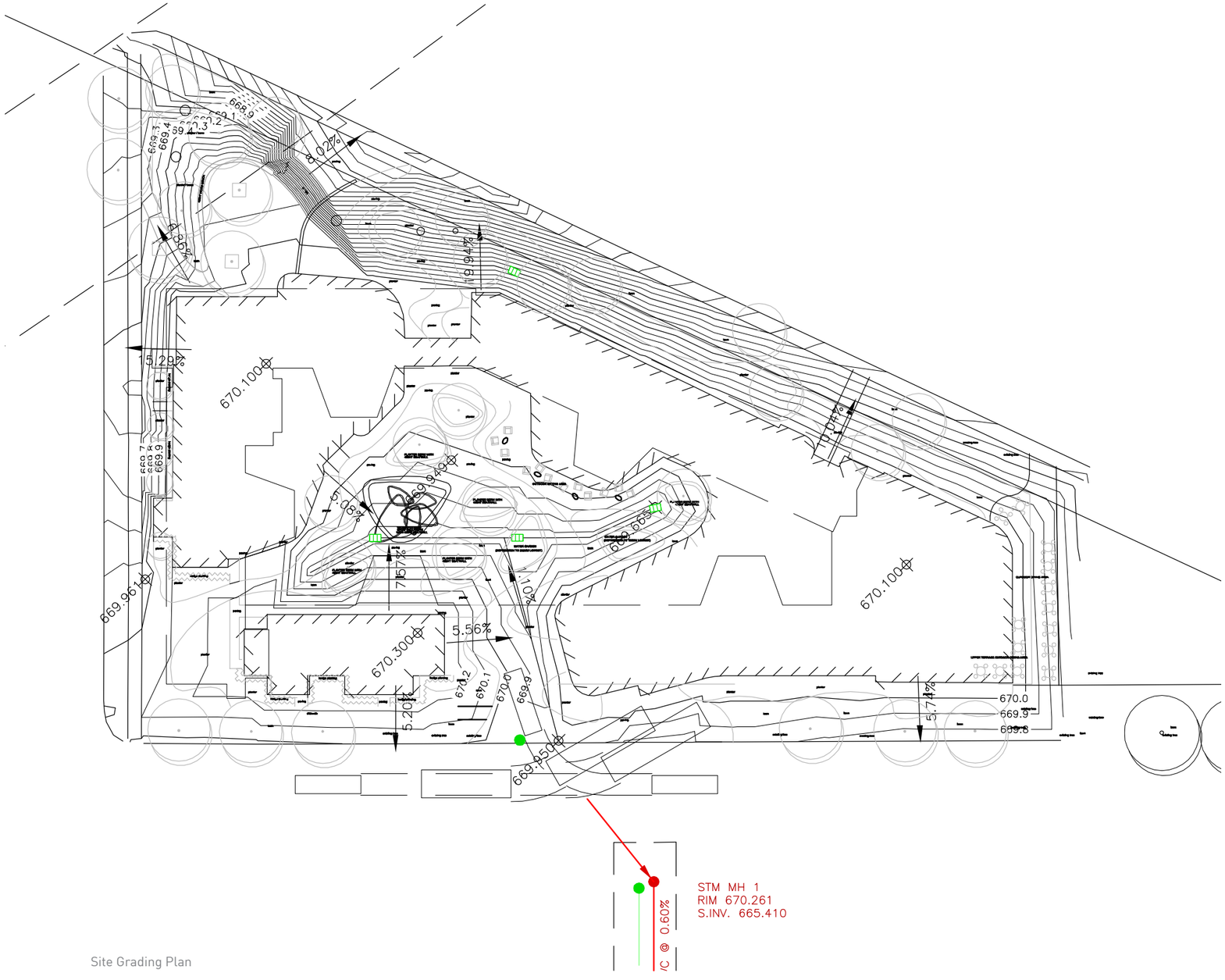
5.3 Civil Design

Site Grading & Stormwater Management

The site will be graded to direct all minor stormwater runoff to the south towards 90th Avenue. No minor storm flows are to be directed north onto Saskatchewan Drive or east into Adair Park, which are outside of the University land holdings.

The minor system within the site will consist of catch basins within the landscaped inner courtyard, as well as catch basins and a swale to capture any flows on the north side of the building. A storm sewer running throughout the site will tie into a proposed system (by others) located south of 90th Avenue. At this time, it is proposed to utilize a 450mm pipe graded at 0.4% to convey the flows to the system south of 90th Avenue.

The major system within the site will consist of a series of temporary storage locations (trap lows) to detain runoff in excess of the minor system intake capacity. Trap lows in landscaped areas (less than 0.3 m deep) will be included in order to retain the required volume of stormwater runoff on-site. Major flows from the majority of the site will be directed south to 90th Avenue. Major runoff from the landscaped areas north (Saskatchewan Drive), and west (111th Street) will be directed to the respective streets. The major flows north, east and west of the proposed buildings are not expected to be significant due to the small contributing area of the flow.



Site Grading Plan

6.0 Architectural Design

The massing and formal resolution of the Saskatchewan Drive Residence was refined during the Design Development phase. The refined massing and building design continues to address the East Campus Village Design Guidelines for Infill Development, the Sector 8 Plan and the overarching Guiding Principles and aspirational goals of this project.

6.1 Building Overview

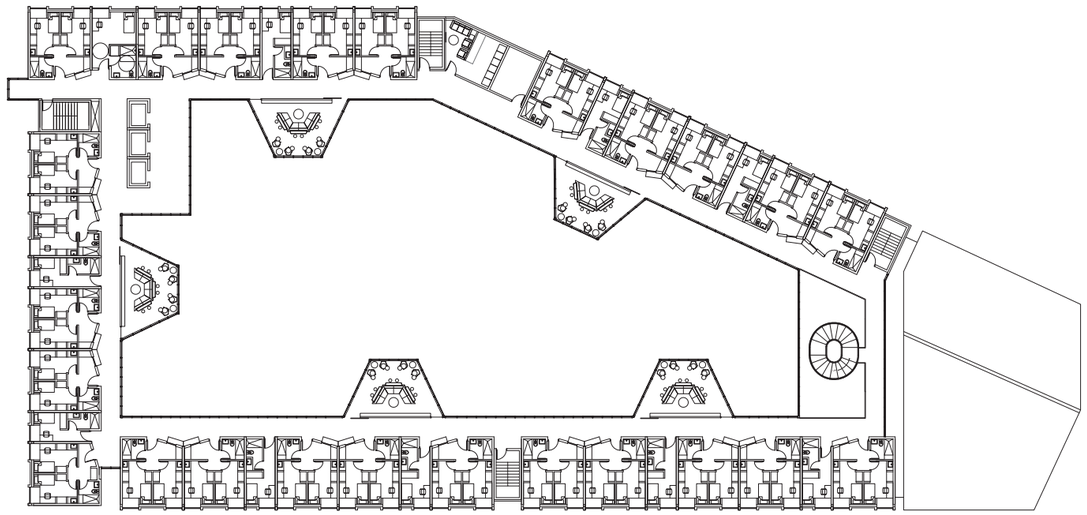
The overall building organization and layout of major program spaces remain primarily unchanged from the Schematic Design Report. The Saskatchewan Drive Residence continues to be organized around a central exterior courtyard which has been designed to create a sense of community for the students who live in the residence as well as a neighbourhood amenity for students within East Campus Village.

To help reduce overall building area and increase program efficiencies, the student cohort groupings were reorganized from 12 groupings of 12 students into 13 groupings of 11 students. This decision was made in consultation and full support of the entire Project Steering Committee. The additional cohort grouping has been added to the fourth floor along the 111th Street façade. This allows the 90th Avenue and Adair Park massing to remain at a lower scale and the 111th Street to match the massing along Saskatchewan Drive. The refined massing continues to align with the step back requirements outlined in the East Campus Village Design Guidelines for Infill Development as well as future residence plans along 111th Street.

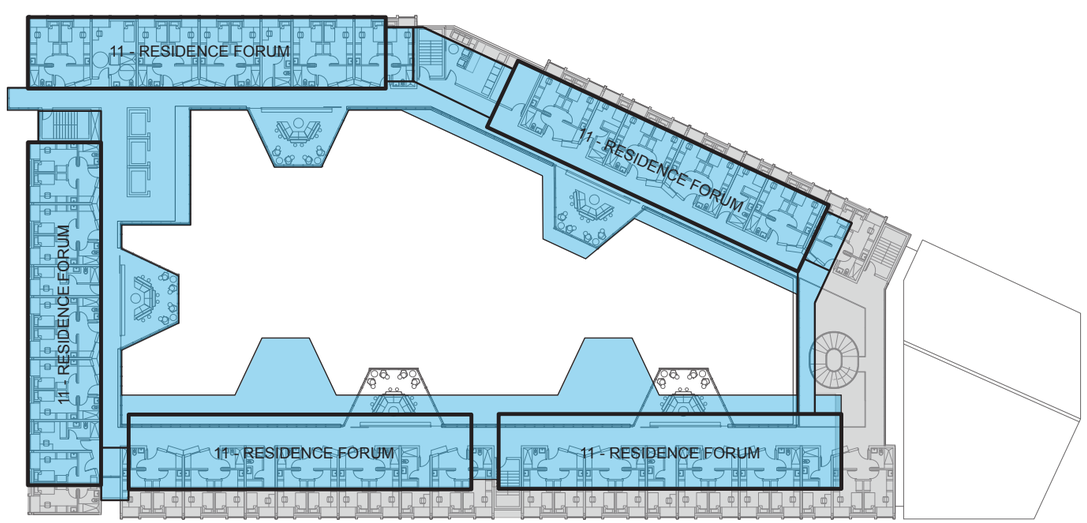
The original design concept of providing an articulated and organic main floor with organized and rigorous residential blocks above remains a cornerstone of the design and provided direction for the development of the interiors. The interior design concept was also informed by Marion Kirby Alexander's original inspiration for the University of Alberta's two official colours: green and gold. She drew her inspiration from the autumn colours of Edmonton's river valley, the green representing the prairie land flanked by deep spruce forests and the gold representing the golden harvest fields.

The interior concept design transitions as you move vertically through the building. The main floor, with its strong connections to the river valley and curved forms have a natural, organic and textured approach to materials. The residence floors' materials transition to a linear design which is colourful and ordered. Finally, the fifth floor City Room is intended to be a formal space, elegant and branded as a unique gathering space at the University of Alberta.

Similarly, the exterior concept design focuses on differentiating the main floor, residence floors and fifth floor City Room. Like the interior design concepts, the main floor is clad with natural and textured materials, that transition to more refined residential scaled cladding on the three residence floors and finally, the building is topped by the fully glazed City Room.

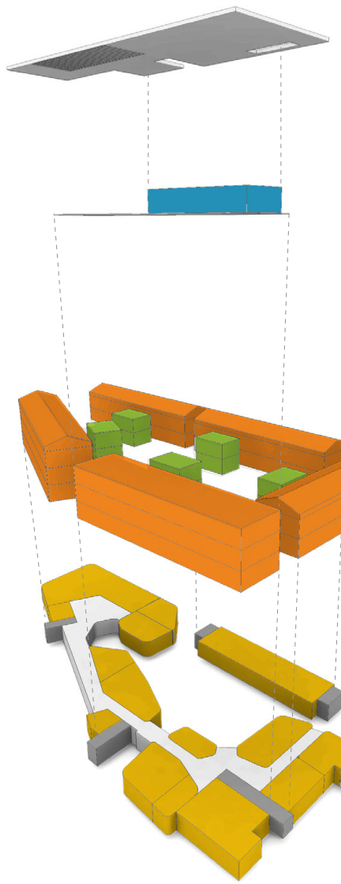


Typical Residence Floor – Schematic Design Layout with 12 Cohort Groupings of 12 Students



Typical Residence Floor – Revised Design Development Layout with 13 Cohort Groupings of 11 Students

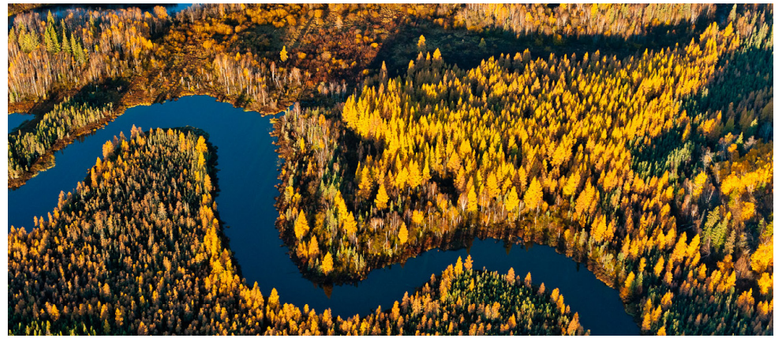
"Originally suggested by Marion Kirby Alexander, who drew her inspiration from the autumn colours of Edmonton's river valley, the green represents the wide stretches of prairie land flanked by deep spruce forests and is symbolic of hope and optimism. The gold represents the golden harvest fields and is symbolic of the light of knowledge."[1]



City Room →
- Formal
- Branded
- Elegant

Residence Floors →
- Linear
- Colourful
- Ordered

Main Floor →
- Natural
- Organic
- Textured



[1] Our Colours [Online] University of Alberta: http://www.toolkit.ualberta.ca/VisualIdentityGuidelines/OurColours.aspx

6.2 Main Floor

The main floor of the Saskatchewan Drive Residence remains dedicated primarily to student amenity spaces including; a Recreation Room, Living Room, Quiet Study, Fitness Area and Dining Hall. Additionally, the main floor contains administrative functions as well as Faculty and Guest Suites.

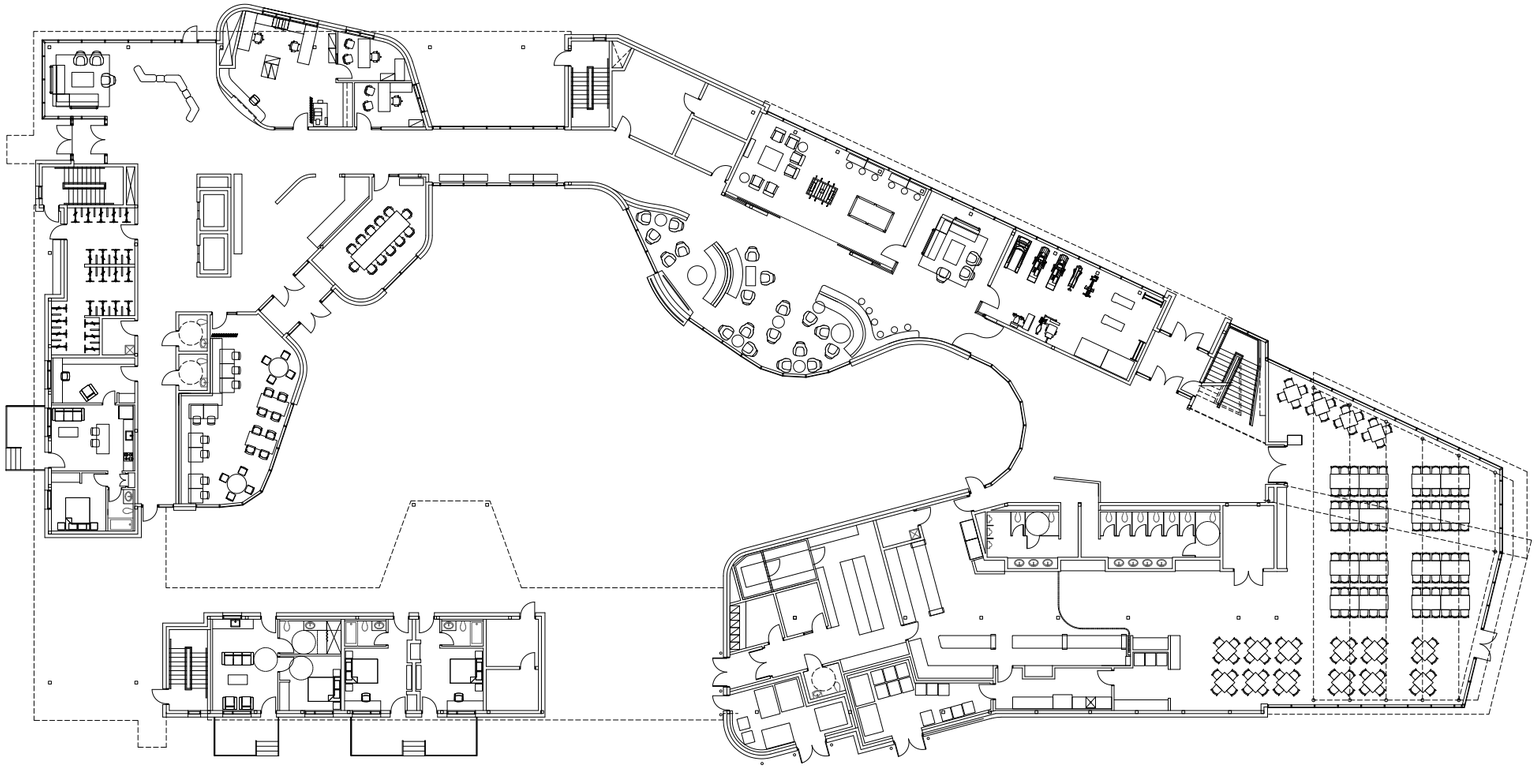
Several of the main floor program elements have been refined during the Design Development phase, these include:

- Relocation of the Fitness Room from adjacent to the main lobby to adjacent to the Recreation Room along Saskatchewan Drive. This provided better programmatic adjacencies by clustering active student focused activities.
- Relocation of the Quiet Study to the main lobby. This provided a better adjacency to administration spaces while providing a secluded space to study away from the lively student focused activities.
- A small gathering space was created between the Recreation Room and the Fitness Area. This small gathering space provides relief from the long corridor and expands the Living Room providing connections back to the river valley.
- Main floor public washrooms outside of the Dining Hall have been grouped together to provide better wayfinding as well as improved screening.
- A main floor feature stair that resided in the dining hall pre-function space has been combined with the exit stair in the northeast corner of the building. The previous feature stair location was unable to connect to all three residential floors and required students on the fourth floor to use the northeast exit stair to transition to the feature stair on the third floor. By upgrading the northeast exit stair we have now provided a continuous vertical connection to all residence floors, and by fully glazing the exterior of the stair, hope to encourage a stair culture within the residence as students move between their residence rooms and main floor amenity spaces.

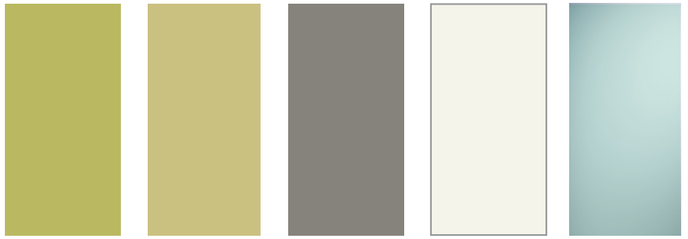
Interior Design

The main floor interior design utilizes organically patterned and richly textured materials. As primarily a student amenities floor, there is a considerable amount of seating options and gathering choices. These space are designed to enhance the student residence experience and encourage interactions between students. Gathering spaces on the main floor have been designed to be flexible for multiple furniture layouts. There are open collaborative spaces as well as more traditional quiet study spaces.

The predominant flooring in all public spaces of the main floor is porcelain tile, Office or acoustically sensitive areas like the quiet study spaces contain a geometrically patterned carpet tile. All ceilings within public areas are painted gypsum board while offices and enclosed program spaces contain acoustical ceiling tile. Green accented and textured feature walls are incorporated throughout the main floor including an integrated donor wall located outside the Dining Hall. The primary ceiling in the Dining Hall is wood in order to unify the space. Reused clinker brick, salvaged from this site, is a feature in the main lobby as a reference to the history of the building site and surrounding neighbourhood.



Main Floor Plan

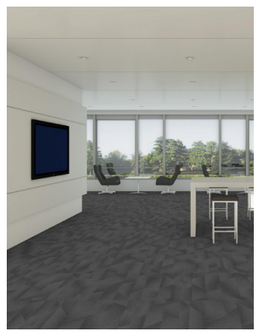


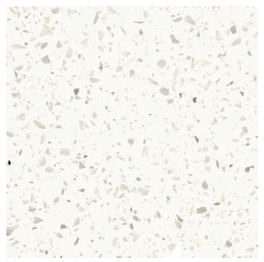








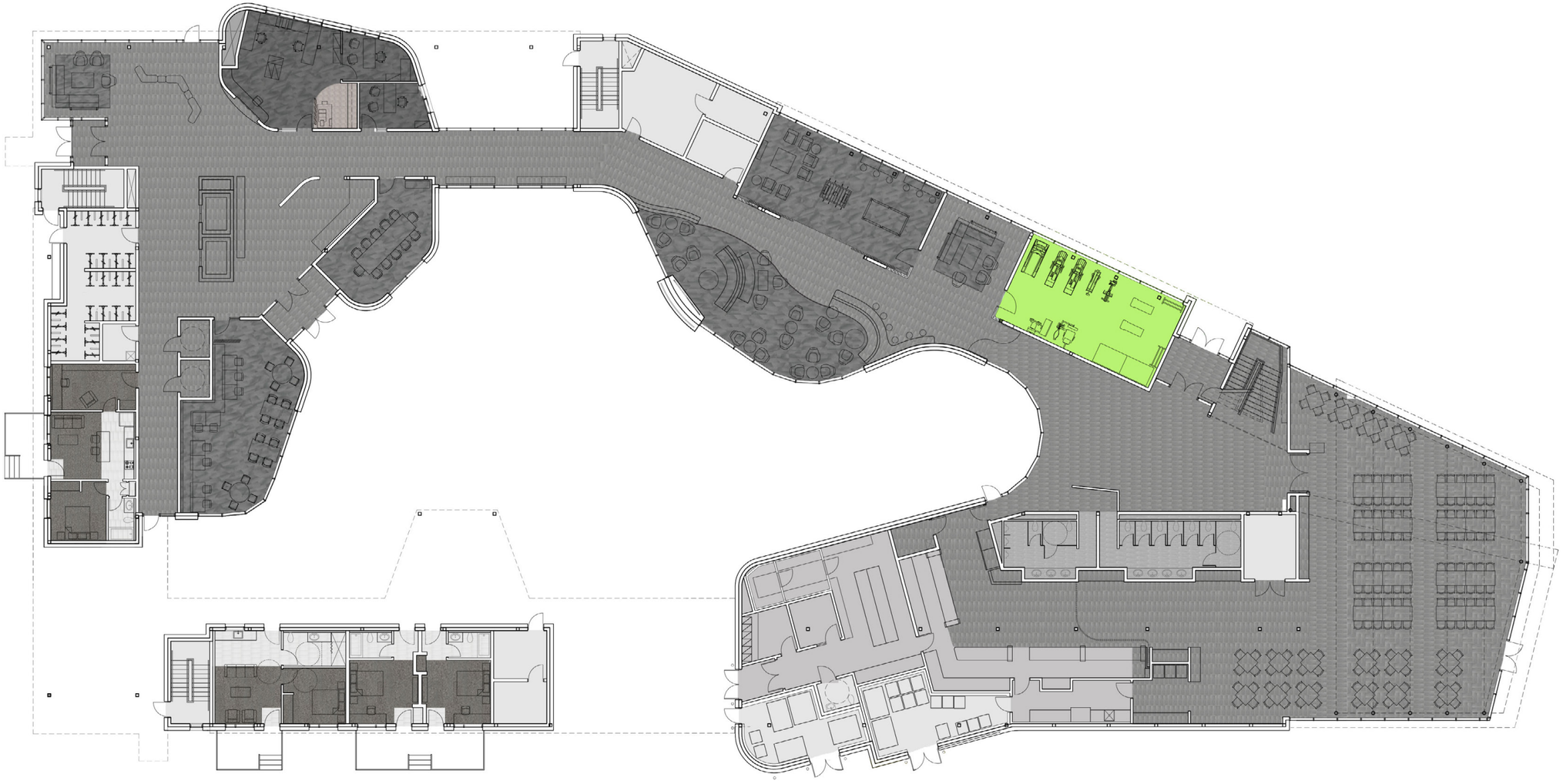




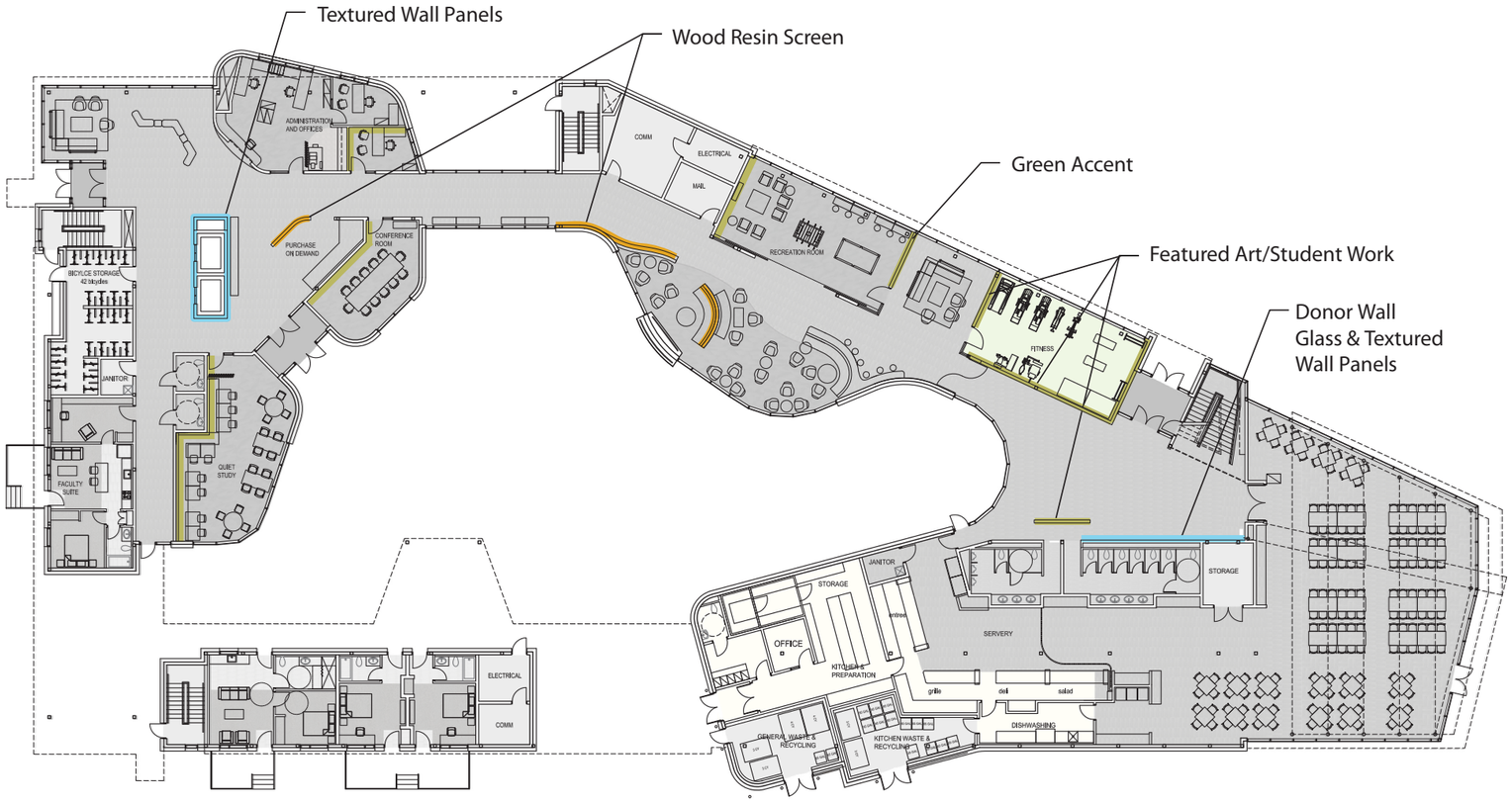

Main Floor Finish Board*

* Furniture shown is indicative of the final section and subject to the furniture tender

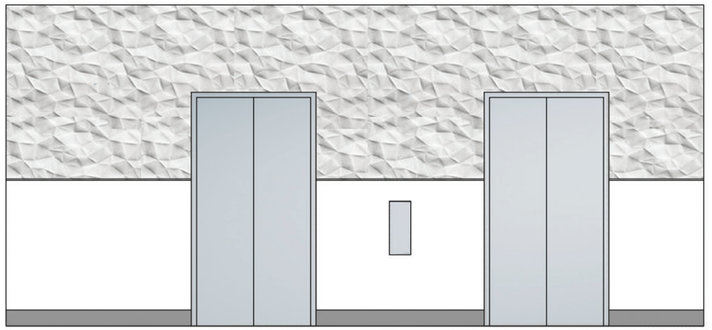
Main Floor Finish Plan



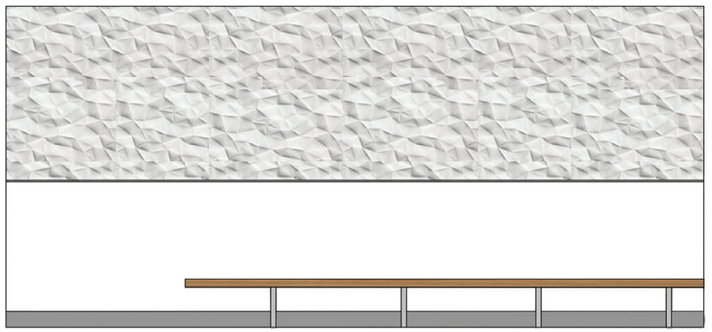
Main Floor Finish Patterning Plan



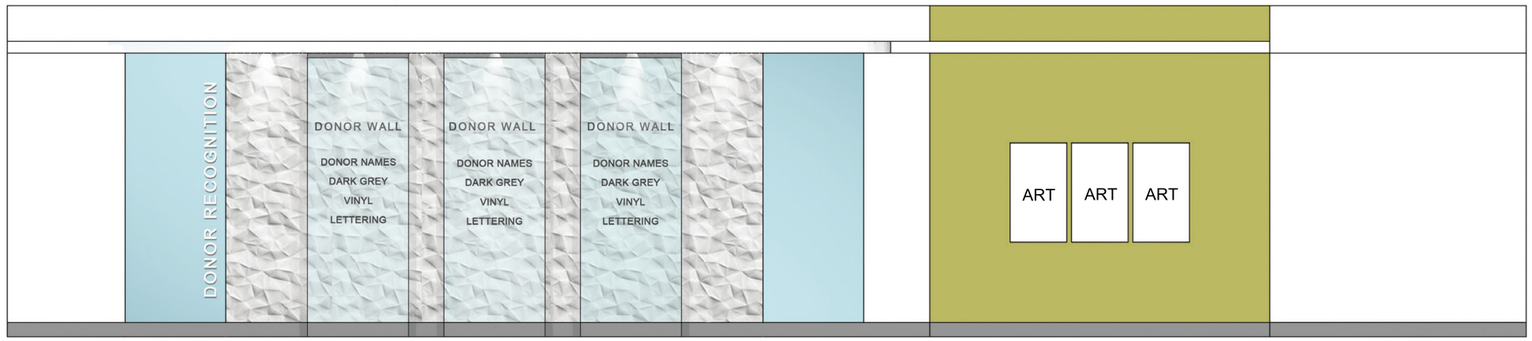
Main Floor Feature Wall Finish Plan



Elevator Lobby East Elevation



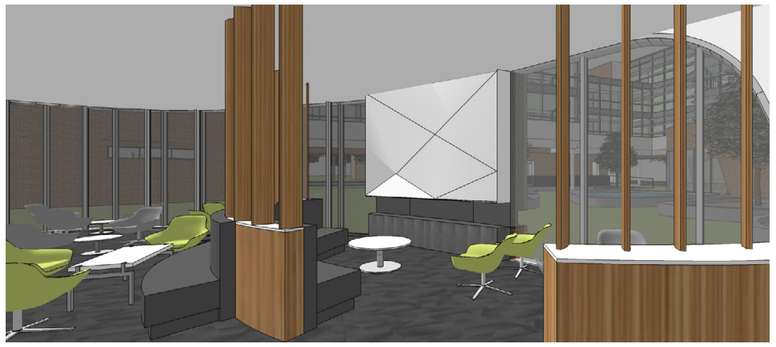
Elevator Lobby West Elevation



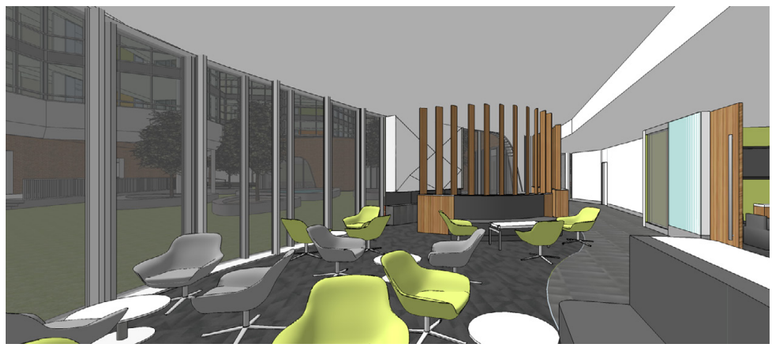
Donar Wall South Elevation

Living Room

The Living Room is now located within the heart of the main floor student amenity spaces, adjacent to both the Recreation Room and Fitness Area. The Livinig Room will provide an open an casual seating environment that is anchored by a feature fire place. Across the hallway from the Living Room is the Recreation Room which provides space for more active student gathering with TV and gaming areas. A key feature of the Recreation Room are two large sliding barn doors which allow the space to open completely to the hallway and the Living Room creating one unified space for larger gatherings. Between, the Recreation Room and Fitness Area a small gathering space has been carved into the Saskatchewan Drive facade. This space helps to extend the Living Room further with visual connections to the river valley. It also provide a waiting area and entry to both the Recreation Room and Fitness Area. The modest Fitness Area is now located off of Saskatchewan Drive providing students views of the river valley while promoting an active lifestyle. The Fitness Room's walls and flooring will all be a bright green accent colour to provide a sense of play and excitement to the active program element.



View of Proposed Fireplace



View of Living Room Seating Area

Partial Main Floor Finish Plan

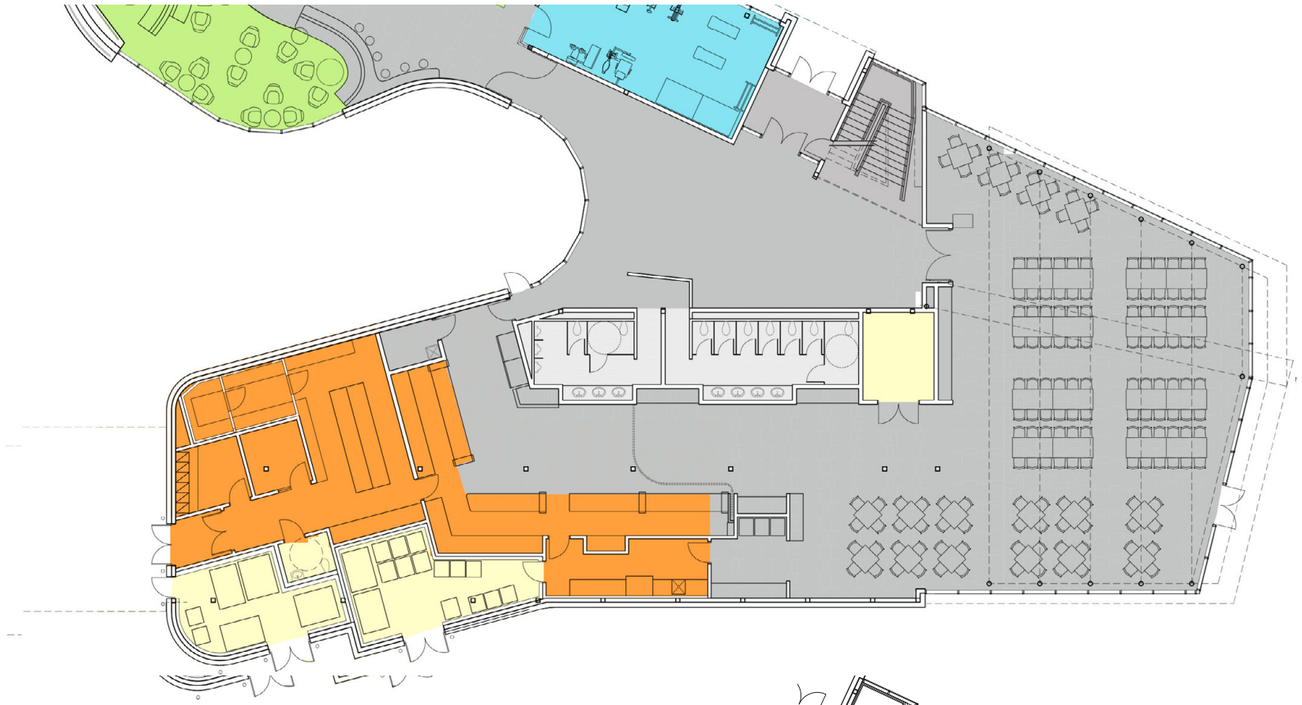
Dining Hall

The Dining Hall remains one of the most important program functions on the main floor. Its capacity has been refined to provide seating for 160 students and guests of the Saskatchewan Drive Residence. The food service delivery is anticipated to be market or marché style with preparation, finishing and presentation of food being performed in front of the students at four individual food stations. Preliminary meetings with Aramark, the University of Alberta's current food service provider, have determined the food stations to be a grilling station, entrée station, deli station and salad bar. Drink stations and "grab-and-go" options will be available from stations placed around the dining hall. It is anticipated that food service will be available to students from 7am to 8pm seven days a week. There will be set times of the day that entrees and hot food service will be available within the dining halls overall operational hours. This food service delivery model, with a seating capacity of 160, will allow the possible delivery of meals to 250 people over a set 2 hour period. This flexibility allows, if desired, for additional guests to dine at the Saskatchewan Drive Residence.

Lister Hall will remain the main commissary and staging area for food deliveries and bulk food preparation. Food will be brought to the Saskatchewan Drive Residence via smaller cargo vans. This reduces the overall storage and loading requirements and better integrates these functions into the 90th Avenue streetscape.

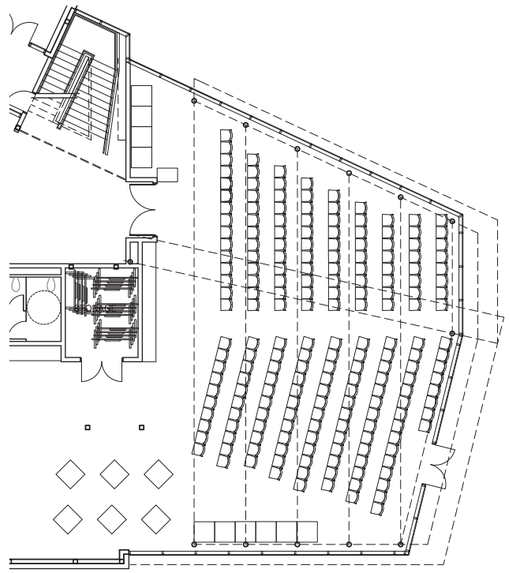
The Dining Hall has been designed as a flexible event space that, if require, can accommodate a wide range of functions. The Dining Hall has a standard capacity of 160 seats; however, an addition 40 stackable seats will be provided within the adjacent storage space. The additional seating will help support the space should a lecture or speaking engagement take place that does not require table seating. To make the transition easier between dining and lecture functions the main 6-person tables, that occupy the central space of the Hall, have been specified to have flip tops and casters so they can be stored easily within the adjacent storage space. A central media wall has been incorporated that will include LCD monitors as well as a drop down screen and projector with an integrated speaker system throughout the Dining Hall to allow both day to day media presentations and special events. Below the central media wall there will be a long counter space that if not used for lectures could be used as a layout area for reception style events. A security grill is provided that will section off the food stations so that the food service provider does not have to locally secure each food station and storage cabinet. The security grill has been located such that the coffee/hot beverage counter, water counter and flex condiment counter remains part of the Dining Hall. This allows these open food stations to be accessed by students and/or guests who are using the Dining Hall after formal food service hours.

A formal pre-function space has been provided outside of the Dining Hall. This pre-function space can operate as an independent gathering space or simply a crush space before or after a formalized event. The pre-function space can be access directly off of Saskatchewan Drive through an independent entrance or through the main floor corridor. If access to the rest of the main floor is not desirable during an event a set of wooden doors have been incorporated that would allow students full access to the Living Room, Recreation Room and Fitness Area but not allow guest through. A back entrance to the Dining Hall's food service area has been provided off of the pre-function space to allow for food service delivery and waiter service within the pre-function space. Weather permitting, the pre-function space will also have access to the central exterior courtyard to allow activities to spill outside. A donor wall has been incorporated into the pre-function space as a prominent feature outside the Dining Hall.



Partial Main Floor Finish Plan

Dining Hall Layout
16 × 4 seat tables = 64 seats
8 × 12 seat tables = 96 seats
Total = 160 seats
40 × chairs in storage



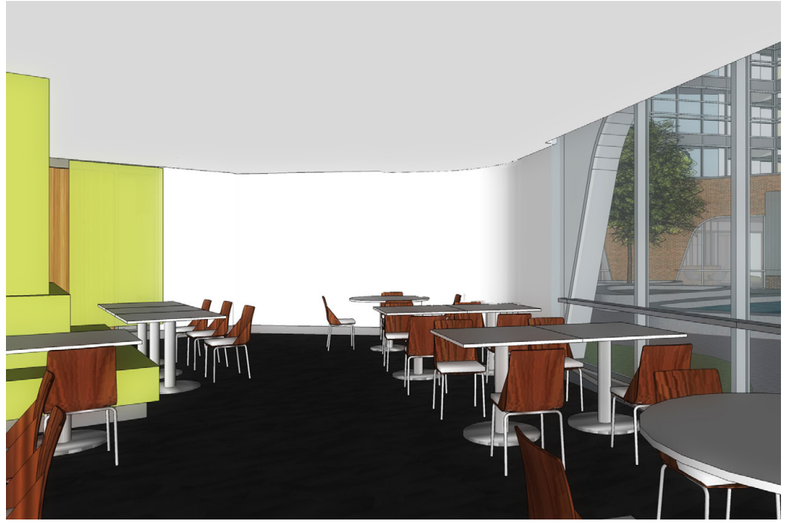
Partial Main Floor Plan – Lecture Layout

Lecture Layout
Total = 200 seats
8 × 12 seat tables in storage

Dining Hall

Fitness Area

Entry Lobby



Quiet Study

Recreation Room

6.3 Residence Floors

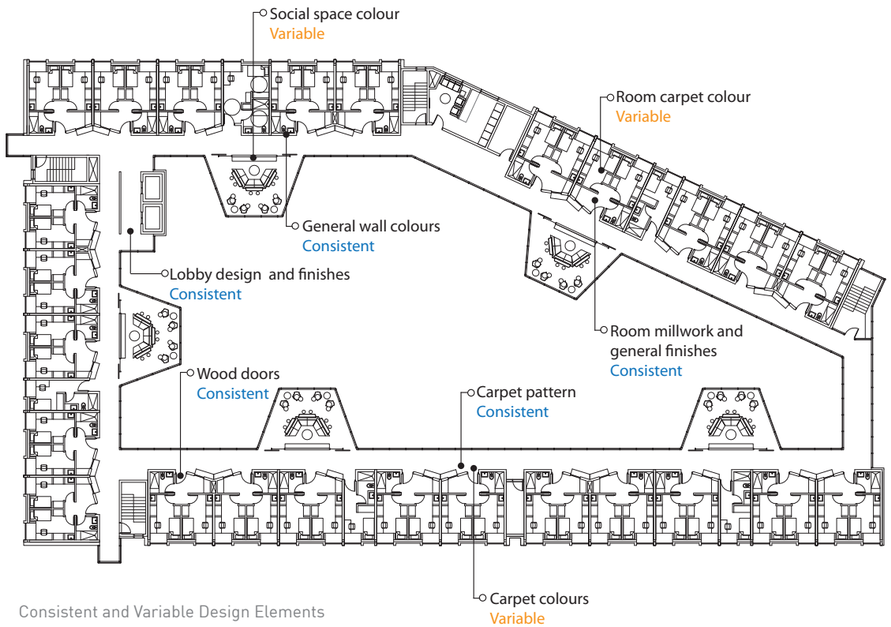
The second, third and fourth floors of the Saskatchewan Drive Residence remain primarily residence floors. The floors have been reorganized into 13 cohort groupings of 11 students, with each cohort grouping containing an associated flexible Social Space. Design Development refinements to the residence floors include:

- The provision of an additional cohort grouping on the west side of the fourth floor along the 111th Street façade.
- The design of the Social Spaces has been refined to include wooden barn door entries with associated glazed sidelights. This allows a level of acoustical privacy when required while still maintaining a visual connection. A combination of soft communal seating, individual tablet chairs and bar height counters are planned for the Social Space to provide a variety of seating choices and reconfigurable options.
- The Schematic Design included glazing between the corridor and the entries of the two-bedroom suites. This has been replaced with magnetic back painted glass panels that provide a personalizable surface adjacent to the entry doors. These panels provide students the ability to individualize their personnel space while also providing a significant cost savings for the project as the original glazed option would have required the incorporation of a sprinkler protected fire-rated glazing system.

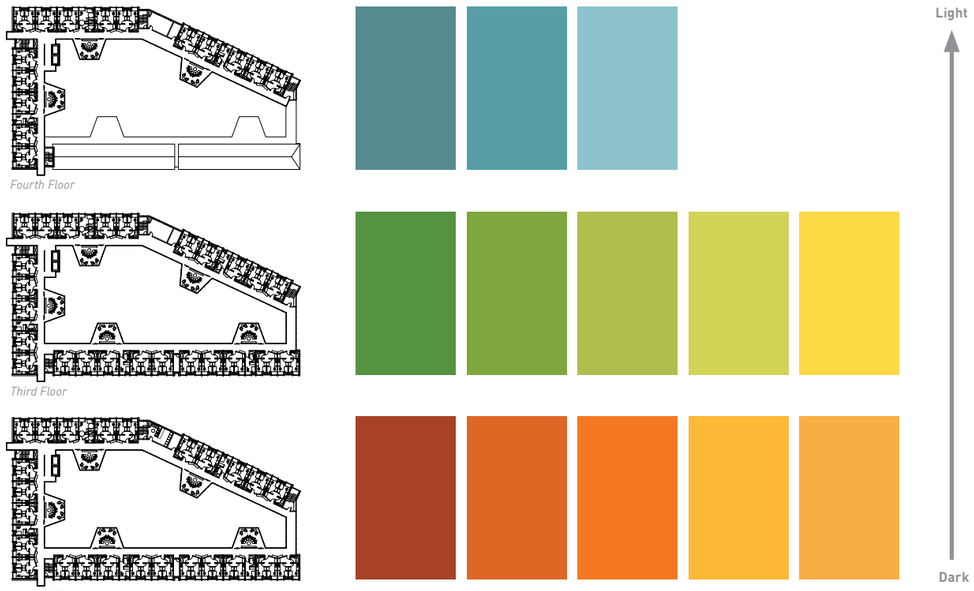
Interior Design

The residence floor interior design is a balance between providing consistent unifying design elements with variable personalizable elements for cohort groupings and individual students. A variable colour scheme has been created which changes across the three residential floors. One feature colour is incorporated into the accent carpet tile on each floor. Additionally, on each residence floor shades of the feature colour are assigned to each Social Space to provide unique identity for each cohort grouping. The colours across each residence floor setup different levels of community from a floor wide identity, to cohort identity and finally down to individual students and the incorporation of personalizable surfaces along the corridor.

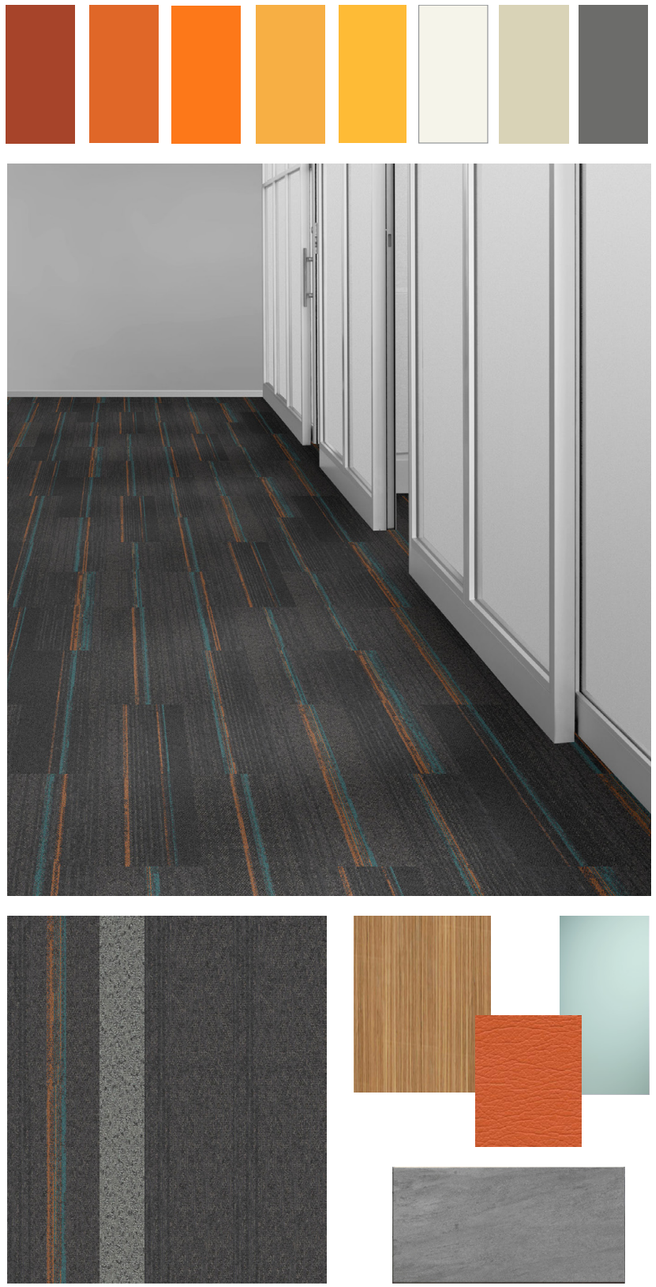
By comparison, the residence rooms are unified across the entire building and are a combination of wood and warm neutral tones. Accent colours are minimized in the rooms to allow students to personalize their private spaces.



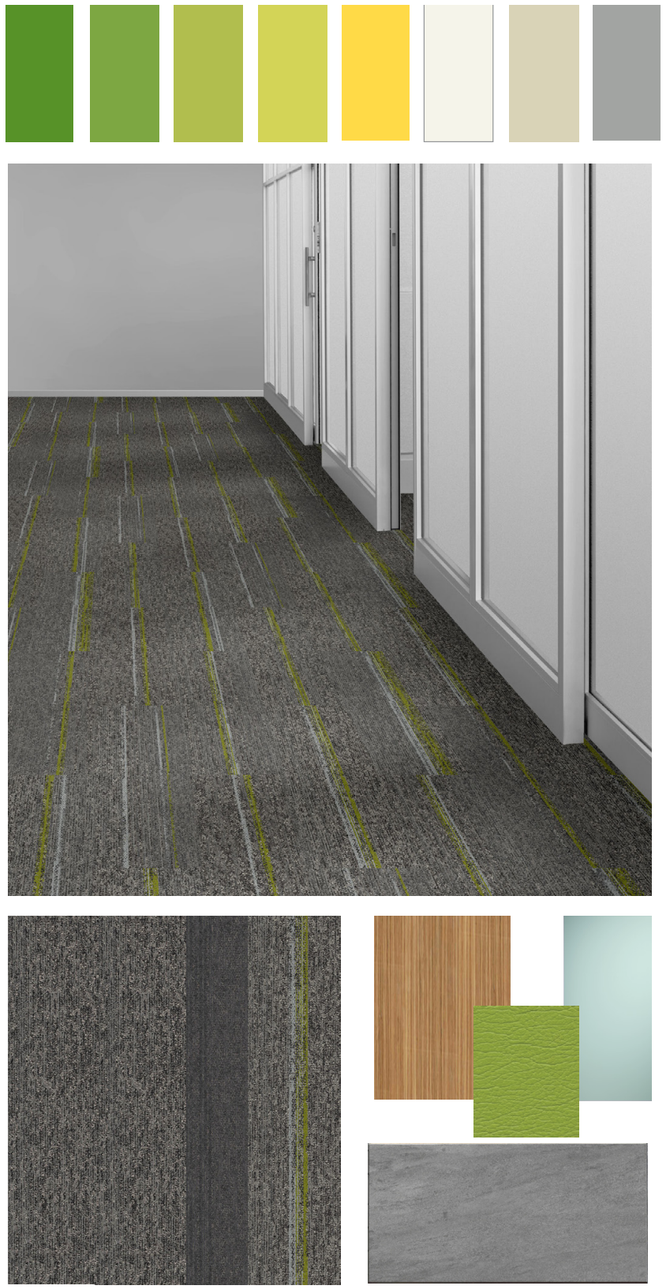
Consistent and Variable Design Elements



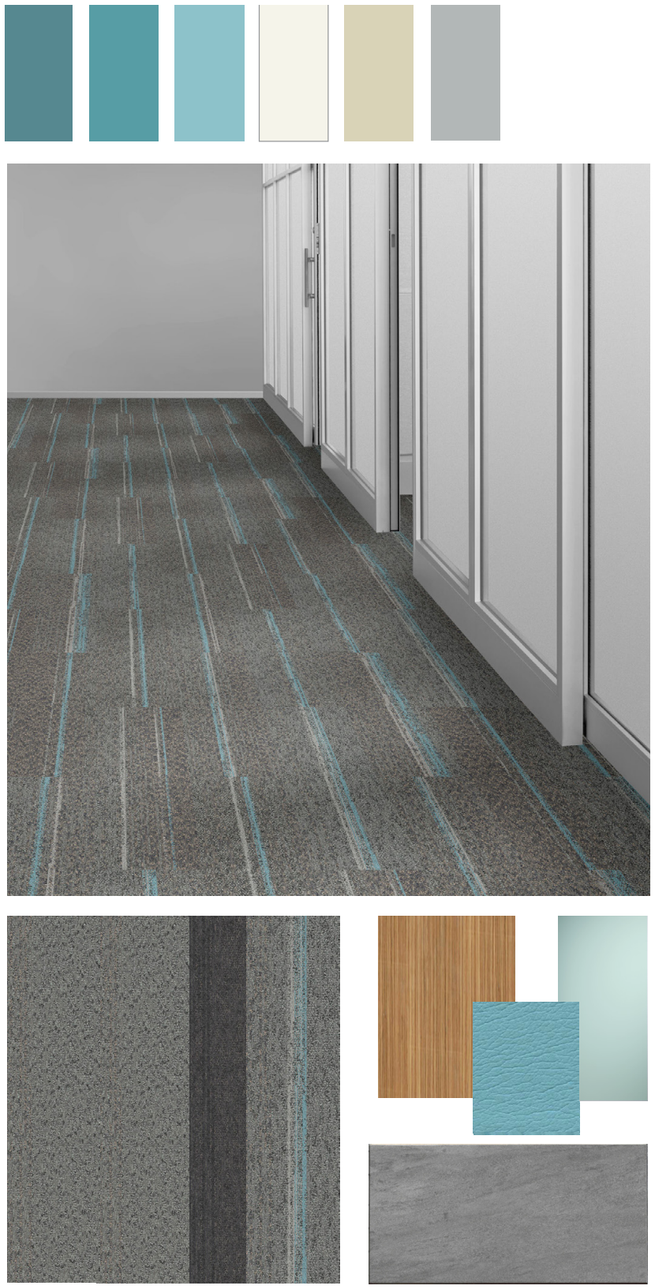
Residential Floor's Colour Strategy



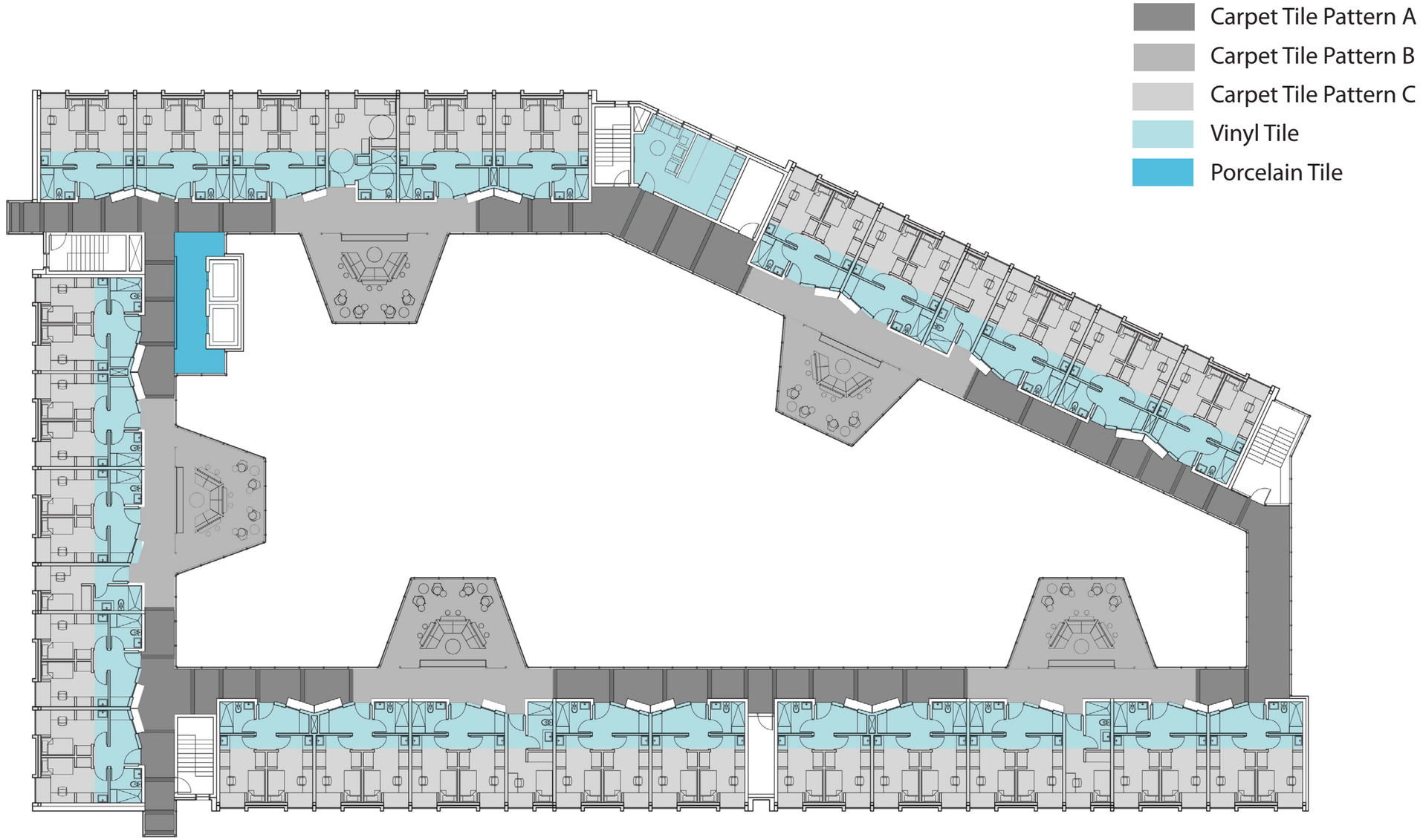
Second Floor Material Board



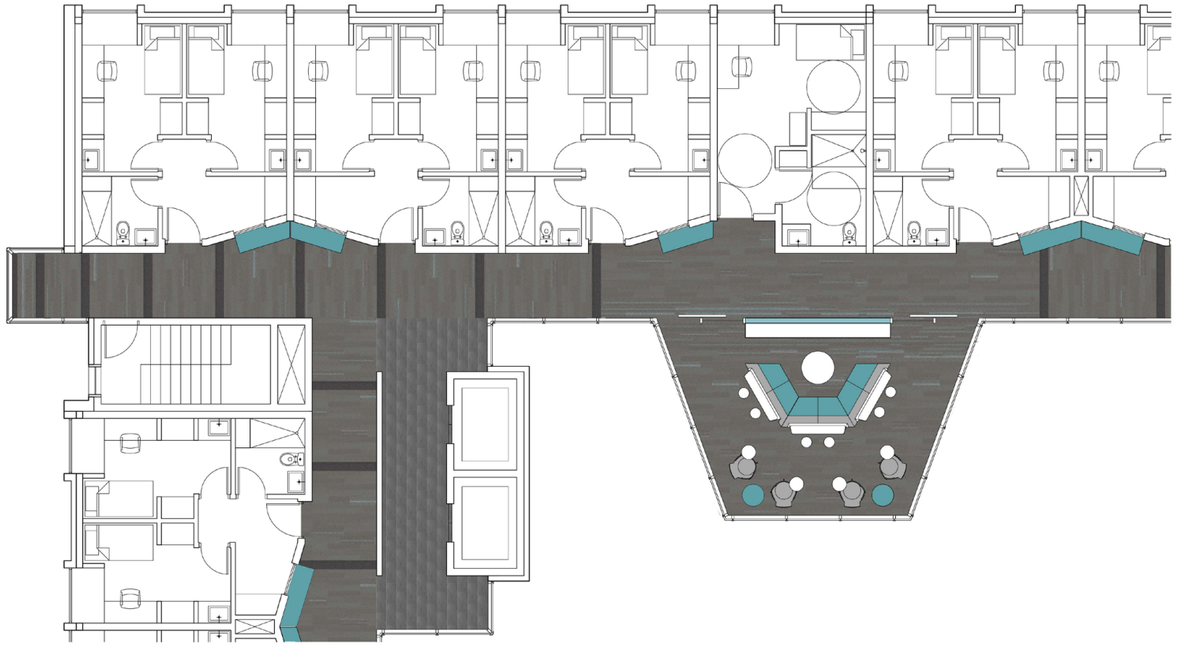
Third Floor Material Board



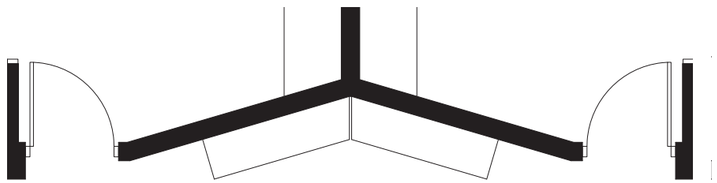
Fourth Floor Material Board



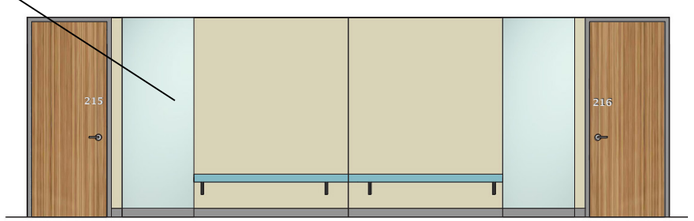
Typical Residence Floor Finish Plan



Detail Floor Finish Plan



Personalizable Surface:
- Writeable Wall
- Back Painted Glass
- Tackable Surface

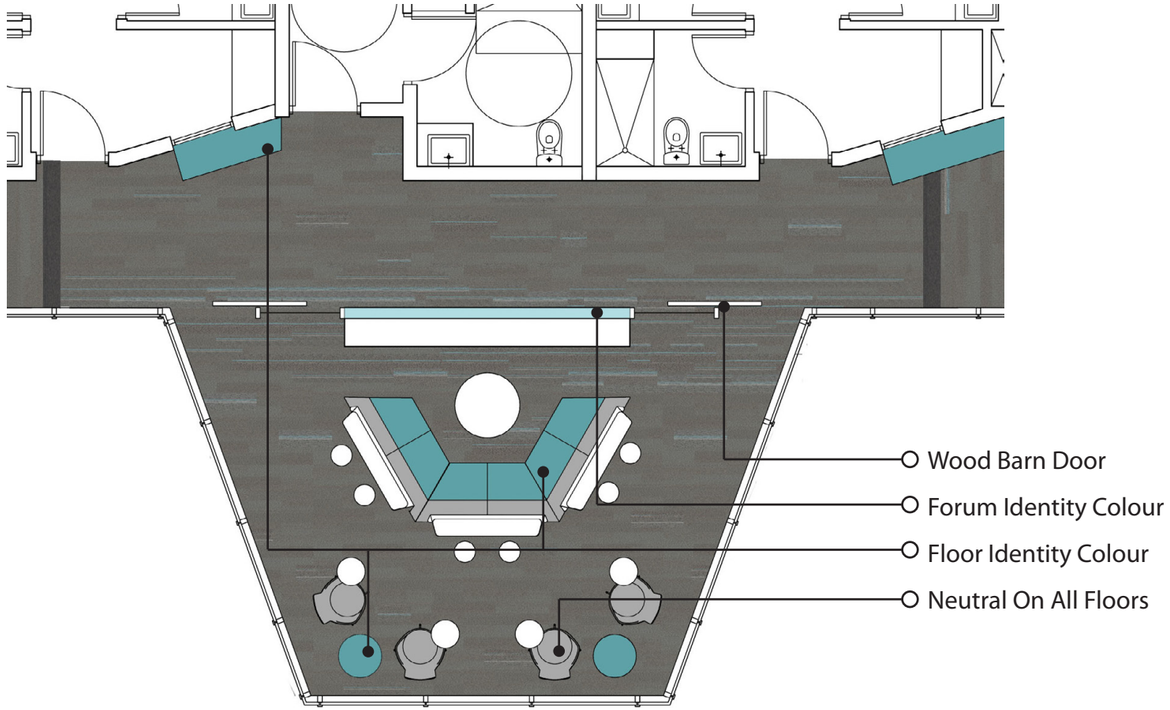


Typical Residence Suite Entry Elevation

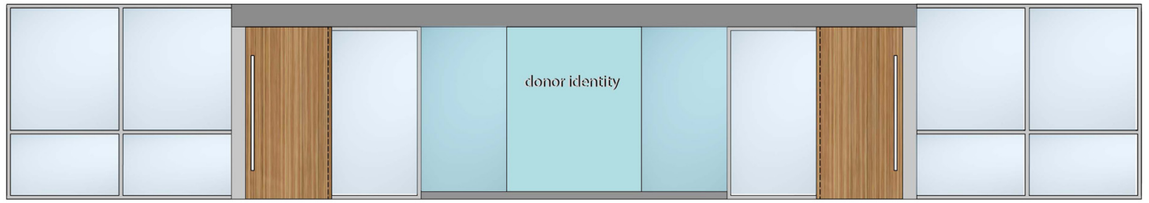
Fourth Floor Corridor Carpet Tile Pattern

Third Floor Corridor Carpet Tile Pattern

Second Floor Corridor Carpet Tile Pattern



Social Space Detailed Finish Plan



Social Space Entry Interior Elevation

Social Space Feature Wall Elevation

6.4 Fifth Floor City Room

The fifth floor remains dedicated to the City Room which provides the Saskatchewan Drive Residence with an inspirational space for social gatherings, lectures and seminars. Design Development refinements include:

- Reorientation of the City Room and its associated rooftop terrace. This placed the rooftop terrace on the western corner of the fifth floor and set back the City Room. This reorientation allowed for the inclusion of a new pre-function area and coat closet to better service special events. This also allowed the City Room to expand and fill the width of the fifth floor creating a more functional space while also providing views into the courtyard.
- Removal of the food preparation and servery space.
- Relocation of the dedicated storage space to the basement which is accessible directly from the elevators.
- Relocation of the public washrooms to be adjacent to the east exit stair which allows for full glazing along the south side of the City Room.

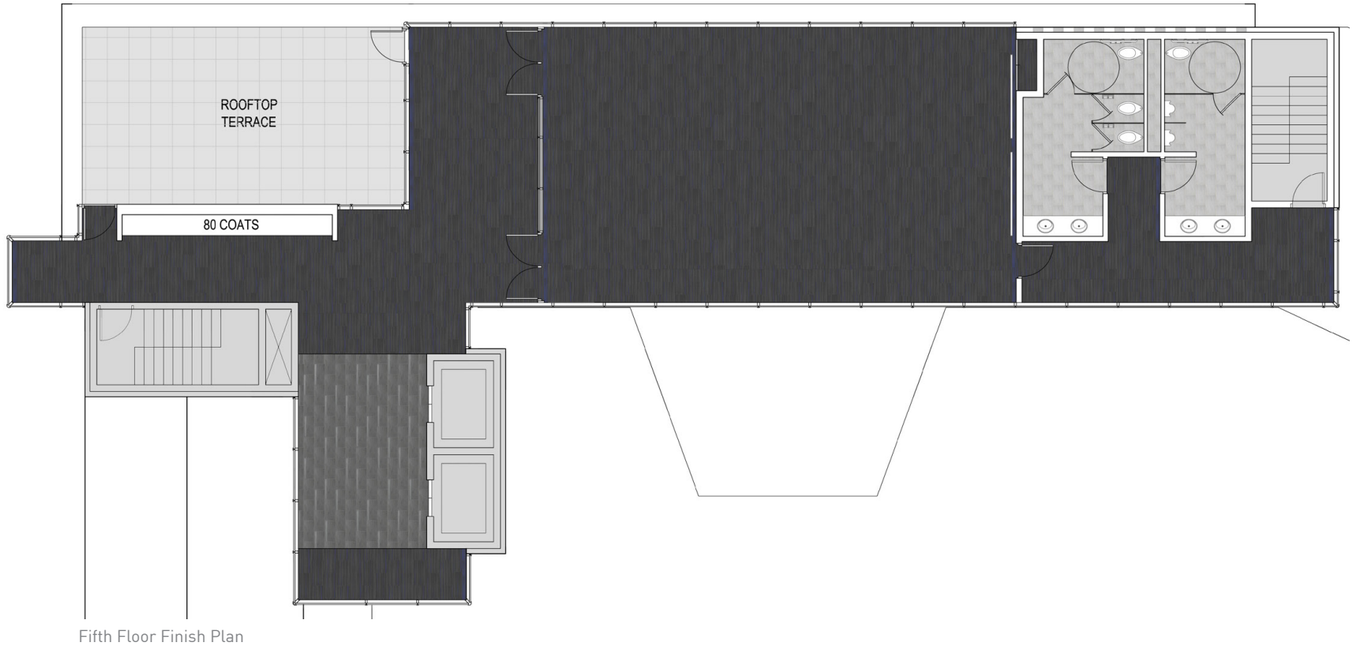
Interior Design

The fifth floor City Room's interior design is a reflection of the prominent location of this important gathering space. An elegant and simple material pallet is used that incorporates University of Alberta branding elements. The main space and pre-function areas are carpeted throughout while porcelain tile marks the elevator lobby. Wooden main entry doors and a feature wood panel wall add warmth and a contrast to the predominantly glazed space.

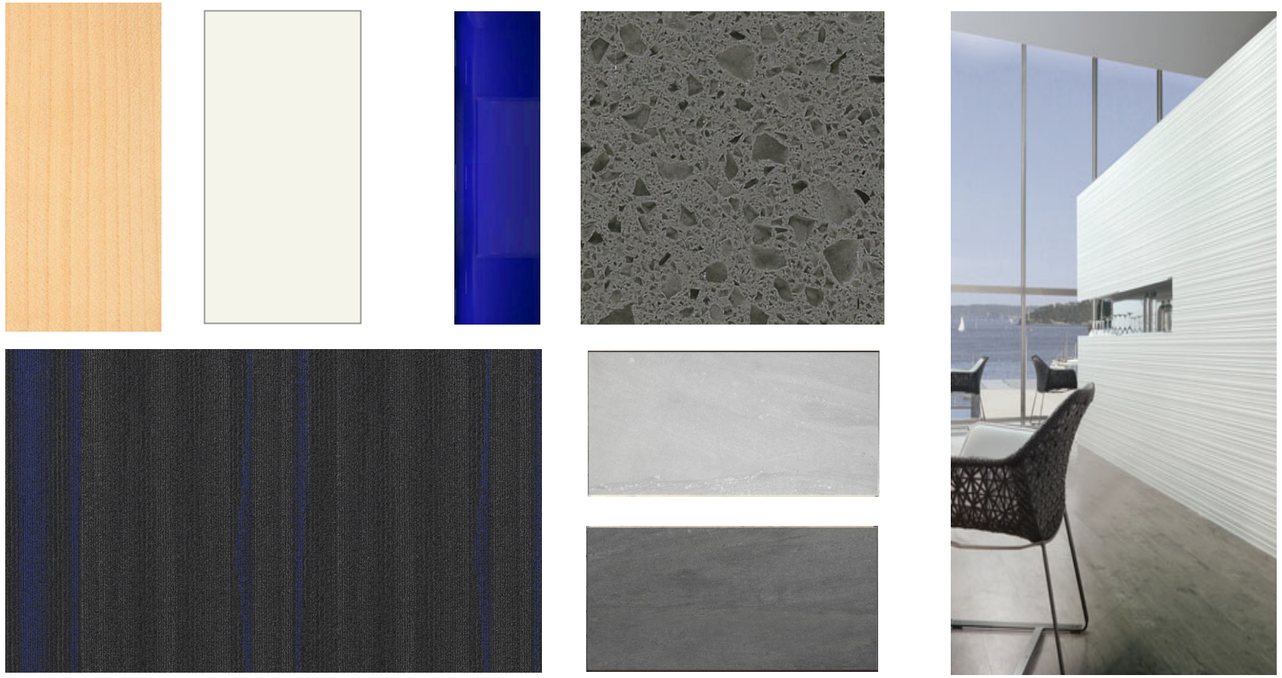
Media

The City room will provide data and USB outlets in various locations around the perimeter. There will be two LCD or SMART board screens with complete projector and video conferencing capabilities at the front of room, along with a speaker and microphone system. Floor box outlets will be located beneath table locations with power and data, with AV outlets located beneath the LCD screens. An overhead projector and motorized roll-down screen will also be available for projection onto the east wall. Finally, Lighting controls will be interconnected with the AV system for ease of use.

Fifth Floor City Room



Fifth Floor Finish Plan



Fifth Floor Material Board

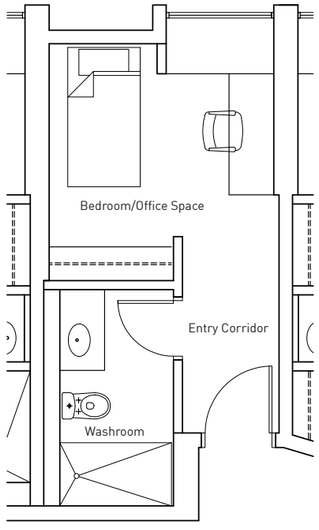
6.5 Residence Suite Design

The Saskatchewan Drive Residence suite design continues to support social interaction, academic achievement and helps foster a sense of community within the Residence. The overall student residence suite count has been reduced by 1 unit based on the reorganization of the cohort groupings into 13 groupings of 11 students. Additionally, the guest suites have also been reduced from 6 suites to 3. The current design accommodates 1 one-bedroom, barrier-free, long stay suite and 2 hotel style studio suites for shorter stays. A single facility in-residence suite is provided on the main floor. Each main floor guest and faculty suite continues to have direct street access to help provide activity on the street and reflect the infill nature of the East Campus Village. One barrier-free student residence suite is provides on each floor in the northwest cohort grouping for a total of 3 barrier-free suites. This complies with both the Alberta Building Code requirements as well as Residence Service's recommendations.

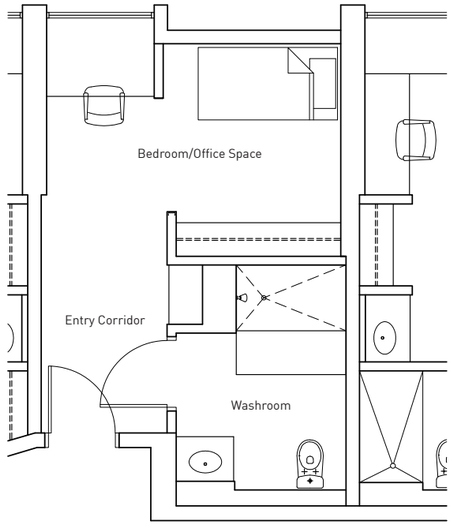
Student Residence Suites

There are three types of student residence suites: a two-bedroom unit, a one-bedroom unit and a barrier-free one-bedroom unit. Each student residence suite continues to be defined by an integrated window seat that is also the dominant expression on the exterior façades of the residence floors as a repeated pattern of bay windows. The interiors of the window seats will be wood clad with a faux leather cushion and back support. Integrated task lighting will be shared between the desk and window seat to allow students to study or read later in the evening or during our long winter nights.

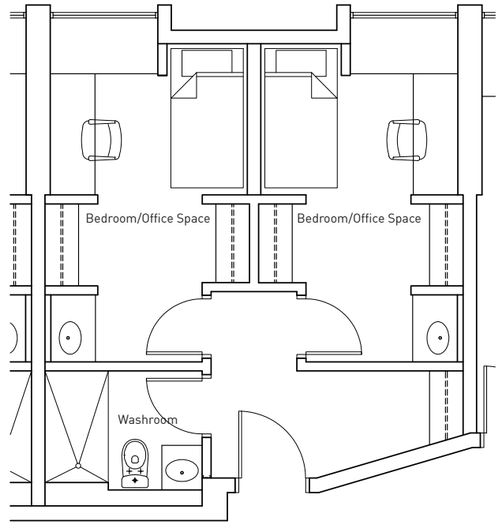
Interior finishes include vinyl tile in all entry areas as well as bathroom and wet areas. The bed and desk area of each suite will have a carpet tile floor that matches the general field carpet of the corridor. Closets will be separated by a fabric curtain. This reduces the maintenance requirements on closet doors and has proven to be highly successful in other East Campus residences. The majority of the wall and ceiling surfaces will be painted drywall with a large tackable surface above the build-in desk and tiled backsplashes for bathroom vanities.



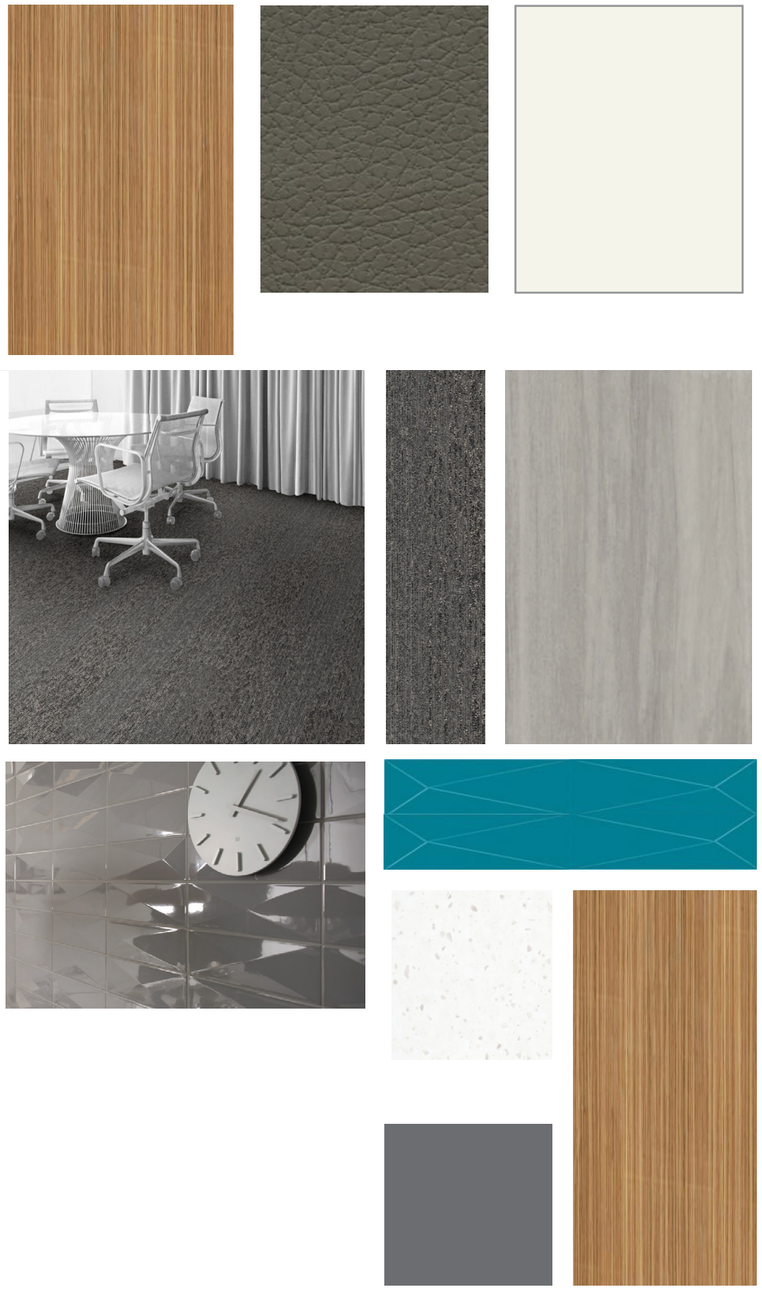
One-Bedroom Suite



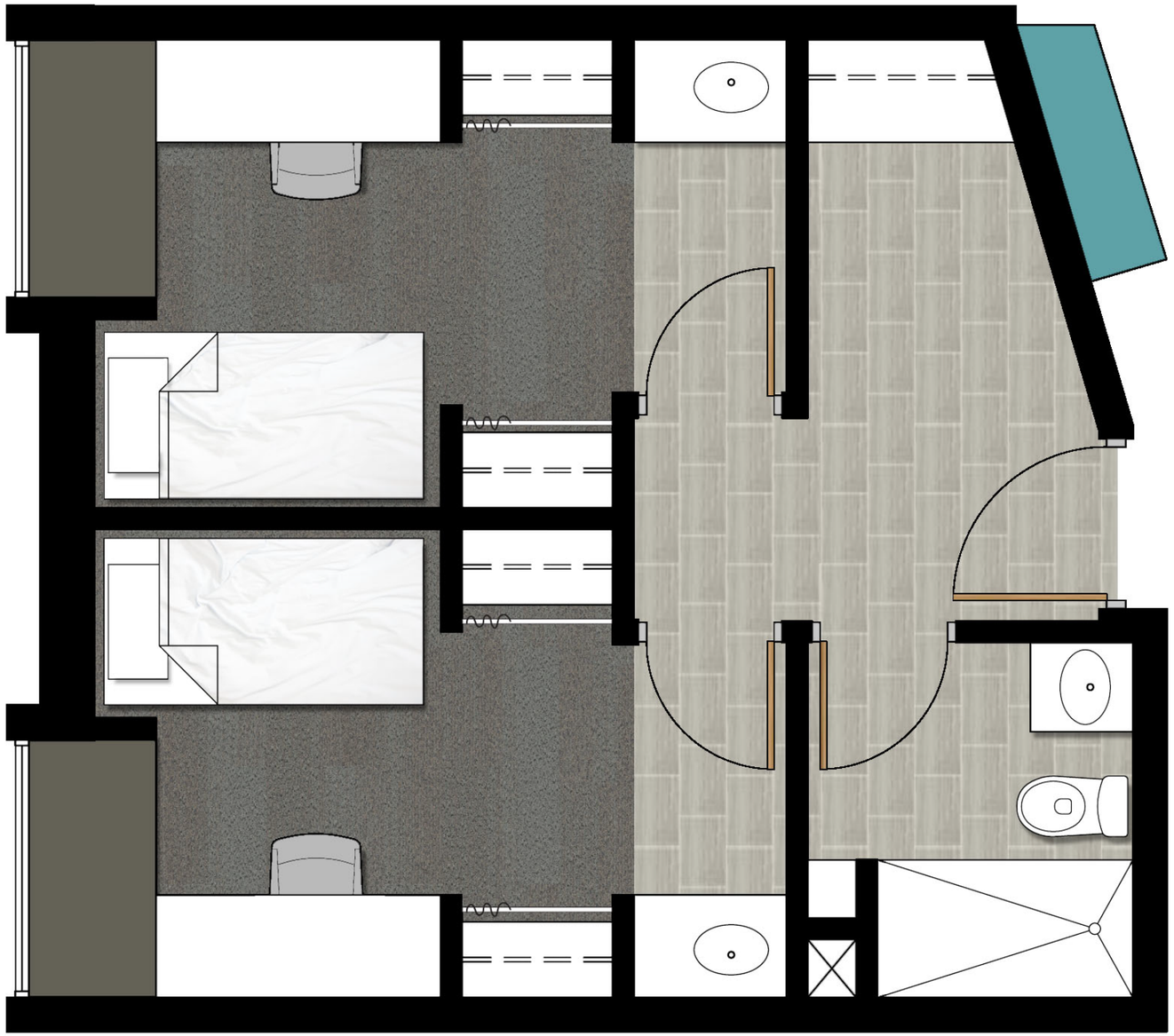
Barrier-Free One-Bedroom Suite



Two-Bedroom Suite



Residence Suite Material Board



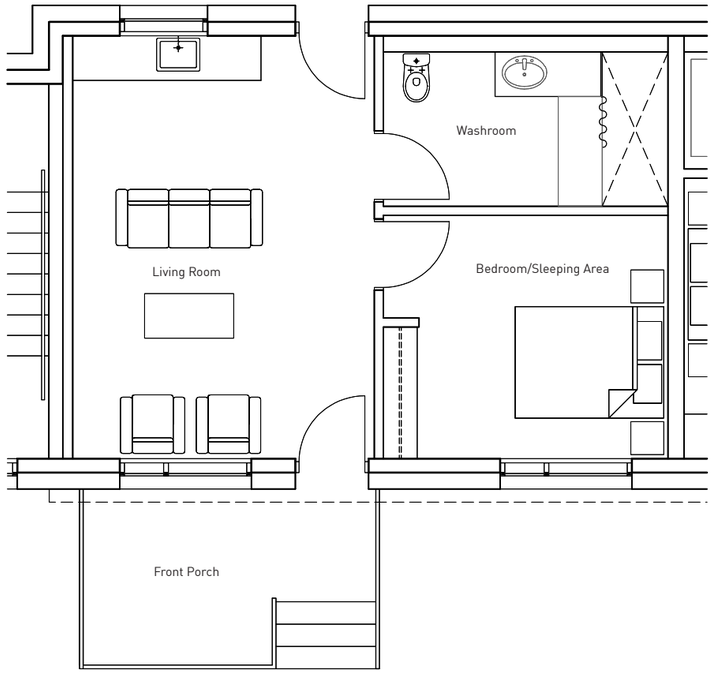
Residence Suite Finish Plan

Optional Guest Suite Layout

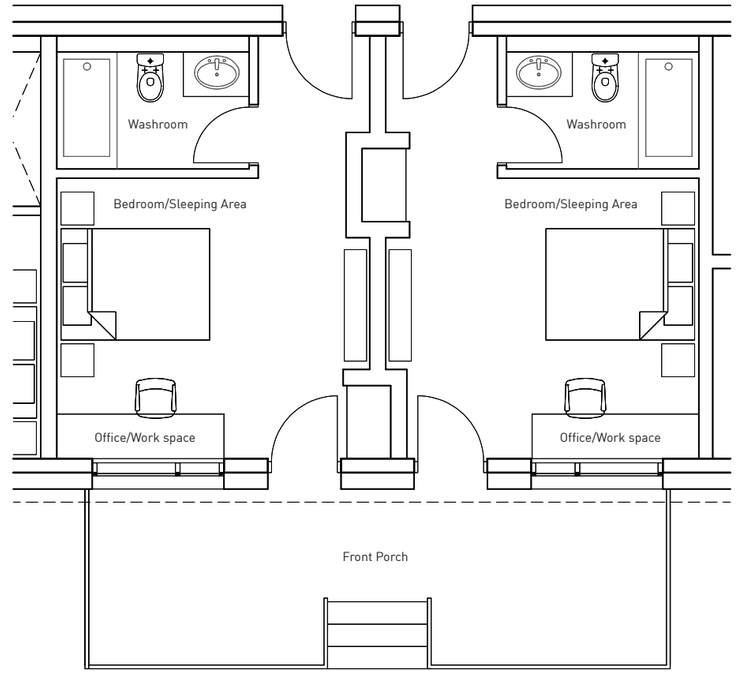
There are two types of guest suites: a one-bedroom long stay suite which is also barrier-free and two hotel style studio suites for shorter stays. All guest suites are located on the main floor along 90th Avenue and have direct access off of 90th Avenue as well as a rear entrance from the central courtyard. As described in the Design Guidelines for Infill Development, each guest suite will contain a raised front porch to provide an effective transition between the public space of 90th Avenue and the private space of the guest suite.

Interior finishes of the guest suites is similar to those found in the residence suites with entries as well as bathrooms and wet areas containing a porcelain tile flooring. The living room in the two-bedroom suite and all bedroom areas will have a carpet tile that matches the residence floor's field carpet colour. The majority of the wall and ceiling surfaces will be painted drywall with tiled backsplashes for bathroom vanities and kitchenette areas.

90th Avenue Entrances to Guest Suites



Main Floor Guest Suite – One-Bedroom



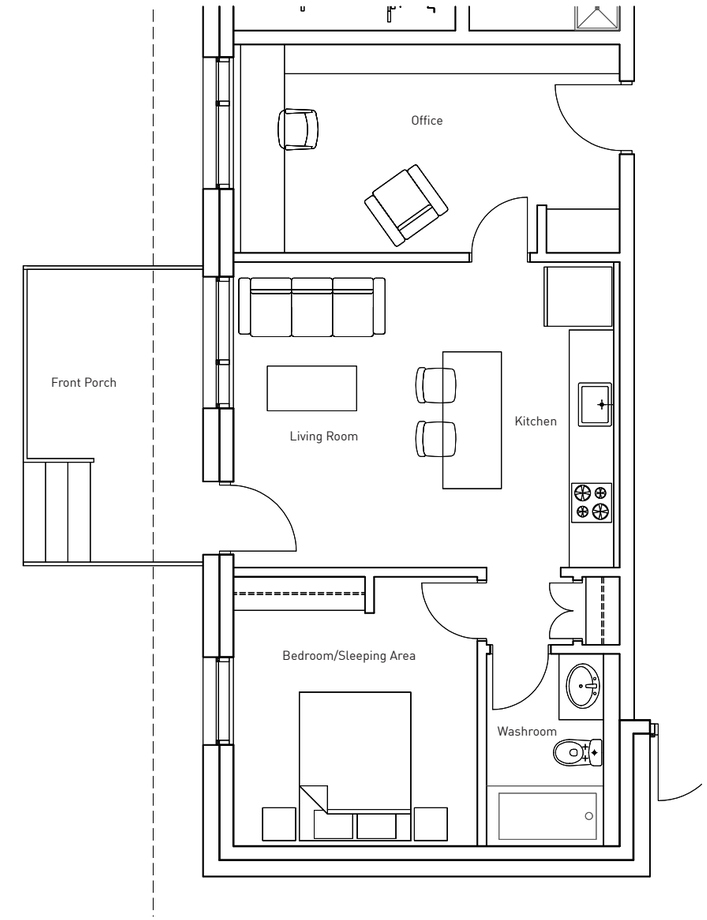
Main Floor Guest Suite – Studio

Faculty Suite

A single suite is provided on the main floor for a faculty in residence. Like the guest suites, the faculty suite will have a front porch off of 111th Street; however, it will have a direct interior connection to the main lobby of the building to support student interaction with the faculty member. The faculty suite is conceived as a one-bedroom apartment and will have a full kitchen and living room. Additionally, the faculty suite will have an adjoining office space that provides the interior connection to the rest of the building. The office space is provided as a transitional meeting space for the faculty member to be able to meet with students without inviting them back into their private living quarters.

The interior finishes of the faculty suite are identical to those found in the guest suites with the front entry, kitchen and bathroom spaces containing a porcelain tile flooring. The living room and bedroom areas will have carpet tile that matches the residence floor's field carpet colour. The majority of the wall and ceiling surfaces will be painted drywall with tile backsplashes in the kitchen and bathrooms.

111th Street Entrances to the Faculty Suite



Faculty Suite

Interior Partitions and Assemblies

The Design Development of the residence suites included the finalization of interior partition types. This is a critical step in the design of residences as the cumulative effect of late changes to wall thickness can have significant impacts on the overall building footprint.

Interior partitions have been designed in accordance with the University of Alberta design guidelines as well as Alberta Building Code requirements. This means that partitions between suites are proposed to have a sound transmission classification of 50 and partitions between the suites and the public corridor are proposed to have a sound transmission classification of 55. Similarly, partitions between suites, and between suites and the public corridor require a 1 hour fire separation. No fire rating or sound transmission classification is required for partitions between bedrooms in the two-bedroom suite.

Interior Partition Assemblies

(P1) Typical Interior Partition
- 16mm gypsum board
- 92mm steel studs
- 16mm gypsum board

(P2) Typical Interior Partition
- 16mm gypsum board
- 152mm steel studs
- 16mm gypsum board

(P3) Plumbing Wall
- 16mm gypsum board
- 92mm steel studs with 110mm cavity
- 16mm gypsum board

(P4) Suite to Corridor Separation – STC 55 – 1HR FRR
- Refer to ABC Appendix A, Table A-9.10.3.1.A – wall number S8a
- Refer to ULC latest edition – similar to W407
- 2 layers of 16mm fire rated gypsum board (corridor side)
- 152 steel studs, c/w 150mm mineral fibre insulation
- 16mm fire rated gypsum board

(P5) Suite to Suite Separation – STC 50 – 1HR FRR
- Refer to ABC Appendix A, Table A-9.10.3.1.A – wall number S7a
- Refer to ULC latest edition – similar to W407
- 16mm fire rated gypsum board
- 152 steel studs, c/w 150mm mineral fibre insulation
- 16mm fire rated gypsum board

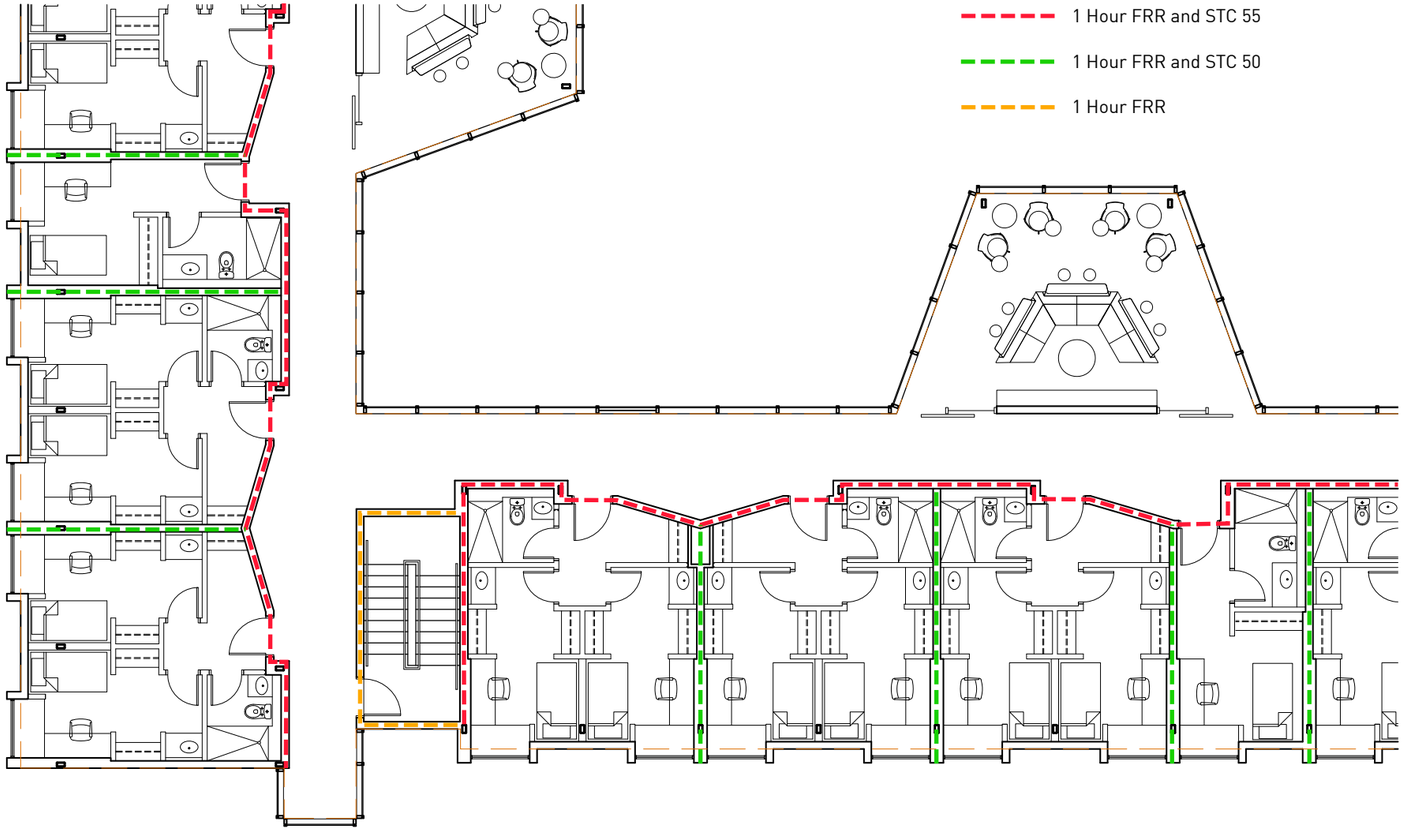
(P6) Suite to Suite Separation – STC 50 – 1HR FRR
- 16mm gypsum board
- 152mm steel studs c/w 150mm mineral fibre insulation
- 64mm steel studs
- 16mm gypsum board

(P7) Suite to Suite Separation – Min STC 50 – 1HR FRR
- Refer to ULC latest edition – design no. W459 configuration A or B
- 16mm fire rated gypsum board
- 92mm steel studs at 400mm OC c/w mineral fibre insulation
- 92mm steel studs at 400mm OC c/w mineral fibre insulation on either side of structural column
- 16mm fire rated gypsum board

Note: total partition thickness = 330mm

(P8) Mechanical Shaft Wall – STC 50 – 1HR FRR
- Refer to ULC latest edition – design no. W446 system E or F
- 16mm gypsum board
- 64mm steel "C-T" or "I" studs
- 25mm gypsum board

(P9) Plumbing Wall
- 16mm gypsum board
- 64mm steel studs at 400mm OC



Typical Fire Rated and South Classified Interior Partitions

6.6 Building Exterior

The design of the exterior has remained consistent with the Schematic Design through the Design Development phase. The focus during the Design Development phase has been to refine the technical requirements, patterning and constructability of the exterior façade.

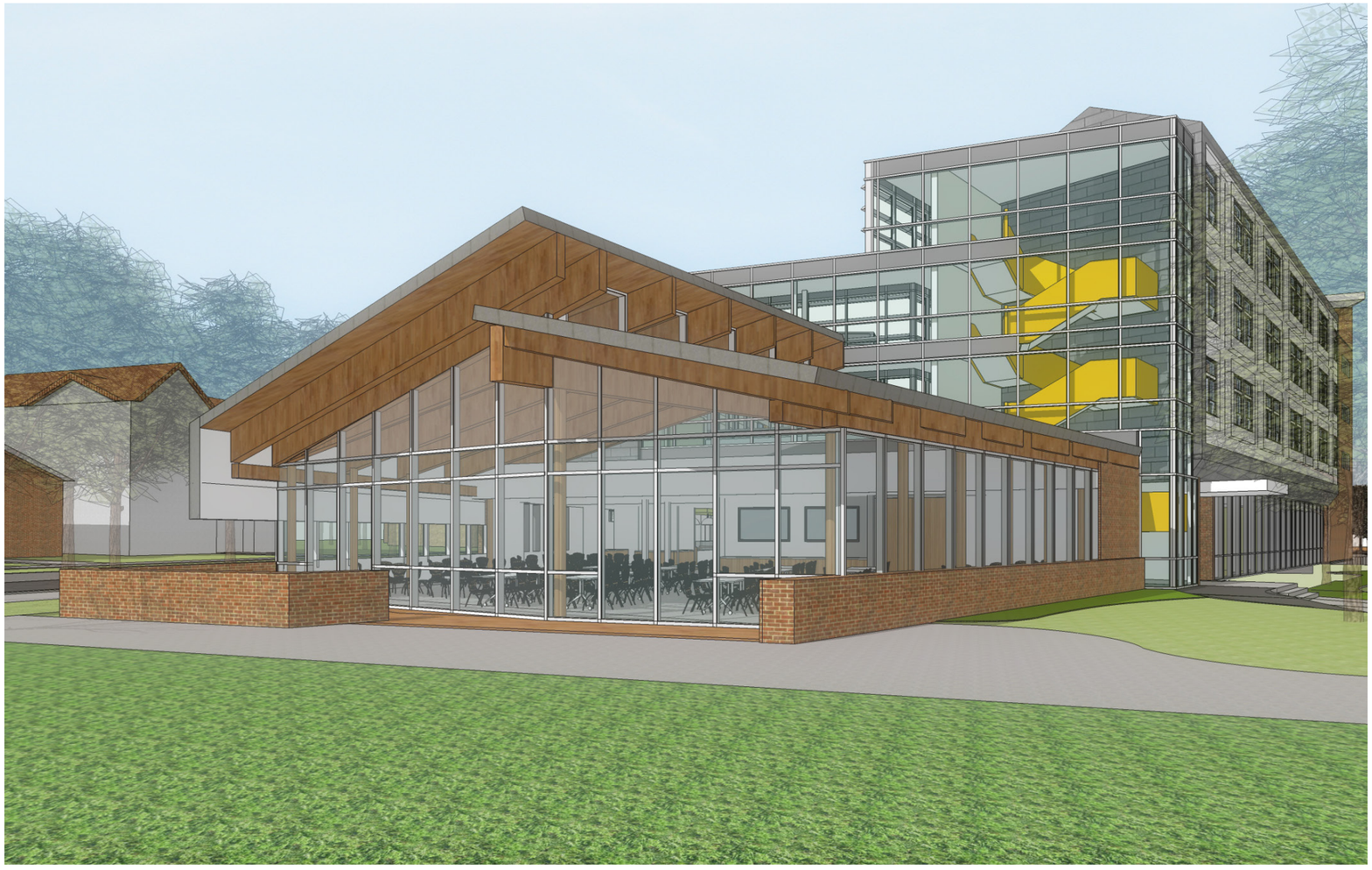
6.6.1 Building Massing

The overall building massing has been updated to reflect the reorganization of the student cohort groupings into 13 groupings of 11 students. This has increased the height of the building along 111th Street to four stories but has allowed the 90th Avenue and Adair Park facades to remain consistent with the Schematic Design and Infill Design Guidelines.

The fifth floor and City Room organization has been updated to provide better functionality to this important gathering space. The City Room has been relocated away from the corner of 111th Street and Saskatchewan Drive. A large roof canopy will continue to extend over the rooftop terrace and provides weather protection as well as a significant feature for the important corner of 111th Street and Saskatchewan Drive.

The new feature stair in the northeast corner of the building will provide a new exterior element along Saskatchewan Drive. The fully glazed stairwell will become a lantern in the evenings and an expression of the interconnection between all residence floors. As students move up and down the stair they will enjoy expansive views of the river valley and provide animation to Saskatchewan Drive.

View of Courtyard entrance at 90th Avenue

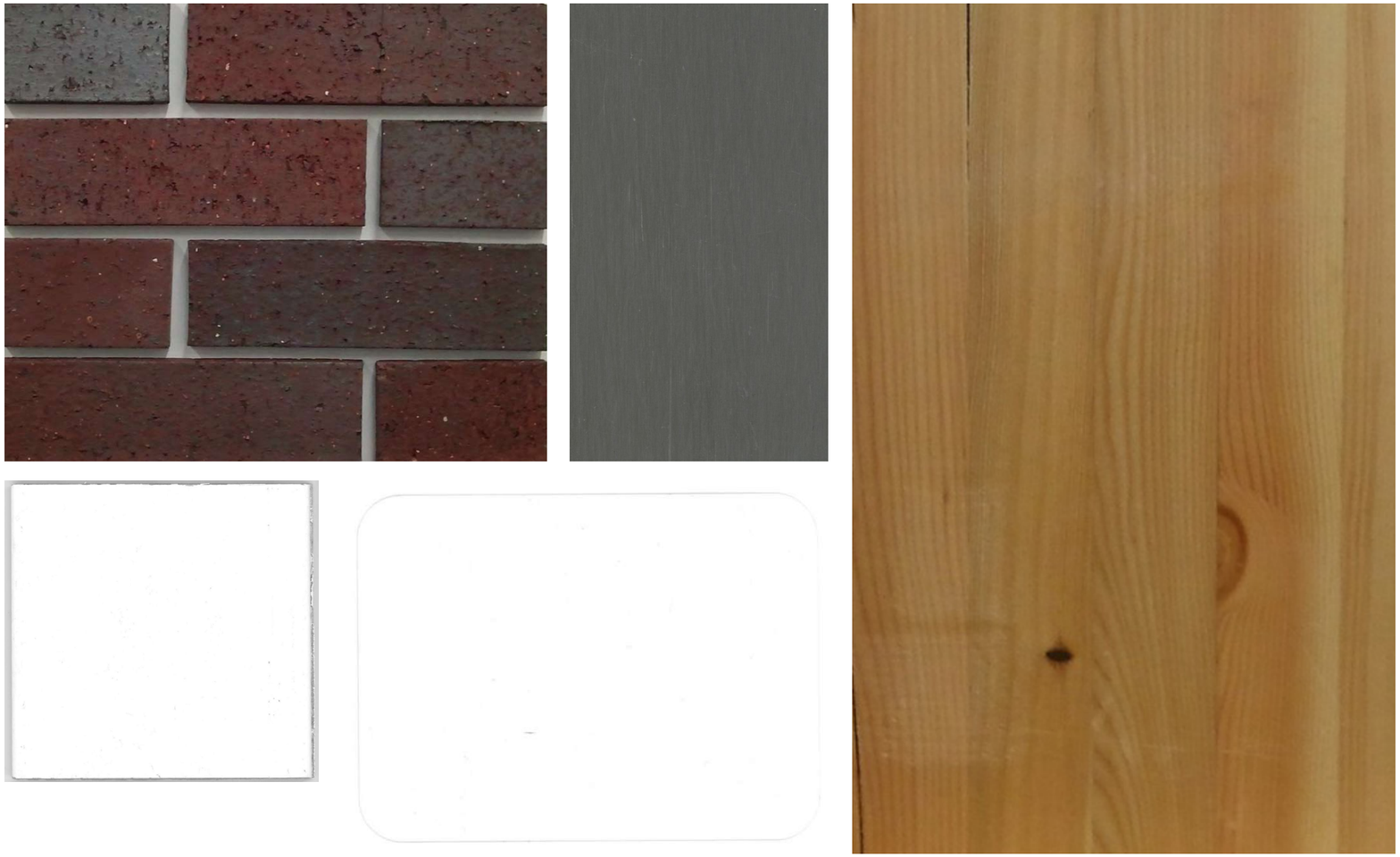


View of Dining Hall from Adair Park

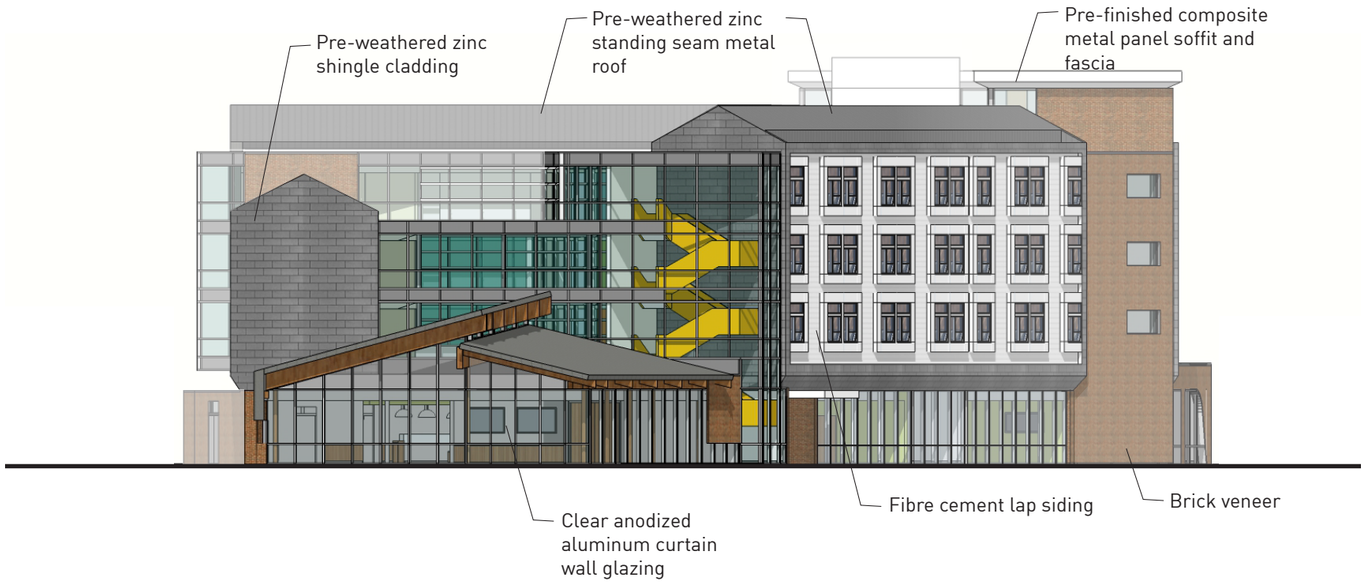
6.6.2 Exterior Materials

Specific building materials and finishes have been confirmed during the Design Development phase that reflect the unique setting of East Campus Village and the residential nature of this project. Materials and building assemblies have been specifically selected for their durability, low maintenance and aesthetic qualities.

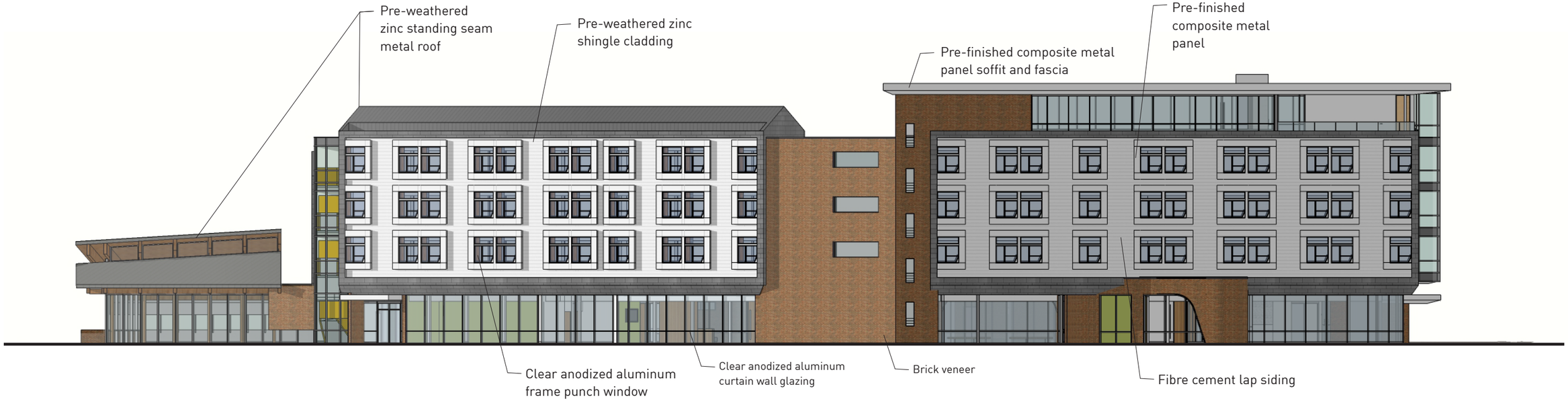
- A deep red iron spot brick is the primary cladding on the main floor, stair cores and vertical service spaces. The iron spot brick was selected for its similarities to the clinker brick that was incorporated into several of the original single family residences located in Garneau and the East Campus Village.
- A pre-weathered graphite grey zinc shingle is used to define the residence blocks that sit above the brick podium main floor.
- White fiber cement siding infill the exterior facades of the residential blocks. The fiber cement siding is durable and does not require on-going maintenance, but its scale and clapboard profile provide a clear connection to the surrounding residential architecture.
- White composite metal siding lines the roof soffits of the City Room. The bay windows that surround the building are also lined with this white composite siding to express the built-in window seats.
- Clear anodized aluminum frame curtain wall with clear low-e coating glazing provides the main floor, the perimeter corridor in the courtyard and City Room with a high level of transparency combined with good overall energy performance.



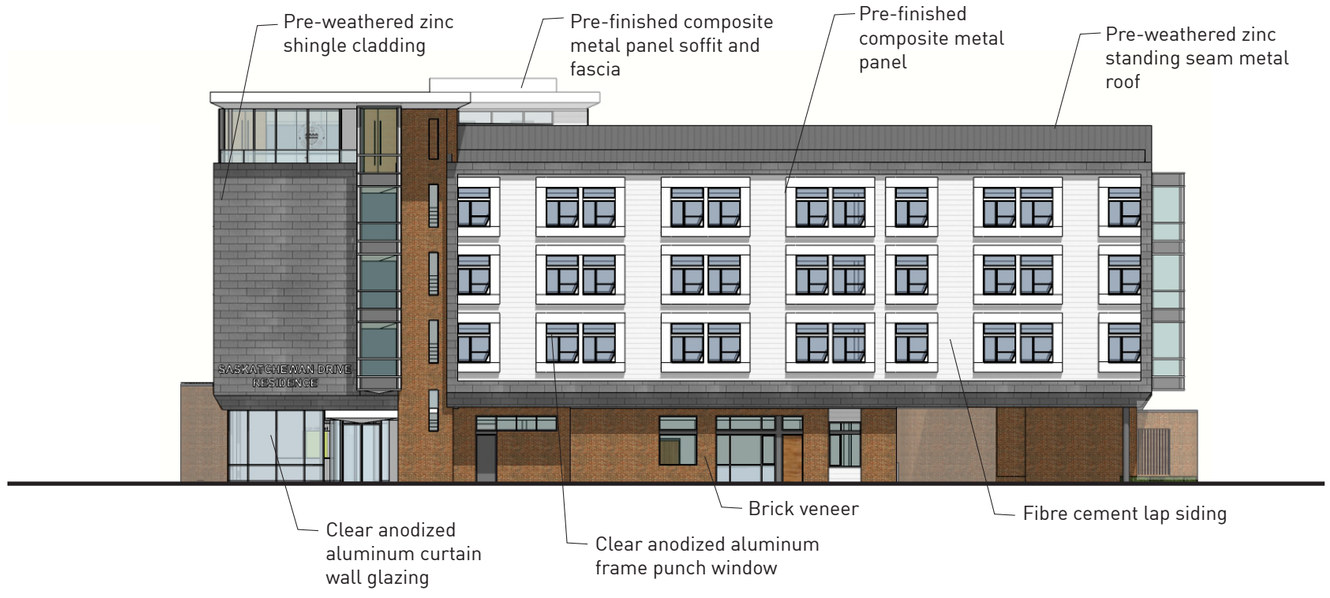
Exterior Material Boards



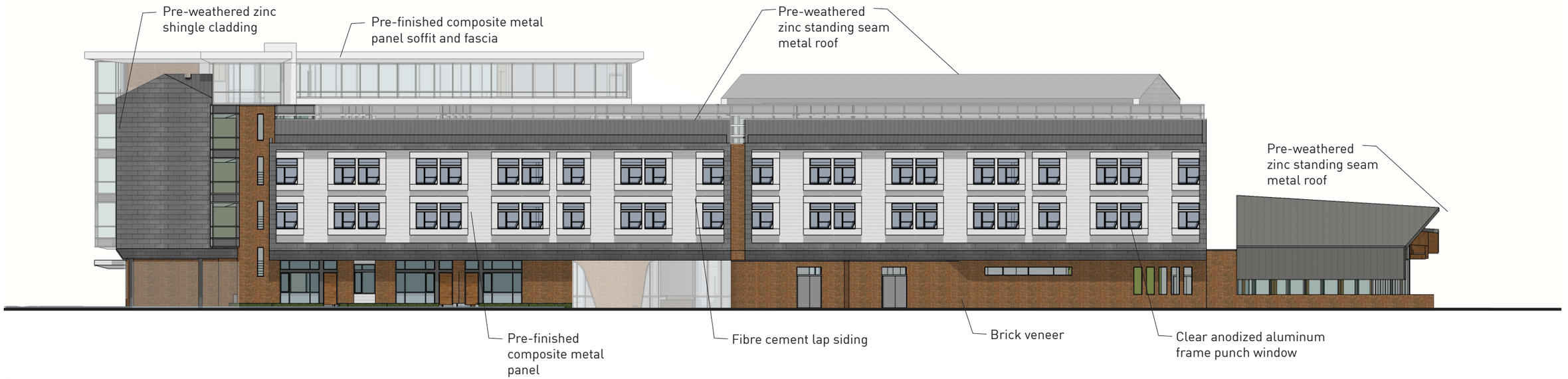
East Elevation



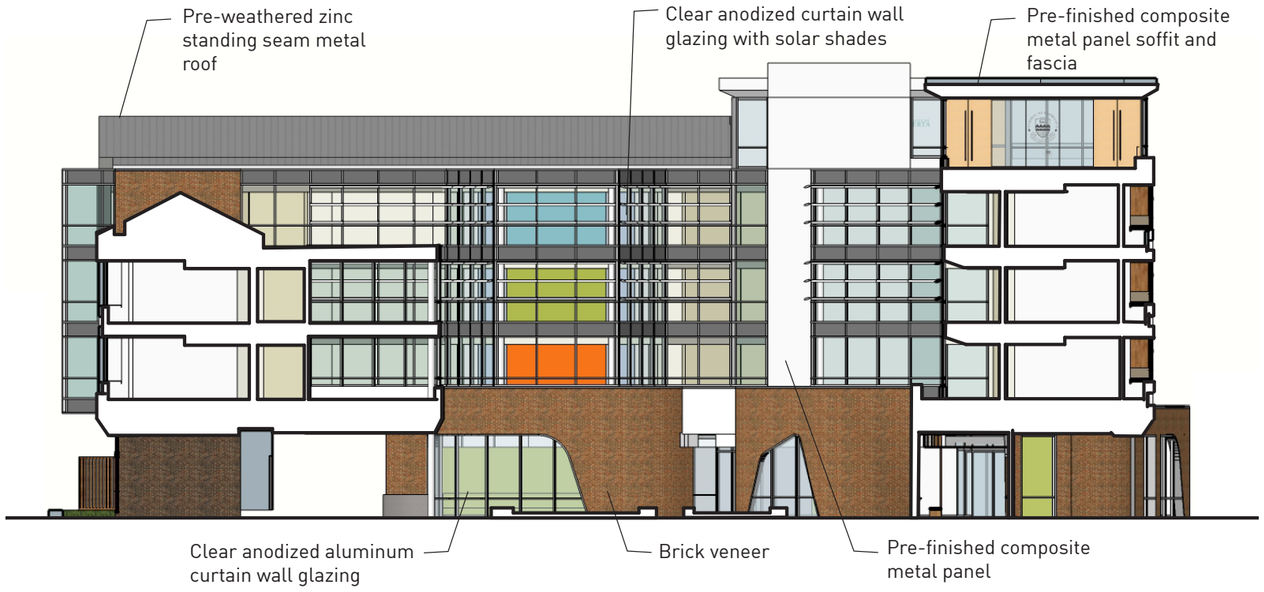
North Elevation



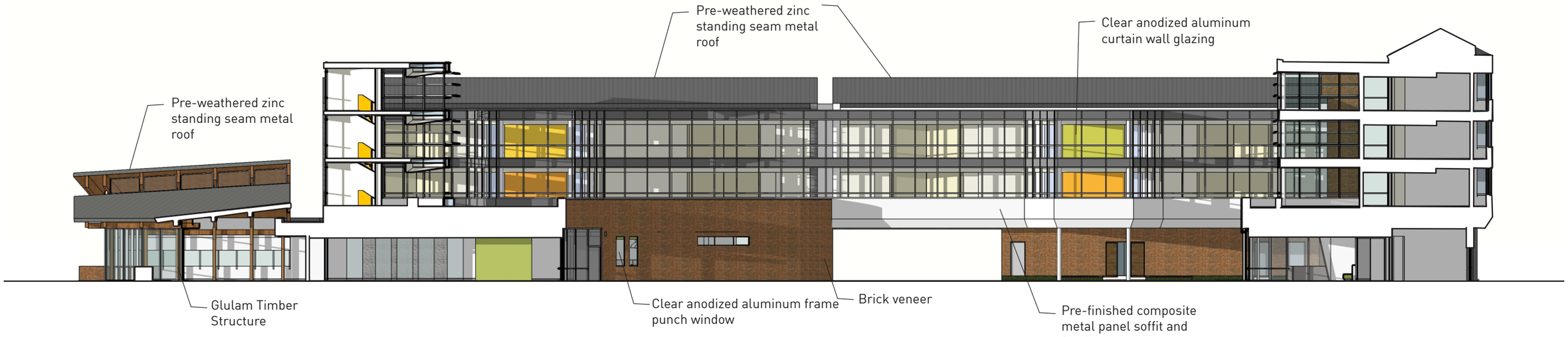
West Elevation



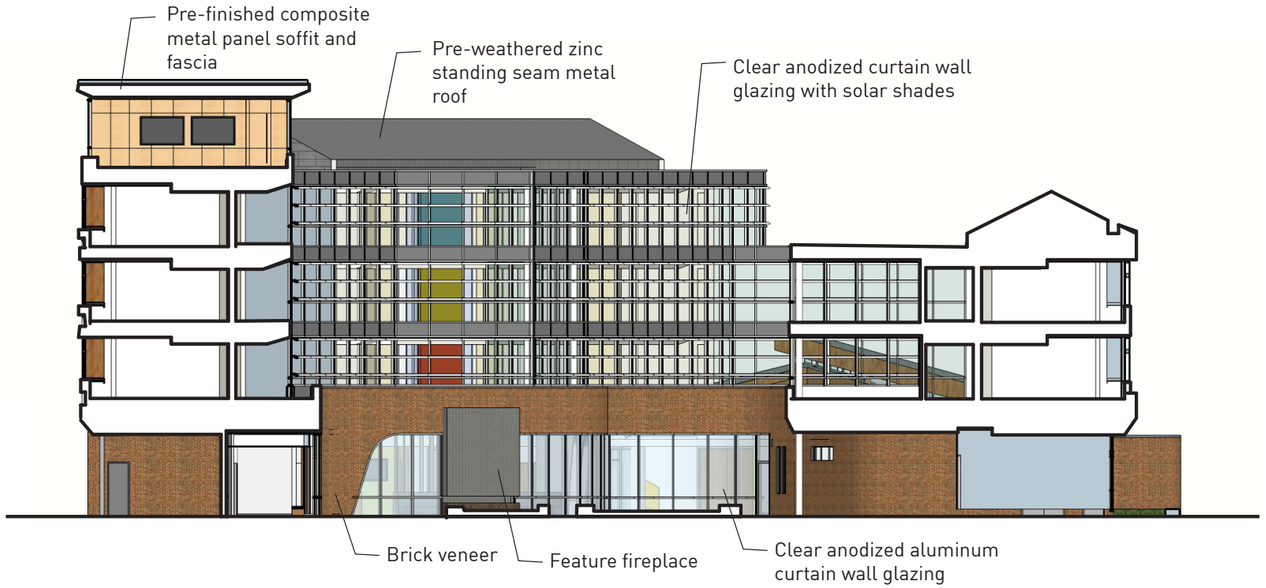
South Elevation



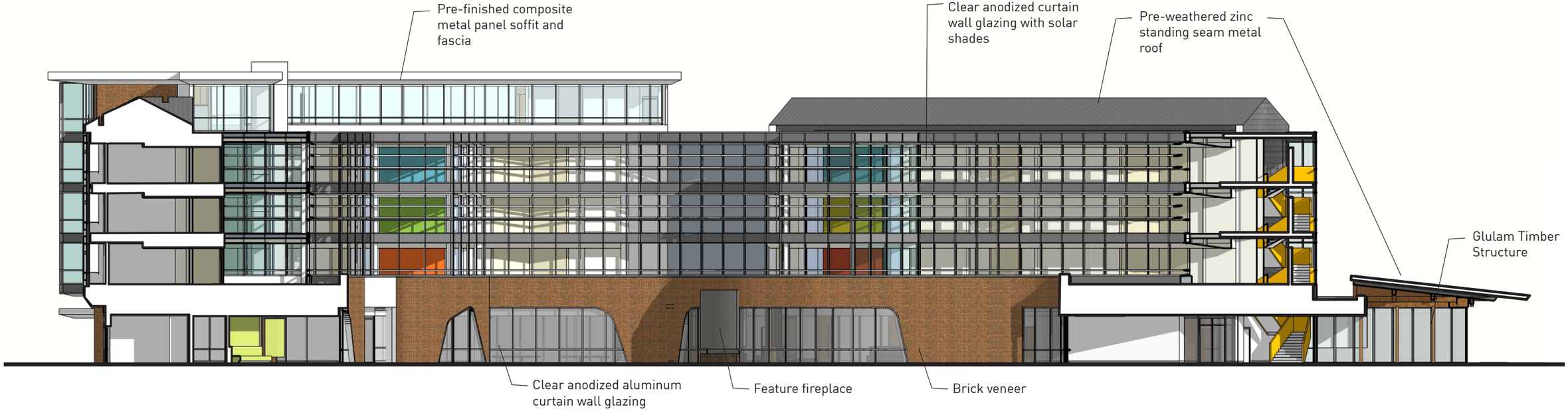
East Courtyard Elevation



North Courtyard Elevation



West Courtyard Elevation



South Courtyard Elevation

6.6.3 Envelope Details

The overall basis of design for the exterior assemblies and building envelope details remain consistent with the Schematic Design. Specified building assemblies have been confirmed in conjunction with an energy model to ensure they respond to the project energy targets as well as constructability reviews. The assemblies select balance aesthetic requirements, performance and cost effectiveness.

Glazing Assemblies

(G1) Curtain Wall Glazing System

- Clear anodized curtain wall system, Kawneer 1600 (UT) System 1
- Double glazed sealed units, c/w low-e coating Guardian Sungard Superneutral 68 on surface #2, on 6mm clear glazing
- 10" deep Kawneer Versoleil single blade sun shade system on south exposures

(G2) Punch Window Glazing System

- Clear anodized punch window, Kawneer 5525 IsoWeb window
- Double glazed sealed units, c/w low-e coating Guardian Sungard Superneutral 68 on surface #2, on 6mm clear glazing

Exterior Wall Assemblies

(W1) Brick Walls

- 90mm Interstate Ironstone L-4 brick veneer
- 35mm air space
- 102mm semi-rigid insulation
- Self-adhering membrane Air/vapor barrier
- 13mm gypsum sheathing
- 152mm steel stud
- 13mm gypsum board

(W2) Zinc Shingle Walls

- 1mm pre-weathered graphite grey interlocking zinc shingle
- 38mm vertical acoustical metal deck fastened to z-bars
- 102mm horizontal G.I. Z-bars
- 102mm semi-rigid insulation
- Self-adhering membrane Air/vapor barrier
- 13mm gypsum sheathing
- 152mm steel stud
- 13mm gypsum board

(W3) Residence Block Infill Walls

- 8mm fibre cement lap siding
- 19mm treated plywood strapping fastened to z-bars
- 102mm horizontal G.I. Z-bars
- 102mm semi-rigid insulation
- Self-adhering membrane Air/vapor barrier
- 13mm gypsum sheathing
- 152mm steel stud
- 13mm gypsum board

Soffit Assemblies

(S1) Wood Soffit

- 38mm x 140mm v-groove stained and treated cedar planks
- 19mm fire treated plywood strapping
- 102mm horizontal G.I. Z-bars
- 102mm semi-rigid insulation
- Self-adhering membrane Air/vapor barrier
- 13mm gypsum sheathing on support structure

(S2) Zinc Shingle Soffit

- 1mm pre-weathered graphite grey interlocking zinc shingle
- 38mm vertical acoustical metal deck fastened to z-bars
- 102mm horizontal G.I. Z-bars
- 102mm semi-rigid insulation
- Self-adhering membrane Air/vapor barrier
- 13mm gypsum sheathing on support structure

(S3) Composite Metal Panel Soffit

- Pre-finished composite metal panel fastened to z-bars
- 102mm horizontal G.I. Z-bars
- 102mm semi-rigid insulation
- Self-adhering membrane Air/vapor barrier
- 13mm gypsum sheathing on support structure

Roof Assemblies

(R1) Typical Flat Roof

- 2-ply SBS roof membrane
- 13mm roofing cover board
- 127mm polyisocyanurate rigid insulation
- Tapered polyisocyanurate rigid insulation to drain
- Self-adhering membrane Air/vapor barrier
- 13mm gypsum sheathing
- 38mm steel deck

(R2) Pitched Zinc Roof

- Pre-weathered graphite grey zinc standing seam roof system on thermal clips
- 2 layers 90mm mineral fibre insulation, slightly compressed
- Self-adhering membrane Air/vapor barrier
- 13mm gypsum sheathing
- 38mm steel deck

6.7 Sustainable Design

The Saskatchewan Drive Residence is targeting Green Globes certification for new construction in Canada. The University has prescribed a target of 4 Green Globes which requires achieving 70 to 85% of the possible points. The sustainable priorities for the Saskatchewan Drive Residence are consistent with the Schematic Design and focus on incorporating durable, reliable, proven and cost effective sustainable strategies and technologies.

The design team has worked with the University's Energy Management Program to identify various sustainable strategies that are eligible for funding. Sustainable strategies incorporated into the project include:

- Maximize daylight penetration and views to the exterior into all occupied space through the incorporation of the courtyard and perimeter corridor.
- Provide double pane low-e coated glazing for both curtain wall and punch window assemblies.
- Provide operable windows in all residence suites.
- Provide passive solar shading on south exposures to reduce summer heat gain around the perimeter corridor.
- Upgrade boilers to condensing style with 92% flat rate efficiency.
- Provide ventilation heat recovery through built-in heat wheel into the main air handling unit.
- Provide LED lighting throughout combined with smart switches in residence suites and occupancy sensors in public and main floor amenity spaces.
- Incorporate low-flow and water efficient plumbing fixtures throughout the building.
- Maximize the use of interior materials that contain high recycled contents.
- Minimize the use of interior materials that emit volatile organic compounds (VOCs).
- Establish construction management plans that divert construction waste to landfill.
- Incorporate local and drought tolerant planting into the courtyard as well as incorporate rain gardens to help manage storm water.
- Provide night sky friendly exterior lighting.
- Coordinate food service spaces to allow for the incorporation of the University's current sustainable strategies for food delivery and waste handling.

The following sustainable strategies were explored during the Design Development Phase but were not incorporated into the final design due to long term payback period or low energy reductions compared to capital cost expenses.

- A "super" insulated building envelope
- Domestic water heat recovery
- Triple pane glazing

Please refer to Appendix A for a current Green Globes checklist outlining points that the design team are targeting as achievable.

7.0 Structural Design

7.1 General

The proposed new building at the University of Alberta, situated along Saskatchewan Drive consists of a partial basement, common main level, and up to four residence levels, with a fifth floor meeting and assembly area. The entire building has a large outdoor courtyard space in the middle. At the east end of the building is a one story dining hall that will have an exposed roof structure acting as an architectural feature in the building.

The goals of the structural design strategy are to produce economical solutions while staying mindful of constructability and sustainable practices. This will be achieved through the selection of structural materials, optimized sizing and incorporating local practices and materials where possible.

7.2 Design Criteria

7.2.1 Codes

- Alberta Building Code 2006
- CSA S16-09 Design of Steel Structures
- CSA A23.3-04 (R2010) Design of Concrete Structures
- CSA O86-09 Engineering Design in Wood

7.2.2 Snow Loads

- Ss = 1.7 kPa
- Sr = 0.1 kPa

7.2.3 Live Loads

- Common areas = 4.8 kPa (includes 1.0kPa partition allowance)
- Residential Areas = 1.9 kPa

7.2.4 Wind Loads

- q (1/10) = 0.32 kPa
- q (1/50) = 0.45 kPa

7.2.5 Seismic

- Site Class D
- Sa (0.2) = 0.120 g
- Sa (0.5) = 0.056 g
- Sa (1.0) = 0.023 g
- Sa(2.0) = 0.008 g
- PGA = 0.059 g

7.2.6 Importance Category

- Normal (I= 1.0 Typically)

7.3 Foundations

Foundation design is based on the geotechnical report by Thurber Engineering Ltd. dated July 29, 2013, which was established from three test holes drilled within the footprint of the new building. The subsurface fill conditions consisted of 0.1 m - 0.3 m of top soil over 0.3 m -1.5 m of clay fill. Below this point native clay was found to depths ranging from 3.8 m to 5.8 m below existing grade, at which point clay till and sand was found. The test holes were 7.3 m deep.

7.3.1 Shallow Foundations

The geotechnical report suggests that conventional spread and strip footings founded in the native stiff clay/clay till soils or on approved engineered fill will be adequate to support the proposed building. The bearing elevation is assumed to be approximately 1.5 m below grade, to protect against frost, with a bearing capacity of 150 kPa. The slab on grade will be thickened at internal spread footings to help reduce differential settlement, which could be approximately 20 mm according to the report. The conceptual layout of perimeter strip footings is shown in Figure 1:

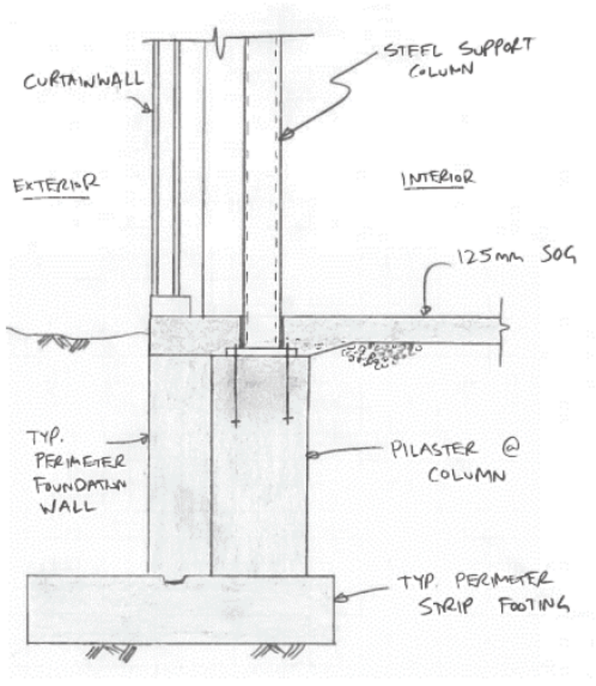


Figure 1: Perimeter Strip Footing Concept

Typical strip footing sizes are 2300 mm wide x 350 deep under perimeter column lines and 2700 mm x 2700 mm x 400 deep pad footings under interior column point loads. The reinforced concrete slab on grade will be 125 mm thick, on appropriate fill material as specified by the geotechnical engineer.

7.3.2 Deep Foundations

The report also suggests alternate foundation options of cast-in-place concrete friction piles and end bearing piles.

The skin friction piles are stated as having a factored ULS skin friction of 20 kPa between 1.5 and 7.0 m below grade and 24 kPa below 7.0 m. The top 1.5 m below grade has negligible skin friction noted. The building would require 600 mm diameter x 5200 mm long friction piles under perimeter column lines and 600 mm x 12000 mm long friction piles under interior column point loads.

The end bearing piles are stated as having a ULS end bearing pressure of 360 kPa at 7 m below grade. The building requires 1100 mm diameter belled ends under perimeter column lines and 2000 mm diameter belled ends under interior column point loads.

Due to the size and number of friction or end bearing piles required to support the superstructure, shallow foundations are considered to be the more economical approach.

7.3.3 Existing Buildings

It is understood that on the site there currently exists a number of single family residences with basements of approximately 1.0 to 1.5 m deep (below existing ground surface). The intention is for the houses to be completely demolished and removed, including foundations, prior to building the new residences.

Subsequent discussion with Thurber Engineering suggests that where the excavation extends below the new required level for foundations, it can be raised with granular engineered fill or clay fill, compacted in 150 mm lifts. Further investigation by the geotechnical engineer will be required to determine if there are any impacts of long term differential settlement between the areas of new foundation supported on native soil and those on compacted fill.

The removal of these existing residences further advances the decision to use shallow foundations rather than piles, as the geotechnical report states that new interior footings may be placed on native stiff clay immediately below the basement level. The required excavation will bring the grade down to the required elevation for placing the interior footings, and closer to the grade required for the perimeter strip footings.

7.4 Main Superstructure

The main structure of the building is primarily steel frame with concrete/steel composite floors as discussed in this section.

7.4.1 Basement

The structure consists of a partial basement in the north-west corner. This will consist of cast-in-place concrete retaining walls with interior load bearing concrete walls. Non-load bearing wall partitions with be CMU block. In certain locations where larger rooms are required, the floor above will be supported with steel columns and drop steel beams. The main floor above the basement will be 300 mm deep composite ComSlab system.

7.4.2 Level One

The main level consists mainly of common areas, with a few exceptions of offices, administration areas and three townhouses. In general, the floor will consist of a 125 mm thick slab on grade, while the north-west corner will be supported by a ComSlab system over the basement mentioned above.

The structure above the main floor will typically be a 300 mm ComSlab system supported on W-section steel beams up to 690 mm deep. Steel 150mm × 150mm HSS columns at this level have been placed to optimize open spaces throughout the floor. Steel transfer beams are required to support the point loads from floors above, and thicker ComSlab, up to 350 mm deep, is required in areas with longer spans. The exception to this framing system is the dining hall located at the east end of the building which is discussed in Section 6.4.6.

7.4.3 Level Two Through Five

The consistent architectural layout of levels two through five allow for significant repetition of structural elements. Typically support columns are steel 203 × 102 hollow sections of varying thickness across the height of the building. They are located within the walls between residences. The columns support steel W-section beams, 200 mm deep at the perimeter and 410 mm deep along the interior side of the residences. These beams in turn support a 300 mm ComSlab system.

In general, columns are aligned floor-to-floor, negating the need for transfer beams. The one exception to this is in the fifth floor city room, where columns are moved to the exterior edges of the room. In this case 310 mm deep transfer beams are used to support them below.

7.4.4 Roof

The roof, with exception of the dining hall and fifth floor city room, is comprised of pitched open web steel joist trusses at 1.5 m o.c with 38 mm steel deck above. The roof over the interior hallway will be cantilevered from the bottom chord of the truss and can be cranked to slope for drainage as required. The following figure shows the conceptual layout of this roof:

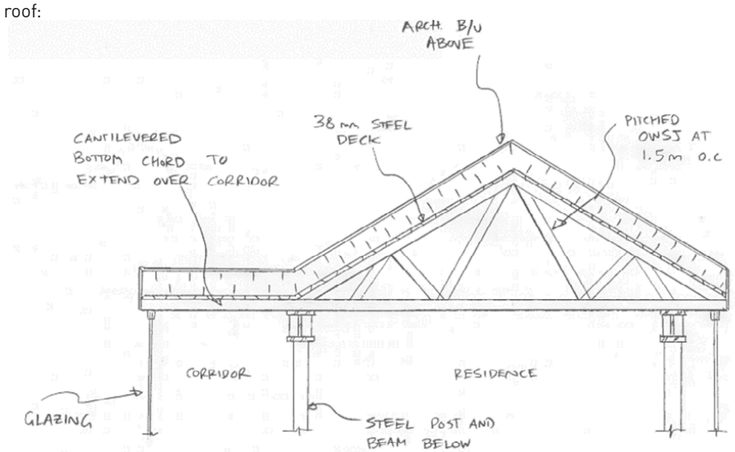


Figure 2: Roof Structure Concept

The roof of the fifth floor City Room will be conventional W-section steel joist framing with 38mm steel deck over. The roof of the dining hall is discussed in section 6.4.6.

7.4.5 Lateral Force Resisting System

The primary means of lateral support for earthquake and wind loads will consist of 102 mm x 102 mm hollow structural steel braces extending to the roof. Braces will be located within the walls and not visually exposed. Where braces are not able to be placed in vertical alignment due to wall offsets, they too will be offset and drag struts utilized to redistribute the load. When braces are used to resist seismic forces, conventional braced frame construction will be used.

With regard to resisting the lateral loads, the building will be separated into two structures by utilizing expansion joints in the northwest and northeast corners. This will allow for differential movement as well as relieving induced stress associated with thermal and lateral loads.

The Dining hall, having a unique timber structure, also has a unique lateral force resisting system discussed in the next section.

7.4.6 Dining Hall

The dining hall roof offers a unique opportunity to introduce highly exposed timber elements. The roof will consist of 12mm plywood on either 140 mm deep nail laminated timber (NLT) panels or locally sourced 130 mm deep fluted WestDek (GLT) panels supported by 215 mm x 342 mm and 215 mm x 760 mm glulam beams with posts at the perimeter. A 265 mm x 988 mm transfer beam along the central ridge will support the glulam beams at the ridge, and provide a clerestory between, as shown in Figure 3 below:

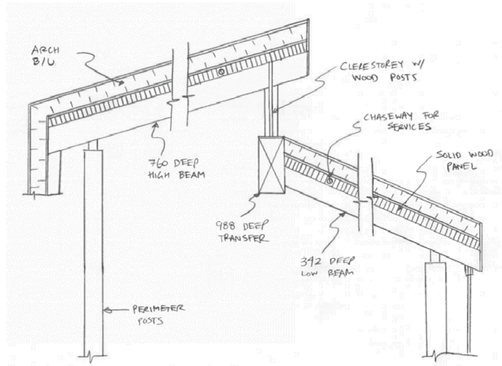


Figure 3: Dining Hall Cross Section Concept

The roof panels will span in the east-west direction and cantilever across the east most beam line to cover the exterior patio. There is the opportunity to place gaps between the panels, creating chaseways to run lighting, sprinklers, mechanical, etc. In the gap instances, 28mm plywood will be required over the panels to achieve the heavy timber fire rating. Conduit can also be placed in the insulation space above. The lateral force resisting system in the dining hall will consist of three exposed stainless steel rod cross braces located along the three external sides.

7.4.7 Atrium Stair

In the north-east corner of the building is a feature stair case exposed to the exterior of the building through full height glazing. The stairs will be supported along the south edge with beams at each level and along the west edge within the wall. A full height post will be located in the north-east corner of the stairwell and provide both lateral support for the glazing and vertical support for the stairs.

7.5 Fire Resistance

The project requires a 1-hour fire resistance rating. The 300 mm Comslab provides a 1.5-hour rating between floors and columns in levels two through five will be located within fire rated walls. Where columns are exposed on the main floor, they will either need to be painted with intumescent paint or clad in a protective layer to achieve the required rating.

The one story dining hall with un-occupied roof is not expected to require a fire resistance rating.

7.6 Curtainwall and Cladding Support

At levels above the main floor, the exterior curtainwall system, and brick veneer in places, will be supported directly by the cantilevered ComSlab slab as shown in the following conceptual Figure 4:

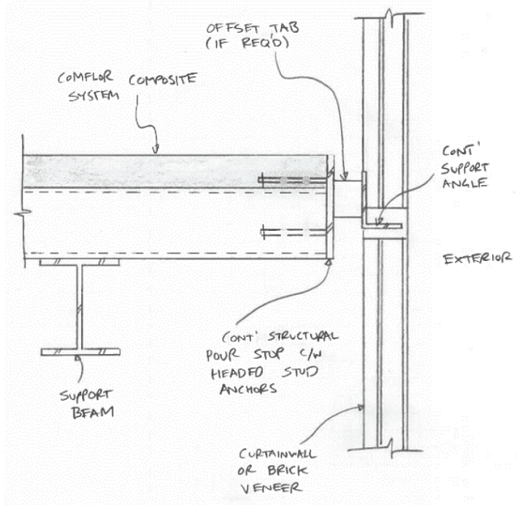


Figure 4: Curtainwall Support Concept

The pour stop will be anchored to the concrete with embedded headed studs in the pour. The support angle will then be fastened to this structural pour stop. Further design progress for glazing maintenance and replacement is in development.

7.7 Construction Methodology

The building is designed so that standard steel frame with ComSlab construction methodology can be used. The dining hall roof beams can be pre-fabricated so that on site modification is not necessary and can arrive as a "kit-of-parts" to be installed.

7.8 Conclusion

A combination of structural materials and systems were chosen for this project to take advantage of each material's characteristics with considerations to structural and architectural performance, cost, erection efficiency, and sustainability.

8.0 Mechanical Design

8.1 Introduction

The following report, schematics and outline specification have been provided for consideration in satisfying the facility design intent. The report conveys the mechanical systems design strategies, and will allow for budget projections for the proposed systems and equipment.

This report offers what is considered the optimal long term solution for the facility, balancing for the greatest potential flexibility, operating efficiency, comfort and ease of maintenance. Sustainable design initiatives and energy saving attributes associated with potential Green Globe building certification are also noted in Appendix A of this report.

8.2 Building Code Requirements

The following is an overview of 2010 Alberta Building Code articles that will have impact on the mechanical work:

- Use and Occupancy: Group A Division 2/Group D
  - We interpret this project will be categorized as a combination of "Residence Space" and "Assembly" space.
- Building Size and Construction Relative to Occupancy:
  - Article 3.2.2.54 - Building must be sprinklered.
- Provisions for Fire Fighting:
  - Article 3.2.5.8 – A standpipe and hose system will be required as the buildings are greater than 3 stories, greater than 14 m high and is sprinklered throughout.
  - Article 3.2.5.16 - Fire Department connections for sprinkler system must be located within 45 m (unobstructed) from a fire hydrant and must be located between 3 m and 15 m from the principle entrance to the building.
  - Article 3.2.5.17 - Portable fire extinguishers must be provided in cabinets not more than 23 m apart.
- Exhaust Duct Negative Pressure:
  - Article 3.6.4.1 - Defines that fire compartments must not have individual exhaust fans that discharge into an exhaust riser.
- Horizontal Service Spaces and Service Facilities:
  - Article 3.6.4.3 - Defines requirements where ceiling plenum can be used for return air.
- Heating, Ventilation and Air Conditioning
  - Article 6.2.1.1 - Defines ASHRAE, SMACNA and NFPA as reference standards for good engineering practice.
  - Article 6.2.1.14 - Defines that an exit stairway serving more than one storey must be heated/ventilated by an independent system.
  - Article 6.2.2.1 - Defines that ventilation (mechanical and normal) shall be provided within the facility in compliance with ASHRAE 62 2010.
- Plumbing Services
  - Article 7.1.2.1 – Defines that plumbing systems must be consistent with Municipal or Provincial Regulations.

8.3 Fire Protection and Life Safety

Sprinklers are planned for the building in its entirety. Areas of the sprinkler zone exposed to cold environments would be dry type to withstand potential freezing conditions and sprinkler heads caged to prevent damage. The remainder of the facility would be equipped with conventional wet sprinklers, zoned in an appropriate fashion to meet code. Fire protection risers will be located in exit stairwells with zone valves exposed for ready service with adjacent drain risers.

A new 150 mm domestic water supply to the building will need to be confirmed to be adequate for the conventional sprinkler service given the proximity of the adjacent water supplies.

The utility service will need to be tested at the closest adjacent site hydrant to determine available residual flow rates and pressures. Given the site size and building layouts, an additional site hydrant will be required.

Ventilation fan shutdowns will be installed for code compliance, and will be interlocked with the fire alarm system.

Fan pressurisation of stairwells will be activated by the fire alarm system via a hard wired interlock. Fan cabinets will be located at the upper stair wells with glycol heating coils for fan tempering.

8.4 Plumbing Systems

Plumbing fixtures will be selected for highest practical water savings to conserve domestic water and achieve Green Globes objectives. Low flow fixtures and dual flush toilets are to be utilised in residences. Low flow fixtures with hands free lavatories, urinals and toilets will be selected for common spaces (valves will be hard-wired to negate the use of batteries).

Sanitary drainage and vent piping will be vertically stacked and terminated at the roof line. Separate drain stacks for residential grey water will be separate from the drain stacks for toilets to facilitate the use of a drain water heat recovery unit optimal for recovery of heat from residential showers.

Domestic hot water for the building's servicing facility is to be provided by a high efficiency hot water heaters installed in the basement mechanical room mechanical space.

All domestic hot and cold piping should be thermally insulated for energy conservation. Domestic hot, cold piping will be extended to all fixtures. Domestic hot water will be generated for distribution at 54°C.

Reduced pressure backflow preventer assemblies will be provided consistent with the National Plumbing Code Requirements.

Sanitary drainage will be consolidated and directed to a new sanitary manhole and connection to the University sanitary infrastructure. A sanitary lift station for drainage in the basement will be required due to shallow inverts of the university system. This lift station would be for grey water only.

Storm water is collected by a system of roof drains, and effluent will be piped to the storm drainage system. The storm piping will be consolidated on the main floor and directed to a new storm manhole that will be tied into the University storm drainage system. Given the shallow inverts, additional freeze protection of the storm main from the building to the manhole will be required (frost box and heat trace).

Subsurface weeping tile drainage will be directed to a basement sump pit with sump pumps.

8.5 Heating Systems

A central heating system will be provided that will serve all perimeter heating elements and air systems. The heating system will consist of the following:

- High efficiency condensing boilers. Preliminary Selections are for 3 x 3000 MBH boilers with one being a redundant boiler. Each boiler will have a dedicated pump.
- A heating water system with a "cascading" primary heating water loop with dual redundant pumps.
- A secondary terminal heating water circuit with dual redundant pumps and variable speed drives. This will direct heating water to various terminals throughout the building.
- A glycol heating system to serve the make-up air unit heating coil as well as the stairwell pressurisation coils as required. This will consist of a plate and frame heat exchanger and dual redundant variable speed pumps.
- Perimeter heating will consist of distributed supply and return piping (iron, copper piping with MNEC insulation) serving radiant panels and force flow heating.
- Supplemental heat for the dining area with an in floor heating system.
- Entrance unit heaters will be ceiling or wall mounted in vestibules and entryways to allow for offsetting of infiltration and heat loss at door entrances.
- Every residence will have a dedicated zone control with electronic thermostat.

8.6 Cooling Systems

- Make-up ventilation air distributed to all areas: common areas, suites and kitchen, etcetera, will be tempered. Control will be for on a pod basis, therefore air will be delivered at a moderate temperature (approximately 16C) with an outdoor air temperature reset. This is will provide partial cooling to "non-air conditioned" suites.
- Packaged Mitsubishi VFR fan coil units using common outdoor condensing units is intended to provide space conditioning to common spaces, the cafeteria, the meeting rooms and selected suites on the main level. Residences will not have terminal cooling at this time.
- Condensing units for the MAU cooling coil, Fan coils for the dining area and the City room as well as the VFR system will be located at one of two roof top locations.

8.7 Ventilation & Exhaust Systems

The building will be served by a central make-up air system providing conditioned outdoor air for ventilation, exhaust make-up and building pressurisation.

The make-up air unit is tentatively 15,000 CFM. Specifics include:

- Direct drive fanwall supply and return fan arrays;
- Heating coil (glycol);
- DX cooling coil served by a remote condensing unit; and
- A heat recovery enthalpy wheel.

The ventilation system will distribute supply air to volume control terminals for residential zones, common space zones (Phoenix Tracel). Terminals in the common areas (dining and city room) will use a variable volume flow based on CO2 monitoring. The kitchen will be supplied with make-up air interlocked with the kitchen exhaust fan.

Washroom exhaust is directed to common exhaust ductwork and through the heat recovery wheel to temper outdoor air. Kitchen exhaust will be served by a dedicated exhaust fan.

The dining hall and the city room are provided with dedicated fan coils to provide space cooling and air circulation.

No humidification systems are proposed for the facility at this time. The relative humidity in the common and tenant spaced will be variable dependent on outside air conditions.

8.8 Thermal Insulation

General
Piping, equipment and sheet metal work with surface temperatures greater or less than surrounding air temperature will be insulated to control heat transfer and condensation, and to meet NMEBC requirements

Piping
Insulation on piping systems will include:

- Heating water
- Glycol systems
- Domestic hot, cold and recirculation
- Roof drains and a portion of pipe near roof
- Plumbing vents near roof
- Refrigerant piping.

Ductwork
Insulation on duct systems will include:

- Outside air ducts/plenums
- Supply ducts carrying conditioned air
- Exhaust/relief ducts near louvers
- Acoustic treatment where required

8.9 Controls

The building would be provided with a central BMS for central control and monitoring of the heating plant, cooling equipment and make-up air unit.

All monitoring and alarm functions will be networked. Generally the networked and unitary control features will include:

- Optimization of system operation and start/stop scheduling for unoccupied ventilation and temperature setback.
- Unoccupied fan system shutdown and temperature setback on the base building zones
- Schedule water temperature with outdoor air temperature to limit heat losses from piping distribution.
- Space temperature and outdoor air condition profile feedback to anticipate supply air temperature settings on air system.

8.10 Site Services

Natural gas, water, storm and sanitary service connections all enter the facilities at various locations on the site plan.

The new gas service to the site will consist of shallow service distribution terminating at exterior meter sets at the complex to serve the residence and base building requirements. The gas service will be piped to the mechanical room and peripheral equipment to accommodate equipment housed within the facility.

The domestic water service for distribution to the building will to be terminated inside the lower level meter room, and distributed accordingly within the building to serve for fire protection and domestic water requirements.

8.11 Design Options and Green Globe Considerations

For the project, the following design options have been included:

- Use of new low flow plumbing fixtures and trim to achieve maximum water use efficiency. Maintenance and functionality are a consideration over conventional commercial flush valve products. Included measures are 4.8 lpf Water Closets and 0.6 lpf urinals with automatic flush valves for common spaces, 4.8 lpf Water Closets for residences, Hands free .5 GPM lavatory faucets for public washrooms, and low flow shower fixtures for residences. All residence fixtures and trim will be equipped with low flow aerators.
- Provision for high efficiency heat pumps/fan coil units at 2.5 to 3 tons capacity for the Variable Flow Refrigerate systems each to achieve optimal energy performance. All refrigerant equipment and selected condensing units will have 410A Refrigerant, and high EERs of 15 to 17.
- Heating plant has been designed with high efficiency natural gas fired boilers which is scheduled to suit the building loads, which circulation pumps are equipped with variable speed drives for further reduction in electrical energy consumption for pumping requirements.
- Building automation will allow for enhanced control and scheduling capability for systems operation to accommodate setback or shutdown of systems when the facility or spaces are unoccupied. Individual zones of temperature control can be enabled to operate on a demand for heating and cooling during off peak hours, depending upon tenant requirements.
- Variable volume control with carbon dioxide sensors for dining hall and City room.
- Primary ventilation systems will incorporate air side heat recovery and controlled ventilation rates to minimize excess air heating requirements, and to optimize on waste heat from the building exhaust air streams.
- Sanitary grey water heat recovery with water to water heat exchanger.

9.0 Electrical Design

9.1 Introduction

The outline of the electrical systems and facilities contained in this report are to describe the Design Development concepts.

This report outlines specific strategies for the electrical systems of the proposed facility and will form the basis for the development of the Design Development phase of the project. A basic outline of the perceived strategies for power distribution, low-tension systems, communication systems and life safety systems for the proposed Saskatchewan Drive Residence have been included to summarize discussions and concepts developed to date.

The electrical services proposed for the Saskatchewan Drive Residence are based upon an anticipated gross building area of approximately 79,000 ft^2.

The electrical design will be based on the following applicable University of Alberta and other applicable standards including:

- University of Alberta, Facilities Management Commissioning Manual.
- University of Alberta, Electrical Design Guidelines.
- University of Alberta, Guidelines for Design and Installation of Street, Sidewalk and Area Lighting – Revised October 2000.
- University of Alberta, Fire Alarm Design Standards, draft copy issued January 2005. · University of Alberta, Electric Utility Standards, draft issued December 2004.
- ANSI, IEEE, EEMAC Standard for High and Low Voltage Switchgear.
- Latest adopted Canadian Electrical Code – Part I.
- Regulations of the Alberta Electrical Protection Branch – Safety Codes Act.
- Latest Alberta Building Code.
- Latest Alberta Fire Code.
- CSA Standard C282-05 Emergency Electrical Power Supply for Buildings.
- CSA Standard B651-95 Barrier Free Design.
- Latest CSA Fire Alarm Standards and ULC Standards.
- Latest Illuminating Engineering Society of North America (IESNA) Standards.
- ICT Telecommunications Design Guidelines, University of Alberta Cabling Standards (Version 2.2, May 23, 2008).
- University of Alberta, Lighting Design Guidelines and Standards (January 2009, Revision 0.2).

Each system presented in this report will be open to further in-depth review with the user groups and University of Alberta Facility Management group.

9.2 Sustainable Design Considerations

The Saskatchewan Drive Residence design will be based upon achieving a Green Globes 4 certification. The rationale for engaging in sustainable design is to create a facility that will contribute to reduced demands on the earth resources. There are four areas that are impacted by engaging Green Globe practices into electrical systems including:

- energy conservation,
- renewable energy usage,
- light pollution reduction, and
- indoor environmental quality.

Sustainability design for the Saskatchewan Drive Residence will be considered based on how Operations can maintain these systems and have the budgets to sustain the systems for operations and replacement of these systems. Further review of these systems will be required during the next phase of design.

Other sustainable design options to be considered for review are:

- Photovoltaics and two way metering. Further review is required to determine the feasibility of using PV arrays.
- People counters to be used in certain rooms - City room and dining hall integrated with BMS system.

Energy Conservation

Electrical energy comprises a small portion of the total energy consumed by a facility but when expressed in actual utility costs, the electrical system consumes approximately 20 - 40% of the total building's energy budget. The following initiatives will be adopted in the design to reduce the building's energy consumption:

- Use the latest illumination technology including primarily LED lighting.
- The Minimum Energy Performance prerequisite in Green Globes is intended to comply with the minimum level of energy efficiency as specified in latest version of ASHRAE 90.1.
- Other measures that can further improve the baseline energy performance is the use of occupancy sensors, dimming controls, daylight harvesting sensors, photocells, and improved local controls including those employing a digital addressable lighting system. An interface to the University's building automation system will optimize the use of lighting and ventilation systems when a space is occupied and reduced usage when spaces are not occupied.
- Engineered lighting systems to provide appropriate lighting levels that are safe and effective. Lighting will comply with prescribed guidelines rather than using light levels that are on the high end of the IESNA (Illuminating Engineering Society of North America) standard. It is proposed that lower ambient lighting levels be employed in offices, suites, circulation spaces, and corridors.
- The following non-Green Globes energy efficient design parameters will be considered:
  - Power distribution centres will be located as close as possible to their connected loads, thereby minimizing the length of branch circuit wiring which in turn will improve the voltage regulation.
  - Designated equipment to have "manual-off-automatic" controls such that they can be run in manual mode or automatically through the building management system.
  - Use of copper-wound versus aluminum-wound transformers. Copper-wound transformers are more efficient than aluminum-wound transformers and consume less energy.
  - The design will favor the use of environmentally friendly components such as LED lamps which have no mercury content.

Indoor Environmental Quality - Controllability of Perimeter and Non-Perimeter Spaces

An option is to utilize advanced lighting control system technology. One such system would be the use of a digital addressable lighting interface system. This technology can offer significant energy savings and excellent control. Luminaires can be controlled separately or in large groups. The digital addressable lighting interface system would also offer the convenience of reprogramming existing luminaires to adapt existing spaces for new program requirements. Dimming can be achieved locally or from more centralized location(s).

9.3 Electrical Systems

Power Distribution – Approach
The design approach for this facility is to provide a single-ended substation with 13.8 kV on the primary side with a 600 V secondary distribution.

Power Distribution System Design
The total connected load for Saskatchewan Drive Residence is estimated at approximately 792 kW and 530 kW demand load based on a building size of 7,920 m2. An 800A, 347/600V service is estimated but demand loads will need to be further reviewed with UofA Electrical Utilities. To transport power efficiently over a large area and to numerous loads, one (1) 13.8 kV single-ended substation will be provided complete with 750kVA transformer and Main distribution panel. The design provides for a minimum of 25% reserve capacity. Service to the building will be provided by UofA Electrical Utilities group.

Main Electrical Room
Will be located in the basement - to house single ended substation to meet arc flash requirements for both 13.8 kV and 600V distribution. A review will be required to determine access to electrical equipment replacement in the future.

Sub Electrical Rooms:
South Wing - to house 600V and 120/208V distribution

North Wing - to house 600V and 120/208V distribution

120/208V Panelboards will be provided and designated for suites and specialty areas.

The Saskatchewan Drive Residence service entrance switchgear will be metal enclosed 15kV rated indoor style load break fused switching devices and vacuum circuit breakers. All low voltage switchgear (600V) will be metal-enclosed indoor rated, with withdrawable-type power-air circuit breakers complete with programmable protective relays.

The standard operating, distribution and utilization voltages for Saskatchewan Drive Residence will be 600V, 3-phase, 3-wire and 120/208V, 3-phase, 4-wire. In general, feeders that supply 208V distribution transformers, large mechanical motor loads, and with high amperage electrical loads will be supplied at 600V. All site lighting not affixed to building will be fed at 120V.

All other loads will be supplied from 120/208V, 3-phase, 4-wire electrical distribution systems. A sufficient number of 120/208V panelboards will be located in the suite areas to maintain required voltage levels. The panelboards will have a minimum of 25% spare for future use.

Emergency Power Distribution
Emergency power for the Saskatchewan Drive Residence is currently being reviewed to determine the feasibility of providing a natural gas generator to provide emergency power to the life safety systems vs. providing battery units for these systems. Emergency power system will be designed to accommodate base building life safety systems including fire alarm, lighting systems and the elevator. No mechanical equipment is proposed to be connected to the generator. The calculated load is estimated to be approximately 40 kW. A 75 kW, 120/208V generator is recommended if this is the approach the project takes. All emergency power loads will be supplied from 120/208V, 3-phase, 4-wire distribution systems. A sufficient number of 120/208V panelboards will be located in the suite areas to maintain required voltage levels.

Note: Further review is required by the University of Alberta to determine the feasibility of providing a generator.

Grounding and Bonding
Grounding system has been designed to provide a low impedance path for ground fault currents to flow.

Each of the electrical rooms will have a grounding bus connected to the building's main system ground, which in turn will be connected to the ground grid. All non-current-carrying metal parts of equipment in the electrical rooms will be bonded to ground per Canadian Electrical Code. This will include all metal raceways, equipment enclosures, metal structures, low tension systems, and miscellaneous metal systems. A bonding conductor will be provided in each conduit.

Each of the telecommunication rooms will have a grounding bus connected to the building's main system ground, which in turn will be connected to the ground grid.

General Wiring
All wiring will be installed in conduit. Copper wiring is recommended to be used in the facility. It is recommended that conduit not be installed in the concrete slabs. This will provide greater flexibility for future renovations and additions. The use of cable tray systems will only be used in accessible ceiling spaces where required.

Cabling for life safety systems such as elevators, fire alarm systems, etc. will be minimum one-hour fire rated.

Drive-rated cables will be used from VFD's to the motors when they are separated by more than 10m of cable length from the VFD's.

Lighting
The lighting system will be designed to provide for the functional requirements of the installation. The Illuminating Engineering Society of North America (IESNA) standards and the University of Alberta lighting design guide will be the key references. Established standards and parameters for an educational facility, residential facility, office space facility, and multi-use facility will be used for the design as they apply to specific areas; however these standards and parameters may be altered to achieve Green Globes certification. Energy consumption considerations and lighting levels will be carefully weighed with the benefits of achieving a Green Globes certification.

The lighting system for the Saskatchewan Drive Residence will be designed to provide integration of numerous lighting techniques to provide vibrant and attractive atmosphere that is both inviting and engaging for the people within the space. It is the intent to provide layered lighting within public circulation and gathering areas that will enhance the building's profile on campus. It will both augment and add to the architectural elements of the space in providing a visually stimulating environment that is comfortable and welcoming. It is the intention that the design will integrate the various aspects of the lighting system with the building's space functions, mechanical systems, and architectural elements. Integration of natural light captured by the building will take on a key role in achieving desired illumination.

LED luminaires will be used throughout the facility; no fluorescent or incandescent lighting will be used.

Lighting Control System
All building lighting will be controlled to decrease energy use, allow flexibility, and to meet the requirements of the University of Alberta. The lighting control system will be a combination of local and automatic controls that will interface with the Building Automation System. Controls will include:

- Daylight sensors for perimeter spaces, recreation room, dining room, fitness room, upper floor corridors and social spaces. This daylight control will be dimmable for luminaires in these areas.
- Occupancy sensors will be provided in all public areas including corridors, dining room, offices, washrooms, and similar spaces.
- Storage rooms and utility rooms to be complete with local on/off combination occupancy sensor switch.
- Suites: Lighting control within suites to be a combination switch/sensor with 'vacancy' setting; manual on, auto off.
- Central time clock control. All general building lighting, with the exception of suites and low-usage areas will be controlled using a central time clock via the centralized addressable system.

The control system is being provided to meet the requirements of the Green Globes program and intended to not only increase user comfort and ease of maintenance, but to reduce the energy usage in the building.

The general lighting source to be used in the facility will be LED. Reasonable attempts will be made to limit the number of different fixture types, while providing good quality lighting. The rationale for using LED lamps is their low power consumption, high lumen efficacy, above-average color rendering properties, ability to dim and lower maintenance and upkeep costs.

Decorative lighting will also be provided in select areas. Further discussion with the University of Alberta and Architect required to confirm extent of decorative lighting.

Should an emergency generator be provided for this project, certain luminaires in public spaces and paths of egress will be connected to the emergency power system to provide the code required egress lighting; this lighting will also operate as the 24/7 night lighting for the space. Should an emergency generator not be provided for this project, emergency lighting will be achieved through use of battery packs and remote LED heads.

Fire Alarm System
The fire alarm system will be a single-stage, annunciated, class A-wired and electrically supervised system. Zoning of the fire alarm system will be based on smoke zone subdivision. System devices will be of the addressable type and will consist of manual pull station, products-of-combustion detectors, thermal detectors, and sprinkler flow valves.

Fire alarm sounding devices will be of the audible and visual (strobe) type in compliance with the latest Alberta Barrier-Free Code requirements.

Main Fire Alarm Control Panel will be located in the Main Telecommunication Room in the basement; Main Fire Alarm Annunciator Panel will be located at the main west entrance.

No fire phones will be provided.

In-suite notification devices will not be used in suites; note that suite signaling will include a speaker circuit dedicated to the suites (per floor) and a separate speaker circuit (per floor) dedicated to common areas.

Smoke detectors will be used in all suites and connected to the main fire alarm system.

The fire alarm system will also be interconnected into the campus wide FM Net system and Mass Notification System.

The network connection will be at the FACP, not the annunciator. The FAAP will be a standard transponder interface annunciator only. It will require a dedicated 120V circuit , and will consist of an 8-line display, remote microphone, control switches for paging and bypasses, and a spare tub for mounting a graphic. FACP will include the same functionality (display, microphone, switches, graphic, etc.).

9.4 Low Tension Systems

This section of the report discusses the various low tension and security systems that are envisioned to be installed in the Saskatchewan Drive Residence. Each system has been identified in an effort to capture the perceived requirement for the Saskatchewan Drive Residence.

Access Control System
Card access control will be provided as follows:

- Within elevators.
- All perimeter doors complete with door contacts for monitoring.
- Select room locations within the facility as per University of Alberta requirements.

The team will be engaged in detailed discussions with the University of Alberta user groups and facility management staff to define which additional doors require card access.

At the present, the project will allow for the installation of conduit and cabling system complete with all necessary power supplies. Devices and head-end equipment will be provided by the University of Alberta.

Security Systems
Security design requires further discussion with the users and Architect; however, it is envisioned that the courtyard will contain security television pan tilt zoom cameras with head-end equipment located within the communication rooms. Specific locations being considered for closed-circuit television (CCTV) monitoring are as follows:

- CCTV at all entrances mounted on building perimeter as required.
- Blue phone on the West side of the building off 111st with viewing camera in the area.

In addition to the above, glass break sensors will be provided in main floor spaces such as fitness room, recreation rooms, quiet study.

Emergency Blue Phone system
Blue phones will be provided as required to meet the overall campus requirements. Discussions to date involved providing blue phones within the courtyard area but further review is required.

Clock System
GPS wireless clock system will NOT be provided.

Public Address system
A building wide public address system will NOT be provided.

Mass Notification System
A Mass Notification system will be deployed throughout the facility and will be fully integrated with the Campus wide system connected through the fire alarm system interface. The system will incorporate text to speech functionality through the fire alarm system speakers. Marque messaging boards and Alertus panels will be provided throughout and will require further coordination with the University for locations.

Communication Infrastructure
Incoming service will be provided by the Electrical Contractor via underground fibre and copper lines fed from International House located to the South of this facility.

Main Communication Room – Service Entrance
Main Communication room – will be located in the basement to house telephone/data, demarcation point, fire alarm and security head end systems.

Communication Rooms
Sub Communication Rooms will be located in the North and South wings on the main floor.

Communication closets – will be located in the South wing.

Communication Rooms on each floor will also house all the switches for data/voice and wireless infrastructure. In addition, (where required), the Communication Rooms will house IP-based building access and controls, fire alarm and security systems.

Each of these rooms will support the University of Alberta's needs for equipment, cabling and access control. Further review is required with the University of Alberta ICT group.

Structured Cabling Pathways
Communications cabling will be installed in conduits and routed to the nearest zone box. A larger conduit will be provided to route back to the nearest communication room. All conduit for communication systems shall be EMT (electrical metallic tubing). Flex conduit is not permitted. Minimum conduit size for voice/data outlets will be 27 mm. Maximum fill ratio is 40% per the Telecommunication Industry Association standards. Office areas will have an additional set of two (2) conduit runs to be located on an opposite wall complete with pull strings to allow growth and/or support office rearrangements. Design will provide for one power receptacle (2 per duplex outlet) per data port.

Routing of horizontal structured cabling will be accomplished by utilizing a conduit and zone box system within the corridors.

Note: 'Free air' cabling will not be permitted unless reviewed and accepted by the University in certain areas.

Data and Voice Cabling – Structured Cabling
A power duplex outlet will be placed in close proximity to all voice and data drop outlets including future data/voice drop locations.

Data:
Network Architecture: Using standard ethernet design concepts and protocols, this system will be built on a logical bus and centralized physical star topology using vertical and horizontal cabling and localized switching. The horizontal segments will be built using structured cabling solutions with home runs from the outlet jack back to rack mounted patch panels inside the closest Communications Room. Vertical segments will provide connections between the Communications Rooms and a centralized location such as the Main Communication room. Fiber connections will be made to the campus wide area network(s).

Desktop/Suites
Copper: Certified Category 6 unshielded twisted pair structured data/voice cable will be utilized for horizontal distribution. The maximum cable run distance is 90m between terminating devices (additional 10m allowance for interconnecting patch cabling).

Fibre: Full duplex 50/125 micron optimized multimode fiber optic cable is to be provided at user designated locations for high speed / bandwidth applications. Cable runs will be dependent upon type of cable selected but typical multimode is 300m and single-mode 1000m; however, the maximum horizontal run shall remain 90m per the Telecommunication Industry Association standard.

Specific requests for an unbroken fiber connection between two (2) points longer than 90m that also require spanning floors will be considered on a case-by-case base nature. It is likely that this fiber will be physically separated or uniquely marked to avoid confusion with other riser fibers.

Voice
Voice communication will consist of both Voice over Internet Protocol (VoIP) for standard voice communication and traditional hard wired Private Automatic Branch Exchange (PABX) telephone switch connections for emergency phones and phones as designated by the University of Alberta (i.e. payphones). The expectation is that the limitations of VoIP such as e911 and reliability will be addressed.

VoIP Network Architecture: The design will consist of a certified category 6 UTP cable between each outlet jack to a rack inside the Communication Rooms. At the rack, the cabling will be translated into a fiber connection back to the Main Communication Room where it will connect to a VoIP Call Manager.

The telephone handsets and the telephone switch will be supplied, installed and programmed by the University of Alberta as required.

Audio Visual and IT requirements
The following spaces have been classified to provide different levels of audio-visual and IT requirements. Further review and confirmation is required by the University of Alberta:

Tier 1 Classification (Dorms, Main Floor Seating Area, Lobby area, Fitness Room):
- Data outlets to be provided in various locations
- USB outlets to be provided in various locations
- TV locations to be provided in Lobby area and Fitness room
- Student Union TVs to be provided in these areas with the exception of the Dorms.
- Seating Area:

Tier 2 Classification (Social Spaces, Recreation Room):
- Data outlets to be provided in various locations
- USB outlets to be provided in various locations
- Smart LCD TVs to be provided within these spaces complete with conduit rough in for capability of having laptops and gaming consoles plug into TV – for HDMI and USB connections.
- Provide sound system locally in the space connected back to AV rack with inputs
- No overhead projector requirements.

Tier 3 Classification (Dining Room):
- Data outlets to be provided in various locations
- USB outlets to be provided in various locations
- Provision for sound system throughout connected into AV system
- Overhead projector and screen on west wall
- Provision for two-way conferencing capabilities in various areas where floor boxes are located.
- Provide LCD monitors - for digital displays - total of 3

Tier 4 Classification (Conference Room):
- Data outlets to be provided in various locations
- USB outlets to be provided in various locations
- Provide two (2) LCD or SMART board screens complete projector and video conferencing capabilities at front of room
- Speaker and microphone system to be provided
- Floor box outlets located beneath table with power and data
- AV outlets located beneath the LCD screens
- No overhead projector requirements.

Tier 5 Classification (City Room):
- Data outlets to be provided in various locations around perimeter
- USB outlets to be provided in various locations around perimeter
- Provide two (2) LCD or SMART board screens complete with projector and video conferencing capabilities at front of room
- Speaker and microphone system to be provided
  - Floor box outlets located beneath tables with power and data
  - AV outlets located beneath the LCD screens
  - Overhead projector with screen on east wall
  - Sound system complete with three zones: City Room, Terrace, Lobby area.
  - LCD screen in lobby area to be provided with power and data provisions.
  - Lighting controls to be interconnected with AV system

Wireless Local Area Network
With the exception of mechanical rooms and areas sensitive to radio frequency interference (RFI), this facility will contain a complete 802.11abg enterprise designed wireless infrastructure consisting of access points, network switches, servers, wireless local area network (WLAN) controllers and the necessary cabling infrastructure as required. It is our understanding that the University of Alberta has conducted a review of existing WLAN technologies for capable enterprise wide wireless wide area network (WWAN) solutions and has decided on a Cisco system provider. The Saskatchewan Drive Residence wireless solution will be an extension of the campus wireless system. It is also anticipated that there will be wireless hot-spots offered for the general public.

Although not requested at this time, the wireless network will be designed to incorporate the use of Voice over IP Wireless phones. This will require an access point distribution that supports e911 triangulation. Unlike data that can be resent if lost or damaged, voice communication is highly susceptible to drop out. Data communication success over a WLAN depends mostly on WLAN localized bandwidth and security. Combining the needs of voice and data will require an access point distribution with 20% overlap with minimum cell edge signal strength shall of –70 dBm and a minimum Signal to Noise Ratio of 25 dB and numbers sufficient to maintain high speed communication.

The density of access points in most areas will be spaced a maximum of 10 to 20m based on the level of usage required. Further review will be required.

To reduce installation costs, 'Power Over Ethernet' will power access points.

9.5 Mechanical Systems

All motors 0.25kW and smaller will be single-phase 120V and all motors at 0.37kW and larger should be 600V, 3-phase. The supply and installation of all motor protection switches, starters, and disconnect switches for mechanical equipment will be provided by the electrical contractor. Time delay relays will be provided for all motors 18.65kW (25hp) and larger. A disconnect switch will be provided for and at each motor. Motor control centres of the grouped design should be utilized where large quantities of mechanical equipment are located such as at wet mechanical rooms, penthouses, etc. In order to reduce capital costs of equipment and allow more effective use of mechanical room space, VFD controlled motor loads will be fed from Distribution Centres (CDP) rather than Motor Control Centres. Energy consumption of all HVAC loads is required to be measured for the Green Globes measurement and verification credit.

The variable speed drive starters (VFDs) and electrical equipment to be grouped away from wet, dusty, or hot areas.

9.6 Commissioning and Testing

In a project of this nature it is imperative that the commissioning and testing of major electrical equipment and systems be undertaken by a commissioning and testing agency. This work will include necessary verification and start-up procedures. Operation and Maintenance manuals incorporating copies of shop drawings, complete schematic diagrams, recommended maintenance schedules, and logs, system operation write-ups, test results, and safety procedures will form part of the electrical contractor's scope of work.

9.7 Electrical Calculations

The building area, including basement is 7920 square meters.

Power Demand Calculation Based on Typical Building Power Consumption
Power Loads = 30W/m^2
Mechanical Loads = 30W/m^2
Lighting Loads = 7W/m^2
Estimated Demand = 67W/m^2 × Building Area
=530.640 kW

Minimum transformer sizing @ 80% loading of transformer
= Estimated Demand ÷ 0.8
= 663.3 kVA

Next available transformer size is **750 kVA.**

Power Demand Calculation Based on CSA 22.1-12 (CEC 2012) Section 8-208
Total Area × 20 W/m2 = 158.4 kW
Estimated Mechanical Load = 30W/m^2 × Building Area
= 237.6 kW

Estimated Lighting Load = 7W/m^2 × Building Area
= 55.44 kW

Miscellaneous Load:
Fridge (in each unit) = 750W × 143 Units
= 107.25 kW

Elevators = (25 HP × 745.6W/m^2) × 2
= 37.28 kW

Coin Laundry = 3 (Floors 2, 3 and 4) × 6 sets per floor
= 18 sets at 6000W
= 108 kW

Each set = Washer + Dryer
= 1000 W (typical) + 5000W (based on 80% loading of 30A-2P (26-744))
= 6000W

Total Connected = 701.97 kW

Section 8-208 (2)(b): Demand Calculation for building in excess of 900m^2
Estimated Overall W/m^2 = 701.97kW ÷7920m^2
= 88.63 W/m^2

Estimated Demand
= Electric Space Heating Load + 80% of Load per m^2 for first 900m^2 +65% of Load per m^2 of remaining
= 0 + 63815 W + 404430W
= 468.24 kW

Minimum transformer sizing @ 80% loading of transformer
= Estimated Demand ÷ 0.8
= 585.3 kVA

Next available transformer size is **750 kVA.**

Generator Sizing: Life Safety System Only
Estimated Load:

Fire Alarm = 1000W

Emergency lighting = Assuming ⅓ of light fixtures will be on emergency
= ⅓ × 7W/m^2 × 7920m^2
= 18.48 kW

Fire Fighter's Elevator = 25HP × 745.6 W/HP
= 18.64 kW
Estimated Emergency Load = 38.12 kW

Minimum transformer sizing @ 80% loading of generator
= Estimated Emergency Load ÷ 0.8
= 47.65kW

Next available transformer size is **50 kW.**

Power Information Based on Typical Building Power Consumption
SMP Project Number: 14-04-4490
Building Name: U of A Saskatchewan Drive Residence
Building Detail: Number of Floors: 5, Area: 7920m^2

Connected Load:

Lighting:
Mechanical:
Power:
Miscellaneous:
Total:792 kW

Estimated Demand:

Lighting: 55.44 kW
Mechanical: 237.6 kW
Power: 237.6 kW
Miscellaneous:
Total Demand: 530.64 kW

*The information shown is estimation based on typical commercial building connected and demand loading. Refer to calculations in Appendix for more information.

APPENDIX A: GREEN GLOBES CHECKLIST

University of Alberta Leadership College 23rd April 2014: Preliminary Green Globes Canada Checklist	Summary of Requirements	25%:1GG 40%: 2GG 55%: 3GG 70%: 4GG 85%: 5GG 100.0% Available Points	65.69% Yes	19.43% Maybe	14.88% No	8.66% N/A	Commentary
1. Project Management		-					
1.1 Integrated Design Process (IDP)		-					
1.1.1 Pre-Design IDP Meetings: Key Participants	Were at least 5 key design disciplines included in the IDP process?	2	2				The project is and will continue to follow an Integrated Design Team process with key disciplines involved. This requires documentation.
1.1.1 Pre-Design IDP Meetings: Additional Participants	Did the IDP process also include others such as Facilities Manager and /or Interior Designer, Community Representative or Landscape Architect, or other Supporting Experts?	0.5	0.5				The project is and will continue to follow an Integrated Design Team process with key disciplines involved. This requires documentation.
1.1.2 IDP Performance Goals Level 1	Were qualitative green goals established in pre design? - Site design? - Envelope? - Materials Efficiency? - Indoor Environment? (0.5 for each)	2		2			Green performance goals to be discussed but not thought to have been established during pre-design other than GG rating.
1.1.2 IDP Performance Goals Level 2	Were performance metrics set at pre-design phase? - Energy efficiency? - Renewable energy? - Greenhouse gas emissions? - Water conservation, efficiency and reuse? - Life cycle impact? - Construction Waste Diversion? (0.5 for each)	3		3			Green performance goals to be discussed but not thought to have been established during pre-design other than GG rating.
1.1.3 IDP Progress Meetings for Design Level 1	Were there IDP progress meetings before the end of: - Concept Design? (0.5) - Design Development? (0.4) - Construction Documents? (0.4)	1.3		1.3			To be confirmed whether meetings were held and are required for further stages.
1.1.3 IDP Progress Meetings for Design Level 2	Are IDP progress meetings required before completion of: - Pre construction? (0.3) - 25% Budget or schedule? (0.3) - 50% Budget or schedule? (0.3) - Substantial completion? (0.3)	1.2		1.2			To be confirmed whether meetings were held and are required for further stages.
1.2 Environmental Management During Construction		-					
1.2.1 Environmental Management System	Is the GC's EMS required to include: - GC's Environmental Policy? - Regulatory Compliance and Training? - Environmental Risk Assessment relating to construction? - Environmental Risk Management Strategies? - Enviro Management Roles, Responsibilities and Reporting for construction phase? - Site personnel instructions on environmental procedures? - Enviro Inspection Checklists? - Records of Compliance? (0.5 each)	4	4				This could be included in the tender documents if desirable.
1.2.2 Clean Diesel Practices	Is GC required to follow clean diesel strategies: - Vehicle idling reduction directive? - Clean fuels such as ultra low sulfur diesel? - Engine upgrades to reduce emissions? - Engine maintenance records? (0.5 each)	2	2				This could be included in the tender documents if desirable.
1.2.3 Mould Mitigation During Construction	Which mould mitigation measures are in place? - Protect building materials from moisture and organic matter in transit and on site? - Weather tight and dry envelope before installation of interiors and HVAC? (1 point each)	2	2				This could be included in the tender documents if desirable.
1.2.4 IAQ During Construction: Best Practices	Which IAQ measures will be implemented? - Building flush 14 days and filter change? - Successful IAQ test results? (1 point each)	2	2				One of these options will be included in the tender documents.
1.2.4 IAQ During Construction: SMACNA	Which SMACNA IAQ practices will be followed? - HVAC protection? - Source control? - Pathway interruption? - Housekeeping? - Scheduling? (0.5 points each)	2.5	2.5				These measures will be included in the specification.
1.3 Commissioning		-					
1.3.1.1 Pre-Commissioning: OPR	Will CxA document OPR as per ASHRAE 0-2005 Annexes I and J?	1	1				Confirmation of the role of the Commissioning Agent is required.
1.3.1.3 Pre-Commissioning: BoD	Will BoD be documented as per ASHRAE 0-2005 Annex K?	1	1				Confirmation of the role of the Commissioning Agent is required.
1.3.1.5 ASHRAE Commissioning Authority reporting to Owner	Will CxA have ASHRAE credentials, report directly to the owner and lead and coordinate he Cx process?	1	1				Confirmation of the role of the Commissioning Agent is required.

University of Alberta Leadership College 23rd April 2014: Preliminary Green Globes Canada Checklist	Summary of Requirements	25%:1GG 40%: 2GG 55%: 3GG 70%: 4GG 85%: 5GG 100.0% Available Points	65.69% Yes	19.43% Maybe	14.88% No	8.66% N/A	Commentary
1.3.2.1 Whole Building Commissioning: ASHRAE/NIBS Guideline 0-05	Will Cx follow ASHRAE 0-05? - HVAC&R systems and controls? (3.5) - Building envelope? (3) - Structural systems? (2) - Fire protection system? (2) - Plumbing system? (1) - Electrical system? (1) - Lighting system and controls? (1) - Building automation systems? (1) - Elevating and conveying systems? (1) - Communication systems? (1)	16.5	16.5				The scope of the commissioning process should be discussed and confirmed.
1.3.2.2 Whole Building Commissioning: Other Guidelines	Will Cx follow CSA Z320 or ASHRAE 0-2005 annex L or NRCan Cx Guide for New Buildings?	1		1			The scope of the commissioning process should be discussed and confirmed.
1.3.3 Systems Training for Building Operators	Will building operators be trained as per ASHRAE Guideline 0-2005: Article 7.2.14?	1	1				The scope of the commissioning process should be discussed and confirmed.
1.3.4 Operations and Maintenance Manual	O&M Manual and/or CMMS (Max 6 points): - Complete and user friendly O&M manual (6 points) - Complete CMMS (6 points)	6	6				Who will be responsible for these should be confirmed.
Total Section Points - Project Management		**50**	41.5	8.5	0	0	
2. Site		-					
2.1 Development Area		-					
2.1.1.1 Walkability	What is the walkability index? - more than 85% (3) - 75 to 85% (1.5) - less than 75% (0)	3	3				University of Alberta has a Walk Score of 85 on walkscore.com.
2.1.1.3 Proximity to Commercial Zone	Is the project within 800m of a commercial zone (shops, offices, restaurants, theaters etc)	3	3				Commercial Zone east side of 122 St and south of 87 Ave within 800m, as well as theatre, shops, restaurants, offices.
2.1.1.5 Previously Developed Site	Was the site previously developed and served by utilities for at least a year before construction?	4	4				Site previously developed and serviced for at least a year before construction (Google satellite view)
2.1.2.1 Brownfield Redevelopment	Is it a remediated brownfield site?	10			10		This is not thougt to be brownfield site. Reference guide does not make this N/A.
2.1.2.3 Sensitive Site Avoidance	Does the site avoid sensitive sites such as farmland, public parks or wooded areas? Applies to three years prior to purchase or project start.	6	6				The site does not include any of the uses listed as sensitive.
2.1.2 Floodplain Avoidance	Is the building above the 100-year flood plan?	4	4				The site is not within a floodplain.
2.2 Ecological Impacts		-					
2.2.1 ESC Plan	Will there be a P.Eng stamped Erosion and Sedimentation Control Plan or equivalent construction best practices?	5	5				A stamped ESC Plan will be included.
2.2.1 Limit Construction Disturbance	Will construction activities be located to minimize site disturbance? i.e. no more than 40ft beyond building footprint and no more than 5ft beyond hardscaping,	2	3				It is understood that the site layout will comply.
2.2.2 Tree Integration	Are the following integrated into the landscape plan: - Large trees (more than 30cm trunk diameter) (2 pts) - Clusters of trees (2 pts) - Undergrowth (1 pt)	5		4		1	Large trees and clusters to be confirmed. Undergrowth likely NO.
2.2.3 Tree Preservation Plan or Best Practices	Is there a Tree Preservation Plan by a certified Arborist or other physical tree protection, such as: - Tree protection barriers to form a TPZ? (2) - Root protection? (2) - Sediment control barriers near a TPZ? (1)	4			4		Trees to be removed from the site.
2.2.4.1 Heat Island Effect: Roof	Proportion of the roof that will be vegetated or high SRI: - more than 70% (5 pts) - more than 56% (4 pts) - more than 40% (2 pts)	5		5			To be confirmed as design progresses.
2.2.4 Heat Island Effect: Hardscaping	Proportion of paved surfaces with high SRI: - more than 50% (2 pts) - more than 25% (1 pt)	2		2			Credit can be N/A for ASHRAE climate zones 6,7 and 8.
2.2.4 Heat Island Effect: Shade from Trees	Proportion of paved surfaces outside building footprint that will be tree shaded within 15 years: - more than 50% (3 pts) - more than 25% (2 pts)	3		3			Building might shade courtyard. To be analyzed further.
2.2.4 Heat Island Effect: East and West Walls	Do 75% or more of opaque wall surfaces on E and W have SRI 29 or more?	2		2			To be confirmed as material choices are made.
2.2.5 Bird Collision Prevention	Does the design include: - visual markers in windows? (1 pt) - avoidance of reflections (internal screens, awnings, sunshades etc)? (1 pt)	2		2			To be confirmed as the design develops.

University of Alberta Leadership College

23rd April 2014:
Preliminary Green Globes Canada Checklist

25%:1GG 40%: 2GGs 55%: 3GGs 70%: 4GGs 85%: 5GGs

Summary of Requirements		*100.0%* *Available Points*	*65.69%* Yes	*19.43%* Maybe	*14.88%* No	*8.66%* N/A	*Commentary*
2.3.1 Storm Water Management Plan	Is there a Storm Water Management Plan by a civil engineer that shows: - compliance municipal and local erosion control targets? (5 pts) - compliance with municipal and local water quality targets i.e. 80% TSS removal? (5 pts) - that the site will retain at least 50% of total annual average rainfall? (5 pts)	15	15				A Stormwater Management Plan will be written at the appropriate time.
2.3.3 Natural water body protection	Is the site at least 100ft form a natural water body?	3	3				The site is more than 100 ft from a natural water body.
2.4.1 Landscape and Irrigation Plan	Is there a Landscape and Irrigation Plan developed by a Landscape Architect, certified horticulturalist, or certified irrigation professional?	5	5				Landscape plan to be finalized in due course.
2.4.3 Landscaping and Irrigation Plan: Contents	Does the plan include: - soil type, drainage and light conditions? (2 pts) - structural limitations? (1 pt)	3	5				Landscape plan to be finalized in due course.
2.4.4 Landscaping: Plant Selection	Does the plant palette include: - at least 50% of vegetated area covered with drought tolerant plants? (3 pts) - at least 50% of vegetated area covered with native or non-invasive plants? (3 pts) - minimal turf grass (3 pts)	9	3	6			Landscape plan to be finalized in due course. MAYBE, YES, and MAYBE.
2.4.6 Landscaping: Soil and/or Organic Mulch	Do the landscaped areas include: - at least 6 inches of aerated, tilled or broken up soil? (1 pt) - organic mulch (1 pt)	2		2			Landscape plan to be finalized in due course.
2.4 Landscaping: Plant Grouping	Does the landscape plan show: - grouping of plants with similar water needs? (2 pts) - plant spacing for maturation at a 5 year growth rate? (1 pt)	3	3				Landscape plan to be finalized in due course.
2.4 Landscaping: Pervious Paving	Will 15% or more of hardscaping (walkways, patios, driveways) have pervious materials?	4	4				Landscape plan to be finalized in due course. Hardscaping possibility to be confirmed.
2.5 Exterior Light Pollution Choose Path A Lighting Design Performance OR Path B Prescriptive Lighting Requirements	Refer to Manual for full criteria.	7	6			1	Path B is preferred by elec. Eng. The site boundary to be confirmed. Note that the site will border City land on two sides.
2.6.1 Habitat Exchange	Does the project set aside an equal amount of land off-site for every m² of development for habitat exchange?	4			4		No based on cost compared to benefit.
2.6.3 Urban Agriculture	Does the project create/ integrate opportunities for urban agriculture?	5	5				Students will have access to community gardens in east campus village, which may meet the criteria.
Total Section Points - Site		**120**	77	26	18	2	
3. Energy		-					
3.1 Energy Performance		-					
3.1.1 - 3.1.6 Modeled Energy Performance	What are the following energy modeling results: - electrical energy intensity (kWh/m2/yr)? - heating fuel intensity? - on site renewable energy generation? - CO2 emissions intensity?	150	90	20	40		Energy model underway by the mechanical engineering team. The design will include efficient systems, including a high performance envelope such as R20 walls, R40 roof and possibly triple glazing. 120 out of 150 points are targeted subject to energy modeling results.
3.2 Energy Demand		-					
3.2.1 Power Demand Reduction: Monthly Power Demand Factor	What is the modeled building's monthly power demand factor (lowest monthly kW demand ÷ peak monthly kW demand)? - more than 85% (8 pts) - more than 80% (6 pts) - more than 75% (4 pts)	8		8			To be investigated and modeled.
3.2.3 Power Demand Reduction: Energy Management System	Is there an Energy Management System designed to reduce power demand below the non-reduced peak? - more than 30% reduction below non- reduced peak (8 pts) - more than 25% (7 pts) - more than 20% (6 pts) - more than 15% (4 pts)	8		8			To be investigated and modeled.
3.3 Metering, Measurement and Verification		-					
3.3.1.1 Energy Metering at Building Level	Will there be building level metering for: - Electricity? - Heating fuels? - Steam? - Other?	4	2			2	No steam or other fuels so N/A.
3.3.1.2 Energy Sub-metering	Is there energy sub-metering for: - Lighting by floor or zone no greater than 20,000 sq ft? (0.5 pts) - Plug loads by floor or zone no greater than 20,000 sq ft? (0.5 pts) - Electric HVAC equipment 3.7 kW (5hp) or greater? (0.5 pts) - Chilled water generation? (0.5 pts) - On site renewables? (0.5 pts) - Heating water or steam generation? (0.5 pts) - Specialty or process electrical equipment? (0.5 pts) - Critical HVAC controls? (0.5 pts)	4		4			Sub-metering maybe included at a later date.

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Summary of Requirements		*100.0%* *Available Points*	*65.69%* Yes	*19.43%* Maybe	*14.88%* No	*8.66%* N/A	*Commentary*
3.3.2 M&V: Energy Metering Reporting Plan Protocols	Does the Energy Metering Reporting Plan include the following monitoring protocols (e.g. daily, monthly, seasonal, by floor, etc.): - Lighting by floor or zone no greater than 20,000 sq ft? (0.5 pts) - Plug loads by floor or zone no greater than 20,000 sq ft? (0.5 pts) - Electric HVAC equipment 3.7 kW (5hp) or greater? (0.5 pts) - Chilled water generation? (0.5 pts) - On site renewables? (0.5 pts) - Heating water or steam generation? (0.5 pts) - Specialty or process electrical equipment? (0.5 pts) - Critical HVAC controls? (0.5 pts)	4		4			Sub-metering maybe included at a later date. There are no renewable energy systems at present so this is N/A.
3.4 Building Opaque Envelope		-					
3.4.1 Thermal Resistance of Roof	Does the thermal resistance and effective thermal transmittance of the roof meet or exceed the requirements of the Model National Energy Code for Buildings (MNECB)?	1.5	1.5				R40 roof will be better than MNECB requirements.
3.4.1 Thermal Resistance of Above Grade Walls	Does the thermal resistance and effective thermal transmittance of the above grade walls meet or exceed the requirements of the Model National Energy Code for Buildings (MNECB)?	1.5	1.5				Detailing and specification will ensure that these criteria are met.
3.4.1 Thermal Resistance of Below Grade Walls	Does the thermal resistance and effective thermal transmittance of the below grade walls meet or exceed the requirements of the Model National Energy Code for Buildings (MNECB)?	1	1				Detailing and specification will ensure that these criteria are met.
3.4.1 Thermal Resistance of Floors	Does the thermal resistance and effective thermal transmittance of the floors meet or exceed the requirements of the Model National Energy Code for Buildings (MNECB)?	1.5	1.5				Detailing and specification will ensure that these criteria are met.
3.4.1 Thermal Resistance and Transmittance of Slab on Grade	Does the thermal resistance and effective thermal transmittance of the slab on grade meet or exceed the requirements of the Model National Energy Code for Buildings (MNECB)?	1	1				Detailing and specification will ensure that these criteria are met.
3.4.1 U-Value of Opaque Doors Are Equal or Less Than MNECB Requirements	Does the thermal resistance and effective thermal transmittance of the opaque doors meet or exceed the requirements of the Model National Energy Code for Buildings (MNECB)?	0.5	0.5				Detailing and specification will ensure that these criteria are met.
3.4.2 Orientation of Building	Is the building oriented such that the ratio of the north/south fenestration area to the east/west is as below? - 2.00 (5 pts) - 1.85 - 1.99 (4 pts) - 1.70 - 1.84 (3 pts) - 1.55 - 1.69 (2 pts) - 1.40 - 1.54 (1 pt) - 1.25 - 1.39 (0.5 pts)	5	5				To be measured and confirmed by MGB. Likely ok, based on more N/S vs. E/W windows, but will confirm.
3.4.3 U-factor of Fenestration System Is Equal or Less Than MNECB Values	Does the thermal resistance and effective thermal transmittance of the fenestration system meet or exceed the requirements of the Model National Energy Code for Buildings (MNECB)?	8	8				Detailing and specification will ensure that these criteria are met.
3.4.3 Solar Heat Gain Coefficient (SHGC)	Is the SHGC of the fenestration system less than or equal to the Model National Energy Code for Buildings (MNECB)?	8	8				Detailing and specification will ensure that these criteria are met.
3.5 Lighting		-					
3.5.1 Total Lighting Power Density (LPD)	Is LPD at or below ASHRAE 90.1 2007?	8	8				The lighting design will comply if compared to the dormitory category (0.9 Wsf).
3.5.2 Interior Automatic Shutoff Controls	Are there time-scheduling devices for lights or individual occupant-sensing devices? - Time-scheduling devices (3 points) - Individual occupant-sensing devices (3 points) - Time-scheduling and individual occupant-sensing devices (3 points)	3	3				One of these options will be included.
3.5.3 Light Reduction Controls	Do all interior, non-day lit areas have lighting controls that can reduce the lighting load by at least 50% from full lighting using any of the following technologies: - Dual switching of alternate rows or luminaires? - Switching of individual lamps independently of adjacent lamps within a luminaire? - Switching of each lamp or luminaire? - Occupancy sensors within the space?	4	4				Light reduction controls will be included.
3.5.4 Daylighting: Area	Are the regularly occupied side-lit day lit areas (vertical fenestration) and the top-lit day lit areas (skylights) equal to at least 10% of the net building area?	3	3				The architectural design will ensure that adequate daylighting will be included.
3.5.4 Daylighting: EAVF	Is the effective aperture for vertical fenestration (EAVF) equal to or greater than 0.15 EAVF for climate zones 5, 6, 7, or 8?	3		3			To be calculated.
3.5.4 Daylighting: Skylight Roof Area (%)	What percentage of the roof consists of skylights?	2				2	No skylights are included in the current design.
3.5.5 Controls for Daylighted Zones: All Small Areas	Do all small (250 ft² - 2,500 ft²) day-lit areas have manual or automatic photocell lighting controls?	3	3				Appropriate lighting controls will be included.
3.5.5 Controls for Daylighted Zones: All Large Areas	Do all large (more than 2,500 ft²) day-lit areas have automatic photocell lighting controls?	3	3				Appropriate lighting controls will be included.
3.5.6 Exterior Luminaires: Initial System Efficacy	Do exterior luminaires have lamps with an initial system efficacy of at least 60 lumens per watt?	1	1				The electrical engineer indicated that this was a reasonable target.

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Summary of Requirements	100.0% Available Points	65.69% Yes	19.43% Maybe	14.88% No	8.66% N/A	Commentary
3.5.6 Exterior Luminaires: Only LEDs Used	Were LED lamp sources used for all exterior lighting?	1	1			There is flexibility over what is used in courtyard but not necessarily other external areas, therefore this item may not be possible. Mark as likely to pursue.
3.5.6 Exterior Luminaires: Low or No Mercury Content	Are lamps specified that have low or no mercury content?	1	1			The electrical engineer indicated that this was a reasonable target.
3.5.6 Exterior Luminaires: Controls	Will one of the following controls be installed? - Lighting designated for dusk-to-dawn controlled by a photo sensor or astronomical time switch with 10-hour backup. - Lighting not designated for dusk-to-dawn controlled by a time switch with 10-hour backup.	2	2			The electrical engineer indicated that one of these options would be included.
3.6 HVAC Systems and Controls		-				
3.6.1 Building Automation System (BAS)	Is there a central Building Automation System (BAS) that encompasses all systems that affect building energy performance, lighting, and thermal comfort?	10	10			It is understood that a BAS will be included.
3.6.2 Cooling Equipment Base Efficiency	Does the cooling equipment base efficiency meet ANSI/ASHRAE/IESNA Standard 90.1-2010 efficiency requirements with respect to COP, EER and SEER?	5	3	2		A target of 3 points was deemed to be reasonable by the mechanical engineering team.
3.6.2 Incremental Cooling Equipment Efficiency Improvement	Does the cooling equipment base efficiency exceed ANSI/ASHRAE/IESNA Standard 90.1-2010 or ANSI/ASHRAE/IESNA Standard 90.1-2007?	8	8			To be confirmed as design develops.
3.6.3 Cooling Tower: Fan Energy Consumption	N/A	4			4	N/A as no cooling towers in this design.
3.6.3 Cooling Tower: Waterside Economizer System able to use outdoor air for cooling water	N/A	4			4	N/A as no cooling towers in this design.
3.6.4 Heat Pump Efficiency	N/A	6			6	N/A as the there are no heat pumps in the design.
3.6.5 Heating Equipment Efficiency	By what percentage does the heating equipment exceed ANSI/ASHRAE/IESNA 90.1-2010 or 90.1-2007?	8	8			The specification of a condensing boiler was thought to achieve all 8 points (15% improvement).
3.6.6 Condensate Recovery	N/A	3			3	N/A as there are no steam systems present.
3.6.7 Steam Traps: Designs Stamped by PE	N/A	1			1	N/A as there are no steam systems present.
3.6.7 Steam Traps: Isolation Valves	N/A	1			1	N/A as there are no steam systems present.
3.6.8 Domestic Hot Water Heater: Efficiency	Do all domestic hot water heaters meet the efficiency requirements of ASHRAE 90.1-2010 or 90.1-2007?	2	2			The condensing dhw system is believed to comply with this requirement.
3.6.8 Domestic Hot Water Heater: Intermittent Electrical Igniters and low NOX burners	Are all domestic hot water heaters equipped with intermittent electrical igniters and low NOX burners?	1	1			The mechanical engineer confirmed that this was included.
3.6.9 Variable Speed Control of Pumps	What percentage of the connected hydronic pumping power will have variable speed control? - more than 75% (6 points) - 74 - 75% (5 points) - 55 - 73% (4 points) - 35 - 54% (3 points) - 15 - 34% (2 points)	6	6			The mechanical engineer confirmed that this was included.
3.7 Other HVAC Systems and Controls		-				
3.7.1 Minimizing or Eliminate Reheat and Re-Cool	Does the HVAC design minimize or eliminate re-heat and re-cool? - Eliminate (6 pts) - Minimize (3 pts)	6	6			The mechanical engineering team confirmed that re-heat and re-cool will be eliminated.
3.7.2 Air Economizers: Free cooling	Are there air economizers with a mode that uses outdoor air for cooling in place of mechanical cooling?	1		1		100% OA design. To be evaluated further against the GG criteria.
3.7.2 Air Economizers: Outdoor Air and Exhaust Air Dampers	Are there controls to shut outdoor air and exhaust air dampers during periods when the system is not operating?	1		1		The mechanical engineering team confirmed that this was included.
3.7.2 Air Economizers: Low leakage dampers	Are the dampers in the air handling system "low leakage"? "Low leakage" means dampers with leakage rates of less than 5% of design flow for air handling systems using outside air at a rate of 1,000 ft³ per minute (28.3 m³ per minute) or greater. Mark "N/A" where there are no air dampers.	1		1		The mechanical engineering team confirmed that this was included.
3.7.3 Fans and Ductwork: Duct Distribution System	Does the duct distribution system include: - Diffusers and registers sized with a full flow pressure drop no greater than 0.03 cm (0.01 in) of water column? - Noise criteria (NC) of 35 or less? - Supply and return ductwork with a pressure drop no greater than 0.3 cm (0.1 in) of water column per 30.5 lineal meters (100 lineal feet)? (0.5 pts for each)	1.5	1.5			The mechanical engineering team confirmed that this was included.
3.7.3 Fans and Ductwork: Flexible Duct Work	Are there the following requirements for flexible duct work? - Flexible ductwork is no longer than 1.5 m (5 ft.) when fully stretched? - The use of flexible ductwork is limited to only connections between duct branches and diffusers, and connections between duct branches and variable air volume terminal units? - Durable elbow support is provided when flexible ductwork is used as an elbow? (0.5 pts each)	1.5	1.5			The mechanical engineering team confirmed that this was included.
3.7.3 Fans and Ductwork: Duct Joints and Seams	Are the duct joints sealed and will the seams be leak-tested and found to have an overall leak rate that does not exceed 5%?	1	1			The mechanical engineering team confirmed that this was included.
3.7.3 Fans and Ductwork: Fan Motors Efficiency	Do motors for fans meet NEMA's Premium® "Energy Efficiency Motor Program"?	1	1			The mechanical engineering team confirmed that this would be specified.
3.7.3 Fans and Ductwork: Variable Speed Fans with Energy Management Controls	Are variable speed fans controlled by a duct pressure set-point or an energy management control system?	2	2			Included, but maybe only in the kitchen.

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Summary of Requirements	100.0% Available Points	65.69% Yes	19.43% Maybe	14.88% No	8.66% N/A	Commentary
3.7.4 Demand Controlled Ventilation: CO_2 Sensors	Are there occupancy and/or CO_2 sensors to control ventilation rates in regularly occupied spaces that may experience frequent variations in the number of occupants?	4			4	This level of DCV is not included in the design at present. Can be "not applicable" if spaces meeting this criterion represent less than 40% of the total design ventilation volume of the building.
3.7.4 Demand Controlled Ventilation: CO_2 Sensor Calibration Maintenance	Are the CO_2 sensors capable of maintaining calibration within 2% for a one year period of operation?	1			1	This level of DCV is not included in the design at present. Can be "not applicable" if spaces meeting this criterion represent less than 40% of the total design ventilation volume of the building.
3.7.4 Demand Controlled Ventilation: Ventilation Heat Recovery System Features	Do the ventilation heat recovery systems include the following? - Pressure-drop impact on fan power. (1 pt) - Bypass for economizer operation, if applicable. (2 pts) - MERV 13 Filtration? (2 pts)	5	5			The mechanical engineering team confirmed that these would be included.
3.8 Other Energy Efficient Equipment and Measures						
3.8.1 Elevators and Escalators: Regenerative Braking Elevators	Are there regenerative braking elevators?	3	3			To be determined.
3.8.1 Elevators and Escalators: Escalators Able to Stop or Slow Down if No Traffic	Are escalators and moving walkways equipped with the capability to slow down or stop when detectors indicate no traffic?	2			2	N/A as no escalators included.
3.8.2 Other Fixed Energy Efficient Equipment	Are there other fixed energy-efficient building and building occupancy equipment and accessories such as high efficiency product refrigeration equipment, hand dryers, diffusers?	5		5		To be determined.
3.9 Renewable Sources of Energy		-				
3.9.1 On-site Renewable Energy: % of Thermal and/or Electrical Consumption	What percentage of the building's thermal and/or electrical consumption will be provided by onsite renewable technology OR will onsite renewable technology provide energy to the grid? 10% (15 points) 6-10% (10 points) 1-5% (5 points)	15		15		Model using RETScreen or similar to determine the size of the required systems. Can be N/A if a study shows that this is not feasible.
3.9.2 Green Power: % Electrical Consumption	Has the building owner committed to sign a contract to purchase either certified "green" power or certified renewable energy certificates (RECs) with a minimum three-year commitment; and if so, for what percentage of total electrical consumption of the building? > 40% (12 points) 20 - 39% (9 points) 10 - 19% (6 points)	12	12			Purchasing of green power to be discussed with the owner.
3.10 Energy Efficient Transportation						
3.10.1 Site Is within 400 m of Public Transit Facility or Site Transit Score > 75%	Is the site located within 400 m (0.25 mi) of a public transportation facility such as a public bus stop or train-stop OR does the site have a Transit Score greater than 75% using www.walkscore.com?	10	10			Within 400m of 3 bus stops at University Transit Centre and 2 bus stops at 112 St & 87 Ave.
3.10.2 Preferred Parking for Carpooling and Shelter for Waiting Persons	Will there be designated preferred parking for car/van pooling, and shelter from weather for persons waiting for a lift?	2			2	Only a small amount of parking is included in the site plan, therefore this is not thought to be feasible.
3.10.3 Alternative Fuel Re-fueling or EV Charging Station	Are there alternative fuel re-fueling facilities or electric charging stations on site or in the general vicinity?	5			5	There are none included at present.
3.10.4 Access to Bike Paths	Is the site located within 400 m (0.25 mi) of a public bicycle path or multi-user path or on a road with an existing dedicated bicycle lane?	3	3			It is understood that the site has excellent access to bike paths. To be confirmed.
3.10.5 Sheltered Bike Parking	Is there sheltered bicycle parking for at least 50% of units in a multi-family residential building?	3	3			Architectural team estimated bike parking would be for about 66% of units.
3.11.1 Net Zero Energy Building	Does the project produce one hundred percent or more of the projects energy needs by renewable energy?	10			10	Net Zero Energy is not a project objective.
Total Section Points - Energy		**395**	236	72	62	25	
4. Water		-				
4.1 Water Consumption		-				
4.1.1 Water Consumption - Reduction in Water Use	Water efficiency as determined by GG water savings calculator: > 40% (20 points) 35 - 39% (18 points) 30 - 34% (12 points) 25 - 29% (6 points)	20	12	8		The project will include dual flush WCs and low flow fixtures but no waterless urinals. Point allocation shown is an estimate based on previous projects. To be confirmed.
4.1.1 Water Consumption - Plumbing Fixture Efficiencies	Will the following plumbing fixtures and fittings comply with the prescribed efficiencies? - Toilets 4.8L or less - Urinals 1.9 L or less - Showers 7.6L/min or less - Residential lav faucets 5.7 L/min or less - Residential kitchen faucets 8.3 L/min or less - Non-residential lavatory faucets 1.9 L /min or less (1 pt each)	6	6			The mechanical engineering team confirmed that these or better fixtures will be included.
4.1.1 Water Consumption - Appliances	Will the following appliances comply with the prescribed water use factors per full cycle? - Residential clothes washers are ENERGY STAR labeled with a maximum water factor of 6.0 gal/ft3 (23 L/m3) per full cycle? - Residential dishwashers are ENERGY STAR labeled with a maximum water factor of 5.8 gal/ft3 (22 L/m3) per full cycle?	4	2	2		Clothes washers will comply but dish washers might not have appropriate qualifying models.
4.2 Cooling Towers		-				
4.2.1 Cooling Towers - Minimization of Make-up Water	N/A	2			2	N/A. The design includes no cooling towers.
4.2.2 Cooling Towers - Make-Up Water Monitoring and Control Features	N/A	4			4	N/A. The design includes no cooling towers.
4.2.3 Cooling Towers - % of Cooling Consisting of Dry Cooling	N/A	3			3	N/A. The design includes no cooling towers.

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Summary of Requirements	100.0% Available Points	65.69% Yes	19.43% Maybe	14.88% No	8.66% N/A	Commentary
4.3 Boilers and Water Heaters	-					
4.3.1 Boilers and Water Heaters - Features	4	1	1		2	2 measures (not shown are N/A) as they apply to steam boilers.
4.4 Water Intensive Applications	-					
4.4.1 Commercial Food Service Equipment - Avoidance of Water Intensive Equipment	2		2			To be confirmed. Might be N/A.
4.4.1 Commercial Food Service Equipment - Water Usage of Appliances	4		4			To be confirmed. Might be N/A.
4.4.2 Laboratory and Medical Equipment - Sterilizer Features	1				1	N/A for this project.
4.4.2 Laboratory and Medical Equipment - Once-through Cooling Devices	1				1	N/A for this project.
4.4.2 Laboratory and Medical Equipment - Dry Vacuum Systems	1				1	N/A for this project.
4.4.2 Laboratory and Medical Equipment - Digital X-rays, MRIs, CT scans, etc	1				1	N/A for this project.
4.4.2 Laboratory and Medical Equipment - Fume Hoods	2				2	N/A for this project.
4.4.2 Laboratory and Medical Equipment - Refrigerator Space	1				1	N/A for this project.
4.4.2 Laboratory and Medical Equipment - Sub-metering of Water Used for Lab	1				1	N/A for this project.
4.4.3 Laundry Equipment - Water Factor of Coin or Card-operated Laundromat Machines	2	2				Review cut sheets from U of A for compliance. Supplied cut sheets.
4.4.3 Laundry Equipment - Washing Machine Types if an Institutional/Industrial Laundry	2				2	N/A for this project.
4.4.4 Special Water Features - Water-Efficiency Measures	3				3	Going to have special water fountain.
4.5 Water Treatment	-					
4.5.1 Filtration System Pressure Drop Gauge Feature	1			1		Not included in the current design.
4.5.2 Reverse Osmosis- Feature	1			1		Not included in the current design.
4.5.3 Water Softener Recharge Control - Feature	1			1		Not included in the current design. Can be marked N/A if no water softeners included.
4.6 Alternate Sources of Water	-					
4.6.1 Water harvesting on-site and reclamation	5			5		U of A prefers not to include water harvesting because of maintenance issues.
4.7 Metering	-					
4.7.1 Sub-metering for all water-intensive indoor applications	3		3			To be confirmed.
4.7.2 Sub-metering of potable water used for irrigation	3	3				The project team confirmed that a sub-meter will be included.
4.7.3 Water Meter Data Management System	3	3				The project team confirmed that this measure will be implemented.
4.7.4 Chilled and hot water loop makeup meters	2	2				The project team confirmed that this measure will be implemented.
4.8 Irrigation	-					
4.8.1 Xeriscaping	14			14		There will be no parts of the exterior vegetation that do not require irrigation.
4.8.1 Irrigation System - Use of non-potable water	3		3			There are no applicable features in the current design.
4.9 Water Innovation	-					
4.9.1 Net Zero Water	5			5		There are no plans for extensive water capture.
4.9.2 Use of all stormwater and/or grey water.	5			5		There are no plans for on site water treatment.
Total Section Points - Water	**110**	31	23	32	24	
5. Materials and Resources	-					
5.1 Building Assembly (C&S including Envelope)	-					

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Summary of Requirements	100.0% Available Points	65.69% Yes	19.43% Maybe	14.88% No	8.66% N/A	Commentary
5.1.1 Life Cycle Assessment of design. — Was the Athena Impact Estimator for Buildings (Version 4.2 or later) used during the design to evaluate a minimum of two different core, shell and envelope design alternatives?	32	32				To be discussed in more detail. Has not been carried out to date.
5.2 Interior Fit-Out	-					
5.2.1 Environmental Product Declarations — What percentage (by cost) of products have EPDs? 40% (10 points) 25 - 39% (8 points) 10 - 24% (6 points)	10	6	4			Current point allocation is a place holder subject to further analysis.
5.3 Reuse of Existing Structures	-					
5.3.1 Facades - % of facade from an existing building on site retained in new design — N/A	6				6	This is a new build construction and it should be possible to show reuse of pre-existing buildings was not feasible.
5.3.2 Structural Systems - % of structural systems from an existing building on site retained in new design — N/A	5				6	This is a new build construction and it should be possible to show reuse of pre-existing buildings was not feasible.
5.3.3 Non-Structural Elements - % of interior ceilings, partitions, and/or demountable walls reused — N/A	5				5	N/A
5.3.3 Non-Structural Elements - % of existing furnishings reused — N/A	4				4	N/A
5.3.3 Non-Structural Elements - Incorporation of reused and off-site salvaged materials — N/A	4			4		N/A
5.4 Waste	-					
5.4.1 Construction Waste Management Plan — Is there a Construction Waste Management Plan that requires at least 50% (by weight) of construction and demolition waste to be recycled and/or salvaged?	5	5				To be included in the specification and tender documents.
5.4.1 Construction Waste - Reuse of existing on-site materials for site development or landscaping — Is there a requirement to reuse existing on-site materials for site development or landscaping (e.g., crushing concrete for aggregate base or drain rock, shredding vegetative materials for mulch, etc.)?	1		1			Existing houses on site might be usable. To be investigated.
5.4.2 Operational Waste - Features of operational recycling program — Does the building design address operations-related recycling programs through one or more of the following? - Operational flow for waste handling and storage facilities for recycling? - Storage areas for recyclable waste at points of service? - Storage areas for recyclable waste at pick-up areas? - Operational flow for handling and storage facilities for composting? (0.5 pts each)	2	2				The project team confirmed that these items would all be included.
5.5 Building Service Life Plan	-					
5.5.1 Building Service Life Plan - Inclusion of expected service life estimates for building elements — Is there a preliminary Building Service Life Plan that includes the expected service life estimates for the following? - The building? - The structural systems, building envelope, and hardscape materials that will need to be replaced during the life of the building? - The mechanical, electrical, plumbing, and energy generation systems that will require inspection and/or replacement during the service life of the building? (2 pts each)	6	6				The project team confirmed that these items would all be included.
5.5.2 Building Service Life Plan - Schedule for maintenance, repair, and replacement for each building element for duration of design life — Is there a schedule for maintenance, repair, and replacement for each building element, including the building fit-out (as applicable) for the duration of the building design life?	10	1				The project team confirmed that this would be produced.
5.6 Resource Conservation	-					
5.6.1 Minimized Use of Raw Materials - Use of prefabricated, preassembled, and/or modular products in design — Does the design specify the use of prefabricated, preassembled, and/or modular products?	2		2			To be investigated further.
5.6.1 Minimized Use of Raw Materials - Design uses materials efficiently compared with typical construction — Does the design specify the use of prefabricated, preassembled, and/or modular products?	1		1			To be investigated further.
5.6.2 Multi-functional Assemblies - incorporated in design — Does the design incorporate assemblies that perform multiple functions?	1		1			To be investigated further.
5.6.3 Deconstruction and Disassembly - facilitated by design — Does the building design facilitate future deconstruction, demounting, disassembly and re-configuration?	20			2		This is not addressed by the current design.
5.7 Building Envelope - Roofing/Openings	-					
5.7.1 Roofing Membrane - Installation and Inspection — Is there a requirement that roofing membrane assemblies and systems are to be? - Installed as per manufacturers' instructions and recommendations? - Field-inspected by a roofing system manufacturer's technical personnel or RCI-certified third-party roofing inspector as per the prescribed industry protocol? (1.5 pts each)	3	3				The project team confirmed that these requirements would be included in the specifications.
5.7.2 Flashings - Installation and Inspection requirements — Is there a requirement that building envelope flashings and sheet metal assemblies are to be? - Installed as per prescribed industry best practice? - Inspected as per prescribed industry protocol? (1.5 pts each).	3	3				The project team confirmed that these requirements would be included in the specifications.
5.7.3 Roof and Wall Openings - Feature, Installation and Inspection requirements — Is there a requirement that all products for roof and wall openings (doors, windows, skylights etc.) are to? - Comprise moisture management design that meets industry prescribed performance requirements? (1 pt) - Be installed as per prescribed industry best practice? (1 pt) - Be inspected as per the prescribed industry protocol, including field testing with respect to water penetration? (2 pts)	4	4				The project team confirmed that these requirements would be included in the specifications.
5.8 Envelope - Foundation, Waterproofing	-					

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		100.0%	65.69%	19.43%	14.88%	8.66%	
	Summary of Requirements	*Available Points*	Yes	Maybe	No	N/A	*Commentary*
5.8.1 Foundation Systems - Requirements	Is there a requirement that newly installed foundation systems for conditioned spaces are to? - Be constructed with slab-on-ground vapor retarders conforming to prescribed industry best practices? (0.5 pt) - Be constructed such that all slabs on grade will be positioned directly over vapor retarders and capillary-break base courses? (0.5 pt) - Undergo field-inspection of all vapor retarder and waterproofing assemblies as per prescribed industry protocol? (1 pt)	2	2				The project team confirmed that these requirements would be included in the specifications.
5.8.1 Foundation Systems - Damp-proofing measures on foundation walls in contact with grade	Is there a requirement for the following damp-proofing measures to be applied to all newly installed foundation walls in contact with grade? - 5% slope grade away indicated from the building for at least 3 m (10 ft.)? (0.5 pt) - Roof drainage to be directed at least 0.9 m (3 ft.) beyond the building overhang? (0.5 pt) - A foundation drainage system? (1 pt)	2	2				The project team confirmed that these requirements would be included in the specifications.
5.8.2 Below Grade Wall Slabs and Above Grade Horizontal Assemblies - Waterproofing Membrane Assembly Requirements	Is there a requirement that waterproofing membrane assemblies are to? - Be provided at all below grade slabs and foundation/basement walls that are subject to hydrostatic pressures? (1 pt) - Be installed as per the manufacturer's requirements and field-inspected as per prescribed industry protocol? (1 pt)	2	2				The project team confirmed that these requirements would be included in the specifications.
5.9 Envelope - Cladding		-					
5.9.1 Exterior Wall Cladding Systems - Installation Requirement	Is there a requirement to install cladding systems as per industry best practices for one of the following? - Exterior Insulation Finishing Systems (EIFS) installed as water-managed systems in accordance with the manufacturers' requirements? (1 pt) OR - Aluminum framed glazing systems installed in accordance with the manufacturer's requirements and warranted by the manufacturer for the intended purpose? (1 pt) OR - Masonry veneer cladding installed in accordance with industry technical notes and bulletins? (1 pt) OR - Architectural precast concrete cladding systems that incorporate pressure equalized two stage joints between precast concrete panels and adjacent cladding assemblies?	1	1				The project team confirmed that these requirements would be included in the specifications.
5.9.1 Exterior Wall Cladding Systems - Inspection Requirement	Is there a requirement to inspect the cladding installation as per the appropriate prescribed industry protocols for one of the following? - EIFS cladding systems? (1 pt) Or - Aluminum framed glazing systems? (1 pt) Or - Masonry veneer cladding? (1 pt)	1	1				The project team confirmed that these requirements would be included in the specifications.
5.9.1 Exterior Wall Cladding Systems - Joint Sealers	Are joint sealers to be installed as per prescribed industry best practice, and field-inspected as per prescribed industry protocol?	1	1				The project team confirmed that these requirements would be included in the specifications.
5.9.2 Rain Screen Wall Cladding - Installation requirements	Do the construction documents indicate that exterior rain screen wall cladding systems specified over framed walls are to be installed with the following? - A primary and secondary line of defense? (0.5 pt) - An air barrier? (0.5 pt) - A means for incidental bulk water intrusion to escape the cladding system assembly? (0.5 pt)	1.5	1.5				The project team confirmed that these requirements would be included in the specifications.
5.9.2 Rain Screen Wall Cladding - AAMA 508-07 Lab-testing requirements	Are rain screen cladding assemblies required to pass requirements of AAMA 508-07 laboratory-testing?	0.5			0.5		Testing will not be included.
5.10 Envelope - Barriers		-					
5.10.1 Air Barriers - Design and Installation Requirements	Do the construction documents show the following with respect to the air barrier? - Air barrier material of each assembly detail shows an airtight and flexible joint between the air barrier material and adjacent assemblies? (0.5 pt) - Air barrier is designed to withstand positive and negative combined design wind, fan and stack pressures on the air barrier without damage or displacement? (0.5 pt) - Air barrier is designed to withstand movement in the structure and not displace materials under full load? (0.5 pt) - Air barrier connection details are shown between: foundation and walls; walls and windows or doors; different wall systems; wall and roof; wall and roof over conditioned space or wall and ceiling under unconditioned space; walls, floors, and roof across construction, control, and expansion joints; walls, floors, and roof to utility, pipe, and duct penetrations? (0.5 pt)	2		2			The GG requirements will be reviewed and analyzed further before a recommendation is made.

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	Summary of Requirements	*Available Points*	Yes	Maybe	No	N/A	*Commentary*
5.10.1 Air Barriers - Compliance Requirements	continuous air barrier for the opaque building envelope was demonstrated using one of the following strategies? - Materials tested in accordance with ASTM E2178-11 Standard Test Method for Air Permeance of Building Materials and determined that air permeability of individual materials ≤ 0.02 L/s·m2 under pressure differential of 75 Pa. When all joints are sealed, materials meet this requirement? (2 pts) Or - Assemblies tested in accordance with ASTM E2357-11 Standard Test Method for Determining Air Leakage of Air Barrier Assemblies, or ASTM E1677-11 Standard Specification for Air Barrier (AB) Material or System for Low-Rise Framed Building Walls, and determined that the average air leakage ≤ 0.2 L/s·m2 under pressure differential of 75 Pa. Concrete masonry walls that are sealed and painted do not have to be tested. When all joints are sealed, assemblies meet this requirement? (2 pts) Or - Building tested with ASTM E779-03 or an equivalent approved method and determined that the air leakage rate of the building envelope ≤ 2.0 L/s·m2 under pressure differential of 75 Pa? (2 pts)	2		2			The GG requirements will be reviewed and analyzed further before a recommendation is made.
5.10.2 Vapor Retarders - Requirements 1	Construction documents indicate that the interior side of framed walls in Climate Zones 5-8 and Marine 4 are installed with Class I or II vapor retarder in accordance with International Energy Conservation Code 2012, International Energy Conservation Code 2007 Supplement, or 2009 International Building Code Section 1405.3?	1		1			The GG requirements will be reviewed and analyzed further before a recommendation is made.
5.10.2 Vapor Retarders - Requirements 2	Construction documents indicate that walls of unvented crawl spaces must have insulation that is permanently fastened to the wall and extends downward from floor to finished grade level, and then vertically and/or horizontally for at least an additional 60 cm?	1		1			The GG requirements will be reviewed and analyzed further before a recommendation is made.
5.10.2 Vapor Retarders - Requirements 3	Construction documents indicate that exposed earth in unvented crawl space foundations must be covered with a continuous Class I vapor retarder, and installed with the following strategies? - All joints of the vapor retarder are overlapped by 15 cm and are sealed or taped? And - The edges of the vapor retarder extend at least 15 cm up the stem wall and are attached to the stem wall?	1		1			The GG requirements will be reviewed and analyzed further before a recommendation is made.
5.11 Resource Innovation		-					
5.11.1 One-time carbon offset accounting for total footprint of embodied carbon per project LCA assessment	Does the project account for the total footprint of embodied carbon from its construction through a one-time carbon offset tied to the project LCA assessment?	10	10				These points will be held in reserve until just before the GG application, should they be needed.
Total Section Points - Materials and Resources		**125**	82.5	16	6.5	21	
6. Emissions and Other Impacts		-					
6.1 Heating **(Choose Path A OR Path B)**		-					
6.1.1 District heating or low emission heating	Path A: District Heating (18 pts) OR Path B: Low or ultra-low NOx boilers & furnaces (9pts) and/or Low or ultra-low CO boilers & furnaces (9pts)	18	9	9			Ultra Low Nox boilers will be specified. CO emissions to be investigated.
6.2 Cooling		-					
6.2.2 Ozone-Depleting Potential - cooling equipment uses zero or near zero ODP refrigerants	Does the cooling equipment (not including portable equipment) use refrigerants that have zero or "near zero" ozone depletion potential (ODP)? - No refrigerants (10 pts) - ODP ≤ 0.005 (10 pts) - ODP ≤ 0.01 (8 pts) - ODP ≤ 0.015 (6 pts) - ODP ≤ 0.02 (4 pts) - ODP ≤ 0.025 (2 pts) - ODP ≤ 0.03 (1 pt)	10	10				The project team confirmed that ODP less than or equal to 0.005 would be specified.
6.2.3 Global Warming Potential - cooling equipment uses low GWP refrigerants	Does cooling equipment (not including portable equipment) use refrigerants that have a low global warming potential (GWP100)? - No refrigerants (10 pts) - GWP100 ≤ 100 (10 pts) - GWP100 ≤ 300 (8 pts) - GWP100 ≤ 500 (6 pts) - GWP100 ≤ 700 (5 pts) - GWP100 ≤ 900 (4 pts) - GWP100 ≤ 1100 (3 pt) - GWP100 ≤ 1300 (2 pt) - GWP100 ≤ 1500 (1 pt)	10		10			The project team confirmed that GWP of less than or equal to 100 would be specified. GWP is 1750, so no points based on current R410A Puron.
6.2.4 Leak Detection - Testing requirement	Is there a requirement that equipment installer(s) test remote commercial systems (e.g. supermarket refrigeration) as per "Green Chill Best Practices Guideline Ensuring Leak-Tight Installations of Commercial Refrigeration Equipment"?	3			3		Leak detection is not seen as appropriate for smaller equipment. Might be N/A
6.2.4 Leak Detection - Refrigerant leak detectors	Are there refrigerant leak detectors capable of detecting leakage rates down to 2.0% per year for each refrigerant?	3			3		Leak detection is not seen as appropriate for smaller equipment. Might be N/A
6.2.4 Leak Detection - Alarm system	Is there an alarm system capable of alerting the building operator to leakage thresholds?	3			3		Leak detection is not seen as appropriate for smaller equipment. Might be N/A
6.3 Janitorial Equipment		-					
6.3.1 Designated storage areas for hazardous materials with ventilation and floor-to-floor walls	Are there designated storage areas for hazardous materials / janitorial supplies with full-height, floor-to-floor walls and mechanical ventilation?	3	3				Smoke separation needed in any event (floor to floor walls). The project will comply.

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Total Section Points - Emissions and Other Impacts		**50**	**22**	**19**	**9**	**0**	
7. Indoor Environment		-					
7.1 Ventilation		-					
7.1.1 Ventilation Air Quality - ANSI/ASHRAE 62.1-2007	Is the quantity of ventilation air provided for the building compliant with ANSI/ASHRAE 62.1-2007, except where local codes or standards require a greater quantity of ventilation air (e.g. for hospitals or healthcare occupancies)?	7	7				The project will comply with ASHRAE 62.1 - 2010
7.1.2 Air Exchange **(Choose Path A, B, or C)**		-					
Path A: Mechanical Ventilation Only		-					
7.1.2a Zone air distribution effectiveness EZ value ≥ 0.9		8					
Path B: Natural Ventilation Only		-					
7.1.2b Conditions met as per ANSI/ASHRAE 62.1-2010: Section 5.1		8					
Path C: Combination of Mech & Natural Ventilation		-					The most appropriate route appears to be as a mixed mode building.
7.1.2c Mechanical Ventilation - Zone air distribution effectiveness EZ value ≥ 0.9	Where mechanical ventilation is employed, is the zone air distribution effectiveness EZ value greater than or equal to 0.9 in all regularly occupied spaces, excluding circulation and transitional spaces?	4	4				Zone air distribution effectiveness EZ value will be designed to be greater than or equal to 0.9 in all regularly occupied spaces.
7.1.2c Natural Ventilation - Conditions met as per ANSI/ASHRAE 62.1-2010: Section 5.1	- All points within habitable spaces considered to be naturally ventilated are within 7.6 m (25 ft.) of a permanent or operable wall, window or roof opening to the outdoors? (1 pt) - The unobstructed area of the opening measures at least 4% of the net floor area that is being naturally ventilated? (1 pt) - Where interior spaces are naturally ventilated through adjoining (perimeter) rooms, the openings between the spaces were designed to have a minimum area of 8% of the net floor area of the interior room and were at least 2.3 m2 (25 ft2)? (1 pt) - All operable openings are readily accessible to building occupants? (1 pt)	4	4				Will include operable windows throughout.
7.1.3 Ventilation Intakes and Exhausts		-					
7.1.3 Ventilation Intakes and Exhausts - Pollutant control features	Do ventilation systems have the following pollutant control features? - Exhaust outlets and plumbing vent stacks are located at least 6.1 m away from outdoor air intakes? (1 pt) - Outdoor air intakes are located at least 9.1 m away from sources of pollution? (1 pt) - Outdoor air intakes are protected with 6.4 mm or smaller mesh screens? (1 pt) - For each air handling system in single or multiple arrangements, filters are compliant with ANSI/ASHRAE 62.1-2010? (2 pt) - Outdoor air inlets/outlets, including louvers and rain hoods, are sized appropriately per ANSI/ASHRAE 62.1-2010? (1 pt) - Except in transfer air ducts, all outdoor air, return air, and supply air ductwork avoids interior liner that could harbor microbial growth and/or erode in the air stream? (1 pt) - Roof drainage slopes away from outdoor air intakes? (1 pt)	8	8				The project team confirmed that all criteria would be met by the design.
7.1.4 CO_2 Sensing & Ventilation Control Equipment	Do rooms that are occupied by several people and those that have variable occupancy have CO_2 sensing and ventilation control equipment?	5			5		Not included in the current design.
7.1.5 Air Handling Equipment - Equipped with MERV 13	Are air handling equipment equipped with MERV 13 filtration? Or Terminal equipment have the highest filtration level available for the specific equipment under consideration, and main air handlers in terminal systems equipped with MERV 13 filtration?	5	5				MERV 13 filters are included.
7.2 Source Control and Measurement of Indoor Pollutants		-					
7.2.1 VOCs - Adhesives and sealants	Are adhesives/sealants specified that comply with Green Globes Table 3.7.2.1.1: Adhesives and Sealants VOC Limits and/or have 3rd party certifications showing compliance to predetermined indoor air quality standards?	2.5	2.5				The project specification will ensure that VOC limits are made clear.
7.2.1 VOCs - Carpet complies with CRI Green Label Plus	Is there a requirement that carpet and under-carpet adhesives will comply with the Carpet and Rug Institute's (CRI) Green Label Plus program?	2	2				The project specification will ensure that VOC limits are made clear.
7.2.1 VOCs - Paint VOC limits	Are paints specified that comply with prescribed limits of VOCs as per the Green Globes for New Construction Technical Reference Manual, Table 3.7.2.1.3: Paint VOC Limits.	3	3				The project specification will ensure that VOC limits are made clear.
7.2.1 VOCs - Floor and floor coverings	Floors, floor coverings, and other interior products comply with VOC limits in Green Globes Table 3.7.2.1.4: Floor and Floor Coverings and/or have 3rd party certifications showing compliance to predetermined indoor air quality standards?	2.5	2.5				The project specification will ensure that VOC limits are made clear.
7.2.2 Leakage, Condensation and Humidity - Measures to avoid fungus, mould, bacteria	Are there the following measures to avoid fungus, mould, and bacteria? - HVAC able to monitor and control dew point? (4 pt) - Materials/finishes resistant to mould growth in spaces that generate high humidity? (2 pt) - Floor drains located in all areas where equipment failures may cause plumbing leaks or where certain operations may cause spills or overflows? (2 pts)	8	8				The project team reviewed the criteria and confirmed that they will all be met by the project.

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7.2.3 Access for HVAC Maintenance - Measures to facilitate maintenance of HVAC equipment	- Access to equipment complies with the ICC IMC 2009, IAPMO UMC (2009): Uniform Mechanical Code, and the manufacturer published and/or suggested recommendations? (1 pt) - Distribution systems installed in accordance with ANSI/ASHRAE 62.1-2010, Section 5.13, and SMACNA's "HVAC Duct Construction Standards: Metal and Flexible 3rd Edition 2005"? (1 pt) - Access doors to HVAC are removable or have full degree swing? (2 pt)	4	4				To be discussed with U of A
7.2.4 CO Monitoring - Devices and alarms in areas with sources of combustion	Are there carbon monoxide monitoring devices and alarms in enclosed areas where there are sources of combustion?	4	4				This is not typically done but easy and cheap to incorporate if desirable..
7.2.5 Wet Cooling Towers - Drift eliminators and inlet air louvers (or no wet cooling towers)	Do wet cooling towers have drift eliminators and inlet air louvers? (2 pt) Or Are there no wet cooling towers? (4 pt)	4				4	N/A as no cooling towers included.
7.2.6 Domestic Hot Water Systems - Tankless or storage at or above 55 C	Is the domestic hot water system designed to maintain hot water storage at or above 55° C? (2 pt) Or Is there a tankless system? (2 pt)	2	2				The project team reviewed the criteria and confirmed that the design will comply.
7.2.7 Humidification and Dehumidification Systems - Drain pan design	Drain pans for dehumidifying cooling coils designed to properly capture and drain condensate in air handler in terms of the following (all are required for 3 pts): - Drain pans have 10 mm slope per m in two directions toward the drain outlet? - Drain opening is located at the lowest point of the drain pan? - Drain pan is sufficiently wide to span the cooling coils and is sized to prevent overflow under peak dew point conditions? - A P-trap or other seal prevents ingestion of air while allowing complete drainage?	3	3				The project team reviewed the criteria and confirmed that the design will comply.
7.2.8 Pest and Contamination Control - Integrated pest management strategies	Are the following integrated pest management strategies used? - Outdoor air inlets have insect screens of 18x14 mesh for plenum systems feeding multiple air handlers? (0.5 pt) - Structural and mechanical openings are fitted with permanent protection (e.g. screens, sealants, etc.)? (0.5 pt) - Advertising signs and other assemblies affixed to building façade designed/constructed to reduce bird habitation, and penetrations in façade are sealed to prevent entry? (0.5 pt) - Mullions and ledges < 2.5 cm deep to discourage bird roosting?(0.5 pt)	2	1.5		0.5		The project team reviewed all of the criteria and confirmed that all will be included apart from the item on from mullion spacing.
7.2.8 Pest and Contamination Control - Sealed storage area for food/kitchen solid waste/recycling	Is there a sealed storage area for food/kitchen solid waste and recycling?	1	1				The project team reviewed the criteria and confirmed that the design will comply.
7.2.9 Other Indoor Pollutants - Prohibition of smoking	Construction management policy to prohibit smoking in building and a provision to require that smoking be a minimum of 7.6 m from building with posted signage?	1	1				The project team reviewed the criteria and confirmed that the design will comply.
7.2.9 Other Indoor Pollutants - "No Smoking" signage	Is there a requirement to post "No Smoking" signage in the building and near all building entrances and air intakes?	1	1				The project team reviewed the criteria and confirmed that the design will comply.
7.2.9 Other Indoor Pollutants - Radon	Have the following measures been met in order to address radon (all are required for 5 pts): - Site-specific assessment of radon potential has been conducted? - Radon mitigation measures are specified?	5		5			Project site to be reviewed against radon map
7.2.10 Ventilation and Physical Isolation for Specialized Activities	Is there separate ventilation and/or physical isolation for specialized activities that generate pollutants?	1	1				Cooking and laundry will comply.
7.2.10 Ventilation and Physical Isolation for Specialized Activities - Negative pressure	Are the separate ventilation systems for specialized activities capable of maintaining a negative pressure?	1			1		Negatively pressurized areas were not seen as appropriate.
7.3 Lighting Design And Systems		-					
7.3.1 Daylighting - Minimum daylight factor of 2 (% of floor area)	What % of floor area occupied for critical visual tasks achieves a minimum daylight factor of 2 (excluding all direct sunlight penetration)? - > 75% (7 points) - 50 to 74% (5 points) - 25 to 49% (3 points)	7	7				Daylight factor to be calculated.
7.3.1 Daylighting - Exterior views (% of floor area)	What % of task areas were designed to have views to the exterior or atria within 7.6 m from a window? - > 60% of occupied space (5 points) - 31 to 59% (3 points) - 10 to 30% (1 point)	5	5				The design is thought likely to comply but calculations will be required.
7.3.1 Daylighting - Shading devices	Are there shading devices on southern, western, and eastern exposures? - Yes (1 point) - Partially (0.5 points)	1		1			Shading devices are only being considered on courtyard areas.
7.3.1 Daylighting - Photo-sensors	What % of day lit areas have photo-sensors to maintain consistent lighting levels throughout the day using both day lighting and artificial lighting? - > 75% (3 points) - 50 to 74% (2 points) - 25 to 49% (1 point)	3	1	2			Included throughout but not in student rooms.
7.3.2 Lighting Design - Prescribed lighting levels	Do primary occupied spaces have the prescribed lighting levels for the types of tasks anticipated in the various building spaces? - 75-100% of total area complies with light levels (7 points) - 50-74% (3.5 points)	7	7				The project team reviewed the criteria and confirmed that the design will comply.

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		100.0%	*65.69%*	*19.43%*	*14.88%*	*8.66%*	
7.3.2 Lighting Design - Luminance ratios	Architect / lighting engineer signed off on calcs showing luminance ratios don't exceed the following as per IESNA for tasks? (all required for 4 pts) - 3:1 between the task and adjacent surroundings? - 10:1 between the task and remote (non-adjacent) surfaces? - 20:1 between the brightest and darkest surface in the field of view? - 8:1 between rows of luminaires where there is indirect lighting and where ceiling luminance exceeds 425 cd/m2 (124.1 fL)?	4		4			SMP to calculate luminance ratios.
7.3.2 Lighting Design - Average luminance	Architect / lighting engineer signed off on the design showing that where there is direct lighting, the average luminance does not exceed the following values for given luminaire angles (all required for 2 pts): - 850 cd/m2 (248.1 fL) at 65° from the vertical? - 350 cd/m2 (102.2 fL) at 75° from the vertical? - 175 cd/m2 (51.1 fL) at 85° from the vertical?	2	2				The design will target this measure and calculations will be carried out to confirm compliance.
7.3.2 Lighting Design - Ceiling uniformity	Architect / lighting engineer signed off on the design showing that where there is direct lighting, the ceiling uniformity is lower than 8:1 (Max: Min) between rows of luminaires?	1	1				The design will target this measure and calculations will be carried out to confirm compliance.
7.4 Thermal Comfort		-					
7.4.1 Thermal Comfort Strategies - Thermal control zones 1	Do very large functional areas such as big box stores have thermal control zones that are 465 m2 or less? - 186 m2 or less (2 points) - 465 m2 or less (1 point)	2				2	The project team reviewed the criteria and confirmed that the design will comply. No spaces greater than 5000 sq ft.
7.4.1 Thermal Comfort Strategies - Thermal control zones 2	Do large functional areas such as large classrooms and auditoria have thermal control zones of 140 m2 or less?	2			2		The project team reviewed the criteria and confirmed that the design will comply. Dining area approx 3400 ft2 and a single thermal control zone.
7.4.1 Thermal Comfort Strategies - Thermal control zones 3	Do open circulation areas such as open offices and healthcare general patient areas have thermal control zones that are 93 m2 or less? - 46 m2 (500 ft2) or less (2 points) - 93 m2 (1,000 ft2) or less (1 point)	2				2	There are no applicable areas.
7.4.1 Thermal Comfort Strategies - Thermal control zones 4	Do smaller functional areas such as offices, meeting rooms, and hospital/hotel rooms have thermal control zones that are 111 m2 (1,200 ft2) or less? - 70 m2 (750 ft2) or less (3 points) - 111 m2 (1,200 ft2) or less (2 points)	3	2	1			The project team reviewed the criteria and confirmed that the design should achieve 2 out of 3 points.
7.4.1 Thermal Comfort Strategies - ANSI/ASHRAE 55-2010 or 55-2004	Does the design conform to ANSI/ASHRAE 55-2010 or ANSI/ASHRAE 55-2004? - 55-2010? (3 points) - 55-2004? (2 points)	3	3				To be evaluated further.
7.5 Acoustic Comfort		-					
7.5.1 Acoustic Comfort Design - Strategies	Does the building design include the following acoustic design strategies? - Toilets located remotely from acoustically separated areas? (0.5 pt) - Acoustically separated areas located away from noise producing areas? (1 pt) - Entry doors to rooms opposite each other on the same corridor are staggered? (0.5 pt) - Through-wall penetrations comply with Annex B of ANSI/ASA S12.60-2010/Part 1? (0.5 pt) - Walls separating acoustically separated areas from other areas are constructed full height to underside of the next floor above or the roof deck? (1 pt) - Walls separating quiet areas from other areas have all joints and penetrations sealed with acoustical sealant? (0.5 pt) - Areas with high floor impact activities (dance studios, shops, gymnasia) not located above acoustically separated areas? (1 pt) - Do open office areas have min 150 cm high furniture and/or high performance ceiling tile 180 Articulation Class (AC); AND a sound masking system? (1 pt)	6	4.5		1.5		The project team reviewed the criteria and confirmed that the design should achieve 4 out of 6 points.
7.5.1 Acoustic Comfort Design - Sound Transmission Class (STC) ratings	Does the design comply with minimum Sound Transmission Class ratings of floor/ceiling assemblies, walls and doors between acoustically separated areas (learning spaces), and adjacent spaces as follows and as applicable: - STC-45 where the adjacent space is a corridor, stair, office, or conference room? (1 pt) - STC-50 where the adjacent space is a quiet area, speech clinic, health clinic, classroom, or an exterior wall? (1 pt) - STC-50 for doors to quiet areas? (1 pt) - STC-40 for doors to music rooms, cafeterias, natatoria (e.g. swimming pool), or gymnasia? (1 pt) - STC-35 for exterior windows? (1 pt)	5	3	2			To be reviewed in more detail.
7.5.1 Acoustic Comfort Design - Impact Insulation Class (IIC) rating of floor-ceiling assemblies	Does the Impact Insulation Class (IIC) design of all floor-ceiling assemblies have a minimum rating of IIC-50?	2	2				To be reviewed in more detail.
7.5.1 Acoustic Comfort Design - Reverberation Time (RT)	Does the design achieve Reverberation Time that does not exceed the following values in quiet areas and all areas where speech intelligibility is important? (all required for 5 pts) - 0.6 seconds in spaces less than 280 m³? - 0.7 seconds in spaces 280 -565 m³? - Compliance with Annex C of ANSI/ASA S12.60-2010/Part 1 in spaces larger than 565 m³ in volume?	5	5				Would require a study to review compliance. To be discussed with U of A.

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Item	*Summary of Requirements*	*Available Points*	Yes	Maybe	No	N/A	*Commentary*
		100.0%	*65.69%*	*19.43%*	*14.88%*	*8.66%*	
7.5.2 Mechanical, Plumbing, and Electrical - Background sound levels of mechanical systems	Does the design comply with minimum background sound levels associated with mechanical systems as follows: - Airborne sound power levels from HVAC unit do not exceed the Room Criteria detailed in ASHRAE Systems Application Handbook 2007, Chapter 47, Table 42 for listed spaces when HVAC units are in operation? (1 pt) - Spaces are designed such that room background noise using the Room Criteria ratings complies with Table 42. (1 pt)	2	2				To be researched further against GG criteria
7.5.2 Mechanical, Plumbing, and Electrical - Airborne noise from HVAC system	Does the design minimize airborne noise from the HVAC system using the following measures: - Duct transitions spread out and graduated to minimize generation of turbulence and air flow separations? (0.5 pt) - Secondary attenuators located immediately downstream of duct fittings that would otherwise generate noise? (0.5 pt) - Air flow velocities in low pressure ductwork did not exceed the following values? For main duct trunk lines: 900 f/m; For branch ducts: 700 f/m; For final run outs: 400 f/m; For main vertical ducts in shafts: 1200 f/m. (0.5 pt) - Where significant cross talk paths exist between two habitable spaces, there are sound attenuators and/or silencers, or ducts are designed in a "Z" configuration? (0.5 pt) - HVAC grilles and diffusers comply with ANSI/ASA S12.60-2010/Part 1? (0.5 pt)	2.5	2.5				To be researched further against GG criteria
7.5.2 Mechanical, Plumbing, and Electrical - Structure-borne noise from HVAC system	Does the design minimize structure-borne noise from the HVAC system using the following measures? - Fans and other powered HVAC equipment acoustically separated from the structure using vibration isolators? (1 pt) - Ducts supported on resilient mounts to isolate them from structural system, and ducts isolated using resilient material where they pass through walls? (1 pt)	2	2				To be researched further against GG criteria
7.5.2 Mechanical, Plumbing, and Electrical - Noise from plumbing system	Does the design mitigate noise from the plumbing system using the following measures? - Piping was not run above quiet areas and learning spaces with the exception of sprinklers and radiant heating systems? (0.5 pt) - Waste water piping noise mitigated using cast iron pipe or with acoustic insulation above quiet areas and learning spaces, and a water hammer arrester was used? (1 pt)	1.5	1.5				To be researched further against GG criteria
7.5.2 Mechanical, Plumbing, and Electrical - Electrical system noise minimization best practices	Does the design comply with the following best practices to minimize noise from the electrical system? - Low-noise ballasts installed in quiet areas and all other areas where speech intelligibility is important? (1 pt) - Noise from light fixtures and other electrical fixtures does not exceed values indicated in ANSI/ASA S12.60-2010/Part 1? (1 pt)	2	2				To be researched further against GG criteria
Total Section Points - Indoor Environment		**150**	**117**	**15**	**10**	**8**	

APPENDIX B: ALBERTA BUILDING CODE CALCULATIONS

Occupant Loads

FACILITY COMPONENTS	UNITS	G.F.A. (s.m.)	AREA PER PERSON (s.m.)	OCCUPANT LOADS	COMMENTS
BASEMENT					
Service Area		249	46.00	5	
Service Area		97	46.00	2	
Total Basement Occupant Load				**8**	
MAIN FLOOR					
Assembly					
Entry	1	85	1.85	46	
Pre-Function Space	1	117	-	-	included in dining hall as these are the same occupants
Dining Hall	1	277	-	160	
Kitchen/Servery	1	274	9.30	29	
Quiet Study	1	67	1.85	36	
Living Room	1	86	1.85	46	
Recreation Room	1	67	4.60	15	
Fitness	1	60	4.60	13	
Service & Administration					
Administration & Offices	**1**	67	9.30	7	
Conference Room	1	35	1.85	19	
Residence					
Faculty Suite	1	66	-	2	
Guest Suites	3	197	-	6	
Total Main Floor Occupant Load				**155**	
SECOND FLOOR					
Residences					
Shared	25	-	-	50	
Single	5	-	-	5	
Social Spaces	5	185	1.85	100	
Total Second Floor Occupant Load				**155**	
THIRD FLOOR					
Residences					
Shared	25	-	-	50	
Single	5	-	-	5	
Social Spaces	5	185	1.85	100	
Total Third Floor Occupant Load				**155**	

FACILITY COMPONENTS	UNITS	G.F.A. (s.m.)	AREA PER PERSON (s.m.)	OCCUPANT LOADS	COMMENTS
FOURTH FLOOR					
Residences					
Shared	15	-	-	30	
Single	3	-	-	3	
Social Spaces	3	111	1.85	60	
Total Fourth Floor Occupant Load				**93**	
FIFTH FLOOR					
City Room	1	119	0.75	159	
Roof Terrace	1	41	0.95	43	
Pre-Function Area	1	36	0.95	38	
Total Fifth Floor Occupant Load				**240**	
TOTAL OCCUPANT LOAD				**1,030**	

Exiting Calculations

FACILITY COMPONENTS	OCCUPANT LOAD	EXIT	TYPE	WIDTH	EXIT CAPACITY	COMMENTS
BASEMENT	**8**					
		ST2	Stair	1,100	138	
		ST5	Stair	1,100	138	
Total Exit Capacity					**276**	
MAIN FLOOR	**380**					
		West	Door	1,800	282	North West Entrance
		North	Door	1,800	282	North West Entrance
		Courtyard	Door	1,800	282	North West Courtyard Access
		South	Door	900	141	South West Exit
		North	Door	1,800	282	East Prefunction
		Courtyard	Door	900	141	East Prefunction
		East	Door	1,800	282	Dining Hall
		East	Door	1,800	282	Dining Hall
		South	Door	1,800	282	Kitchen
Total Exit Capacity					**2,256**	
SECOND FLOOR	**155**					
		ST2	Stair	1,100	138	North-West Exit Stair
		ST3	Stair	1,100	138	North Exit Stair
		ST4	Stair	1,100	138	North-East Exit Stair
		ST5	Stair	1,100	138	South Exit Stair
Total Exit Capacity					**552**	
THIRD FLOOR	**155**					
		ST2	Stair	1,100	138	North-West Exit Stair
		ST3	Stair	1,100	138	North Exit Stair
		ST4	Stair	1,100	138	North-East Exit Stair
		ST5	Stair	1,100	138	South Exit Stair
Total Exit Capcity					**552**	
FOURTH FLOOR	**93**					
		ST2	Stair	1,100	138	North-West Exit Stair
		ST3	Stair	1,100	138	North Exit Stair
		ST4	Stair	1,100	138	North-East Exit Stair
Total Exit Capcity					**414**	
FIFTH FLOOR	**240**					
		ST2	Stair	1,100	138	North-West Exit Stair
		ST3	Stair	1,100	138	North Exit Stair
Total Exit Capcity					**276**	
TOTAL EXIT CAPACITY					**4,326**	

APPENDIX C: DRAWINGS

UNIVERSITY OF ALBERTA
SASKATCHEWAN DRIVE RESIDENCE
PROJECT NO. 5361

gec architecture

UNIVERSITY OF ALBERTA

ISSUED FOR DESIGN DEVELOPMENT
MAY 2, 2014

ARCHITECTURAL

STRUCTURAL

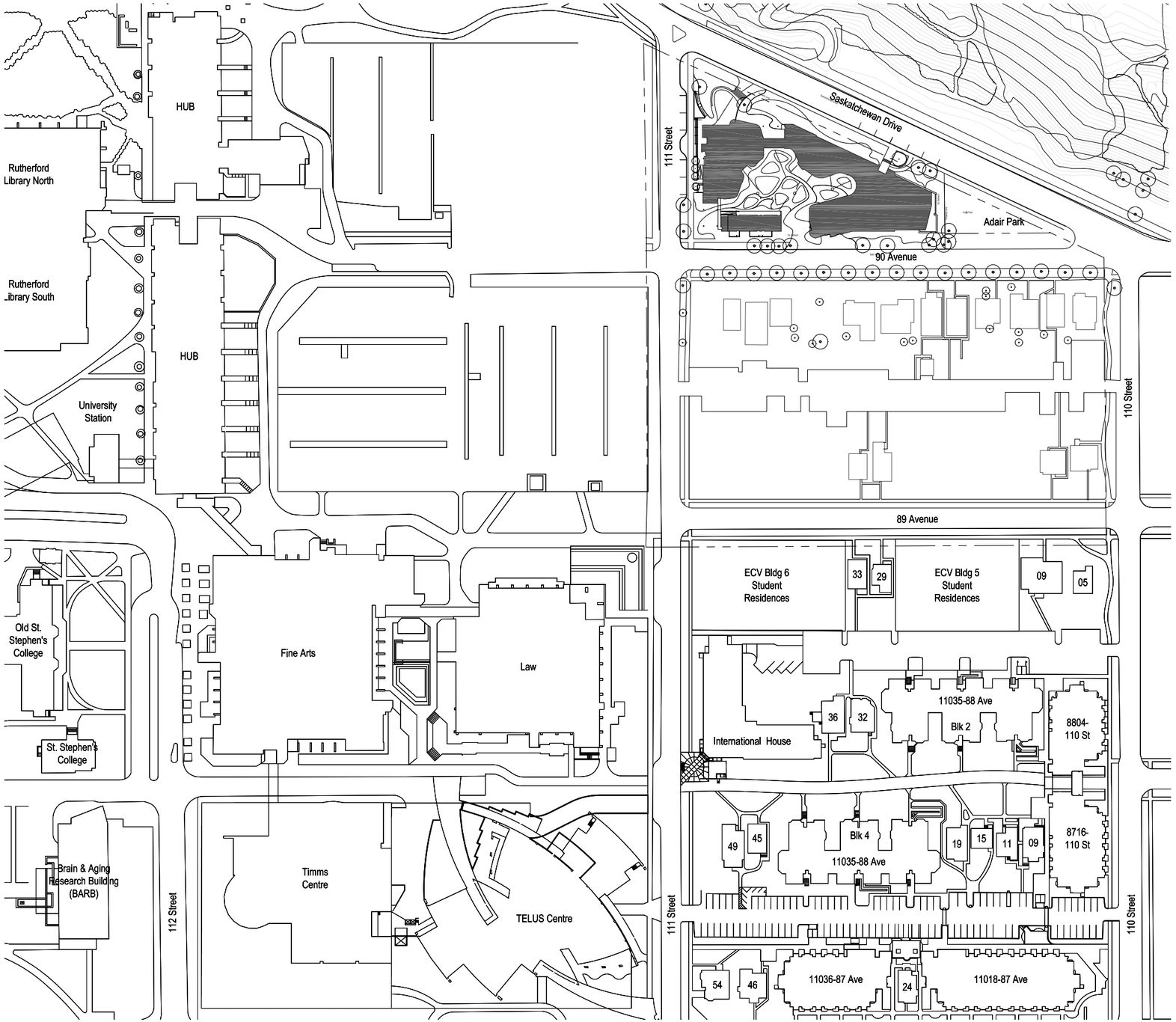
MECHANICAL

ELECTRICAL

FOOD SERVICE

LANDSCAPE

CIVIL



NORTH

CONTEXT PLAN
SCALE: 1:500

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A	2014.04.30	GEC	ISSUED FOR DESIGN DEVELOPMENT DRAWING SET

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Client Approval Date: YYYY.MM.DD

Dwg Title: **CONTEXT PLAN**

Building: **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number: E1234 | Work Order Number: 567890

Arch ■ Mech ☐ Elec ☐ Struc ☐ Civil ☐ | Drawn By: NAME

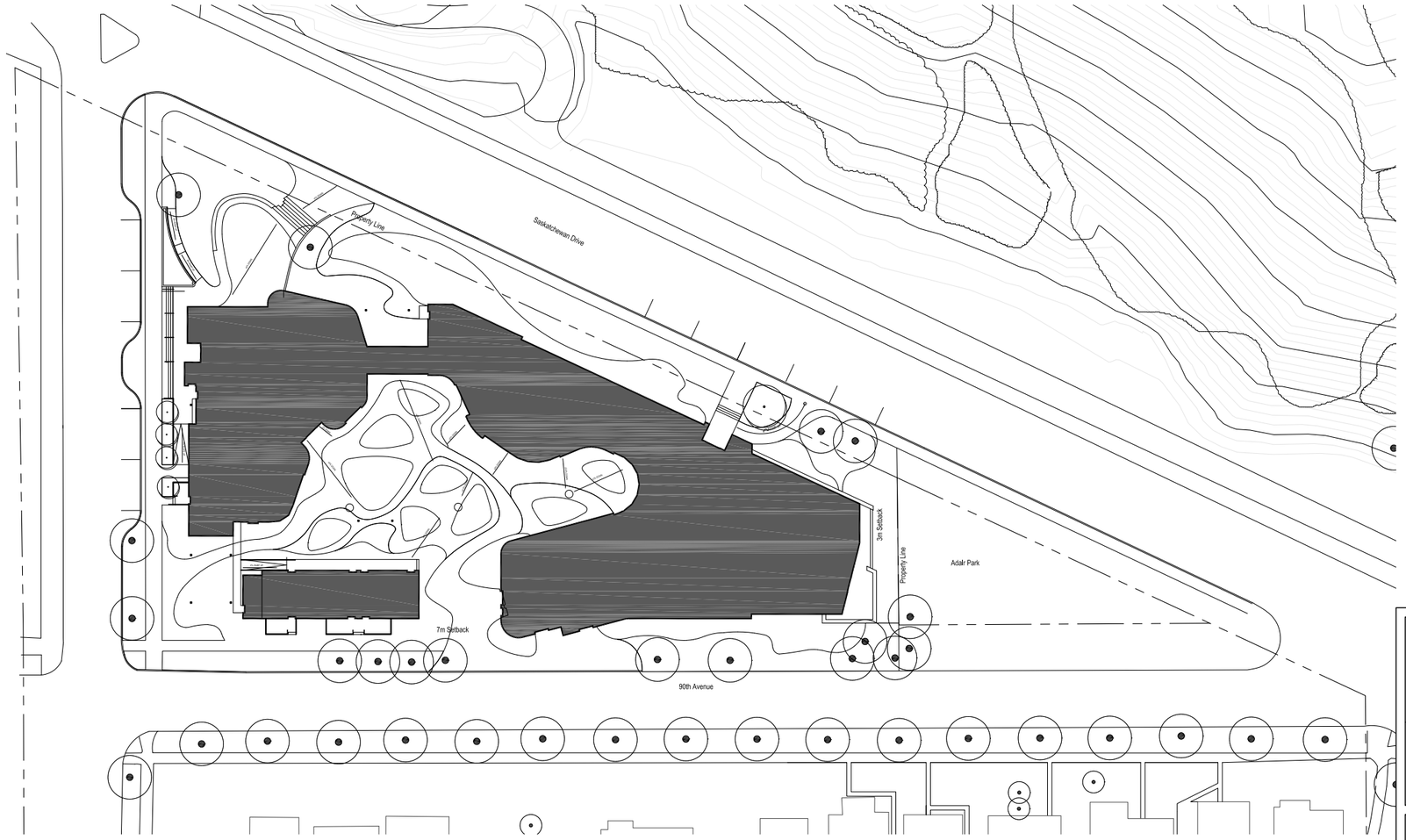
Dwg. Created: YYYY.MM.DD
Design File No.: #####-YY-###

Issue & Revision: **A**

Sheet: **X of Y**

Drawing Number: **A100**

5361



NORTH

SITE PLAN
SCALE: 1:200

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Dwg Title **SITE PLAN**

Building **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number E1234 | Work Order Number 567890

Arch ■ Mech ☐ Elec ☐ Struc ☐ CM ☐ | Drawn By NAME

Dwg. Created YYYY.MM.DD | Issue & Revision A

Design File No. #####-Y-##

Sheet X of Y | Drawing Number A101

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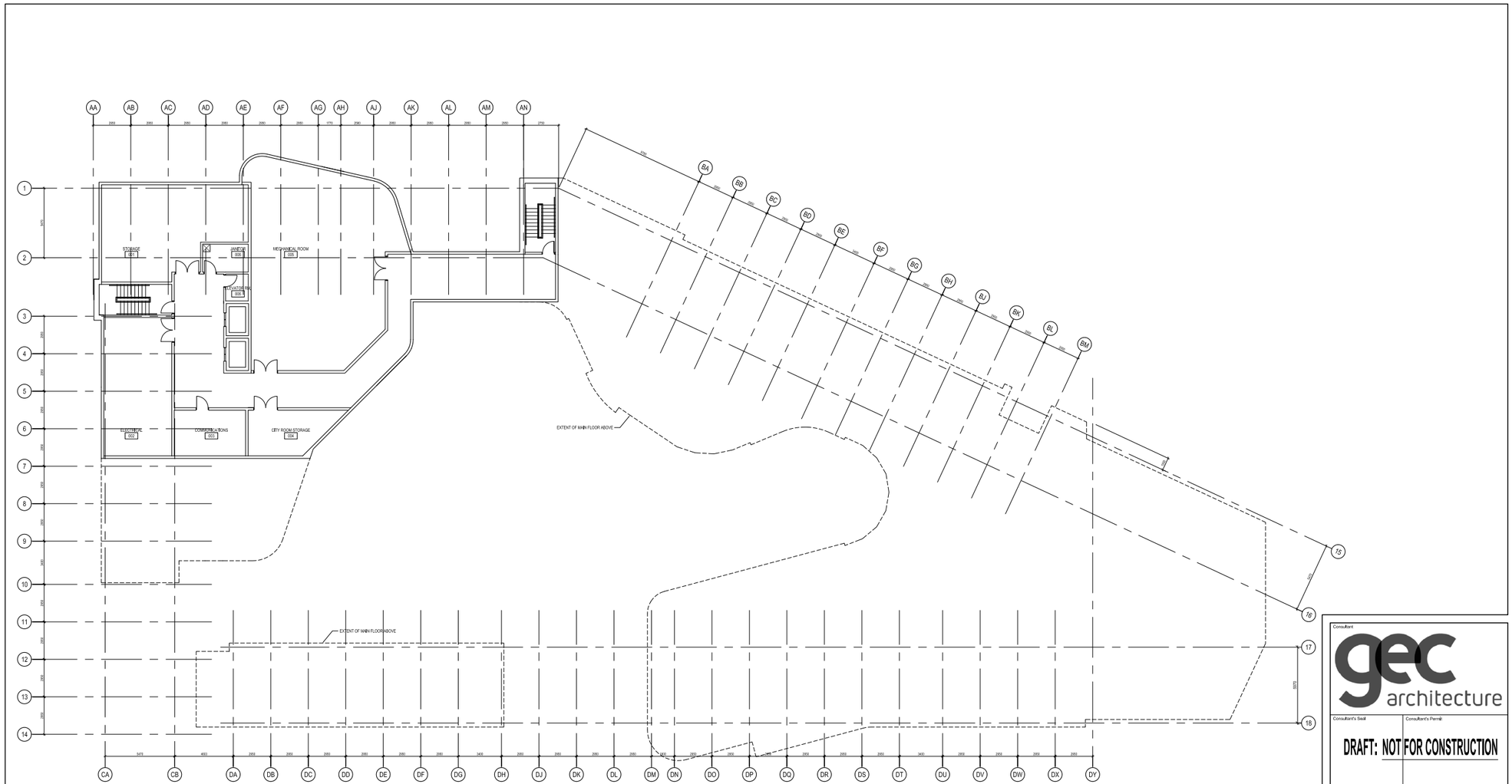

NORTH

BASEMENT PLAN
SCALE: 1:100

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Dwg Title: **BASEMENT PLAN**

Building: **SASKATCHEWAN DRIVE RESIDENCE**

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Dwg. Created: **YYYY.MM.DD** | Design File No.: ########-YY-###

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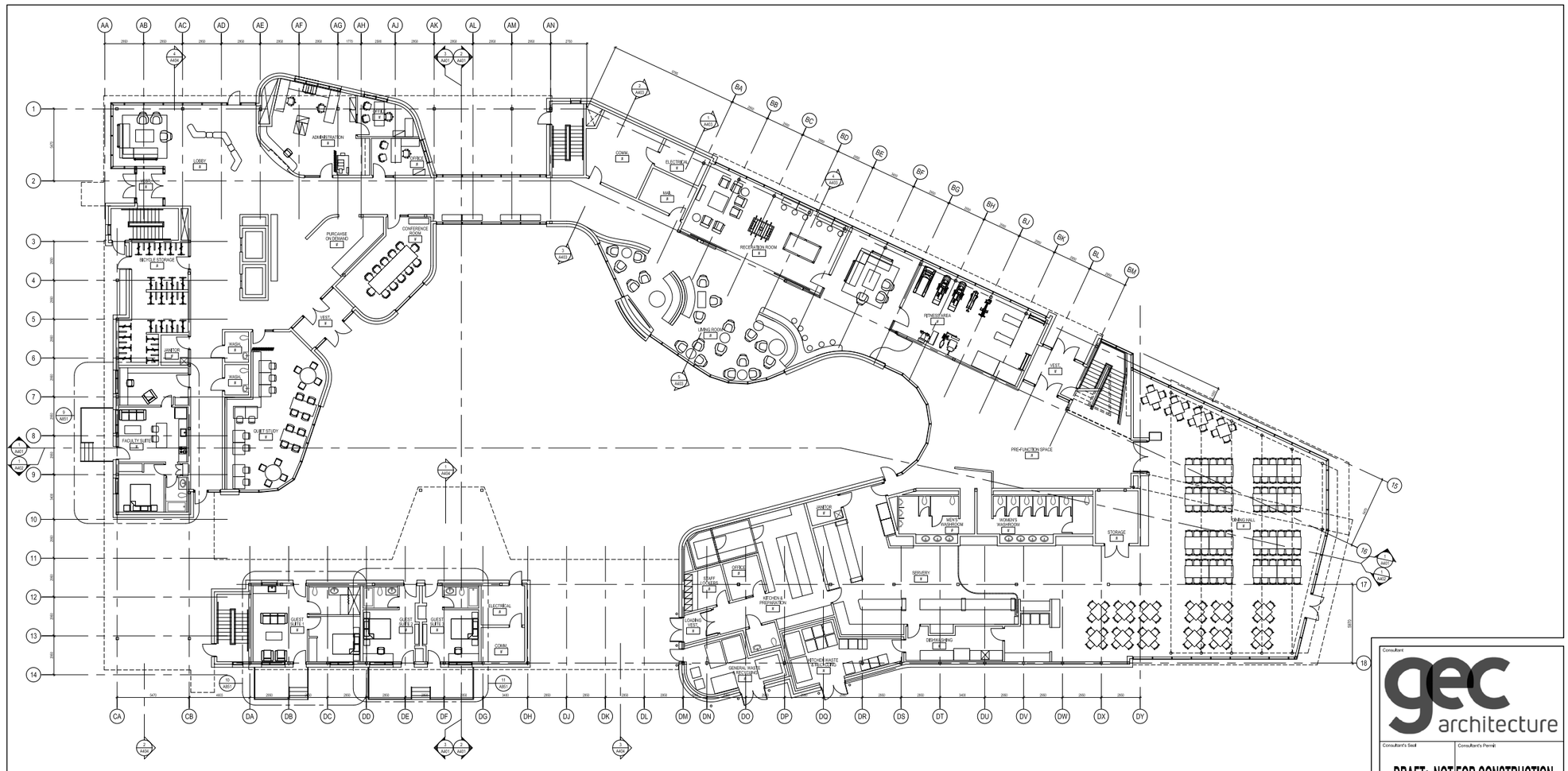
Sheet: **X of Y** | Drawing Number: **A201**

5361



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LEVEL 1 PLAN
SCALE: 1:100

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Dwg Title: **LEVEL 1 PLAN**

Building: **SASKATCHEWAN DRIVE RESIDENCE**

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Sheet: X of Y | Drawing Number: A202

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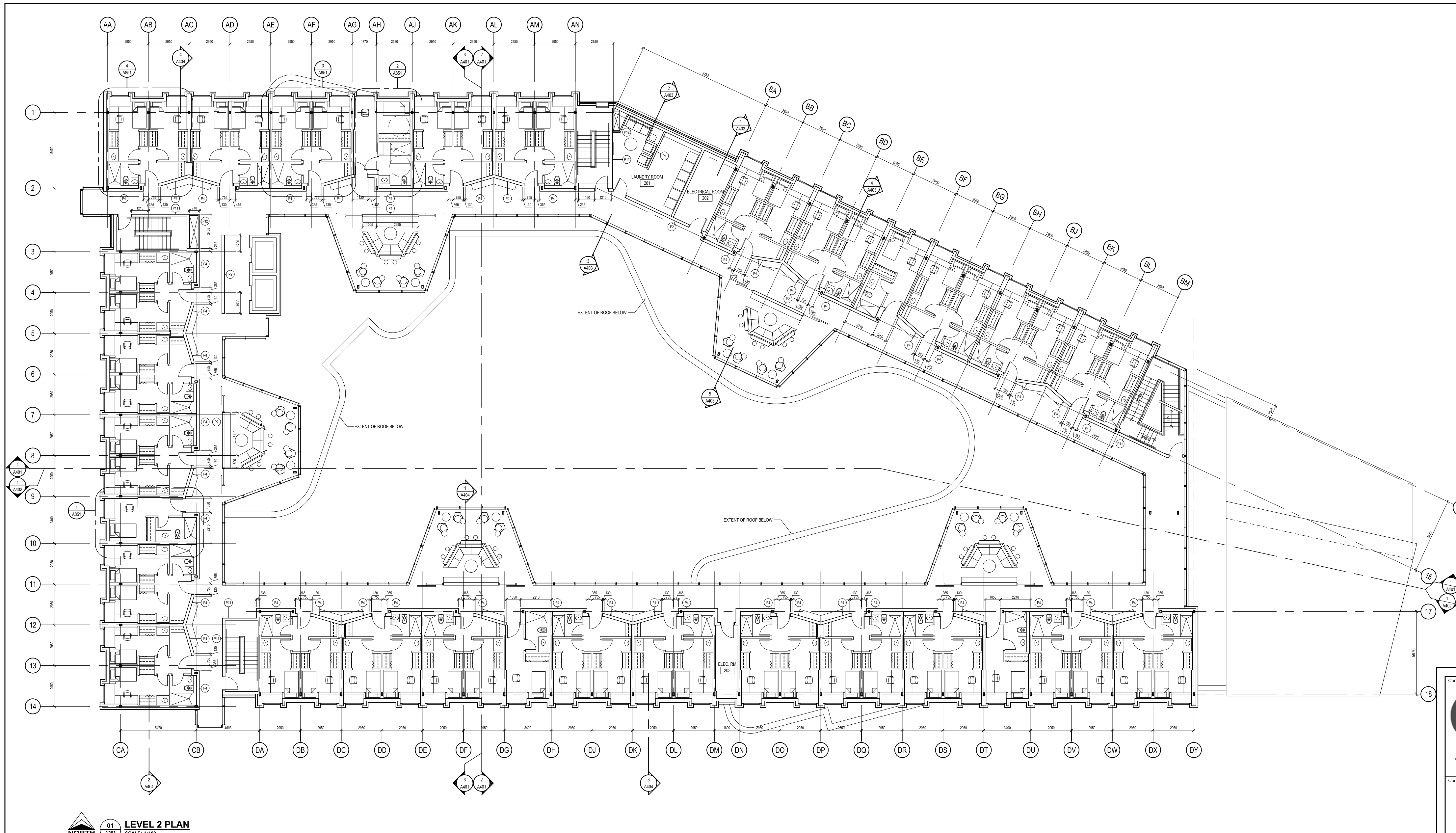

LEVEL 2 PLAN
SCALE: 1:100

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Dwg Title **LEVEL 2 PLAN**

Building **SASKATCHEWAN DRIVE RESIDENCE**

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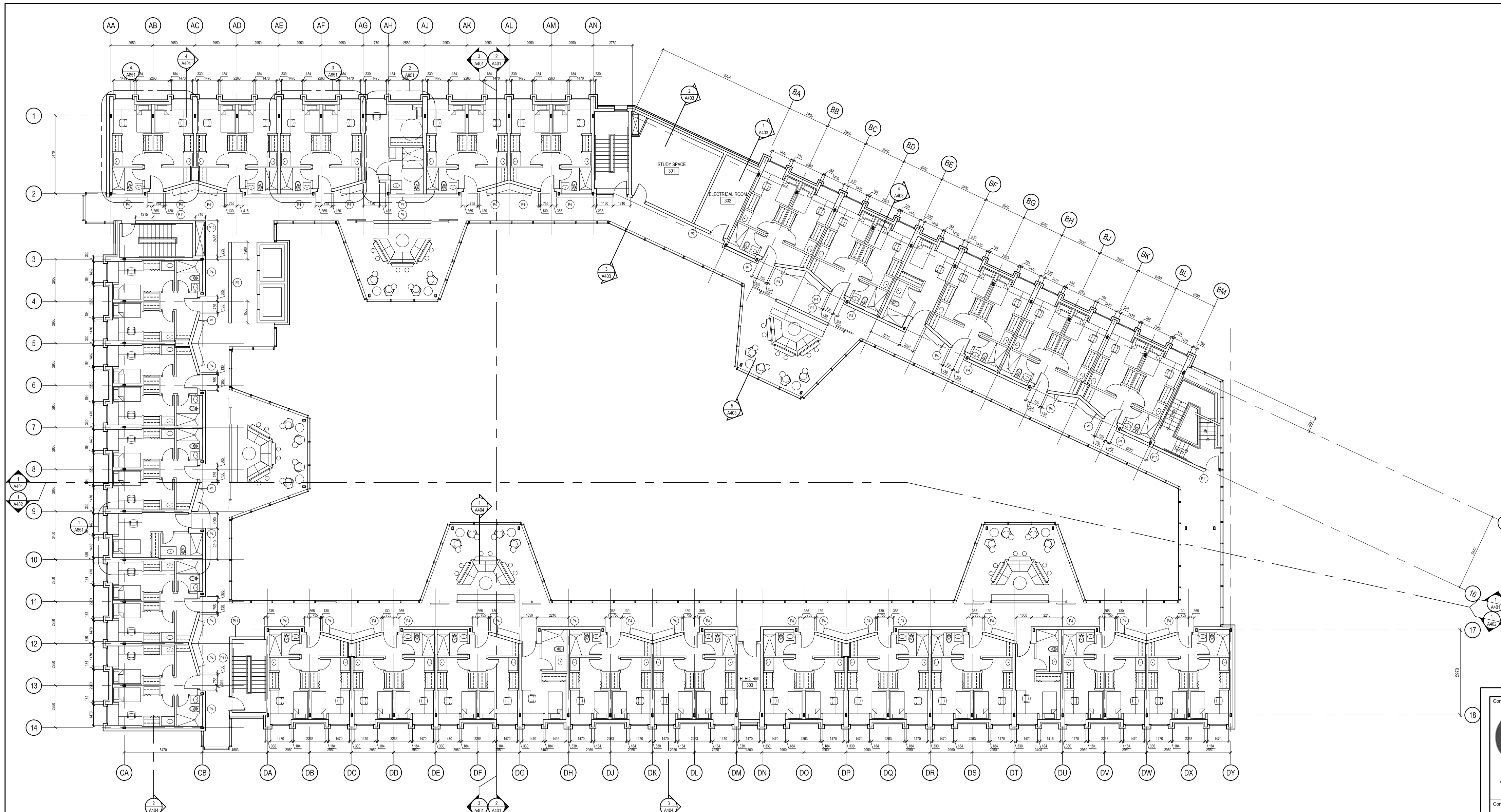

01 LEVEL 3 PLAN
A204 SCALE: 1:100

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Dwg Title **LEVEL 3 PLAN**

Building **SASKATCHEWAN DRIVE RESIDENCE**

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Sheet **X of Y** Drawing Number **A204**

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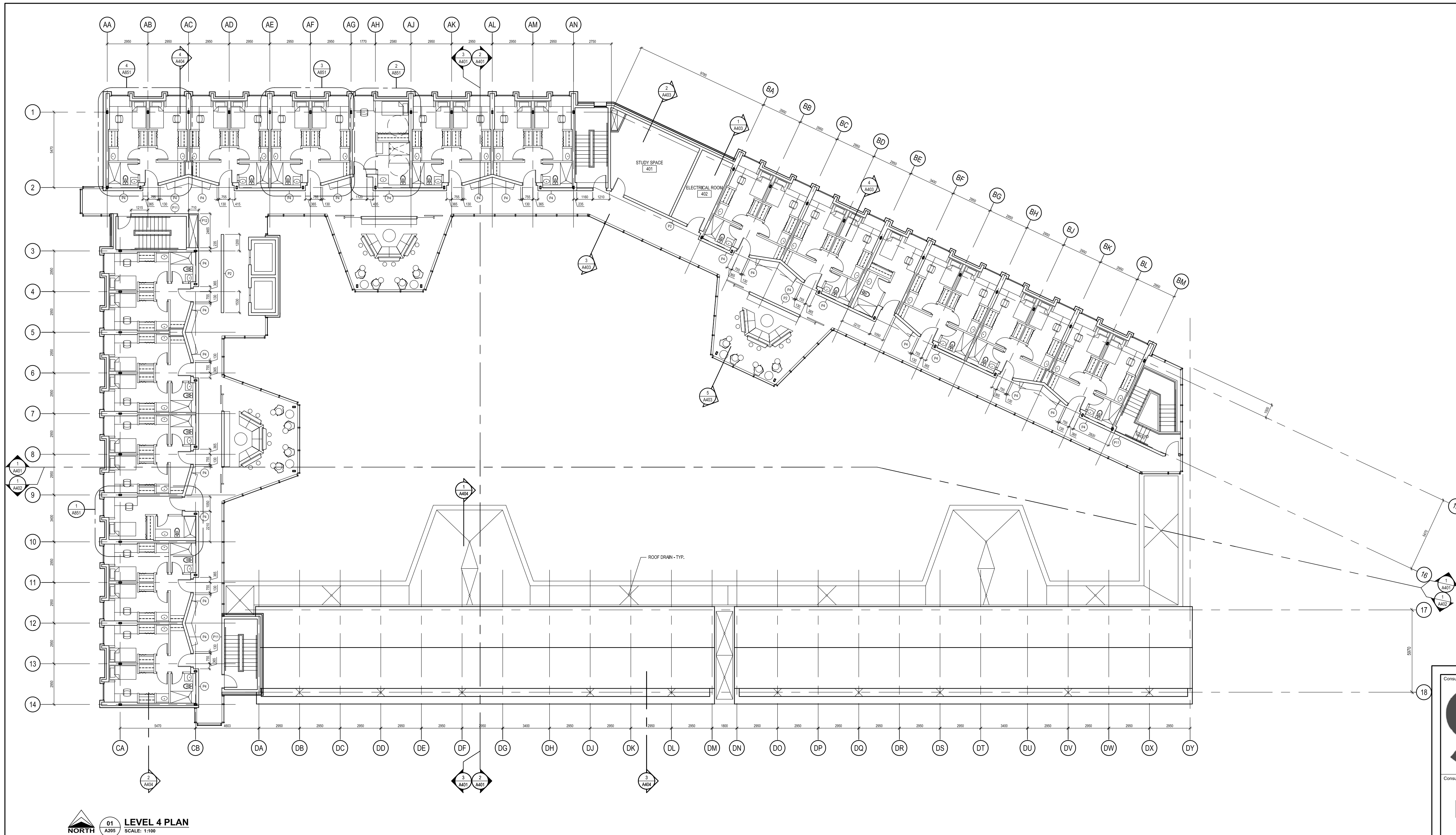

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Dwg Title **LEVEL 4 PLAN**

Building **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number **E1234** Work Order Number **567890**

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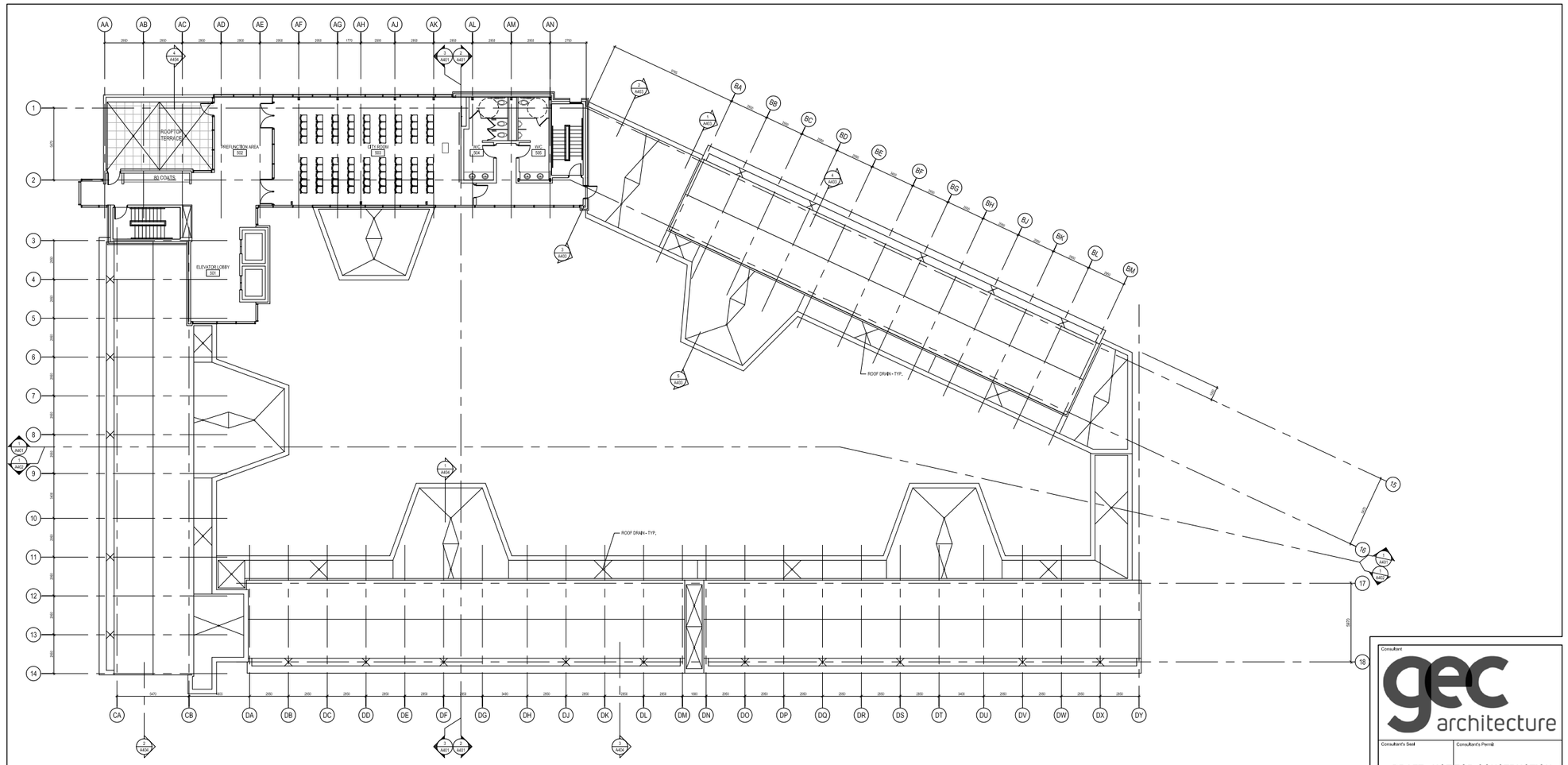

01 A206 **LEVEL 5 PLAN**
SCALE: 1:100

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Dwg Title: **LEVEL 5 PLAN**

Building: **SASKATCHEWAN DRIVE RESIDENCE**

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Issue & Revision: **A**

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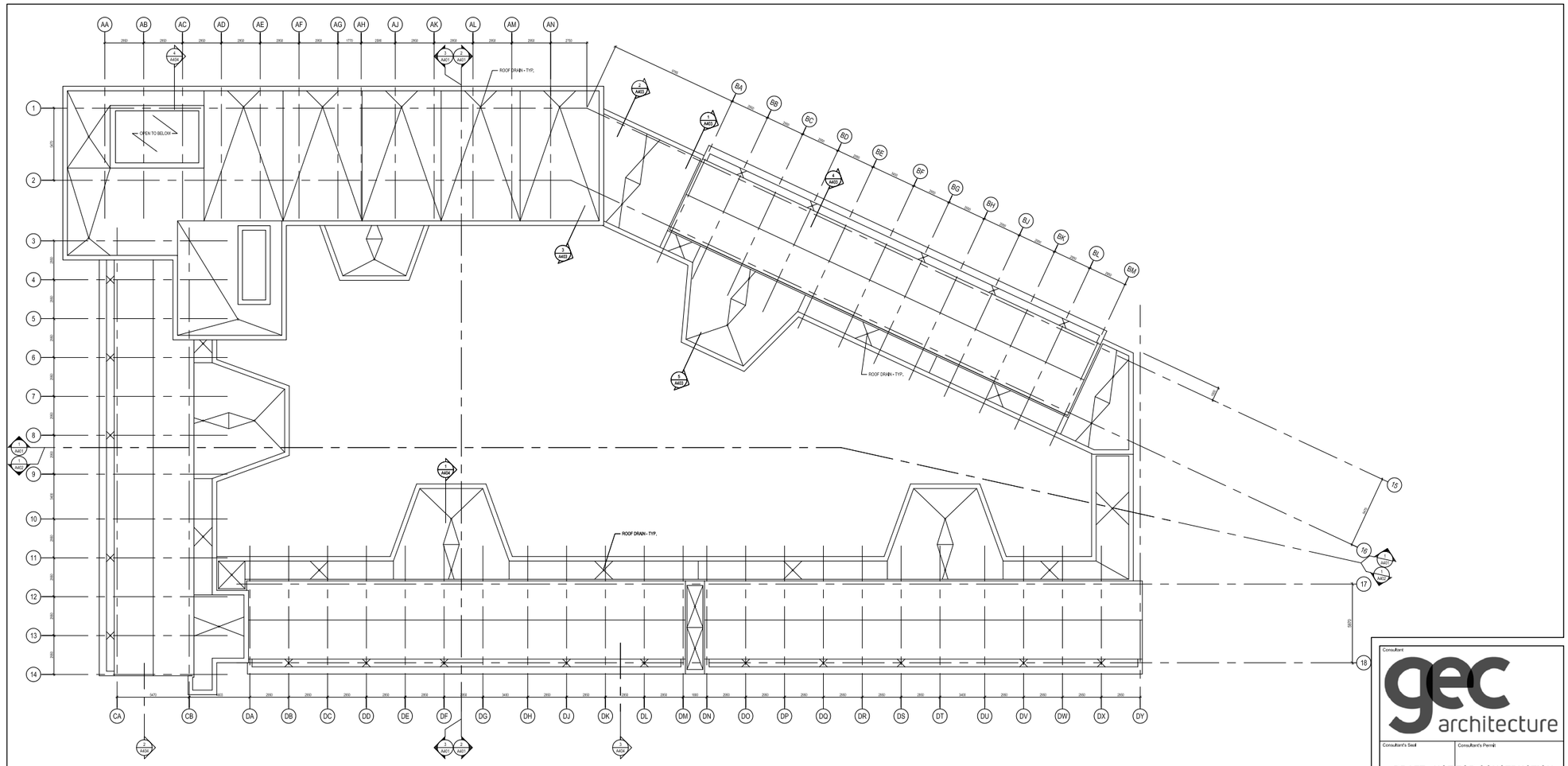

NORTH

01 A207 **UPPER ROOF PLAN**
SCALE: 1:100

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Dwg Title: **UPPER ROOF PLAN**

Building: **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number: E1234 | Work Order Number: 567890

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Issue & Revision: **A**

Sheet: **X of Y** | Drawing Number: **A207**

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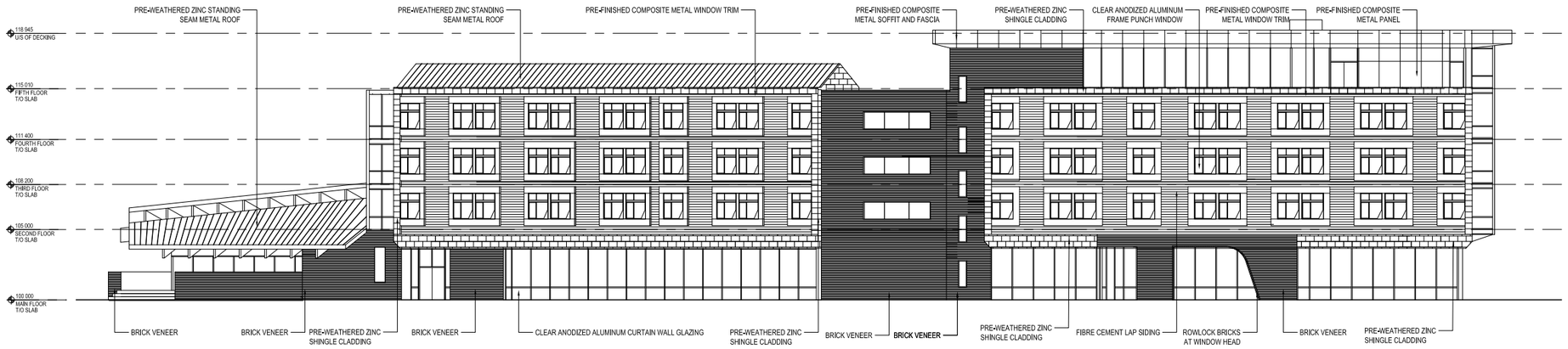

01 A301 **NORTH ELEVATION**
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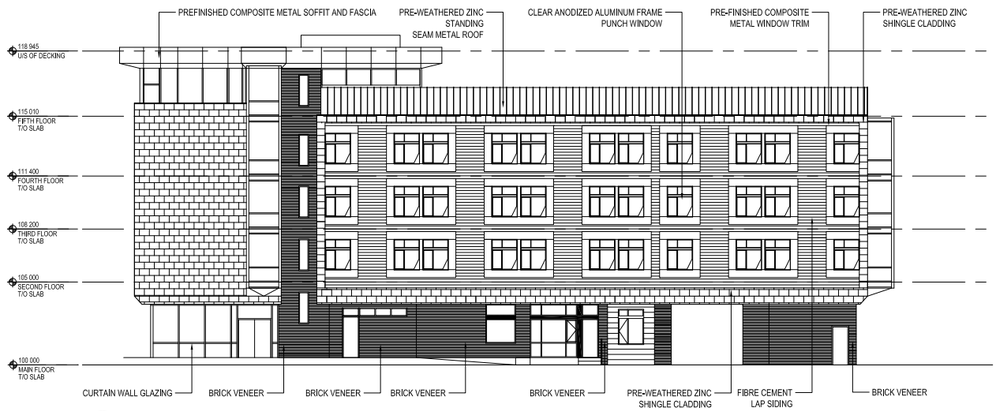

02 A301 **WEST ELEVATION**
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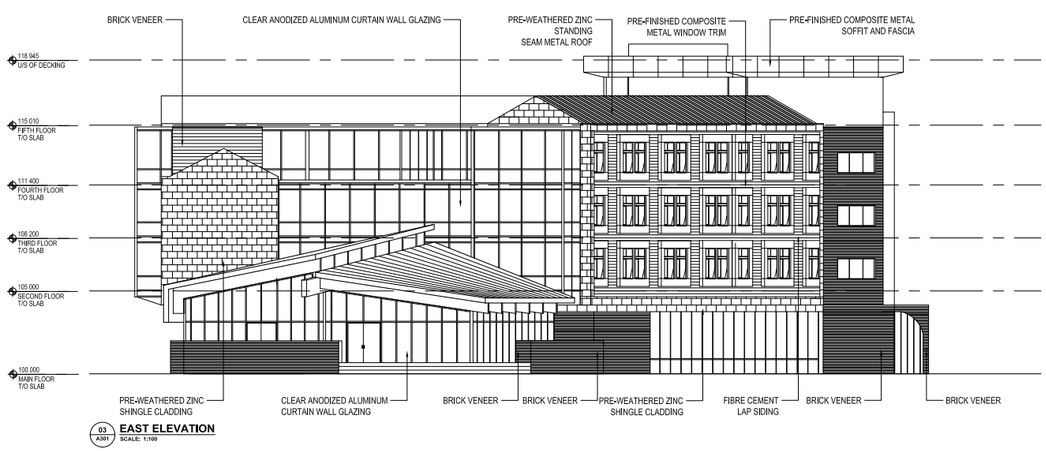

03 A301 **EAST ELEVATION**
SCALE: 1:100

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Client Approval Date **YYYY.MM.DD**

Dwg Title **ELEVATIONS**

Building **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number **E1234** | Work Order Number **567890**

Arch ■ Mech☐ Elec☐ Struc☐ Civil☐ | Drawn By **NAME**

Dwg. Created **YYYY.MM.DD** | Design File No. **BBBBB/YY-BF** | Issue & Revision **A**

Sheet **X of Y** | Drawing Number **A301**

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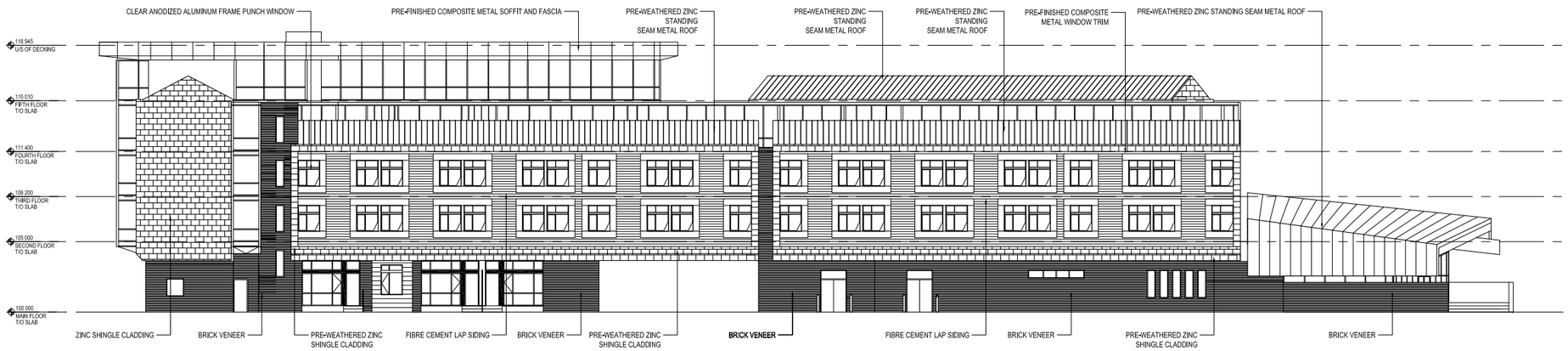

01 / A302 **SOUTH ELEVATION**
SCALE: 1:100

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Faculty/Department **FACULTY OR DEPARTMENT**

Client Approval Date **YYYY.MM.DD**

Dwg Title **BUILDING ELEVATIONS**

Building **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number **E1234** Work Order Number **567890**

Arch ■ Mech ☐ Elec ☐ Struc ☐ Civil ☐ Drawn By **NAME**

Dwg. Created **YYYY.MM.DD** Issue & Revision **A**

Desktop File No. ######/YY-##

Sheet **X of Y** Drawing Number **A302**

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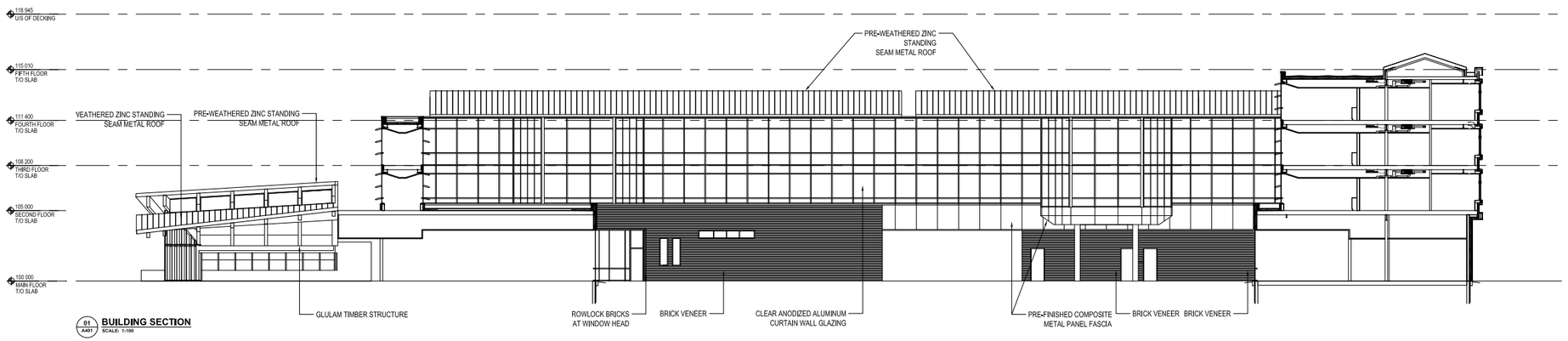

01 A401 **BUILDING SECTION**
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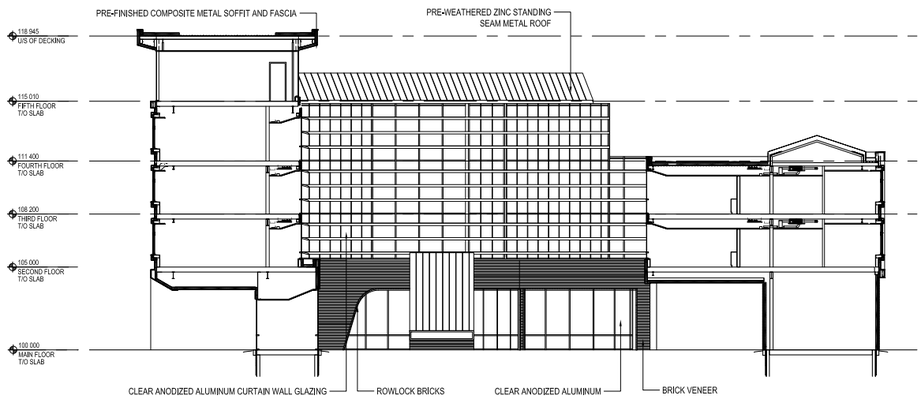

02 A401 **BUILDING SECTION**
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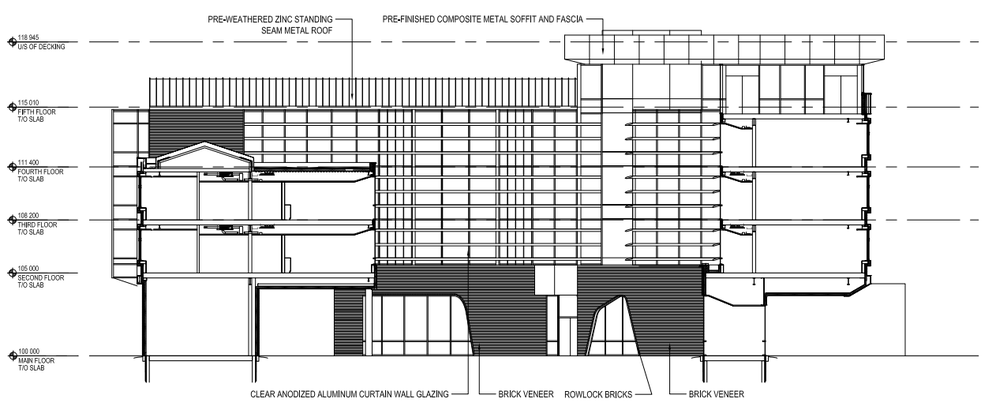

03 A401 **BUILDING SECTION**
SCALE: 1:100

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Dwg Title **BUILDING SECTIONS**

Building **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number **E1234** Work Order Number **567890**

Arch ■ Mech ☐ Elec ☐ Struc ☐ Civil ☐ Drawn By **NAME**

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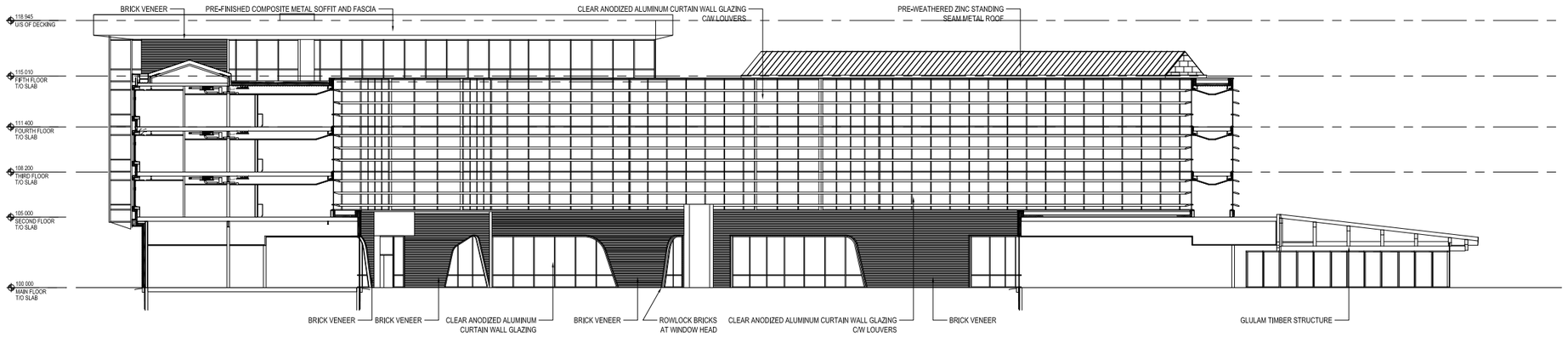
Sheet **X of Y** Drawing Number **A401**

5361



01 A402 **BUILDING SECTION**
SCALE: 1:100

Consultant

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Client Approval Date YYYY.MM.DD

Dwg Title **BUILDING SECTIONS**

Building **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number E1234 Work Order Number 567890

Arch ■ Mech ☐ Elec ☐ Struc ☐ Civil ☐ Drawn By NAME

Dwg. Created YYYY.MM.DD Issue & Revision A

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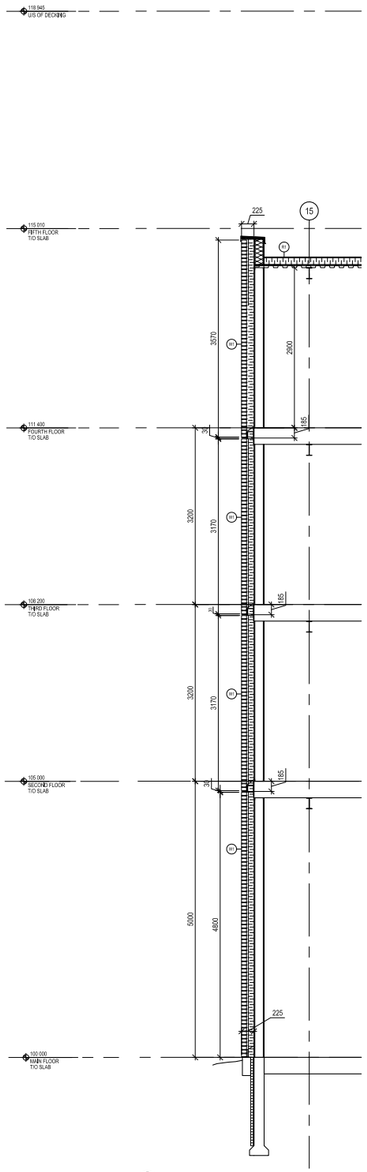
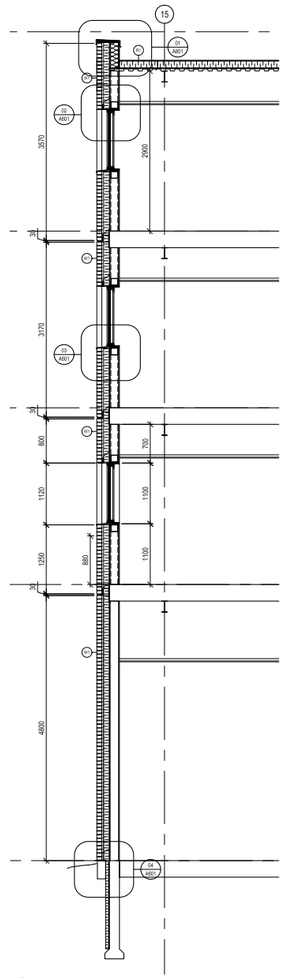
Sheet X of Y Drawing Number A402

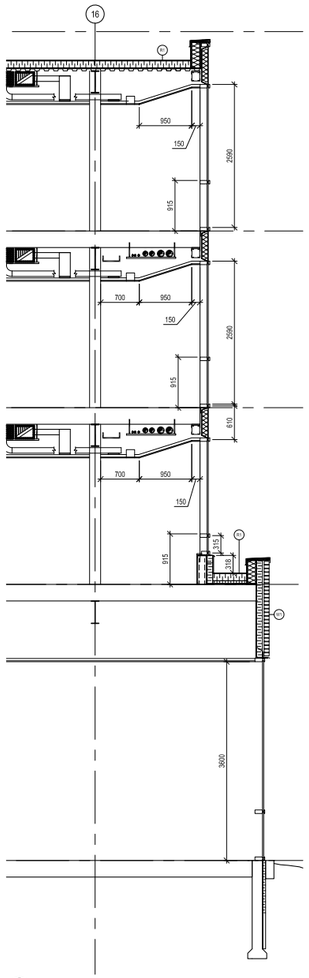
5361



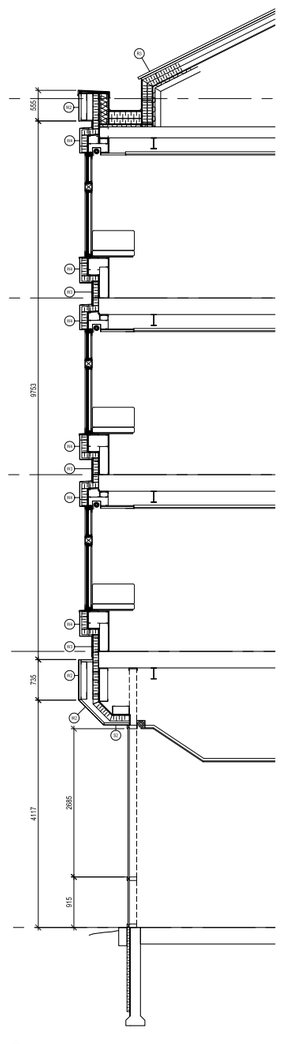
01 A403 **BRICK COURSING WALL SECTION**
SCALE: 1:30



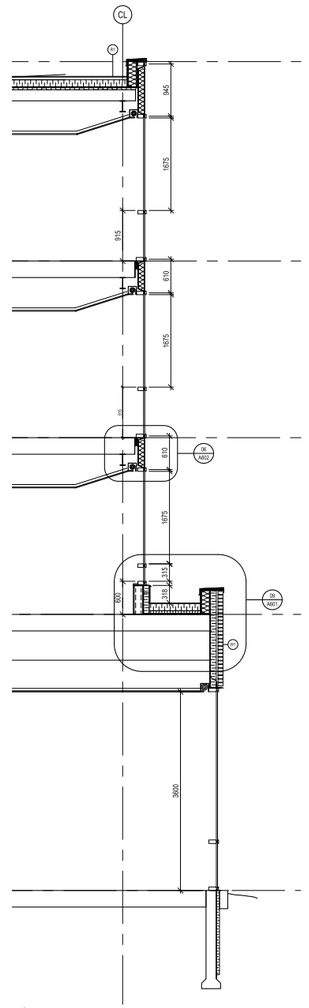
02 A403 **BRICK COURSING WALL SECTION**
SCALE: 1:30



03 A403 **CORRIDOR GLAZING WALL SECTION**
SCALE: 1:30



04 A403 **WALL SECTION AT GRID BH**
SCALE: 1:30



05 A403 **WALL SECTION AT GRID BD**
SCALE: 1:30

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Ltr. / #	Date	By	Description
A	2014.04.30	GEC	ISSUED FOR DESIGN DEVELOPMENT DRAWING SET

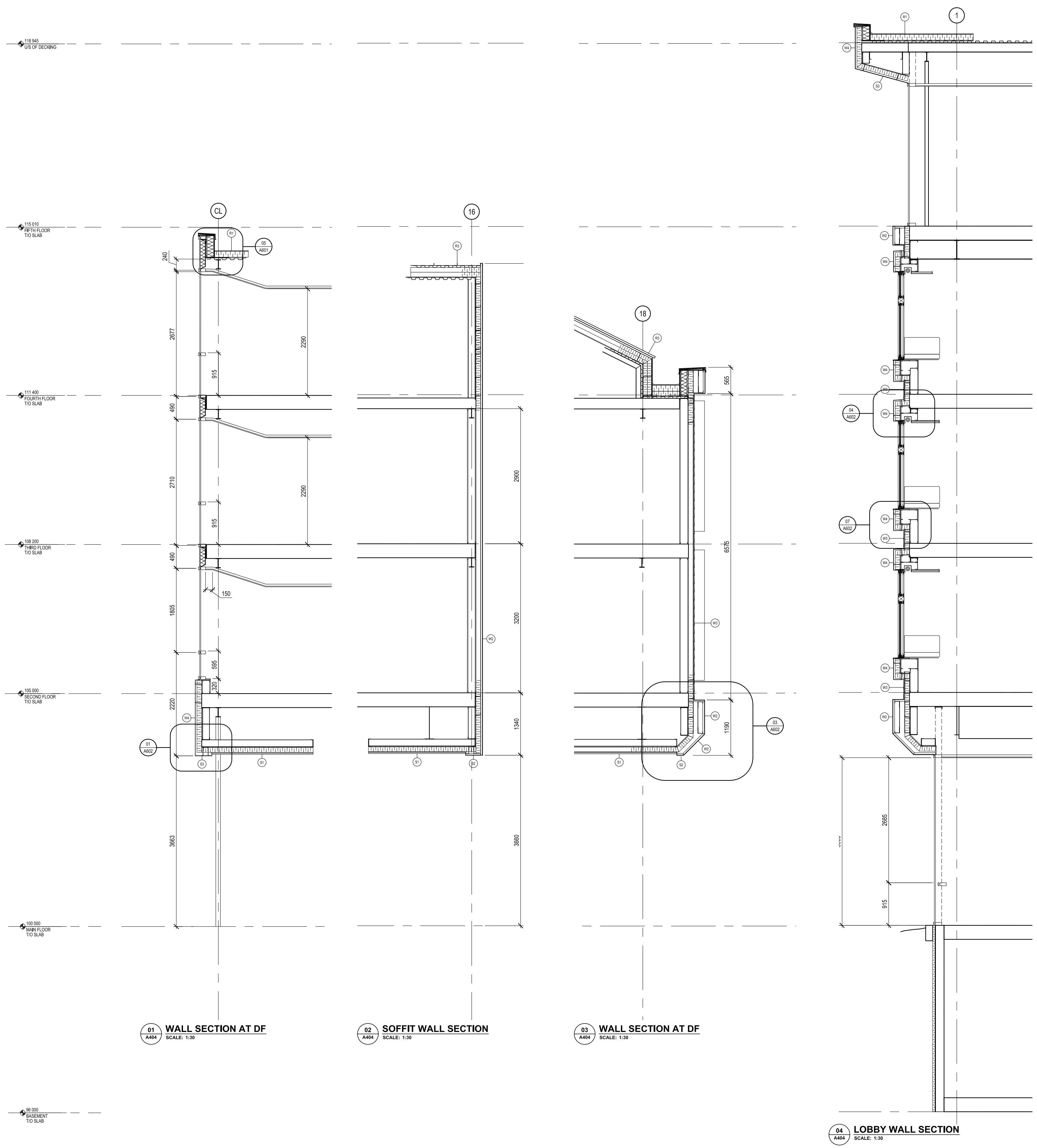
Faculty/Department FACULTY OR DEPARTMENT

Client Approval Date YYYY.MM.DD

Dwg Title **WALL SECTIONS**

Building **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number E1234	Work Order Number 567890
Arch ■ Mech☐ Elec☐ Struc☐ Civil☐	Drawn By NAME
Dwg. Created YYYY.MM.DD Design File No. ######-YY-##	Issue & Revision A
Sheet X of Y	Drawing Number A403
5361	



01 A404 **WALL SECTION AT DF** SCALE: 1:30

02 A404 **SOFFIT WALL SECTION** SCALE: 1:30

03 A404 **WALL SECTION AT DF** SCALE: 1:30

04 A404 **LOBBY WALL SECTION** SCALE: 1:30

EXTERIOR WALL ASSEMBLIES

W1 TYPICAL BRICK VENEER WALL
- 90mm BRICK VENEER
- 35mm AIR SPACE
- 102mm SEMI-RIGID INSULATION (R16.8)
- SELF ADHERING MEMBRANE AIR/VAPOR BARRIER
- 16mm GYPSUM SHEATHING

W2 TYPICAL ZINC SHINGLE WALL
- 1mm PRE-WEATHERED INTERLOCKING ZINC SHINGLE
- 38mm VERTICAL ACOUSTICAL METAL DECK FASTENED TO Z-BARS
- 102mm HORIZONTAL G.I. Z-BARS
- 102mm SEMI-RIGID INSULATION (R16.8)
- SELF ADHERING MEMBRANE AIR/VAPOR BARRIER
- 16mm GYPSUM SHEATHING

W3 FIBRE CEMENT SIDING
- FIBRE CEMENT LAP SIDING
- 19mm TREATED VERTICAL PLYWOOD STRAPPING FASTENED TO Z-BARS
- 102mm HORIZONTAL G.I. Z-BARS
- 102mm SEMI-RIGID INSULATION (R16.8)
- SELF ADHERING MEMBRANE AIR/VAPOR BARRIER
- 16mm GYPSUM SHEATHING

W4 TYPICAL COMPOSITE METAL PANEL WALL
- PRE-FINISHED COMPOSITE METAL PANEL
- 25mm AIR SPACE
- 102mm HORIZONTAL G.I. Z-BARS
- 102mm SEMI-RIGID INSULATION (R16.8)
- SELF ADHERING MEMBRANE AIR/VAPOR BARRIER
- 16mm GYPSUM SHEATHING

SOFFIT ASSEMBLIES

S1 WOOD SOFFIT
- 38mmX140mm TONGUE AND GROOVE FIRE RETARDANT STAINED CEDAR PLANKS
- 19mm TREATED PLYWOOD STRAPPING
- 102mm SEMI-RIGID INSULATION (R16.8)
- 102mm G.I. Z-BARS
- SELF ADHERING MEMBRANE AIR/VAPOR BARRIER
- 16mm GYPSUM SHEATHING
- METAL SUSPENSION SYSTEM

S2 ZINC SHINGLE SOFFIT
- 1mm PRE-WEATHERED INTERLOCKING ZINC SHINGLE
- 38mm ACOUSTICAL METAL DECK FASTENED TO Z-BARS
- 102mm G.I. Z-BARS
- 102mm SEMI-RIGID INSULATION (R16.8)
- SELF ADHERING MEMBRANE AIR/VAPOR BARRIER
- 16mm GYPSUM SHEATHING
- METAL SUSPENSION SYSTEM

S3 COMPOSITE METAL PANEL SOFFIT
- PRE-FINISHED COMPOSITE ALUMINIUM PANEL SYSTEM FASTENED TO G.I. Z-BARS
- G.I. Z-BARS
- 102mm SEMI-RIGID INSULATION (R16.8)
- SELF ADHERING MEMBRANE AIR/VAPOR BARRIER
- 16mm GYPSUM SHEATHING
- METAL SUSPENSION SYSTEM

ROOF ASSEMBLIES

R1 TYPICAL FLAT ROOF
- 2-PLY SBS ROOF MEMBRANE
- 13mm ROOFING COVER BOARD C/W FACTORY LAMINATED SBS MEMBRANE BASE SHEET
- 127mm POLYISOCYANURATE RIGID INSULATION (R30)
- TAPERED EPS RIGID INSULATION BACKSLOPES TO DRAIN
- SELF-ADHERING MEMBRANE AIR/VAPOUR BARRIER
- 16mm GYPSUM SHEATHING
- 38mm STEEL DECK

R2 PAVER ROOF AT TERRACE
- 610X610X50mm PRECAST CONCRETE PAVERS INSTALLED LEVEL
- ADJUSTABLE PAVER PEDESTAL SYSTEM ON 25MM THICK HIGH DENSITY EXTRUDED POLYSTYRENE INSULATION PADS
- SBS ROOFING MEMBRANE CAP SHEET
- 13mm ROOFING COVER BOARD C/W FACTORY LAMINATED SBS BASE SHEET
- 127mm POLYISOCYANURATE RIGID INSULATION INSTALLED IN 2 LAYERS C/W OVERLAPPING JOINTS (R 30 TOTAL)
- SELF ADHERING MEMBRANE AIR/ VAPOUR BARRIER
- TAPERED EPS RIGID INSULATION FOR SLOPE TO DRAINS
- CONCRETE TOPPING ON STEEL DECK - 1 HOUR FIRE RESISTANCE RATING.

R3 TYPICAL PITCHED STANDING SEAM ROOF
- 1.0mm PRE PATINA ZINC JSM STANDING SEAM ROOF PANELS WITH RIBS @ 500MM O.C. COLOUR TO MATCH "RHEINZINK GRAPHITE-GREY"
- 38mm GALVANIZED ACOUSTIC DECK. FLUTE ORIENTATION TO FOLLOW ROOF SLOPE
- 2 LAYERS G.I. Z-BARS
- 2 LAYERS 90mm SEMI RIGID MINERAL FIBER INSULATION AS ROXUL CAVITY ROCK (R 30 TOTAL)
- SELF ADHERING MEMBRANE AIR/ VAPOUR BARRIER
- 13mm GYPSUM SHEATHING
- STEEL ROOF DECK ON STEEL TRUSSES

R4 PITCHED STANDING SEAM ROOF
- 1.0mm PRE PATINA ZINC JSM STANDING SEAM ROOF PANELS WITH RIBS @ 500MM O.C. COLOUR TO MATCH "RHEINZINK GRAPHITE-GREY"
- 38mm GALVANIZED ACOUSTIC DECK. FLUTE ORIENTATION TO FOLLOW ROOF SLOPE
- 2 LAYERS G.I. Z-BARS
- 2 LAYERS 90mm SEMI RIGID MINERAL FIBER INSULATION AS ROXUL CAVITY ROCK (R 30 TOTAL)
- SELF ADHERING MEMBRANE AIR/ VAPOUR BARRIER
- 13mm PLYWOOD SHEATHING
- ENGINEERED WOOD DECKING

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Client Approval Date YYYY.MM.DD

Dwg Title **WALL SECTIONS**

Building **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number E1234 Work Order Number 567890

Arch ■ Mech ☐ Elec ☐ Struc ☐ Civil ☐ Drawn By NAME

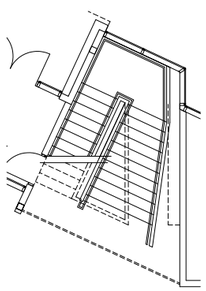
Dwg. Created YYYY.MM.DD
Design File No. #####-YY-## Issue & Revision **A**

Sheet **X of Y** Drawing Number **A404**

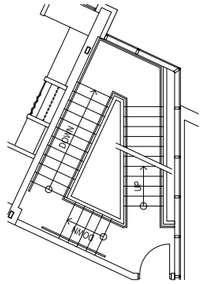
5361

EAST FEATURE STAIR

SCALE: 1:50



MAIN LEVEL PLAN
SCALE: 1:50



LEVEL 2 PLAN
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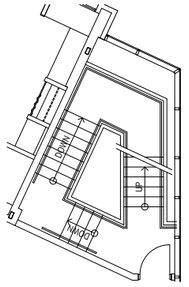

LEVEL 3 PLAN
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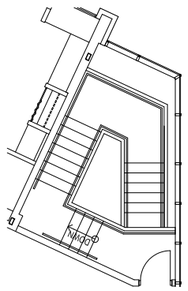

LEVEL 4 PLAN
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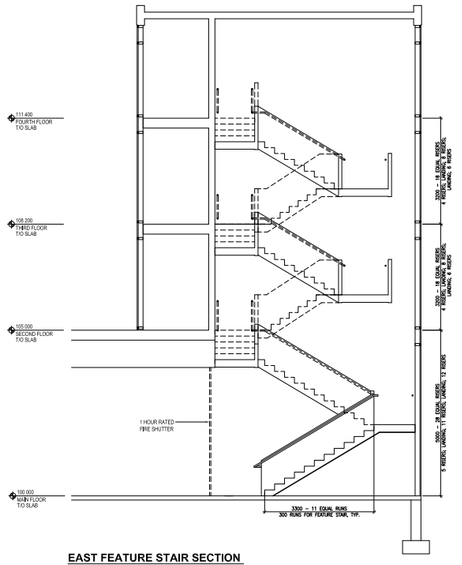
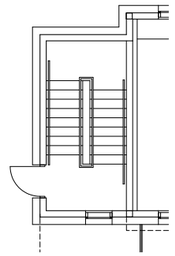


EAST FEATURE STAIR SECTION
SCALE: 1:50

SOUTH EXIT STAIR

SCALE: 1:50

NORTH



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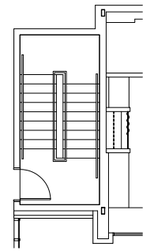

LEVEL 2 PLAN
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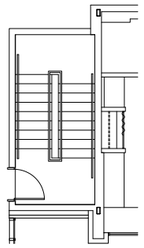

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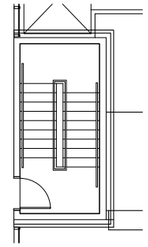

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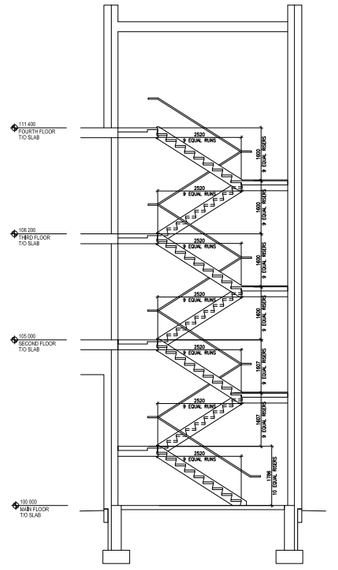

SOUTH STAIR SECTION
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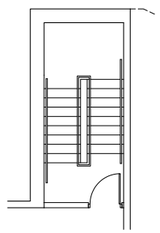
NORTH WEST EXIT STAIR (WEST EXIT STAIR SIMILAR)

SCALE: 1:50



BASEMENT PLAN
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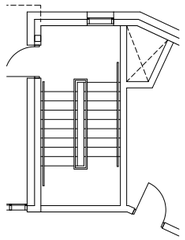

MAIN LEVEL PLAN
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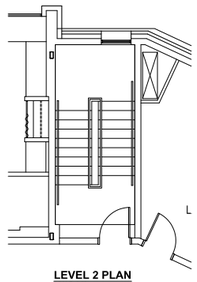

LEVEL 2 PLAN
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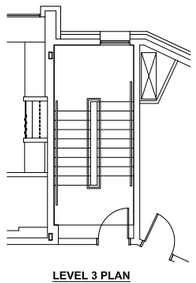

LEVEL 3 PLAN
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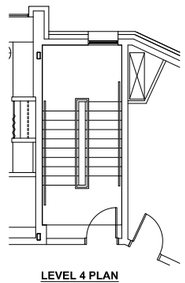

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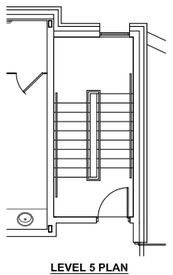

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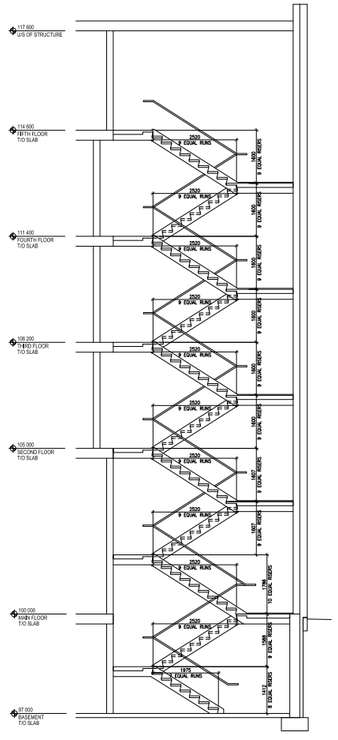

NORTH WEST STAIR SECTION (WEST STAIR SIM)
SCALE: 1:50

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A	2014.04.30	GEC	ISSUED FOR DESIGN DEVELOPMENT DRAWING SET

Faculty/Department: FACULTY OR DEPARTMENT

Client Approval Date: YYYY.MM.DD

Dwg Title: STAIR PLANS & SECTIONS

Building: SASKATCHEWAN DRIVE RESIDENCE

Proj. Number: E1234 | Work Order Number: 567890

Arch ■ Mech ☐ Elec ☐ Struc ☐ Civil ☐ | Drawn By: NAME

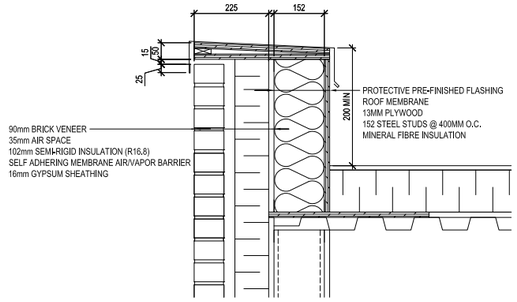
Dwg. Created: YYYY.MM.DD
Design File No.: ########-YY-##

Issue & Revision: A

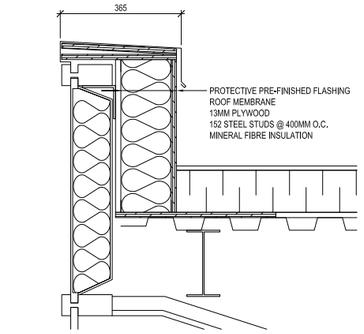
Sheet: X of Y

Drawing Number: A501

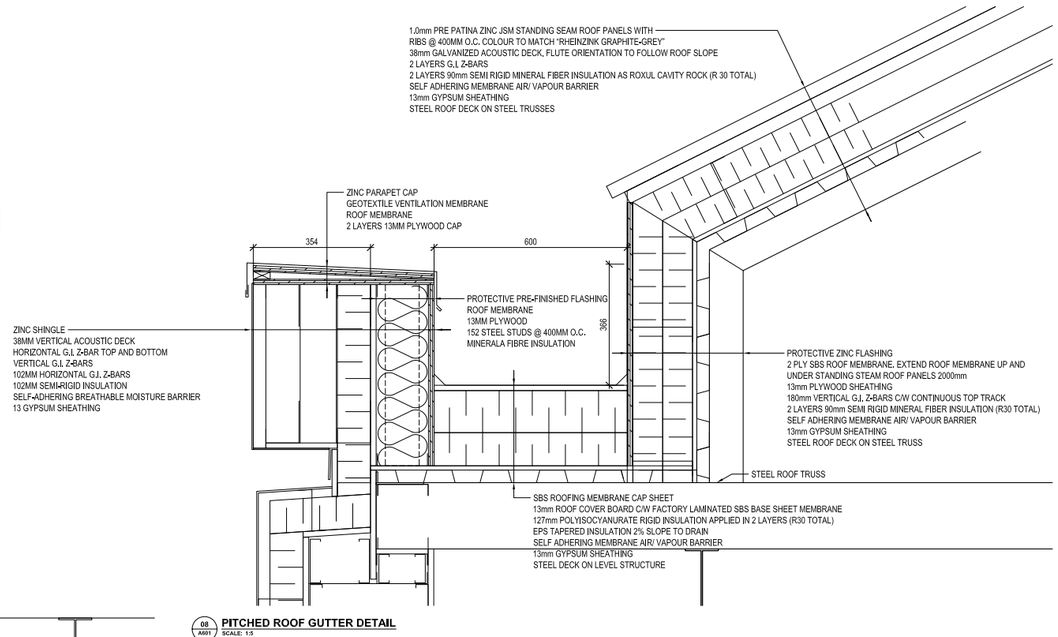
5361



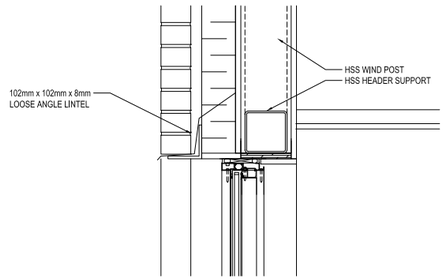
01 A601 **BRICK PARAPET DETAIL**
SCALE: 1:5



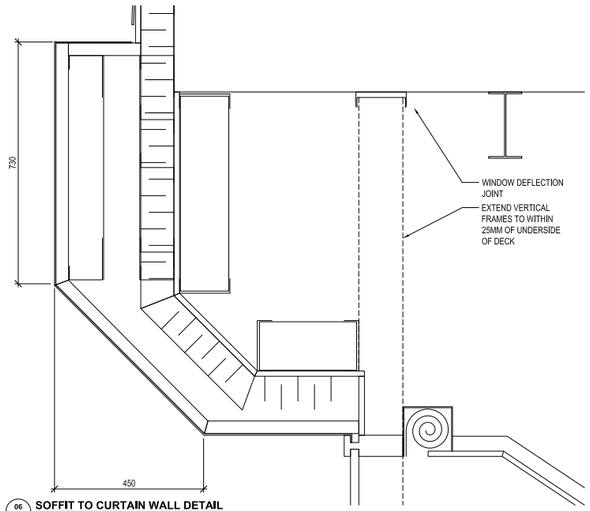
05 A601 **CURTAIN WALL PARAPET DETAIL**
SCALE: 1:5



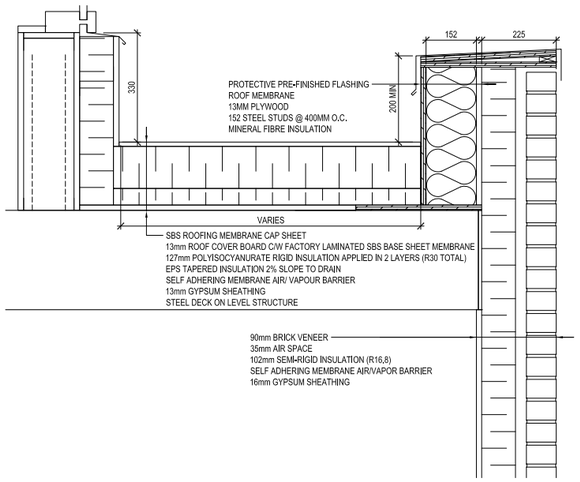
08 A601 **PITCHED ROOF GUTTER DETAIL**
SCALE: 1:5



02 A601 **BRICK WINDOW HEAD DETAIL**
SCALE: 1:5



06 A601 **SOFFIT TO CURTAIN WALL DETAIL**
SCALE: 1:5



09 A601 **SECOND FLOOR PARAPET DETAIL**
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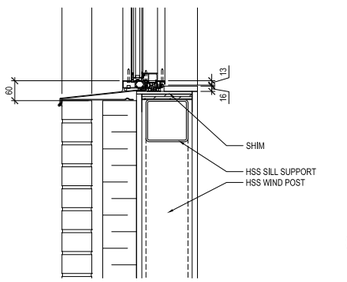
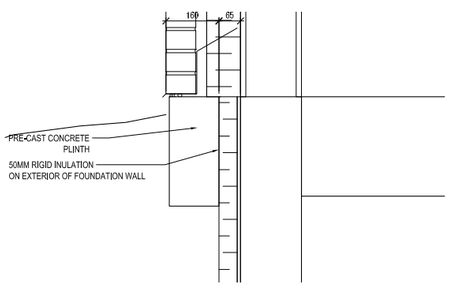
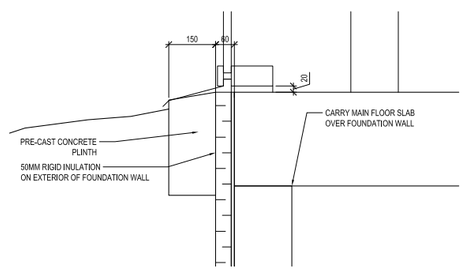


03 A601 **BRICK WINDOW SILL DETAIL**
SCALE: 1:5



04 A601 **BRICK FOUNDATION DETAIL**
SCALE: 1:5



07 A601 **CURTAIN WALL FOUNDATION DETAIL**
SCALE: 1:5

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Faculty/Department FACULTY OR DEPARTMENT

Client Approval Date YYYY.MM.DD

Dwg Title **WALL SECTIONS**

Building **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number E1234 Work Order Number 567890

Arch ■ Mech☐ Elec☐ Struc☐ Civil☐ Drawn By NAME

Dwg. Created YYYY.MM.DD
Design File No. ######-YY-## Issue & Revision **A**

Sheet **X of Y** Drawing Number **A601**

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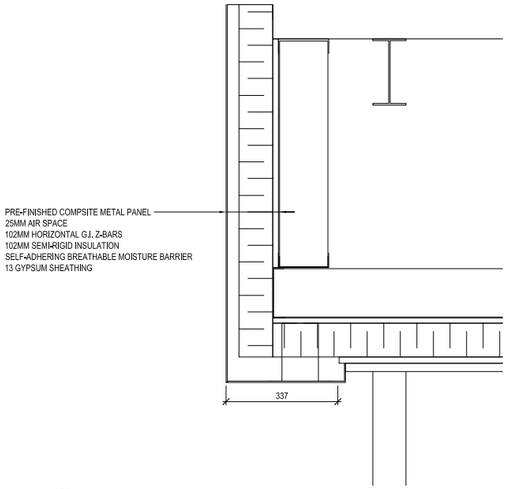

01 A602 **COMPOSITE METAL PANEL TO WOOD SOFFIT DETAIL**
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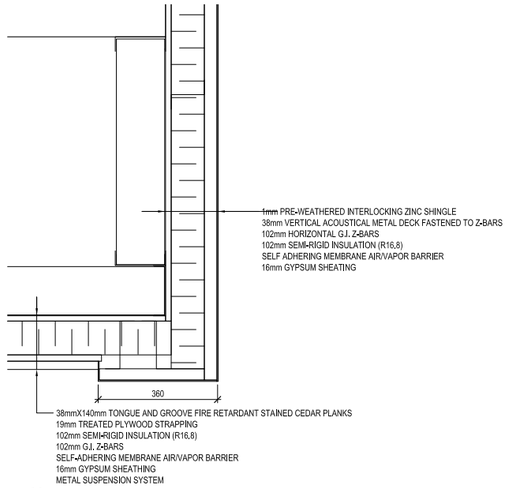
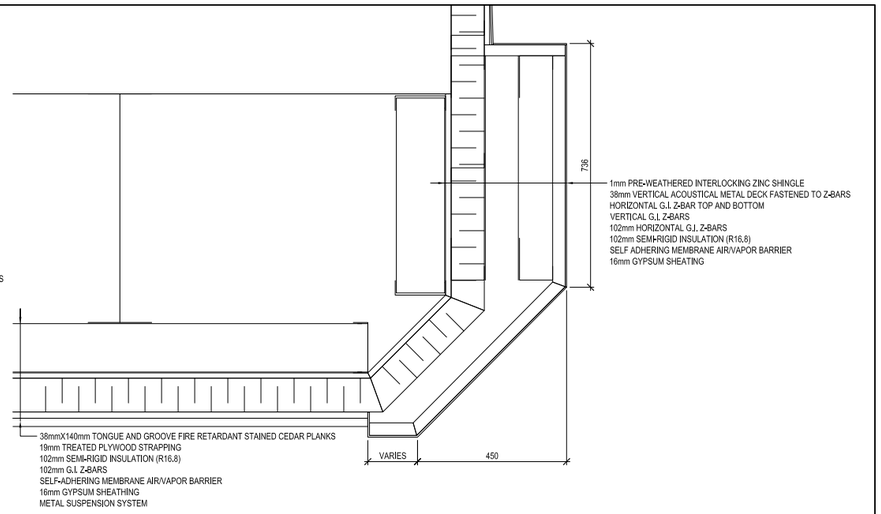


02 A602 **ZINC SHINGLE TO WOOD SOFFIT DETAIL**
SCALE: 1:5



02 A602 **ZINC SHINGLE TO WOOD SOFFIT DETAIL**
SCALE: 1:5

04 A602 **RESIDENCE UNIT WINDOW HEAD DETAIL**
SCALE: 1:5

05 A602 **RESIDENCE UNIT WINDOW JAMB DETAIL**
SCALE: 1:5

06 A602 **CURTAIN WALL AT SLAB EDGE DETAIL**
SCALE: 1:5

07 A602 **RESIDENCE UNIT WINDOW SILL DETAIL**
SCALE: 1:5

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A	2014.04.30	GEC	ISSUED FOR DESIGN DEVELOPMENT DRAWING SET

Faculty/Department FACULTY OR DEPARTMENT

Client Approval Date YYYY.MM.DD

Dwg Title **ENVELOPE DETAILS**

Building **SASKATCHEWAN DRIVE RESIDENCE**

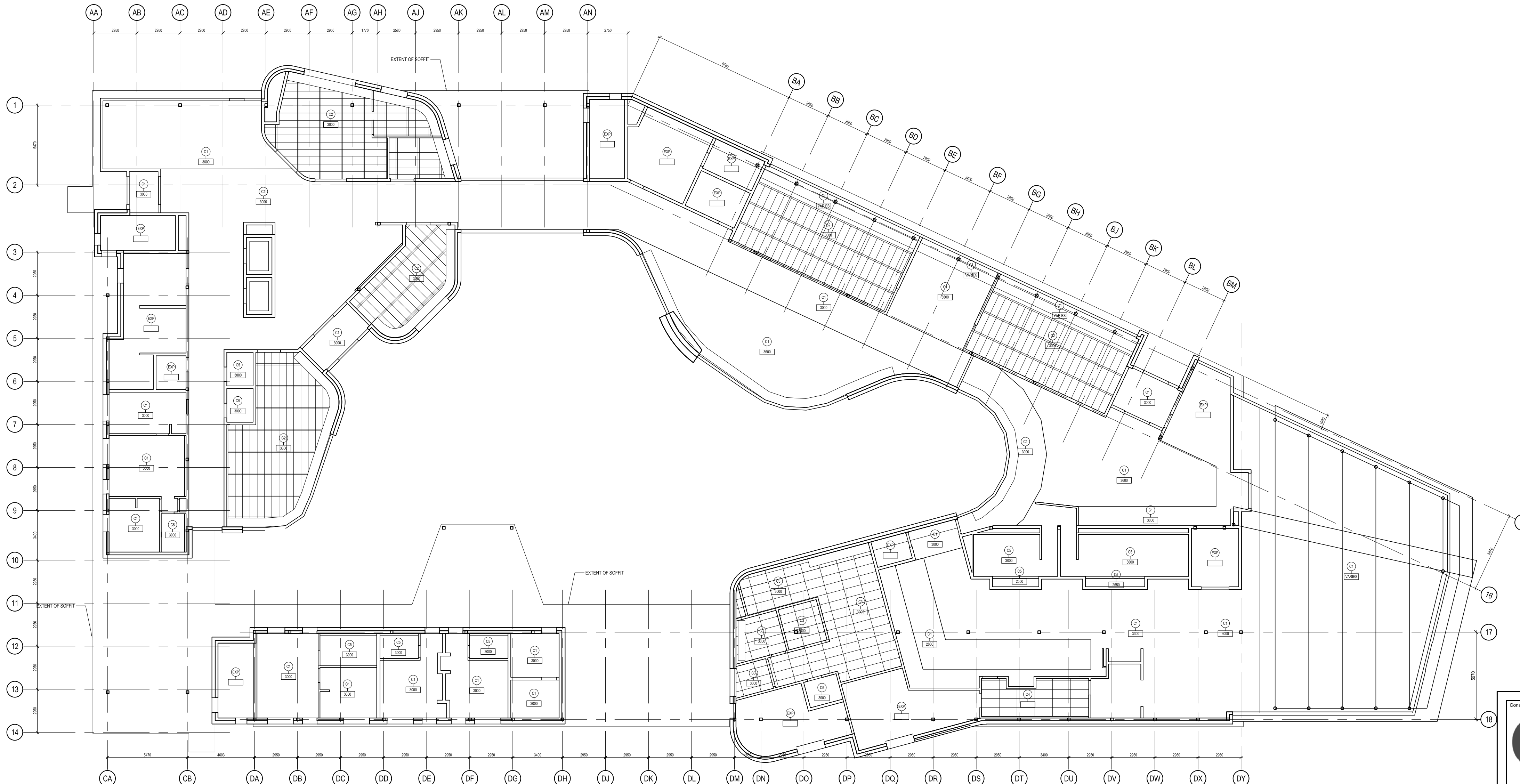
Proj. Number E1234 Work Order Number 567890

Arch ■ Mech☐ Elec☐ Struc☐ Civil☐ Drawn By NAME

Dwg. Created YYYY.MM.DD Design File No. 99999-YY-99 Issue & Revision **A**

Sheet **X of Y** Drawing Number **A602**

5361



NORTH

LEVEL 1 REFLECTED CEILING PLAN

SCALE: 1:100

NOTE:

1. PROVIDE ACCESS PANELS AT ALL VALVE LOCATIONS AS INDICATED ON THE MECHANICAL DRAWINGS

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Dwg Title **LEVEL 1 REFLECTED CEILING PLAN**

Building **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number **E1234** Work Order Number **567890**

Arch ■ Mech ☐ Elec ☐ Struc ☐ Civil ☐ Drawn By **NAME**

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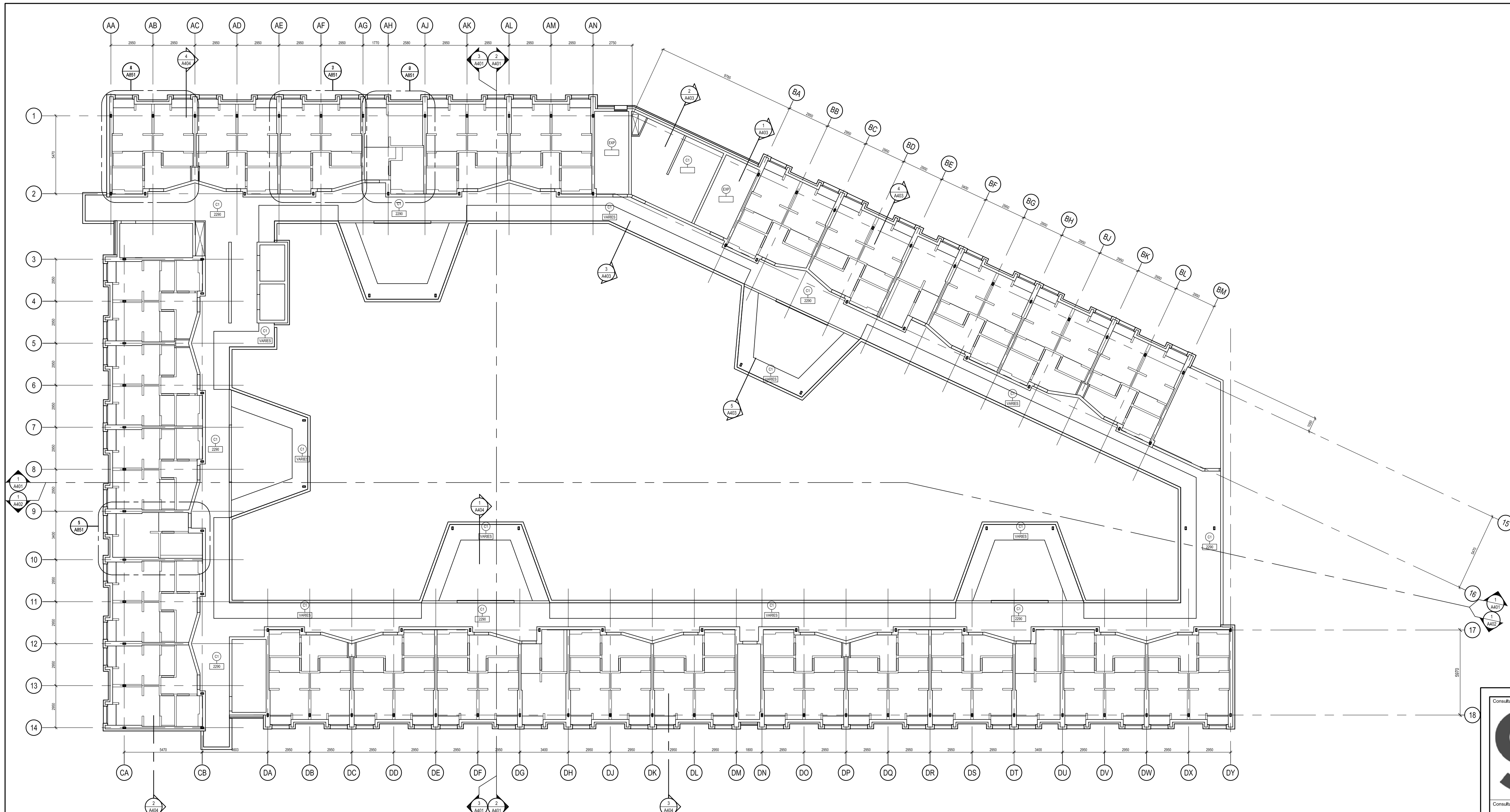
Design File No. #####-YY-##

Issue & Revision **A**

Sheet **X of Y**

Drawing Number **A702**

5361



01 A703 **LEVEL 2 REFLECTED CEILING PLAN**
SCALE: 1:100

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Dwg Title **LEVEL 2 REFLECTED CEILING PLAN**

Building **SASKATCHEWAN DRIVE RESIDENCE**

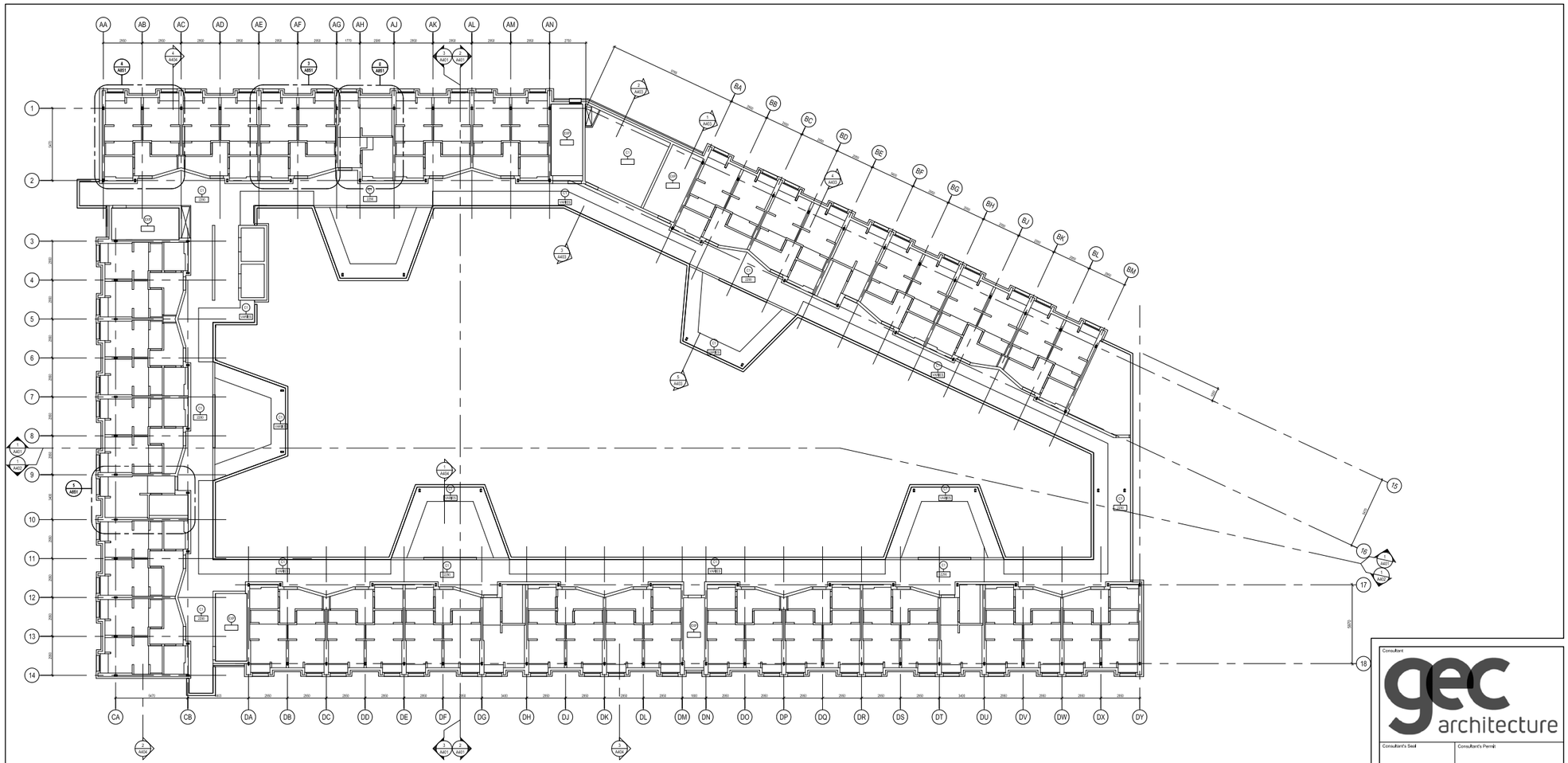
Proj. Number **E1234** Work Order Number **567890**

Arch ■ Mech ☐ Elec ☐ Struc ☐ Civil ☐ Drawn By **NAME**

Dwg. Created **YYYY.MM.DD**
Design File No. #####-YY-##
Issue & Revision **A**

Sheet **X of Y** Drawing Number **A703**

5361



NORTH

01 / A704 **LEVEL 3 REFLECTED CEILING PLAN**
SCALE: 1:100

NOTE:
1. PROVIDE ACCESS PANELS AT ALL VALVE LOCATIONS AS INDICATED ON THE MECHANICAL DRAWINGS

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Dwg Title: **LEVEL 3 REFLECTED CEILING PLAN**

Building: **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number: E1234 | Work Order Number: 567890

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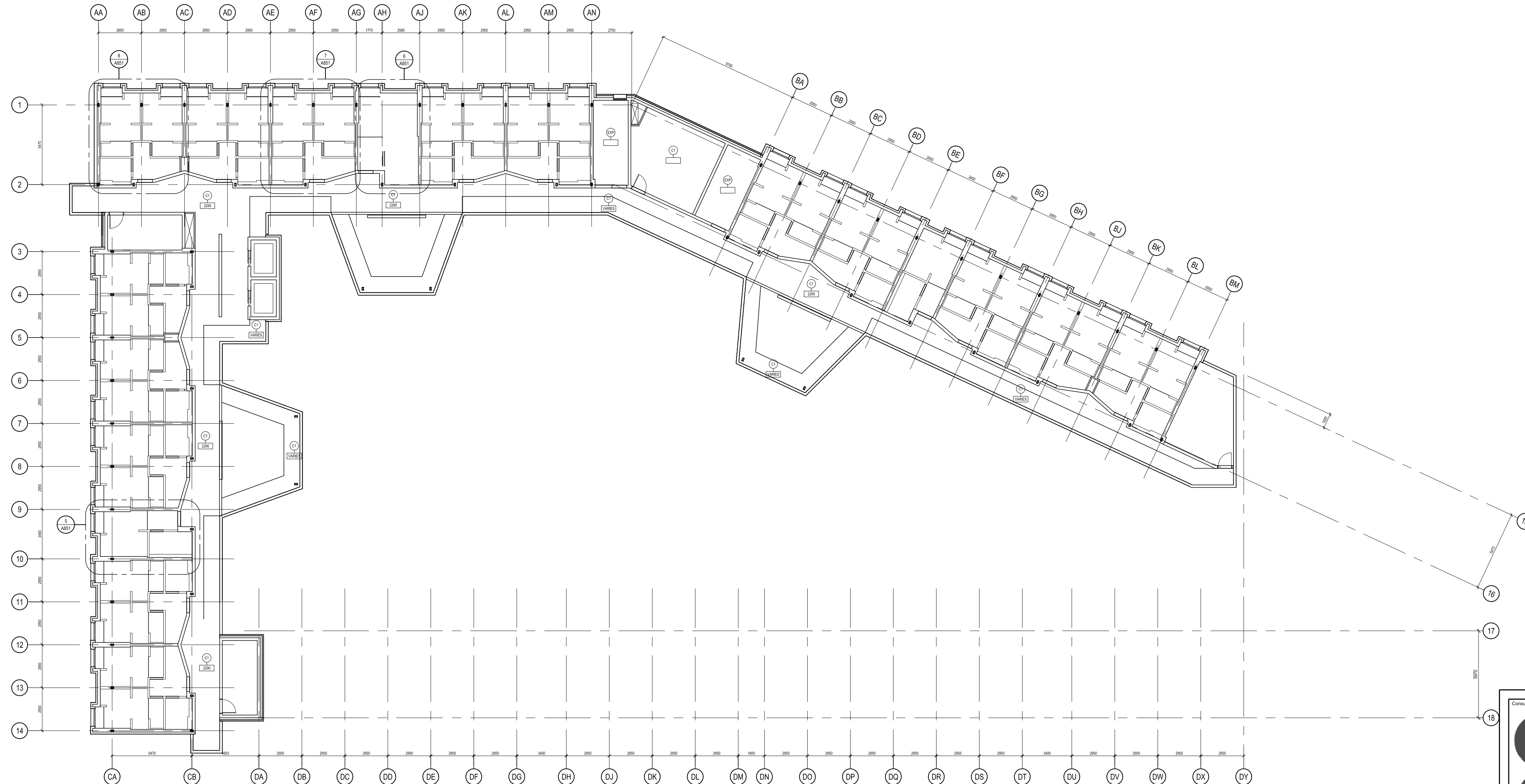
Issue & Revision: **A**

Sheet: **X of Y** | Drawing Number: **A704**

5361



NORTH

01
A705

LEVEL 4 REFLECTED CEILING PLAN

SCALE: 1:100

NOTE:

1. PROVIDE ACCESS PANELS AT ALL VALVE LOCATIONS AS INDICATED ON THE MECHANICAL DRAWINGS

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Dwg Title **LEVEL 4 REFLECTED CEILING PLAN**

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Proj. Number **E1234** Work Order Number **567890**

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Sheet **X of Y**

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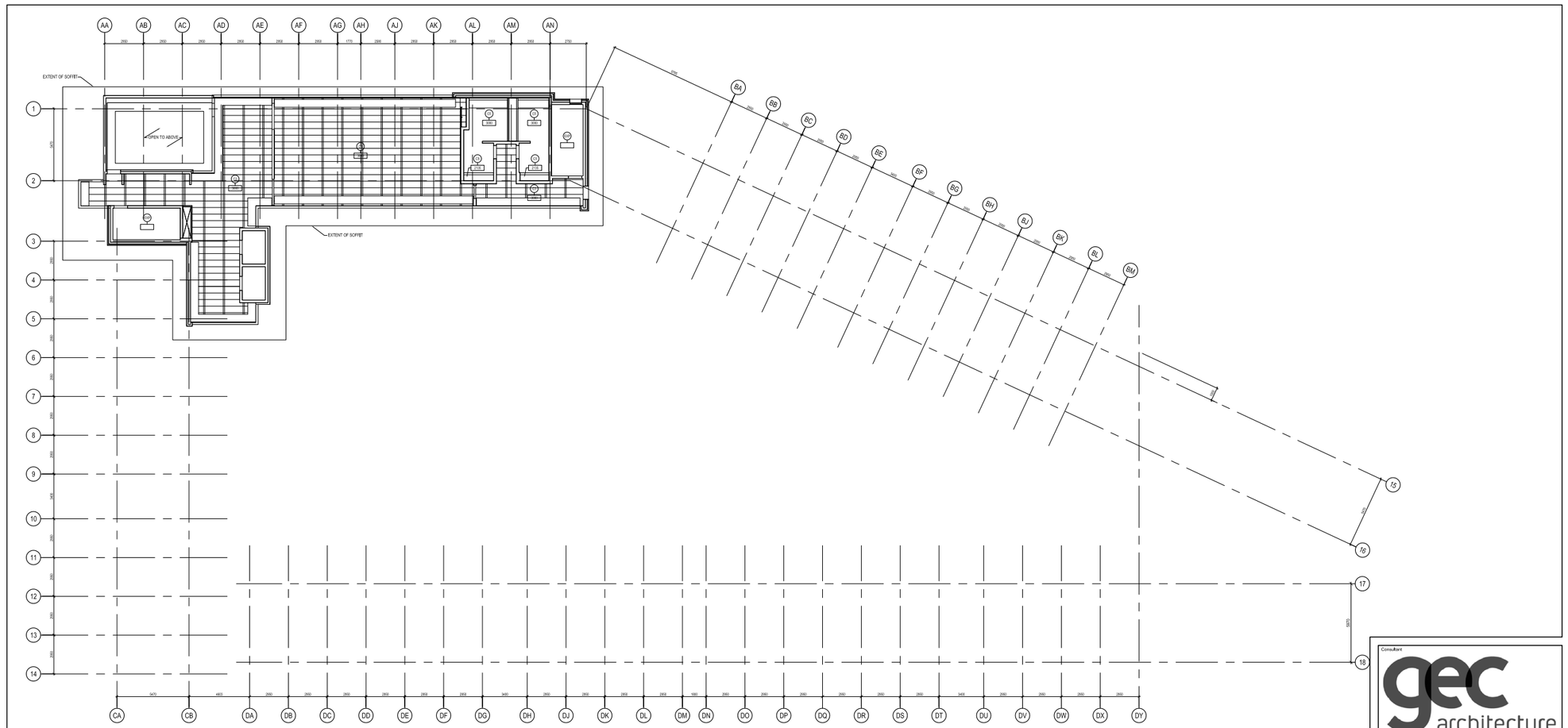
5361



NORTH

01 / A706 **LEVEL 5 REFELCETED CEILING PLAN**
SCALE: 1:100

NOTE:
1. PROVIDE ACCESS PANELS AT ALL VALVE LOCATIONS AS INDICATED ON THE MECHANICAL DRAWINGS

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Dwg Title **LEVEL 5 REFLECTED CEILING PLAN**

Building **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number E1234 | Work Order Number 567890

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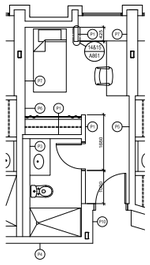
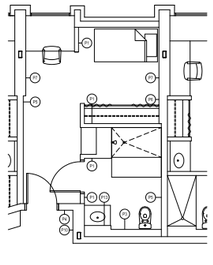
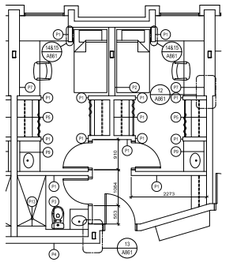
5361



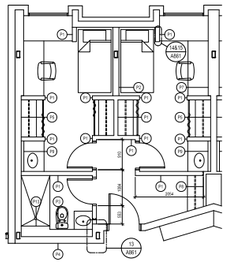
01 A851 **SINGLE SUITE**
SCALE: 1:50



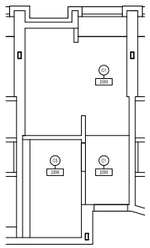
02 A851 **BARRIER FREE SINGLE SUITE**
SCALE: 1:50



03 A851 **DOUBLE SUITE**
SCALE: 1:50



04 A851 **DOUBLE SUITE MECH. SHAFT**
SCALE: 1:50



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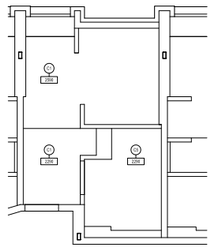

06 A851 **BARRIER FREE SINGLE SUITE RCP**
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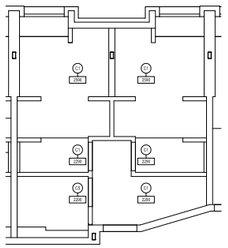

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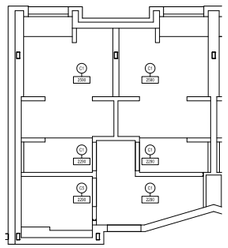
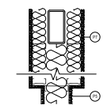
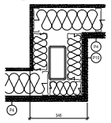


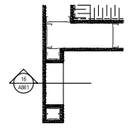
08 A851 **DOUBLE SUITE MECH. SHAFT RCP**
SCALE: 1:50



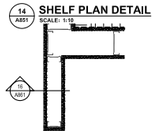
12 A851 **PARTITION PLAN DETAIL**
SCALE: 1:10



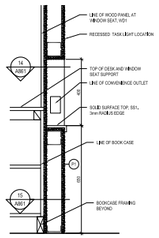
13 A851 **PARTITION PLAN DETAIL**
SCALE: 1:10



14 A851 **SHELF PLAN DETAIL**
SCALE: 1:10



15 A851 **SHELF PLAN DETAIL**
SCALE: 1:10



16 A851 **SHELF SECTION DETAIL**
SCALE: 1:10

NOTES TO PARTITION ASSEMBLIES

1. ALL PARTITIONS SHALL EXTEND FULL HEIGHT TO U/S OF STRUCTURE UNLESS NOTED OTHERWISE.
2. REFER TO PARTITION CONSTRUCTION TYPES. THE SEQUENTIAL ORDER OF MATERIAL COMPONENTS LISTED FOR EACH PARTITION TYPE CORRESPONDS DIRECTLY TO THE SIDE THAT EACH PARTITION IS REFERENCED FROM ON FLOOR PLANS WITH A PARTITION TYPE.
3. ALL PARTITIONS INDICATED TO BE CONSTRUCTED WITH A "FIRE SEPARATION" SHALL EXTEND FULL HEIGHT TO THE UNDERSIDE OF FLOOR OR ROOF STRUCTURE AND BE FIRE STOPPED WITH A U.L.C. APPROVED FIRE-STOPPING SYSTEM C/W FIRE SEALANT BOTH SIDES.
4. ALL PENETRATIONS THROUGH PARTITIONS REQUIRED TO BE CONSTRUCTED AS A FIRE SEPARATION SHALL BE FIRE STOPPED WITH A U.L.C. LISTED FIRE-STOPPING MATERIAL C/W FIRE SEALANT BOTH SIDES.
5. ALL INTERIOR STEEL STUD PARTITIONS THAT EXTEND FULL HEIGHT TO UNDERSIDE OF FLOOR, ROOF SLAB OR DECK ABOVE, SHALL BE CONSTRUCTED WITH A 50mm DEEP TOP DEFLECTION TRACK. STOP VERTICAL STUDS SHORT BY ±15mm WHICH WILL ALLOW FOR 15mm VERTICAL DEFLECTION, AT PARTITIONS WITH A FIRE RESISTANCE RATING, A SECOND STUD TRACK(S) TO BE SET INTO THE 50mm TOP TRACK WHICH WILL ALLOW FOR 15mm DEFLECTION, U.L.C. LISTED FIRE STOPPING MATERIAL SHALL BE PLACED BETWEEN THE DOUBLE TOP TRACKS, AND FIRE SEALANT APPLIED AT BOTH SIDES OF PARTITION TOP, BOTTOM AND TO DIFFERENT ADJACENT CONSTRUCTIONS. A SINGLE 50mm DEEP SLOTTED DEFLECTION TRACK MAY BE USED IN LIEU OF A DOUBLE TOP TRACK. STOP VERTICAL STUDS ±15mm SHORT TO ALLOW FOR DEFLECTION, ENSURE DRYWALL IS FASTENED TO VERTICAL STUDS ONLY, AND THAT FASTENERS PENETRATE DEFLECTION TRACK ONLY AT SLOTS. DRYWALL IS INSTALLED ±15mm BELOW THE U/S OF SLAB, AND SPACE IS FILLED WITH FIRE RATED ACOUSTIC SEALANT MAINTAINING FIRE RATING ON BOTH SIDES AS REQUIRED BY ASSOCIATED PARTITION TYPES WHILE MAINTAINING THE INTEGRITY OF THE U.L.C. DESIGN.
6. ALL PARTITIONS ARE TO BE FRAMED AROUND MECHANICAL AND ELECTRICAL SERVICES AS REQUIRED. STUD FRAMING OR FURRING CHANNELS SHALL NOT BE ATTACHED TO MECHANICAL DUCTWORK, TO AVOID ACOUSTIC VIBRATION NOISE TRANSFER.
7. ALL FIRE RATED PARTITIONS DENOTED AS A U.L.C. DESIGN SHALL BE CONSTRUCTED IN STRICT ACCORDANCE WITH THE STANDARD OF CONSTRUCTION AND ACCEPTABLE MANUFACTURERS OF PARTICULAR MATERIALS LISTED INCLUDING FIRE RATED MATERIAL DESIGNATIONS UNDER MATERIAL "GUIDE NUMBERS" IN THE LATEST EDITION OF THE UNDERWRITER'S LABORATORIES OF CANADA MANUAL. PARTITION CONSTRUCTION TYPES LISTED IN APPENDIX A OF THE ABC ARE NOT PERMITTED FOR FIRE RESISTANCE RATINGS, BUT ARE ACCEPTABLE FOR ACOUSTIC STC RATINGS LISTED.
8. WHERE GYPSUM BOARD MEETS ADJACENT MATERIALS, PROVIDE CONTINUOUS SEALED JOINT PERIMETER.
9. AT TUBS AND SHOWERS, MAINTAIN CONTINUITY OF FIRE RATED PARTITION ASSEMBLIES AND ADD 15mm MOISTURE RESISTANT GYPSUM BOARD
10. AT ACOUSTIC PARTY WALLS AND SUITE TO CORRIDOR WALLS, PROVIDE ACOUSTIC/FIRE SEALANT TO BOTH SIDES OF PARTITION TOP & BOTTOM STUD TRACKS AND ADJACENT TO CONCRETE WALLS/CEILINGS.
11. ALL PENETRATIONS THROUGH PARTITIONS REQUIRED TO BE CONSTRUCTED AS AN ACOUSTIC SEPARATION SHALL BE SEALED WITH ACOUSTIC SEALANT BOTH SIDES.
12. AT FIRE SEPARATIONS WITHOUT FIRE RESISTANCE RATINGS (SMOKE SEPARATIONS) PROVIDE CONTINUOUS SMOKE SEALANT AT FLOORS AND ROOF STRUCTURES ABOVE INCLUDING ADJACENT TO DISSIMILAR CONSTRUCTION ASSEMBLIES.
13. IN ACCORDANCE WITH ABC 2006, APPENDIX D, AT CAST IN PLACE CONCRETE WALLS MAINTAIN APPLICABLE CONCRETE COVER OVER REINFORCING STEEL FOR FIRE SEPARATIONS WITH FIRE RESISTANCE RATING INDICATED ON FLOOR PLANS.

PARTITION ASSEMBLIES

P1 TYPICAL INTERIOR PARTITION
- 16mm GYPSUM BOARD
- 92mm STEEL STUD
- 16mm GYPSUM BOARD

P2 TYPICAL INTERIOR PARTITION
- 16mm GYPSUM BOARD
- 152mm STEEL STUD
- 16mm GYPSUM BOARD

P3 PLUMBING WALL
- 16mm GYPSUM BOARD
- 420mm STEEL STUD @ 400 O.C. OR 92mm STEEL STUD + 110mm CAVITY

P4 SUITE TO CORRIDOR SEPARATION - S.T.C. 50 + 1HR. F.R.R.
REFER TO AJC. APPENDIX A, TABLE A-9.10.3.1A - WALL NUMBER 58a
REFER TO U.L.C. LATEST EDITION - DIN. W407
- 2 LAYERS 16mm FIRE RATED GYPSUM BOARD (CORRIDOR SIDE)
- 152mm STEEL STUD C/W 150mm MINERAL FIBRE INSULATION
- 16mm FIRE RATED GYPSUM BOARD

P5 SUITE TO SUITE SEPARATION - S.T.C. 50 + 1HR. F.R.R.
REFER TO AJC. APPENDIX A, TABLE A-9.10.3.1A - WALL NUMBER 57a
REFER TO U.L.C. LATEST EDITION - DIN. W407
- 16mm FIRE RATED GYPSUM BOARD
- 152mm STEEL STUD C/W 150mm MINERAL FIBRE INSULATION
- 16mm FIRE RATED GYPSUM BOARD

P6 SUITE TO SUITE SEPARATION - S.T.C. 50 + 1HR. F.R.R.
- 16mm FIRE RATED GYPSUM BOARD
- 152mm STEEL STUD C/W 150mm MINERAL FIBRE INSULATION
- 44mm STEEL STUD
- 16mm FIRE RATED GYPSUM BOARD

P7 SUITE TO SUITE SEPARATION - S.T.C. 50 + 1HR. F.R.R.
REFER TO U.L.C. LATEST EDITION - DESIGN NO. W49 CONFIGURATION A OR B
- 16mm FIRE RATED GYPSUM BOARD
- 92mm STEEL STUD AT 400mm O.C. C/W MINERAL FIBRE INSULATION
- 92mm STEEL STUD AT 400mm O.C. C/W MINERAL FIBRE INSULATION
- 16mm FIRE RATED GYPSUM BOARD

"NOTE: TOTAL PARTITION THICKNESS = 330mm

P8 MECHANICAL SHAFT WALL - STC 50 + 1HR. F.R.R.
REFER TO U.L.C. LATEST EDITION - DESIGN NO. W446 SYSTEM E OR F
- 16mm FIRE RATED GYPSUM BOARD
- 44mm "C-T" OR "T" STUD
- 16mm FIRE RATED GYPSUM BOARD

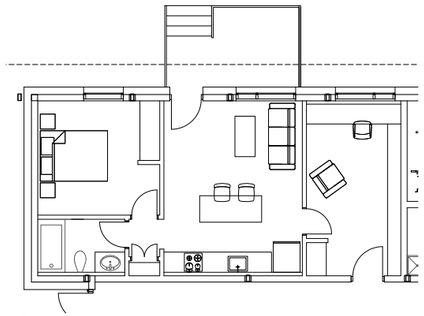
P9 PLUMBING WALL
- 16mm FIRE RATED GYPSUM BOARD
- 44mm STEEL STUD AT 400mm O.C.

P10 SUITE TO CORRIDOR SEPARATION - S.T.C. 50 + 1HR. F.R.R.
- 2 LAYERS 16mm FIRE RATED GYPSUM BOARD (CORRIDOR SIDE)
- 92mm STEEL STUD C/W 150mm MINERAL FIBRE INSULATION
- 92mm STEEL STUD C/W 150mm MINERAL FIBRE INSULATION
- 16mm FIRE RATED GYPSUM BOARD

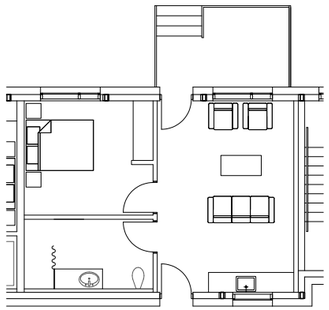
"NOTE: TOTAL PARTITION THICKNESS = 345mm

P11 STAIR SHAFT - 1HR. F.R.R.
REFER TO U.L.C. LATEST EDITION - DIN. W407
- 16mm FIRE RATED GYPSUM
- 152mm STEEL STUD
- 16mm FIRE RATED GYPSUM

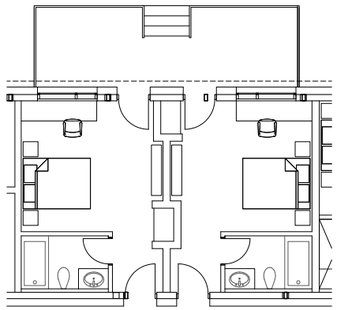
P12 MECHANICAL SHAFT WALL - 1HR. F.R.R.
REFER TO U.L.C. LATEST EDITION - DESIGN NO. W446 SYSTEM E OR F
- 16mm FIRE RATED GYPSUM BOARD
- 44mm "C-T" OR "T" STUD
- 16mm FIRE RATED GYPSUM BOARD



09 A851 **FACULTY SUITE**
SCALE: 1:50



10 A851 **MAIN FLOOR GUEST SUITE**
SCALE: 1:50



11 A851 **MAIN FLOOR GUEST SUITE**
SCALE: 1:50

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Faculty/Department: FACULTY OR DEPARTMENT

Client Approval Date: YYYY.MM.DD

Dwg Title: **ENLARGED PLANS**

Building: **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number: E1234 | Work Order Number: 567890

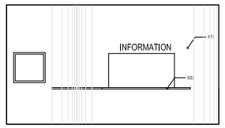
Arch ■ Mech ☐ Elec ☐ Struc ☐ Civil ☐ | Drawn By: NAME

Dwg. Created: YYYY.MM.DD | Design File No.: ########-YY-##

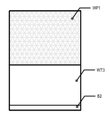
Issue & Revision: **A**

Sheet: **X of Y** | Drawing Number: **A851**

5361



01 A901 **LOBBY EAST ELEVATION**
SCALE: 1:50



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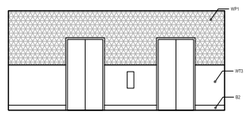

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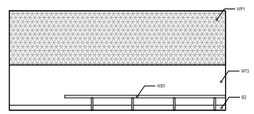
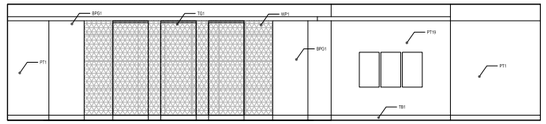
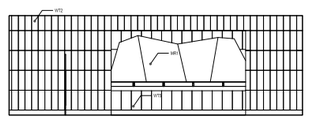


04 A901 **ELEVATORS WEST ELEVATION**
SCALE: 1:50

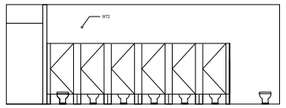


05 A901 **PRE-FUNCTION SOUTH ELEVATION**
SCALE: 1:50

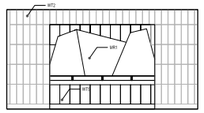
07 A901 **RECREATION ROOM ENTRY ELEVATION**
SCALE: 1:50



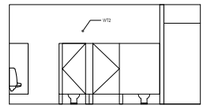
08 A901 **WOMEN'S WASHROOM SOUTH ELEVATION**
SCALE: 1:50



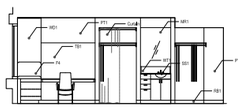
09 A901 **WOMEN'S WASHROOM NORTH ELEVATION**
SCALE: 1:50



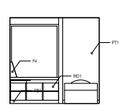
10 A901 **MEN'S WASH. SOUTH ELEVATION**
SCALE: 1:50



11 A901 **MEN'S WASH. NORTH ELEVATION**
SCALE: 1:50



12 A901 **TYPICAL SUITE WEST ELEVATION**
SCALE: 1:50



13 A901 **NORTH ELEVATION**
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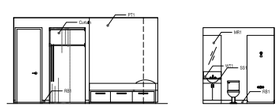
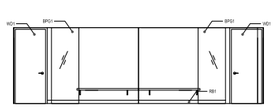
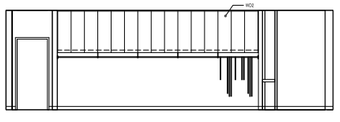


14 A901 **EAST ELEVATION**
SCALE: 1:50

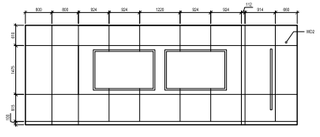


15 A901 **WASHROOM SOUTH ELEVATION**
SCALE: 1:50

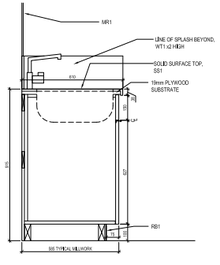
16 A901 **TYPICAL SUITE ENTRY ELEVATION**
SCALE: 1:50



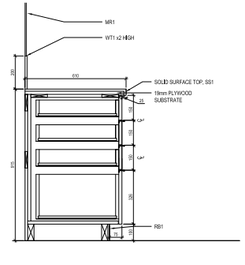
17 A901 **5TH FLOOR LOBBY NORTH ELEVATION**
SCALE: 1:50



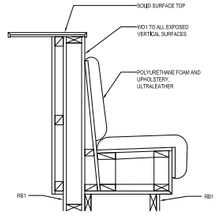
18 A901 **CITY ROOM EAST ELEVATION**
SCALE: 1:50



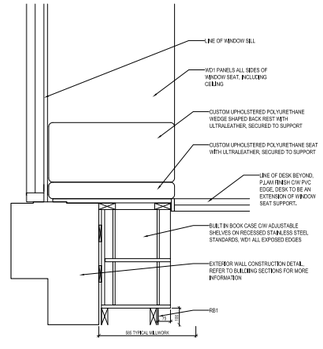
19 A901 **TYP. VANITY SECTION, SINK**
SCALE: 1:10



20 A901 **TYP. VANITY SECTION, DRAWERS**
SCALE: 1:10



21 A901 **TYP. BOOTH SEATING SECTION**
SCALE: 1:10



22 A901 **TYP. WINDOW SEAT SECTION**
SCALE: 1:10

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Faculty/Department: FACULTY OR DEPARTMENT

Client Approval Date: YYYY.MM.DD

Dwg Title: **INTERIOR ELEVATIONS & SECTIONS**

Building: **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number: **E1234** | Work Order Number: **567890**

Arch: ■ Mech: ☐ Elec: ☐ Struc: ☐ Civil: ☐ | Drawn By: NAME

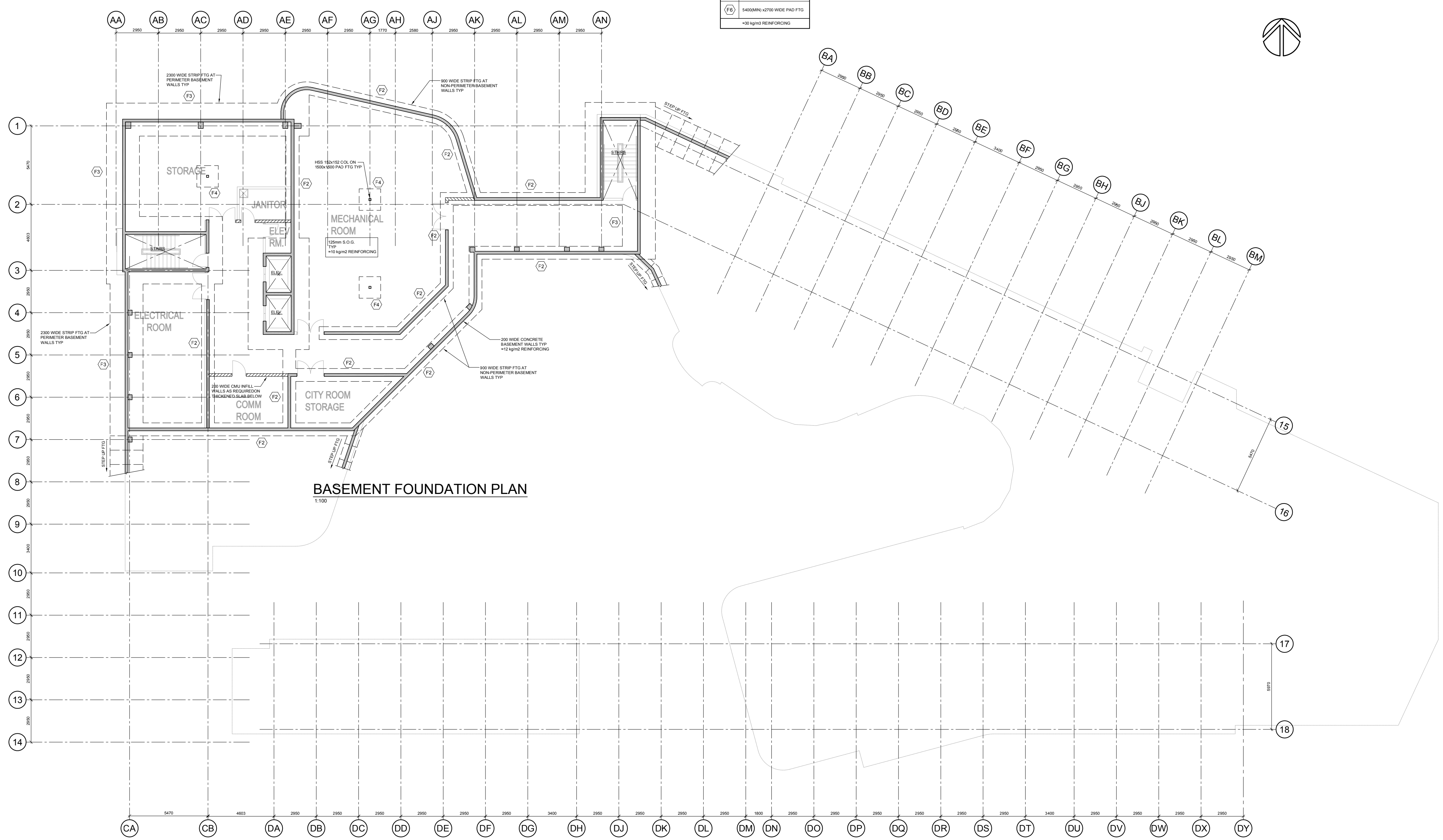
Dwg. Created: YYYY.MM.DD | Design File No.: #####-YY-## | Issue & Revision: **A**

Sheet: **X of Y** | Drawing Number: **A901**

5361

LEGEND
= INDICATES POINT LOAD ON BEAM FROM COLUMN ABOVE
BR = BRACING LOCATION
EJ = EXPANSION JOINT LOCATIONS
DRAG STRUT

FOOTING SCHEDULE	
MARK	SIZE
F1	600 WIDE STRIP FTG.
F2	900 WIDE STRIP FTG.
F3	2300 WIDE STRIP FTG.
F4	1500x1500 PAD FTG
F5	2700x2700 PAD FTG
F6	5400(MIN) x2700 WIDE PAD FTG
≈30 kg/m3 REINFORCING	



BASEMENT FOUNDATION PLAN
1:100

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Dwg Title: BASEMENT FOUNDATION PLAN

Building: SASKATCHEWAN DRIVE RESIDENCE

Proj. Number 2076 Work Order Number

Arch ☐ Mech ☐ Elec ☐ Struc ■ Civil ☐ Drawn By BLF

Dwg. Created 2014/04/14
Design File No. 2076_S201
Issue & Revision A

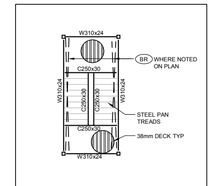
Sheet 1 of 7
Drawing Number S201

5361

LEGEND
= INDICATES POINT LOAD ON BEAM FROM COLUMN ABOVE
BR = BRACING LOCATION
EJ = EXPANSION JOINT LOCATIONS
DRAG STRUT

FOOTING SCHEDULE

MARK	SIZE
F1	600 WIDE STRIP FTG.
F2	900 WIDE STRIP FTG.
F3	2300 WIDE STRIP FTG.
F4	1500x1500 PAD FTG
F5	2700x2700 PAD FTG
F6	5400(MIN) x2700 WIDE PAD FTG
≈30 kg/m3 REINFORCING	



TYP STAIR LAYOUT
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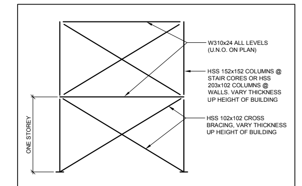

TYP BRACE SCHEMATIC
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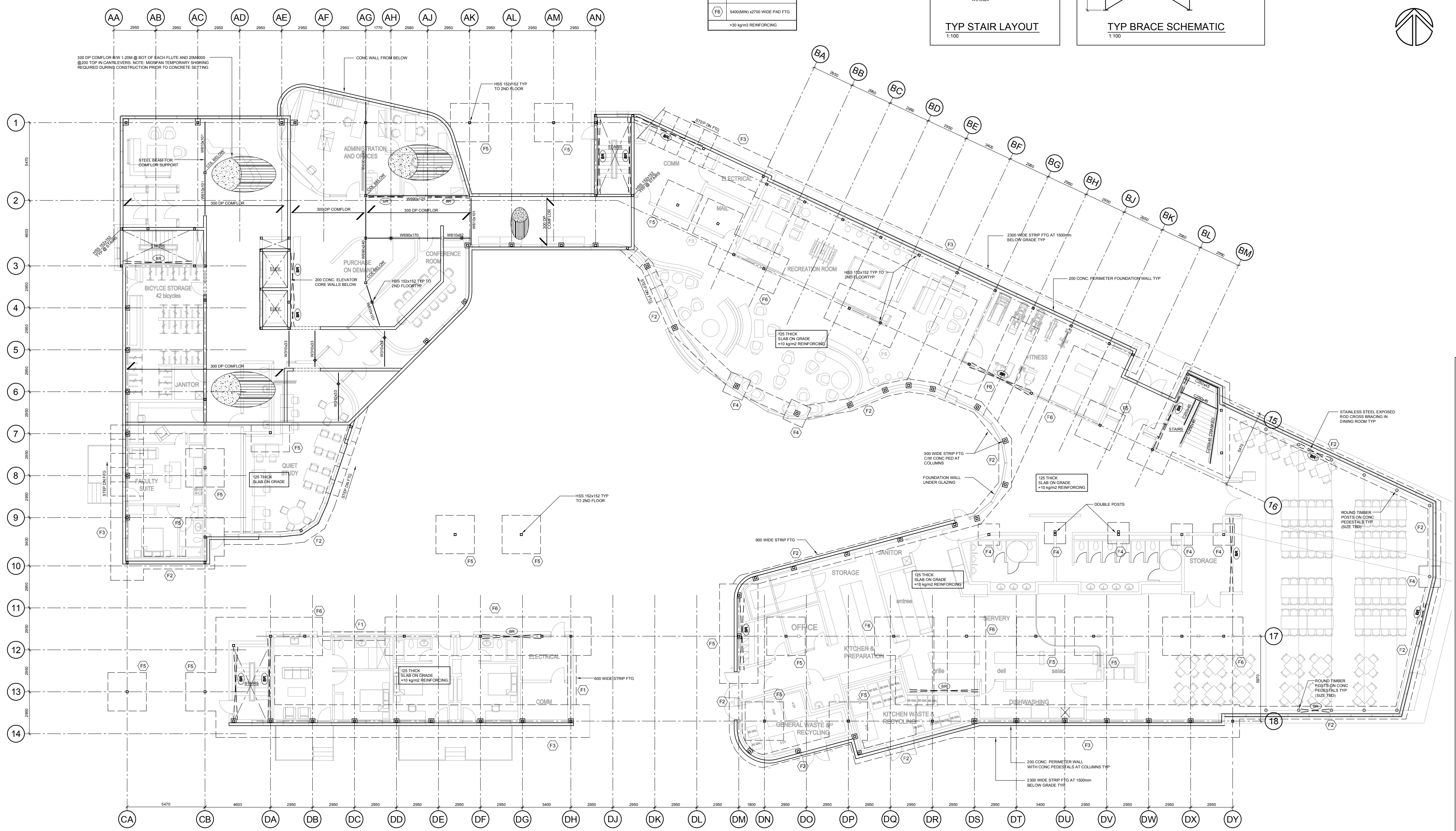

MAIN FLOOR FRAMING PLAN

1:100

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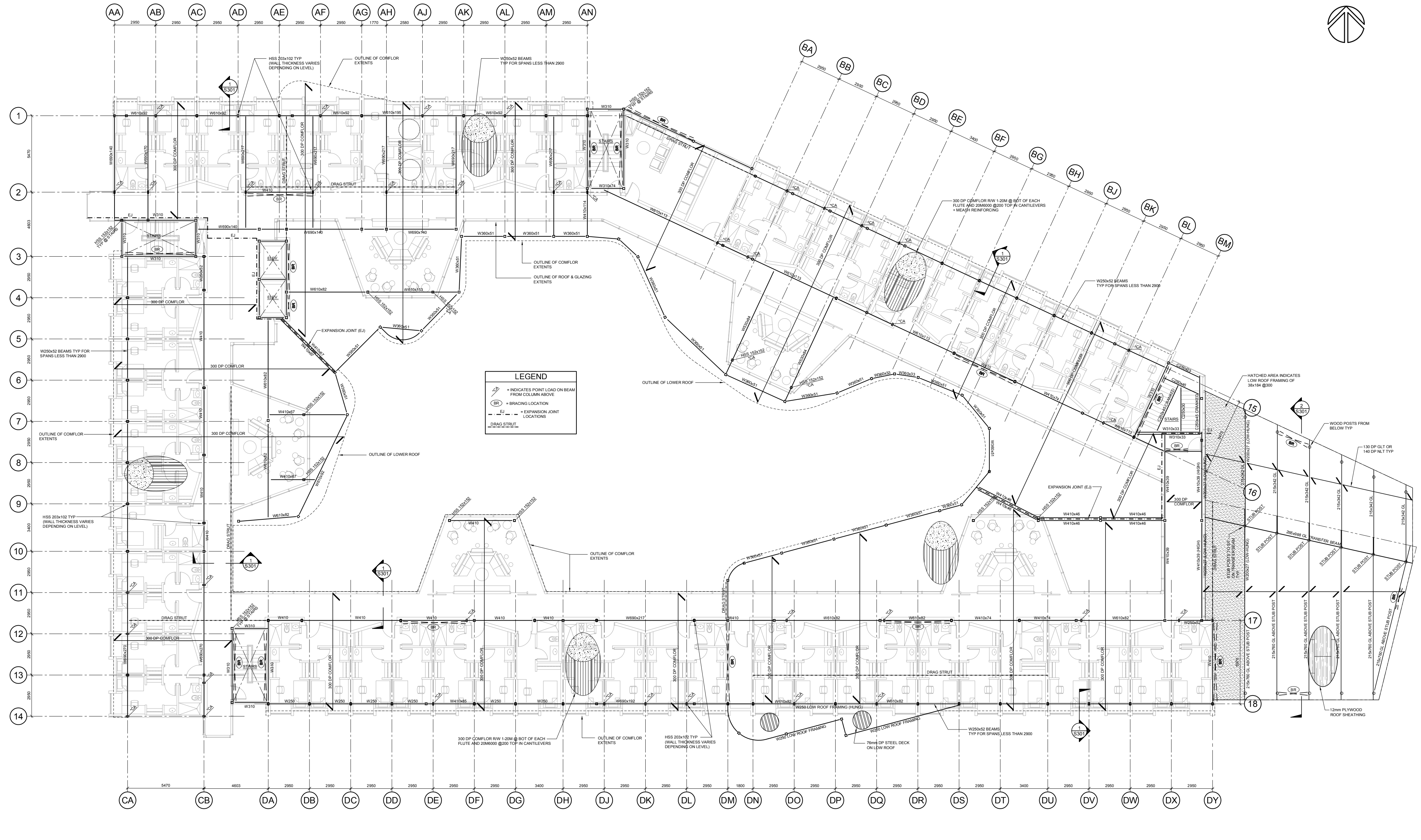
Dwg Title: MAIN FLOOR FRAMING PLAN

Building: SASKATCHEWAN DRIVE RESIDENCE

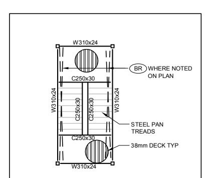
Proj. Number 2076	Work Order Number
Arch ☐ Mech ☐ Elec ☐ Struc ■ Civil ☐	Drawn By BLF
Dwg. Created 2014/04/14 Design File No. 2076_S202	Issue & Revision A
Sheet 2 of 7	Drawing Number S202

5361



SECOND FLOOR FRAMING PLAN

1:100



TYP STAIR LAYOUT

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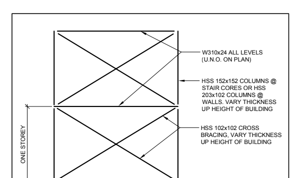

TYP BRACE SCHEMATIC

1:100

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Dwg Title: SECOND FLOOR FRAMING PLAN

Building: SASKATCHEWAN DRIVE RESIDENCE

Proj. Number 2076 Work Order Number

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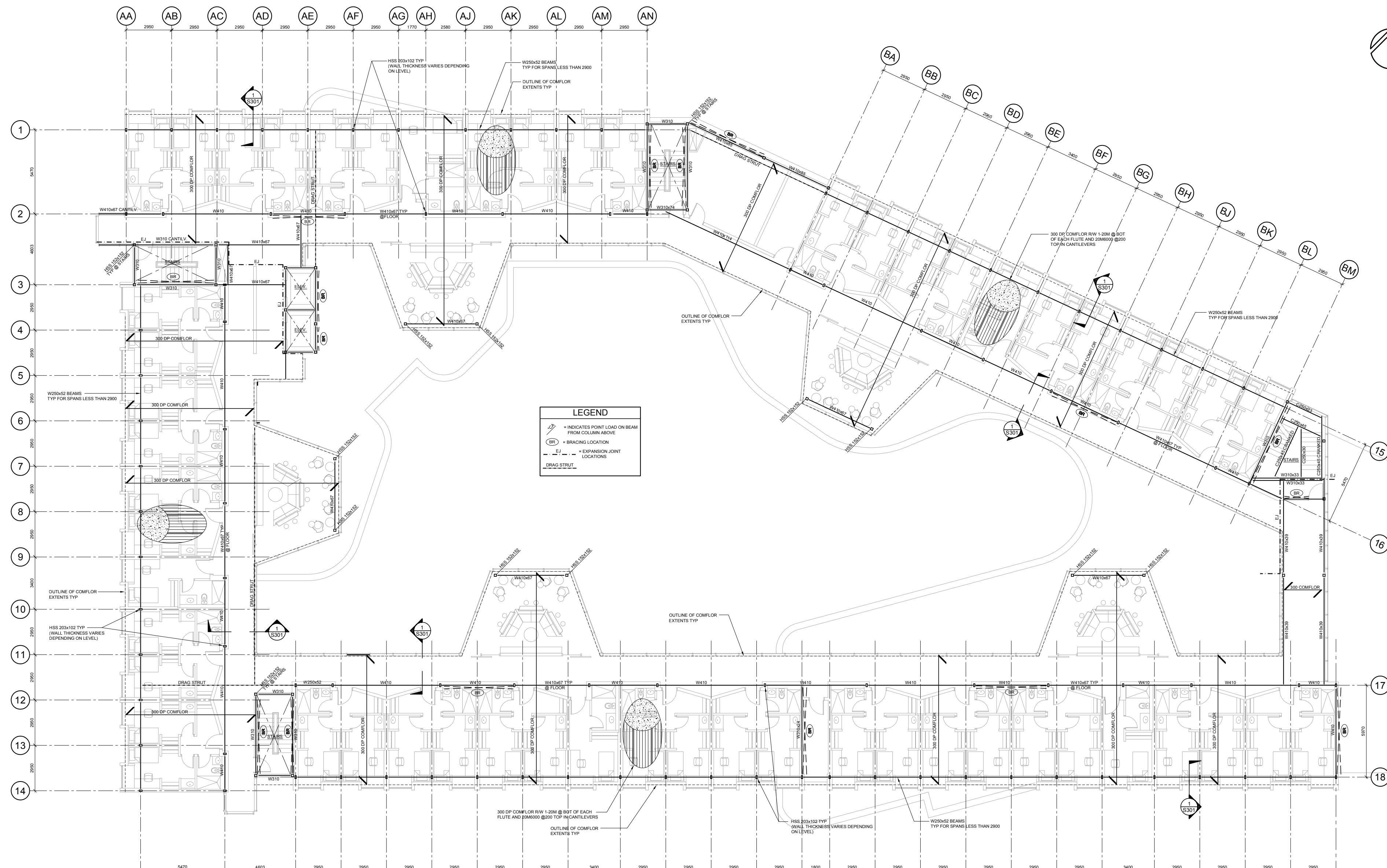
Dwg. Created 2014/04/14
Design File No. 2076_S203

Issue & Revision A

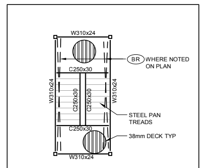
Sheet 3 of 7

Drawing Number S203

5361



THIRD FLOOR FRAMING
1:100



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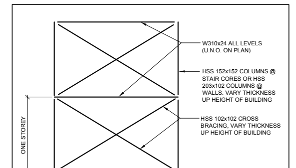

TYP BRACE SCHEMATIC
1:100

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Dwg Title: THIRD FLOOR FRAMING PLAN

Building: SASKATCHEWAN DRIVE RESIDENCE

Proj. Number 2076 Work Order Number

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Sheet 4 of 7
Drawing Number S204

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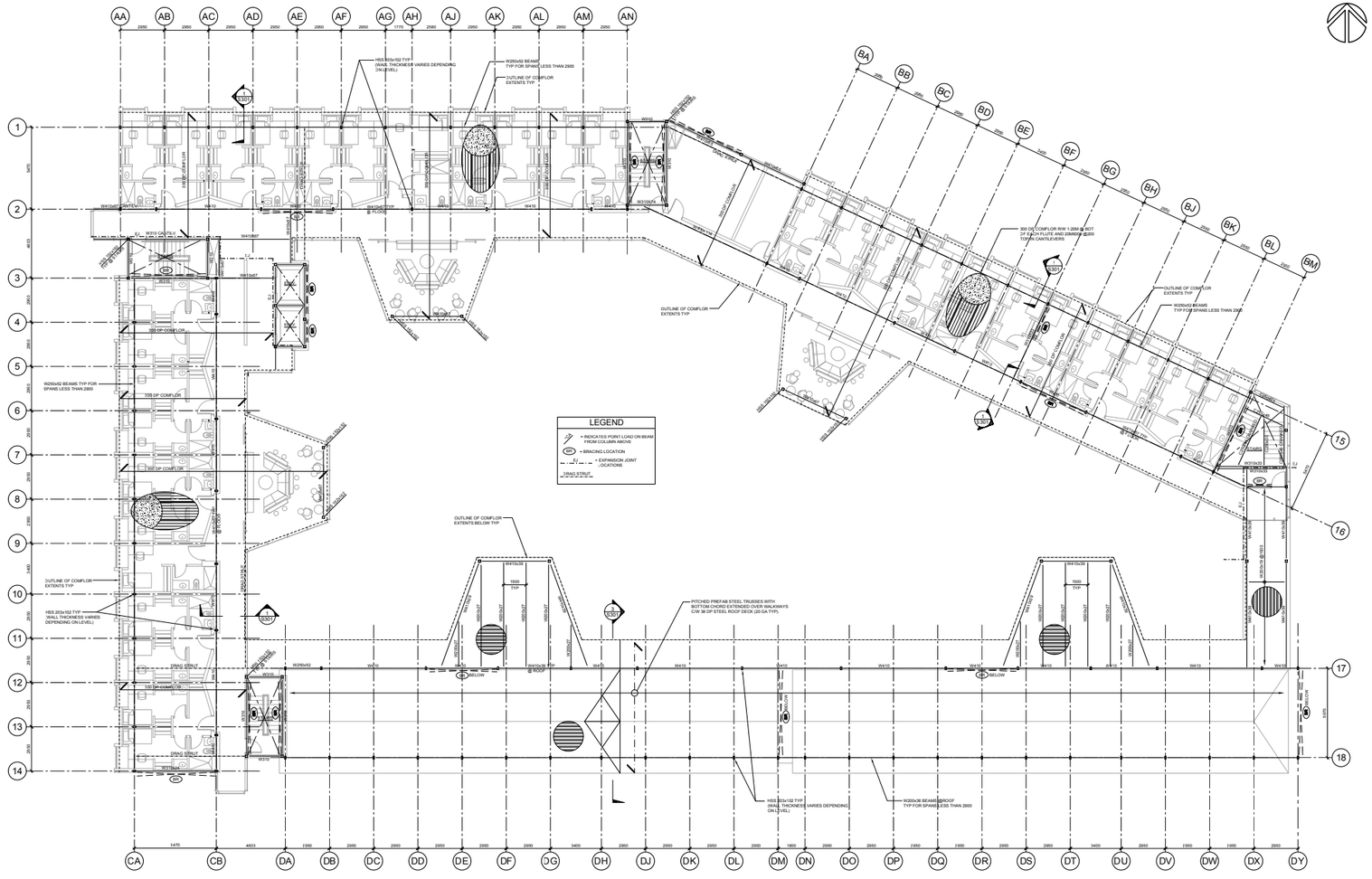
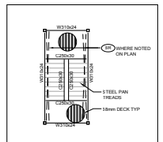


FOURTH FLOOR AND LOWER ROOF FRAMING PLAN

1:100

LEGEND

- = INDICATES POINT LOAD ON BEAM FROM COLUMN ABOVE
- = BRACING LOCATION
- = EXPANSION JOINT LOCATIONS
- DRAG STRUT



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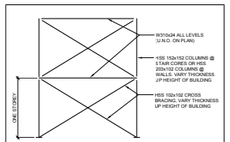
1:100



TYP BRACE SCHEMATIC

1:100

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Dwg Title: FOURTH FLOOR AND LOWER ROOF FRAMING PLAN

Building: SASKATCHEWAN DRIVE RESIDENCE

Proj. Number 2076 Work Order Number

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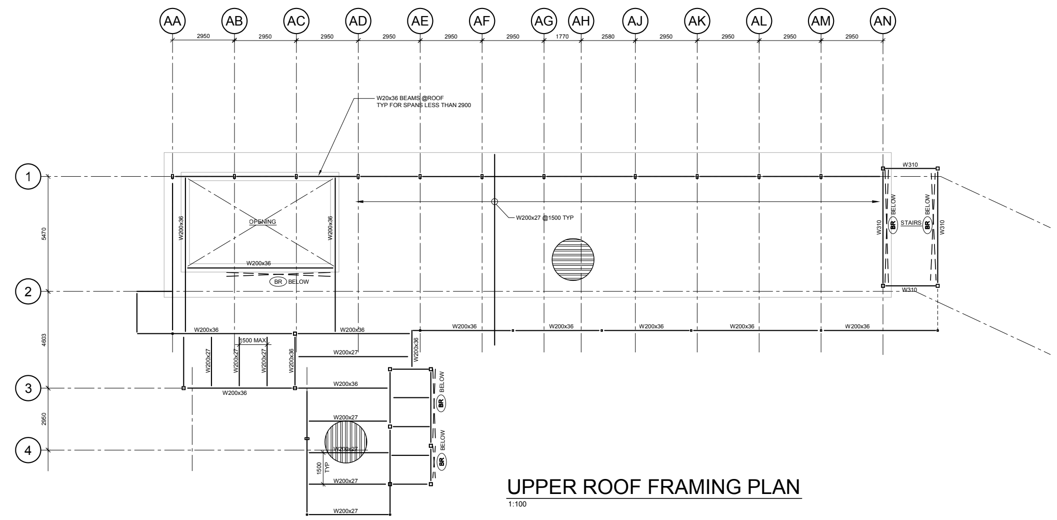
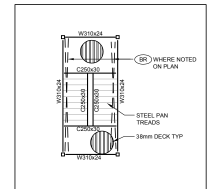
Dwg. Created 2014/04/14 Design File No. 2076-S205 Issue & Revision A

Sheet 5 of 7 Drawing Number S205

5361



UPPER ROOF FRAMING PLAN
1:100



TYP STAIR LAYOUT
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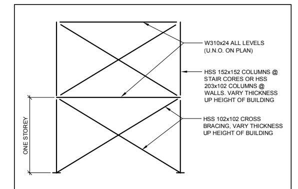

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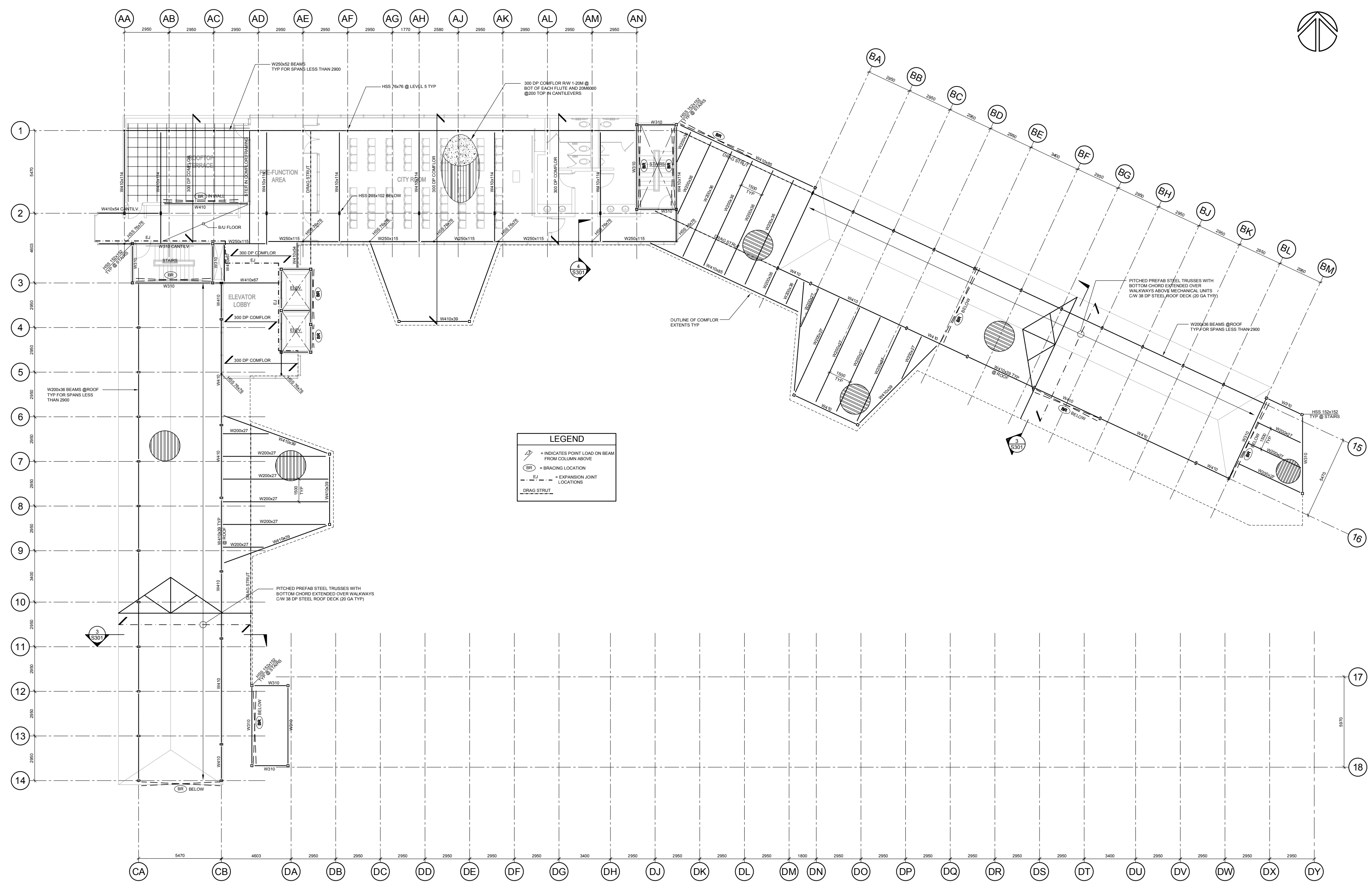

FIFTH FLOOR AND ROOF FRAMING PLAN
1:100

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Dwg Title: FIFTH FLOOR AND UPPER ROOF FRAMING PLAN

Building: SASKATCHEWAN DRIVE RESIDENCE

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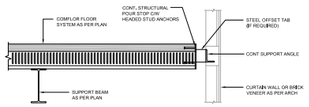
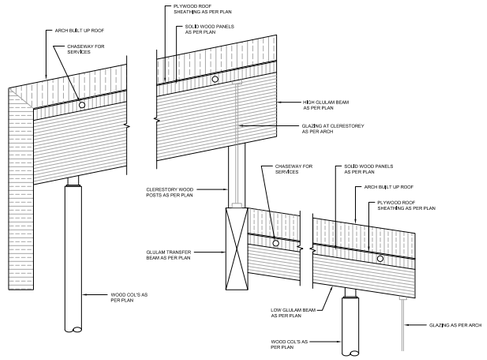
Dwg. Created 2014/04/14
Design File No. 2076_S206
Issue & Revision A

Sheet 6 of 7 Drawing Number S206

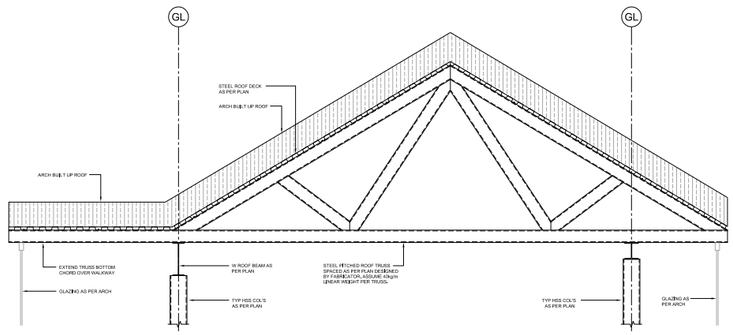
5361



1 TYP SECTION @ FLOOR
1:20



2 S203 SECTION @CAFETERIA ROOF
1:20



3 S206 SECTION @ ROOF TRUSS
1:20

4 S206 SECTION @CITY ROOM
1:20

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Dwg Title: TYPICAL SECTIONS

Building: SASKATCHEWAN DRIVE RESIDENCE

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Dwg. Created 2014/04/14
Design File No. 2076_S301

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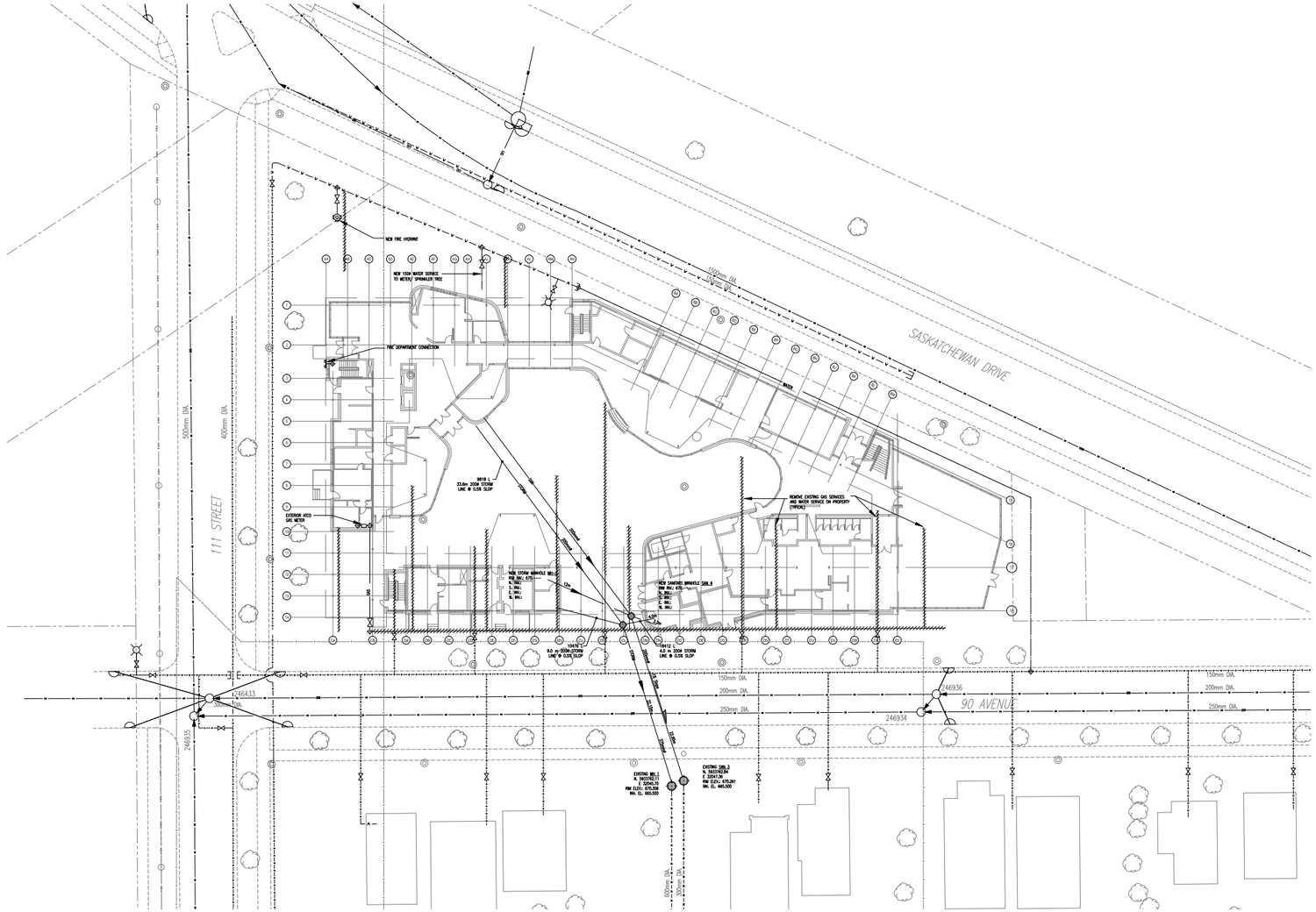
Sheet 7 of 7

Drawing Number S301

5361



NORTH 1:1000 **MECHANICAL SITE SERVICE PLAN**
SCALE: 1:200

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KFR engineering
#100 11404 142 Street,
Edmonton Alberta, T5M 1V1
Tel: (780) 488-6008

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B			
C			

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Client Approval Date **YYYY.MM.DD**

Dwg Title **MECHANICAL SITE SERVICE PLAN**

Building **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number ***** | Work Order Number ******

Arch ☐ Mech ■ Elec ☐ Struc ☐ Civil ☐ | Drawn By **KFR**

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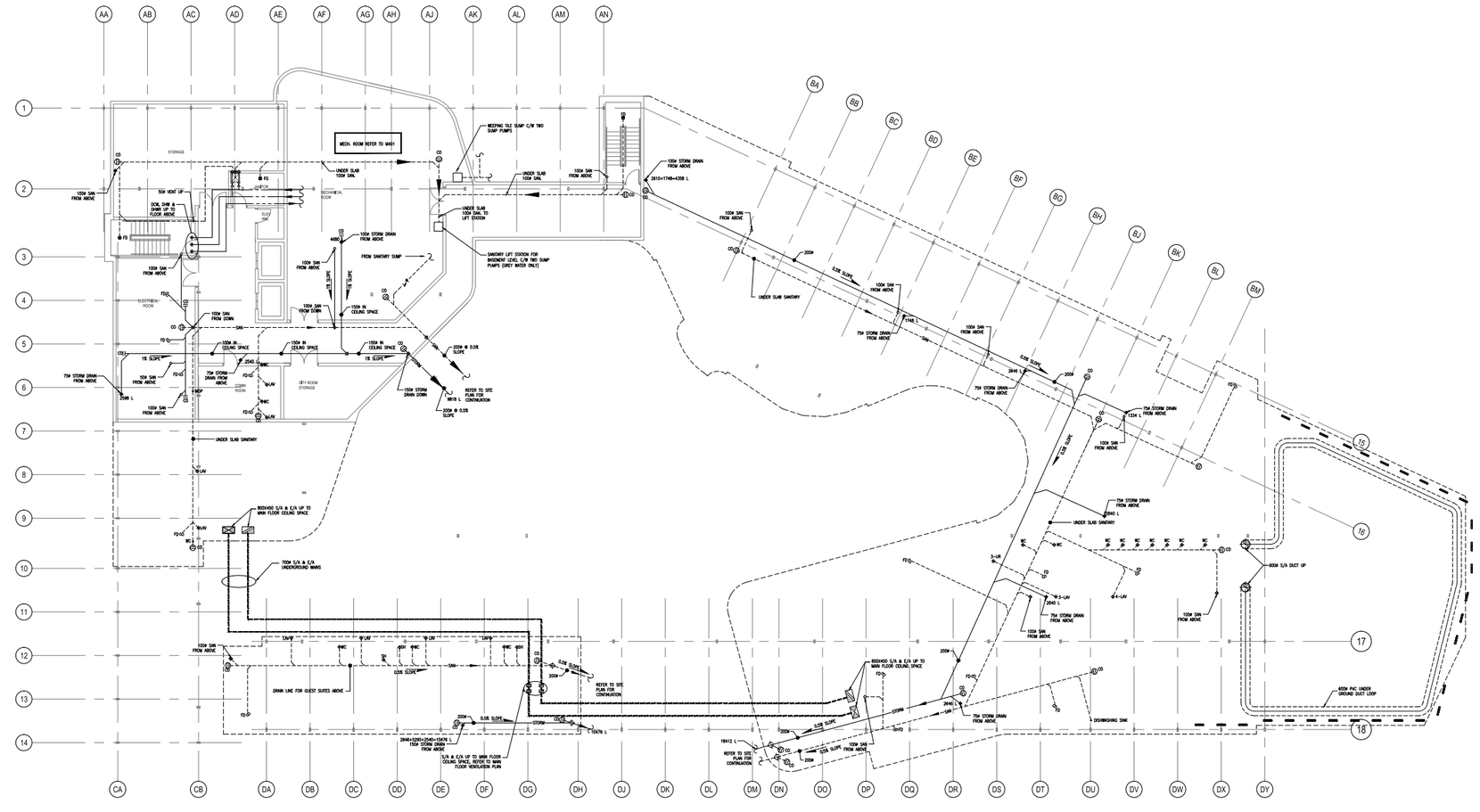
Sheet **X of Y**

KFR Project Number 14002



NORTH 1 FOUNDATION PLAN
SCALE: 1:100

Consultant

KFR engineering
#100 11404 142 Street,
Edmonton Alberta, T5M 1V1
Tel: (780) 488-6008

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Faculty/Department FACULTY OR DEPARTMENT

Client Approval Date YYYY.MM.DD

Dwg Title FOUNDATION PLAN

Building SASKATCHEWAN DRIVE RESIDENCE

Proj. Number ***** Work Order Number ******

Arch ☐ Mech ■ Elec ☐ Struc ☐ Civil ☐ Drawn By KFR

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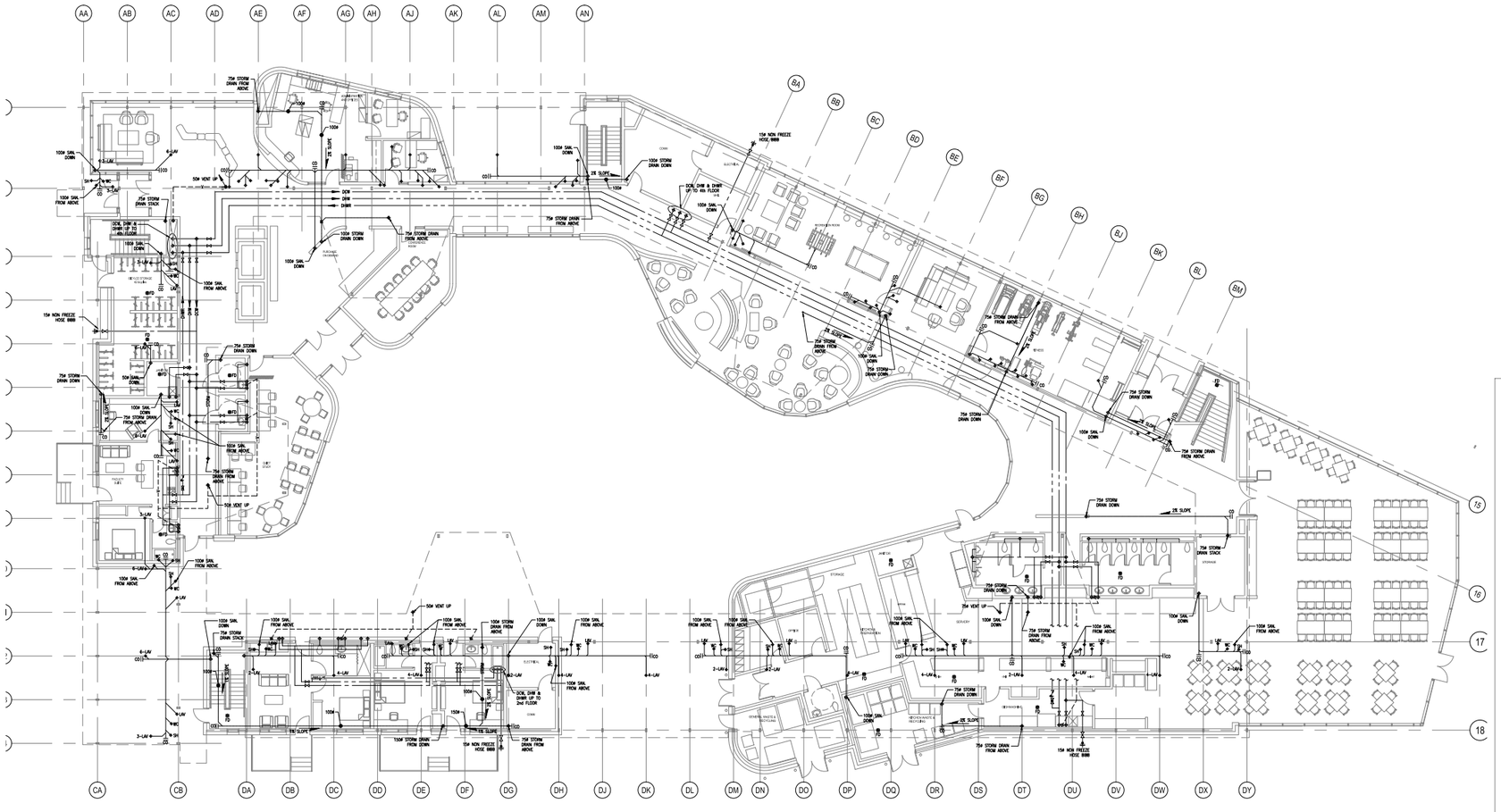
Issue & Revision A[#]

Sheet X of Y

Drawing Number M001

KFR Project Number 14002



NORTH 1 M002 **MAIN FLOOR PLUMBING PLAN**
SCALE: 1:100

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Client Approval Date: **YYYY.MM.DD**

Dwg Title: **MAIN FLOOR PLUMBING PLAN**

Building: **SASKATCHEWAN DRIVE RESIDENCE**

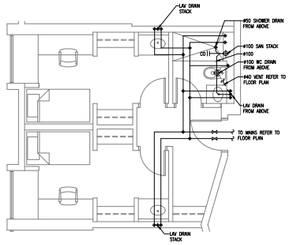
Proj. Number: ***** | Work Order Number: ******

Arch ☐ Mech ■ Elec ☐ Struc ☐ Civil ☐ | Drawn By: KFR

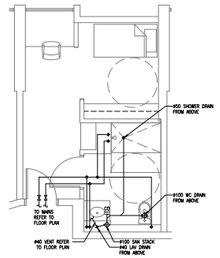
Dwg. Created: **2014-04-04** | Issue & Revision: **A[#]**
Design File No.: **#####.YY.##**

Sheet: **X of Y** | Drawing Number: **M002**

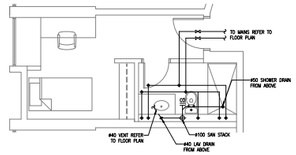
KFR Project Number 14002



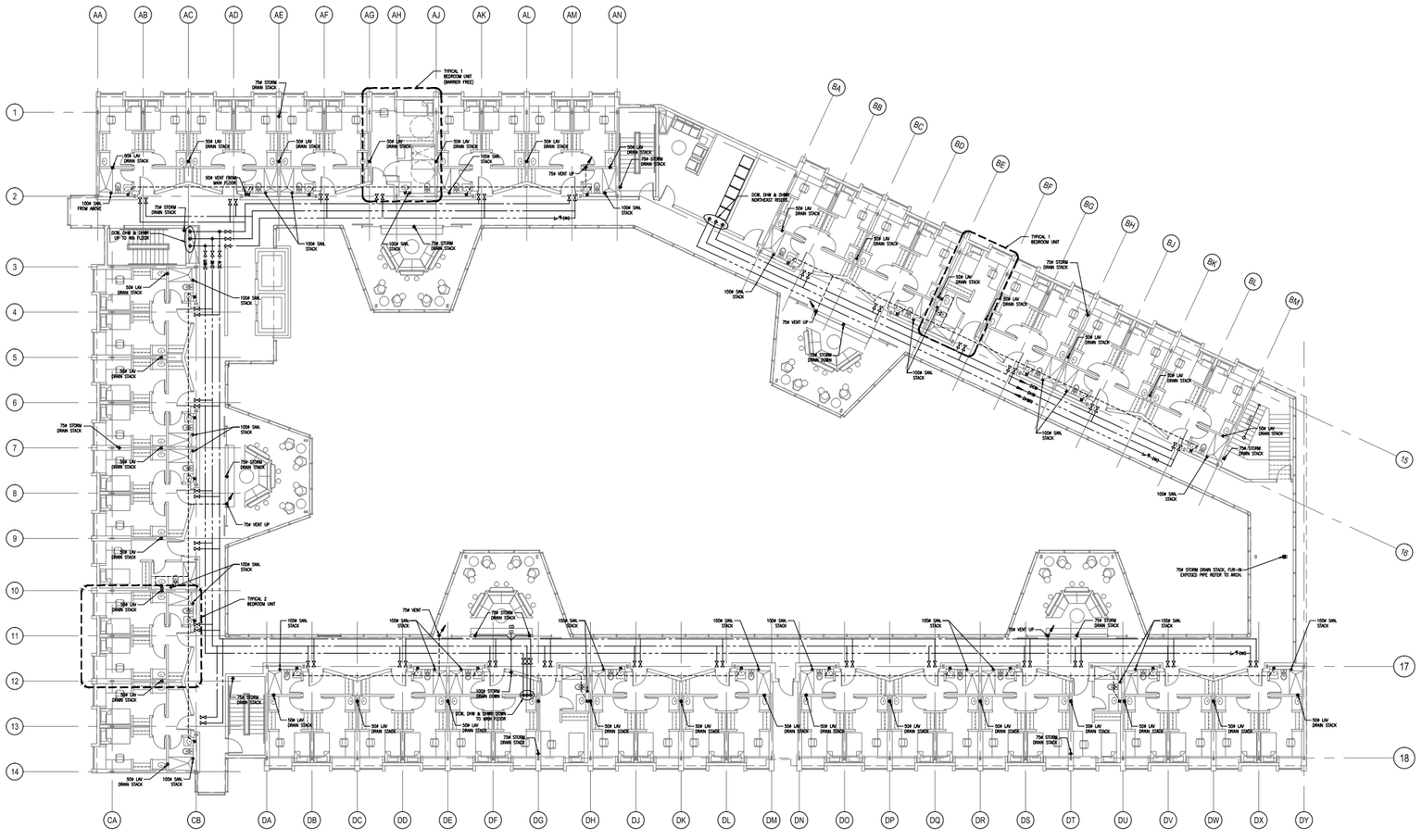
2 A003 **TYPICAL 2 BEDROOM UNIT - PLUMBING PLAN**
SCALE: 1:50



3 A003 **TYPICAL 1 BEDROOM UNIT (BARRIER FREE) - PLUMBING PLAN**
SCALE: 1:50



4 A003 **TYPICAL 1 BEDROOM UNIT - PLUMBING PLAN**
SCALE: 1:50



NORTH 1 M003 **SECOND FLOOR PLUMBING PLAN**
SCALE: 1:100

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Dwg Title: **SECOND FLOOR PLUMBING PLAN**

Building: **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number: ***** | Work Order Number: ******

Arch ☐ Mech ■ Elec ☐ Struc ☐ Civil ☐ | Drawn By: **KFR**

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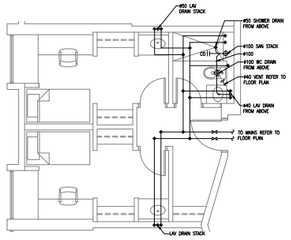
Design File No.: **#####-YY-##**
Issue & Revision: **A[#]**

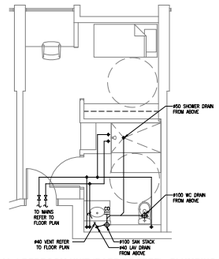
Sheet: **X of Y**
Drawing Number: **M003**

KFR Project Number 14002



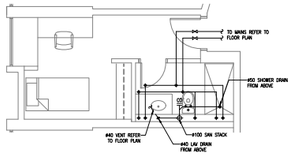
2 / M004 SCALE: 1:50

TYPICAL 2 BEDROOM UNIT - PLUMBING PLAN



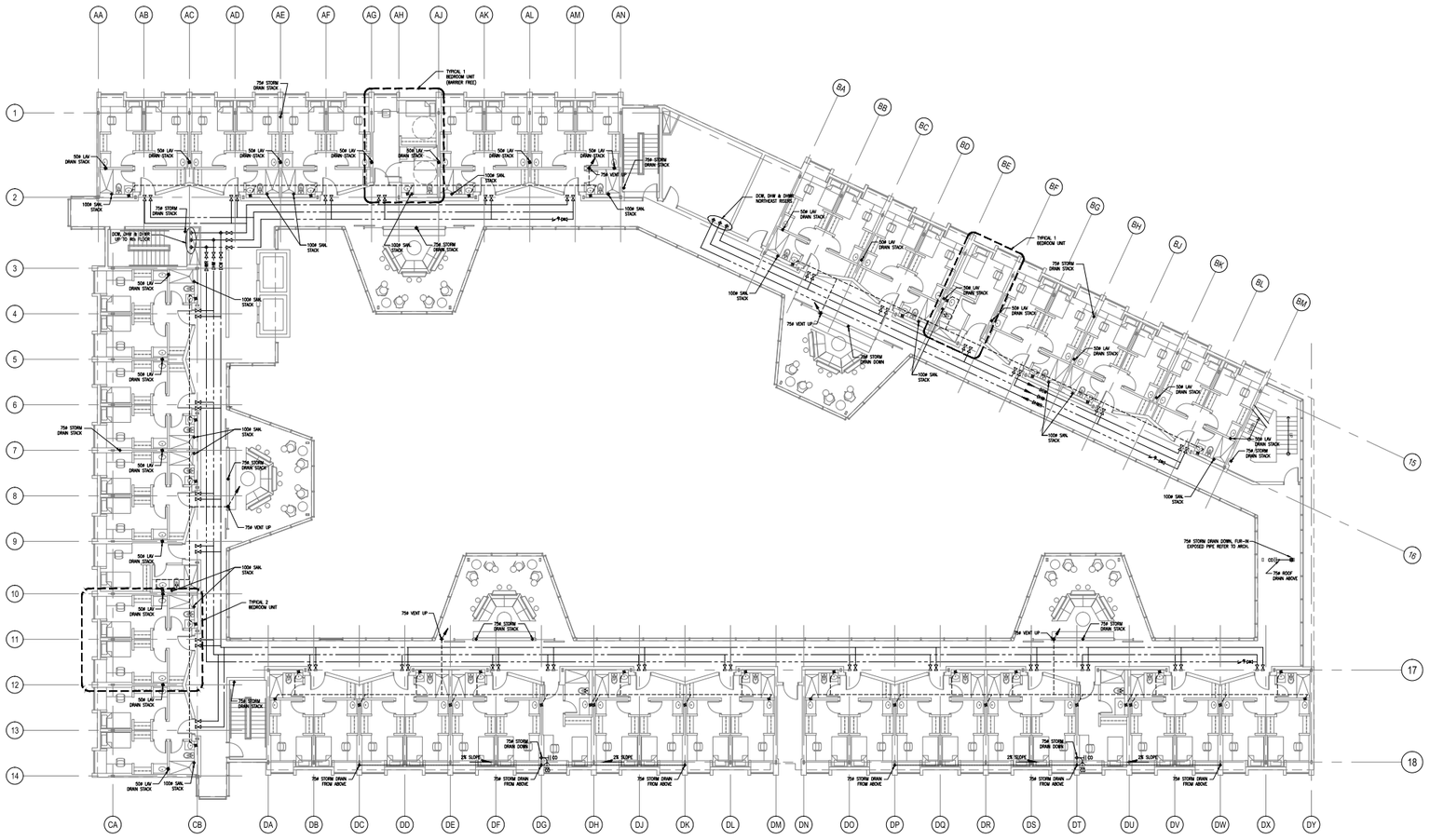
3 / M004 SCALE: 1:50

TYPICAL 1 BEDROOM UNIT (BARRIER FREE) - PLUMBING PLAN



4 / M004 SCALE: 1:50

TYPICAL 1 BEDROOM UNIT - PLUMBING PLAN



NOTE (1) 1 / M004 SCALE: 1:100

THIRD FLOOR PLUMBING PLAN

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Dwg Title: **THIRD FLOOR PLUMBING PLAN**

Building: **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number: ***** | Work Order Number: ******

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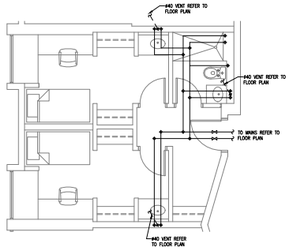
Dwg. Created: **2014-04-04**
Design File No. **#####-YY-##**

Issue & Revision: **A[#]**

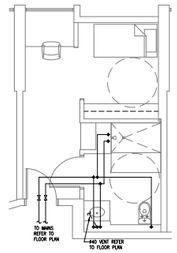
Sheet: **X of Y**

Drawing Number: **M004**

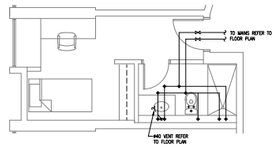
KFR Project Number 14002



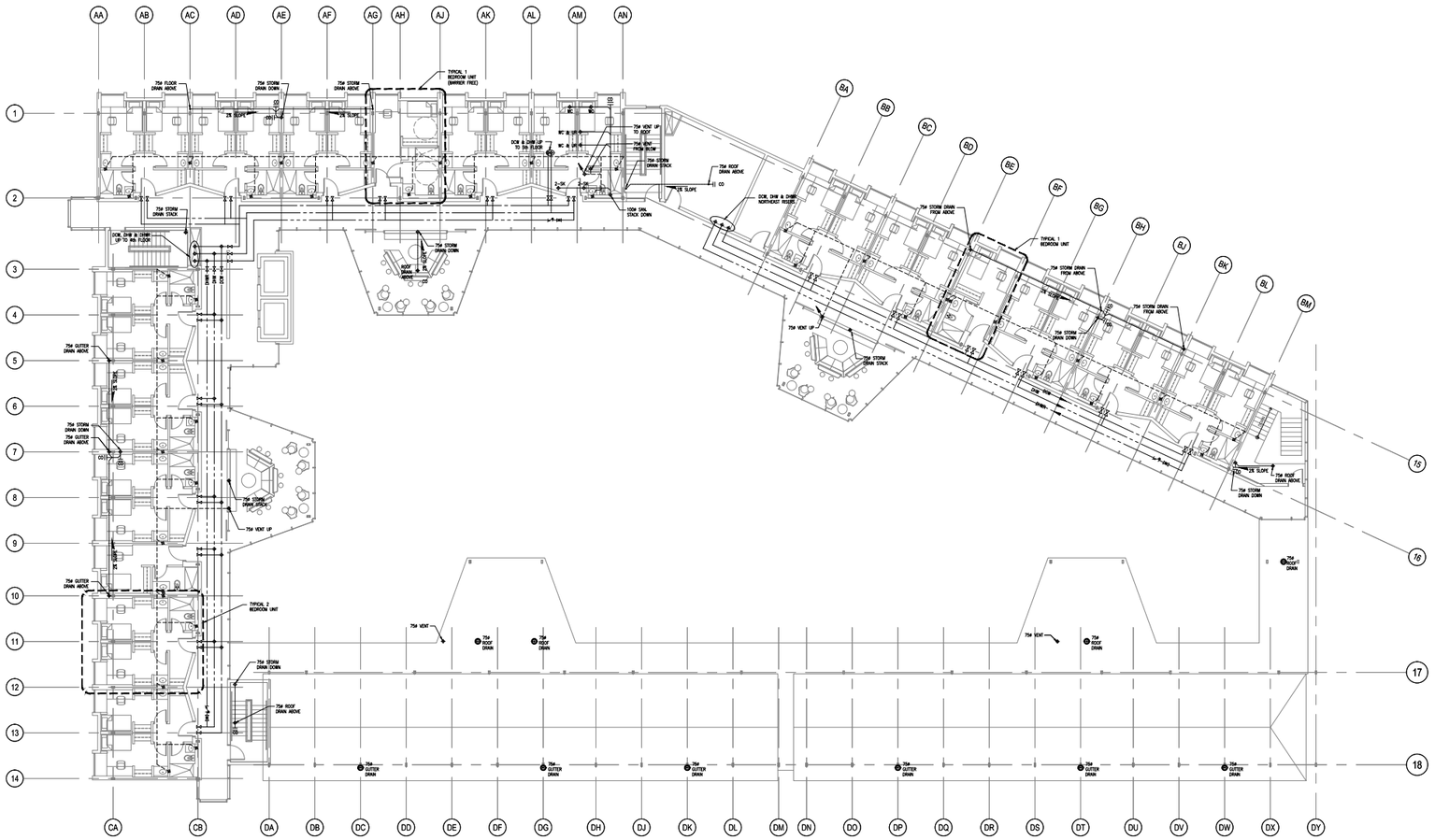
2 / M005 **TYPICAL 2 BEDROOM UNIT - PLUMBING PLAN**
SCALE: 1:50



3 / M005 **TYPICAL 1 BEDROOM UNIT (BARRIER FREE) - PLUMBING PLAN**
SCALE: 1:50



4 / M005 **TYPICAL 1 BEDROOM UNIT - PLUMBING PLAN**
SCALE: 1:50



NORTH 1 / M005 **FOURTH FLOOR PLUMBING PLAN**
SCALE: 1:100

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Dwg Title **FOURTH FLOOR PLUMBING PLAN**

Building **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number ***** Work Order Number ******

Arch ☐ Mech ■ Elec ☐ Struc ☐ Civil ☐ Drawn By **KFR**

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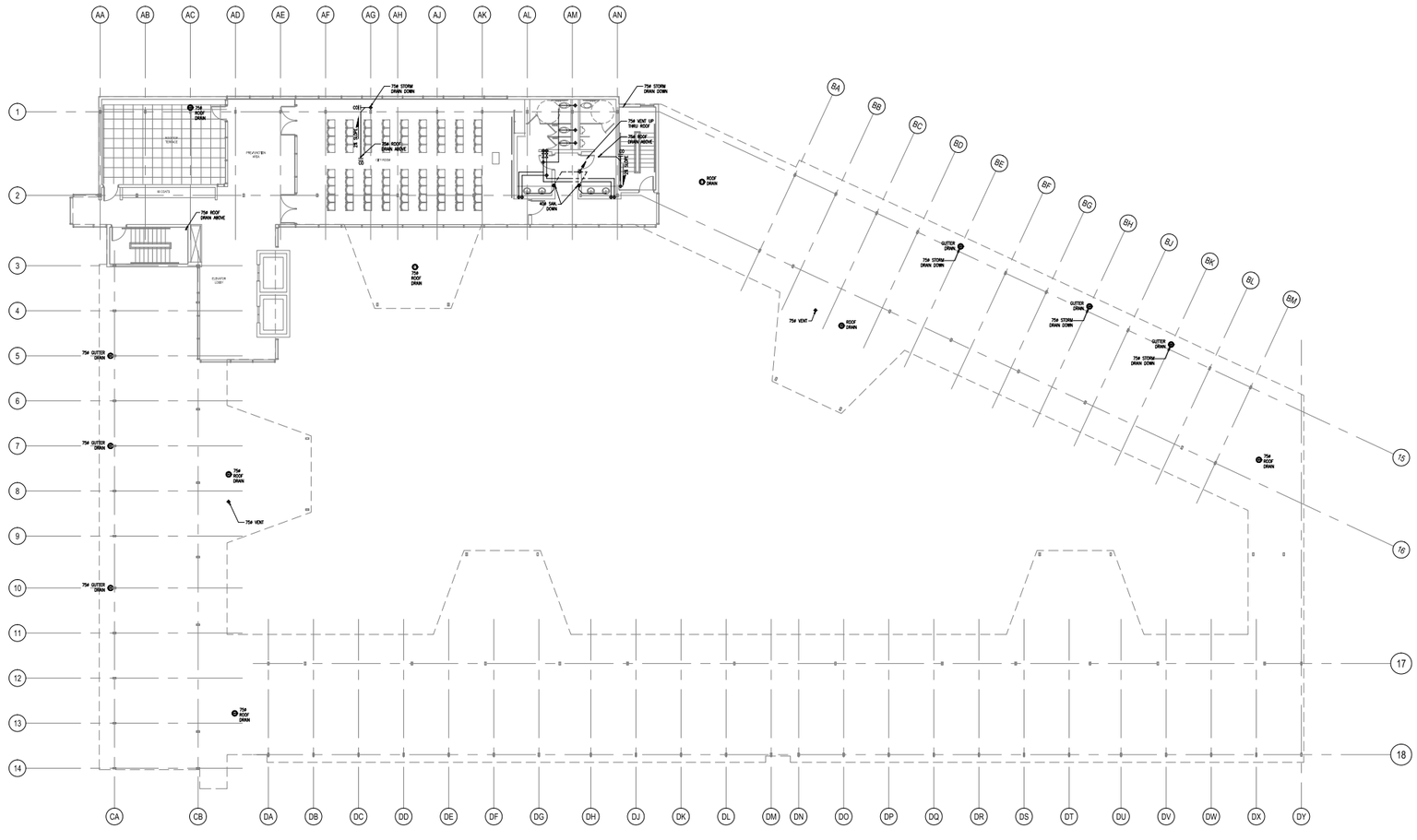
Sheet **X of Y** Drawing Number **M005**

KFR Project Number 14002



NORTH 1 M006 **FIFTH FLOOR PLUMBING PLAN**
SCALE: 1:100

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Dwg Title: **FIFTH FLOOR PLUMBING PLAN**

Building: **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number: ***** | Work Order Number: ******

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Design File No.: **#####-YY-##**

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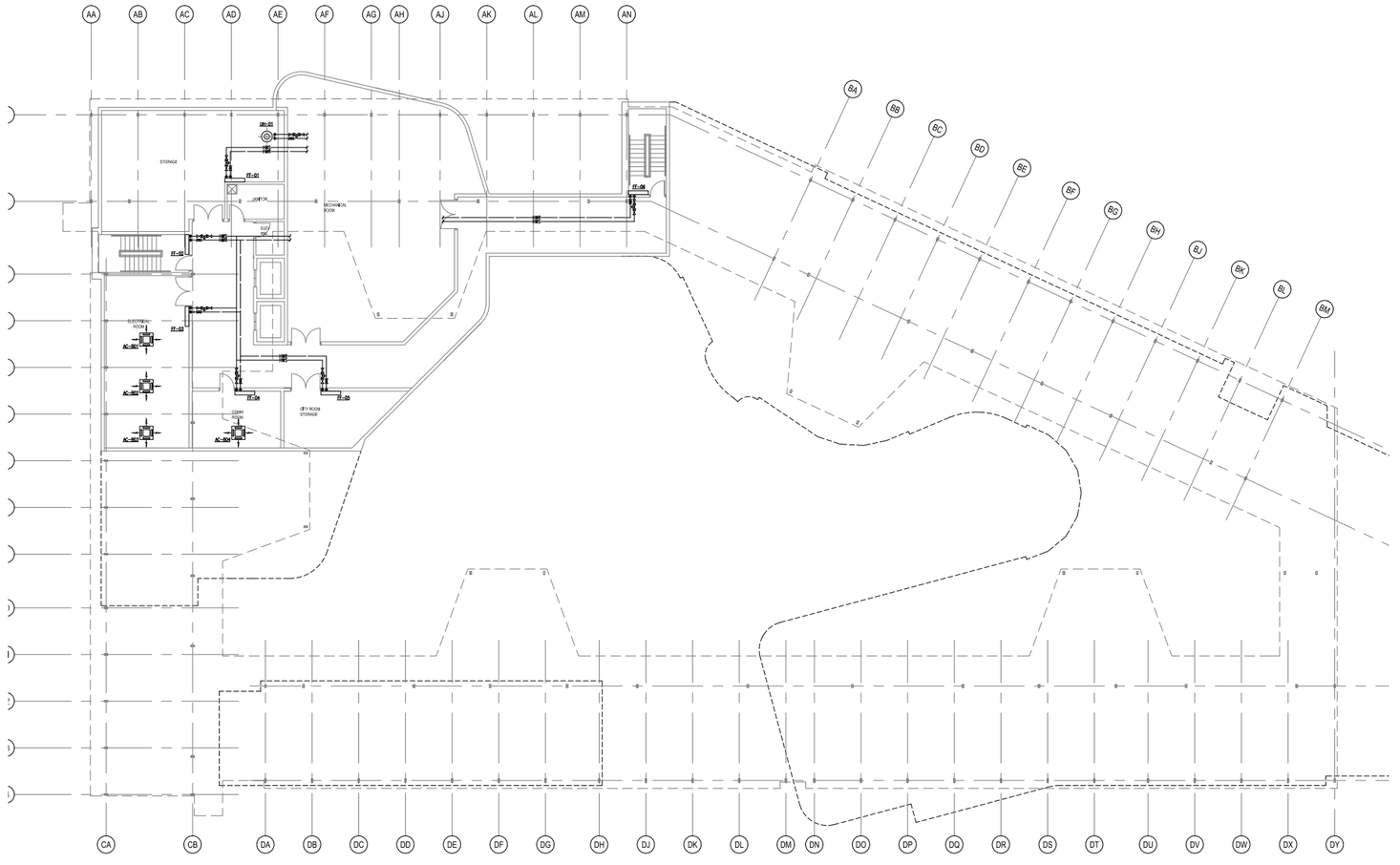
KFR Project Number 14002



NORTH

1 M101 **BASEMENT HEATING PLAN**
SCALE: 1:100

Consultant

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Dwg Title **BASEMENT HEATING PLAN**

Building **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number ***** | Work Order Number ******

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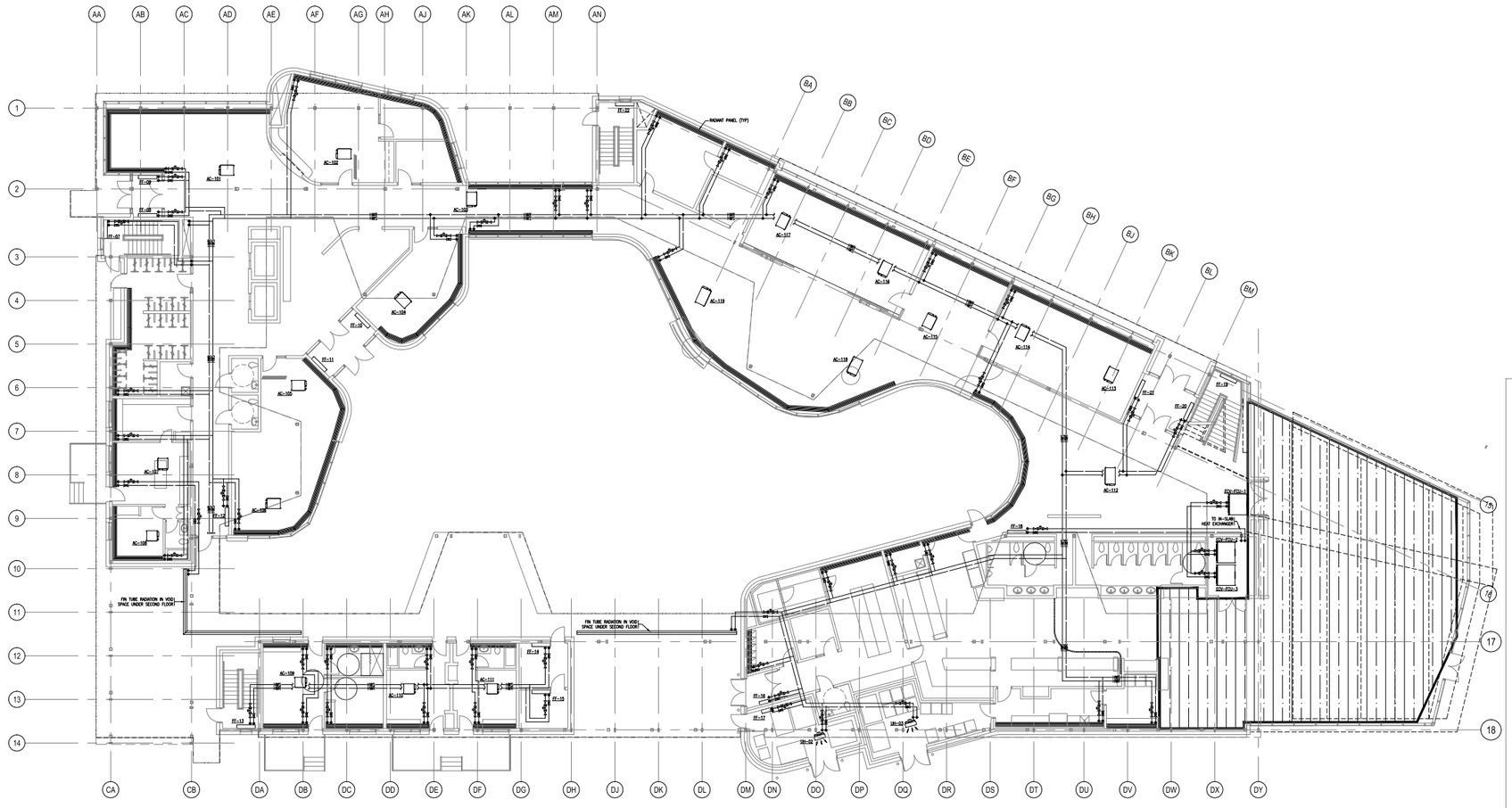
Design File No. **######-YY.dgn**

Sheet **X of Y** | Drawing Number **M101**

KFR Project Number 14002



NORTH

1 MAIN FLOOR HEATING AND COOLING PLAN
SCALE: 1:100

Consultant
KFR engineering
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Dwg Title **MAIN FLOOR HEATING AND COOLING PLAN**

Building **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number ***** Work Order Number ******

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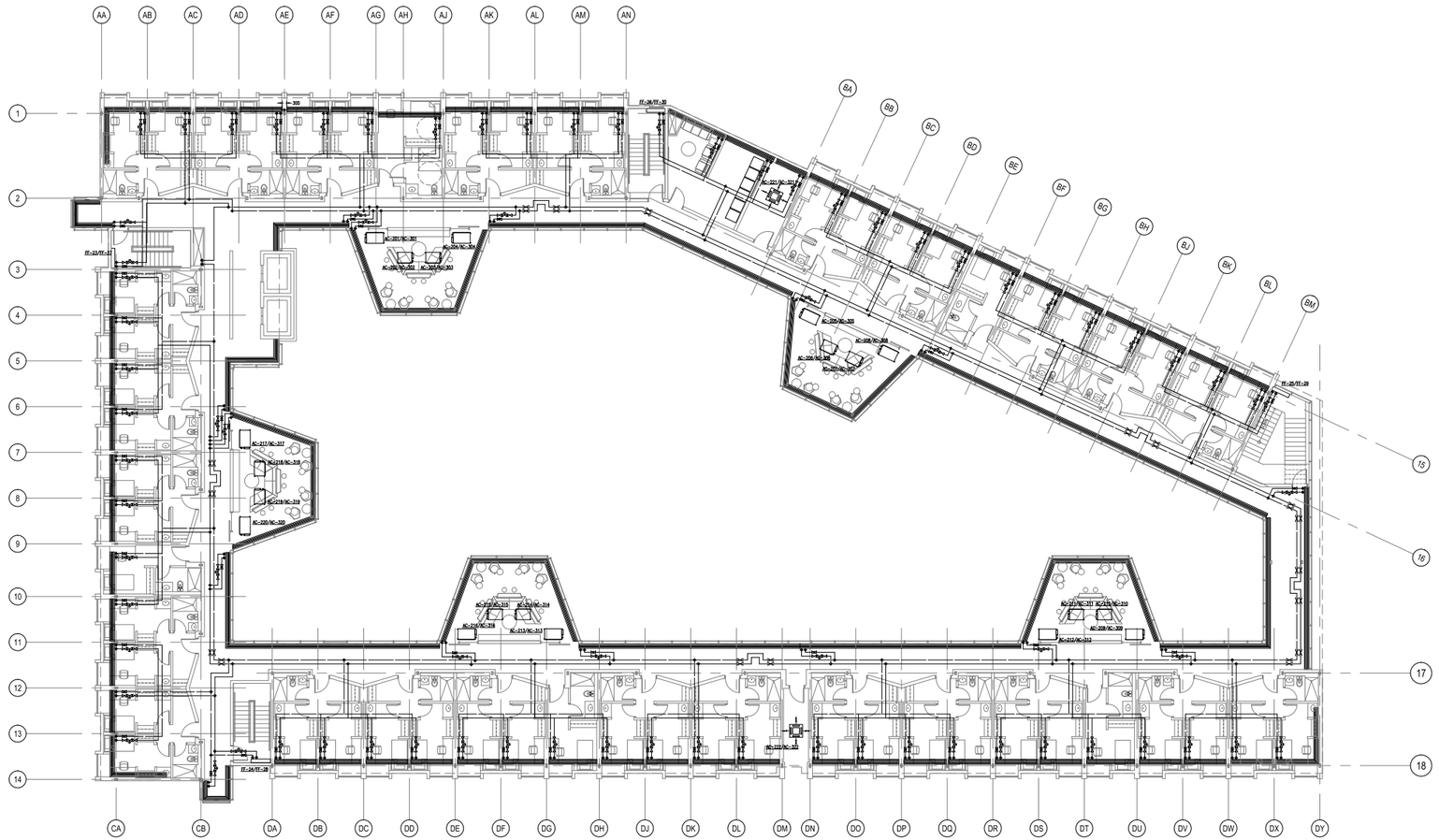
Sheet **X of Y** Drawing Number **M102**

KFR Project Number 14002



NORTH 1 / M103 **2nd & 3rd FLOOR HEATING AND COOLONG PLAN**
SCALE: 1:100

Consultant

KFR engineering
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Dwg Title **SECOND AND THIRD FLOOR HEATING AND COOLING PLAN**

Building **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number ***** | Work Order Number ******

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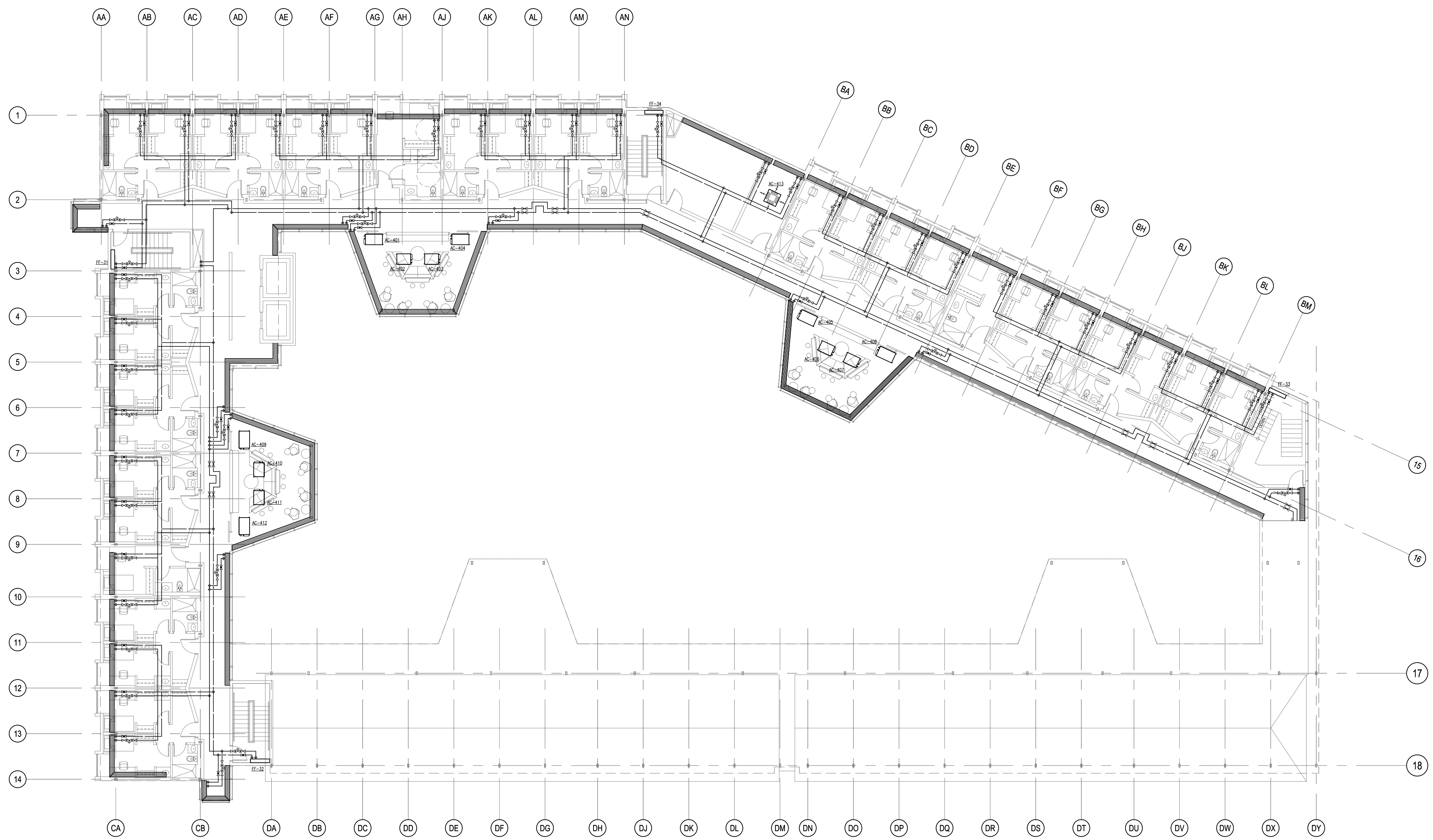
Dwg. Created **2014-04-04** | Issue & Revision **A[#]**
Design File No. ########.YY.## |

Sheet **X of Y** | Drawing Number **M103**

KFR Project Number 14002



FOURTH FLOOR HEATING AND COOLING PLAN
SCALE: 1:100

Consultant

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Dwg Title **FOURTH FLOOR HEATING AND COOLING PLAN**

Building **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number ***** Work Order Number ******

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Issue & Revision **A[#]**

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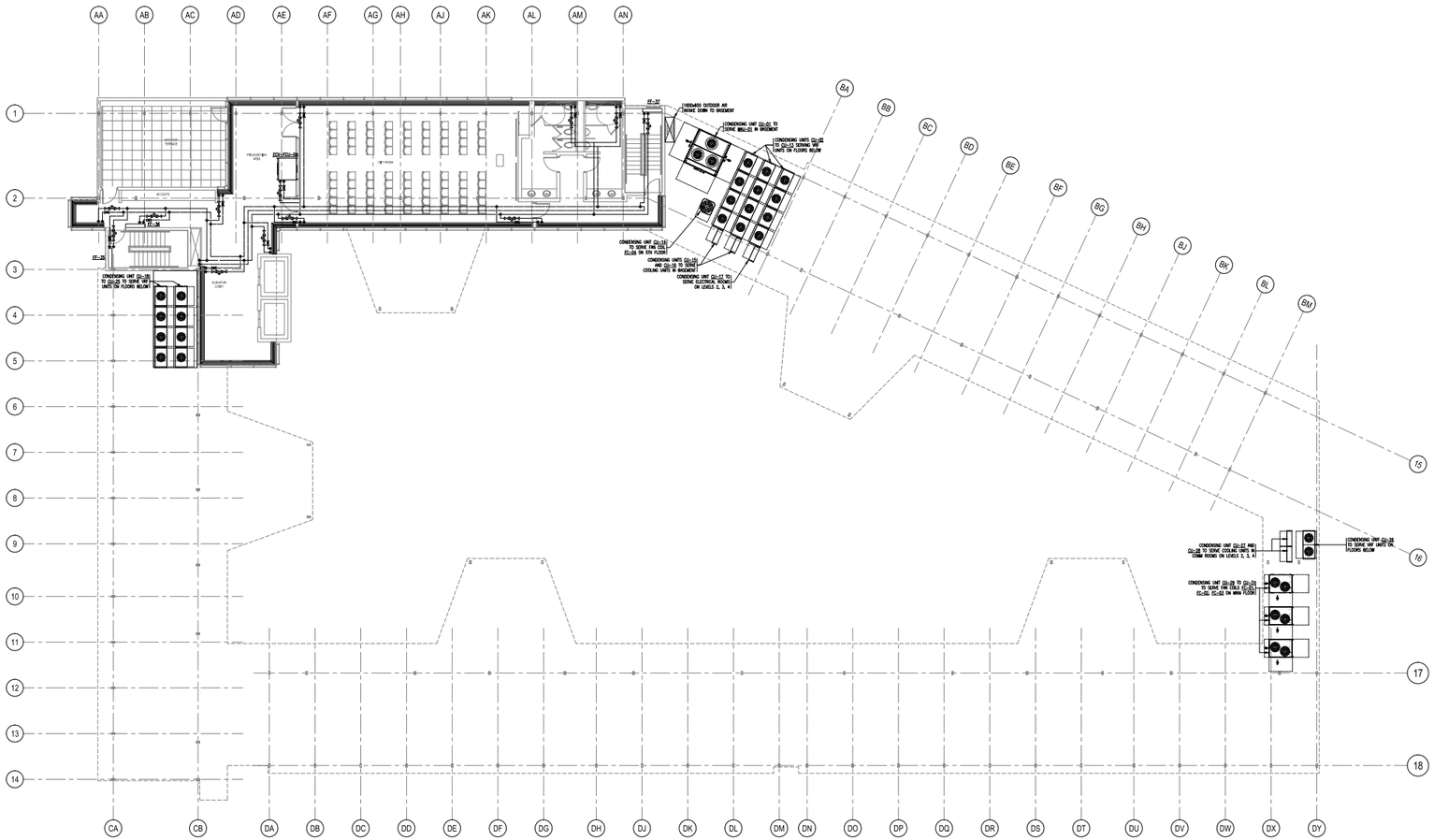
Drawing Number **M104**

KFR Project Number 14002



NORTH 1 / M105 **FIFTH FLOOR HEATING AND COOLING PLAN**
SCALE: 1:100

Consultant

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Dwg Title **FIFTH FLOOR HEATING AND COOLING PLAN**

Building **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number ***** | Work Order Number ******

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Design File No. ******.YY.dw

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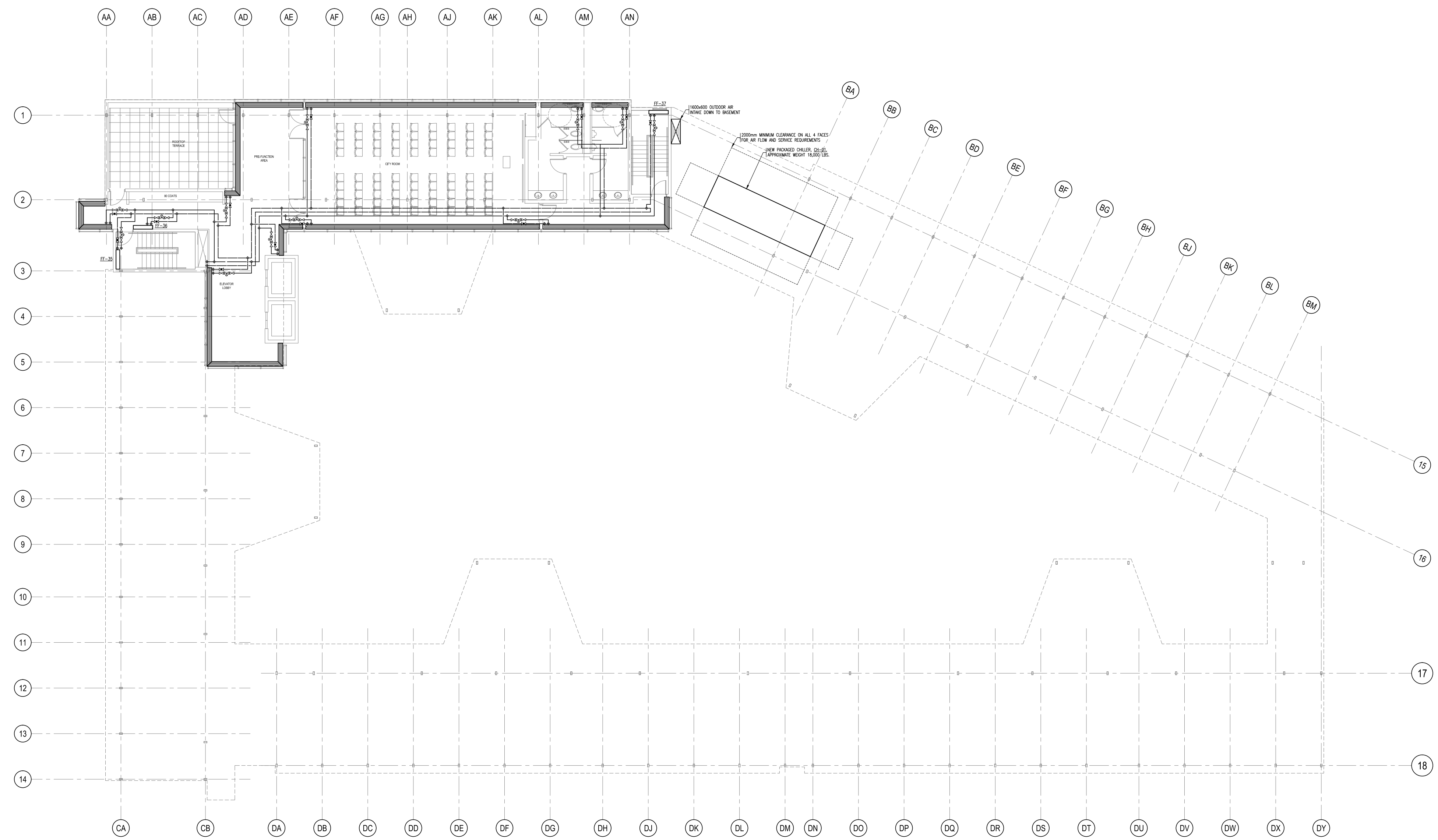
KFR Project Number 14002



FIFTH FLOOR HEATING AND COOLING PLAN
SCALE: 1:100

Consultant

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Edmonton Alberta, T5M 1V1
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Dwg Title **FIFTH FLOOR HEATING AND COOLING PLAN**

Building **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number ***** Work Order Number ******

Arch ☐ Mech ■ Elec ☐ Struc ☐ Civil ☐ Drawn By **KFR**

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Issue & Revision **A[#]**

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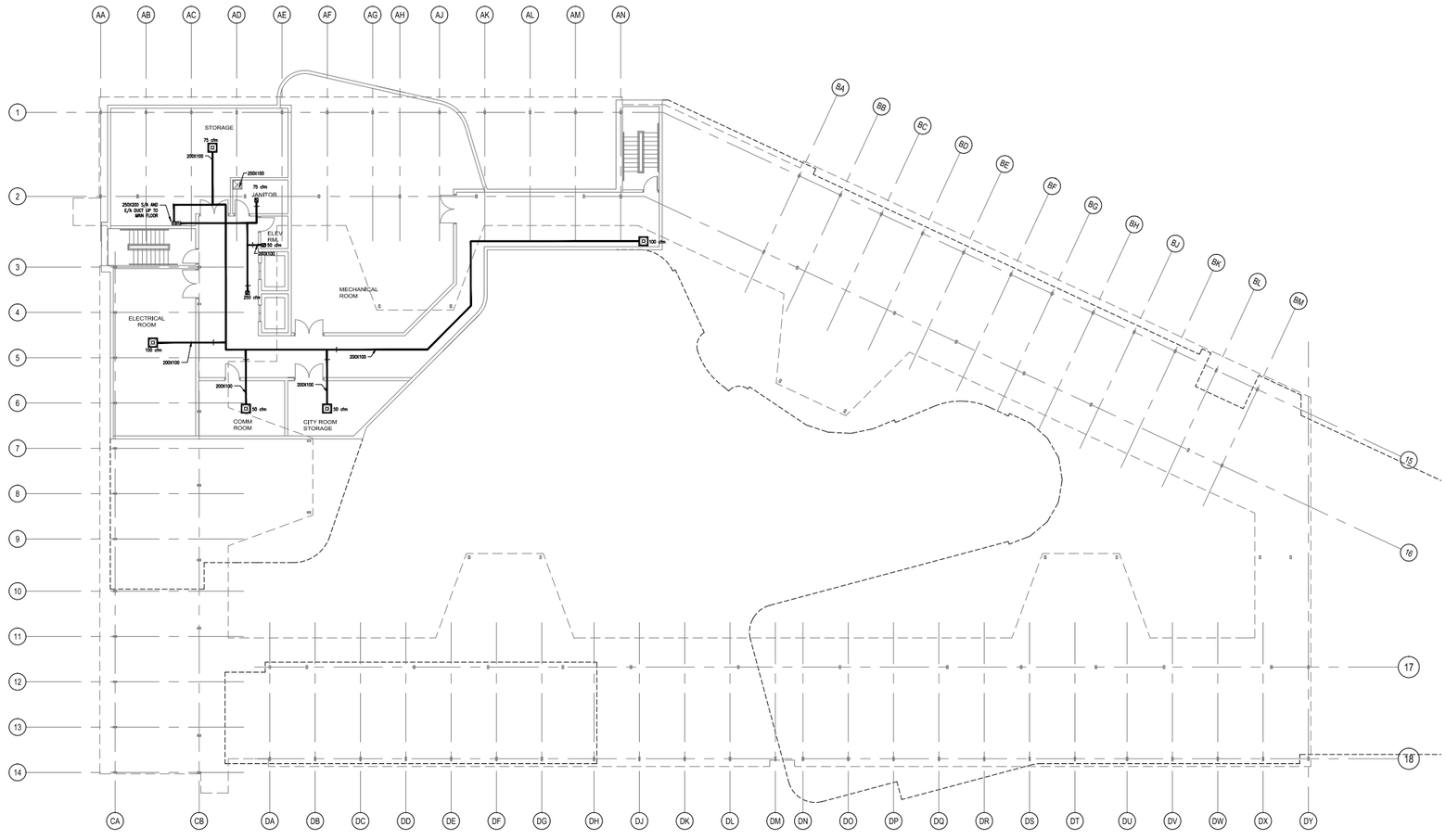
KFR Project Number 14002



NORTH 1 M201 **BASEMENT VENTILATION PLAN**
SCALE: 1:100

Consultant

KFR engineering
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Client Approval Date **YYYY.MM.DD**

Dwg Title **BASEMENT VENTILATION PLAN**

Building **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number ***** | Work Order Number ******

Arch ☐ Mech ■ Elec ☐ Struc ☐ Civil ☐ | Drawn By **KFR**

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Design File No. *######.YY.##*

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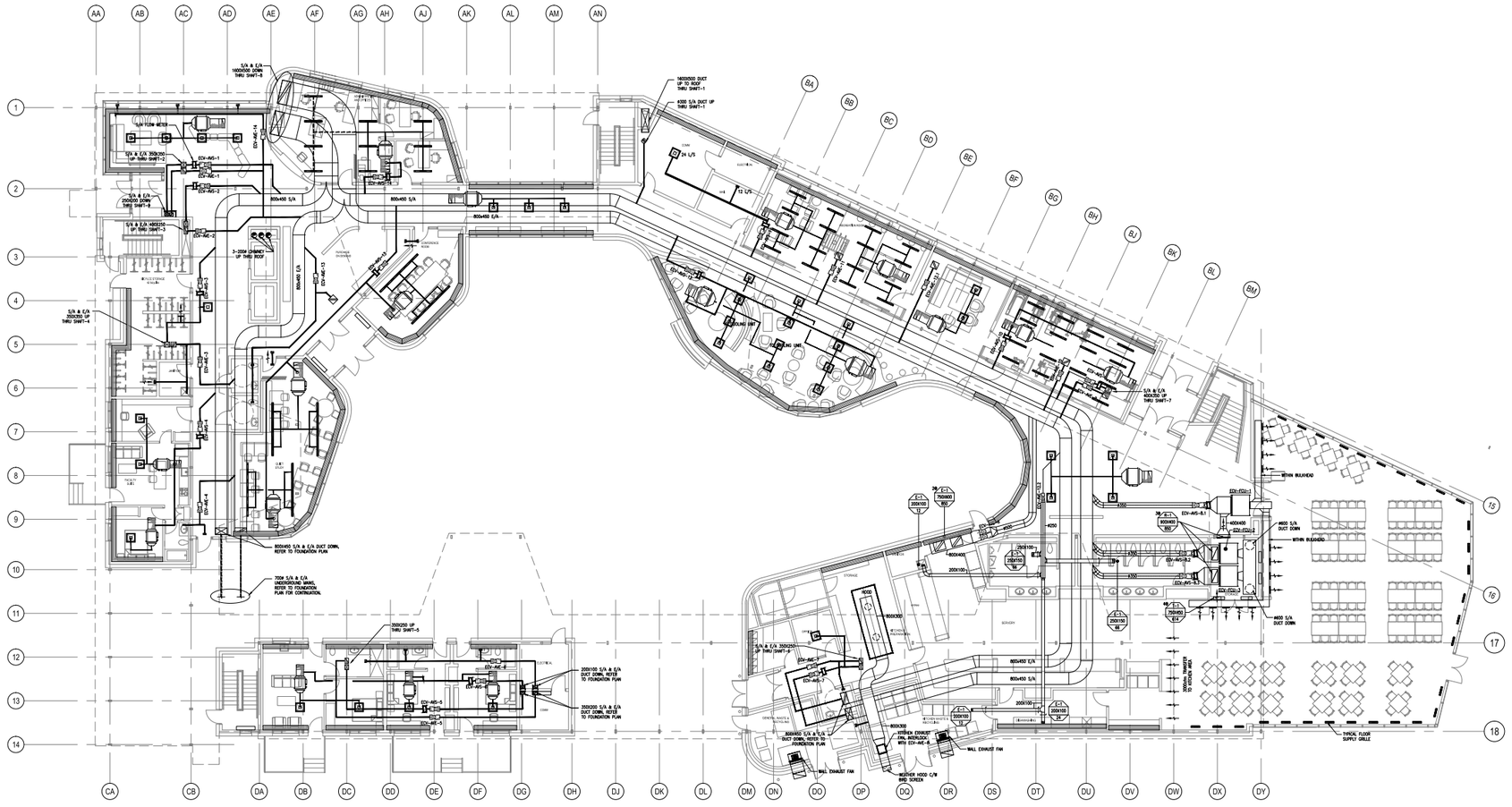
KFR Project Number 14002



NORTH 1/8000 **MAIN FLOOR VENTILATION PLAN**
SCALE: 1:100

Consultant

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#100 11404 142 Street,
Edmonton Alberta, T5M 1V1
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Client Approval Date **YYYY.MM.DD**

Dwg Title **MAIN FLOOR VENTILATION PLAN**

Building **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number ***** | Work Order Number ******

Arch ☐ Mech ■ Elec ☐ Struc ☐ Civil ☐ | Drawn By **KFR**

Dwg. Created **2014-04-04** | Issue & Revision **A[#]**
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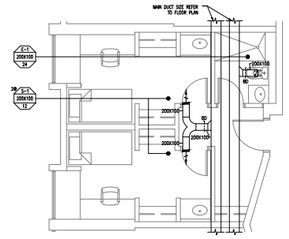
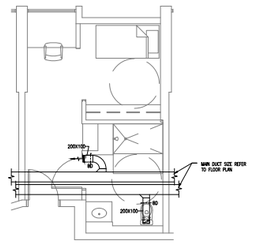
Sheet **X of Y** | Drawing Number **M202**

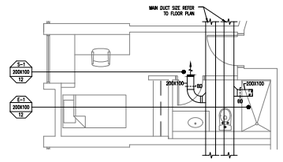
KFR Project Number 14002



2 / M203 **TYPICAL 2 BEDROOM UNIT - VENTILATION PLAN**
SCALE: 1:50



3 / M203 **TYPICAL 1 BEDROOM UNIT (BARRIER FREE) - VENTILATION PLAN**
SCALE: 1:50



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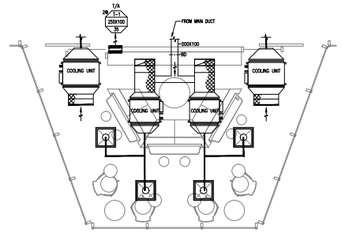
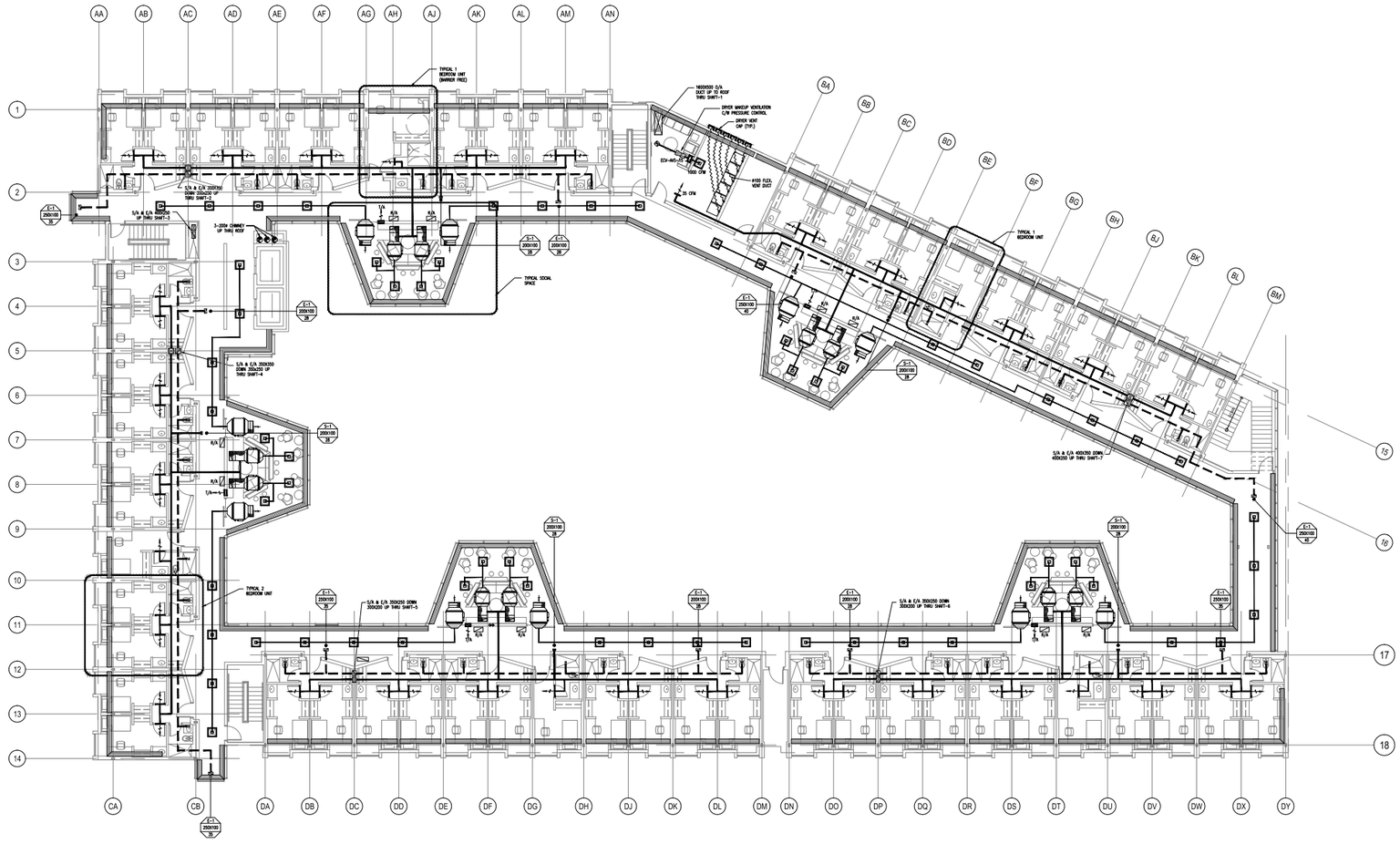
SCALE: 1:50



5 / M203 **TYPICAL SOCIAL SPACE - VENTILATION PLAN**
SCALE: 1:50



NORTH 1 / M202 **SECOND FLOOR VENTILATION PLAN**
SCALE: 1:100

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Dwg Title **SECOND FLOOR VENTILATION PLAN**

Building **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number ***** Work Order Number ******

Arch ☐ Mech ■ Elec ☐ Struc ☐ Civil ☐ Drawn By **KFR**

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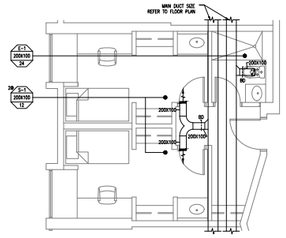
KFR Project Number 14002



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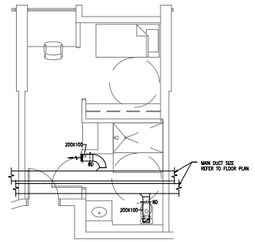
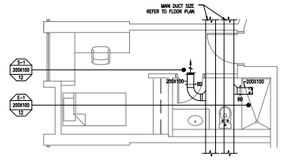
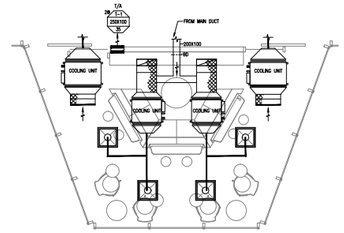
SCALE: 1:50



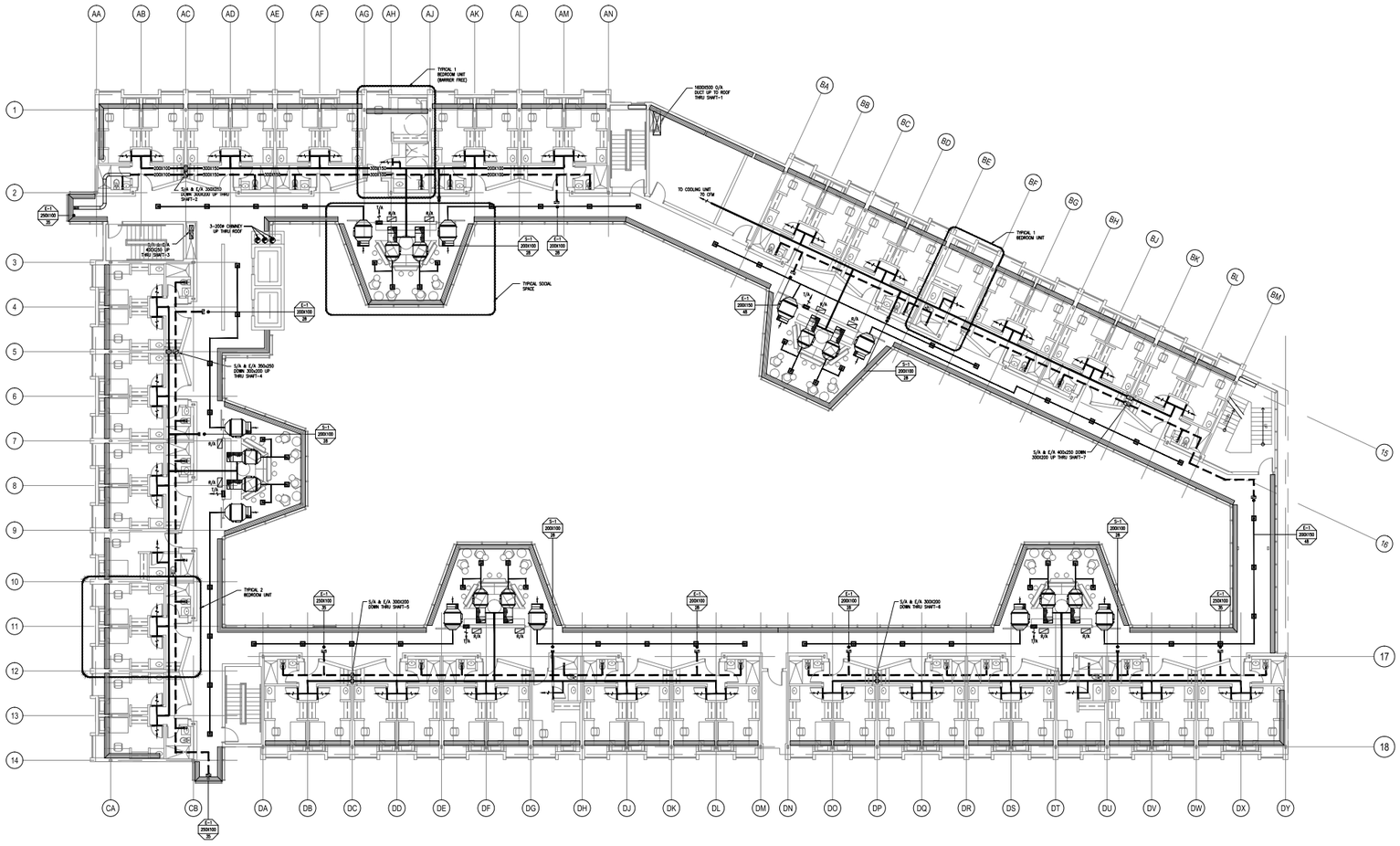
3 TYPICAL 1 BEDROOM UNIT (BARRIER FREE) - VENTILATION PLAN
SCALE: 1:50



4 TYPICAL 1 BEDROOM UNIT - VENTILATION PLAN
SCALE: 1:50



5 TYPICAL SOCIAL SPACE - VENTILATION PLAN
SCALE: 1:50



THIRD FLOOR VENTILATION PLAN
SCALE: 1:100

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Dwg Title **THIRD FLOOR VENTILATION PLAN**

Building **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number ***** Work Order Number ******

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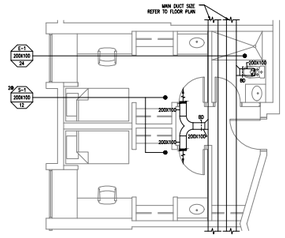
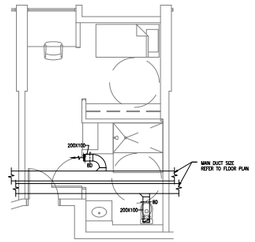
Sheet **X of Y** Drawing Number **M204**

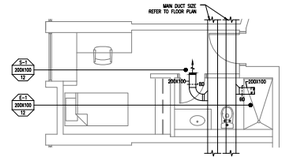
KFR Project Number 14002



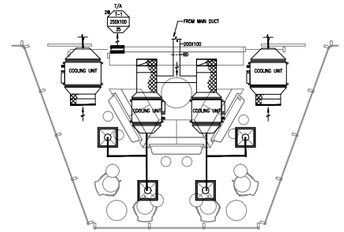
2 TYPICAL 2 BEDROOM UNIT - VENTILATION PLAN
SCALE: 1:50



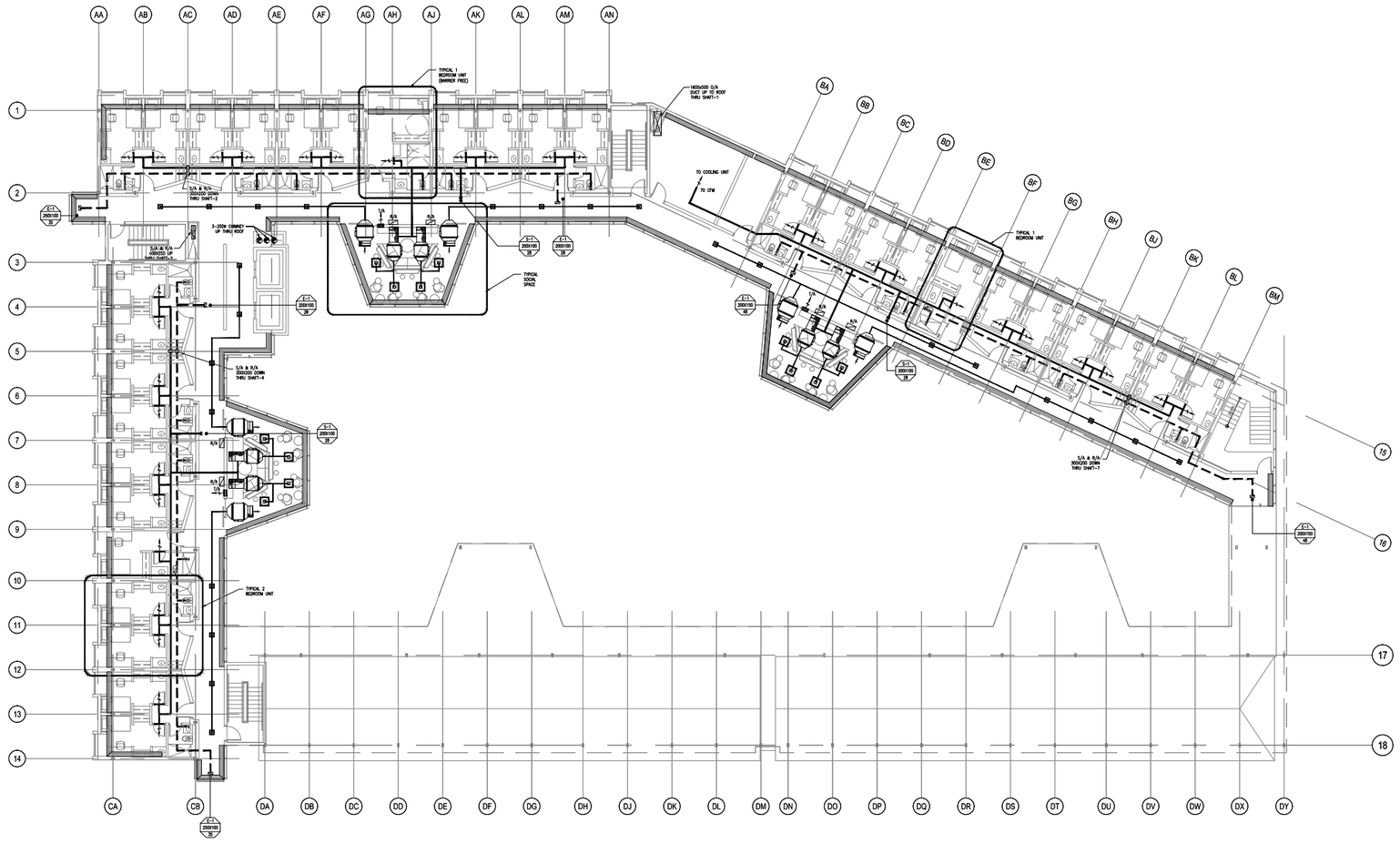
3 TYPICAL 1 BEDROOM UNIT (BARRIER FREE) - VENTILATION PLAN
SCALE: 1:50



4 TYPICAL 1 BEDROOM UNIT - VENTILATION PLAN
SCALE: 1:50



5 TYPICAL SOCIAL SPACE - VENTILATION PLAN
SCALE: 1:50



NORTH

1 FOURTH FLOOR VENTILATION PLAN
SCALE: 1:100

Consultant

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Dwg Title **FOURTH FLOOR VENTILATION PLAN**

Building **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number ***** Work Order Number ******

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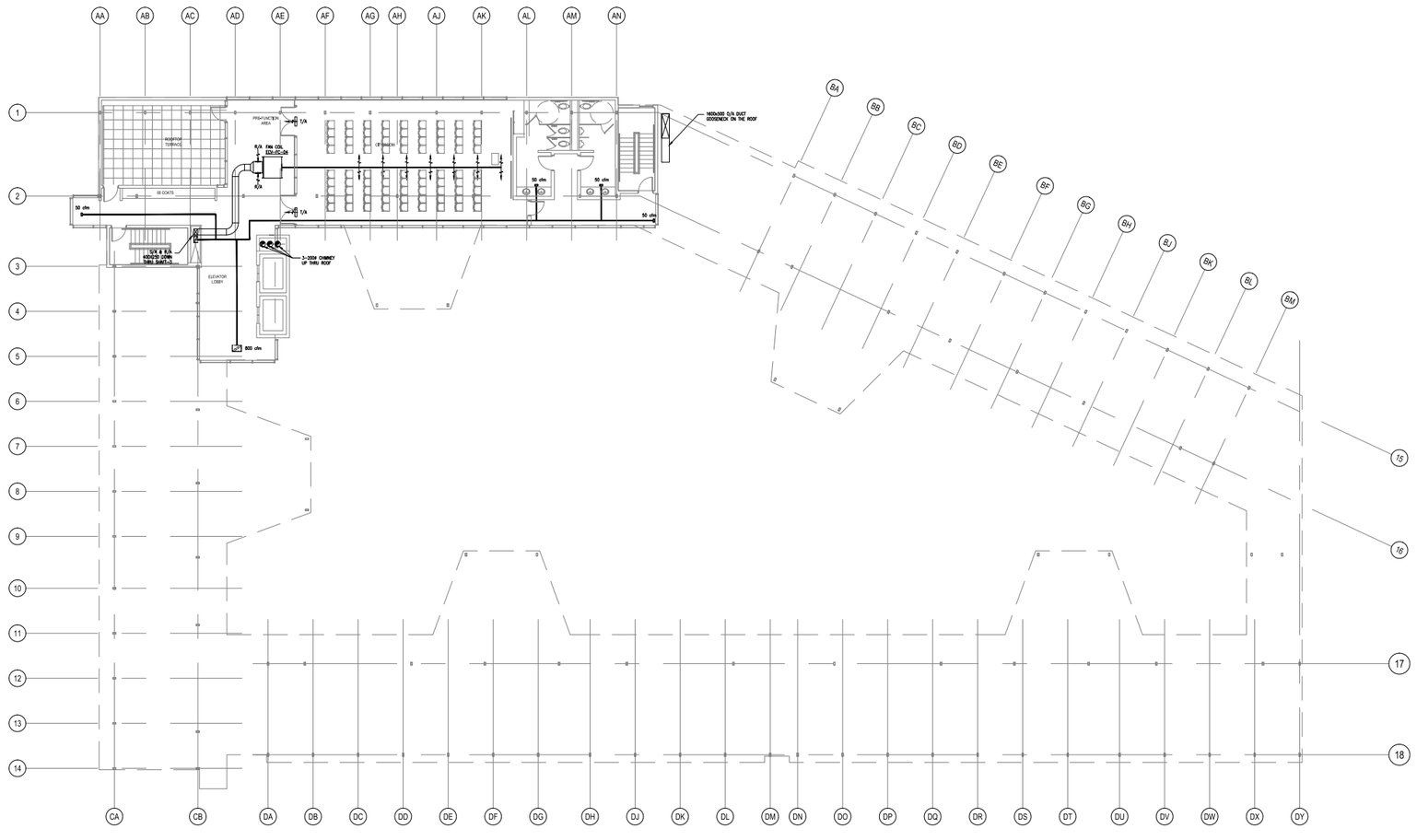
Sheet **X of Y** Drawing Number **M205**

KFR Project Number 14002



1 FIFTH FLOOR VENTILATION PLAN
SCALE: 1:100

NORTH

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Dwg Title: **FIFTH FLOOR VENTILATION PLAN**

Building: **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number: ***** Work Order Number: ******

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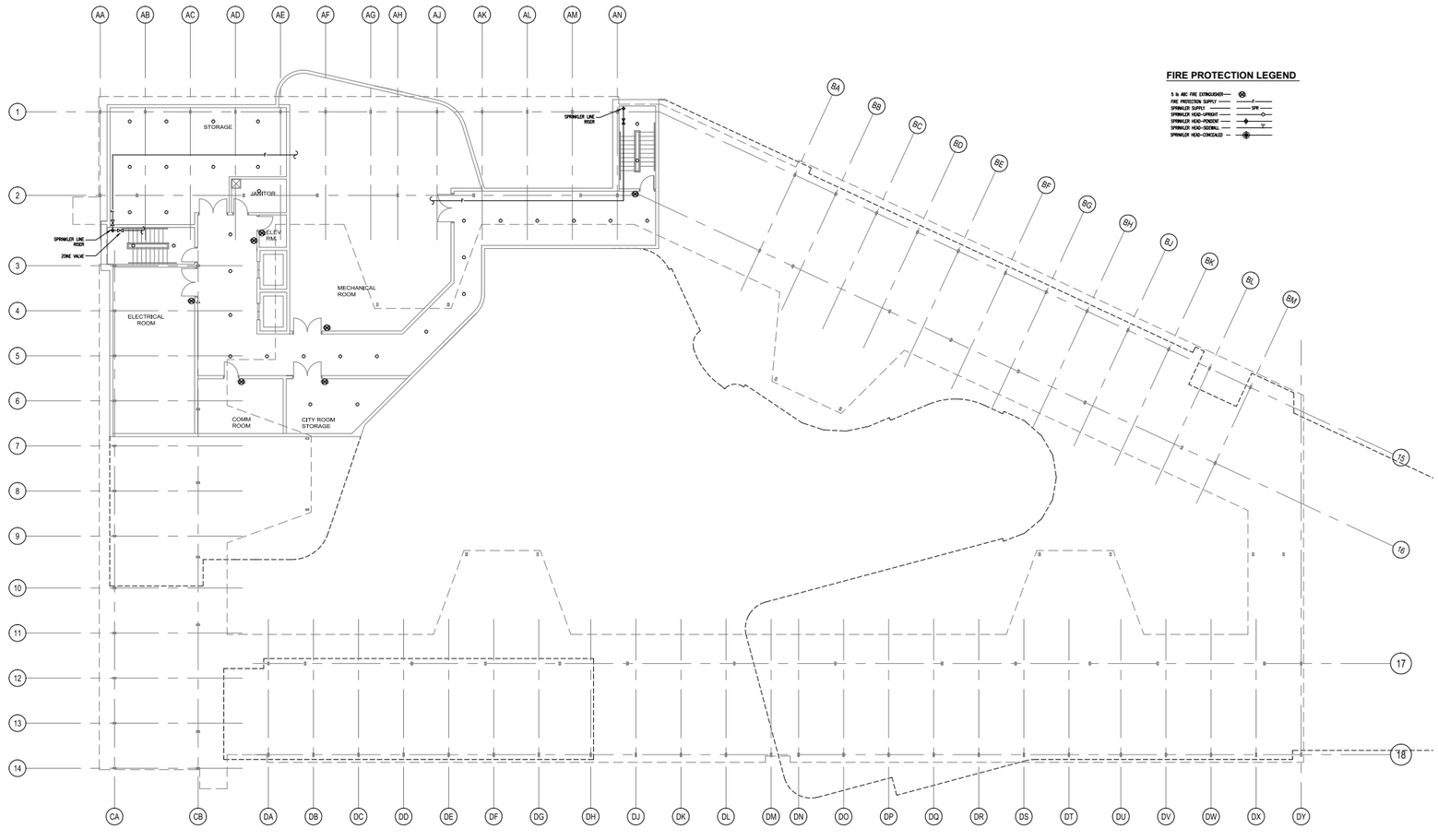
Sheet: **X of Y**

Drawing Number: **M206**

KFR Project Number 14002



FIRE PROTECTION LEGEND

- 5 lb ABC FIRE EXTINGUISHER
- FIRE PROTECTION SUPPLY — FP —
- SPRINKLER SUPPLY — SPR —
- SPRINKLER HEAD–UPRIGHT
- SPRINKLER HEAD–PENDENT
- SPRINKLER HEAD–SIDEWALL
- SPRINKLER HEAD–CONCEALED

NORTH

1 / M301 **BASEMENT FIRE PROTECTION PLAN**
SCALE: 1:100

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Dwg Title **BASEMENT FIRE PROTECTION PLAN**

Building **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number ***** Work Order Number ******

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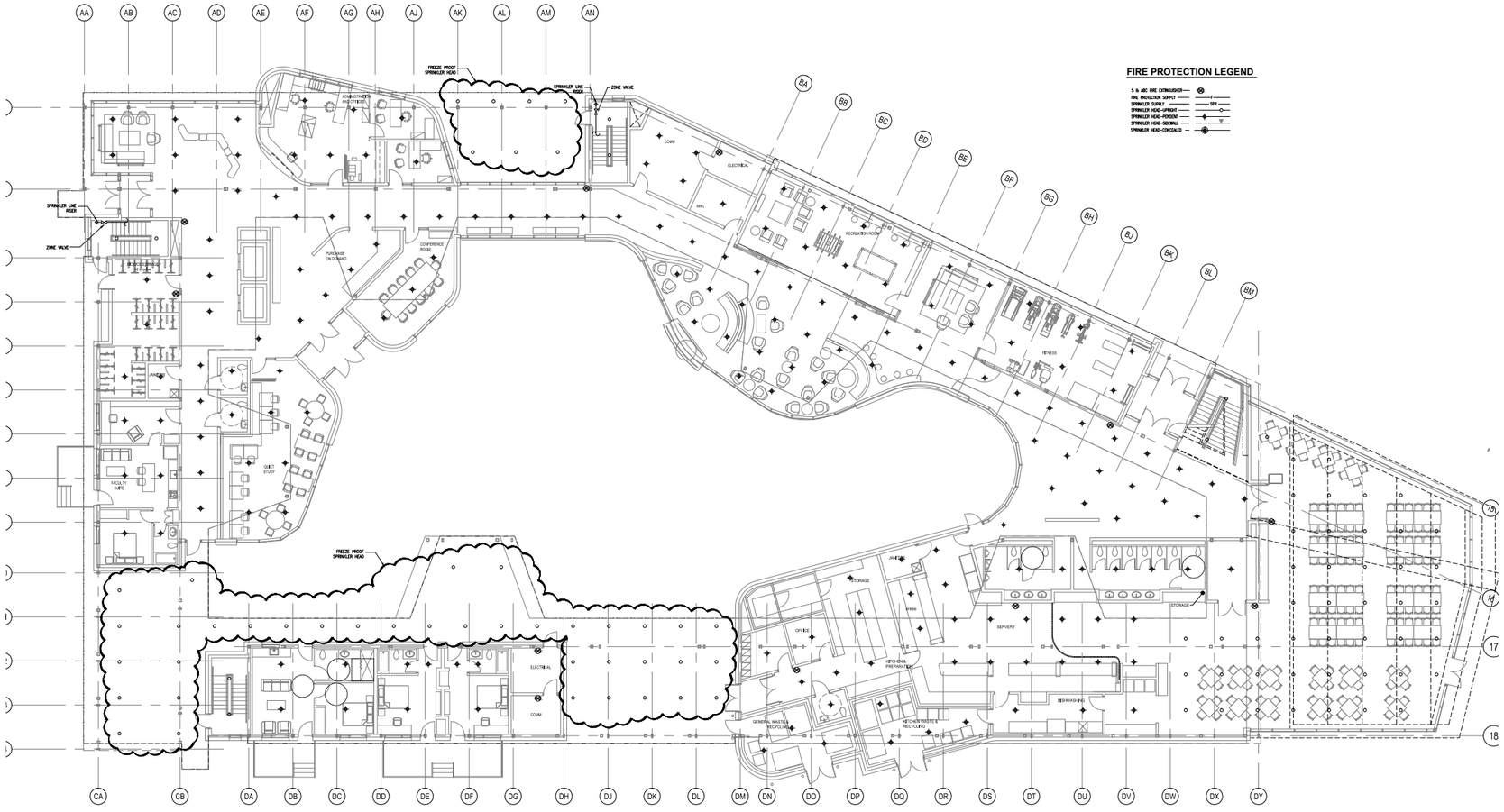
Drawing Number **M301**

KFR Project Number 14002



NORTH 1 M302 **MAIN FLOOR FIRE PROTECTION PLAN**
SCALE: 1:100

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Dwg Title **MAIN FLOOR FIRE PROTECTION PLAN**

Building **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number ***** Work Order Number ******

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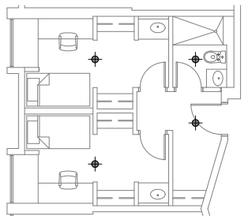
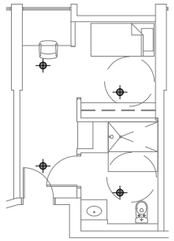
Drawing Number **M302**

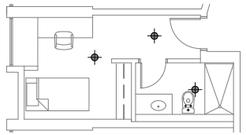
KFR Project Number 14002



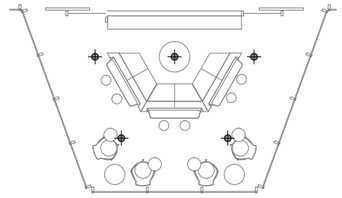
2 / M303 SCALE: 1:50 **TYPICAL 2 BEDROOM UNIT - FIRE PROTECTION PLAN**



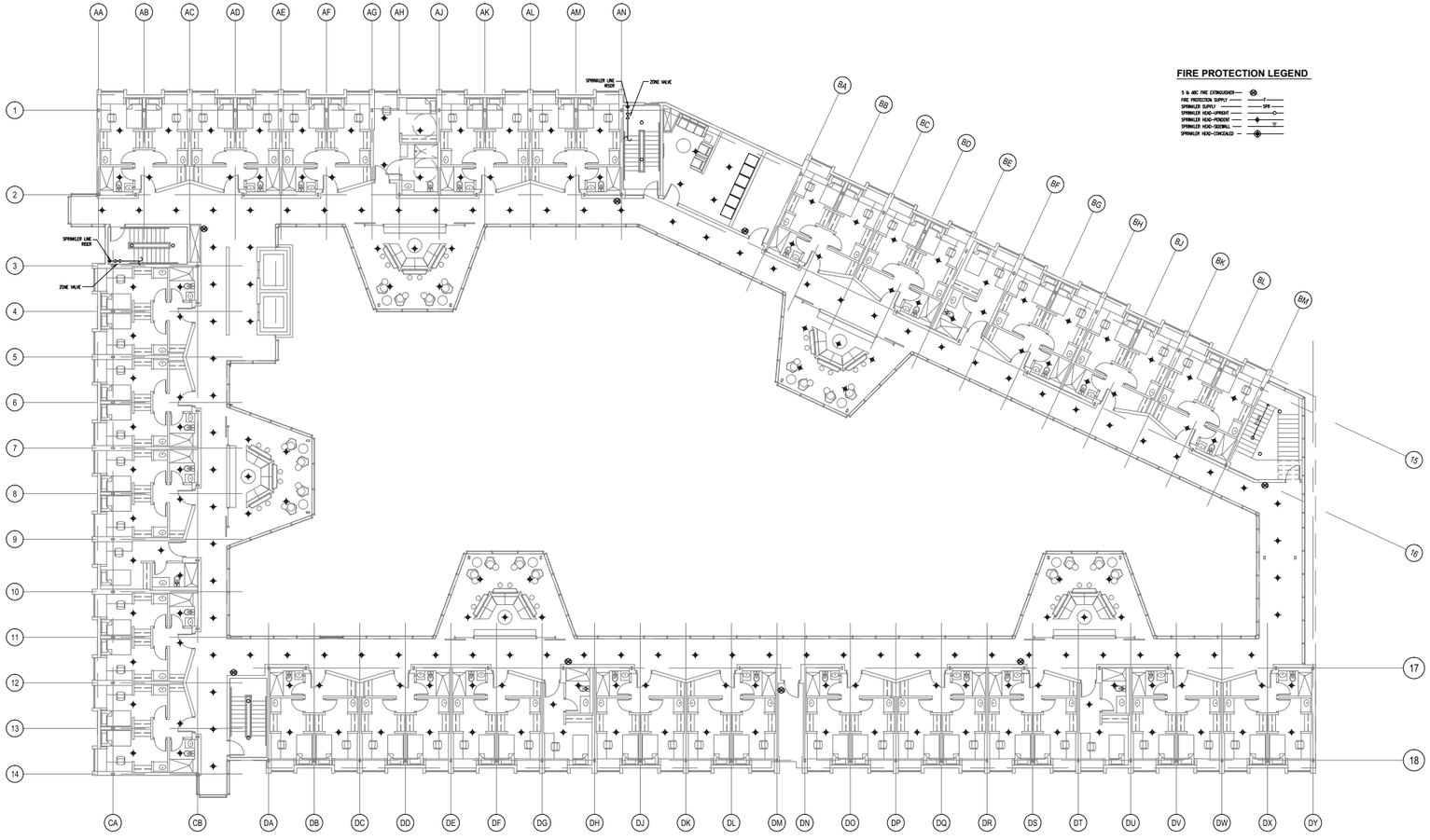
3 / M303 SCALE: 1:50 **TYPICAL 1 BEDROOM UNIT (BARRIER FREE) - FIRE PROTECTION PLAN**



4 / M303 SCALE: 1:50 **TYPICAL 1 BEDROOM UNIT - FIRE PROTECTION PLAN**



5 / M303 SCALE: 1:50 **TYPICAL SOCIAL SPACE - FIRE PROTECTION PLAN**



FIRE PROTECTION LEGEND

- 5 lb ABC FIRE EXTINGUISHER
- FIRE PROTECTION SUPPLY — FPS
- SPRINKLER SUPPLY — SPS
- SPRINKLER HEAD-UPRIGHT
- SPRINKLER HEAD-PENDENT
- SPRINKLER HEAD-SIDEWALL
- SPRINKLER HEAD-CONCEALED

NORTH 1 / M303 SCALE: 1:100 **SECOND AND THIRD FLOOR FIRE PROTECTION PLAN**

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Dwg Title: **SECOND AND THIRD FLOOR FIRE PROTECTION PLAN**

Building: **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number: ***** Work Order Number: ******

Arch ☐ Mech ■ Elec ☐ Struc ☐ Civil ☐ Drawn By: **KFR**

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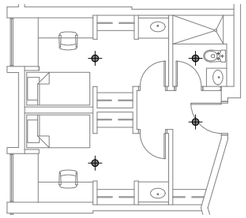
Issue & Revision: **A[#]**

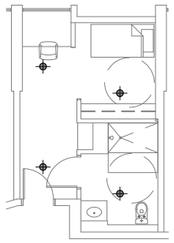
Sheet: **X of Y**

Drawing Number: **M303**

KFR Project Number 14002



2 / M304 SCALE: 1:50
TYPICAL 2 BEDROOM UNIT - FIRE PROTECTION PLAN



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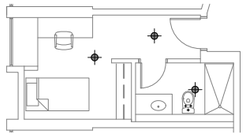
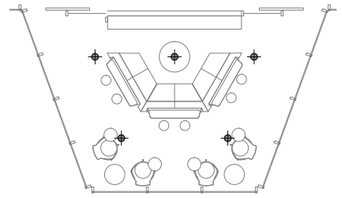
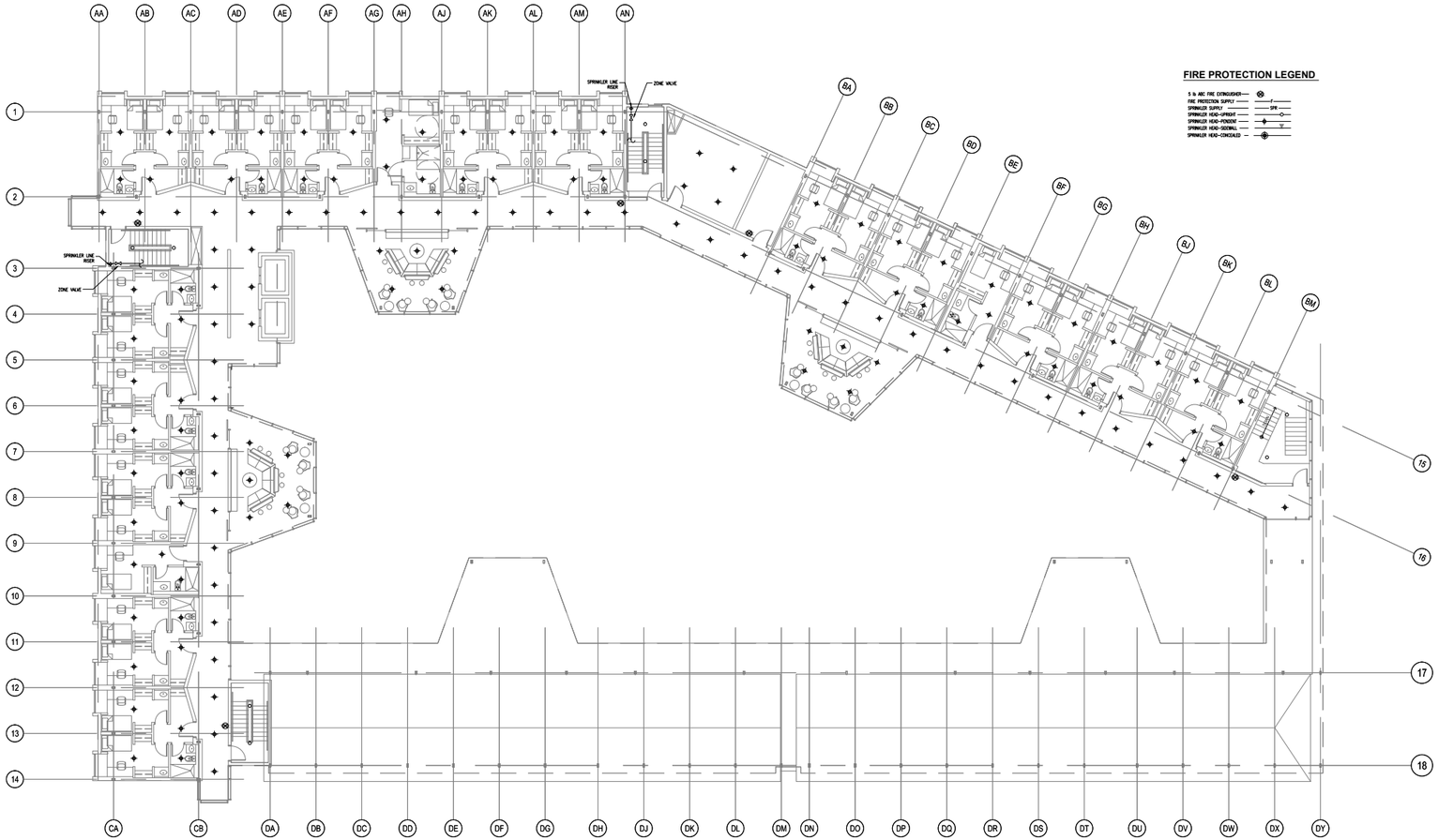


4 / M304 SCALE: 1:50
TYPICAL 1 BEDROOM UNIT - FIRE PROTECTION PLAN



5 / M304 SCALE: 1:50
TYPICAL SOCIAL SPACE - FIRE PROTECTION PLAN



FIRE PROTECTION LEGEND

- 5 lb ABC FIRE EXTINGUISHER
- FIRE PROTECTION SUPPLY — FPS
- SPRINKLER SUPPLY — SPR
- SPRINKLER HEAD–UPRIGHT
- SPRINKLER HEAD–PENDENT
- SPRINKLER HEAD–SIDEWALL
- SPRINKLER HEAD–CONCEALED

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1 / M304 SCALE: 1:100
FOURTH FLOOR FIRE PROTECTION PLAN

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Dwg Title: **FOURTH FLOOR FIRE PROTECTION PLAN**

Building: **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number: ***** Work Order Number: ******

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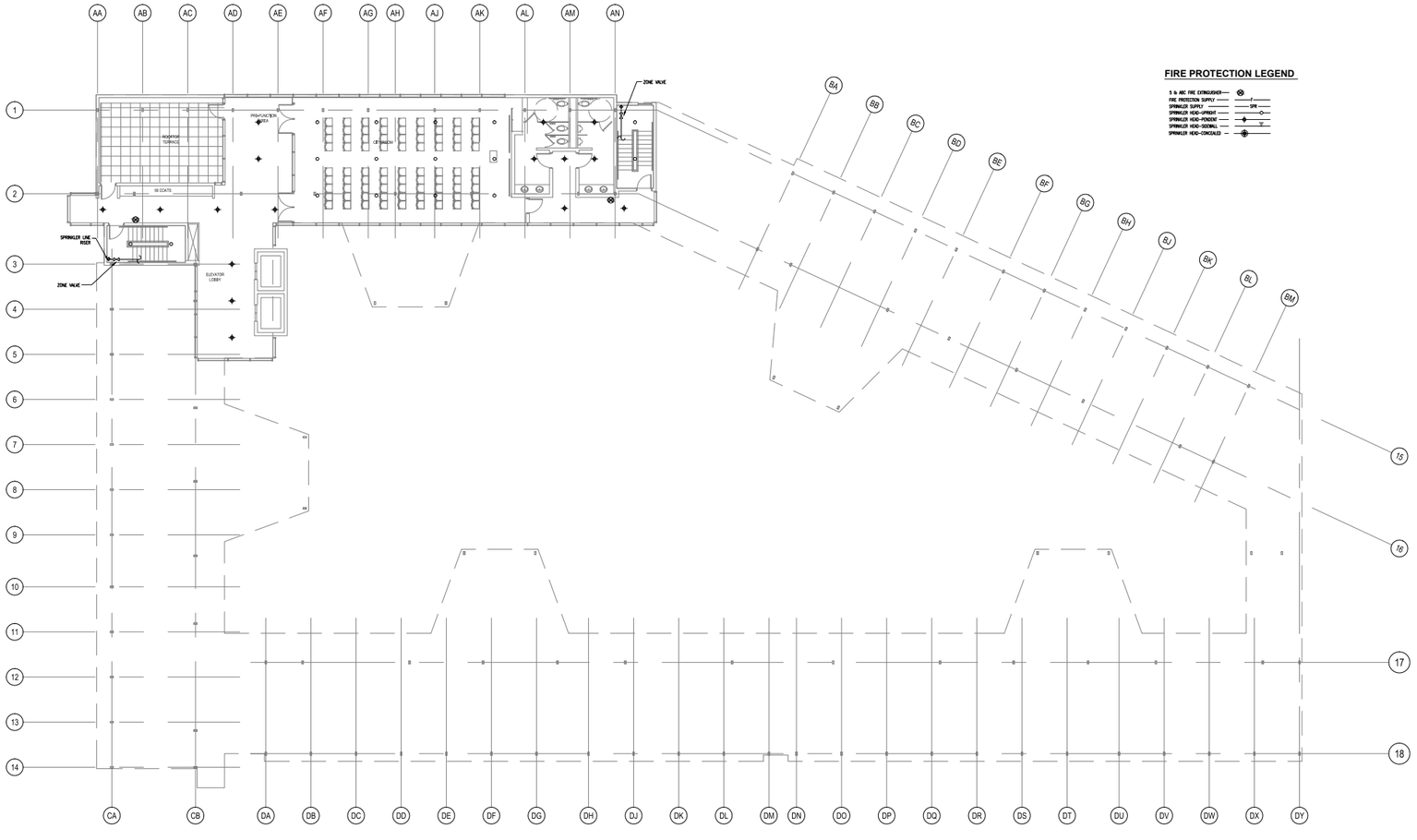
Sheet: **X of Y** Drawing Number: **M304**

KFR Project Number 14002



FIRE PROTECTION LEGEND

5 lb ABC FIRE EXTINGUISHER
FIRE PROTECTION SUPPLY
SPRINKLER SUPPLY — SPR —
SPRINKLER HEAD-UPRIGHT
SPRINKLER HEAD-PENDENT
SPRINKLER HEAD-SIDEWALL
SPRINKLER HEAD-CONCEALED

NORTH

1 / M305 FIFTH FLOOR FIRE PROTECTION PLAN
SCALE: 1:100

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Dwg Title **FIFTH FLOOR FIRE PROTECTION PLAN**

Building **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number ***** Work Order Number ******

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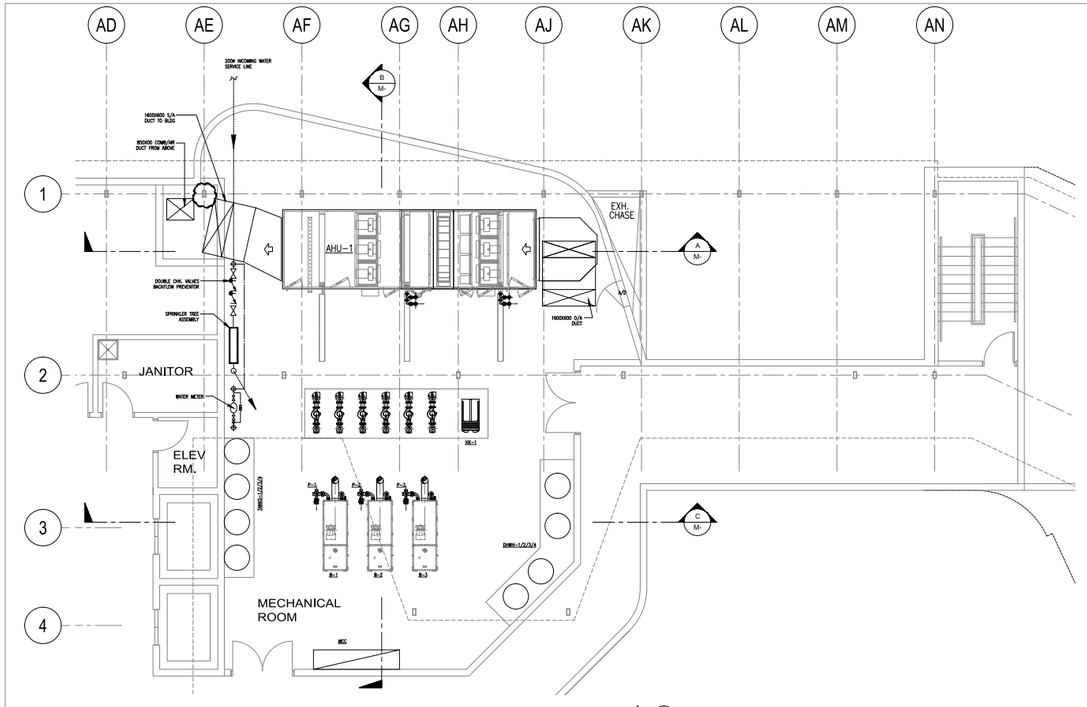
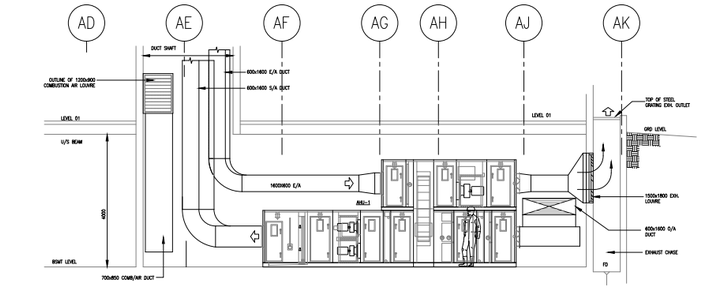
Sheet **X of Y**

Drawing Number **M305**

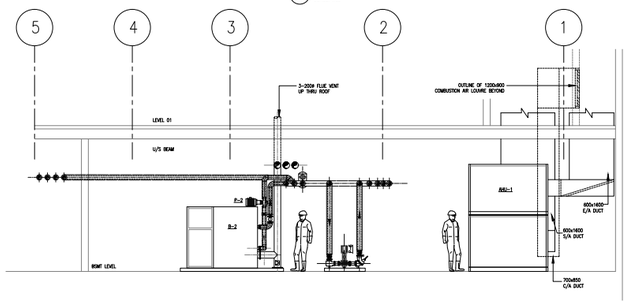
KFR Project Number 14002



1 SHEET **BASEMENT MECHANICAL ROOM LOWER PLAN**
SCALE: 1:50



A SHEET **SECTION**
SCALE: 1:50



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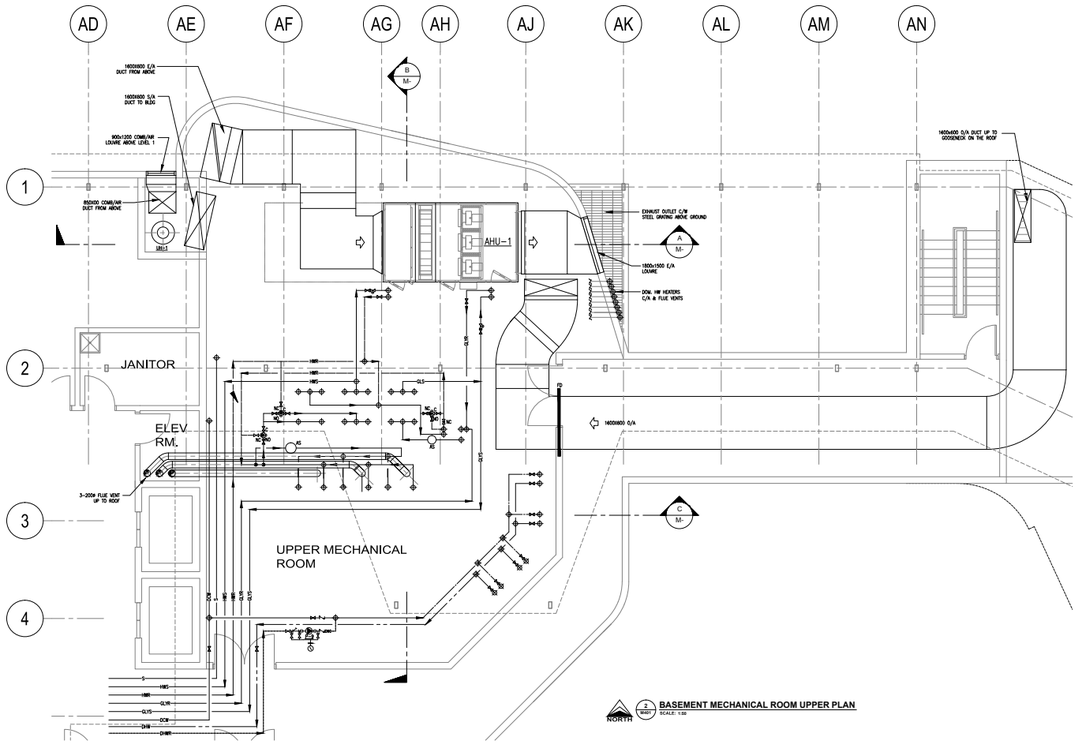
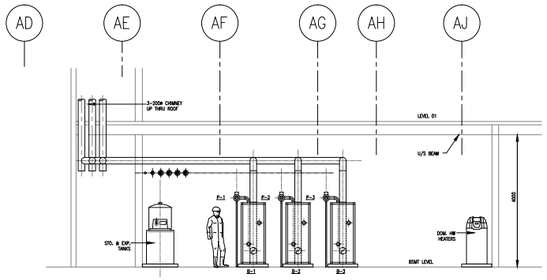
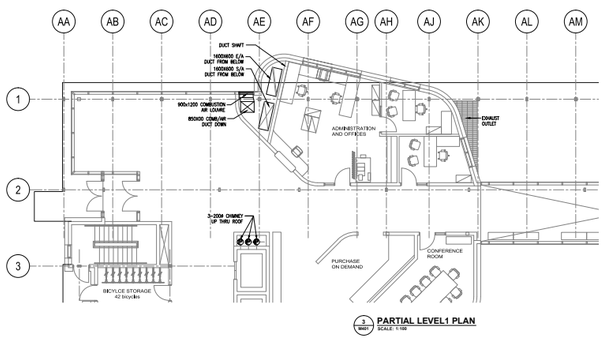


2 SHEET **BASEMENT MECHANICAL ROOM UPPER PLAN**
SCALE: 1:50



C SHEET **SECTION**
SCALE: 1:50



3 SHEET **PARTIAL LEVEL1 PLAN**
SCALE: 1:100

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Client Approval Date: YYYY.MM.DD

Dwg Title: **BASEMENT MECHANICAL ROOM**

Building: **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number: ***** | Work Order Number: ******

Arch ☐ Mech ■ Elec ☐ Struc ☐ Civil ☐ | Drawn By: KFR

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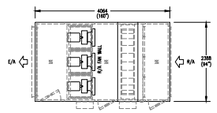
Issue & Revision: **A[#]**

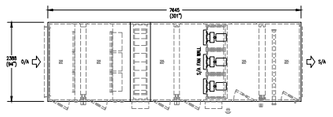
Sheet: **X of Y**

Drawing Number: **M401**

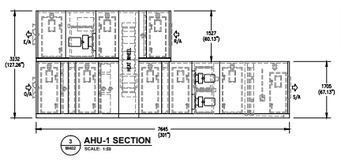
KFR Project Number 14002



1 UPPER AHU-1
SCALE: 1:50



2 LOWER AHU-1
SCALE: 1:50



3 AHU-1 SECTION
SCALE: 1:50

AHU-1 SCHEDULE			
TAG	LOCATION	SERVICE	FLOW L/S (CFM)
AHU-1	BASEMENT MECHANICAL ROOM	CENTRAL AIR HANDLING UNIT	7,080 (15,000)

AHU-1 DETAIL

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Dwg Title: **DETAILS**

Building: **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number: ***** Work Order Number: ******

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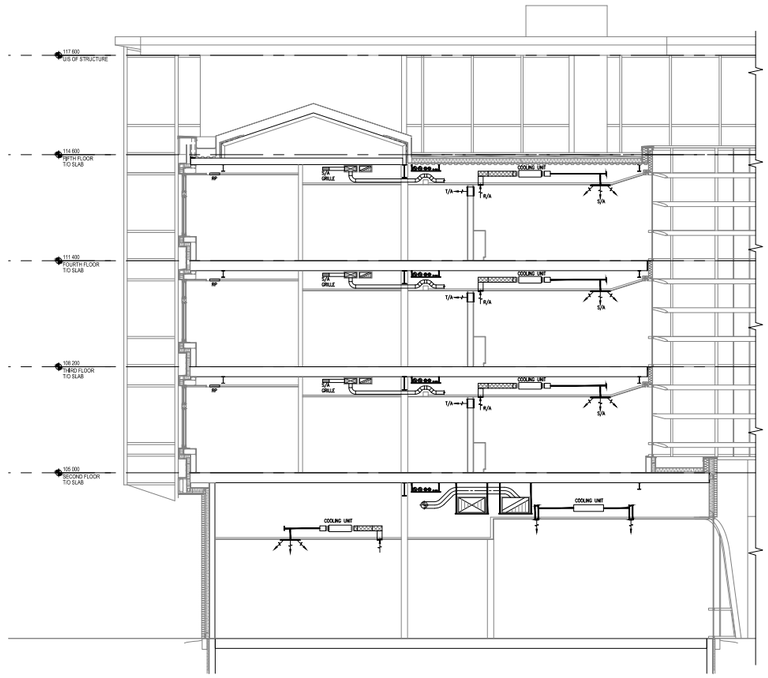
Dwg. Created: **2014-04-04**
Design File No. **#####-YY-##**

Issue & Revision: **A[#]**

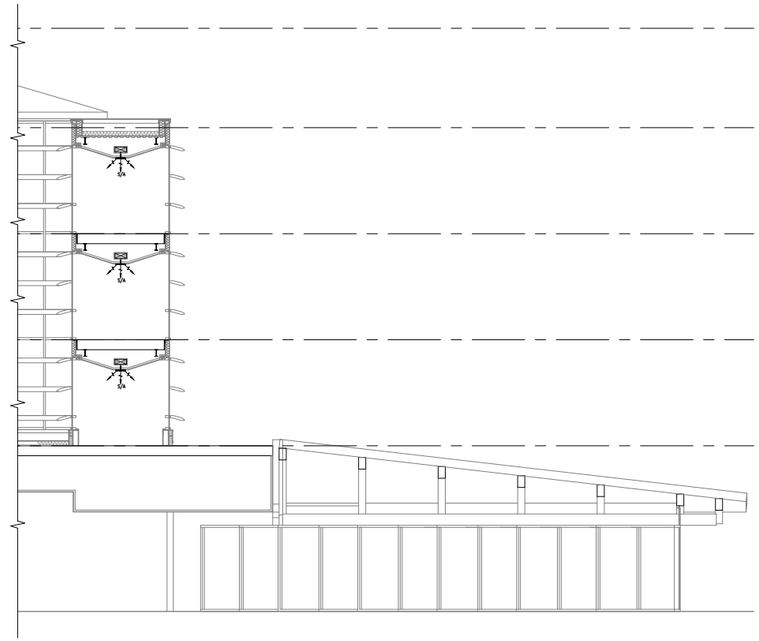
Sheet: **X of Y**

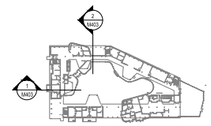
Drawing Number: **M402**

KFR Project Number 14002

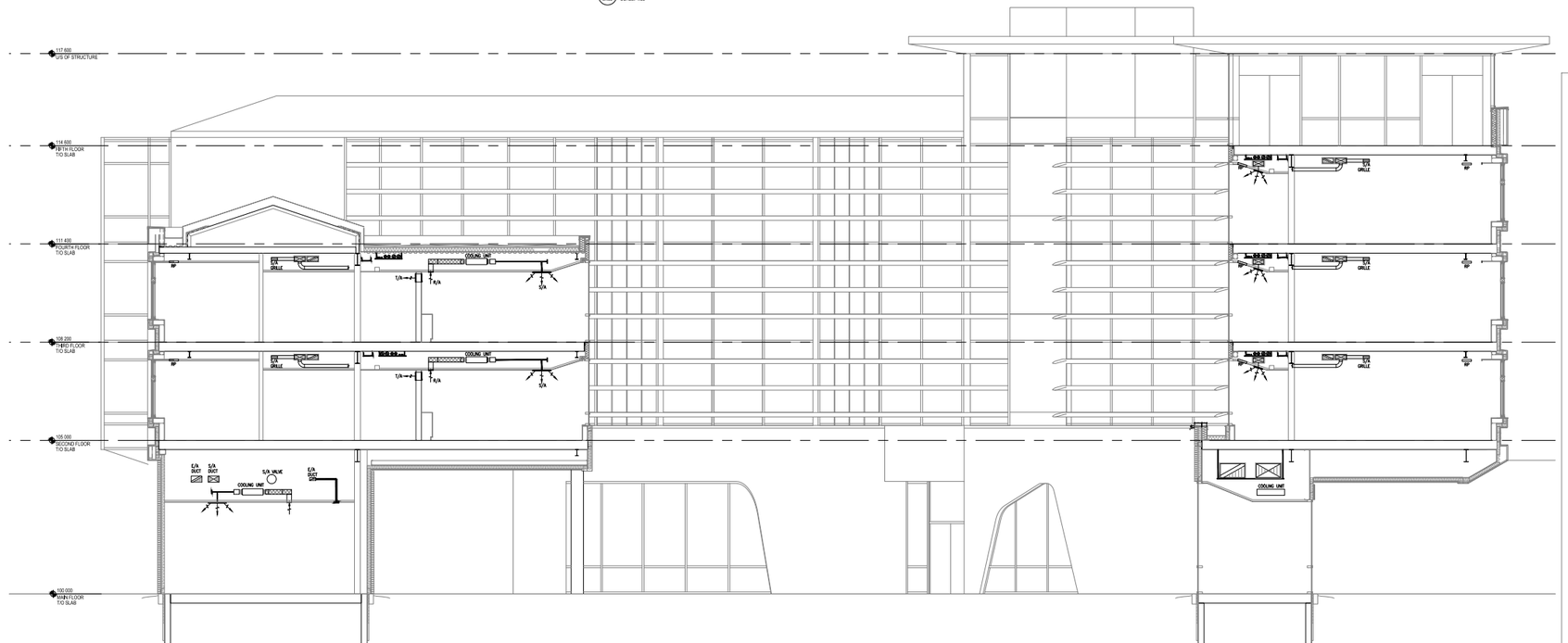


1 SECTION
W403 SCALE: 1:50





KEYPLAN
SCALE:



2 SECTION
W400 SCALE: 1:20

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Dwg Title: **SECTIONS**

Building: **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number: ***** Work Order Number: ******

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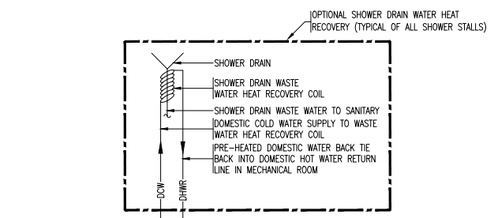
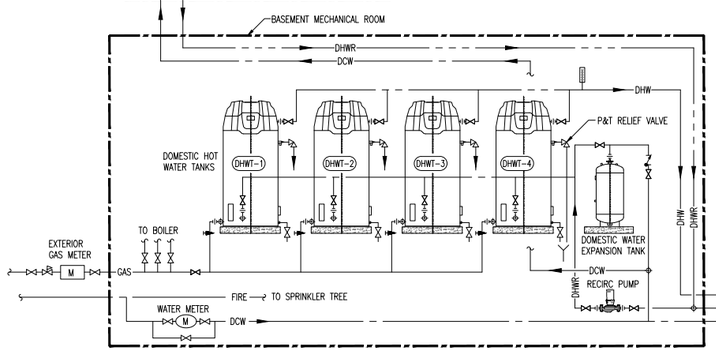
Issue & Revision: **A[#]**

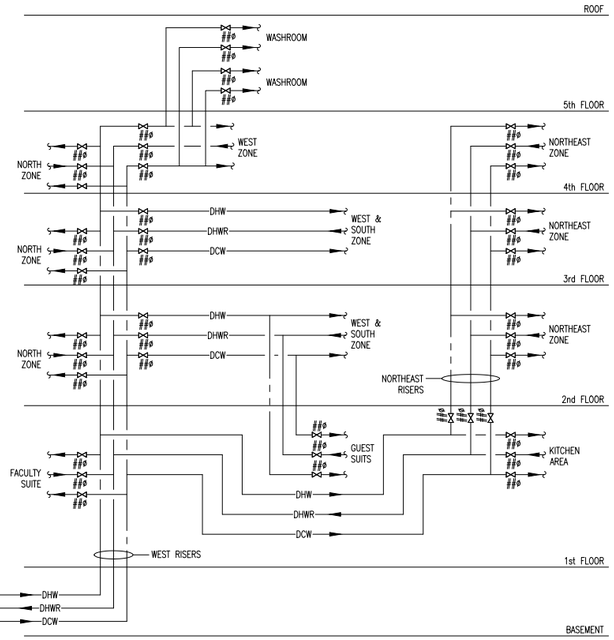
Sheet: **X of Y**

Drawing Number: **M403**

KFR Project Number 14002







1 DOMESTIC WATER SCHEMATIC
M001 SCALE: N.T.S.

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Dwg Title **DOMESTIC WATER SCHEMATIC**

Building **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number ***** Work Order Number ******

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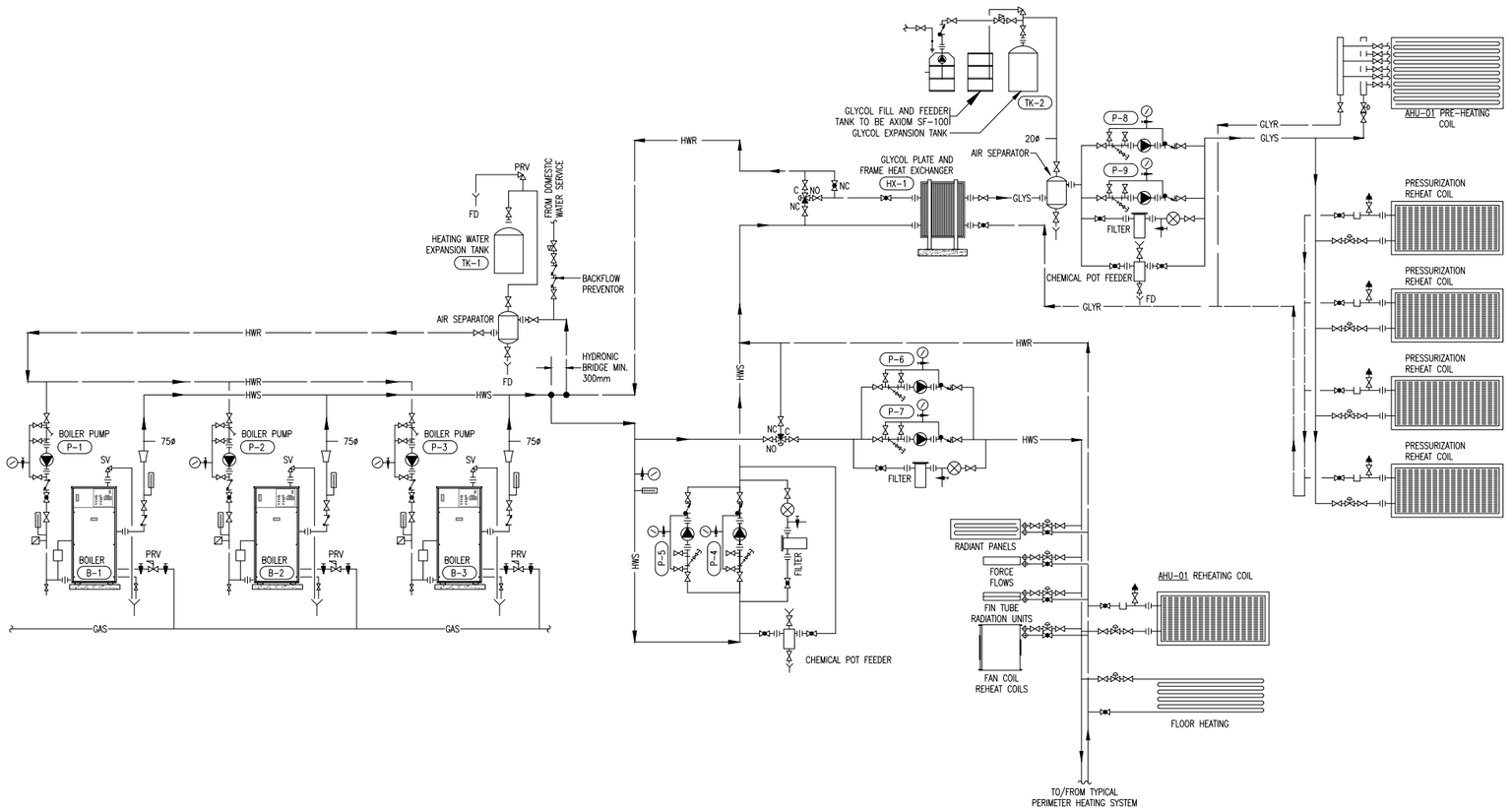
Sheet **X of Y** Drawing Number **M501**

KFR Project Number 14002



1 M502 **HEATING SYSTEM SCHEMATIC**
SCALE: N.T.S.

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Dwg Title: **HEATING SYSTEM SCHEMATIC**

Building: **SASKATCHEWAN DRIVE RESIDENCE**

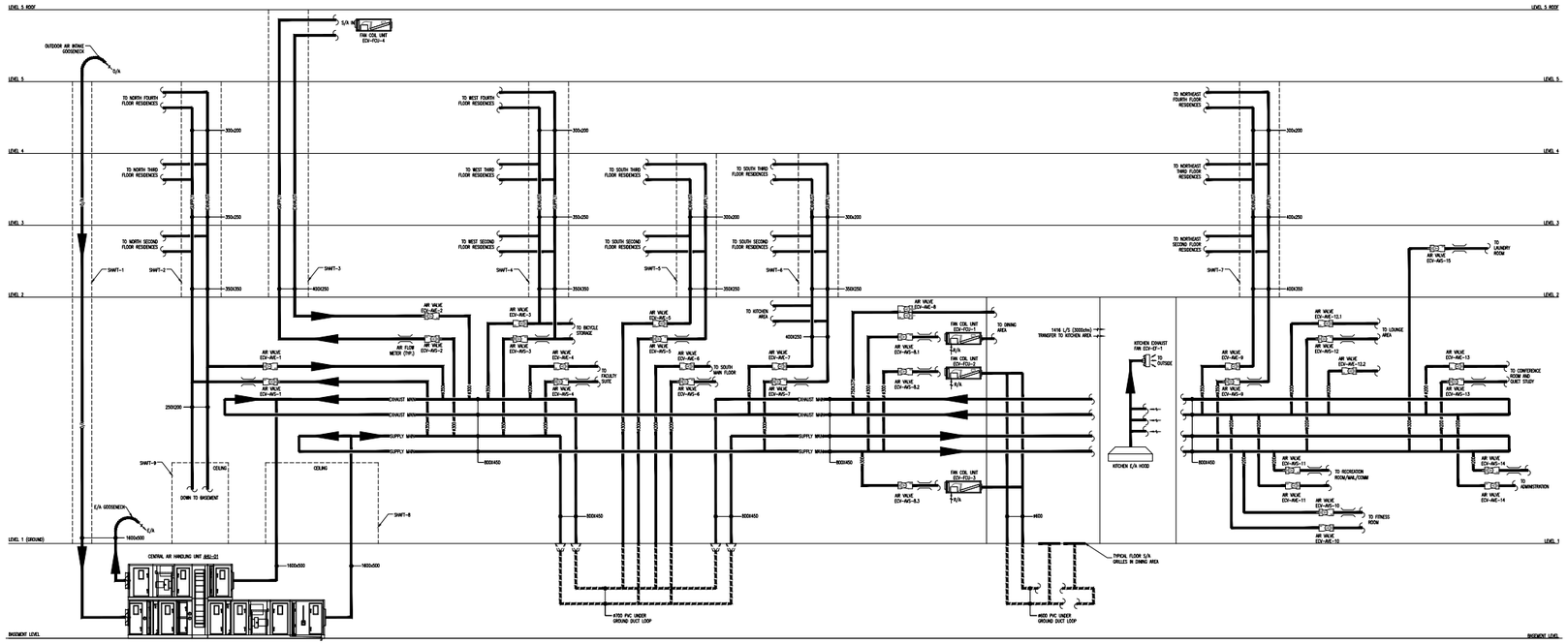
Proj. Number: ***** Work Order Number: ******

Arch ☐ Mech ■ Elec ☐ Struc ☐ Civil ☐ Drawn By: **KFR**

Dwg. Created: **2014-04-04** Design File No.: **######.YY.dgn** Issue & Revision: **A[#]**

Sheet: **X of Y** Drawing Number: **M502**

KFR Project Number 14002



AIR VALVE SCHEDULES						
UNIT TAG	LOCATION	MANUFACTURER	MODEL	UNIT SIZE	AIR FLOW L/S (CFM)	DESCRIPTION/REMARKS
ECH-AVS-1		PHOENIX	CSV	14	758 (1605)	SUPPLY AIR VALVE
ECH-AVE-1		PHOENIX	CEV	14	758 (1605)	EXHAUST AIR VALVE
ECH-AVS-2		PHOENIX	CSV	12	472 (1000)	SUPPLY AIR VALVE
ECH-AVE-2		PHOENIX	CEV	12	472 (1000)	EXHAUST AIR VALVE
ECH-AVS-3		PHOENIX	CSV	14	654 (1385)	SUPPLY AIR VALVE
ECH-AVE-3		PHOENIX	CEV	14	654 (1385)	EXHAUST AIR VALVE
ECH-AVS-4		PHOENIX	CSV	08	47 (100)	SUPPLY AIR VALVE
ECH-AVE-4		PHOENIX	CEV	08	47 (100)	EXHAUST AIR VALVE
ECH-AVS-5		PHOENIX	CSV	12	387 (820)	SUPPLY AIR VALVE
ECH-AVE-5		PHOENIX	CEV	12	387 (820)	EXHAUST AIR VALVE
ECH-AVS-6		PHOENIX	CSV	08	70 (150)	SUPPLY AIR VALVE
ECH-AVE-6		PHOENIX	CEV	08	70 (150)	EXHAUST AIR VALVE
ECH-AVS-7		PHOENIX	CSV	12	400 (847)	SUPPLY AIR VALVE
ECH-AVE-7		PHOENIX	CEV	12	400 (847)	EXHAUST AIR VALVE
ECH-AVS-8.1		PHOENIX	CSV	14	566 (1200)	SUPPLY AIR VALVE
ECH-AVS-8.2		PHOENIX	CSV	14	566 (1200)	SUPPLY AIR VALVE
ECH-AVS-8.3		PHOENIX	CSV	14	566 (1200)	SUPPLY AIR VALVE
ECH-AVE-8		PHOENIX	CEV	DUAL 14	1699 (3600)	EXHAUST AIR VALVE
ECH-AVS-9		PHOENIX	CSV	14	663 (1405)	SUPPLY AIR VALVE
ECH-AVE-9		PHOENIX	CEV	14	663 (1405)	EXHAUST AIR VALVE

AIR VALVE SCHEDULES						
UNIT TAG	LOCATION	MANUFACTURER	MODEL	UNIT SIZE	AIR FLOW L/S (CFM)	DESCRIPTION/REMARKS
ECH-AVS-10		PHOENIX	CSV	08	170 (360)	SUPPLY AIR VALVE
ECH-AVE-10		PHOENIX	CEV	08	170 (360)	EXHAUST AIR VALVE
ECH-AVS-11		PHOENIX	CSV	08	163 (346)	SUPPLY AIR VALVE
ECH-AVE-11		PHOENIX	CEV	08	163 (346)	EXHAUST AIR VALVE
ECH-AVS-12		PHOENIX	CSV	08	227 (480)	SUPPLY AIR VALVE
ECH-AVE-12.1		PHOENIX	CEV	08	47 (100)	EXHAUST AIR VALVE
ECH-AVE-12.2		PHOENIX	CEV	08	179 (380)	EXHAUST AIR VALVE
ECH-AVS-13		PHOENIX	CSV	08	144 (305)	SUPPLY AIR VALVE
ECH-AVE-13		PHOENIX	CEV	08	144 (305)	EXHAUST AIR VALVE
ECH-AVS-14		PHOENIX	CSV	08	76 (160)	SUPPLY AIR VALVE
ECH-AVE-14		PHOENIX	CEV	08	76 (160)	EXHAUST AIR VALVE
ECH-AVS-15		PHOENIX	CSV	12	472 (1000)	SUPPLY AIR VALVE

1 M503 **AIR SYSTEM SCHEMATIC**
SCALE: N.T.S.

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Client Approval Date **YYYY.MM.DD**

Dwg Title **AIR SYSTEM SCHEMATIC**

Building **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number ***** Work Order Number ******

Arch ☐ Mech ■ Elec ☐ Struc ☐ Civil ☐ Drawn By **KFR**

Dwg. Created **2014-04-04** Issue & Revision **A[#]**
Design File No. ########.YY.##

Sheet **X of Y** Drawing Number **M503**

KFR Project Number 14002

DOMESTIC WATER HEATER SCHEDULE

UNIT TAG	SERVICE	MANUFACTURER	MODEL	CAPACITY (L)	INPUT (kW)	RECOVERY AT 56°C TEMPERATURE RISE (L/hour)
DHWH-1	DOMESTIC HOT WATER HEATER	A.O. SMITH	CYCLONE Xi BTH-500	492	146	2179
DHWH-2	DOMESTIC HOT WATER HEATER	A.O. SMITH	CYCLONE Xi BTH-500	492	146	2179
DHWH-3	DOMESTIC HOT WATER HEATER	A.O. SMITH	CYCLONE Xi BTH-500	492	146	2179
DHWH-4	DOMESTIC HOT WATER HEATER	A.O. SMITH	CYCLONE Xi BTH-500	492	146	2179

BOILER SCHEDULE

UNIT TAG	SERVICE	MANUFACTURER	MODEL	INPUT (kW)	OUTPUT (kW)
B-01	HEATING WATER	RBI	FUTERA FUSION XLF CB 2500	733	689
B-02	HEATING WATER	RBI	FUTERA FUSION XLF CB 2500	733	689
B-03	HEATING WATER	RBI	FUTERA FUSION XLF CB 2500	733	689

RADIATION AND RADIANT PANEL SCHEDULES

TAG	MANUFACTURER	MODEL	LINEAR OUTPUT (BTU/h/ft)	DESCRIPTION	REMARKS
A	TWA PANELS	L-24	509	24" WIDE 8 ROW T-BAR/DRYWALL MOUNTED RADIANT PANEL	1, 2
B	ENGINEERED AIR	WF SERIES	1060	1 ROW FIN TUBE RADIATION WITHOUT ENCLOSURE. 1-1/4"ø COPPER TUBE, 4"x4" ALUMINUM FIN, 50 FINS/FT	2

1. RADIANT PANEL TO BE COMPLETED WITH FOIL FACE INSULATION BY MECHANICAL CONTRACTOR WITH COVER
2. ENTERING HEATER WATER TEMPERATURE: 190°F, LEAVING WATER TEMPERATURE: 160°F

SPLIT SYSTEM SCHEDULES

UNIT TAG	MANUFACTURER	LOCATION	MODEL	COOLING (kW)	NOTES
AC-B01	MITSUBISHI	BASEMENT ELECTRICAL ROOM	PLFY-P24NBMU-E	7.0	1
AC-B02	MITSUBISHI	BASEMENT ELECTRICAL ROOM	PLFY-P24NBMU-E	7.0	1
AC-B03	MITSUBISHI	BASEMENT ELECTRICAL ROOM	PLFY-P24NBMU-E	7.0	1
AC-B04	MITSUBISHI	BASEMENT COMMUNICATIONS ROOM	PLFY-P24NBMU-E	7.0	1
AC-101	MITSUBISHI	NORTHWEST CORRIDOR	PEFY-P18NMSU-E	5.3	–
AC-102	MITSUBISHI	ADMIN AREA	PEFY-P18NMSU-E	5.3	–
AC-103	MITSUBISHI	MIDDLE CORRIDOR	PEFY-P18NMSU-E	5.3	–
AC-104	MITSUBISHI	CONFERENCE ROOM	PEFY-P18NMSU-E	5.3	–
AC-105	MITSUBISHI	QUIET STUDY	PEFY-P18NMSU-E	5.3	–
AC-106	MITSUBISHI	QUIET STUDY	PEFY-P18NMSU-E	5.3	–
AC-107	MITSUBISHI	FACULTY SUITE	PEFY-P12NMSU-E	3.5	–
AC-108	MITSUBISHI	FACULTY SUITE	PEFY-P12NMSU-E	3.5	–
AC-109	MITSUBISHI	GUEST SUITES	PEFY-P12NMSU-E	3.5	–
AC-110	MITSUBISHI	GUEST SUITES	PEFY-P12NMSU-E	3.5	–
AC-111	MITSUBISHI	GUEST SUITES	PEFY-P12NMSU-E	3.5	–
AC-112	MITSUBISHI	EAST CORRIDOR	PEFY-P24NMSU-E	7.0	–
AC-113	MITSUBISHI	FITNESS ROOM	PEFY-P18NMSU-E	5.3	–
AC-114	MITSUBISHI	FITNESS ROOM	PEFY-P18NMSU-E	5.3	–
AC-115	MITSUBISHI	SITTING AREA	PEFY-P15-NMSU-E	4.4	–
AC-116	MITSUBISHI	RECREATION ROOM	PEFY-P18NMSU-E	5.3	–
AC-117	MITSUBISHI	RECREATION ROOM	PEFY-P18NMSU-E	5.3	–
AC-118	MITSUBISHI	LOUNGE AREA	PEFY-P24NMSU-E	7.0	–
AC-119	MITSUBISHI	LOUNGE AREA	PEFY-P24NMSU-E	7.0	–
AC-201	MITSUBISHI	2nd FLOOR NORTH SOCIAL SPACE	PEFY-P24NMSU-E	7.0	–
AC-202	MITSUBISHI	2nd FLOOR NORTH SOCIAL SPACE	PEFY-P18NMSU-E	5.3	–
AC-203	MITSUBISHI	2nd FLOOR NORTH SOCIAL SPACE	PEFY-P18NMSU-E	5.3	–
AC-204	MITSUBISHI	2nd FLOOR NORTH SOCIAL SPACE	PEFY-P24NMSU-E	7.0	–
AC-205	MITSUBISHI	2nd FLOOR NORTH-EAST SOCIAL SPACE	PEFY-P24NMSU-E	7.0	–
AC-206	MITSUBISHI	2nd FLOOR NORTH-EAST SOCIAL SPACE	PEFY-P18NMSU-E	5.3	–
AC-207	MITSUBISHI	2nd FLOOR NORTH-EAST SOCIAL SPACE	PEFY-P18NMSU-E	5.3	–
AC-208	MITSUBISHI	2nd FLOOR NORTH-EAST SOCIAL SPACE	PEFY-P24NMSU-E	7.0	–
AC-209	MITSUBISHI	2nd FLOOR SOUTH-EAST SOCIAL SPACE	PEFY-P24NMSU-E	7.0	–
AC-210	MITSUBISHI	2nd FLOOR SOUTH-EAST SOCIAL SPACE	PEFY-P18NMSU-E	5.3	–
AC-211	MITSUBISHI	2nd FLOOR SOUTH-EAST SOCIAL SPACE	PEFY-P18NMSU-E	5.3	–
AC-212	MITSUBISHI	2nd FLOOR SOUTH-EAST SOCIAL SPACE	PEFY-P24NMSU-E	7.0	–
AC-213	MITSUBISHI	2nd FLOOR SOUTH-WEST SOCIAL SPACE	PEFY-P24NMSU-E	7.0	–
AC-214	MITSUBISHI	2nd FLOOR SOUTH-WEST SOCIAL SPACE	PEFY-P18NMSU-E	5.3	–
AC-215	MITSUBISHI	2nd FLOOR SOUTH-WEST SOCIAL SPACE	PEFY-P18NMSU-E	5.3	–
AC-216	MITSUBISHI	2nd FLOOR SOUTH-WEST SOCIAL SPACE	PEFY-P24NMSU-E	7.0	–
AC-217	MITSUBISHI	2nd FLOOR WEST SOCIAL SPACE	PEFY-P24NMSU-E	7.0	–
AC-218	MITSUBISHI	2nd FLOOR WEST SOCIAL SPACE	PEFY-P18NMSU-E	5.3	–
AC-219	MITSUBISHI	2nd FLOOR WEST SOCIAL SPACE	PEFY-P18NMSU-E	5.3	–
AC-220	MITSUBISHI	2nd FLOOR WEST SOCIAL SPACE	PEFY-P24NMSU-E	7.0	–
AC-221	MITSUBISHI	2nd FLOOR ELECTRICAL ROOM	PLFY-P24NBMU-E	7.0	1
AC-222	MITSUBISHI	2nd FLOOR COMMUNICATIONS ROOM	PLFY-P24NBMU-E	7.0	1
AC-301	MITSUBISHI	3rd FLOOR NORTH SOCIAL SPACE	PEFY-P24NMSU-E	7.0	–
AC-302	MITSUBISHI	3rd FLOOR NORTH SOCIAL SPACE	PEFY-P18NMSU-E	5.3	–
AC-303	MITSUBISHI	3rd FLOOR NORTH SOCIAL SPACE	PEFY-P18NMSU-E	5.3	–
AC-304	MITSUBISHI	3rd FLOOR NORTH SOCIAL SPACE	PEFY-P24NMSU-E	7.0	–
AC-305	MITSUBISHI	3rd FLOOR NORTH-EAST SOCIAL SPACE	PEFY-P24NMSU-E	7.0	–
AC-306	MITSUBISHI	3rd FLOOR NORTH-EAST SOCIAL SPACE	PEFY-P18NMSU-E	5.3	–
AC-307	MITSUBISHI	3rd FLOOR NORTH-EAST SOCIAL SPACE	PEFY-P18NMSU-E	5.3	–
AC-308	MITSUBISHI	3rd FLOOR NORTH-EAST SOCIAL SPACE	PEFY-P24NMSU-E	7.0	–
AC-309	MITSUBISHI	3rd FLOOR SOUTH-EAST SOCIAL SPACE	PEFY-P24NMSU-E	7.0	–
AC-310	MITSUBISHI	3rd FLOOR SOUTH-EAST SOCIAL SPACE	PEFY-P18NMSU-E	5.3	–
AC-311	MITSUBISHI	3rd FLOOR SOUTH-EAST SOCIAL SPACE	PEFY-P18NMSU-E	5.3	–
AC-312	MITSUBISHI	3rd FLOOR SOUTH-EAST SOCIAL SPACE	PEFY-P24NMSU-E	7.0	–
AC-313	MITSUBISHI	3rd FLOOR SOUTH-WEST SOCIAL SPACE	PEFY-P24NMSU-E	7.0	–
AC-314	MITSUBISHI	3rd FLOOR SOUTH-WEST SOCIAL SPACE	PEFY-P18NMSU-E	5.3	–
AC-315	MITSUBISHI	3rd FLOOR SOUTH-WEST SOCIAL SPACE	PEFY-P18NMSU-E	5.3	–
AC-316	MITSUBISHI	3rd FLOOR SOUTH-WEST SOCIAL SPACE	PEFY-P24NMSU-E	7.0	–
AC-317	MITSUBISHI	3rd FLOOR WEST SOCIAL SPACE	PEFY-P24NMSU-E	7.0	–
AC-318	MITSUBISHI	3rd FLOOR WEST SOCIAL SPACE	PEFY-P18NMSU-E	5.3	–
AC-319	MITSUBISHI	3rd FLOOR WEST SOCIAL SPACE	PEFY-P18NMSU-E	5.3	–
AC-320	MITSUBISHI	3rd FLOOR WEST SOCIAL SPACE	PEFY-P24NMSU-E	7.0	–
AC-321	MITSUBISHI	3rd FLOOR ELECTRICAL ROOM	PLFY-P24NBMU-E	7.0	1
AC-322	MITSUBISHI	3rd FLOOR COMMUNICATIONS ROOM	PLFY-P24NBMU-E	7.0	1
AC-401	MITSUBISHI	4th FLOOR NORTH SOCIAL SPACE	PEFY-P24NMSU-E	7.0	–
AC-402	MITSUBISHI	4th FLOOR NORTH SOCIAL SPACE	PEFY-P18NMSU-E	5.3	–
AC-403	MITSUBISHI	4th FLOOR NORTH SOCIAL SPACE	PEFY-P18NMSU-E	5.3	–
AC-404	MITSUBISHI	4th FLOOR NORTH SOCIAL SPACE	PEFY-P24NMSU-E	7.0	–
AC-405	MITSUBISHI	4th FLOOR NORTH-EAST SOCIAL SPACE	PEFY-P24NMSU-E	7.0	–
AC-406	MITSUBISHI	4th FLOOR NORTH-EAST SOCIAL SPACE	PEFY-P18NMSU-E	5.3	–
AC-407	MITSUBISHI	4th FLOOR NORTH-EAST SOCIAL SPACE	PEFY-P18NMSU-E	5.3	–
AC-408	MITSUBISHI	4th FLOOR NORTH-EAST SOCIAL SPACE	PEFY-P24NMSU-E	7.0	–
AC-409	MITSUBISHI	4th FLOOR WEST SOCIAL SPACE	PEFY-P24NMSU-E	7.0	–
AC-410	MITSUBISHI	4th FLOOR WEST SOCIAL SPACE	PEFY-P18NMSU-E	5.3	–
AC-411	MITSUBISHI	4th FLOOR WEST SOCIAL SPACE	PEFY-P18NMSU-E	5.3	–
AC-412	MITSUBISHI	4th FLOOR WEST SOCIAL SPACE	PEFY-P24NMSU-E	7.0	–
AC-413	MITSUBISHI	4th FLOOR ELECTRICAL ROOM	PLFY-P24NBMU-E	7.0	1
CC-01	CARRIER	ECV-FCU-01 COOLING COIL	CAHZCOIL408A00	28.5	–
CC-02	CARRIER	ECV-FCU-02 COOLING COIL	CAHZCOIL408A00	28.5	–
CC-03	CARRIER	ECV-FCU-03 COOLING COIL	CAHZCOIL408A00	28.5	–
CC-04	CARRIER	ECV-FCU-04 COOLING COIL	CSPHP6012ALA	17.0	–

CONDENSING UNIT SCHEDULES

UNIT TAG	MANUFACTURER	LOCATION	MODEL	COOLING (kW)	NOTES
CU-01	CARRIER	NORTH ROOF	38APD0501J-22034	–	–
CU-02	MITSUBISHI	NORTH ROOF	PUHY-P96TJMU-A	–	–
CU-03	MITSUBISHI	NORTH ROOF	PUHY-P96TJMU-A	–	–
CU-04	MITSUBISHI	NORTH ROOF	PUHY-P96TJMU-A	–	–
CU-05	MITSUBISHI	NORTH ROOF	PUHY-P96TJMU-A	–	–
CU-06	MITSUBISHI	NORTH ROOF	PUHY-P96TJMU-A	–	–
CU-07	MITSUBISHI	NORTH ROOF	PUHY-P96TJMU-A	–	–
CU-08	MITSUBISHI	NORTH ROOF	PUHY-P96TJMU-A	–	–
CU-09	MITSUBISHI	NORTH ROOF	PUHY-P96TJMU-A	–	–
CU-10	MITSUBISHI	NORTH ROOF	PUHY-P96TJMU-A	–	–
CU-11	MITSUBISHI	NORTH ROOF	PUHY-P96TJMU-A	–	–
CU-12	MITSUBISHI	NORTH ROOF	PUHY-P96TJMU-A	–	–
CU-13	MITSUBISHI	NORTH ROOF	PUHY-P96TJMU-A	–	–
CU-14	CARRIER	NORTH ROOF	24ABB360A001	–	–
CU-15	MITSUBISHI	NORTH ROOF	PUMY-P60NHMU	–	2
CU-16	MITSUBISHI	NORTH ROOF	PUMY-P60NHMU	–	2
CU-17	MITSUBISHI	NORTH ROOF	PUMY-P60NHMU	–	2
CU-18	MITSUBISHI	WEST ROOF	PUHY-P96TJMU-A	–	–
CU-19	MITSUBISHI	WEST ROOF	PUHY-P96TJMU-A	–	–
CU-20	MITSUBISHI	WEST ROOF	PUHY-P96TJMU-A	–	–
CU-21	MITSUBISHI	WEST ROOF	PUHY-P96TJMU-A	–	–
CU-22	MITSUBISHI	WEST ROOF	PUHY-P96TJMU-A	–	–
CU-23	MITSUBISHI	WEST ROOF	PUHY-P96TJMU-A	–	–
CU-24	MITSUBISHI	WEST ROOF	PUHY-P96TJMU-A	–	–
CU-25	MITSUBISHI	WEST ROOF	PUHY-P96TJMU-A	–	–
CU-26	MITSUBISHI	EAST ROOF	PUHY-P144TJMU-A	–	–
CU-27	MITSUBISHI	EAST ROOF	PUMY-P60NHMU	–	2
CU-28	MITSUBISHI	EAST ROOF	PUMY-P60NHMU	–	2
CU-29	CARRIER	EAST ROOF	38AUZA08A0M1-0A0A0	–	–
CU-30	CARRIER	EAST ROOF	38AUZA08A0M1-0A0A0	–	–
CU-31	CARRIER	EAST ROOF	38AUZA08A0M1-0A0A0	–	–

1. UNIT TO BE COMPLETE WITH MISTUBISHI 'SLIM SMART' REMOTE WALL MOUNTED CONTROLLER
2. OUTDOOR UNIT C/W LOW AMBIENT -40°F KIT

ROOFTOP AIR UNIT SCHEDULES

UNIT TAG	UNIT DESCRIPTION	MANUFACTURER	MODEL	AIR FLOW (L/s)	E.S.P. (Pa)	MOTOR (HP)	HEATING CAPACITY (kW)	COOLING CAPACITY (kW)	REMARKS
MAU-1	CENTRAL MAKEUP AIR UNIT	VENTROL	CUSTOM	7079	374	3.0	571.3	154.1	FANWALL UNIT C/W VFDs

AHU-1 PERFORMANCE CRITERIA

GENERAL REQUIREMENTS			
MANUFACTURER:	VENTROL	MODEL:	CUSTOM
DESIGN NO.	–	CASING THICKNESS (mm):	100mm
LINER TYPE:	20 Ga (INTERIOR)	LINER THICKNESS (mm):	16 Ga GALVANIZED (EXTERIOR)
LAST REVISION:	–	INSULATION THICKNESS (mm):	100mm
WEIGHT (kg):	3294 kg (OPERATING)	TOTAL UNIT LENGTH/WIDTH/HEIGHT (mm):	6350 / 1651 / 1627
SUPPLY FAN			
MANUFACTURER:	HUNTAIR FANWALL (2 ROW x 3 COLUMN ARRAY)	MODEL:	12-100 - 184T - 28x29x23
CLASS:	II	AIR FLOW (L/s):	7079
TSP (Pa):	1195	R/min	3978
OV m/s:	–	POWER kW	12.5
MOTOR kW:	22.38	VAV CONTROL:	VFD
RETURN FAN			
MANUFACTURER:	HUNTAIR FAN WALL (1 ROW x 3 COLUMN ARRAY)	MODEL:	16-105 - 213T - 38x29x28
CLASS:	II	AIR FLOW (L/s):	7079
TSP (Pa):	672	R/min	2627
OV m/s:	–	POWER kW	7.8
MOTOR kW:	16.8	VAV CONTROL:	VFD
1st STAGE HEATING COIL			
MANUFACTURER:	VENTROL	TYPE:	HEATING WATER COIL
ROWS:	1 ROW	COIL HEIGHT / WIDTH (mm):	1371.6 / 2044.7
FIN SERIES:	12 FPI	AIR FLOW (L/s):	7079
CAPACITY (kW):	294.6	FREE AREA (m2)	2.8
FACE VELOCITY (m/s):	2.52	ENTERING / LEAVING AIR TEMPERATURE [DB] (°C)	-37.8 / -7.83
WATER FLOW RATE (L/s)	4.9	ENTERING / LEAVING WATER TEMPERATURE (°C)	71.1 / 54.4
WATER-SIDE PRESSURE DROP (kPa)	23.1	TURBULATORS:	NO
AIR-SIDE PRESSURE DROP (Pa)	32.4	MEDIA:	50% ETHYLENE GLYCOL
FLUID VELOCITY (m/s):	1.45		
2nd STAGE HEATING COIL			
MANUFACTURER:	VENTROL	TYPE:	HEATING WATER COIL
ROWS:	2	COIL HEIGHT /WIDTH (mm):	1371.6 / 2044.7
FIN SERIES:	9 FPI	AIR FLOW (L/s):	7079
CAPACITY (kW):	276.7	FREE AREA (m2)	2.8
FACE VELOCITY (m/s):	2.315	ENTERING / LEAVING AIR TEMPERATURE [DB] (°C)	-6.7 / 25.1
WATER FLOW RATE (L/s)	4.6	ENTERING / LEAVING WATER TEMPERATURE (°C)	71.1 / 54.4
WATER-SIDE PRESSURE DROP (kPa)	29.6	TURBULATORS:	NO
AIR-SIDE PRESSURE DROP (Pa)	44.8	MEDIA:	50% ETHYLENE GLYCOL
FLUID VELOCITY (m/s):	1.37		
COOLING COIL			
MANUFACTURER:	VENTROL	TYPE:	DX COIL
ROWS:	4	COIL HEIGHT /WIDTH (mm):	1371.6 / 2044.7
FIN SERIES:	11 FPI	AIR FLOW (L/s):	7079
CAPACITY (kW):	154.1	FREE AREA (m2)	2.8
FACE VELOCITY (m/s):	2.5	ENTERING / LEAVING AIR TEMPERATURE [DB/WB] (°C)	30 / 12.6
REFRIGERANT TEMP (°C)	43.3	SUCTION TEMPERATURE (°C)	7.2
SUPERHEAT (°C)	-13.3	TURBULATORS:	NO
REFRIGERANT PRESSURE DROP (kPa)	26.9	MEDIA:	R410A
FILTER			
MANUFACTURER:	CAMFIL - FARR	TYPE:	MERV 8: 30/30 MERV 13 DURAFIL ES4V
FREE AREA (m2):	–	HEIGHT / WIDTH (mm)	–
FACE VELOCITY (m/s):	2.5	AIR FLOW (L/s)	7079
INITIAL AIR PRESSURE DROP (Pa):	MERV 8: 77 MERV 13: 77	FINAL AIR PRESSURE DROP (Pa):	MERV 8: 154 MERV 13: 232

ACOUSTIC PERFORMANCE

FAN	SOUND POWER LEVELS (dB)							
	63	125	250	500	1000	2000	4000	8000
SUPPLY FAN	81	78	82	77	76	74	73	68
RETURN FAN	78	79	86	74	74	73	70	64

1. UNIT TO BE COMPLETE WITH HEAT WHEEL RATED FOR 7079 L/s EXHAUST/SUPPLY AIR FLOW. FROST CONTROL: VFD @ 33°F DB, WHEEL MODEL: INNERGYTECH I3-HSP-78, ROTOR DIAMETER: 78"ø, ROTOR DEPTH: 14".

1 / M601 **MECHANICAL SCHEDULES**
SCALE: N.T.S.

Consultant

KFR engineering
#100 11404 142 Street,
Edmonton Alberta, T5M 1V1
Tel: (780) 488-6008

Consultant's Seal | Consultant's Permit

DRAFT: NOT FOR CONSTRUCTION

UNIVERSITY OF ALBERTA
FACILITIES AND OPERATIONS
Edmonton, Alberta

Issues & Revisions

Ltr. / #	Date	By	Description
A	2014.04.30	KFR	ISSUED FOR DESIGN DEVELOPMENT DRAWING SET
1			
B			
C			

Faculty/Department **FACULTY OR DEPARTMENT**

Client Approval Date **YYYY.MM.DD**

Dwg Title **MECHANICAL SCHEDULES**

Building **SASKATCHEWAN DRIVE RESIDENCE**

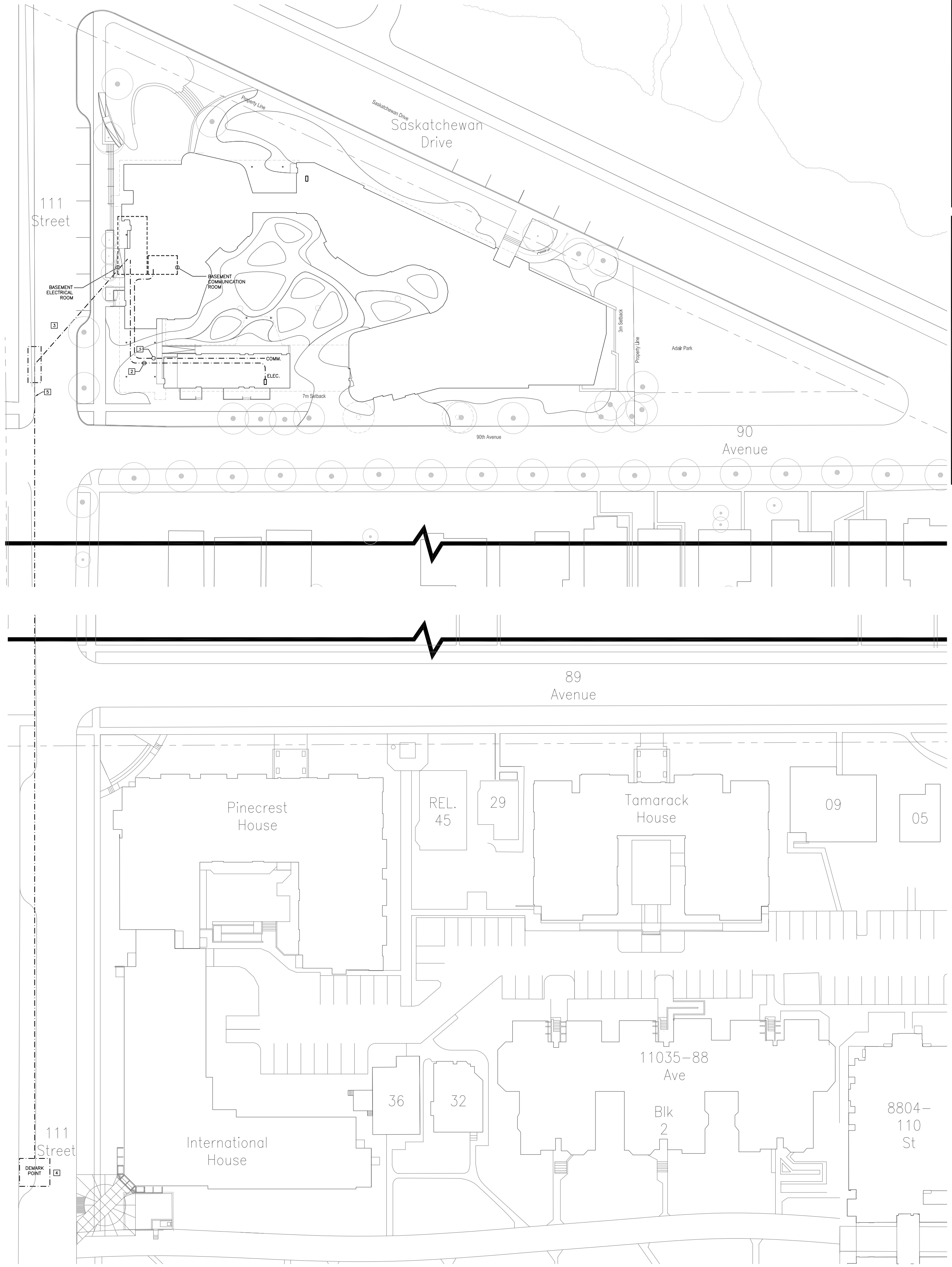
Proj. Number ***** Work Order Number ******

Arch ☐ Mech ■ Elec ☐ Struc ☐ Civil ☐ Drawn By **KFR**

Dwg. Created **2014-04.04**
Design File No. #####-YY-##
Issue & Revision **A[#]**

Sheet **X of Y** Drawing Number **M601**

KFR Project Number 14002



1 ELECTRICAL - SITE PLAN
E100 SCALE 1:300

GENERAL NOTES

1. ALL CLAUSES IN THE GENERAL CONDITIONS OF THE CONTRACT AND SUPPLEMENTARY GENERAL CONDITIONS SHALL APPLY TO THIS TRADE.
2. THESE DRAWINGS IN CONJUNCTION WITH THE ELECTRICAL SPECIFICATIONS COVER THE SCOPE OF WORK OF ALL ELECTRICAL SERVICES AND EQUIPMENT. VISIT SITE TO DETERMINE EXISTING CONDITIONS.
3. SUPPLY AND INSTALL ALL APPARATUS, FIXTURES, MATERIALS, AND LABOUR TO COMPLETE ALL WORK SPECIFIED.
4. LOCATION OF VARIOUS DEVICES ARE APPROXIMATELY CORRECT AND ARE SUBJECT TO SLIGHT REVISION AS THE WORK IS COMPLETED TO ACCOMMODATE THE INSTALLATION WORK. WHERE CONFLICTS OR QUESTIONS ARISE DUE TO ONSITE EXISTING CONDITIONS THE ELECTRICAL CONTRACTOR SHALL CONSULT WITH THE ARCHITECT AND ENGINEER PRIOR TO PROCEEDING.
5. THE CONTRACTOR PERFORMING THIS WORK MUST POSSESS A VALID CERTIFICATE AND BE FAMILIAR WITH THE COMPLETION OF ELECTRICAL WORK AS REQUIRED IN THE CONTRACT. ALL WORK MUST BE DONE ACCORDING TO THE RULES AND REGULATIONS OF THE LOCAL INSPECTION AUTHORITY, THE CANADIAN ELECTRICAL CODE, THE ALBERTA BUILDING CODE, AND GOOD TRADE PRACTICES.
6. ALL PERMITS AND FEES FOR THE EXECUTION OF THIS WORK ARE THE RESPONSIBILITY OF THE CONTRACTOR.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COOPERATION WITH THE OTHER TRADES TO ENSURE THAT ALL WORK IS COMPLETED IN A WORKMANSHIP-LIKE MANNER.
8. THE CONTRACTOR SHALL KEEP A NEAT AND ACCURATE RECORD OF THE INSTALLATION AND, AT THE COMPLETION OF THE JOB, FURNISH A SET OF "RECORD DRAWINGS", INCLUDING THE DIMENSION AND LOCATIONS OF CONDUIT STUBS.
9. THE CONTRACTOR SHALL WARRANTY AND GUARANTEE ELECTRICAL WORK COMPLETED AND EQUIPMENT FOR ONE (1) YEAR COMMENCING FROM DATE OF FINAL ACCEPTANCE BY OWNER'S REPRESENTATIVE.
10. IDENTIFY AND LABEL ALL EQUIPMENT, CONDUIT, JUNCTION BOXES, ETC. AFFECTED BY THE INSTALLATION WORK.
11. BALANCE PANELS AFFECTED BY THE WORK TO WITHIN 15%.
12. ENSURE THAT PROPER CLEARANCES FROM ELECTRICAL EQUIPMENT ARE MAINTAINED AS REQUIRED BY CODE. IDENTIFY TO THE ARCHITECT AND ENGINEER WHERE MINIMUM CLEARANCE OF THE EXISTING EQUIPMENT IS NOT MET.

KEYNOTES

1. 2x53mmC FROM BASEMENT COMMUNICATION ROOM TO MAIN FLOOR COMMUNICATION ROOM WITHIN THE WING OF THE BUILDING.
2. 103mmC FROM BASEMENT ELECTRICAL ROOM TO MAIN FLOOR ELECTRICAL ROOM WITHIN THE WING OF THE BUILDING.
3. 129mmC
4. DEMARK POINT; CONFIRM LOCATION
5. 6-129mmC EXISTING CONDUITS AT THIS POINT.

ELECTRICAL DRAWING LIST

DWG. NO.	DWG. NAME
E100	SITE PLAN, DRAWING LIST & LEGEND
E201	BASEMENT LIGHTING PLAN
E202	MAINFLOOR LIGHTING PLAN
E203	2ND FLOOR LIGHTING PLAN
E204	3RD FLOOR LIGHTING PLAN
E205	4TH FLOOR LIGHTING PLAN
E206	5TH FLOOR LIGHTING PLAN
E301	BASEMENT POWER & LOW TENSION PLAN
E302	MAINFLOOR POWER & LOW TENSION PLAN
E303	2ND FLOOR POWER & LOW TENSION PLAN
E304	3RD FLOOR POWER & LOW TENSION PLAN
E305	4TH FLOOR POWER & LOW TENSION PLAN
E306	5TH FLOOR POWER & LOW TENSION PLAN
E401	BASEMENT FIRE ALARM & SECURITY PLAN
E402	MAINFLOOR FIRE ALARM & SECURITY PLAN
E403	2ND FLOOR FIRE ALARM & SECURITY PLAN
E404	3RD FLOOR FIRE ALARM & SECURITY PLAN
E405	4TH FLOOR FIRE ALARM & SECURITY PLAN
E406	5TH FLOOR FIRE ALARM & SECURITY PLAN
E500	POWER SLD, COMMUNICAITON & FIRE ALARM RISER

LEGEND OF SYMBOLS

SECURITY

Symbol	Description
CR	CARD READER
CK	CARD READER KEYPAD
KP	KEYPAD
EL	ELECTRIC LOCK
ES	ELECTRIC STRIKE
ML	MAGLOCK
DC	DOOR CONTACT
AO	AUTOMATIC DOOR OPERATOR
MR	MAGLOCK RELEASE PUSHBUTTON
RX	REQUEST TO EXIT (REX) MOTION SENSOR
BP	BLUE PULL STATION
MS	MOTION SENSOR - WALL MOUNTED
MS	MOTION SENSOR - CEILING MOUNTED
GB	GLASS BREAK
I	INTERCOM
	CCTV CAMERA
H	SECURITY HORN

POWER

Symbol	Description
	SINGLE/SPECIAL PURPOSE RECEPTACLE
	DUPLEX RECEPTACLE
	ISOLATED GROUND RECEPTACLE
	GROUND FAULT RECEPTACLE
	SPLIT CIRCUIT RECEPTACLE
	WEATHERPROOF RECEPTACLE
	SWITCH RECEPTACLE
	FOURPLEX RECEPTACLE
	ISOLATED GROUND FOURPLEX RECEPTACLE
T	T-SLOT DUPLEX RECEPTACLE (5-20R)
T	T-SLOT GROUND FAULT RECEPTACLE (5-20R)
T	T-SLOT COMPUTER RECEPTACLE (5-20R)
	COMPUTER DUPLEX RECEPTACLE
	COMPUTER FOURPLEX RECEPTACLE
	FLOOR MOUNTED RECEPTACLE
	FLOOR MOUNTED ISOLATED GROUND RECEPTACLE
	FLOOR MOUNTED FOURPLEX RECEPTACLE
	FLOOR MOUNTED ISOLATED GROUND FOURPLEX RECEPTACLE
	FLOOR MOUNTED COMPUTER DUPLEX RECEPTACLE
	CEILING MOUNTED SINGLE/SPECIAL PURPOSE RECEPTACLE
	CEILING MOUNTED DUPLEX RECEPTACLE
J	CEILING MOUNTED JUNCTION/SLAB BOX
	WALL MOUNTED JUNCTION BOX
J	FLOOR MOUNTED JUNCTION/SLAB BOX
	ELECTRICAL PANELBOARD - SURFACE MOUNTED
	ELECTRICAL PANELBOARD - RECESSED MOUNTED
C	CONTACTOR
	CONTROL TRANSFORMER
TC	TIMECLOCK
	GROUND BUS BAR
AO	AUTO DOOR OPERATOR

LIGHTING

Symbol	Description
	RECESSED LUMINAIRE
	SURFACE MOUNTED LUMINAIRE
	WALL MOUNTED LUMINAIRE
	RECESSED WALL WASH LUMINAIRE
	RECESSED LUMINAIRE ON EMERGENCY POWER
	SURFACE MOUNTED LUMINAIRE ON EMERGENCY POWER
	WALL MOUNTED LUMINAIRE ON EMERGENCY POWER
	RECESSED LUMINAIRE
	SURFACE MOUNTED LUMINAIRE
	STRIP LUMINAIRE
	WALL MOUNTED LUMINAIRE
	RECESSED LUMINAIRE ON EMERGENCY POWER
	SURFACE MOUNTED LUMINAIRE ON EMERGENCY POWER
	STRIP LUMINAIRE ON EMERGENCY POWER
	WALL MOUNTED LUMINAIRE ON EMERGENCY POWER
	TRACK LIGHTING C/W LIGHTING HEADS AS SHOWN
	RECESSED LINEAR WALL WASHER
	SURFACE MOUNTED H.I.D. LUMINAIRE
	RECESSED H.I.D. LUMINAIRE
	WALL H.I.D. LUMINAIRE
	POLE MOUNTED LUMINAIRE
	LIGHTING BOLLARD
01	LIGHTING LUMINAIRE TYPE TAG
	EXIT LIGHT - CEILING (c/w ARROWS AS INDICATED)
	EXIT LIGHT - WALL (c/w ARROWS AS INDICATED)
	EMERGENCY LIGHTING BATTERY PACK
	EMERGENCY LIGHTING BATTERY PACK C/W LIGHTING HEADS
	SINGLE REMOTE EMERGENCY LIGHTING HEAD - CEILING MTD
	DOUBLE REMOTE EMERGENCY LIGHTING HEAD - CEILING MTD
	SINGLE REMOTE EMERGENCY LIGHTING HEAD - WALL MOUNTED
	DOUBLE REMOTE EMERGENCY LIGHTING HEAD - WALL MOUNTED
$	SWITCH - SINGLE GANG
	SWITCH - TWO GANG
	SWITCH - THREE GANG
	SWITCH - FOUR GANG
$2	SWITCH - TWO POLE
$3	SWITCH - 3 WAY
$4	SWITCH - 4 WAY
	SWITCH - LOW VOLTAGE
$K	SWITCH - KEY SWITCH
$T	SWITCH - TIMER SWITCH
D	SWITCH - DIMMER SWITCH
	SWITCH - MOTION SENSOR SWITCH
	SWITCH C/W PILOT LIGHT - SINGLE GANG
P	PHOTO ELECTRIC CELL
	MOTION SENSOR - CEILING MOUNTED
	MOTION SENSOR - WALL MOUNTED
OS	OCCUPANCY SENSOR - CEILING MOUNTED
DS	DAY LIGHT SENSOR - CEILING MOUNTED

FIRE ALARM

Symbol	Description
CO A	COMBINATION CO/SMOKE ALARM
A	SMOKE ALARM
	SMOKE DETECTOR
	SMOKE DETECTOR IN CEILING PLENUM
	SMOKE DETECTOR UNDER FLOOR
	RATE OF RISE HEAT DETECTOR
F	FIXED TEMPERATURE HEAT DETECTOR (58°C)
H	FIXED TEMPERATURE HEAT DETECTOR (88°C)
	RATE OF RISE HEAT DETECTOR IN CEILING PLENUM
	COMBINATION SMOKE/HEAT DETECTOR
SA	DUCT SMOKE DETECTOR (ADDRESSABLE) - 'SA' DENOTES SUPPLY AIR, 'RA' DENOTES RETURN AIR
R	DUCT SMOKE DETECTOR C/W SHUTDOWN RELAY (CONVENTIONAL)
	CEILING MOUNTED FLAME DETECTOR
	WALL MOUNTED FLAME DETECTOR
	FIRE ALARM MANUAL PULL STATION
	ABORT STATION
FS	SPRINKLER FLOW SWITCH
TS	SPRINKLER TAMPER SWITCH
PS	PRESSURE SWITCH
	SOLENOID VALVE / ACTUATOR
	END OF LINE RESISTOR
	FIRE ALARM BELL - WALL MOUNTED
	FIRE ALARM HORN - WALL MOUNTED
	FIRE ALARM MINI HORN WITH SILENCE BUTTON - WALL MTD
	FIRE ALARM MINI HORN WITHOUT SILENCE BUTTON - WALL MTD
	FIRE ALARM STROBE - WALL MOUNTED
	FIRE ALARM COMBINATION BELL AND STROBE - WALL MTD
	FIRE ALARM COMBINATION HORN AND STROBE - WALL MTD
	FIRE ALARM HORN - CEILING MOUNTED
	FIRE ALARM COMBINATION HORN AND STROBE - CEILING MOUNTED
	FIRE ALARM STROBE - CEILING MOUNTED
F	FIRE ALARM SPEAKER - CEILING MOUNTED
F	FIRE ALARM COMBINATION SPEAKER/STROBE - CEILING MOUNTED
F	FIRE ALARM SPEAKER - WALL MOUNTED
F	FIRE ALARM COMBINATION SPEAKER/STROBE - WALL MOUNTED
F	FIRE PHONE
IM	ISOLATION MODULE (IDC)
SI	SUITE ISOLATOR (NAC)
CM	CONTROL MODULE
MM	MONITORING MODULE
H	HOLD OPEN
FAAN	FIRE ALARM ANNUNCIATOR
FACP	FIRE ALARM CONTROL PANEL
FATP	FIRE ALARM TRANSPONDER
FDNE	FIRE ALARM "DO NOT ENTER" SIGN
FAPG	FIRE ALARM PASSIVE GRAPHIC
FAAG	FIRE ALARM ACTIVE GRAPHIC
VCP	VESDA CONTROL PANEL
FSRP	FIRE SUPPRESSION RELEASING PANEL
SDS	FIRE SUPPRESSION SERVICE DISCONNECT SWITCH

ZONE BOXES

Symbol	Description
PZ	POWER ZONE BOX
DZ	DATA ZONE BOX
VZ	VOICE ZONE BOX
CZ	COMMUNICATIONS ZONE BOX
PA	P.A. ZONE BOX
SZ	SECURITY ZONE BOX
FZ	FIRE ZONE BOX

MECHANICAL

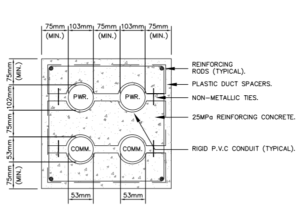
Symbol	Description
	MOTOR
$M	SWITCH - MANUAL STARTER
	MOTOR C/W MANUAL STARTER
	MOTOR C/W DISCONNECT SWITCH
	UNFUSED DISCONNECT SWITCH
	FUSED DISCONNECT SWITCH
	COMBINATION MAG STARTER/DISCONNECT SWITCH
	MAGNETIC STARTER
S	FAN SPEED CONTROLLER
T	THERMOSTAT
S	SENSOR
MISEF4	MOTOR IDENTIFICATION TAG (REFER TO MECHANICAL SCHEDULE)

SYSTEMS

Symbol	Description
	VOICE OUTLET
	DATA OUTLET
	COMBINATION VOICE/DATA OUTLET
	TELEVISION OUTLET
	FLOOR MOUNTED VOICE OUTLET
	FLOOR MOUNTED DATA OUTLET
	FLOOR MOUNTED COMBINATION VOICE/DATA OUTLET
	FLOOR MOUNTED TELEVISION OUTLET
	CEILING MOUNTED DATA OUTLET
	CEILING MOUNTED TELEVISION OUTLET
m	MICROPHONE OUTLET
P	SPEAKER - CEILING MOUNTED
P	SPEAKER - WALL MOUNTED
V	VOLUME CONTROLLER
	CHIME / BUZZER
	PUSHBUTTON
	CLOCK - CEILING MOUNTED
	CLOCK - WALL MOUNTED
	PAC-POLE
WD	WATER DETECTOR
	CALL-IN HORN
BP	BLUE PHONE

GENERAL

Symbol	Description
	CONDUIT CONCEALED IN WALL OR CEILING
	CONDUIT IN WALL/CEILING - EMERGENCY OR UPS POWER
	CONDUIT CONCEALED IN SLAB
	CONDUIT BURIED BELOW GRADE
	CONDUIT - UP
	CONDUIT - DOWN
WP	DENOTES WEATHERPROOF DEVICE C/W WHILE IN USE COVER
WAP	DENOTES WIRELESS ACCESS POINT



2 DUCT BANK DETAIL
E100 SCALE: NTS

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Ltr. / #	Date	By	Description
A	2014.04.30	SMP	ISSUED FOR DESIGN DEVELOPMENT DRAWING SET

Faculty/Department **FACULTY OR DEPARTMENT**

Client Approval Date

Dwg Title ELECTRICAL - SITE PLAN

Building **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number **E1234** Work Order Number **567890**

Arch ☐ Mech ☐ Elec ■ Struc ☐ Civil ☐ Drawn By **KM**

Dwg. Created **2014.04.14** Design File No. #####-YY-## Issue & Revision **A** **0**

Sheet **of x** Drawing Number E100

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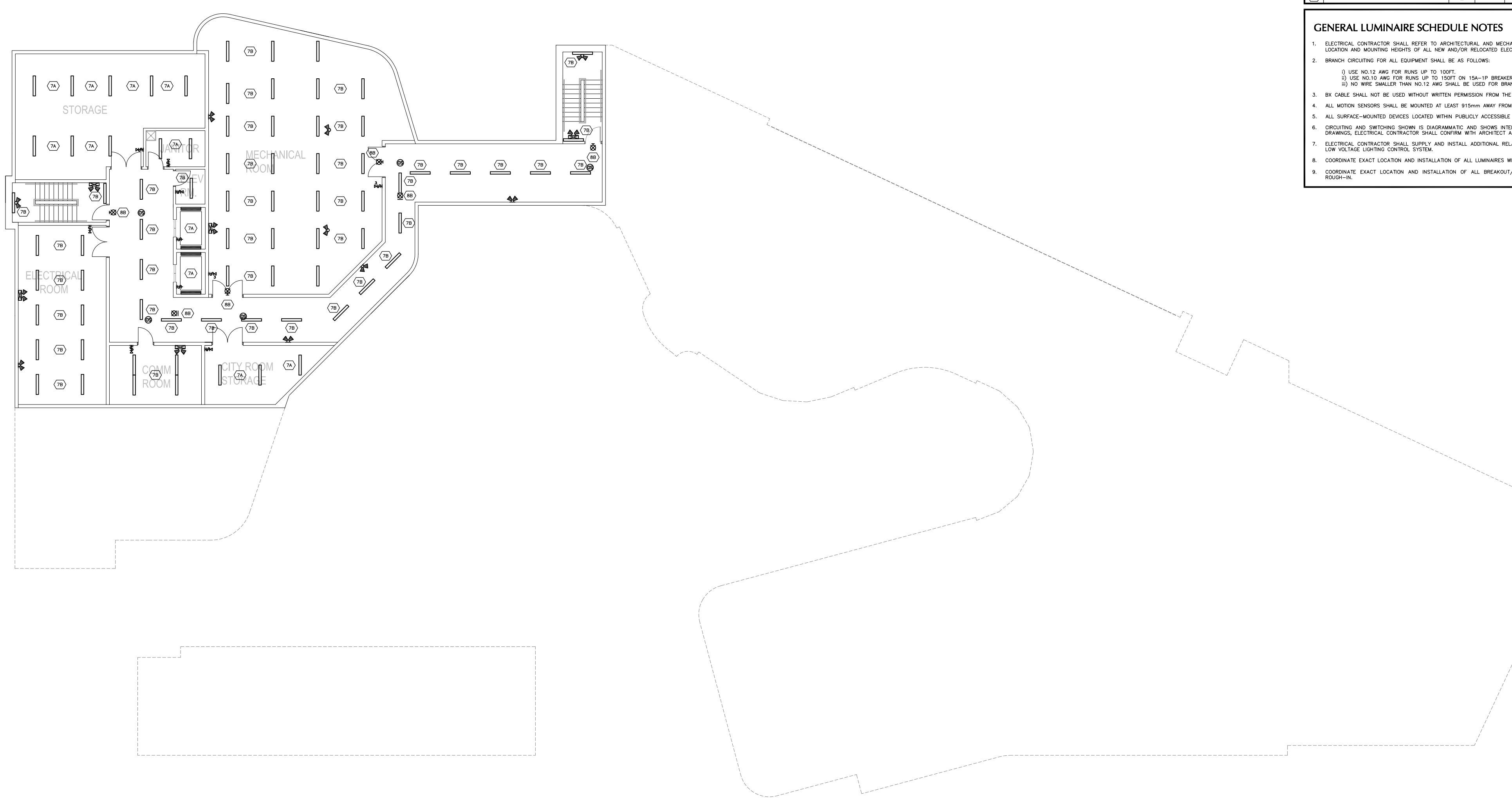
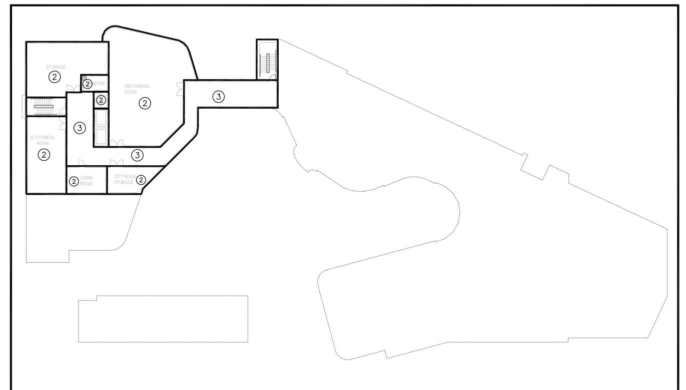


1 BASEMENT - LIGHTING PLAN
E201 SCALE 1:100



2 LIGHTING CONTROL ZONE KEYPLAN
E201 SCALE: NTS

LIGHTING CONTROL ZONES

1. DIMMABLE, OCCUPANCY SENSOR COMBO SWITCH.
2. ON/OFF WALL MOUNTED COMBO SWITCH OCCUPANCY SENSOR.
3. CEILING MOUNTED OCCUPANCY SENSOR, BMS (NETWORK).
4. OCCUPANCY SENSOR, DAYLIGHT, BMS (NETWORK).
5. TIME CLOCK CONTROL.
6. PHOTOCELL CONTROL – EXTERIOR.
7. OFF ONLY WALL MOUNTED OCCUPANCY SENSOR.

LUMINAIRE SCHEDULE

TYPE	DESCRIPTION	LAMPS	MTG	VOLTS	MANUFACTURER	REMARKS REMARKS
1A	RECESSED LINEAR DIRECT	– –	RECESS	120	SELUX L10U–1L35–40–LW–SG–XX–WH–120–DM	
1B	RECESSED LINEAR DIRECT	– –	RECESS	120	SELUX L1R2U–1L35–40–LW–SH–04–WH–120–DM	
1C	RECESSED LINEAR DIRECT	– –	RECESS	120	SELUX L36–1L35–40–LW–SF1–XX–WH–120–DML	
1D	RECESSED LINEAR DIRECT	– –	RECESS	120	SELUX L36–1L35–40–A2–SF1–XX–WH–120–DML	
2A	RECESSED 4" DOWNLIGHT	– –	RECESS	120	GOTHAM EVO–41–14–4AR–MD–LS–120–NEPP	
2B	RECESSED 4" DOWNLIGHT	– –	RECESS	120	GOTHAM EVO–41–18–4AR–MD–LS–120–NEPP	
2C	RECESSED 4" DOWNLIGHT	– –	RECESS	120	GOTHAM EVO–41–14–4AR–WD–LS–120–NEPP	
2D	SUSPENDED CYLINDER	– –	SUSPEND	120	GOTHAM EVO–CYL–41–14–6AR–LS–MVOLT–ACC–SWHG	
3A	SURFACE VANITY LIGHTING	– –	SURFACE	120	EUREKA 3541–23"–LED.9.40–120–DM1–XX–WH	
3B	SURFACE VANITY LIGHTING	– –	SURFACE	120	EUREKA 3541–47"–LED.18.40–120–DM1–XX–WH	
4A	SURFACE SUITE READING LIGHTING	– –	SURFACE	120	DESIGNPLAN 7219	
5A	EXTERIOR SOFFIT–MOUNTED 6" DOWNLIGHT	– –	RECESS	120	LITHONIA REAL6D6–XX–ESL–600L–40K–.60SC–XX	
5B	EXTERIOR SOFFIT–MOUNTED 6" DOWNLIGHT	– –	RECESS	120	LITHONIA REAL6D6–XX–ESL–1000L–40K–.60SC–XX	
5C	EXTERIOR RECESSED WALL/STEP–LIGHT	– –	RECESS	120	EUREKA 10095–LED–2.40–120V–DBL–XX	
5D	EXTERIOR SURFACE–MOUNTED SUITE LIGHT	– –	SURFACE	120	EUREKA 3512–LED.4.40–120V–XX	
5E	EXTERIOR WALL–SCONCE	– –	SURFACE	120	VISA LTG OW2204–LNW2000	
6A	EXTERIOR BOLLARD LUMINAIRE	– –	BOLLARD	120	SELUX NT–4–LG3700–50–XX–120–DM	
7A	SURFACE–MOUNTED STRIPLIGHT/WRAP	– –	SURFACE	120	LITHONIA WL4–18L–D25–LP840–XX	
7B	SURFACE–MOUNTED STRIPLIGHT/WRAP	– –	SURFACE	120	LITHONIA WL4–41L–D43–LP840–XX	
8A	EXIT LIGHTING (DECORATIVE)	– –	SURFACE	120	STANPRO RMEA–0–WH–UDC	
8B	EXIT LIGHTING (UTILITY)	– –	SURFACE	120	STANPRO RMS–X–WH–UDC–XX–X	
9A	EMERGENCY BATTERY PACK c/w HEADS	– –	SURFACE	120	STANPRO SLA–12–72–2(5.7W LED)–X	
9B	EMERGENCY REMOTE HEADS	– –	SURFACE	120	STANPRO M2–12V–(5.7W LED)	
10A	RGB LED FLOOR LIGHTING	– –	SURFACE	120	LUMENPULSE LOG–120–48–RGBW–1FX–10x10–WAM2–SI–ETE	
10B	RGB ACCENT LIGHTING	– –	SURFACE	120	LUMENPULSE SLC–48–RGB–1FX	
10C	EXTERIOR SOFFIT–MOUNTED 6" DOWNLIGHT	– –	SURFACE	120	MAGICLITE MLDR–100–24–DM/LP–5060–60–240D–RGB	
11A	DECORATIVE SUSPENDED CUSTOM LUMINAIRE	– –	–	–	– –	
11B	DECORATIVE SUSPENDED CUSTOM LUMINAIRE	– –	–	–	– –	
11C	DECORATIVE SUSPENDED CUSTOM LUMINAIRE	– –	–	–	– –	
11D	DECORATIVE SUSPENDED CUSTOM LUMINAIRE	– –	–	–	– –	
11E	DECORATIVE SUSPENDED CUSTOM LUMINAIRE	– –	–	–	– –	

GENERAL LUMINAIRE SCHEDULE NOTES

1. ELECTRICAL CONTRACTOR SHALL REFER TO ARCHITECTURAL AND MECHANICAL DRAWINGS TO DETERMINE WHAT WORK IS REQUIRED. REFER TO ARCHITECTURAL/MILLWORK DRAWINGS FOR EXACT LOCATION AND MOUNTING HEIGHTS OF ALL NEW AND/OR RELOCATED ELECTRICAL DEVICES.
2. BRANCH CIRCUITING FOR ALL EQUIPMENT SHALL BE AS FOLLOWS:
   i) USE NO.12 AWG FOR RUNS UP TO 100FT.
   ii) USE NO.10 AWG FOR RUNS UP TO 150FT ON 15A–1P BREAKER.
   iii) NO WIRE SMALLER THAN NO.12 AWG SHALL BE USED FOR BRANCH CIRCUIT WIRING.
3. BX CABLE SHALL NOT BE USED WITHOUT WRITTEN PERMISSION FROM THE ENGINEER.
4. ALL MOTION SENSORS SHALL BE MOUNTED AT LEAST 915mm AWAY FROM ANY MECHANICAL DIFFUSERS.
5. ALL SURFACE–MOUNTED DEVICES LOCATED WITHIN PUBLICLY ACCESSIBLE AREAS SHALL BE 'FS' TYPE.
6. CIRCUITING AND SWITCHING SHOWN IS DIAGRAMMATIC AND SHOWS INTENDED LIGHTING SCHEME ONLY. SHOULD ONSITE CONDITIONS DIFFER OR CONFLICT WITH WHAT IS INDICATED ON THESE DRAWINGS, ELECTRICAL CONTRACTOR SHALL CONFIRM WITH ARCHITECT AND ENGINEER PRIOR TO ROUGH–IN AND INSTALLATION.
7. ELECTRICAL CONTRACTOR SHALL SUPPLY AND INSTALL ADDITIONAL RELAYS AS REQUIRED TO ENSURE A COMPLETE OPERATING SYSTEM. RELAYS TO BE COMPATIBLE WITH EXISTING DOUGLAS LOW VOLTAGE LIGHTING CONTROL SYSTEM.
8. COORDINATE EXACT LOCATION AND INSTALLATION OF ALL LUMINAIRES WITH ARCHITECTURAL AND MECHANICAL DRAWINGS.
9. COORDINATE EXACT LOCATION AND INSTALLATION OF ALL BREAKOUT/BOARD/MEETING ROOM LUMINAIRES AND RELATED LUMINAIRE CONTROL(S) WITH ARCHITECT AND OWNER PRIOR TO ROUGH–IN.

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Faculty/Department **FACULTY OR DEPARTMENT**

Client Approval Date

Dwg Title BASEMENT FLOOR - LIGHTING PLAN

Building **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number **E1234** Work Order Number **567890**

Arch ☐ Mech ☐ Elec ■ Struc ☐ Civil ☐ Drawn By **KM**

Dwg. Created **2014.04.14** Issue & Revision **A** **0**

Design File No. #####-YY-##

Sheet **of x** Drawing Number E201

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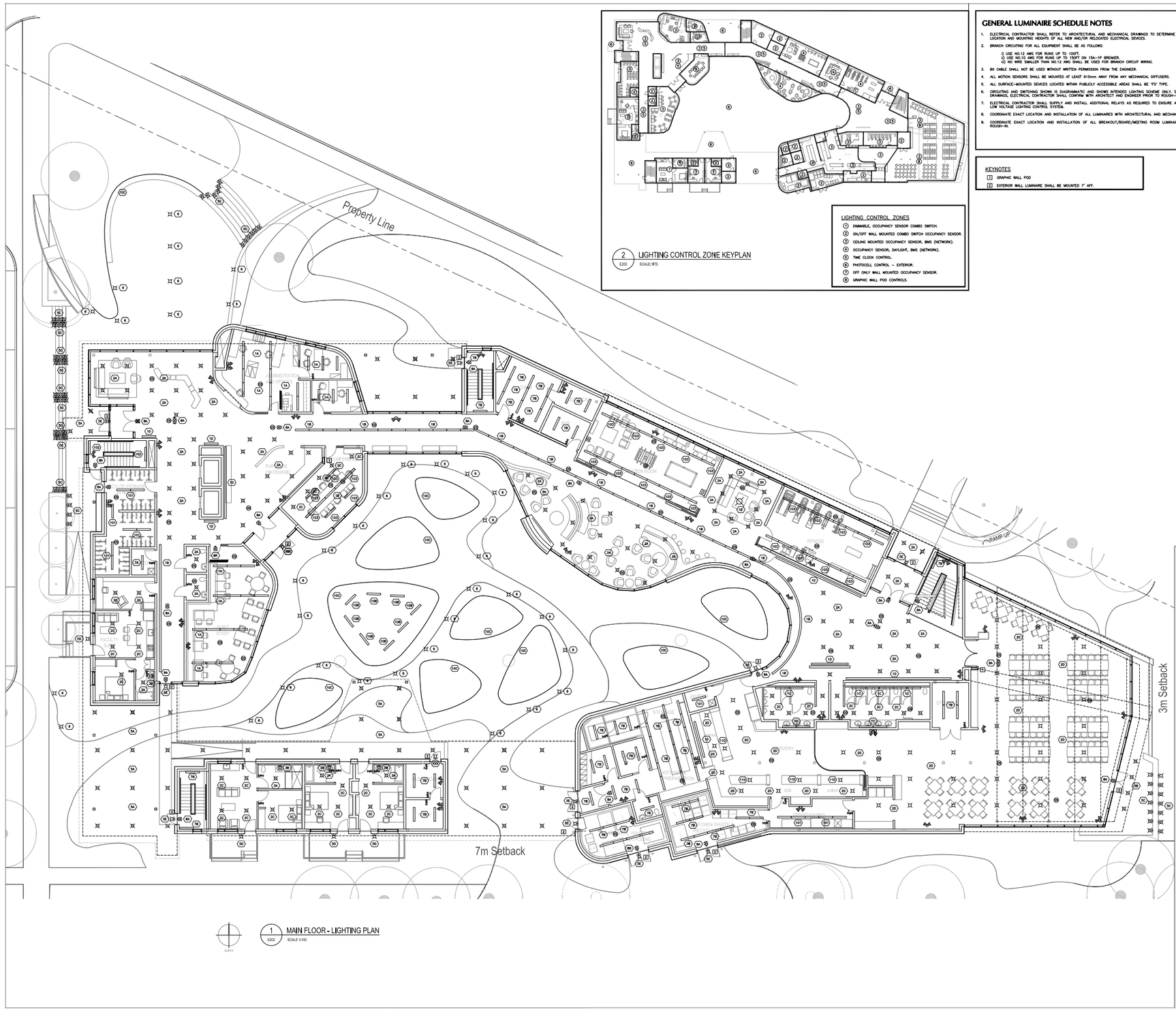

2 LIGHTING CONTROL ZONE KEYPLAN
E202 SCALE: NTS

LIGHTING CONTROL ZONES
1. DIMMABLE, OCCUPANCY SENSOR COMBO SWITCH.
2. ON/OFF WALL MOUNTED COMBO SWITCH OCCUPANCY SENSOR.
3. CEILING MOUNTED OCCUPANCY SENSOR, BMS (NETWORK).
4. OCCUPANCY SENSOR, DAYLIGHT, BMS (NETWORK).
5. TIME CLOCK CONTROL.
6. PHOTOCELL CONTROL – EXTERIOR.
7. OFF ONLY WALL MOUNTED OCCUPANCY SENSOR.
8. GRAPHIC WALL POD CONTROLS.

GENERAL LUMINAIRE SCHEDULE NOTES

1. ELECTRICAL CONTRACTOR SHALL REFER TO ARCHITECTURAL AND MECHANICAL DRAWINGS TO DETERMINE WHAT WORK IS REQUIRED. REFER TO ARCHITECTURAL/MILLWORK DRAWINGS FOR EXACT LOCATION AND MOUNTING HEIGHTS OF ALL NEW AND/OR RELOCATED ELECTRICAL DEVICES.
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3. BX CABLE SHALL NOT BE USED WITHOUT WRITTEN PERMISSION FROM THE ENGINEER.
4. ALL MOTION SENSORS SHALL BE MOUNTED AT LEAST 915mm AWAY FROM ANY MECHANICAL DIFFUSERS.
5. ALL SURFACE-MOUNTED DEVICES LOCATED WITHIN PUBLICLY ACCESSIBLE AREAS SHALL BE 'FS' TYPE.
6. CIRCUITING AND SWITCHING SHOWN IS DIAGRAMMATIC AND SHOWS INTENDED LIGHTING SCHEME ONLY. SHOULD ONSITE CONDITIONS DIFFER OR CONFLICT WITH WHAT IS INDICATED ON THESE DRAWINGS, ELECTRICAL CONTRACTOR SHALL CONFIRM WITH ARCHITECT AND ENGINEER PRIOR TO ROUGH-IN AND INSTALLATION.
7. ELECTRICAL CONTRACTOR SHALL SUPPLY AND INSTALL ADDITIONAL RELAYS AS REQUIRED TO ENSURE A COMPLETE OPERATING SYSTEM. RELAYS TO BE COMPATIBLE WITH EXISTING DOUGLAS LOW VOLTAGE LIGHTING CONTROL SYSTEM.
8. COORDINATE EXACT LOCATION AND INSTALLATION OF ALL LUMINAIRES WITH ARCHITECTURAL AND MECHANICAL DRAWINGS.
9. COORDINATE EXACT LOCATION AND INSTALLATION OF ALL BREAKOUT/BOARD/MEETING ROOM LUMINAIRES AND RELATED LUMINAIRE CONTROL(S) WITH ARCHITECT AND OWNER PRIOR TO ROUGH-IN.

KEYNOTES
1. GRAPHIC WALL POD
2. EXTERIOR WALL LUMINAIRE SHALL BE MOUNTED 7' AFF.

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Faculty/Department: FACULTY OR DEPARTMENT

Client Approval Date

Dwg Title: MAIN FLOOR - LIGHTING PLAN

Building: SASKATCHEWAN DRIVE RESIDENCE

Proj. Number: E1234 | Work Order Number: 567890
Arch ☐ Mech ☐ Elec ■ Struc ☐ CHE ☐ | Drawn By: KM
Dwg. Created: 2014.04.14 | Design File No.: ########.VWX
Issue & Revision: A 0
Sheet: of x | Drawing Number: E202

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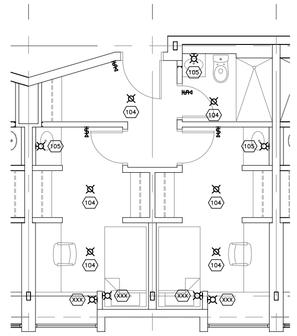
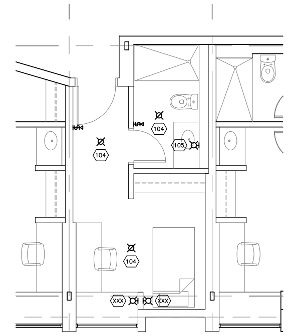
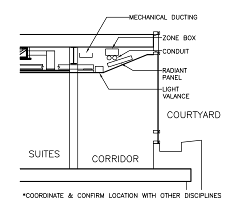


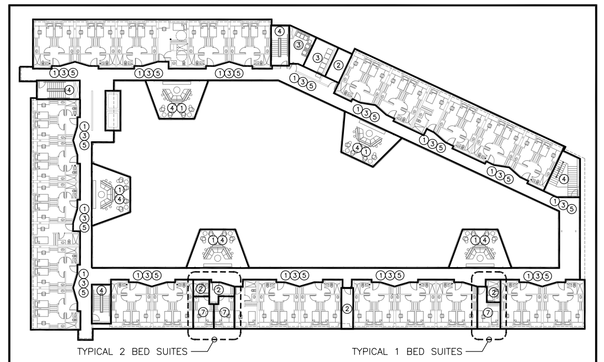
2 TYPICAL 2 BED SUITE DETAIL - LIGHTING PLAN
E203 SCALE 1:50



3 TYPICAL 1 BED SUITE DETAIL - LIGHTING PLAN
E203 SCALE 1:50



4 CORRIDOR SECTION DETAIL
E203 SCALE: NTS



LIGHTING CONTROL ZONES

1. DIMMABLE, OCCUPANCY SENSOR COMBO SWITCH.
2. ON/OFF WALL MOUNTED COMBO SWITCH OCCUPANCY SENSOR.
3. CEILING MOUNTED OCCUPANCY SENSOR, BMS (NETWORK).
4. OCCUPANCY SENSOR, DAYLIGHT, BMS (NETWORK).
5. TIME CLOCK CONTROL.
6. PHOTOCELL CONTROL – EXTERIOR.
7. OFF ONLY WALL MOUNTED OCCUPANCY SENSOR.

5 LIGHTING CONTROL ZONE KEYPLAN
E203 SCALE: NTS

1. ELECTRICAL CONTRACTOR SHALL REFER TO ARCHITECTURAL AND MECHANICAL DRAWINGS TO DETERMINE WHAT WORK IS REQUIRED. REFER TO ARCHITECTURAL/MILLWORK DRAWINGS FOR EXACT LOCATION AND MOUNTING HEIGHTS OF ALL NEW AND/OR RELOCATED ELECTRICAL DEVICES.
2. BRANCH CIRCUITING FOR ALL EQUIPMENT SHALL BE AS FOLLOWS:
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8. COORDINATE EXACT LOCATION AND INSTALLATION OF ALL LUMINAIRES WITH ARCHITECTURAL AND MECHANICAL DRAWINGS.
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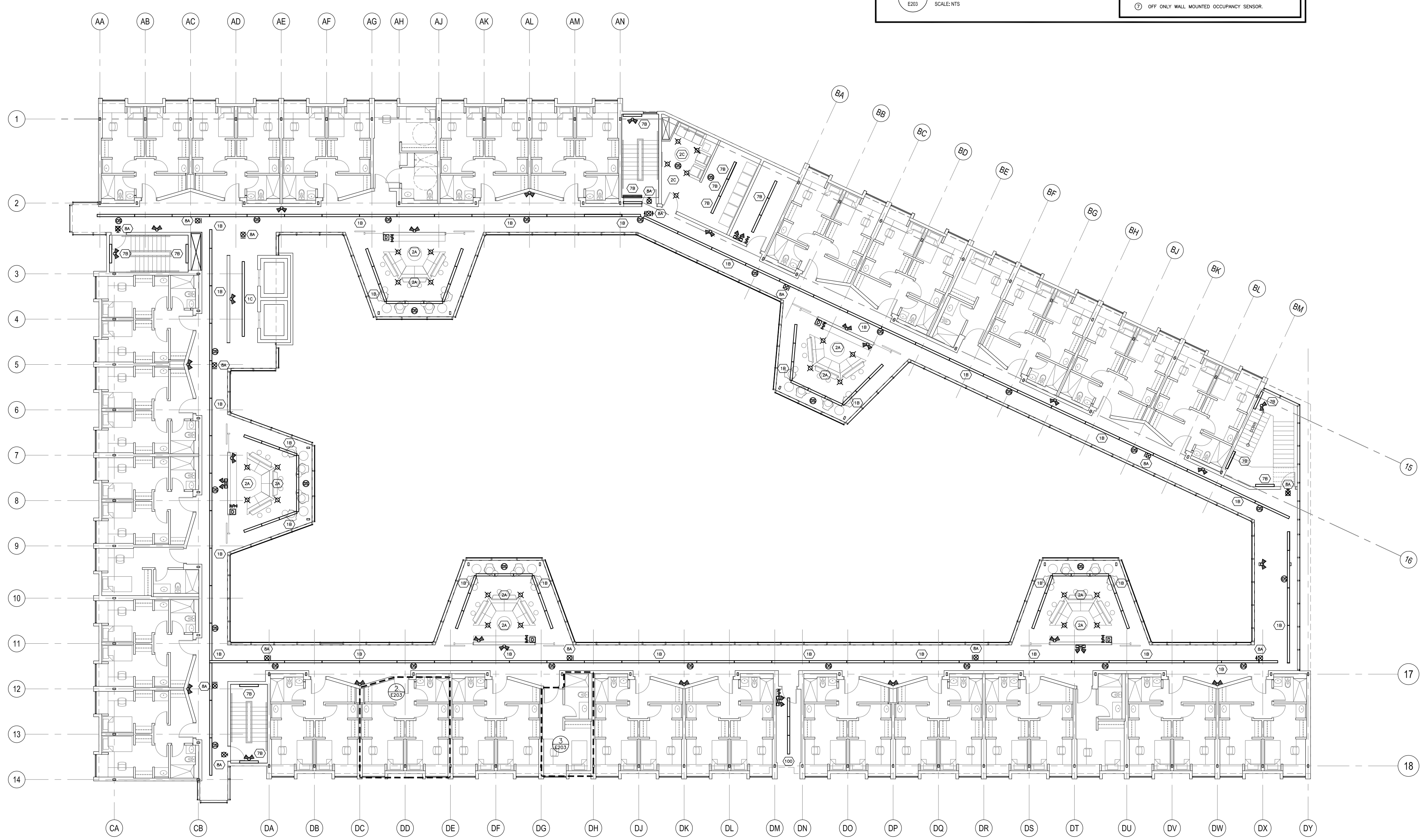

1 2ND FLOOR - LIGHTING PLAN
E203 SCALE 1:100

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Client Approval Date

Dwg Title 2ND FLOOR - LIGHTING PLAN

Building **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number **E1234** Work Order Number **567890**

Arch ☐ Mech ☐ Elec ■ Struc ☐ Civil ☐ Drawn By **KM**

Dwg. Created **2014.04.14**
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Issue & Revision **A** **0**

Sheet **of x** Drawing Number E203

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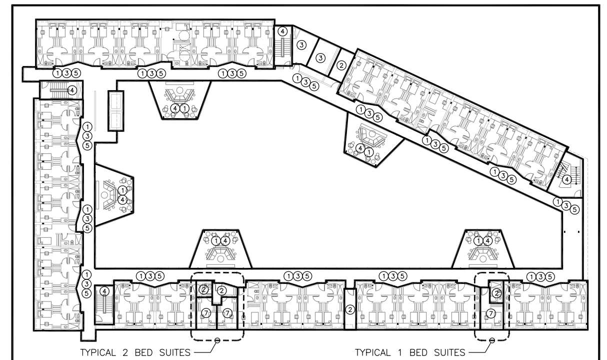

LIGHTING CONTROL ZONES

1. DIMMABLE, OCCUPANCY SENSOR COMBO SWITCH.
2. ON/OFF WALL MOUNTED COMBO SWITCH OCCUPANCY SENSOR.
3. CEILING MOUNTED OCCUPANCY SENSOR, BMS (NETWORK).
4. OCCUPANCY SENSOR, DAYLIGHT, BMS (NETWORK).
5. TIME CLOCK CONTROL.
6. PHOTOCELL CONTROL – EXTERIOR.
7. OFF ONLY WALL MOUNTED OCCUPANCY SENSOR.

2 LIGHTING CONTROL ZONE KEYPLAN
E204 SCALE: NTS

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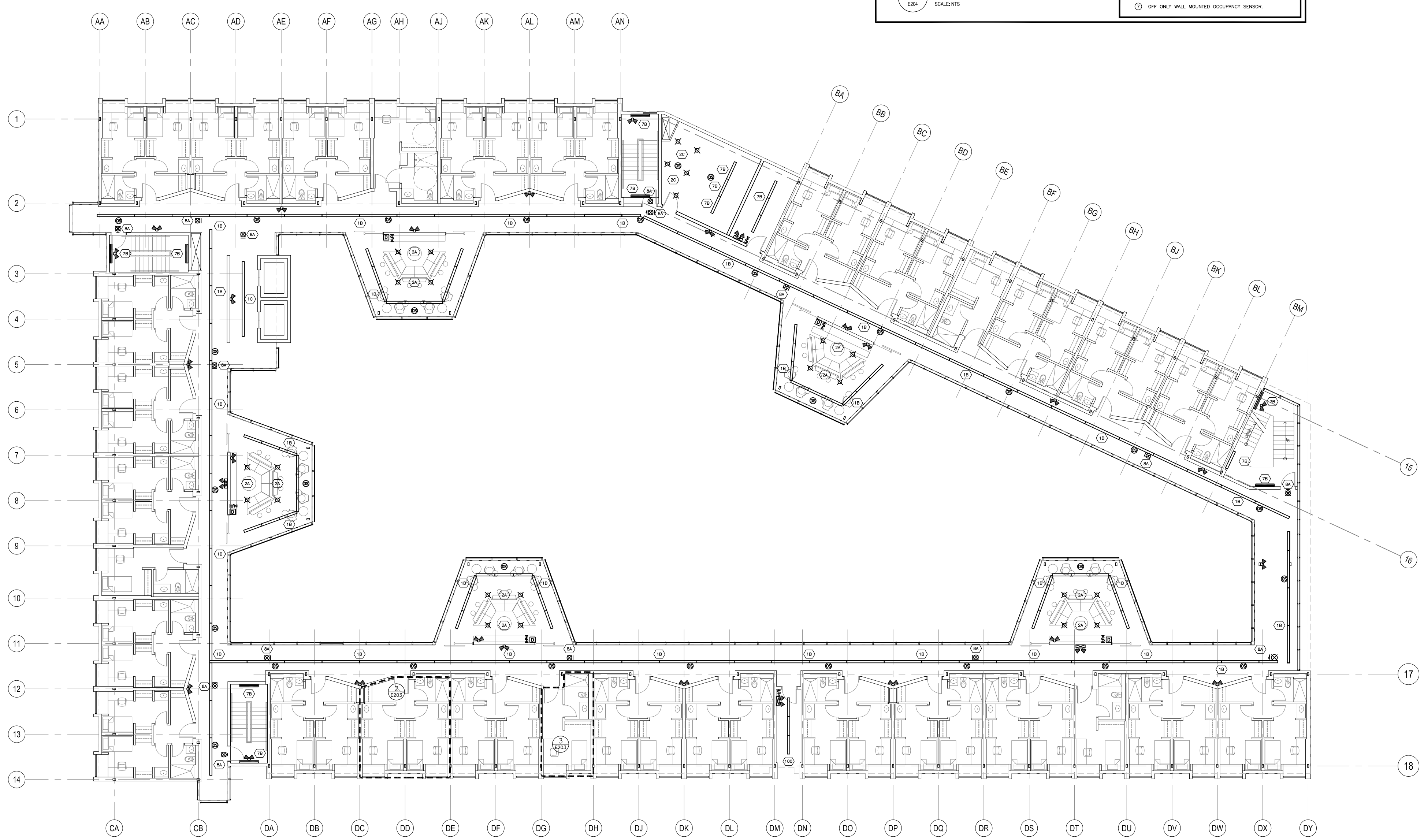
8. COORDINATE EXACT LOCATION AND INSTALLATION OF ALL LUMINAIRES WITH ARCHITECTURAL AND MECHANICAL DRAWINGS.
9. COORDINATE EXACT LOCATION AND INSTALLATION OF ALL BREAKOUT/BOARD/MEETING ROOM LUMINAIRES AND RELATED LUMINAIRE CONTROL(S) WITH ARCHITECT AND OWNER PRIOR TO ROUGH–IN.



1 3RD FLOOR - LIGHTING PLAN
E204 SCALE 1:100

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Faculty/Department **FACULTY OR DEPARTMENT**

Client Approval Date

Dwg Title 3RD FLOOR - LIGHTING PLAN

Building **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number **E1234** Work Order Number **567890**

Arch ☐ Mech ☐ Elec ■ Struc ☐ Civil ☐ Drawn By **KM**

Dwg. Created **2014.04.14** Issue & Revision **A** **0**
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Sheet **of x** Drawing Number E204

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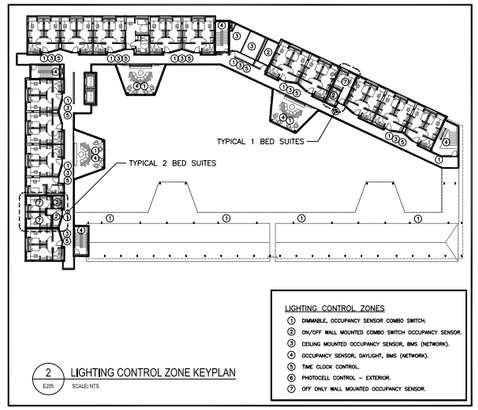
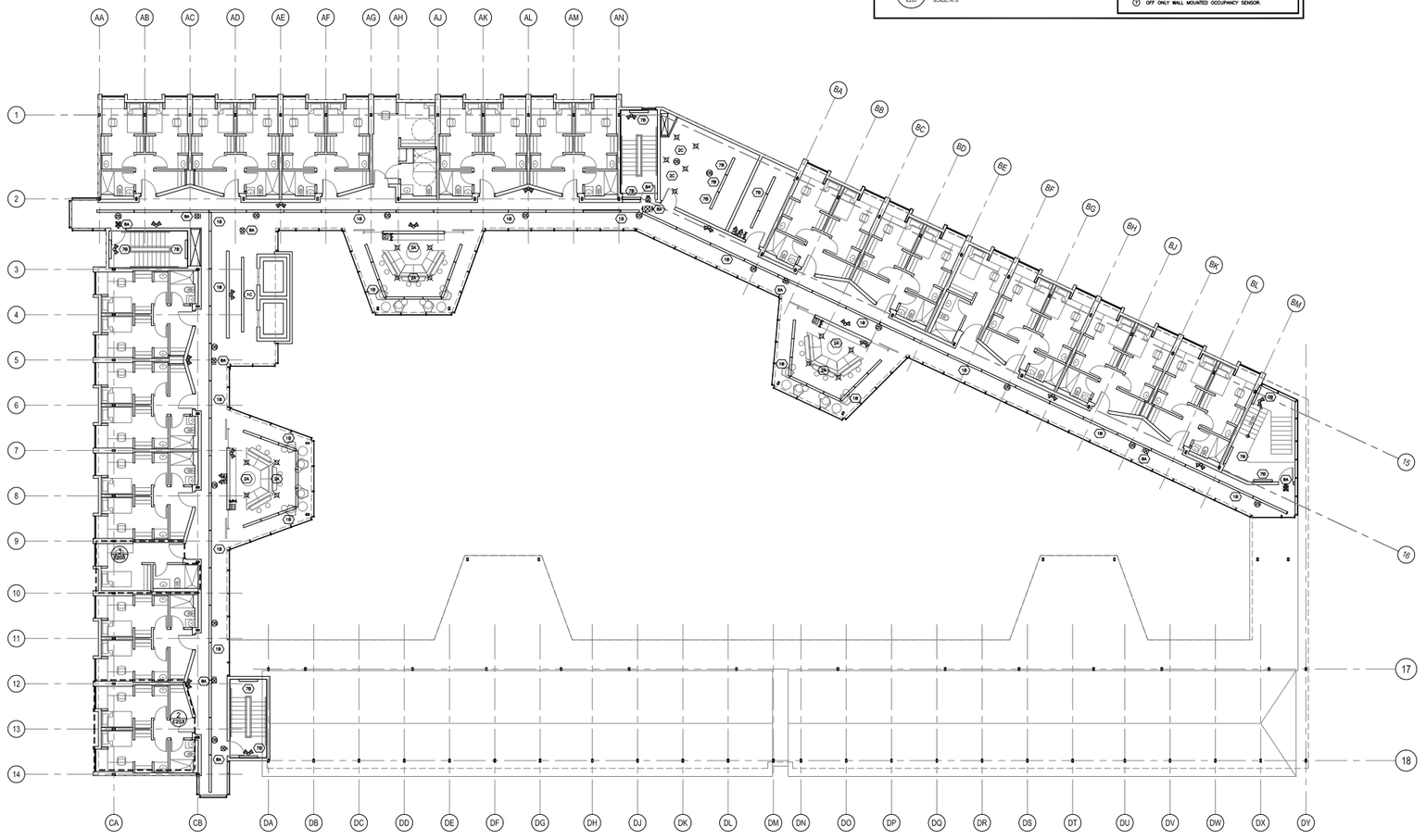


LIGHTING CONTROL ZONES

1. DIMMABLE, OCCUPANCY SENSOR COMBO SWITCH.
2. ON/OFF WALL MOUNTED COMBO SWITCH OCCUPANCY SENSOR.
3. CEILING MOUNTED OCCUPANCY SENSOR, BMS (NETWORK).
4. OCCUPANCY SENSOR, DAYLIGHT, BMS (NETWORK).
5. TIME CLOCK CONTROL.
6. PHOTOCELL CONTROL – EXTERIOR.
7. OFF ONLY WALL MOUNTED OCCUPANCY SENSOR.

2 LIGHTING CONTROL ZONE KEYPLAN
E205 SCALE: NTS

1. ELECTRICAL CONTRACTOR SHALL REFER TO ARCHITECTURAL AND MECHANICAL DRAWINGS TO DETERMINE WHAT WORK IS REQUIRED. REFER TO ARCHITECTURAL/MILLWORK DRAWINGS FOR EXACT LOCATION AND MOUNTING HEIGHTS OF ALL NEW AND/OR RELOCATED ELECTRICAL DEVICES.
2. BRANCH CIRCUITING FOR ALL EQUIPMENT SHALL BE AS FOLLOWS:
   i) USE NO.12 AWG FOR RUNS UP TO 100FT.
   ii) USE NO.10 AWG FOR RUNS UP TO 150FT ON 15A-1P BREAKER.
   iii) NO WIRE SMALLER THAN NO.12 AWG SHALL BE USED FOR BRANCH CIRCUIT WIRING.
3. BX CABLE SHALL NOT BE USED WITHOUT WRITTEN PERMISSION FROM THE ENGINEER.
4. ALL MOTION SENSORS SHALL BE MOUNTED AT LEAST 915mm AWAY FROM ANY MECHANICAL DIFFUSERS.
5. ALL SURFACE-MOUNTED DEVICES LOCATED WITHIN PUBLICLY ACCESSIBLE AREAS SHALL BE 'TS' TYPE.
6. CIRCUITING AND SWITCHING SHOWN IS DIAGRAMMATIC AND SHOWS INTENDED LIGHTING SCHEME ONLY. SHOULD ONSITE CONDITIONS DIFFER OR CONFLICT WITH WHAT IS INDICATED ON THESE DRAWINGS, ELECTRICAL CONTRACTOR SHALL CONFIRM WITH ARCHITECT AND ENGINEER PRIOR TO ROUGH-IN AND INSTALLATION.
7. ELECTRICAL CONTRACTOR SHALL SUPPLY AND INSTALL ADDITIONAL RELAYS AS REQUIRED TO ENSURE A COMPLETE OPERATING SYSTEM. RELAYS TO BE COMPATIBLE WITH EXISTING DOUGLAS LOW VOLTAGE LIGHTING CONTROL SYSTEM.
8. COORDINATE EXACT LOCATION AND INSTALLATION OF ALL LUMINAIRES WITH ARCHITECTURAL AND MECHANICAL DRAWINGS.
9. COORDINATE EXACT LOCATION AND INSTALLATION OF ALL BREAKOUT/BOARD/MEETING ROOM LUMINAIRES AND RELATED LUMINAIRE CONTROL(S) WITH ARCHITECT AND OWNER PRIOR TO ROUGH-IN.



1 4TH FLOOR - LIGHTING PLAN
E205 SCALE 1:100

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Client Approval Date

Dwg Title 4TH FLOOR - LIGHTING PLAN

Building SASKATCHEWAN DRIVE RESIDENCE

Proj. Number E1234 | Work Order Number 567890

Arch ☐ Mech ☐ Elec ■ Struc ☐ Civil ☐ | Drawn By KM

Dwg. Created 2014.04.14 | Issue & Revision A 0

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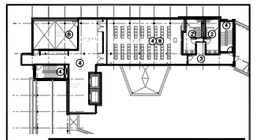

LIGHTING CONTROL ZONES

1. DIMMABLE, OCCUPANCY SENSOR COMBO SWITCH.
2. ON/OFF WALL MOUNTED COMBO SWITCH OCCUPANCY SENSOR.
3. CEILING MOUNTED OCCUPANCY SENSOR, BMS (NETWORK).
4. OCCUPANCY SENSOR, DAYLIGHT, BMS (NETWORK).
5. TIME CLOCK CONTROL.
6. PHOTOCELL CONTROL – EXTERIOR.
7. OFF ONLY WALL MOUNTED OCCUPANCY SENSOR.
8. GRAPHIC WALL POD CONTROLS.

2 E206 LIGHTING CONTROL ZONE KEYPLAN
SCALE:NTS

1. ELECTRICAL CONTRACTOR SHALL REFER TO ARCHITECTURAL AND MECHANICAL DRAWINGS TO DETERMINE WHAT WORK IS REQUIRED. REFER TO ARCHITECTURAL/MILLWORK DRAWINGS FOR EXACT LOCATION AND MOUNTING HEIGHTS OF ALL NEW AND/OR RELOCATED ELECTRICAL DEVICES.
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   i) USE NO.12 AWG FOR RUNS UP TO 100FT.
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3. BX CABLE SHALL NOT BE USED WITHOUT WRITTEN PERMISSION FROM THE ENGINEER.
4. ALL MOTION SENSORS SHALL BE MOUNTED AT LEAST 915mm AWAY FROM ANY MECHANICAL DIFFUSERS.
5. ALL SURFACE-MOUNTED DEVICES LOCATED WITHIN PUBLICLY ACCESSIBLE AREAS SHALL BE 'FS' TYPE.
6. CIRCUITING AND SWITCHING SHOWN IS DIAGRAMMATIC AND SHOWS INTENDED LIGHTING SCHEME ONLY. SHOULD ONSITE CONDITIONS DIFFER OR CONFLICT WITH WHAT IS INDICATED ON THESE DRAWINGS, ELECTRICAL CONTRACTOR SHALL CONFIRM WITH ARCHITECT AND ENGINEER PRIOR TO ROUGH-IN AND INSTALLATION.
7. ELECTRICAL CONTRACTOR SHALL SUPPLY AND INSTALL ADDITIONAL RELAYS AS REQUIRED TO ENSURE A COMPLETE OPERATING SYSTEM. RELAYS TO BE COMPATIBLE WITH EXISTING DOUGLAS LOW VOLTAGE LIGHTING CONTROL SYSTEM.
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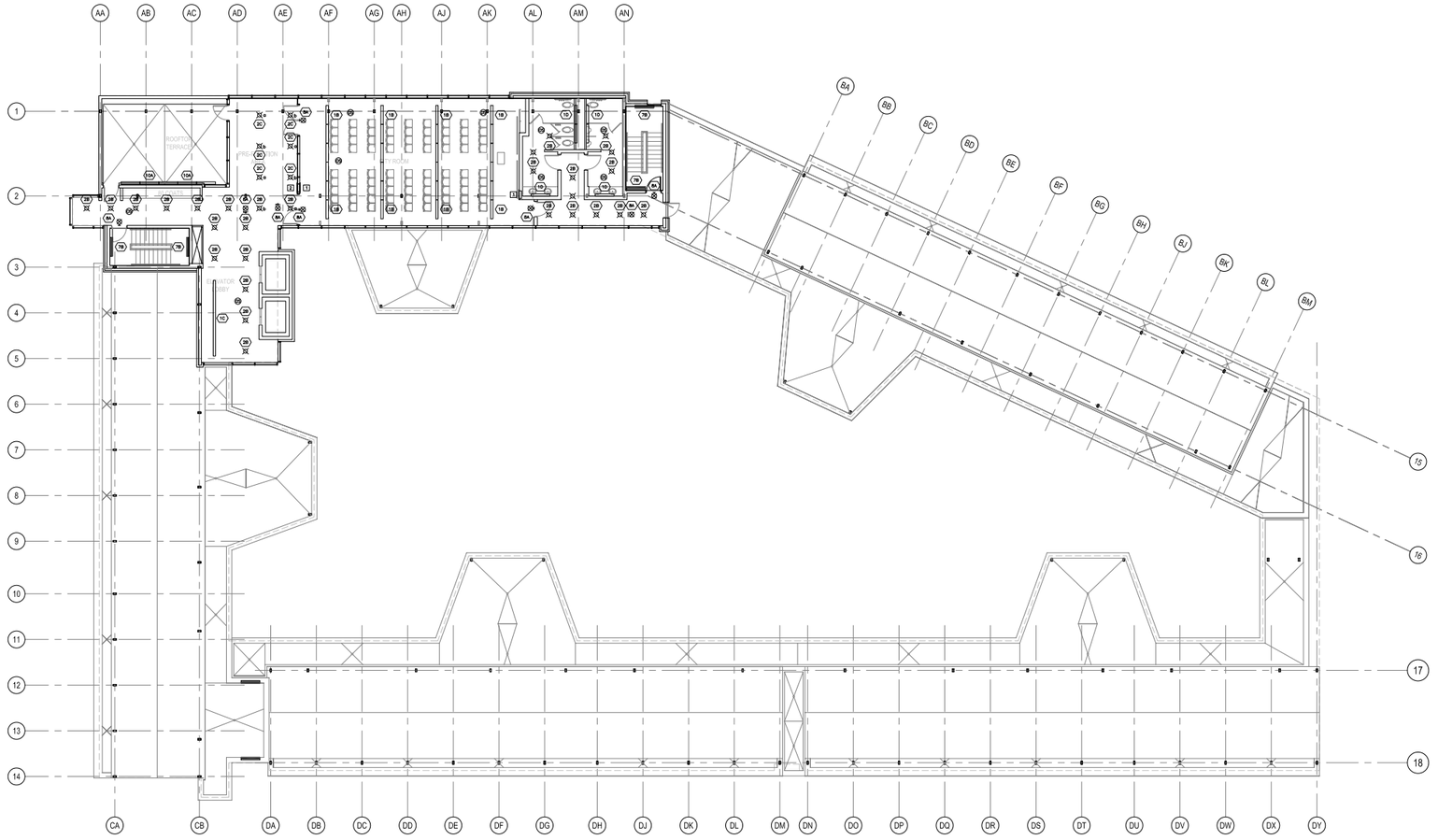
9. COORDINATE EXACT LOCATION AND INSTALLATION OF ALL BREAKOUT/BOARD/MEETING ROOM LUMINAIRES AND RELATED LUMINAIRE CONTROL(S) WITH ARCHITECT AND OWNER PRIOR TO ROUGH-IN.

KEYNOTES

1. GRAPHIC WALL POD FOR CITY ROOM.
2. GRAPHIC WALL POD FOR TERRACE LIGHTING CONTROL.



1 E206 5TH FLOOR - LIGHTING PLAN
SCALE 1:100

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Building SASKATCHEWAN DRIVE RESIDENCE

Proj. Number E1234 Work Order Number 567890
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Drawing Number E206
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KEYNOTES

1. CONDUIT RISER
2. 600V FUSED DISCONNECT SWITCH
3. 600V POWER DISTRIBUTION CENTRE CDP
4. 600/208/120V TRANSFORMER ON 100mm CONCRETE PAD
5. 120/208V POWER DISTRIBTUION CENTRE
6. MDP & MCC
7. 50x6x450mm GROUND BUS
8. COMMUNICATION GROUND BUS
9. FIRE ALARM TERMINAL CABINET
10. DOOR ACCESS SECURITY CABINET
11. 21mm FIRERATED BACKBOARD
12. VERTICAL COMM. RISER SLEEVES
13. DATA RACK
14. DATA CABINET
15. POWER, CABLE AND VGA/DATA FOR TV.
16. POWER VGA/DATA FOR TV INFEED.
17. POWER MOUNTED IN COLUMN FURRING.
18. 2x53mmC FROM BASEMENT COMMUNICATION ROOM TO MAIN FLOOR COMMUNICATION ROOM WITHIN THE WING OF THE BUILDING.
19. 103mmC FROM BASEMENT ELECTRICAL ROOM TO MAIN FLOOR ELECTRICAL ROOM WITHIN THE WING OF THE BUILDING.
20. COORDINATE MECHANICAL DUCT, COMM. & POWER CONDUITS WITH MECHANICAL.

MOTOR CONTROL SCHEDULE

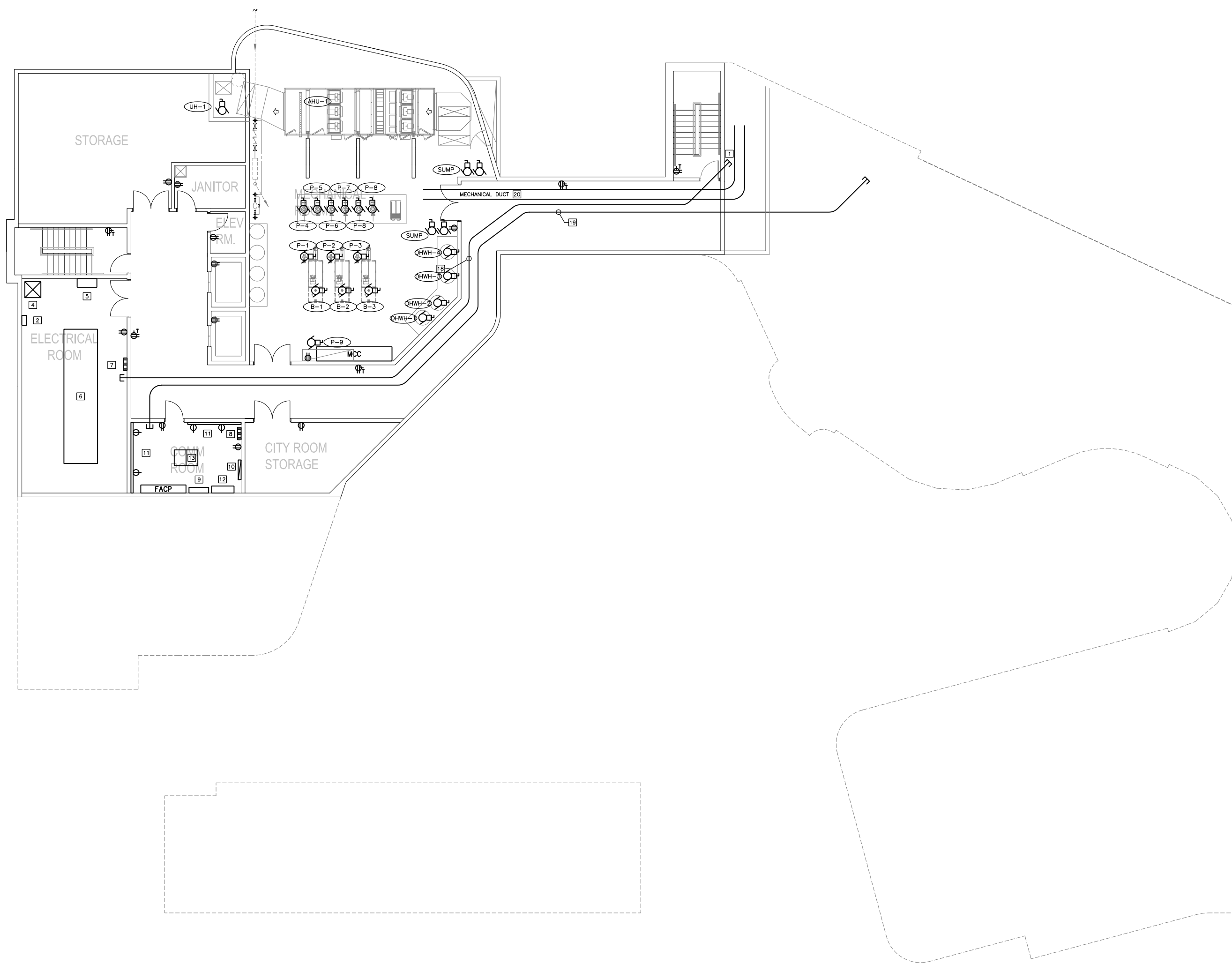
MOTOR NUMBER	DESCRIPTION	LOCATION	HORSEPOWER	FULL LOAD AMPS	KILOWATTS kW	VOLTAGE	PHASE	FED FROM	OVERCURRENT PROTECTION	FEEDER	DISCONNECT AT MOTOR: REQUIRED	DISCONNECT AT MOTOR: EEMAC TYPE	STARTER: TYPE	STARTER: EEMAC SIZE	CONTROLS: FWD-RVS-STOP	CONTROLS: START-STOP	CONTROLS: HAND-OFF-AUTO	CONTROLS: REMOTE START/STOP	CONTROLS: CONTROL XFMR	CONTROLS: PILOT LIGHT	CONTACTS: NORMALLY OPEN	CONTACTS: NORM. CLOSED	REMARKS

NOTES:

1. IN MOST CASES THE FLA'S AND ASSOCIATED BRANCH CIRCUITS ARE BASED ON THE VALUES SHOWN IN THE CANADIAN ELECTRICAL CODE. CONFIRM THE ACTUAL FLA'S OF MOTORS WITH THE MECHANICAL CONTRACTOR PRIOR TO ORDERING EQUIPMENT (BREAKERS, OVERLOADS, ETC.), AND INSTALLATION OF BRANCH CIRCUITS. APPROVAL OF MCC SHOP DRAWINGS ARE BASED ON THE ASSUMPTION THAT FLA'S OF MOTORS HAVE BEEN CONFIRMED. NO ADDITIONAL COSTS WILL BE CONSIDERED FOR FAILURE TO CONFIRM THE FLA'S OF MOTORS PRIOR TO SUBMISSION OF MCC SHOP DRAWINGS.
2. ALL THREE PHASE MOTORS ARE TO BE PROVIDED WITH LOSS OF PHASE PROTECTION. THIS MAY BE ACCOMPLISHED WITH A COMBINATION OVERLOAD/LOSS OF PHASE RELAY.

GENERAL POWER & SYSTEM NOTES:

1. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION AND MOUNTING HEIGHTS OF ALL NEW AND/OR RELOCATED ELECTRICAL DEVICES.
2. REFER TO MECHANICAL DRAWINGS FOR EXACT LOCATION AND MOUNTING HEIGHTS OF ALL NEW AND/OR RELOCATED MECHANICAL DEVICES.
3. BRANCH CIRCUITING FOR ALL EQUIPMENT SHALL BE AS FOLLOWS:
   i) USE NO.12 AWG FOR RUNS UP TO 100FT.
   ii) USE NO.10 AWG FOR RUNS UP TO 150FT ON 15A-1P BREAKER.
   iii) NO WIRE SMALLER THAN NO.12 AWG SHALL BE USED FOR BRANCH CIRCUIT WIRING.
4. BX CABLE SHALL NOT BE USED WITHOUT WRITTEN PERMISSION FROM THE ENGINEER.
5. ALL EMPTY CONDUITS SHALL BE C/W PULLWIRE.
6. RECEPTACLES DENOTED WITH THE SUBSCRIPT 'T' TO BE 5-20RA CONFIGURATION.
7. ALL SURFACE-MOUNTED DEVICES LOCATED WITHIN PUBLICLY ACCESSIBLE AREAS TO BE 'FS' TYPE.
8. ELECTRICAL CONTRACTOR SHALL COORDINATE THIS WORK WITH OTHER TRADES AND SHALL CONFER WITH OTHER CONTRACTORS WHOSE WORK MIGHT AFFECT THERE INSTALLATIONS TO AVOID CONFLICT.
9. NEW DATA DEVICES TO BE INSTALLED WITH CAT 6 CABLING. PATCH CABLING TO BE ROUTED FROM NEW DEVICE TO EXISTING SERVER ROOM LOCATED ON THIS FLOOR.
10. NEW POWER AND COMMUNICATION OUTLETS SHALL MATCH EXISTING POWER AND COMMUNICATION OUTLETS (CONFIRM MAKE/MODEL OF FLOORBOX WITH ARCHITECT, ENGINEER, AND OWNER PRIOR TO ORDERING).
11. DENOTES NEW COMBINATION VOICE/DATA OUTLET C/W CATEGORY 6 RJ45 CONNECTORS QUANTITY AS INDICATED. PROVIDE A WHITE CATEGORY 6 CABLE FROM EACH VOICE/DATA CONNECTOR TO TERMINATE ONTO NEW WALL MOUNTED BIX BLOCKS. REFER TO COMMUNICATION CABLING DIAGRAMS FOR BIX BLOCKS LOCATIONS AND SPECIFIC CABLE ROUTING REQUIREMENTS. PROVIDE A 27mmC STUB UP FOR EACH OUTLET.
   '2D' – DENOTES NUMBER OF DATA CONNECTORS.
   '2V' – DENOTES NUMBER OF VOICE CONNECTORS.
12. DENOTES NEW VOICE OUTLET C/W CATEGORY 6 RJ45 CONNECTORS QUANTITY AS INDICATED. PROVIDE A WHITE CATEGORY 6 CABLE FROM EACH VOICE CONNECTOR TO TERMINATE ONTO NEW WALL MOUNTED BIX BLOCKS. REFER TO COMMUNICATION CABLING DIAGRAMS FOR BIX BLOCKS LOCATIONS AND SPECIFIC CABLE ROUTING REQUIREMENTS. PROVIDE A 21mmC STUB UP FOR EACH OUTLET.
   '2V' – DENOTES NUMBER OF VOICE CONNECTORS.
13. CONFIRM LOCATIONS OF ALL FURNITURE SCREEN SYSTEM FEEDS WITH FURNITURE SUPPLIER. DO NOT PROCEED WITHOUT ARCHITECT APPROVED FURNITURE SYSTEMS SUPPLIER DRAWING. CONFIRM LOCATIONS OF ALL FLOORBOX RELOCATIONS WITH FURNITURE SUPPLIER AND ARCHITECT PRIOR TO PROCEEDING.
14. FURNITURE BASE FEED WALL OUTLETS SHALL CONSIST OF TWO (2) FLUSH DOUBLE-GANG BOXES (ONE FOR COMMUNICATIONS AND ONE FOR POWER). PROVIDE COVERS TO SUIT FURNITURE SYSTEM HARDWARE. THE COMMUNICATION BOX SHALL BE COMPLETE WITH TWO 1 1/4" CONDUITS TO CEILING SPACE.
15. FURNITURE SCREEN MOUNTED RECEPTACLES AND DATA OUTLETS WILL BE SUPPLIED AND INSTALLED BY FURNITURE SCREEN SUPPLIER. PROVIDE FINAL POWER WHIP AND DATA CONNECTIONS TO FURNITURE SCREEN BASE FEEDS.
16. ALL AUDIO-VISUAL AND/OR VIDEO CONFERENCING EQUIPMENT SHALL BE GROUNDED VIA DEDICATED INSULATED GROUNDING CONDUCTORS CONNECTED DIRECTLY TO THE MAIN BUILDING GROUND BAR, ISOLATED FROM BUILDING CONDUIT AND BACKBOXES ETC.
17. ANY AUDIO-VISUAL AND/OR VIDEO CONFERENCING EQUIPMENT BEING RELOCATED SHALL BE GROUNDED VIA DEDICATED INSULATED GROUNDING CONDUCTORS CONNECTED DIRECTLY TO THE MAIN BUILDING GROUND BAR AND ISOLATED FROM BUILDING CONDUIT AND BACKBOXES ETC.
18. ALL AUDIO-VISUAL AND/OR VIDEO CONFERENCING CONDUIT, JUNCTION BOXES, PANELBOARDS ETC. SHALL BE GROUNDED IN TYPICAL BASE BUILDING FASHION.
19. RECEPTACLES SERVICING AUDIO-VISUAL AND/OR VIDEO CONFERENCING EQUIPMENT SHALL BE ISOLATED GROUND RECEPTACLES. SUCH RECEPTACLES SHALL BE ORANGE IN COLOR AND CLEARLY IDENTIFIABLE. ISOLATED GROUND RECEPTACLES SHALL BE WIRED AND CONNECTED TO NEAREST ISOLATED GROUND PANEL.
20. AUDIO-VISUAL AND/OR VIDEO CONFERENCING EQUIPMENT RACKS SHALL BE ISOLATED FROM ADJOINING WIREWAY GROUNDING SYSTEM VIA INSULATED COUPLINGS. RACKS TO BE INSULATED FROM FLOOR SURFACE AND POSITIONED SO THAT THEY WILL NOT COME IN CONTACT WITH A BASE BUILDING GROUND DURING OPERATION.
21. SOUND AND COMMUNICATION WIRING SHALL BE DIVIDED INTO THE FOLLOWING CATEGORIES: VIDEO, TELEPHONE, DIGITAL CIRCUITS, AND CONTROL CIRCUITS. EACH WIRING CATEGORY SHALL BE WITHIN A SEPARATE CONDUIT SYSTEM. REFER TO APPLICABLE SECTIONS OF THE CEC AND CSA FOR MINIMUM ALLOWABLE CONDUIT SEPARATION.
22. SOUND, VIDEO, AND COMMUNICATIONS WIRING, RACEWAYS, AND CONDUIT SHALL REMAIN PHYSICALLY SEPARATE FROM ANY OTHER SYSTEM WHICH MAY CAUSE INTERFERENCE.
23. WHERE ALTERNATING CURRENT POWER MUST BE PARALLEL TO SOUND, VIDEO, AND COMMUNICATIONS WIRING, RACEWAYS, AND CONDUIT, MAINTAIN A SEPARATION OF AT LEAST 915mm IN RUNS UNDER 22m, IN RUNS OVER 22m THE SEPARATION MUST BE NO LESS THAN 1.8m.
24. SOUND, VIDEO, AND COMMUNICATIONS WIRING, RACEWAYS, AND CONDUIT MUST NOT RUN PARALLEL TO POWER MAINS OF POTENTIAL IN EXCESS OF 600 VOLTS.
25. INSTALL SOUND, VIDEO, AND COMMUNICATIONS WIRING WITHIN CONTINUOUSLY GROUNDED FERROUS METAL CONDUIT OR RACEWAY. PVC CONDUIT IS NOT ACCEPTABLE.
26. SIGNAL CONDUITS SHALL BE MECHANICALLY AND ELECTRICALLY CONNECTED TO RECEPTACLE BOXES AND ELECTRONICALLY ISOLATED FROM SOUND SYSTEM EQUIPMENT RACKS.
27. ELECTRICAL CONTRACTOR AND MANUFACTURER SHALL CONDUCT A FIRE ALARM VERIFICATION IN ACCORDANCE WITH CAN/ULC-S537-04 IN THE PRESENCE OF THE PROFESSIONAL ENGINEER OR THEIR DESIGNATE FOR ALL FIRE ALARM DEVICES THAT ARE AFFECTED BY THE DEMOLITION AND RELOCATION WORK. ALL VERIFYING TEST PROCEDURES SHALL BE WITNESSED BY THE OWNER'S REPRESENTATIVE. REFER TO SPECIFICATION SECTION 28 31 01 FOR DETAILS.
28. FOR ANY AUDIBLE SIGNAL DEVICES BEING RELOCATED, WHERE CEILING HEIGHTS ALLOW SAID DEVICES SHALL BE INSTALLED SO THAT THE CENTER OF THE DEVICE WILL NOT BE LESS THAN 1800mm ABOVE THE FINISHED FLOOR LEVEL AND FOR WALL-MOUNTED DEVICES NOT CLOSER THAN 50mm FROM THE CEILING.
29. FOR ANY WALL-MOUNTED VISIBLE SIGNAL DEVICES BEING RELOCATED, SAID DEVICES SHALL BE INSTALLED SUCH THAT THE CENTER OF THE DEVICE WILL BE NOT MORE THAN 2000mm ABOVE THE FINISHED FLOOR LEVEL AND NOT CLOSER THAN 150mm FROM THE CEILING.
30. FOR ANY CEILING-MOUNTED VISIBLE SIGNAL DEVICES BEING RELOCATED, SAID DEVICES SHALL BE SUSPENDED OR MOUNTED AT NOT MORE THAN 9000mm ABOVE THE FINISHED FLOOR LEVEL.
31. FOR ANY CONTROL UNITS AND TRANSPONDERS BEING RELOCATED, SAID DEVICES SHALL NOT BE MORE THAN 2400mm ABOVE THE FINISHED FLOOR LEVEL.
32. ALL WIRING SHALL BE PROTECTED IN EMT CONDUIT AND SHALL BE INSTALLED IN COMPLIANCE WITH THE CEC, AUTHORITIES HAVING JURISDICTION, AND LOCAL CODES.
33. DATA COMMUNICATION CIRCUIT WIRING. SHALL BE MINIMUM AWG #18, TWISTED PAIR, WIRED AND CONFIGURED AS CLASS 'A' STYLE.
34. HORN/STROBE WIRING SHALL BE MINIMUM AWG #16 AND CONFIGURED AS CLASS 'B' STYLE.
35. SMOKE DETECTOR, MANUAL STATION, AND SUPERVISORY CIRCUIT WIRING SHALL BE MINIMUM AWG #18.
36. TELEPHONE WIRING. SHALL BE MINIMUM AWG #18, TWISTED, SHIELDED PAIR AND CONFIGURED AS CLASS 'B' STYLE.
37. MANUFACTURER AND ELECTRICAL CONTRACTOR SHALL COORDINATE TO ENSURE THAT ALL CIRCUITS DO NOT EXCEED ANY POWER LIMITATIONS.
38. ELECTRICAL CONTRACTOR SHALL COORDINATE ALL ELECTRICAL WORK WITH THE CONSTRUCTION PHASING OUTLINE. COORDINATE WITH ALL OTHER TRADES INSTALLATION OF ELECTRICAL SERVICES, SYSTEMS, EQUIPMENT ETC. PRIOR TO PROCEEDING WITH WORK.
39. CIRCUITING SHOWN IS DIAGRAMMATIC AND SHOWS INTENDED CIRCUITING ONLY. SHOULD ONSITE CONDITIONS DIFFER OR CONFLICT WITH WHAT IS INDICATED ON THESE DRAWINGS, ELECTRICAL CONTRACTOR SHALL CONFIRM WITH ARCHITECT AND ENGINEER PRIOR TO ROUGH-IN AND INSTALLATION.
40. COORDINATE EXACT LOCATION AND INSTALLATION OF ALL POWER AND DATA OUTLETS WITH ARCHITECTURAL AND MECHANICAL DRAWINGS AS WELL AS FURNITURE LOCATIONS.
41. COORDINATE EXACT LOCATION AND INSTALLATION OF ALL BREAKOUT/BOARD/MEETING ROOM POWER AND DATA OUTLETS WITH ARCHITECT AND OWNER PRIOR TO ROUGH-IN; FOR MEETING, CONFERENCE, AND BREAKOUT ROOM SPACES, CONFIRM FURNITURE LAYOUT WITHIN THE SPACE AND WHETHER FLOORBOX SHOWN NEEDS TO BE CHANGED TO A DIRECT CONNECTION C/W CHASE TO FURNITURE-MOUNTED (TABLE TOP) OUTLETS PRIOR TO ORDERING AND ROUGH-IN.
42. ELECTRICAL CONTRACTOR TO ALLOW FOR COST OF HEAT TRACE FOR STORM, WATER AND VERTICAL WATER LEADER. COORDINATE WITH MECHANICAL DRAWINGS FOR DETAILS.



1 BASEMENT - POWER & LOW TENSION PLAN
E301 SCALE 1:100

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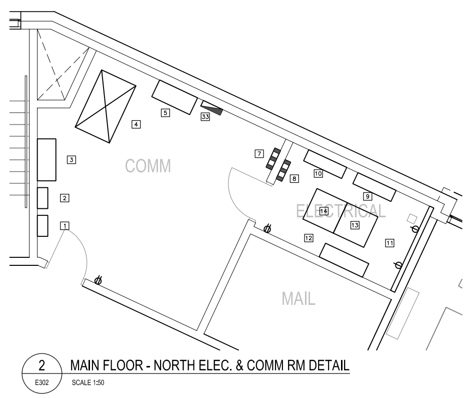
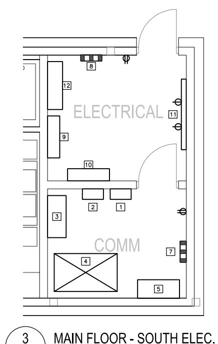


2 MAIN FLOOR - NORTH ELEC. & COMM RM DETAIL
E302 SCALE 1:50



3 MAIN FLOOR - SOUTH ELEC. & COMM RM DETAIL
E302 SCALE 1:50

KEYNOTES

1. N/A
2. 600V FUSED DISCONNECT SWITCH
3. 600V POWER DISTRIBUTION CENTRE CDP
4. 600/208/120V TRANSFORMER ON 100mm CONCRETE PAD
5. 120/208V POWER DISTRIBTUION CENTRE
6. NOT USED
7. 50x6x450mm GROUND BUS
8. COMMUNICATION GROUND BUS
9. FIRE ALARM TERMINAL CABINET
10. DOOR ACCESS SECURITY CABINET
11. 21mm FIRERATED BACKBOARD
12. VERTICAL COMM. RISER SLEEVES
13. DATA RACK
14. DATA CABINET
15. SOUND SYSTEM TYPE AND LOCATION TO BE CONFIRMED.
16. NOT USED
17. ONE(1) 5-15R RECEPTACLE WITH TWO(2) USB CHARGING PORTS.
18. TV MONITOR OUTLETS: MOUNTING HEIGHTS TO BE CONFIRMED W/ ARCH ELEVATION.
19. PROVIDE POWER CONNECTION FOR TOUCHLESS DEVICE.
20. POWER CONNECTION FOR DISHWAHSER.
21. POWER CONNECTION FOR _____
22. CAT 6 TO SCREENS, FOR POWER (RECEPTACLE – 5-20R) LCD SCREENS WALL MOUNT.
23. CAT 6 TO SCREENS, FOR POWER (RECEPTACLE – 5-20R) LCD POST MOUNT.
24. A/V WALL BOX (3 GANG WALL BOX)
25. O/H PROJECTOR
26. O/H PROJECTOR SCREEN
27. 4x4" GANG BOX
28. DIRECT FEED OF POWER AND DATA CONDUIT.
29. STUDENT UNION TV. CAT 6 TO SCREENS, FOR POWER (RECEPTACLE – 5-20R) LCD SCREENS WALL MOUNT. TV MONITOR OUTLETS: MOUNTING HEIGHTS TO BE CONFIRMED W/ ARCH ELEVATION.
30. 120/208V KITCHEN PANEL.
31. 120/208V DINING PANEL.
32. 120/208V PANEL '2A'.
33. 120/208V PANEL '2B'

GENERAL POWER & SYSTEM NOTES:

1. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION AND MOUNTING HEIGHTS OF ALL NEW AND/OR RELOCATED ELECTRICAL DEVICES.
2. REFER TO MECHANICAL DRAWINGS FOR EXACT LOCATION AND MOUNTING HEIGHTS OF ALL NEW AND/OR RELOCATED MECHANICAL DEVICES.
3. BRANCH CIRCUITING FOR ALL EQUIPMENT SHALL BE AS FOLLOWS:
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   iii) NO WIRE SMALLER THAN NO.12 AWG SHALL BE USED FOR BRANCH CIRCUIT WIRING.
4. BX CABLE SHALL NOT BE USED WITHOUT WRITTEN PERMISSION FROM THE ENGINEER.
5. ALL EMPTY CONDUITS SHALL BE C/W PULLWIRE.
6. RECEPTACLES DENOTED WITH THE SUBSCRIPT 'T' TO BE 5-20RA CONFIGURATION.
7. ALL SURFACE-MOUNTED DEVICES LOCATED WITHIN PUBLICLY ACCESSIBLE AREAS TO BE 'FS' TYPE.
8. ELECTRICAL CONTRACTOR SHALL COORDINATE THIS WORK WITH OTHER TRADES AND SHALL CONFER WITH OTHER CONTRACTORS WHOSE WORK MIGHT AFFECT THERE INSTALLATIONS TO AVOID CONFLICT.
9. NEW DATA DEVICES TO BE INSTALLED WITH CAT 6 CABLING. PATCH CABLING TO BE ROUTED FROM NEW DEVICE TO EXISTING SERVER ROOM LOCATED ON THIS FLOOR.
10. NEW POWER AND COMMUNICATION OUTLETS SHALL MATCH EXISTING POWER AND COMMUNICATION OUTLETS (CONFIRM MAKE/MODEL OF FLOORBOX WITH ARCHITECT, ENGINEER, AND OWNER PRIOR TO ORDERING).
11. DENOTES NEW COMBINATION VOICE/DATA OUTLET C/W CATEGORY 6 RJ45 CONNECTORS QUANTITY AS INDICATED. PROVIDE A WHITE CATEGORY 6 CABLE FROM EACH VOICE/DATA CONNECTOR TO TERMINATE ONTO NEW WALL MOUNTED BIX BLOCKS. REFER TO COMMUNICATION CABLING DIAGRAMS FOR BIX BLOCKS LOCATIONS AND SPECIFIC CABLE ROUTING REQUIREMENTS. PROVIDE A 27mmC STUB UP FOR EACH OUTLET.
    '2D' – DENOTES NUMBER OF DATA CONNECTORS.
    '2V' – DENOTES NUMBER OF VOICE CONNECTORS.
12. DENOTES NEW VOICE OUTLET C/W CATEGORY 6 RJ45 CONNECTORS QUANTITY AS INDICATED. PROVIDE A WHITE CATEGORY 6 CABLE FROM EACH VOICE CONNECTOR TO TERMINATE ONTO NEW WALL MOUNTED BIX BLOCKS. REFER TO COMMUNICATION CABLING DIAGRAMS FOR BIX BLOCKS LOCATIONS AND SPECIFIC CABLE ROUTING REQUIREMENTS. PROVIDE A 21mmC STUB UP FOR EACH OUTLET.
    '2V' – DENOTES NUMBER OF VOICE CONNECTORS.
13. CONFIRM LOCATIONS OF ALL FURNITURE SCREEN SYSTEM FEEDS WITH FURNITURE SUPPLIER. DO NOT PROCEED WITHOUT ARCHITECT APPROVED FURNITURE SYSTEMS SUPPLIER DRAWING. CONFIRM LOCATIONS OF ALL FLOORBOX RELOCATIONS WITH FURNITURE SUPPLIER AND ARCHITECT PRIOR TO PROCEEDING.
14. FURNITURE BASE FEED WALL OUTLETS SHALL CONSIST OF TWO (2) FLUSH DOUBLE-GANG BOXES (ONE FOR COMMUNICATIONS AND ONE FOR POWER). PROVIDE COVERS TO SUIT FURNITURE SYSTEM HARDWARE. THE COMMUNICATION BOX SHALL BE COMPLETE WITH TWO 1 1/4" CONDUITS TO CEILING SPACE.
15. FURNITURE SCREEN MOUNTED RECEPTACLES AND DATA OUTLETS WILL BE SUPPLIED AND INSTALLED BY FURNITURE SCREEN SUPPLIER. PROVIDE FINAL POWER WHIP AND DATA CONNECTIONS TO FURNITURE SCREEN BASE FEEDS.
16. ALL AUDIO-VISUAL AND/OR VIDEO CONFERENCING EQUIPMENT SHALL BE GROUNDED VIA DEDICATED INSULATED GROUNDING CONDUCTORS CONNECTED DIRECTLY TO THE MAIN BUILDING GROUND BAR, ISOLATED FROM BUILDING CONDUIT AND BACKBOXES ETC.
17. ANY AUDIO-VISUAL AND/OR VIDEO CONFERENCING EQUIPMENT BEING RELOCATED SHALL BE GROUNDED VIA DEDICATED INSULATED GROUNDING CONDUCTORS CONNECTED DIRECTLY TO THE MAIN BUILDING GROUND BAR AND ISOLATED FROM BUILDING CONDUIT AND BACKBOXES ETC.
18. ALL AUDIO-VISUAL AND/OR VIDEO CONFERENCING CONDUIT, JUNCTION BOXES, PANELBOARDS ETC. SHALL BE GROUNDED IN TYPICAL BASE BUILDING FASHION.
19. RECEPTACLES SERVICING AUDIO-VISUAL AND/OR VIDEO CONFERENCING EQUIPMENT SHALL BE ISOLATED GROUND RECEPTACLES. SUCH RECEPTACLES SHALL BE ORANGE IN COLOR AND CLEARLY IDENTIFIABLE. ISOLATED GROUND RECEPTACLES SHALL BE WIRED AND CONNECTED TO NEAREST ISOLATED GROUND PANEL.
20. AUDIO-VISUAL AND/OR VIDEO CONFERENCING EQUIPMENT RACKS SHALL BE ISOLATED FROM ADJOINING WIREWAY GROUNDING SYSTEM VIA INSULATED COUPLINGS. RACKS TO BE INSULATED FROM FLOOR SURFACE AND POSITIONED SO THAT THEY WILL NOT COME IN CONTACT WITH A BASE BUILDING GROUND DURING OPERATION.
21. SOUND AND COMMUNICATION WIRING SHALL BE DIVIDED INTO THE FOLLOWING CATEGORIES: VIDEO, TELEPHONE, DIGITAL CIRCUITS, AND CONTROL CIRCUITS. EACH WIRING CATEGORY SHALL BE WITHIN A SEPARATE CONDUIT SYSTEM. REFER TO APPLICABLE SECTIONS OF THE CEC AND CSA FOR MINIMUM ALLOWABLE CONDUIT SEPARATION.
22. SOUND, VIDEO, AND COMMUNICATIONS WIRING, RACEWAYS, AND CONDUIT SHALL REMAIN PHYSICALLY SEPARATE FROM ANY OTHER SYSTEM WHICH MAY CAUSE INTERFERENCE.
23. WHERE ALTERNATING CURRENT POWER MUST BE PARALLEL TO SOUND, VIDEO, AND COMMUNICATIONS WIRING, RACEWAYS, AND CONDUIT, MAINTAIN A SEPARATION OF AT LEAST 915mm IN RUNS UNDER 22m, IN RUNS OVER 22m THE SEPARATION MUST BE NO LESS THAN 1.8m.
24. SOUND, VIDEO, AND COMMUNICATIONS WIRING, RACEWAYS, AND CONDUIT MUST NOT RUN PARALLEL TO POWER MAINS OF POTENTIAL IN EXCESS OF 600 VOLTS.
25. INSTALL SOUND, VIDEO, AND COMMUNICATIONS WIRING WITHIN CONTINUOUSLY GROUNDED FERROUS METAL CONDUIT OR RACEWAY. PVC CONDUIT IS NOT ACCEPTABLE.
26. SIGNAL CONDUITS SHALL BE MECHANICALLY AND ELECTRICALLY CONNECTED TO RECEPTACLE BOXES AND ELECTRONICALLY ISOLATED FROM SOUND SYSTEM EQUIPMENT RACKS.
27. ELECTRICAL CONTRACTOR AND MANUFACTURER SHALL CONDUCT A FIRE ALARM VERIFICATION IN ACCORDANCE WITH CAN/ULC-S537-04 IN THE PRESENCE OF THE PROFESSIONAL ENGINEER OR THEIR DESIGNATE FOR ALL FIRE ALARM DEVICES THAT ARE AFFECTED BY THE DEMOLITION AND RELOCATION WORK. ALL VERIFYING TEST PROCEDURES SHALL BE WITNESSED BY THE OWNER'S REPRESENTATIVE. REFER TO SPECIFICATION SECTION 28 31 01 FOR DETAILS.
28. FOR ANY AUDIBLE SIGNAL DEVICES BEING RELOCATED, WHERE CEILING HEIGHTS ALLOW SAID DEVICES SHALL BE INSTALLED SO THAT THE CENTER OF THE DEVICE WILL NOT BE LESS THAN 1800mm ABOVE THE FINISHED FLOOR LEVEL AND FOR WALL-MOUNTED DEVICES NOT CLOSER THAN 50mm FROM THE CEILING.
29. FOR ANY WALL-MOUNTED VISIBLE SIGNAL DEVICES BEING RELOCATED, SAID DEVICES SHALL BE INSTALLED SUCH THAT THE CENTER OF THE DEVICE WILL BE NOT MORE THAN 2000mm ABOVE THE FINISHED FLOOR LEVEL AND NOT CLOSER THAN 150mm FROM THE CEILING.
30. FOR ANY CEILING-MOUNTED VISIBLE SIGNAL DEVICES BEING RELOCATED, SAID DEVICES SHALL BE SUSPENDED OR MOUNTED AT NOT MORE THAN 9000mm ABOVE THE FINISHED FLOOR LEVEL.
31. FOR ANY CONTROL UNITS AND TRANSPONDERS BEING RELOCATED, SAID DEVICES SHALL NOT BE MORE THAN 2400mm ABOVE THE FINISHED FLOOR LEVEL.
32. ALL WIRING SHALL BE PROTECTED IN EMT CONDUIT AND SHALL BE INSTALLED IN COMPLIANCE WITH THE CEC, AUTHORITIES HAVING JURISDICTION, AND LOCAL CODES.
33. DATA COMMUNICATION CIRCUIT WIRING. SHALL BE MINIMUM AWG #18, TWISTED PAIR, WIRED AND CONFIGURED AS CLASS 'A' STYLE.
34. HORN/STROBE WIRING SHALL BE MINIMUM AWG #16 AND CONFIGURED AS CLASS 'B' STYLE.
35. SMOKE DETECTOR, MANUAL STATION, AND SUPERVISORY CIRCUIT WIRING SHALL BE MINIMUM AWG #18.
36. TELEPHONE WIRING. SHALL BE MINIMUM AWG #18, TWISTED, SHIELDED PAIR AND CONFIGURED AS CLASS 'B' STYLE.
37. MANUFACTURER AND ELECTRICAL CONTRACTOR SHALL COORDINATE TO ENSURE THAT ALL CIRCUITS DO NOT EXCEED ANY POWER LIMITATIONS.
38. ELECTRICAL CONTRACTOR SHALL COORDINATE ALL ELECTRICAL WORK WITH THE CONSTRUCTION PHASING OUTLINE. COORDINATE WITH ALL OTHER TRADES INSTALLATION OF ELECTRICAL SERVICES, SYSTEMS, EQUIPMENT ETC. PRIOR TO PROCEEDING WITH WORK.
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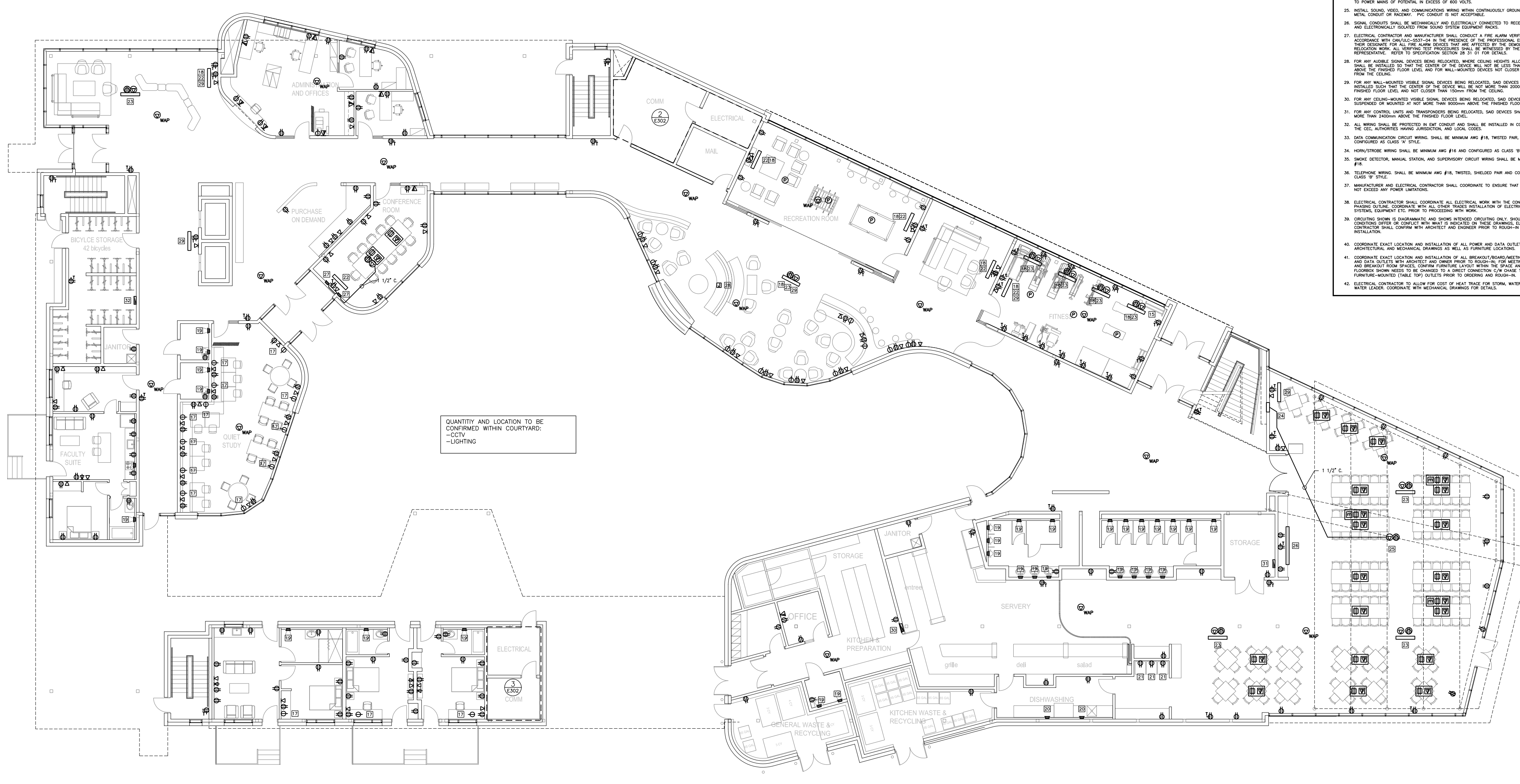
40. COORDINATE EXACT LOCATION AND INSTALLATION OF ALL POWER AND DATA OUTLETS WITH ARCHITECTURAL AND MECHANICAL DRAWINGS AS WELL AS FURNITURE LOCATIONS.
41. COORDINATE EXACT LOCATION AND INSTALLATION OF ALL BREAKOUT/BOARD/MEETING ROOM POWER AND DATA OUTLETS WITH ARCHITECT AND OWNER PRIOR TO ROUGH-IN; FOR MEETING, CONFERENCE, AND BREAKOUT ROOM SPACES, CONFIRM FURNITURE LAYOUT WITHIN THE SPACE AND WHETHER FLOORBOX SHOWN NEEDS TO BE CHANGED TO A DIRECT CONNECTION C/W CHASE TO FURNITURE-MOUNTED (TABLE TOP) OUTLETS PRIOR TO ORDERING AND ROUGH-IN.
42. ELECTRICAL CONTRACTOR TO ALLOW FOR COST OF HEAT TRACE FOR STORM, WATER AND VERTICAL WATER LEADER. COORDINATE WITH MECHANICAL DRAWINGS FOR DETAILS.



1 MAIN FLOOR - POWER & LOW TENSION PLAN
E302 SCALE 1:100

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Issues & Revisions

Ltr. / #	Date	By	Description
A	2014.04.30	SMP	ISSUED FOR DESIGN DEVELOPMENT DRAWING SET

Faculty/Department **FACULTY OR DEPARTMENT**

Client Approval Date

Dwg Title MAIN FLOOR - POWER & LOW TENSION PLAN

Building **SASKATCHEWAN DRIVE RESIDENCE**

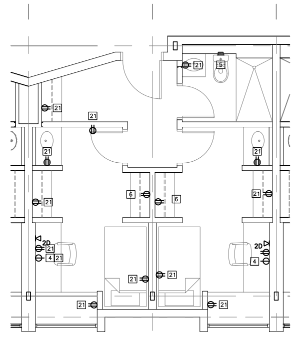
Proj. Number **E1234** Work Order Number **567890**

Arch ☐ Mech ☐ Elec ■ Struc ☐ Civil ☐ Drawn By **KM**

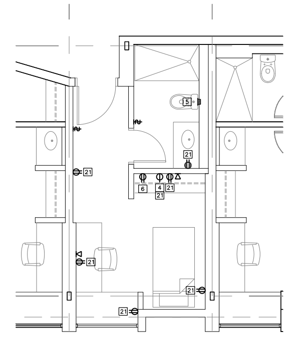
Dwg. Created **2014.04.14**
Design File No. #####-YY-##
Issue & Revision **A** **0**

Sheet **of x** Drawing Number E302

5361



2 / E303 — **TYPICAL 2 BED SUITE DETAIL - POWER & LOW TENSION PLAN**
SCALE 1:50



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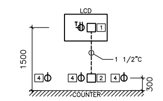
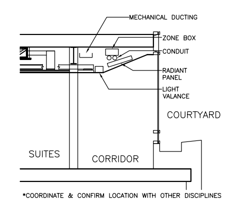
SCALE 1:50

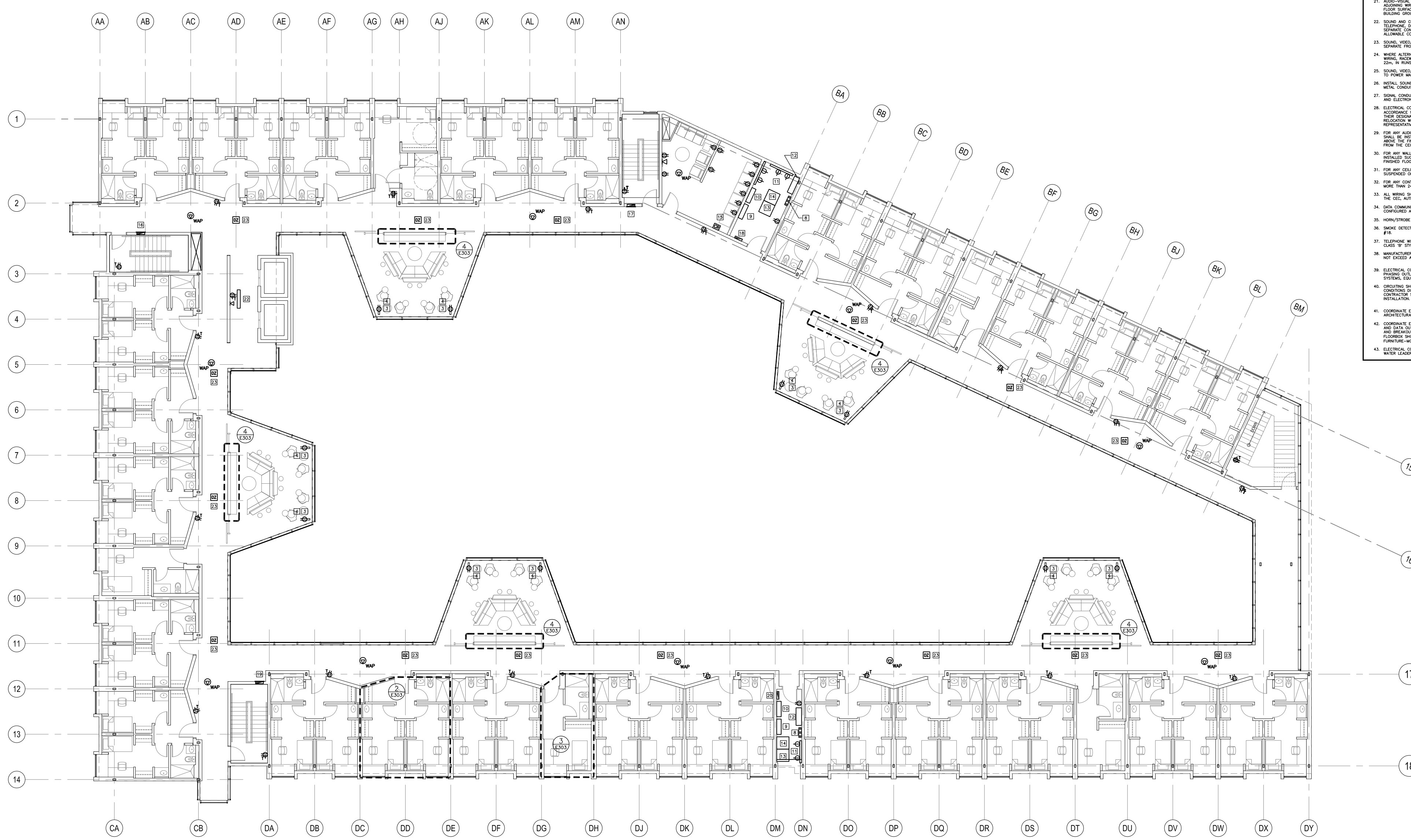


4 / E303 — **SOCIAL SPACE COMMON ROOM - COUNTER DETAIL**
SCALE: NTS



*COORDINATE & CONFIRM LOCATION WITH OTHER DISCIPLINES

5 / E303 — **CORRIDOR SECTION DETAIL**
SCALE: NTS



1 / E303 — **2ND FLOOR - POWER & LOW TENSION PLAN**
SCALE 1:100

KEYNOTES

1. POWER, CABLE AND HDMI/DATA FOR TV. 4"x4" BOX.
2. POWER HDMI/DATA FOR TV INFEED. 4-GANG BOX.
3. MOUNTED IN COLUMN FURRING.
4. ONE(1) 5-15R RECEPTACLE WITH TWO(2) USB CHARGING PORTS.
5. PROVIDE POWER CONNECTION FOR TOUCHLESS DEVICE.
6. POWER CONNECTION FOR MINI FRIDGE.
7. MINI HORN STROBE, IN SUITE NOTIFICATION DEVICE c/w SILENCE BUTTON.
8. COMMUNICATION GROUND BUS
9. FIRE ALARM TERMINAL CABINET
10. DOOR ACCESS SECURITY CABINET
11. 21mm FIRERATED BACKBOARD
12. VERTICAL COMM. RISER SLEEVES
13. DATA RACK
14. DATA CABINET
15. ONE CARD SYSTEM.
16. PANEL '---'
17. PANEL '---'
18. PANEL '---'
19. PANEL '---'
20. PANEL '---'
21. SHALL BE TAMPER RESISTANT.
22. STUDENT UNION TV, CAT 6 TO SCREENS, FOR POWER (RECEPTACLE – 5-20R) LCD SCREENS WALL MOUNT. TV MONITOR OUTLETS: MOUNTING HEIGHTS TO BE CONFIRMED W/ ARCH ELEVATION.
23. ZONE BOX TO BE FED BACK TO NEAREST COMMUNICATION ROOM ON CURRENT FLOOR

GENERAL POWER & SYSTEM NOTES:

1. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION AND MOUNTING HEIGHTS OF ALL NEW AND/OR RELOCATED ELECTRICAL DEVICES.
2. REFER TO MECHANICAL DRAWINGS FOR EXACT LOCATION AND MOUNTING HEIGHTS OF ALL NEW AND/OR RELOCATED MECHANICAL DEVICES.
3. BRANCH CIRCUITING FOR ALL EQUIPMENT SHALL BE AS FOLLOWS:
   i) USE NO.12 AWG FOR RUNS UP TO 100FT.
   ii) USE NO.10 AWG FOR RUNS UP TO 150FT ON 15A-1P BREAKER.
   iii) NO WIRE SMALLER THAN NO.12 AWG SHALL BE USED FOR BRANCH CIRCUIT WIRING.
4. BX CABLE SHALL NOT BE USED WITHOUT WRITTEN PERMISSION FROM THE ENGINEER.
5. ALL EMPTY CONDUITS SHALL BE C/W PULLWIRE.
6. RECEPTACLES DENOTED WITH THE SUBSCRIPT 'T' TO BE 5-20RA CONFIGURATION.
7. ALL SURFACE-MOUNTED DEVICES LOCATED WITHIN PUBLICLY ACCESSIBLE AREAS TO BE 'FS' TYPE.
8. ELECTRICAL CONTRACTOR SHALL COORDINATE THIS WORK WITH OTHER TRADES AND SHALL CONFER WITH OTHER CONTRACTORS WHOSE WORK MIGHT AFFECT THERE INSTALLATIONS TO AVOID CONFLICT.
9. NEW DATA DEVICES TO BE INSTALLED WITH CAT 6 CABLING. PATCH CABLING TO BE ROUTED FROM NEW DEVICE TO EXISTING SERVER ROOM LOCATED ON THIS FLOOR.
10. NEW POWER AND COMMUNICATION OUTLETS SHALL MATCH EXISTING POWER AND COMMUNICATION OUTLETS (CONFIRM MAKE/MODEL OF FLOORBOX WITH ARCHITECT, ENGINEER, AND OWNER PRIOR TO ORDERING).
11. DENOTES NEW COMBINATION VOICE/DATA OUTLET C/W CATEGORY 6 RJ45 CONNECTORS QUANTITY AS INDICATED. PROVIDE A WHITE CATEGORY 6 CABLE FROM EACH VOICE/DATA CONNECTOR TO TERMINATE ONTO NEW WALL MOUNTED BIX BLOCKS. REFER TO COMMUNICATION CABLING DIAGRAMS FOR BIX BLOCKS LOCATIONS AND SPECIFIC CABLE ROUTING REQUIREMENTS. PROVIDE A 27mmC STUB UP FOR EACH OUTLET.
    '2D' – DENOTES NUMBER OF DATA CONNECTORS.
    '2V' – DENOTES NUMBER OF VOICE CONNECTORS.
12. DENOTES NEW VOICE OUTLET C/W CATEGORY 6 RJ45 CONNECTORS QUANTITY AS INDICATED. PROVIDE A WHITE CATEGORY 6 CABLE FROM EACH VOICE CONNECTOR TO TERMINATE ONTO NEW WALL MOUNTED BIX BLOCKS. REFER TO COMMUNICATION CABLING DIAGRAMS FOR BIX BLOCKS LOCATIONS AND SPECIFIC CABLE ROUTING REQUIREMENTS. PROVIDE A 21mmC STUB UP FOR EACH OUTLET.
    '2V' – DENOTES NUMBER OF VOICE CONNECTORS.
13. PROVIDE TWO(2) CAT6 CABLES (DATA DROPS) TO EACH SUITE. TYPICAL FOR SUITES.
14. CONFIRM LOCATIONS OF ALL FURNITURE SCREEN SYSTEM FEEDS WITH FURNITURE SUPPLIER. DO NOT PROCEED WITHOUT ARCHITECT APPROVED FURNITURE SYSTEMS SUPPLIER DRAWING. CONFIRM LOCATIONS OF ALL FLOORBOX RELOCATIONS WITH FURNITURE SUPPLIER AND ARCHITECT PRIOR TO PROCEEDING.
15. FURNITURE BASE FEED WALL OUTLETS SHALL CONSIST OF TWO (2) FLUSH DOUBLE-GANG BOXES (ONE FOR COMMUNICATIONS AND ONE FOR POWER). PROVIDE COVERS TO SUIT FURNITURE SYSTEM HARDWARE. THE COMMUNICATION BOX SHALL BE COMPLETE WITH TWO 1 1/4" CONDUITS TO CEILING SPACE.
16. FURNITURE SCREEN MOUNTED RECEPTACLES AND DATA OUTLETS WILL BE SUPPLIED AND INSTALLED BY FURNITURE SCREEN SUPPLIER. PROVIDE FINAL POWER WHIP AND DATA CONNECTIONS TO FURNITURE SCREEN BASE FEEDS.
17. ALL AUDIO-VISUAL AND/OR VIDEO CONFERENCING EQUIPMENT SHALL BE GROUNDED VIA DEDICATED INSULATED GROUNDING CONDUCTORS CONNECTED DIRECTLY TO THE MAIN BUILDING GROUND BAR, ISOLATED FROM BUILDING CONDUIT AND BACKBOXES ETC.
18. ANY AUDIO-VISUAL AND/OR VIDEO CONFERENCING EQUIPMENT BEING RELOCATED SHALL BE GROUNDED VIA DEDICATED INSULATED GROUNDING CONDUCTORS CONNECTED DIRECTLY TO THE MAIN BUILDING GROUND BAR AND ISOLATED FROM BUILDING CONDUIT AND BACKBOXES ETC.
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25. SOUND, VIDEO, AND COMMUNICATIONS WIRING, RACEWAYS, AND CONDUIT MUST NOT RUN PARALLEL TO POWER MAINS OF POTENTIAL IN EXCESS OF 600 VOLTS.
26. INSTALL SOUND, VIDEO, AND COMMUNICATIONS WIRING WITHIN CONTINUOUSLY GROUNDED FERROUS METAL CONDUIT OR RACEWAY. PVC CONDUIT IS NOT ACCEPTABLE.
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30. FOR ANY WALL-MOUNTED VISIBLE SIGNAL DEVICES BEING RELOCATED, SAID DEVICES SHALL BE INSTALLED SUCH THAT THE CENTER OF THE DEVICE WILL BE NOT MORE THAN 2000mm ABOVE THE FINISHED FLOOR LEVEL AND NOT CLOSER THAN 150mm FROM THE CEILING.
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34. DATA COMMUNICATION CIRCUIT WIRING. SHALL BE MINIMUM AWG #18, TWISTED PAIR, WIRED AND CONFIGURED AS CLASS 'A' STYLE.
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36. SMOKE DETECTOR, MANUAL STATION, AND SUPERVISORY CIRCUIT WIRING SHALL BE MINIMUM AWG #18.
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Issues & Revisions

Ltr. / #	Date	By	Description
A	2014.04.30	SMP	ISSUED FOR DESIGN DEVELOPMENT DRAWING SET

Faculty/Department **FACULTY OR DEPARTMENT**
Client Approval Date

Dwg Title: 2ND FLOOR - POWER & LOW TENSION PLAN

Building: **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number **E1234** Work Order Number **567890**
Arch ☐ Mech ☐ Elec ■ Struc ☐ Civil ☐ Drawn By **KM**
Dwg. Created **2014.04.14** Issue & Revision **A** **0**
Design File No. #####-YY-##
Sheet **of x** Drawing Number E303

5361

KEYNOTES

1. POWER, CABLE AND HDMI/DATA FOR TV. 4"x4" BOX.
2. POWER HDMI/DATA FOR TV INFEED. 4-GANG BOX.
3. MOUNTED IN COLUMN FURRING.
4. ONE(1) 5-15R RECEPTACLE WITH TWO(2) USB CHARGING PORTS.
5. PROVIDE POWER CONNECTION FOR TOUCHLESS DEVICE.
6. POWER CONNECTION FOR MINI FRIDGE.
7. MINI HORN STROBE, IN SUITE NOTIFICATION DEVICE c/w SILENCE BUTTON.
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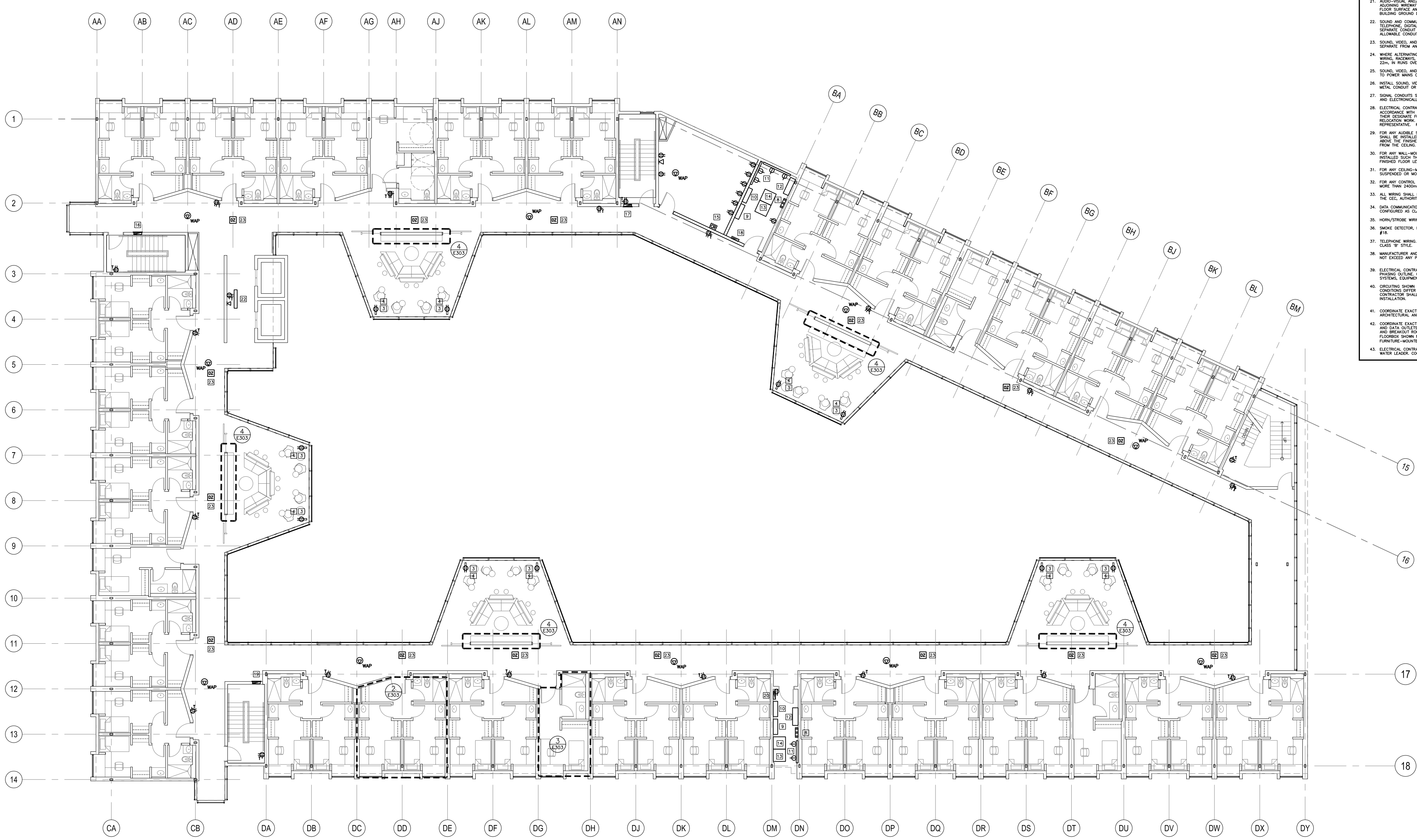
    '2D' – DENOTES NUMBER OF DATA CONNECTORS.
    '2V' – DENOTES NUMBER OF VOICE CONNECTORS.
12. DENOTES NEW VOICE OUTLET C/W CATEGORY 6 RJ45 CONNECTORS QUANTITY AS INDICATED. PROVIDE A WHITE CATEGORY 6 CABLE FROM EACH VOICE CONNECTOR TO TERMINATE ONTO NEW WALL MOUNTED BIX BLOCKS. REFER TO COMMUNICATION CABLING DIAGRAMS FOR BIX BLOCKS LOCATIONS AND SPECIFIC CABLE ROUTING REQUIREMENTS. PROVIDE A 21mmC STUB UP FOR EACH OUTLET.
    '2V' – DENOTES NUMBER OF VOICE CONNECTORS.
13. PROVIDE TWO(2) CAT6 CABLES (DATA DROPS) TO EACH SUITE. TYPICAL FOR SUITES.
14. CONFIRM LOCATIONS OF ALL FURNITURE SCREEN SYSTEM FEEDS WITH FURNITURE SUPPLIER. DO NOT PROCEED WITHOUT ARCHITECT APPROVED FURNITURE SYSTEMS SUPPLIER DRAWING. CONFIRM LOCATIONS OF ALL FLOORBOX RELOCATIONS WITH FURNITURE SUPPLIER AND ARCHITECT PRIOR TO PROCEEDING.
15. FURNITURE BASE FEED WALL OUTLETS SHALL CONSIST OF TWO (2) FLUSH DOUBLE-GANG BOXES (ONE FOR COMMUNICATIONS AND ONE FOR POWER). PROVIDE COVERS TO SUIT FURNITURE SYSTEM HARDWARE. THE COMMUNICATION BOX SHALL BE COMPLETE WITH TWO 1 1/4" CONDUITS TO CEILING SPACE.
16. FURNITURE SCREEN MOUNTED RECEPTACLES AND DATA OUTLETS WILL BE SUPPLIED AND INSTALLED BY FURNITURE SCREEN SUPPLIER. PROVIDE FINAL POWER WHIP AND DATA CONNECTIONS TO FURNITURE SCREEN BASE FEEDS.
17. ALL AUDIO-VISUAL AND/OR VIDEO CONFERENCING EQUIPMENT SHALL BE GROUNDED VIA DEDICATED INSULATED GROUNDING CONDUCTORS CONNECTED DIRECTLY TO THE MAIN BUILDING GROUND BAR, ISOLATED FROM BUILDING CONDUIT AND BACKBOXES ETC.
18. ANY AUDIO-VISUAL AND/OR VIDEO CONFERENCING EQUIPMENT BEING RELOCATED SHALL BE GROUNDED VIA DEDICATED INSULATED GROUNDING CONDUCTORS CONNECTED DIRECTLY TO THE MAIN BUILDING GROUND BAR AND ISOLATED FROM BUILDING CONDUIT AND BACKBOXES ETC.
19. ALL AUDIO-VISUAL AND/OR VIDEO CONFERENCING CONDUIT, JUNCTION BOXES, PANELBOARDS ETC. SHALL BE GROUNDED IN TYPICAL BASE BUILDING FASHION.
20. RECEPTACLES SERVICING AUDIO-VISUAL AND/OR VIDEO CONFERENCING EQUIPMENT SHALL BE ISOLATED GROUND RECEPTACLES. SUCH RECEPTACLES SHALL BE ORANGE IN COLOR AND CLEARLY IDENTIFIABLE. ISOLATED GROUND RECEPTACLES SHALL BE WIRED AND CONNECTED TO NEAREST ISOLATED GROUND PANEL.
21. AUDIO-VISUAL AND/OR VIDEO CONFERENCING EQUIPMENT RACKS SHALL BE ISOLATED FROM ADJOINING WIREWAY GROUNDING SYSTEM VIA INSULATED COUPLINGS. RACKS TO BE INSULATED FROM FLOOR SURFACE AND POSITIONED SO THAT THEY WILL NOT COME IN CONTACT WITH A BASE BUILDING GROUND DURING OPERATION.
22. SOUND AND COMMUNICATION WIRING SHALL BE DIVIDED INTO THE FOLLOWING CATEGORIES: VIDEO, TELEPHONE, DIGITAL CIRCUITS, AND CONTROL CIRCUITS. EACH WIRING CATEGORY SHALL BE WITHIN A SEPARATE CONDUIT SYSTEM. REFER TO APPLICABLE SECTIONS OF THE CEC AND CSA FOR MINIMUM ALLOWABLE CONDUIT SEPARATION.
23. SOUND, VIDEO, AND COMMUNICATIONS WIRING, RACEWAYS, AND CONDUIT SHALL REMAIN PHYSICALLY SEPARATE FROM ANY OTHER SYSTEM WHICH MAY CAUSE INTERFERENCE.
24. WHERE ALTERNATING CURRENT POWER MUST BE PARALLEL TO SOUND, VIDEO, AND COMMUNICATIONS WIRING, RACEWAYS, AND CONDUIT, MAINTAIN A SEPARATION OF AT LEAST 915mm IN RUNS UNDER 22m, IN RUNS OVER 22m THE SEPARATION MUST BE NO LESS THAN 1.8m.
25. SOUND, VIDEO, AND COMMUNICATIONS WIRING, RACEWAYS, AND CONDUIT MUST NOT RUN PARALLEL TO POWER MAINS OF POTENTIAL IN EXCESS OF 600 VOLTS.
26. INSTALL SOUND, VIDEO, AND COMMUNICATIONS WIRING WITHIN CONTINUOUSLY GROUNDED FERROUS METAL CONDUIT OR RACEWAY. PVC CONDUIT IS NOT ACCEPTABLE.
27. SIGNAL CONDUITS SHALL BE MECHANICALLY AND ELECTRICALLY CONNECTED TO RECEPTACLE BOXES AND ELECTRONICALLY ISOLATED FROM SOUND SYSTEM EQUIPMENT RACKS.
28. ELECTRICAL CONTRACTOR AND MANUFACTURER SHALL CONDUCT A FIRE ALARM VERIFICATION IN ACCORDANCE WITH CAN/ULC-S537-04 IN THE PRESENCE OF THE PROFESSIONAL ENGINEER OR THEIR DESIGNATE FOR ALL FIRE ALARM DEVICES THAT ARE AFFECTED BY THE DEMOLITION AND RELOCATION WORK. ALL VERIFYING TEST PROCEDURES SHALL BE WITNESSED BY THE OWNER'S REPRESENTATIVE. REFER TO SPECIFICATION SECTION 28 31 01 FOR DETAILS.
29. FOR ANY AUDIBLE SIGNAL DEVICES BEING RELOCATED, WHERE CEILING HEIGHTS ALLOW SAID DEVICES SHALL BE INSTALLED SO THAT THE CENTER OF THE DEVICE WILL NOT BE LESS THAN 1800mm ABOVE THE FINISHED FLOOR LEVEL AND FOR WALL-MOUNTED DEVICES NOT CLOSER THAN 50mm FROM THE CEILING.
30. FOR ANY WALL-MOUNTED VISIBLE SIGNAL DEVICES BEING RELOCATED, SAID DEVICES SHALL BE INSTALLED SUCH THAT THE CENTER OF THE DEVICE WILL BE NOT MORE THAN 2000mm ABOVE THE FINISHED FLOOR LEVEL AND NOT CLOSER THAN 150mm FROM THE CEILING.
31. FOR ANY CEILING-MOUNTED VISIBLE SIGNAL DEVICES BEING RELOCATED, SAID DEVICES SHALL BE SUSPENDED OR MOUNTED AT NOT MORE THAN 9000mm ABOVE THE FINISHED FLOOR LEVEL.
32. FOR ANY CONTROL UNITS AND TRANSPONDERS BEING RELOCATED, SAID DEVICES SHALL NOT BE MORE THAN 2400mm ABOVE THE FINISHED FLOOR LEVEL.
33. ALL WIRING SHALL BE PROTECTED IN EMT CONDUIT AND SHALL BE INSTALLED IN COMPLIANCE WITH THE CEC, AUTHORITIES HAVING JURISDICTION, AND LOCAL CODES.
34. DATA COMMUNICATION CIRCUIT WIRING. SHALL BE MINIMUM AWG #18, TWISTED PAIR, WIRED AND CONFIGURED AS CLASS 'A' STYLE.
35. HORN/STROBE WIRING SHALL BE MINIMUM AWG #16 AND CONFIGURED AS CLASS 'B' STYLE.
36. SMOKE DETECTOR, MANUAL STATION, AND SUPERVISORY CIRCUIT WIRING SHALL BE MINIMUM AWG #18.
37. TELEPHONE WIRING. SHALL BE MINIMUM AWG #18, TWISTED, SHIELDED PAIR AND CONFIGURED AS CLASS 'B' STYLE.
38. MANUFACTURER AND ELECTRICAL CONTRACTOR SHALL COORDINATE TO ENSURE THAT ALL CIRCUITS DO NOT EXCEED ANY POWER LIMITATIONS.
39. ELECTRICAL CONTRACTOR SHALL COORDINATE ALL ELECTRICAL WORK WITH THE CONSTRUCTION PHASING OUTLINE. COORDINATE WITH ALL OTHER TRADES INSTALLATION OF ELECTRICAL SERVICES, SYSTEMS, EQUIPMENT ETC. PRIOR TO PROCEEDING WITH WORK.
40. CIRCUITING SHOWN IS DIAGRAMMATIC AND SHOWS INTENDED CIRCUITING ONLY. SHOULD ONSITE CONDITIONS DIFFER OR CONFLICT WITH WHAT IS INDICATED ON THESE DRAWINGS, ELECTRICAL CONTRACTOR SHALL CONFIRM WITH ARCHITECT AND ENGINEER PRIOR TO ROUGH-IN AND INSTALLATION.
41. COORDINATE EXACT LOCATION AND INSTALLATION OF ALL POWER AND DATA OUTLETS WITH ARCHITECTURAL AND MECHANICAL DRAWINGS AS WELL AS FURNITURE LOCATIONS.
42. COORDINATE EXACT LOCATION AND INSTALLATION OF ALL BREAKOUT/BOARD/MEETING ROOM POWER AND DATA OUTLETS WITH ARCHITECT AND OWNER PRIOR TO ROUGH-IN; FOR MEETING, CONFERENCE, AND BREAKOUT ROOM SPACES, CONFIRM FURNITURE LAYOUT WITHIN THE SPACE AND WHETHER FLOORBOX SHOWN NEEDS TO BE CHANGED TO A DIRECT CONNECTION C/W CHASE TO FURNITURE-MOUNTED (TABLE TOP) OUTLETS PRIOR TO ORDERING AND ROUGH-IN.
43. ELECTRICAL CONTRACTOR TO ALLOW FOR COST OF HEAT TRACE FOR STORM, WATER AND VERTICAL WATER LEADER. COORDINATE WITH MECHANICAL DRAWINGS FOR DETAILS.



1 3RD FLOOR - POWER & LOW TENSION PLAN
E304 SCALE 1:100

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Issues & Revisions

Ltr. / #	Date	By	Description
A	2014.04.30	SMP	ISSUED FOR DESIGN DEVELOPMENT DRAWING SET

Faculty/Department **FACULTY OR DEPARTMENT**

Client Approval Date

Dwg Title: 3RD FLOOR - POWER & LOW TENSION PLAN

Building: **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number **E1234** Work Order Number **567890**

Arch ☐ Mech ☐ Elec ■ Struc ☐ Civil ☐ Drawn By **KM**

Dwg. Created **2014.04.14** Issue & Revision **A** **0**

Design File No. #####-YY-##

Sheet **of x** Drawing Number E304

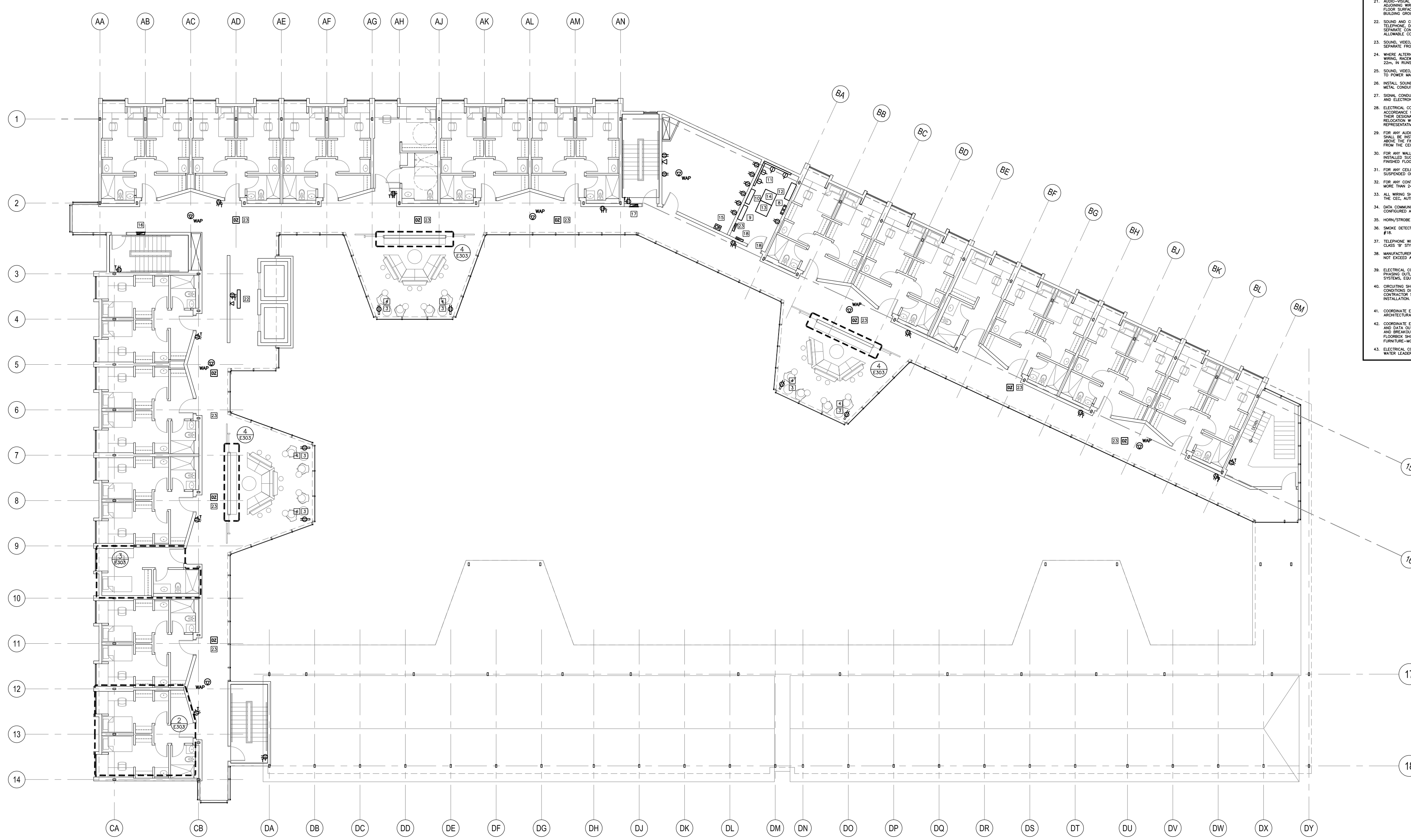
5361

KEYNOTES

1. POWER, CABLE AND HDMI/DATA FOR TV. 4"x4" BOX.
2. POWER HDMI/DATA FOR TV INFEED. 4-GANG BOX.
3. MOUNTED IN COLUMN FURRING.
4. ONE(1) 5-15R RECEPTACLE WITH TWO(2) USB CHARGING PORTS.
5. PROVIDE POWER CONNECTION FOR TOUCHLESS DEVICE.
6. POWER CONNECTION FOR MINI FRIDGE.
7. MINI HORN STROBE, IN SUITE NOTIFICATION DEVICE c/w SILENCE BUTTON.
8. COMMUNICATION GROUND BUS
9. FIRE ALARM TERMINAL CABINET
10. DOOR ACCESS SECURITY CABINET
11. 21mm FIRERATED BACKBOARD
12. VERTICAL COMM. RISER SLEEVES
13. DATA RACK
14. DATA CABINET
15. ONE CARD SYSTEM.
16. PANEL '---'
17. PANEL '---'
18. PANEL '---'
19. PANEL '---'
20. PANEL '---'
21. SHALL BE TAMPER RESISTANT.
22. STUDENT UNION TV, CAT 6 TO SCREENS, FOR POWER (RECEPTACLE – 5-20R) LCD SCREENS WALL MOUNT. TV MONITOR OUTLETS: MOUNTING HEIGHTS TO BE CONFIRMED W/ ARCH ELEVATION.
23. PANEL 347/600V 'MECH'

GENERAL POWER & SYSTEM NOTES:

1. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION AND MOUNTING HEIGHTS OF ALL NEW AND/OR RELOCATED ELECTRICAL DEVICES.
2. REFER TO MECHANICAL DRAWINGS FOR EXACT LOCATION AND MOUNTING HEIGHTS OF ALL NEW AND/OR RELOCATED MECHANICAL DEVICES.
3. BRANCH CIRCUITING FOR ALL EQUIPMENT SHALL BE AS FOLLOWS:
   i) USE NO.12 AWG FOR RUNS UP TO 100FT.
   ii) USE NO.10 AWG FOR RUNS UP TO 150FT ON 15A-1P BREAKER.
   iii) NO WIRE SMALLER THAN NO.12 AWG SHALL BE USED FOR BRANCH CIRCUIT WIRING.
4. BX CABLE SHALL NOT BE USED WITHOUT WRITTEN PERMISSION FROM THE ENGINEER.
5. ALL EMPTY CONDUITS SHALL BE C/W PULLWIRE.
6. RECEPTACLES DENOTED WITH THE SUBSCRIPT 'T' TO BE 5-20RA CONFIGURATION.
7. ALL SURFACE-MOUNTED DEVICES LOCATED WITHIN PUBLICLY ACCESSIBLE AREAS TO BE 'FS' TYPE.
8. ELECTRICAL CONTRACTOR SHALL COORDINATE THIS WORK WITH OTHER TRADES AND SHALL CONFER WITH OTHER CONTRACTORS WHOSE WORK MIGHT AFFECT THERE INSTALLATIONS TO AVOID CONFLICT.
9. NEW DATA DEVICES TO BE INSTALLED WITH CAT 6 CABLING. PATCH CABLING TO BE ROUTED FROM NEW DEVICE TO EXISTING SERVER ROOM LOCATED ON THIS FLOOR.
10. NEW POWER AND COMMUNICATION OUTLETS SHALL MATCH EXISTING POWER AND COMMUNICATION OUTLETS (CONFIRM MAKE/MODEL OF FLOORBOX WITH ARCHITECT, ENGINEER, AND OWNER PRIOR TO ORDERING).
11. DENOTES NEW COMBINATION VOICE/DATA OUTLET C/W CATEGORY 6 RJ45 CONNECTORS QUANTITY AS INDICATED. PROVIDE A WHITE CATEGORY 6 CABLE FROM EACH VOICE/DATA CONNECTOR TO TERMINATE ONTO NEW WALL MOUNTED BIX BLOCKS. REFER TO COMMUNICATION CABLING DIAGRAMS FOR BIX BLOCKS LOCATIONS AND SPECIFIC CABLE ROUTING REQUIREMENTS. PROVIDE A 27mmC STUB UP FOR EACH OUTLET.
   '2D' – DENOTES NUMBER OF DATA CONNECTORS.
   '2V' – DENOTES NUMBER OF VOICE CONNECTORS.
12. DENOTES NEW VOICE OUTLET C/W CATEGORY 6 RJ45 CONNECTORS QUANTITY AS INDICATED. PROVIDE A WHITE CATEGORY 6 CABLE FROM EACH VOICE CONNECTOR TO TERMINATE ONTO NEW WALL MOUNTED BIX BLOCKS. REFER TO COMMUNICATION CABLING DIAGRAMS FOR BIX BLOCKS LOCATIONS AND SPECIFIC CABLE ROUTING REQUIREMENTS. PROVIDE A 21mmC STUB UP FOR EACH OUTLET.
   '2V' – DENOTES NUMBER OF VOICE CONNECTORS.
13. PROVIDE TWO(2) CAT6 CABLES (DATA DROPS) TO EACH SUITE. TYPICAL FOR SUITES.
14. CONFIRM LOCATIONS OF ALL FURNITURE SCREEN SYSTEM FEEDS WITH FURNITURE SUPPLIER. DO NOT PROCEED WITHOUT ARCHITECT APPROVED FURNITURE SYSTEMS SUPPLIER DRAWING. CONFIRM LOCATIONS OF ALL FLOORBOX RELOCATIONS WITH FURNITURE SUPPLIER AND ARCHITECT PRIOR TO PROCEEDING.
15. FURNITURE BASE FEED WALL OUTLETS SHALL CONSIST OF TWO (2) FLUSH DOUBLE-GANG BOXES (ONE FOR COMMUNICATIONS AND ONE FOR POWER). PROVIDE COVERS TO SUIT FURNITURE SYSTEM HARDWARE. THE COMMUNICATION BOX SHALL BE COMPLETE WITH TWO 1 1/4" CONDUITS TO CEILING SPACE.
16. FURNITURE SCREEN MOUNTED RECEPTACLES AND DATA OUTLETS WILL BE SUPPLIED AND INSTALLED BY FURNITURE SCREEN SUPPLIER. PROVIDE FINAL POWER WHIP AND DATA CONNECTIONS TO FURNITURE SCREEN BASE FEEDS.
17. ALL AUDIO-VISUAL AND/OR VIDEO CONFERENCING EQUIPMENT SHALL BE GROUNDED VIA DEDICATED INSULATED GROUNDING CONDUCTORS CONNECTED DIRECTLY TO THE MAIN BUILDING GROUND BAR, ISOLATED FROM BUILDING CONDUIT AND BACKBOXES ETC.
18. ANY AUDIO-VISUAL AND/OR VIDEO CONFERENCING EQUIPMENT BEING RELOCATED SHALL BE GROUNDED VIA DEDICATED INSULATED GROUNDING CONDUCTORS CONNECTED DIRECTLY TO THE MAIN BUILDING GROUND BAR AND ISOLATED FROM BUILDING CONDUIT AND BACKBOXES ETC.
19. ALL AUDIO-VISUAL AND/OR VIDEO CONFERENCING CONDUIT, JUNCTION BOXES, PANELBOARDS ETC. SHALL BE GROUNDED IN TYPICAL BASE BUILDING FASHION.
20. RECEPTACLES SERVICING AUDIO-VISUAL AND/OR VIDEO CONFERENCING EQUIPMENT SHALL BE ISOLATED GROUND RECEPTACLES. SUCH RECEPTACLES SHALL BE ORANGE IN COLOR AND CLEARLY IDENTIFIABLE. ISOLATED GROUND RECEPTACLES SHALL BE WIRED AND CONNECTED TO NEAREST ISOLATED GROUND PANEL.
21. AUDIO-VISUAL AND/OR VIDEO CONFERENCING EQUIPMENT RACKS SHALL BE ISOLATED FROM ADJOINING WIREWAY GROUNDING SYSTEM VIA INSULATED COUPLINGS. RACKS TO BE INSULATED FROM FLOOR SURFACE AND POSITIONED SO THAT THEY WILL NOT COME IN CONTACT WITH A BASE BUILDING GROUND DURING OPERATION.
22. SOUND AND COMMUNICATION WIRING SHALL BE DIVIDED INTO THE FOLLOWING CATEGORIES: VIDEO, TELEPHONE, DIGITAL CIRCUITS, AND CONTROL CIRCUITS. EACH WIRING CATEGORY SHALL BE WITHIN A SEPARATE CONDUIT SYSTEM. REFER TO APPLICABLE SECTIONS OF THE CEC AND CSA FOR MINIMUM ALLOWABLE CONDUIT SEPARATION.
23. SOUND, VIDEO, AND COMMUNICATIONS WIRING, RACEWAYS, AND CONDUIT SHALL REMAIN PHYSICALLY SEPARATE FROM ANY OTHER SYSTEM WHICH MAY CAUSE INTERFERENCE.
24. WHERE ALTERNATING CURRENT POWER MUST BE PARALLEL TO SOUND, VIDEO, AND COMMUNICATIONS WIRING, RACEWAYS, AND CONDUIT, MAINTAIN A SEPARATION OF AT LEAST 915mm IN RUNS UNDER 22m, IN RUNS OVER 22m THE SEPARATION MUST BE NO LESS THAN 1.8m.
25. SOUND, VIDEO, AND COMMUNICATIONS WIRING, RACEWAYS, AND CONDUIT MUST NOT RUN PARALLEL TO POWER MAINS OF POTENTIAL IN EXCESS OF 600 VOLTS.
26. INSTALL SOUND, VIDEO, AND COMMUNICATIONS WIRING WITHIN CONTINUOUSLY GROUNDED FERROUS METAL CONDUIT OR RACEWAY. PVC CONDUIT IS NOT ACCEPTABLE.
27. SIGNAL CONDUITS SHALL BE MECHANICALLY AND ELECTRICALLY CONNECTED TO RECEPTACLE BOXES AND ELECTRONICALLY ISOLATED FROM SOUND SYSTEM EQUIPMENT RACKS.
28. ELECTRICAL CONTRACTOR AND MANUFACTURER SHALL CONDUCT A FIRE ALARM VERIFICATION IN ACCORDANCE WITH CAN/ULC-S537-04 IN THE PRESENCE OF THE PROFESSIONAL ENGINEER OR THEIR DESIGNATE FOR ALL FIRE ALARM DEVICES THAT ARE AFFECTED BY THE DEMOLITION AND RELOCATION WORK. ALL VERIFYING TEST PROCEDURES SHALL BE WITNESSED BY THE OWNER'S REPRESENTATIVE. REFER TO SPECIFICATION SECTION 28 31 01 FOR DETAILS.
29. FOR ANY AUDIBLE SIGNAL DEVICES BEING RELOCATED, WHERE CEILING HEIGHTS ALLOW SAID DEVICES SHALL BE INSTALLED SO THAT THE CENTER OF THE DEVICE WILL NOT BE LESS THAN 1800mm ABOVE THE FINISHED FLOOR LEVEL AND FOR WALL-MOUNTED DEVICES NOT CLOSER THAN 50mm FROM THE CEILING.
30. FOR ANY WALL-MOUNTED VISIBLE SIGNAL DEVICES BEING RELOCATED, SAID DEVICES SHALL BE INSTALLED SUCH THAT THE CENTER OF THE DEVICE WILL BE NOT MORE THAN 2000mm ABOVE THE FINISHED FLOOR LEVEL AND NOT CLOSER THAN 150mm FROM THE CEILING.
31. FOR ANY CEILING-MOUNTED VISIBLE SIGNAL DEVICES BEING RELOCATED, SAID DEVICES SHALL BE SUSPENDED OR MOUNTED AT NOT MORE THAN 9000mm ABOVE THE FINISHED FLOOR LEVEL.
32. FOR ANY CONTROL UNITS AND TRANSPONDERS BEING RELOCATED, SAID DEVICES SHALL NOT BE MORE THAN 2400mm ABOVE THE FINISHED FLOOR LEVEL.
33. ALL WIRING SHALL BE PROTECTED IN EMT CONDUIT AND SHALL BE INSTALLED IN COMPLIANCE WITH THE CEC, AUTHORITIES HAVING JURISDICTION, AND LOCAL CODES.
34. DATA COMMUNICATION CIRCUIT WIRING. SHALL BE MINIMUM AWG #18, TWISTED PAIR, WIRED AND CONFIGURED AS CLASS 'A' STYLE.
35. HORN/STROBE WIRING SHALL BE MINIMUM AWG #16 AND CONFIGURED AS CLASS 'B' STYLE.
36. SMOKE DETECTOR, MANUAL STATION, AND SUPERVISORY CIRCUIT WIRING SHALL BE MINIMUM AWG #18.
37. TELEPHONE WIRING. SHALL BE MINIMUM AWG #18, TWISTED, SHIELDED PAIR AND CONFIGURED AS CLASS 'B' STYLE.
38. MANUFACTURER AND ELECTRICAL CONTRACTOR SHALL COORDINATE TO ENSURE THAT ALL CIRCUITS DO NOT EXCEED ANY POWER LIMITATIONS.
39. ELECTRICAL CONTRACTOR SHALL COORDINATE ALL ELECTRICAL WORK WITH THE CONSTRUCTION PHASING OUTLINE. COORDINATE WITH ALL OTHER TRADES INSTALLATION OF ELECTRICAL SERVICES, SYSTEMS, EQUIPMENT ETC. PRIOR TO PROCEEDING WITH WORK.
40. CIRCUITING SHOWN IS DIAGRAMMATIC AND SHOWS INTENDED CIRCUITING ONLY. SHOULD ONSITE CONDITIONS DIFFER OR CONFLICT WITH WHAT IS INDICATED ON THESE DRAWINGS, ELECTRICAL CONTRACTOR SHALL CONFIRM WITH ARCHITECT AND ENGINEER PRIOR TO ROUGH-IN AND INSTALLATION.
41. COORDINATE EXACT LOCATION AND INSTALLATION OF ALL POWER AND DATA OUTLETS WITH ARCHITECTURAL AND MECHANICAL DRAWINGS AS WELL AS FURNITURE LOCATIONS.
42. COORDINATE EXACT LOCATION AND INSTALLATION OF ALL BREAKOUT/BOARD/MEETING ROOM POWER AND DATA OUTLETS WITH ARCHITECT AND OWNER PRIOR TO ROUGH-IN; FOR MEETING, CONFERENCE, AND BREAKOUT ROOM SPACES, CONFIRM FURNITURE LAYOUT WITHIN THE SPACE AND WHETHER FLOORBOX SHOWN NEEDS TO BE CHANGED TO A DIRECT CONNECTION C/W CHASE TO FURNITURE-MOUNTED (TABLE TOP) OUTLETS PRIOR TO ORDERING AND ROUGH-IN.
43. ELECTRICAL CONTRACTOR TO ALLOW FOR COST OF HEAT TRACE FOR STORM, WATER AND VERTICAL WATER LEADER. COORDINATE WITH MECHANICAL DRAWINGS FOR DETAILS.



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Issues & Revisions

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A	2014.04.30	SMP	ISSUED FOR DESIGN DEVELOPMENT DRAWING SET

Faculty/Department **FACULTY OR DEPARTMENT**

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Dwg Title 4TH FLOOR - POWER & LOW TENSION PLAN

Building **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number **E1234** Work Order Number **567890**

Arch ☐ Mech ☐ Elec ■ Struc ☐ Civil ☐ Drawn By **KM**

Dwg. Created **2014.04.14**
Design File No. #####-YY-##

Issue & Revision **A** **0**

Sheet **of x** Drawing Number E305

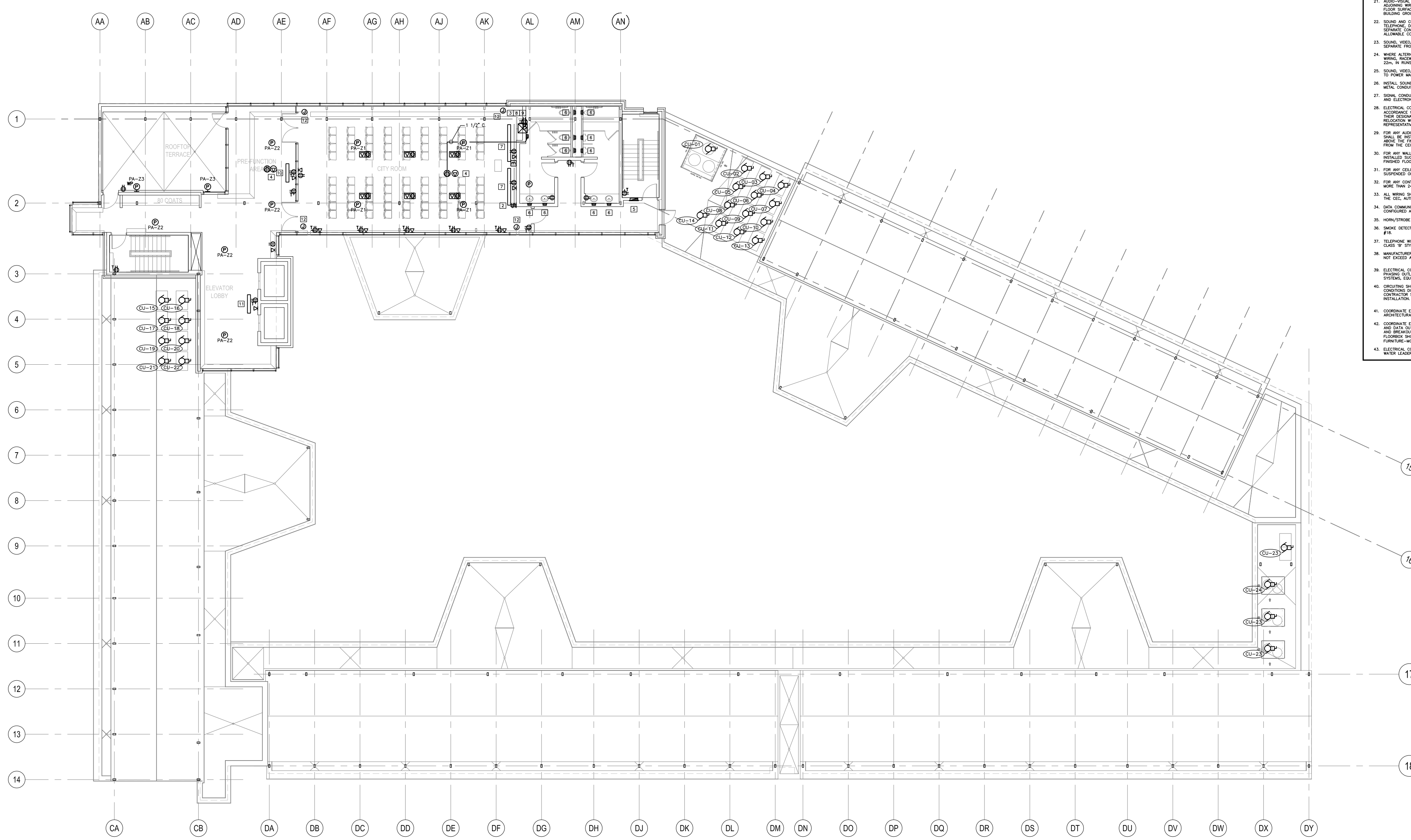
5361

KEYNOTES

1. POWER, CABLE AND VGA/DATA FOR TV. 4"x4" BOX.
2. CONTROL FOR SCREENS.
3. POWER / DATA CONNECTION FOR AV RACK.
4. POWER / DATA CONNECTION FOR CEILING MOUNTED PROJECTOR.
5. PANEL "--"
6. PROVIDE POWER CONNECTION FOR ROUCHLESS DEVICE.
7. LCD OR SMART BOARD COMPLETE PROJECTOR AND VIDEO CONFERENCING
8. 4"x4" BOX + 300mm AFF.
9. 2'x2'x4' HIGH RACK
10. CAT 6 TO SCREENS FOR POWER (RECEPTACLE – 5-20R) LCD SCREENS, WALL MOUNT.
11. STUDENT UNION TV, CAT 6 TO SCREENS, FOR POWER (RECEPTACLE – 5-20R) LCD SCREENS WALL MOUNT. TV MONITOR OUTLETS: MOUNTING HEIGHTS TO BE CONFIRMED W/ ARCH ELEVATION.
12. POWER CONNECTION FOR MOTORIZED CURTAIN.

GENERAL POWER & SYSTEM NOTES:

1. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION AND MOUNTING HEIGHTS OF ALL NEW AND/OR RELOCATED ELECTRICAL DEVICES.
2. REFER TO MECHANICAL DRAWINGS FOR EXACT LOCATION AND MOUNTING HEIGHTS OF ALL NEW AND/OR RELOCATED MECHANICAL DEVICES.
3. BRANCH CIRCUITING FOR ALL EQUIPMENT SHALL BE AS FOLLOWS:
   i) USE NO.12 AWG FOR RUNS UP TO 100FT.
   ii) USE NO.10 AWG FOR RUNS UP TO 150FT ON 15A-1P BREAKER.
   iii) NO WIRE SMALLER THAN NO.12 AWG SHALL BE USED FOR BRANCH CIRCUIT WIRING.
4. BX CABLE SHALL NOT BE USED WITHOUT WRITTEN PERMISSION FROM THE ENGINEER.
5. ALL EMPTY CONDUITS SHALL BE C/W PULLWIRE.
6. RECEPTACLES DENOTED WITH THE SUBSCRIPT 'T' TO BE 5-20RA CONFIGURATION.
7. ALL SURFACE-MOUNTED DEVICES LOCATED WITHIN PUBLICLY ACCESSIBLE AREAS TO BE 'FS' TYPE.
8. ELECTRICAL CONTRACTOR SHALL COORDINATE THIS WORK WITH OTHER TRADES AND SHALL CONFER WITH OTHER CONTRACTORS WHOSE WORK MIGHT AFFECT THERE INSTALLATIONS TO AVOID CONFLICT.
9. NEW DATA DEVICES TO BE INSTALLED WITH CAT 6 CABLING. PATCH CABLING TO BE ROUTED FROM NEW DEVICE TO EXISTING SERVER ROOM LOCATED ON THIS FLOOR.
10. NEW POWER AND COMMUNICATION OUTLETS SHALL MATCH EXISTING POWER AND COMMUNICATION OUTLETS (CONFIRM MAKE/MODEL OF FLOORBOX WITH ARCHITECT, ENGINEER, AND OWNER PRIOR TO ORDERING).
11. DENOTES NEW COMBINATION VOICE/DATA OUTLET C/W CATEGORY 6 RJ45 CONNECTORS QUANTITY AS INDICATED. PROVIDE A WHITE CATEGORY 6 CABLE FROM EACH VOICE/DATA CONNECTOR TO TERMINATE ONTO NEW WALL MOUNTED BIX BLOCKS. REFER TO COMMUNICATION CABLING DIAGRAMS FOR BIX BLOCKS LOCATIONS AND SPECIFIC CABLE ROUTING REQUIREMENTS. PROVIDE A 27mmC STUB UP FOR EACH OUTLET.
    '2D' – DENOTES NUMBER OF DATA CONNECTORS.
    '2V' – DENOTES NUMBER OF VOICE CONNECTORS.
12. DENOTES NEW VOICE OUTLET C/W CATEGORY 6 RJ45 CONNECTORS QUANTITY AS INDICATED. PROVIDE A WHITE CATEGORY 6 CABLE FROM EACH VOICE CONNECTOR TO TERMINATE ONTO NEW WALL MOUNTED BIX BLOCKS. REFER TO COMMUNICATION CABLING DIAGRAMS FOR BIX BLOCKS LOCATIONS AND SPECIFIC CABLE ROUTING REQUIREMENTS. PROVIDE A 21mmC STUB UP FOR EACH OUTLET.
    '2V' – DENOTES NUMBER OF VOICE CONNECTORS.
13. PROVIDE TWO(2) CAT6 CABLES (DATA DROPS) TO EACH SUITE. TYPICAL FOR SUITES.
14. CONFIRM LOCATIONS OF ALL FURNITURE SCREEN SYSTEM FEEDS WITH FURNITURE SUPPLIER. DO NOT PROCEED WITHOUT ARCHITECT APPROVED FURNITURE SYSTEMS SUPPLIER DRAWING. CONFIRM LOCATIONS OF ALL FLOORBOX RELOCATIONS WITH FURNITURE SUPPLIER AND ARCHITECT PRIOR TO PROCEEDING.
15. FURNITURE BASE FEED WALL OUTLETS SHALL CONSIST OF TWO (2) FLUSH DOUBLE-GANG BOXES (ONE FOR COMMUNICATIONS AND ONE FOR POWER). PROVIDE COVERS TO SUIT FURNITURE SYSTEM HARDWARE. THE COMMUNICATION BOX SHALL BE COMPLETE WITH TWO 1 1/4" CONDUITS TO CEILING SPACE.
16. FURNITURE SCREEN MOUNTED RECEPTACLES AND DATA OUTLETS WILL BE SUPPLIED AND INSTALLED BY FURNITURE SCREEN SUPPLIER. PROVIDE FINAL POWER WHIP AND DATA CONNECTIONS TO FURNITURE SCREEN BASE FEEDS.
17. ALL AUDIO-VISUAL AND/OR VIDEO CONFERENCING EQUIPMENT SHALL BE GROUNDED VIA DEDICATED INSULATED GROUNDING CONDUCTORS CONNECTED DIRECTLY TO THE MAIN BUILDING GROUND BAR, ISOLATED FROM BUILDING CONDUIT AND BACKBOXES ETC.
18. ANY AUDIO-VISUAL AND/OR VIDEO CONFERENCING EQUIPMENT BEING RELOCATED SHALL BE GROUNDED VIA DEDICATED INSULATED GROUNDING CONDUCTORS CONNECTED DIRECTLY TO THE MAIN BUILDING GROUND BAR AND ISOLATED FROM BUILDING CONDUIT AND BACKBOXES ETC.
19. ALL AUDIO-VISUAL AND/OR VIDEO CONFERENCING CONDUIT, JUNCTION BOXES, PANELBOARDS ETC. SHALL BE GROUNDED IN TYPICAL BASE BUILDING FASHION.
20. RECEPTACLES SERVICING AUDIO-VISUAL AND/OR VIDEO CONFERENCING EQUIPMENT SHALL BE ISOLATED GROUND RECEPTACLES. SUCH RECEPTACLES SHALL BE ORANGE IN COLOR AND CLEARLY IDENTIFIABLE. ISOLATED GROUND RECEPTACLES SHALL BE WIRED AND CONNECTED TO NEAREST ISOLATED GROUND PANEL.
21. AUDIO-VISUAL AND/OR VIDEO CONFERENCING EQUIPMENT RACKS SHALL BE ISOLATED FROM ADJOINING WIREWAY GROUNDING SYSTEM VIA INSULATED COUPLINGS. RACKS TO BE INSULATED FROM FLOOR SURFACE AND POSITIONED SO THAT THEY WILL NOT COME IN CONTACT WITH A BASE BUILDING GROUND DURING OPERATION.
22. SOUND AND COMMUNICATION WIRING SHALL BE DIVIDED INTO THE FOLLOWING CATEGORIES: VIDEO, TELEPHONE, DIGITAL CIRCUITS, AND CONTROL CIRCUITS. EACH WIRING CATEGORY SHALL BE WITHIN A SEPARATE CONDUIT SYSTEM. REFER TO APPLICABLE SECTIONS OF THE CEC AND CSA FOR MINIMUM ALLOWABLE CONDUIT SEPARATION.
23. SOUND, VIDEO, AND COMMUNICATIONS WIRING, RACEWAYS, AND CONDUIT SHALL REMAIN PHYSICALLY SEPARATE FROM ANY OTHER SYSTEM WHICH MAY CAUSE INTERFERENCE.
24. WHERE ALTERNATING CURRENT POWER MUST BE PARALLEL TO SOUND, VIDEO, AND COMMUNICATIONS WIRING, RACEWAYS, AND CONDUIT, MAINTAIN A SEPARATION OF AT LEAST 915mm IN RUNS UNDER 22m, IN RUNS OVER 22m THE SEPARATION MUST BE NO LESS THAN 1.8m.
25. SOUND, VIDEO, AND COMMUNICATIONS WIRING, RACEWAYS, AND CONDUIT MUST NOT RUN PARALLEL TO POWER MAINS OF POTENTIAL IN EXCESS OF 600 VOLTS.
26. INSTALL SOUND, VIDEO, AND COMMUNICATIONS WIRING WITHIN CONTINUOUSLY GROUNDED FERROUS METAL CONDUIT OR RACEWAY. PVC CONDUIT IS NOT ACCEPTABLE.
27. SIGNAL CONDUITS SHALL BE MECHANICALLY AND ELECTRICALLY CONNECTED TO RECEPTACLE BOXES AND ELECTRONICALLY ISOLATED FROM SOUND SYSTEM EQUIPMENT RACKS.
28. ELECTRICAL CONTRACTOR AND MANUFACTURER SHALL CONDUCT A FIRE ALARM VERIFICATION IN ACCORDANCE WITH CAN/ULC-S537-04 IN THE PRESENCE OF THE PROFESSIONAL ENGINEER OR THEIR DESIGNATE FOR ALL FIRE ALARM DEVICES THAT ARE AFFECTED BY THE DEMOLITION AND RELOCATION WORK. ALL VERIFYING TEST PROCEDURES SHALL BE WITNESSED BY THE OWNER'S REPRESENTATIVE. REFER TO SPECIFICATION SECTION 28 31 01 FOR DETAILS.
29. FOR ANY AUDIBLE SIGNAL DEVICES BEING RELOCATED, WHERE CEILING HEIGHTS ALLOW SAID DEVICES SHALL BE INSTALLED SO THAT THE CENTER OF THE DEVICE WILL NOT BE LESS THAN 1800mm ABOVE THE FINISHED FLOOR LEVEL AND FOR WALL-MOUNTED DEVICES NOT CLOSER THAN 50mm FROM THE CEILING.
30. FOR ANY WALL-MOUNTED VISIBLE SIGNAL DEVICES BEING RELOCATED, SAID DEVICES SHALL BE INSTALLED SUCH THAT THE CENTER OF THE DEVICE WILL BE NOT MORE THAN 2000mm ABOVE THE FINISHED FLOOR LEVEL AND NOT CLOSER THAN 150mm FROM THE CEILING.
31. FOR ANY CEILING-MOUNTED VISIBLE SIGNAL DEVICES BEING RELOCATED, SAID DEVICES SHALL BE SUSPENDED OR MOUNTED AT NOT MORE THAN 9000mm ABOVE THE FINISHED FLOOR LEVEL.
32. FOR ANY CONTROL UNITS AND TRANSPONDERS BEING RELOCATED, SAID DEVICES SHALL NOT BE MORE THAN 2400mm ABOVE THE FINISHED FLOOR LEVEL.
33. ALL WIRING SHALL BE PROTECTED IN EMT CONDUIT AND SHALL BE INSTALLED IN COMPLIANCE WITH THE CEC, AUTHORITIES HAVING JURISDICTION, AND LOCAL CODES.
34. DATA COMMUNICATION CIRCUIT WIRING. SHALL BE MINIMUM AWG #18, TWISTED PAIR, WIRED AND CONFIGURED AS CLASS 'A' STYLE.
35. HORN/STROBE WIRING SHALL BE MINIMUM AWG #16 AND CONFIGURED AS CLASS 'B' STYLE.
36. SMOKE DETECTOR, MANUAL STATION, AND SUPERVISORY CIRCUIT WIRING SHALL BE MINIMUM AWG #18.
37. TELEPHONE WIRING. SHALL BE MINIMUM AWG #18, TWISTED, SHIELDED PAIR AND CONFIGURED AS CLASS 'B' STYLE.
38. MANUFACTURER AND ELECTRICAL CONTRACTOR SHALL COORDINATE TO ENSURE THAT ALL CIRCUITS DO NOT EXCEED ANY POWER LIMITATIONS.
39. ELECTRICAL CONTRACTOR SHALL COORDINATE ALL ELECTRICAL WORK WITH THE CONSTRUCTION PHASING OUTLINE. COORDINATE WITH ALL OTHER TRADES INSTALLATION OF ELECTRICAL SERVICES, SYSTEMS, EQUIPMENT ETC. PRIOR TO PROCEEDING WITH WORK.
40. CIRCUITING SHOWN IS DIAGRAMMATIC AND SHOWS INTENDED CIRCUITING ONLY. SHOULD ONSITE CONDITIONS DIFFER OR CONFLICT WITH WHAT IS INDICATED ON THESE DRAWINGS, ELECTRICAL CONTRACTOR SHALL CONFIRM WITH ARCHITECT AND ENGINEER PRIOR TO ROUGH-IN AND INSTALLATION.
41. COORDINATE EXACT LOCATION AND INSTALLATION OF ALL POWER AND DATA OUTLETS WITH ARCHITECTURAL AND MECHANICAL DRAWINGS AS WELL AS FURNITURE LOCATIONS.
42. COORDINATE EXACT LOCATION AND INSTALLATION OF ALL BREAKOUT/BOARD/MEETING ROOM POWER AND DATA OUTLETS WITH ARCHITECT AND OWNER PRIOR TO ROUGH-IN; FOR MEETING, CONFERENCE, AND BREAKOUT ROOM SPACES, CONFIRM FURNITURE LAYOUT WITHIN THE SPACE AND WHETHER FLOORBOX SHOWN NEEDS TO BE CHANGED TO A DIRECT CONNECTION C/W CHASE TO FURNITURE-MOUNTED (TABLE TOP) OUTLETS PRIOR TO ORDERING AND ROUGH-IN.
43. ELECTRICAL CONTRACTOR TO ALLOW FOR COST OF HEAT TRACE FOR STORM, WATER AND VERTICAL WATER LEADER. COORDINATE WITH MECHANICAL DRAWINGS FOR DETAILS.



1 — 5TH FLOOR - POWER & LOW TENSION PLAN
E306 — SCALE 1:100

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Dwg Title: 5TH FLOOR - POWER & LOW TENSION PLAN

Building: **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number **E1234** — Work Order Number **567890**

Arch ☐ Mech ☐ Elec ■ Struc ☐ Civil ☐ — Drawn By **KM**

Dwg. Created **2014.04.14** — Issue & Revision **A** **0**
Design File No. #####-YY-##

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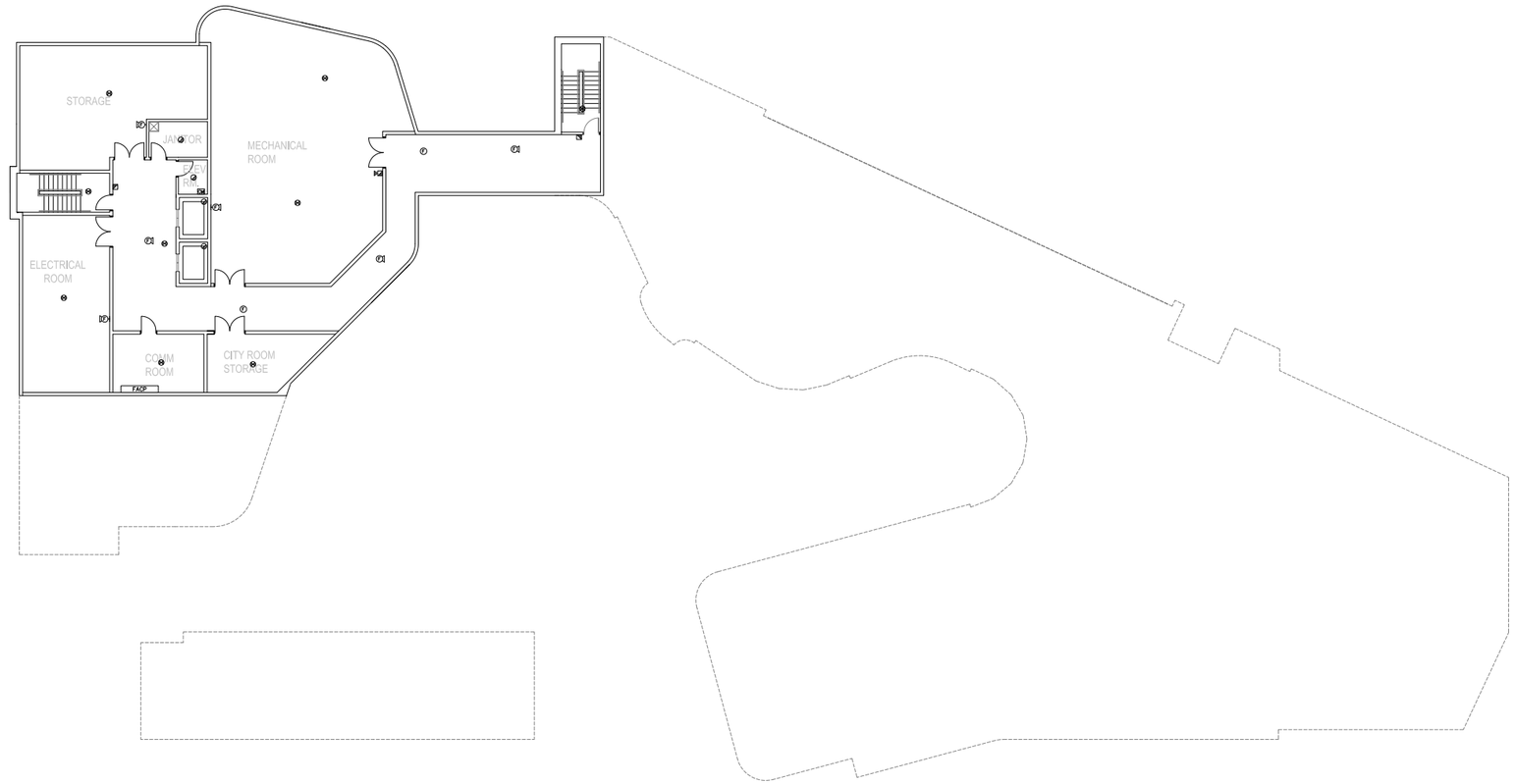

1 E401 BASEMENT - FIRE ALARM & SECURITY PLAN
SCALE 1:100

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Client Approval Date

Dwg Title: BASEMENT - FIRE ALARM & SECURITY PLAN

Building: **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number: **E1234** Work Order Number: **567890**

Arch ☐ Mech ☐ Elec ■ Struc ☐ Civil ☐ Drawn By: **KM**

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Sheet: **of x**

Drawing Number: E401

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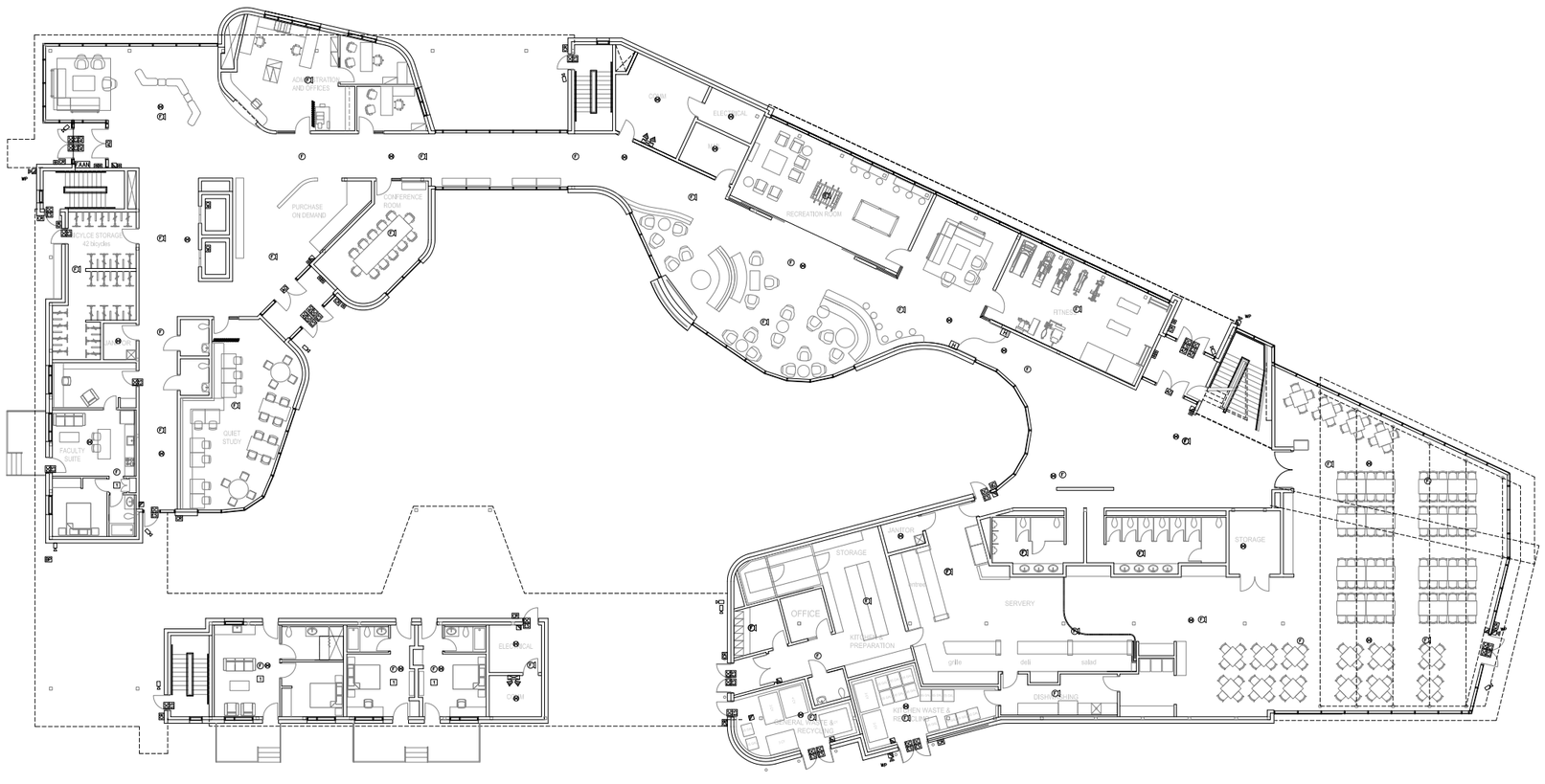
KEYNOTES

(1) FIRE ALARM SPEAKER SHALL BE ON A SEPARATE SIGNAL CIRCUIT c/w SILENCE BUTTON.



1 MAIN FLOOR - FIRE ALARM & SECURITY PLAN
E402 SCALE 1:100

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Dwg Title: MAIN FLOOR - FIRE ALARM & SECURITY PLAN

Building: **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number: E1234	Work Order Number: 567890
Arch ☐ Mech ☐ Elec ■ Struc ☐ Civil ☐	Drawn By: KM
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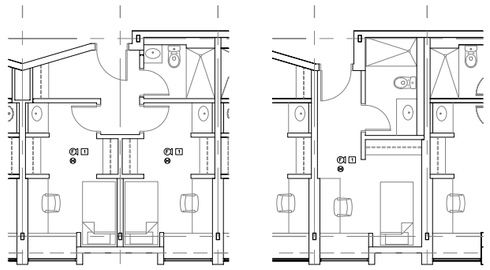
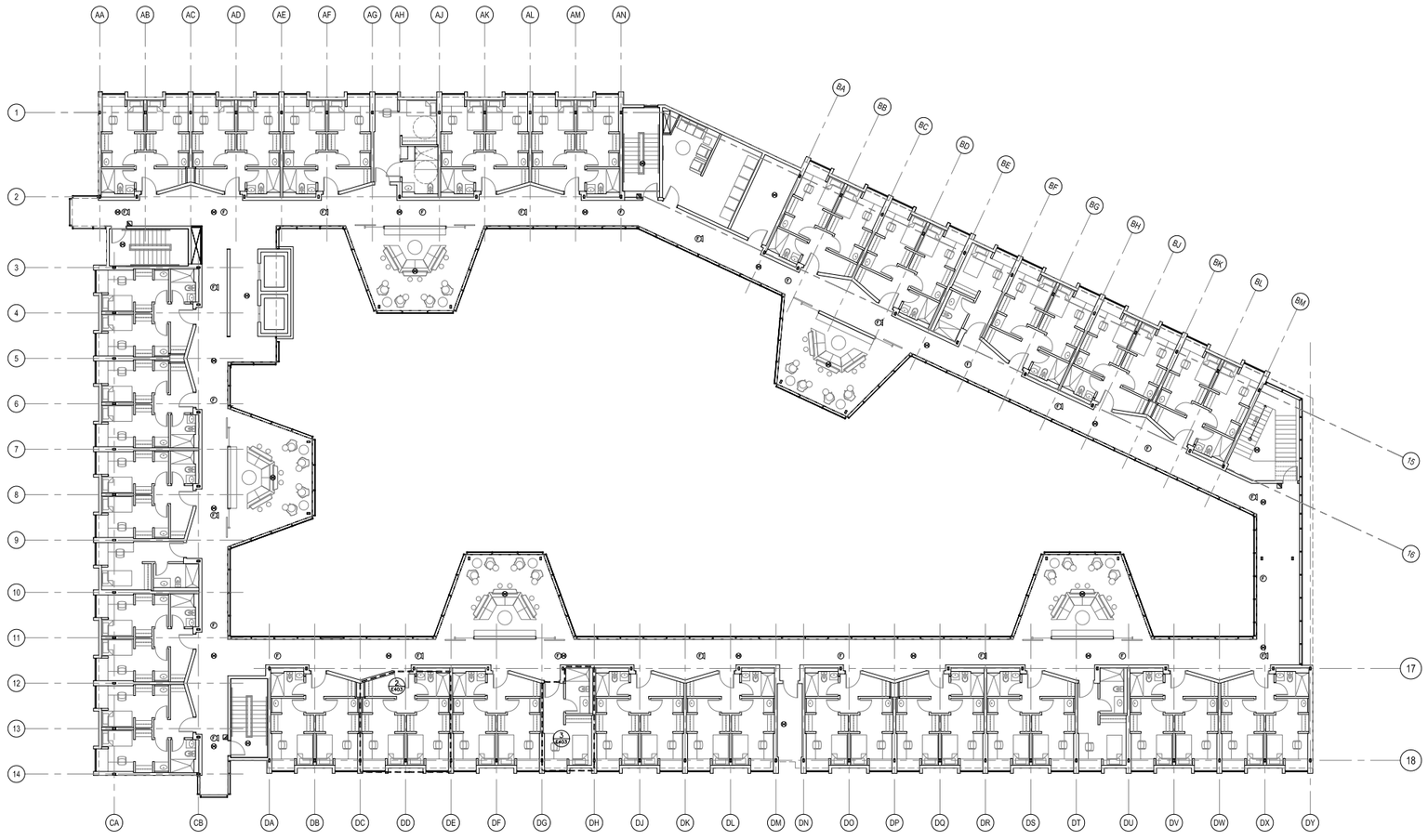


2 E403 TYPICAL 2 BED SUITE DETAIL - FIRE ALARM & SECURITY PLAN
SCALE 1/50

3 E403 TYPICAL 1 BED SUITE DETAIL - FIRE ALARM & SECURITY PLAN
SCALE 1/50



1 E403 2ND FLOOR - FIRE ALARM & SECURITY PLAN
SCALE 1:100

KEYNOTES

1 FIRE ALARM SPEAKER SHALL BE ON A SEPERATE SIGNAL CIRCUIT c/w SILENCE BUTTON.

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Building: SASKATCHEWAN DRIVE RESIDENCE

Proj. Number E1234 | Work Order Number 567890

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Sheet of x | Drawing Number E403

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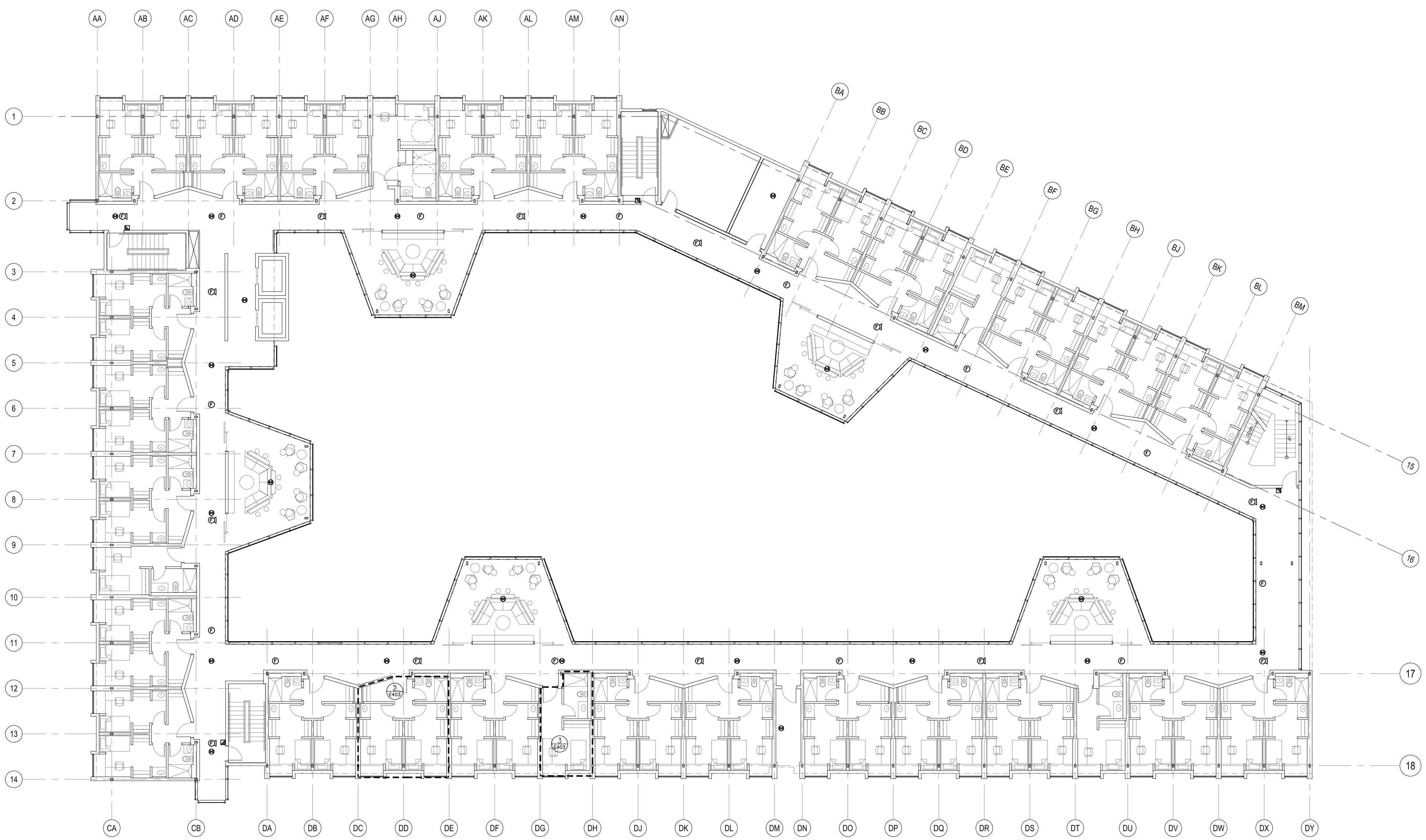
KEYNOTES

1. POWER, CABLE AND VGA/DATA FOR TV. 4"x4" BOX.
2. POWER VGA/DATA FOR TV INFEED. 4-GANG BOX.
3. MOUNTED IN COLUMN FURRING.
4. ONE(1) 15A CCT WITH TWO(2) USB CHARGING PORTS.
5. NOT USED.
6. POWER CONNECTION FOR FRIDGE.



1 E404 3RD FLOOR - FIRE ALARM & SECURITY PLAN
SCALE 1:100

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Dwg Title: 3RD FLOOR - FIRE ALARM & SECURITY PLAN

Building: **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number **E1234** Work Order Number **567890**
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Design File No. #####-YY-##
Sheet **of x** Drawing Number E404

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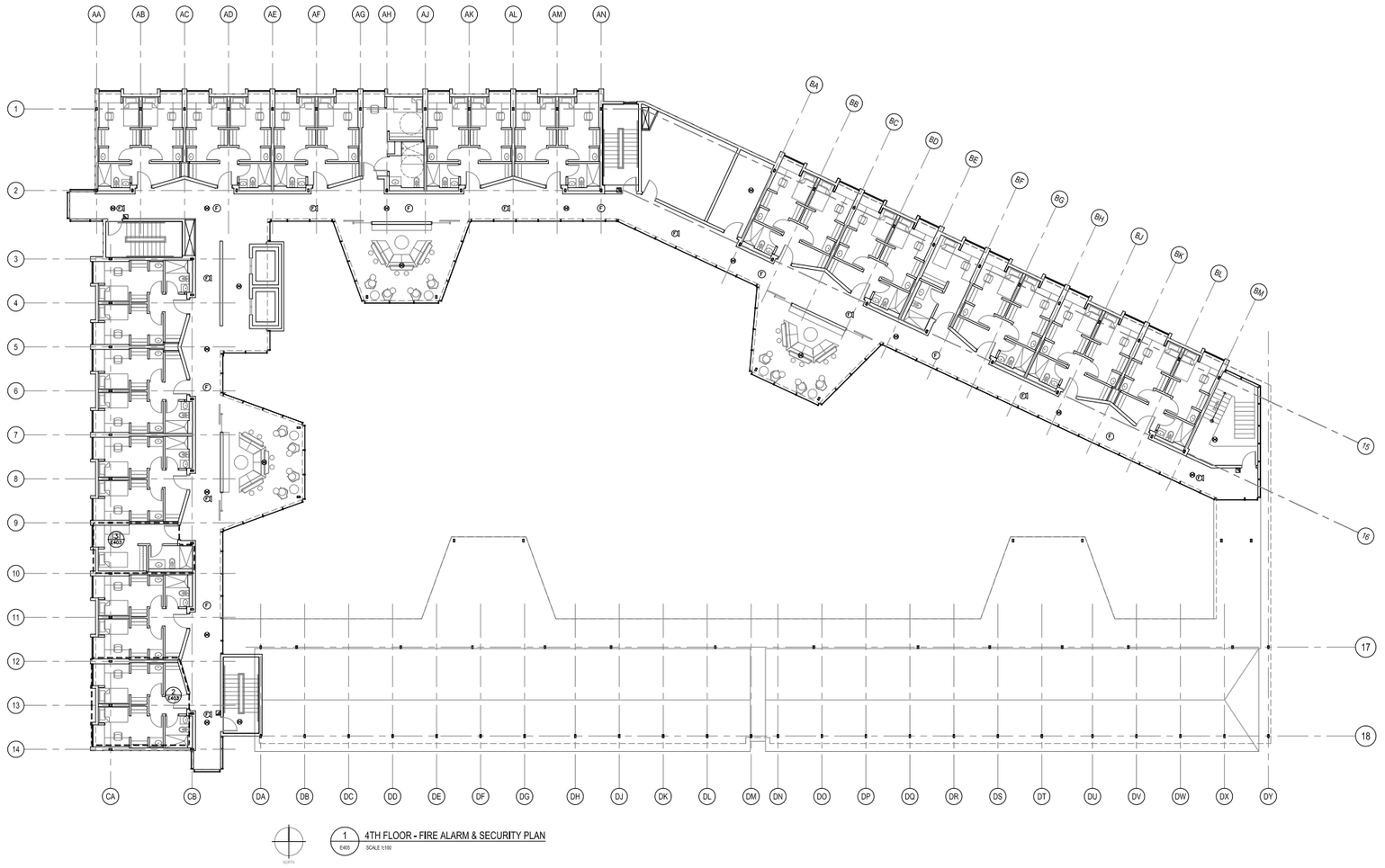
KEYNOTES

1. POWER, CABLE AND VDA/DATA FOR TV. 4"x4" BOX.
2. POWER VDA/DATA FOR TV INFEED. 4-GANG BOX.
3. MOUNTED IN COLUMN FURRING.
4. DIRECT 15A OUT WITH TWO(2) USB CHARGING PORTS.
5. NOT USED.
6. POWER CONNECTION FOR FRIDGE.



1 E405 4TH FLOOR - FIRE ALARM & SECURITY PLAN
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Dwg Title: 4TH FLOOR - FIRE ALARM & SECURITY PLAN

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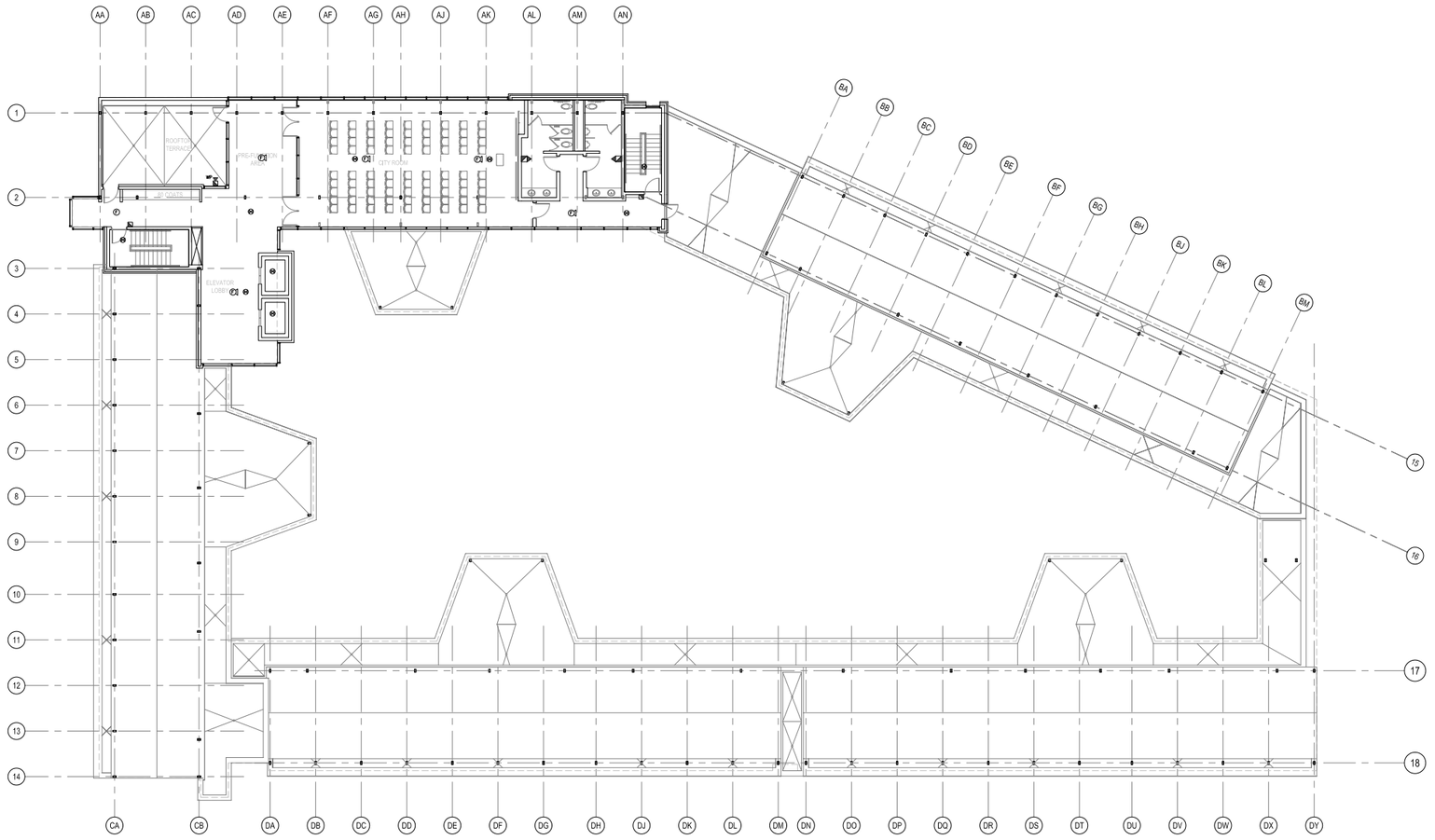
KEYNOTES

1. POWER, CABLE AND VGA/DATA FOR TV. 4"x4" BOX.
2. POWER VGA/DATA FOR TV INFEED. 4-GANG BOX.
3. MOUNTED IN COLUMN FURRING.
4. DIRECT 15A OUT WITH TWO(2) USB CHARGING PORTS.



1 / E406 — 5TH FLOOR - FIRE ALARM & SECURITY PLAN
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Dwg Title: 5TH FLOOR - FIRE ALARM & SECURITY PLAN

Building: **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number: **E1234** Work Order Number: **567890**

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Sheet: **of x**

Drawing Number: E406

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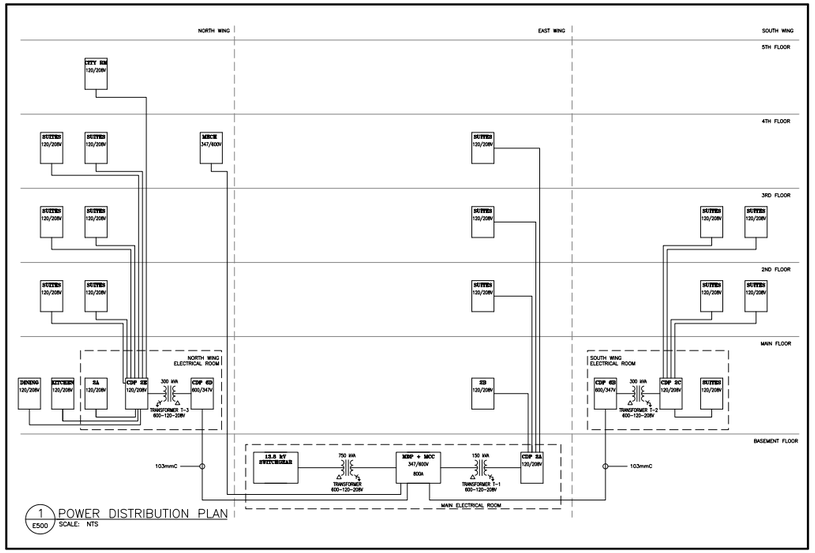
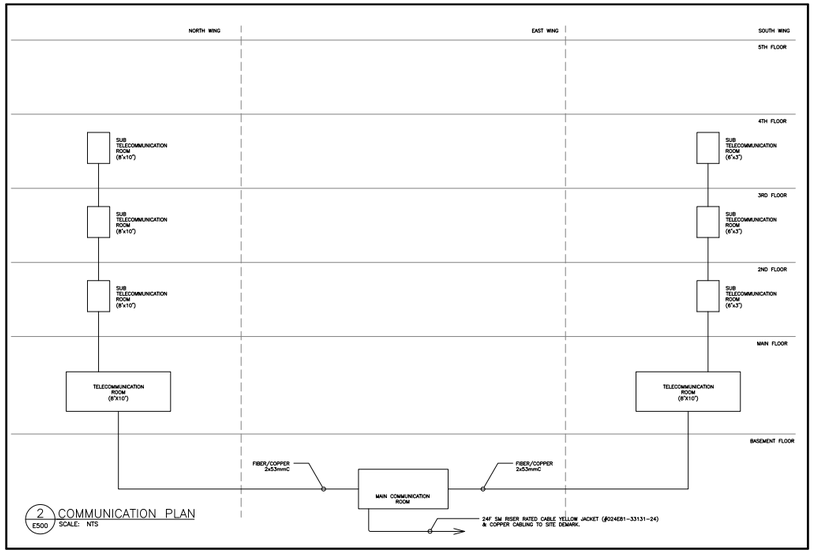
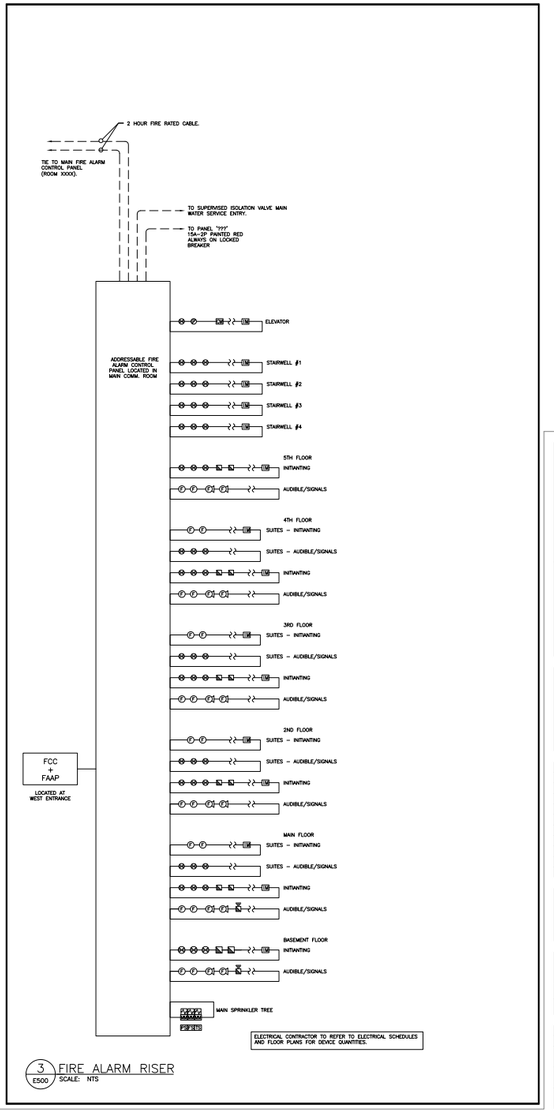


1 POWER DISTRIBUTION PLAN
E500 SCALE: NTS



2 COMMUNICATION PLAN
E500 SCALE: NTS



3 FIRE ALARM RISER
E500 SCALE: NTS

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Dwg Title: POWER, COMMUNICATION & FIRE ALARM RISER

Building: **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number: E1234	Work Order Number: 567890
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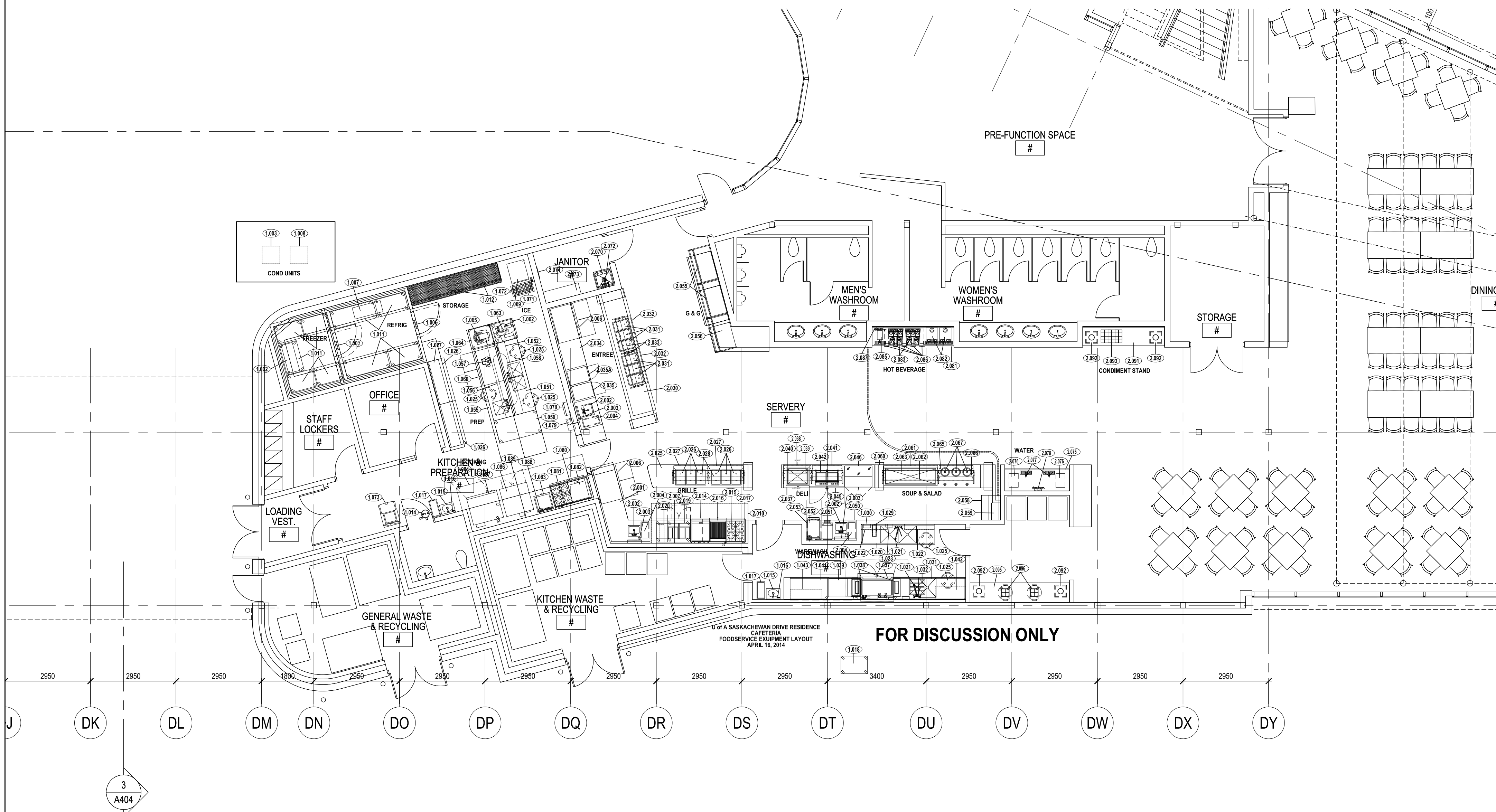

FOOD SERVICES KITCHEN LAYOUT
SCALE: 1:50

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Dwg Title **FOOD SERVICES PLAN**

Building **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number **E1234** Work Order Number **567890**

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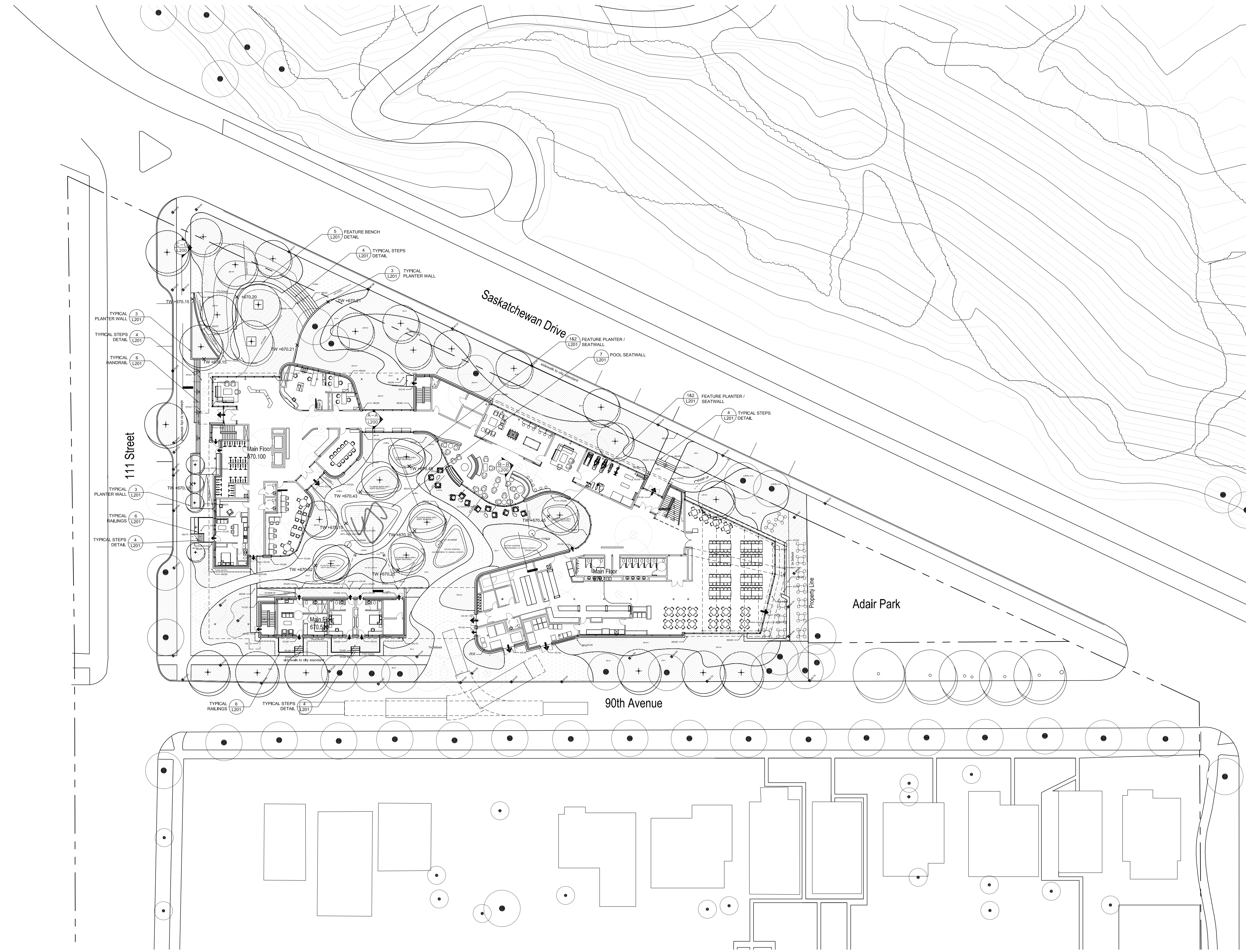
Design File No. #####-YY-##

Issue & Revision **A**

Sheet **X of Y**

Drawing Number

5361



LEGEND

- PLANTING BED
- LAWN
- ROCKERY GARDEN
- WATER GARDEN
- CONCRETE PAVEMENT 1
- CONCRETE PAVEMENT 2
- POOL
- PROPOSED TREE WITHIN SITE = 34 NOS.
- EXISTING TREE TO REMAIN WITHIN SITE = 15 NOS.
- EXISTING TREE TO REMOVE WITHIN SITE = 42 NOS.
- × + 670.15 PROPOSED FINISH GRADE
- × TW +670.15 TOP OF WALL FINISH GRADE

PLAN

SCALE: 1:200

Consultant

Janet Rosenberg & Studio

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ONTARIO ASSOCIATION OF LANDSCAPE ARCHITECTS — JANET ROSENBERG — OALA — MEMBER

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Client Approval Date **YYYY.MM.DD**

Dwg Title **LANDSCAPE LAYOUT PLAN**

Building **SASKATCHEWAN DRIVE RESIDENCE**

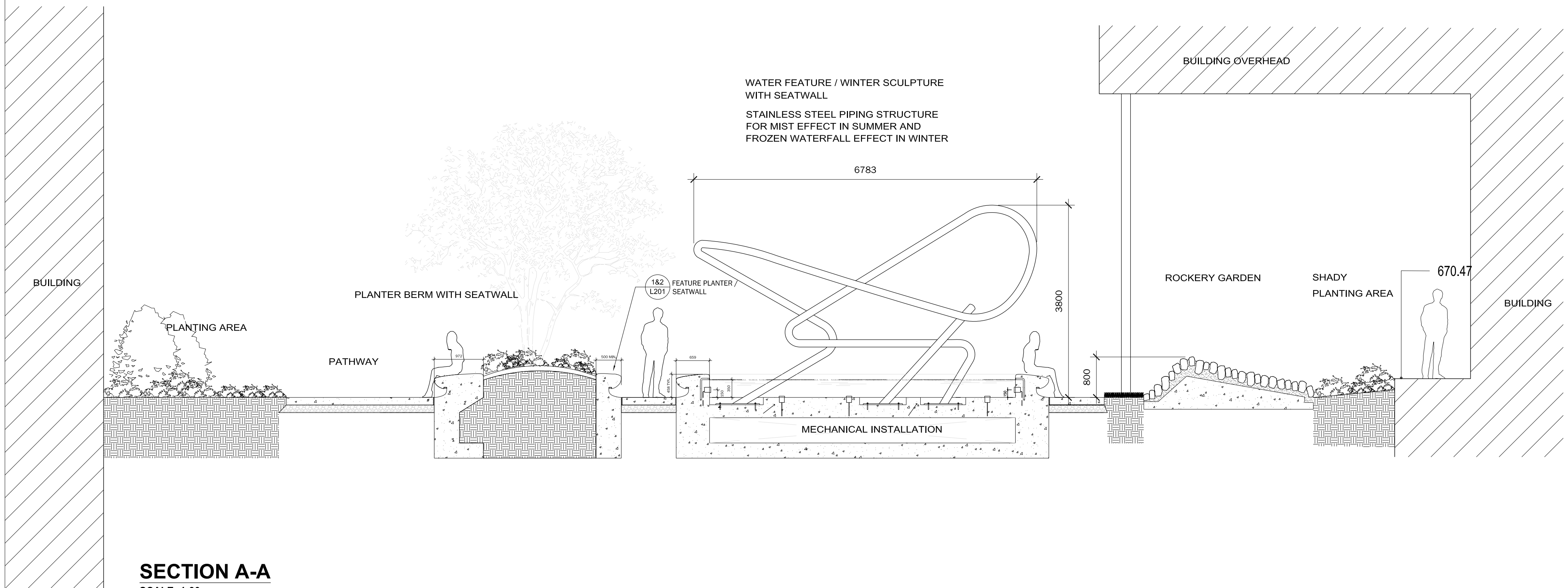
Proj. Number **PENDING** Work Order Number **PENDING**

Arch ☐ L Arc ■ Elec ☐ Struc ☐ Civil ☐ Drawn By **MC**

Dwg. Created **YYYY.MM.DD** Issue & Revision **A**
Design File No. #####-YY-##

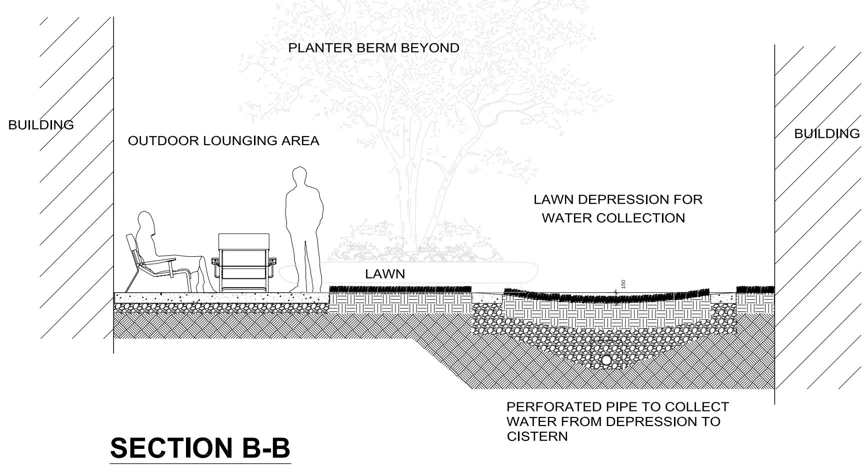
Sheet **1 of 1** Drawing Number **L100**

14-108



SECTION A-A

SCALE: 1:30



SECTION B-B

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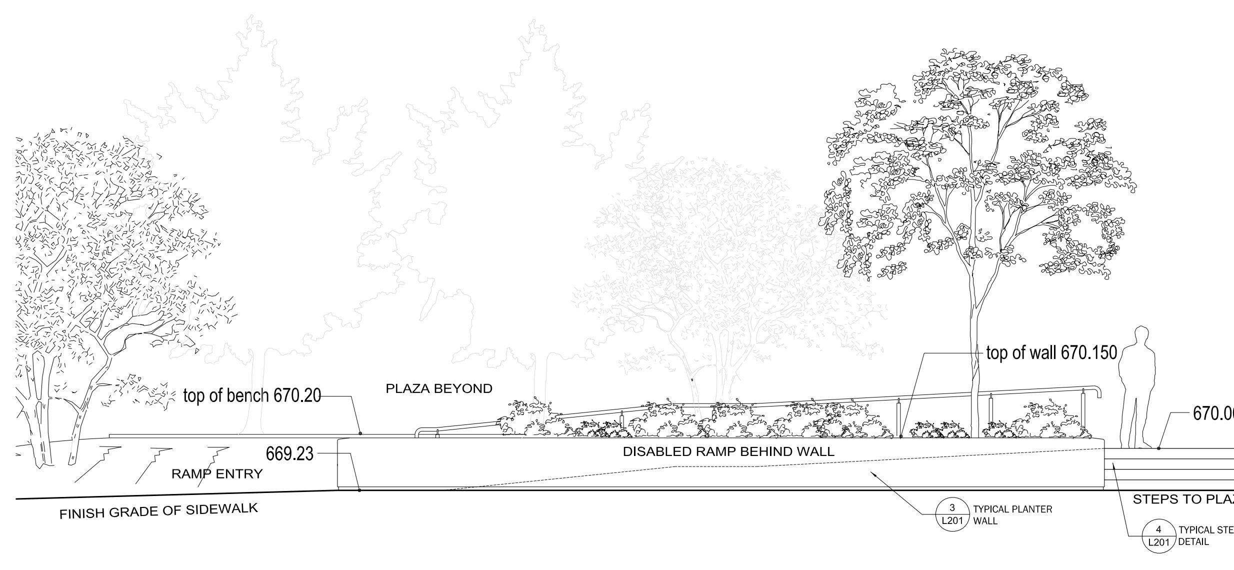

ELEVATION C-C

SCALE: 1:30

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Edmonton, Alberta

Issues & Revisions

Ltr. / #	Date	By	Description

Faculty/Department FACULTY OR DEPARTMENT

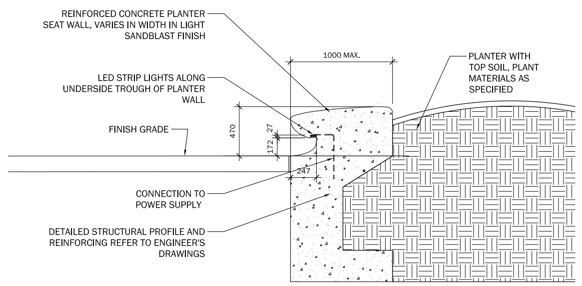
Client Approval Date YYYY.MM.DD

Dwg Title **LANDSCAPE SECTIONS**

Building **SASKATCHEWAN DRIVE RESIDENCE**

Proj. Number	PENDING	Work Order Number	PENDING
Arch ☐ L Arc ■ Elec ☐ Struc ☐ Civil ☐		Drawn By	MC
Dwg. Created YYYY.MM.DD Design File No. #####-YY-##		Issue & Revision	A
Sheet	1 of 1	Drawing Number	L200

14-108



NOTE: PLANTER WALL WIDTH VARIES FROM 500 TO 1000MM, REFER TO LAYOUT PLAN FOR LOCATIONS

1 FEATURE PLANTER / SEATWALL (WIDE SITUATION)
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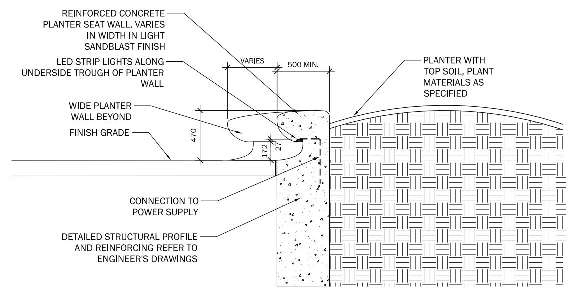

NOTE: PLANTER WALL WIDTH VARIES FROM 500 TO 1000MM, REFER TO LAYOUT PLAN FOR LOCATIONS

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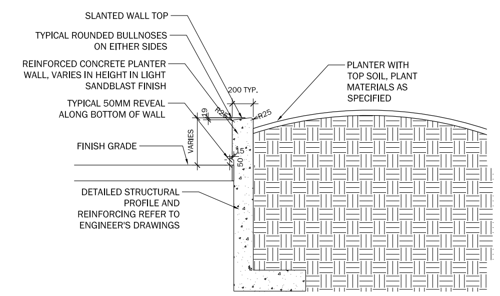

3 TYPICAL PLANTER WALL
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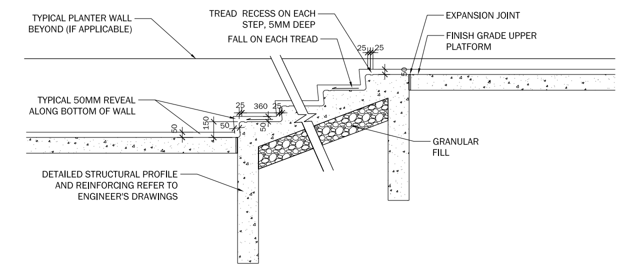

4 TYPICAL STEPS DETAIL
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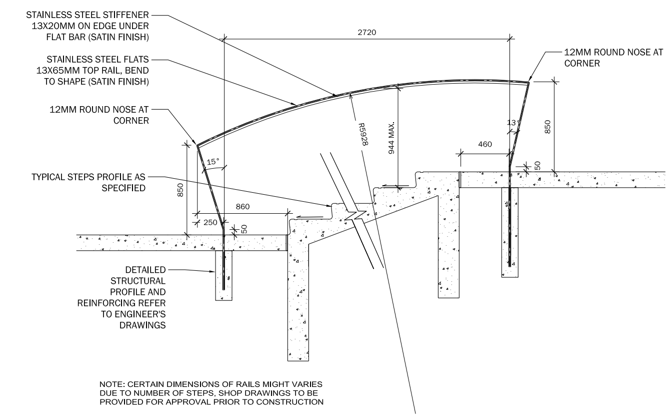
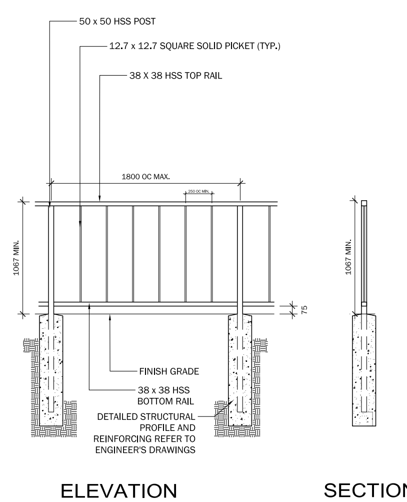


NOTE: CERTAIN DIMENSIONS OF RAILS MIGHT VARIES DUE TO NUMBER OF STEPS, SHOP DRAWINGS TO BE PROVIDED FOR APPROVAL PRIOR TO CONSTRUCTION

5 TYPICAL HANDRAIL DETAIL
SCALE: 1 : 20



NOTE: SHOP DRAWINGS TO BE PROVIDED FOR APPROVAL PRIOR TO CONSTRUCTION

6 TYPICAL RAILINGS DETAIL
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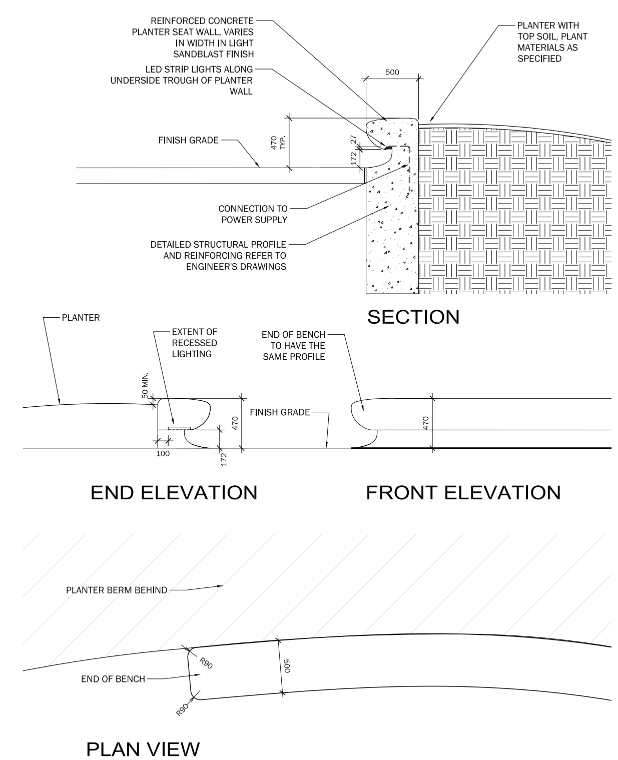

7 FEATURE BENCH DETAIL
SCALE: 1 : 20

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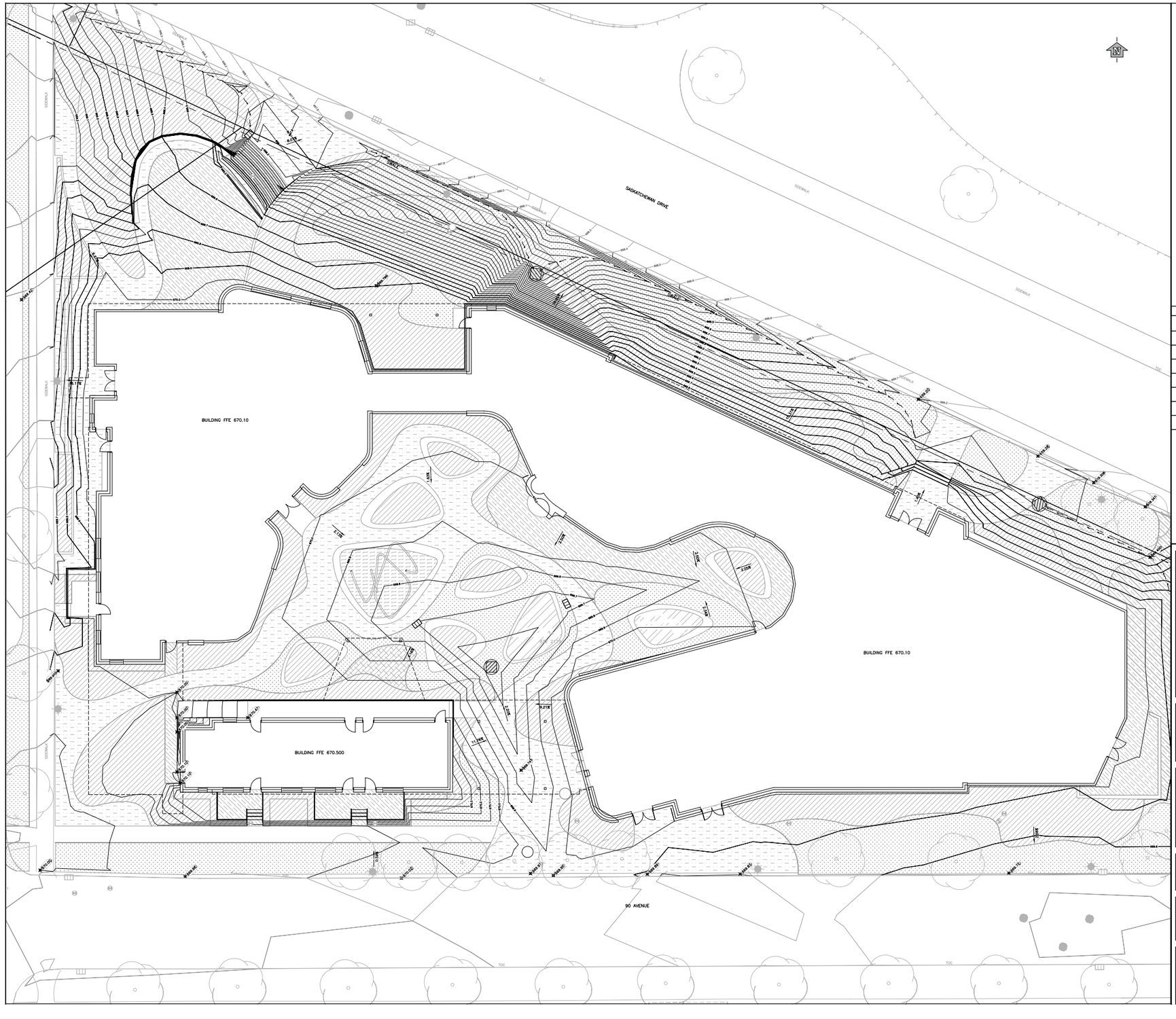
Dwg. Title: LANDSCAPE DETAILS
Building: SASKATCHEWAN DRIVE RESIDENCE

Proj. Number: PENDING — Work Order Number: PENDING
Drawn By: MC
Dwg. Created: YYYY.MM.DD
Issue & Revision: A
Sheet: 1 of 1 — Drawing Number: L201
14-108



LEGEND	
	PROPOSED CATCH BASIN MANHOLE
	PROPOSED CATCH BASIN
	PROPOSED MANHOLE PROPOSED
669.42	ELEVATION POINT
2.00%	PROPOSED GRADE
	PROPOSED SWALE
669.2	PROPOSED CONTOUR
669.2	EXISTING CONTOUR

Consultant

URBAN systems

Consultant's Seal

Consultant's Permit

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Ltr / #	Date	By	Description
A	2014.05.02	USL	ISSUED FOR DESIGN DEVELOPMENT DRAWING SET

Faculty/Department
Peter Lougheed Leadership Initiative
Saskatchewan Drive Residence

Client Approval Date

Dwg Title
PROPOSED SITE GRADING PLAN

Building

Proj. Number E1234 | Work Order Number 567890

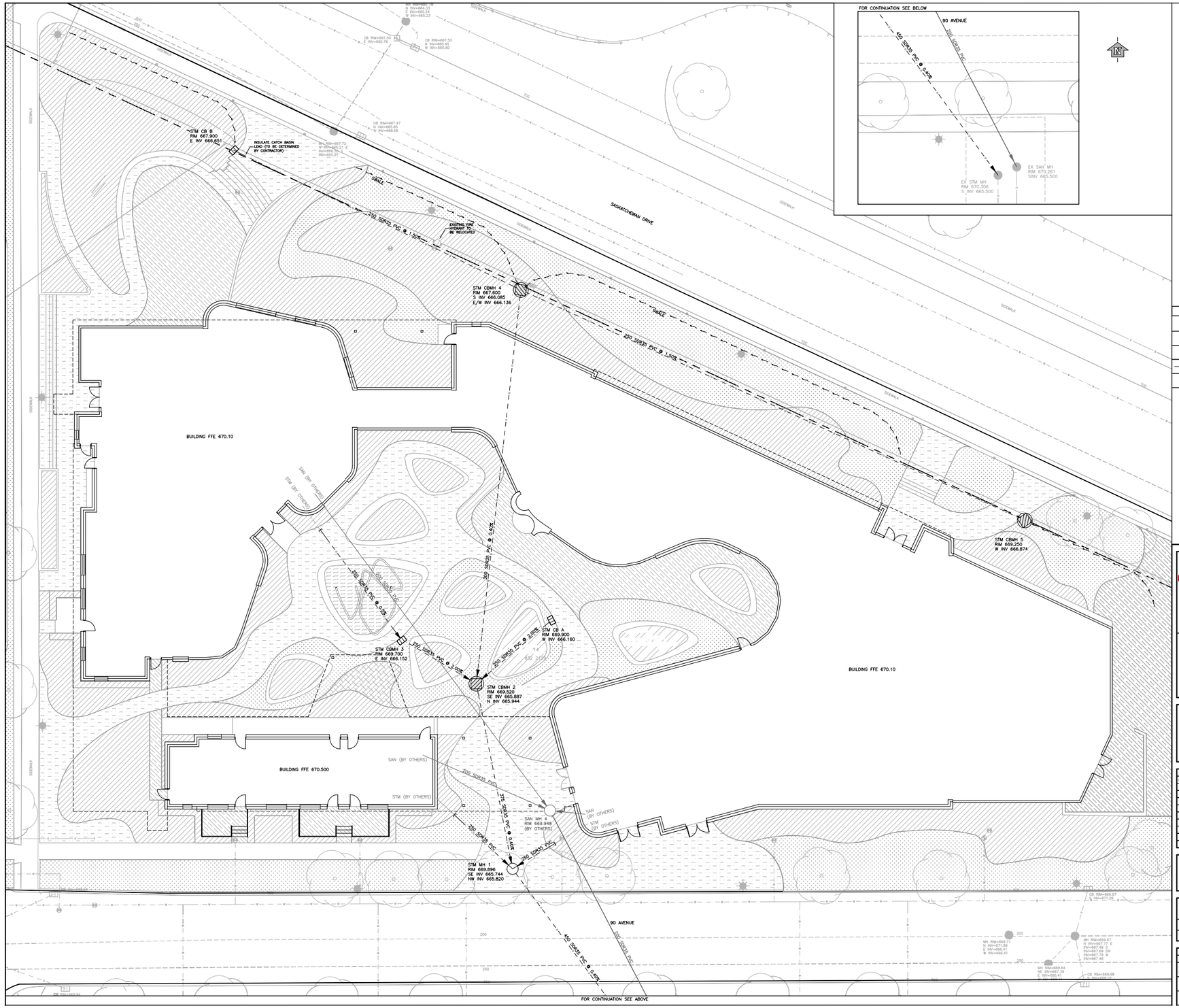
Arch ☐ Mech ☐ Elec ☐ Struc ☐ Civil ■ | Drawn By JA

Dwg. Created | Issue & Revision: A

Design File No: 2276.0011.01

Sheet: 1 of 2 | Drawing Number: C01

5361



LEGEND	
	PROPOSED CATCH BASIN MANHOLE
	PROPOSED CATCH BASIN
	PROPOSED MANHOLE PROPOSED
	PROPOSED STORM
	PROPOSED SWALE

Consultant

URBAN systems

Consultant's Seal

Consultant's Permit

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Lic. / #	Date	By	Description
A	2014.05.02	USL	ISSUED FOR DESIGN DEVELOPMENT DRAWING SET

Faculty/Department

Peter Lougheed Leadership Initiative

Client Approval Date

Dwg Title: PROPOSED STORM SERVICING PLAN

Building: Saskatchewan Drive Residence

Proj. Number E1234 | Work Order Number 567890

Arch ☐ Mech ☐ Elec ☐ Struc ☐ Civil ■ | Drawn By JA

Dwg. Created | Design File No. 2278.0011.01 | Issue & Revision: A

Sheet: 2 of 2 | Drawing Number: C02

5361

APPENDIX D: OUTLINE SPECIFICATIONS

This Outline Specification is based on the CSC/CSI UniFormat for Building Construction. Proposed assemblies and systems are presented in this manner to assist the Owner, Construction Manager/Cost Consultant, the Prime Consultant and their Consultants determine appropriate methods of construction and confirm budget pricing.

Information from this outline specification will be used during Detail Design and preparation of the Project Manual (based on MasterFormat 04). It will also be used as a coordination tool for the Construction Manager and other Consultants.

	ELEMENT	DESCRIPTION	MASTER FORMAT
A	**SUBSTRUCTURE**		
A.1	**Foundations**		
A.1.1	Foundations	Type IV insulation to outside of all foundations and where indicated.	07 21 13
		Spread and strip footings founding in the native clay/clay till soil. Include for excavation, formwork, cast-in-place structural concrete, reinforcement, backfill and compaction, and interior wall finish.	03 11 00 03 20 00 03 31 00
		Waterproofing: Hot Rubberized Asphalt Waterproofing - Rubberized asphalt, to CAN/CGSB-37 .50-M89, one of the following accepted materials: Hydeotech 6125MM, Henry 790-11, Tremco TREMproof 6100, Carlisle CCW 500. - Drainage mat: dimpled polypropylene geocomposite, with a compressive strength of 550 kN/m2, Delta-Drain 2000 as manufactured by Cosella Dorken	07 14 13
A.1.2	Slab-on Grade	Include for Floor Flatness and Floor Levelness in accordance with design and ASTM E1155.	03 31 00
A.1.3	Sub-Drainage System	As indicated in geotechnical report and as follows: - Perimeter drains should be provided on the outside of the footings below basement floor slab elevation to prevent hydrostatic pressure below the floor slab and against the basement walls. - Perimeter Drainage Systems: Provide 150mm diameter perimeter weeping tile complete with geotextile sock cover, coarse granular, free drawing fill surrounded by geotextile material. - Include for excavation, perforated pipe, drain boards, granular fill, filter fabrics, connection to storm sewer systems and rigid insulation. Backfill in accordance with Section 31 05 00.	07 21 13 31 05 00

B	**SHELL**		
B.1	**Superstructure**		
B.1.1	Structural Frame	Includes structural elements required for support of floor and roof construction. Floor construction is primarily supported using structural steel columns	05 00 50 05 12 00 05 21 00 05 41 00
		The roof structure, with the exception of the dining hall and fifth floor city room, is comprised of pitched open web steel joist trusses. The flat roof over the interior hallway will be cantilevered from the bottom chord of the truss.	
		The roof of the fifth floor city room will be conventional W-section steel joist framing. The dining hall roof will be exposed glulam timber construction.	06 18 00
		The elevator shaft and stair cores will be constructed of structural steel columns, beams and braces. These elements will provide the lateral force resisting system.	
B.1.2	Floor Slabs	The basement floor slab and main floor slab where there is no basement will consist of concrete slab on grade.	03 31 00 05 31 00
		The main floor slab over the basement, and the remainder of the floor slabs will consist of concrete / steel composite floors.	
B.1.3.	Roof Deck	The roof deck, with the exception of the dining hall, will be steel deck spanning between open web steel joist trusses, and spanning w-section steel joist framing on the fifth floor.	05 31 00
		The roof on the dining hall will consist of 12mm plywood on 140mm deep nailed laminated timber panels, or locally sourced 130mm deep fluted WestDek panels supported on glulam beams.	06 10 00 06 18 00
B.1.4	Fireproofing and Firestopping	Includes sprayed cementitious, non-fibrous fire rating materials at steel structure supporting floors and occupied roofs. A one hour fire rating is to be achieved throughout.	07 81 00
		Intumescent paint to exposed structural steel columns on the main floor as noted on drawings.	09 96 46
		Intumescent coating on glulam beams in dining hall.	06 18 00
		Include materials installed in cavities, around pipe penetrations, and other openings in floors and between floors and curtain walls to prevent spread of fire and smoke.	07 84 00

B.2 Exterior Wall Elements

B.2.1	Brick Cladding System	Deep red iron spot brick is the primary cladding on the main floor, stair cores and vertical service spaces.	04 05 00 04 20 00
		90mm Interstate Ironstone L-4 brick veneer to be installed as a part of a rain-screen system.	05 41 00 07 21 13 07 21 16
		Steel Stud back-up wall to be clad in 13mm exterior gypsum sheathing, self-adhering membrane air/vapour barrier, semi-rigid mineral fibre insulation. Provide a 35mm air space between the insulation and brick veneer.	07 27 00 09 21 16
B.2.2.	Zinc Shingle Cladding	Pre-weathered graphite grey zinc shingles are used to define the residence blocks that sit above the main floor.	07 42 13
		1mm pre-weathered graphite grey interlocking zinc shingles.	05 41 00 07 21 13 07 21 16
		Steel Stud back-up wall to be clad in 13mm exterior gypsum sheathing, self-adhering membrane air/vapour barrier, semi-rigid mineral fibre insulation and G.I. Z-bars. Provide an air space between the insulation and zinc shingles constituting of acoustic deck.	07 27 00 09 21 16
B.2.3.	Fibre Cement Lap Siding Cladding	White fibre cement siding infill the exterior facades of the residential blocks.	07 46 46
		8mm fibre cement lap siding – Hardipanel as manufactured by James Hardie Building Products.	05 41 00 07 21 13 07 21 16 07 27 00
		Steel Stud back-up wall to be clad in 13mm exterior gypsum sheathing, self-adhering membrane air/vapour barrier, semi-rigid mineral fibre insulation and G.I. Z-bars. G.I. hat bars to be attached to z-bars to facilitate application of fibre cement lap siding.	09 21 16

B.3 Exterior Wall Protection Devices

B.3.1	Flashings	Roof, top of wall, through wall, jambs and heads of doors and windows, and other flashings required for project and complete building envelope shall be prefinished galvanized steel, 0.607 mm thickness.	07 60 00 07 90 00
		Aluminum curtainwall and window sections shall have extruded aluminum sill flashings installed by window installer with custom finish to match frames.	

B.4 Exterior Windows

B.4.1	Glass and Aluminum Curtain wall Glazing System	High performance aluminum curtain wall framing for double glazed curtain wall system. Using manufacturer's standard components, including glass reinforced nylon thermal break to form a rigid composite assembly without the use of fasteners or other thermal bridging elements. Vent and pressure equalize glazing pockets and drain to the exterior. Provide snap caps to locations and of sizes indicated on the drawings. Acceptable Products: - Kawneer 1600 UT System 1 - Alumicor ThermaWall 2600 Series - Engineered Aluminum Products Series 130 HP -	08 44 00 08 80 00
		Framing - Clear anodized aluminum finish.	
		Low thermal conductivity thermal separators either inert polymerized material or soft PVC.	
		Anti-rotational channels: PVC channels, minimum 2.1mm wall thickness, of size to suit glazing rabbet to curtain wall framing, one length piece per location.	
		Provide sealed insulating glass units meeting the requirements of CAN/CGSB-12.8-97 and ASTM E2190, comprised of two panes of glass factory sealed and separated by dehydrated air space. Thickness of glass for each pane determined by window size, snow loads and wind/suction loads but minimum glass thickness 6mm each pane; 25 mm total thickness for double glazed units.	
		Manufacture sealed insulating glass units using warm edge black spacers without edge channels, that is, with bare edges. Use two stage seal method of Manufacture.	
		Double glazed sealed units, c/w low-e coating Guardian Sunguard Superneutral 68 on surface #2, on 6mm clear glazing. Provide argon gas fill to sealed units.	
		10" deep Kawneer Versoleil single blade sun shade system on south exposures.	

B.4.2.	Glass and Aluminum Punched Window Glazing System	High performance aluminum framing for double glazed punched windows. Using manufacturer's standard components, including glass reinforced nylon thermal break to form a rigid composite assembly without the use of fasteners or other thermal bridging elements. Vent and pressure equalize glazing pockets and drain to the exterior. Frame shall incorporate attachment mechanism for air/vapour barrier mechanical attachment. Acceptable Products: - Kawneer 5525 IsoWeb Framing - Clear anodized aluminum finish. Provide sealed insulating glass units meeting the requirements of CAN/CGSB-12.8-97 and ASTM E2190, comprised of two panes of glass factory sealed and separated by dehydrated air space. Thickness of glass for each pane determined by window size, snow loads and wind/suction loads but minimum glass thickness 6mm each pane; 25 mm total thickness for double glazed units. Manufacture sealed insulating glass units using warm edge black spacers without edge channels, that is, with bare edges. Use two stage seal method of Manufacture. Double glazed sealed units, c/w low-e coating Guardian Sunguard Superneutral 68 on surface #2, on 6mm clear glazing. Provide argon gas fill to sealed units.	08 44 00 08 80 00

B.5 Exterior Doors

B.5.1	Aluminum and Glass Entrance Systems	Aluminum entrances to match exterior aluminum window and curtain wall systems. Construct doors of porthole extrusions with minimum wall thickness of 3.2mm. Door Stile and top rail nominal 89mm, bottom rail nominal 165mm. Provide weather stripping on two sides and head of exterior doors, and sweep full width of bottom rail. Thermally broken framing to match aluminum curtain wall framing specified in 08 44 00. Thermally broken doors: Kawneer 360 series. Interior vestibule non-thermally broken frames: Kawneer Trifab VG 450 Centre Plane series. Non-thermally broken doors: Kawneer 350 series. Provide double glazed sealed units as specified for exterior windows and curtainwall in section 08 80 00.	08 41 00 08 44 00 08 80 00

B.5.2.	Exterior Steel Doors and Frames	Exterior thermally broken frames consisting of galvanized steel, nominal 1.9 mm core metal thickness, 150 mm nominal depth with 50 mm face width and having the following features: - Fully welded frames reinforced as required to suit door opening requirements. - Fill frames with polyurethane, low expansion foam-in-place insulation. - Connect to building air/vapour retarder membrane. Doors consisting of zinc wipe coated steel, nominal 1.5 mm metal core thickness, primed ready for painting and having the following features: - Fabricated full flush seamless, pan type with vertical and any other visible edges having seams continuously welded, filled and ground smooth. - Polyurethane insulated core bonded to door skins having insulating value of nominal RSI 1.5. Hardware will consist of institutional grade ball bearing butts on average frequency doors and continuous hinges for high frequency doors, weatherstripping, thresholds, rim mounted panic devices, door closers, hex key dog operation, no lock cylinders on exterior. Acceptable manufacturers: Greensteel Industries, Ltd.; Shannahan's Ltd.; Spalding; or S.W. Fleming Limited.	08 11 00
B.5.3.	Overhead Sectional Doors	Foam Core Composite Panel Doors consisting of zinc wipe coated steel, nominal 0.91 mm metal thickness, primed ready for painting with polyurethane foamed core. Electric motor operated. Accessories: track, supports, weather stripping, hinges rollers and safety devices. Acceptable manufacturers: - Richards-Wilcox Canada Inc. "Thermatite T-175" - Wayne Dalton Company "Thermaspan 200(120)" - Steel-Craft Door Products Ltd. "Therm-O-Dor TD134" - Overhead Door Corporation "Thermacore" - Clopay Building Products Company Model 3603.	08 36 13

B.6 Soffits

B.6.1	Wood Soffit	The majority of soffits are to be cedar wood. Smooth faced with crown grain, 19mm x 140mm 'V' grooved, T&G western red cedar, "A" grade in accordance with NLGA rules. Trim species and grade to match. Nails to be hot dipped galvanized siding nails conforming to ASTM F1667. Cedar to be fire retardant impregnated. Membranes as per 07 25 00. Soffit vents: 100mm diameter, PVC ventilation plugs, insect proof, with vent area determined in accordance with CAN 3-A93-M82.	07 46 23

B.6.2	Zinc Shingle Soffit	Zinc shingle soffits as noted on drawings to match zinc cladding colour and size. 1 mm pre-weathered graphite grey interlocking zinc shingles attached to 38mm acoustical metal deck with back-up system as defined in soffit assemblies. Membranes as per 07 25 00. Soffit vents: 100mm diameter, PVC ventilation plugs, insect proof, with vent area determined in accordance with CAN 3-A93-M82.	07 46 15
B.6.3.	Composite Metal Panel Soffit	4mm thick pre-finished composite metal panels fastened to z-bars with a concealed clip assembly. Back-up system as defined in soffit assemblies. Composite metal panels consisting of two sheets of 0.51 mm nominal thickness aluminum and a low density polyethylene core for nominal composite panels produced in a continuous process. Acceptable products: Alucobond for fire-rated panels, AP300 Rain Screen System; Reynobond; Accument; Alpolic. Membranes as per 07 25 00. Soffit vents: 100mm diameter, PVC ventilation plugs, insect proof, with vent area determined in accordance with CAN 3-A93-M82.	07 42 43 07 46 15

B.7 Roofing

B.7.1	SBS Roofing	Flat roofs to be roofed with 2-ply SBS roof membrane. Roofing membrane to be manufactured by Siplast or Soprema. Metal deck to be covered with moisture resistant gypsum roof deck sheathing to ASTM C1177, such as Dens-Deck Prime. Fastened with ARCA approved fasteners. Air vapour barrier membrane: self-adhered membrane with sanded surface on top face and to be compatible with roofing system, such as Soprelene 180 SP 3.5. Exposed Roofing Membrane: - Base sheet to be factory applied to roof insulation board. - Cap sheet: Acceptable products Paradiene 30 CR FR TG; Soprastar Flam HD GR. - Base sheet: Acceptable products Paradiene 20TS SA, Sopraflash FLAM STICK. - Cap sheet flashing to be same as cap sheet membrane. - Expansion Joint Membranes: Soprajoint. Isocyanurate insulation installed in 50mm thick layers to achieve RSI value as indicated on the drawings. Acceptable products: Iso 95+ GL; ACFoam III; IKOTHERM III; SecurShield. Tapered Rigid polystyrene insulation as indicated on the drawings.	07 52 00 07 60 00

B.7.2	Standing Seam Metal Roofing	Pitched roofs to be roofed with Pre-weathered graphite grey zinc standing seam roof system on thermal clips. Standing seam roofing to be attached on both pitched steel trusses and wood deck. Exterior sheet to roofing: 1.00 mm pre patina JSM standing seam roof panels @ 500 o.c., one piece continuous panel length. Standing seam panels to be attached to 38 mm galvanized acoustic deck, flute orientation to follow roof slope; 2 rows of G.I. Z-bars; 2 layers 90mm semi-rigid mineral fibre insulation as ROXUL Cavity Rock (R30 Total); self-adhering membrane air/vapour barrier; gypsum sheathing; and steel roof deck. Accessories: cap flashings, drip flashings, internal valley flashings, external ridge flashings, copings and closures, of same material and finish as roofing. Breakformed to shape. Waterproofing membrane: prefabricated, self-adhesive, flexible, composite of polyolefin sheeting and rubberized asphalt, non0slip sanded surface one side, high temperature resistant. Acceptable products: Grace “Ultra”; Henry Company Blueskin “PE200HT” (Winter grade only); Soprema Lastobond Pro-HT-S (for high temperature application). Bituminous primer as recommended by the membrane manufacturer.	07 61 13 07 60 00
B.7.3.	Roof Pavers	600 x 600 x 50 mm precast concrete roof pavers installed level on adjustable pedestal system. Pedestals installed on 25 mm thick extruded polystyrene insulation pads on SBS roofing as described above.	07 52 00 07 60 00

C INTERIORS

C.1 Non-Rated and Rated Interior Partitions

C.1.1.	Typical Interior Partitions (P1 & P2)	One layer of 16 mm gypsum board on each side of 92 mm studs (or greater) taped and sanded to AWCB Level 4, all surfaces finished with a minimum 3 coats of paint including primer.	09 21 16 09 90 00
C.1.2.	Plumbing Walls (P3 & P9)	One layer of 16 mm moisture resistant gypsum board on each side taped and sanded to AWCB Level 4, all surfaces finished with a minimum 3 coats of paint including primer. light gauge steel studs spaced at 400 o.c. walls will extend to underside of slab structure and have a channel type deflection cap, top, sides and bottom of stud track will be sealed with acoustic sealant. Walls to receive tile shall have 13 mm cementitious board as a substrate for ceramic or porcelain tile finishes.	07 90 00 09 21 16 09 90 00

C.1.3.	Rated Partitions Suite to Corridor Separations (P4)	1 hour fire resistance rating with STC 55. Rated partitions to latest ULC design as indicated on drawings (similar to W407). 16mm fire rated gypsum board on each side taped and sanded to AWCB Level 4, all surfaces finished with a minimum 3 coats of paint including primer. 152 mm steel studs to be spaced at 400 o.c. and be filled with mineral fibre insulation. Walls will extend to underside of slab structure and have a channel type deflection cap, top saides and bottom of track to be sealed with acoustic sealant.	07 21 16 07 90 00 09 21 16 09 90 00
C.1.4.	Rated Partitions Suite to Suite Separations (P5, P6 & P7)	1 hour fire resistance rating with STC 50. Rated partitions to latest ULC design as indicated on drawings (similar to W407). 16mm fire rated gypsum board on each side taped and sanded to AWCB Level 4, all surfaces finished with a minimum 3 coats of paint including primer. 152 mm steel studs to be spaced at 400 o.c. and be filled with mineral fibre insulation. Walls will extend to underside of slab structure and have a channel type deflection cap, top saides and bottom of track to be sealed with acoustic sealant.	07 21 16 07 90 00 09 21 16 09 90 00
C.1.5.	Shaft Walls (P8)	Components required for a complete ULC fire resistance rated shaft wall assembly with proprietary components forming a system consisting of: Commercial steel framing system, Gypsum shaft wall liner panels, Gypsum board facer panels, screws, tape, joint compound and all other accessories required for a non-load bearing shaft wall partition.	09 21 16 09 90 00

C.2 Interior Doors

C.2.1	Hollow Metal Doors and Frames	Interior frames consisting of galvanized steel, 1.519 mm metal core thickness, 150 mm (or greater) nominal depth with 50 mm face width. Frames shall be fully welded and reinforced as required to suit door opening requirements. Doors consisting of zinc wipe coated steel, 1.214 mm metal core thickness, primed ready for painting, fabricated full flush seamless, pan type with vertical and anu other visible edges having seams continuously welded, filled and ground smooth with a honeycomb core bonded to door skins, wired glass in exit doors. Acceptable materials: Greensteel Industries Ltd.; Shanahan's Ltd.; or S.W. Fleming Limited. Hardware will consist of institutional grade ball bearing butt hinges, rim mounted panic devices, door closers, Series 4000-Grade 1 locks and latch-sets and other access controls to suit door functionality.	08 11 00 08 70 00

C.2.2	Wood Doors	Architectural grade, premium doors, having structural laminated wood stiles and blocking, solid particleboard core, hot glued and having wood veneer finish. Wood doors shall be set in hollow metal frames. Hardware will consist of institutional grade ball bearing butt hinges, rim mounted panic devices, door closers, Series 4000-Grade 1 locks and latch-sets and other access controls to suit door functionality.	08 11 00 08 14 00 08 70 00
C.2.3.	Wood Sliding Doors	Architectural grade, premium doors, having structural laminated wood stiles and blocking, solid particleboard core, hot glued and having wood veneer finish. Door shall be sliding barn doors. Hardware will consist of institutional grade sliding door hardware.	08 14 00 08 70 00

C.3 Interior Windows

C.3.1	Pressed Steel Frames with Tempered Glass	Interior frames consisting of galvanized steel, 16 ga. Metal core thickness, 150mm nominal depth with 50 mm face width. Frames shall be fully welded and reinforced as required to suit window opening requirements. Acceptable materials: Greensteel Industries Ltd.; Shanahan's Ltd.; Spalding; or S.W. Fleming Limited. Clear Float Tempered glass engineered for opening size with a minimum thickness of 8mm.	08 11 00 08 80 00
C.3.2	Pressed Steel Frames with Wired Glass	Interior fire rated frames consisting of galvanized steel, 16 ga. Metal core thickness, 150mm nominal depth with 50 mm face width. Frames shall be fully welded and reinforced as required to suit window opening requirements. Acceptable materials: Greensteel Industries Ltd.; Shanahan's Ltd.; Spalding; or S.W. Fleming Limited. Fire rated wired glass with fire rating of 45 minutes.	08 11 00 08 80 00
C.3.3	Aluminum Frames with Tempered Glass	Interior aluminum glass frames non-thermally broken frames: Kawneer Trifab VG 450 Centre Plane series. Clear Float Tempered glass engineered for opening size with a minimum thickness of 8mm.	

C.4 Stair Construction

C.4.1	Exit Stairs	Structural steel stringers with concrete filled metal pan: includes steel stair stringers that will be considered as structural steel components; requirements for certification and record keeping for steel stairs shall be the same for structural steel framing.	05 51 00 03 30 00 03 35 00
C.4.2	Interior Railings	Fire stairs with the exception of the north east stair include the following items: Steel railings including handrails and railings attached to stairs, steel pickets in guards, handrails attached to walls adjacent to stairs.	05 51 00

C.5 Interior Specialties

C.5.1	Toilet Partitions	Prefinished metal, floor mounted toilet partitions, standard finish, stainless steel and cast aluminum hardware, barrier-free accessible.	10 21 13
C.5.2	Toilet and Bath Accessories	- Coat hooks: satin finished stainless steel, square profiled robe hook with concealed mounting, provide one per bathroom stall and two per individual washroom. - Grab Bars: Horizontal 1.27mm; 1067 mm and 915 mm long x 38 mm in diameter. Vertical 1.27 mm; 915 mm long x 38 mm in diameter. Straight, stainless steel, slip resistant grip, concealed mounting, cap secured with vandal resistant set screws. - Garbage Container: Recessed mounted, 0.80 mm stainless steel, satin finished seamless construction to exposed face, complete with heavy duty reusable, removable vinyl liner having a 45L capacity. - Mop Strip: stainless steel mop and broom holder with non-slip handle restraints, designed to hold three handles 19 mm to 30 mm in diameter. - Feminine Napkin Disposal: Surface mounted, stainless steel, concealed fastening, self-closing disposal opening with leak-proof plastic receptacle. - Roll Paper Towel Dispenser - Toilet tissue dispenser: Double roll, surface mounted tissue dispenser with concealed mounting, stainless steel construction, bright polished finish with theft resistant spindles.	10 28 00
C.5.3.	Corner Guards and Wall Protection	50mm x 50mm stainless steel corner guards in kitchen area – length as indicated on drawings.	10 26 00
C.5.4.	Tack Boards	Bulletin Boards – refer to specification section 09 99 99 Materials List for materials.	10 11 00

C.6 Interior Floor Finishes

C.6.1	Carpet Tile	Refer to specification section 09 99 99 Materials List for materials.	09 68 00
C.6.2	Tile	Refer to specification section 09 99 99 Materials List for materials. Porcelain floor tile exceeding the requirements of CAN/CGSB 75.1 and ANSI A137.1, impervious, fully fired porcelain floor tile having slip resistance where required installed in accordance with ASTM C627 Extra Heavy Duty Setting material and epoxy grout. Ceramic tile to CAN/CGSB 75.1 M88, type 5, MR4 with latex modified mortar and grout system. Edge and control joints shall be formed using clear anodized aluminum, purpose made for application. Schluter Systems.	09 30 00
C.6.3	Vinyl Tile	Refer to specification section 09 99 99 Materials List for materials.	09 65 00
C.6.4	Safety Flooring	In kitchen prep, and dishwashing areas. Sheet vinyl safety flooring: single layer homogenous with same composition and pattern all the way through and silicone carbide abrasive grains in surface layer 0.5 mm thick, 2000 mm wide, weight 2.7 kg/m2, slip resistant tested to ASTM D2047, conforming to ULC 102.2 Flame Spread 5, smoke development 295. Refer to specification section 09 99 99 Materials List for materials.	09 65 00

C.7 Interior Wall Finishes

C.7.1	Paint	Paint on gypsum board block or concrete. Refer to specification section 09 99 99 Materials List for materials.	09 90 00
C.7.2	Tile	Refer to specification section 09 99 99 Materials List for materials.	09 30 00
C.7.3	Back-Painted Glass	Refer to specification section 09 99 99 Materials List for materials.	08 80 00
C.7.4	Wall Panels	Refer to specification section 09 99 99 Materials List for materials.	
C.7.5.	Wood Panelling	Wood veneer panelling . Refer to drawings for species and locations.	06 20 00

C.8 Interior Ceiling Finishes

C.8.1	Gypsum Board Ceiling Finishes	Acrylic or latex premium grade paint having low or no VOC's applied to a minimum of one coat primer with two coats of finish in accordance with MPI manual. Additional coats shall be applied where coverage shows defects in paint finishes at distance of 1500 mm at 60 degrees from wall surface.	09 21 00 09 90 00
C.8.2	Acoustic Ceiling Treatment	Acoustic Ceiling panels in a suspended ceiling grid. Refer to ceiling plans for sizes and types. Kitchen area shall have mylar, clean room ceiling panels with mineral fibre core, and square edge.	09 51

D SERVICES

D.1 Vertical Transportation

D.1.1.	Electric Traction Elevators	KONE EcoSpace gearless traction elevator. Equipment Control KCM831. Non-Regenerative Drive. Machine Room and Control Room Less, machine located inside the hoistway mounted on car guide rail. Control Space located in integral closet at top landing. Two (2) elevators with six (6) landings with a travel distance of 17,600mm. All openings front openings. Rated capacity 1134 kg. Rated speed 1.00 m/s. Cab height: 2,438 mm. Clear inside dimensions: (WxDxH): 2,032 mm x 1,295 mm x 2,311 mm. Main Power Supply 208 Volts + 5%, three-phase. Duplex Operation. Glass Series steel cab. Interior non-removable vertical panels with coloured glass and aluminum from selected from manufacturer's standard catalog choices. Car front and door to be brushed stainless steel. Ceiling to have round diffusers and LED lights in stainless steel three panel suspended ceiling. Brushed aluminum rail on back and sides of car. Flooring by others – design for tile floor. Aluminum threshold. To be equipped with emergency siren and car lighting. Battery pack emergency power to be provided. Flush mounted car operating panel shall contain a bank of round, mechanical, illuminated buttons marked to correspond to landings served, emergency call button, door open button, door close button, and key switches for lights, inspection, and exhaust fan. Buttons have white illumination (halo). All buttons to have raised text and Braille marking on left hand side. The car operating display panel shall be white DOT-matrix. All texts, when illuminated, shall be white. The car operating panel shall have a brushed stainless steel finish. Car position indicator to be located in main floor lobby.	14 21 00

E EQUIPMENT AND FURNISHINGS

E.1 Furnishings

E.1.1.	Finishing Carpentry	Interior standing and running trims, flush wood panelling, site applied interior ornamental woodwork, and frames and jambs. Millwork to be factory finished, delivered to the jobsite. Hardware forming a part of cabinets by this Section All millwork to be shop and site inspected and meet AWMAC 2009 Standards. AWMAC GIS required.	06 20 00 06 40 00
E.1.2.	Finish Millwork	Flush overlay cabinets with clear lacquered wood veneer exteriors and plastic laminate interiors. AWMAC Premium Grade in accordance with Section 300 of "The Manual". Refer to specification section 09 99 99 Materials List for species.	06 40 00
E.1.3.	Countertops	Plastic Laminate Countertops for desks in residence rooms. Refer to specification section 09 99 99 Materials List for materials. Solid surface countertops in washrooms and public spaces as outlined in specification section 09 99 99 Materials List for materials. Accessories include adhesives, fasteners, joint sealants as required.	06 61 00
E.1.4.	Resin Panels	Refer to specification section 09 99 99 Materials List for materials.	06 64 10
E.1.4.	Drapery and Tracks	Refer to specification section 09 99 99 Materials List for materials. For tracks and rods refer to section 10 28 00.	10 28 00
E.1.5.	Interior Bicycle Racks	Cycle- Works Josta Wall Hook hung to allow for vertical parking. Refer to design development drawings for quantity and placement.	12 93 13

E.2 Window Treatments

E.2.1.	Window Shades		12 24 13

E.3 Kitchen Equipment

E.3.1.	Kitchen Equipment	Refer to itemized equipment list in design development drawing package.	11 40 00

	Finish Code	Material	Manufacturer & Product	Color	Remarks
Base					
	RB1	Millwork	Johnsonite, 100mm corebase, 48 Grey WG	Grey	Residence Rooms, Social Spaces
	B2	Stainless Steel Base	stainless steel base, 150 mm high	Grey	Main Floor
	TB1	Tile Base	Tile base, 150 mm hight	to match T1	
Ceiling					
	GLULAM	Douglas Fir	GLULAM		Dinning Hall
	C1	Gypsum Board, Painted			
	C2	Acoustic ceiling	CGC, Mars Clima Plus , High NRC Logix 1500 O.C. 500mm x1400mm panels with 100 mm logix zones		Quiety study, Admin offices, Conference room, Rec room, Fitness area, City room
	C2	Hygenic Acoustic ceiling			kitchen
Fabrics					
	F1	Fabric	J.Ennis Fabrics, Ultraleather, 8243 Apricot	Orange	2nd Floor Corridor Benches
	F2	Fabric	J.Ennis Fabrics, Ultraleather, 4460 Parrot	Green	3rd Floor Corridor Benches
	F3	Fabric	J.Ennis Fabrics, Ultraleather, 2553 Cyan	Blue	4th Floor Corridor Benches
	F4	Fabric	J.Ennis Fabrics, Ultraleather, Style : Brisa, 3022 Shiitake	Dark Brown	Residence Rooms Window Seat
	F5	Fabric (Curtain)	TBD	TBD	Residence Rooms (Closets)
	F6	Fabric	TBD (Wool)	Grey	Living Room
	F7	Fabric	J.Ennis Fabrics, Ultraleather, Style : Turner, 6009 Chinchilla	Dark grey	Living Room
Floor					
	CT1	Carpet Tile (Field)	Interface, Style: 138720AK00 Ground Waves, 250mm x 1000mm, 104042 Iron	Dark Grey	2nd Floor, 3rd Floor Accent, 4th Floor Accent
	CT2	Carpet Tile (Accent)	Interface, Style: 138730AK00 Ground Waves, 250mm x 1000mm, 104054 Iron/Colours	Dark Grey (blue and orange	2nd Floor corridors
	CT3	Carpet Tile (Field)	Interface, Style: 138720AK00 Harmonize, 250mm x 1000mm, 104043 Gravel	Medium Grey	3rd Floor
	CT4	Carpet Tile (Accent)	Interface, Style: 138730AK00 Ground Waves, 250mm x 1000mm, 104055 Gravel/Colours	Medium Grey (green and light grey stripe)	3rd Floor corridors
	CT5	Carpet Tile (Field)	Interface, Style: 138720AK00 Harmonize, 250mm x 1000mm, 104044 Pewter	Light Grey	4th Floor, 2nd Floor accent
	CT6	Carpet Tile (Accent)	Interface, Style: 138730AK00 Ground Waves, 250mm x 1000mm, 104056 Pewter/Colours	Light Grey (light blue and white stripe)	4th Floor corridors
	CT7	Carpet Tile (Field)	Shaw Contract Group, Style: 5T060 folded tile, 915mm x 450mm, 60506 electric	Indigo and dark grey	5th Floor
	CT8	Carpet Tile (Accent)	Shaw Contract Group, Style: 5T062 folded edge tile, 915mm x 540mm, cut to: 915mm x 180mm 60506 electric obsidian	Indigo and dark grey	5th Floor
	CT9	Carpet Tile (Field)	Shaw Contract Group, Style: 5T058 angle tile, 915mm x 455mm, 59530 grit, ashlar	dark grey	main floor
	T1	Tile	Tierra Sol, Terre Toscane, Style : Naturale, 300mm x 600mm, matte, Gaiole	Dark Grey	Main Floor, 5th Floor

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	Finish Code	Material	Manufacturer & Product	Color	Remarks
	T2	Tile	Tierra Sol, Terre Toscane, Style : Naturale, 300mm x 600mm, polished, Gaiole	Dark Grey	Main Floor, 5th Floor
	T3	Tile	Tierra Sol, Terre Toscane, Style : Naturale, 300mm x 600mm, matte, Greve	Grey	Main Floor
	T4	Tile	Tierra Sol, Terre Toscane, Style : Naturale, 300mm x 600mm, polished, Greve	Grey	Main Floor
	T5	Tile	Tierra Sol, Terre Toscane, Style : Naturale, 300mm x 600mm, matte, San Casciano	Light Beige	Main Floor, 5th Floor
	T6	Tile	Tierra Sol, Terre Toscane, Style : Naturale, 300mm x 600mm, polished, San Casciano	Light Beige	Main Floor
	T7	Tile	Tierra Sol, Terre Toscane, Style : Decoro Terre Toscane, 300mm x 600mm, matte,	Grey	Main Floor
	LVT1	Vinyl Tile	Mannington Commercial, Style: Spacia, 305m x 450mm SS5S3606 Linear Stone Shale	Light Grey	Residence Rooms
	RF1	Resilient Floor Tile	Forbo, Style: Marmoleum Real, 3224 Chartreuse	Green	Fitness Room
	RF2	Resilient Floor Tile	Forbo, Style: Marmoleum Real, 2629 Eiger	Grey	Admin Copy Room
	SF1	Safety Flooring	Altro, Style: Altro Stronghold 30, 15000mm x 2000mm Dolphin K3010	Grey	Kitchen
	SC1	Sealed Concrete		Grey	Main Floor
Millwork					
	PL1	Desk	Plastic Laminate TBD	White	Residence Rooms
	WD1	Wood Veneer	Bacon Veneer Company, Rift Cut, 5002461, White Oak (Quercus Alba)	Stained to match Designer Sample	
	WD2	Wood Veneer	TBD		5th Floor, City Room
	SS1	Countertop	Formica, Style: Traditions, 760mm x 3680mm, 601 Bleached Concrete	White	Residence Room
	SS2	Countertop	Avonite Surfaces, Studio Collection, Style: K3-8425 Cement, Colour: 04/07 Satin	Dark Grey	City Room Bathroom
	SS3	Countertop	Zodiaq, Cloud White	White	Main Floor
	RP1	Resin Panel	Varia Ecoresin, Style: Moss, Finish :Sandstone,12mm thick	Green	Main Floor
Other					
	MR1	Mirror	Clear		Residence Rooms
Wall					
	PT1	Paint (Field)	Benjamin Moore, OC-130 Cloud White	White	Neutral on All Floors
	PT2	Paint (Field)	Benjamin Moore, HC-83 Grant Beige	Beige	Neutral on 2nd, 3rd, and 4th Floor
	PT3	Paint (Accent)	Benjamin Moore, CSP-1105 Tandoori	Darkest Orange	2nd Floor Social Space
	PT4	Paint (Accent)	Benjamin Moore, CSP-1110 14 Carrots	Dark Orange	2nd Floor Social Space
	PT5	Paint (Accent)	Benjamin Moore, 2017-20 Sharp Cheddar	Orange	2nd Floor Social Space
	PT6	Paint (Accent)	General Paint, CLV 1121N	Light Orange	2nd Floor Social Space
	PT7	Paint (Accent)	General Paint, CL 1735A	Yellow	2nd Floor Social Space
	PT8	Paint (Accent)	Benjamin Moore, 2029-10 Rosemary Green	Dark Green	3rd Floor Social Space
	PT9	Paint (Accent)	Benjamin Moore, 2029-30 Basil Green	Green	3rd Floor Social Space

	Finish Code	Material	Manufacturer & Product	Color	Remarks
	PT10	Paint (Accent)	Benjamin Moore, CSP-865 Limeade	Light Green	3rd Floor Social Space
	PT11	Paint (Accent)	Benjamin Moore, CSP-860 Granny Smith	Lightest Green	3rd Floor Social Space
	PT12	Paint (Accent)	General Paint, CL 17776A	Yellow	3rd Floor Social Space
	PT13	Paint (Accent)	Benjamin Moore, CSP-680	Dark Blue	4th Floor Social Space
	PT14	Paint (Accent)	Benjamin Moore, 2053-40	Blue	4th Floor Social Space
	PT15	Paint (Accent)	Benjamin Moore, 2053-50	Light Blue	4th Floor Social Space
	PT16	Paint (Accent)	General Paint, CL 3175A Lead	Dark Grey	
	PT17	Paint (Accent)	General Paint, CL 3173M Excalibur	Grey	
	PT18	Paint (Accent)	General Paint, CL3163 Elephant	Light Grey	
	PT19	Paint (Accent)	Benjamin Moore, CSP-890, Martini Olive	Green (Bright)	Main Floor
	PT20	Paint (Accent)	Benjamin Moore, CSP-885, Turkish Bay Leaf	Green	Main Floor
	PT21	Paint (Accent)	General Paint, CL3235D	Grey	Main Floor
	BPG1	Back Painted Glass	Urban Glassworks LTD. To match UPC-1365) Snow White	Very Light Teal	Residence Room Entries
	TG1	Tinted Tempered Glass	in 150mm stainless steel shoe	clear with tint	Main Floor
	WT1	Wall Tile	Tierra Sol, Sistem C, 100mm x 300mm, MJB4 ARCH., Turchese	Blue	Residence Rooms
	WT2	Wall Tile	Stonetile, Style: Ascot Muramansk in Medium, 200mm x 600mm, White	White	Main Floor
	WT3	Wall Tile	The size by Noelith, 5+ 3600mm x 1200mm x 5mm fiber glass backed Gama Colorfeel,	White	Main Floor
	WT4	Wall Tile	Manufacturer: Porcelanosa, 333mm x 1000mm, V13897341 Street	White	City Room
	GT1	Wall Tile	TBD		City Room
	WP1	Wall Panel	Modularts, Style: CRUSH, 810mm x 810mm, Paint Finish PT1	White	Feature Wall
	BB1	Bulletin Board Wall	Forbo, Tackable, 1220mm x 27000mm	TBD	TBD

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