ATTACHMENT 1

ENERGY MODEL ASSUMPTIONS

Project Co used the following energy model methodology and assumptions to determine the Design and Construction Energy Target:

(a) identify the energy consumption by fuel type, i.e., electricity, thermal (steam or hot water), fuel oil, on-site renewable;

(b) include a summary table of major assumptions and values utilized in modelling the Facility (including an explanation for assumptions that deviate from the defaults provided);

(c) use modelling procedures for the Facility in accordance with applicable modelling protocols of the Canada Green Building Council Leadership in Energy and Environmental Design (LEED);

(d) to ensure comparable simulations while allowing flexibility in modeling approach, use the default assumptions shown in the following Table 1 to determine operating parameters for the various spaces, unless other Authority-provided data contradicts these assumptions, or where knowledge or experience dictate that a different assumption would better reflect actual operating conditions; and

(e) use the appropriate combination of individual space type categories and grouped space type categories in Table 1 below to define the inputs to best represent the Facility design based on the particular zoning strategy and modeling approach used.

Modeling Assumptions

The following are instructions to aid in interpreting Table 1:

Default first to the operating schedule of appropriate surrounding group space type per Part B-1 and only use individual space type operating schedules per Part B-2 (or other schedule variation) where the design permits variation in schedule from surrounding spaces; only adjust the schedules (lighting, fans, cooling, etc.) for appropriate modulation that the design permits based on an automated feedback mechanism (such as occupancy sensors).

References to Part B are references to both Part B-1 and Part B-2.

Table 1: Modeling Assumptions

Part A	
Utility Rates for LEED Modeling Purposes	Electricity: assume a blended rate of 9.0 cents/kWh Natural gas: assume $9.72/GJ (including applicable taxes) Thermal energy (district heating energy): Method 1: use natural gas rate above Method 2: assume $15/GJ of delivered heat
Task Lighting	Included within Electrical Plug and Process Loads
Service Hot Water	Assume a service hot water load of 1,820 MWh of thermal energy (excluding efficiency of generation) based on code-compliant fixtures and adjust this load as appropriate where more efficient fixtures or other strategies are used to reduce service hot water requirements. Schedule these loads based on understanding of space use, or default to operating schedules noted in Part B below.
Thermal Process Loads	Assume a thermal process load of 1,610 MWh of thermal energy (excluding efficiency of generation) for sterilization, food warmers, etc., based on 41 W/m^2 average daily peak diversified thermal process equipment density. Distribute the intensity and schedule these loads based on understanding of space use, or default to schedules noted in Part B below.
Electrical Plug and Process Loads	Assume total annual electrical consumption of 4,810 MWh for all electrical plug and process equipment; based on the following assumptions: 4.3 W/m^2 average daily peak diversified plug equipment density (including task lighting), 7.5 W/m^2 average daily peak diversified electrical process equipment density, 1,100 MWh per MRI machine, and Distribute the intensity and schedule these loads based on understanding of space use, or default to inputs noted in Part B below. Use a modeling approach that takes into account the fact that only a small portion of MRI load directly contributes to conditioned space.
Elevators	Based upon the design
Exterior Lighting	Based upon the design
Interior Lighting	Enter interior lighting load based on design; base schedules on default operating schedules outlined in Part B below, and adjust based on the extent to which the lighting design enables lights to be turned off when not needed.

Part B-1				
Grouped Space Type Category (based on Schedule of Accommodations)	**Design Occupancy (m^2/person)**	**Operating Schedule** As per MNECB Performance Compliance for Buildings Table 4.3.2.C	**Receptacle Power (Plug Load)** As per MNECB Performance Compliance for Buildings Table 4.3.2.B	**Service Water Heating** As per MNECB Performance Compliance for Buildings Table 4.3.2.B
Medical / Surgical Inpatient Unit	Note 1	Operating Schedule H	Note 1	Note 1
Oncology/Hemotology/Bone Marrow Transplant: Inpatient Unit	Note 1	Operating Schedule H	Note 1	Note 1
Oncology/Hemotology/Bone Marrow Transplant: Outpatient Service	Note 1	Operating Schedule A	Note 1	Note 1
Oncology/Hemotology/Bone Marrow Transplant: Satellite Pharmacy - distribution & clinical service	Note 1	Operating Schedule C	Note 1	Note 1
PICU - Inpatient Unit	Note 1	Operating Schedule H	Note 1	Note 1
NICU - Inpatient Unit	Note 1	Operating Schedule H	Note 1	Note 1
Birthing	Note 1	Operating Schedule H	Note 1	Note 1
Emergency	Note 1	Operating Schedule H	Note 1	Note 1
Procedure Suites	Note 1	Operating Schedule H	Note 1	Note 1
Medical Imaging	Note 1	Operating Schedule A	Note 1	Note 1
Medical Device Reprocessing (Sterilization)	Note 1	Operating Schedule H	Note 1	Note 1
Entry Facility	Note 1	Operating Schedule H	Note 1	Note 1
Renal Dialysis Unit	Note 1	Operating Schedule A	Note 1	Note 1
Satellite Pharmacy	Note 1	Operating Schedule H	Note 1	Note 1
Medical Equipment Depot	Note 1	Operating Schedule H	Note 1	Note 1

Part B-2				
Individual Space Type Category	**Design Occupancy (m^2/person)**	**Operating Schedules** As per MNECB Performance Compliance for Buildings Table 4.3.2.C	**Receptacle Power (Plug Load)** As per MNECB Performance Compliance for Buildings Table 4.3.2.B	**Service Water Heating** As per MNECB Performance Compliance for Buildings Table 4.3.2.B
Patient Rooms	20	Operating Schedule H,	Health / Institutional: Patient Rooms	Health / Institutional: Patient Rooms
Patient Clinical Areas (other than patient rooms)	20	Operating Schedule H, A, or C	Health / Institutional: Nursery	Health / Institutional: Nursery
Nurses' Stations	2.5	Operating Schedule H, A, or C	Health / Institutional: Nurse Station	Health / Institutional: Nurse Station
Waiting Rooms, Reception, & Lounges	1.5	Operating Schedule B	Assembly: Recreation / Lounge	Assembly: Recreation / Lounge
Utility Rooms	200	Operating Schedule E	Storage / Warehouse: Active Storage, Fine	Storage / Warehouse: Active Storage, Fine
Electrical / Mechanical Rooms	200	Operating Schedule E	Service and Common: Mechanical / electrical room	Service and Common: Mechanical / electrical room
Corridors	100	Operating Schedule H	Service and Common: Corridors	Service and Common: Corridors
Offices	20	Operating Schedule A	Office	Office
Meeting Rooms & Admin. Areas	20	Operating Schedule C	Assembly: Conference/ Meeting	Assembly: Conference/ Meeting
Other Public Spaces, including Atria and Lobbies	10	Operating Schedule H	Assembly: Lobby	Assembly: Lobby
Laboratory spaces	5	Operating Schedule H	Hospital / Healthcare: Laboratory	
Pharmacy	20	Operating Schedule C (except where cooling set point must be maintained 24-7 in order protect pharmaceutical drugs)	Health / Institutional: Pharmacy	Health / Institutional: Pharmacy
Small videoconference rooms and medium videoconference room	Based on intended use	Operating Schedule B	Assembly: Conference / Meeting	Assembly: Conference / Meeting

Lecture theatre Videoconference Rooms	Based on intended use	Operating Schedule B	Education: Classroom	Education: Classroom

Note 1: Based on appropriate area-weighted average of component space types or based on dominant space type.