

Project No.
eco- _____



MNECB Mandatory Requirement Checklist

PROJECT INFORMATION

Building name _____

This form records whether all mandatory requirements of the Model National Energy Code for Buildings (MNECB) have been "Met". Design professionals are responsible for ensuring MNECB conformity. This form must be:

- completed by hand (not electronically)
- signed and dated by the appropriate professional for each section

If a mandatory is "Not met", provide the reason why in the notes section. Where an exemption has been granted by NRCan, check "Not met" and indicate in the notes section where in the submission the exemption documentation can be found.

The language of this checklist paraphrases the MNECB text. Please read the full text of the MNECB articles in question. In the case of conflict, the full text of the MNECB governs.

SCOPE

Architect's Signature _____

Applicability of MNECB	Met	Not met	Not Appl.
Building Type is not exempted under Article 1.1.2.1.(1)-(5)			
Building type and spaces definition conforms with defined terms. (Article 1.1.3.2 and commentary in E-1.1.3.2.-1)			

Notes: _____

BUILDING ENVELOPE

Architect's Signature _____

Partial Penetration of Envelope by Services	Met	Not met	Not Appl.
Recessed heaters, pipes and ducts that partially penetrate the building envelope must be located on the conditioned side of the insulation and must not increase the overall U-value of the building envelope assembly at the partial penetration to more than the U-value allowed for the overall assembly. (Article 5.2.8.1-1)			
If radiant heating sources, as opposed to recessed heaters, are embedded in above ground envelope components, the overall U-value at the projected area must not exceed 80% of the maximum overall U-value allowed in the MNECB Regional Tables. (Article 3.2.3.3-3)			

Full Penetration of Envelope by services	Met	Not met	Not Appl.
Insulation must be installed tight against any pipes, ducts, through-wall venting, packaged terminal A/C or heat pump units, shelf angles, anchors, ties and associated fasteners, and other minor structural members that must completely penetrate the building envelope to perform their intended function. (Article 3.2.1.2-4)			
Pipes and ducts in exterior wall must not exceed the overall thermal transmittance to greater than allowable for wall assembly. (Article 3.2.1.2-10)			

Roof and Floor Penetration of Envelope	Met	Not met	Not Appl.
Unless it is required functionally that a roof or floor fully penetrate the building envelope, the U-value at the projected area of the floor or roof shall be (Article 3.2.1.2-7&8) :			
Concrete roof or floor: Not more than twice that of the associated wall.			
Roof or floor other than concrete: Equal to or less than that of the associated wall.			

Partial Penetration of Envelope by Structural Components	Met	Not met	Not Appl.
Major structural members, such as columns or spandrel beams that run parallel to the building envelope may increase the U-value at the projected area of the member up to twice that shown in Table 3.3.1.1.A of Appendix A of the MNECB. (Article 3.2.1.2-3)			

Full Penetration of Envelope by Structural Components	Met	Not met	Not Appl.
Large components, such as floor slabs, beams, girders and columns, which must completely penetrate that building envelope to perform their required function, need not be insulated if the sum of their cross-sectional areas does not exceed 2% of the building envelope area. Insulation must be tight against such penetrations. (Article 3.2.1.2-5)			
Insulation that is continuous across expansion joints, and wall and door intersections maintain an overall thermal transmittance not greater than highest allowable for the two. (Article 3.2.1.2-11)			
All overhead doors separating conditioned from exterior space are weatherstripped on all edges in conformance. (Article 3.2.4.3-5)			

Full Penetration of Envelope by Walls	Met	Not met	Not Appl.
Where a concrete or masonry foundation wall, firewall or party wall penetrates an exterior wall or roof, it must be insulated on both sides, back from and to the same U-value as the exterior assembly for distance of four times its depth. (Article 3.2.1.2-6)			

Insulation Overlap	Met	Not met	Not Appl.
At envelope locations where two planes of insulation do not physically join, the two continuous insulations shall overlap for a length of at least 4 times the distance separating them. (Article 3.2.1.2-9)			

Windows and Doors	Met	Not met	Not Appl.
Wall insulation must extend to meet door and window frames. (Article 3.2.1.2-11)			
All windows comply with energy efficiency acts in force locally, or have been specified to maintain an A2 air leakage rating as described under CAN/CSA A440-M. (Article 3.2.4.4.2)			
All sliding doors comply with energy efficiency acts in force locally, or have been specified to maintain an A2 air leakage rating as described under CAN/CGSB-82.1-M. (Article 3.2.4.3)			
Confirm that air curtains are not being used in place of exterior doors. (Article 3.2.4.3-6)			

Below Grade Insulation	Met	Not met	Not Appl.
Building assemblies in contact with the ground must be constructed such that their area-weighted average RSI-value, including insulation, sheathing, exterior and interior finish materials and interior air films, shall not be less than that shown in Table 3.2.3.1 of Appendix A. (Article 3.2.3.1a, 2a, 3a)			
If a below grade wall requires insulation, it may be insulated over its full height, or to a depth of 2.4m, whichever is shallower. (Article 3.2.3.1-3)			
If the top of the footing is less than 0.6 m below grade, wall insulation shall extend down to the top of the footing and the same level of insulation shall be placed on top or below the floor for no less than 1 meter around the perimeter. (Article 3.2.3.2-4)			



For heated crawl spaces, crawl space floors (whether finished or not) that are less than 0.6 m below grade must be insulated to the level stipulated in MNECB Table 3.2.3.1 over the entire crawl space floor area. (Article 3.2.3.1)			
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General	Met	Not met	Not Appl.
The overall thermal transmittance of opaque components of the building envelope shall not be increased to more than 167% of the maximum overall thermal transmittance permitted in Section 3.3. (Article 8.2.1.4-2)			

Vestibules	Met	Not met	Not Appl.
Vestibules are required for all doors that separate conditioned space from the outdoors. (Certain exceptions apply as indicated in MNECB.) (Article 3.2.2.3)			

Notes: _____

HEATING, VENTILATION AND AIR CONDITIONING

Mechanical Professional's Signature _____

Equipment	Met	Not met	Not Appl.
HVAC systems must be sized to meet the needs of conditioned spaces. (Article 5.2.1.1-1)			
Equipment installed outdoors or in unconditioned spaces must be designed by the manufacturer for such installation. (Article 5.2.1.1-1)			
HVAC equipment and components included in the scope of MNECB Table 5.2.13.1 must comply with the relevant local appliance/equipment energy efficiency act or the relevant standard listed. (Article 5.2.13.1-1)			
Field-assembled equipment and components from more than one manufacturer must be designed with good engineering practice and provide the overall efficiency called for in Article 5.2.13.1 .			

Temperature Controls	Met	Not met	Not Appl.
Each system intended to provide comfort heating/cooling must have at least one automatic space temperature control device. (Article 5.2.10.1)			
Thermostatic controls for comfort are to have the following characteristics (Article 5.2.10.3):			
Heating controls must be capable of adjusting the temperature of the space they serve down to at least 13°C.			
Cooling controls must be capable of adjusting the temperature of the space up to at least 29°C.			
The sensors of wall-mounted thermostats must be installed in accordance with the manufacturer's instructions and are to be located as per Article 5.2.10.4 .			
Electric baseboard heaters must be controlled by remotely mounted thermostats. (Article 5.2.7.1)			
Heat pumps having supplementary heaters must be controlled to prevent supplementary heater operation when the heating load can be met by the heat pump alone, except during defrost cycles. (Article 5.2.10.5)			
If separate space-heating and -cooling controls are used, simultaneous provision of heating and cooling must be prevented. (Article 5.2.10.6)			
The heating/cooling of a zone must be regulated by individual thermostatic controls located in the zone unless a perimeter system is used, in which case there must be at least one space thermostatic control per orientation (provided that the orientation is at least 15m long). (Article 5.2.10.6)			

Shut-off and Setback	Met	Not met	Not Appl.
Each HVAC system with a heating or cooling capacity of 2 kW or more must have automatic equipment shut-off or temperature setback controls for periods of non-use, unless the system is intended to operate continuously. Unoccupied setback of heating set-point must not enable cooling, and unoccupied setup of cooling set-point must not enable heating. (Article 5.2.12.1)			
Heating or cooling equipment with capacities below 2 kW may be controlled by accessible, manual controls. (Article 5.2.12.1)			

Airflow Control Areas	Met	Not met	Not Appl.
Each air distribution system serving multiple temperature control zones having a combined conditioned floor area > 2500 m ² must be divided into airflow control areas of not more than 2500 m ² , or one storey, such that the supply of air to each area can be reduced or stopped independent of other areas. Areas requiring full flow continuously are exempt. (Article 5.2.12.2-1 to 7)			
The zones within a given area must be on the same occupancy schedule and have off-hours setback or on/off controls. (Article 5.2.12.2-1)			
Where airflow control areas are served by VAV boxes, the central system must have at least a 50% reduction in fan power for a 50% reduction in air flow. (Article 5.2.12.2-5)			

Air Distribution Systems	Met	Not met	Not Appl.
Duct systems must be designed so that they can be balanced. (Article 5.2.2.2-1)			
HVAC ducts and plenums must be sealed as per the SMACNA Duct Construction Standard and MNECB Table 5.2.2.3 unless they are RIA ducts in conditioned spaces and are downstream of coils/boxes. (Article 5.2.2.4-1)			
HVAC ducts and plenums must be thermally insulated as per MNECB Section 5.2.2.5 (some exemptions apply). (Article 5.2.2.5)			
S/A and RIA ducts located outdoors must be insulated to the level prescribed for exterior walls, and protected from mechanical damage, weathering and condensation. (Article 5.2.2.6-2)			

Air Intake and Outlet Dampers	Met	Not met	Not Appl.
Ducts or openings intended to discharge air from conditioned space to the outdoors or an unconditioned space, and outdoor air intakes must be equipped with motorized dampers. Exemptions to this requirement include combustion air intakes, kitchen exhausts, continuously operated systems, and very small ducts. (Article 5.2.3.1)			

Humidification Systems	Met	Not met	Not Appl.
Humidifiers and dehumidifiers must be provided with an automatic humidity control device. If the purpose of the humidity control is comfort, the controller must be able to prevent the use of energy to increase relative humidity above 30% or to decrease it below 60%. (Article 5.2.11.1-2)			

Special Temperature and Humidity Requirements	Met	Not met	Not Appl.
Spaces with special process temperature requirements, humidity requirements or both must be served by separate air distribution systems from those serving spaces requiring only comfort conditions, unless the comfort air is 10% or less of the total, or unless the total design air flow does not exceed 3000 L/s. (Article 5.2.9.1-2)			

Hydronic Systems	Met	Not met	Not Appl.
All hydronic systems must be designed so they can be balanced as per Appendix E. (Article 5.2.4.2-1)			
Multiple boiler systems must prevent heat loss through boilers when they are not in operation through the use of such items as vent dampers or shut-off valves interlocked with burners. (Article 5.2.12.4)			



Pipes containing fluids with design operating temperatures outside the 13°C to 40°C range must be insulated as per MNECB Section 5.2.4.3. Some exemptions apply. (Article 5.2.4.3)			
HVAC piping outside the building envelope must be insulated to the maximum requirements of Table 5.2.4.3. Insulation must be protected where it may be subjected to mechanical damage, weathering or condensation. (Article 5.2.4.3-5)			
Seasonal pumping systems, such as heated and chilled water pumping systems, must have automatic controls or readily accessible and clearly labelled manual controls to shut down the pumps when they are not required. (Article 5.2.12.3)			

Notes: _____

SERVICE WATER HEATING SYSTEMS

Mechanical Professional's Signature _____

Storage Vessels and Heating Equipment	Met	Not met	Not Appl.
Service water heaters, boilers, storage tanks and pool heaters must conform to relevant appliance or equipment energy efficiency acts, or with MNECB Table 6.2.2.1 where such an act doesn't apply. (Article 6.2.2.1-1)			
Hot service water storage tanks located outdoors or in unconditioned spaces must be covered with insulation having a maximum U-value of 0.55 W/m ² -°C. (Article 6.2.2.1-3)			
Hot water storage tanks within conditioned spaces must be covered with insulation having a maximum U-value of 0.8 W/m ² -°C. (Article 6.2.2.1-2)			
Tank insulation located where it may be damaged must be protected. (Article 6.2.2.1-4)			
Service water heating equipment, other than hot water storage tanks, must be installed in conditioned space. (Article 6.2.2.2)			

Controls	Met	Not met	Not Appl.
Service water heating systems with storage tanks must have automatic temperature controls capable of setting temperatures between the lowest and highest acceptable temperatures for the intended use. (Article 6.2.4.1)			
Except for systems in which the storage capacity is less than 100 L, each service water heating system must have a readily accessible and clearly labelled device to allow shutdown. (Article 6.2.4.2)			
Electric heat trace elements installed along service water pipes must have automatic controls to maintain the hot water temperature within the required range. (Article 6.2.4.3)			

Water Conservation	Met	Not met	Not Appl.
Individual showerheads, used for reasons other than safety, must limit the maximum water discharge to 9.5 L/min. (Article 6.2.6.1-1)			
Where multiple shower heads are served by one temperature control, each showerhead must have an automatic control device that shuts off the flow of water when the shower is not in use. (Article 6.2.6.1-2)			
Except in dwelling units, lavatory faucets must limit the maximum water discharge to 8.3 L/min. (Article 6.2.6.2-1)			
Each lavatory in a public access washroom of an assembly occupancy building must have a device capable of automatically shutting off the flow of water when the lavatory is not in use. (Article 6.2.6.2-2)			

Piping	Met	Not met	Not Appl.
All hot service water piping in circulating systems, non-circulating systems without heat traps, and non-circulating systems with electric heat-tracing elements along the pipes must be insulated in accordance with MNECB Table 6.2.3.1 and Sentences 6.2.3.1 (2) to (4) .			



Systems with more than one End-Use Design Temperature	Met	Not met	Not Appl.
When less than 50% of the total design flow of a service water heating system has a design discharge temperature higher than 60°C, separate remote heaters or booster heaters are required for those portions of the system with a design temperature higher than 60°C. (Article 6.2.5.1)			

Swimming Pools	Met	Not met	Not Appl.
Pool heaters must be equipped with a readily accessible and clearly labelled device to start and stop the heater without adjusting the thermostat setting and, where applicable, without relighting the pilot light. (Article 6.2.7.1-1)			
Except for pumps required by public health standards to operate continuously and pumps required to operate solar or waste heat recovery pool heating systems, swimming pool heaters must have time switches or other controls that can be set to automatically turn off pumps and heaters when their operation is not required. (Article 6.2.7.1-2)			
Except for pools deriving more than 60% of their pool-heating energy from site-recovered energy or site solar energy, heated outdoor and indoor swimming pools must be equipped with pool covers. In the case of pool temperatures above 32°C, the cover must have an RSI-value of at least 2.1. (Article 6.2.7.2-1/3)			

Notes: _____

LIGHTING

Lighting Designer's Signature _____

Lighting Design Intent	Met	Not met	Not Appl.
Lighting design documentation conforms to Article 4.2.6.1			

Exterior Lighting	Met	Not met	Not Appl.
Exterior entrances/exits, unless high-risk security areas, must meet the requirements of MNECB Table 4.2.1.2. Blending of power for all entrance/exits is permitted. (Article 4.2.1.2-2)			
Façade lighting power must be less than 2.4 W/m ² of face area. (Article 4.2.1.3-1)			
Other exterior lighting, unless exempt, must have a luminous efficacy greater than 60 lm/W. (Article 4.2.1.1)			

Exterior Lighting Controls	Met	Not met	Not Appl.
Except for exterior lighting for 24-hour use, or outdoor sports facilities, exterior lighting must be controlled by programmable schedule controllers or photocells. (Article 4.2.2.1-1)			

Interior Lighting	Met	Not met	Not Appl.
Exit sign power must be less than 22W. (Article 4.2.3.1)			

Interior Lighting Controls	Met	Not met	Not Appl.
Controls are required to provide lower lighting levels at night for office spaces with the following characteristics (Article 4.2.4.2-1):			
Area greater than 40 m ²			
Enclosed wall or ceiling-height partitions.			
Where connected lighting exceeds 12 W/m ² .			



The required night light fixtures must meet the following (Article 4.2.4.2-3):			
Not more than one fixture per 40 m ² .			
An average lighting level greater than 10 lx.			
At least one fixture controlled separately from the remaining fixtures.			
Controls may be centralized if (Article 4.2.4.3-2):			
Controls are automatic or programmable.			
For safety reasons, lights are under control of staff or building management.			
Such controls, except in dwelling units, must have identification showing the lighted areas controlled. (Article 4.2.4.3)			
Unless continuously lit, each space enclosed by walls or ceiling-height partitions must have controls (at least one per circuit) capable of turning off hard-wired lights in the space. (Article 4.2.4.1-3)			
Task lighting (not in the ceiling) must have a switch near the work station. (Article 4.2.4.3-3)			
Hotel guest rooms must be provided with a master switch at the entrance to the room for all permanently wired lighting fixtures and receptacles, except those in the bathroom. (Article 4.2.4.4)			

Notes: _____

ELECTRICAL

Electrical Professional's Signature _____

Electrical Distribution System Monitoring	Met	Not met	Not Appl.
Unless exempted, dwelling units and suites having all electrical loads supplied by a feeder to only that suite must be individually metered to billing accuracy. (Article 7.2.1.1-1)			
Electrical distribution systems with load carrying capacity of greater than 250 kV A must be designed to facilitate the installation of a system to monitor the electrical consumption of (Article 7.2.1.2-1/2):			
Tenants with connected loads greater than 100 kW A.			
Services, appliances, or equipment serving storeys greater than 1000 m ² and intended to be used as office space.			
Electrical power feeders for hard-wired lighting, HVAC systems and equipment serving multiple tenants, service water heating, elevators, and any special equipment or systems of more than 20 kW.			

Power Receptacles	Met	Not met	Not Appl.
Where exterior power receptacles are provided, at least one must be controlled from indoors. (Article 7.2.2.1-1)			
Where power receptacles are provided for indoor/outdoor parking and are supplied through a panel board serving a suite, they must be controlled by switches or timers accessible only to the tenants of the suite. (Article 7.2.2.1-2)			

Transformers	Met	Not met	Not Appl.
Transformers and their power loss characteristics must comply with the relevant appliance or equipment efficiency act, or CAN/CSA-C802 if the transformer falls within the scope of that standard. (Article 7.2.3.1)			

Electrical Motors	Met	Not met	Not Appl.
Permanently wired polyphase motors must comply with the relevant appliance or equipment efficiency act, or CAN/CSA-C390 Article 4.10. (Article 7.2.4.2-1)			



Nameplates must list the nominal full-load motor efficiency. (Article 7.2.4.2-3)			
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Notes:



Design Team

Architect		
Name:	Company:	
Phone:	Fax:	E-mail:
Street Address:		
City / Province or Territory:		Postal Code:
<input type="checkbox"/> I would like to subscribe to the <i>Heads Up Energy Efficiency</i> electronic newsletter		

Electrical Professional		
Name:	Company:	
Phone:	Fax:	E-mail:
Street Address:		
City / Province or Territory:		Postal Code:
<input type="checkbox"/> I would like to subscribe to the <i>Heads Up Energy Efficiency</i> electronic newsletter		

Mechanical Professional		
Name:	Company:	
Phone:	Fax:	E-mail:
Street Address:		
City / Province or Territory:		Postal Code:
<input type="checkbox"/> I would like to subscribe to the <i>Heads Up Energy Efficiency</i> electronic newsletter		

Lighting Designer		
Name:	Company:	
Phone:	Fax:	E-mail:
Street Address:		
City / Province or Territory:		Postal Code:
<input type="checkbox"/> I would like to subscribe to the <i>Heads Up Energy Efficiency</i> electronic newsletter		

Simulation Professional		
Name:	Company:	
Phone:	Fax:	E-mail:
Street Address:		
City / Province or Territory:		Postal Code:
<input type="checkbox"/> I would like to subscribe to the <i>Heads Up Energy Efficiency</i> electronic newsletter		

