

### Sustainable Technologies Permitting Matrix

Sustainable Technology		EEC Review	HVAC Permit	Elec. Permit	P & G Permit	Bldg. Permit	Eng. Req.	DP Req.	Notes
click on link for additional info									REFER TO LAST PAGE OF DOCUMENT FOR NOTES / ABBREVIATION KEY
<b>Green Roofs</b> (Including occupied landscape terraces and hardscape roofs)	Residential	existing building - retrofit	<input type="checkbox"/>		<input type="checkbox"/>	■	■	<input type="checkbox"/>	Plumbing permits would be required if green roof system is tied into rainwater re-use systems. Professional engineering documents must be provided indicating green roof system used c/w expected dead and live loads will be required to ensure structural adequacy. DP required per Planning Policy Guidelines. EEC pre-application review recommended to confirm permit requirements.
	Residential	new building - integrated design permitted with new building	<input type="checkbox"/>			■	■	<input type="checkbox"/>	Green roof installation included under SCP Process. Professional engineering stipulating the green roof system used c/w expected dead and live loads will be required to ensure structural adequacy. DP for building may be required - refer to Planning Policy Guidelines. Confirm site storm requirements with City Engineering. EEC Pre-application review recommended to confirm permit requirements.
	Commercial	existing building - retrofit	■		<input type="checkbox"/>	■	■	■	Signed and Sealed professional engineering documents required to ensure existing structure is capable of supporting additional surcharge associated with green roof. Plumbing permits will be required for any changes associated with rain water leaders and/or rain water retention systems and cisterns. EEC pre-application review highly recommended to confirm permit requirements.
	Commercial	new building - integrated design permitted with new building	<input type="checkbox"/>		■	■	■	■	Green roof would be accounted for under normal Building Permit procedures. Building Permit c/w Signed and Sealed professional engineering documents required to ensure existing structure is capable of supporting additional surcharge associated with green roof. DP required for new buildings per Planning Policy Guidelines. EEC Pre-application review recommended to confirm permit requirements.
<b>Solar Hot Water - Combined Space Heating and Potable Water Use</b>	Residential	existing building - retrofit	<input type="checkbox"/>	■	<input type="checkbox"/>	■	<input type="checkbox"/>	<input type="checkbox"/>	Internal tanks supported on existing construction in approved manner per installation guides. Building Permit c/w professional engineering will be required if significant building alterations are required to install tanks and solar collectors. Use of non-CSA/ULC approved components is not permitted for potable water systems. Elec. permit required if system uses electric pump(s). DP required if collectors extend >1300mm above roof - Refer to LUB 1P2007 Amendments for additional information. EEC Pre-application review recommended to confirm permit requirements.
	Residential	new building - integrated design permitted with new building				■	<input type="checkbox"/>	<input type="checkbox"/>	Solar Hot Water system installation included under SCP Process. Use of non-CSA/ULC approved components is not permitted for potable water systems. Professional engineering required if solar system eliminates conventional fuel fired system. DP required if collectors extend >1300mm above roof or for new building depending on zoning - refer to Land Use Bylaw 1P2007 Amendments for additional info.
	Commercial	existing building - retrofit	■	■	<input type="checkbox"/>	■	<input type="checkbox"/>	<input type="checkbox"/>	Internal tanks supported on existing construction in approved manner per installation guide. Building Permit c/w professional engineering required for buildings requiring professional involvement per ABC. Elec. permit required if system uses electric pump(s). DP required if collectors extend >2000mm above low slope roof or >1300mm above pitched roof - Refer to LUB 1P2007 Amendments for additional information. EEC pre-application review highly recommended to confirm permit requirements.
	Commercial	new building - integrated design permitted with new building	<input type="checkbox"/>	■	<input type="checkbox"/>	■	■	■	Solar thermal system would be accounted for under normal Building Permit process. Building Permit c/w professional engineering required for buildings requiring professional involvement per ABC. Elec. permit required if system uses electric pump(s). DP required for new buildings per Planning Policy Guidelines. EEC pre-application review recommended to confirm permit requirements.

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Solar Hot Water - Space Heating Use Only	Residential	existing building - retrofit		■	□		□	□	□	Internal tanks supported on existing construction in approved manner per installation guides. Building Permit c/w professional engineering will be required if significant building alterations are required to install tanks and solar collectors. Elec. permit required if system uses electric pump(s). DP required if collectors extend >1300mm above roof - Refer to LUB 1P2007 Amendments for additional information.
	Residential	new building - integrated design permitted with new building					■	□	□	Solar Hot Water system installation included under SCP Process. Professional engineering required if solar system eliminates conventional fuel fired system. DP required if collectors extend >1300mm above roof or for new building depending on zoning - refer to Land Use Bylaw 1P2007 Amendments for additional info.
	Commercial	existing building - retrofit	□	■	□		□	□	□	Building Permit c/w professional engineering required for buildings requiring professional involvement per ABC. Elec. permit required if system uses electric pump(s). DP required if collectors extend >2000mm above low slope roof or >1300mm above pitched roof - Refer to LUB 1P2007 Amendments for additional information. EEC pre-application review recommended to confirm permit requirements.
	Commercial	new building - integrated design permitted with new building	□	■	□		■	■	■	Solar thermal system would be accounted for under normal Building Permit process. Building Permit c/w professional engineering required for buildings requiring professional involvement per ABC. Elec. permits required if system uses circulation pump(s). DP required for new buildings per Planning Policy Guidelines. EEC pre-application review recommended to confirm permit requirements.
Solar Hot Water - Potable Water Heating Only	Residential	existing building - retrofit		□	■	□	□	□	□	Internal tanks supported on existing construction in approved manner per installation guides. Building Permit c/w professional engineering will be required if significant alterations are required to building to install tanks and solar collectors. Use of non-CSA/ULC approved components is not permitted for potable water systems. Elec. permit required if system uses electric pump(s). DP required if collectors extend >1300mm above roof - Refer to LUB 1P2007 Amendments for additional information.
	Residential	new building - integrated design permitted with new building					■	□	□	Solar Hot Water system installation included under SCP Process. Use of non-CSA/ULC approved components is not permitted for potable water systems. Professional engineering required if solar system eliminates conventional fuel fired system. DP required if collectors extend >1300mm above roof or for new building depending on zoning - refer to Land Use Bylaw 1P2007 Amendments for additional info.
	Commercial	existing building - retrofit	□		□	■	□	□	□	Building Permit c/w professional engineering required for buildings requiring professional involvement per ABC. All components must be CSA/ULC approved for potable use. Elec. permit required if system uses electric pump(s). DP required if collectors extend >2000mm above low slope roof or >1300mm above pitched roof - Refer to LUB 1P2007 Amendments for additional information. EEC pre-application review recommended to confirm permit requirements.
	Commercial	new building - integrated design permitted with new building	□		□	■	■	■	■	Solar thermal system would be accounted for under normal Building Permit process. Building Permit c/w professional engineering required for buildings requiring professional involvement per ABC. Elec. permit required if system uses electric pump(s). DP required for new buildings per Planning Policy Guidelines. EEC pre-application review recommended to confirm permit requirements.

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Photovoltaics - surface mount	Residential existing building - retrofit			■			□	□	Photovoltaic panels flush mounted on existing construction in approved manner per installation guide. Professional engineering will be required if system is not CSA/ULC approved for prescribed installation. DP required if collectors extend >1300mm above roof - Refer also to LUB 1P2007 Amendments for additional information.
	Residential new building - integrated design permitted with new building					■	□	□	Photovoltaic system installation included under SCP Process. Professional engineering will be required if system is not CSA/ULC approved for prescribed installation. DP required if collectors extend >1300mm above roof or for new building depending on zoning - Refer to LUB 1P2007 Amendments for additional information.
	Commercial existing building - retrofit	■		■		□	□	□	Building Permit c/w professional engineering required for buildings requiring professional involvement per ABC. DP required if collectors extend >2000mm above low slope roof or >1300mm above pitched roof - Refer to LUB 1P2007 Amendments for additional information. EEC pre-application review highly recommended to confirm permit requirements.
	Commercial new building - integrated design permitted with new building	□		■		■	■	■	Photovoltaic system would be accounted for under normal Building Permit process. Building Permit c/w professional engineering required for buildings requiring professional involvement per ABC. DP required for new buildings per Planning Policy Guidelines. EEC pre-application review recommended to confirm requirements.
Photovoltaics - upstand mount (photovoltaic panels mounted on a framing system not flush with the building surface)	Residential existing building - retrofit			■		□	□	□	Photovoltaic panels on separate frame mounted to existing construction in approved manner per installation guide. Building Permit c/w professional engineering will be required if panel support system is not pre-engineered and CSA/ULC approved for prescribed installation. DP required if collectors extend >1300mm above roof - Refer also to LUB 1P2007 Amendments for additional information.
	Residential new building - integrated design permitted with new building					■	□	□	Photovoltaic system installation included under SCP Process. Professional engineering will be required if panel support system is not pre-engineered and CSA/ULC approved for prescribed installation. DP required if collectors extend >1300mm above roof or for new building depending on zoning - Refer to LUB 1P2007 Amendments for additional information.
	Commercial existing building - retrofit	■		■		□	□	□	Building Permit c/w professional engineering required for buildings requiring professional involvement per ABC. DP required if collectors extend >2000mm above low slope roof or >1300mm above pitched roof - Refer to LUB 1P2007 Amendments for additional information. EEC pre-application review highly recommended to confirm requirements.
	Commercial new building - integrated design permitted with new building	□		■		■	■	■	Photovoltaic system would be accounted for under normal Building Permit process. Building Permit c/w professional engineering required for buildings requiring professional involvement per ABC. DP required for new buildings per Planning Policy Guidelines. EEC pre-application review recommended to confirm requirements.

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<b>Solar Shading Devices</b> (Externally mounted building features whose primary function is to reduce solar heat gain in normally occupied spaces)	Residential					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	No Building Permit required for pre-engineered and/or CSA/ULC approved systems. DP will be required per Planning Policy Guidelines.
	Residential					■	<input type="checkbox"/>	<input type="checkbox"/>	Solar Shading Device installation included under SCP Process. Professional engineering is required for systems that are not pre-engineered, CSA/ULC listed systems. DP required if collectors extend >1300mm above roof or for new building depending on zoning - refer to Land Use Bylaw 1P2007 Amendments for additional info.
	Commercial					■	<input type="checkbox"/>	■	Building Permit required c/w professional engineering required for buildings requiring professional involvement per ABC. DP will be required if Solar Shading Devices are attached to the exterior of the building. EEC pre-application review is recommended to confirm permit requirements for extensive solar shading installations.
	Commercial					■	<input type="checkbox"/>	■	Solar Shading components would be accounted for under normal Building Permit process. Building Permit c/w professional engineering required for buildings requiring professional involvement per ABC. DP required for new buildings per Planning Policy Guidelines. EEC pre-application review recommended to confirm permit requirements.
<b>Solar Ventilation/Solar Chimneys</b> (buildings relying on architectural features to provide ventilation for normally occupied spaces - includes solar preheat for intake air)	Residential	<input type="checkbox"/>	<input type="checkbox"/>			■	<input type="checkbox"/>	<input type="checkbox"/>	Building Permit required for construction of solar chimney. HVAC permits c/w professional engineering of mechanical system may be required if solar chimney is intended to replace required equipment and not used to supplement existing prescribed equipment. DP required per Planning Policy Guidelines. EEC pre-application review recommended to confirm permit requirements.
	Residential					■	<input type="checkbox"/>	<input type="checkbox"/>	Solar Ventilation system construction covered under SCP Process. Professional engineering of mechanical system may be required if solar chimney is intended to replace required HVAC equipment and not simply used to supplement conventional equipment. DP for building may be required - refer to Planning Policy Guidelines.
	Commercial					■	<input type="checkbox"/>	■	Building Permit c/w professional engineering required for buildings requiring professional involvement. DP will be required if Solar Ventilation system alters the external appearance of the building. EEC pre-application review is highly recommended for all commercial solar ventilation systems to ensure compliance with the Alberta Building Code.
	Commercial					■	■	■	Solar chimney would be accounted for under normal Building Permit process. Building Permit c/w professional engineering required for buildings requiring professional involvement per ABC. DP required for new buildings per Planning Policy Guidelines. EEC pre-application review highly recommended to confirm permitting requirements and ensure solar ventilation system installation is in compliance with the Alberta Building Code.

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<b>Cogen systems</b> (combined heat and power generating units, including Tri-gen units also supplying hot water for domestic use)	Residential	existing building - retrofit	<input type="checkbox"/>	■	■	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Combined heat and electricity systems require professional engineering for non-CSA/ULC approved systems. Plumbing permits will be required for tri-gen systems that also supply domestic hot water for the building or systems using Natural Gas as a fuel source. All components in Tri-gen installation must be CSA/ULC approved for potable use. BP may be required for substantial alterations to building layout or construction that result from the installation of cogen system, repair, and/or building access route changes. EEC review recommended to confirm permit requirements.
	Residential	new building - integrated design permitted with new building						■	<input type="checkbox"/>	<input type="checkbox"/>	Combined heat and power installation covered under normal SCP Process. Combined heat and electricity require professional engineering input for non-CSA/ULC approved systems. DP required for new buildings per Planning Policy Guidelines.
	Commercial	existing building - retrofit	■	■	■	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Building Permit c/w professional engineering required for buildings requiring professional involvement per ABC. Combined heat and power requires engineering input for sizing and connection to grid infrastructure - plumbing permits required for tri-gen systems that also provide service hot water for occupants or systems using Natural Gas as fuel source. EEC pre-application review highly recommended to confirm permit requirements.
	Commercial	new building - integrated design permitted with new building	■	■	■	<input type="checkbox"/>	■	■	■	■	Cogen system would be accounted for under normal Building Permit process. Building Permit c/w professional engineering required for buildings requiring professional involvement per ABC. Combined heat and power requires engineering input for sizing and connection to grid infrastructure - plumbing permits required for tri-gen systems that also provide service hot water for occupants or systems using Natural Gas as fuel source. DP required for new buildings per Planning Policy Guidelines. EEC pre-application review highly recommended to confirm permit requirements.
<b>Wind Turbines - building mounted</b>	Residential	existing building - retrofit	<input type="checkbox"/>		■			■	<input type="checkbox"/>	■	Building mounted wind turbines require professional engineering for non-CSA/ULC approved systems and/or installations. DP required for all wind turbine applications. EEC pre-application review recommended to confirm permitting requirements.
	Residential	new building - integrated design permitted with new building						■	<input type="checkbox"/>	■	Building mounted wind turbine installation covered under SCP Process. Professional engineering required for non-CSA/ULC approved systems. DP required for all wind turbine applications.
	Commercial	existing building - retrofit	■		■			■	■	■	Building Permit c/w professional engineering for buildings requiring professional involvement per ABC and for systems not CSA/ULC approved for this specific installation. DP required for all wind turbine applications. EEC pre-application review highly recommended to confirm permit requirements.
	Commercial	new building - integrated design permitted with new building	■		■			■	■	■	Building Mounted wind turbine would be accounted for under normal Building Permit process. Building Permit c/w professional engineering for buildings requiring professional involvement. DP required for all wind turbine applications. EEC pre-application review highly recommended to confirm permit requirements.

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<b>Wind Turbines - freestanding</b>	Residential existing building - retrofit			■			□	■	Freestanding wind turbines require professional engineering for non-CSA/ULC approved systems. DP required for all wind turbine applications.
	Residential new building - integrated design permitted with new building			■			□	■	Freestanding wind turbines require professional engineering for non-CSA/ULC approved systems. DP required for all wind turbine applications.
	Commercial existing building - retrofit			■			□	■	Professional engineering required above 1.8 kilowatt rating limit. DP required for all wind turbine applications.
	Commercial new building - integrated design permitted with new building			■			□	■	Professional engineering required above 1.8 kilowatt rating limit. DP required for all wind turbine applications.
<b>Geoexchange Systems</b> NOTE: In addition to the permit requirements listed, all ground installations must obtain license to drill from Alberta Environment	Residential existing building - retrofit		■	■	□	□	□		Geoexchange system may require engineering input for sizing and system integration - refer to specific requirements in HVAC permitting process. BP may be required for substantial alterations to building layout or construction that result from the installation of Geoexchange system installation repair, and/or building access route changes. Elec. permit required if system uses electric pump(s). Plumbing Permits required if potable water lines are altered. Refer also to specific requirements in HVAC permitting process.
	Residential new building - integrated design permitted with new building					■	□	□	Geoexchange system covered under SCP Process. Professional engineering may be required depending on sizing and system integration - refer to specific requirements in HVAC permitting process. DP for new building may be required - refer to Planning Policy Guidelines.
	Commercial existing building - retrofit	□	■	■	□	□	■		Geoexchange system will require engineering for any building requiring professional involvement - refer to specific requirements in HVAC permitting process. BP will be required for any substantial alterations to building layout or construction that result from the installation of Geoexchange system, installation, repair, and/or building access route changes. Elec. permit required if system uses electric pump(s). Plumbing Permits required if potable water lines are altered. EEC Review recommended to confirm permitting requirements.
	Commercial new building - integrated design permitted with new building	□	■	■	□	■	■	■	Geoexchange system would be accounted for under normal Building Permit process. Geoexchange system will require engineering for any building requiring professional involvement - refer to specific requirements in HVAC permitting process. Elec. permit required if system uses electric pump(s). DP required for new buildings per Planning Policy Guidelines. EEC Review recommended to confirm permitting requirements.
<b>Stormwater Retention Tank</b> (Storm water tank inside building - Water NOT for re-use in building)	Residential existing building - retrofit				■	□	□		Building Permit c/w professional engineering required for non-CSA/ULC approved tank designs.
	Residential new building - integrated design permitted with new building					■	□		Retention tank installation covered under SCP Process. Professional engineering required for non-CSA/ULC approved tank designs. DP for building may be required - refer to Planning
	Commercial existing building - retrofit				■	□	■	□	Plumbing Permit required. Building Permit c/w professional engineering required for all buildings requiring professional involvement per ABC. DP required If retention tank or system is exterior to the building envelope.
	Commercial new building - integrated design permitted with new building				■	■	■	■	Storm Retention system would be accounted for under normal Building Permit process. Building Permit c/w professional engineering required for all buildings requiring professional involvement per ABC. DP required for new buildings per Planning Policy Guidelines.

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<b>Water Cistern</b> (Storm/Rain Water Collected for RE-USE) NOTE: In addition to the permit requirements listed, all plumbing systems intended to re-use waste or non-potable water must also obtain approval from the Health Authority	Residential	existing building - retrofit			<input type="checkbox"/>	■	<input type="checkbox"/>	<input type="checkbox"/>		Building Permit c/w professional engineering required for non-CSA/ULC approved tank designs and/or treatment systems. Elec. permit required if system uses electric pump(s). All components must be CSA/ULC approved for potable use.
	Residential	new building - integrated design permitted with new building					■	<input type="checkbox"/>	<input type="checkbox"/>	Cistern tank installation and plumbing covered under SCP Process. Professional engineering required for non-CSA/ULC approved tank designs and/or treatment systems. All components must be CSA/ULC approved for potable use. DP for new building may be required - refer to Planning Policy Guidelines.
	Commercial	existing building - retrofit			<input type="checkbox"/>	■	■	■	<input type="checkbox"/>	Plumbing Permit required. Building Permit c/w professional engineering required for all buildings requiring professional involvement per ABC. Elec. permit required if system uses electric pump(s). DP required if water collection tank or system is internal to building or affects landscape areas.
	Commercial	new building - integrated design permitted with new building			<input type="checkbox"/>	■	■	■	■	Storm retention system would be accounted for under normal Building Permit process. Building Permit c/w professional engineering required for all buildings requiring professional involvement per ABC. Elec. permit required if system uses electric pump(s). DP required for new buildings per Planning Policy Guidelines.
<b>Grey Water Re-Use</b> Treated grey water for building use NOTE: In addition to the permit requirements listed, all plumbing systems intended to re-use waste or non-potable water must also obtain approval from the Health Authority	Residential	existing building - retrofit			<input type="checkbox"/>	■	<input type="checkbox"/>	<input type="checkbox"/>		Building Permit required if significant changes are made to building spaces or structure. All components must be CSA/ULC approved. Professional engineering required for non-CSA/ULC approved tank designs and / or treatment systems. Elec. permits required if system uses pump(s).
	Residential	new building - integrated design permitted with new building					■	<input type="checkbox"/>	<input type="checkbox"/>	Cistern tank installation and plumbing covered under SCP Process. Professional engineering required for non-CSA/ULC approved tank designs and / or treatment systems. All components must be CSA/ULC approved for potable use. DP for building may be required - refer to Planning Policy Guidelines.
	Commercial	existing building - retrofit	■		<input type="checkbox"/>	■	<input type="checkbox"/>	■	<input type="checkbox"/>	Plumbing Permit required. Building Permit c/w professional engineering required for all buildings requiring professional involvement per ABC where significant alterations are required in building to accommodate grey water system. All components must be CSA/ULC approved for potable use. Elec. permits required if system uses pump(s). DP requirements - see water cisterns above. EEC pre-application review highly recommended to confirm permit requirements
	Commercial	new building - integrated design permitted with new building	■		<input type="checkbox"/>	■	■	■	■	Grey Water system would be accounted for under normal Building Permit process. Building Permit c/w professional engineering required for all buildings requiring professional involvement per ABC. All components must be CSA/ULC approved for potable use. Elec. permits required if system uses pump(s). DP required for new buildings per Planning Policy Guidelines.

ABBREVIATION KEY: ABC: Alberta Building Code - Current Edition in Force  
 BP: Building Permit  
 DP: Development Permit  
 EEC: Energy and Environment Coordinator for Development and Building Approvals  
 Elec: Electrical  
 LUB: Land Use By-Law 1P2007 c/w Amendments  
 P&G: Plumbing and Gas  
 SCP: Single Construction Permit (Building Permit for Single Family & Semi-Detached Dwellings)

NOTES: ■ = Permit Required  
 = Permit MAY be Required - Refer to notes for additional information/clarification

**FOR THE PURPOSE OF THIS TABLE, RESIDENTIAL ASSUMES BUILDINGS TO BE SINGLE OR SEMI-DETACHED DWELLINGS COVERED BY THE SINGLE CONSTRUCTION PERMIT (SCP) PROCESS. COMMERCIAL BUILDINGS WOULD INCLUDE ALL CONSTRUCTION NOT PERMITTED BY SCP PROCESS.**