

Ministry

Infrastructure

## Describe: Basic Job Details

Position Name (30 characters)

Building Energy Engineer

Current Class

Engineering & Related Level 2

Supervisory Level

00 - No Supervision

## Organizational Structure

Division, Branch/Unit

Strategic Integration & Operations

Supervisor's Position Name (30 characters)

Sr. Sustainability Specialist

## Design: Identify Job Duties and Value

Responsibilities

This position is a resource for project teams assessing the business case for project targets beyond the Technical Design Requirements for Alberta Infrastructure Facilities, including LEED Gold certification, Zero Carbon Building Standard, and higher Tier adoption under the National Energy Code for Buildings.

## Job Purpose and Organizational Context

Why the job exists:

Reporting to the Senior Sustainability Specialist, this position provides technical expertise in the design, implementation and performance of building energy systems. The Building Energy Engineer analyzes

initiatives and projects with the goal of minimizing the carbon footprint of government assets. The position takes a lead role in the research, analysis, and reporting on greenhouse gas reduction in buildings, process changes and supporting Infrastructure's role in Alberta's Climate Leadership Plan. This specialized engineering position assists with developing standards for new buildings, major renovations, and adaptive reuse to meet strict targets for reducing greenhouse gas emissions as per Alberta's Climate Leadership Plan.

Additionally, this position is a resource for project teams assessing the business case for project targets beyond the Technical Design Requirements for Alberta Infrastructure Facilities, including LEED Gold certification, Zero Carbon Building Standard, and higher Tier adoption under the National Energy Code for Buildings.

## Responsibilities

Job outcomes (4-6 core results), and for each outcome, 4-6 corresponding activities:

- 1. Provide Technical expertise to the project design review process.**
  - Provide technical support to improve energy efficient design of government funded projects.
    - This includes the business case analysis for innovative practices or further design goals, including LEED Gold, Zero Carbon Building Standard, and higher Tiers on the National Energy Code for Buildings.
  - Review Sustainability submissions, including the energy models for LEED certification and LEED Scorecards for project submissions at the SD, 60%, and PT phases.
    - Advise projects when the sustainability requirements are not being met, and when the energy model report does not match the design, or reflect industry best practices.
    - Identify when compliance with the National Energy Code for Buildings should be addressed by the project team.
    - Provide feedback to projects on further opportunities to incorporate sustainable design practices into the project scope.
- 2. Contribute to the development of standards for Infrastructure Projects**
  - Provide updates to the Technical Design Requirements for Alberta Infrastructure Facilities to maintain Alberta Infrastructure as a leader in sustainable building design.
    - Identify opportunities and translate lessons learned into best practices in design standards.
    - Understand upcoming changes to building code, LEED certification, and other standards.
  - Provide input to policy drafts, briefings, position papers, background material and reports identifying important issues.
- 3. Be a resource for Properties in the management of Alberta Infrastructure's portfolio of buildings**
  - Review and evaluate external consultants providing reports for Infrastructure and other governments.
  - Perform site investigations, analyze problems in existing facilities, and determine appropriate solutions.
    - Provide recommendations to improve performance and report on options, cost, timing, and implications.
- 4. Build, develop, and maintain strong partnerships with both internal and external stakeholders including other ministries and other levels of government.**
  - Work with industry bodies such as the CaGBC and the Canadian Board for Harmonized Construction Codes.

- Network through professional associations, conference attendance, forum participation and specialized technical courses.



**Problem Solving**

Typical problems solved:

The position requires specialized knowledge of building energy modelling. The position provides technical support in building energy topics for both internal and external clients and works with in-house professionals, project consultants, contractors, and clients from other Ministries. Clients include Alberta Infrastructure, other ministries, health authorities, and school boards.

Building Energy Engineering can be complex requiring a multi-disciplinary approach, knowledge of operational realities and extensive analysis. Solutions are often unique requiring research and resolution outside of common practice.

Types of guidance available for problem solving:

This position works within technical codes and standards which guide the quality of activities. For complex assignments, consultation with external and internal stakeholders is conducted to ensure that the required information/advice is reasonable, practical, and cost efficient.

Direct or indirect impacts of decisions:

Developing and maintaining the technical standards results in high quality Infrastructure facilities.  
Resolving issues in existing facilities ensures proper operation during the lifespan of the facility.

**Key Relationships**

Major stakeholders and purpose of interactions:

Internal:

- Senior Sustainability Specialist: Reports to this position, and gains direction and feedback on work.
- Branch staff: Collaborate on issues and find technical solutions.
- Project Managers, Property Management Professionals and Senior Ministry Management: Collaborate on building energy projects.
- Other Department Divisions: Deliver technical presentations for peer-to-peer learning.

External to Ministry:

- Other Ministries, other levels of government, national committees, professional associations, research institutions, health authorities, school boards, consultants, contractors: Collaborate and work towards minimizing the carbon footprint of Government of Alberta assets.

**Required Education, Experience and Technical Competencies**

Education Level	Focus/Major	2nd Major/Minor if applicable	Designation
Bachelor's Degree (4 year)	Engineering		PEng

If other, specify:

Job-specific experience, technical competencies, certification and/or training:

The position requires a Bachelor of Science in Engineering (such as Mechanical, Building Science/Envelope or Systems) and membership with the Association of Professional Engineers and Geoscientists of Alberta (APEGA). The position requires 5+ years of specialized experience.

This position supports the Department's Senior Sustainability Specialist on building energy and requires knowledge and experience in the following:

- Specialized knowledge and expertise in building energy modeling, including experience with energy modeling software such as DOE2, eQUEST, IES, and/or EnergyPlus.
- Strong technical competence and working knowledge of other engineering and architectural disciplines related to building energy.
- Knowledge of existing and upcoming building energy codes, Ministry requirements, and other relevant policies, acts, and legislation.
- Experience with ASHRAE level 1 and 2 energy audits would be an asset.
- Leadership in Energy and Environmental Design (LEED), GA, AP or LEED AP BD+C is required.
- Strong written and verbal communication skills. Must be able to write technical reports.
- Strong research, analytical, consulting, and problem-solving skills.
- Ability to interpret and explain highly technical data for a variety of clients.
- Valid Alberta Class 5 operators license to drive to and from cross ministry meetings, consultant offices and site investigations.

**Behavioral Competencies**

Pick 4-5 representative behavioral competencies and their level.

Competency	Level					Level Definition	Examples of how this level best represents the job
	A	B	C	D	E		
Systems Thinking	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<p>Considers inter-relationships and emerging trends to attain goals:</p> <ul style="list-style-type: none"> <li>• Seeks insight on implications of different options</li> <li>• Analyzes long-term outcomes, focus on goals and values</li> <li>• Identifies unintended consequences</li> </ul>	<p>The position is a technical resource to provide engineering services to stakeholders. Prioritizing tasks ensures stakeholders' concerns are resolved in a most cost efficient way. Responsibilities also include supporting other disciplines to deliver high quality infrastructure facilities.</p>
Creative Problem Solving	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<p>Focuses on continuous improvement and increasing breadth of insight:</p> <ul style="list-style-type: none"> <li>• Asks questions to understand a problem</li> <li>• Looks for new ways to improve results and activities</li> <li>• Explores different work methods and what made projects successful; shares learning</li> <li>• Collects breadth of data and perspectives to make choices</li> </ul>	<p>Problems are often unique, requiring solutions that fall outside common practice. Engineering investigations can be very complex, requiring a multi-disciplinary approach and extensive analysis.</p>
Drive for Results	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<p>Works to exceed goals and partner with others to achieve objectives:</p>	<p>This position provides technical support to ensure the constructions or</p>

		<ul style="list-style-type: none"> <li>• Plans based on past experience</li> <li>• Holds self and others responsible for results</li> <li>• Partners with groups to achieve outcomes</li> <li>• Aims to exceed expectations</li> </ul>	renovations are completed on schedule and on budget. Site investigation should be completed as per property managers' requirements.
Develop Networks	○ ● ○ ○ ○	<p>Works on maintaining close relations with all stakeholders:</p> <ul style="list-style-type: none"> <li>• Identifies key stakeholder relationships</li> <li>• Has contact with range of interested parties</li> <li>• Actively incorporates needs of a broader group</li> <li>• Influences others through communication techniques</li> </ul>	This position works with and provide support to Project and Property Managers. It also communicates with consultants and contractors to exchange latest technology information.