

**MINERVA CANADA'S**  
**JAMES HAM SAFE DESIGN AWARDS**

(In Honour of Ontario's Engineer of Occupational Health and Safety)

“Engineering is a profession that *serves society*  
by the creation, management and maintenance  
of systems, processes, and products  
*to meet human needs.*”- James Ham

**Minerva Canada Safety Management Education Inc.**

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## 1. Introduction

In 2006, Minerva Canada Safety Management Education Inc., with funding from the Ontario Workplace Safety and Insurance Board (WSIB), undertook to develop a program to recognize individual engineering students or teams of such students in Ontario. The Minerva Board of Directors agreed to expand this awards program in 2010 to include all engineering undergraduate students enrolled in Canadian Universities. The awards shall go to those who make an original and unique contribution to integrating safety into engineering design. The recognition will be in the form of a first prize award of \$3,500 and a second prize award of \$1,500.

Through these awards, Minerva Canada and the Ontario Workplace Safety and Insurance Board honour James Ham whose Royal Commission Report on Health and Safety led to the creation of Ontario's Occupational Health and Safety Act and to the adoption of the Internal Responsibility System in Ontario workplaces. James Ham trained as an engineer with a secondary field of study in sociology; his writings emphasized 'society and human needs'. He was awarded the Order of Canada in 1980 and died in 1997.

### Purpose of Minerva Canada's James Ham Safe Design Awards

The purpose of the awards will be to:

- Encourage students and engineering faculty members to integrate safety into all designs.
- Produce safer designs of devices, processes and systems.
- Raise awareness of Process Safety Management (PSM) and Safety, Health and Environment (SHE).

In this modern age, business and industry are constantly looking for ways in which technology can improve efficiency and for ways they can respond more rapidly to changing demands. Unfortunately, the combination of these two – innovation and change – often conspires in unexpected ways. One of these is the inadvertent introduction of new hazards into the workplace and the elevation of risks to workers.

Students and faculty members from Canadian Engineering schools are being challenged by Minerva to look at this potential problem and other existing safety problems and to respond by:

- Suggesting ways to improve the existing design of devices, processes or systems.
- Envisioning new, innovative designs that will eliminate or reduce potential hazards.
- Creating tools to help manufacturers and workplaces integrate safety into new or retrofitted designs.

It is hoped that this elevated awareness will lead to better integration of Health and Safety Management programs in Canadian post secondary schools and, as a long-term goal, a reduction in workplace illnesses and injuries.

A sustainable reduction in lost time injuries is a shared goal of both Minerva and the Ontario WSIB. Minerva's James Ham Safe Design Awards will promote safety in engineering design and help to make it a goal to strive for. It is a visible demonstration of the commitment of both organizations.

## 2. Minerva Canada Safety Management Education Inc.

Minerva Canada is a not for profit organization dedicated to promoting the teaching of Safety, Health and Environmental Management in post secondary schools across Canada. It targets the educators of tomorrow's leaders by encouraging colleges and universities to embed SHE management education into the core curricula of business and engineering programs. Research has repeatedly shown that effective, productive and profitable companies have a CEO and senior management team who understand the benefits of SHE management systems and processes and who are committed to them. SHE management education is a fundamental cornerstone of an effective corporate culture.

Minerva's Board of Directors and Working Committee consist of volunteers from industry, government, academia and safety associations. Key sponsors include Ontario's Workplace Safety Insurance Board and Ministry of Labour, the Industrial Accident Prevention Association, Imperial Oil Limited, General Motors of Canada, Dupont Canada, Bruce Power, Trimac, the Canadian Centre for Occupational Health and Safety, the National Safety Council, and the Canadian Society for Safety Engineers. There are also regional committees in Alberta and British Columbia who work specific provincial issues and advance case studies for consideration by Minerva Canada's Working Committee..

Minerva encourages colleges and universities to incorporate SHE management education into their core curricula in three main ways:

### i) Holding an Annual Summer Institute

The Summer Institute introduces professors, teachers and lecturers to the principles of Safety, Health and Environmental management and how to teach them. The Institute is an intensive 3-day training program consisting of presentations, workshops and industrial site visits. There are two training tracks – one for engineering professors and one for business professors.

Since 2004, there have been over 135 engineering and business professors, coming from 23 Canadian and 4 U. S. Universities, to participate in the Institute. The engineering professors developed five SHE teaching modules.

### ii) Preparing Case Studies

Each year, Minerva awards modest grants to Canadian university professors for research and documentation of case studies. It seeks studies of organizations

which, through effective application of SHE management systems and processes, have improved SHE performance and, in turn, advanced corporate effectiveness.

Completed case studies are available to all universities free of charge and are found on the Minerva website. ([www.safetymanagementeducation.com](http://www.safetymanagementeducation.com))

iii) Safety Awards and Working with Partners

The James Ham Safe Design Awards, its newest program, is an example of how Minerva works with key partners and sponsors to encourage SHE management education. Minerva has also agreed to sponsor a Canadian business student award on Health and safety award in 2010 through the Inter Collegiate Business Competition run by Queens University. Other examples include partnerships with the National Safety Council and its R. W. Campbell award that recognizes one company in the world for SHE excellence. The chairman of Minerva Canada is one of three judges appointed to select the winner. The case study from this award is also available on the Minerva website.

3. Eligibility Criteria

To be eligible for consideration of Minerva's James Ham Awards, the student(s) must be a full time undergraduate engineering student at a Canadian university at the time of application. An individual or a team of students may apply.

Submissions must be certified by the student and by a faculty member in the University engineering school as being both 1) original and 2) the work of the student(s).

**Applications must be on an official Minerva form. They can be found under Official Entry Form on the Minerva website.**

Work completed in the previous academic year will be considered as long as the student(s) is/are full time student (s) at the time of submission.

4. Selection Criteria

- i) The submission must address a) an existing safety or health issue of significant concern to workers or b) a future scenario in which workers would be exposed to new health or safety risks.
- ii) The submission must address a) a physical object such as a device, machine or system b) a process or c) a tool or methodology
- iii) The innovation must be an intrinsic part of the workplace. For example, if the submission addresses a modification to a physical object, then it must be shown that the modification cannot be isolated, removed or disabled.

- iv) The innovation must be able to be constructed without placing workers at risk.
  
- v) The innovation, when introduced to the workplace, must not increase the worker's risk associated with industrial disease, traumatic injury, or musculoskeletal injury. For example, if potential hazardous agents are introduced (i.e. noise or chemical agents) the submission must show that worker exposures are below acceptable levels.
  
- vi) It must be shown that the innovation is practicable. For example, a modification to a design must be shown to be economically feasible and implementable.
  
- vii) All criteria being met and all other features being equal, the winning submission will be the one that is deemed to have the greatest impact on incident reduction and greatest ease of implementation.

#### 5. Contents and Timing of Submission

Interested student(s) will advise Minerva Canada by mid December of their intent to submit an application. A letter or e-mail ([Minerva@safetymanagementeducation.com](mailto:Minerva@safetymanagementeducation.com)) can be sent.

Applications must be received by mail or e-mail. Timing of submissions is indicated on the Rules and Regulations found on the Minerva website.

All the following categories of information must be completed for the application to be brought forward to the selection committee.

- (a) Name of student(s)
- (b) Name of Faculty sponsor member
- (c) Name of Ontario University and Department/Faculty
- (d) A summary overview of the project (no more than 5 pages) containing the following information:
  - Explain what current or future health or safety problem this innovation addresses. Comment on the scope of the problem and its potential severity.
  - Explain how the design features of the project address these current or future problems.
  - Describe if the health and safety features have improved other aspects of the design and if so, how.
  - Explain why the design is considered practicable and implementable.

- Describe if workplaces were involved in the creation or testing of this design and if so, how it was done.
- Explain what type of risk analysis was conducted to ensure that this new design does not a) introduce new hazards into the workplace or b) expose workers to new risks and that the new design reduces or eliminates existing hazards and/or risks
- Signature(s) of student(s) and sponsor confirming the project to be original and the work of the student(s).

Supplementary information in the form of Appendices may accompany the mandatory application requirements stated above. This information may include supporting documentation, risk assessment report, diagrams, drawings and individual statements from the student(s) regarding occupational health and safety.

#### 6. Confidentiality/Release of Information

Submissions should be accompanied by a letter from the Faculty project sponsor member indicating that the information is not confidential and that the summary report may be published on the Minerva website and other forms of media in order to promote Minerva Canada and this safety award. Entrants retain all intellectual property rights of their official submission.

#### 7. Venue and Publicity for Awards

The winner and runner-up of Minerva's James Ham Awards will be selected in March by Minerva's Award Committee consisting of a cross section of personnel from industry, academia and safety engineering associations.

The \$3,500 first prize and \$1,500 second prize will be presented to the successful student or team representative at a venue to be determined by Minerva Canada.

Minerva will make public the names of the winning student(s) in various media throughout the year. Minerva may invite the winning university to speak at its annual Summer Institute on how it has integrated more safety into its engineering design courses.

