



ESSENTIAL SKILLS - CONSTRUCTION RELATED



Prepared by:
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The Nova Scotia ICI Construction Industry
Representatives from major Nova Scotia companies

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INTRODUCTION

The Nova Scotia Construction Sector Council, industrial-commercial-institutional (NSCSC – ICI), is a not for profit organization established to communicate and consult with the founding Member Organizations:

- Cape Breton Island Building & Construction Trades Council,
- Construction Management Bureau,
- Mainland Nova Scotia Building & Construction Trades Council,

the construction sector and federal and provincial partners to identify areas of concern related to human resource planning and skills development within the sector.

Working in partnership with the Member Organizations, NSCSC directors and staff will provide human resource and labour market information to industry partners including Human Resources and Skills Development Canada, the Province of Nova Scotia departments and agencies, national Construction Sector Council, public and private training institutions, associations, organizations, groups and individual Nova Scotians.



Steady growth in today's new technologies and regulatory changes to occupational health and safety in the workplace and on the jobsite, warrants a clear understanding of the Essential Skills requirements of construction trades.



REPORT to INDUSTRY STAKEHOLDERS

Project start date: May 1, 2004
Project end date: April 30, 2005

- Following discussions with industry employers and labour, the Board of Directors of the Nova Scotia Construction Sector Council (NSCSC - ICI) identified the need to document occupational skills requirements and standards for the non-residential construction industry in Nova Scotia.
- As a result, industry will have the information necessary to develop and implement strategies to actively address Essential Skills requirements for sector specific occupations (trade specific).
- Data collected will further assist industry in setting standards that can be utilized to assess and determine skills gaps, barriers, and development requirements for the current and future labour force.
- With project funding from Human Resources and Skills Development Canada (HRSDC), in-kind contributions, expertise and time contributed by the industrial, commercial, institutional construction sector and key industry representatives, this project moved ahead.
- The project was researched in Canada, United Kingdom and the United States resulting in agreement that development of an Essential Skills survey would be beneficial to the construction industry.
- Over an eleven (11) month period, the NSCSC collaborated with employers, union representatives and other industry practitioners throughout Nova Scotia to identify and define the Skills deemed Essential for specific sector occupations (trade specific).
- Industry recommendations:
 - Identify current and future Essential Skills requirements for specific construction sector trade occupations
 - Identify skills gaps, skills barriers and (the) needs for skills upgrading in specific sector occupations
 - Compile a report of findings and recommendations



The Member Organizations and Directors of NSCSC want to thank all those who contributed their expertise, time and travel to assist the Essential Skills – Construction Specific sub committee identify the basic occupational skills requirements for sector specific occupations, with special acknowledgement of Human Resources and Skills Development Canada for their funding contribution and interest in this project.

With thanks to:

The many survey respondents who offered their opinions and knowledge relating to the Essential Skills requirements for their specific sector occupation.

And to all members of the Essential Skills sub committee for their generous contribution of time, travel and expertise:

*Roger Caissie,
AITEC, Dartmouth Office / NSCSC
Director*

*Steve Graves,
President MNSB&CTC / NSCSC Director*

*David Oulton,
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*J. Marc Gallant, Construction Manager,
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METHODOLOGY

- The NSCSC sub committee met initially to decide methodology, timelines and identify major industry representatives who would assist in the development of this project.
 - This sub committee and industry representatives met nine (9) times over a period of eleven (11) months to identify and communicate Essential Skills requirements, based on the recommendations and contributions of employers, union representatives and other industry practitioners.
 - NSCSC Staff provided the researched material and project management required to generate the information needed to move the project forward.
- The NSCSC sub committee developed an Essential Skills – Construction Specific survey that was distributed to identified industry stakeholders for input and feedback.
 - Survey respondents provided valuable insight as to the Essential Skills gaps, barriers, current and future requirements for their specific trade.
 - As a result, industry is provided with the information necessary to develop and implement strategies to actively address current and future Essential Skills requirements.



The sub committee reviewed questions asked by industry on a need to know basis:

- What are Essential Skills?
 - How can learning and development of Essential Skills be used to sustain talent?
 - What Essential Skills do employers require?
 - What extent of recruitment difficulties and skill gaps are related to Essential Skills.
- What are employers' perceived barriers to developing and maintaining a proficient workforce.
 - What do employer representatives and trades people perceive as missing in employee Essential Skills competency?





ESSENTIAL SKILLS

Essential Skills are the skills people use to carry out a wide variety of everyday and life tasks. While these skills are used in most occupations, there are specific essential skill requirements within ICI construction industry necessary for trades people perform their occupational tasks.

Basic enabling skills identified by HRSDC Essential Skills Profiles for 15 construction occupations.

Basic Essential Skills identified as:

- Reading Text
- Document Use
- Numeracy
- Oral Communication
- Working With Others
- Thinking Skills
- Computer Use
- Continuous Learning

Essential Skills listed in the NSCSC Survey to industry identified as:

- Reading
- Numeracy
- Communication
- Problem Solving
- Decision Making
- Job Task Planning and Organizing
- Significant Use of Memory
- Finding Information
- Working With Others
- Computer Use



INDUSTRY COMMENTS and CONCERNS

Industry employers / representatives and trades people

- Employers emphasize the need for the development of learning methods that are relevant to sector employer Essential Skill needs.
- Involve employers in the design of training programs.
- The ICI construction sector needs to identify Essential Skills critical to sector occupations. The industry has identified there are Foremen in the field who have difficulty reading specifications which can lead to mistakes and safety issues.
- Deliver Essential Skills industry recognized training courses.
- Literacy and math upgrading is needed.
- Many trades require more complex levels of Essential Skills than in the past.
- New technologies, regulatory changes to Occupational Health and Safety regulations demand that Essential Skills be updated.
- Upgrade reading text, document use and numeric skills.
- Low level Essential Skills can affect mobility.
- Low level Essential Skills can affect the ability to make decisions.
- Mentors need good Essential Skills.
- Promoting awareness of Essential Skills theory and practical is a prerequisite for industry involvement.
- Essential Skills assessment and aptitude is an important first step in understanding individual needs.
- These skills are necessary to know how to read an examination guide in order to prepare for Certification examinations, develop and prepare personal resumes, write cover letters, etc.



CAPE BRETON ISLAND SURVEY RESPONSES

Cape Breton Island Trades People: *Essential Skills deemed important to tradespersons and perceived as missing in employee/tradesperson Essential Skills competency. Listed as percentages of yes responses received.*

Response rate: 60%

<u>Essential Skill</u>	<u>Yes</u>	<u>Trades Comments</u>
<u>Reading</u>	100%	To some degree – the education level varies. The more senior members required more work in reading skills.
<u>Document use</u>	100%	The average tradesperson working on the tools usually does not require this skill, however a lead hand or foreman must be able to perform such tasks.
<u>Writing</u>	100%	
<u>Numeracy</u>	100%	Much more is needed in this area.
<u>Communication</u>	100%	Communication skills need to be expanded upon.
<u>Problem Solving</u>	100%	
<u>Decision Making</u>	100%	
<u>Job Task Planning & Organizing</u>	100%	
<u>Significant use of Memory</u>	100%	
<u>Finding Information</u>	100%	
<u>Working With Others</u>	100%	
<u>Computer Use</u>	100%	The average tradesperson working on the tools is not required to have this skill, however any lead hand or foreman or those aspiring to be a lead and or foreman must.



CAPE BRETON ISLAND SURVEY RESPONSES

Cape Breton Island Contractors: *Essential Skills deemed important to tradespersons and perceived as missing in employee/tradesperson Essential Skills competency. Listed percentages of yes responses received.*

Response rate: 83.3%

<u>Essential Skill</u>	<u>Yes</u>	<u>Contractor Comments</u>
<u>Reading</u>	80%	Read drawings, spec books, understanding sections, who's responsible for what, what info/details are final word
<u>Document Use</u>	100%	Filling out daily reports/all info on work orders
<u>Writing</u>	100%	-Clarity in communicating -To some degree
<u>Numeracy</u>	80%	Job layout using measure tapes, reading drawing dimensions, being able to calculate volumes for material take offs
<u>Communication</u>	100%	Again clarity, always a problem
<u>Decision Making</u>	80%	Decide quickly and correctly
<u>Problem Solving</u>	100%	
<u>Job Task Planning & Organizing</u>	100%	Daily/weekly scheduling of jobs, being able to plan ahead, look for problems, move forward quickly
<u>Significant Use of Memory</u>	80%	
<u>Finding Information</u>	80%	
<u>Working With Others</u>	100%	
<u>Computer Use</u>	60%	-30% -Not as important on site



NOVA SCOTIA SURVEY RESPONSES

Nova Scotia Trades People: *Essential Skills deemed important to tradespersons and perceived as missing in employee/tradesperson Essential Skills competency. Listed as percentages of yes responses received. Response rate: 71%*

<u>Essential Skill</u>	<u>Yes</u>	<u>Trades Comments</u>
<u>Reading</u>	80%	
<u>Document use</u>	80%	-For positions higher than foreman. -Primarily at supervisory level.
<u>Writing</u>	80%	Very important for positions higher than foreman as well.
<u>Numeracy</u>	100%	Very important for positions higher than foreman as well.
<u>Communication</u>	80%	Very important for positions higher than foreman as well.
<u>Problem Solving</u>	80%	-Very important for positions higher than foreman as well. -Very important.
<u>Decision Making</u>	80%	-Very important for positions higher than foreman as well. -Very important
<u>Job Task Planning & Organizing</u>	80%	
<u>Significant use of Memory</u>	80%	Should also maintain a daily journal.
<u>Finding Information</u>	100%	
<u>Working With Others</u>	80%	
<u>Computer Use</u>	100%	-Would need more computer skills. -Primarily at supervisory level.



NOVA SCOTIA SURVEY RESPONSES

Nova Scotia Contractors: Essential Skills deemed important to tradespersons and perceived as missing in employee/tradesperson Essential Skills competency. Listed as percentages of yes responses received. **Response rate: 50%**

<u>Essential Skill</u>	<u>Yes</u>	<u>Contractors Comments</u>
<u>Reading</u>	100%	-All -Critical
<u>Document use</u>	100%	-Site super, foreman only -Tables and graphs of job construction manager. Fill out and check off by foreman.
<u>Writing</u>	100%	-Site super, foreman only -Tables and graphs of job construction manager. Filled out and check off by foreman. -Discipline reports
<u>Numeracy</u>	100%	-Basic Trigonometry -All -Averages of pay/costs/ job of construction manager.
<u>Communication</u>	100%	-All -Important out and check off by foreman.
<u>Problem Solving</u>	100%	-All -Generally a consulting process of tradesmen, supervisor, construction manager, architect, engineer, etc.
<u>Decision Making</u>	100%	-All -Generally a consulting process of tradesmen, supervisor, construction manager, architect, engineer, etc.
<u>Job Task Planning & Organizing</u>	100%	Critical
<u>Significant use of Memory</u>	100%	Important
<u>Finding Information</u>	100%	Important
<u>Working With Others</u>	100%	Critical
<u>Computer Use</u>	80%	Optional! At site level, not required.



ADDITIONAL RESPONDENT'S COMMENTS

Respondents' opinions regarding what future Essential Skills will be required for their specific trade, additional comments and experiences.

- **Trades:** Communication and access to information through computers etc. is essential for the future if flexibility and productivity of the skill tradesperson pool is to meet expectations.
 - **Contractor:** Attitude – Proper coordination and communication of sub trades and understanding how expensive it has become for every division or trade to work – having the ability to schedule/coordinate to complete jobs quickly to the dwgs/specs.
 - **Contractor:** Basic communication and interpretation of construction documents. Jobsite supervision and scheduling various trade components on any given site.
- “Interpretation/communication/scheduling”.
- **Contractor:** New products that are on the market- tools, form hardware, etc. Day to day organizing, do your homework.
 - **Contractor:** Knowledge of Building Codes.
 - **Contractor:** Skills – Most important are interpreting drawings/ specs/ addenda on jobs, layout, thinking ahead.
 - **Trades:** In the future there might be a demand to learn how to use a computer. Jobs are getting more high tech. We could use more knowledge on how to use them.



ADDITIONAL RESPONDENT'S COMMENTS

- **Trades:** We will need computer skills, graphs, administrative record keeping etc. Most skilled tradespersons above a foreman should have training in relation to dealing with others, communication, problem solving, motivational etc. As I stated our trade seems to have a shortage of general foreman and superintendents.
- **Trades:** Thinking skills in particular.
- **Contractor:** I feel an “Attitude” that accepts current and future changes as well as a willingness to train and apply new thinking is essential for any worker. This applies more so in OH & Safety.
- **Contractor:** The ability to work safely to recognize hazards and potential hazards. Crane and heavy equipment operators are always in safety sensitive operations and so these skills have got to be second nature to them.
- **Contractor:** Your list is very complete.
- **Trades:** All of the skills listed in your questionnaire have been identified as weak areas within our membership. All skills listed should be applied to all Foreman and Supervision. Some (the first seven) are directly related to all workers and should be delivered to the entire membership. Clearly – we need to do a lot of Essential Skills training in the future.



ACTION ITEMS

- With the information provided by this project
 - develop a program designed to assess current workplace skills and
 - implement the delivery of Essential Skills upgrade to the industrial, commercial and Institutional construction industry.
 - To support industry needs, the curriculum would be designed and promoted by industry.
 - Communicate industry needs for Essential Skills upgrading to government and educational institutions. Trades require more complex Essential Skills relating to numeracy such as trigonometry and estimating, information technology such as electronic reporting and computerized machinery or testing apparatus.
- Develop Essential Skills upgrade programs to accommodate older workers in foreman, supervisor and mentor positions.
 - The Nova Scotia Construction Sector Council will develop a plan to further assess the need for skills relating to information technology requirements in the institutional, commercial and industrial construction industry.
 - Provide skills modules for basic communication and problem solving skills.
 - Provide skills modules for interpretation of construction documents, drawings and specifications.



SUMMARY OF SURVEY RESULTS

- Survey results and responses clearly identify the need to upgrade Essential Skills in the institutional, commercial and industrial construction industry.
- Workplace assessment tools are critical to determine the individual needs of trades people.
- Results strongly show that there is a need to develop communication, job task planning and scheduling skills.
- Skills needed for the interpretation of blueprints, construction documents and specifications are clearly indicated as critical.
- Results identify the need to upgrade computer skills for the Foreman and Lead Hand positions.
- Survey results clearly indicate that all of the Essential Skills listed in the survey are critical to the respondent's occupations.
- Emphasis is placed on the need for skills upgrading are in the areas of communication and job task planning.
- Computer skills are critical to the Boilermakers and supervisory positions and numeracy is critical to trades requiring the use of trigonometry and estimating.



CONCLUSIONS

Project Objective as identified by the construction sector and supported by Human Resources and Skills Development Canada (HRSDC) is

- to assist in the identification and documentation of basic occupational skills requirements for the non residential construction industry in Nova Scotia

Project Expectation

- to provide the construction industry with a report identifying the Essential Skills required for sector specific occupations (trade specific).
 - The data collected will further assist industry in setting standards that can be utilized to assess and determine skills gaps, barriers, and development requirements for the current and future labour force.
 - It is anticipated that the proposed project findings and recommendations will provide industry with the information necessary to develop and implement strategies to actively address essential skills requirements in the Nova Scotia construction sector.
- | | |
|---|---|
| <ul style="list-style-type: none">• The Essential Skills survey was distributed by mail, fax and e-mail to the NSCSC directors and sub committee members and to management and labour industry representatives, resulting in a 71% response rate including expressions of support for the project.• Upon analysis the project sub committee concluded that the information provided by industry be used to develop best practices for Essential Skills in the workplace. | <ul style="list-style-type: none">• Request by employers to provide course material in modular form.• Review of the responses indicate the industry has clearly expressed the need for Essential Skills upgrading for most occupations in the industrial, commercial and institutional construction industry including foremen, supervisors and mentors. |
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CONCLUSIONS (Continued)

- Industry support for this project is evident from the contacts made throughout Nova Scotia and their volunteer commitment to this project.
- Industry has been saying that the education and training system does not meet their needs; that the basic skills the employer needs to be competitive are not coming out of the network of junior/high schools consequently colleges and universities suffer the consequences, as do employers.
- An Essential Skills program will encourage recognition of essential skills on the job site and in the workplace.
- Management and labour report that many workers lack the basic essential skills needed to succeed in the workplace and be more successful in job specific training.
- One key lies in engaging employers in the development and implementation of effective action.



The consequences of misunderstandings due to lack of skills required to accurately interpret specifications, regulations or blueprints can highly affect safety, liability and job costs.



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