



OCCUPATIONAL ANALYSIS REVIEW for the Residential Construction Sector in Nova Scotia

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Introduction

1.0 Introduction

1.1 Objective

The objective of this project is to evaluate the National Occupational Analyses for construction occupations in terms of their specific applicability to the home building and renovation sector in Nova Scotia, and to develop strategic approaches to utilizing the Analyses within a wider professionalization process in the province.

The National Occupational Analyses for Residential Construction Occupations provide comprehensive analyses of the various trades and sub-trades in the construction industry. While they offer a generic framework for the development of occupational standards and training programs, they need to be adapted to the specificities of the home building and renovations sector (as opposed to industrial, commercial and institutional construction), and of the industry in Nova Scotia. More fundamentally, to serve as a basis for certification of building and renovation professionals, they need to be linked to an appropriate system of standards that will bring together the many areas of specialized skills and competencies within a unified conception of the home building/renovation profession.

1.2 Report Activities

The work of this project has involved the following elements:

- ▲ A review of the National Occupational Analyses for those occupations which relate to residential construction and renovation.
- ▲ A workshop with informed industry stakeholders to review and evaluate the Carpentry National Occupational Analysis trade, and to identify specific adaptations and modifications for it to serve more effectively the purposes of professionalization in Nova Scotia.
- ▲ A review of the national and international literature on licensing and professionalization in the home building and renovation industry to identify the state of the art.
- ▲ Development in draft form of a revised list of competencies for the carpentry and related trades, and incorporation of this analysis into an assessment model for measuring and certifying competencies



within a wider professionalization system.

- ▲ A second workshop with industry key informants to review and revise the Carpentry National Occupational Analysis and proposed competency based assessment model.
- ▲ Drafting of the project report.

Current Issues in Training and Certification

2.0 Current Issues in Training and Certification

Traditionally, the skills and knowledge of workers in the construction industry has been recognized and/or certified through two principal mechanisms:

- ▲ successful completion of institutional training programs such as one- or two-year pre-employment programs in community colleges or technical institutes; and
- ▲ successful completion of formal apprenticeship programs involving both on-the-job training and institutional programs.

Both of these mechanisms will continue as critically important components of the overall system for recruiting, training and qualifying people for the construction industry. However industry leaders have been interested for some time in expanding the impact of training and certification, linking it more closely with current industry practices and modes of operation, and giving industry organizations a greater role in the process. Among the issues that have been identified in these regards are the following:

- ▲ There are large numbers of people working in the industry who have never participated in formal training or apprenticeship programs and are unlikely to do so, who have the skills and commitment to remain in the industry, but would benefit from training and certification if such options were more available to them.
- ▲ Business owner-operators face continuing challenges to upgrade the skills of their employees to deal with new technologies, more rigorous building standards and a more competitive industry, but many employees have limited formal education and require sensitive and appropriate education and training approaches suited to their particular needs and abilities.
- ▲ Linked to the above points, the continuing expansion of the industry in Nova Scotia and the difficulties in attracting qualified new entrants put a premium on expanding life-long learning opportunities for the current labour force.
- ▲ There is continuing work to do to improve the contents and methods of institutional training and apprenticeship programs and continuously upgrading them in line with evolving workplace practices and technologies.



- ▲ Industry leaders want to have a greater say in the design and delivery of institutional programs and apprenticeship, but need to become better organized and to build capacity to do so.
- ▲ There is growing interest in the home building and renovation industry in developing status as a self-regulated profession in which certification and licensing processes are driven to a much larger extent by legitimate industry bodies established and mandated specifically for the purposes of professionalization.

Competency Based Certification

3.0 Competency Based Certification

In terms of the state of the art for industry based professionalization processes, a key element is the transition to competency-based assessment. This approach is widely used within the European Community and in New Zealand and Australia, but is only beginning to be adapted to core industries in Canada.

Briefly stated, this approach means that individual members of a profession receive appropriate levels of certification based on their proven abilities to perform defined tasks according to measurable criteria. In essence, it does not matter where the person learned the competency – a training course, instruction from a co-worker, on-the job or self-taught – the only question is whether they have the competency or not. Rather than exclusively through institutional certification processes (which may continue to play a part) the individual will qualify for certification at a given level for a given category of work by demonstrating their mastery of the knowledge and skills required. In many cases the best judges of the acquisition of competencies will be the established professionals on the worksite, including the employer.

The key challenge is to set out clearly all the competencies within a larger framework that unifies all the areas of work within the profession. Such a framework will need to accommodate different dimensions of professional competency:

- ▲ Different areas of technical skills relative to all the tasks involved in construction (e.g., within carpentry the various sub-specializations such as form building, framing, finished carpentry, etc.).
- ▲ The areas of generic knowledge required at various levels by all members of the profession (e.g., health and safety, environmental protection, building systems, etc.);
- ▲ The different functions or roles within the overall occupation (e.g., site worker, project manager, business manager, entrepreneur, marketing specialist, etc., recognizing that for a given firm one person may occupy several roles).
- ▲ Finally, a competency based professionalization model might employ a unified framework of certification levels or standards ranging from the status of new entrant through to the intermediate and master level tradesperson and then the overall project manager.



Some advantages of a competency based certification model are the following:

- ▲ It provides a vehicle for industry stakeholders to play an ongoing and central role in defining the competencies needed to work effectively at a given level on a modern worksite adapting constantly to advances in technologies and methods.
- ▲ It supports a data management system whereby the individual working in the industry can document their acquired competencies and whereby potential employers can readily and reliably assess the suitability of the individual to their needs on the job site or within the firm.
- ▲ Certification documents can be individualized and portable, and can make use of advances in computer technology and communications.
- ▲ Such a system is perhaps more amenable to on-the-job learning by working people and, as such, has the potential to offer greater motivation for working adults to pursue training opportunities within a life-long learning culture.
- ▲ Such a system may also support greater labour force participation and mobility among workers who have documentary evidence of their competencies and are less dependent on personal contacts and community networks to find employment.

Competency based systems facilitate both upward and horizontal mobility by providing individuals with clearly defined ladders to climb within their occupations, and immediate incentives for making progress, and also the concrete identification of competencies that may apply in other occupations (e.g., a person moving from a military career to civilian industries, or moving from an occupation like ship-building to ICI construction or homebuilding-renovation).

A Competency Assessment Framework for Nova Scotia

4.0 A Competency Assessment Framework for Nova Scotia

The attached framework of competencies and certification levels represents the first step in developing a competency based certification model for Nova Scotia. It was generated through workshops with key informants in the Nova Scotia industry, and adapts the Carpentry National Occupational Analysis for the residential construction occupation.

On the vertical dimension, the first order of categories identifies the basic components of professional knowledge and competency for the home building and renovation industry. Based on the National Occupational Analysis, these include both technical skills such as use of tools in carpentry, roofing and flooring task competencies, and areas of generic knowledge and competence including industry knowledge, communications, business management, health and safety and work planning and management.

The second order of categories on the vertical dimension provides more detailed breakdowns of the knowledge and skill components again using the National Occupational Analysis as a guide, but with some modification to suit local industry circumstances. For example, for the first category of “communications”, the second order would include literacy and math skills, use of computers, problem solving in work-teams, etc. Potentially a third or fourth order of specificity could be added to provide greater guidance for course design or development of criteria for assessing more specific competencies.

On the horizontal dimension the framework provides 5 generic levels of competency that might apply to any individual performing any role or task in the construction industry. These are:

New Entrant-Helper

This person is a beginner in construction and may or may not commit to a career in the field. The individual may be just a temporary worker, such as a student or someone fully employed in some other industry but temporarily available for work on a job site. Nevertheless, industry and government regulators may identify some basic training standards that apply to these individuals, such as health and safety, and environmental protection.



Base professional

This person has made some initial commitment to a career in home building and renovation, and needs certain basic competencies to be productive and safe on a job site on an ongoing basis. They may be employed in only one or two basic tasks involving limited skills, and/or working constantly under the supervision of a more qualified worker.

Competency standards for such an individual might include a certain levels of mastery of the one or two tasks they are responsible for, together with health and safety, responsible work habits and some level of general knowledge of the construction process.

Intermediate Professional

Individuals in this category might make up the majority of workers on many job sites. They would have mastered a number of technical competencies, or be quite advanced in a few more challenging specializations. They would have a certain number of years experience and would be able to carry out their specific responsibilities without constant supervision. Together with more advanced health and safety knowledge and competencies, they would have some knowledge of building systems and overall procedures, and of how their activities fit into the larger process.

Advanced Professional

These workers would have considerable experience in the industry, working in different roles and different types of projects. They would have mastery of a larger number of competencies, and/or very advanced skills in a few very challenging areas (such as finish carpentry, trim work, custom doors and windows, etc.). They would work largely without supervision, would be able to work from plans and blueprints, and manage the materials required by their activities. They would have more advanced knowledge of building systems and processes, and would be able to oversee the job site in terms of health and safety, environmental protection and sound work practices.

Project Leader – Supervisor

Such individuals would have all the experience and technical qualifications of a Level 4 advanced



professional, but would have additional competencies in project management and the training, supervision and management of other workers on the site. Where they were not the owner-operator of the business, they could work closely with the owner-operator in tracking costs and implementing financial controls, and in developing new business opportunities. They would communicate directly with clients on the site and deal with government inspectors, suppliers, regulators and resource people off the site.

The objective in setting out this model is that there might be one framework for assessing competency for everyone in the industry. This in effect would create a profession where currently there are a large number of separate trades, sub-trades and informal roles and categories that vary from company to company and region to region.

This represents a large scale change in the way the industry currently thinks about itself, and therefore will require extensive planning and consultation as the industry moves towards implementation.

5.0 Implementation Strategy

At present, the notion of competency based assessment is one component of a larger strategy for professionalization of the home building and renovation industry in Nova Scotia, and beyond. While key industry leaders have participated in developing the concepts, it is necessary now to involve much larger numbers of stakeholders, to get their input and to discuss within them the potential advantages of such approaches for their industry.

The AHB&RSC and its partner organizations the Nova Scotia Home Builders' Association and the Atlantic Home Warranty Program, are moving forward in the 2001-02 year with a broad-based consultation process on occupational licensing and professionalization, and the competency based certification option will be reviewed and evaluated as part of that process.

After full consultation, the industry will be asked to approve in principle the continuing development of a comprehensive competency based certification model. With that approval, the next phase will require the participation of expert builders, together with representatives of the training system and government regulators, in a process of setting out the detailed criteria for competency based certification at each of the five levels for each knowledge and competency category. The methods of competency certification that could be employed across the range of categories might include the following:

- ▲ Self-assessment;
- ▲ Assessment by peers;
- ▲ Assessment by Level 4 or 5 professionals on the work-site;
- ▲ Assessment by employers;
- ▲ Assessment by trained assessors or prior learning assessment and recognition (PLAR) specialists from within the industry;
- ▲ Completion of written tests set by industry bodies;
- ▲ GED certificates;
- ▲ Assessment by government regulators or inspectors;



- ▲ Completion of designated training courses in institutional settings;
- ▲ Completion of other standardized training courses (e.g., St. John's Ambulance, WHMIS training, etc.);
- ▲ Completion of apprenticeship program;
- ▲ Completion of diploma or certificate programs in community college;
- ▲ University degree or diploma programs;
- ▲ Certified distance education certification programs.

In summary, there are a wide range of options for conducting the assessments required by a competency based certification system. Most are readily accessible on job sites and are cost effective. The key to success is to develop assessment criteria for each category of competence that are realistic, appropriate and relevant to the real needs and conditions of the workplace. Under such circumstances competency based certification will achieve a high level of credibility and legitimacy within industry and with the general public.



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