A competency framework for construction supervisors in developing countries

A. Serpell and X. Ferrada  
Department of Construction Engineering and Management, Pontificia Universidad Católica de Chile, aserpell@ing.puc.cl

Abstract
This paper analyzes the role of construction site supervisors, including foremen and general foremen, as front-line managers. The role is treated as a critical labor function and a source of value-added for construction management. An original model based on the labor competency management framework is proposed for training, developing and certifying construction supervisors in Chile and other developing countries. This model was developed from the findings of a case study in which the competency framework was applied to a specific construction company. This case study has demonstrated the significant potential of the competency framework for the Chilean construction sector, with its underdeveloped human resources management methods. The application of the competency approach might help to greatly improve the human resources management function in construction companies as well as the site performance of their personnel.

Keywords: Construction, site supervisor, competency profile, management, competency model.

INTRODUCTION

The labor competency management approach is currently applied in many developed and developing countries [Mertens, 1996]. However, there is as yet no single definition of the concept of competency. For example, according to Spencer and Spencer [1993], competency is an underlying characteristic of the individual that is causally related to a standard of effectiveness and/or to a superior performance in a job or situation. Mertens [1998], on the other hand, defines competency as the capacity demonstrated by a person to achieve a result that may or may not become an effective contribution.

This labor management concept attempts to transform workers traditionally oriented only toward production and the carrying out of prescribed tasks into actors who go beyond what is prescribed, putting actions into practice and able to react to events; in short, to make a contribution to their job [Le Boterf, 2001].

In the competency labor management approach, personnel management becomes a strategic area where the management of talent is aligned with the objectives of the business as well as its vision and mission [Vargas, 2002]. With the implementation of a competency framework, personnel are seen as the main source of value added [Alles, 2000].

A good human resources management function should be aligned with the strategy of the organization, and this can be efficiently achieved through the application of the competency approach. Some have
pointed out, however, that there is always a risk that human resources systems can damage an organization’s competitive advantages, inhibiting the mobilization of new competencies or the appropriate exploitation of existent ones [Lindgren et al., 2004]. In the case of the Chilean construction industry, the development of workers’ competencies is so inadequate that any action taken on human resources will likely produce a significant improvement over the current situation.

In this article, we describe the application of the competency labor management framework to the management of human resources in a Chilean construction company. Our analysis will focus on just one of the various employment positions typically found in such an enterprise, which is the construction site supervisor function. Included in this job category are general foremen and foremen. The role of the site supervisor is discussed and interpreted as a “critical labor function” due to its impact on site productivity, quality and general site performance and its importance for achieving the objectives of a construction project.

THE CONSTRUCTION SITE SUPERVISOR’S ROLE

Construction site supervisors are responsible for directing the execution of basic construction project work operations, as well as for communicating the project’s objectives and goals to the workers. They are in permanent contact with site personnel, responding to their needs and observing and checking their performance. Also, supervisors must implement general planning guidelines at the construction work level, serving as a nexus between the site manager and the workers. This requires that supervisors prepare work plans and communicate them to the workers charged with their execution.

Due to their close involvement with site activities, supervisors’ management efforts impact directly on the productivity and final quality of the work they are responsible for. Their performance is thus of particular importance for achieving a project’s objectives.

On-site observation has shown that the role of these supervisors is subject to various restrictions. Some indications of this phenomenon include the following [Serpell and Ureta, 1989]:

- Supervisors are generally excluded from improvement and training programs. Most of them have not finished secondary school and their professional development consists mainly of on-the-job experience and learning from more experienced site personnel.
- Their authority to make decisions is usually quite limited owing to the fact that they are considered as workers instead of site managers.
- They are restricted to functional tasks and are lax in the control they exert over their workers.
- Their status is relatively low in the eyes of the workers, who are aware that they (the supervisors) are not clearly supported by management or consulted on decision-making.

According to a Chilean Construction Chamber study [1993], there are serious weaknesses in the training of site supervisors (general foremen and foremen) and a lack of middle-level professionals or technicians with one or two years of specialized training in construction for supervisory positions. Among the most important deficiencies currently encountered in the construction sector as regards site supervisors, we may mention the following:

- A lack of formal training to qualify site supervisors for taking on supervisory responsibilities. There is no an official supervisor job definition to orient their training.
- Current training activity is insufficient to supply the number of supervisors required by the market.
The lack of appropriate training for site supervisors increases construction costs due to their inability to carry out work planning, communicate effectively with workers or properly direct work activities.

Inappropriate supervisory personnel selection processes. Supervisors tend to be workers with experience in site work and strong personalities that set them apart from their fellow workers, but without formal knowledge or training in management skills.

There is no national qualification system that evaluates and certifies site supervisors. Their skill qualification levels are set by each individual company, thus creating a supply of supervisors that is neither uniform nor comparable.

In the last few years, some Chilean construction companies have begun to change their view of the site supervisor’s role and are implementing a new vision of the position in their organizations. On this approach, site supervisors are seen as first-line managers, meaning that their function is recognized as belonging to the management level. The focus of the supervisor’s management role is thus to direct the basic work processes for executing construction. This means that activities formerly the preserves of higher management levels are now becoming part of the site supervisor’s work at the operating level. In this context, supervisors are a crucial communication link between senior management and team in organizations, because they are closer to the daily operations and customers [Mc Neil, 2004].

In this new role, supervisors are now qualified to design, develop and manage their work teams for performing construction work. The new leadership function for directing the members of their teams has thus become another required competency.

APPLICATION OF THE FRAMEWORK

In this section we present the results of a specific application of the competency-based labor management framework to the site supervisor’s job at a Chilean construction company. Founded in 1981, the company specializes primarily in the following construction markets: buildings (more than 400,000 square meters constructed), water and sewage, roads and highway and other civil infrastructure. Though a relatively young company, it already possesses a strong organizational culture that promotes the participation of all employees within the organization.

The actual implementation of the framework involved designing an education and training plan based on labor competencies. Development of the plan was completed in five months. Our study began with a series of meetings with the company’s Quality Management Coordinators Committee, the entity in charge of the project, to gather information about the objectives and requirements of the organization as they affected the design of the training plan. Once the project scope was defined, an analysis of the business process was initiated and the company’s critical labor functions were thus identified.

The competency profile development stage included many meetings with personnel who performed the various labor functions under analysis so as to better identify the required competencies for successful job performance.

Once the different competency profiles had been developed, the skill levels of personnel who performed the various labor functions for which competency profiles were defined were then evaluated in order to identify the training gap and subsequently define a training plan for the company. It was then possible to identify those critical competencies the personnel in question were lacking and initiate the necessary training processes.
As part of the application of the competency-based management framework, an implementation model was developed and is shown here in Figure 1.

Figure 1 Competency-based labor management implementation model (ovals represent inputs or results and rectangles represents activities)

**Analysis of business processes**

The purpose of this stage was to analyze certain items of information that were relevant to the purposes of the company. One such item was the organization’s strategic directives; another was its clients’ requirements. The idea was to align the competency approach with the company’s business priorities in order that the competencies developed were those that were genuinely required.

Emerging from this analysis were the principal required organizational competencies. One of these competencies was the occupational category of site management.

**Identification of Critical Labor Functions (CLF)**

Using the information generated in the previous stage, the main critical labor functions for each organizational function were identified. In the site management occupational group, “site supervision” was identified as a critical function, although initially the function’s title was left open. At this point the emphasis was on the function itself rather than its formal title or name.

As well as identifying this function, an analysis of the specific characteristics of its “business process” was carried out, covering the purposes of the process, its critical characteristics and its specific
outputs. In addition, the function’s relationships and its coordination with client and supplier processes were specified. Performance indicators for the business process were also defined in this stage.

Development of the competency profile

The background information obtained in the first two stages of the analysis was employed in the third stage, which consisted of determining the site supervisor’s competency profile. The first task was to specify the title of the function, which in this case was “site supervisor.” The purpose of the function was then described in terms of the site supervisor’s main activities and formulated in such a way as to express the specific actions involved (to supervise, to plan, etc.). This was followed by a breakdown of these activities, beginning with the most general and proceeding to the most detailed, the latter including the planning of operational processes, leading work crews, and supervising work progress, among others.

A third level of breakdown described the “critical activities” with a sufficient degree of detail as to correspond to the specific responsibilities of a site supervisor. This was done in such a manner that responsibilities were not identified with tasks, as it was expressly desired to avoid the confusion of the two. The analysis for the labor function of site supervisor is shown in Figure 2.

The information and descriptions generated up to this point were enough to establish the knowledge, attitudes and behavioral attributes a site supervisor should possess in order to achieve a proficient performance level. A correctly drawn-up profile will contain the elements necessary for an effective subsequent evaluation of the competencies involved. Figure 3 shows the competency profile of the CLF under analysis that was obtained using the aforementioned procedure. The main output of this stage was the list of competencies for the site supervisor function.

<table>
<thead>
<tr>
<th>Purpose: to supervise and coordinate the execution of the critical activities in the operational work in accordance with project plan</th>
</tr>
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<tbody>
<tr>
<td>To plan the site and operational processes in accordance with tactical plan of construction project and company policies</td>
</tr>
<tr>
<td>To lead internal and external work teams carrying out project construction in accordance with personnel management policies of organization</td>
</tr>
<tr>
<td>To supervise the progress of construction activities and their execution, ensuring compliance with the organization’s quality system, safety and environmental standards</td>
</tr>
<tr>
<td>To involve internal and external construction workers in quality system, safety and environmental practices in accordance with corporate policies</td>
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<tr>
<td>To measure progress of construction activities in accordance with project’s tactical and operational schedule</td>
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</tbody>
</table>

Figure 2 Critical activities of the site supervisor
### Evaluation of competencies

The evaluation of the site supervisor’s competencies consisted of measuring their current competency levels against those established in the competency profile for the position. More precisely, the outcome of the supervisor’s actions should be measured against the standards established in the competency profile.

In our study we administered a competency proficiency survey to a representative group of each of the organization’s critical labor functions in order to evaluate them in terms of the competency profiles. In the case of site supervisors, 24 persons were so evaluated. The results showed that in very few cases were the supervisors proficient in the required competencies. The complete findings for the three evaluated competency units are shown in Table 1.

<table>
<thead>
<tr>
<th>Competency profile</th>
<th>Proficient (%)</th>
<th>Satisfactory (%)</th>
<th>Unsatisfactory (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education and training</td>
<td>8.3</td>
<td>62.2</td>
<td>29.5</td>
</tr>
<tr>
<td>Abilities and performance</td>
<td>4.2</td>
<td>87.5</td>
<td>8.3</td>
</tr>
<tr>
<td>Attitudes</td>
<td>4.2</td>
<td>83.3</td>
<td>12.5</td>
</tr>
</tbody>
</table>

Those who satisfied more than 90% of the evaluation elements constituting a competency unit were ranked as proficient; those who satisfied 61% to 90% were deemed satisfactory; and those who satisfied only 41% to 60% or less were classed as unsatisfactory. For every competence unit, there was some persons who did not satisfy at least one such element.

The final result of this stage of our model was to define the gaps between the competency profile standards and the actual demonstrated competencies of the company’s site supervisors at the time the evaluations were conducted. It was found that not one supervisor successfully passed the evaluation. The gaps discovered were then interpreted in terms of training needs.
Design of the training plan

The training plan developed during our implementation of the labor competency model left aside all considerations not related to the competencies found to be required when the training needs were defined (in the previous stage). Once the problem (i.e., the gaps) was fully defined, the purpose or general objectives of the training actions were established and the specific competency units that needed to be addressed were selected for inclusion in the plan. The training methodology was also defined, giving special emphasis to those activities that involved the participation of the trainees. It is important that the training be highly individualized, both as regards the teaching methods and the evaluations. Group-level assessment was avoided.

The training plan further included a monitoring stage to check on how supervisors put into practice at the work site their newly acquired competencies, plus an evaluation after a period of three to six months following training. The purpose of the evaluation was to measure the real impact of the site supervisors’ new competencies on their workplace performance.

Execution of the training plan

This stage was not implemented during the application of our model. Once the design stage was completed, however, the construction company began the process of selecting training providers. This is a critical activity for ensuring the training will be effective and achieve the desired results.

Evaluation

Our evaluations of site supervisor competency were not conducted with a view to gathering sufficient data for the certification of candidates for this function. Nevertheless, it was explained to the company that as the implementation of the labor competency framework progress and human resources personnel develop their expertise in the competency management approach, changes would have to be made to company practices on performance evaluations, which at the time of the study were done using strictly quantitative indicators.

Summary and conclusions

This application of the competency approach to a particular firm has not yet been completed, and it is still too early to evaluate its impact on company personnel. More time is needed to study all of the potential impacts. We may conclude, however, that the structured approach of the competency framework can help businesses develop more objective schemes for the design and implementation of training and for management of human resources in environments where these functions are currently inadequate.

As regards the construction site supervisor, by defining the position as a management function, it takes on a strategic position in the company’s organization chart, and the business process related to it becomes a critical one. The function is then no longer limited to the bureaucratic supervision of tasks, having assumed a much more active and committed role within the global strategy of the organization. Thus, the site supervisor now carries out activities that are a source of value added to the organization.

Chilean construction companies, whose human resource practices are generally very traditional, are not yet able to adopt a human resource management approach in the sense of considering people as a strategic factor. The labor competency management framework, given that local conditions are taken into account, can serve as a very useful alternative to change this reality, given that:
The labor competency approach favors the development of the entire range of a person’s attributes.

With the labor competency scheme it is possible to address new requirements for the site supervisor, most notably the management competencies whose performance indicators are qualitative rather than quantitative.

Some of the principal characteristics of the competency framework that were considered functional by the construction company when deciding its application to the construction site supervisor, are the following:

- The value added of a function can be understood as the level of a person’s contribution in terms of the production of output, the fulfillment of objectives and the achievement of strategic goals.
- The determination of the critical activities of a function requires an exhaustive analysis of the site supervision process and its numerical and non-numerical performance indicators. In traditional practice, which is more functional in nature, the focus on processes has been absent.
- Job description manuals are replaced by competency profiles or standards that must be periodically revised. The competency profile has a generic character and to a certain extent it exists outside of the actual job context, a fact that radically differentiates it from the task itself.
- Performance evaluation based on the quantity of tasks carried out by the site supervisor does not aid in measuring the value added of the supervisor’s work. What should be measured are competencies, a system of measurement implemented using diverse strategies but always involving comparison with a competency profile or reference.

References


