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Effects of Housing Conditions on Labor's Productivity

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سورة الرعد

فَنَّذَكِرَكُمْ بِاللَّهِ الَّذِي خَلَقَكُمْ وَأُمِّيْمَتَكُمْ وَأَحْيَاهُمْ وَأَمَرَّهُمْ وَأَمَرَّ آيَاتَهُ وَأَمَرَّ يَدَّهُهُمْ إِلَى الْجَمِيعِ
Acknowledgment

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Abstract

The most important factor in any construction project is the productivity driven by laborers. There are many factors that affect labors’ productivity at the work place. Through this paper, the focus will be mainly on housing improvement on worker's absenteeism, health, and productivity. Construction work is a labor-intensive industry, and currently Qatar is driven towards emphasizing the importance of providing high standards for workforce living conditions. It is essential for any company to realize and enforce within their systems the investment in human capital and providing adequate living environment. Organizations realize the importance of investment in human capital, but may have neglected investments that could raise labor productivity in the short run, such as workers’ housing. We will investigate through this paper whether or not adequate housing makes a permanent contribution to worker health and productivity and its effect on the company’s overall productivity.

This study will mention a number of factors that affect labor productivity, then going into deeper investigation on living conditions and its effects. This will be done using observations, comparisons, surveys, interviews and referral to theories. It will discuss the current issues with living conditions for workers in Qatar, the recent changes in labor rights, focusing on two specific projects where one projects has laborers’ in poor living environment and the other project has adapted to the new housing requirements and accordingly the outcomes of such comparison. Thus, documenting workers response to rehousing and illustrating by findings of this study the change in productivity after substantial improvement in housing conditions

After analyzing all the data we obtain, we will be able to verify whether improving one important factor (housing conditions) can affect labor productivity. Accordingly suggesting solutions and recommendations, several studies have been published relating changes in housing quality to changes in worker health and/or productivity. The results of these studies are mixed, some showing significant post rehousing gains, others little or none.
Introduction

There are many ways in which productivity is defined. It is the measure of the rate at which work is performed. In construction, productivity is mainly concerned with crews; amount of work produced per man-hour. So in General productivity is expressed in one of two (opposite) ways:

1- Units produced per unit of time.
2- Man-hours exerted per unit of production.

The American Association of Cost Engineers (AACE international) defines productivity as a “relative measure of labor efficiency; either good or bad, when compared to an established base or norm.” Within Construction industry, labor productivity is not well studied or easily estimated. Although, the benefits of improvements are high as it achieves considerable savings, especially that in construction projects profit margins are small and any saving in cost is crucial.

The main elements of any successful construction project, is that it is delivered on time, within budget and agreed quality and specifications. In order to achieve that, increased labor productivity is constantly required, and due to the nature and complexity of construction projects, labor productivity should be strongly emphasized. Labor performance and productivity are dependent on one another; through this study a list of the most important factors affecting performance is briefly explained. However, the main focus is on the housing conditions and its effect on their productivity.

In Qatar, most labor camps are very poorly structured and a large number of companies are not following Qatar Labor Law. Although the law sets proper human rights standards for labor treatment and living conditions, yet laws intended to protect workers were rarely enforced. Therefore, organizations suffer from a number of problems arising from poor labor living conditions and consequently affecting productivity. Recently, with Qatar preparing for the World Cup and hosting large number of construction projects, it is more and more dependent on migrant workers. According to a report done by Jill Wells, “an investment estimated at $200 billion over the next 10 years some additional 500,000 construction workers will be needed,
most of whom will come from low income countries in Asia”. Therefore, more labor rights are stressed and much more enforced on construction companies.

This study will focus on a particular project where Qatar labor law is strictly applied and high standards of living conditions are provided to workers. The study will also address a different project where workers in Qatar are still put in poor housing environment to be able to compare productivity outcomes of workers in each project and if the improved housing conditions have in fact affected their productivity.

**Objective**

Improving productivity on site is driven by considering a number of factors. It is impossible to enhance and balance all factors affecting productivity. Therefore improving one factor doesn't mean that productivity will certainly increase; however, it is believed that it will have its own positive effects which may change productivity in a way or another.

This study is based on a real construction case study of housing enhancements for laborers in Qatar, it will show the results of improving only one factor which is the housing conditions; ignoring all other factors.

**Productivity Impact on Construction**

Every year, construction companies and contractors are hit with many claims that results from workers inefficiency and loss of productivity. Labor factors should be considered during the early planning stage, so it will be reflected on the estimate and funding of projects.

During the execution phase, labor becomes the most important input, and its cost will range between 15% to 20% of the total project cost; it even reaches 40 to 50 % in other countries such as the US, so minimizing or reducing these costs will be a benefit for estimating projects and it can be best carried out by improving productivity. (Improving productivity means also shorter duration for the project, hence, more cost saving)
In order to be successful in today’s construction competitive market, accurate estimation of productivity should be done by having an accurate labor cost assessment. On the other hand, the effect of factors on productivity varies from one job to another, although some factors could have similar impacts on productivity.

**Factors Affecting Labor Productivity**

There are many factors that affect the productivity of labor in construction. These are generally set forth in publications or manuals made available through associations like the Mechanical Contractors Association of America (MCAA) and other organizations. For example, the MCAA has a list called *Impacting Factors on Construction Crew Productivity*, and this list highlights 16 factors affecting labor productivity. Here are some of the most recognized factors affecting labor productivity in the industry:

**Overtime**

Scheduling of extended work days or weeks exceeding a standard eight-hour work day or 40-hour work week lowers work output and efficiency through physical fatigue and poor mental attitude.

**Morale and Attitude**

Spirit of workers based on willingness, confidence, discipline, and cheerfulness to perform work or tasks can be lowered due to a variety of issues, including increased conflicts, disputes, excessive hazards, overtime, over-inspection, multiple contract changes, disruption of work rhythm, poor site conditions, absenteeism and so on.

**Fatigue**

Fatigue can be caused by prolonged or unusual physical exertion.

**Absenteism and Turnover**

There is a great deal of time and money lost associated with high turnover and absenteeism on projects. Construction projects in certain areas with low manpower and high demand for labor will usually be more impacted than others. Extreme
weather conditions (such as extreme heat or cold) will also increase absenteeism and turnover. Replacement workers are usually not familiar with the work or area, and require experienced workers to stop work and show them what to do. The impact can be up to four days of lost work for each worker.

**Mobilize/Demobilize**

This relates to moving resources on and moving off to projects as a result from changes or delays, causing work disruptions. Productivity may drop during these periods as time is lost when crews move from one area or work assignment to another.

**Design errors and Omissions**

Increased number of in errors and omissions adversely impact labor productivity because changes are then usually performed on a crash basis, out of sequence, cause dilution of supervision, or any other negative impacts.

**Work interruption**

This results from a work stoppage or suspension of work, which may cause a break in the schedule, usually triggering a start/stop of work activity. Stop-starts can have an impact on productivity and cost of a project. Work scheduled or reassigned during holidays such as Thanksgiving, Christmas, New Year’s, and so on are often impacted with stop-starts. Workers tend to discuss the time off and lose previous momentum with a drop in productivity before they get back in routine.

**Reassignment of Manpower**

When workers are reassigned, they experience unexpected or excessive changes, losses caused by move-on or move-off, reorientation, and other issues that result in a loss of productivity.

**Late Crew Build-up**

This is caused when the planned project manpower loading is altered and causes manpower loading to build up slower than planned due to availability, shortage of resources, or competition from resources. Impacts can be in excess of 10 percent.
**Crew Size Inefficiency**

This is when the optimal crew size is altered by adding or deleting crew members. When workers are added or deleted from a crew, it breaks up the original team effort and rhythm of the crew and results in loss of productivity.

**Site Access**

This is a result of interferences to the convenient or planned access to work areas. This can be due to blocked stairways, roads, walkways, insufficient man-lifts, or congested work sites.

**Logistics**

Insufficient or poor material handling, owner-furnished material, procurement practices, or a lack of controls can cause procurement or delivery problems, as well as other issues. This then prevents, delays, or disrupts the normal material workflow to a work area, warehouse, or laydown yard. This can also be a result from the additional replacement or substitution of material due to contract changes, defects, or delays at the work site.

**Learning Curve**

When crew turnover causes new workers to be added to a crew or additional manpower is needed within a crew, a period of orientation occurs in order to become familiar with changed conditions. They must then learn work scope, tool locations, work procedures, and so on.

**Hazardous Work Area**

This is caused when working in an area that is classified as hazardous, requiring special safety equipment and clothing. Restrictions may limit time and exposure of workers to the area, resulting in less time on tools in the area.

**Dilution of Supervision**

This occurs when supervision is diverted from productive, planned, and scheduled work to analyze and plan contract changes, expedite delayed material, manage
added crews, or other changes not in the original work scope and schedule. Dilution is also caused by an increase in manpower, work areas, or project size without an increase in supervision.

**Holidays**

If workers work on holidays, there is not only a cost factor for holiday pay, but there is usually a loss of productivity as well. It may be addressed as a morale factor since workers are away from families and working instead of enjoying the holidays, or it can also be factored separately. Either way, there is usually a productivity loss to consider.

**Weather and Season Changes**

Performing work in a change of season, temperature zone, or climate change resulting in work performed in either very hot or very cold weather, rain or snow, or other changes in temperature or climate can impact workers beyond normal conditions.

**Qatar Labor Camps**

All countries with booming economy usually have a huge amount of construction work going on and that makes it difficult to keep a close eye on companies work mechanisms. Qatar has always had human rights and labor laws as part of Qatar’s vision, yet there wasn’t strong enforcement conducted on companies to ensure the application of these laws.

With Qatar hosting World cup 2022, this issue has become more important; there are now higher requirements and much stronger enforcement on companies in respect to labor law and its proper application. Many companies are levied with fines, and any employee now is aware of his rights and can go directly with his complains to Ministry of Labor. Qatar is now exposed to global media and human rights and they are strongly following up this issue.

After conducting an internet search to find out the situation of current labor camps in Qatar, I find that according to BBC: “Some were better than others, but
they were all overcrowded with around six to eight men to a room. Twenty and sometimes up to 40 men have to share a kitchen, which is often just a few cooking hobs hooked up to gas canisters and nothing more. The toilet and washing facilities are so basic and dirty that some men use buckets of water to wash. “

From another source, on January 30 2007 in The Peninsula titled “Workers languishing in labor camps” this article illustrates the woes of immigrant workers who quit their jobs due to poor living conditions as the rubbish is overflowed; safety regulations are ignored, and the stench and amount of people in the labor camp increases.”

As mentioned earlier, the situation is dramatically changing, according to the housing specifications obtained from Qatar Foundation's Mandatory Standards (QFMS), Sections 13 and 14 of the QFMS on worker accommodation, provide for spacious and livable dwellings, capping occupancy at an adequate level, and basic utilities, sanitation, laundry and kitchen space, as well as recreational facilities, medical care facilities and religious structures.

**Methodology**

This study was mainly done through four months observations of worker productivity on site and how their living conditions is affecting it, furthermore, conducting a case study on one of the Qatar 2022 projects, and how worker’s productivity is affected by better housing environment.

A hundred surveys from workers from both projects were done. *(Appendix 2)* Moreover, several interviews conducted with project managers, site supervisors and some workers. *(Appendix 1)*

Two projects have been carefully chosen with similar activities to be able to get accurate measurements of productivity. Moreover, from these two projects, two groups of labor (Each group consist of eight people) with same demographics (age, nationality, health conditions, skills, and backgrounds) were chosen as a study case.

Since both construction projects include similar activities and same crew, same work hours / day, workers ‘productivity was measured by considering several
factors such as: absenteeism, motivation, amount of work done per day, health situation, moral, and efficiency.

The measures of worker performance considered in this study and used to estimate the effects of re-housing are dependent on data and information I can obtain to serve the purpose of this study. From my observations, reported below, housing conditions are investigated as an investment opportunity for construction companies that could achieve a monetary return. Therefore, the main focus was on the impact of housing conditions and the link between housing and work effort.

After the comparison between the two groups of workers and analyzing all the data and information collected, we can find out to what extent productivity was actually affected, considering all the factors mentioned above. As a result, I will conclude with recommendations and suggestions on whether improving one factor (housing conditions) is sufficient to have a positive effect on productivity or more than one factor needs to be considered to achieve realistic change in productivity.

**Surveys and interviews**

In order to get accurate and in-depth information about the laborers’ housing environment, I went to the main source of information, workers from construction sites. A survey *(Appendix 2)* was distributed to 100 workers. I tried to keep the survey as simple as possible yet including the right questions to obtain the information essential to this study.

The main questions were about, personal data (age, nationality, skills, and health problem), number of years working in Qatar, few questions about their living conditions and factors affecting their productivity. I have also asked them about their opinion whether a better housing conditions would affect their productivity at the work place.

Furthermore, several interviews were conducted with Managers and Supervisors from both sides, I interviewed them about their opinion in factors effecting labor productivity, if they think better housing conditions will impact laborers’ productivity, and up to what extent the change can be noticed.
Amana Case study

Brief Description of Projects

Two projects were selected for the sake of the study, one project which has the laborers staying in a camps similar to most camps currently used by construction companies, and the other project is a Qatar 2022 Project which strictly requires following Qatar Labor Law where laborers working in the project are staying in high standards camp and better housing conditions. Other factors such as (working hours, overtime, and Management) are the same; I mainly focused on the living conditions of the laborers in both Sites.

Project 1: (Normal Labor Camps)

Airport Staff Access Control Facility (Hamad International Airport)

- Working Hours in this project is 10 hours/day, 9 hours working and 1 hour lunch Break. Saturday to Thursday.
- Overtime is allowed for 2 more hours, 12hours/day.
- In this project laborers are required to cook and bring their own lunch.
- No laundry Services at the camp.
- No Room Service at camp.
- No Entertainment Facilities
- No Internet or communication tools for overseas.
- No Pest Control.
- No On Camp Health medication.
Al Wakra Stadium

- Working Hours in this project is 10 hours/day, 9 hours working and 1 hour lunch Break. Saturday to Thursday.
- Overtime is not allowed.
- Lunch catering service for Breakfast, Lunch and Dinner.
- Laundry Services at the camp.
- Room Service at camp.
- Entertainment Facilities (TV Rooms and Billiards)
- Computer with Internet Service in Every Room.
- Pest Control.
- On Camp Health medication.
Figure 2 AI WAKRA STADIUM PROJECT DESCRIPTION

Groups Specifications
Table 1 GROUP1/NDIA PROJECT

<table>
<thead>
<tr>
<th>NO.</th>
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Table 2: GROUP 2/ AL WAKRA STADIUM

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</table>

Based on the needs of this study, I selected two teams from each project; each team within the same project assigned to a different activity.

Group 1 and Group 2, each consists of two teams, as shown in Tables 1 and 2 above:

- Team 1 (Two Masons and Two Helpers) doing block work, where they have been asked to build block partitions on ground level.
- Team 2 (Two Carpenters and Two Helpers) doing foundations for formwork.

This research is based on productivity comparison after enhancing one factor which is laborers’ housing conditions. Finding and results below are obtained using different research methods, surveys, interviews, onsite observation and comparison. The research used two projects; the new Airport project (Hamad International Airport, Staff Access Control Facility) and Al Wakra Project under Qatar 2022 (Al Wakra Stadium).

As mentioned before, the laborer’s housing conditions in the Airport project reflects the majority of laborers’ housing conditions in Qatar; it has lower standards and needs a lot of improvements. Labors working in this project had to do their own
laundry, cook their food, and clean their rooms. They had no facilities or services provided to them.

However, Al Wakra Stadium Project housing offered to laborers is much better as it includes a high standard of living with outstanding luxury facilities. They had catering, laundry and cleaning services as well as other facilities and services available for them.

Since both construction projects include similar activities and same crew, same work hours / day, workers ‘productivity was measured by considering several factors such as: absenteeism, motivation, amount of work done per day, health situation, moral, and efficiency.

**Absenteeism**

In this research, labors absenteeism was monitored along a four months period. May to August 2014 was considered a critical and peak period for both projects, which reflected almost the same average of manpower of 350 to 400 in each project. This was very important as it ensured consistency and accurate scale so it was best period to observe the loss of productivity hours in each project.

After a four months period, it indicated that the labors absenteeism in the Airport project was at its peak in May and decreased every month as the pressure of work decreased, this proves that the absenteeism factor was directly related to work pressure and that laborers were getting tired and could not sustain the work pressure for six days a week. Taking into consideration the amount of housework they have to do on daily basis as they live in poor housing conditions.

As you can observe in Figure 3 and Table 3 below, there is a significant gap between the absenteeism percentages in each project. In Figure 3 (Labor Absent Comparison) you can see how the absenteeism was very high in May and decreased for the Airport project while it was low and stable for Al Wakra project. Furthermore, you can observe actual difference in the absenteeism hours in Table 3. The absenteeism is calculated by adding the number of daily absent labors and multiplying it by the number of daily working hours which is 10 hours as standard average. So for May as an example; the total number of absent workers throughout the month is 294 people, hence, 294 x 10 = 2940 absent man hours.
The loss of productivity hours was somehow dramatic, 2940 and 2690 hours in the first two months which accounts for 3.71% and 3.95% consecutively, and then reaching 1180 hours (1.83%) in August as the project came to its end. Therefore, the work pressure declined due to decrease in activities. On the other hand, absenteeism in Al Wakra Stadium project was very stable. The data for the labors absenteeism was constant along the whole study period, and the monthly absent percentage never reached over 720 hours so not even 1%.

The loss in the productivity hours in the Airport project was quite expected. Many supervisors have said that based on their experience, it became a normal practice for them to request for three extra labors to each activity group just in case some of them were absent so work won’t be delayed. In Al Wakra project, the absenteeism was very minimal that it didn’t require them to carry the burden of extra cost for factoring extra labors. The allocated number of labors stayed the same in each group, without the need to worry about absent workers.

![Labor Absent Comparison](image)

*Figure 3 LABOR ABSENT COMPARISON*
<table>
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<td>3080</td>
<td>10.31%</td>
<td>1.08%</td>
</tr>
<tr>
<td>22</td>
<td>2875</td>
<td>8.28%</td>
<td>1.28%</td>
</tr>
<tr>
<td>23</td>
<td>1049</td>
<td>3.71%</td>
<td>0.88%</td>
</tr>
<tr>
<td>24</td>
<td>2885</td>
<td>8.28%</td>
<td>1.28%</td>
</tr>
<tr>
<td>25</td>
<td>2916</td>
<td>9.29%</td>
<td>1.37%</td>
</tr>
<tr>
<td>26</td>
<td>2910</td>
<td>9.29%</td>
<td>1.37%</td>
</tr>
<tr>
<td>27</td>
<td>2862</td>
<td>8.28%</td>
<td>1.28%</td>
</tr>
<tr>
<td>28</td>
<td>2957</td>
<td>9.29%</td>
<td>1.37%</td>
</tr>
<tr>
<td>29</td>
<td>2781</td>
<td>8.28%</td>
<td>1.28%</td>
</tr>
<tr>
<td>30</td>
<td>1009</td>
<td>3.10%</td>
<td>0.9%</td>
</tr>
<tr>
<td>31</td>
<td>7923</td>
<td>11.80%</td>
<td>1.18%</td>
</tr>
</tbody>
</table>

**Man - hours**

**Workers**

**Monthly Absent Percentage/350 Workers**

**Friday**

**Day**

**Access Control Facility (Hamad International Airport)**

**Al Wakra Stadium**
Practical Activity Comparison

The Project Manager mentioned that the productivity of labors did improve or change to a noticeable level, yet a practical field work comparison was required for the sake of this research to reach genuine results.

Similar field activities were observed on both projects for a group of 8 skilled and non-skilled labors for each project. Activities selected are block work and foundations shutter, for each activity a team or four people were working in similar working conditions.

Table 4 below details each group specifications. All the workers were in good health condition, all from the same nationality, and within an age range from 19 to 26 years old.

Table 4 RESEARCH GROUP SPECIFICATIONS

<table>
<thead>
<tr>
<th>NO.</th>
<th>ACTIVITY</th>
<th>TRADES</th>
<th>AGE</th>
<th>HEALTH CONDITION</th>
<th>NATIONALITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>BLOCK WORK</td>
<td>MASON</td>
<td>19</td>
<td>GOOD</td>
<td>NEPALI</td>
</tr>
<tr>
<td>2</td>
<td>BLOCK WORK</td>
<td>MASON</td>
<td>23</td>
<td>GOOD</td>
<td>NEPALI</td>
</tr>
<tr>
<td>3</td>
<td>BLOCK WORK</td>
<td>LABOR</td>
<td>19</td>
<td>GOOD</td>
<td>NEPALI</td>
</tr>
<tr>
<td>4</td>
<td>BLOCK WORK</td>
<td>LABOR</td>
<td>20</td>
<td>GOOD</td>
<td>NEPALI</td>
</tr>
<tr>
<td>5</td>
<td>FOUNDATION SHUTTER</td>
<td>CARPENTER</td>
<td>26</td>
<td>GOOD</td>
<td>NEPALI</td>
</tr>
<tr>
<td>6</td>
<td>FOUNDATION SHUTTER</td>
<td>CARPENTER</td>
<td>24</td>
<td>GOOD</td>
<td>NEPALI</td>
</tr>
<tr>
<td>7</td>
<td>FOUNDATION SHUTTER</td>
<td>LABOR</td>
<td>19</td>
<td>GOOD</td>
<td>NEPALI</td>
</tr>
<tr>
<td>8</td>
<td>FOUNDATION SHUTTER</td>
<td>LABOR</td>
<td>19</td>
<td>GOOD</td>
<td>NEPALI</td>
</tr>
</tbody>
</table>

In each project, there was a cost control team monitoring the productivity and some other unrelated matters. The productivity for each activity was daily monitored and kept for company references, with the support of the cost control team the projects data entries was used for the comparison between the groups in the two different projects.

Table 5 STANDARD PRODUCTIVITY RATES

<table>
<thead>
<tr>
<th>STSPRODUCTIVITY RATES</th>
</tr>
</thead>
<tbody>
<tr>
<td>S. No.</td>
</tr>
<tr>
<td>--------</td>
</tr>
<tr>
<td>01 Shuttering</td>
</tr>
<tr>
<td>Shuttering (with support)</td>
</tr>
<tr>
<td>1.1 (Plywood) - 4 nos*(0.4<em>1.8</em>1.8)</td>
</tr>
<tr>
<td>02 MASONRY</td>
</tr>
<tr>
<td>Hollow block wall construction</td>
</tr>
<tr>
<td>2.1 200mm Hollow Block - 2.5m to 4m Height</td>
</tr>
</tbody>
</table>
The following is a brief description for each group nature and quantity of work in each project.

**Masonry Work**

The Scope of block work was for offices and utility rooms in both projects, the rooms sizes varied from 6m by 8m and 3m by 4m rooms with 3.2m clear height of the rooms. The two masons and two labors group were assigned to build the blockwork in these rooms in Al Wakra project as well as at the Airport project. The standard company productivity as shown in Table 5 above for 1 mason and 1 helper was 100 blocks per day, so in this case for two masons and two helpers the productivity should be 200 blocks per day, and if working for 10hrs/day, the two masons and two helpers so a total of 1200 blocks per week.

**Carpentry Work**

Both projects included foundations for parking shade posts, the foundations were 0.5m*1.7m*1.7m. The observed groups used in the research included two carpenters and two labors assigned in Al Wakra project and similarly at the Airport project. According to the company standard productivity, two carpenters and two helpers should be able to fix 10.5m²/day of foundation shutter with the supports, which is 1.05m²/hr for a period of 10hrs/day as shown in Table 5 above.

**Table 6 NDIA ACTUAL PRODUCTIVITY RATES**

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Description</th>
<th>Manpower/Activity</th>
<th>Unit</th>
<th>QTY/Week</th>
<th>Average QTY/Day</th>
<th>Total Productivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>01. Sixtering</td>
<td>Shuttering (with support)</td>
<td></td>
<td></td>
<td>WEEK 1</td>
<td>WEEK 2</td>
<td>WEEK 3</td>
</tr>
<tr>
<td>1.1</td>
<td>Shut. for Footing (Plywood) - 4 nos*(0.5<em>1.7</em>1.7)</td>
<td>2 C + 2 H</td>
<td>M²</td>
<td>60</td>
<td>51</td>
<td>52.00</td>
</tr>
</tbody>
</table>

| 02. Masonry                      | Hollow block wall construction  |                   |      |          |                 |                   |
| 2.1   | 200m Hollow Block - 2.5m to 4m Height | 2 M + 2 H          | No.  | 1100     | 1,050.00          | 950   | 1,020.00 | 183.3 | 175.0 | 158.3 | 170.0 | 4120 |
After an evaluation and observation period of four consecutive weeks, the following productivity rates were attained.

### Table 7 ALWAKRA ACTUAL PRODUCTIVITY RATES

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Description</th>
<th>Unit</th>
<th>QTY/Week</th>
<th>Average QTY/Day</th>
<th>Total Productivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Shutt. for Footing (Plywood) - 4 nos*(0.5’1’*1.7)</td>
<td>M²</td>
<td>75 78 75 76</td>
<td>12.5 13.0 12.5 12.7</td>
<td>304</td>
</tr>
<tr>
<td>2.1</td>
<td>200mm Hollow Block - 2.5m to 4m Height</td>
<td>No.</td>
<td>1390 1390 1400 1390</td>
<td>231.7 230 233 232</td>
<td>5560</td>
</tr>
</tbody>
</table>

Referring to the observation results shown in Tables 6 and 7 above, the productivity rate achieved in the Airport project has not reached the standard productivity rate. It’s very apparent that laborer’s productivity is affected by the percentage of absenteeism, physical fatigue and poor mental attitude. Due to the amount of work and responsibilities they have at the poor housing conditions, since they have to go back home cook, clean and do their own laundry.

In the Airport project productivity rate, the shuttering total productivity for the whole observation period of 4 weeks is 211m², referring back to Table 5 above, the standard productivity rate per week is 63 m² so for 4 weeks it should be 252 m², therefore, a difference of 41 m² which is 19% less than the standard productivity rate.

Furthermore, with the masonry the total productivity for the whole observation period of 4 weeks is 4120 blocks, while the standard productivity rate per week is 1200 (1 Masonry + 1 helper is 600 blocks per week, in this case it is 2 masonry + 2 helpers so 1200 blocks per week) so 1200 blocks x 4 weeks is 4800 blocks. The difference is 680 blocks (4800 – 4120) so more than 3 days of work, which is 16.5% less than the standard productivity rate.

In order to overcome the effect on productivity, supervisors have mentioned that they need to request for extra workers to cover for the absent ones. This is a very clear and strong negative affect as it is only measured on two activities, so if we are to
consider other activities and on the whole duration of the project, we will find a huge loss in productivity. Consequently, managers are forced to allocate new manpower to maintain the productivity rate as planned and to ensure that they finish on time. This also means incurring extra costs which may not have been planned for.

On the other hand, in AlWakra project, the shuttering total productivity for the whole observation period of 4 weeks is 304 m², which is even more than the standard productivity rate of 252 m² in 4 weeks; we have an increase in productivity by 22% (52 m²). Which is more than the Airport project by 44%; this is a substantial increase in productivity influenced by better housing conditions.

Even in the masonry activity, the total productivity for the whole observation period of 4 weeks is 5560 blocks, while the standard productivity rate per week is 1200 (1 Masonry + 1 helper is 600 blocks per week, in this case it is 2 masonry + 2 helpers so 1200 blocks per week) so 1200 blocks x 4 weeks is 4800 blocks. The difference is an increase of 15% and 760 blocks (5560-4800) so almost 4 days ahead of work. This also means that it’s more than the Airport project by 35%.

When observing the work of the 8 labors in each project, it was surprising that their productivity rate has considerably increased by the better housing conditions. Their performance and amount of work produced per man-hour was not the same in each project as some theories have stated. Enhancing one factor (better housing conditions) was enough to have strong influence on the labors in AlWakra project to motivate them to work harder. They were even motivated and willing to work overtime as they were well rested and didn’t have to worry about the work waiting for them when they return to their accommodation. In the contrary, it is very obvious how poor living conditions affected the Airport Project laborer’s absenteeism level, which in its turn affected the project’s overall productivity.

It is also observed that better housing condition had an effect on their morale and health condition, workers living in AlWakra project housing camps are more rested and not as easily affected by extra work pressure. Labors from AlWakra project were willing to work overtime and were extremely motivated to work harder. While labors in Airport
project were exhausted and taking sick leaves, they were stressed when extra work is requested.

Interviews

Leaving the field tests and observations and moving to the Project Managers and their professional opinions, the field results might be shocking for some people, as it sounds so obvious that if labors were kept in a very high housing condition, they will definitely have a higher working productivity, however, few disagree. They believe that there are other more important factors that affect laborers’ productivity. The following interviews with supervisors and professional managers explained more, how in their opinion, housing conditions may or may not affect the productivity on the field.

During the interview, questions were asked about the person’s role in the company, the factors affecting laborers’ productivity and the importance of investing in laborer’s productivity in relation to a project’s success. The questions also focused on housing conditions and its impact on laborer’s productivity.

So far three interviews have been conducted with key people relevant to the study case projects. The interviewees are as follows:

1- Engineer 1 – Senior Project Manager of the Airport project
2- Engineer 2 – Project Manager of the AlWakra project
3- Engineer 3 – Construction Manager of the Airport project

Ironically, the Project Managers of each project had contradicting opinions on the importance of housing conditions and its impact. Engineer 1 believes in the importance of investing in laborers’ productivity, he mentioned that it should be part of the company’s strategy to research the optimum ways for such investments as it results in raising the company’s standard productivity rate, enabling it to have a competitive edge in the market by offering less finishing time for projects.

From his 5 years’ experience as a Senior Project Manager, he realizes that “laborers are the main assets for any construction company, and loyal laborers will protect the company property, tools, and reputation”.
When asked about company’s overhead spending on laborers’ productivity and housing conditions and its impact, he stated that although it is very important to invest in laborers’ productivity and especially in increasing the number of skilled foremen and supervisors to control productivity, he thinks that housing conditions should be just adequate as it won’t affect productivity in anyway.

In his opinion “only standard living requirements should be provided which is the optimum in my opinion, because if we exceeded the optimum level of housing improvements it will eventually have a negative impact on productivity as the housing conditions become more than adequate”. He illustrated his opinion be providing the graph below:

![Figure 4 PRODUCTIVITY VS HOUSING CONDITIONS]

He added that if more than adequate housing conditions were provided to laborers, it might have a negative affect “labors will be spoiled (Sleeping late due to internet availability) which will definitely decrease the productivity”

The case was totally different with Engineer 2, his views were more commercially based and focusing on profit obtained from investments in laborers’ productivity and their housing conditions.

He noted that from human rights point of view it is very important to invest in laborers’ productivity however, from a financial and commercial perspective it might not be worth the investment and in that case investments should be made in training.

He believes that productivity has a direct relation with the projects’ expenses, “if we have 100 laborers with high productivity, this will decrease the finishing time of the project which means less overhead costs and increased profit”
However, he strongly believes that investing in housing conditions directly affect the laborers’ productivity and stated that the company should spend around 10% on improving housing conditions and 5% on other factors affecting productivity from the company’s overhead.

From his experience with AlWakra project he was able to witness the effect of 5% to 25% increase in productivity due to better housing conditions. When informed that based on some online research (Robert G. Healy, The Journal of Human Resources) we found that better housing conditions don’t have a noticeable impact on productivity, he totally disagreed. He explained that there could be other factors causing the decrease or no impact in productivity, giving examples of bad supervision and bad work atmosphere.

Yet, supporting his earlier statement that from a financial perspective, such investments doesn’t necessarily mean more profit as to an extent if the housing conditions are dramatically improved, it will endure more costs causing loss in profit. He was generous to explore his statement with actual facts. In AlWakra project, each labor’s expenses raised up to 4 times the current cost, as it reached around QR6000 monthly while in other projects it is actually QR 1500 per month.

This is due to the extra expenses incurred from better housing facilities, the QR 6000 are divided as follows: QR 1100 house rent, QR 200 food allowance, QR 750 catering services, and QR 3950 on transportation, internet, cable vision, laundry and other entertainment facilities. While QR 1500 covered everything for labors working in project with poor housing conditions. Therefore, the 5% to 25% increase in productivity isn’t sufficient to cover these extra expenses and yet make profit.

Therefore, better housing conditions does in fact affect productivity but it should be carefully calculated, monitored and budgeted to provide the appropriate housing conditions level which will increase productivity and increase profit.

Engineer 3 has been a Construction Manager at the Airport project for two years; yet his views have supported the findings of the practical comparison. In his opinion "the company should invest more on absenteeism factor than any other factors". He believes
in the importance of investment in housing conditions and its direct effect on laborers’ productivity. He was very specific as to the services that should be improved in housing conditions to be (Catering, Laundry, and Cleaning).

He stated: “I believe that the absent percentage will not exceed 1% during the month. This will help in getting the actual productivity on site nearly equal to the planned productivity, which will allow us to finish on time and within budget.”

In conclusion, although opinions varied, all three engineers agree that providing extra or luxurious facilities in the housing conditions could have negative impact. Findings have proved that providing better housing conditions will definitely increase productivity and enhance labors moral, motivation and health conditions.

**Surveys**

After getting expert opinion from interviews with professionals, questionnaires gave statistical results on the subject from workers point of view. 100 questionnaires have been distributed on workers from both projects. For the purpose of this study, 50 questionnaires from each project have been analyzed. It is important to understand the background and working conditions of the workers, at the same time attain data on important factors that affect their productivity from their perspective.

The following is the survey analysis and the reports on the results gained from the analysis:
1. How long have you been working in Qatar?

![Circle chart showing time spent in Qatar](chart.png)

- More than 9 years: 40%
- 5 - 8 years: 30%
- 2 years or less: 30%

2. Do you have any health problems that were developed while you were working in this company?
   All answered with “No”

3. How many work days do you work per week?
   20% answered “7 days” and 80% answered “6 days”

4. How many hours do you work each day?

<table>
<thead>
<tr>
<th>Hours</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 hours</td>
<td>None</td>
</tr>
<tr>
<td>10 hours</td>
<td>66%</td>
</tr>
<tr>
<td>12 hours or more</td>
<td>34%</td>
</tr>
</tbody>
</table>

5. Do you mind working extra hours?
   - Yes, I mind → 10%
   - No, I don’t mind → 90%

a) If yes, how many hours?

<table>
<thead>
<tr>
<th>Hours</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 hours</td>
<td>None</td>
</tr>
<tr>
<td>3-4 hours</td>
<td>83%</td>
</tr>
<tr>
<td>Over 4</td>
<td>17%</td>
</tr>
</tbody>
</table>
6. How many bed you have in your room? (How many people staying in the same room?)
   - 74% said 4
   - 26% said 3

7. How many people sharing your toilets /shower/ kitchen?
   Toilet:
   Shower:
   Kitchen:

8. How much of the following services are provided at your camp:

<table>
<thead>
<tr>
<th>Services</th>
<th>Camp 1 (NDIA project)</th>
<th>Camp 2 (AlWakra project)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catering</td>
<td>Not Available</td>
<td>Available</td>
</tr>
<tr>
<td>Cleaning</td>
<td>Available</td>
<td>Available</td>
</tr>
<tr>
<td>Laundry</td>
<td>Not Available</td>
<td>Available</td>
</tr>
<tr>
<td>Recreation</td>
<td>Not Available</td>
<td>Available</td>
</tr>
<tr>
<td>Internet</td>
<td>Available</td>
<td>Available</td>
</tr>
<tr>
<td>Telephone</td>
<td>Not Available</td>
<td>Available</td>
</tr>
<tr>
<td>Health Care</td>
<td>Not Available</td>
<td>Available</td>
</tr>
<tr>
<td>Safety</td>
<td>Available</td>
<td>Available</td>
</tr>
<tr>
<td>Pests control</td>
<td>Available</td>
<td>Available</td>
</tr>
<tr>
<td>Religious Facilities</td>
<td>Not Available</td>
<td>Available</td>
</tr>
</tbody>
</table>
9. Do you think that better housing conditions could improve your productivity at work?

Yes: 90%
No: 10%
10. What factors affect your productivity at the work place? Grade the following factors according to importance, 10 being most important and 1 being least important.
As mentioned earlier, the objective of the questionnaire is to understand the background and the current situation of the workers. At the same time, get their opinion on factors that affect their productivity. From the analysis above, we can see from the results of the questionnaires that the workers share similar background and mostly agree in their responses.

The majority have been working in Qatar for a long time with 40% of over 9 years, 30% 5-8 years and 30% 2 years or less. None have any health problems developed while working in the company. Furthermore, most of them are currently working 6 days a week (80%) for 10 hours (66%). When asked about working overtime, 90% answered that they don’t mind working extra hours as over time, 83% preferred 3-4 hours.

When enquiring about their current housing conditions, the difference was apparent in the facilities provided in each camp. First, the question was about bed spaces, all 50 workers from AlWakra Project Camp answered with 4 bed spaces, while it wasn’t the same in the NDIA Project Camp. 24% said 4 bed spaces and 26% said 3 bed spaces. As for the services provided, it is obvious that in Al Wakra Project Camp all services are provided, while many are not available in NDIA Project Camp such as (catering, laundry, recreation, telephone, health care, and religious facilities).

When asked if they think that better housing conditions would improve their productivity, almost all agreed with 90% answering yes. However, when asked to grade factors that affect their productivity the answers showed different opinions. As expected, 100% agreed that salary is the most important factor. Over time and payments came second in importance with 82%, and then third came holidays with 41% and promotion 35%. Following working days per week, management, Indoor / outdoor work, working hours per day, housing conditions and least important was training. Therefore, housing condition doesn’t seem as important from their point of view and they graded other factors as more important.
Conclusion and Recommendations

Productivity is the main and most important issue for the construction industry, which because of its large size has a dramatic impact on the economy. The productivity growth in the construction industry in Qatar in particular may have considerable effects on the economic development.

The findings of this pilot study conducted within the construction industry are an example of the great need for construction companies to study how they can improve labor’s productivity by investments in human capital and accommodation facilities. Consideration to important factors that could considerably affect productivity is very essential to develop better performance of workers in construction industry. Our analysis of the case study findings shows that housing conditions does in fact have an obvious and measurable effect on labor’s absenteeism and productivity.

Adequate housing facilities will increase the productivity while low labor productivity will cause delaying of project as a result of high absenteeism rate. So the overall productivity of the company has increased in AlWakra Project as results have shown, absenteeism rate was low and at most reached 1%. While in the NDIA Project, extra costs were incurred due to the recruitment of extra labors to cover for absenteeism of 1.8% to 3%. Moreover, the actual productivity of labors was much better at Al Wakra Project. These results are easily linked by the Project Manager to the better housing conditions.

The laborers usually face problems and obstacles in their social and welfare facilities. Especially their housing conditions are not at a satisfactory level. However, new regulations and labor rights emphasized by the government will improve these facilities up to certain level. These factors are directly and indirectly affected to increase the labor satisfaction and productivity.
From workers point of view, salary has been voted as the most important factor that would influence their productivity in addition to the other factors such as overtime and monetary factors. Although they agreed that improved housing condition would increase their productivity but it is predictable that they would prefer monetary incentives.

Managers on the other hand have witnessed the advantages and disadvantages of improved housing conditions. Although it is essential to provide adequate housing facilities to improve workers welfare, health, and most importantly productivity if more than adequate housing conditions were provided to laborers, it might have an undesirable effect of spoiled workers.

The bottom line is that, according to this study, the benefits of improving living conditions for individuals in the workplace far outweigh the costs. There probably are few other investments an employer can make on the long run that will result in such a return on the investment. Improving housing conditions just makes good business sense!

As a result of this study, a number of recommendations can be concluded.

1. For a construction company to improve its productivity, it should analyze each phase of its process to determine what the barriers are to improving productivity. It should begin by measuring key factors and setting benchmarks and goals for improvement. For example, the company can carefully observe the percentage of productive and nonproductive projects at different sites. By comparing projects, the company can determine why one project was more productive than the other. There will never be a magic solution that eliminates all work inefficiencies, but better housing will mitigate the impact of absenteeism and also eliminate the unnecessary waits that result from having to deal with it.

2. In the short term hiring more people to cover for absent ones could be a solution; however, in the long run it will be more cost effective and more
efficient to invest in better housing conditions. It may not have a direct 
effect on the worker’s daily productivity rate, however, as we have seen, it 
has a very strong impact on the company’s overall productivity and costs.

3. Although Qatar’s government is working toward providing better housing 
conditions as part of human rights, the private sector should support their 
efforts in this regards. Considering the benefits that construction 
companies will gain from investments in better housing conditions for 
workers, a more proactive approach must be taken in tackling this matter.
CONCLUSIONS

The effects of a substantial housing improvement on the health and productivity of a group of Mexican industrial workers proved to be far different than would be predicted by a simple model in which the environmental change is considered apart from the economic changes which accompanied it. Rehousing has no measurable impact on either the overall level of health of the workers or upon their long-run productivity. It was found, however, that although the aggregate number of visits to a government clinic was unchanged by rehousing, the number of visits attributed to illnesses generally considered “housing related” fell substantially over the study period, only to be offset by a simultaneous rise in visits for other types of conditions. Of 13 components of housing quality which were studied individually, the elimination of rat infestation was found to be significantly related to a decline in clinic visits.

2- Mr.A.A. Attar, Prof. A.K. Gupta, & Prof.D.B.Desai. A Study of Various Factors Affecting Labour Productivity and Methods to Improve It. Journal of Mechanical and Civil Engineering, ISSN: 2278-1684, PP: 11-14

http://www.cjasr.com/volumesandissues/issued-articles/2013/99-aicce-12-giz-12/167-aicce-12-giz-12-48


5- Jill Wells with Bernadine FERNZ (2014). Improving employment standards in construction in Qatar 
http://www.engineersagainstpoverty.org/documentdownload.axd?documentresourceid=25

6- Casey Jo Kuykendall, University Of Florida 2007.Key Factors Affecting Labor Productivity in The Construction Industry 
http://etd.fcla.edu/UF/UFE0021576/kuykendall_c.pdf

7- Labor Law State of Qatar 
www.qatarlaborlaw.com

8- Human Rights Watch 2012, Building a Better World Cup Protecting Migrant Workers in Qatar Ahead of FIFA 2022

9- Qatar Foundation Mandatory Standards of Migrant Workers' Welfare for Contractors & Sub-Contractors.

10-The Case Against Qatar, Host of The FIFA 2022 World Cup | ITUC Special Report | March 2014

11-Workers' Accommodation: Processes and Standards, A Guidance Note by IFC and the EBRD
Appendix 1

Interview 1

Date: 18 SEP 2014

Name: Modar Dali

Position: Construction Manager

1. What is your role in the company? How long have you been in this role? How many people do you manage?
   - Construction Manager
   - 2 Years
   - Direct Staff: 15 and Non staff: 800

2. In your professional opinion, what are the factors that affect labor productivity?
   - Training for Labors to increase their experience, and to expedite the learning curve.
   - Salary and Overtime
   - Absenteeism (Healthy labors to have full time presence)

3. How important is it to focus / invest in labor productivity in the construction industry? Are there other aspects that are more important to be focused on? If yes, please mention.

   In my opinion, the company should invest more on Absenteeism factor than any other factors, then paying higher salaries, and finally provide training for the labors to become skilled with higher experience because eventually the company will only give higher salaries for skilled and experienced labors.

4. How does labor’s productivity contribute to the success of the project?
High productivity helps determine the Time and Cost Impact of the project. The direct and Indirect Cost will be clear which will help us determine the risks on the project Time and Cost.

5. How much of the company's overhead should be invested in:
   a. Improving labor’s productivity?
   b. Improving housing conditions?

It’s a pretty critical question which might be difficult for me to give an accurate number, but I believe that the investment on both labor productivity and housing conditions are directly related and both should have the same amount of investment.

6. Do you think that better housing conditions have a positive impact on labor productivity?

Yes for sure, The housing conditions should be enhanced in General in all aspects, but for it should focus more on services like (Catering, Laundry, and Cleaning).

   If yes, to what extent can the change in their productivity be noticed? Kindly Quantify

I believe that the absent percentage will not exceed 1% during the month. This will help in getting the actual productivity on site nearly equal to the planned productivity, which will allow us to finish on time and within budget.

7. It was found by some researchers that a better housing condition doesn’t have a noticeable impact on productivity, what are your comments on that?

It depend up to what extent did they improve the housing conditions, Improving the luxury of the housing will have negative impact on productivity, Instead they should enhance the service level (Catering, Laundry, cleaning etc…) which will definitely improve the productivity.

8. What do you think are other more important factors that would increase labor’s productivity?
   - Training
   - Salary and Overtime
Interview 2

Date: 20 SEP 2014

Name: Mohammed Hamad

Position: Project Manager

1. What is your role in the company? How long have you been in this role? How many people do you manage?
   - Project Manager
   - 2 Years
   - Direct Staff: 10 to 20

2. In your professional opinion, what are the factors that affect labor productivity?
   - Weather Condition
   - Contract work

3. How important is it to focus / invest in labor productivity in the construction industry? Are there other aspects that are more important to be focused on? If yes, please mention.

   Well from human rights and ethical point of view it is very important to invest in laborers’ productivity however, from a financial and commercial perspective it might not be worth the investment and in that case investments should be made in training. It all depends on the strategy of the company where they need to invest to get profit.

4. How does labor’s productivity contribute to the success of the project?

   High productivity of labors will lower the expenses along the period of the project. For example (having 100 laborers on site with high productivity, will result in less finishing time of the project with less overhead cost, and an increase in profit).

5. How much of the company’s overhead should be invested in:
   a. Improving labor’s productivity?
b. Improving housing conditions?

Investing in housing conditions is directly related to a positive effect on labor productivity. In my opinion a company should invest 10% on Housing and 5% on other factors supporting productivity.

6. Do you think that better housing conditions have a positive impact on labor productivity?

Yes definitely

7. If yes, to what extent can the change in their productivity be noticed? Kindly Quantify

In Al Wakra project, it was very clear and obvious how productivity jumped comparing to other projects. We have noticed an increase of 5% to 25% in productivity.

8. It was found by some researchers that a better housing condition doesn’t have a noticeable impact on productivity, what are your comments on that?

It depends on many factors, I believe that if they haven’t noticed any improvement in productivity from better housing conditions, then there should be some other factor keeping the productivity down such as bad supervision or bad work atmosphere. Anyhow, in Al Wakra project we felt the change toward a better productivity.

9. What do you think are other more important factors that would increase labor’s productivity?

- Psychological support
- Supervisors with same labors nationalities
- Salary and overtime
- Solution for labors problems (Financially or personal)
Interview 3

Date: 20 Sep 2014

Name: Saeb Wasif

Position: Sr. Project Manager

1. What is your role in the company? How long have you been in this role? How many people do you manage?
   - Sr. Project Manager
   - 5 Years
   - Direct Staff: 20 to 30

2. In your professional opinion, what are the factors that affect labor productivity?
   - Direct Supervising - Increase Labor Moral
   - Salary should be higher than the market Average, to increase loyalty.

3. How important is it to focus/invest in labor productivity in the construction industry? Are there other aspects that are more important to be focused on? If yes, please mention.
   It’s mandatory to invest on labor productivity, and it should become a company target to make researches on how to invest on labor productivity.
   In my opinion, factors enhancing productivity are the most important to be focused on, because labors are the main assets for any construction company, and loyal labors will protect the company property, tools, and reputation.

4. How does labor’s productivity contribute to the success of the project?
   The Success of any projects is meeting budget, time, and quality. For every project, the budget of the project will be based on the company standard labor productivity, and accordingly the period of the project will be calculated.
I think that the company should build a strategy on improving the overall labors productivity, which will raise the company standard productivity data. This will allow the company to estimate projects with less finishing time.

5. How much of the company’s overhead should be invested in:
   a. Improving labor’s productivity?
   b. Improving housing conditions?

I will generally answer this question, as it is difficult to give exact numbers or percentages.

- Investing on productivity is very important as I mentioned before, and in order to control the productivity in a better way, hiring more staff might be required. Increasing the number of foremen and supervisors in every project will help in controlling the labors on site which will generate higher productivity of work.
- On the other hand, housing conditions should only be improved to reach the normal standard living of any human, not more.

6. Do you think that better housing conditions have a positive impact on labor productivity?

No, housing conditions will not affect the productivity in anyway. As I mentioned before, only standard living requirements should be provided which is the optimum in my opinion, because if we exceeded the optimum level of housing improvements it will have a negative impact on productivity.

7. If yes, to what extent can the change in their productivity be noticed?
   Kindly Quantify
8. It was found by some researchers that a better housing condition doesn’t have a noticeable impact on productivity, what are your comments on that?

I agree up to certain level, I think if the optimum level of improvements were applied, the labors will be spoiled (Sleeping late due to internet availability) which will definitely decrease the productivity.

9. What do you think are other more important factors that would increase labor’s productivity?

- Salary
- Direct Supervision
- Transportation (For long Drive distances)
- Camps should near to projects
- Weather conditions
- Nature of projects (Vertical, horizontal, type of Access)
Appendix 2

Survey Template

Date:
Name:
Age:
Nationality:
Skills:

1. How long have you been working in Qatar?
   - 2 years or less
   - 5 - 8 years
   - more than 9 years

2. Do you have any health problems that were developed while you were working in this company?
   - Blood pressure
   - Diabetes
   - Azma
   - Anemia
   - Other (Please specify)

3. How many work days do you work per week?
4. How many hours do you work each day?

8 hours          10 hours          12 hours or more

5. Do you mind working extra hours?

Yes               No

If yes, how many hours?

- 2 hours          - 3-4 hours       - over 4 hours

6. How many bed spaces you have in your room?

7. How many people sharing your toilets/shower/kitchen?

Toilet:

Shower:

Kitchen:

8. How much of the following services are provided at your camp:

- Catering
- Cleaning
- Laundry
- Recreation
- Internet
- Telephone
- Health Care
- Safety
- Pests control
- Religious facilities

9. Do you have to pay any extra cost for any of the services mentioned above? And what are these services?

10. Do you think that better housing conditions could improve your productivity at work?
    Yes        No

11. What factors affect your productivity at the work place? Grade the following factors according to importance, 1 being most important and 10 being least important

- Salary
- Overtime/ payments
- Holidays
- Working hours / day
- Working days / week
- Housing conditions
- Management
- Training
- Promotion
- indoors / outdoors work