That continued overtime produces a decline in productivity comes as no great surprise to a professional wall and ceiling contractor.

Study after study has demonstrated that continued overtime has a measurable impact on fatigue and morale.

But a recent study compiled by The Business Roundtable gives some interesting insights into the effect of scheduled overtime over a protracted period.

Previous overtime studies in construction have shown that:
• When field construction operations on a big project are put on a scheduled overtime basis it can disrupt the local construction economy, it can disrupt the local construction economy, reduce labor productivity, and ultimately produce excessive inflation in construction costs.
• With a work schedule of 40 or more hours per week for two months or more, the cumulative effect of decreased productivity will cause a delay in the completion date beyond that which could have been realized with the same crew size on a 40-hour week.
• Proper management can minimize the inflationary effects where overtime operations are deemed absolutely necessary despite predictable productivity losses— for example, on a remote construction site where bachelor housing is provided or on maintenance turnarounds. As for studies on the effect in construction of morale and fatigue, data confirms what most wall and ceiling contractors already know:
• The longer the hours, the more scheduled work time will be lost through absenteeism.
• Injuries increase as hours increase, not only in absolute numbers, but also in rate of incidence.
• For hours above eight (8) per day and 48 per week, it usually took three hours of work to produce two addi-
When a subcontractor sits down and computes the premium cost for overtime hours . . . he is often astounded with the almost unreasonable inflation of the unit labor cost.

Tional hours of output when the work was light. For heavy work, it took two hours to produce one hour of additional output.

Using this data, as an example, statisticians found that four weeks of eight hours per day produced a productive efficiency of 16 percent advantage over four weeks of nine hours per day.

This study was done in a manufacturing facility, and when the same test pattern was conducted on a crew of carpenters the productivity differential was found to be nearly 20 percent.

Also, when operations are scheduled on a seven-day basis, the productivity for the entire week was substantially less than when workers enjoyed an “off Sunday.”

The findings that have been discussed above are all derived from studies made for short period overtime work. The new Roundtable study was performed on longer periods of time.

In this way, should a wall and ceiling contractor become involved in a project requiring scheduled overtime for a longer period of time, he may be forewarned of consequences which impact not only on his own work pace and crews but the impact on other subs and trades as well.

Consequently, no matter how efficient and competent are the wall and ceiling contractor’s management and supervision, should the other trades fall behind in schedule through productivity inefficiencies, the wall and ceiling contractor will be dragged into the falloff.

Immediate Effects From Big Projects

When a project in an area is put on a scheduled overtime basis, a series of problems immediately develop. The movement of workers from other projects in the area to the over-
time job creates somewhat of an “auction” atmosphere.

Other jobs need to go on overtime to hold their labor, and a bidding process is actually developed. The local labor supply, being fairly constant, combines with the additional productive capacity of transient workers—but it is still offset by the reduced productivity caused by overtime.

Too, a major portion of the increase in numbers of workers in the affected area is represented by permit workers in the crafts who are less proficient or poorly qualified.

This latter group creates disruptions and the lesser skills is amplified by longer working hours, increased absenteeism, and reduced effectiveness due to fatigue. The “strong as the weakest link” theory takes over and the entire project suffers.

Data shows that on extended overtime, in cases such as the one cited above, the reduced productivity of workers for a week’s work is equal to

![Figure 5: Relationships of Hours Worked, Productivity and Costs (40 Hours vs. 60 Hours)](image)

![Figure 6: Ratio of Productive Return to Overtime Hours for 50 Hour Job Schedule](image)
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or greater than the number of overtime hours worked.

When a subcontractor sits down and computes the premium cost for overtime hours—he is often astounded with the almost unreasonable inflation of the unit labor cost. Yet these stark and easily counted costs are further affected by time, local labor climate, management actions, and job locations—all of which can influence the final unit labor cost.

As an example, it is well known that within narrow limits a craftsman learns to expend his physical and mental energy at an accepted pace which he has established over long periods of adaptation.

When the hours of work per day or per week are changed and extended—even for a short period (and this does not include putting in a few hours of overtime to finish up a temporary task)—there is an inevitable adjustment period.

Studies reveal that scheduled overtime operations result in a sharp drop in productivity initially, followed by a fairly substantial recovery by the end of the first week. The recovery level of productivity may then hold fairly steady for a period of two to three weeks but show a steady decline for the following two to three weeks.

After five to six weeks of operations, there is a further drop in productivity which levels out at a low point after nine to twelve weeks of sustained overtime operation. This adjusting to a new work/time level, it should be understood, results from normal human reactions. It does not reflect the impact of additional adverse factors such as labor, climate, and perhaps poor management.

Where work in excess of 40 hours per week is necessary, there are a variety of alternative or remedial actions which should be considered. These, of course, depend on the circumstances, but they include:

- Employment of additional shifts—two or three shifts are often more productive than extended overtime.
- Use of an additional crew to provide scheduled time off without work interruptions (e.g., each man works 14 days, then off seven days, as is common on offshore platform work).
- Where work is scheduled seven days/week, periodic shutdown of the work over a Sunday or weekend—productivity benefits may more than offset the lost working time. (Figure 8 illustrates the effect of this on a project on a 70 hours/week schedule).