Extended Overtime on Construction Projects

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Notice:

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The Mission of The Construction Users Roundtable (CURT) is to promote cost effectiveness for owners doing business in the United States by providing aggressive leadership on issues that will significantly improve project engineering, maintenance and construction processes, thereby creating value for the owners.
1. Extended Overtime on Construction Projects

Extended overtime on construction projects increases costs and

▲ Reduces labor productivity
▲ Increases the risk of injuries and fatalities
▲ Increases absenteeism and turnover

The use of extended overtime significantly increases the cost of construction projects which leads to reduced investment in capital projects in the U.S. and increased foreign competition for production.

When large projects start to use extended overtime they affect all other projects in the area. To compete for skilled crafts, other projects will also use overtime or other high cost incentives. The local construction labor market is disrupted and chaotic, and all projects will incur higher costs.

Reducing the use of extended overtime on U.S. construction projects will improve cost effectiveness and benefit all owners, contractors, and building trades. More cost-effective construction projects will be more competitive and result in increased market share.

2. What Is Extended Overtime?

Extended overtime is using more than 40 hours per week for more than two consecutive weeks.

The impact of extended overtime is a significant reduction in productivity, more accidents, and increased costs. Over 30 years of research has consistently proven these results. In addition, a recent survey confirmed that most industry leaders agree.
With premium wage rates and reduced productivity, the total cost impact of extended overtime can increase project labor costs by more than 80 percent.

Additional information on the impact of extended overtime is available in this report.

### Extended vs. Short-Term Overtime

Short-term overtime is using up to 50 or 60 hours per week for one or two weeks and is used to meet specific project targets or to minimize downtime during a plant shutdown. There are added costs for this short-term overtime, but productivity and safety can be controlled by increased supervision and planning.

When overtime is used for more than two weeks, the effects of extended overtime start to take effect. Fatigue from longer hours of physical labor, overextended supervision, shortages of materials, increased accidents, and other issues are all factors. Workers start to take personal days off, and turnover increases. Eventually, the work completed each week approaches the level that could have been completed in 40 hours.

### 3. Why Is Extended Overtime Used?

Extended overtime is frequently used to:

- Meet tight project targets from owners
- Make up for late changes and project delays
- Attract skilled labor to a project

Some owners and contractors consider extended overtime as necessary and required to meet the demands for faster schedules or to staff their projects. For them, extended overtime is the norm, their standard approach to projects.
4. How to Control the Use of Extended Overtime

Many projects are completed successfully without the use of extended overtime.

The owners and contractors on these projects have taken a strong corporate stand against extended overtime on their projects and have required project teams to use better approaches to meet the objectives. Combined with effective front-end planning, this “just say no” approach to extended overtime is an effective method for limiting overtime and saving costs.

When project teams have adequate time and resources for front-end planning, they have many alternate approaches to meet their objectives. The key is to require that teams consider the alternatives before they recommend extended overtime. While it may not be possible to eliminate all extended overtime, the goal is to make it the “last choice” vs. the “first choice.”

**Overtime: A “First Choice”**

During the kick-off meeting for a recent project, the Project Manager announced that “this project will be completed on 60 hour weeks” before the scope of the project had been defined! This is an example of how some companies without overtime policies can make extended overtime the ”first choice” without consideration of cost-saving alternatives.

**To reduce the reliance on extended overtime on U.S. construction projects, we recommend that all owners, contractors, and building trade union leaders take a strong stand against the use of extended overtime.**
5. Recommendations:

We recommend that owners, contractors, and union should:

▲ Establish a policy that restricts the use of extended overtime.

▲ Commit to improved front-end planning of projects, which will allow for additional alternatives and reduce late changes and other problems.

▲ Require management approval before extended overtime is used. Use the approval process to limit the use of overtime.

▲ Require that alternative approaches are considered. Do not agree to extended overtime without first considering the choices.

▲ Track overtime usage. Measures must be in place to be able to control usage.

▲ Push back on others. Owners, contractors, and unions need to be working together to make significant change. Challenge the requirements, propose alternatives, and take a stand.

Specific recommendations for owners, contractors and unions include:

Owners:

▲ Have a clear Corporate Policy against the use of extended overtime for construction projects. Enforce it by requiring management approval before extended overtime can be used.
▲ Improve the front-end planning of projects to optimize results.
  
  • Follow best practices for early project development to consistently meet project objectives and minimize late changes.
  
  • Study alternative approaches to meet objectives without overtime.

▲ Require contractors to include an estimate of overtime usage in their bids, including an explanation of the cause of the overtime. Consider this information in the bid evaluation.

▲ Report and track the use of overtime on your projects. Track overtime hours and costs. As with safety, performance measures and goals are an important factor in control.

▲ Participate in Local User Councils to collaborate with other owners in the area, especially during times of high workload and when competition for limited skilled crafts is an issue.

Contractors:

▲ Have a clear corporate policy against the use of extended overtime for construction projects. Enforce it by requiring management approval before extended overtime can be used.

▲ Require that project managers investigate alternative approaches before recommending extended overtime.

▲ If an owner’s schedules are unrealistic, provide information on the cost impact and suggest alternative approaches.

▲ Effectively manage projects to avoid all delays or schedule slippages.

▲ Measure and track overtime usage on your projects.

▲ Collaborate with building trade unions to staff all projects without the use of overtime to attract skilled trades. Communications and pre-job planning are essential.
Unions

▲ Work with contractors to provide sufficient skilled crafts for all projects. If local shortages occur, develop alternatives.

▲ Measure and track overtime usage.

Labor and Overtime

Unions and their members do not support the use of extended overtime. Their principle is a “fair day’s wage for a fair day’s work.” Most union members would prefer not to work on projects with extended overtime. They prefer to work normal hours with sufficient time allowed for family and other interests. Unions also recognize that extended overtime increases accidents.

These techniques have been proven by many owners, contractors, and unions who have completed their projects without extended overtime. While making significant change may appear difficult or impossible, these methods have resulted in successful projects with limited overtime for special causes.
6. Appendix

The attached tools provide more details that can be used to implement these recommendations:

A. The Impact of Extended Overtime on Construction Projects
B. Guidelines for Using Overtime on Construction Projects
C. Best Practices for Avoiding Overtime on Construction Projects
D. Alternate Approaches for Accelerating Schedules to Reduce Overtime
E. Alternate Approaches for Attracting Skilled Crafts
F. Best Practices for Effective Use of Short-Term Overtime
G. Sample Corporate Policies for Extended Overtime
A. The Impact of Extended Overtime on Construction Projects

This chart represents the reduction in productivity normally experienced on projects operated on a basis of 50 hours per week and 60 hours per week. The data for these curves is from project operations in an area of tranquil labor relations and excellent field management direction. The measure of productivity is a comparison of actual work hours expended for pre-planned operations with a fixed standard base of calculated work-hour requirements called a “bogey.” These observations are on a weekly basis, with all completed work recorded from physical count or measurement, and the work hours expended obtained from actual payroll hours. The curves reflect the averages of many observations.
For additional information, see the full report “Schedule Overtime Effect on Construction Projects,” by the Business Roundtable Construction Committee (CICE Report C-2, November 1980), which is available for download at www.curt.org.

In 1994, the Construction Industry Institute completed an analysis of over 120 productivity studies—their conclusion was, “The results show that all curves, including the data from this study, are consistent.” The conclusion is that the BRT curve is a reasonable average estimate of productivity losses caused by overtime. Since none of the projects in this study are severely plagued by schedule or labor problems, these curves likely represent a lower limit of the losses that can be anticipated. Poorly managed or executed projects will likely experience greater losses.
Construction Productivity vs. Average Hours Per Week

This chart represents the results of an analysis conducted by Awad Hanna, Professor at the University of Wisconsin-Madison, for the Construction Industry Institute. Each point represents a single construction project. The data set was analyzed to find a relationship between the average number of hours worked per week and productivity based on a large sample of individual projects.

The Productivity Index is a ratio of the Budgeted Hours allowed for the project vs. the Actual Hours spent to complete the project.

Productivity Index is:

1.0 when Budgeted Hours is equal to Actual Hours

<1.0 when Budgeted Hours is less than Actual Hours (overrun)

>1.0 when Budgeted Hours is more than Actual Hours (underrun)

This study only included projects that used overtime as the planned schedule. The results were for the entire project time rather than the weekly productivity results reported in other studies.
The analysis of these results leads to the following conclusions:

1. There was a general trend of reduced productivity with increased hours worked.

2. There are a few projects that were able to achieve high productivity with increased hours, but those were rare. Most projects experienced lower productivity.

3. There were a few projects with very low productivity with increased hours.

4. Almost all projects that worked greater than 50 hours per week required more hours than the budget (Productivity Index < 1.0).

Hanna, A.S., 2003 “Effectiveness of Innovative Workforce Scheduling,” Research Report, the Construction Industry Institute, PT-185. For additional information on Construction Industry Institute studies of productivity, consult the CII Product Catalog (http://www.construction-institute.org/services/catalog/6-4.cfm).
B. Guidelines for Using Overtime on Construction Projects

Extended overtime on construction projects increases cost, reduces productivity, increases accidents, and causes absenteeism and turnover problems. To reduce these problems, use these guidelines on all overtime projects.

**Minimum Risk**, assure good planning and supervision

**Medium risk**, use added planning, qualified supervision, good project controls, good communications with crafts

**High risk and high cost**, not recommended. If used, these approaches require significant management attention with extensive planning and supervision

Always provide individual workers days off to avoid fatigue and burnout.
C. Best Practices for Avoiding Overtime on Construction Projects

Extended overtime on construction projects increases costs, reduces productivity, increases accidents, and causes absenteeism and turnover problems. To reduce the use of overtime on your projects, use the following best practices for all projects.
### For Owners:
- Set realistic project targets.
- Push back on unachievable objectives.
- Estimate the total cost of overtime and be realistic about schedule gains.
- Have a corporate policy that limits overtime. Require that overtime is approved.
- Implement Best Practices for front-end planning of projects.
- Implement alternate approaches early in the project when more options are still available.
- Use overtime as the “last choice” when all else fails.
- Expedite engineering and decisions to avoid delays.
- Control changes.
- Select contractors with proven ability to manage projects without overtime.

### For Contractors:
- Push back on owners with unrealistic targets.
- Have a policy that limits overtime. Require approval.
- Implement Best Practices for early planning and project management.
- Develop alternative approaches to overtime. Expect that overtime is the “last choice” when all else fails.
- Train site supervision on effective site management, labor relations, and using alternative approaches to overtime.
- Provide clean, safe work sites. Ensure that tools, materials, and information are available when needed.
- Monitor productivity, safety, absenteeism, and turnover.
- Communicate with labor. Keep everybody informed.
- Subcontract to companies with a long-term core workforce.

### For Unions:
- Recruit and train a skilled craft workforce.
- Collaborate with contractors to ensure staffing for large projects or in areas of high construction workload.
- Eliminate walkouts or slowdowns, which delay projects.
- Address issues quickly and effectively.
- Emphasize professionalism and customer service.
D. Alternate Approaches for Accelerating Schedules to Reduce Overtime

Extended overtime on construction projects increases costs, reduces productivity, increases accidents, and causes absenteeism and turnover problems. Overtime is frequently used to accelerate project schedules. Consider these alternative approaches before deciding to use overtime. These may be used to reduce overtime.

**Shiftwork:** Second shifts with good planning and supervision can be successful. Third shifts are more difficult to manage successfully and require additional planning and supervision. Rolling crews/shifts have been successful on some projects, but also require additional planning and supervision.

**Front-End Planning:** Improved planning will result in more effective construction projects and less rework. Also, early planning may identify additional opportunities for using innovative approaches to avoid overtime.

**Increased Workforce:** On some projects it is possible to increase the size of the workforce and complete more work in less time. Provide additional supervision, tools, materials, and information to support the added workers.

**Prefabrication and Pre-Assembly:** Doing more work off-site allows for the work to be done in parallel and may reduce overall schedules and on-site labor requirements. Using on-site pre-assembly can level peak labor requirements and improve productivity.

**Construction Methods and Sequencing:** Improved planning using alternative methods and work sequencing can be used to reduce the time required and the amount of skilled labor required for many construction operations.

**Engineering and Procurement:** Extra effort in getting high-quality engineering and procurement completed as early as possible will reduce the problems with changes, late deliveries, etc., that frequently result in more overtime.
Subcontractors and Joint Ventures: Involving other contractors with their long-term workforces and proven capabilities may increase the effective resources available to complete the project in less time.

Selective Overtime: Smart use of selective short-term overtime allows for focus on critical activities with selected crafts, versus the job-wide overtime that results in inefficiency and productivity losses.

For additional information, see the Reference Documentation section.
E. Alternate Approaches for Attracting Skilled Crafts

Overtime is sometimes used to attract skilled crafts to projects from other competing projects. Overtime increases costs, reduces productivity, increases accidents, and causes absenteeism and turnover problems. The following approaches can be used to staff construction projects.

**Off-Site Prefabrication or Pre-Assembly:** Doing some of the work in other locations with adequate staffing.

**On-Site Prefabrication or Pre-Assembly:** Planning the work for more pre-assembly of sub-systems can improve productivity, improve schedules, and be used to level the workforce peaks.

**Construction Methods and Sequencing:** In areas of limited skilled workforce, construction work should be planned to minimize peak workforce requirements. Use of alternative methods (for example, bolting vs. welding) and improved planning of field work can minimize the need for additional crafts.

**Communication with the Unions:** Communicate the staffing needs and collaborate with union officials to identify potential craft issues. Involve international unions when necessary. Maintain effective communications with the unions on changes and to solve issues quickly.

**Supervision:** Be sure field supervision is trained on effective personnel management to empower the workforce rather than demoralizing them. Communicate frequently.

**Working Conditions:** Skilled craftspeople prefer to work on well-run, safe projects with good facilities, effective planning, and sufficient tools and materials. Well-managed construction projects will attract the best craftspeople.

**Subcontracting and Joint Ventures:** Involve additional contractors with their stable core workforces to increase the total resources available for the project.
**Incentives:** Additional monetary incentives may be used to attract crafts. These include per diems, completion bonuses, rewards for reduced absenteeism, etc. These options may be more effective on remote projects. Incentives should be discussed with unions.

For additional information, see the Reference Documentation section.
F. Best Practices for Effective use of Short-Term Overtime

Frequently, short-term overtime (one to two weeks of 50- or 60-hour weeks) is necessary for a plant shutdown or to meet a specific project target date. Project costs are increased with the premium wage costs, but productivity and safety can be maintained by following the best practices outlined below:

1. **Plan, Plan, Plan:** Effective, detailed planning of the construction work to maintain productivity with the faster pace of work during short-term overtime
2. **Supervision:** Assigning the right supervision to lead the work, communicate with the crews, and maintain control
3. **Workforce Crewing:** Quality skilled workers assigned to the right-sized crews, with effective foreman supervision
4. **Engineering:** Completed engineering, with issues and problems resolved
5. **Materials:** Materials on site and accessible
6. **Tools:** Appropriate tools and equipment available
7. **Safety:** Additional safety monitoring
8. **Reports and Controls:** More frequent reports on productivity, safety, etc., to allow for closer monitoring
G. Sample Corporate Policies for Extended Overtime

Below is an example of a typical corporate policy on extended overtime.

**Corporate Policy Statement**

**Construction Overtime**

It is the corporate policy to eliminate the use of extended overtime on all construction projects. To implement this policy, the following procedures are required for all projects.

1. All projects will be implemented using the Corporate Standards and Best Practices for Project Execution.
2. All project schedules and cost estimates are to be developed based on a 40-hour work week.
3. Project managers may decide to use appropriate short-term overtime (up to 60 hours per week for a maximum of two consecutive weeks) to meet specific project targets or during plant shutdowns.
4. When the Project Objectives are not achievable with a 40-hour work week and short-term overtime, or when significant skilled craft shortages are expected, the primary approach will be to consider alternative methods to execute the project without extended overtime.
5. If alternative methods are not adequate to meet the Project Objectives, then the Project Manager will submit a proposal for extended overtime for approval by [appropriate senior corporate manager]. The proposal will include:
   a. The conditions that are causing the need for extended overtime.
   b. The alternative approaches that have been considered.
   c. The estimated cost of the extended overtime, including the expected loss of productivity.
   d. The expected effect on safety, absenteeism, and turnover.
   e. The proposed working hours for the project (hrs/week, length).
   f. The impact on other projects in the area.
6. In no cases will work weeks of greater than 60 hours per week or for more than four consecutive weeks be approved.
7. Reference Documentation

On the Impact of Extended Overtime on Construction Projects:


Hours Worked and Overtime in Construction and Other Industries, The Center to Protect Workers’ Rights.

Overtime and the American Worker, Institute of Workplace Studies, Cornell University, 1999.
On alternate approaches to Accelerating Schedules without extended Overtime

Schedule Reduction, Construction Industry Institute, RS-41-1. 1995.


Effectiveness of Innovative Crew Scheduling, Construction Industry Institute, RS185-1, 2003.


Strategies for Minimizing the Economic Consequences of Schedule Acceleration and Compression, The Electrical Contracting Foundation, 1996.

On alternate approaches to Attracting Skilled Crafts without extended overtime

Attracting and Retaining a Skilled Construction, Construction Industry Institute, RS135-1, 2000.

Construction User Roundtable Publications

The purpose of developing Construction User Roundtable (CURT) publications is to disseminate recommendations, guidelines, and reports developed by the Construction Users Roundtable. CURT is focused on improving the cost effectiveness of the U.S. construction industry. These publications have been developed from the point of view of owners or users of construction services. Efforts by all segments of the industry, however, are vital if major improvement is to be the result.

This publication is one of a series from committees or study teams addressing a problem area.

Findings and recommendations of The Construction Users Roundtable are included in publication series classified as White Papers (WP), Reports (R), or User Practices (UP). In addition to these classifications, CURT publications are numbered based on the category of the topic:

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Examples:

WP-1201:  A CURT White Paper on Reverse Auction
R-402:    A CURT Report on Tripartite Initiatives
UP-801:   A CURT User Practice on Construction Safety in Contractor Prequalification