



مدیریت کسب و کار در صنعت ساخت (Construction Business Management)

ماژول ۲: مدیریت کسب و کار

بخش اول: مدیریت عملیات

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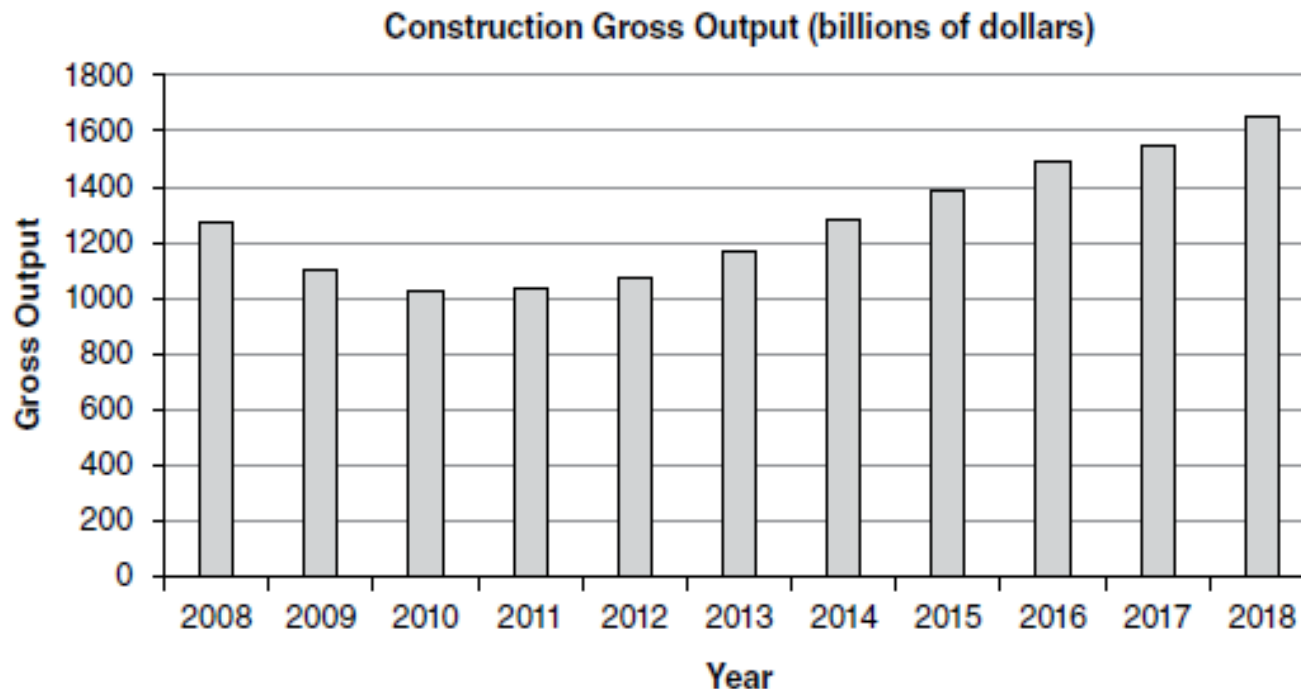
What we will learn?

- ☐ What is the current status of the industry? Construction productivity is at a 15-year low
- ☐ The basic process to better operations management
- ☐ Proven principles
- ☐ Management: planning, forecasting, and scheduling
- ☐ Managing a construction firm in a down economy
- ☐ Managing clients
- ☐ Managing subcontractors and equipment
- ☐ Making decisions in volatile conditions
- ☐ Selecting the right work

What is the Current Status of the Industry?
Construction Productivity is at a
15-Year Low

Construction size - USA

- ❑ The **construction industry** has traditionally been one of the **largest industries** in the United States.
- ❑ As reported by the **Bureau of Labor Statistics (BLS)**,
US Department of Labor, the value of construction in **2018** was **\$1,636.5 billion**, representing **4% of the gross domestic product (GDP)**

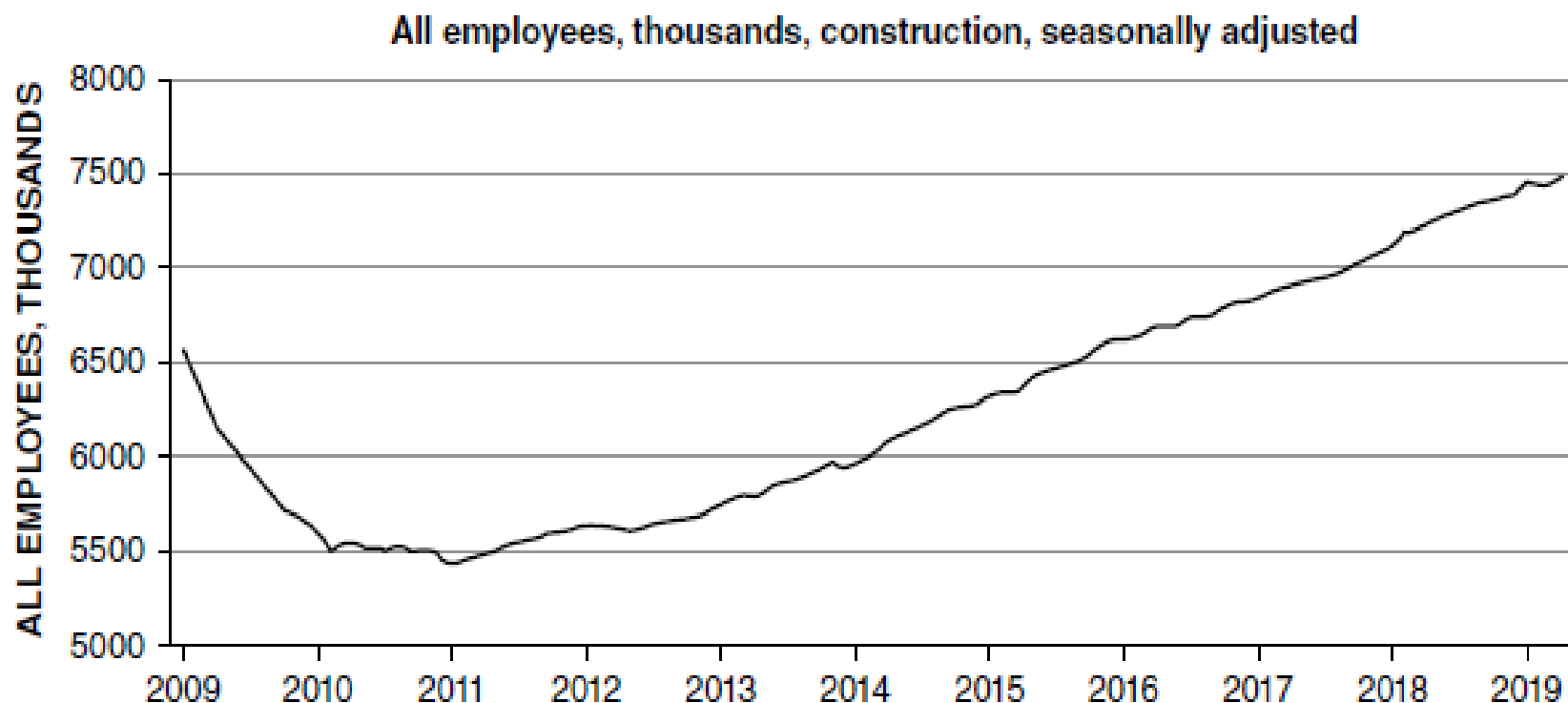


Source: Courtesy of Bureau of Economic Analysis, US Department of Commerce

Construction size – International

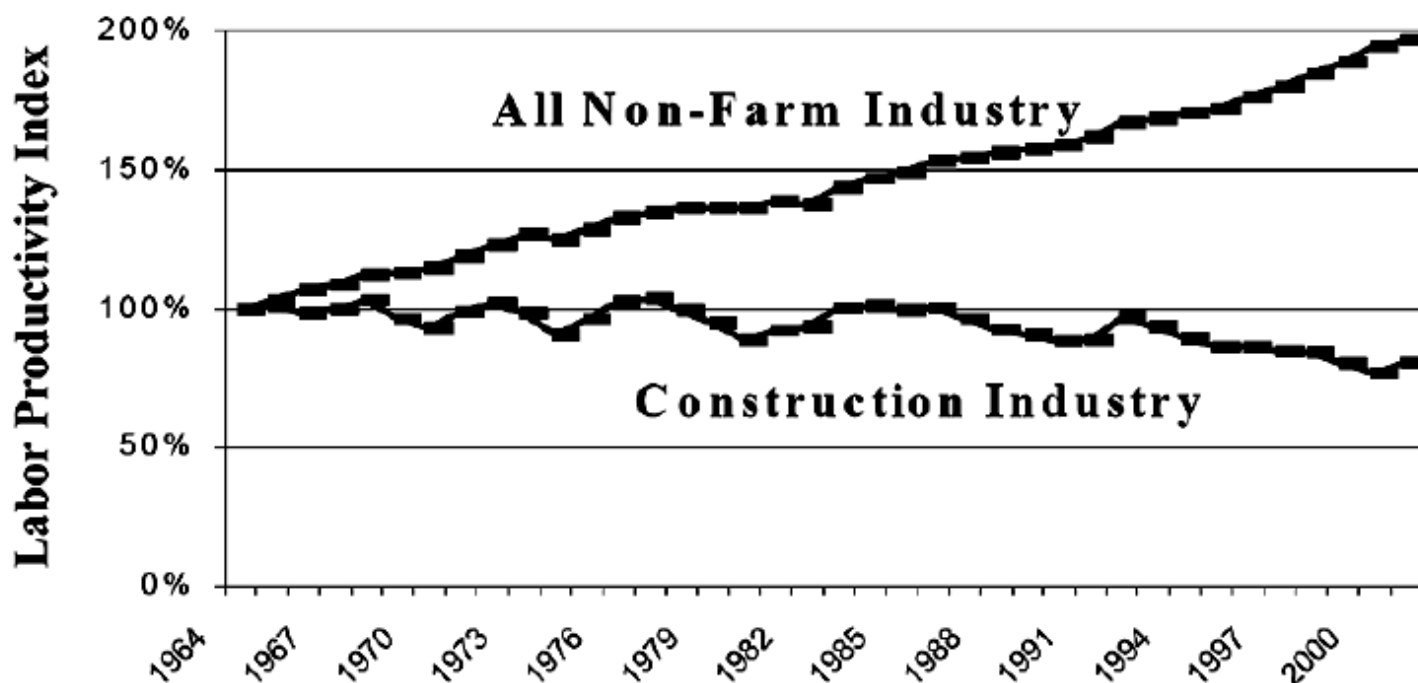


Construction employment – USA



Source: Courtesy of the US Department of Labor, Bureau of Labor Statistics

Construction productivity - USA



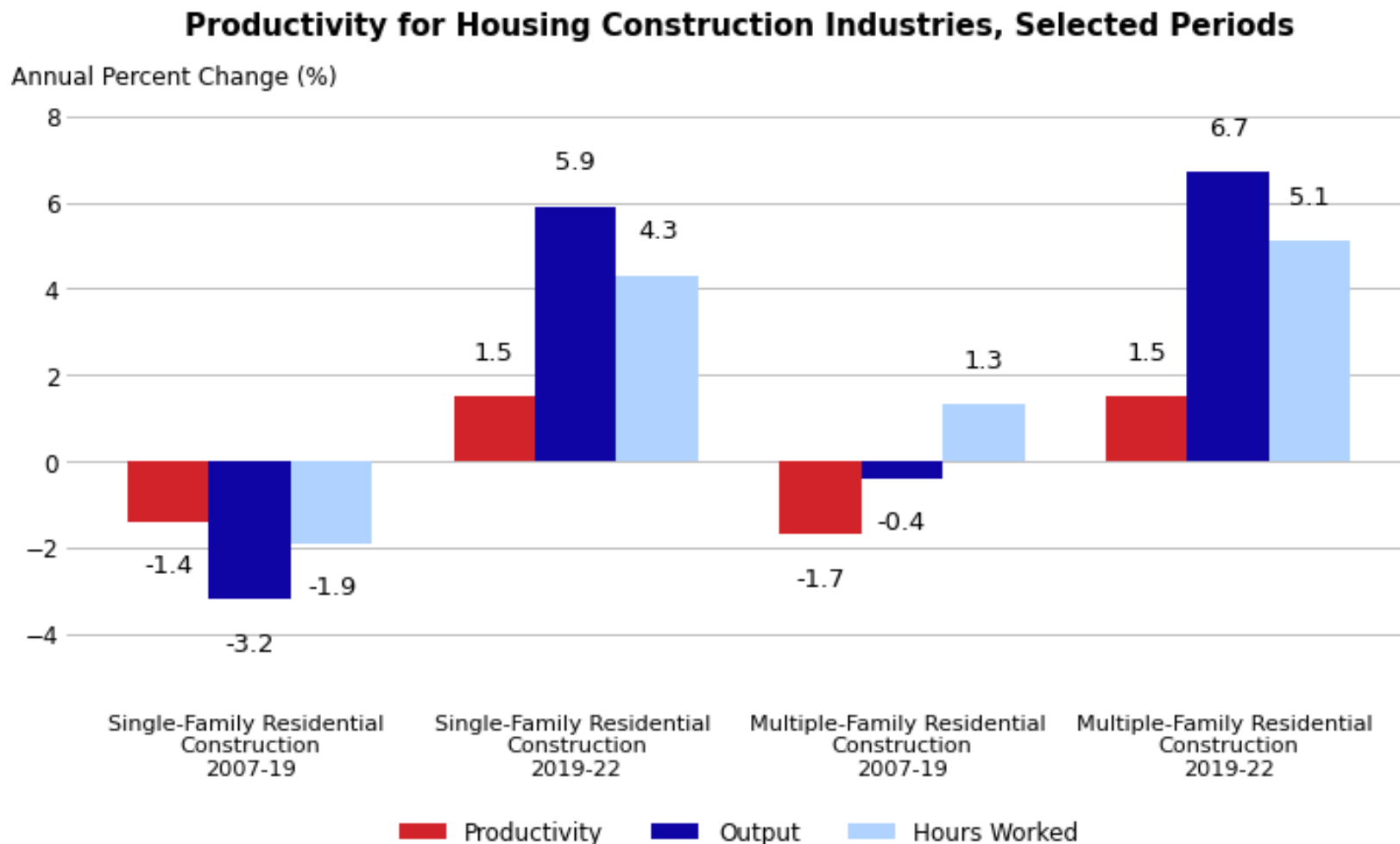
Sources: U.S. Bur. of Labor Statistics, U.S. Dept. of Commerce,

Construction productivity - USA



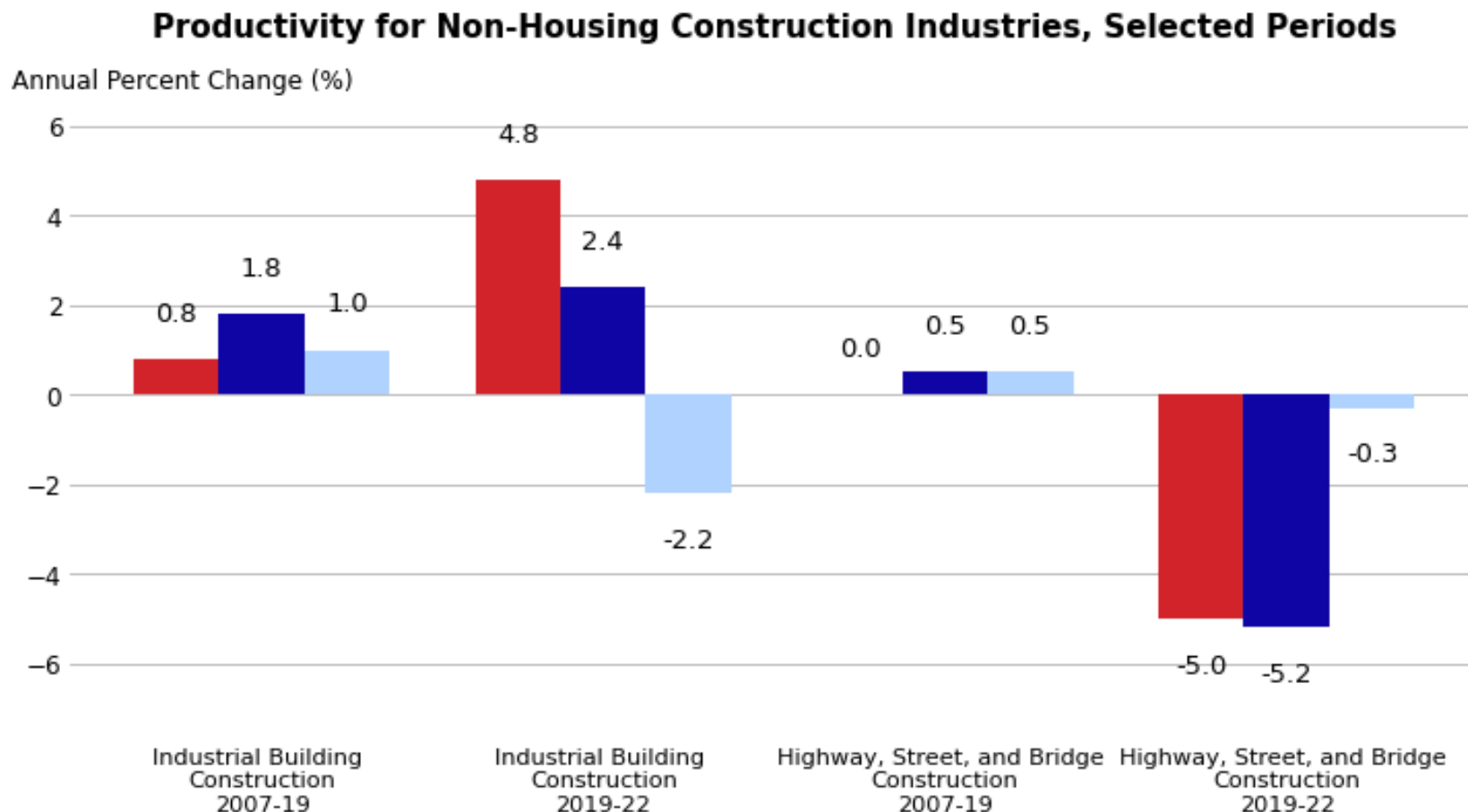
Construction's productivity (PIP \$ per employed person) is lower than 15 years ago as measured in constant (inflation-adjusted) dollars.

Construction productivity - USA



Source: U.S. Bureau of Labor Statistics

Construction productivity - USA



Source: U.S. Bureau of Labor Statistics

■ Productivity ■ Output ■ Hours Worked

Construction productivity – International

Exhibit E1

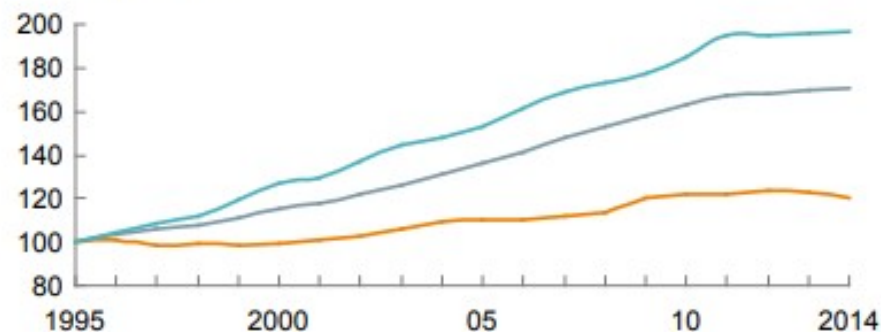
Globally, labor-productivity growth lags behind that of manufacturing and the total economy

Global productivity growth trends¹

Construction Total economy Manufacturing

Real gross value added per hour worked
by persons engaged, 2005 \$

Index: 100 = 1995



Compound annual growth rate,
1995–2014

%



¹ Based on a sample of 41 countries that generate 96% of global GDP.

SOURCE: OECD; WIOD; GGCD-10, World Bank; BEA; BLS; national statistical agencies of Turkey, Malaysia, and Singapore; Rosstat; McKinsey Global Institute analysis

SOURCE: McKinsey Global Institute analysis

The Basic Process to Better Operations Management

The basic process to better operations management

❑ Juran details the two duties of any manager or executive.

Breakthrough

▲ Some things need to be improved, such as the following:

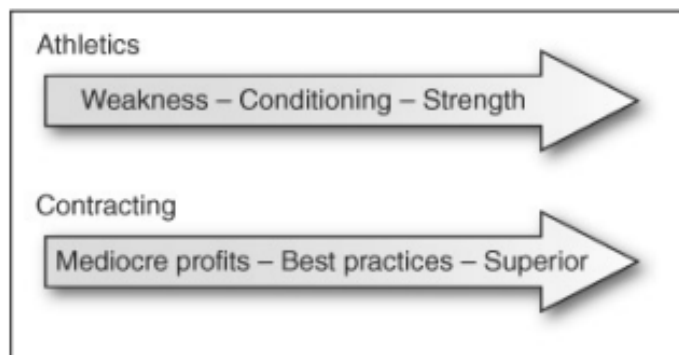
- ▼ Processes
- ▼ Technology
- ▼ Methods
- ▼ Skills

Control

▲ Some things need to be controlled, such as the following:

- ▼ Safety
- ▼ Strong work ethic
- ▼ Deadline compliance
- ▼ Complete information gathering
- ▼ Clear communication
- ▼ Positive morale

The basic process to better operations management



Many tested processes in athletics parallel those found in contracting. We know the problems to expect and efficient solutions that result in better profitability.

Proven Principles

Proven principles

- ❑ You have to love this business.
 - ❖ If you love it, you might fail, but you won't quit.
 - ❖ Quitting is failing in our business.
 - ❖ Loving it makes you come back after failing.
 - ✓ You can pretend to love it and really do it because of money, status, or position, but that will catch up to you sooner or later.
 - The business gets rid of insincere people in a myriad of ways.

Successful contractors know various proven principles, as listed below.

Proven principles

❑ Ten-year rule.

- ❖ **Years of hard work and extended hours** are necessary to build a successful construction firm. We have heard this from experienced contractors.
- ❖ We say it takes **10 years on average to learn how to consistently exceed industry profit margins.**
- ❖ Once the skills are **mastered**, you may even see **double-digit net profit** percentages— perhaps even a **40 percent or better ROI.**
 - ✓ **Where can you find** another activity with this level of financial reward?

Proven principles

❑ Small is big.

- ❖ Small companies, divisions, and crews are **more efficient and effective** in construction.
 - ✓ **Large firms** with **small crews** are hard to beat in several ways.
 - ✓ **Industry statistics** such as association and banking information have shown **smaller companies make a higher** percentage of profit.
 - ✓ **Smaller crews** have **higher productive** rates.
 - Keep things **small in divisions** and crews.

Proven principles

❑ Every employee has to support the field operations.

- ❖ Being in the office continuously isn't wise.
- ❖ In our **3 percent net profit before tax**, high-risk business, **everyone needs** to **pull on** the productivity, cost, safety, quality rope.
- ❖ In our experience, **labor** is where profit is made or lost in **90 percent of projects**.
 - ✓ Hiring **qualified labor** (safe and skilled) and **managing it well** is a great foundation for any construction firm.
 - Remember, a **10 percent increase** in **productivity** yields a doubling of net profit for the average construction contracting firm.

Proven principles

❑ Every employee has to support the field operations.

❖ Confronting your employees about their

- ✓ Poor work habits,
- ✓ Bad attitude,
- ✓ Unsatisfactory skill, or
- ✓ Substandard quality of their production

is a lot easier to face if you keep this in mind.

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Proven principles

❑ Control what you can control.

- ❖ Employees will quit and go into business for themselves.
- ❖ No one can control this, but we can control our culture and our reaction to the event.
 - ✓ Things you can control include
 - the information you gather about your competitors and
 - establishing a culture of fairness that will lead most people to be fair with you and
 - reduce the number of qualified staff who leave your company.

Taking the Lean Approach to Construction Contracting

Cost-effective asset productivity

- ☐ As you know, **cash in the bank** can determine whether your business in the **future** will be troubled, robust, or extinct.
- ☐ The **bank does not have** an opinion about your balance; it is not debatable.
- ☐ That **balance**
 1. **Allows** you to take a long-term view or
 2. **Forces** you focus only on the short-term.
- ☐ **Greater asset productivity** is what most contractors desire.

Cost-effective asset productivity

❑ **Asset productivity** can be broken down into more familiar construction concepts:

- ❖ Higher labor productivity
- ❖ Less material waste
- ❖ Increased equipment utilization
- ❖ Higher overhead productivity
- ❖ Safer workers
- ❖ Trouble-free installations
- ❖ Fewer call backs and punch list items

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- ❑ As applied to the construction industry, the Lean approach generally holds to five steps:

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Five lean steps

❑ Define value to the customer.

- ❖ Customers **pay more** for timely production, safety, and craftsmanship.
- ❖ We know **contractors** want **productivity**,
but **customers** pay for **lower maintenance** construction services that
produce the **desired work**.
 - ✓ From our experience in the industry, we believe **timely production** is
a **value** to the client.

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Five lean steps

❑ Identify the value stream.

❖ The **value stream** goes right through **field operations**.

- ✓ Marketing, estimating, finance, and the like should support the field staff in building projects.
- ✓ Safety, craftsmanship, and production all occur in the field, where customers see them.
 - They want these things and will pay more for them.
 - A field focus is the value stream

□ Flow.

❖ The ultimate Lean idea here is “**one-piece flow.**”

✓ We call it **one item focus.**

- For example, **proper management** of pay requests is usually **assured** if **one single person** handles it at **each stage** and is responsible for its accuracy and timeliness at each stage, from percentage completion, through calculation of billing, to delivery to the client.

Accountability is **not debatable.**

□ Pull.

- ❖ We define this as **doing work tasks** when they are **ready to be completed in full.**

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Five lean steps

❑ Seek perfection.

- ❖ We label this last step **“compete against yourself.”**
 - ✓ In the words of construction professionals, **competing against yourself** is more practical and feasible
 - than** a **culture** of competition among employees **against each other.**
- ❖ Suggesting that **someone reach for perfection** is over the top in our culture.

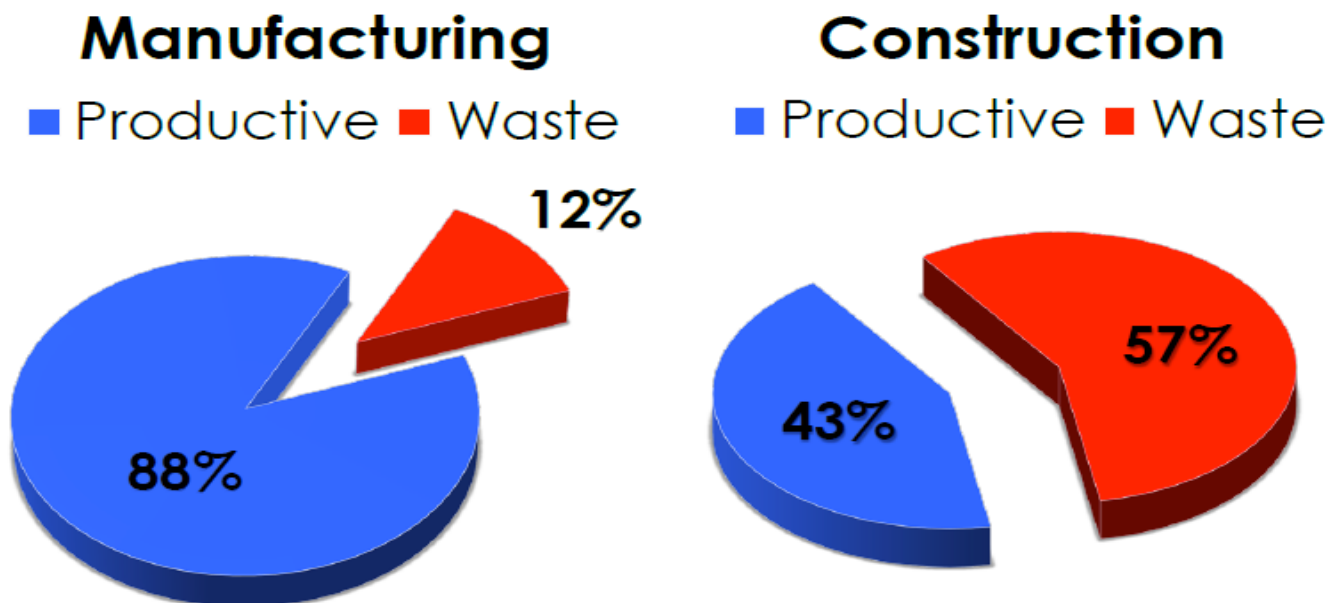
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Waste is the enemy in construction contracting

Materials management (logistics) has the greatest impact on productivity of all common issues. It is a contributing factor in 70 percent of all wasted time in construction. Ensuring that your projects have the right material at the right time and right place makes a large impact. This may mean extra time spent each day with suppliers and field people to manage the process. But no time is better spent in managing projects. Don't let the importance of material to be lost on project managers and field supervisors. Emphasize and repeat.

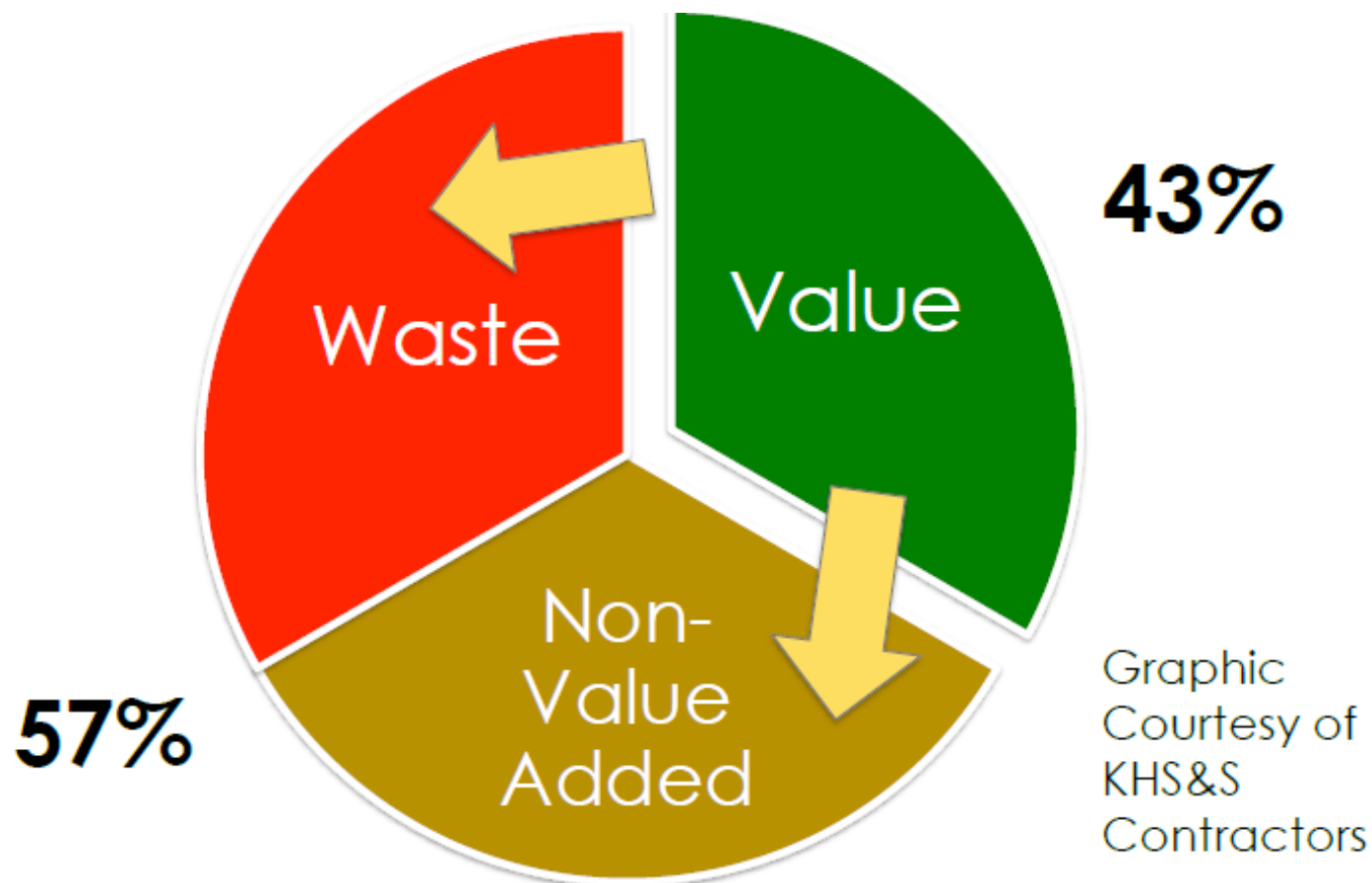
Waste is the enemy in construction contracting

❑ 2004 Construction Industry Institute (CII) Study



❑ The US-based Building SMART Alliance at the National Institute for Building Sciences estimates that **more than 50% of the cost of a building is waste.**

Waste is the enemy in construction contracting



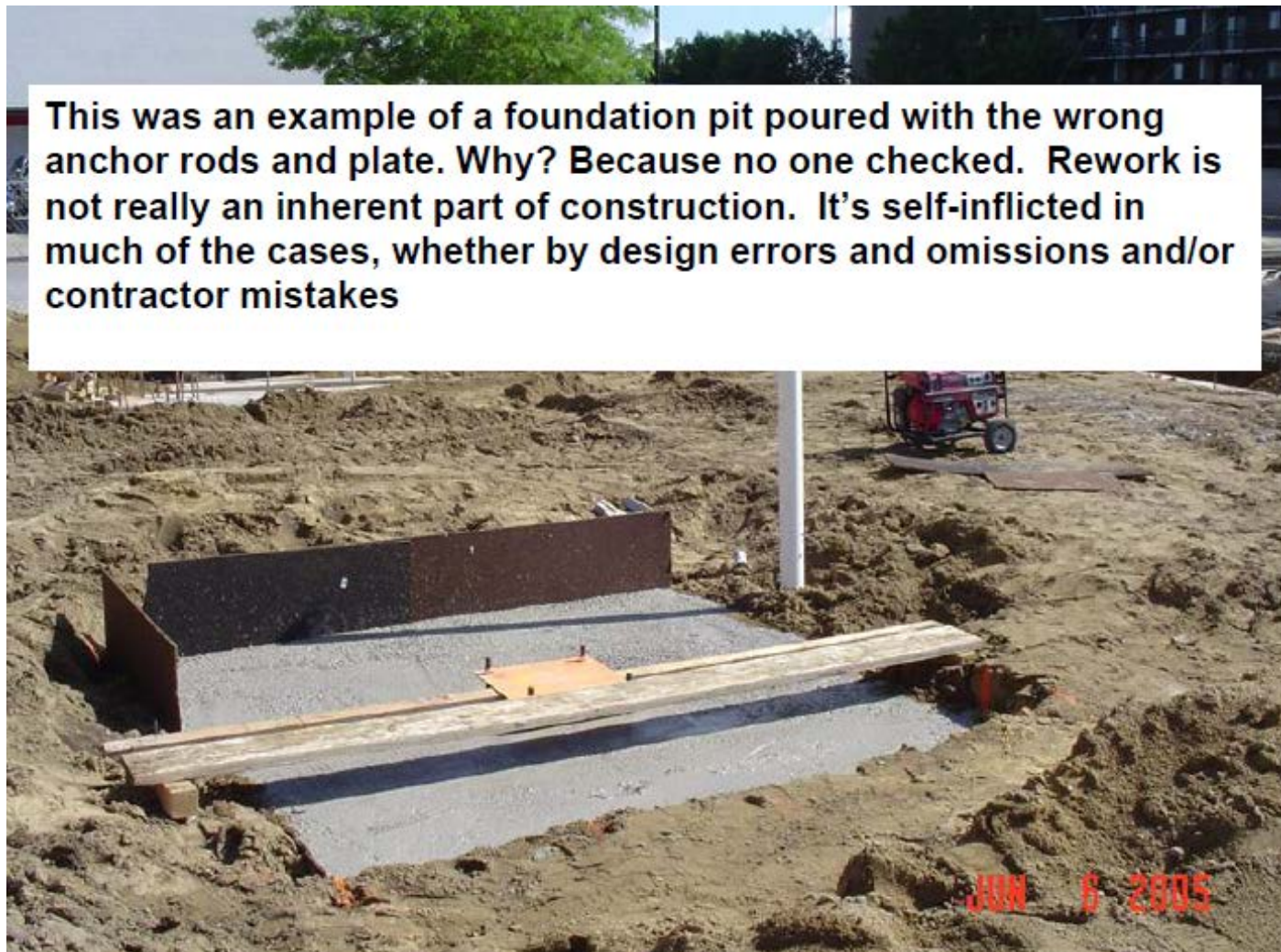
16th LCI Congress | San Francisco, CA | October 7-10, 2014

Waste is the enemy in construction contracting



Waste is the enemy in construction contracting

This was an example of a foundation pit poured with the wrong anchor rods and plate. Why? Because no one checked. Rework is not really an inherent part of construction. It's self-inflicted in much of the cases, whether by design errors and omissions and/or contractor mistakes



Making lean part of your company culture

☐ Compelling business reason.

- ❖ All processes and the steps within that process should have **strong logic behind** why we do them.
- ❖ **Explicating your reasons** will either confirm that the **step is essential or force the firm to discard** the step as a waste of management (labor).

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Making lean part of your company culture

❑ Supervisor.

- ❖ The **primary responsible person** must perform the step.
- ❖ The **supervisor must check periodically** for compliance (that it is completed) and for quality.
- ❖ No one is on an **island in construction**.

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Making lean part of your company culture

❑ Traps/sources of rework.

- ❖ This is a description of how not to do something or what to avoid.
- ❖ As illustrated, in scheduling, being overly optimistic about time is a trap.
- ❖ Construction is **imperfect** and **subject to many changes** in the field.
- ❖ Being **realistic by having a plan** for each task to be of longer duration than ideal makes a schedule less an exercise in wishful thinking.

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Making lean part of your company culture

Jones Construction, Inc., Business Process Manual Project Scheduling

Description: To project physical progress against person-hour capacity in a calendar graphic. This is a historical record to be shared internally and with subcontractors. In some cases, it will be used as evidence for our project-related claims.

Compelling Business Reasons: (1) Proper allocation of labor by person and by capacity. (2) Measuring tool for productivity tracking. (3) Rental tool projection and negotiation.

Primary Responsible Person: Construction Scheduler **Supervisor:** Director of Project Management

Steps:

1. Receive client schedule from project manager.
2. Receive breakdown of roles and responsibilities from production mgrs from paper schedule.
3. Receive an hours budget.
4. Receive milestones.
5. Load into scheduling software.
6. Saved into job folder and distributed to project team.
7. Review and edit by project team.
8. Publish and send to client/freeze the original schedule.
9. PM to produce schedule narrative and send to client each month.
10. Update once a month include baseline.
11. Update schedule on paper schedule with hand notes; deliver to construction coordination.
12. Update by percent on yet to be completed tasks.
13. Update by date on completed tasks.
14. When job is completed, keep in electronic file.

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Making lean part of your company culture

Traps/Sources of Rework and Slowness:

- ▲ Too little detail/too much detail
- ▲ Inaccurate information (pride)
- ▲ Inexperience
- ▲ Not using information produced (for productivity assessment)
- ▲ Late information
- ▲ Bad planning/overly optimistic

Forms Needed/From Who:

- ▲ Hours budget
- ▲ GC schedule
- ▲ Cost codes
- ▲ Internal working schedule

Data Needed/From Who:

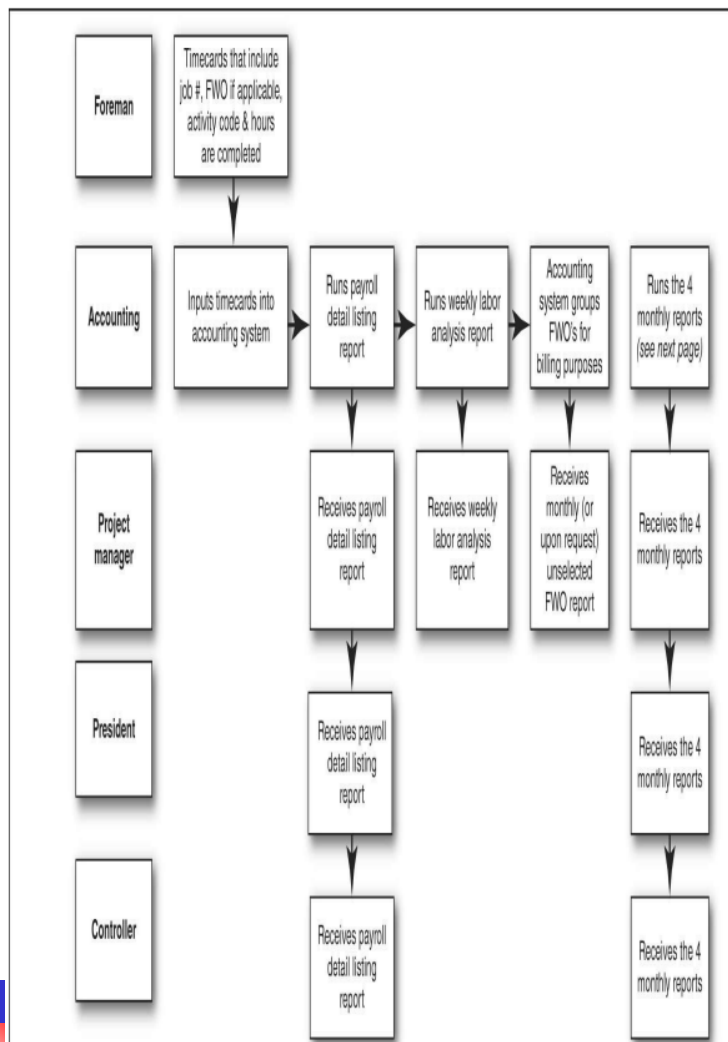
- ▲ Blueprints from client
- ▲ Submittals from suppliers
- ▲ Job status/updated information from our superintendent

Deadline:

1. First schedule: 10 working days after planning session/turnover meeting
2. Update schedule by 2nd Thursday of each month
3. Schedule narrative by 2nd Thursday of each month

Figure 4.3 Documentation of business process.

Creating and implementation of quality – Lean – Process



Creating and implementation of quality – Lean – Process

Weekly Reports

Payroll Detail Listing Report - Provides a summary by manager/job/employee to show employee name, class of worker, regular and overtime hours and gross earnings on weekly basis.

Weekly Labor Analysis Report - This is the report used by the PM's at the end of the month to mark up % complete by activity code. Weekly, it is used by them to show current, to-date and estimated hours & dollars by activity code.

Monthly Reports

Job Activity Analysis Report - Main report that shows all activities of the job from labor hours, dollars and material/subcontract charges in addition to the billings to the customer. At the top of the report, it summarizes, the hours, labor \$, burden and overhead.

Change Order Report - It lists all customer change orders and proposals (approved and unapproved).

Invoice Detail Report - Provides a detail listing of all invoices charged to jobs for the month regardless of invoice date.

Unselected Field Work Order Report - Provides all FWO's that have been reported through time card input that have not been selected for billing or removed for errors, etc.

Figure 4.4 Rummler-Brache mapping.

Creating and implementation of quality – Lean – Process

- ☐ It does **not matter where** the idea comes from.
- ☐ As a senior manager, this presents a **serious opportunity** for you to improve processes while **energizing everyone** to contribute.
- ☐ Remember, the **people who work for you** have more **cumulative experience than you** have individually.

See Figure 4.5 for a sample issue board.

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Creating and implementation of quality – Lean – Process

Problem/Opportunity	Controllable?	Action	Follow-up
1.			
2.			

Figure 4.5 Issue board.

Process that consistently deliver results

- ❑ If you place the scores from the WorkSmart Leverage Index into the matrix below, they would reveal a distribution much like the sample shown in Figure 4.6.

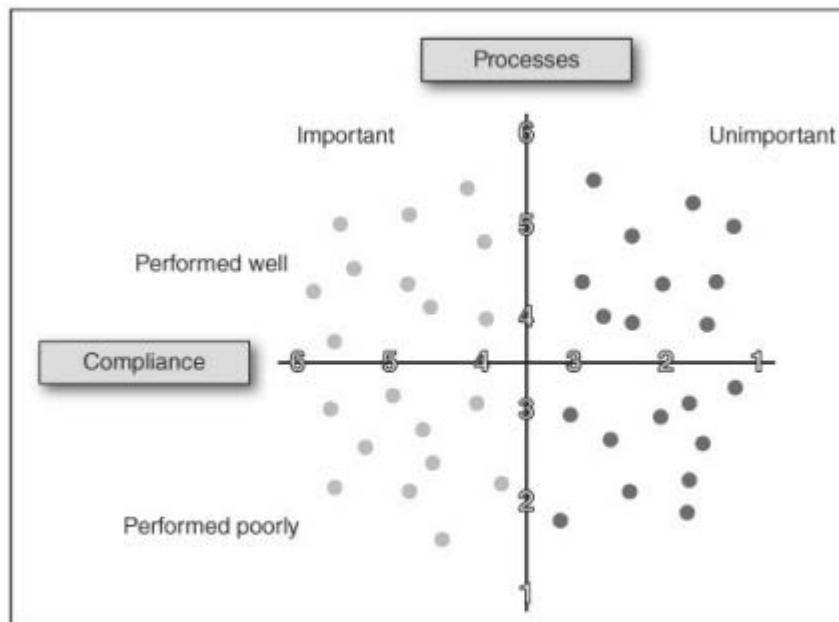


Figure 4.6 Best practices matrix.

Management load balancing

- ❑ Management **load balancing** means finding and assigning the **optimal number of work hours** that allows your **staff to deliver superior** safety, quality, cost control, and schedule results.
- ❑ **Stressed to work longer** than that, or allowed to work less, can result in **burnout of staff or financial harm** to the construction firm (see Figure 4.7).



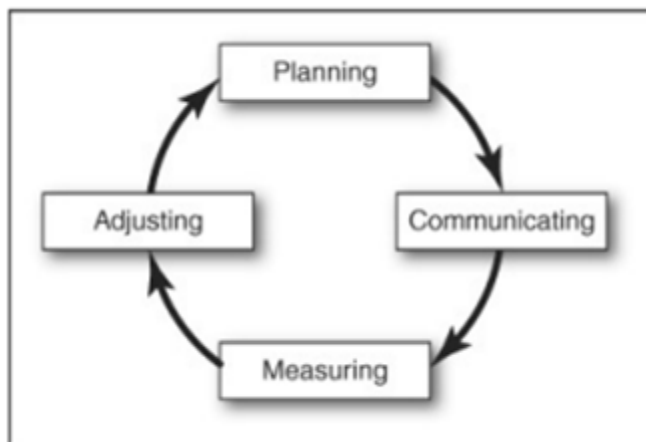
Figure 4.7 Management load balancing.

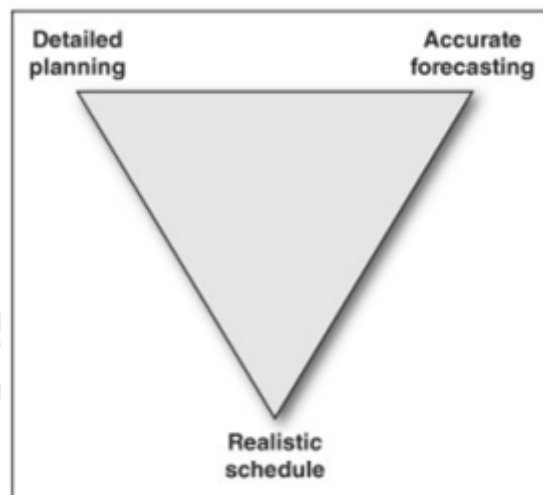
Management load balancing

Mger Name	Total # Projects			# Active Projects	Total # Clients	Total Under Contract	Revenue This Year	Unearned Revenue	Budgeted Hrs to Manage	Unspent Hrs	Largest Project	# Required Weekly meetings	PTO Leave	PTO Return
Bill	12	4	5	7,522,641	1,127,169	4,602,112	52,619	30,585	2,878,038	-				
Jerry	9	5	7	10,816,653	1,205,295	3,500,292	63,762	23,035	3,003,912	-				
Lisa	24	11	13	11,625,682	850,516	3,152,252	71,924	18,945	4,336,287	-				
Nancy	13	4	11	5,231,355	937,901	847,827	6,181	3,781	1,471,385	-	6/26	7/8		
George	9	6	7	4,022,010	29,496	2,081,280	22,569	12,097	1,939,540	-				
	67	30		39,218,341	4,150,377	14,183,763	217,055	88,443	13,629,162	-				

Table 4.1 Balance Load Management Tracking Form

Management:
Planning, Forecasting, and Scheduling





First things first

Planning	Forecasting	Scheduling
Gathers information and determines best course of action with alternative plan of action.	Gathers information and confirms what resources are available to support plan.	States a course of action.
Projects what should happen.	Projects what resources are available.	Promises a course of action and resources to a project.
Redone on a daily or weekly basis.	Redone on a weekly basis.	Redone on a weekly/monthly basis.
Asks: What, how, and when do we need it for our next step?	Asks: Do we have the resources to support the plan for that day?	Tells: We will be doing this work on this day.

Comparison of planning, forecasting, and scheduling. Of these, scheduling should be done only after the first two are complete.



First things first

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ماژول ۲: مدیریت کسب و کار

بخش اول: مدیریت عملیات

Job Name:		Job #:		Week Ending:										
Site Supervisor:		Project Manager:		Page ____ of ____										
Activities	Wkly Qty Projected	Daily Qty Breakdown							Mat'l Onsite?	Equip on site	M/P Needed	Small Tools Needed	Inspection/ Testing	Surveyor Notified
		M	T	W	TH	F	S	S						
EARTHWORK														
1.														
2.														
UTILITIES														
1.														
2.														
3.														
MISC.														
1.														
2.														
SUBCONTRACTORS														
1.														
2.														
3.														
NOTES:														
ALTERNATIVE WORK AREAS:														

Sample short-horizon planner and scheduler.

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Managing a Construction Firm in a Down Economy

Managing a construction firm in a down economy

- ❑ The two greatest management challenges are managing either in a great economy or in a poor one.
 - ❖ Both are hard on managers and executives.
 - ❖ Stress is usually high and personal time limited.

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Managing a construction firm in a down economy

- ❑ The **great economy** is a good opportunity to enhance wealth, but you have to **stay focused and disciplined**

even though the **business is easier** than in a slow period.

- ❑ To **become lazy and disorganized** is to miss a superior opportunity that may not return for years.

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Managing a construction firm in a down economy

- ☐ Tight economic conditions cause **worry**.
- ☐ **Slow economic times** make your competitors misbehave and may **lead to unfair** business practices.
- ☐ On the other hand, it can be a **rewarding time** as little victories mean a lot in a recession.

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Managing a construction firm in a down economy

- ❑ The **word recession** is used sometimes for shock value to sell newspapers and political careers.
 - ❖ This is a dangerous practice.
- ❑ Projecting what is **potentially true**, but unproven, gives the provider a “thought leader” status.
 - ❖ In the least, it sells what they provide.

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Managing a construction firm in a down economy

- ❑ Whatever your **informal** view of our **current economic** situation may be,
business markets expand and contract,
but rarely stay the same.
- ❖ As in the past, **economic recovery** will occur in the **future**.

Let me share with you the dynamics and the strategies for times
when the market winds blow our way against us.

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Managing a construction firm in a down economy

- ❑ Any **slowdown** will be **different** from previous ones.
 - ❖ Various causes include the following:
 - ✓ Poorly managed mortgage firms
 - ✓ Home buying behavior
 - ✓ Irrational consumer euphoria Oil prices
 - ✓ Terrorist acts Federal Reserve reaction
 - ✓ Congressional action, presidential election cycle, and other government events
 - ✓ World events

Managing a construction firm in a down economy

- ❑ In the short term, most contractors' client lists will be pared down to the **valuable few customers** characterized by those who
 - ❖ Want good construction services,
 - ❖ Pay well, and
 - ❖ Are serious about using their end product.

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Managing a construction firm in a down economy

- ☐ Even in the face of economic slowdown or recession, we can still **find good news**.
- ☐ We have been **short in the number of qualified** craftspeople, project managers, and superintendents for some time.
- ☐ **Any slowing** of economic activity that puts **people out of work** will **“right size” the demand** of construction services with **our capacity to fill** it.

Managing Clients

Firing your worst client to improve your risk profile

- ❑ As we saw in the discussion of the **Lean approach**, waste—of effort, money, resources, time—is the **enemy of the contractor**.
 - ❖ It is **really the only way** to reach higher net profit percentages.

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Firing your worst client to improve your risk profile

❑ To **eliminate the losses** that detract from your **company's financial success** and your **personal wealth** building, you should **rid yourself** of:

- ❖ Bad clients Lazy employees
- ❖ Poor processes
- ❖ Troublesome geography
- ❖ Unprofitable markets
- ❖ Difficult work types
- ❖ Unfocused habits

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Firing your worst client to improve your risk profile

- ❑ Often, **clients**, as opposed to work type or location, are the **cause of significant problems**.
 - ❖ When we started in this business, we had **no customers**.
 - ❖ Many contractors have awakened in the **middle of the night** and asked themselves **why they ever left** their regular job.
 - ❖ No clients means no income.
 - ❖ **Small victories** mean more when you have **experienced times** of struggle.

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Firing your worst client to improve your risk profile

- ☐ You can certainly make a **case for a prestigious client** being **hard to replace**.
- ☐ Having a **“brand name” customer** indicates to others the **level of your sophistication**.
 - ❖ However, in the business of construction contracting, **no number** of **“name” clients**
can **compensate** for **not making a profit**.
- ☐ Just as there are **no irreplaceable employees**, there are **no invaluable clients**.

Firing your worst client to improve your risk profile

- ☐ **Firing a client** is an **operations decision**, not one that should be made by **financial managers** or the chief estimator.
- ☐ The **operations manager**, with input from others, should **start the conversation** about replacing the customer.
- ☐ Here are a **few quantitative criteria** that will help when making a decision whether to keep or drop a **troublesome client**.
- ☐ This **list is not exhaustive**; it is just a beginning point.

Firing your worst client to improve your risk profile

- ☐ Gross profit per worker hour (or worker week) is the lowest of all clients.
- ☐ Retention is held the longest.
- ☐ Payment is the slowest.
- ☐ Their paperwork requirements are the most demanding.
- ☐ A fully loaded customer profit and loss statement shows a loss.
- ☐ A disproportionate amount of time is spent with the client or its projects.

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Firing your worst client to improve your risk profile

- ❑ Many contractors rely on **development companies** as a source of work.
 - ❖ Most developers are **privately funded** and most of this work **lacks the onerous red tape** required for public works.
 - ❖ In addition, you might **enjoy a trusted advisor role** with a private organization; that is **not possible in the public arena**.

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Firing your worst client to improve your risk profile

❑ **Some (not a majority) developers** purposely seek the undercapitalized construction companies.

❖ They seek these types of firms because they hope to exercise **greater control** of the construction process.

❖ You see, if there are **problems on a project**,

an **underfunded contractor** is more likely to **work out an issue**

even if it is the fault of the developer

because contractors in that **category can't afford to lose clients**.

Firing your worst client to improve your risk profile

- ❑ By contrast, a **substantial contractor** poses a **problem to this sort** of developer because they are **unafraid to pursue change orders** and don't hesitate to go to **arbitration** to solve problems not of their own making.
- ❖ **Few developers** have this philosophy or enjoy **working with companies** that do.

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Firing your worst client to improve your risk profile

- ❑ **To be fair**, this type of owner may be a **good place to start for a young firm**, but generally **it's in your better interest to avoid** developers who **seek too much control** of your process.
- ❖ If **you do decide** to take this sort of work, you should be ready to **manage the situation aggressively**.
 - ✓ Be aware of some **warning signs**:
 - An **overly relaxed approach** to working with you signals a **lack of attention to detail**.

As you know, we are in a **very detailed business**.

Firing your worst client to improve your risk profile

☐ Not being seriously concerned about the contract they sent to you.

- ❖ If you **receive a serious contract**, it is rational to **be serious** in return and **strike objectionable language**.
- ❖ The **attitude** of “**work with us**” only goes so far.
 - ✓ Be sure you’re **not allowing that sort** of language to **discourage** you from being **assertive**.
 - ✓ Clients who demonstrate these **warning signs** should be your first **candidates** to consider for **refusing their work**.
 - ✓ If you **are already working** with them presently and can’t see them improving, an **exit/replacement plan** is called for.

The basic process to sever ties with a client

- ❑ Contractors who work with **public agencies** that were **unprofitable** or an undue drain on their resources can simply **avoid bidding** on future projects.
- ❖ If the **prospect of cutting** a client causes us **trepidation**,
we will have **greater joy** and relief when it is done.
- ✓ Having experienced going through the process myself, I know that it **fostered my personal and professional growth** despite its unsavory aspects.

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The basic process to sever ties with a client

☐ Meet in the client's office.

- ❖ Go to their place so you may leave as you wish.
- ❖ Meeting in a restaurant or other public place lacks privacy and invites interruption and distraction.
- ❖ Certainly, presidents of client firms can close their doors.
 - ✓ It is also a sign of respect.

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The basic process to sever ties with a client

☐ Make the reasons non-personal.

- ❖ People **don't react emotionally** to non-personal reasons as much as personal ones.

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The basic process to sever ties with a client

☐ Tell the ex-client's subordinates afterward in outside settings (association meetings, athletic functions, etc.).

- ❖ These are **potential alumni** who may **move to** other firms.
- ❖ As **people change jobs** more often these days, this is a key strategy.
- ❖ Making sure that the **middle managers know you** care to speak with them can help keep a good **impression**.
- ❖ As they **go to another** company, you may find an **ally in a firm unknown** to you.
 - ✓ Having many **friends in a client firm** is **never bad**.

The basic process to sever ties with a client

☐ Leave the door open if the client changes its ways.

- ❖ As you make your way in this world, know that **people do change**.
- ❖ **Allowing the client to save face** when you **drop them** from your customer list **keeps the door open**.
- ❖ Certainly, an **open door leaves room** for them to **come back**.

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The basic process to sever ties with a client

☐ You may have to head off gossip.

- ❖ As you **may be asked** immediately **afterward by others**, you should be ready **to answer why** you dismissed a client.
- ❖ Sometimes, people **say untrue things in retaliation** or **out of pride**.
 - ✓ Be ready with a **low key**, but **factual** explanation.

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Always have a “Plan B”

- ❑ Keeping **several alternative potential clients** that may **not be your ideal** customer, but with whom you **can work** in a down time, is **never a bad idea**.
- ❑ People who **personally like** you will find a **way to work** with you.
 - ❖ All you need is a **little patience**.
 - ✓ All patience comes from **confidence** in your worth.

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Always have a “Plan B”

- ❑ Overall, the Pareto principle is at play here. Some know it as the 80/20 rule.
- ❖ Eighty percent of your profits come from **20 percent of your clients**.
 - ✓ Management icon Jack Welch expanded on this concept.
 - He heralds the wisdom of removing the bottom **10 percent** of performers (customers, markets, employees, etc.).
 - This is particularly true in construction.
 - We are in a cost-side business.
 - We will always have to match our peers' price.
 - We can only increase profits by **driving the cost side down**.
 - Costs **go up with bad customers** as well as **poor employees**.

Always have a “Plan B”

- ❑ **Keep in mind** that customers—their business and their behavior—will **change over time**.
 - ❖ **Change** naturally occurs **over a career**.
 - ✓ It's wise to **have an eye** for unacceptable project results that are **caused by a client's** actions.
- ❑ Acquiring the **skill** of **dismissing customers gracefully** and then replacing them should be a **last resort**.
 - ❖ However, over your professional life, you will have to do this **occasionally** to **raise the quality** of your business.
 - ❖ Without exception, this skill has a **long-term value** in the construction contracting industry.

Once done, it actually **improves your risk profile**.

Managing Subcontractors and Equipment

Managing subcontractors and equipment

- ❑ Two of the largest costs, and hence risk exposures, in construction execution in the field are **subcontractors** and **equipment**.
- ❑ **Many interviewed subcontractors** describe **inconsistent** treatment, direction, and management between different projects for the same general contractor or construction manager.
- ❑ There are **certainly multiple ways** to manage equipment well, but there are also **cost** and **efficiency** advantages associated with **operating consistently** throughout an **organization**.

The two sections of this part address **subcontractor management** and **equipment management**, including recommended policies, processes, and procedures.

Subcontractor selection

- ❑ Managing subcontractors and vendors **begins** with the **selection** of the **right** company or supplier for the job at hand.
 - ❖ This task is more difficult than it sounds.
 - ❖ It is **not always possible** for contractors to find the **time** or **resources** to select the **best available** firm that is ideal for the job.

Challenges that hinder the selection process include

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Subcontractor selection

- ❑ Challenges that hinder the selection process include
 - ✓ Project-related schedule constraints,
 - ✓ Availability of subcontractors in a given area,
 - ✓ Owner or designer preferences,
 - ✓ Favorites from top management,
 - ✓ Price constraints, and
 - ✓ So on.

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Subcontractor selection

- ❑ Along the same lines, the right subcontractor will have **considerable experience** in the **exact type** of work involved and will be able to demonstrate that to your satisfaction.
 - ❖ This will be **challenging** if you are working in an unfamiliar area with unfamiliar subcontractors.
 - ❖ **Size** and **type** of construction impact a **subcontractor's performance** and **ability to** meet the schedule,
so the **closer** the project is to **their average** size and type of work,
the **more likely** they will recognize and achieve schedule requirements.

Subcontractor selection

- ☐ Another effective way to check the capabilities of a potential subcontractor is through **exploring their prior project performance** with **other contractors** in the area.
- ☐ Ask
 1. If they pay their suppliers on time,
 2. If they meet schedules,
 3. If they cooperate with other trades on the job, and so on.

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Subcontractor management

- ☐ **After** a subcontractor has been **selected**, they must be **managed effectively**.
- ☐ It is critical to **inform subcontractors** about your **expectations** because if they know what is expected of them **before the work commences**, they are **better prepared** to meet the expectations for the project.
- ☐ **Setting expectations early** allows you to deal with any **issues and objections** upfront.

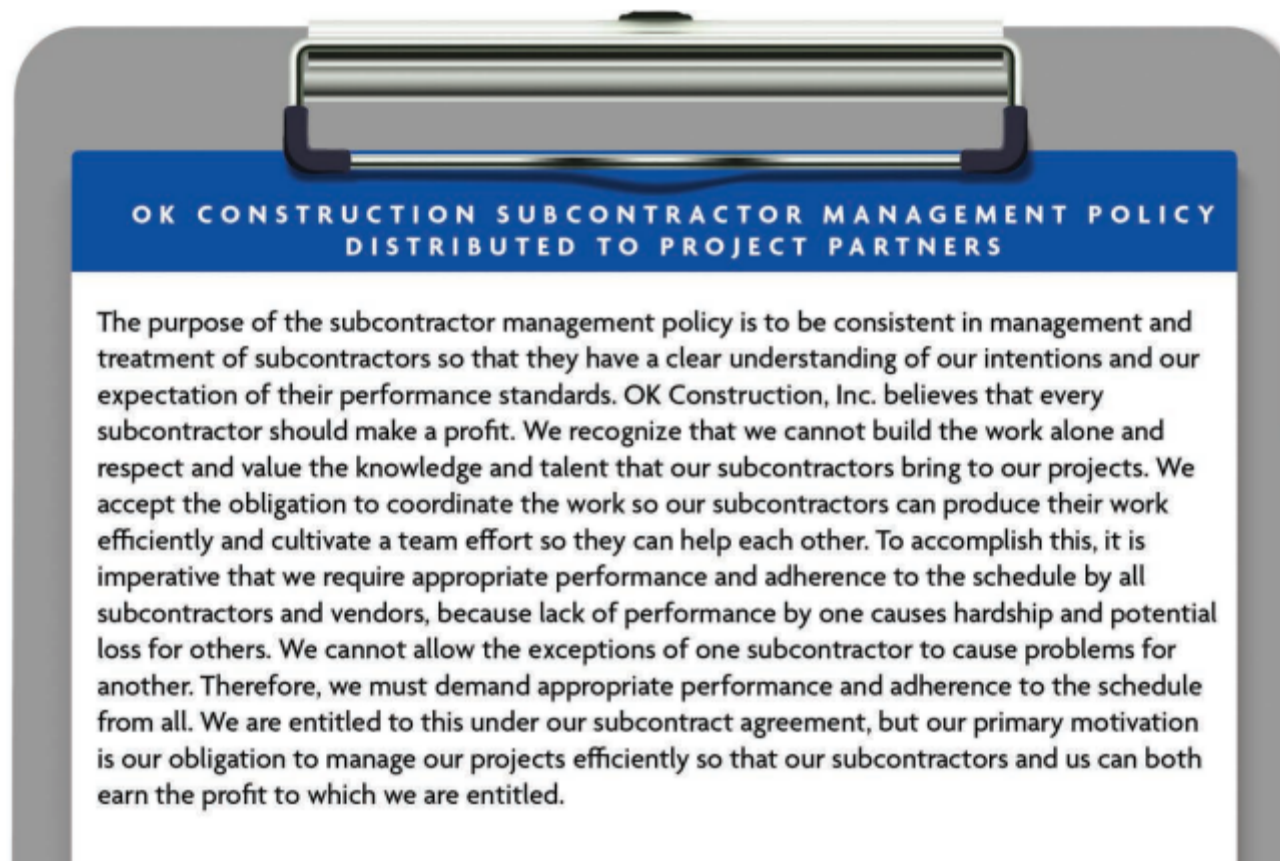
Subcontractor management

- ☐ We advise construction companies to
 1. Develop a well-thought-out written subcontractor management policy,
 2. Institute it company-wide, and
 3. Provide it to bidders during the preconstruction or pre-bid phase.
- ☐ A **subcontractor's efficiency** and **productivity** on a project are directly proportional to **how well they are managed**.
- ☐ The **practice of developing** a subcontractor management policy allows a contractor's field supervision team to **lead** and **coordinate** appropriately and consistently.

Subcontractor management – Sample subcontractor management policy for external use

- ❑ The bedrock of subcontractor management is to recognize and expect that subcontractors will make a **profit**, and **let them know you care about that**.
- ❑ The **first section** of the subcontractor management policy is the **introduction**, which is beneficial to both the contractor and subcontractors, and is **informative** for designers, owners, and others.
- ❑ This first section should be **distributed to the aforementioned parties** and explained to them.
- ❑ This is **not a confidential policy** and depends on transparency for all the parties concerned.

Subcontractor management – Sample subcontractor management policy for external use



Subcontractor management – Sample subcontractor management policy for internal use

- ☐ The **second part** of the policy is a **component** of the **contractor's corporate policies**,
such as an **employee handbook**, and is therefore designed for **internal use only**.
- ☐ It is **not confidential**, but is **not intended** for **mass distribution** either.
- ☐ This part of the policy **explains** and **teaches** a contractor's supervisors and managers
 1. What the firm expects and
 2. "how to" manage their subcontractors.
- ☐ It particularly addresses the **importance of equal treatment** of subcontractors and the **necessary rigorous coordination** of all involved stakeholders.

Subcontractor management – Sample subcontractor management policy for internal use

OK CONSTRUCTION SUBCONTRACTOR MANAGEMENT POLICY FOR INTERNAL USE

It is our obligation to be certain that subcontractor foremen understand, from their first day on our project, what is expected of them, that they report to the OK Construction Superintendent, and are instructed to comply with their directions. If they do not fully understand this, the Superintendent is to contact the subcontractor's office and/or the OK Construction Project Manager and get the issue resolved within the first week they are on site. As professionals and in a professional manner, the Superintendent must set the record straight at the beginning of the project so that they can require performance throughout the project. We will not accept "I can't get done this week because of this, this, and that," because 95% of the "reasons" can be overcome with hard work and/or overtime. We are entitled to take the position: "It's not our problem; it's yours." Further, if other foremen see nonperformance being accepted, they relax and an air of "everything can be worked out" takes over. We will not accept nonperformance or inconsistency from any subcontractors because the schedule is driven by the performance of the trade foremen.

This policy does not imply that we push people around (that always backfires). It does demonstrate our commitment to a high level of project control and leadership by our Superintendents. It is imperative that this policy be carried out professionally. Construction schedules demand strong Superintendents who make and keep their commitments, and demand that their subcontractors and vendors do so also. This policy will benefit our subcontractors, gain the respect of their foreman and increase their profits.

Subcontractor management – Sample subcontractor management policy for internal use

Hoisting (For Internal Use)

Hoisting and handling subcontractors' materials will be carefully evaluated before the award of subcontracts. Overall efficiency suggests that each contractor be responsible to hoist and handle their own materials, and if we agree to do it, we intend to make a profit. Our efficiency is impacted when we hoist or handle for others, particularly when it is necessary to do it on overtime, since we need the equipment during regular hours. We are not usually compensated for the premium time, and we lose operator efficiency when they work long hours.

Subcontracting (For Internal Use Only)

Wherever possible, subcontractors will be awarded the full section of their specification because experience suggests that work in specification sections is more efficient when performed by a single contractor. If work is taken back from a subcontractor during buy-out, the purchaser must be certain it is appropriate and will create an overall savings. The Superintendent will be consulted about the efficiency and cost of the subcontractor's work that they will be required to perform before it is taken back from the subcontractor. If work is taken back from a subcontractor, it will be clearly itemized and copied to the Project Manager and Superintendent to avoid miscommunication, confusion, and time lost.

Subcontractor management

Issues in Subcontracting Practice

David Arditi, M.ASCE,¹ and Ranon Chotibhongs²

Abstract: Subcontractors are very important to the successful completion of most construction projects, yet the many issues involved in subcontracting practice are seldom acknowledged. A literature review indicates that these issues include the timeliness of payments by general contractors, the process of selecting subcontractors, subcontractor bonding, construction insurance, safety issues on the construction site, partnering arrangements with various parties, and productivity issues. A questionnaire survey was administered to subcontractors, general contractors, and construction owners to investigate these issues and to determine the differences in perceptions between the parties. The results confirm the existence of the issues identified in the literature and in addition indicate that (1) the practice of retainage withheld by general contractors seems to be acceptable to many subcontractors unless its magnitude is large relative to the size of the firm; (2) postaward bid shopping by general contractors is sometimes justified, particularly in cases where the scope of subcontract work is modified; and (3) current bonding and insurance practices are adequate unless the additional transferred risks are excessive. Recommendations are made on the basis of the findings to minimize the negative effects of said issues.

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Subcontractor management

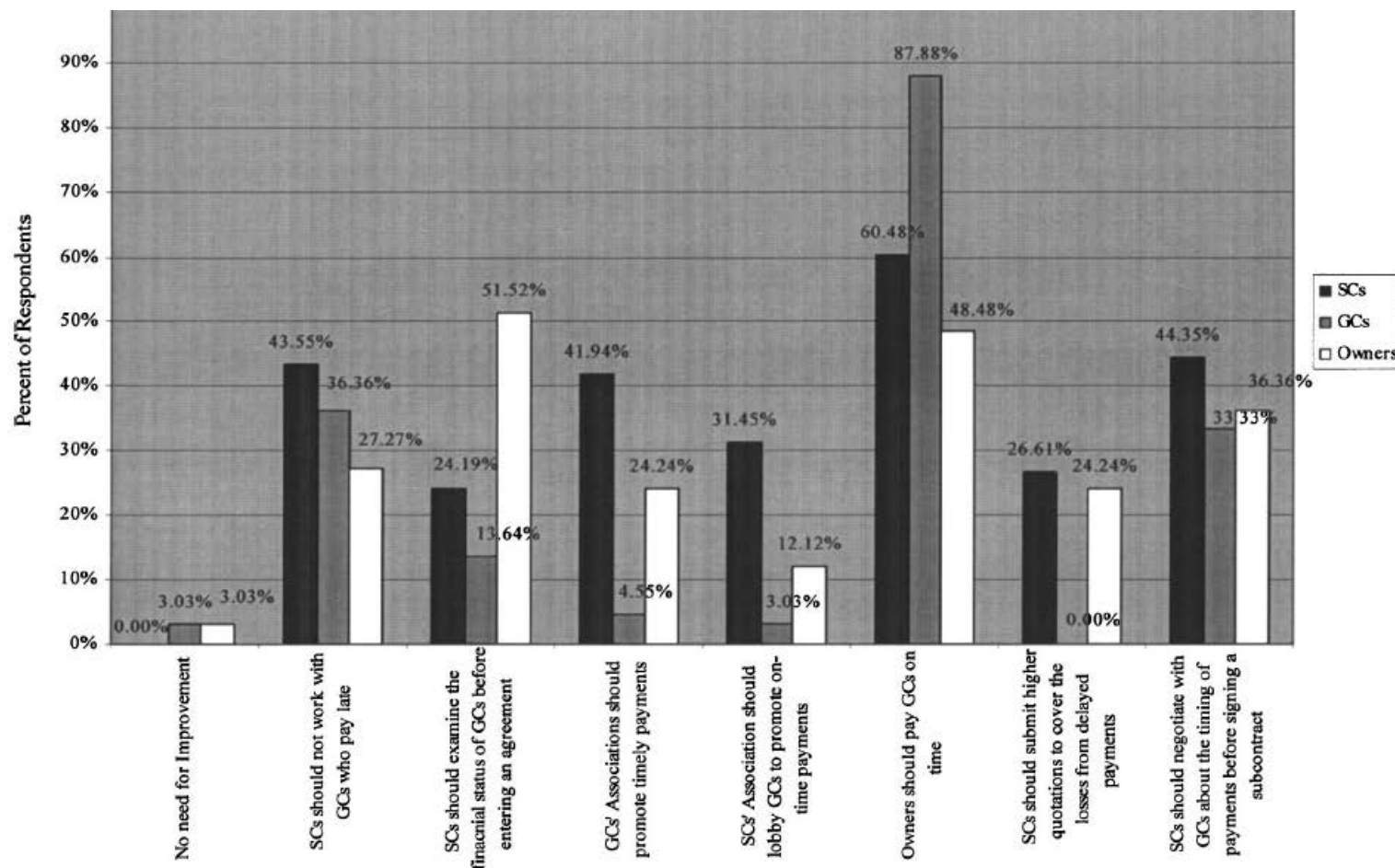


Fig. 2. Distribution of respondents' opinions to improve payment practice

Subcontractor management

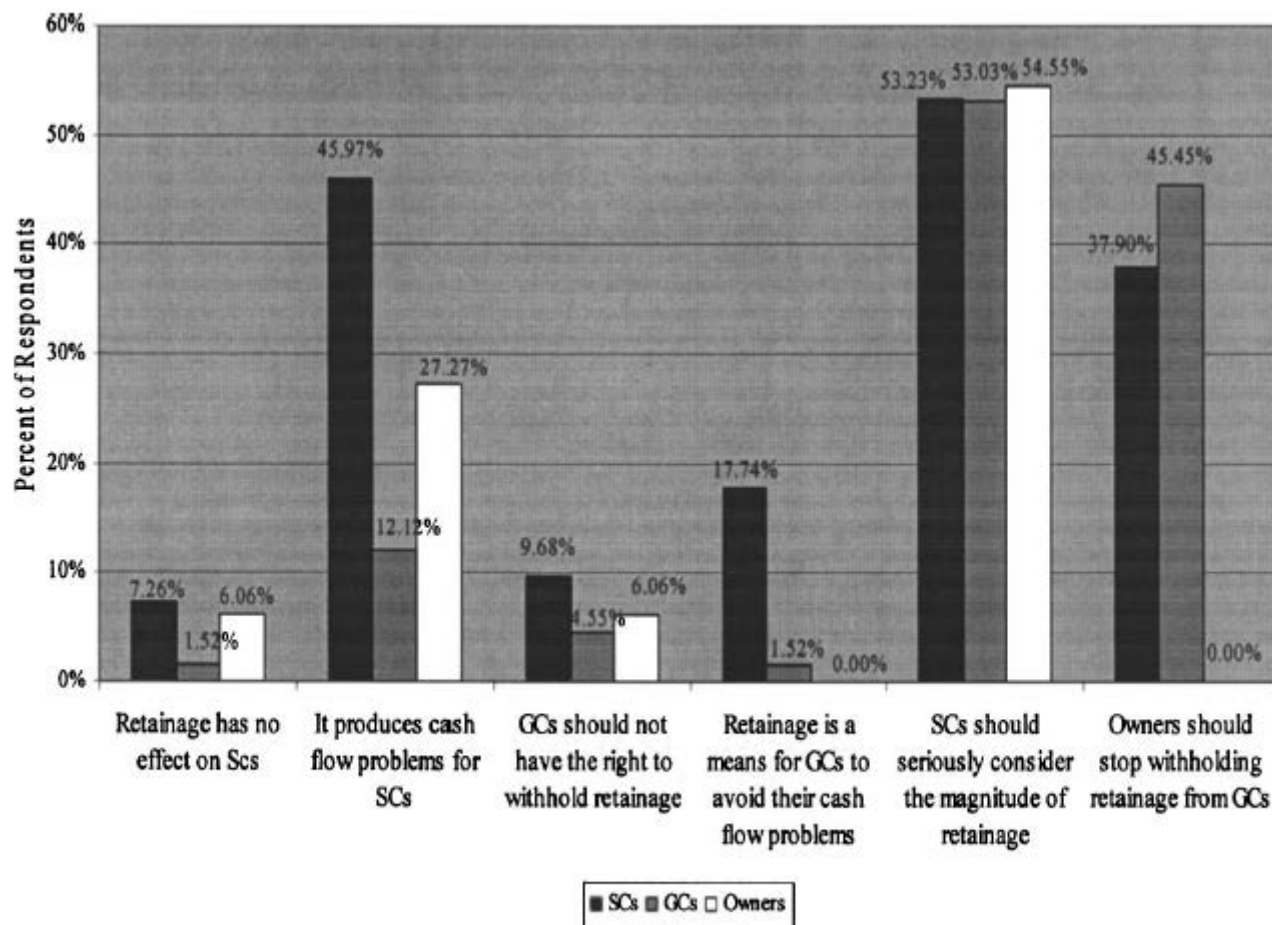


Fig. 3. Distribution of respondents' opinions of retainage withheld by general contractors

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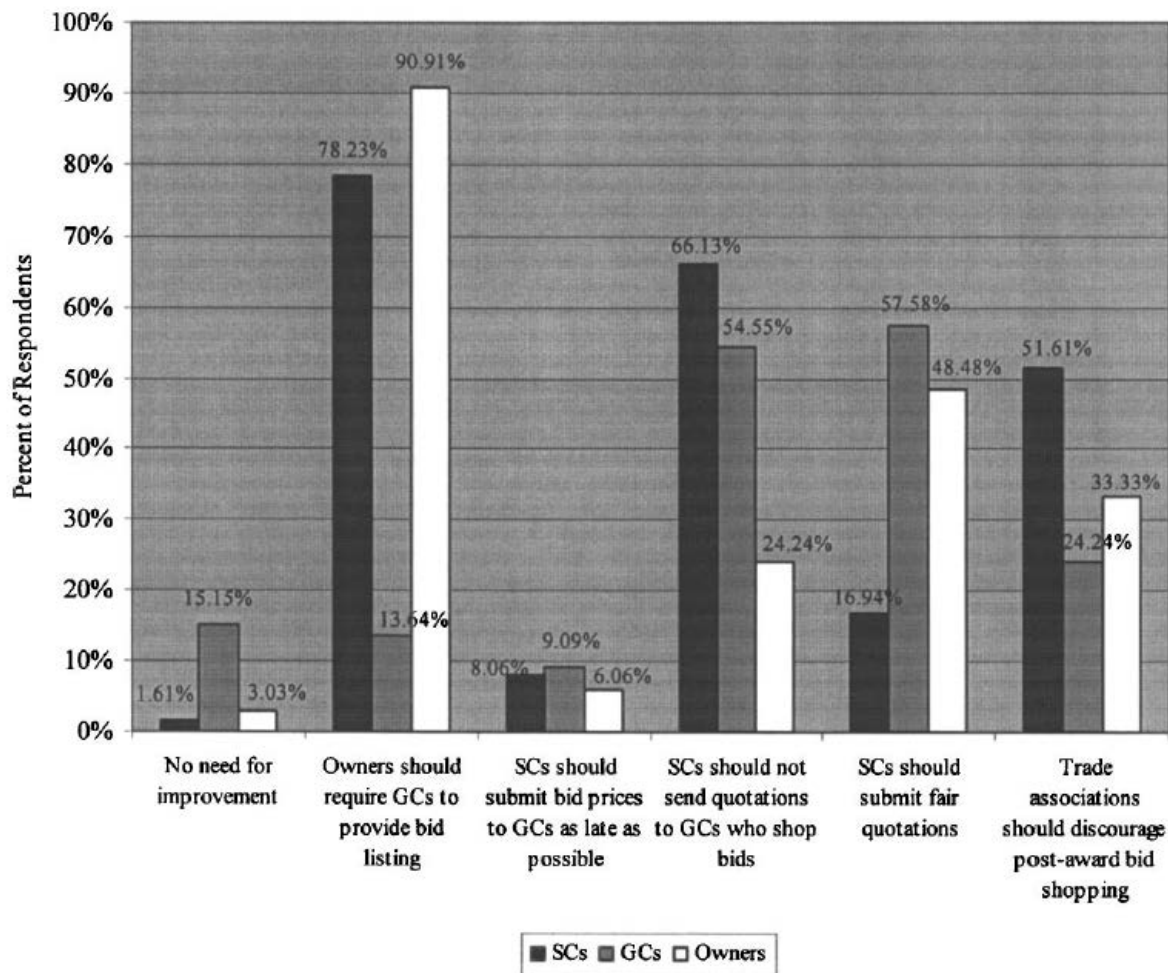


Fig. 4. Opinions concerning ways to improve selection practice

Subcontractor management

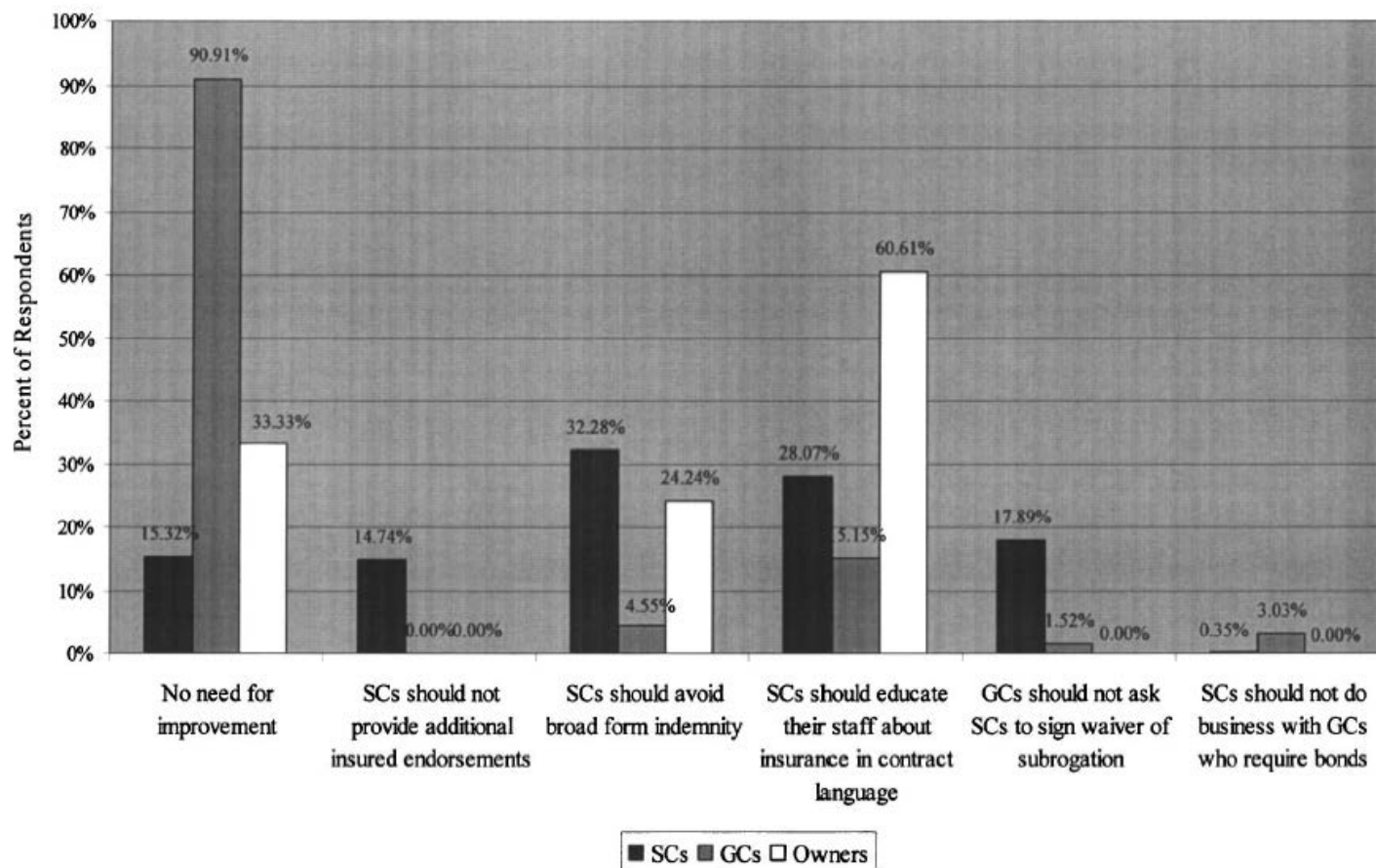


Fig. 5. Opinions about ways to improve bonding/insurance practice

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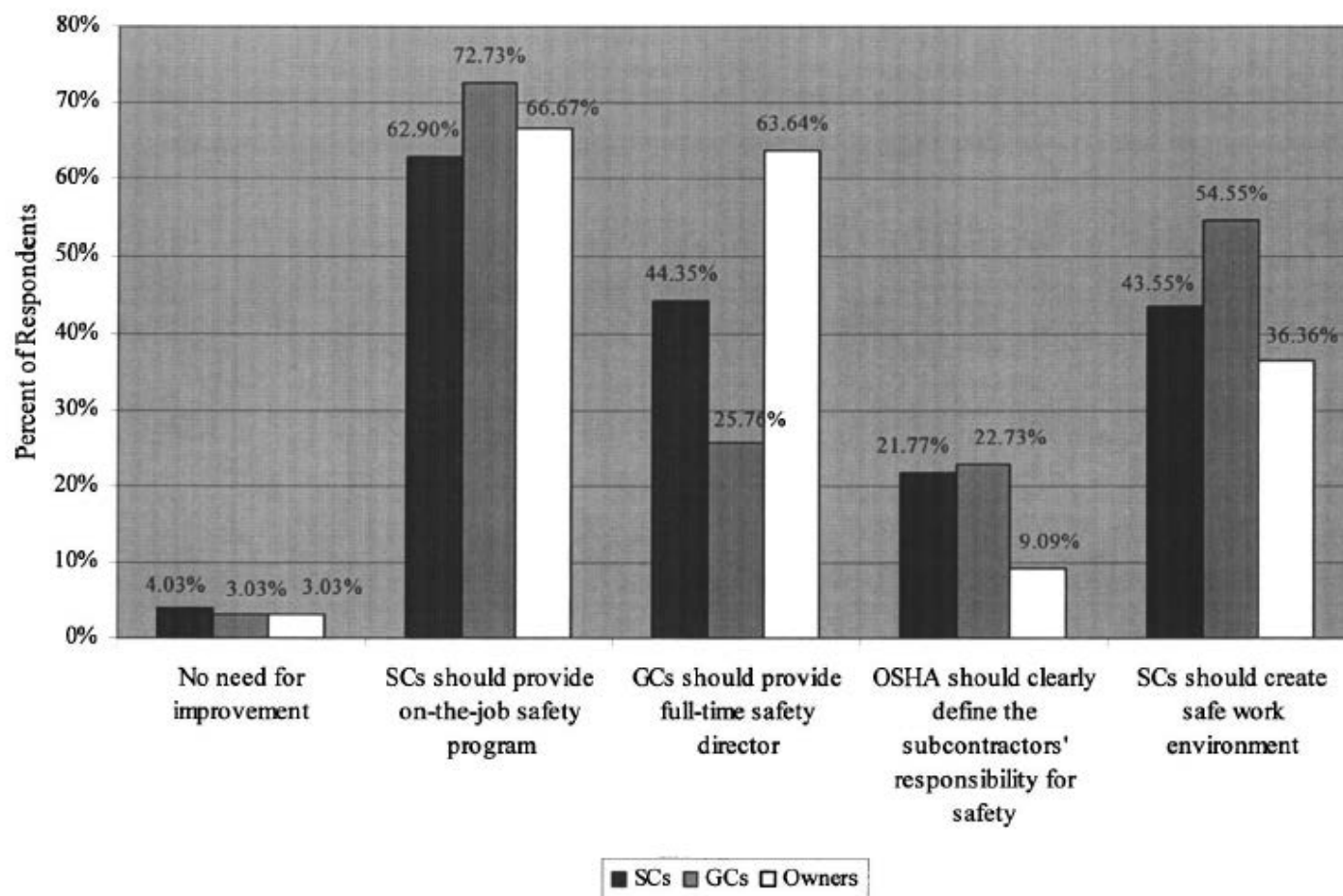


Fig. 6. Respondents' opinions of ways to improve safety practice

Subcontractor management

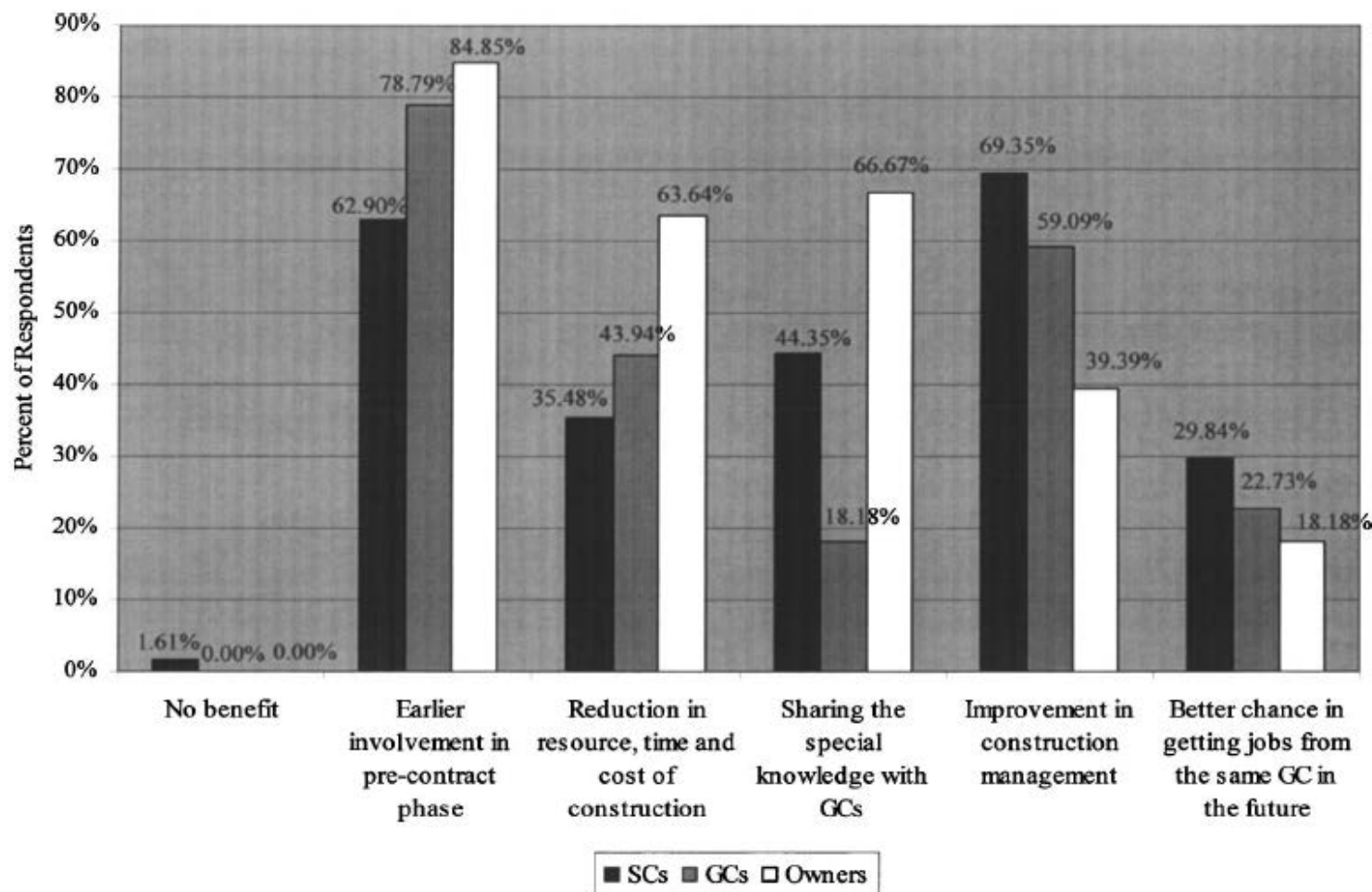


Fig. 7. Benefits of partnering between subcontractors and general contractors

Subcontractor management

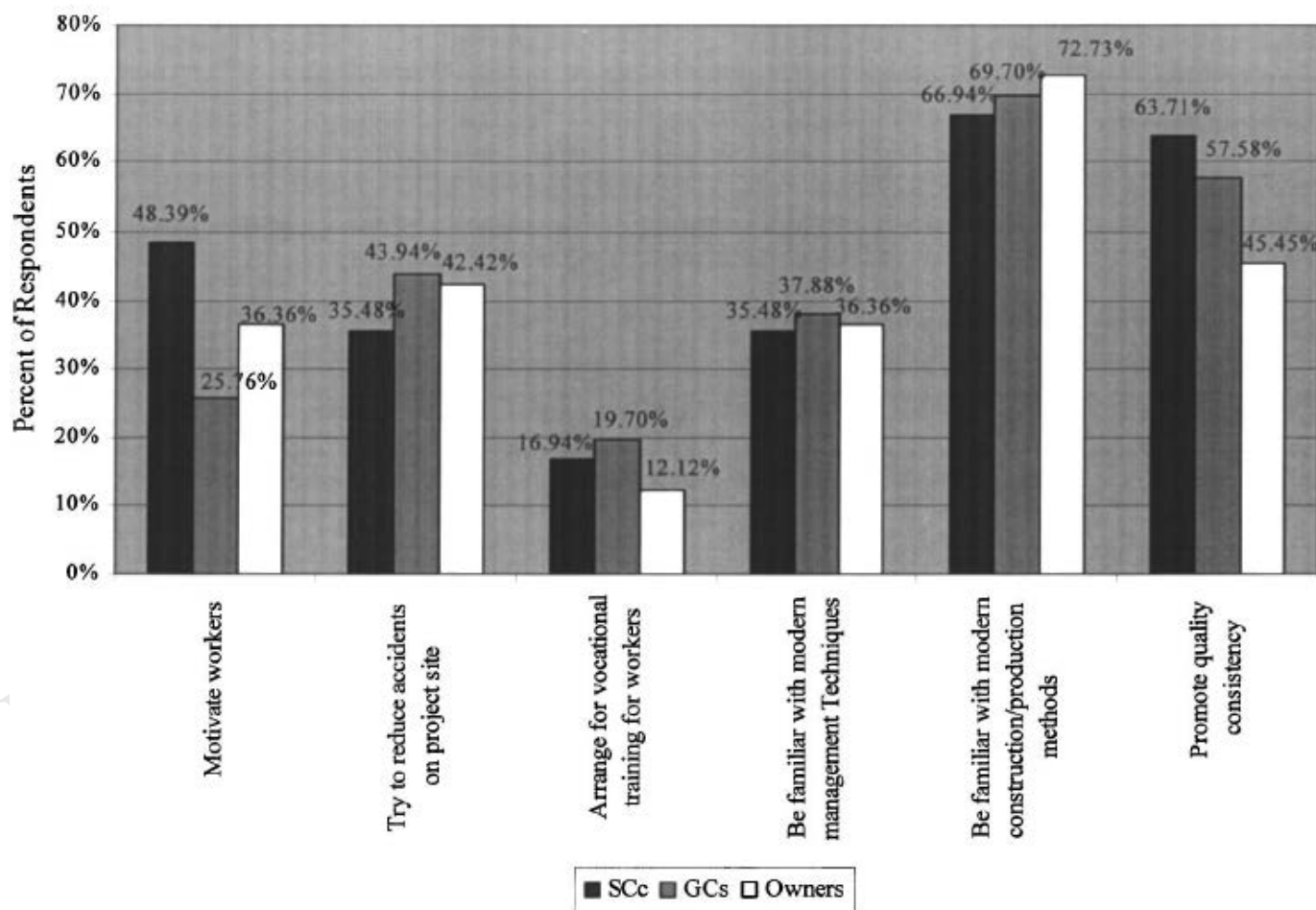


Fig. 8. Respondents' opinions of ways to improve site productivity

Equipment management

- ❑ **Accounting** for a construction **company's equipment** has caused **serious financial problems** for many contractors.
- ❑ The process of evaluating and accounting for **all costs associated** with equipment ownership and usage is **complicated** by the fact that
 - some equipment costs do not appear on everyday invoices**; therefore, they are **not incurred** in the course of operations.
 - ❖ These costs, while **not easily recognized**, will **eventually** have to be **paid**.
 - ✓ All costs, including those **hidden**, must be recognized and **planned for in advance**.

Equipment management

- ❑ Contractors face many equipment **concerns** and **decisions**, which include whether to
 1. Buy or lease equipment,
 2. Which equipment to invest in, and
 3. When to invest.

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Equipment management

❑ **Equipment-intensive contractors**, such as

road builders, landscapers, and sheet metal contractors,

have to make these equipment-related decisions often, and

the decisions have a **long-term** and **profound effect** on the organization's success.

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Equipment management

☐ Contractors whose work is **not equipment-intensive**

may **still** have **similar** equipment-related **concerns** and **decisions** to make,
but **less effort** might be put into these decisions
since equipment is **not a significant part** of their business.

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How much equipment to own

❑ The first step in **controlling equipment costs** is to control the **amount** of equipment owned.

❖ The decision to purchase new equipment is basically made for two reasons:

(1) to replace aging or less efficient equipment, or

(2) for expansion.

Both reasons are valid but ...

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How much equipment to own

❑ Both reasons are valid

but must be considered **logically** because the company is **committing money** with **limited assurance** of future work.

❖ Work **under contract**,

plus a **reasonably certain backlog**,

will keep equipment **busy** for a **year or more**,

but the equipment last **multiple years**.

If a piece of equipment is **not working** at least 65% of the time that it is owned,
it is generally cheaper to **rent** one as needed,
as **opposed** to **owning** it.

Replacing equipment

- ❑ When considering replacing equipment, management must **weigh whether** the **new equipment** is really **more productive** than what they already have, and if so, by **what margin**?

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Replacing equipment

❑ Other questions include the following:

1. Is the difference in **productivity** worth the investment?
2. If the **existing piece** of equipment is a **maintenance headache**, should the company consider investing in a complete reconditioning of the existing equipment and perhaps get **three or four more years** out of it?
3. Are the **next two to five years** of work a certainty? Can we keep the new piece of equipment **busy**?
4. Is the **marketplace growing or shrinking** at this time, and is it likely to change soon in either direction?

Replacing equipment

- ❑ It is **difficult to answer** these questions with absolute certainty;
however, these are questions that **management** needs to **consider** and **weigh** into the equipment purchase decision.
- ❑ New equipment must **produce profits** over a number of years and **not become** a **financial liability** to the organization.
- ❑ Too often, **contractors** “**want**” to buy newer and bigger equipment, **rather than** having a **real “need”** to buy it.
 - ❖ **When** they need a **replacement**, some contractors assume that **bigger is better**.

Purchasing for expansion

- ❑ The decision to buy **additional equipment** for **expansion** is usually made for one of two reasons:
- (1) new work is **already contracted** and there is **no owned equipment available** to perform the work; or
 - (2) the contractor is in an **expanding marketplace** and wants to have the **equipment on hand** to perform the anticipated greater volume.

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Purchasing for expansion

- ❑ The **problem** with buying or committing to more equipment **in advance of getting** the work is that

the company is **required** to **get more work**

just to keep the equipment **busy** and to **justify** the **investment**.

❖ *In this situation, one can argue that the equipment may be running the company*

***as opposed** to the company running the equipment.*

Purchasing for expansion

- ❑ If the **marketplace** is **getting stronger** and growing,
it **may be reasonable** to assume that the company will **get their share** of the growth, and therefore **greater volume**.
- ❖ However, the **company's competitive position** relative to their marketplace
may not stay the **same** when the marketplace grows.
 - ✓ When a marketplace gets stronger it may **also attract outside competition**.

Purchasing for expansion

- ❑ When **out-of-area contractors** are drawn to a strong or growing marketplace they need to get a foothold and **often bid very competitively** to get their first jobs, and **local contractors** may react by **bidding even more aggressively**.

- ❖ **Equipment** becomes a **burden**

when it **forces** a contractor to go after a **greater amount of work**

at a time when they **might have to bid** work at a **lower markup** in order to get it.

Calculating equipment costs

- ☐ The subject of calculating and **accounting** for owned equipment cost is **ignored by some organizations**.
- ☐ **Other organizations** lose sight of this cost because they **believe their accountants** are adequately **taking care** of it.
- ☐ To estimate work, a contractor needs to know exactly **how much equipment** is going to cost, per unit time, including all **maintenance** and **replacement** costs.
- ☐ A contractor must have this information to accurately **price** the **work** at a **profit**.
- ☐ This concept sounds simple, but the calculations can be **challenging**.

Making Decisions in Volatile Conditions

The effects of market cycles

- ❑ Construction is **extremely cyclical**; however, the cycles are **rarely analyzed** to understand their fundamental conditions or symptoms.
- ❑ Another challenge is that **management often cannot react correctly** to the cycle the company is faced with because the organization is usually **still reacting to the last cycle** the company experienced, while simultaneously attempting to **anticipate** the actions needed to be **successful in the next cycle**.



The effects of market cycles

- ❑ For example, if the company has just been through a **fast growth stage** where good people were **hard to come by**,
management may be **hesitant to let go** of the **productive workers**
even though the company can't keep them busy.
- ❖ This is **especially true** if management feels that the **normal volume** of work is coming back soon.

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The effects of market cycles

- ❑ Similarly, if a company that has been through a **long cycle of stagnation or decline** and has **cut back its overhead severely**,

when the **market rebounds**

they will be **slow to add** the overhead back because it **was so painful** to **reduce it**.

One of the most elusive management skills in the construction industry is using market cycles and changes in volume as an advantage.

- ❑ A **growth stage** often has to **last for a considerable length** of time **before management** becomes **convinced that growth** is going to continue long enough

to **feel comfortable** in building up G & A (general and administrative) again.

The effects of market cycles

- ❑ In a growth cycle, which we define as volume growth by **15 percent or more** from **one period to the next**, a construction company will likely go through some or all of the following conditions:
- ❖ Higher incidence of “**bad**” **jobs, challenges with customers, and fading margins.**
 - ❖ **Cash flow difficulties**, including increasing underbillings, problem receivables, and unexpected debt
 - ❖ **Administrative challenges**, including slower information, poor quality information, and delayed billings.
 - ❖ **Increasing demands** for capital expenditures.
 - ❖ **Human resource challenges**, including implementation of problematic compensation

The effects of market cycles

- ❑ In a growth cycle, which we define as volume growth by **15 percent or more** from **one period to the next**, a construction company will likely go through some or all of the following conditions:
 - ❖ In the **early part** of a **fast growth** stage,
 - the **net income percentage** improves because the company stretched out the **overhead over a larger volume of work**,
 - but the **balance sheet ratios** show stress.
 - ❖ In the **latter phases** of **fast growth**,
 - the **profitability** may **fade back** to normal (or worse)
 - while the **balance sheet ratios** may show extreme stress.

- ☐ The greatest challenge when a company grows and shrinks in size is **managing overhead**.
- ☐ A **company's overhead structure** doesn't and shouldn't grow or shrink in direct proportion to volume changes.

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- ❑ This is an **example of how this process works** when a company crosses a volume threshold that creates **enough stress to require more overhead** and how doing that affects the bottom line.
- ❑ The company hits **\$8 million in volume** with an overhead of **\$70,000 per month**, gets stressed, and adds additional management, a new computer system, additional accounting staff, office space, and other necessities **totaling \$20,000 per month**.
- ❑ Management is **planning to add sufficient revenue** to cover the additional expense, but for the **moment there is an impact of decreased profit** by three percentage points.
 - ❖ (The G & A was 10.5 percent of revenue, but company increased G & A to 13.5 percent, so net income decreased by the same amount—3 points).

- ❑ With the increased overhead structure, the company can **effectively perform more work**, so management increases **volume to \$10.3 million** and the **G & A is back to 10.5 percent** of revenue.
- ❑ Then the company continues to increase **volume to \$12 million** with the same overhead, so the **G & A is now 9 percent of revenue**.

The greatest challenge when a company grows and shrinks in size is managing overhead.

- ❖ This is what is referred to as **stretching out overhead**.
- ❖ If the company **maintains stable gross profits** as they grow, the company's bottom line improves dramatically as it **stretches the overhead**.
- ❖ Unfortunately, the **more** the company **stretches out the overhead** (visualize a taut rubber band),

the more **likely it is to break**, and then the company experiences stress in the form of a variety of **negative conditions to manage**.

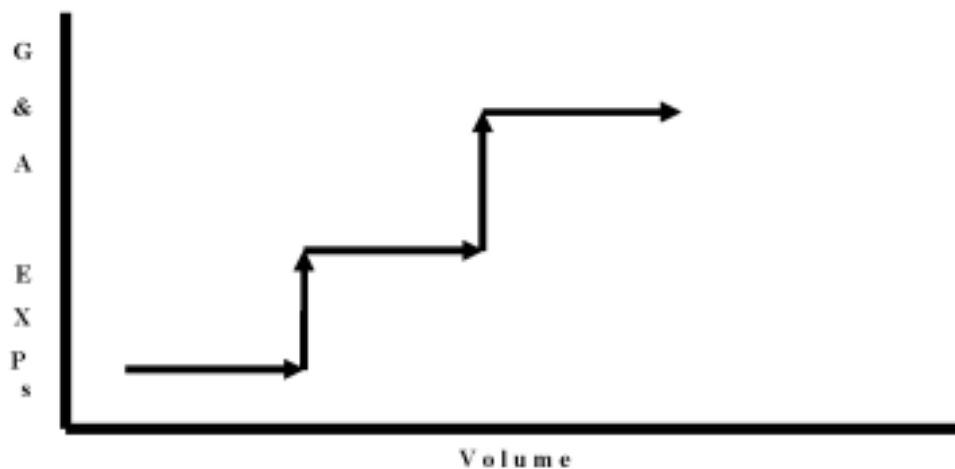


Figure 16.2 As Profits Increase, Stress Also Increases.

- ❑ If a company **starts growing rapidly**,
 the further the company is to the **left side of the step**,
 the **longer management** has to react as the company moves to
 the right side.
- ❑ **Most** companies **add incremental overhead** enhancements as they move to the
 right,
 but **few** are likely to make **substantial additions** until they are forced to do so.

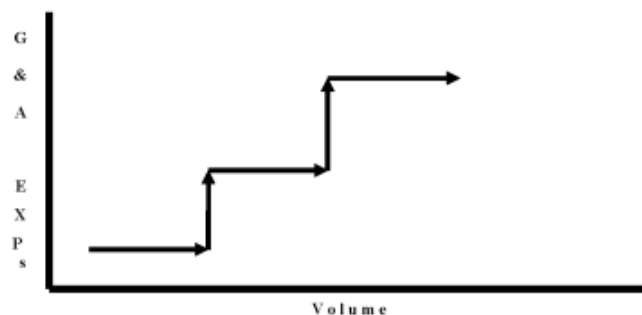


Figure 16.2 As Profits Increase, Stress Also Increases.

- ❑ The **place to stay comfortably** is near the center of the step.
- ❖ Unfortunately, that is hard to do.
- ❖ Even if the volume doesn't grow, overhead does, pushing the company back to the left edge of the step.
- ✓ If a company tries to **stay close to the right** edge of the step, the **stress** will eventually cause **too many breakdowns**, and if the company tries to **stay at the left side**, the high overhead will **eat up the profit**.

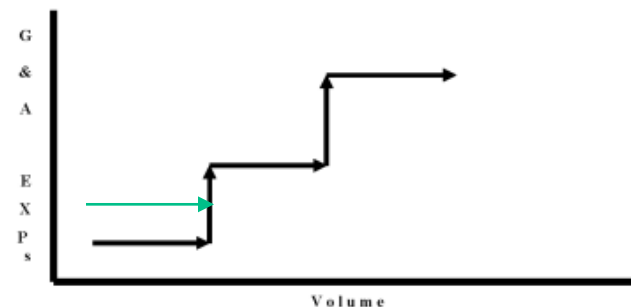


Figure 16.2 As Profits Increase, Stress Also Increases.

Using cycles positively

❑ Using the stair-step concept, it is possible to make **positive uses of a market** or business cycle in the following ways:

- ❖ If the **volume is declining**, it is a good time to **focus** efforts on the best customers, the best work by type, and the best people.
- ❖ A decline phase is often a **relief to a company** if the company cuts out
 - The customers they **don't want to work** for,
 - The work that **doesn't make money**, and
 - The people they can do **without anyway**.

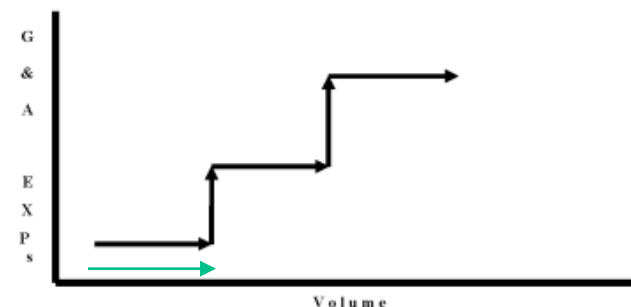


Figure 16.2 As Profits Increase, Stress Also Increases.

Using cycles positively

❑ Using the stair-step concept, it is possible to make **positive uses of a market** or business cycle in the following ways:

❖ **Growth** is a good stage to stretch out the overhead and to **test** the limits of **effectiveness** of the systems and people.

✓ The **early phases of growth** are usually the **most profitable** of all conditions if the company can manage the **cash demands well**.

❖ **Stagnation** is a good time to sharpen the ax by improving **systems and people**.

○ It's the best time to train, fix equipment, change systems, and address other project management needs.

○ In a growth phase management is too busy to improve, whereas in a declining market management is afraid to invest money.

Consecutive cycles and fighting tendencies

❑ As mentioned in an earlier comment,

management is often **unable to react to current market** conditions successfully because the company is **usually still reacting to the previous** market cycle

while **also looking forward** to the next expected cycle.

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Consecutive cycles and fighting tendencies

- ☐ For example, if a company has been **declining in volume** for a while,
is **still declining**, and is **expected** to continue to **decline**,
the management actions would be clear though **challenging**.
- ☐ The **same clarity** would hold true if the company has been **growing** and expects to
continue to grow.

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Consecutive cycles and fighting tendencies

❑ There are **two major challenges** to overcome:

1. Management gets **emotionally stuck** in the **last phase** and does **not react quickly** enough or **strongly** enough to the new phase the company is entering.
2. Management **can't predict** the **next phase** with any degree of accuracy

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Consecutive cycles and fighting tendencies

- ☐ To **fight the first tendency**, management needs to **stay in the present** and focus on the management techniques that must be used to **take advantage** of the different stages.
- ☐ One of the **best solutions** for dealing with this stuck condition is to **have strong outside voices** around the company such as an **external board of directors** or advisors.
- ☐ These should be **people management respects**, who will be **direct with them**, and who have **enough distance** from the company that they can **maintain perspective**.

Consecutive cycles and fighting tendencies

- ☐ To **counteract** the **second tendency**,

management needs to use the **scenario planning** discussed earlier to recognize conditions quickly and **take appropriate actions**.

- ☐ **No one can predict** the future, but management can **envision different likely futures**,

so they are prepared to **respond in a timely manner** when change occurs.

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Selecting the Right Work

Selecting the right work

- ☐ To select the right work, it is wise to review **past project performance**.
- ☐ What the contractor likes to do and is actually good at doing are **two different** questions.
- ☐ Sometimes, one has nothing to do with the other, just as the **best customer** may **not be the most profitable one**.

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Focused market method

- ❑ Another **strong fact-based methodology** to determine best work is the focused marketing method,

which is a **quantitative**, as opposed to an opinion-based, method.

- ❑ In practice, you and your **team assign numbers** to different factors.
- ❑ What makes it even more powerful is that you have to **assign a unique number** to each factor.
- ❑ This means there **can't be two highest-rated factors** or **number-one factors**, for example.
 - ❖ This is hard to decide, but useful.

❑ Your best market is always characterized by three factors:

1. Geographic location
2. Client type
3. Work type

Effective Market Focus

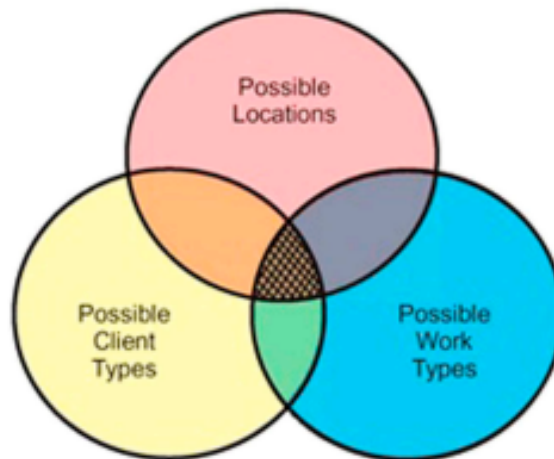


Figure 3.1 Market selection is composed of three primary components.

Market analysis – Geographic location

Criteria	Criterion Weight	Metropolitan Area		Small City/Town		Rural		Exotic/Vacation Destination	
Number of Suppliers	6	10	60	9	54	4	24	1	6
Number of Mechanical Contractors	10	10	100	9	90	4	40	1	10
Accommodations	2	5	10	10	20	8	16	1	2
Air Flights	4	10	40	9	36	6	24	1	4
Totals			210		200		104		22

Table 3.2 Focused Marketing Template for Location

Market analysis – Client type

Criteria	Weight	ABC		Bettis		Georgio		Haffen		Hughes		XYZ	
Ability to pay	10	7	70	8	80	10	100	4	40	9	90	5	50
Ability to understand / sophisticated	4	6	24	7	28	3	12	10	40	9	36	8	32
Growing and consistent builders	9	10	90	8	72	5	45	3	27	9	81	2	18
Predictable bid scopes	3	9	27	6	18	2	6	10	30	8	24	7	21
Medium-large size projects	6	7	42	8	48	10	60	5	30	9	54	2	12
Bond required usually	5	6	30	8	40	10	50	7	35	9	45	4	20
Can have a relationship with us	8	8	64	10	80	9	72	7	56	6	48	4	32
Quality Demanded	7	7	49	8	56	9	63	10	70	6	42	5	35
Totals			396		422		408		328		420		220

Table 3.3 Client Type/Customer Rating

Market analysis – Work type

Criteria	Criterion Weight	Insurance Restoration		Development Work		Apartment Work		Student Housing		Hotels		Nursing Homes	
Repetition	7	4	28	1	7	10	70	8	56	9	63	6	42
Experience	10	9	90	1	10	10	100	6	60	7	70	3	30
Staffing needs	5	10	50	1	5	9	45	7	35	8	40	5	25
Estimating— heavy detail	9	10	90	3	27	9	81	7	63	8	72	6	54
Demolition needed	6	6	36	1	6	10	60	9	54	3	18	4	24
Competition	8	8	64	10	80	9	72	7	56	6	48	4	32
Totals			358		135		428		324		311		207

Table 3.4 Work Type Rating

Project selection program

Project Selection Program v1.1 © Thomas C Schleifer, Ph.D. tschleifer@q.com **50.0%**

Project Name:

Completed By: Date:

Introduction: [Click here](#)

Directions: [Click here](#)

Change weights: [Click here](#)

Click on question for more detail

Section 1 - Project Fit	Weight	Default Weight
1.1 Has the firm successfully completed projects this size (this large)? ☐ Never ☐ Few ☐ Often	10 pts	10 pts
1.2 Has the firm successfully completed projects of this type? ☐ Never ☐ Few ☐ Often	10 pts	10 pts
1.3 Has the firm successfully completed projects in this geographic area? ☐ Never ☐ Few ☐ Often	10 pts	10 pts
1.4 Has firm successfully completed projects with this Owner/GC/CM? ☐ Never ☐ Few ☐ Often	10 pts	10 pts

Section 2 - Firm's Experience	Weight	Default Weight
2.1 Has the firm successfully completed projects with this Owner/GC/CM's representatives, inspectors, etc.? ☐ Never ☐ Few ☐ Often	2 pts	2 pts
2.2 Has the firm successfully completed projects with this designer/architect/engineer? ☐ Never ☐ Few ☐ Often	5 pts	5 pts
2.3 Has the firm successfully completed projects with this designer/architect/engineer's field personnel, inspectors, etc.? ☐ Never ☐ Few ☐ Often	2 pts	2 pts
2.4 Has the firm's estimating team priced this type of project? ☐ Never ☐ Few ☐ Often	4 pts	4 pts
2.5 Has the firm's anticipated field team (PM, Supt, Foreman) built this type/size of project? ☐ Never ☐ Few ☐ Often	6 pts	6 pts

Section 3 - Project Complexity	Weight	Default Weight
3.1 Is the required project schedule reasonable? ☐ No ☐ Unknown ☐ Yes	4 pts	4 pts

Figure 10.3 Project selection program (screenshot 1 of 3).

Project selection program

3.2	Is there sufficient labor available to produce the project? (consider available skill levels) ☐ No ☐ Unknown ☐ Yes	5 pts	5 pts
3.3	Has the firm had prior successful experience with the intended major subcontractors/vendors/etc.? ☐ No ☐ Unknown ☐ Yes	5 pts	5 pts
3.4	Are there unusual access, room-to-work, parking, dust, noise, storage space, traffic, etc. issues? ☐ Yes ☐ Unknown ☐ No	3 pts	3 pts
3.5	Are there unusual ground or surface water conditions? ☐ Yes ☐ Unknown ☐ No	3 pts	3 pts
3.6	Are there rock, soft soils, unusually deep excavations, etc. that may complicate or delay the project? ☐ Yes ☐ Unknown ☐ No	3 pts	3 pts
3.7	Are there unusual, circular, curved or angled design elements: i.e. walls, bridges, roofs, structures or other that may complicate/delay the project? ☐ Yes ☐ Unknown ☐ No	4 pts	4 pts
3.8	Are there critical long-lead, sole source or unusual items that may delay the project? ☐ Yes ☐ Unknown ☐ No	2 pts	2 pts
Section 4 - Financial and cash flow impacts		Weight	Default Weight
4.1	Is the project owner's financing in place? ☐ No ☐ Unknown ☐ Yes	2 pts	2 pts
4.2	Does the firm have experience with the payment processes of this owner/GC/CM? ☐ No ☐ Unknown ☐ Yes	2 pts	2 pts
4.3	Will this project strain the organization's resources: i.e., financial, equipment, manpower, management, or other? ☐ Yes ☐ Unknown ☐ No	3 pts	3 pts
Section 5 - Contract issues		Weight	Default Weight
5.1	Are contract terms reasonable? ☐ No ☐ Unknown ☐ Yes	1 pts	1 pts
5.2	Are there any unusual payment provisions, retainage issues or liquidated damages that will affect cash flow? ☐ Yes ☐ Unknown ☐ No	1 pts	1 pts

Figure 10.4 Project selection program (screenshot 2 of 3).

Project selection program

5.3 Are there any unusual bonding requirements?	1 pts	1 pts
☐ Yes ☐ Unknown ☐ No		
5.4 Are there any unusual insurance requirements?	1 pts	1 pts
☐ Yes ☐ Unknown ☐ No		
5.5 Are there any unusual indemnity issues?	1 pts	1 pts
☐ Yes ☐ Unknown ☐ No		

Section 6 - Additional Issues to Consider (these are not scored)

6.1 Do you believe you have a competitive edge on this project?

Going after a project generally has a cost associated with it along with potential lost opportunity if the use of resources to get the project prevents or impacts going after another job or reduces efforts of attracting other projects. This makes the measurement of a competitive edge or lack of one significant. Where there is a competitive edge on a project it may make sense to invest more resources than on one where there is less or no competitive edge. This is difficult to measure, but for most contractors it is intuitive.

6.2 Do you believe another contractor(s) has a competitive edge on this project?

Realistically recognizing any competitive edge other contractors may have is valuable knowledge and can assist in a project selection decision. Most are familiar with projects where a favored contractor was the owner/GC/CM's obvious choice and many other contractors wasted a lot of effort and resources only to see the obvious choice selected. Screening out projects that a firm has limited chance of capturing saves considerable resources which can be applied to projects with a higher likelihood of success and can potentially increase sales.

6.3 Is there consensus within your organization about pursuing this project?

When everyone in an organization is excited about pursuing a particular project the odds of capturing that work go up through the quantity and quality of the energy expended. The converse is true when there is little enthusiasm for a project making capturing it more difficult. There are situations when not going after a project is the best project selection decision. If some or many are concerned about a certain project it may be the wrong job for the company.

6.4 Is your "gut feeling" about this project negative or positive?

The expression; "If all else fails trust your gut" can be a valuable inclusion in the project selection process. The information collected from the above questions is of great value, however, if persons in responsible positions within an organization still have a gut feeling about a positive or negative decision it probably makes sense to reevaluate the data before making a final decision.

6.5 How does the project fit with the existing/anticipated backlog?

A contractor whose current work is running smoothly has only limited exposure in taking on additional work. However, a contractor managing a troubled job or two may encounter additional risk in adding the next project. A well-managed and organized backlog has reasonably low exposure and makes additional, prospective projects attractive. A troubled backlog has higher risk which may indicate that this may not be the time to add another project.

6.6 Does the contract include Consequential Damages or are they expressed or implied?

Consequential Damages are damages resulting as a consequence of the project. The owner is the usual party damaged, the public and others may also be included. Fairly common are damages that result when a revenue-generating project is delivered late such as a restaurant, hotel or retail business. The damages include loss of revenue because the intended use is delayed which can result in serious potential liability for a contractor that causes this to happen. Some contractors will not undertake such exposure which unlike liquidated damages cannot be measured in advance.

Project selection program

Introduction: There are no bad projects, just bad matches between projects and contractors. The probability of success in go/no-go decisions in project selection can be accurately measured in advance and are directly associated with the construction organization's experience with similar work. The elements impacting success have been weighted to produce a numeric scale of how well the prospective project matches the firm's experience: designed for general contractors, subcontractors, and construction managers; effective for architects, engineers, and vendors; supports owner's contractor selection.

Directions: Answer the questions without overthinking them. Total possible scores range from 10% to 90%. The program is based on a firm's knowledge about a potential project. If nothing is known about a project, probability of success is a "toss up," which in statistical language translates to 50/50 or a 50% probability. Therefore, the program score opens at 50% before adding knowledge about the project. As knowledge is added it raises or lowers the score. A higher score represents a higher potential for success and a lower score reduced potential. There is benefit to multiple people within an organization score projects separately or in collaboration.

Change Weights: The weighting of questions is derived from 40 years of measurement and experience and considered accurate. While it is not recommended, users may change the weight for any question they feel may be more appropriate for their circumstance. The default weights are shown to note how far a change is from the program weight. Weighting is based on statistical analysis which takes into account the likelihood that an event will occur and the severity if it does occur. For example, a costly issue (severity) occurs historically in a small percentage of projects it is weighted lower than an issue with high severity and high occurrence. Users should change weighting values carefully keeping in mind that varying one point of a 10-point question revises it by 10% while adding one point to a one-point question revises it 100%.

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مدیریت کسب و کار در صنعت ساخت (Construction Business Management)

ماژول ۲: مدیریت کسب و کار

بخش دوم: مدیریت قرارداد

ارائه دهنده:

سید محمدرضا علوی پور

(PhD, PMP, CMIT)

CMAA Authorized Trainer

دانشگاه Illinois Tech آمریکا

What we will learn?

- ☐ Contract Terms and Conditions
- ☐ Requirements For a Binding Agreement
- ☐ A Few Generalizations About Contractors
- ☐ Know the Project Owner
- ☐ Getting Paid
- ☐ Commencement/Completion Dates
- ☐ Owner Delay
- ☐ Contractor Delay
- ☐ Changes in the Work
- ☐ Constructive Change
- ☐ Differing Conditions / Changed Conditions)
- ☐ Insurance

What we will learn?

- ☐ Indemnification
- ☐ Warranty Obligations
- ☐ Limitation of Liability
- ☐ Governing Law
- ☐ Dispute Resolution
- ☐ Contract Termination by the Owner
- ☐ You and Your Subcontractor

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Contract Terms and Conditions

Contract terms and conditions

- ❑ At the **time of execution** of a construction agreement, the owner and contractor are **typically friendly** but that atmosphere can go **downhill in the course of a dispute**, and unless satisfactory resolution is reached it may evaporate completely.
 - ❖ This highlights the need for a **comprehensive contract**.
- ❑ This section discusses only **selected contractual issues** that in our experience **demand special attention** when it comes to signing a construction agreement and is **not intended** to provide a comprehensive list.

Contract terms and conditions

☐ **Unless** you are skilled in **interpreting legal documents**

you'll need to hire an **attorney** who specializes in **construction law**

to review any **new-to-you construction contract** and

go over it with you **before you sign it.**

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Requirements For a Binding Agreement

Requirements for a binding agreement

❑ **Lawyers caution** that for a construction contract to be **legally enforceable** the following conditions must be present:

1. Agreement between parties as to the meaning of the contract at the time of execution
2. The parties must have the legal capacity to form a contract
3. Sufficient consideration, or value

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Requirements for a binding agreement

- ☐ Make every effort to include your **entire agreement** in a written document.
- ☐ Once a **contract is executed**,
discussions you had beforehand, e.g., at a **pre-bid conference**,
are generally **not enforceable** if not written in the contract.
- ☐ Look at any proposed agreement as a **whole**.
 - ❖ The **apparent meaning** of a **sentence** you focus on in the agreement may be **changed by another sentence** in that **same agreement**.

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Requirements for a binding agreement

- ❑ When you think you **need legal expertise** in dealing with contracts, hire your own lawyer—**not one** who represents **both** you and the owner.
 - ❖ Consulting your lawyer for advice **before plunging into unfamiliar territory** is much less costly in terms of both time and money **than hiring him** to get you out of the muck later on.
 - ✓ This is especially important **during your early years** in the business.

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A Few Generalizations About Contractors

A few generalizations about contractors

- ☐ According to lawyers:
 - ❖ **Terms** that have a **special meaning** should be defined in the contract.
- ☐ **Specifications** take precedence over the **drawings**.
- ☐ **Handwritten contractual terms** are given more weight than **typewritten terms**.
- ☐ **Typewritten** terms have priority over **printed ones**.
- ☐ If an **ambiguity** in the contract arises in the course of a dispute, the **courts** generally **rule against** the party who wrote the ambiguous language.

A few generalizations about contractors

- ❑ It might **seem** that the **contractor has the advantage** here when the owner draws the contract,
but if you **don't bring unclear issues** to the owner's attention and clarify them **prior to bidding**
you may be **responsible for any consequences** of the ambiguity during construction.
- ❑ The **owner** has an **implied duty to cooperate** with the contractor,
including coordinating the activities of suppliers, vendors, and others
the **owner has contracted** with but who have no direct link with the contractor.
- ❑ Another **implied duty** of the **owner** is to provide the contractor with **accurate and sufficient** plans and specifications.

Know the Project Owner

Know the project owner

☐ The **contract** must state the **owner's name exactly** as shown on his or his company's

1. Corporate registration,
2. Financial statements, and
3. Any other documentation you rely on.

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Getting Paid

Getting paid

❑ In a **perfect world** the owner

- ❖ Hands you a trouble-free building site,
- ❖ Develops a clear and accurate set of drawings and specifications,
- ❖ Arranges financing including contingencies for change orders,
- ❖ Offers you a contract that allocates the risk fairly between you and him, and
- ❖ Pays promptly when you submit your applications for payments.

All of your employees, subcontractors and suppliers perform as expected, and there are no delays on the project.

Getting paid

❑ Sounds great, doesn't it?

- ❖ Of course, in the **real world of construction** you have to prepare for **every one** of those conditions and **more** to go **against you**, and the **time to prepare** for that is **before** you **commit** to the owner.
- ❖ **Do not wait until after you sign** the construction agreement, **begin work**, or are ready to apply for **your first progress payment**.

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Getting paid

- ☐ **Even the best preparation** does not guarantee that your applications for payment will be paid on a timely basis,
but there are **steps you can take** to improve your odds.

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Getting paid

☐ Be certain the construction agreement states:

1. When you may apply for progress payments
2. The method for computing the amount due
3. The documentation you're required to submit along with the application
4. The amount of retainage the owner is allowed to withhold (the percentage preferably decreasing as the project progresses)
5. Where, to whom, and by what means to send your application for payment
6. When the owner is required to pay a properly submitted application for progress payments and final payment (i.e., the maximum number of days after he receives your application)
 - ❖ The requirements for final payment application, which are usually different from progress payments

Getting paid

- ☐ **Paying all** of your subcontractors and suppliers for amounts included in your current application for payment can
cause you a logistical and especially a **cash-flow problem**.

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Getting paid

☐ If you're **required to sign** a lien waiver or claims waiver

before you receive payment,

state in your waiver that it is **conditioned on your receipt** of the payment it covers.

❖ Be certain that **nothing in the owner-contractor** agreement limits or prohibits your right to place a lien on the premises.

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Getting paid

❑ Here are a few **non-contractual issues** to explore in the interest of **getting paid** for the work you do.

1. Where is the owner's money coming from? Bank financing? Cash in the bank?
These are legitimate questions the owner should be willing to answer and document to your complete satisfaction.
2. Will the owner's construction lender agree to set aside funds adequate to cover your contract amount plus reasonably estimated contingencies?
3. What is the owner's track record for dealing with and paying contractors?
4. Who in the owner's organization is authorized to approve change orders?
5. What are the requirements for placing liens in the state and county the project is located in?

Getting paid

❑ Here are a few **non-contractual issues** to explore in the interest of **getting paid** for the work you do.

6. If the owner's lender requires you to sign an agreement that you will complete the project in the event the lender takes it over due to default of the owner's obligations to the lender,

does the lender agree to first pay you for any work done to date for which you have not been paid?

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Commencement/Completion Dates

Commencement/Completion dates

☐ The agreement should state

1. The beginning date for the project,
2. The number of days allowed for completion, and
3. The provisions for time extensions for excusable delays.

☐ If the agreement provides for a Notice to Proceed to be issued by the owner or architect,

it should state the **number of days** between the notice and the commencement of the construction clock.

Owner Delay

❑ When an owner causes a delay, the **contractor** is usually entitled to a **time extension** and **compensation for his costs** that result from the delay unless the contract language prohibits it.

❖ Therefore, astute owners try to include a “**no-damages-for-delay**” clause in the owner–contractor agreement,

but you should **negotiate this out of the contract** as it unfairly places risk on you.

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Owner delay

- ☐ Even if a **no-damages-for-delay clause** is present in your agreement, you may be entitled to payment by the owner for delays caused by
1. Defective plans and specifications or
 2. His failure to supply labor or materials he's responsible for,
 3. Make the site accessible, or
 4. Pay you as agreed.
- ❖ These are known as compensable excusable delays.

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Contractor Delay

Contractor delay

- ❑ In the event of **late completion** of a project, the owner may suffer **consequential costs** he would like to **recover from the contractor**.
- ❑ Consequential costs might include **loss of the revenues** the owner would have realized between the contractual completion date and the actual completion date, and **additional interest on loans**.
- ❑ Delays caused by **unavoidable events** such as exceptionally bad weather, changes in the work, and acts of God are generally excusable unless otherwise provided by the owner–contractor agreement, but in the case of unexcused delays the contractor may be liable for the owner’s actual damages.
- ❑ It is not hard to imagine that the **owner’s losses** can **quickly become large**.

Changes in the Work

Changes in the work

❑ In order to make design changes, to **correct errors in the drawings**, and for other valid reasons,

project owners must have the **right to require changes** in the work after the **owner–contractor agreement is signed**,

with **appropriate adjustment** in the contract amount and time.

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Changes in the work

- ❑ You can **strengthen your claims** for payment for extras by taking the following into account **before doing the extra work**:
 - ❖ The person ordering you to do the extra work must be duly **authorized** to do so.
 - ❖ This may seem obvious, but it is frequently a matter of dispute.
 - ❖ If the construction **agreement does not name** the person or persons having this authority,
 - try to **reach an understanding with the owner** before or as soon as possible **after the job starts**, and
 - confirm it in writing to him and inform **your project manager and job superintendent** and others in your company who need to know.
 - ❖ You risk not getting paid for the work you perform without proper authorization.

Changes in the work

❑ You can **strengthen your claims** for payment for extras by taking the following into account **before doing the extra work**:

❖ The need to perform extra work is **often initiated** by

1. The **contractor** when his project manager or job superintendent comes upon a situation that **doesn't work according to plan**, or
2. The **owner wants** a change in the design.
 - ✓ **Change authorizations** often happen via **telephone or other informal** communication when it is **not practical to wait** for a formal change order to be drafted and signed before doing the work.
 - ✓ All too often, **contractors proceed** with the work after receiving approval by **word of mouth** and assume the **formal change order will come**.

Changes in the work

❑ You can **strengthen your claims** for payment for extras by taking the following into account **before doing the extra work**:

- ❖ This is **risky**. If you **make the judgment call** to proceed on faith,
 1. First be sure the oral (verbal) “approval” comes from a duly **authorized person**,
 2. Then **follow through immediately** to confirm the change in writing while the details are **fresh in the minds** of all involved.
- ❖ **Do not use the convenient**, open-ended formula for disaster we’ve all fallen for:

“Don’t worry about the cost right now, we’ll work it out later.”

Changes in the work

❑ You can **strengthen your claims** for payment for extras by taking the following into account **before doing the extra work**:

❖ **Delay in formalizing** a change order sometimes means

- ✓ **Lost or forgotten changes** that will never be billed, or
- ✓ **Time-eroded details** that may result in **disputes or**
- ✓ **Down-negotiated extra costs.**

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Changes in the work

❑ You can **strengthen your claims** for payment for extras by taking the following into account **before doing the extra work**:

❖ To be **entitled to payment**,

you must be able to **show** that the **owner's change order**
amounted to a change in the contract documents and to
prove **how much it cost you**.

○ You must **not have caused** the situation that requires the **extra work**.

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Changes in the work

❑ You can **strengthen your claims** for payment for extras by taking the following into account **before doing the extra work**:

❖ While owners are entitled to require changes, the **changes** must be within the **general scope** of the underlying contract.

✓ An owner may require you to **increase the size of a building** under contract (within reason),

but he is **not entitled to require you**, for example, to **construct a second building** on another tract of land.

Changes in the work

❑ You can **strengthen your claims** for payment for extras by taking the following into account **before doing the extra work**:

- ❖ As a niche contractor working with many customers repetitively,
I **tried to minimize change orders** by sometimes absorbing relatively small extra costs even when a claim was justified.
- ❖ Effective prior planning and continuous communication
increase the **owner's confidence** that your ultimate charges for the extra work are **fair and reasonable**,
which is especially **important for contractors** who work with **repeat customers**.

Constructive Change

Constructive change

- ❑ A **constructive change** occurs when the owner requires the contractor to do work that is **different from that required** by the contract documents.
- ❑ Here are examples of **constructive change**:
 - ❖ When the contractor performs work based on the owner's defective plans and specifications and must correct it
 - ❖ When the owner denies the contractor a justifiable extension in the construction completion date
 - ❖ When the owner requires the contractor to do extra work due to the owner's misinterpretation of the contract documents

Constructive Change

- ❑ The contractor may **claim payment for work** he performs under these circumstances, but **constructive change** is often a matter of owner–contractor dispute.
- ❑ This highlights the **need for timely notice** to the owner and thorough **documentation** of the circumstances that constitute the constructive change.
- ❑ **Project owners** may try to shift the risk of **changed conditions to the contractor** by a provision in the **bidding and contract** documents.
 - ❖ Be alert to this and don't accept it.

Differing Conditions / Changed Conditions)

موسسه مهندسی و مدیریت ساخت علوی پور (ACEMI)

دفتر آموزش



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