Introductions

<table>
<thead>
<tr>
<th>Leslie Shiner</th>
<th>Annie Kendrick</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Owner of The ShinerGroup</strong></td>
<td><strong>Owner of Kendrick Business Services</strong></td>
</tr>
<tr>
<td>– Financial &amp; management consultant for over 25 years</td>
<td>– Over 20 years experience in construction accounting</td>
</tr>
<tr>
<td>– MBA in Accounting and Finance from U.C. Berkeley</td>
<td>– B.S. University of Utah</td>
</tr>
<tr>
<td><strong>Certifications</strong></td>
<td><strong>Certifications &amp; Software</strong></td>
</tr>
<tr>
<td>– QuickBooks Advanced ProAdvisor</td>
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</tr>
<tr>
<td>– Sage Certified Consultant</td>
<td>– Developer Method CRM for Solar</td>
</tr>
<tr>
<td><strong>Author:</strong></td>
<td><strong>Business Development Programs</strong></td>
</tr>
<tr>
<td>– A Simple Guide to Turning a Profit as a Contractor</td>
<td>– Port of Portland Mentor Protégé Program contracted trainer since 2012 for Estimating and Construction Accounting</td>
</tr>
</tbody>
</table>

From the Blog: Lessons Learned – Project Controls

- Perfecto Solar was growing rapidly
  - Hired Sparky Jones who promised the world
  - Sold project for $1.9 million without any budget
  - Promised large profit so no need for change orders
  - Incurred bills without PO’s or any controls
  - Trish, in accounting, warned management but Sparky dismissed all complaints and reminded them of large profit!
  - Little to no project controls

Read the blog at: https://blog.energytrust.org/
Where was this Fictitious Company Headed?

• You guessed it!

Agenda – Project Controls

• Define the team and their roles
• Develop clear scope of work
• Manage change orders
• Track committed costs to manage slippage
• Know how to close a job – really close!
Understand The Profit Cycle

Analysis → PROFIT → Production → Accounting → Estimating and Sales → Analysis

Which Role Are You?

Sales and Estimating → Accounting → Project Management → Field Tech → Management
Is Everyone In the Dark?

I need to know when the money is coming in and going out! Nobody tells me anything!

Bingo, I got another sale! $$$$$

I’m too busy to provide information

Just do your jobs and make money!

Do they ever talk to each other?

What am I supposed to do?

Accounting Estimator Project Manager Customer Boss Field Tech

Key Factors for Collaboration

• Communication
  – *If you don’t master communication then all other facets of project management will become more difficult*
  – *Determine what is critical for you to know and make it easy for the other team members to share this information with you*
  – *Give information back to all members of the team*
    • Even information they may not even know they need
Terminology

• Don’t assume the other team members know what a particular term or word means to you
  – *Example: The word “Budget”*

• Is this the **budgeted** cost to the company to perform the work?
• Is this the customer’s **budget** for total paid to you?

Make sure you are all speaking the same language

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Budget vs. Budget

- **Profit**
  - Overhead
- **Direct Job Costs**
  - Labor
  - Materials
  - Subcontracts
  - Equipment
- **Client’s Budget**
  - Your revenue, your client’s costs

**Your Budget**
- Your costs
- Used to compare estimated costs to actual costs
Other Important Terms Commonly Confused

- Scope of work
- Schedule of Values
- Project Budget
- Project Costs
- Markup
- Margin

Provide a Glossary!

Individual Goals

Do you work in a silo?
Lessons Learned: Project Controls

**Individual Goals**

- Bid on all projects available
- Win projects
- Cash to pay the bills and make payroll
- Create financial reports to monitor profitability
- Projects on time
- Projects on or under budget
- Happy customers
- Complete the work
- Steady paycheck
- Profitability
- Happy customers

Do these goals align?

**Project Centric Goals**

Projects

- Sales and Estimating
- Accounting
- Project Manager
- Field Tech
- Management
Project Workflow

Create a process for workflow from start to finish
Include all team members

Estimating – Sales Phase

- Estimators need to communicate with Accounting on profitable bid and overhead rates
- Collaborate on terms and billing schedule before contract is signed
- Communicate with Design on possible unforeseen challenges
- Collaborate with Project Managers on realistic estimated hours and schedule
- Accounting provides profitability reports on similar historical projects
- Estimator follows up with customers on award status
- Estimators collect deposits and signed contract (Smaller jobs)
Lessons Learned: Project Controls

**Estimating – Sales Phase**

- Management needs to review profitability and risks on projects over an established threshold
- Management needs to review contract language and determine if outside legal review is needed
- Management needs to determine if liquidated damages clause is worth the risk
- Management assesses risk if work is outside of normal scope performed and determine if company should be bidding or not
- Management and team review scope, schedule, and project price with customer prior to beginning work
- Seek legal advice from **construction attorney** on contract language
- Insurance company should review contract to determine if your current policy covers the scope

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**Project Awarded – Planning & Pre-construction Phase**

- Estimators need to supply cost and labor hours budget on awarded projects
- Estimators need to provide scope of work and exclusions
- Estimators need to collaborate on schedule of values for larger projects
- Estimators need to provide vendor and subcontractor quotes to Project Management (purchasing)
- Job hand off to Project Management with an execution plan
- Relays information for reserving incentive from agencies to appropriate team member
- Estimator relays certified payroll rates required if applicable
**Lessons Learned: Project Controls**

### Project Awarded – Planning & Pre-construction Phase

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<th>Sales and Estimating</th>
<th>Accounting</th>
<th>Project Management</th>
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- Accounting sets up project in system to start job costing
- Accounting sets up project for estimated vs actual reporting
- Accounting monitors cash flow for material purchases (PO system)
- Accounting collaborates on bonding if required
- Accounting determines bill intervals needed to cover costs and deposit status
- Accounting reviews tracking and rates for certified payroll if needed

### Project Awarded – Planning & Pre-construction Phase

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</tr>
</thead>
</table>

- Design works on permitting approval of design set
- Design collaborates on material orders based on design (Purchase Orders)
- Design coordinates with Project Management on estimated timelines
- Equipment and material requirements documented with PO’s and fulfilled
- All pre-installation tasks completed
Installation & Contract Administration

• Contract scope and cost budget clearly defined and **before** work starts
• Monitor estimated hours monitored against actual
• Monitor project cost budget against actual costs
• Daily logs and production rate tracking on larger projects
• Installation and Billing schedules documented and clear communication with accounting
• All exclusions clearly defined and change order process in place

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Change Order Management

What are your Change Order policies and procedures?

Does this work?

Go ahead and do the work and I will get you paid
Change Order Management

- Identify who is authorized to request additional work prior to starting the project
- Define process for changed or added scope or work in contracts and subcontracts
- Use a field change order form that can be signed by owner and contractor authorizing the scope, schedule and cost of changed or added work
- Scope, schedule and price customer will be billed should be negotiated prior to starting work
- Significant change order work should be accompanied by additional contract time to complete the project and include any cost impacts from labor or material increase
- Establish protocol for changes early by managing through contract provisions

Project Close Out and Completion

- All punch list items completed
- Owner happy and work complete per project scope
- All material is paid in full
- All inspections passed and documented
- All customer invoices paid in full
- All agency incentives requested and received
Follow Up and Review Lessons Learned

• Document feedback from field staff
• Review profitability reports
• Review estimated vs actual costs and hours
• Review if change orders were needed for specific items and how estimates can include potential changes for these items for similar projects in the future
• Review what went right – how can the team repeat the positive outcome in the future
• Review what went wrong – how can the team avoid the negative outcome in the future
• Is the customer happy with the final product? Survey small customers and meet with large customers
• Feedback from customers is critical for improving or maintaining a level of service to your customers or potential customers through referrals

Project Controls – Scope of Work

Documentation is a communication essential

• Step by step documentation, including:

  – Scope of work
  – Project contact info
  – Bill of materials
  – Itemized work orders
  – Plan drawings
  – Elevation drawings

  – Schematic drawings
  – Placement tags
  – Wire check lists
  – Trim check lists
  – Equipment cut sheets
  – Schedules
Project Controls – Change Orders

- Process, process, process
- Create field documentation
  - *Change order work authorization form*
  - *Filled out on the job*
    - Manually or electronically
  - *Three parts*
    - 1) client 2) field 3) office
  - *Not necessary to include pricing*
  - *Get signature from client or authorized representative*
- Make the process easy for your field crews

Too much paperwork may mean more free work

Include All the Costs of the Change Order

- There are additional costs for doing change work other than additional materials and labor
- How much time does it take to manage the changes?
- Are you tracking your own time for changes?
- Are you submitting change orders for schedule modifications?
Do You Charge a Fee?

- Your expertise and additional time has value!

- Consider including a processing fee
  - Change order flat fee
  - Dollars or percentage for increased supervision
  - Charge for additional time in research, coordination, administration

- You can always waive the fee if you want
  - But be sure to show it, and then you can waive it

CO’s – the Ever Changing Budget

- Be sure to track both components of change work
  - Adjustments to contract price
  - Adjustments to budget

- Revise project budget to reflect change work

- BEBO – Bill Early, Bill Often
  - Early invoicing of change work (even partially complete) keeps the change from being forgotten
**Project Controls – Keep Track of Future Costs**

- Time is money!
  - Why do jobs lose money at the end?

- Are you fooling yourself into thinking there’s more money available than there really is?

- Determine budget
  - Subtract current costs
  - Subtract committed costs

- That’s the available budget!

**Utilize Committed Cost Reporting**

- What costs are committed?
  - Equipment and materials
  - Subcontractors

- What costs are internal?
  - Labor
  - Other miscellaneous supplies

- Determine your available budget
  - (as opposed to your remaining budget)
### First Create the Budget

Which dollars are already committed?

<table>
<thead>
<tr>
<th>Item #</th>
<th>Description</th>
<th>Budget</th>
<th>Committed Dollars</th>
<th>Internal Dollars</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>Design/Documentation</td>
<td>2,000</td>
<td>0</td>
<td>2,000</td>
</tr>
<tr>
<td>200</td>
<td>Project Management</td>
<td>4,000</td>
<td>0</td>
<td>4,000</td>
</tr>
<tr>
<td>300</td>
<td>Site Prepartion</td>
<td>3,200</td>
<td>1,500</td>
<td>1,700</td>
</tr>
<tr>
<td>400</td>
<td>Racking</td>
<td>4,500</td>
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<td>1,800</td>
</tr>
<tr>
<td>500</td>
<td>Elect Equip/Panels</td>
<td>6,500</td>
<td>6,500</td>
<td>0</td>
</tr>
<tr>
<td>700</td>
<td>Interconnection</td>
<td>1,800</td>
<td>0</td>
<td>1,800</td>
</tr>
<tr>
<td></td>
<td><strong>Total Budget</strong></td>
<td><strong>22,000</strong></td>
<td><strong>10,700</strong></td>
<td><strong>11,300</strong></td>
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<tr>
<td></td>
<td><strong>Overhead &amp; Profit</strong></td>
<td><strong>11,000</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total Sale Price</strong></td>
<td><strong>33,000</strong></td>
<td></td>
<td></td>
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</tbody>
</table>

### Analyze the Job – During the Job!

Compare actual cost to estimated costs

<table>
<thead>
<tr>
<th>Item #</th>
<th>Description</th>
<th>Budget</th>
<th>Cost to Date</th>
<th>Remaining Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>Design/Documentation</td>
<td>2,000</td>
<td>2,400</td>
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<td><strong>Total Sale Price</strong></td>
<td><strong>32,000</strong></td>
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</table>
## Analyze the Job – During the Job!

How much is really left in the budget?

### Job 706 - Shiner Job

#### Job Cost Analysis

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<tr>
<th>Item #</th>
<th>Description</th>
<th>Budget</th>
<th>Cost to Date</th>
<th>Committed Costs</th>
<th>Available Budget</th>
<th>Remaining Budget</th>
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<tr>
<td>100</td>
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<td>1,000</td>
<td><strong>10,000</strong></td>
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</table>

**Overhead & Profit** 10,000

**Total Sale Price** 32,000

### Committed Cost Report

- Start with current budget, including change orders
- Subtract costs incurred to date
- Subtract committed costs
  - *Uncompleted subcontracts*
  - *Unfulfilled PO’s*
  - *Payroll in progress*
- Equals remaining budget

Determine overruns while you still have time to make corrections!
Sample Committed Costs by Job – QuickBooks

Only available in QuickBooks Desktop Enterprise Version

Sample Committed Costs for One Job (Sage 100)
Project Controls – Manage the Last 20%

• Too many jobs are profitable up until they are about 80% complete
  – *After completing 50%, review estimated costs to complete*
  – *Track subcontracts completed but not billed yet*

• Know how to close a job
  – *“Mostly done” is not the same as done*

What If? Perfecto Solar With Project Controls In Place

• Sparky’s estimated cost budget would have been reviewed in advance by accounting and management allowing for modifications prior to submitting to the customer
• Sparky would have been required to review the contract with management and an attorney before signing to determine the risk in advance
• Trish in accounting would have been empowered by management to require project cost accountability from Sparky with a purchase order system
• Project billings would have been established prior to signing the contract to provide necessary cash flow
• The team would have been able to monitor profitability throughout the entire process instead of finding out too late that there was an issue
Perfecto Solar’s Improved Outcome

- Project managed through team work
- Key personnel empowered by management and does not seek other employment
- Profitable outcome
- Stays in business

Team Success

Reports are a breeze and I can forecast cash flow!

Another profitable job sold!

Wow, that was Team Work!

I am prepared and know what I need to do!

This is the “A” Team

Accounting
Estimator
Project Manager
Happy Customer
Boss
Field Tech
**Review: Project Controls Takes Team Work**

- Who is the team? **Identify**
- Open communication: **Collaborate!**
- Project centric goals: **Add to individual**
- Sales & estimating phase: **Examine risks & evaluate profit**
- Project awarded & hand off: **Set up a positive outcome**
- Installation & change order management: **Key control**
- Follow up & review lessons learned: **Learn from positive & negative outcomes**

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**Summary – Project Controls**

- Define the team and their roles
- Develop clear cut scope of work
- Manage change orders
- Track committed costs to manage slippage
- Know how to close a job – really done!
Thank You

Leslie C. Shiner, MBA

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Business Development Program

• Blog Posts and Webinars – New!
• QuickBooks Assessment or Re-assessment
• Ongoing help with QuickBooks and business questions
• Remote CFO Meetings
Lessons Learned – Blog and Webinar Program

• Project Controls Webinar
  – This is the first webinar in the series of 6

• Watch for the Energy Trust newsletter for more information
  – Or check the website

Read the blog at: https://blog.energytrust.org/

QuickBooks Assessment

• Analyze current business processes and compare to best practices for the solar industry:
  – Chart of Accounts setup and reporting
  – Project set up for tracking profitability – estimate vs actual
  – Project set up for managing projects and change orders
  – Use of cost codes for the solar industry
  – Entering of transactions associated with production and overhead
  – Best use of time tracking
  – Handling of inventory stock for job costing
  – Use of the matching principle
  – Accuracy of posting procedures
  – Many more review items summarized in 35-40 page report
  – Suggested improvements checklist
  – Follow up with meeting to discuss findings with key team members and outline for assistance

$500 after ETO match
Ongoing Help with Your Business

- Assistance with…
  - Payroll for good job costing set up
  - Forecasting and budgets
  - Labor burden calculations
  - Asset and Loan setup
  - 3rd party program integration and implementation
  - Work in Progress Reports
  - Tracking key performance indicators
  - Much more, just ask

$100 per hour after ETO match

Remote CFO Meetings

- Potential topics:
  - Analyze trended Profit and Loss Statement
  - Evaluate profitability, gross, net
  - Evaluation overhead and markup
  - Review fully burdened labor costs
  - Review process for job costing
  - Analyze business plan, mission statement and vision statement
  - Perform ratio analysis
  - Create Key Performance Indicators (KPI) metrics for your company
  - Review internal controls
  - Create and manage a cash flow projection
  - Investigate productivity reports and charge-out rates
  - Reconcile your books to the latest tax return

$300 per meeting after ETO match
How to Get Started

• Complete the participation agreement and send to Jeni Hall at Energy Trust of Oregon. Jeni.Hall@energytrust.org

  – Once approved you will be directed to Survey Monkey to answer a few questions about your business and then you will be contacted to set up your first meeting.

  – You can also contact Annie Kendrick at Annie@AnnieKendrick.com or 541-926-6438 and she will help you navigate the start up process.

Thank You

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Questions and Thank You

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