Fast & Accurate Estimating: Tips, Tools & Shortcuts
International Builders’ Show • Thurs, Jan. 21 | 1:30-4:30 PM | South 233

Session Agenda


1:45-2:10pm  Understanding & Using Square Footage, 6 Examples, Calculating Framing Crew Costs

2:10-2:30pm  Delegating Estimating Tasks, Team Solutions, Making Money with Options, Learning Shortcuts of Using Assemblies, Historical Costs, Budget Designing

2:30-3:00pm  Examples & Discussion of Construction Cost Category Unit Costs (per SqFt). Shell Structure Assembly Examples, Use & Limitations.


3:10-3:20pm  Knowing Facts, Figures, Model Numbers, Textures. Balancing the Numbers...Markup & Margin, Writing Specs from Estimator's Perspective, When To and Not To Estimate.

3:20-3:30pm  Budget / Bid / Contract Price Example, Assembly, Calculations and Draw Schedules to Insure Cash Flow (Generated by the Estimate).

3:30-3:45pm  Estimating Line Items, How Many Line Items are Needed (New Build, Remodeling?), Your Estimated Costs vs. Subs ...Calcs, Costs & Loopholes.


4:00-4:20pm  Learning, Implementing and Profiting from "Calculated" Allowances. Theory & Practice, 5 Examples, Bids, Facts, Uses, Verifications, Subcontractor & Supplier Roles

4:20-4:30pm  Wrap Up, Summation, Conclusions & Questions

Please feel free to contact the speaker with questions, comments or clarifications after the program:

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Fast & Accurate Estimating: Tips, Tools & Shortcuts

JANUARY 21, 1:30 to 4:30 PM

Presenter: Dennis A. Dixon, Dixon Ventures Flagstaff, Az

How Much Does Each Detail Cost?

About Your Speaker
Purpose of Estimating

- Predict Costs
- Project Profit
- Accounting Base
- Predicts Cash Flow
- Estimator is part of the assembly team.

How Do You Calculate Wall Sheathing & Drywall?

How Do You Measure Thickness of a Sheet of Paper?

How Much Are Your Worth?

- Theory Income = $160,000 / Year
- 256 Working Days / Yr.
- $160,000 / 256 days = $625 / Day
- 2,304 Work Hrs. / Yr. @ 9 hrs. per day
- $160,000 / 2,304 hrs. = $70 / Hr.
- # Projects / Yr.
- $160,000 / 4 New Homes = $40,000 per Home
- # Remodels / Yr.
- $160,000 / 10 Remodels = $16,000 per Remodel

Contracting’s Biggest Profit Drains

1. Poor Estimate  ...50 Ways To Leave Your PROFITS!
2. Start Project with incomplete Plans & Specs  ...Everything’s an Allowance
3. Lousy Paperwork = Insufficient Contract
4. Change Orders
5. Cost Plus vs. T&M vs. Fixed Price

What Makes Plans Ready For An Estimate?

- Blueprints are Completed
- Specifications are Detailed
- 90-95% Questions are Addressed
- Allowances Don’t Exceed 5  ...3, 5, 7 ?
- Smith Contracting Rates the Plans “A” Quality
Should You Estimate?

- Customer Custom Home Budget is $400,000 for 4,000 SqFt?
- Kitchen Remodel Budget = $15,000?
- How Can 3 Contractors Bid a Project... That’s 5 Sheets of Blueprint and No Details? (No Specifications)

Know When to Say No! ... (Politely)

Knowing When To Estimate!

- Project Fits Your Company Skills, Specialties & Capabilities
- Client Fits Your Company Profile
- All Parties Agree on the Cost, Quality & Timing Scope of the Project

Knowing When Not To Estimate!

- Project is Outside Your Company Scope
- Cost, Quality & Time are Unrealistic!
- Client Expectations are Non-Conforming
- You Can’t Do the Project... For Whatever Reason!

Defining Square Footage ...Let’s Get On the Same Page!

- AIA defines Area SqFt as...
- Outside Wall to Outside Wall (Living Space)
- Example: 40 ft by 40 ft = 1,600 SqFt
- Suggestion: Note Area SqFt'gs in Your Contract

- House, Garage, Basement, Attic w/ Floor, Porches
Is Cost Per SqFt Relevant in Today’s World?

- This Old House “Lake Forest Dream Kitchen Remodel 2003” Episode 2226

- 285 SqFt @ $200,000 = $702 Per SqFt

Owner Commenting about Initial Estimate of $65K that went to $85K, then ABOVE $200,000!

Donations: Appliances, Cabinets, Flooring, Elec Fixtures, Plumbing, etc.

Price / SqFt Cost Variation Example 1

- Home Buyer Perception of Cost…?

- Same Size = Same Cost

- Footprints…only

- 1 Story, 2 or …3 ?

- Roof Geometry?

Price Per SqFt Cost Variation: Example 2

- Is Cost Per Sq Ft Applicable in Today’s Marketplace?

Price Per SqFt Cost Variation: Example 3

- “Flat Ceilings vs. Vaulted Lids”
Price Per SqFt Cost Variation: Example 3
"Flat Lids vs. Vaulted Ceilings"

- 2,800 SqFt Home + 2 Car Garage with 9 Ft. Flat Ceilings
- 2,800 SqFt Home + 2 Car Garage with Vaulted Ceilings

1. What's the Production Cost Difference?

2. How Would You Price a Change Order to " Vault" the Family Room Ceiling?

3. What Cost Categories Are Impacted by Raising All Ceilings?
   - Framing, Insulation, Elec, Plumbing, HVAC, Drywall, Painting, Roof Trusses

...By The way---What Changes if We Go To 10Ft. High FLAT Ceilings?

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Example 4: Cost / SqFt: Efficient Design Roof Geometry: Simple vs. Complex

- 1 Story Contract Price = $978,500 Market Price
- 2 Story Contract Price = $978,500 Market Price

- Contract Cost / SqFt (Livable) = $217.44
- Contract Cost / SqFt (Liv + Garage) = $181.20

- Which home costs more to Build?
- Where are cost efficiencies (if any?)
- Which home might be easier to build?

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Example 5: Livable SqFt vs. Total Under Roof

Production Cost Variances of Billy's Bedroom vs. the Garage?

- What elements are the same? Which are different?
- Different Materials, Details, Finishes?
- Credits & Debits on Details?

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Figuring Out Labor Crew Costs: Eating The Elephant
...One Bite At A Time!
Theorizing Framing Costs: New Home Project

- Your 4 Person Crew: 1 Lead (Foreman) + 2 Carpenters + 1 Nail Banger
- Hourly Rate @ $21 + FICA + Medicare + Unemployment + Work Comp + Liability % = $28.57

- Labor Burden Factor = 1.36 x $21 = $28.57 / Hour
- Bill Front @ $21.00 x 1.36 = $28.57
- Jack Miles @ $16.50 x 1.36 = $22.80
- John Jones @ $15.00 x 1.36 = $21.45
- Phil Smith @ $12.40 x 1.36 = $17.73

- Total Crew Cost = $91.35 / Hour ($3,654 Per 40 Hr. Week)

- Your Supervision (On-Site Part Time): Steve @ $35.45 Per Hour
- Labor For Materials Take-Offs: Steve @ $28.57 Per Hour

- Materials Bid: $68,345.00 (Framing Lumber, Nails, Hangers, Adhesive)
App Solutions for Estimating

- Floor, Wall & Roof Assemblies
- CAD Systems that Calculate Take-Offs
- Standardize Windows, Doors
- Base Model: Add On Simple Square Footage
- Seek Out New ...@ the App Store!

Estimating by Sticks & Bricks vs. The Digitizer

- Quality In = Quality Out
- Brain Processes the Estimating Methods
- Computers Are Filing Cabinets & Tabulators
- Combination of By-Hand with Computer is Optimal
- Siding Calculation: Ignore Doors, Windows, Sliding Doors?
- Drywall Calc: Ignore Cutouts?

What Is the Sole Purpose of Estimating?

- Accurate Prediction of Costs & Profits as Part of the Management System
- Thought... Estimating Forces You To Really Evaluate a Project & Its Circumstances
- Estimating Is A Team Effort!

Estimating ...Is a Management TEAM Function

... So It’s OK To Delegate, Supervise & Offer Your Experience & Expertise
Options Estimating & Pricing
- Options Work & Price List
- No Re-calculating
- Simple Formula
- Just Need To Make Sure Invoice Amount Generates a Profit
- ...Maybe Have Completion Phase Thresholds

Options Work & Price List
- Skylight: 2x2, 2x4 Velux
- Skylight: 8”, 12” 16” Tubular
- Add Keyed Entry: Schlage
- Add Deadbolt:
- Shower Doors: $672
- Insta-Hof @ Kitchen:
- Enlarge Concrete: Driveway, Sidewalk, Patio
- Enlarge Deck: Deck Gate: $435
- Medicine Cabinet:
- Drawer Dividers: Rev-A-Shelf Wire Pantry:

Options: Threshold Time of Completion Phases
- ...Before Contract: See Option List
- ...Within 30 Days: Price + 48%
- ...Within 60 Days: Price x 2
- 61 Days & Beyond: No Options

Estimating Assemblies
- Standard Wall Exterior: SqFt
- Standard Wall Interior: SqFt
- Wood Frame Floor: SqFt
- Conc Slab Floor: SqFt
- Everything ...Footings to Drywall: SqFt + Line Items
- Interior Paint to Final: SqFt
**Just Some Estimator’s LOGIC**

- You Have Data ... Build 9 ft. Ceilings Using 9 ft. Pre-Cut Studs

- What About 10 ft. Ceilings?

- 9’ 4” Ceilings?

  
  2-6 x 4-0 Window (Standard) vs. 2-2 x 3-8.5 ?

**Instead of 125 Line Item Cost Categories ...Use 30 Assemblies**

- Simple to Complex Assemblies

  Example: 2x6 Wall Assembly

  - 2x6 Wall = Studs, plates, nails, brackets, screws, sheathing, sill insulation + Siding (maybe), headers, labor, equipment.

- 2x4 Wall (Interior)...

- Framing Assembly: ALL L&M ...100%

**Using Cost “Shell Structure” History**

- Shell Structure = Permits, Util Hookups, Footing, Stemwall, Floor, Walls, Roofing, Siding, Ext Doors, Windows, Garage Doors, Fireplaces, Elec, HVAC, Plumb, Insulation, Drywall, Siding. (No GVH or Profit or Sales Tax).

- Johnson Project:

  - 3,750 SqFt + 750 SqFt Garage = 4,500 SqFt

  - 1-Story

  - Shell Cost = $345,025

  - Shell Cost / SqFt = $76.66

  - Shell Cost / Volume = $7.67 / CuFt

**Major Cost Components (That Fluctuate By Project)**

- Appliances

  - HVAC System

- Cabinetry

  - Kitchens (Sizes, Detailing, Appliances)

- Closets

  - Media Rooms

- Countertops

  - Plumbing Package

- Doors

  - Roofing (Pitch / Geometry / Mat’ls)

- Electronic Systems

  - Staircase Work

- Electrical Systems

  - Tilework

- Finishwork Package

  - Windows

- Floor Coverings

Assembly: Through Drywall: Shell System Estimating Shortcut

- 3,280 SqFt + Porch + Garage
- 2,863 SqFt
- 3,957 SqFt
- 4,893 SqFt
- Compare & Discern 3,280 Up (Each Assembly)
- Use Overall Average Assembly: $/SqFt

Variables ...That May Skew Your Data

- 1 Story vs. 2?
- Craftsman vs. Contemporary?
- Site Prep Costs / Utilities / Slopes?
- Data By Others ...Risky!!!!!!
- Home with Options vs. Standard Home?

What Makes a Good Estimator?

2. Knows Facts, Figures, Model #’s, Prices.
5. 9 ft. vs. 10 ft. Exterior Walls ...9 ft. 4 inch?
6. Ability to Write & Evaluate Specs & Bids.

Where Are You Most Effective @ Making Money?
Control Costs: Standardize Your Specifications

- Assembly Lines Save Money
- Use Products & Suppliers You Know (Most Warranties = Worthless!)
- Limit Client & Arch Choices
- Ex: Plumbing – Delta, Grohe, Kohler
- Refine Specs...Cost History (What Works From Past Jobs?)
- Adjust Specs per the Estimate (Some Simple Words Cost Money!)
- Don’t Reinvent the Wheel for Every Job!

Specifications: Example 1 “Driveway”

- Color: Dark Gray Driveway. Site, wet each cement. Appearance will be lighter from Dark Gray. Color will be adjusted. Core tested & concrete plan.
- Concrete: 2,300 PSI at 28 days. Core Testing is Optional. Fibermesh concrete mix is Optional.
- Expansion Joints: At center backbone of driveway and every 15 running ft. (approx.) across the drive.
- Finish: Rock Salt (as per Lot 59 - 2151 Rolling Meadows)
- Driveway Layout: As per Plans (sheet A-1, Site Plan).
- Reinforcement: #3 steel rebar in a 24” x 24” grid pattern.
- Supplier: United Metro Materials.
- Thickness: 3.5” minimum with 6” thick x 12” wide turn down at junction with street pavement.
- Original Plans called for 6” driveway concrete thickness. This was revised to 3.5” to save money.
- Use: Driveway concrete will be poured during the final phase of house completion. Vehicles & heavy truck traffic (moving van) is not permitted for a minimum of 10 days after last concrete pour.
- Warranty: ...Cracking ...Heaving ...Spalling ...Chipping

Specifications: Example 2 “Stucco”

- The stucco material applied to the home will be a synthetic cement plaster mix that will be applied onto a sub-base of expanded metal lath (1/4” x 34 gauge).
- The framing and sub-base under the cement stucco plaster finish will expand and contract based upon the seasonal climate, humidity, weather and temperature conditions.
- Small hairline expansion/contraction cracks (less than 1/8” thickness) may appear in the stucco finish over time. This is normal, expected and within acceptable standards.
- Repair of these expansion voids is recommended to be with a flexible caulking compound such as DAP “Stucco-Flex 3000”.
- The contractor will repair any such cracks or voids in the stucco finish for a period of 1 year after the completion of the home.
- To maintain a good, weather-tight surface to the stucco exterior of the home, it is recommended that it be caulked yearly and painted every 3 years with an “elastomeric” type paint, formulated for exterior stucco applications.
- Any repairs will be re-painted with the same type and color of paint to the nearest edge, top and bottom of the impacted area.

Standardize Your Specifications

- Wall Assemblies
- Siding & Exterior Trim Details
- Stucco, Stone & Brick Veneer Details
- Cabinet Supplier & Installer
- ...Minimize Variables (one at a time)
- Once Your Specs Are Written ...They’re Easy To Adjust
Specifications: Example 3 “Brick Veneer”
- Brick Size, Name, Supplier & Color.
- Mortar Type & Color.
- Brick Pattern.
- Joint Size and Strike Details.
- Will a Sample Panel Be Prepared?
- Installation Limitations: Weather, Cold?
- Warranty Limitations.
- Waterproofing, Weeping, Backing, etc.

Specifications: Example 4 “Painting”
Are There Some Details Lacking?
- All Interior Walls will receive 3 coats of latex paint.
  ...Your painter always does 1 primer + 1 “heavy final coat”
- Bath, Kitchen and Laundry Areas to receive 2 coats of enamel paint.
  ...Oil Base or Water Base?
- Exterior Siding will receive 2 coats of fade resistant, exterior, latex paint.
  ...Define Fade Resistant?
- Stucco Surfaces will receive 2 heavy coats of elastomeric paint.
  ...Brand? Color? What Sheen? Define “Heavy”?
- All paints, stains, finishes & colors to be selected & approved by Owners prior to application. ...How much time will this take?

SPECIFICATIONS for a Calculated Allowance
Example: Floor Coverings
(From Category #20 in the Specs)
- 20. FLOOR COVERINGS: Allowance = $23,412 (See Details Below)
  - Carpet: Living Area, MBR, MBR - DRS, Bedrooms 2, 3, 4, Bedroom Hallway.
  - Garage Floor: Smooth finished concrete. No sealer or painted finish included.
  - Tile Floor: Bathrooms (all), Breakfast, Entry, FP Hearth, Kitchen, Utility
  - Vinyl Flooring: None.
  - Wood Floor: None.
  - Carpet Selection: ____________________________
    - 2,237 SqFt carpet / 9 SqFt SqYd x 5% waste = 261 square yards carpet
    @ $25 / yard (installed with pad) = $6,525.00 Allowance
  - Tile Flooring Selection: ______________________
    - 1,335 SqFt Tile x $12.65 per SqFt = $16,887.00 Allowance

Sample Specification “Allowance” Wording

Profit & Estimating Landmines in the Plans & Specifications
- 1. All copper plumbing.
- 2. Plumbing lines are to be insulated and soundproof.
- 3. Concrete flatwork to be perfectly level.  [All Walls To Be Smooth within 1/64”]
- 4. Wall paint to be minimum thickness 1/16”
- 5. All adhesives, glues, paints, solvents, stains, lacquers to comply with Rule 66.
- 6. Countertops to be “Adult-friendly” finished height.
- 7. Contractor responsible for assuring that Cabinetry is ADA Compliant.
- 8. R-38 Insulation blow-in depth to be 18” (after settling).
- 9. MBR is to be soundproofed from ALL Family Room noise.
- 10. Low-E window coating to minimize UV degradation of carpet.
Balancing The Numbers!

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<th>Gross Profit (Margin)</th>
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<td>200% (4.00)</td>
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- PROOF: Labor / Matl's / OVH Costs: $1,000 @ 45% (1.45) = $1,450 Quote
- PROOF: Gross Profit $ / Contract Quote $ = % Gross Profit
- PROOF: $450 / $1,450 = 31.03%

Example: Assembling a Contract Price (Know Your Costs)

Client Preliminary Budget = $900,000
Total Under Roof Area: 4,500 SqFt

1. PROFIT Goal: $180,000
2. OVH (11 months x $3,287): $36,157
3. Estimate / Specs / Sell Job: $8,100
4. Supervision @ $95 / hr x 20 hrs x 46 weeks = $42,400
5. Management @ $95 / hr x 6 hrs x 48 weeks = $27,360
6. Permits / Subdivision Fees: $9,600
7. Arch Plan Costs: N/A
8. Errors & Omissions (1-11%): @ 5% $45,000
   = $459,267
   - $900K = $440,733
9. Production Costs: Maximum $440,733 ($98 per SqFt)

MARKUP & PROFIT (1.35 x) Contract (Bid) Price = $668,728

Cost Comparison:
Concrete Slab vs. Wood Frame Floor?

What is the purpose of plywood on the slab floor?

Review Smith Residence: $668,728
Budget / Job Cost / Draw Summary

- Use to Define Draw Schedule...Generates Cash Flow
- Maximum 30 Days Between Payments
- Examine Total Cash Costs: Line 100 = $441,199 (1-99)
- Examine Total OVH Costs: Line 107 = $54,155 (101-106)
- The Project Production COSTS: Line 108 = $495,354
- MARKUP & PROFIT (1.35 x) = Contract (Bid) Price = $668,728

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Estimate / Budget Job Costing (Example)

- Examine Costs 1-99... Cash Costs = $441,199
- Examine OVH Costs 101-106 = $54,155
- I used 1.35 x Total Cash Costs ($495,354) to calculate the CONTRACT PRICE.
- $668,728 / $441,199 = 1.52 (OVH + Profit)
- $668,728 / $495,354 = 1.35 (Profit only)

Uses of the Estimate:
Budget / Job Costing / Profit Example

- 100. Project Production Costs: $441,199
- 107. Overhead Costs: $54,155
- 108. Total Production Cash Costs: $495,354
- 107. Contract Calc: $495,354 x 1.35
- 108. Contract Price: $668,728
- 109. Profit (Theory): $173,374
- 110. Profit (Actual): $179,021 (Add'l $5,647)

Example: DRAW SCHEDULE: ADDENDUM D
(Prepared by the Estimate)

- Jones Residence: 123 Bear Howard Drive, Forest Highlands, Flagstaff, AZ
- Contractor: Smith Contracting, Inc. (Arizona License # B116711)
  1213 North Main Street, Flagstaff, Arizona 86004 (928) 774-2223
- Contract Amount: $668,728
- DRAW 1: (10%) $66,872 (less $5,000 Estimate Deposit) = $61,872
  - Building Permit
  - Tree Removal & House Survey Placement Staking
  - Driveway Excavation, Backfill, Grading Completed
  - Footings Completed
  - Drainage Work Completed
  - Utility Trenching, Install, Backfill Completed
  - Window & Skylight Package Ordered
  - Exterior Doors Ordered

DRAW 2: (10%) $66,872

- Stemwall Grouted with Concrete
- Sand Plaster @ Stemwall completed
- Waterproofing Applied
- Floor Fill Installed and compacted
- Underslab Plumb, HVAC, Electrical Rough-In’s
- Garage & House Conc Slab completed
- Backfill at House perimeter installed
- Driveway Fill and Compaction & Culvert Installed
- Wall Framing Started (50%)
**DRAW 3: (15%) $100,309**

- Wall Framing 95% Completed
- Wall Sheathing Completed
- Roof Framing & Trusses Completed
- Roof Sheathing Installed
- Windows Finalized
- Exterior Grading Completed
- Deck Piers & Framing Completed

*Draw 3 is Increased to 15% to Cover Framing Costs*

*Draw 10 is Reduced to 5% of Contract Amount!*

**DRAW 4: (10%) $66,872**

- Exterior Walls (Squared & Braced)
- Wall Wrap Sheathing Completed
- Windows Installed
- Metal Flashing Installed
- Skylights Installed
- Plumbing, HVAC Top Outs Completed

**Draws 5 Thru 9**

- Draw 5 @ 10% = $66,872
- Draw 6 @ 10% = $66,872
- Draw 7 @ 10% = $66,872
- Draw 8 @ 10% = $66,872
- Draw 9 @ 10% = $66,872

*...Draw 10 is only 5% = $33,436*

**DRAW 10: (5%) $33,436**

- Floor Coverings Completed
- Door Hardware Completed
- Bath Hardware Completed
- Paint Touch-Up/Caulking Completed
- Contractor’s Tools & Equipment Removed
- Final House Cleaning/Window Cleaning
- Final Inspection
- Walk-Thru With Owners

*Contractor: Fred Smith  Date: Sept. 9, 2016*
*Mr. Joe Jones:  Date:*
*Mrs. Joan Jones:  Date:*
Estimating Category Line Items: Example

- #43. Roofing was quoted @ $310 per square @ 4:12 Pitch
- BHP 16” Panel, Raised Seam, 22 gauge, painted metal (Bronze)
- Freight Included
- Fasteners Included
- Flashing, Silicone, Trim Included
- Underlayment 30Lb. & Ice Guard Included
- Square Skylights @ $125 each (under 4x4 ft) “Install labor Only”
- 53 Square x $310 = $16,430
- 4 Skylights @ $125 = $500
- Estimating Adjustment: $1,643 (+ 10%) ...Is 10% Enough?
- TOTAL (#43) Roofing Line Item Cost = $18,573

Cost Per SqFt Variation “Review”

- Shapes, Size & Geometry, Elevation, Detailing, Roofline, etc. all impact the Production Costs
- Estimating = Counting Up the “Sticks & Bricks”

Siding, Soffit & Trim Details

- Use Plan 2-D Elevations & Floor Plan
- Verify Sizes with Window Schedule
- Identify Safety Glazing Needed
- Identify Emergency Egress & Sizes
- Verify Window Sizes Will Fit Into Wall Areas As Specified (Nooks, Angled Walls)
Windows …Cost & Field Production Considerations?

Exercise: Window Order & Check

- Summarize Window Count
- Summarize By Size & Type
  ...Awning, Casement, DH, SH, Fixed, Hopper, Slider?
- Verify Colors, Jambs, Swings, Screens, Hardware, Glass Type, Special Orders, Egress, ADA, Rough Openings, Trim ?

Estimating Category Line Items: DOORS

- Doors – Exterior & Interior: (Materials Only)
- Door Style: Panel______   Slab_____  French_______  Custom______ Carved______
- Door Heights:  6-8______   7-9_______   8-0_______     Custom_________
- Slab Thickness: 1/38"    1.5"     1.75"      _____"?
- Jamb Type: Standard__________ Full Mortise_______Finger Joint or Solid______
- Wipe Details: 2 per door 3 per door  Ball Bearing  Custom Finish  Add Pivots
- Ford or Sash Crank: Pine  DRY Arch  Oak  Make Pivots
- Wood Quality & Appearance: Clear Semi-Knotty  Rustic  Laminate  Synthesis
- Specialty Shapes: Arch  Round Top  Dutch Door  Tambor Doors
  A. 6 Panel Doors___ @ $_____ per Door x _____________Doors =  ____________
  B. Multi-Panel Doors @ $_____ per Door x ____________  Doors =  ____________
  C. CIW* Doors @ $_________ per Door x ____________  Doors =  ____________
  D. Custom Doors @ $_________ per Door x ____________ Doors =  ____________
  E. French Doors @ $_________ per Door x ____________ Doors =  ____________
  F. Metal Doors @ $_________ per Door x ____________ Doors =  ____________
  G. Pocket Doors @ $_________ per Door x ____________ Doors =  ____________
  H. By-Pass Doors @ $_________ per Door x ____________ Doors =  ____________
  I. B. Fold Doors @ $_________ per Door x ____________ Doors =  ____________

Estimating Line Item Category Costs: Baseboard – Casing – Crown...

- Baseboard – Casing – Crown
- Finishwork Materials:
  - Baseboard @ ____________Lineal Ft. x __________Lineal Ft. = $________ + waste
  - Casing @ ____________ Lineal Ft. x __________ Lineal Ft. = $________ + waste
  - Window Jamb @ ________ Lineal Ft. x __________ Lineal Ft. = $________ + waste
  - Chair Rail @________ Lineal Ft x __________ Lineal Ft = $________+ waste
  - Crown Molding @ ______ Lineal Ft x __________ Lineal Ft = $________ + waste
  - Multi Piece Trim @ ______ Lineal Ft x __________ Lineal Ft = $________ + waste
  - Foam Trim @___________ Lineal Ft x __________ Lineal Ft = $________+ waste
  - Handrail @_____________ Lineal Ft x __________Lineal Ft = $__________+ waste
  - T&G 1x6 @ ___________ Square Ft. x __________SqFt = $____________+waste
- Fudge (Reality) Factors:       Base 1.3x        Casing    1.20x  to 1.45x
Estimating Category Line Items:

- Finishwork Labor Cost: ______________
- Billy T’s Crew: 21 Days @ $210 / Day = $4,410
- Subcontractor: $5,340 (labor only)
- What’s the Total Cost Comparison?

Estimating Category Line Items: Example (Supervision Costs per Project)

- Allocating Your Supervision Costs: $68,437 Per Year (Cash Cost Supt.)
  - $68,437 / $2.6 MM = 2.63%
  - $68,437 / 6 Projects = $11,406 Per Project
  - $68,437 / 256 Working Days = $267.33 Per Day
  - $68,437 / 2,304 Working Hours = $29.70 … ($30 Per Hour)
- Estimate Calculation (Supervision Costs):
  - 16 hrs. per week @ $30 / Hr. @ Jones Project x 34 weeks = $16,320

Does Fast & Accurate Estimating Ever Exist?

- Repeating a Previous Project…
- Tract Homes - Townhouses - Add Bedroom
- Semi-Custom Homes (Model A & B)
- In Custom Work…it’s An Oxymoron!
- Don’t Be Afraid To Admit When You’re Outgunned!

Cost Extrapolating is NOT a Substitute for Number Crunching …1.29% x A?

- Using Historical Category Unit Costs is Low Risk
- Make Sure Comparison is Apples to Apples
- Add Error Factor (as needed)
- One Line Item Example: What About Footing Trench Concrete Volume in Rocky Soil?
- …And there are 100+ other Cost Line Items!
Market Pressure To Price Projects Quickly

- Jobs That Are Duplicates
- Tract Housing Repetition
- Most Quick Estimates = Murphy’s Law
- Never Let “Ballpark Estimate” Become the Real Estimate

Estimating Category Line Items: Example

- Tile Quote: $7,913 (Jones Tile Company)
- Your Crews (Your Labor): _______? (Assume $1,428)
- Line Item ENTRY: $7,913 + $1,428 = $9,341
- (Maybe round that up to $9,500)
- $1,428 = Previous Job Costs: Shower Blocking, Tub Platforms, Screw Down Floors @ tile Areas, Supervision, Punch List, etc.
- Job Cost Data (Previous Project): $1,428 for Your Labor Expense

Estimating Category Line Items: Example 2

Generating Useful Job Cost History Data

- Cost Amounts Without Areas, Sizes, Figures Are Worthless!
- All Costs of a Line Item Category Should be Included
- Conc Sub Prime Quote: $3.35 / SqFt 4” depth
- Concrete Floors (Flatwork):
  1. Compaction Test: $295
  2. Concrete @ Garage: $2,663 * 6” instead of 4” Per Plan Footnote
  3. Concrete Pump @ Garage: $325
  4. Concrete @ House: $8,238 ** Added #3 Rein Grid @ 24” On Center
  5. Concrete Sawing: $305 * Per Plan Footnote
  6. Concrete Finishing: $5,973
  7. Insulation Blankets: $365
  8. Insulation Labor: $93
  9. Gravel For Site Mud: $285
- Total Cost: $18,728 / 4,241 SqFt = $4.42 Per SqFt
- Phone Quote: $3.35 x 4,241 SqFt = $14,207 Potential Under Estimate = $4,521 (+32%)
**Estimating Category Line Items: Footings:**

- **Layout.**
- **Excavation.**
- Labor to prep trenches, lay rebar, build dams, and set grades.
- **Inspection**
- Pour concrete; materials, pump & concrete cleanout cleanup.
- **312 lineal ft of 12” deep x 24” wide, 2 #4’s, 2,500 psi concrete footings.**

**Data Base Costs:**

<table>
<thead>
<tr>
<th>Lot</th>
<th>Lot 59</th>
<th>Lot 723</th>
<th>Sanderson</th>
<th>Jokake</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Footing:</td>
<td>$7,251</td>
<td>$13,318</td>
<td>$14,843</td>
<td>$21,820</td>
</tr>
<tr>
<td>Cost / Lin Ft:</td>
<td>$11.52</td>
<td>$17.25</td>
<td>$16.10</td>
<td>$16.67</td>
</tr>
</tbody>
</table>

Job is similar to Lot 723 & Sanderson:

Use $18.10 x 312 Lin Ft = $5,648.00

---

**Calculating Job Cost Line Items & Categories: Framing: (Sub-Contracted) Example**

- **4,750 SqFt + 3 Car Garage (1.050 SqFt): 5-12 Hip Roof (complicated)**

**Data Base Costs:**

<table>
<thead>
<tr>
<th>Bundy</th>
<th>Payne</th>
<th>Kingston</th>
<th>Millston</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Framing (L&amp;M):</td>
<td>$182,541</td>
<td>$174,765</td>
<td>$168,897</td>
</tr>
<tr>
<td>Cost / SqFt (Livable):</td>
<td>$41.90</td>
<td>$37.79</td>
<td>$38.57</td>
</tr>
<tr>
<td>Cost / SqFt (Total):</td>
<td>$39.59</td>
<td>$37.68</td>
<td>$38.30</td>
</tr>
</tbody>
</table>

Job is similar to Payne, but more like Bundy:

Use $41.90 per Liv SqFt x 4,750 SqFt = $199,025

Or

Use $39.59 per Total SqFt x 5,800 SqFt = $229,622

---

**Calculating Job Cost Line Items & Categories: Demolition & Site Prep (850 SqFt Kitchen Remodel)**

**Data Base Costs:**

<table>
<thead>
<tr>
<th>Williams</th>
<th>Randall</th>
<th>Mallory</th>
<th>Gardner</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demolition &amp; Site Prep:</td>
<td>$6,232</td>
<td>$5,894</td>
<td>$12,439</td>
</tr>
<tr>
<td>Cost / SqFt (Remodel):</td>
<td>$17</td>
<td>$29</td>
<td>$16</td>
</tr>
<tr>
<td>Demolition Time:</td>
<td>15 days</td>
<td>7 days</td>
<td>22 days</td>
</tr>
</tbody>
</table>

Remodeling Job is most similar to Williams & Mallory; Mostly like Mallory.

Use logic of past timetables and apply current experience and site details = 25 days

Use Job Cost Data @ $16 per SqFt ...AND $575 DEMO Cost / Day for your estimate of the Demolition Costs ...Or even use it to Calculate a DEMO ALLOWANCE!

25 days x $575/day = XYZ

---

**Framing “Brackets” ...Costs to Buy & Install**

- **4,750 SqFt + 3 Car Garage (1.050 SqFt): 5-12 Hip Roof (complicated)**

**Data Base Costs:**

<table>
<thead>
<tr>
<th>Williams</th>
<th>Randall</th>
<th>Mallory</th>
<th>Gardner</th>
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Use Job Cost Data @ $16 per SqFt ...AND $575 DEMO Cost / Day for your estimate of the Demolition Costs ...Or even use it to Calculate a DEMO ALLOWANCE!

25 days x $575/day = XYZ

---

### Example: Assembling a Contract Price

1. **PROFIT Goal:** $48,000
2. **OVH (8 months x $3,287):** $26,296
3. **Estimate / Specs / Sell Job:** $5,000
4. **Supervision @ $65/hr x 12 hrs x 32 weeks:** $24,960
5. **Management @ $95/hr x 6 hrs x 38 weeks:** $21,660

**Total Soft Costs:** $125,116

6. **Production Costs:** TBD
7. **Errors & Omissions:** TBD
8. **Permits / Subdivision Fees:** TBD
9. **Arch Plan Costs:** $25,000

---

### Estimating Line Item Category Costs: Example

1. **Baseboard @ _____ Lineal Ft. x _____ Lineal Ft. = $_____ + waste
2. **Casing @ _____ Lineal Ft. x _____ Lineal Ft. = $_____ + waste
3. **Window Jamb @ _____ Lineal Ft. x _____ Lineal Ft. = $_____ + waste
4. **Chair Rail @ _____ Lineal Ft. x _____ Lineal Ft. = $_____ + waste
5. **Crown Molding @ _____ Lineal Ft. x _____ Lineal Ft. = $_____ + waste
6. **Multi-Piece Trim @ _____ Lineal Ft. x _____ Lineal Ft. = $_____ + waste
7. **Foam Trim @ _____ Lineal Ft. x _____ Lineal Ft. = $_____ + waste
8. **Handrail @ _____ Lineal Ft. x _____ Lineal Ft. = $_____ + waste
9. **T&G 1x6 @ _____ Square Ft. x _____SqFt = $______ + waste

**Fudge (Reality) Factors:** Base 1.4 x Casing 1.25 to 1.60 x

---

### Estimating Category Line Items: Example

66. **Finishwork Labor Expense:**
   - **Hang Interior Doors @ _____ per Door x _____ Doors = $______**
   - **Bore & Dap Interior Doors @ _____ per Door x _____ Doors = $______**
   - **Cut Soft Interior Doors (cut floorhole) @ _____ per Door x _____ Doors = $______**
   - **Case Interior Doors @ _____ per Door x _____ Doors = $______**
   - **Case Interior of Exterior Doors @ _____ per Door x _____ Doors = $______**
   - **Jamb Windows @ _____ per Window x _____ Windows = $______**
   - **Case Windows @ _____ per Window x _____ Windows = $______**
   - **Install Baseboard @ _____ per Lineal Ft. x _____ Lineal Ft. = $______**
   - **Install ChairRail @ _____ per Lineal Ft. x _____ Lineal Ft. = $______**
   - **Install Crown Molding @ _____ per Lineal Ft. x _____ Lineal Ft. = $______**
   - **Install Paneling @ _____ per SqFt x _____ SqFt = $______**
   - **Install T&G 1x6 @ _____ per SqFt x _____ SqFt = $______**
   - **Install Handrail @ _____ per Lineal Ft. x _____ Lineal Ft. = $______**
   - **Install Wallcap @ _____ per Lineal Ft. x _____ Lineal Ft. = $______**

**Panel Details:**
   - **Inst T&G 1x6 @ _____ per SqFt x _____ SqFt = $______**
   - **Inst Halfwall @ _____ per Lineal Ft. x _____ Lineal Ft. = $______**
   - **Inst Wallcap @ _____ per Lineal Ft. x _____ Lineal Ft. = $______**

---

### Estimating Category Line Items: Example Cleanup

87. **Cleanup:**
   - **Daily Cleanup @ _____ per Day x _____ per hr labor cost x _____ Days = $______**
   - **Weekly Cleanup @ _____ per Week x _____ per hr labor cost x _____ Weeks = $______**
   - **Final Cleanup Cost @ _____ hrs. labor @ _____ per hr = $______**
   - **Dumpsters @ $400 per dump x _____ loads = $______**

**This isn’t house cleaning or window cleaning!”**
Estimating Category Line Items: Example: (OVH Per Project)

- Allocating Your Overhead Costs: $257,328 Per Year
  
  \[ \frac{257,328}{2.6 \text{ MM in Sales}} = 10.3\% \]
  
  \[ \frac{257,328}{6 \text{ Projects}} = \$42,888 \text{ Per Job} \]
  
  \[ \frac{257,328}{256 \text{ Working Days}} = \$1,005 \text{ Per Day} \]
  
  \[ \frac{257,328}{2,304 \text{ Working Hours}} = \$111.70 \text{ Per Hour} \]
  
  Pro-Rate OVH Pre JOB By Hourly, Daily or Weekly Costs!

Estimating Category Line Items: Example: (Supervision Costs per Project)

- Allocating Your Supervision Costs: $68,437 Per Year (Cash Cost Supt.)
  
  \[ \frac{68,437}{2.6 \text{ MM}} = 2.63\% \]
  
  \[ \frac{68,437}{6 \text{ Projects}} = \$11,406 \text{ Per Project} \]
  
  \[ \frac{68,437}{256 \text{ Working Days}} = \$267.33 \text{ Per Day} \]
  
  \[ \frac{68,437}{2,304 \text{ Working Hours}} = \$29.70 \text{ (or $30 Per Hour)} \]
  
  Estimate Calculation (Supervision Costs):
  
  \[ 40 \text{ hrs. per week} \times \$30 / \text{ Hr.} \times 44 \text{ weeks} = \$52,800 \]

Make Sure Your “Ballpark” Estimate Isn’t Outside the Stadium!

Historical Job Cost Database Information

<table>
<thead>
<tr>
<th>Job Cost Database (New Construction)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Project:</strong></td>
<td>FM 235</td>
</tr>
<tr>
<td><strong>Size:</strong></td>
<td>3,845 SqFt</td>
</tr>
<tr>
<td><strong>Garage:</strong></td>
<td>3 Car</td>
</tr>
<tr>
<td><strong>Finishwork:</strong></td>
<td>$12.21/ft</td>
</tr>
<tr>
<td><strong>Floor Coverings:</strong></td>
<td>$18,540</td>
</tr>
<tr>
<td><strong>Floors Conc 4”:</strong></td>
<td>$3.40/sqft</td>
</tr>
<tr>
<td><strong>Footings:</strong></td>
<td>$16.60/lft</td>
</tr>
<tr>
<td><strong>Framing Costs:</strong></td>
<td>N/A</td>
</tr>
<tr>
<td><strong>HVAC:</strong></td>
<td>$3.24/sqft</td>
</tr>
<tr>
<td><strong>Insulation:</strong></td>
<td>$1.88/sqft</td>
</tr>
<tr>
<td><strong>Painting:</strong></td>
<td>$6.25/ft</td>
</tr>
</tbody>
</table>

Job Cost Data History: New Homes

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</table>
Use Calculated Allowances

- 1. Allowance Amount is Based on Fact.
- 2. Client Understands the Logic.
- 3. Eliminates 3rd Party Guesswork!
- 4. No Finger Pointing (During the Job)

Calculated Allowance Example 1

- Carpet: 3,345 SqFt x 7% Waste / 9 SqFt per Yd. = 398 SqYards
- 398 Sq Yards x $41 per Sq Yard = $16,318
- Carpeted Areas: Living Room, Dining, 4 Bedrooms and Bedroom Hallway.
- Client is leaning toward a commercial use “quality” carpet with 3/16” pad.
- Carpet Selection (Decision) is Required by: October 15, 2016

Calculated Allowance Example 2

- Roofing: Client cannot decide about the roofing style and color. Choice is between a raised seam metal roof and architectural asphalt shingle.
- Allowance Amount is based upon Elk Roofing (40 year) @ $173 per square x 5% waste x 132 squares = $5,813
- Decision must be finalized by December 12, 2006
- Client understands that a raised seam metal roof will cost $250 to $500 per square depending upon color, thickness, pattern, etc.
- Changing to a metal roof will also add additional cost for adjustments to the framing, fascia, drip edge, rain gutters, flashing details, etc. Those costs will be tabulated if client proceeds with a metal roof system.
- Contractor research, quotes and subcontractor inquiries will be invoiced to the client @ $85 per hour for metal roof systems.

Calculated Allowance Example 3

- 12. Floor Coverings: Tile Flooring
- Tile Floor Areas: Family Room, Laundry, Kitchen, Breakfast Nook and Entry.
- Assume: 12”x12”x 3/8” ceramic tile with standard, sanded, C-Cure brand, grout.
- Tile Floor Area: 745 SqFt
- Calculation: 745 SqFt x 12% waste x $12.00 / SqFt (installed) = $10,013.00
- Tile to chosen at Desert Glazing Tile Co.
- Material is to be selected by 12-10-2016.
- Most floor tiles do not have trim pieces.
- Tile Recommended: Artisan series by Dal Tile.
- Installation is by Las Vegas Ceramics, Inc.
Calculated Allowance Example 4

1. Appliances: Owner could not finalize selection on appliances prior to start of construction. Allowance Amount has been determined using General Electric as a price guide. Supplier: A Appliance - Flag, Az.
   - Refrigerator: GE Monogram 457BX
   - Oven: GE Monogram D333 (1-30" oven)
   - Dishwasher: GE Monogram 223-1
   - Microwave: GE Monogram 227BX
   - Washer/Dryer: Optional
   - Vent: Assume micro will vent cooktop.
   - Vent Selection: Optional.
   - Other appliances will alter installation costs.
   - Cabinet trim panels are Optional.
   - Owner Selections to be completed and provided to contractor by 9-30-06.
   - Allowance Amount: $17,328.00

Allowance includes appliances, delivery, freight and installation. Other appliances will alter installation costs.

Calculated Allowance Example 5

10. Electrical Fixtures: $10,310. Allowance
   - Dining Fixture: $1,500
   - Breakfast Nook Fixture: $300
   - Under Cabinet Lighting: $2,400
   - Entry Fixtures (4): $500
   - Hallway Fixtures (8): $1,300
   - Interior Recessed Cans (33): $750
   - Powder Vanity Lights (2): $750
   - Other Bath Fixtures (8): $1,200 (150 avg. cost per fixture)
   - Ceiling Fans (5): $1,500
   - Powder Vanity Lights (2): $750
   - Other Bath Fixtures (8): $1,200
   - Final Fixture Selection Pricing Includes: Elec fixtures, bulbs, shipping, install & tax.
   - This Allowance is a suggested cost guideline for the Owner. Final pricing may vary.
   - Selections must be completed by 5-10-16 and delivered to Contractor.

Example: Allowance Schedule
(As Part of the Contract — Determined by the Estimate)

Example: Allowance Schedule
(As Part of the Contract — Determined by the Estimate)

Estimate Use Example 1: Driveway

- 7745 sq ft
- 6” thick: 3,000 PSI at 28 days
- #4 Rebar Grid at 24” on-center with #5 rim bar
- Davis Color: Omaha Tan
- Finish: Washed Aggregate (1/2” Pea Gravel)

Contractor reviewed estimate with sub and cost quote was increased. Sub overlooked color & agg.
Contractor already knew costs / SqFt for the concrete, finishwork and color.

RESULT: $3,500 error was avoided. Trust between sub and general enhanced. Arguing over specs and lost income is ELIMINATED!
Estimate Use Example 2

Window Bid Quote: Brand X, Low E, Dual Glazed, Argon Gas Glazing Units (R-8), Bronze Clad, Bronze Hardware, Bronze Screened, units.
- Window Supplier counted 24 openings that will require 37 window units.
- Arizona Window & Glass Quote: $24,370.00 *

Quote Notes:
- Windows will be delivered to Lot 57, Flagstaff, Arizona.
- Units mailed by A&W, install by Others.
- PVC nailing flanges included.
- Argon gas units not included.
- Plans call for 4050 LH Casement unit at Openings 23 & 25.
- Floor Plan notes this location as 3 sided wing walls with wall lengths of 36’.
- Verify window size. We used 2650 units.

RESULT: Plan errors were uncovered. Window sizes were verified and corrected. An incorrect window order was avoided.

Estimate Use Example 3: Electrical Bid

- You have a pre-arranged agreement with your Electrician that each opening costs $38 to wire (rough-in and install trim, switches and plugs).
- The Client adding 3 switches, 12 recessed cans is made easy for pricing and change order purposes.
- Sub quote was $11,856.00 (House Only)
  $515.00 (Garage Workshop)
  $900.00 (Driveway Lights)
- Cost Quote: 312 openings x $38 = $11,856 + $515 + $900 = $13,271

RESULT: Contractor prices accurately and avoids guessing (underbidding).

Estimate Use Example 4: ROOFING

- 240 sheets 5/8” x 4 x 8 OSB sheathing = 7,680 SqFt (77 Squares)
- Roofing Amount = 77 squares
- Roofing Subcontractor Quoted 114 Squares Roofing
- Contractor reviewed estimate with sub and cost quote was reduced to reflect 77 squares roofing + waste = Roofing Quote at 81 Squares;
- RESULT: Error of 33 squares was avoided.
- ($1.50 per SQ x 33 SQ = $4,950) Overpay AVOIDED!

Conclusions: Estimating & Job Costing

- Identify Your **ideal** Type **Projects & Customers**
- Have a Thorough **CONTRACT**
- **Know Your Costs & Manage Your Costs Weekly**
- You Set YOUR Rules & Conditions For Estimating
- **Evaluate:** Cost Plus vs. T&M vs. Fixed Price
- Make Sure Specifications Are **DETAILED!** ...Spell Out Warranty Limitations
- **Control the Train From the Locomotive** ...Not the Caboose!
Contact Information

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Flagstaff, AZ 86004

- 928-699-1070
- E-mail: DixVen.Az@gmail.com