How to Estimate the Cost of Various Commercial Ceiling and Floor Finishes

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How to Estimate the Cost of Various Commercial Ceiling and Floor Finishes

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Section 1 - Introduction

The purpose of this technical paper is to provide the reader with an overall general understanding, as well as, a specific and more detailed understanding for creating a professional construction cost estimate for providing and installing various commercial ceiling and flooring finishes. A general discussion of 'actual' production time, reasonable crew sizes, and a methodology for determining crew size production rates will be discussed.

Main CSI (Construction Specifications Institute 2011 MasterFormat) Division

Division 09 50 00 Ceilings Division 09 60 00 Flooring

Main CSI (Construction Specifications Institute 2011 MasterFormat) Subdivisions

Subdivision 09 21 16 Gypsum Board Assemblies

Subdivision 09 22 26 Suspension Systems

Subdivision 09 51 00 Acoustical Panel Ceilings

Subdivision 09 53 00 Acoustical Ceiling Suspension Assemblies

Subdivision 09 65 00 Resilient Flooring

Subdivision 09 68 00 Carpeting

Brief Description

After a brief discussion of review of project plans and specifications, scope review, methods and results required by the quantity survey; a methodology for compiling that information into a detailed cost estimate will examined. Sample takeoffs and cost estimates will be included. It will be shown how repetitive calculations and analysis can be readily formulated into spreadsheet software to greatly decrease effort and the potential for error. A short discussion on the 'probability of error' will be used to recommend methods to diminish that probability along with a discussion of what constitutes 'actual construction time'. Although presented from the perspective of a General Contractor (GC) or a Program or Project Management firm, it will be readily apparent how this same procedure of estimating may be utilized by a subcontractor or by the GC who desires to self-perform portions of his project. It will be demonstrated that with a reasonable understanding of the structural intent, fire-rating requirements, and a Room

Schedule delineation of approximate sizes and desired ceiling and floor finishes how a detailed and project specific cost determination may be achieved.

Section 2 - Types of Methods of Measurements

Nearly all take-offs will be either in **linear feet (LF)** (e.g. grid, thresholds, support components or perimeter elements) or in **square feet (SF)** for area elements (ceiling tile, VCT, or carpeting). There will be a few elements required in several assemblies that shall be priced per **each (EA)**. However, most individual (i.e. EA items) required in the assembly will be directly calculable from either the linear foot elements of square foot elements estimated in the base quantity survey.

The quantity survey, for ceiling and floor finish elements, requires the estimator to familiarize himself with the standard dimensions of the product being installed. It is incumbent on the estimator to recognize that odd shapes or peculiar dimensions of a space being finished will yield more finish material waste than regular configurations.

When dealing with ceiling finishes, it is generally acceptable to round up all room dimensions (each individual room) to the next even whole number of feet. That is to say, a room which has actual wall-to-wall dimensions of 8'-4" by 11'-6" (96 SF,+/-) should be surveyed for ceiling purposes as being 10'-0" by 12'-0" (120 SF). This is true for almost all ceiling panel systems, as well as, suspended drywall systems. The reason for this is that the panels or gypsum boards required in the assembly will typically be sold in even dimensioned lots (i.e. 2'x2', 2'x4', 4'x8', 4'x12', etc.) and the 'less than two foot' scraps generated by the installation will not be of use at any other location. This room dimension 'correction' also aids in the proper calculation of support and grid elements which are typically sold in dimensions of 2', 4', 10' and 12'. A notable exception to this rule is the concealed spline ceiling which is typically installed using a 12" by 12" tile. In this exception, the room dimension should be raised to the next whole foot value and the room in the above example would be surveyed as 9'-0" by 12'-0" (108 SF).

When dealing with floor finishes which are not monolithic or poured finish elements, more attention must be paid to the project specification to determine actual finish element sizes. While a number of typical finish elements such as vinyl composition tile (VCT) are typically sold in 12" square units, it is not uncommon in a modern commercial construction project for the architect to specify elements of larger unit dimension or even metric sized units. Additionally, it is not unusual for carpet tile to be specified as 18" square or 20" square or 24". The proficient estimator must account for odd sized rooms which may yield an inordinate amount of waste.

Rolled carpeting, as with most rolled goods, requires a slightly different analysis. The United States manufacturing process for nearly all rolled goods generates a product that has a width dimension divisible by three feet (i.e. 6' wide, 9' wide, 12' wide, 15' wide). It is necessary for the estimator to recognize this width requirement in calculating the floor area dimension to receive rolled goods. For example; a room dimensioned as10'-4" by 13'-9" (142 SF,+/-) should be surveyed for flooring rolled good purposes as being 12'-0" x 14'-0" (168 SF). It should be noted that rolled goods are typically sold in the United States in units of **square yards (SY)**. Although this unit may initially sound peculiar as an area calculation, it is simply defined as a piece of material that is 36 inches by 36 inches or one yard by one yard or 9 SF. Therefore in the example above, the required rolled good material calculation would equal 168 SF divided by 9 SF per SY and be equal to 18.67 SY (168/9 = 18.67) of material.

Section 3 - Project Specific Factors to Consider in Takeoff and Pricing

Minimum Quantity Requirements

After the room by room finish schedule has been quantified and a reasonable percentage for breakage, damage, and waste incorporated; the totals for all the separate elements should be recapitulated. The estimator should then verify the 'sale quantities' required by the various supply house. The salesman will provide the standard cartoon sizes by which each element is sold. The individual elements should then be increased to the appropriate individual full cartoon size. Supply houses charge significant premiums to 'break' cartoons and will typically quote only full cartoons to commercial contractors. It is always essential on the professional estimator to confirm the appropriate packaged sizes for each element. Acoustic Ceiling Tile is often sold in packages of 48 or 64 square feet; VCT often in cartoons of 44 square feet; twelve foot main tees at 20 pieces per cartoon or 240 linear feet; 2 or 4 foot tees at 60 pieces per cartoon or 120 linear feet for 2'-tees and 240 linear feet for 4'-tees, and various other quantities which are not implicitly intuitive.

As the reader may suspect, these are basic guidelines and the appropriately inquisitive estimator should always verify packaging sizes. Specialty items are often packaged uniquely and must be confirmed. Examples of these may be Clean Room grid or acoustical ceiling cloud edge trim.

Potential for Savings on Large Projects

On projects of significantly large size, a consideration may be given to material cost savings provided that the project is capable of supporting direct shipments of finish materials. Typically this would require a project large enough to accept full tractor trailer loads of finish material. The shipments would arrive directly from a manufacture's production facility, although often still coordinated through the local supply representative, but at substantially reduced pricing.

However, the estimator must consider the potential added expense of unloading and distributing the materials at the site which is in contradiction to the unloading and distributing material which is normally a portion of the local supply house's delivery service. Additionally, consideration would need to be given site storage of material. The estimator should perform a detailed cost-benefit analysis of this scenario prior to recognizing potential savings.

Section 4 - Overview of Labor, Material, Equipment, Indirect Costs and Approach to Markups

There will be a number of factors that vary in determining labor cost and we should review those. Of course labor rates will vary according to region, type and difficulty of work, union versus non-union, et cetera, and these factors should be taken into account. However, all of those variables should be easily defined and established for the current project. What will be a driving factor is how we utilize these rates to determine unit costing, which is affected by a number of the components discussed below.

Daily Production

It is vital to use reasonable 'daily' production rates when determining unit costing. This methodology permits the estimator to focus on individual elements, crew sizes, and reasonable productions for a duration of time without burdening this process with maximum and minimum hourly assumptions. It also aids in accounting for the number of factors which reduce available time for the crew to realistically position work 'in-place'. Just as the astute observer recognizes their own circadian fluctuations, the perceptive professional estimator will account for the normal and realistic workplace variables which occur in the field.

Reasonable Production Time

A common error made by the novice in analyzing commercial workplace construction time is the presumption that the normal 8 hour work day contains 480 minutes of production time. While the math is technically correct, it is not realistic. When we view the normal activities which occur on a commercial project, we discover a number non-productive time periods. There is always a need for initial morning set up, a wrap-up period prior to the end of the day, generally morning and afternoon 'breaks' and additional periods of minor tardiness as workers are moving from breaks or meals or restroom facilities to the commencement of production. Most time management studies surprisingly conclude that approximately 80 minutes of the typical 480 minute day result in non-productive time. Or said another way, we should presume that the 'reasonable production time' for any give hour is prudently only 50 minutes and we should utilize that rate when mentally determining reasonable production rates.

Observed Production Rates

The *R.S. Means Building Construction Cost Data* (*R.S. Means*) reference book is a useful source as a starting point for determining reasonable daily production rates. R.S. Means uses the term 'Daily Output' in their various calculations as synonymous to Daily Production Rate. However, the use of your own observation, where possible, and experience are your most reliable valuation. The best procedure in documenting these rates is to visit an active work site, preferably in the late morning or early afternoon (normal active construction time) when the activities for the element you wish to measure are being performed. Make a mental note of the crew size, its constitution (the classification by performance of the elements of the crew; *e.g. 2 Mechanics* + 1 Journeyman + 2 Helpers), and the present state of the amount of work in-place. Leave the work area and permit a substantial amount of time to elapse (at least one hour and preferably 90-120 minutes). Return to the work area and document the amount of new work

in-place and the precise amount of elapsed time. With this information in-hand, it is a simple calculation to determine the reasonable production rate for the crew of observed size and constitution. When making this calculation, recall that we should presume that only 50 minutes per hour are productive over a daily rate.

As an example, let us presume that the elapsed time was 120 minutes. And that in that period a crew of 3 men (2 mechanics and 1 laborer) installed 240 widgets. Since those 120 minutes represents 2.4 **productive** hours (120 m / 50 pm/h = 2.4 ph), the correct calculated result is 100 widgets per hour or 800 widgets per day. Had we mistakenly presumed that this crew could produce at the rate of 240 widgets in 2 hours (and not 2.4); we would have created an unsustainable rate of 120 widgets per hour or 960 widgets per day.

There are two important factors to consider when using the observation method of calculating reasonable production rates. First, always attempt to select a period outside of the normal miscellaneous non-productive down times. Second, always make your observation non-intrusive and without the knowledge of the crew. A false high-rate of production (placebo effect) will occur should the crew become aware that you are measuring production rates. It has consistently been shown that employees will conscientiously, or unconscientiously, improve their production rates when they are aware of a time management study being conducted. Always recall that our goal is to obtain reasonable sustainable and reproducible production rates.

Crews and Crew Sizes

A common error in performing unit price calculations is to use the identical crew for the installation of each and every element. This is neither realistic nor a model for what actually occurs in the field. You should always attempt to create the most likely reasonable crew to install that phase of the work. Although we may use a ceiling mechanic and a mechanic journeyman to install ceiling mains and primary grid, we may substitute a journeyman and a laborer to 'cut in' ceiling borders and potentially a pair of laborers to 'drop' the field of whole acoustical tile.

Material

For an accurate calculation of ceiling or floor finishes, it is imperative that we break the detailed estimate into as many of the individual tasks required to complete the installation as actually occur. This effort expedites our ability to analyze and properly account for all requisite material.

Equipment

Nearly all ceiling and floor finish operations will require the use of small tools, task specific equipment or scaffolding methods to accomplish the task. Any consumed or leased tools or equipment should be accounted for based on their daily valuation in conjunction with our use of daily production rates.

Indirect Costs and Approach to Markups

Indirect costs include additional business operation elements required by the contracting firm. Examples of these additional expenses include bonding, various insurance requirements, permits, on-site temporary facilities, attributable home office expenses and taxes, where applicable. These costs also include the required managerial and administrative staff directly associated to the project. Where it is possible to definitively define the indirect costs, these should be separated and included. However, it is often normal procedure to carry a percentage

of the cost-of-work to off-set these indirect costs. A thorough study of recent similar project is frequently used to ascertain this appropriate percentage.

Markups are based on two contradictory comparisons. First, what will the 'market bare'? And secondly, what is the minimum the company can accept considering the risk being assumed? Determination of this percentage is not an exact science. Considerations will be given to the number of bidders (the competition), current market conditions, the quality of competing bidders, the need of work for current employees, and the success (or lack of success) on recent similar projects. In general, the larger the project the smaller the acceptable markup can be.

Conversely, the more risk associated with a particular project, the higher the desire will be for more significant markups to compensate for the assumed risk.

Regardless, these will always be decisions which require the input of upper management.

Section 5 - Special Risk Considerations

A common risk which can occur for either ceiling or floor finishes is the specification of a material requiring a significant lead-time. Although this might not be a direct impact on material cost, project scheduling can often require premium payments to acquire material in a timely manner. Delivery times should always be qualified by the prudent estimator. All finishes require proper and consistent environmental and climate controlled conditions for installation. This can also become a costly scheduling impact, if not properly addressed.

Potential risks more normally associated with flooring include both protection and substrate condition or preparation. There often remains significant construction activity to perform in areas after the installation of final flooring. In these situations it is paramount that the flooring finishes be protected. It must be assured that the cost of this protection is included in the overall estimate whether by the sub or general contractor. Even in new construction there can be deficient preparation of the flooring substrate. The substrate could be poorly installed, unlevel,

be of an incorrect porosity, or coated with chemicals which are inconsistent or detrimental to the flooring adhesives or the actual finish material itself. This provides another reason for the estimator to become familiar with the specification requirements of the substrate preparation and the opportunity to timely raise issues of material contradictions with either the GC or the architect. And once again, qualify, qualify, qualify! And obviously, these issues are only magnified in renovation projects where the potential of existing incompatible residue is significant.

Ceiling risks are typically associated with installation. An examination of the mechanical ductwork layouts can be informative in the ability to install requisite hangers vertically. Often there are requirements to splay hangers (install multiple hangers at angles) or build hanger bridges; all of which have cost impacts. All codes and most manufacturers of grid systems require that heavy components (e.g. light fixtures) incorporated in the grid system be independently supported. The specifications should provide clarity on who is responsible for this additional supporting requirement. Other issues which can impact scheduling, repair, and guarantees which all eventually impact cost include; other contractors continuing to work above an installed ceiling, the presence or removal of hold-down clips, continuity of insulation, and seismic zone requirements.

Section 6 - Ratios and Analysis - Testing the Bid

The adept estimator always maintains a wealth of costing data on various systems. He should preserve a database of unit costs, system costs and special requirements of projects he has bid, built or estimated. This information will prove invaluable in logically testing a current cost or in creating future conceptual estimates. And of course, you can always reference the voluminous number of commercial databases provided proper modification is performed for location, escalation, and current market climate. It is also useful to maintain 'component' detail costing for various systems. As an example, an estimator that maintains a history of the costing of various drywall system components (i.e. unfinished drywall, finished drywall, metal stud support systems of various gauges, SAB insulation, lead shielding cost, etc.) can create reasonable unit costs for systems never previously estimated. And consequently, be able to test whether the new costing is rational and can be explained or justified by the simple addition of all the components necessary to create the system.

A final project wide verification should be performed on all ceiling and flooring finish estimates. After accounting for all unfinished areas, a summation must demonstrate that the entire remaining project square footage has been finished. Also your database history should contain comparisons by project type of reasonable ranges for complete ceiling and flooring costing for those specific use groups. This information can be invaluable in explaining or documenting 'issues' with a current design or in providing ammunition for discussions of value management (sometimes referred to as Value Engineering) with the design team.

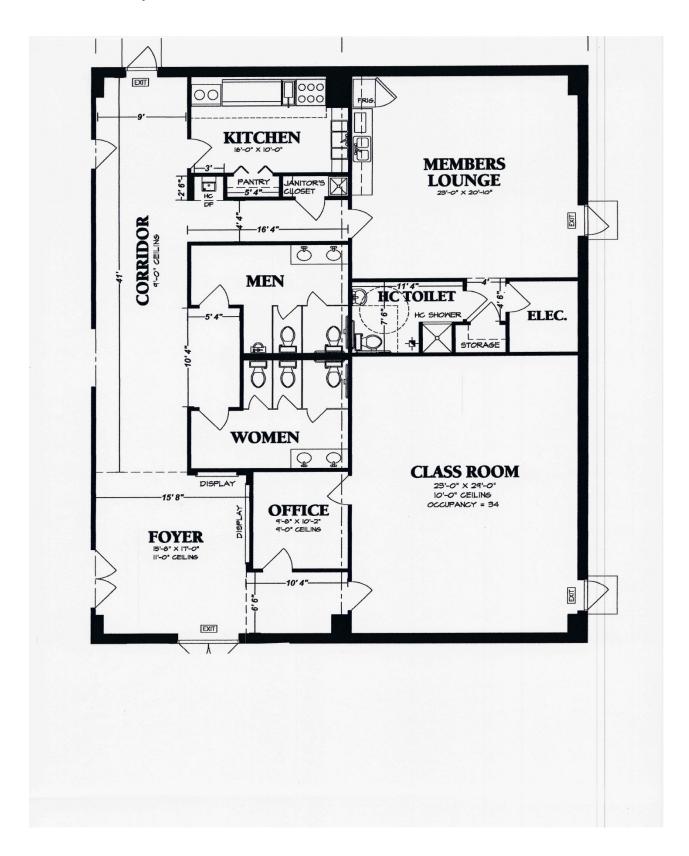
Section 7 - Other Pertinent Information

Sustainability has rightly become a noteworthy topic on nearly all modern projects. While material premiums, if any, will be accounted for in material pricing from supply houses; there can be additional accounting, tracking, report and recording keeping requirements. The specifications may require sustainable maintenance or cleaning material be provided by the installer. An accounting of these additional costs must be included.

All major commercial projects require contractors working on-site to have written and strictly enforced safety and drug programs. The current market trend is to acknowledge that the enforcement of these programs is both ethical and monetarily beneficial, particularly when used in conjunction with efforts to modify unsafe behavior. The prosperous modern firms are those that recognize that safety is beneficial to schedule, production and profits. And by creating and maintaining an EMR (Experience Modification Rate) beneath 1.0 (your industry average) it is possible to achieve significant insurance and workman's compensation cost reductions.

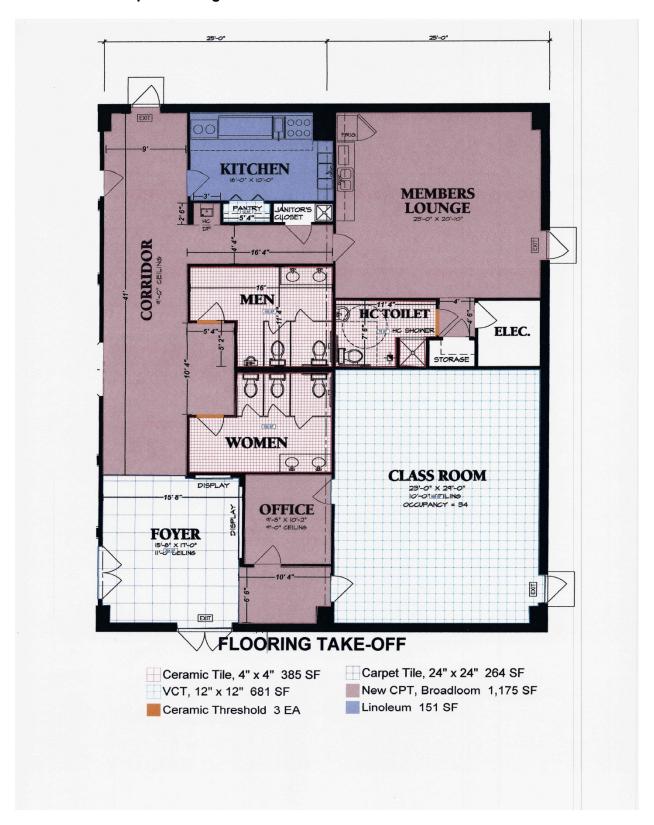
As with most of the finish trades, ceiling and flooring installation often provide significant potential for the General Contractor to achieve voluntary or mandatory SWaM (Small, Women, & Minority) participation goals with respect to small, women, disadvantaged, or minority owned businesses on their construction projects.

Section 8 - Sample Plan View & Finish Schedule

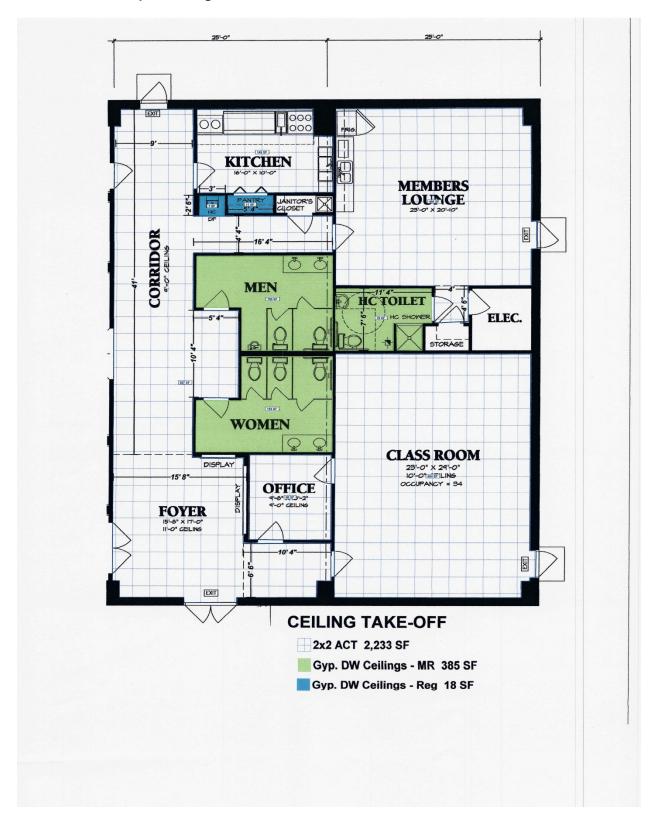


FINISH SCHEDULE **ROOM NAME FLOOR** BASE CEILING NOTES 24" × 24" Prem. Carpet Tile **FOYER** CARPET TILE 4" RUBBER ACT, 2 X 2 OFFICE CARPET 4" RUBBER ACT, 2 X 2 Broadloom 12" × 12" VCT VCT4" RUBBER ACT, 2 X 2 CLASS ROOM CORRIDOR CARPET 4" RUBBER ACT, 2 X 2 Broadloom HC-DRINK FOUN. CARPET 4" RUBBER DW 1/2" Reg. Board MR Board, 1/2" CTMEN CTDW MR Board, 1/2" WOMEN CTCTDW KITCHEN LINOLEUM 4" RUBBER ACT, 2 X 2 12" ×12" VCT; Reg. Brd PANTRY VCT4" RUBBER DW JANITOR'S MEMBERS LOUNGE ACT, 2 X 2 CARPET 4" RUBBER HC TOILET MR Board, 1/2" CARPET CTDW STORAGE ---ELECTRICAL ---

Section 9.1 - Sample Flooring On-Screen Take-Off®



Section 9.2 - Sample Ceiling On-Screen Take-Off®



Section 9.3 – Mathematical Take-Off by Material Dimension

Note: Area take-offs are modified to the useable manufactured material dimensions to account for inherent waste generated by specific room dimensions. The slightly increased quantities calculated versus the physical OST[©] quantities shown in prior sections demonstrate these differences.

2 x 2 Acoustical Ceiling T.O. (w/ All Dim. Divisible by 2)				Broadloom Carpet Take-Of (w/ Width Dim. Divisible by 3)					
			Calculated	Calculated				Calculated	Calculated
	Width	Length	Area	Wall Angle		Width	Length	Area	Perimeter
Foyer	16.0	18.0	288	68	Corridor	9.0	41.0	369	100
Office	10.0	12.0	120	44	Kit. Corr.	6.0	17.0	102	34
Class Room	24.0	30.0	720	108	Bath Vest.	3.0	3.0	9	6
Corridor	41.0	10.0	410	102	Corr. To CR	6.0	11.0	66	28
Kit. Corr.	6.0	18.0	108	36	Corridor @ Office	9.0	11.0	99	40
Bath Vest.	6.0	12.0	72	12	Office	12.0	10.0	120	44
Corr. To CR	8.0	12.0	96	32	Member's Lounge	10.0	16.0	160	52
Kitchen	10.0	16.0	160	52	ML Corridor	24.0	21.0	504	66
Member's Lounge	22.0	24.0	528	92					
TOTALS		SF =	2,502	546	TOTALS		SF =	1,589	422
							SY=	177	
DW-MR Ceiling Ta	ke-Off (w/ AII Di	im. Divisible	by 2)	Ceramic Tile Take-	Off (w/A	All Dim.	Divisible by	(1)
			Calculated					Calculated	Calculated
	Width	Length	Area			Width	Length	Area	Perimeter
Men	16.0	12.0	192		Men	16.0	12.0	192	56
Deduct	(4.0)	4.0	(16)		Deduct	(5.0)	5.0	(25)	0
Women	16.0	12.0	192		Women	16.0	12.0	192	56
Deduct	(4.0)	4.0	(16)		Deduct	(5.0)	5.0	(25)	0
HC Toilet	8.0	12.0	96		HC Toilet	8.0	12.0	96	40
TOTALS		SF =	448		TOTALS		SF =	430	152
DW-Reg Ceiling Ta	ko-Off	/w/ Δ11 Γ	Dim Divisible	a hy 2)	VCT Take-Off (w/A	II Dim I	Divisible	hv 1)	
Div-ricy oching it	IKC-OII	(117 / 711 2	Calculated	J Dy 2)	VOI TURC-OII (W/ A		J17131010	Calculated	Calculated
	Width	Length	Area			Width	Length	Area	Perimeter
HC Drinking Fn.	4.0	8.0	32		Class Room	23.0	29.0	667	104
Pantry	4.0	4.0	16		Panry	6.0	3.0	18	12
TOTALS		SF =	48		TOTALS		SF =	685	108
Carpet Tile Take-O	ff (w/A	II Dim. L	Divisible by 2	2)	Linoleum Take-Off (w/ Width Dim. Divisible by 3)				
			Calculated	Calculated				Calculated	Calculated
	Width	Length	Area	Perimeter		Width	Length	Area	Perimeter
Foyer	16.0	17.0	272	43	Kitchen	12.0	16.0	192	56
		SF =	272	43	TOTALS		SF =	192	56

Section 9.4 – Unit Cost Calculation for the Proposed 2 x 2 Ceiling

The following assumptions or pricing verifications have been used:

Mechanic Hourly Wages = \$22.00 per Hour = \$176.00 per Day Helper Hourly Wages = \$18.00 per Hour = \$144.00 per Day Laborer Hourly Wages = \$12.50 per Hour = \$100.00 per Day

Calculation of 2 x 2 ACT Ceiling Costs;
Tile @ \$1.50 / SF; 12' Mains at \$0.48 / LF; 2 & 4' Tees @ \$0.45/LF;
Wall Angle @ \$0.48/ LF; Hanger Wire @ \$1.25/EA

	MA	TERIAL	LABOR						
ITEM DESCRIPTION	Quantity	Unit Cost	Total Cost	Daily Prod'tn	Crew Type MHL	Daily Crew Cost	Unit Cost	Total Cost	TOTAL
Layout	2502	\$0.02	50.04	2500	101	\$276.00	\$0.11	276.22	326.26
Hanger wires	120	\$1.25	150.00	40	011	\$244.00	\$6.10	732.00	882.00
Material Distribution	2502	\$0.00	-	2500	002	\$200.00	\$0.08	200.16	200.16
12' Main Tee	40	\$5.76	230.40	25	110	\$320.00	\$12.80	512.00	742.40
4' Cross Tee	240	\$1.80	432.00	64	100	\$176.00	\$2.75	660.00	1092.00
2' Cross Tee	240	\$0.90	216.00	64	100	\$176.00	\$2.75	660.00	876.00
Wall angle	600	\$0.48	288.00	400	110	\$320.00	\$0.80	480.00	768.00
Ceiling Tile	2544	\$1.50	3,816.00	900	011	\$244.00	\$0.27	689.71	4505.71
Cleanup	2502	\$0.02	50.04	3500	001	\$100.00	\$0.03	71.49	121.53
Materia 3.0% Material		al Cost	5,232.48			Lat	or Cost	4,281.57	
		Waste	156.97		25.0%	Labor	Burden	1,070.39	
5.0%	Sale	es Tax	269.47		3.0%	Sup	ervision	160.56	
Material Total 5,658.93							5,512.53		

Total	5,658.93				
Tota	5,512.53				
Added Equipment Costs			125.00		
	11,296.45				
5.0%	Overhead	d	564.82		
8.0%	Profit		948.90		
TOTAL PRIOF \$40,040.40					

•	
\$12,810.18	
	\$12,810.18

	System SF
30.07	Man Days
\$5.12	Cost/SF

Basic Material Required					
	Count per Box	Boxes			
Hanger wires	60	2			
12' Main Tee	20	2			
4' Cross Tee	60	4			
2' Cross Tee	60	4			
Wall angle	300	2			
Ceiling Tile	48	53			

Section 10 - Sample Estimate General Contractor Recapitulation

Recapitulation Detail of ASPE Technical HALEY'S HOPE ENTERPRISES, LLC Report Concept Estimate SUBCONTRACT / **DIVISION DESCRIPTIVE** MATERIAL LABOR **TOTAL** QUANT EQUIPMENT UNITS - ITY Item Title or Descriptive Units **FINISHES** 9 **GYPSUM DRYWALL** WALL & CEILING ASSEMBLIES CEILING ASSEMBLIES Suspended Drywall Ceiling 48 SE 6 66 320 320 7.41 Suspended Drywall Ceiling 448 SF 3,320 3,320 3,640 \$ 3,640 HARD TILE & STONE Ceramic "Type 2" Floor Tile 10.10 4.343 4.343 430 SF 152 LF 8.13 1,236 Ceramic Wall Base 1,236 Marble Thresholds EΑ 52.50 158 158 Attic Stock Base, Ceramic & Quarry Flooring 129 2.0% CRTN 129 129 5,925 5.925 \$ Subtotals ACOUSTICAL Standard 2 x 2 Fissured Ceiling 52 Boxes at 48 SF per 2,502 SF 12,811 12,811 Attic Stock A coustical Ceiling Tile Material 2.0% CRTN 76 76 76 12,887 \$ 12,887 Subtotals RESILIENT FLOORING VCT Flooring; 12 x 12 x 1/8" 704 SF 1.99 1,401 1.401 9.18 Heat Welded Linoleum Flooring 192 SF 1,763 1,763 Attic Stock Vinyl Composition Tile Material 57.75 2.0% CRTN 58 58 4" Cove Base, Rubber 108 1.51 LF 164 164 Subtotals \$ 3,386 \$ 3,386 CARPET Comm. Direct Glue; 26 oz. Level Loop 24.10 SY 4,266 4,266 272 832 832 Attic Stock; CARPET Materia 2.0% 17.50 158 5.256 \$ 5.256 \$ \$ \$ Subtotals DIVISION 09 -\$ 31,094 \$ 31,094 **FINISHES TOTALS** \$ \$ \$ \$ 31,094 \$ 31,094 **ESTIMATE COLUMN TOTALS Direct Construction Costs** \$ 31,094 **► CONTINGENCIES as % of Sub-Total** ► 0.75% Material and / or Commodity Escalation 234 **Direct Construction plus Contingencies** \$ 31.328 ₩ Fee % including Contingencies ₩ 3.00% Contractor Fee 940 **Direct Construction, Contingencies and Fees** \$ 32,268 **► INSURANCES** and Below Line Add-ons 0.12% Builders' Risk \$ 39 \$ Gross Receipts' or BPOLTax 0.69% 223 \$ Liability Insurance 1.25% 404

This GC recapitulation of the sample estimate uses the unit costing analysis for the ACT (shown) and various other unit cost analysis for the other finishes (not shown) to create a sample recap. It is noted that additional costs may be applied to subcontracted quotations. Exampled additions include escalation, GC fee, and multiple general GC requirements.

(Sticks & Bricks)

Building Permit Rate per \$M

Concept Estimate TOTAL

No Permit

32.934

Section 11 - Copy of Topic Approval Letter from ASPE Certification Board



CERTIFICATION

2525 Perimeter Place Drive, Ste. 103 . Nashville, TN 37214 . 615-316-9200 . Fax 615-316-9800 .

August 15, 2012

Mark Pitts - E P.O. Box 64 Hadensville, VA 23067

Chpt: 82 Work Phone: (804) 402-7848

Email: mark@haleyshope.net

Dear Candidate Number: 0712004

The Certification Committee is pleased to inform you of the acceptance of your Professional Evaluation Application for Certification with ASPE. Please read carefully, as important information is enclosed.

You have been accepted to the Summer 2012 Cycle. This cycle is schedule to begin September 1, 2012 with the Orientation Workshop. The GEK Study Guide will be mailed separately. The Guide is included for online workshop participants and may be purchased through the bookstore for all others.

Online workshop participants see page 2 of this notification for your link to the workshop and your password. The workshop will be available beginning August 18, 2012. Online workshop participant's progress and completion is noted through the electronic program. Once you have passed all quizzes, your workshop is complete. There is not an auto-response e-mail upon completion.

All Chapter workshop participants should contact their Chapter Certification Chair for the scheduled date of presentation. Please have the Chair notify the Business Office of the scheduled date of the workshop. Chapter workshop participants should have the workshop verification form completed and returned to the Society Business Office by September 30,2012.

The National Certification Committee has selected the following topic for your technical paper. Your technical paper is due by the end of day on December 15, 2012. Please reference the "Technical Paper" Booklet for submittal procedures. HTETCO = How to Estimate the Cost of

HTETCO Various Commercial Ceiling and Floor Finishes

Your certification candidate number is 0712004 and should be included on all correspondence. This number will be used to identify your technical paper, exam(s), and/or DST Questions & Problems. Your number will maintain confidentiality throughout the certification process.

The GEK and DST Exams or DST Questions and Problems are to be completed during the month of March 2013. Your certification chair or a qualified CPE may proctor your exams. You will need to select and contact a proctor in your area to schedule a test date and location. The GEK exam has a 4 hour time limit and the DST exam has an 8 hour time limit. Your testing will require one and one half days to complete (these do not have to be consecutive). Once you have selected a proctor and your test date is scheduled, contact the Society Business Office with this information so that testing materials may be prepared and sent to your proctor as least 15 business days prior to testing.

> Please mark your due dates on your calendar. You may reference the Cycle Schedule at anytime by visiting www.aspenationa.org



CERTIFICATION

2525 Perimeter Place Drive, Ste. 103 • Nashville, TN 37214 • 615-316-9200 • Fax 615-316-9800 •

Summary Certification Cycle/Topic Acceptance Form

August 15, 2012

Candidate Number:

0712004

Chapter Number:

Region: NE

Workshop Completed by: September 30, 2012

Selected workshop format: Online

Technical Paper Topic: HTETCO Various Commercial Ceiling and Floor Finishes

Technical Paper Due Date: December 15, 2012.

Late papers are subject to penalty of score as stated in the "Technical Paper" booklet.

Testing: Schedule test dates during the month of March, 2013. If submitting Q&P in lieu of DST,

The complete set of questions and problem will be due by March 31, 2013.

Provide the Society Business Office with proctor information and schedule test dates 15 business days prior to testing.

Certification Discipline: 1.4 General Construction

Contact Email Address: mark@haleyshope.net

Online Workshop link: http://cei2.com/SCRIPT/805/scripts/serve_home

Online Workshop User ID: CB26

Online Workshop Password: 812cp

I agree to the selected topic and will prepare my technical paper according to the format stated for the ASPE Certification Program.

I will meet the deadlines for the completion of the workshop, submittal of my technical paper, and testing. If I do not meet these deadlines, I understand that this certification cycle will terminate and I will need to submit a new application.

I have read the above information and by signing below agree to meet the requirements of the ASPE Certification Program and adhere to the guidelines of the program.

Signature:

Date: 20 AUG 2012

Please retain a copy of this form for your records and technical paper. Return this form to the Society Business Office Fax: 615-316-9800 or email tanya@aspenational.org

Section 12 - Terminology-Glossary

Construction Specifications Institute 2011 MasterFormat

MasterFormat is the specifications-writing standard for most commercial building design and construction projects in North America. It lists titles and section numbers for organizing data about construction requirements, products, and activities. By standardizing such information, MasterFormat facilitates communication among architects, specifiers, contractors and suppliers, which helps them meet building owners' requirements, timelines and budgets.

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DBE

The Disadvantaged Business Enterprise certification program is a Federal program. The purpose is to increase the participation of certified DBEs in projects funded by the US Department of Transportation and other federal sectors.

EMR - Experience Modification Rate

Experience Modification Rate (EMR) has strong impact upon a business. It is a number used by insurance companies to gauge past cost and frequency of injuries and future chances of risk. The lower the EMR of your business, the lower your worker compensation insurance premiums will be. An EMR of 1.0 is considered the industry average.

Placebo Effect, Construction

The **construction placebo effect** results in a positive production rate increase that appears to be the consequence of workers being aware of time management studies. It is the beneficial effect that arises from the worker's own expectations of what should be achieved.

Reasonable Production Time

Reasonable production time as used in this technical paper is a reference to and an acknowledgement that the actual amount of time a construction crew has for the performance of work-in-place is significantly shorter than the time that appears on that crew's paystub. Generally this technical paper will acknowledge 50 minutes actual production time equates to a pay period of one-hour. Refer to page **10** for further explanation.

SWaM - Small, Women, and Minority

The **Small, Women-owned, and Minority-owned Business** (SWaM) certification program is a state program of the Commonwealth of Virginia. The purpose is to enhance procurement opportunities for SWaM businesses participating in state-funded projects.