

**How to Estimate the Cost of a Bathroom  
Renovation in an Existing Hospital**

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## **Section 1 – Introduction**

This technical paper is intended to provide a general understanding of how to develop a cost estimate for a bathroom renovation in an existing hospital. The daily operations of a hospital require the contractor to take special care in the demolition and removal of construction dust and debris due to the potential risks involved with already ill patients. This paper hopes to identify the challenges involved and factor into the cost estimate accordingly along with all labor, materials and equipment necessary to complete the renovation.

### **Main CSI Divisions**

- Division 09 Finishes
- Division 10 Specialties
- Division 15 Plumbing
- Division 16 Electrical

### **Main CSI Subdivisions**

- Subdivisions 09050 Basic Material and Methods, 09200 Plaster & Gypsum Board, 09300 Tile, 09500 Ceilings, 09900 Paints & Coatings
- Subdivisions 10050 Basic Materials and Methods, 10800 Toilet & Bath Accessories
- Subdivisions 15100 Selective Demolition, 15100 Piping, 15400 Lavatories, 15950 Testing / Adjusting / Balancing
- Subdivision 16500 Lighting

## **Brief Description**

The author will discuss the process of estimating the cost of renovating a bathroom in an existing hospital. Estimating methods will be described to explain how an estimate is created from current design plans, notes and narratives. Special care will need to be taken as an operating healthcare facility can not have construction dust and debris spread throughout the facility. The infection risk to ill patients is a matter of life, death & liability to the patients, the general contractor and the hospital itself.

## **Section 2 - Types of Methods of Measurements**

Quantity takeoffs vary with the items involved. Some items such as floors, walls and ceilings will be measured by square feet (**SQ FT**) for both demolition and replacement purposes; most toilet specialties will be counted as each (**EACH**) while casework and counters will be measured in linear feet (**LN FT**); piping will be measured as linear feet (**LN FT**); testing / adjusting / balancing the plumbing work will be measured in hours (**HOURS**) of labor needed.

The ceiling height will help to determine the square footage of the walls and wall finishes. The length of the wall times the height of the wall / finish will develop the necessary quantities that need priced and placed into the estimate. The scaling of the drawings properly is perhaps one of the most important facets of estimating. More will be explained throughout the technical paper when appropriate.

### **Section 3 - Overview of Estimating a Bathroom Renovation Project**

Cost estimating is the measurement, evaluation and comparison of the costs of a project. Estimating the cost of an existing bathroom renovation will first consist of demolition costs associated with removing existing items, followed by the replacement costs of the materials and the time it takes to install those items. It is first important to review all current documents for completeness and to evaluate the level of detail available. Once this is done, the drawings can be entered into the computer software for quantity take-offs of the drawing. They can then be scaled using the given scaled measurements, checked for dimensional accuracy and labeled accordingly. Demolition drawings are best to start with as it gives the estimator an idea of the extent of renovations from which to gauge the project objectives. Once the demo notes are read and understood, one can then begin counting the walls, flooring, doors, ceilings, toilet partitions and associated plumbing and lighting fixtures to be removed. One must consult the demolition plans, notes, drawings and narratives to ascertain the extent of the demolition, which will vary from project to project. Some jobs call for complete 'gut job' demolition while others will maintain some existing items that are not at the end of their life cycle. As a former contractor, removal of all finishes and fixtures allows for the best end result for the bathroom renovation project. Although, any items that are kept or reusable will save on demolition and replacement costs, thus allowing for a lowered project cost.

## **Section 4 - Fundamentals in Estimate Preparation / Locating Information**

Floor Plans are the fundamental basis when evaluating the layout of a building. These documents will give you a visual display of what goes where. The difference between ADA and regular toilet partitions are easily distinguishable on the floor plan due to their varying sizes. Once scaled, you can now reference the finish schedule and finish legend to determine what floor finish will be used. You can also evaluate wall finishes and in particular, look for notes regarding the height of wall tile to be installed. Most hospital restrooms select one of the following – wall tile only at wet walls, wainscot wall tile or full height wall tile throughout. I have seen budgets determine the extent of wall tile used as it can be costly. The area of wall tile can greatly exceed the floor tile and be quite costly. Finishes are at times noted directly on the floor plans, and other times in a separate finish plan. I find it best to always review and verify using the room finish schedule. This document can be one of the most valuable instruments in determining quantities and material selection. Reflected ceiling plan drawings will show the ceiling layout and materials selected. For small projects, these may also be on the floor plan. Quantities of walls to be replaced will be taken off using a linear feet measuring the length of the wall multiplied by the height of the wall to attain the square footage of wall. Calculate a price for the wall assembly and enter into the estimate along with any components such as drywall finishing, sanding, texture or paint. Ceilings and floor finishes are taken off by area and entered will be entered accordingly with the appropriate pricing for selected materials.

Obviously, we all make assumptions as the progress of drawings often fall short in describing exactly what is needed. Solid construction documents will offer enlarged interior

elevations showing the height, location and description of all items to be installed. Basic necessities include countertops, toilet paper holders, soap dispensers, mirrors and paper towel dispenser. Luxury items can include base cabinets, costly recessed paper towel / trash receptacles, recessed baby changing stations, electric hand dryers, toilet seat cover dispensers, and sanitary napkin dispensers. It is extremely critical to note what, if any, items are contractor furnished and owner furnished. This also goes for items that can be owner furnished yet installed by the contractor. Mistakes in identifying who is responsible for purchasing and installing various fixtures will surely affect the accuracy of the estimate. All toilet specialties need to be totaled for a count, entered into the estimate and priced accordingly. Countertops and base cabinets will be totaled in linear feet while most other specialties will be counted as each.

There should not be any structural modifications necessary for a bathroom renovation. The only exception would be if adding ceiling hung toilet partitions. In rare cases, it may be necessary to strengthen the ceiling by adding in additional steel beams. If need be, determine the added steel from the structural framing layout and estimate the labor hours it would take to install. Add this into the estimate with the appropriate wage rates to cover this item if necessary.

Any MEP drawings need to be analyzed and considered in conjunction of one another and the demolition plans. Each drawing in the design set has clues as to the total amount of work being done, and all of those clues need to be gathered and shown within the estimate to ensure complete accuracy. For instance, any mechanical upgrades being done in the ceiling crawl space is a great way to predict most or all of the ceilings will need replaced. This can be

determined from the mechanical, ceiling and demolition drawings and it is best to check all three for matching details. There will be times when design drawings are incomplete and the estimator has to contact the owner / design team for answers to questions that arise. Evaluate the demolition to determine the extent of the mechanical demo and then move to the mechanical plans to see what is being replaced. Most likely, mechanical changes are minimal for a simple bathroom renovation. We will assume no HVAC changes for the technical paper.

Electrical work may be limited to light fixture replacements or can include a full building redo. For the purposes of this paper, we are concerned only with the local fixtures and necessary wiring. Schedules will be consulted for reference in hopes that the recommendations have been filled in. The estimator is in a much better position to accurately reflect the project's needs when the professional consultants have finished their calculations and selected the appropriate materials. The estimator can then count the lengths of wires needed, receptacles, fixtures and any final connections needed to complete the renovation. Concerns for extra labor man hours may be addressed as renovations can find problems within the walls that could not be foreseen. The electrical schedule will outline the specific equipment to be counted, priced and entered into the estimate.

The plumbing drawings will also be reviewed in conjunction with demolition drawings, notes and narratives. Plumbing schedules will be helpful in selecting the toilets, sinks and other fixtures and determining the cost of each for the estimate. Consideration must be taken to note whether the sinks and toilets are ADA compliant if needed, in which there should be at least one of each in a public restroom. Count each fixture and any piping that may need rerouted or



replaced. Additional labor must be estimated for final connections of all piping, toilets, and any miscellaneous items. All plumbing items should then be counted, priced and entered into the estimate.

### **Section 5 - Special Risk Considerations**

Working in an existing hospital will require extra special attention from the general contractor in regards to dust and debris associated with demolition work. Assigning costs to the special care that will need to be taken is known as ICRA costs (Infectious Control Risk Assessment) which are required by law. This will be above and beyond the general dust and debris containment of a normal residential or commercial remodel because the airborne dust and debris can pose extreme health risks in a sterile hospital environment. Airborne dust has the ability to penetrate HVAC systems and therefore carry into the entire building, possibly contaminating areas outside of the project area which can impose great risk to the already ill patients. Inadvertent exposures to environmental or airborne pathogens can result in adverse patient outcomes and cause illness among health-care workers. Environmental infection-control strategies and engineering controls can effectively prevent these infections. These costs must be evaluated and incorporated into the estimate and can at times be as costly as the project construction itself.

There are several ICRA Levels of protection that can be utilized depending on the intensity of the protective measures required. The level is directly related to the location of the bathroom within the hospital and its immediate surroundings. A public restroom in the

Intensive Care Unit corridor will obviously mandate greater protection from roaming dust and debris than a restroom in the entrance lobby. Estimators generally prefer that the ICRA Level is predetermined by the design team and if not, it is best to be conservative and plan for the worst case scenario due to the potential budget disaster that could occur. This can be done using historical square foot costs for the required level of protection or by pricing each protective measure needed and adding up the total combined costs. Below is a list of the possible protective measures that may be needed and will affect the cost of the estimate:

- use of dust-control procedures and barriers during construction, repair, renovation, or demolition
- environmental infection-control measures for special areas with patients at high risk
- use of airborne-particle sampling to monitor the effectiveness of air filtration and dust-control measures
- maintain negative air pressure
- seal all holes, pipes, conduits
- personnel must be properly dressed
- construct anteroom
- procedures to prevent airborne contamination in operating rooms
- environmental surface cleaning and disinfection strategies with respect to antibiotic-resistant microorganisms
- use the list we have at work
- isolate HVAC system
- wet mop and vacuum with HEPA filters
- complete all critical barriers
- contain construction waste in tightly covered containers

The fact is that older buildings may have deficiencies in their design / build that can affect the proposed plan of construction renovations. The design / construction contingency percentage included in the mark-ups are exactly for this purpose. This prepares the budget for

the possibility that an event may occur that is not likely or intended; a possibility that must be prepared for as there is uncertainty as to what is behind the walls we are about to demolish. The project could possibly find hazardous materials within those walls or an inadequate mechanical existence that requires more resources to fix. Hazard material removal can greatly affect the cost of the project as special care must be taken to remove and dispose. Abatement as an estimating matter is a considerable cost driver. In the event hazardous materials do exist within the bathroom, one would need to reference the project's Hazmat Report to reference the quantities that need removed. It's possible there could be 400 square feet of asbestos containing vinyl floor tile that will be professionally removed and disposed. At that point the estimator could price the abatement work per the quantities and apply a unit price, unless a quote has been provided for the abatement work. Regardless of how the estimated abatement number is attained, it will be included in the 0200 section separate from the non-hazardous demolition costs for the purpose of clarity.

## **Section 6 - Overview of Markups**

Notes should be added within the estimate for each line item to address where the pricing was attained for several reasons, including explanations of material, labor and equipment pricing as well as productivity. Price verification in the event of a review will be easier with names, phone numbers and websites available to affirm the cost of a specific product. The note also helps the reviewer confirm the estimator selected the appropriate product to price. Product prices can vary by as much as tenfold depending on the materials,

design and quality of said products. Noting a toilet or sink's make and model along with the supplier's pricing and contact information is the best scenario ensuring the owner / client that they have received an estimate given its due diligence.

Once quantities and pricing are verified, each discipline can submit their individual estimate to the project lead for combining and review of the overall estimate. It is important to review the cost of each discipline and consider the extent of their specific work to see if it is relatively in conjunction with the overall budget. For instance, if the electrical budget is 45% of the overall cost – that would cause concern and the estimator may want to double-check that particular discipline before moving ahead any further. The electrical costs may in fact represent the actual work to be performed. It is possible that the requested light fixture are LED or unique to a certain high-end manufacturer that send the costs skyrocketing. As long as that is what the drawings, notes, narratives and schedule request – then that is what the estimate is to show. Commercial projects are often larger and use union labor as well as durable, more costly items. It is important to think only as the estimator and not a shareholder footing the bill. The owner / clients are the ones who will have to deal with shareholders and the associated project budget financing issues.

Once the estimate is compiled and reviewed for errors and completeness, the estimator can then evaluate and configure all necessary mark-ups that will be applied to the project's direct costs to make it a realistic budget that a general contractor will similarly bid. A percentage will be applied for the following:

- General Conditions are typically 10%

- Overhead & Profit ranges from 7-10% for general contractors expected necessities
- Design / Construction Contingency can range from 3-20% for unforeseen scope additions or alterations made during the design process
- Escalation is the added cost of materials' inflated cost when the project begins
- Bonds & Insurance – costs incurred by the GC to cover liabilities or fees incurred by taking on the project

General conditions costs can include items such as dumpsters, portable toilets, small tools, staff dedicated to the project, equipment rental, drinking water, consumable items, temporary utilities and temporary protection. These items are essential to completion of the work but not part of the scope of work illustrated in the contract documents. Use of the general conditions is essential in capturing the overall project cost without knowing all of the needs upfront.

These are compounding percentages applied to the direct project costs that will result in the final marked-up project contract cost. The contingency mark-up will decrease with each phase if multiple phase estimates are to be performed. The reason it is reduced is that design contingency is an added cost applied to cover unknowns in the level of detail. When details become clearer with each design phase, the contingency can be reduced because there is far less concern for added or altered scope of work.

The contract cost will need to be compared with the allotted project budget to see if the client can afford the project. If the scope of work exceeds the allotted budget, the team may need to go back and identify ways to reduce costs whether it be keeping the existing ceiling or

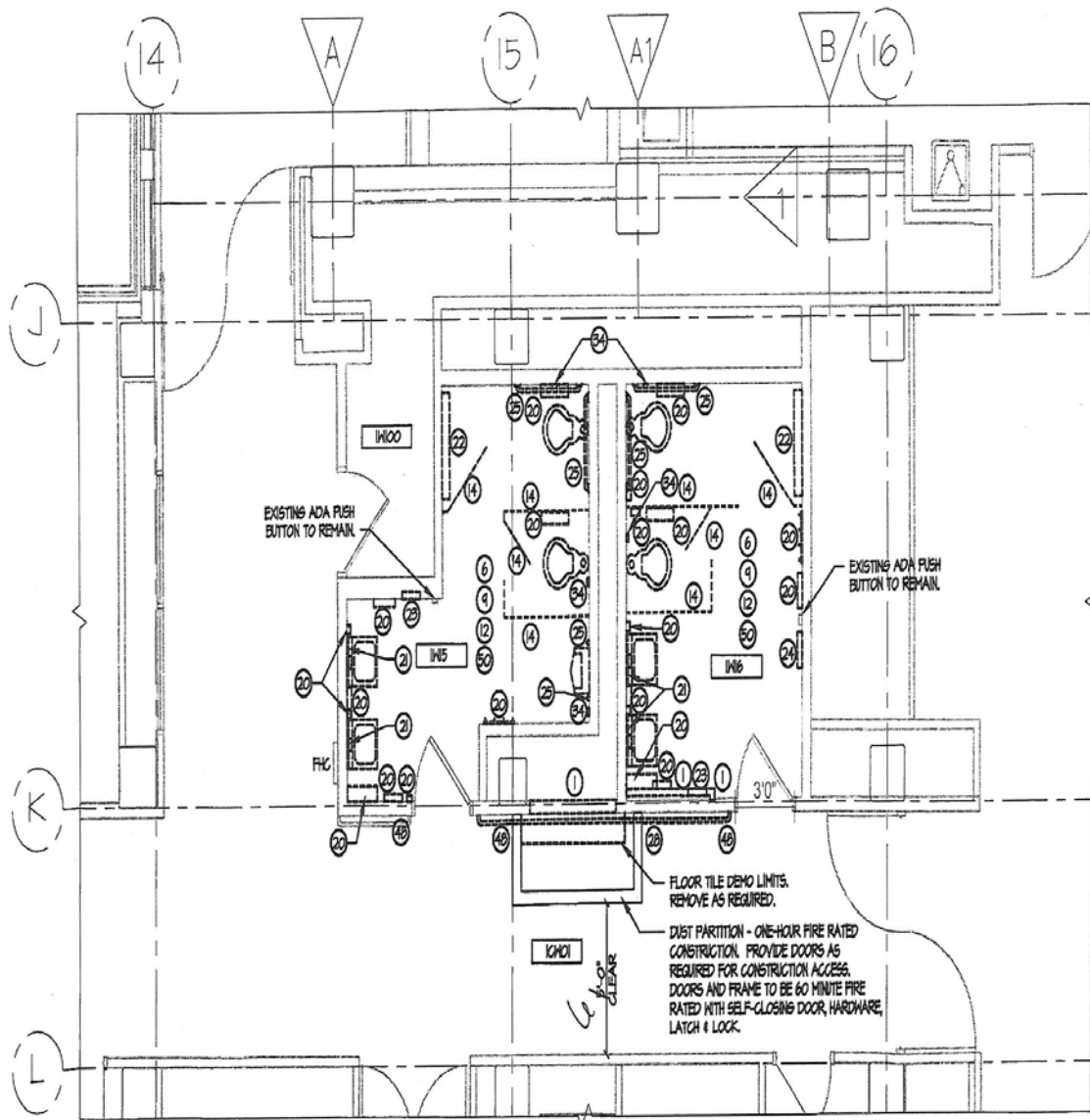
downgrading the materials. Value engineering and function analysis can be utilized to assist in this effort. Scope reduction may be another alternative in reducing the project cost if need be.

## **Section 7 - Geographic Effects on Project Budget**

The labor costs tend to increase in many major metropolitan areas where the cost of living is increased. Union wage rates can be found using the Davis-Bacon Wage Rates found on the government sponsored website. The Davis–Bacon Act of 1931 is a United States Federal law that establishes the requirement for paying the local prevailing wages on public works projects. It applies to “contractors and subcontractors performing on federally funded or assisted contracts in excess of \$2,000 for the construction, alteration, or repair (including painting and decorating) of public buildings or public works.” We will assume union rates in the region found at <http://davisbacon.org> are current and applicable for each trade, thus allowing the estimator to accurately price the project labor. Another factor is the whether the project will be affected by traffic, access, parking and other factors in congested urban environments. If the project is in an area plagued by any of the big city issues, a premium may be placed into the estimate to cover any inconveniences associated with performing the project efficiently. This can be done with an added percentage or line item costs.

## **Section 8 - Bathroom Design Drawings**

These drawings were scaled and used to quantify the renovation of a bathroom in an existing hospital in a VA hospital in Iowa. The Veterans Health Administration (VHA) is the component of the United States Department of Veterans Affairs (VA) that implements the medical assistance program of the VA through the administration and operation of numerous VA outpatient clinics, hospitals, medical centers and long-term healthcare facilities.

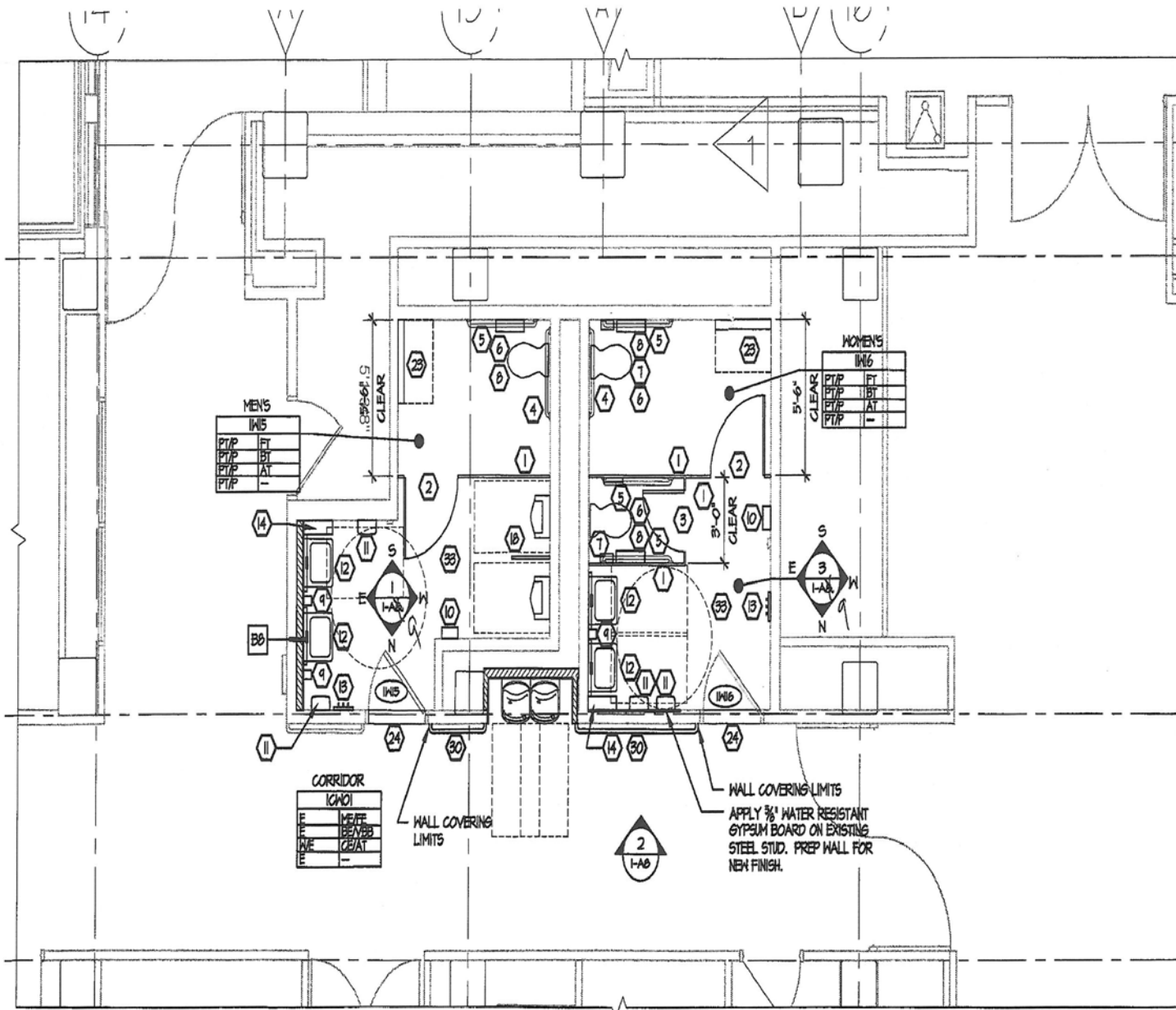


**1st FLOOR DEMOLITION PLAN - WEST BATHROOMS**

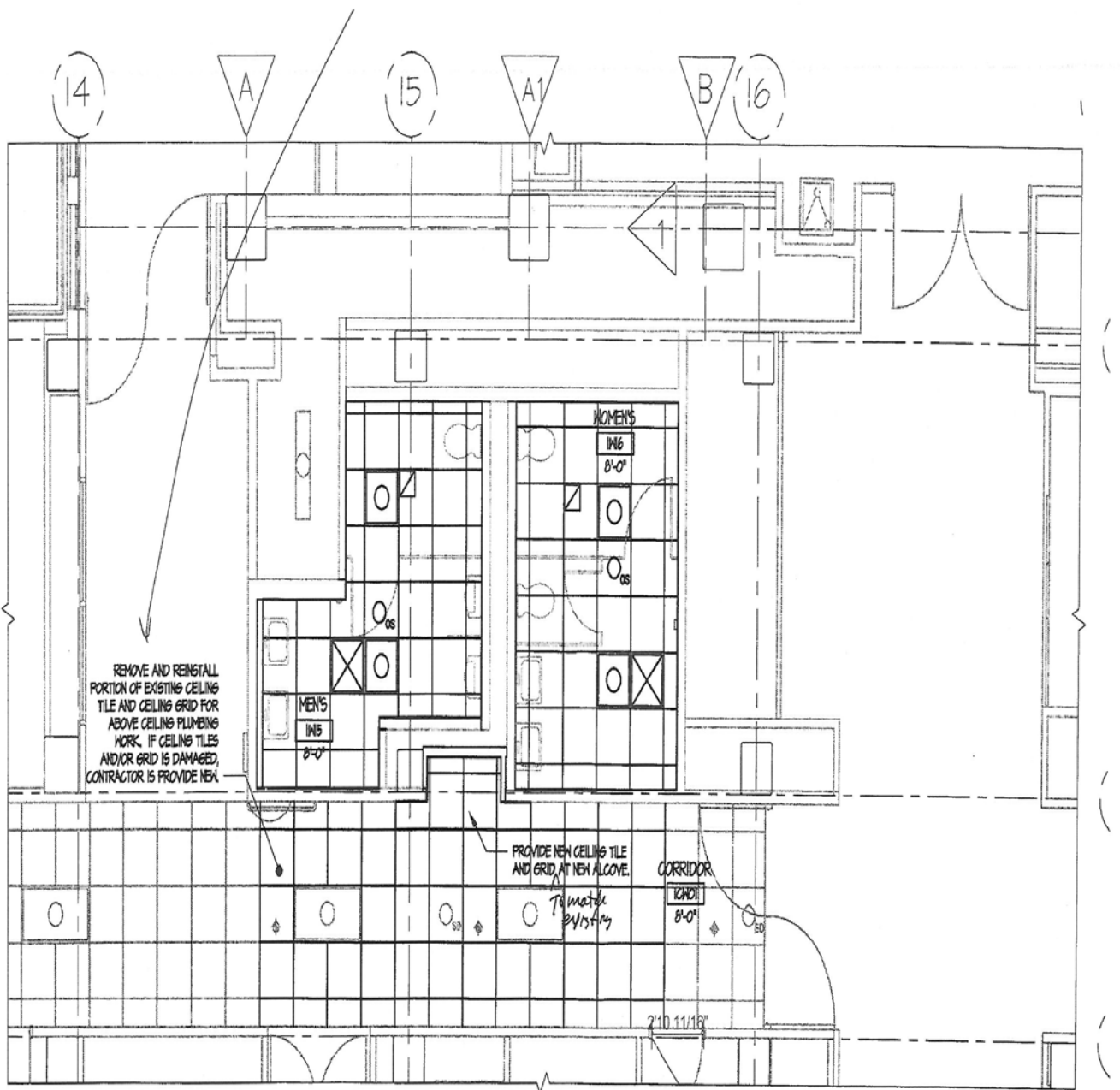
SCALE: 1/4" = 1'-0"

**2**





**1st FLOOR CONSTRUCTION PLAN - WEST BATHROOMS**



# 1st FLOOR REFLECTED CEILING PLAN - WEST BATHROOMS

SCALE: 1/4" = 1'-0"

## **Section 9 - Sample Estimate**

The format of the estimate below shows the cost of each line item to be priced in the estimate. This particular estimate was developed in Winest Software, a popular and easy to use program widely accepted in the construction industry. The 'Location' column identifies the contractor responsible for the work in that section and is followed by the 'Major Section Code' which follows the CSI work breakdown structure. Both of these column tags help reviewers to easily locate a specific item within a large estimate by the contractor and number sequence associated with the item. The 'Item Description' lists the actual item or service to be performed or installed. The 'Takeoff Quantity' and 'Unit' of measure help to describe the number and unit to be priced. Finally, the 'Material Unit Price', Labor Unit Price' and 'Equipment Unit Price' columns quantify the cost of each facet which roll up into the 'Total Unit Price' of each unit. The final 'Grand Total' column represents the entire cost of that particular item on the project.

Location	Major Section Code	Item Description	Takeoff Qty	Unit	Mat Unit Price	Labor Unit Price	Equip Unit Price	Total Unit Price	Grand Total	
<b>01 General Contractor</b>		<b>01 General Contractor</b>								
<b>09050</b>		<b>Basic Material Finishes And Methods</b>								
01 General Contractor	09050	Demo Ceramic Tile	263.0	sqft		0.80		0.80	210.40	
01 General Contractor	09050	Demo Wall Tiles	856.0	sqft		0.90		0.90	770.40	
01 General Contractor	09050	Demo GWB Ceiling	263.0	sqft		0.73		0.73	191.99	
01 General Contractor	09050	Demo Walls	10.0	lnft		9.15		9.15	91.50	
Patching Concrete Total									1,264.29	
<b>09050</b>		<b>Basic Material Finishes And Methods Total</b>								<b>1,264.29</b>
<b>09200</b>		<b>Plaster &amp; Gypsum Board</b>								
01 General Contractor	09200	1-Sided GWB Furring / Batt Insulation	150.0	sq ft	1.20	2.89		4.09	613.50	
01 General Contractor	09200	Dust Partition	120.0	sq ft	2.23	3.39		5.62	674.40	
Patching Concrete Total									1,287.90	
<b>09200</b>		<b>Plaster &amp; Gypsum Board Total</b>								<b>1,287.90</b>
<b>09300</b>		<b>Tile</b>								
01 General Contractor	09300	Ceramic Floor Tile	272.0	sq ft	5.35	4.03		9.38	2,551.36	
01 General Contractor	09300	Ceramic Base	100.0	lnft	5.35	4.64		9.99	999.00	
01 General Contractor	09300	Ceramic Wall Tile	400.0	sqft	5.35	7.97		13.32	5,328.00	
Patching Concrete Total									8,878.36	
<b>09300</b>		<b>Tile Total</b>								<b>8,878.36</b>
<b>09500</b>		<b>Ceilings</b>								
01 General Contractor	09500	ACT Ceiling	279.0	sqft	2.72	2.41		5.13	1,431.27	
Patching Concrete Total									1,431.27	
<b>09500</b>		<b>Ceilings Total</b>								<b>1,431.27</b>
<b>09900</b>		<b>Paints &amp; Coatings</b>								
01 General Contractor	09900	Paint Walls	412.0	sqft	0.11	0.89		1.00	412.00	
01 General Contractor	09900	Stain Wood Doors	2.0	each	8.99	69.11		78.10	156.20	
01 General Contractor	09900	Paint Metal Frames	2.0	each	3.64	23.04		26.68	53.36	
Patching Concrete Total									621.56	
<b>09900</b>		<b>Paints &amp; Coatings Total</b>								<b>621.56</b>

Location	Major Section Code	Item Description	Takeoff Qty	Unit	Mat Unit Price	Labor Unit Price	Equip Unit Price	Total Unit Price	Grand Total
<b>10050 Basic Specialties Materials And Methods</b>									
01 General Contractor	10050	Demo Bathroom Accessories	20.0	each		9.15		9.15	183.00
01 General Contractor	10050	Demo Mirrors	4.0	each		9.15		9.15	36.60
01 General Contractor	10050	Demo Toilet Partitions	4.0	each		61.02		61.02	244.08
Patching Concrete Total									463.68
<b>10050 Basic Specialties Materials And Methods Total</b>									<b>463.68</b>
<b>10800 Toilet and Bath Accessories</b>									
01 General Contractor	10800	ADA Toilet Partitions	2.0	each	1,357.83	143.69		1,501.72	3,003.44
01 General Contractor	10800	Regular Toilet Partitions	2.0	each	1,061.44	128.54		1,189.98	2,379.96
01 General Contractor	10800	Urinal Screens	1.0	each	258.97	59.05		318.02	318.02
01 General Contractor	10800	36" Grab Bars	2.0	each	24.61	24.10		48.71	97.42
01 General Contractor	10800	42" Grab Bars with 18" Vertical Grab Bars	6.0	each	40.00	40.20		80.20	481.20
01 General Contractor	10800	Reinstall Salvaged Toilet Paper Dispensers	4.0	each		24.10		24.10	96.40
01 General Contractor	10800	Reinstall Salvaged Soap Dispensers	5.0	each		24.10		24.10	120.50
01 General Contractor	10800	Reinstall Paper Towel Dispensers	4.0	each		48.20		48.20	192.80
01 General Contractor	10800	Saintary Napkin Disposals	3.0	each	208.38	40.85		249.23	747.69
01 General Contractor	10800	Toilet Seat Cover Dispensers	4.0	each	139.10	35.97		175.07	700.28
01 General Contractor	10800	Bathroom Mirrors	4.0	each	134.18	24.10		158.28	633.12
01 General Contractor	10800	Coat Hook Strips	2.0	each	10.97	16.07		27.04	54.08
01 General Contractor	10800	Baby Changing Stations	2.0	each	230.00	60.00		290.00	580.00
Based on a Koala Horizontal Baby Changing Table									
Patching Concrete Total									9,404.91
<b>10800 Toilet and Bath Accessories Total</b>									<b>9,404.91</b>
<b>01 General Contractor 01 General Contractor Total</b>									<b>23,351.97</b>
<b>03 Plumbing and Fire Protection 03 Plumbing and Fire Protection</b>									
<b>15050 Basic Materials &amp; Methods</b>									
03 Plumbing and Fire Protection	15050	Standard Floor Drains 4"	2.0	each	440.84	139.41		580.25	1,160.50
Pipe Hangers And Supports Total									1,160.50

Location	Major Section Code	Item Description	Takeoff Qty	Unit	Mat Unit Price	Labor Unit Price	Equip Unit Price	Total Unit Price	Grand Total
<b>15050 Basic Materials &amp; Methods Total</b>									<b>1,160.50</b>
<b>15100 Building Services Piping</b>									
03 Plumbing and Fire Protection	15100	Selective Demo - 1/2" - 2" Copper Pipe	70.0	lft		1.51		1.51	105.70
03 Plumbing and Fire Protection	15100	Selective Demo - 2-4" Cast Iron Pipe	38.0	lft		3.78		3.78	143.64
03 Plumbing and Fire Protection	15100	Selective Demo - Water Closet	4.0	each		43.48		43.48	173.90
03 Plumbing and Fire Protection	15100	Selective Demo - Urinal	1.0	each		65.21		65.21	65.21
03 Plumbing and Fire Protection	15100	Selective Demo - Lavatory	4.0	each		52.17		52.17	208.68
03 Plumbing and Fire Protection	15100	Selective Demo - Misc. Fixture - Floor Drain	1.0	each		29.35		29.35	29.35
<b>Selective Demolition, Water &amp; Sewer Piping And Fittings Total</b>									<b>726.48</b>
03 Plumbing and Fire Protection	15100	2" Cast Iron Sanitary Pipe	10.0	lft	7.23	14.26		21.49	214.90
03 Plumbing and Fire Protection	15100	3" Cast Iron Sanitary Pipe	33.0	lft	11.79	17.48		29.27	965.91
03 Plumbing and Fire Protection	15100	4" Cast Iron Sanitary Pipe	16.0	lft	17.39	21.86		39.25	628.00
03 Plumbing and Fire Protection	15100	1.5" Cast Iron Vent Pipe	20.0	lft	7.05	11.66		18.71	374.20
03 Plumbing and Fire Protection	15100	2" Cast Iron Vent Pipe	30.0	lft	7.23	14.26		21.49	644.70
<b>Pipe, Cast Iron Total</b>									<b>2,827.71</b>
03 Plumbing and Fire Protection	15100	1/2" Copper Domestic Cold Water Pipe	20.0	lft	5.74	6.08		11.82	236.42
03 Plumbing and Fire Protection	15100	1 1/4" Copper Domestic Cold Water Pipe	20.0	lft	15.63	8.24		23.87	477.40
03 Plumbing and Fire Protection	15100	1/2" Copper Domestic Hot Water Pipe	30.0	lft	5.74	6.08		11.82	354.63
<b>Pipe, Copper Total</b>									<b>1,068.44</b>
<b>15100 Building Services Piping Total</b>									<b>4,622.64</b>



Location	Major Section Code	Item Description	Takeoff Qty	Unit	Mat Unit Price	Labor Unit Price	Equip Unit Price	Total Unit Price	Grand Total
<b>15400 Plumbing Fixtures &amp; Equipment</b>									
03 Plumbing and Fire Protection	15400	Urinal	2.0	each	1,392.28	209.12		1,601.40	3,202.80
Urinals Total									3,202.80
03 Plumbing and Fire Protection	15400	Lavatory	4.0	each	1,183.91	215.45		1,399.36	5,597.44
Lavatories Total									5,597.44
03 Plumbing and Fire Protection	15400	Water Closet ADA	2.0	each	2,045.35	285.16		2,330.51	4,661.02
03 Plumbing and Fire Protection	15400	Water Closet	1.0	each	1,507.66	285.16		1,792.82	1,792.82
Water Closets Total									6,453.84
<b>15400 Plumbing Fixtures &amp; Equipment Total</b>									<b>15,254.08</b>
<b>15950 Testing/Adjusting/Balancing</b>									
03 Plumbing and Fire Protection	15950	Testing and Cleaning Plumbing System	4.0	hour		48.92		48.92	195.68
Balancing, Water Total									195.68
<b>15950 Testing/Adjusting/Balancing Total</b>									<b>195.68</b>
03 Plumbing and Fire Protection	<b>03 Plumbing and Fire Protection Total</b>								<b>21,232.90</b>
<b>04 Electrical</b>									
<b>16500 Lighting</b>									
04 Electrical	16500	Demolish Light Fixture	6.0	each		48.00		48.00	288.00
04 Electrical	16500	Reinstall Light Fixture	5.0	each	55.00	36.00		91.00	455.00
Interior Lighting Fixtures Total									743.00
<b>16500 Lighting Total</b>									<b>743.00</b>
04 Electrical	<b>04 Electrical Total</b>								<b>743.00</b>
<b>Grand Total</b>			<b>280.0</b>	<b>SQ FT</b>	<b>103.45</b>	<b>58.43</b>		<b>161.89</b>	<b>45,327.87</b>

WBS2	WBS2	Total
03	Concrete	23,352
15	Mechanical	21,233
16	Electrical	743
		45,328
	Net Costs Subtotal	45,328
	Subtotal	45,328
10.00 %	General Conditions	4,533
	Subtotal	49,861
10.00 %	Design/Estimating Contingency	4,986
	Subtotal	54,847
6.00 %	Overhead & Profit	3,291
	Subtotal	58,138
2.00 %	Bonds and Insurance	1,163
	Subtotal	59,300
2.00 %	Escalation	1,186
280 SQ FT	Total Estimate	60,486



