Course Overview and Objectives

Welcome to the FEMA Public Assistance Costing - Costing Estimates and Cost Estimating Format course.

This course will provide an overview of costing and the Cost Estimating Format. By the end of the course, State, Local, Tribal, and Territorial Applicants and Recipients will be able to understand all aspects of costing and the Cost Estimating Format.

Upon successfully completing the course, the participants will be able to:

- Differentiate between actual costs for work completed and estimated costs for work to be completed
- Identify the tools used by the Applicant agent for organizing documents into cost summary sheets for labor, equipment, materials, and/or contracts
- Describe the Cost Estimating Format process and the structure of cost estimating in the FEMA Public Assistance program

Select this link to access the Public Assistance acronym list.

Lesson 1 Overview and Objectives

This lesson provides a general overview of the methodology and processes FEMA uses to develop cost estimates and validate actual costs. This lesson also underscores that an approved, eligible scope of work is required in order to develop cost estimates.

At the end of this lesson, participants will be able to:

- Identify administrative requirements of the course
- State the goals and objectives of the course
- Describe the purpose of costing estimates and the Cost Estimating Format

Costing Estimates

In response to the Disaster Mitigation Act of 2000, FEMA is increasingly obligating funds based on estimates for small projects. This enables funding to be disbursed more quickly in support of community recovery.

Accurate estimates are essential to providing adequate funding for eligible projects and reducing problems resulting from either an overage or shortage in the original grant.

Public Assistance Program Requirements

Public Assistance program requirements include performing a cost or price analysis to establish reasonable costs for every procurement action, including contract modifications. The Applicant's estimate developed for the cost or price analysis may become part of the project cost estimate within FEMA Grants Portal Software.

The method and degree of analysis depends on the facts surrounding the particular procurement situation, but as a starting point, independent estimates are required before receiving bids or proposals.
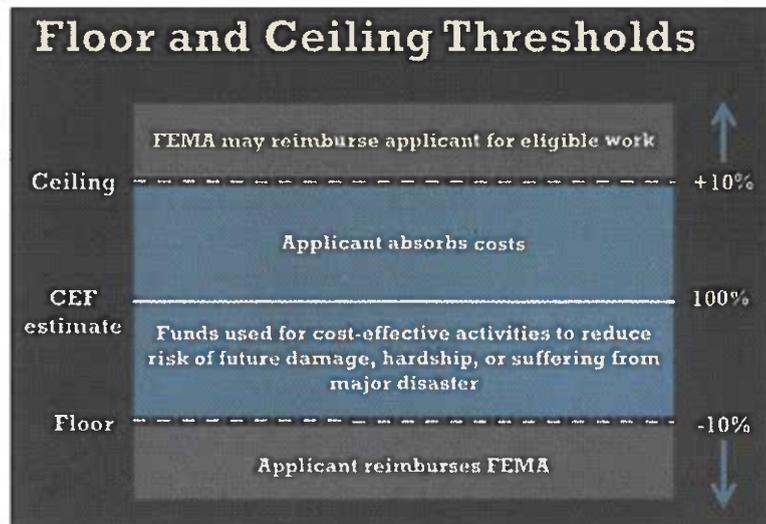
Floor and Ceiling Thresholds (1 of 2)

Floor and Ceiling Thresholds

Because estimates are not final costs, the Public Assistance program allows for a margin of error. Within that margin, the Applicant either absorbs the costs (ceiling threshold) or is allowed to apply excess funds to approved mitigation activities (floor threshold).

If cost overruns exceed 10% of the estimate, FEMA may reimburse the Applicant for eligible work above the ceiling threshold. If costs come in more than 10% below the estimate, the Applicant must return the funds beyond the floor threshold to FEMA.

Floor and Ceiling Thresholds

	FEMA may reimburse applicant for eligible work
Ceiling	+10%
	Applicant absorbs costs
CEF estimate	100%
	Funds used for cost-effective activities to reduce risk of future damage, hardship, or suffering from major disaster
Floor	-10%
	Applicant reimburses FEMA

Select this link for a full image description

Cost Analysis

Applicants should independently estimate project costs or prices prior to receiving bids or proposals.

A cost analysis is required if:

- An Applicant is required to submit the elements of an estimated cost
- Adequate price competition is lacking
- It is a sole source procurement, including contract modifications and change orders, unless price reasonableness can be established
- There is a cost overrun

The requirement for a cost price analysis can be met by conducting an independent validation of the estimate. The Cost Estimating Format tool should be used to conduct a cost or price analysis. The process is outlined in the *CEF Instructional Guide V2.1* and will also be discussed later in this course.

Grants Portal

The Applicant is responsible for ensuring that all eligible work is identified and that all costs for completing the eligible scope of work are submitted.

Applicant damage claims are addressed through a project. Projects are developed within the Grants Portal and are comprised of:

1. A Damage Description and Dimension
2. A scope of work for repair
3. Estimated costs for work to be completed (with actual costs for completed work)
4. Documentation to support the damage claim and repair costs

Methods of preparing the project and funding the work vary, depending on whether the work constitutes a small or large project, which is based on the estimated cost of the work.

Difference in Cost Estimates

The purpose of, and therefore the development of, a cost estimate for the Public Assistance program may differ from that of the Applicant or the eventual contractor hired to complete the work.

FEMA Estimate

Objective is to develop a reasonable cost estimate of the actual costs for the eligible scope of work

Owner Estimate

Objective is to develop a reasonable estimate of the actual cost for the desired scope of work that may include improvements to a damaged facility based on projected use or new technologies

Contractor Estimate

Objective is to develop a reasonable estimate of the actual cost for the project based on the scope of work defined in the bid documents

Alignment of Estimates

Often, differences arise between FEMA, Applicant, and contractor estimates. The immediate reaction may be to look for mistakes in the estimating process, form, and cost data.

However, experience has shown that the difference is most often due to differences in the scope of work deemed eligible by the project formulation team, the scope of work desired by the Applicant, and the scope of work defined in the bid documents provided to the contractor.

When the three scopes of work are aligned, the estimates generally also fall into alignment quickly.

Once properly procured, bids along with any actual costs will help eliminate the concern of the estimate amounts for large projects.

Cost Estimating: Accuracy

Why is it important to prepare accurate estimates?

- Promotes appropriate use of Federal dollars
- Encourages acceptance by the Applicants
- Reduces the potential for future adjustments to grants

Congressional legislation requires FEMA to work toward establishing methods that will allow funding to be granted on the basis of estimates, a process that is highly dependent on FEMA's ability to prepare accurate scopes of work and corresponding cost estimates.

Accuracy

Cost Estimating: Consistency

A consistent approach and format to all estimates is important for accuracy and validation. Consistent organization of the estimate and supporting documentation promotes efficiency in preparation, processing, and approval of projects.

The general process for preparing a cost estimate applies to all types of cost estimates, regardless of the type of facility or the size of the project.

FEMA uses the Cost Estimating Format to prepare cost estimates for large projects using factors to represent costs that frequently cannot be determined at the time the project is created in Grants Portal (e.g., base construction cost). However, the construction cost estimate (base cost, Part A of the Cost Estimating Format) is prepared using the same principles that are used for other cost estimates.

Consistent Approach and Format

Cost Estimating: Application of Industry Standards

Cost estimates must be prepared in a manner that promotes accuracy and acceptance by the Applicants, and they must be defensible.

Standard industry practices and methods must be used to prepare cost estimates, regardless of the size or complexity of the project.

Application of Industry Standards

Cost Estimating: Effective Quality Control

Quality control promotes ongoing improvements to estimating procedures and ensure that estimates are accurate before projects are approved and funding is obligated.

Quality control measures include:

- Training, mentoring, and oversight of the Estimating Specialists
- An effective review process

Effective QA/QC

Cost Estimating Process

Cost Estimating is a step-by-step process. Each step of the estimating process should be addressed for every Public Assistance project estimate.

However, the complexity of the project's scope of work will drive the speed and schedule for development of the estimate. Accurate estimates require a thorough understanding of the scope of work.

An incomplete or poorly defined scope of work will result in an inaccurate estimate. If more attention is spent up front doing a detailed site visit and perfecting the scope of work, the development of the estimate will be a success.

Cost Estimating Process Overview

The primary steps in the estimating process are:

1. Identify Scope

    - Damage assessment
    - Scope of work, including dimensions and quantities
    - Pre-estimate planning

2. Develop Estimate

    - Data sources and costing
    - Direct cost totals
    - Other project costs
    - Estimate summaries

3. Review

    - Documentation
    - Management and peer review
    - Resolve issues
    - Cost feedback and continued improvement

Applicant and FEMA Responsibilities

The Applicant is responsible for preparing the design, determining the methods and schedule for completing the work, and preparing the specifications. FEMA and the Applicant develop the eligible scope of work and cost estimate.

FEMA will prepare a cost estimate using the Applicant's design and other data or validate the Applicant's cost estimate to verify that it is accurate, appropriate for the eligible scope of work, and sufficient to use as the basis for funding.

Cost Estimating Format

Pursuant to the Disaster Mitigation Act of 2000, the Cost Estimating Format was endorsed as the cost estimating methodology and instrument of the Public Assistance program. The Cost Estimating Format is designed to serve the unique requirements of the Public Assistance program. The way it is organized promotes consistency in documentation.

The Cost Estimating Format has the ability to import and incorporate cost data from most electronic cost data providers. It is flexible and more readily adaptable to the needs of the Public Assistance program than inflexible estimating systems required by some other agencies.

Cost Estimating Format Project Requirements

The Cost Estimating Format must be used for all projects that have the following characteristics:

- Projects that meet the large project threshold
- Permanent, restorative work (i.e., Public Assistance Categories C-G)
- Work that is less than 90 percent complete at the time of inspection

Cost Estimate Validation

Cost estimate validation involves several steps. Experience has shown that validation typically requires an independent estimate of the costs of project elements equivalent to about 50-70% of the project scope of work and should include a minimum of 20% of the Construction Specifications Institute MasterFormat Divisions included in the scope.

Cost Estimate Validation Process

1. Review eligibility of work included in the estimate or bid schedule of values.

2. Perform cost validation to determine reasonableness.

   - Check 6-10 of the largest cost items using local average weighted unit cost or industry standard unit cost data, these items representing at least 25% of the MasterFormat Divisions included in the estimate

- Check 25% of remaining cost items, which should include systems or components representing an additional 25% of the eligible scope of work

The items checked should be within 10% of the local average weighted unit costs or industry standard unit cost data.

- If they are, use the Architect and Engineering estimates of the construction bid schedule of values as part of the project estimate
- If not:

    - Check to see if the applicant provided costs are based on bid values; they may include general contractor costs
    - Check to see if the separately listed items may need to be combined to accurately validate the cost
    - If the costs cannot be brought within 10%, then develop a new independent estimate for eligible work"

3. Confirm procurement method.

Lesson 1 Summary

This lesson provided a high-level overview of the methodology and processes FEMA uses to develop cost estimates and validate actual costs. Remember that an approved, eligible scope of work is required in order to develop cost estimates.

The next lesson will provide an overview of FEMA's process for developing cost estimates.

Lesson 2 Overview and Objectives

This lesson provides an overview of FEMA's process for developing cost estimates.

At the end of this lesson, participants will be able to:

- Describe the FEMA cost estimating process

Scenario: Replacing a Door (1 of 3)

How much do you think it would cost to replace this door?

- What components of work are involved?
- What factors impact cost?

Scenario: Replacing a Door (2 of 3)

If you research the cost of this project in RSMeans, the costs are approximately $1,360.00.

- The customer might say, "Are you kidding? I found a door in Home Depot for $429."
- The Applicant might say, "Every contractor I spoke to quoted $1,000."

CSINumber	Description	Quantity	Unit	Total Incl. O&P

08131 325 2990	Doors, fire, "A" label, exterior, steel, commercial, flush, 1-3/4" x 7'-0" x 3'-6" wide		Ea.	$890.00
08121 313 0110	Frames, steel, knock down, hollow metal, 16 gauge, up to 5-3/4" D, 7'-0" H, 3'-6" W single		Ea.	$247.00
08712 041 0011	Door hardware, deadlocks, mortise, heavy duty		Ea.	$257.00

Scenario: Replacing a Door (3 of 3)

Costs involved in replacing the door include:

- Removing the door
- Hauling away the door
- Renting a dumpster
- Purchasing a new door and associated hardware
- Installing the new door and hardware
- Painting the door

Additional costs may apply in certain circumstances:

- Hazardous site conditions or hazardous building materials
- Restricted work area
- Protection of building contents
- Protection of public in the area

Cost Estimating Process

The primary steps in the estimating process were mentioned in the last lesson. They are:

1. Identify Scope
2. Develop Estimate
3. Review

Scope of Work

The scope of work describes what is necessary to fix the facility. Defining the eligible scope of work is the most important aspect of the cost estimating process.

An accurate construction cost estimate begins with a well-defined, quantitative description of the project's scope of work. A poorly defined scope of work will cause inaccurate estimates.

FEMA works with the Applicant to develop the scope of work for eligible damages. This scope of work is also used to assist in preparing the cost of the grant.

Elements of the Scope of Work

A scope of work includes:

- All work items necessary to restore the facility to its pre-disaster design, function, and capacity in accordance with the laws, regulations, and policies that govern the Public Assistance program
- Eligible upgrades necessary to meet current codes and standards, if applicable
- Special Considerations
- Incidental non-permanent work that is required as part of completing construction, (i.e. scaffolding, traffic control, temporary erosion control)
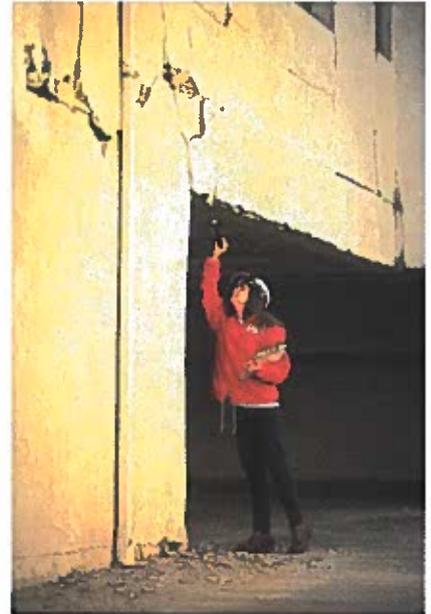
Scope of Work and Cost Estimating

The cost estimate is only as accurate as the information provided and the experience of the project formulation team. An accurate scope of work and appropriate unit cost data are required for an accurate estimate.

The costing specialist will review the scope of work information to ensure a full understanding of project conditions that may affect eligible costs.

Cost Data

There are four types of cost data. The difference among them is the level of detail in the scope of work and the unit costs used for each work element. The more detail provided, the more precise the estimate. A complete and detailed scope of work is essential for making an accurate cost estimate.

The Public Assistance program requires quantitative estimates, so only Detailed Data should be used.

- *Heuristic Data:* Cost per highway lane-mile or cost per hospital bed. Early project stages, cannot be used to prepare large project estimates for the Public Assistance program

- *Parametric Data:* Cost per square or cubic foot. Conceptual design phase, used for preliminary budgets or to check later estimates

- *Conceptual Data:* Cost per square foot for assembled systems or major components. Bundles a series of construction components, best used as a budgetary tool in the planning stages of a project

- *Detailed Data:* Cost of labor, material, and equipment to install one unit of a specific item of work. Scope of work must be well-defined, and all decisions regarding the facility's materials and methods should already have been made. Preferred estimating method in the Public Assistance program

Unit Cost Data

The focus of this lesson is on estimates developed using detailed unit cost data. Regardless of the source, the cost elements (i.e., labor, equipment, materials, overhead, and profit) that generates the unit cost data, it must be documented and understood so that the unit cost can be properly applied.

The unit cost data must also be reproducible by future users and reviewers of the estimate, such as FEMA project closeout staff or auditors.

Cost Data Sources

There are three potential sources for cost data:

- Local Historical Costs
- Industry Costs-Estimating Software
- FEMA Cost Codes

Local Historical Costs

Local historical costs are the preferred and most reliable source of cost data. To be used, costs must be similar to those being estimated, recent, and procured in compliance with Federal, State, and local procurement regulations by either the Applicant or other agencies in the same or nearby jurisdiction.

Historical contract costs must have been competitively awarded and in compliance with all relevant government regulations. The scope of work in contract prices should be similar to repair or restoration work. Data must include a schedule of values or unit rates applicable to the eligible work being (or to be) performed.

State Departments of Transportation are a frequent source of historical project unit cost data. Additionally, Department of Transportation projects frequently involve Federal funding, an indication that procurement policies are in compliance with Federal procurement requirements.

Calculating Local Historical Costs

Local historical costs must meet the requirements for producing a quantitative estimate. Data must also be accessible by others for verification and future use of the estimate.

When similar data are provided, it is recommended that the reported average of three low bids be used as a reasonable estimate of cost. In some cases, the contracted unit cost is higher than the average unit cost of the three low bids, suggesting the successful bidder used an unbalanced approach to prepare the bid.

The use of the average of three low bids will compensate for unreasonable unit costs, either high or low, used by the successful bidder.

Construction Industry Cost-Estimating Software

Published industry standard construction cost-estimating resources include Xactimate, RSMeans, BNi Cost Books, Marshall & Swift, and Sweet's Unit Cost Guide. Unit cost data or estimating software used by the insurance industry is not approved for use in the Public Assistance program.

Unit cost data from published national construction cost databases must meet the same criteria as other unit cost sources. They must also:

- Be specifically designed for the construction industry and recognized as credible
- Provide documentation of the elements included in the unit costs (i.e., labor, material, equipment, overhead, and profit)
- Document the assumptions included in the unit costs, e.g., union vs. non-union, labor, productivity
- Be adaptable to project localities

RSMeans

RSMeans maintains a national construction cost database that provides accurate and up-to-date cost information that helps owners, developers, architects, engineers, contractors, and others to carefully and precisely project and control the cost of both new building construction and renovation projects. RSMeans' online database is called RSMeans On-Line.

RSMeans is widely accepted throughout the engineering and construction community and is generally consistent with other sources of construction cost data.
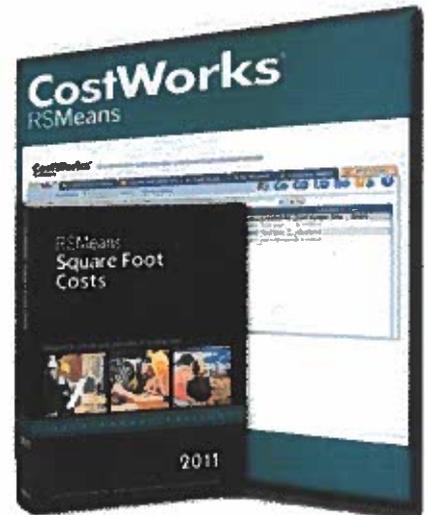
FEMA Cost Codes

FEMA cost codes are issued by the FEMA Regional Office. They are issued for a specific location or declaration.

Generally, FEMA cost codes represent complete installed costs and include:

- Equipment
- Materials
- Labor
- Direct construction costs
- Supporting activities
- Project support and management
- Contractor profit

Some cost code data may be several years old and require escalation. FEMA cost codes are last on the list of acceptable cost data sources. Local historical costs or industry cost-estimating software should be used if possible.

Construction Specifications Institute MasterFormat

The Construction Specifications Institute MasterFormat is an industry standard for organizing specifications and other written information for commercial and institutional buildings. The purpose of this format is to help the user locate specific types of information.

MasterFormat is a standardized list of numbers and titles for organizing construction documents, including cost estimates, by work results. A list of the 50 divisions is on the following slide.

MasterFormat provides a master list of divisions and section numbers and titles within each division to follow when organizing information about a facility's construction requirements and associated activities.

The Cost Estimating Format is designed to use the Construction Specifications Institute MasterFormat and to facilitate preparation of estimates using the Construction Specifications Institute (CSI) numbering system.
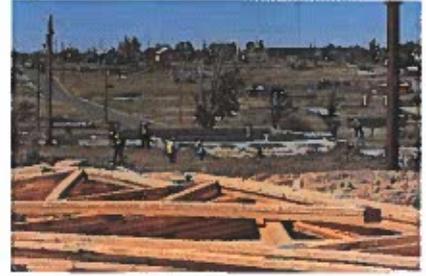
Construction Specifications Institute MasterFormat Divisions

Division 00: Procurement & Contracting Requirements

Division 01: General Requirements

Division 02: Existing Conditions

Division 03: Concrete

Division 04: Masonry

Division 05: Metals

Division 06: Woods, Plastics and Composites

Division 07: Thermal & Moisture Protection

Division 08: Openings (Doors & Windows)

Division 09: Finishes

Division 10: Specialties

Division 11: Equipment

Division 12: Furnishings

Division 13: Special Construction

Division 14: Conveying Systems

Division 21: Fire Suppression

Division 22: Plumbing

Division 23: Heating, Ventilation, and Air Conditioning

Division 25: Integrated Automation

Division 26: Electrical

Division 27: Communications

Division 28: Electronic Safety & Security

Division 31: Earthwork

Division 32: Exterior Improvements

Division 33: Utilities

Division 34: Transportation

Division 35: Waterway & Marine Construction

Division 40: Process Interconnections

Division 41: Material Processing and Handling Equipment

Division 42: Process Heading, Cooling, and Drying

Division 43: Process Gas and Liquid Handling, Purification and Storage Equipment

Division 44: Pollution & Waste Control Equipment

Division 45: Industry-Specific Manufacturing Equipment

Division 46: Water & Wastewater Equipment

Division 48: Electrical Power Generation

Advantages of Construction Specifications Institute MasterFormat

Construction Specifications Institute MasterFormat organizes all materials used in a construction project in a consistent format, which reduces errors. This provides a number of advantages:

- Design teams know where their components fit into the final contract documents package
- Contractors can separate construction documents by discipline and provide sections to trade subcontractors for bidding
- Estimating Specialists can readily identify all related work associated with each discipline

Applying Cost Estimates

The total estimated cost for each work activity is a product of quantity, unit price, and a city adjustment factor. These elements are assembled and calculated in the Cost Estimating Format.

FEMA Validation of Cost Estimates

After cost estimates have been made, they must be reviewed and validated by FEMA. Applicants must submit relevant documentation for substantiating costs.

The FEMA review will focus on:

- Eligibility
- Reasonableness
- Cost inflation factors

FEMA must also validate all competitively procured contracts. A third-party expert panel review is required for estimates with a federal cost share of $5 million or greater.

Cost Eligibility (1 of 2)

Eligibility is an essential factor in developing cost estimates. The Applicant, facility, and work must be eligible for a cost to be eligible for Public Assistance reimbursement. Ineligible costs should not be included in the Public Assistance estimate.

Eligible costs must:

- Directly tie to the performance of eligible work
- Be reasonable and necessary to accomplish the work
- Comply with Federal, State, and local requirements for competitive procurement
- Not be a duplication of benefits
- Be traceable to one of three types of cost data: local historical costs, published industry costs, or FEMA cost codes

Cost Eligibility (2 of 2)

The final grant amount will be based on the cost estimate and programmatic adjustments including:

- Insurance proceeds
- No duplication of benefits
- Salvage value
- Other adjustments

Cost Reasonableness

A cost is reasonable if, in its nature and amount, it does not exceed that which would be incurred by a prudent person under the circumstances prevailing at the time the Applicant makes the decision to incur the cost.

FEMA determines reasonableness by evaluating:

- The cost is of a type generally recognized as ordinary and necessary for the type of facility or work
- The cost is comparable to the current market price for similar goods or services based on:

- Historical documentation
- Average costs in the area
- Published unit costs from national cost estimating databases

Cost Inflations Factors (1 of 2)

There are a variety of factors that may inflate costs involved with disaster response and recovery. FEMA evaluates the length of time the factors applied compared to the length of time costs were incurred.

- Shortages in equipment, materials, supplies, labor, or contractors
- Project-specific complexities, such as environmental or historic issues, remote access or location, provision of a unique service with few providers, or elements requiring an extraordinary level of effort
- Exigent circumstances

Cost Inflation Factors (2 of 2)

The Applicant is responsible for providing documentation to demonstrate its claimed costs are reasonable. If FEMA determines any of the costs to be unreasonable based on its evaluation, FEMA may disallow all or part of those costs.

As an example, a historic property needs to be re-built to historic standards, thus more expensive building materials and more custom labor are needed. Consequently, the Estimating Specialist must incorporate these elements and associated costs into the estimate.
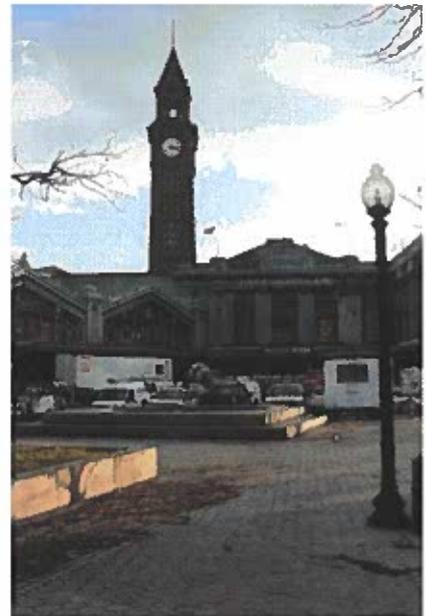
Third-Party Expert Panel Review

A FEMA licensed engineer/architect with cost-estimating expertise or a certified cost estimator reviews all requests for replacement and validates the estimates. For any replacement requests over $5 million, the United States Army Corp of Engineers Center for Excellence for Cost Engineering performs an additional review of the repair and replacement estimates. FEMA considers the results of the USACE review prior to approving replacement.

For an Alternative Procedures Project with an estimated Federal share of at least $5 million, upon the Applicant's request, FEMA provides a FEMA-funded, independent validation of the cost estimate.

Lesson 2 Summary

This lesson provided an overview of FEMA's process for developing cost estimates.

The next lesson provides a detailed overview of the Cost Estimating Format tool.

Lesson 3 Overview and Objectives

This lesson provides a detailed overview of the Cost Estimating Format tool, including the tool's purpose and structure.

At the end of this lesson, participants will be able to:

- Describe the purpose of the Cost Estimating Format tool
- Describe parts A-H of the Cost Estimating Format spreadsheet

Cost Estimating Format

Once the project has been qualified and an accurate estimate has been developed, the estimate is documented in the Cost Estimating Format. The Cost Estimating Format tool is a spreadsheet designed to use the Construction Specifications Institute MasterFormat and to facilitate preparation of estimates using the Construction Specifications Institute numbering system.

The Cost Estimating Format spreadsheet is organized to make it user-friendly and flexible enough to respond to individual project conditions and to promote consistency and the development of more inclusive cost estimates.

It is designed to serve the unique requirements of the Public Assistance program and promotes consistency in documentation, as well as having the ability to import and incorporate cost data from most electronic cost data providers.

Project Qualifications for Cost Estimating Format

The Cost Estimating Format must be used for all projects that have the following characteristics:

- Large Projects

    ◦ Large projects, according to the large project threshold for the applicable Federal fiscal year

- Permanent Work

    ◦ Restorative work (i.e., Categories C-G)

- Less than 90% complete

    ◦ Work that is less than 90% complete at the time of inspection

If projects do not meet all these requirements, cost estimates should be prepared using concepts and organization similar to the Cost Estimating Format, but the Cost Estimating Format is not required. Even projects that do not meet these requirements must be quantified, and the cost of all work elements in the estimate must be defined.
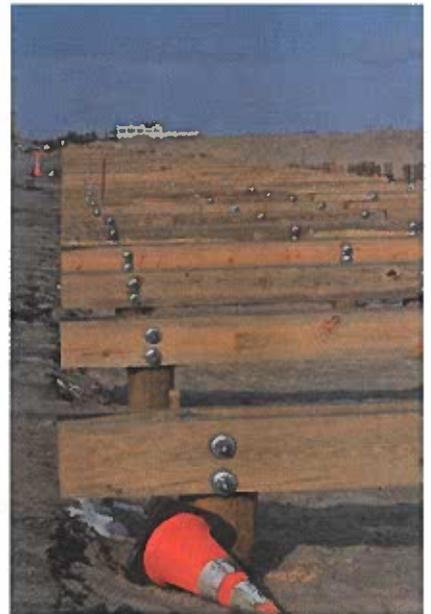
Accessing the Cost Estimating Format Tool

The Cost Estimating Format Tool consists of an Excel spreadsheet. To download it, go to the FEMA homepage and search for "CEF Spreadsheet." Select the result titled "CEF Spreadsheet | FEMA.gov."

There will be two download options. Be sure to select the link to the XLSX file. The PDF file does not include all of the same functionality.

Download the spreadsheet by selecting the "CEF Spreadsheet" XLSX link and save it to your hard drive. Choose a location where you will be able to find it easily.

Note that additional Cost Estimating Format documents are also available on this website:

- CEF Instructional Guide, Version 2.1
- CEF for Large Projects Report

Select this link for a full image description

CEF Spreadsheet

Cost Estimating Format for Large Projects.

	Size	Publication Date
CEF Spreadsheet	0.28M	December 5, 2012
CEF Spreadsheet	0.12M	December 5, 2012

Cost Estimating Format Tool Structure

Open the CEF Spreadsheet. You may be asked to enable editing.

Once the spreadsheet is open, you will see that there are six tabs:

- **CEF Fact Sheet:** Basic information about the project and the estimate
- **CEF Notes:** Documents the logic, assumptions, and reasoning for the selection of each factor
- **CEF Part A:** Base construction costs
- **CEF Summary of Completed Work:** Costs and cost estimates associated with all completed work (Parts A-H)
- **CEF Summary of Uncompleted Work:** Costs and cost estimates associated with all uncompleted work (Parts A-H)
- **CEF Total Project Summary:** Costs and cost estimates associated with all completed and uncompleted work (Parts A-H)

Parts B-H as well as the results from Part A are entered into the Completed and Uncompleted Work tabs. These figures will also appear in the Summary tab.

CEF Fact Sheet

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CEF Notes

Damaged Facility:		0
Applicant Name:		0
Project Number:		0
Date of Estimate:		January 0, 1900
Preparer(s):		0
Part A Notes:	A 1 -	
	A 2 -	
Part B Notes:	B.1 -	
	B.2 -	
Part C Notes:	C 1 -	
	C 2 -	
	C 3 -	
	C.4 -	
Part D Notes:	D.1 -	
	D.2 -	
	D.3 -	
Part E Notes:	E -	
Part F Notes:	F 1 -	
	F 2 -	
Part G Notes:	G 1 -	
Part H Notes:	H 1 -	
	H 2 -	
	H 3 -	
Miscellaneous Notes & Comments:		

This CEF workbook has had all macro functionality removed per FEMA IT Security request.

Macro functionality has been replaced where possible with a text-based validation system whereby offending errors will be documented and displayed to the user for user correction.

CEF Fact Sheet | CEF Notes | CEF Part A | CEF Summary of Completed Work | CEF Summary of Uncompleted Work

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CEF Part A

Item No.	Item Description Title / Component Description	Div # or Cost Code	Qty	Units	Unit Price	City Adj Factor	Total Cost
Completed Work Items							
	Completed Permanent Items						
					$	-	$ -
					$	-	$ -
					$	-	$ -
				Completed - Permanent Total			$ -
	Completed Non-Permanent Items						
					$	-	$ -
					$	-	$ -
					$	-	$ -
				Completed - Non-Permanent Total			$ -
Uncompleted Work Items							
	Uncompleted Permanent Items						
					$	-	$ -
					$	-	$ -
					$	-	$ -
				$	-		$ -
				Uncompleted - Permanent Total			$ -
	Uncompleted Non-Permanent Items						
					$	-	$ -
					$	-	$ -
				$	-		$ -
				Uncompleted - Non-Permanent Total			$ -
				TOTAL PART A BASE CONSTRUCTION COST			$ -

This CEF workbook has had all macro functionality removed per FEMA IT Security request.

Macro functionality has been replaced where possible with a text-based validation system whereby offending errors will be documented and displayed to the user for user correction.

INSTRUCTIONS
To insert a Row
1. Select the cells from columns A through H below the row you wish to insert
2. Right-Click and select 'Copy'
3. Right-Click and select 'Insert Copied Cells'
4. Select 'Shift Cells Down' when prompted
5. You must insert rows before entering data Note - Pasting cells from another workbook will not work.
6. Click 'Ok'

CEF Fact Sheet | CEF Notes | CEF Part A | CEF Summary of Completed Work | CEF Summary of Uncompleted Work | CEF Total Pages

Select this link for a full image description.

CEF Summary of Completed Work

		$	-	$	-	$	-	$	-	$	-	Total
A.1	Permanent Work (CEF Part A)											$ -
A.2	Non-Permanent Job Specific Work (CEF Part A)							$ -				$ -
	Part A Total	$ -		$ -		$ -		$ -		$ -		$ -

B	General Requirements and General Conditions						

B.1	General Requirements	Guide Low to High			Enter % in Appropriate Column				
	Safety & Security	4%	6.0%						
	Temporary Services & Utilities	0%	1.0%						
	Quality Control	0%	1.0%						
	Submittals	0%	5.0%						
				$ -	$ -	$ -	$ -	$ -	$ -

B.2	General Conditions (4.25%)			☐	☐	☐	☐	☐	
				$ -	$ -	$ -	$ -	$ -	$ -
	Part B Total			$ -	$ -	$ -	$ -	$ -	$ -
	PART A through B SUBTOTAL			$ -	$ -	$ -	$ -	$ -	$ -

C	Construction Cost Contingencies						

C.1	Design-Phase Scope Contingencies	Guide Low to High			Enter % in Appropriate Column			
	Preliminary Engineering Analysis	7.0%	20.0%					
	Working Drawings	2.0%	10.0%					
				$ -	$ -	$ -	$ -	$ -

C.2	Facility or Project Constructability		Enter % in Appropriate Column		

CEF Summary of Completed Work | CEF Summary of Uncompleted Work | CEF Total Project Summary ⊕

Select this link for a full image description.

CEF Summary of Uncompleted Work

		$	-	$	-	$	-	$	-	$	-	Total
A	"Base Costs" for Construction Work-in-Trades											
A.1	Permanent Work (CEF Part A)											$ -
A.2	Non-Permanent Job Specific Work (CEF Part A)											$ -
	Part A Total	$ -		$ -		$ -		$ -		$ -		$ -

B	General Requirements and General Conditions						

B.1	General Requirements	Guide Low to High			Enter % in Appropriate Column				
	Safety & Security	4%	6.0%						
	Temporary Services & Utilities	0%	1.0%						
	Quality Control	0%	1.0%						
	Submittals	0%	5.0%						
				$ -	$ -	$ -	$ -	$ -	$ -

B.2	General Conditions (4.25%)			☐	☐	☐	☐	☐	
				$ -	$ -	$ -	$ -	$ -	$ -
	Part B Total			$ -	$ -	$ -	$ -	$ -	$ -
	PART A through B SUBTOTAL			$ -	$ -	$ -	$ -	$ -	$ -

C	Construction Cost Contingencies						

C.1	Design-Phase Scope Contingencies	Guide Low to High			Enter % in Appropriate Column			
	Preliminary Engineering Analysis	7.0%	20.0%					
	Working Drawings	2.0%	10.0%					
				$ -	$ -	$ -	$ -	$ -

C.2	Facility or Project Constructability		Enter % in Appropriate Column		

CEF Summary of Uncompleted Work | CEF Total Project Summary ⊕

Select this link for a full image description.

CEF Total Project Summary

		Completed	Uncompleted	Total
	Complete Project Total for Completed and Uncompleted Work	$.	$.	$.
PART A	"Base Costs" for Construction Work in Trades	$.	$.	$.
	A.1 Permanent Work	$.	$.	$.
	A.2 Non-Permanent Job Specific Work (CEF Part A)	$.	$.	$.
PART B	General Requirements and General Conditions	$.	$.	$.
	B.1 General Requirements	$.	$.	$.
	B.2 General Conditions	$.	$.	$.
PART C	Construction Cost Contingencies (Design and Construction)	$.	$.	$.
	C.1 Standard Design-Phase Scope Contingencies	$.	$.	$.
	C.2 Facility or Project Constructability	$.	$.	$.
	C.3 Access, Storage, and Staging Contingencies	$.	$.	$.
	C.4 Economies of Scale in New Construction	$.	$.	$.
PART D	General Contractor's Overhead and Profit	$.	$.	$.
	D.1 General Contractor's Home Office Overhead Costs	$.	$.	$.
	D.2 General Contractor's Insurance, Payment, and Performance Bond	$.	$.	$.
	D.3 Contractor's Profit	$.	$.	$.
PART E	Cost Escalation Allowance	$.	$.	$.
PART F	Plan Review and Construction Permit Costs	$.	$.	$.
	F.1 Plan Review Fees	$.	$.	$.
	F.2 Construction Permit Fees	$.	$.	$.
PART G	Applicant's Reserve for Construction	$.	$.	$.
PART H	Applicant's Project Management and Design Costs	$.	$.	$.
	H.1 Applicant's Project Management - Design Phase	$.	$.	$.
	H.2 Architecture & Engineering Design Contract Costs	$.	$.	$.
	H.3 Project Management - Construction Phase	$.	$.	$.

CEF Total Project Summary ⊕

Select this link for a full image description.

Cost Estimating Format Factors

Part A of the Cost Estimating Format represents the project's base construction costs. Cost Estimating Format Parts B-H (called the cost estimatin format factors) allow project costs not included in part a to be identified and included in the overall estimate.

The structure of the Cost Estimating Format mirrors the applicant-general contractor-subcontractor relationship for eligible work:

- **Part A costs** represent the construction efforts required to directly and specifically complete the defined eligible work

  - When using RSMeans cost data, Part A represents the trade or subcontractor(s) installed costs

- **Parts B, C, D, and E** represent the general contractor or equivalent costs; they can be considered as components of "as-bid" costs and represent the soft costs of completing the work

- **Parts F, G, and H** represent the Applicant's non-construction project costs, including preparation of design or contract documents, plan review and permit fees, change orders, and management of project design and construction

Using the CEF Spreadsheet

The CEF Spreadsheet no longer uses macros. Instead, there is a text-based validation system that documents errors and displays them to the user for correction.

The CEF Spreadsheet is an official document of the Federal Government and may not be changed, altered, or amended without review and written concurrence of FEMA Headquarters. Therefore, no changes to the format or functionality of Part A other than the addition of rows are to be made by the user.

Entering Costs in the CEF Spreadsheet

Various factors are applied to the base cost estimate from Part A. The factors used must be appropriate to the eligible work, the conditions under which the work will be performed as documented at the time of the estimate, and the source of unit cost data.

Either check boxes or specific values are used to apply each factor or sub-factor in the spreadsheet. The default value for each factor is 0, i.e., the factors are unselected when opening a new CEF Spreadsheet.

- Check boxes are used when the factor is fixed or is calculated by the spreadsheet automatically
- A recommended percentage range is provided for all other factors.
- The specific values entered depend on the scale and complexity of the work in question

Adding a Row

If you need to add rows to the Part A sheet, do so by copying an existing blank row in order to duplicate the formatting. To insert a row:

1. Select the cells from columns A through H below the row you wish to insert
2. Right-click and select *Copy*
3. Right-click and select *Insert Copied Cells*
4. Select *Shift Cells Down* when prompted
5. Select *OK*

Rows must be inserted before entering content. Pasting cells from another workbook will not work, since they won't include the correct formatting.

The step-by-step instructions are also included in the spreadsheet. You cannot add rows in the Completed or Uncompleted Work or Summary tabs.

Completed vs Uncompleted Work (1 of 2)

A Public Assistance project may have Completed and Uncompleted Work elements. Because several Cost Estimating Format factors are applied differently based on the level of completion, the spreadsheet is structured to analyze completed and uncompleted work separately.

You must separate Completed Work and Uncompleted Work in Part A, as well as between the completed and uncompleted summary tabs. Mixing completed work costs with uncompleted costs can lead to inaccurate estimates.

Completed vs Uncompleted Work (2 of 2)

To be considered Completed Work, a project work element must be:

- A discrete work activity (such as grading or constructing foundations) that is complete and has no pending or potential for future change orders
- A specific type of work for which actual incurred cost documentation for eligible work is available

If cost documentation is not available within two weeks of the site inspection, the project estimate can be prepared as Uncompleted Work.

CEF Fact Sheet (1 of 2)

The CEF Fact Sheet is the first tab in the spreadsheet and should be completed first. It documents basic information about the project and estimate.

In it, you will identify the Applicant, preparer, project title, damaged facility, FEMA region, work category, and type of work. Give the dates of the event, site inspection, and estimate. Provide the relevant numbers to identify the declaration and project, as well as the PA (Public Assistance) ID number. There is also a section for the preparer's notes, where project context should be provided.

Information you enter into the Fact Sheet is automatically populated in some other components of the CEF Spreadsheet, including the CEF Notes, Summary of Completed Work, and Summary of Uncompleted Work.

Select this link for a full image description.

CEF Fact Sheet (2 of 2)

- Date of Estimate: The date on which the estimate is completed
- Preparer(s): If the cost estimate has been developed by a team, enter the names of the Lead Technical Specialists for each discipline
- Work Category: Choose from Public Assistance Categories C-G (Permanent Work)

Date of Estimate:	
FEMA Region:	
Preparer(s):	
Applicant Name:	
Project Title:	
Damaged Facility:	
Declaration Number:	
Project Number:	
PA ID No.:	
Date of Inspection:	
Event Date(s)	
Work Category:	
Type of Work:	
(Enter New, Repair, etc.)	
Preparer's Notes:	

Select this link for a full image description.

Type of Work

Each type of work (not to be confused with work categories) entered on the Fact Sheet populates a column title on the Summary of Completed Work and Summary of Uncompleted Work sheets.

These types of work include:

- Repairs, including retrofits/upgrades eligible under applicable code and standards
- Replacement/new construction
- Hazard mitigation
- Other work (specify)

Note: The work types should be kept short to better fit into summary sheet columns

Select this link for a full image description

Preparer's Notes (1 of 2)

The purpose of this section is to document the basis of the Cost Estimating Format estimate and establish a basic understanding of the project context.

This section can be a challenge on large, complex projects. It may be necessary to summarize major elements here and refer the reviewer to more detailed explanations in the associated backup documentation.

Preparer's Notes (2 of 2)

What should be documented:

- A clear and concise description of the eligible scope of work
- The status of the project at the time of the estimate (percent of design and/or construction complete)
- The anticipated project delivery method (design-bid-build, force account, etc.)
- The source of unit cost data

  - This can also go in CEF Part A Notes if the text is too long

- Results of analysis, e.g., estimated bid validation or repair vs. replacement analysis
- Any assumptions or scope additions made by the estimator that are not otherwise documented

  - example: CEF specialist assumed dewatering by temporary stream diversion

Preparer's Notes Examples

Topic	Inadequate	Adequate
Stage of completion	Estimate based on engineering drawings	Estimate based on drawings identified as 80% design submittal. Drawings dated June 7, 2004 prepared by Sky Hook Engineering Associates, Wise, VA
Summary scope of work	Scope of work including repairs to HVAC and electrical systems	Scope of work including replacing flood- damaged gas furnace and controls, air distribution duct, electrical circuit breaker panels, and electrical distribution circuits. Specific quantities indicated in CEF Part A
Source of unit cost data	Unit prices taken from RSMeans	Unit prices based on data presented in RSMeans Building Construction Cost Data, 2012

CEF Notes

The CEF Notes sheet provides a place to document the logic, assumptions, and reasoning for the selection of factors B-H on the summary sheets. All assumptions for selecting or not selecting factors must be recorded in the CEF Notes sheet.

To ensure proper documentation:

- Enter notes for each work type, if appropriate
- Indicate the value chosen for each factor and the rationale for the choice, or the reason/assumption for omitting the cost from the estimate
- All notes for factors B-H must document why or why not you have applied the factor

The sheet also contains an area for miscellaneous comments and notes.

Select this link for a full image description.

Part A: Base Construction Costs

Part A of the CEF Spreadsheet is designed to document the quantitative base construction cost required to directly complete the eligible scope of work. Preparation of an accurate base cost estimate in Part A is critical to the accuracy of the total project estimate developed using the CEF Spreadsheet.

Estimates are defined using the following:

- Item number
- Item description title or component description
- Division number or cost code identifiers

Select this link for a full description of Part A

Components of the Base Cost Estimate

The total estimated cost for each work activity is a product of quantity, unit price, and the city adjustment index/factor.

CEF Part A allows development of construction costs using a variety of FEMA-approved unit cost data sources. Local bids from recent projects of similar size and scope, industry cost-estimating references, or FEMA cost codes can be used for cost data sources.

Each requires validation of scope and cost reasonableness prior to using as the base cost estimate.

Select this link for a full description of Part A

Complete and In-Place

The Costing Specialist needs to determine if the cost data are "complete and in-place." Complete and in-place cost components include the cost of all labor, materials, equipment, small tools, and incidental costs necessary to complete an item of work, all site support and coordination costs, and all construction contract administration costs. If those cost are included in the unit cost data, Cost Estimating Format factors may not be required.

Unit cost data based on historical contracts are typically complete and in-place costs, while unit cost data from industry cost-estimating references only include the direct construction costs (labor, materials, equipment, and O&P of the installing or specialty contractor) and do not include other elements such as the general contractor costs.

Part A Organization

To meet the requirements, all construction work activities must be itemized and quantified in Part A with as much detail as possible. The Part A spreadsheet is organized to allow differentiation between:

- Permanent and Non-Permanent Work
- Completed and Uncompleted Work

Sort items by work type (repair, retrofit, new construction, hazard mitigation, and other discrete work elements, such as selective demolition and force account). The types of work specified should match those selected when you complete the CEF Fact Sheet. Work should also be sorted by major components, systems, or sources of unit cost data.

Once you have identified the types of work, the line items for each type of work should be further organized using the standard work breakdown structure outlined in the Construction Specifications Institute MasterFormat Divisions.

Select this link for a full image description.

Part A Data (1 of 2)

Part A of the CEF Spreadsheet can be formulated to meet the specific requirements of a particular estimate. You may add rows to the spreadsheet to accommodate additional items of work as necessary.

Work should also be sorted by major components, systems, or sources of unit cost data. For projects with multiple sites, it is helpful to organize the estimate by adding a line and titling in the item description."

Select this link for a full image description.

Part A Data (2 of 2)

For each cost item, record:

- Construction Specifications Institute MasterFormat Division Number/Cost Code
- Quantity
- Units
- Unit Price
- City Adjustment Factor
- Total Cost

City adjusted cost factors must be set for the zip code of the location of work to be performed.

Select this link for a full description of Part A

Part A Results

Once the estimates for Completed and Uncompleted Work have been developed, enter these estimates in the Summaries of Completed Work and Uncompleted Work, respectively.

The estimates are entered in the appropriate fields under Part A on each summary sheet. The distinction between Permanent and Non-Permanent Work must be maintained when completing the summary sheets.

A		"Base Costs" for Construction Work-In Trades					
A.1	Permanent Work (CEF Part A)						$
A.2	Non-Permanent Job Specific Work (CEF Part A)			$			$
	Part A Total	$	$	$	$	$	$

Tip: These cell are not auto populating. If you edit part a after completing the CEF, they you must remember to update these fields each time you adjust part A.

Parts B-H

Cost Estimating Format Parts B-H are industry-based factors that are applied to the base construction cost from Part A in order to create cost estimates. They represent construction-related costs directly connected to the project but not previously considered or included in Part A.

It is critically important that the Estimating Specialist determine all elements of cost that make up the unit costs itemized in Part A for the sake of accuracy and to help avoid cost duplication. If a cost is included in Part A, do not duplicate it in the subsequent parts.

These factors were developed using information from the Construction Specifications Institute and RSMeans. They have been verified using data from closed-out grants for large projects nationwide.

Keep in mind that there could be different project delivery methods, project status issues, and Part A-itemized costs when considering the application of values for Parts B-H.

Parts B-E: As-Bid Costs

Published unit cost data, e.g., RSMeans, include only the costs directly required to install the specific unit of work. General contractor or equivalent costs, also referred to as 'as-bid' costs, are accounted for in Parts B-E. These represent the construction costs not included in RSMeans construction trade unit cost data.

Historical contract unit cost data such as State Department of Transportation data or FEMA cost codes typically represent complete data and may not require the use of these supplemental factors.

Part B: Non-Permanent On-Site Facilitative Work

Part B includes Non-Permanent job site work that facilitates execution of the eligible work but is not typically itemized in Part A. It consists of two categories:

- B.1 - Job Site Costs
- B.2 - General Contractor's Field Supervision Costs

The Part B factors are applied directly to the work type subtotals from Part A. If no percentages or check boxes are selected, the B factor will be set to 0.

B				General Requirements and General Conditions					
B.1	General Requirements	Low	to High		Enter % in Appropriate Column				
	Safety & Security	4%	6.0%						
	Temporary Services & Utilities	0%	1.0%						
	Quality Control	0%	1.0%						
	Submittals	0%	5.0%						
				$	$	$	$	$	$
B.2	General Conditions (4.26%)			☐	☐	☐	☐	☐	
				$	$	$	$	$	$
	Part B Total			$	$	$	$	$	$
	PART A through B SUBTOTAL			$	$	$	$	$	$

B.1: Job Site Costs

Part B.1 accounts for job site costs. It is broken down into four factors:

- Safety and security measures
- Temporary services and utilities
- Quality control
- Administrative submittals

To apply the B.1 factors, enter the percentages for each work type. Even though this is only one part, four selections are made, and thus four explanations are required in the CEF Notes sheet, one for each type of work.

B.1	General Requirements	Guide Low to High		Enter % in Appropriate Column				
	Safety & Security	4%	6.0%					
	Temporary Services & Utilities	0%	1.0%					
	Quality Control	0%	1.0%					
	Submittals	0%	5.0%					
				$	$	$	$	$

B.1: Job Site Costs - Safety and Security Measures

This factor includes such items as:

- Perimeter fencing, guard service, and site lighting

- First aid, barricades, traffic controllers, flagging, railings, toe boards, and rented fencing

- Harnesses, scaffolding, and other safety equipment

- Fire protection, such as fire extinguishers and temporary hydrants

- Temporary signage that may be required by a regulatory authority (e.g., the Federal Highway Administration) to control pedestrian or vehicle detours within and around the construction zone

Recommended Application: Safety and Security Measures

This factor adds 4-6% of the Part A base cost. The higher end of the range would be applicable on projects such as airports, marinas, and ports; large segmented sites with phased construction. Projects that require tracking employees on premises during workhours for safety reasons and the project sites that require a 24-hour security officer.

- 4% - Most projects requiring routine site security, including temporary fences, barricades, etc., and general worker safety provisions

- 5% - Projects with unusual safety and security concerns such as requirements to maintain public access during construction, special needs to protect construction material and equipment during non-working hours, or special worker safety issues, such as work requiring a confined-space entry program

- 6% - Projects with extraordinary safety or security issues such as airports, ports, correctional facilities, etc. that require full-time worker identification and interaction with facility users

B.1: Job Site Costs - Temporary Services and Utilities

This factor includes:

- Construction trailer or office space and related office equipment. The space may be for the construction job superintendent or for inspectors.

- Temporary utilities such as construction water, electricity (including temporary power distribution to work areas), telephones, construction craft sanitary facilities, and weather protection that may be necessary for temporary services or utilities.

Example: School repair projects, especially if scheduled during vacation periods, allow the contractor to use or access the existing facility power and water services. Do not include these costs by selecting the factor. If some temporary services are still required, e.g., telephones and sanitary facilities, the cost should be included, but the factor should be reduced.

Recommended Application: Temporary Services and Utilities

- 0% - All temporary services, including power, water, sanitation, communications, etc. are fully itemized in Part A as Non-Permanent work or not required

- 0.5% - Some, but not all, temporary services are included in Part A, e.g., sanitation facilities, dumpsters

- 1% - Temporary services are that not itemized as non-permanent work in Part A

B.1: Job Site Costs - Quality Control

This factor reflects quality control measures taken by an organization other than the Applicant or the contractor. Each Construction Specifications Institute MasterFormat section includes a quality control requirement, such as field testing and manufacturing certifications for size and strength.

Typically, the field quality control is conducted by an independent testing and inspection service with expertise specific to the project scope of work, such as:

- Soil compaction testing
- Concrete strength testing
- Masonry mortar testing
- Masonry panel tests
- Water quality testing
- Non-destructive examination of welds
- Bolt torque testing of steel connections

Manufacturers' quality control documentation is provided by the manufacturer, often through the supplier.

Recommended Application: Quality Control

- 0% - Only appropriate for projects limited to non-structural repairs conducted using contract package without technical specifications

- 0.5% - Applicable to most routine projects involving Architect/Engineering contract documents

- 1% - Applicable to projects with Architect/Engineering specifications requiring special testing, such as pile load tests or full-scale load tests of structural elements, or projects requiring special full-time engineering inspection and reports

B.1: Job Site Costs - Submittals

This factor includes the contractor's cost for:

- Preparation of shop drawings, materials certifications, and instructions
- Providing samples and product data
- Preparation of construction progress schedules

Recommended Application: Submittals

- 0% -
  - Select for projects limited to non-structural repairs conducted using pre-existing services contracts
  - Select for single trade specialty contractor projects with work being done without formal design documents or if submittal requirements are minimal or non-existent

- 2.5% - Only appropriate for projects limited to non-structural repairs conducted using contract package without technical specifications

- 5% - Applicable to most routine projects involving Architect/Engineering contract documents

B.2: General Conditions

Part B.2 represents a prime contractor's on-site project management costs and covers field supervision, coordination of trades, etc. Before applying this factor, the Program Delivery Manager should verify that the prime contractor's on-site project management costs have not already been included in any unit costs or bid prices.

The value of this factor has been established at 4.25%. To apply the B.2 factors, select each work type(s) to which the factor should be applied. All assumptions or the basis for selecting or not selecting factors must be recorded in the CEF Notes sheet.

B.2	General Conditions (4.25%)											
		□		□		□		□		□		
		$	$		$		$		$		$	

Recommended Application: General Conditions

- Off - if the project is performed without the involvement of a general contractor, or if all general contractor project costs, including supervision, trade coordination, etc. are detailed in Part A

- On - Any project not included in the "Off" description
  - Costs are typically described in the general requirements of construction specifications
  - May be specified in the non-permanent work section of Part A

Document all assumptions in the CEF Notes sheet.

Part C: Design and Construction Cost Contingencies

Part C is the most misunderstood factor. A contingency is a monetary provision for uncertainties about performing the work and unforeseeable costs to execute the defined scope of work. For example, a contractor may know what work must be done but not be confident that the precise execution requirements and limitations are known.

Contingencies are included in an estimate to create an appropriate level of probability for completing the project within the floor and ceiling threshold limits for that estimate. The cost allowances added to the estimate in Part C of the Cost Estimating Format represent financial protections for the final delivery of the eligible scope of work (developed in Parts A and B) defined during the engineering and design phase.

Select this link for a full image description.

Part C Components

Part C includes these components, which will be described on the following visuals:

- C.1 - Design Phase/Scope Definition Contingencies
- C.2 - Facility or Project Constructability
- C.3 - Access, Staging, and Storage Contingencies
- C.4 - Economies of Scale

If no percentages or check boxes are selected, the C factor will be set to 0.

- To apply the C.1, C.2, and C.3 factors, enter the percentage for each work type
- To apply the C.4 factor, check the boxes for the work types to which the factors should be applied

Select this link for a full image description.

C.1 - Design Phase/Scope Definition Contingencies

The C.1 contingency is intended to represent cost uncertainties based on the state of the project design development at the time the CEF Spreadsheet is prepared. The project should be evaluated to determine the level of detail in the available scope definition based on the level of design completion at the time the estimate is prepared.

The percentages reflect the gradual decrease of unknowns as design development progresses. As the engineering design becomes more detailed, the scope of work and the means and methods of construction can be better determined. Therefore, later estimates generally include a smaller contingency for uncertainties.

C.1	Design-Phase Scope Contingencies	Guide Low to High		Enter % in Appropriate Column					
	Preliminary Engineering Analysis	7.0%	20.0%						
	Working Drawings	2.0%	10.0%						
				$ -	$ -	$ -	$ -	$ -	$

Levels of Design Development

The two levels of design development are:

- Preliminary Engineering Analysis
- Working Drawing

Only a single C.1 value representing the status of project design is used for each work type. For each, either select Preliminary Engineering Analysis or Working Drawings, not both.

However, two different types of work may have two different selections. For example, the repair of a facility may be nearing the final design stage while mitigation is still at the schematic design stage.

Design Phase Contingency is not appropriate for including in CEF Part A.

C.1	Design-Phase Scope Contingencies	Guide Low to High		Enter % in Appropriate Column					
	Preliminary Engineering Analysis	7.0%	20.0%		20.0%				
	Working Drawings	2.0%	10.0%	2.0%					
				$ 200	$ 2,000	$ -	$ -	$ -	$ 2,200

Preliminary Engineering Analysis

At this stage, concepts have been developed, usually without a significant level of detail. Accurately quantifying work at this stage is difficult, and contractors would assume a relatively high level of risk/uncertainty in bidding a project at this time.

Recommended Application: Preliminary Engineering Analysis

The recommended values range from 7–20% to allow some differentiation between simple and more complex projects.

- 7–10% – Estimates developed without engineering drawings and having a scope of work consisting primarily of a single MasterFormat Division, i.e., a single trade scope of work

- 13–15% – Estimates developed without engineering drawings and having a scope of work consisting primarily of work with less than eight MasterFormat Divisions

- 20% – Estimates developed without engineering drawings and having a scope of work consisting primarily of work from more than eight MasterFormat Divisions

Working Drawing

At this stage of design, the design requirements are better defined, concepts are determined, details are more complete, and work tasks and quantities have been readily defined. Contractors are likely to assume a low to medium level of risk in bidding this type of project.

Project estimates based on 100% drawings will still have contingencies for unexpected costs encountered during construction, e.g.:

- Increased equipment rental cost due to weather delays
- Installation requires more staffing or heavier equipment than expected
- Delays in material shipments
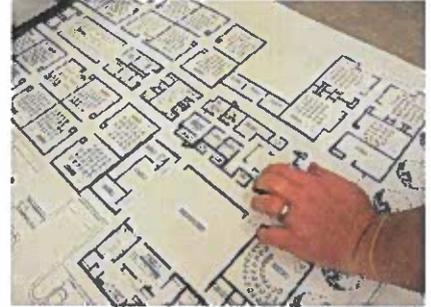
Recommended Application: Working Drawing

The recommended values range from 2-10% to allow for differentiation depending on the level of completeness of working drawings.

- 2-5% - Estimates developed from a scope of eligible work based on preliminary engineering drawings equal to or more than 80% complete

- 4-6% - Estimates developed from a scope of eligible work based on preliminary engineering drawings more than 50% and less than 80% complete

- 7-10% - Estimates developed from a scope of eligible work based on preliminary engineering drawings equal to or less than 50% complete. Average level of detail and readily identifiable quantities

C.2 - Facility or Project Constructability

This factor allows for site conditions or construction process complexities that could increase project costs. It includes issues such as:

- Working in difficult site conditions
- Extreme weather conditions impeding productivity
- Special building code requirements
- Special interfaces with operating facility

C.2 - Facility or Project Constructability: Complexity

The complexity of construction activities varies among different types of projects. New construction design drawings and specifications are comprehensive in scope; therefore, no complexity allowance is provided for new construction.

Repair and retrofit projects, which must be accomplished within the physical and operational constraints of existing facilities, tend to consist of tasks that are more selectively located, are more intensely detailed and sequenced, and require closer supervision throughout the process.

C.2 - Facility or Project Constructability: Applicant Requirements

Applicant requirements and restrictions must also be reasonable, applying to the specific services related to the eligible scope of construction. Such requirements or restrictions could include access restrictions during normal business hours to portions of the facility being repaired.

For example, there are specific tolerances related to:

- Sports facility floors and seating
- End user and/or environmental requirements for hospitals and museums
- Special site-specific construction requirements, or restrictions, mandated by State or local regulatory agencies

Site Conditions/Construction Process Complexities

The constructability factor represents site conditions or construction process complexities such as:

- Steep site embankments
- Unstable soil conditions
- Difficult subsurface construction conditions requiring such activities as de-watering and rock excavation
- Extreme weather conditions affecting productivity, such as winter shutdowns
- Urban sites
- Special building code requirements
- Availability of adequate energy, skilled craft labor, and building materials
- The Applicant's special requirements and restrictions
- Environmental considerations

Recommended Application: Facility or Project Constructability

Simple construction projects should be assigned a C.2 factor of 0 or 1%. Projects with a combination of features that increase complexity should be assigned factors at the upper end of the appropriate range.

For example, two bridges may require the same materials and equipment. However, if unstable soil conditions exist at one of the bridges, the work at this bridge will require more types of construction equipment, additional labor hours, and greater supervision.

If possible, project complexity issues should be addressed in Part A. If all complexity issues are addressed in Part A, the C.2 factor should not be used. However, if certain project conditions cannot be identified or quantified, select a suitable factor from the range of values given in the table on the next slide.

C.2 Constructability Table

Project Category and Type	Percent Range
Simple construction projects	0-1
Cat C – Roads (rural-urban)	1-2
Cat C – Bridges and culverts (simple-complex)	1-5
Cat D – Water control facilities	1-5
Cat E – Simple open buildings	1-2
Cat E – Schools, libraries, and offices	1-5
Cat E – Hospitals, museums, and historic buildings	1-7
Cat F – Public utilities	1-5
Cat G – Park and recreation facilities	1-5

C.3 - Access, Staging, and Storage Contingencies

This factor addresses varying degrees of uncertainties of costs to deliver, receive, store, and transfer materials and equipment to the installation location at the project site. For example, work in an urban environment may require storage of materials and equipment several miles away from the actual construction site, increasing the project cost.

The C.3 factors address project site conditions that impose additional costs on the work activities listed in Part A. Items should be specifically defined in Part A, if practical.

C.3	Access, Storage & Staging	Guide Low to High		Enter % in Appropriate Column					
	Access Contingencies	0.0%	4.0%						
	Storage Contingencies	0.0%	4.0%						
	Staging Contingencies	0.0%	4.0%						
				$	$	$	$	$	$

Site Access

This factor addresses access to the project site.

Examples include:

- Difficult or long access routes for trucks delivering materials
- A temporary access roadway or driveway constructed to provide access for equipment
- Site loading conditions requiring heavy equipment such as barges, cranes, or forklifts
- Restricted material delivery hours at operational facilities
- Obstructions created by utilities or exposed systems

Projects in crowded urban areas may be at the upper end of each factor, while remote projects can incur increased material transportation charge.

- Some remote West Virginia schools had premiums added to material prices because of long delivery distances, especially for "less than full truck load" deliveries

Storage

This factor addresses the storage of construction materials and equipment on site to support proper staging and construction activities.

Examples include:

- Remote or off-site storage of materials due to space constraints
- Temporary easements
- Lot, sidewalk, or roadway space rental costs

Projects in crowded urban areas may require the use of off-site storage, thus increasing the material and handling costs.

Example: Limited material storage space on site results in extra costs incurred for "just-in-time" deliveries, resulting in greater trade labor downtime.

Staging

This contingency addresses the timing and execution of the work, which could be complicated by occupation of facilities, lack of space, and access to the facility. This factor should be used for sites, such as hospitals and city halls, which have work access limitations because services must continue despite the construction.

Recommended Application: Access, Staging, and Storage Contingencies

The recommended values for C.3 factors range from 1 to 4%.

- 1% - Project is located in a metropolitan area with ready access to construction labor, materials, and equipment without long trip times

- 2.5% - Project is located in a suburban to exurban area with access to construction labor, materials, and equipment with trip distances of 25 to 70 miles

- 4% - Project is located in a rural or other remote area with limited access to construction labor, materials, and equipment with trip distances exceeding 70 miles

C.4 - Economies of Scale

This factor offsets the overstatement of costs when Cost Estimating Format factors are applied to large projects with repetitive work elements that allow workers to achieve above-average productivity.

Economies of scale are either zero or a decrease in cost resulting from task or project size. For example, the crew productivity for replacing a roof can exceed average for large roofs with few penetrations or interior parapets

Typically, unit costs are based on projects of a known size range. Use of these costs for projects outside of this range can result in inaccurate estimates. This concept also applies to other factors in the Cost Estimating Format. Therefore, economies of scale are the best approach to adjusting productivity in Part A for unit prices.

C.4 Economies of Scale Table

Project Size	
Under $500,000	0.0
Under $2 million	-0.5
Under $10 million	-1.0
Over $10 million	-2.0

Recommended Application: Economies of Scale

The table on the previous visual lists the construction cost changes (in percentages) that can be anticipated due to economies of scale. The multiplier is set automatically when you check the box for the type of work to which the factor should be applied.

- Select C.4 if:
  - The scope of work contains sufficient repetitive, continuous work elements to achieve large-scale efficiency in production that would lower unit costs
- Do not select C.4 if:
  - The scope of work lacks sufficient repetitive, continuous work elements to achieve large-scale efficiency in production that would lower unit costs
  - It can be determined that the unit costs in Part A and the factors in Part B reflect economies of scale

Economy of scale adjustments are particularly applicable to new construction projects, but are also applicable for other types of work for which cost is reduced due to the volume of repetitive work included in the eligible scope.

Part D: General Contractor Overhead and Profit

Part D accounts for the general contractor's construction costs that have not been included in Parts A, B, or C. There are three factors:

- D.1 - Home office overhead
- D.2 - Insurance payment and performance bonds
- D.3 - Contractor's profit

Part D does not reflect the subcontractors' overhead and profit, which should be included in the line items listed in Part A. Part D factors should not be applied to force account work.

To apply Parts D.1 and D.2, check the box for each applicable type of work. To apply Part D.3, select the type of work to which the factor applies. The profit percentage and value are automatically calculated by the CEF Spreadsheet.

D.1 - General Contractor Office Overhead

The general contractor's main office expenses include: labor and salary costs for personnel and include

- Principals, estimators, schedulers, purchasing agents, project managers, and general office staff
- Other operational expenses associated with working out of the main office (rent, utilities, etc.)

Recommended Application: General Contractor Office Overhead

The value for D.1 is fixed at 7.7%.

- Select this factor if a general contractor is involved in this project
- Do not select this factor if no general contractor is involved in the project or if the cost is identified in Part A

D.2 - General Contractor Insurance, Payment, and Performance Bonds

This factor includes allowances for:

- General contractor's payment and performance bonds (1.5%)
- Builder's risk insurance (0.3%)
- Public liability insurance (1.5%)

Insurance and bonds are project overhead costs typically, but not always, charged by the general contractor. A contractor may be required by the owner to obtain insurance and bonds when bidding on a construction project. 44 CFR 13.36(h) establishes the minimum bond requirements for construction contracts or subcontracts under Federal grants.

Recommended Application: General Contractor Insurance, Payment, and Performance Bonds

The total value of the factor is fixed at 3.3%.

- Select this factor if a general contractor is involved in the project or if the estimate was developed using RSMeans cost data
- Do not select this factor if a general contractor is not or was not involved in the project or if the cost is identified in Part A

D.3 - Contractor's Profit

The general contractor's profit will be calculated from the table on the next visual and is applied to the sum of Parts A, B, C, D.1, and D.2.

The value is set automatically when you check the box for the type of construction to which the factor should be applied. If you do not check a box, the factor will be set to 0.

D.3	General Contractor's Profit						
		0.0%	0.0%	0.0%	0.0%	0.0%	
	New Construction						
	Repair/Retrofit						
		$ -	$ -	$ -	$ -	$ -	$
	Part D Total	$ -	$ -	$ -	$ -	$ -	$
	PART A through D SUBTOTAL	$ -	$ -	$ -	$ -	$ -	$

D.3: Contractor's Profit Table

Project Size (Sum of Parts A, B, C, D.1, and D.2)	General Contractor's Profit (%) Repair	General Contractor's Profit (%) Retrofit	General Contractor's Profit (%) New Construction
Under $500,000	10	10	10
$500,000 to $750,000	9	9	9
$750,000 to $1.5 million	8	8	8
$1.5 million to $3 million	7	7	7
$3 million to $5 million	5.5	5.5	5.5
$5 million to $10 million	4.5	4.5	4.5
Over $10 million	3	3	3

Recommended Application: Contractor's Profit

The CEF Spreadsheet calculates the value of D.3 based on an interpolation between percentage points.

- Select this factor if a general contractor is involved in this project
- Do not select this factor if no general contractor is involved in the project or if the cost is identified in Part A

Part E: Cost Escalation

Part E is a cost escalation factor that allows forward pricing of the estimated construction costs to account for inflation during the design and construction period. The cost escalation factor is the Cost Estimating Format forward pricing function.

The escalation factor should be based on a 2-year average of either the Building Cost Index or the Construction Cost Index according to the *Engineering News Record*. The average monthly increase (expressed as a percentage) is applied to the number of months remaining to mid-point of project construction.

The Public Assistance Group Supervisor, or designee, is responsible for calculating this percentage at the beginning of a disaster. If the escalation factor has not yet been distributed, use the chain of command to request this number. The escalation factor is not to be determined by individuals in the field.

Cost Escalation Factor							
	Months						
	Monthly Factor						
	Part E Total	$ -	$ -	$ -	$ -	$ -	$
	PART A through E SUBTOTAL	$ -	$ -	$ -	$ -	$ -	$

Development of Project Timeline

If there is no applicant-submitted design and/or construction timeline, the Costing Specialist will develop the timeline. There are three phases the timeline needs to account for:

- Preparation of Design and Bid Documents
- Solicitation of Bids, Review of Bids, and Award of Contract
- Construction Start and Completion Dates
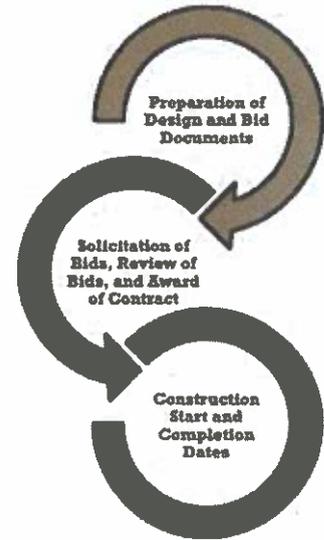
Preparation of Design and Bid Documents

The duration for design can be estimated using data provided by the applicant, or using other means if the Applicant does not provide.

For example, RSMeans' Facilities Cost Data recommends estimating the design time for different building types at 25-40% of the construction duration.

- The lower bound should be used for typical flood and hurricane wind disasters where the damage necessitates less complex design
- The upper bound would be applicable to major seismic and hurricane disasters where greater damage necessitates more complex analysis and design

Repair and replacement activities that are based on a facility's "as-built" drawing will typically not require a design duration similar to that of a new construction project.

Solicitation of Bids, Review of Bids, and Award of Contract

The duration for bidding and award can be estimated using data provided by the Applicant, or using other means if the applicant does not provide it.

A period of 2-3 months for bidding and award duration is typical. Extremely large projects (over $5 million) may need additional time for the bidding and award process.

Construction Start and Completion Dates

The duration for construction can be estimated using information provided by the applicant, or by preparing an outline of the major construction tasks and determining the duration and linkages (critical paths and dependencies) associated with each of these tasks to arrive at a total construction time.

- Construction start date = date that the applicant gives notice to proceed to the contractor

- Construction completion date = date the owner accepts the project and agrees to pay any outstanding retainage due to the contractor

- Guidance for estimating design and construction times is provided in Section 8 of the CEF Instructional Guide

- Guidance for calculating the monthly escalation factor is also provided in Section 8 of the CEF Instructional Guide

Recommended Application: Cost Escalation

This factor should only be used for escalating the cost of uncompleted work.

If Part A is based on actual costs for completed work or a firm-fixed-price contract, Part E would not be applicable.

Example Timeline Estimate Scenario

An engineer's report indicates that the bridge replacement construction will take approximately 6 months.

- The Public Works Department schedules the work for the summer of 2018
- The estimate is being prepared in late November 2017
- Based on an estimated construction schedule of early April 2018 through October 2018 (6 months), the mid-point is determined to be July 2018
- Thus, the time to mid-point of construction from the time of the estimate is **8 months**

    - 5 months = design, bid, and award
    - 6 months = construction period
    - 5 + 6/2 = 5 + 3 = 8 months

Parts F-H: Non-Construction Project Costs

Parts F, G, and H represent the Applicant's non-construction project costs:

- Part F: Plan Review and Construction Permit Costs
- Part G: Applicant Reserve for Change Orders
- Part H: Applicant Project Management and Design Costs

Part F: Plan Review and Construction Permit Costs

Part F reflects:

- F.1 - Fees Charged by State and Local Agencies for Plan Reviews
- F.2 - Construction Permits

The Applicant is generally responsible for obtaining all of the required reviews and producing a bid-ready set of plans and specifications that have been through agency reviews, plan checks, and general building permit processes. However, sometimes an applicant may, at his or her option, require the contractor to obtain specific permits necessary for performing the eligible scope of work.

Note that State or local government owned facilities (such as schools, medical facilities, bridges, and treatment plants) may have different approval requirements than other facilities.

	Plan Review and Permit Construction Cost					
F.1 Plan Review Fees						
(List Individual Requirements Separately)						
	$ -	$ -	$ -	$ -	$ -	$ -
F.2 Construction Permit Fees						
(List Individual Requirements Separately)						
	$ -	$ -	$ -	$ -	$ -	$ -
Part F Total	$ -	$ -	$ -	$ -	$ -	$ -
PART A through F SUBTOTAL	$ -	$ -	$ -	$ -	$ -	$ -

Recommended Application: Plan Review and Construction Permit Costs

Part F is not applicable when State and local agencies waive fees during disaster recovery situations.

- The actual cost of the fees should be entered into the spreadsheet
- The cost should include all fees that are paid to others to obtain approvals required before construction can commence

Part G: Applicant Reserve for Change Orders

Part G reflects the Applicant's reserve for contract change orders caused by unexpected changes in the eligible scope of work. The reserve is based on project size and applies only to uncompleted eligible work.

This reserve is intended to be controlled by the Applicant. It is to be used to fund approved change orders to eligible work and any other incidental costs directly required to complete eligible work that may be incurred after the construction contract is awarded. It does not reflect discretionary change orders for upgrades or for any ineligible work.

Recommended Application: Applicant Reserve for Change Orders

The value is calculated automatically when you check the box for the type of work to which the factor should be applied. When a work type selection box is highlighted, the Applicant's reserve in Part G is applied to the work type subtotal of Parts A through F.

If you do not check a box, the factor will be set to 0.

Part H: Applicant Project Management and Design Costs

This factor represents the Applicant's costs for overall project development and management throughout the design and construction phases.

The factor includes the applicant's costs for:

- H.1 - Applicant's Project Management - Design Phase
- H.2 - A/E Design Contract Costs
- H.3 - Project Management - Construction Phase

Note that incidental development costs should be absorbed into these categories.

Part H does not duplicate the administrative allowance provided to the applicant under the Stafford Act. That allowance is provided to meet the cost of requesting, obtaining, and administering disaster assistance. Part H covers the cost of managing the project, not grant funds.

Select this link for a full image description.

H.1 - Applicant's Project Management - Design Phase

The Applicant's costs to manage the project during the design phase include:

- Managing the Architect/Engineering contracts for final design
- Managing the permitting and special review process
- Coordinating with other agencies

The H.1 factor is not applicable when engineering services are not required.

Recommended Application: Applicant's Project Management - Design Phase

To apply the H.1 factor, select the box under each work type to which the factor is to be applied.

A value of 1% has been established for this factor. If you do not check a box, the factor will be set to 0.

H.2 - A/E Design Contract Costs

This factor covers the cost of basic design and inspection services normally performed by an Architect/Engineering firm, as well as many additional services not necessarily required with every construction project. Part H.2 is not applicable when design, construction inspection, or other basic services are not required.

The basic services consist of:

- Preliminary engineering analysis
- Preliminary design
- Final design
    - Includes preparation of contract requirements, technical specifications, and construction drawings/sketches
- Construction inspection

A construction inspection may be procured as a stand-alone service for projects that do not require design or formal bid documents.

Select this link for a full image description.

Architect/Engineering Cost Curves

The engineering service curves found in the *PA Guide*, FEMA 322, June 2007, are used to estimate the cost of basic engineering services as a percentage of the estimated construction cost. One of two curves, *Curve A* or *Curve B*, may be used to determine the appropriate percentage.

Curve A - Above Average Complexity

Curve A applies to projects with above-average complexity and non-standard design.

Examples:

- Airports with extensive terminal facilities
- Water, wastewater, and industrial waste treatment plants
- Hospitals, schools, and office buildings
- Power plants
- Large dams and complicated small dams
- Highway and railway tunnels
- Pumping stations
- Incinerators
- Complicated waterfront and marine terminal facilities

Curve B - Average Complexity

Curve B applies to projects with average complexity and standard design.

Examples:

- Industrial buildings, warehouses, garages, hangars, and comparable structures
- Bridges and other structures of conventional design
- Simple waterfront facilities
- Roads and streets
- Conventional levees, floodwalls, and retaining walls
- Small dams
- Storm sewers and drains
- Sanitary sewers
- Water distribution lines
- Irrigation works, except pumping plants
- Airports, except as classified for Curve A

Basic Construction Inspection Services

When the work requires only basic construction inspection services, a fee that does not exceed 3% of construction costs should be used to cover the following items:

- Review of bids
- Work site inspection visits
- Checking and approval of material samples
- Review of shop drawings and change orders
- Review contractors request for payment
- Acting as the applicant's representative
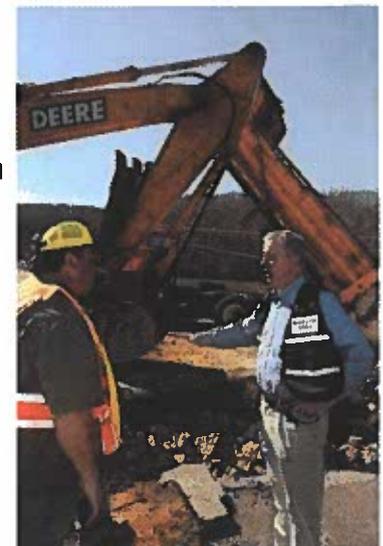
Special Services

In addition to the basic services, the following special services may be required and are not usually included in the fee for basic engineering services. These services should be specifically described and justified in Part A, and the cost estimated, before the services are included in the Cost Estimating Format.

Examples:

- Engineering surveys
- Soil investigations
- Resident engineer services
- Feasibility studies

Tip: When these costs are added in part a, they should not have irrelevant factors from parts B-H applied to them. A good technique is to create an "other special services" in the CEF fact sheet-type of work. That will allow those costs to be separated from the factors applied to construction costs.
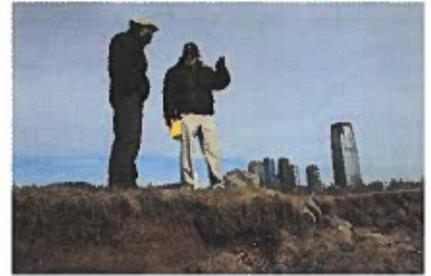
Recommended Application: Architect/Engineering Design Contract Costs

You must select the appropriate project complexity curve and check the box for that curve on the spreadsheet.

The spreadsheet automatically calculates the percentage to be applied. If you do not check a box, the factor is set to 0.

H.3 - Project Management - Construction Phase

Project management costs during the construction phase are estimated using a table and include:

- Quality assurance and management of additional testing during construction
- Advertising and awarding the construction contract
- Decisions on construction problems and requests for information
- Management of change orders for on-site construction conditions and design errors
- Omissions and unforeseen problems, such as differing site conditions and hidden damage

H.3 Project Management - Construction Phase										
		6.0%		6.0%		6.0%		6.0%		6.0%
	$	-	$	-	$	-	$	-	$	-

Recommended Application: Project Management - Construction Phase

To apply the H.3 factor, select the box under each work type to which the factor is to be applied. The values will be automatically calculated. If you do not check a box, the factor will be set to 0.

H.3 Project Management - Construction Phase										
		6.0%		6.0%		6.0%		6.0%		6.0%
	$	-	$	-	$	-	$	-	$	-

Total Project Summary

The final tab is the Total Project Summary sheet. It merges estimated costs for completed and uncompleted work into a single estimate for the entire project.

Values from the rest of the document should automatically populate the appropriate fields as they are entered in the other sheets. This estimate is used in the

preparation of the Project within Grants Portal.

Exceptions may occur. For example, if the estimate includes a hazard mitigation proposal, the Total Project Summary will include the hazard mitigation estimated cost.

In the case of exceptions, the Program Delivery Manager can find the Total Project Cost for each type of work/facility/programmatic issue as the Total Cost for the appropriate scope of work at the bottom of the Summary of Completed Work and/or Summary of Uncompleted Work sheets.

Select this link for a full image description.

Summary

		Completed	Uncompleted	Total
	Complete Project Total for Completed and Uncompleted Work	$ -	$ -	$ -
PART A	"Base Costs" for Construction Work in Trades	$ -	$ -	$ -
	A.1 Permanent Work	$ -	$ -	$ -
	A.2 Non-Permanent Job Specific Work (CEF Part A)	$ -	$ -	$ -
PART B	General Requirements and General Conditions	$ -	$ -	$ -
	B.1 General Requirements	$ -	$ -	$ -
	B.2 General Conditions	$ -	$ -	$ -
PART C	Construction Cost Contingencies (Design and Construction)	$ -	$ -	$ -
	C.1 Standard Design-Phase Scope Contingencies	$ -	$ -	$ -
	C.2 Facility or Project Constructability	$ -	$ -	$ -
	C.3 Access, Storage, and Staging Contingencies	$ -	$ -	$ -
	C.4 Economies of Scale in New Construction	$ -	$ -	$ -
PART D	General Contractor's Overhead and Profit	$ -	$ -	$ -
	D.1 General Contractor's Home Office Overhead Costs	$ -	$ -	$ -
	D.2 General Contractor's Insurance, Payment, and Performance Bond	$ -	$ -	$ -
	D.3 Contractor's Profit	$ -	$ -	$ -
PART E	Cost Escalation Allowance	$ -	$ -	$ -
PART F	Plan Review and Construction Permit Costs	$ -	$ -	$ -
	F.1 Plan Review Fees	$ -	$ -	$ -
	F.2 Construction Permit Fees	$ -	$ -	$ -
PART G	Applicant's Reserve for Construction	$ -	$ -	$ -
PART H	Applicant's Project Management and Design Costs	$ -	$ -	$ -
	H.1 Applicant's Project Management - Design Phase	$ -	$ -	$ -
	H.2 Architecture & Engineering Design Contract Costs	$ -	$ -	$ -
	H.3 Project Management - Construction Phase	$ -	$ -	$ -

◄ ► ... **CEF Total Project Summary** ⊕

Lesson 3 Summary

This lesson provided a detailed overview of the Cost Estimating Format tool, including the tool's purpose and structure.

The next lesson reviews the course objectives and concludes the course.

Lesson 4 Overview and Objective

This lesson will review the course objectives. Participants will take a Post-Course Assessment at its conclusion.
At the end of this lesson, participants will be able to summarize the content of the course.

Course Objectives

In this course, you learned how to:

- Differentiate between actual costs for work completed and estimated costs for work to be completed
- Identify the tools used by the Applicant agent for organizing documents into cost summary sheets for labor, equipment, materials, and/or contracts
- Describe the Cost Estimating Format process and the structure of cost estimating in the FEMA Public Assistance program.

Lesson 1 Objective

This lesson provided a general overview of the methodology and processes FEMA uses to develop cost estimates and validate actual costs. This lesson also underscored that an approved, eligible scope of work is required in order to develop cost estimates.

In Lesson 1, you learned how to

- Describe the Cost Estimating Format process and the structure of cost estimating in the FEMA Public Assistance program

Lesson 2 Objective

This lesson provided an overview of FEMA's process for developing cost estimates.

In Lesson 2, you learned how to:

- Describe the FEMA cost estimating process

Lesson 3 Objectives

This lesson provided a detailed overview of the Cost Estimating Format tool, including the tool's purpose and structure.

In Lesson 3, you learned how to:

- Describe the purpose of the Cost Estimating Format tool
- Describe parts A-H of the Cost Estimating Format spreadsheet

Course Summary

This course provided you with an overview of costing and the Cost Estimating Format. State, Local, Tribal, and Territorial Applicants and Recipients should now be able to understand all aspects of costing and the Cost Estimating Format.