

## Mitigation of City-Owned Non-Ductile Concrete Buildings – Cost Estimate

### Detailed Cost Estimate

	Position Title	Principal Resilience Analyst (PM)	Principal Engineer	Consultant Fees			
	Code	1824	5212				
	Direct Cost Rate	\$ 66.34	\$ 102.24				
	Direct Cost Rate + Benefits (1.41 multiplier)	\$ 93.54	\$ 144.16				
Item	Item Name				Hours	Unit Cost	Total Cost
1	Pre-award costs	40			40	\$ 93.54	\$ 3,742
2	Building selection	10	15		25	\$ 123.91	\$ 3,098
3	Contractor selection	40	20		60	\$ 110.42	\$ 6,625
4	Comparison evaluations	40	40		80	\$ 118.85	\$ 9,508
5	Initial screening form	40	20	\$ 16,000.00	60	\$ 110.42	\$ 22,625
6	Evaluation form	40	20	\$ 16,000.00	60	\$ 110.42	\$ 22,625
7	ATC 78 Analysis	40	20	\$ 250,000.00	60	\$ 110.42	\$ 256,625
8	Evaluation of results	40	40	\$ 10,500.00	80	\$ 118.85	\$ 20,008
9	Reporting	60	20	\$ 10,500.00	80	\$ 106.20	\$ 18,996
10	Project management and oversight	150	50		200	\$ 106.20	\$ 21,240
11	Project closeout	80			80	\$ 93.54	\$ 7,483
	<b>Total Hours</b>	<b>580</b>	<b>245</b>	<b>\$ 303,000.00</b>	<b>825</b>		<b>\$ 392,576</b>

### Cost Estimate Narrative

#### Staff roles

The staff listed on the detailed cost estimate represent an interdepartmental team that will be guiding and managing the work of this project and overseeing the selected consultants. Below are a description of the staff and their hourly rates.

- Principal Resilience Analyst from the Office of Resilience and Capital Planning is serving as the Project Manager (PM) for this effort. She will manage the FEMA contract and oversee the consultant. She will also ensure that this pilot program for the City is developed in such a way as to ensure that it can be implemented as part of a wider program to address the risk of all the publicly- and privately- owned older concrete buildings in San Francisco. This Office is the lead agency implementing San Francisco's Earthquake Safety Implementation Program (ESIP), of which the mitigation of non-ductile concrete buildings is a critical component. She will also ensure coordination between this project and other ESIP tasks. The hourly rate for this staff with benefits is \$93.54.
- Principal Engineer from the Department of Public Works will play a major role in selecting the 12 buildings that will be analyzed as part of this pilot program, will perform any ASCE 41 or equivalent evaluations not already completed for the selected buildings, and will work with the PM and the consultant to compare the results of the ASCE 41 and ATC 78 evaluations. This person will also work with the PM to develop the initial

screening and evaluation forms and assist with reporting and contractor oversight and coordination. The hourly rate for this staff with benefits is \$144.16.

### **Description of cost items**

1. Pre-award costs. The Principal Resilience Analyst was responsible for subapplication development, including developing cost estimates, scope of work, and developing a benefits cost narrative. Approximately 40 hours of time.  
Task total: \$3,742
2. Building selection. Approximately 15 hours of time for Principal Engineer and 10 hours for PM to evaluate San Francisco’s city-owned concrete building inventory and select twelve representative building types and ages for analysis.  
Task total: \$3,098
3. Contractor selection. Approximately 40 hours for PM and 20 hours for Principal Engineer to define contractor scope, select contractor and enter into agreement.  
Task total: \$6,625
4. Comparison evaluations. Approximately 40 hours each for PM and Principal Engineer to complete any needed ASCE 41 evaluations for selected buildings that have not yet been evaluated.  
Task total: \$9,508
5. Initial screening form. Approximately 40 hours for PM and 20 hours for Principal Engineer to work with consultant to develop and pilot initial screening form for older concrete buildings that will assist with validating the building inventory. We anticipate consultant fees will be \$16,000 for this task. This form will be refined and used for the wider concrete building mitigation program.  
Task total: \$22,625
6. Evaluation forms. Approximately 40 hours for PM and 20 hours for Principal Engineer to work with consultant to develop and pilot building evaluation forms for data input and analysis using ATC 78. We anticipate consultant fees will be \$16,000 for this task. These forms will be refined and used for the wider concrete building mitigation program.  
Task total: \$22,625
7. ATC 78 Analysis. We expect that the evaluation of approximately twelve city-owned concrete buildings will cost about \$250,000 in consultant fees, or approximately \$21,000 per study building to be completed over approximately six months. This is for study and program evaluation work only, and does not include any building-specific

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physical retrofit work. The PM and Principal Engineer will meet regularly with the consultant, provide any necessary materials, plans or background information and oversee their work.

Task total: \$256,625

8. Evaluation of results. Approximately 40 hours each for the PM and Principal Engineer work with the consultant after the ATC 78 evaluations are completed to compare the results of the ASCE 41 and ATC 78 results for each building and establish a correlation for the ATC 78 risk rating to ASCE 41 evaluation results. This is needed so that future buildings that have already completed an ASCE 41 analysis of their buildings will not have to complete an additional ATC 78 evaluation. We estimate consultant fees will be \$10,500 for this task.

Task total: \$20,008

9. Reporting. Approximately 60 hours for PM and 20 hours for Principal Engineer to work with consultant to develop final reports and document the outcomes of this project and recommended next steps for development of a broader mitigation program for publicly and privately owned buildings. We estimate consultant fees will be \$10,500 for this task.

Task total: \$18,996

10. Project management and oversight. Approximately 150 hours for PM and 50 hours for Principal Engineer over 15 months of the project to manage the project, oversee the consultant, review materials, conduct meetings, report results to other city stakeholders, and manage the grant.

Task total: \$21,240

11. Project closeout. Approximately 80 hours over two weeks for PM to closeout the grant.

Task total: \$7,483

Total project cost: \$392,576