National Flood Insurance Program (NFIP)
Substantial Damage Determinations
Part Two: Substantial Damage Training (SDE) Training

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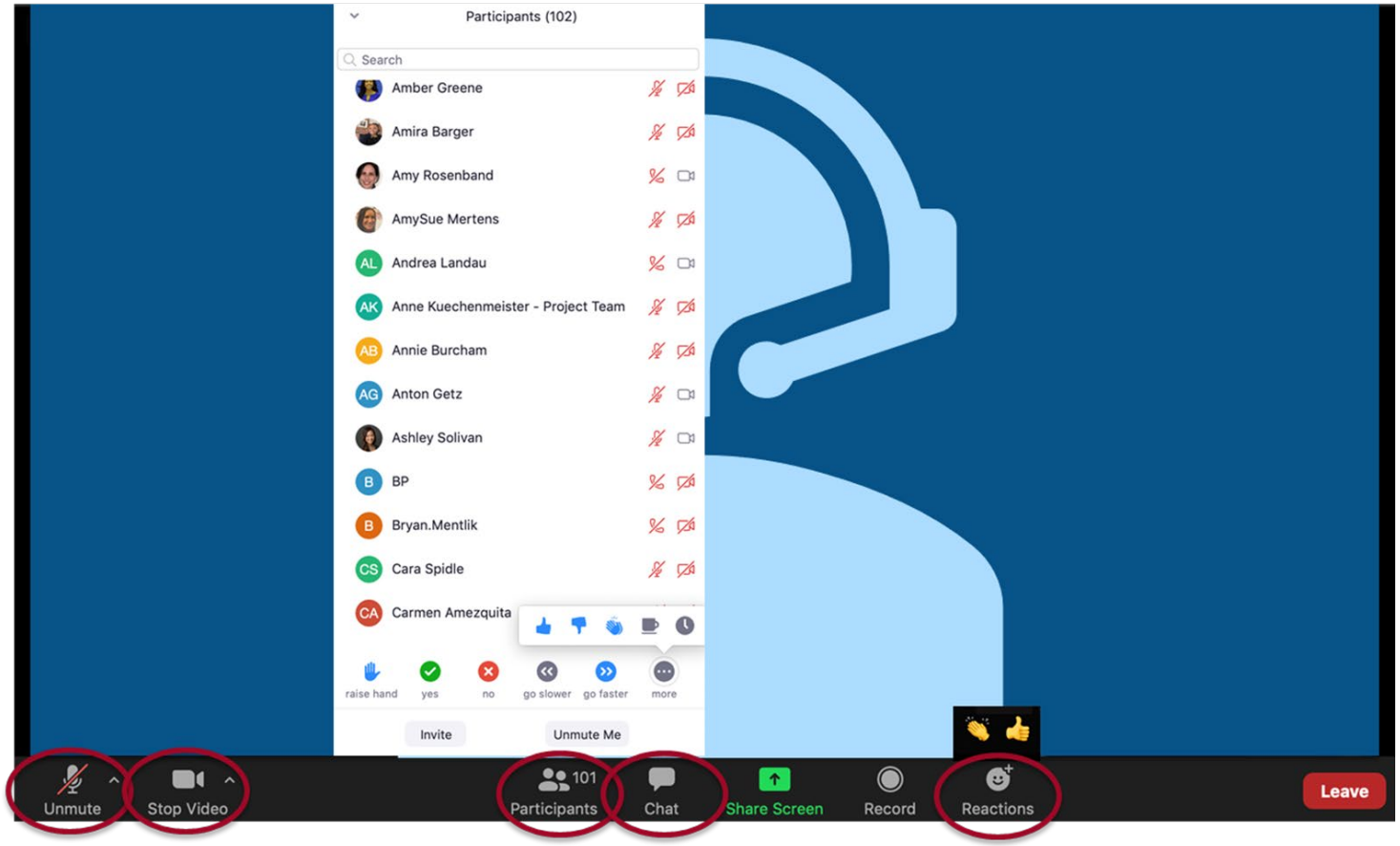
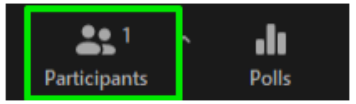
Zoom Information

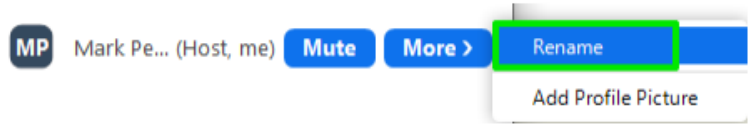


How to Change your Name in Zoom

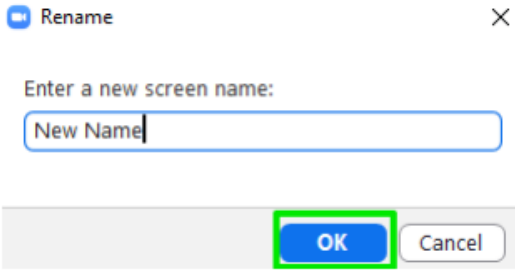
1.) To change your name after entering a Zoom meeting, click on the **"Participants"** button at the top of the Zoom window.



2.) Next, hover your mouse over your name in the "Participants" list on the right side of the Zoom window. Click on **"Rename"**.



3.) Enter the name you'd like to appear in the Zoom meeting and click on **"OK"**.



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Webinar Information

- This webinar is NOT being recorded.
- Attendees are muted. Attendees can submit content-related questions for the presenter through the Chat Box. We will unmute all attendees in the question-and-answer session.
- Continuing Education Credit (CEC) will be offered toward Certified Floodplain Manager (CFM) accreditation. 2.0 CEC is available for this webinar – must participate in all learning checks for 2 credits.
- 0.2 administrative NJ UCC CEU's are approved for this class
- To obtain credit, attendees must:
  - Attend the webinar using the webinar link provided.
  - Call-in only participants are not eligible for credits.
  - Attend the full webinar.
  - Successfully complete & submit the completion form at the end of the presentation.

Today's Webinar

- Substantial Damage Estimator (SDE)
- Inspections
- Data Entry and Damage Percentages
- Reports
- Question and Answer Session

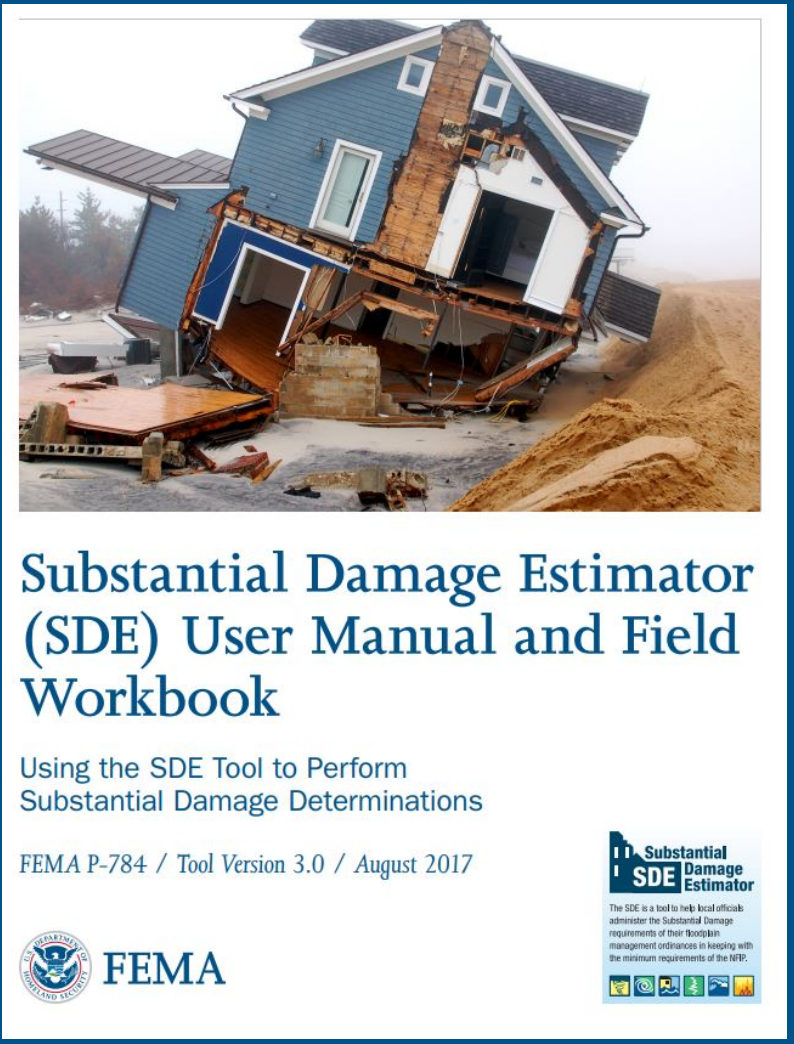
What is Substantial Damage (SD)/Substantial Improvement (SI)?

- "**Substantial damage**" means damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.

- "**Substantial improvement**" means any reconstruction, rehabilitation, addition or other improvement to a structure, the total cost of which equals or exceeds 50 percent of the market value of the structure before the start of construction of the improvement.

Substantial Damage Estimator

- Tool to assist State and local officials in estimating Substantial Damage for residential and non-residential structures in accordance with the requirements of the NFIP.
- The tool can be used to assess flood, wind, wildfire, seismic, and other forms of damage.
- It helps communities provide timely Substantial Damage determinations so that reconstruction can begin quickly following a disaster.
- The SDE tool may be used in conjunction with an industry accepted, residential construction cost-estimating guide.

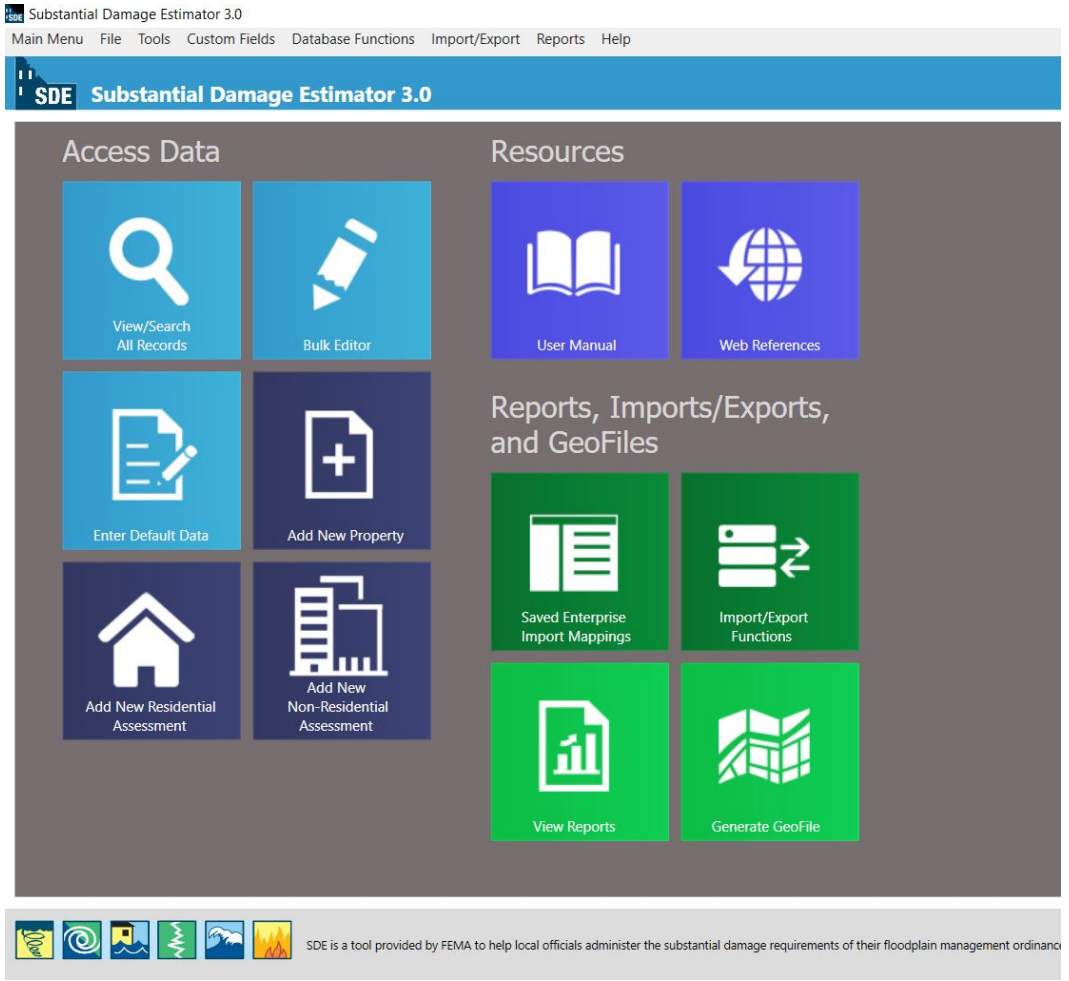


SDE – Target Users

- Local officials with responsibility for community adherence to their NFIP-compliant floodplain management ordinance.
- State officials that provide guidance and technical assistance to communities on the implementation of the NFIP regulations.
- Other parties – contractors, lending agencies, and potential structure purchasers, to assess the overall percent structure damage and determine a very general estimate of repair costs.

SDE Tool Objectives

- Identify data needed for determinations
- Organize data in a formal manner
- Database of inventoried structures
- Attachments of photos and files
- Report summarize data collected
- Documented process for NFIP compliance



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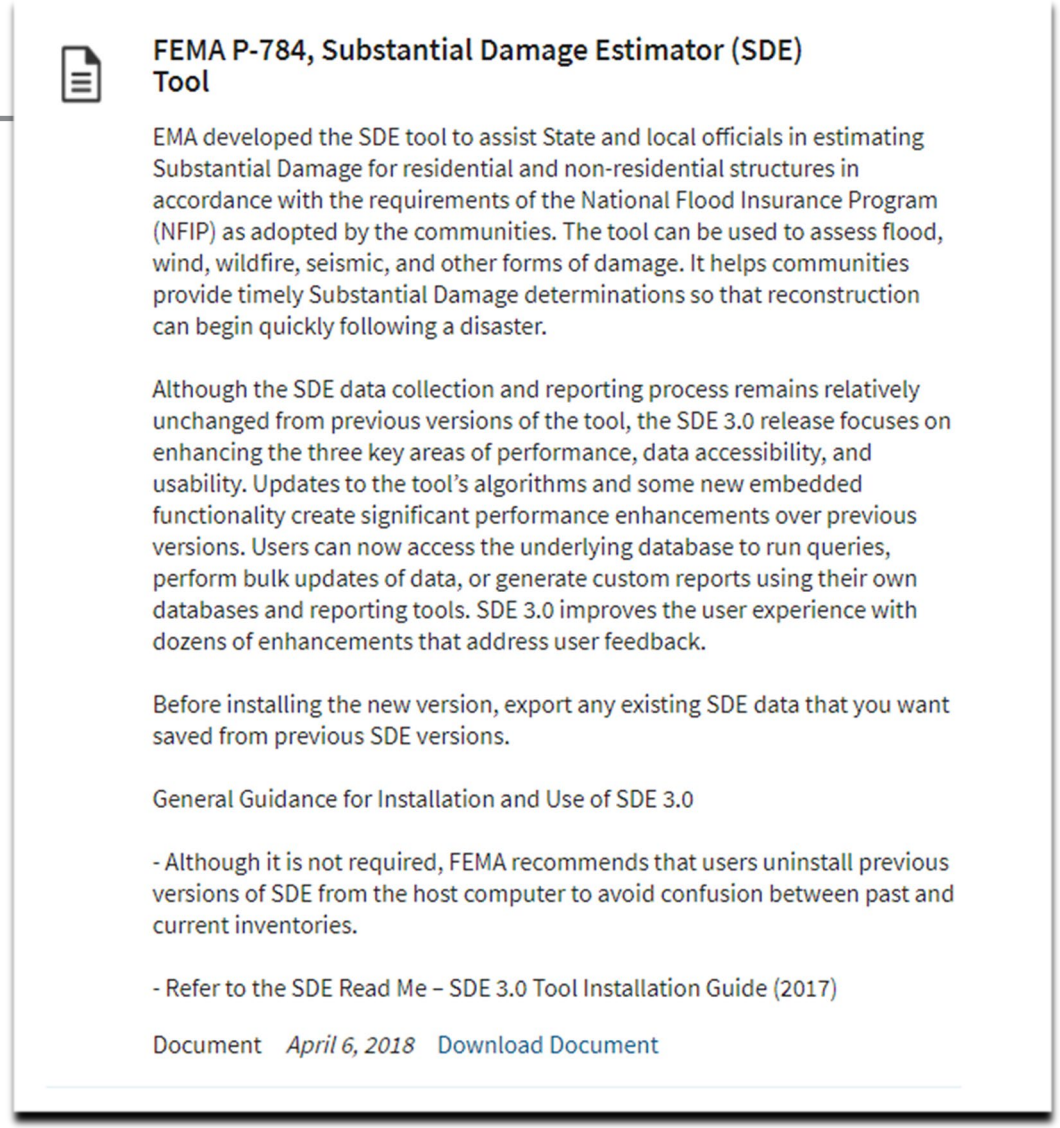
Installation

- The SDE tool can be installed from a zip (or compressed) file available on the FEMA website. The installation from the website download includes all the files required to install and run the SDE 3.0 Tool.
- Installation steps in the SDE User Manuel and Field Worksheet
- If you have questions, contact the FEMA Building Science at FEMA-BuildingScienceHelp@fema.dhs.gov
- or 866-927-2104



FEMA P-784, Substantial Damage Estimator (SDE) Tool

EMA developed the SDE tool to assist State and local officials in estimating Substantial Damage for residential and non-residential structures in accordance with the requirements of the National Flood Insurance Program (NFIP) as adopted by the communities. The tool can be used to assess flood, wind, wildfire, seismic, and other forms of damage. It helps communities provide timely Substantial Damage determinations so that reconstruction can begin quickly following a disaster.

Although the SDE data collection and reporting process remains relatively unchanged from previous versions of the tool, the SDE 3.0 release focuses on enhancing the three key areas of performance, data accessibility, and usability. Updates to the tool's algorithms and some new embedded functionality create significant performance enhancements over previous versions. Users can now access the underlying database to run queries, perform bulk updates of data, or generate custom reports using their own databases and reporting tools. SDE 3.0 improves the user experience with dozens of enhancements that address user feedback.

Before installing the new version, export any existing SDE data that you want saved from previous SDE versions.

General Guidance for Installation and Use of SDE 3.0

- Although it is not required, FEMA recommends that users uninstall previous versions of SDE from the host computer to avoid confusion between past and current inventories.

- Refer to the SDE Read Me – SDE 3.0 Tool Installation Guide (2017)

Document *April 6, 2018* Download Document

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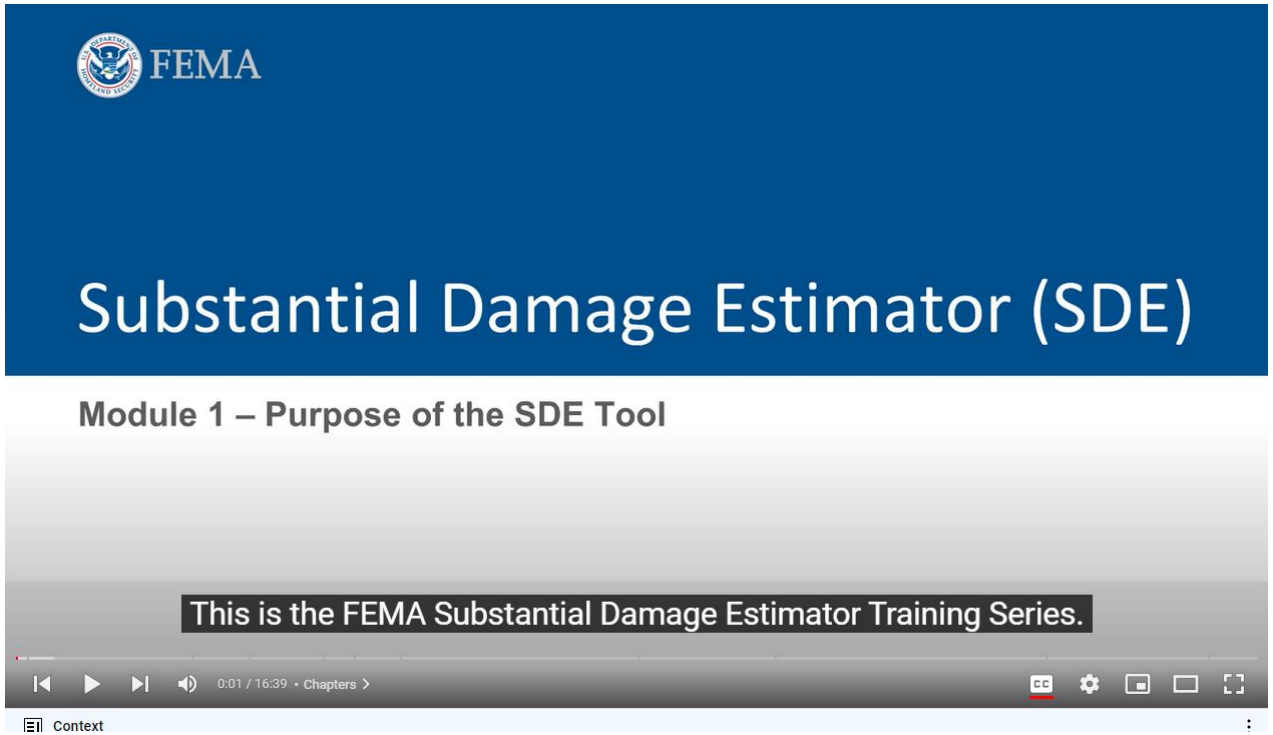
Resources - YouTube Videos



FEMA Building Science

FEMA-BuildingScienceHelp@fema.dhs.gov

866-927-2104

SDE Tool

SDE is not a silver bullet

SDE output data will only be as good as the information and field data entered into the tool

SDE Inspections

SDE

Inspections

Understand number of structures in the SFHA

Everyone is busy don't spend time inspecting vacant lots or undamaged structures

Implement data management best practices to track structures

Develop master list of structures or areas that need to be inspected

Determine number of inspectors needed to execute field work

Divide master list among teams of inspectors

Each team should collect data using a local installation of the SDE tool or SDE Forms

SDE Inspections

- The use of two-person inspection teams is strongly encouraged for:
  - Safety issues
  - Completeness of the inspection data
  - Quality of the inspection data
  - Speed of the inspections
  - Reducing the impact of possible distractions
  - Recommend using a Letter of Introduction with a community POC

SDE – Photos

- Take additional photos if there is vegetation obstructing the view of the structure.
- The photos should be clear enough to verify the structure.
- Avoid taking sideways or turned photos
- The intent of the photos is not to show all damage.
- The photos and the GPS coordinates will verify the structure associated with the inspection data.
- There are additional protocols for situations when damage is undetermined.

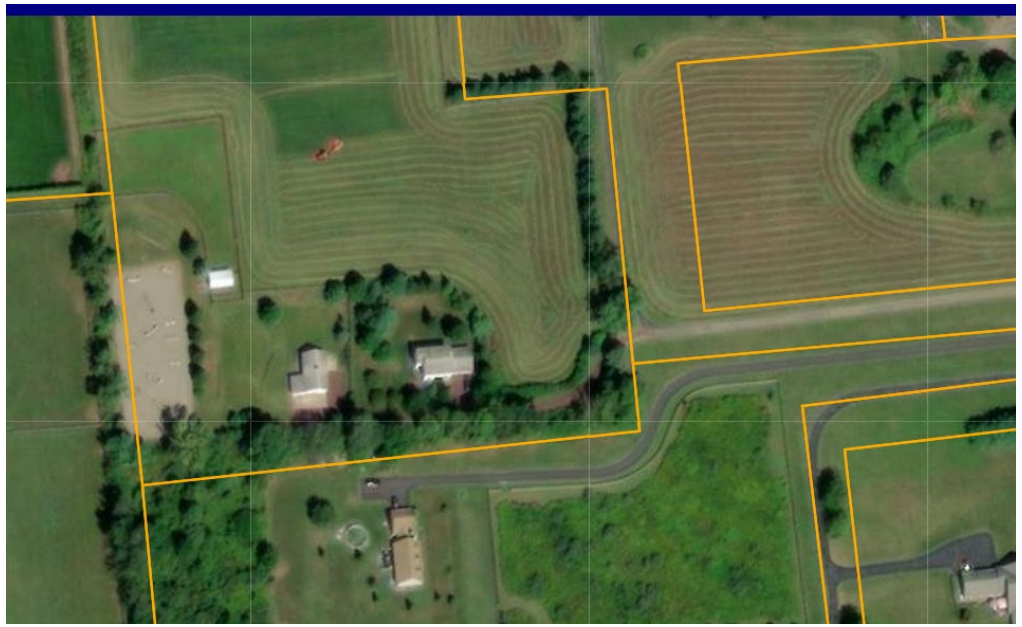
Note that what is visible in person may not be visible in a photo

Create an SDE Assessment

- There are two types of SDE inspection assessment forms within the tool:
  - *Residential* for single family homes, town or row homes, and mobile homes
  - *Non-residential* for everything else, including apartment buildings

SDE – Lots with Multiplate Structures

- If a location or address contains more than one structure, the inspectors should create additional inspection reports using the following identification system:
  - The largest, main or primary structure will include an “A” in the address, such as 100 A Main Street.
  - Other structures will have addresses such as 100 B Main Street, 100 C, 100 D, etc.
- Each structure on the lot must have an:
  - Address with a letter after the number
  - A completed assessment



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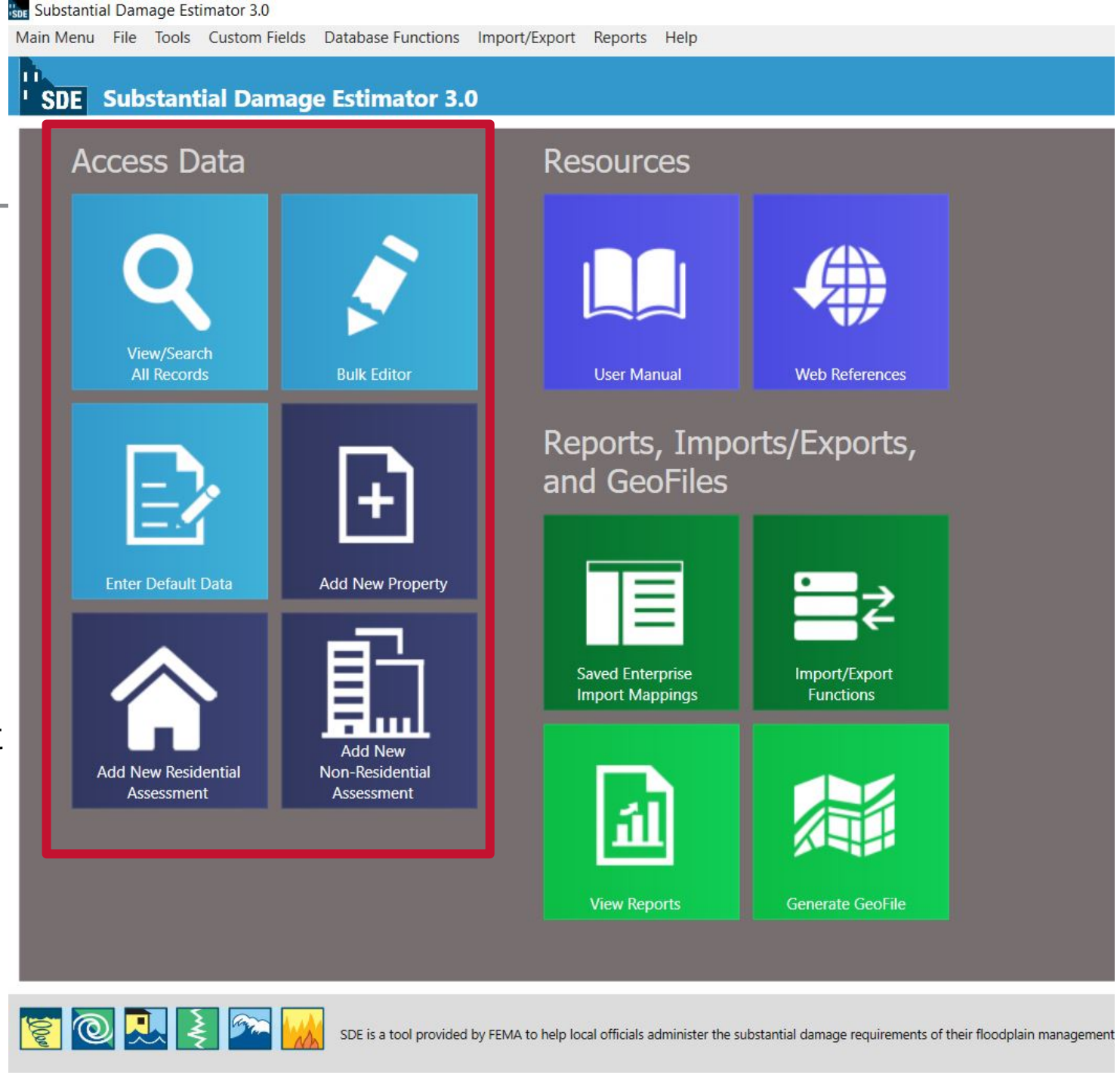
Residential or Non-Residential

SDE Tool

SDE Main Menu

- Access Data
  - View/Search All Records
  - Bulk Editor
  - Enter Default Data
  - Add New Property
  - Add New Residential Assessment
  - Add New Non-Residential Assessment



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SDE Tool

Substantial Damage Estimator 3.0

Main Menu File Tools Custom Fields Database Functions Import/Export Reports Help (Database Name: (Database Name Not Entered))

SDE Substantial Damage Estimator 3.0

Default Data

Check Spelling | Clear All Values | Delete | Save

Address / Structure Information

City: Floodville

State: New Jersey

County/Parish: Bergen

Zip Code: 07010-___

Year of Construction:

Datum:

Cost Information

Base Cost: $100.00

Inspector / Damage Information

Date Damage Occurred: 9/1/2021

Cause of Damage: Flood

Duration of Flood: 2.00 Days

Geographic Adjustment:

Cost Data Date:

Inspector Name: Michelle Staff

Inspector Phone: (111) 111-1111

Assessment Date: 10/13/2021

Cost Data Reference:

NFIP / Community Information

NFIP Community Name: Floodville

NFIP Community ID: 000000

FIRM Panel Number:

FIRM Zone: Make Selection...

Date of FIRM Panel:

Suffix: Make Selection...

Base Flood Elevation

Regulatory Floodway: Make Selection...

Space for Community Specific Information:

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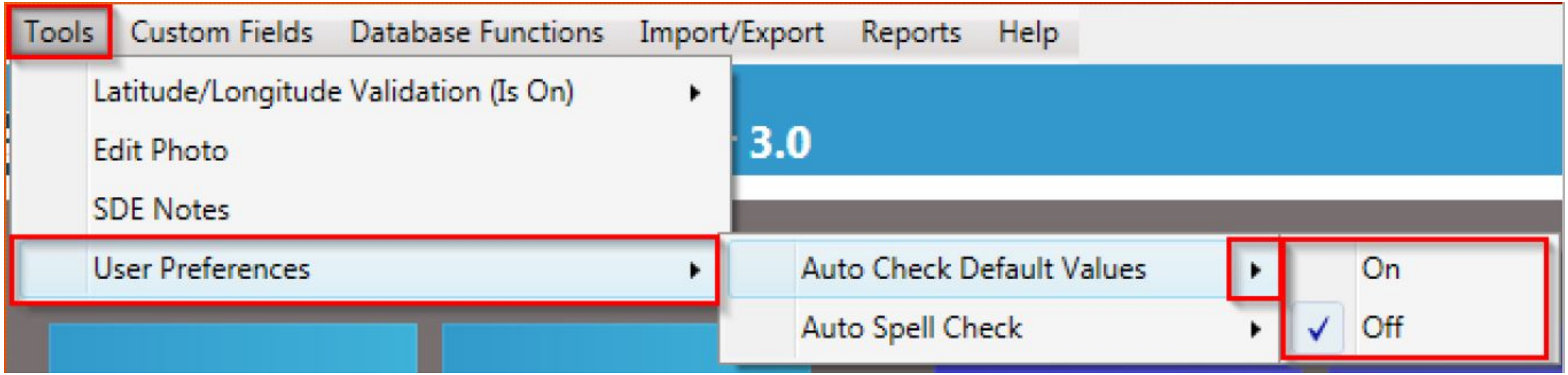
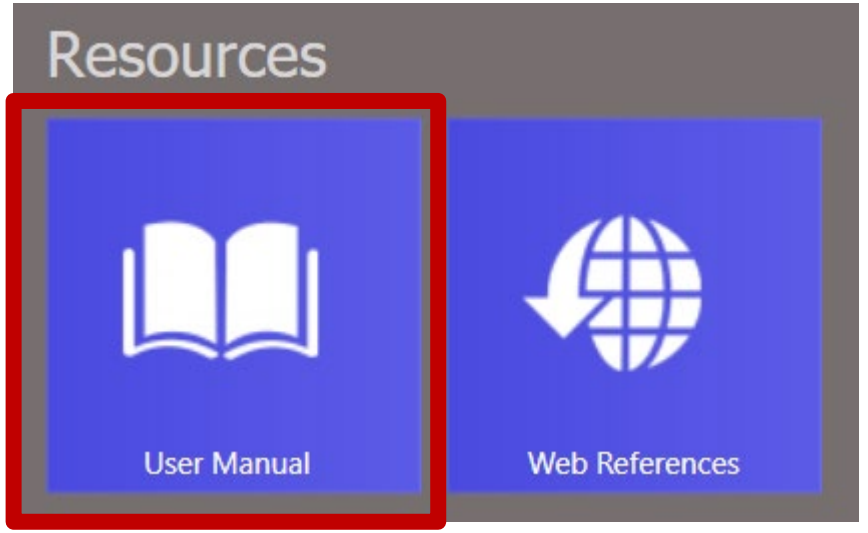

Tools
Custom Fields
Database Functions
Import/Export
Reports
Help
Latitude/Longitude Validation (Is On)
Edit Photo
SDE Notes
User Preferences
3.0
Auto Check Default Values
Auto Spell Check
On
Off

SDE – Import

There are four options available for adding data to the tool:

- Importing SDE data from another SDE database
- Importing non-SDE property data, such as tax information, property lists, or appraisal data from community databases or Excel files, using the function
- Importing latitude and longitude coordinate data
- Importing user settings, such as Default Values, Enterprise Import Settings, or SDE Notes that were previously created in SDE 3.0



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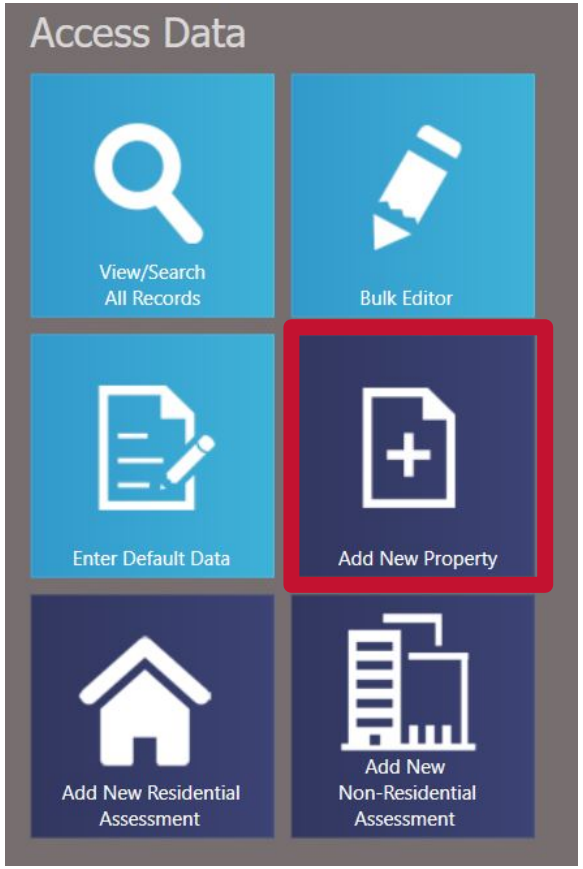
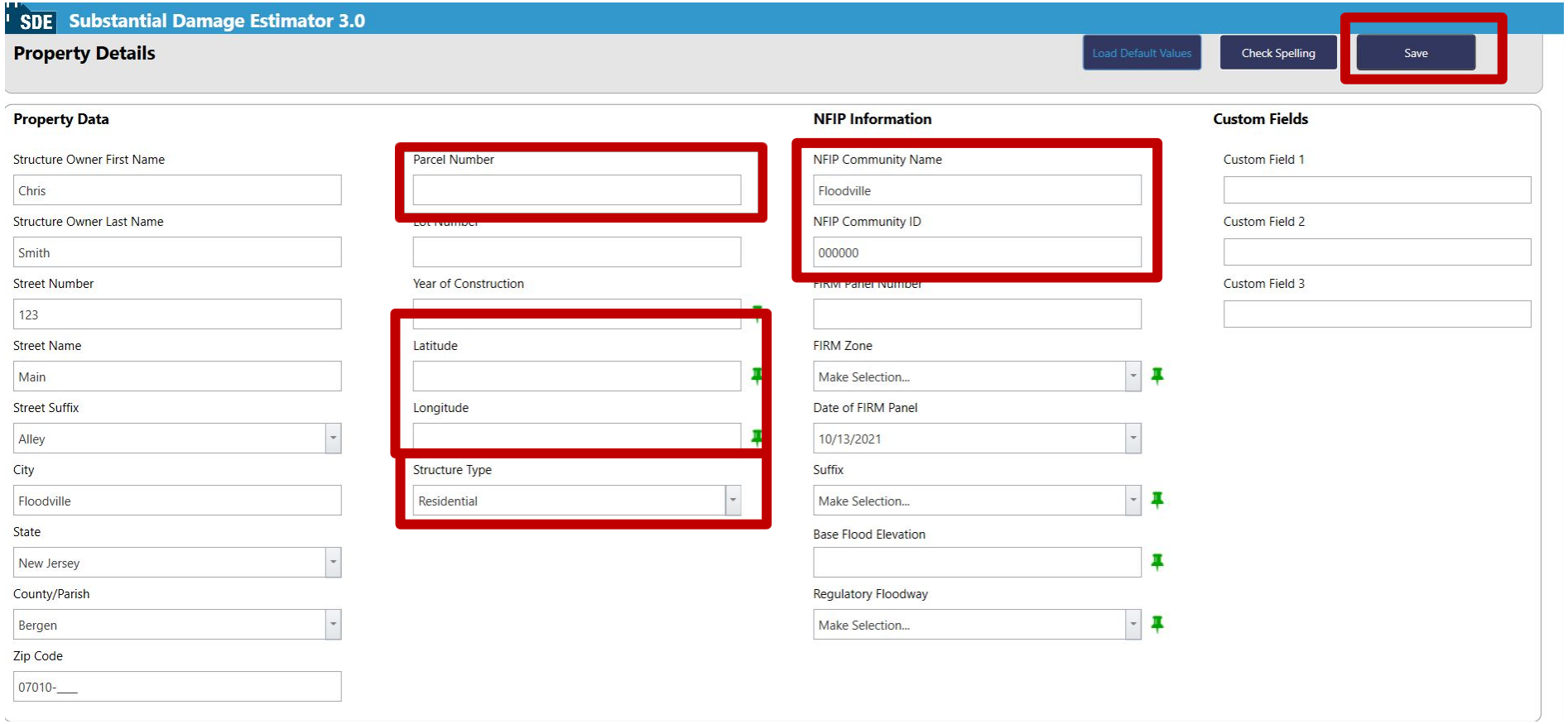
Creating an Assessment – Residential





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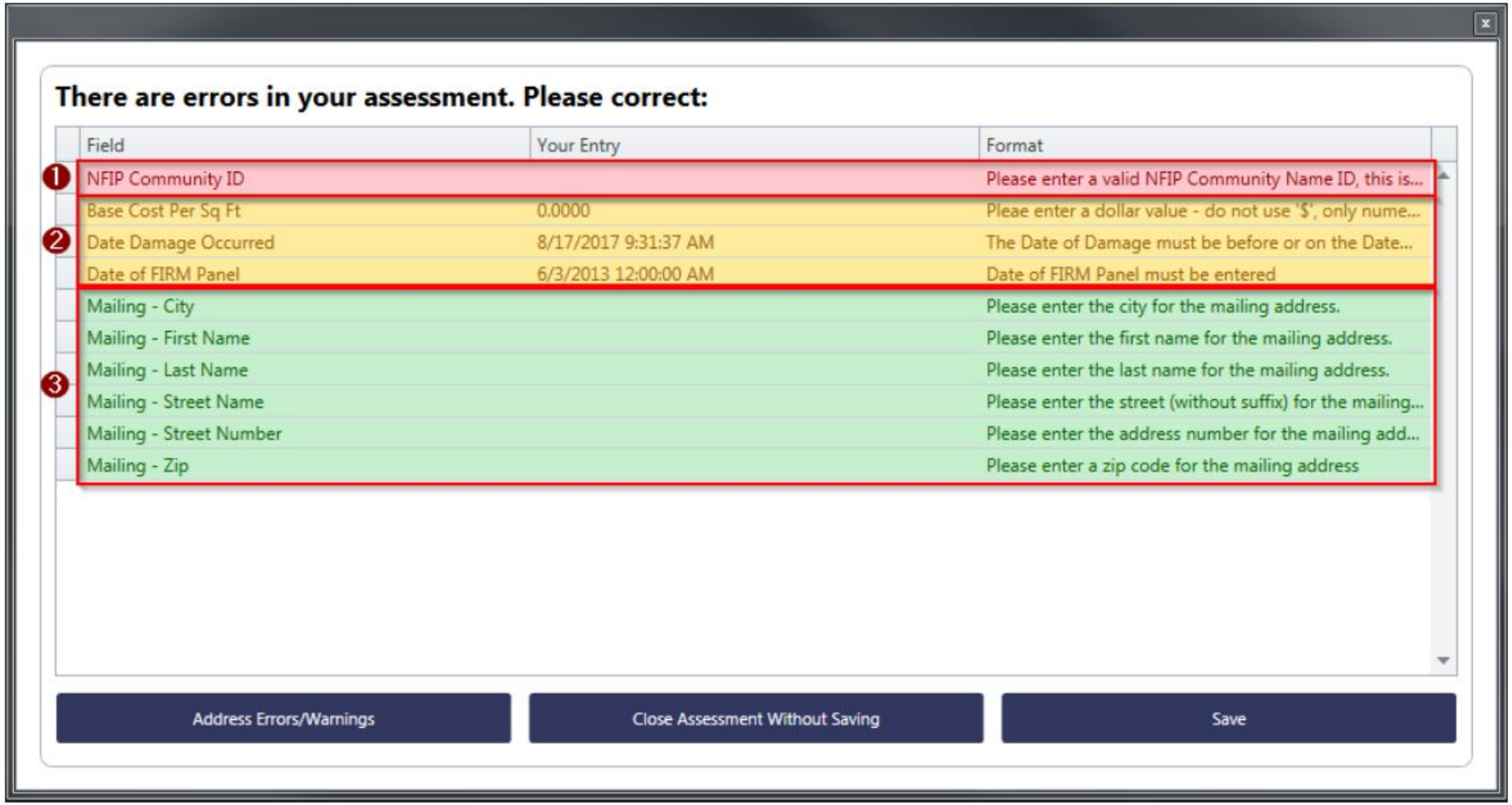
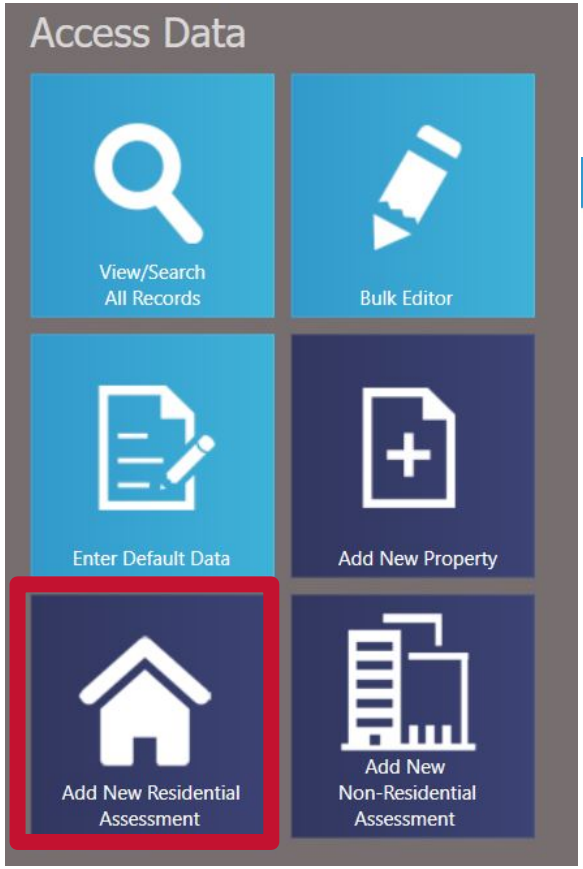
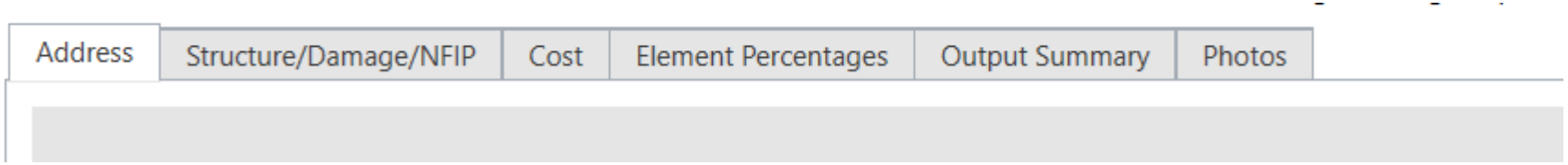
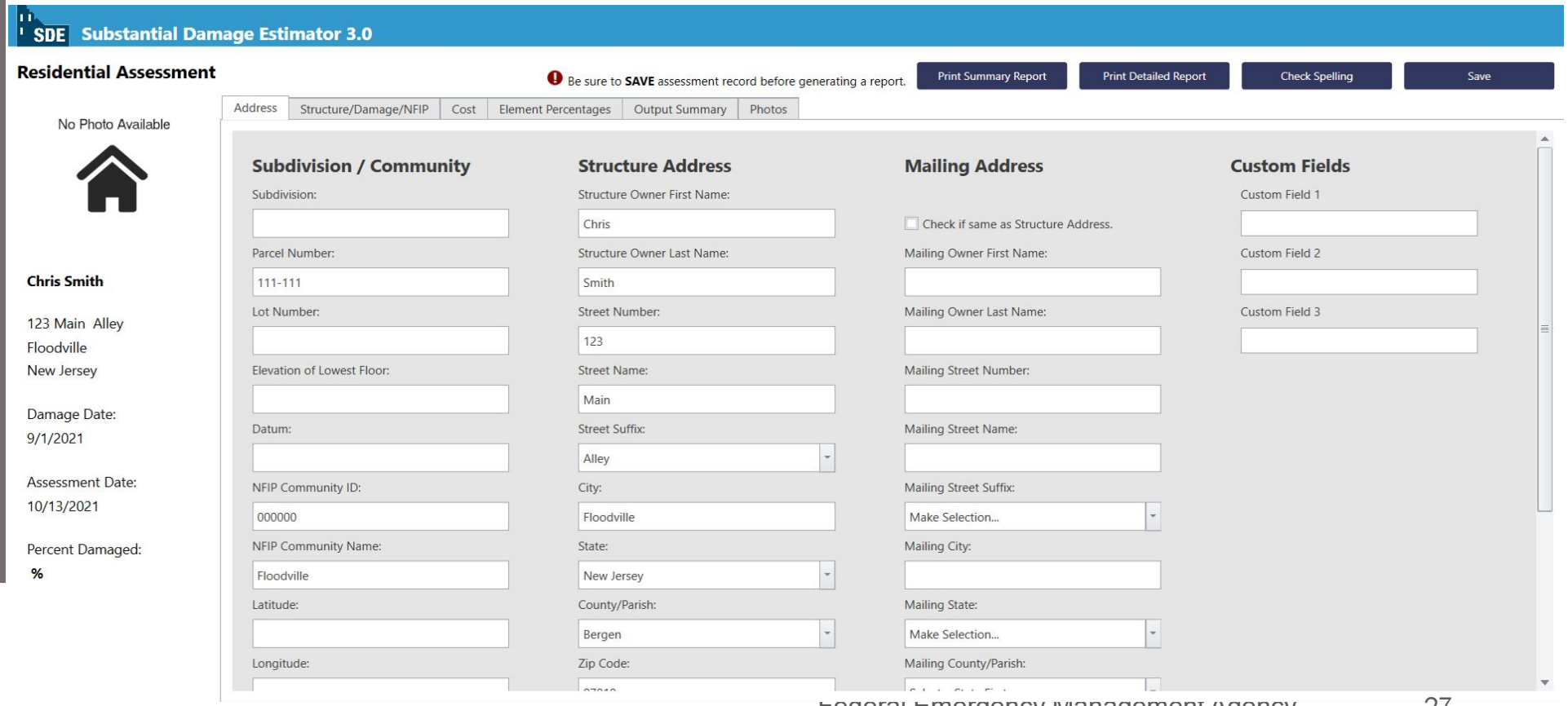
SDE – Error Message



SDE – Residential Assessment







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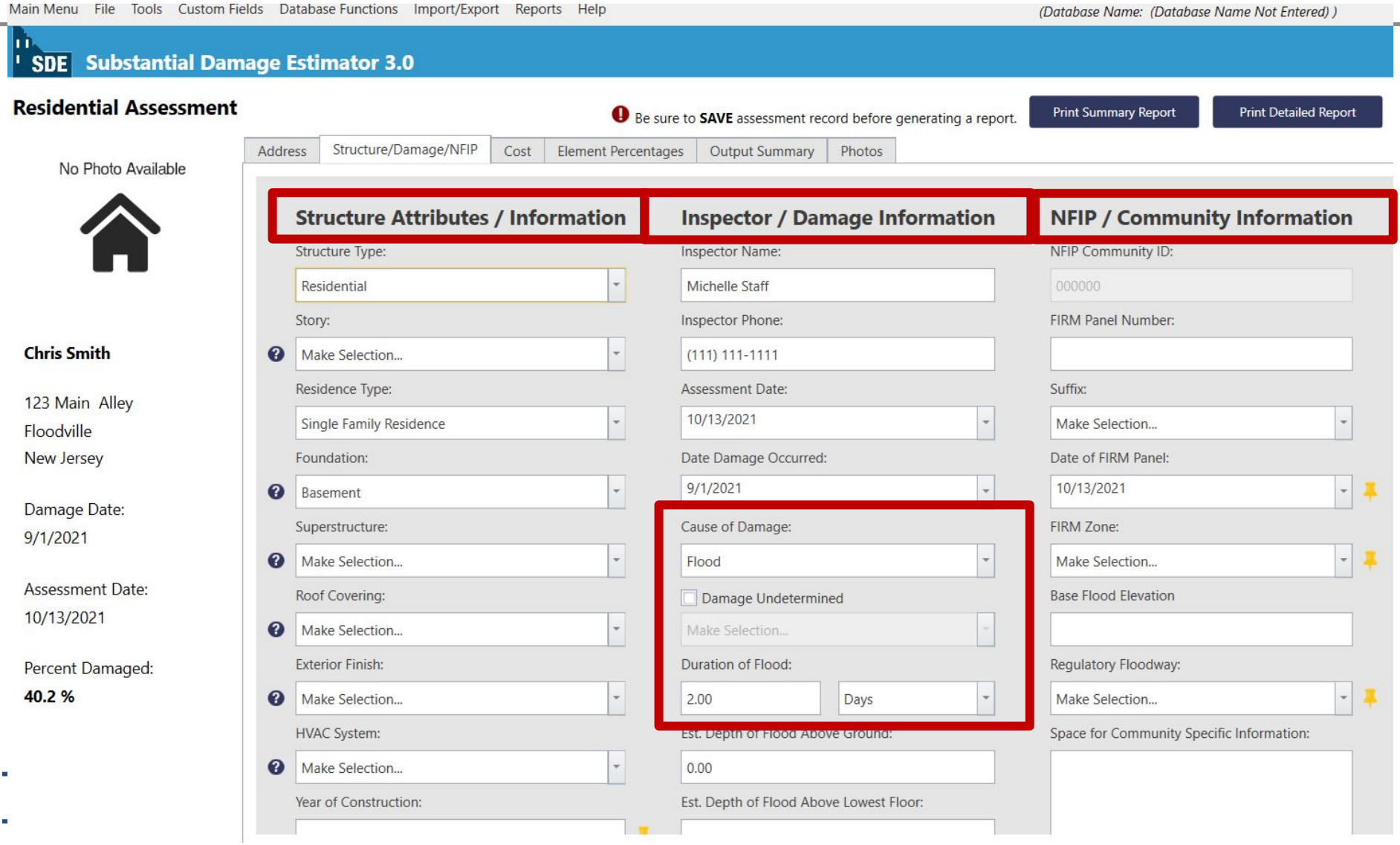
SDE – Residential



SDE – Cost

- Basis for Value of Structure (Computed Actual Cash Value, Adjusted Tax Assessed Value, or Professional Appraisal) and the **value of the structure**
  - Computed Actual Case Value
  - Adjusted Tax Assessed Value
  - Professional Appraisal
- Sources of **base cost data** include:
  - Industry-accepted, residential or non-residential cost-estimating guides
  - Local permit data for new construction, repairs, or remodeling
  - Professional experience by a community official

USER NOTE:

For the purposes of the SDE tool, **ACV** is considered to be the market value of the structure.

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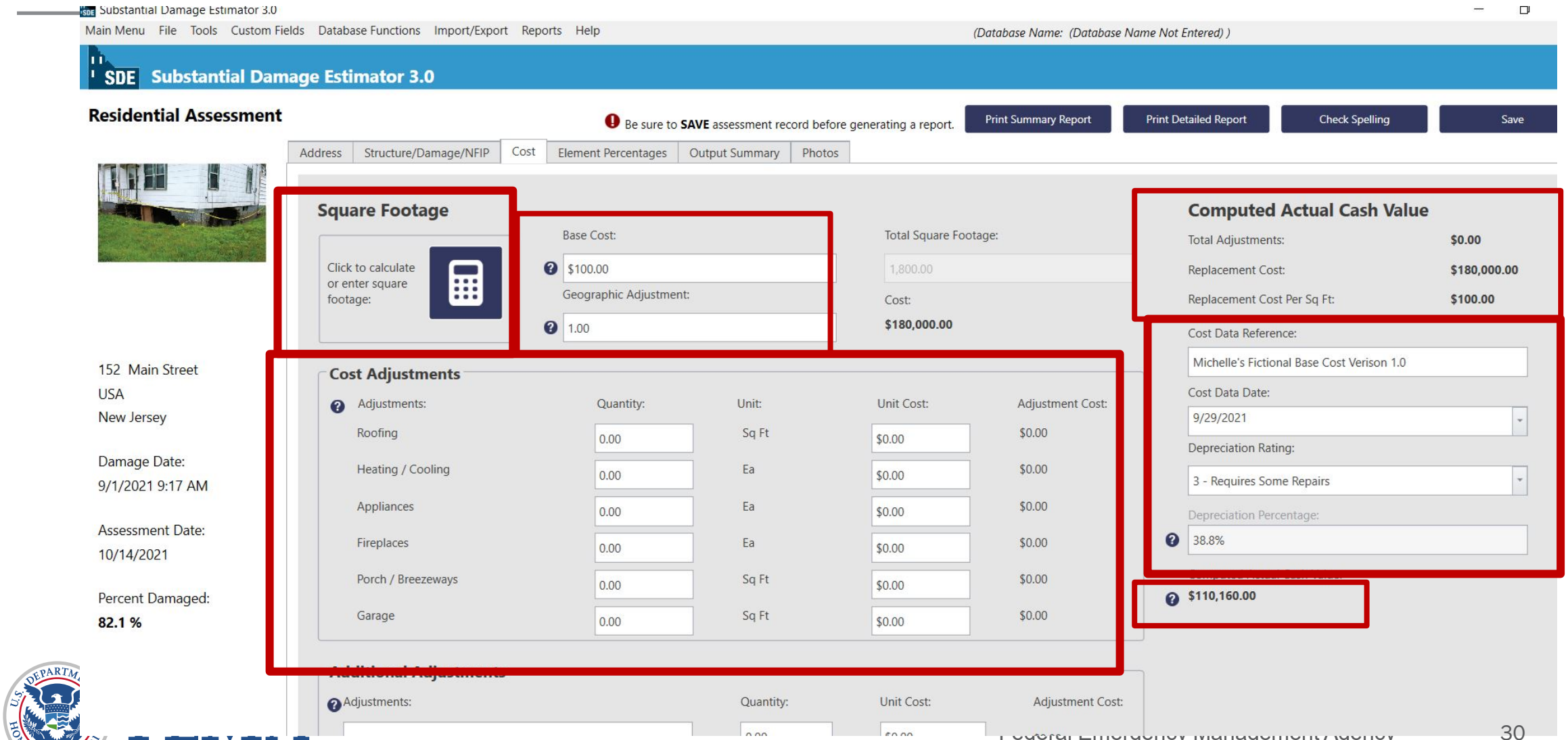
SDE – Cost


Substantial Damage Estimator 3.0
Main Menu File Tools Custom Fields Database Functions Import/Export Reports Help
(Database Name: (Database Name Not Entered))
SDE Substantial Damage Estimator 3.0
Residential Assessment
Be sure to SAVE assessment record before generating a report.
Print Summary Report
Print Detailed Report
Check Spelling
Save
Address
Structure/Damage/NFIP
Cost
Element Percentages
Output Summary
Photos
Square Footage
Click to calculate or enter square footage:
Base Cost:
$100.00
Geographic Adjustment:
1.00
Total Square Footage:
1,800.00
Cost:
$180,000.00
Computed Actual Cash Value
Total Adjustments: $0.00
Replacement Cost: $180,000.00
Replacement Cost Per Sq Ft: $100.00
Cost Data Reference:
Michelle's Fictional Base Cost Verison 1.0
Cost Data Date:
9/29/2021
Depreciation Rating:
3 - Requires Some Repairs
Depreciation Percentage:
38.8%
$110,160.00
Cost Adjustments
Adjustments: Quantity: Unit: Unit Cost: Adjustment Cost:
Roofing 0.00 Sq Ft $0.00 $0.00
Heating / Cooling 0.00 Ea $0.00 $0.00
Appliances 0.00 Ea $0.00 $0.00
Fireplaces 0.00 Ea $0.00 $0.00
Porch / Breezeways 0.00 Sq Ft $0.00 $0.00
Garage 0.00 Sq Ft $0.00 $0.00
Additional Adjustments
Adjustments: Quantity: Unit Cost: Adjustment Cost:
152 Main Street
USA
New Jersey
Damage Date:
9/1/2021 9:17 AM
Assessment Date:
10/14/2021
Percent Damaged:
82.1 %

SDE – Cost Tab

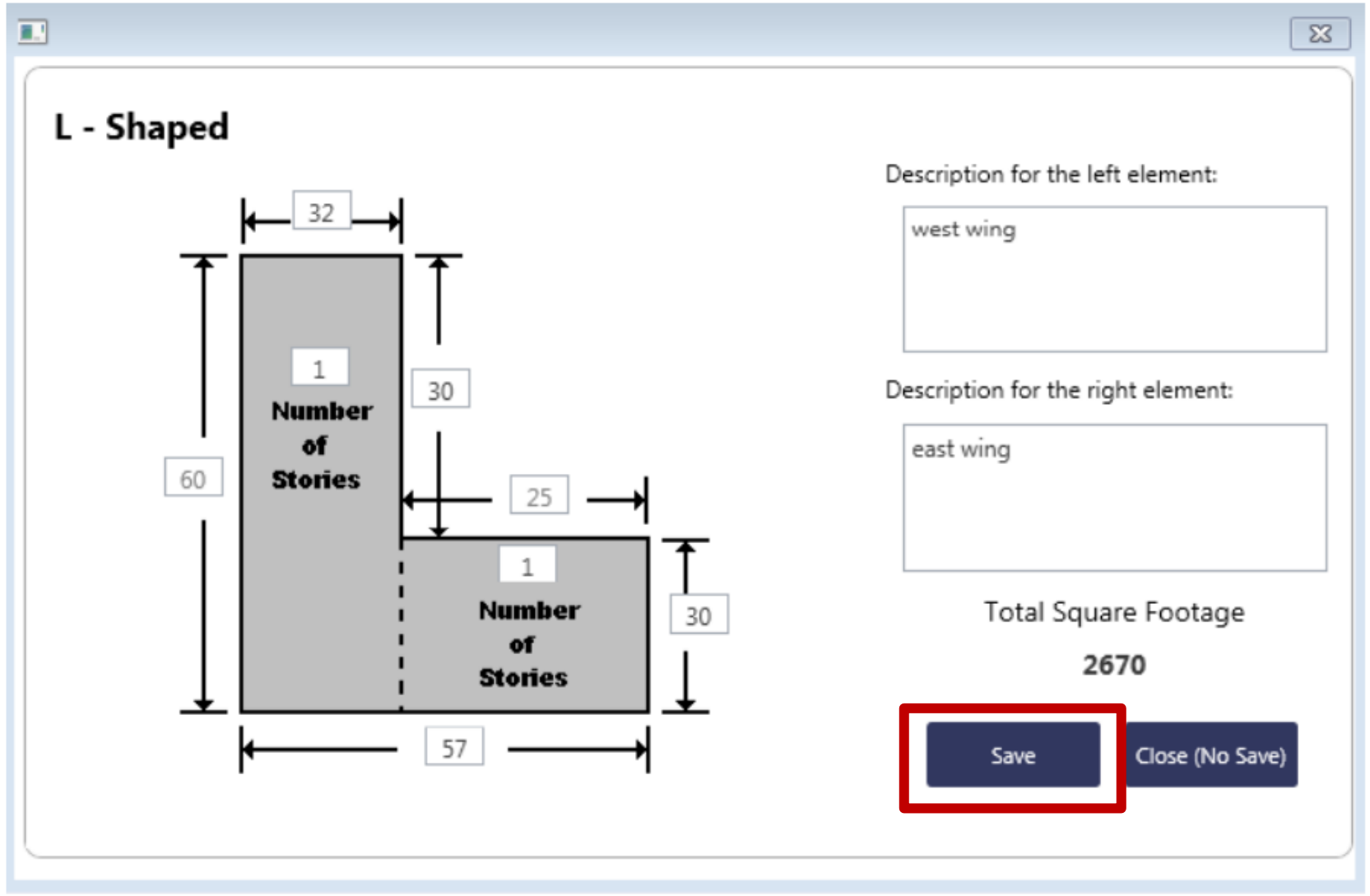


Figure 3-36: Data entry window for the Square Foot Calculator

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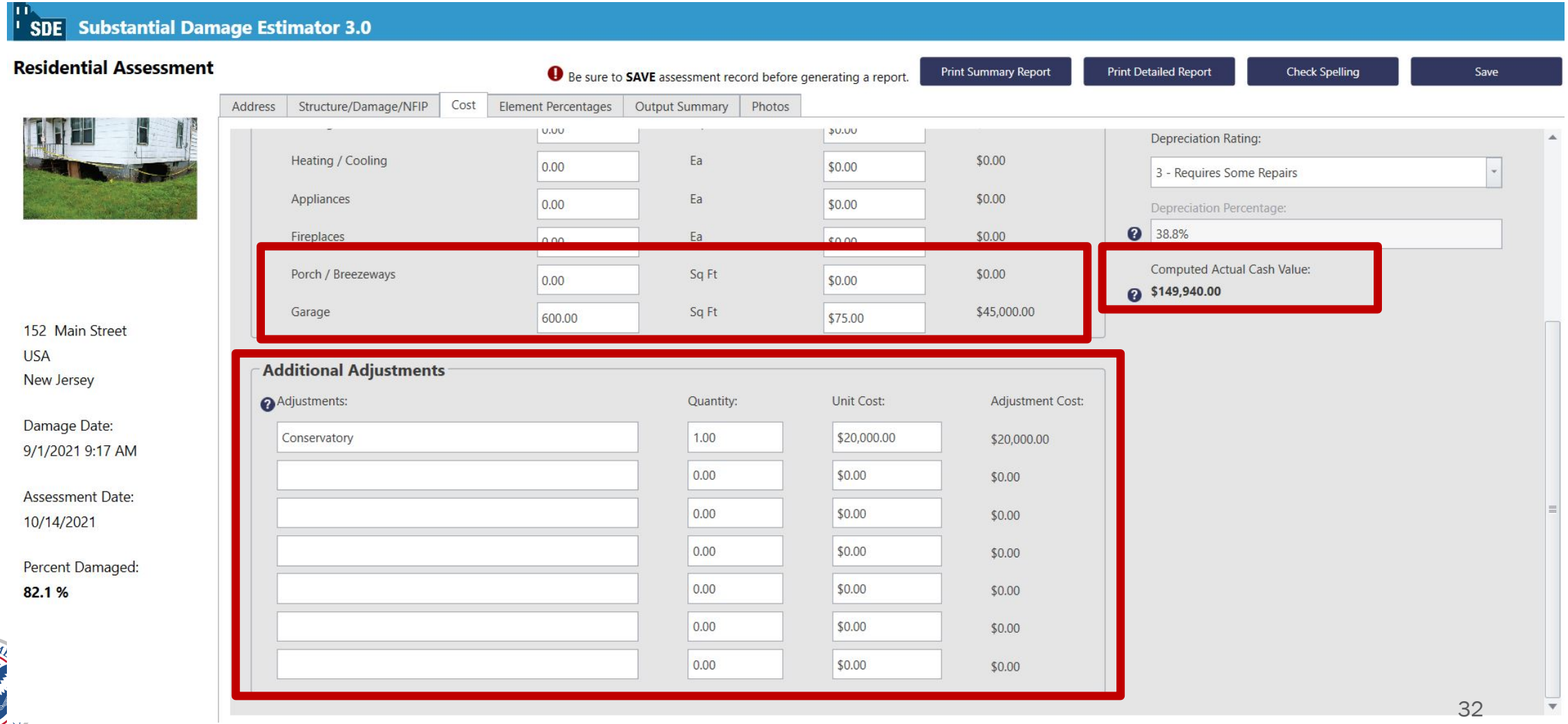
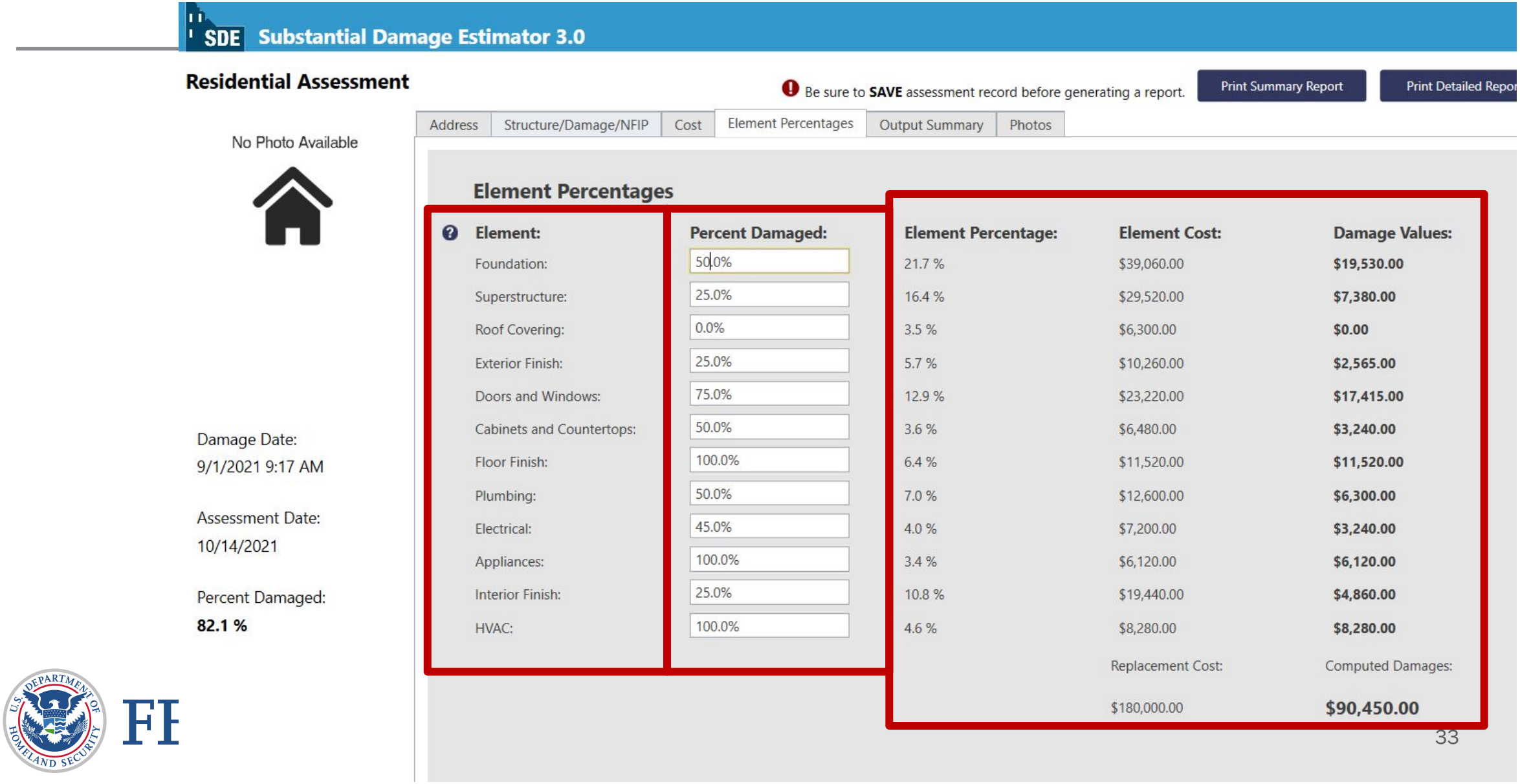
SDE – Cost (Additional Costs)



SDE – Element Percentages



SDE – Element Percentages

Substantial Damage Estimator 3.0

Main Menu File Tools Custom Fields Database Functions Import/Export Reports Help (Database Name: (Database Name Not Entered))

SDE Substantial Damage Estimator 3.0

Residential Assessment

Be sure to **SAVE** assessment record before generating a report. Print Summary Report | Print Detailed Report | Check Spelling | Save

Address | Structure/Damage/NFIP | Cost | Element Percentages | Output Summary | Photos

152 Main Street
USA
New Jersey

Damage Date:
9/1/2021 9:17 AM

Assessment Date:
10/14/2021

Percent Damaged:
0.0 %

Element Percentages

Element:	Percent Damaged:	Element Percentage:	Element Cost:	Damage Values:
Foundation:	0.0%	21.7 %	$39,060.00	**$0.00**
Superstructure:	0.0%	16.4 %	$29,520.00	**$0.00**
Roof Covering:	0.0%	3.5 %	$6,300.00	**$0.00**
Exterior Finish:	0.0%	5.7 %	$10,260.00	**$0.00**
Doors and Windows:	0.0%	12.9 %	$23,220.00	**$0.00**
Cabinets and Countertops:	0.0%	3.6 %	$6,480.00	**$0.00**
Floor Finish:	0.0%	6.4 %	$11,520.00	**$0.00**
Plumbing:	0.0%	7.0 %	$12,600.00	**$0.00**
Electrical:	0.0%	4.0 %	$7,200.00	**$0.00**
Appliances:	0.0%	3.4 %	$6,120.00	**$0.00**
Interior Finish:	0.0%	10.8 %	$19,440.00	**$0.00**
HVAC:	0.0%	4.6 %	$8,280.00	**$0.00**
			Replacement Cost:	Computed Damages:
			$180,000.00	**$0.00**

SDE – Element Percentages (Foundation)

Address | Structure/Damage/NFIP | Cost | Element Percentages | Output Summary | Photos

Element Percentages

Element:	Percent Damaged:	Element Percentage:	Element Cost:	Damage Values:
Foundation:	0.0%	21.7 %	$39,060.00	**$0.00**
Superstructure:	0.0%	16.4 %	$29,520.00	**$0.00**
Roof Covering:	0.0%	3.5 %	$6,300.00	**$0.00**
Exterior Finish:	0.0%	5.7 %	$10,260.00	**$0.00**
Doors and Windows:	0.0%	12.9 %	$23,220.00	**$0.00**
Cabinets and Countertops:	0.0%	3.6 %	$6,480.00	**$0.00**
Floor Finish:	0.0%	6.4 %	$11,520.00	**$0.00**
Plumbing:	0.0%	7.0 %	$12,600.00	**$0.00**
Electrical:	0.0%	4.0 %	$7,200.00	**$0.00**
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Interior Finish:	0.0%	10.8 %	$19,440.00	**$0.00**
HVAC:	0.0%	4.6 %	$8,280.00	**$0.00**
			Replacement Cost:	Computed Damages:
			$180,000.00	**$0.00**

SDE – Foundation

Basic Flooding Model Assumptions:

1) Medium height freshwater flooding; limited duration. No high-velocity action; no wave action.
2) A 1-story house (without a basement) is used for this example house to establish the Categories of Work percentages of total costs.

Foundation			Damage Threshold			
			0-25%	25-50%	50-75%	Over 75%
Description	Continuous perimeter foundations, footings, and piers for internal beams and floor loads. Footing depth averages between 30 inches and 42 inches below ground level. Materials include unreinforced cast-in-place concrete, unreinforced masonry or concrete masonry units (CMUs), concrete slab on grade, or raised slab construction.	Threshold Markers	Water level does not rise to the level of the bottom of the first floor of the structure.	Water level rises just above first floor level.	Water level is 4-7 feet against the outside of the building.	Water level is 7 feet or higher against the outside of the building.
			No scouring at the footings.	Limited scouring at the footings.	Limited scouring at the footings. Soils are saturated and unstable	Limited scouring at the footings. Foundation is notably cracked and/or displaced. Structure has been knocked off its foundation.
			Some undermining but no visible cracking at concrete slab.	Soils are saturated.	Cracks noted on or along the foundation walls.	Portions of the foundation are damaged or missing
				Undermining of the concrete slab, especially at corners - hairline cracks only.	Significant undermining of the concrete slab – significant cracking is visible.	Significant undermining of the concrete slab - major cracking and separation of the concrete slab.
		Common Damage	Short-term inundation to limited heights. Limited scouring and erosion - low flow and low velocity floodwaters. No noticeable cracking of the masonry or displacement of the foundation walls.	Short-term inundation - Foundation is inundated with flood waters but for a limited duration. Limited scouring or undermining of the foundation or footings is found. Minor cracking from some settlement but no displacement, heaving or discontinuities of the structural support systems.	Floodwaters extend over the top of the foundation system - significant inundation for over 12 hours. Some cracking of the masonry/concrete foundation walls. Some damage to the foundation wall from debris or settlement noted.	Settlement noted at the footings, due to erosion or unstable soils. Foundation wall damage – sections of the walls are cracking, displaced, and missing, causing an inherent instability to the support for the house. Use caution when approaching or entering the house.
	Special Considerations for Coastal/High Velocity Floods		Coastal floods may show more evidence of scouring at the supports - the foundation system may be better designed to resist this scouring action. High velocity floodwaters may create erosion/scouring that the building has not been designed to resist.			

SDE – Foundation

Address | Structure/Damage/NFIP | Cost | Element Percentages | Output Summary | Photos

Element Percentages

Element:	Percent Damaged:	Element Percentage:	Element Cost:	Damage Values:
Foundation:	100.0%	21.7 %	$39,060.00	**$39,060.00**
Superstructure:	0.0%	16.4 %	$29,520.00	**$0.00**
Roof Covering:	0.0%	3.5 %	$6,300.00	**$0.00**
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Electrical:	0.0%	4.0 %	$7,200.00	**$0.00**
Appliances:	0.0%	3.4 %	$6,120.00	**$0.00**
Interior Finish:	0.0%	10.8 %	$19,440.00	**$0.00**
HVAC:	0.0%	4.6 %	$8,280.00	**$0.00**

Replacement Cost:	Computed Damages:
$180,000.00	**$39,060.00**

SDE – Element Percentages (Superstructure)

Address | Structure/Damage/NFIP | Cost | Element Percentages | Output Summary | Photos

Element Percentages

Element:	Percent Damaged:	Element Percentage:	Element Cost:	Damage Values:
Foundation:	0.0%	21.7 %	$39,060.00	**$0.00**
Superstructure:	0.0%	16.4 %	$29,520.00	**$0.00**
Roof Covering:	0.0%	3.5 %	$6,300.00	**$0.00**
Exterior Finish:	0.0%	5.7 %	$10,260.00	**$0.00**
Doors and Windows:	0.0%	12.9 %	$23,220.00	**$0.00**
Cabinets and Countertops:	0.0%	3.6 %	$6,480.00	**$0.00**
Floor Finish:	0.0%	6.4 %	$11,520.00	**$0.00**
Plumbing:	0.0%	7.0 %	$12,600.00	**$0.00**
Electrical:	0.0%	4.0 %	$7,200.00	**$0.00**
Appliances:	0.0%	3.4 %	$6,120.00	**$0.00**
Interior Finish:	0.0%	10.8 %	$19,440.00	**$0.00**
HVAC:	0.0%	4.6 %	$8,280.00	**$0.00**
			Replacement Cost:	Computed Damages:
			$180,000.00	**$0.00**

SDE – Element Percentages (Superstructures)

Superstructure (Wood Frame/Masonry)		0- 25%	25-50%	50-75%	Over 75%
Description	The wall support systems that extend from the foundation wall to the roof structure. Superstructures include the exterior wall sheathing panels, shear panels, or braced wall panels. This section also includes structural members that support the roof (rafters and trusses), but does not include the roof sheathing. Wood frame construction: Lightweight lumber or metal studs Interior wall framing (without sheathing) Typical exterior structural panel wall sheathing is plywood or hardboard Masonry construction: Load bearing walls using unreinforced masonry (URM) and reinforced block or brick Typical exterior covers are stucco, siding (aluminum, vinyl, or wood), and masonry veneer (Reinforced concrete construction should be categorized under masonry.)	Threshold Markers	Water level does not rise to the level of the bottom of the first floor of the structure. No damage to the roof framing.	Water level rises just above first floor level. Damage to the exterior walls is limited Damage to the roof framing is limited.	Water level is up to 3 feet high on the first floor level. Some damage to exterior walls. Significant damage to sections of the roof framing.	Water is over 3 feet high on the first floor level of the house. Significant damage to exterior walls. Significant damage to the main portion or multiple sections of the roof framing.
		Common Damage	Minor damage to portions of the wall structure. Wall studs and sheathing suffered minor damage by contact with debris or from floodwater pressures against the structure. Minor missing or damaged sections of the roof structure. No deformation or distortion of the structural frame is evident.	Some missing sections or open damage to portions of the wall structure. Wall studs and sheathing suffered some damage by contact with debris or from floodwater pressures against the structure. Some missing or damaged sections of the roof structure. No deformation or distortion of the structural frame is evident.	Missing sections or open damage to significant portions of the wall structure. Wall studs and sheathing damaged by contact, collision, or piercing with debris or from floodwater pressures against the structure. Significant missing or damaged sections of the roof structure. Some deformation or distortion of the structural frame is evident.	Missing exterior wall(s) or open damage to large portions of the wall structure. Wall studs and sheathing damaged by contact, collision, or piercing with debris or from floodwater pressures against the structure. Large missing or damaged sections of the roof structure. Significant deformation or distortion of the structural frame is evident.
	Special Considerations for Coastal/High Velocity Floods		Coastal areas have higher wind conditions requiring additional exterior wall structural panels, shear walls, and braced wall panels. Damage to these wall structural systems would indicate a higher percent of damage, because they are already designed to resist higher wind conditions.			

SDE – Element Percentages (Superstructure)

Address | Structure/Damage/NFIP | Cost | Element Percentages | Output Summary | Photos

Element Percentages

Element:	Percent Damaged:	Element Percentage:	Element Cost:	Damage Values:
Foundation:	100.0%	21.7 %	$39,060.00	**$39,060.00**
Superstructure:	50.0%	16.4 %	$29,520.00	**$14,760.00**
Roof Covering:	0.0%	3.5 %	$6,300.00	**$0.00**
Exterior Finish:	0.0%	5.7 %	$10,260.00	**$0.00**
Doors and Windows:	0.0%	12.9 %	$23,220.00	**$0.00**
Cabinets and Countertops:	0.0%	3.6 %	$6,480.00	**$0.00**
Floor Finish:	0.0%	6.4 %	$11,520.00	**$0.00**
Plumbing:	0.0%	7.0 %	$12,600.00	**$0.00**
Electrical:	0.0%	4.0 %	$7,200.00	**$0.00**
Appliances:	0.0%	3.4 %	$6,120.00	**$0.00**
Interior Finish:	0.0%	10.8 %	$19,440.00	**$0.00**
HVAC:	0.0%	4.6 %	$8,280.00	**$0.00**

Replacement Cost:	Computed Damages:
$180,000.00	**$53,820.00**

SDE – Element Percentages (Roof Covering)

Address | Structure/Damage/NFIP | Cost | Element Percentages | Output Summary | Photos

Element Percentages

Element:	Percent Damaged:	Element Percentage:	Element Cost:	Damage Values:
Foundation:	100.0%	21.7 %	$39,060.00	**$39,060.00**
Superstructure:	55.0%	16.4 %	$29,520.00	**$16,236.00**
Roof Covering:	0.0%	3.5 %	$6,300.00	**$0.00**
Exterior Finish:	0.0%	5.7 %	$10,260.00	**$0.00**
Doors and Windows:	0.0%	12.9 %	$23,220.00	**$0.00**
Cabinets and Countertops:	0.0%	3.6 %	$6,480.00	**$0.00**
Floor Finish:	0.0%	6.4 %	$11,520.00	**$0.00**
Plumbing:	0.0%	7.0 %	$12,600.00	**$0.00**
Electrical:	0.0%	4.0 %	$7,200.00	**$0.00**
Appliances:	0.0%	3.4 %	$6,120.00	**$0.00**
Interior Finish:	0.0%	10.8 %	$19,440.00	**$0.00**
HVAC:	0.0%	4.6 %	$8,280.00	**$0.00**
			Replacement Cost:	Computed Damages:
			$180,000.00	**$55,296.00**

SDF – Element Percentages (Roof Covering)

Roof Covering		0-25%	25-50%	50-75%	Over 75%
Description	Roofing includes a lightweight composition shingle, tile roofs, metal roofs, or a built-up roof with gravel or rock cover material. Roofing does not include structural framing members such as rafters or prefabricated trusses that support the roof deck. The roof sheathing and flashing is included in this section.				
Threshold Markers		Minor wind damage to the roof coverings. Main surface areas are unaffected. Flashings are intact. No damage to the roof sheathing.	Some damaged areas of the roof from high-winds or damage from debris. Some sections of the roof covering are missing or loose. Some damage to the flashings. Minimal damage to the roof sheathing.	Significant damaged areas of the roof from high winds or damage from debris. Significant sections of the roof covering are missing or loose. Damage to the flashings allows some water infiltration at joints and roof penetrations. Significant damage to the roof sheathing - some areas of the sheathing will need replacement.	Large damaged areas of the roof from high winds or damage from debris. Major sections of the roof covering are missing or loose. Damage to the flashings allows significant water infiltration at joints and roof penetrations. Major damage to the roof sheathing - most of the roof sheathing will need replacement.
Common Damage		Roof shingles or tiles mostly intact. Some minor damage to roof shingles - some torn or loose shingles in limited areas.	Some areas where the roof shingles were damaged by high winds. Several small areas of exposed roof sheathing as a result of missing/damaged shingles.	Some areas where the roof shingles were damaged by high winds. Several small areas of exposed roof sheathing as a result of missing/damaged shingles. Some damage to the roof covering and sheathing due to debris falling or penetrating the roof assembly.	Major areas of the roof where the shingles/tile are missing, allowing rainwater to freely enter the house below. Significant damage to roof covering and roof sheathing from strong winds or windborne debris penetrating the roof assembly.
	Special Considerations for Coastal/High Velocity Floods	Coastal areas have higher wind conditions requiring additional roof covering requirements. Damage to these roof coverings would indicate a higher percent of damage, because they are designed to resist higher wind conditions. Damage to the roofing is more likely during high-wind conditions due to the loss of protection from missing roof coverings and water infiltration. This will increase the percent of damage.			

SDE – Element Percentages (Roof Covering)

Address | Structure/Damage/NFIP | Cost | Element Percentages | Output Summary | Photos

Element Percentages

Element:	Percent Damaged:	Element Percentage:	Element Cost:	Damage Values:
Foundation:	100.0%	21.7 %	$39,060.00	**$39,060.00**
Superstructure:	55.0%	16.4 %	$29,520.00	**$16,236.00**
Roof Covering:	0.0%	3.5 %	$6,300.00	**$0.00**
Exterior Finish:	0.0%	5.7 %	$10,260.00	**$0.00**
Doors and Windows:	0.0%	12.9 %	$23,220.00	**$0.00**
Cabinets and Countertops:	0.0%	3.6 %	$6,480.00	**$0.00**
Floor Finish:	0.0%	6.4 %	$11,520.00	**$0.00**
Plumbing:	0.0%	7.0 %	$12,600.00	**$0.00**
Electrical:	0.0%	4.0 %	$7,200.00	**$0.00**
Appliances:	0.0%	3.4 %	$6,120.00	**$0.00**
Interior Finish:	0.0%	10.8 %	$19,440.00	**$0.00**
HVAC:	0.0%	4.6 %	$8,280.00	**$0.00**

Replacement Cost:	Computed Damages:
$180,000.00	**$55,296.00**

SDE – Element Percentages (Exterior Finish)

Address | Structure/Damage/NFIP | Cost | Element Percentages | Output Summary | Photos

Element Percentages

Element:	Percent Damaged:	Element Percentage:	Element Cost:	Damage Values:
Foundation:	100.0%	21.7 %	$39,060.00	**$39,060.00**
Superstructure:	55.0%	16.4 %	$29,520.00	**$16,236.00**
Roof Covering:	0.0%	3.5 %	$6,300.00	**$0.00**
Exterior Finish:	0.0%	5.7 %	$10,260.00	**$0.00**
Doors and Windows:	0.0%	12.9 %	$23,220.00	**$0.00**
Cabinets and Countertops:	0.0%	3.6 %	$6,480.00	**$0.00**
Floor Finish:	0.0%	6.4 %	$11,520.00	**$0.00**
Plumbing:	0.0%	7.0 %	$12,600.00	**$0.00**
Electrical:	0.0%	4.0 %	$7,200.00	**$0.00**
Appliances:	0.0%	3.4 %	$6,120.00	**$0.00**
Interior Finish:	0.0%	10.8 %	$19,440.00	**$0.00**
HVAC:	0.0%	4.6 %	$8,280.00	**$0.00**
			Replacement Cost:	Computed Damages:
			$180,000.00	**$55,296.00**

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Exterior Finish		0- 25%	25-50%	50-75%	Over 75%
Description	The wall covering system that covers the wall sheathing, as well as insulation and weather stripping. This includes the water resistant materials and the finish materials: Stucco, Siding (aluminum, vinyl, or wood), Masonry, Stone veneer. Insulation is installed at the flooring beneath the lowest floor level and throughout the walls and ceilings. Types of insulation include: fiberglass wall and ceiling insulation, blown wall and ceiling insulation, and rigid wall insulation.				
Threshold Markers		Water level is less than 6 inches above the lowest floor level. The duration of the floodwaters is limited - less than 12 hours.	Water level is between 6 and 18 inches above the lowest floor level. The duration of the floodwaters is limited - less than 12 hours.	Water level is between 18 inches and 3 feet above the lowest floor level. The duration of the floodwaters is more than 12 hours.	Water level is more than 3 feet above the lowest floor level. The duration of the floodwaters is more than 12 hours.
Common Damage		Water staining, contamination, and damage on some of the exterior wall finishes. 'Clean and repair' process is likely. Brick and stone veneer walls, stucco walls, and 'cultured stone' walls may need some water removal techniques to allow drying of the interior materials and wall cavities. Verify adherence of the finish materials to the wall substrate. A limited amount of the siding materials may require replacement as needed. No damage or replacement of the insulation system is necessary, except where water and high moisture conditions have caused the insulation to fall loose within the crawlspace sub-flooring.	Damage/losses to some areas of the exterior wall surfaces, in addition to water staining and contamination. Some repairs are required at damaged locations prior or during 'clean and repair' process. Brick and stone veneer walls, stucco walls, and 'cultured stone' walls may need some water removal techniques to allow drying of the interior materials and wall cavities. Verify adherence of the finish materials to the wall substrate. Damaged house trim work will require replacement. Water damage to the insulation in the sub-flooring above the crawlspace or basement levels. Damage to insulation is evident and insulation often has fallen loose. This insulation should be removed and replaced.	Damage/losses to significant sections of the exterior wall surfaces, in addition to water staining and contamination. Significant repairs are required at damaged locations prior to 'clean and repair' process. Replacement of some sections of the exterior siding is required. Brick and stone veneer walls, stucco walls, and 'cultured stone' walls may need some water removal techniques to allow drying of the interior materials and wall cavities. Verify adherence of the finish materials to the wall substrate. Water damage to the insulation in the sub-flooring above the crawlspace or basement levels. This insulation should be removed and replaced. Water saturation of wall insulation may be found in the lowest section of the exterior walls. Contaminants in the flood waters are cause for removal and replacement of lower sections of the saturated insulation. Clean, sanitize, and dry the structural systems before re-installing materials. Damaged house trim work will require replacement, especially at door and window casings.	Damage/losses to major sections of the exterior wall surfaces, in addition to water staining and contamination. Major repairs are required at damaged locations prior to 'clean and repair' process. Replacement of large sections of the exterior siding is required. Brick and stone veneer walls, stucco walls, and 'cultured stone' walls may need some water removal techniques to allow drying of the interior materials and wall cavities. Verify adherence of the finish materials to the wall materials. Damaged house trim will require replacement, especially at door and window casings. Water damage to the insulation in the sub-flooring above the crawlspace or basement levels. This insulation should be removed and replaced. Water saturation of wall insulation requires the removal of all of the insulation from the damaged sections of the exterior walls. Contaminants in the flood waters are cause for removal and replacement of lower sections of the saturated insulation. Clean, sanitize, and dry the structural systems before re-installing.
Special Considerations for Coastal/High Velocity Floods		**The salt, erosion, and winds in coastal areas will have a damaging effect on the quality of exterior wall finishes.** **Damage to exterior finishes are more likely during high-wind conditions due to the loss of protection from missing exterior finishes and water infiltration. Damage to the insulation is more likely during high-wind conditions due to the loss of protection from missing roof coverings and exterior finishes, and from subsequent water infiltration. This will increase the percent of damage.**			

SDE – Element Percentages (Exterior Finish)

Address | Structure/Damage/NFIP | Cost | Element Percentages | Output Summary | Photos

Element Percentages

Element:	Percent Damaged:	Element Percentage:	Element Cost:	Damage Values:
Foundation:	100.0%	21.7 %	$39,060.00	**$39,060.00**
Superstructure:	55.0%	16.4 %	$29,520.00	**$16,236.00**
Roof Covering:	0.0%	3.5 %	$6,300.00	**$0.00**
Exterior Finish:	55.0%	5.7 %	$10,260.00	**$5,643.00**
Doors and Windows:	0.0%	12.9 %	$23,220.00	**$0.00**
Cabinets and Countertops:	0.0%	3.6 %	$6,480.00	**$0.00**
Floor Finish:	0.0%	6.4 %	$11,520.00	**$0.00**
Plumbing:	0.0%	7.0 %	$12,600.00	**$0.00**
Electrical:	0.0%	4.0 %	$7,200.00	**$0.00**
Appliances:	0.0%	3.4 %	$6,120.00	**$0.00**
Interior Finish:	0.0%	10.8 %	$19,440.00	**$0.00**
HVAC:	0.0%	4.6 %	$8,280.00	**$0.00**

Replacement Cost:	Computed Damages:
$180,000.00	**$60,939.00**

SDE – Element Percentages (Doors and Windows)

Address | Structure/Damage/NFIP | Cost | Element Percentages | Output Summary | Photos

Element Percentages

Element:	Percent Damaged:	Element Percentage:	Element Cost:	Damage Values:
Foundation:	100.0%	21.7 %	$39,060.00	**$39,060.00**
Superstructure:	55.0%	16.4 %	$29,520.00	**$16,236.00**
Roof Covering:	0.0%	3.5 %	$6,300.00	**$0.00**
Exterior Finish:	55.0%	5.7 %	$10,260.00	**$5,643.00**
Doors and Windows:	0.0%	12.9 %	$23,220.00	**$0.00**
Cabinets and Countertops:	0.0%	3.6 %	$6,480.00	**$0.00**
Floor Finish:	0.0%	6.4 %	$11,520.00	**$0.00**
Plumbing:	0.0%	7.0 %	$12,600.00	**$0.00**
Electrical:	0.0%	4.0 %	$7,200.00	**$0.00**
Appliances:	0.0%	3.4 %	$6,120.00	**$0.00**
Interior Finish:	0.0%	10.8 %	$19,440.00	**$0.00**
HVAC:	0.0%	4.6 %	$8,280.00	**$0.00**
			Replacement Cost:	Computed Damages:
			$180,000.00	**$60,939.00**

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Interior Finish		0-25%	25-50%	50-75%	Over 75%
Description	Interior finish includes the gypsum board, drywall, plaster, or paneling that makes up the wall surfaces. It also includes trim around door baseboards, casings, chair rails, and ceiling moldings. Materials include low-grade wood/plastic composites, soft woods, and hard woods. Finishes include paint, stain, or varnish. This item also covers any exterior and interior painted surfaces. This includes all interior painted surfaces, but not the building or repairs of the underlying surfaces. This also includes those exterior siding materials (and trim work) that need to be painted, but not those that have inherent coloring within the materials themselves (brick, stucco, EIFS).	Threshold Markers	Water level does not rise to the level of the first floor structure. The duration of the floodwaters is limited - less than 12 hours.	Water level rises just above the first floor level. The duration of the floodwaters is limited - less than 12 hours.	Water level is up to 3 feet above the first floor level. The duration of the floodwaters is more than 12 hours.	Water is more than 3 feet above the first floor level of the house. The duration of the floodwaters is more than 12 hours.
		Common Damage	Wicking of the water and high moisture conditions into the finished materials at the subflooring and at the bottom of the walls. Water staining and damage possible at baseboard and the casings at the bottoms of door openings. Some adjustment/repair/ replacement may be necessary. No damage anticipated on door, cabinet, and window hardware. The baseboards and the bottom of the door casings may need to be cleaned and painted.	Water staining and damage likely at the baseboard and the casings at the bottoms of door openings. Some adjustment/repair/replacement may be necessary. Water damage at the lowest levels of the wall assembly - lower wall and trim may need to be removed and replaced. Minor damage anticipated on door, cabinet, and window hardware. After repairs to surfaces, the lower wall finishes, baseboards, and door casings will need to be primed and repainted. The bottoms of the cabinet bases in the kitchen and bathrooms may require repainting.	Water staining and damage at the baseboards and the casings at door openings need to be replaced. Water damage at the lowest levels of the wall assembly - wall and trim, window sills and window aprons, wall paneling, wainscoting and chair rails require removal and replacement. Wall surfaces should be removed to a height of 4 feet. Some damage anticipated on door, cabinet, and window hardware. Some replacement needed. After repairs to surfaces, the entire wall finishes, baseboards, and door and window casings will need to be primed and repainted, along with the vanity cabinets in the bathrooms.	Water staining and damage at the baseboards, and running trim and casings at door and window openings need to be replaced. Water damage at all the levels of the wall assembly - wall and trim, window sills and window aprons, wall paneling, wainscoting, and chair rails require removal and replacement. Wall surfaces should be removed to a height of 8 feet. Significant damage anticipated on door, cabinet, and window hardware. Some replacement needed. After repairs to surfaces, the entire wall finishes, baseboards, door and window casings, and window sashes will need to be primed and repainted along with the vanity cabinets in the bathrooms. Repaint both the upper and lower kitchen cabinets, where these are paint-grade cabinets.
	Special Considerations for Coastal/High Velocity Floods	**Damage to the interior finishes are more likely during high-wind conditions due to the loss of protection from missing roof coverings and exterior finishes, and from subsequent water infiltration. The salt, erosion, and winds in coastal areas will have a damaging effect on the quality of exterior hardware. This will significantly increase the percent of damage.**			

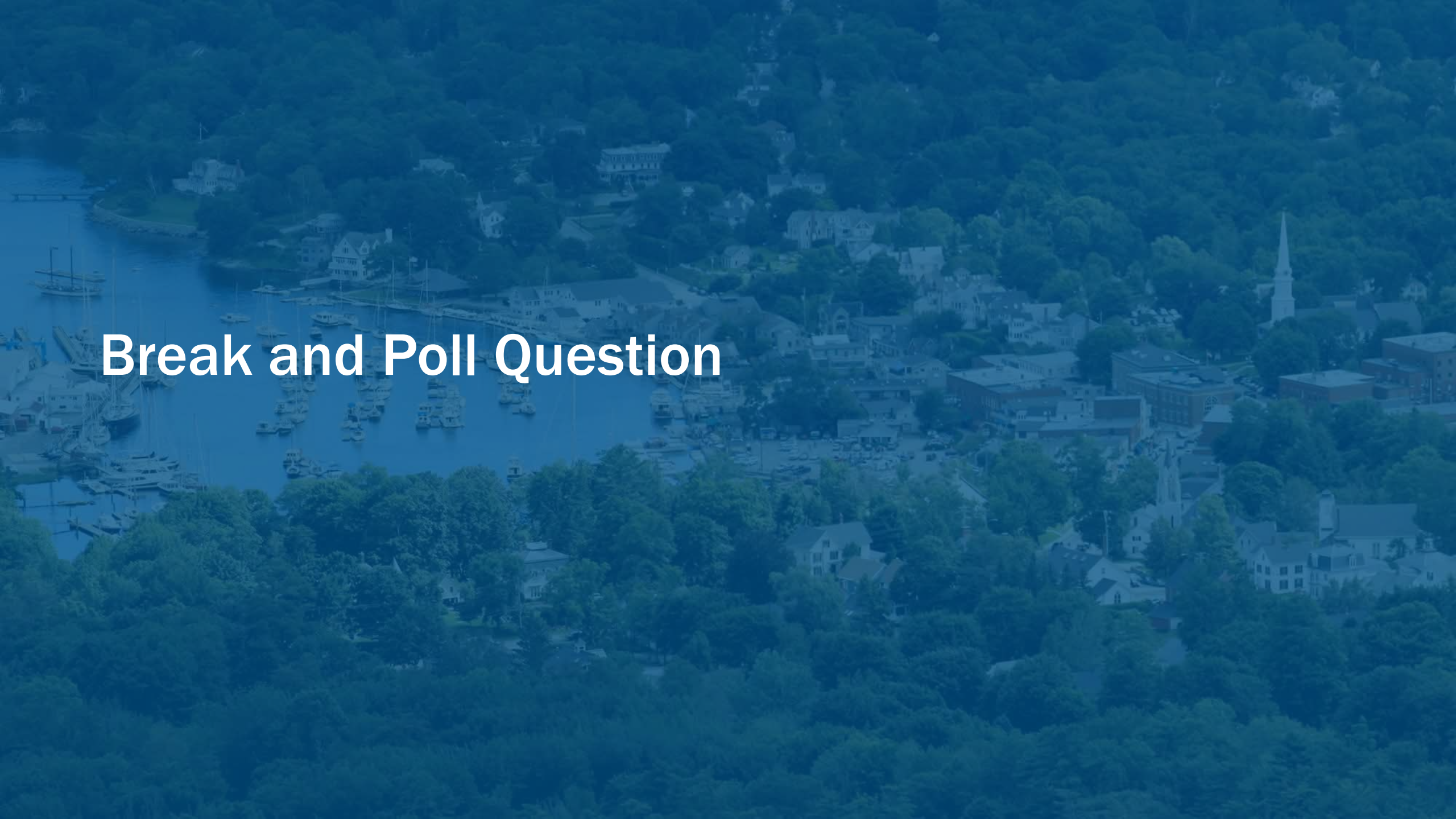
SDE – Element Percentages (Doors and Windows)

Address | Structure/Damage/NFIP | Cost | Element Percentages | Output Summary | Photos

Element Percentages

Element:	Percent Damaged:	Element Percentage:	Element Cost:	Damage Values:
Foundation:	100.0%	21.7 %	$39,060.00	**$39,060.00**
Superstructure:	55.0%	16.4 %	$29,520.00	**$16,236.00**
Roof Covering:	0.0%	3.5 %	$6,300.00	**$0.00**
Exterior Finish:	55.0%	5.7 %	$10,260.00	**$5,643.00**
Doors and Windows:	100.0%	12.9 %	$23,220.00	**$23,220.00**
Cabinets and Countertops:	0.0%	3.6 %	$6,480.00	**$0.00**
Floor Finish:	0.0%	6.4 %	$11,520.00	**$0.00**
Plumbing:	0.0%	7.0 %	$12,600.00	**$0.00**
Electrical:	0.0%	4.0 %	$7,200.00	**$0.00**
Appliances:	0.0%	3.4 %	$6,120.00	**$0.00**
Interior Finish:	0.0%	10.8 %	$19,440.00	**$0.00**
HVAC:	0.0%	4.6 %	$8,280.00	**$0.00**

Replacement Cost:	Computed Damages:
$180,000.00	**$84,159.00**



Break and Poll Question

SDE – Element Percentages (Cabinets and Countertops)

Address | Structure/Damage/NFIP | Cost | Element Percentages | Output Summary | Photos

Element Percentages

Element:	Percent Damaged:	Element Percentage:	Element Cost:	Damage Values:
Foundation:	100.0%	21.7 %	$39,060.00	**$39,060.00**
Superstructure:	55.0%	16.4 %	$29,520.00	**$16,236.00**
Roof Covering:	0.0%	3.5 %	$6,300.00	**$0.00**
Exterior Finish:	55.0%	5.7 %	$10,260.00	**$5,643.00**
Doors and Windows:	100.0%	12.9 %	$23,220.00	**$23,220.00**
Cabinets and Countertops:	0.0%	3.6 %	$6,480.00	**$0.00**
Floor Finish:	0.0%	6.4 %	$11,520.00	**$0.00**
Plumbing:	0.0%	7.0 %	$12,600.00	**$0.00**
Electrical:	0.0%	4.0 %	$7,200.00	**$0.00**
Appliances:	0.0%	3.4 %	$6,120.00	**$0.00**
Interior Finish:	0.0%	10.8 %	$19,440.00	**$0.00**
HVAC:	0.0%	4.6 %	$8,280.00	**$0.00**
			Replacement Cost:	Computed Damages:
			$180,000.00	**$84,159.00**

SDE – Element Percentages (Cabinets and Countertops)

Cabinets and Countertops		0-25%	25-50%	50-75%	Over 75%
Description: The basic cabinets for bathroom vanities and kitchens include paint-grade cabinets made of a fiberboard or plywood material. The countertop is laminated plastic or a manmade 'cultured stone' surface. Paint-grade cabinets are the baseline because they can be painted to match upper wall cabinets, when they are repairable, to return the house to pre-disaster conditions. Damaged cabinets with hardwood face-frames, doors, and drawers will require replacement based on the depth of flooding above the floor. Therefore, if the flood depth only damages the base cabinet and countertops, the percent damage will be 60% or less.	Threshold Markers	Water level is less than 4 inches above the finished floor level.	Water level is between 4 and 12 inches above the finished floor level. Flood duration is short - no prolonged exposure to water or contaminants.	Water level is between 1 foot and 3 feet above the finished floor level. Flood duration is longer than 12 hours - prolonged exposure to water and contaminants.	Water level is more than 3 feet above finished floor level. Flood duration is longer than 12 hours - prolonged exposure to water and contaminants.
	Common Damage	Base cabinets have minimal water damage. Swelling and deterioration of manufactured case goods, especially cabinet bases, sides, and drawers using engineered wood products. Bathroom vanity cabinets and kitchen base cabinets may need cleaning, sanitizing, and limited repairs. Repainting will be required to match upper cabinets in kitchen.	Base cabinets of particleboard or medium-density fiberboard need to be replaced. Repaint to match upper cabinets in kitchen. Wood and plywood base cabinets may need cleaning, sanitizing, and some repairs at cabinet base. Repainting will be required to match upper cabinets in kitchen.	Replace base cabinets. Water damage and exposure is prolonged - deformation, delamination, and warping of cabinet base drawers and doors. Water contains debris and contaminants. The countertops may need to be replaced.	Replace base cabinets and upper wall cabinets. Water damage and exposure is prolonged - deformation, delamination, and warping of cabinet base drawers and doors. Water contains debris and contaminants. The countertops will need to be replaced.

SDE – Element Percentages (Cabinets and Countertops)

Element Percentages

Element:	Percent Damaged:	Element Percentage:	Element Cost:	Damage Values:
Foundation:	100.0%	21.7 %	$53,165.00	**$53,165.00**
Superstructure:	55.0%	16.4 %	$40,180.00	**$22,099.00**
Roof Covering:	0.0%	3.5 %	$8,575.00	**$0.00**
Exterior Finish:	55.0%	5.7 %	$13,965.00	**$7,680.75**
Doors and Windows:	100.0%	12.9 %	$31,605.00	**$31,605.00**
Cabinets and Countertops:	50.0%	3.6 %	$8,820.00	**$4,410.00**
Floor Finish:	0.0%	6.4 %	$15,680.00	**$0.00**
Plumbing:	0.0%	7.0 %	$17,150.00	**$0.00**
Electrical:	0.0%	4.0 %	$9,800.00	**$0.00**
Appliances:	0.0%	3.4 %	$8,330.00	**$0.00**
Interior Finish:	0.0%	10.8 %	$26,460.00	**$0.00**
HVAC:	0.0%	4.6 %	$11,270.00	**$0.00**
			Replacement Cost:	Computed Damages:
			$245,000.00	**$118,959.75**

SDE – Element Percentages (Floor Finish)

Element Percentages

Element:	Percent Damaged:	Element Percentage:	Element Cost:	Damage Values:
Foundation:	100.0%	21.7 %	$53,165.00	**$53,165.00**
Superstructure:	55.0%	16.4 %	$40,180.00	**$22,099.00**
Roof Covering:	0.0%	3.5 %	$8,575.00	**$0.00**
Exterior Finish:	55.0%	5.7 %	$13,965.00	**$7,680.75**
Doors and Windows:	100.0%	12.9 %	$31,605.00	**$31,605.00**
Cabinets and Countertops:	50.0%	3.6 %	$8,820.00	**$4,410.00**
Floor Finish:	0.0%	6.4 %	$15,680.00	**$0.00**
Plumbing:	0.0%	7.0 %	$17,150.00	**$0.00**
Electrical:	0.0%	4.0 %	$9,800.00	**$0.00**
Appliances:	0.0%	3.4 %	$8,330.00	**$0.00**
Interior Finish:	0.0%	10.8 %	$26,460.00	**$0.00**
HVAC:	0.0%	4.6 %	$11,270.00	**$0.00**
			Replacement Cost:	Computed Damages:
			$245,000.00	**$118,959.75**

SDE – Element Percentages (Floor Finish)

Floor Finish		0-25%	25-50%	50-75%	Over 75%
Description: Materials for floor finish include: carpet, hardwood, vinyl composition tile, sheet vinyl floor cover, ceramic tile, and marble. Sub-flooring is also included. Carpeting, hardwood flooring, vinyl flooring tiles, and sheet vinyl are typically replaced after water inundation. Brick, stone, and clay tile floor can be cleaned, sanitized, and reused. These types of floors may have areas where the mortar setting compound has broken loose. These tiles should be replaced. The floor sheathing is included in this Category of Work, as compared to the Superstructure Category.	Threshold Markers	Water level does not rise to the level of the bottom of the first floor structure.	Water level rises just to the first floor level. Water level inundates the sub-flooring but does not rise to the finished floor materials.	Water level is above the first floor. Water level inundates above the sub-flooring and finished floor materials.	Water level is well above the first floor. Water level inundates above the sub-flooring and finished floor materials.
		No damage to the floor sheathing.	Minimal damage to the floor sheathing.	Significant damage to the floor sheathing - some areas of the sheathing will need replacement.	Major damage to the floor sheathing - most of the floor sheathing will need replacement.
	Common Damage	No damage is anticipated in the floor finish system at this water level.	The sub-flooring may be damaged or delaminated by high-humidity conditions, and may need to be repaired or replaced.	The sub-flooring may be damaged or delaminated by water inundation. Floor covering will need removal, drying, sanitizing, and replacement, depending upon the type of floor covering. Carpets (with padding) should be removed and replaced. Wood floors will need to be replaced. Ceramic tiles and stone flooring may be re-used if they are still secured to the substrate. Sheet vinyl and vinyl tiles will need to be replaced to facilitate drying and repair of damage of the subfloor.	The sub-flooring may be damaged or delaminated by water inundation. Floor covering may need removal, drying, sanitizing, and replacement, depending upon the type of floor covering. Carpets (with padding) should be removed and replaced. Wood floors will need to be replaced. Ceramic tiles and stone flooring may be re-used if they are still secured to the substrate. Sheet vinyl and vinyl tiles will need to be replaced to facilitate drying and repair of damage of the sub-floor.
Special Considerations for Coastal/High Velocity Floods		**Damage to the floor finishes and floor sheathing are more likely during high-wind conditions due to the loss of protection from missing roof coverings and exterior finishes, and from subsequent water infiltration. This will significantly increase the percent of damage.**			

SDE – Element Percentages (Floor Finish)

Element Percentages

Element:	Percent Damaged:	Element Percentage:	Element Cost:	Damage Values:
Foundation:	100.0%	21.7 %	$53,165.00	**$53,165.00**
Superstructure:	55.0%	16.4 %	$40,180.00	**$22,099.00**
Roof Covering:	0.0%	3.5 %	$8,575.00	**$0.00**
Exterior Finish:	55.0%	5.7 %	$13,965.00	**$7,680.75**
Doors and Windows:	100.0%	12.9 %	$31,605.00	**$31,605.00**
Cabinets and Countertops:	50.0%	3.6 %	$8,820.00	**$4,410.00**
Floor Finish:	100.0%	6.4 %	$15,680.00	**$15,680.00**
Plumbing:	0.0%	7.0 %	$17,150.00	**$0.00**
Electrical:	0.0%	4.0 %	$9,800.00	**$0.00**
Appliances:	0.0%	3.4 %	$8,330.00	**$0.00**
Interior Finish:	0.0%	10.8 %	$26,460.00	**$0.00**
HVAC:	0.0%	4.6 %	$11,270.00	**$0.00**
			Replacement Cost:	Computed Damages:
			$245,000.00	**$134,639.75**

SDE – Element Percentages (Plumbing)

Element Percentages

Element:	Percent Damaged:	Element Percentage:	Element Cost:	Damage Values:
Foundation:	100.0%	21.7 %	$53,165.00	**$53,165.00**
Superstructure:	55.0%	16.4 %	$40,180.00	**$22,099.00**
Roof Covering:	0.0%	3.5 %	$8,575.00	**$0.00**
Exterior Finish:	55.0%	5.7 %	$13,965.00	**$7,680.75**
Doors and Windows:	100.0%	12.9 %	$31,605.00	**$31,605.00**
Cabinets and Countertops:	50.0%	3.6 %	$8,820.00	**$4,410.00**
Floor Finish:	100.0%	6.4 %	$15,680.00	**$15,680.00**
Plumbing:	0.0%	7.0 %	$17,150.00	**$0.00**
Electrical:	0.0%	4.0 %	$9,800.00	**$0.00**
Appliances:	0.0%	3.4 %	$8,330.00	**$0.00**
Interior Finish:	0.0%	10.8 %	$26,460.00	**$0.00**
HVAC:	0.0%	4.6 %	$11,270.00	**$0.00**
			Replacement Cost:	Computed Damages:
			$245,000.00	**$134,639.75**

SDE – Element Percentages (Plumbing)

Plumbing		0-25%	25-50%	50-75%	Over 75%
Description	The plumbing system includes the incoming water service (municipal water supply or well service), the water heater, water distribution piping, and the wastewater system. Wastewater will be conveyed away from the structure by either a connection to the municipal sewer system or a septic system. When floodwaters saturate the soils, septic systems may be unable to discharge their waste, causing a back-up of the septic systems. If floodwaters raise above the level of the municipal sewer manhole covers, the sewage can back-up into the house through the sewer lines. Verify the condition of the potable water supply to determine if it can provide a safe water supply.	**Threshold Markers** **Water level is less than 6 inches above the lowest floor level.**	**Water level is between 6 inches and 18 inches above the lowest floor level.** **Flood duration is short - no prolonged exposure to water or contaminants.**	**Water level is between 18 inches and 3 feet above the lowest floor level.** **Flood duration is longer than 12 hours - prolonged exposure to water and contaminants.**	**Water level is more than 3 feet above the lowest floor level.** **Flood duration is longer than 12 hours - prolonged exposure to water and contaminants.**
		Common Damage Floor drains can backflow into the house. Under floor (or under slab) plumbing systems should be purged, cleaned, and sanitized. Any materials that might contain remnants of waste materials or other contaminants in the floodwaters will require replacement.	Floor drains, shower drains, bathtubs, and toilets can back flow into the house. Septic contamination is likely. The water heater may need to be replaced.	Floor drains, shower drains, bathtubs, toilets, bathroom sinks, utility sinks, and toilets will backflow into the house. Septic contamination will occur. The water heater will need to be replaced.	All plumbing fixtures will backflow into the house. Septic contamination will occur. The water heater will need to be replaced.
	Special Considerations for Coastal/High Velocity Floods	**Houses in coastal areas may have additional plumbing fixtures and piping on the exterior of the house.**			

SDE – Element Percentages (Plumbing)

Element Percentages

Element:	Percent Damaged:	Element Percentage:	Element Cost:	Damage Values:
Foundation:	100.0%	21.7 %	$53,165.00	**$53,165.00**
Superstructure:	55.0%	16.4 %	$40,180.00	**$22,099.00**
Roof Covering:	0.0%	3.5 %	$8,575.00	**$0.00**
Exterior Finish:	55.0%	5.7 %	$13,965.00	**$7,680.75**
Doors and Windows:	100.0%	12.9 %	$31,605.00	**$31,605.00**
Cabinets and Countertops:	50.0%	3.6 %	$8,820.00	**$4,410.00**
Floor Finish:	100.0%	6.4 %	$15,680.00	**$15,680.00**
Plumbing:	100.0%	7.0 %	$17,150.00	**$17,150.00**
Electrical:	0.0%	4.0 %	$9,800.00	**$0.00**
Appliances:	0.0%	3.4 %	$8,330.00	**$0.00**
Interior Finish:	0.0%	10.8 %	$26,460.00	**$0.00**
HVAC:	0.0%	4.6 %	$11,270.00	**$0.00**
			Replacement Cost:	Computed Damages:
			$245,000.00	**$151,789.75**

SDE – Element Percentages (Electrical)

Element Percentages

Element:	Percent Damaged:	Element Percentage:	Element Cost:	Damage Values:
Foundation:	100.0%	21.7 %	$53,165.00	**$53,165.00**
Superstructure:	55.0%	16.4 %	$40,180.00	**$22,099.00**
Roof Covering:	0.0%	3.5 %	$8,575.00	**$0.00**
Exterior Finish:	55.0%	5.7 %	$13,965.00	**$7,680.75**
Doors and Windows:	100.0%	12.9 %	$31,605.00	**$31,605.00**
Cabinets and Countertops:	50.0%	3.6 %	$8,820.00	**$4,410.00**
Floor Finish:	100.0%	6.4 %	$15,680.00	**$15,680.00**
Plumbing:	100.0%	7.0 %	$17,150.00	**$17,150.00**
Electrical:	0.0%	4.0 %	$9,800.00	**$0.00**
Appliances:	0.0%	3.4 %	$8,330.00	**$0.00**
Interior Finish:	0.0%	10.8 %	$26,460.00	**$0.00**
HVAC:	0.0%	4.6 %	$11,270.00	**$0.00**
			Replacement Cost:	Computed Damages:
			$245,000.00	**$151,789.75**

SDE – Element Percentages (Electrical)

Electrical			0-25%	25-50%	50-75%	Over 75%
Description	100- to 200-amp electrical service providing circuit breaker panels and distribution wiring. B. Basic wiring (15/20 amp) for outlets, switches, receptacles, and lighting; 25- to 60-amp wiring systems for outlets for a washer, dryer, stove, and refrigerator. (A minimum number of outlets and lighting fixtures, sometimes quantified by local building code, begin to increase in number and application as the quality level of the residence increases.) The basic approach listed here is for slab-on- grade or elevated houses; crawlspace and basement houses will have higher damage levels more quickly due to the main panel and horizontal wiring runs located below the lowest floor level.	Threshold Markers	Water level is less than 12 inches above the finished floor level. Minor electrical components and limited wiring are inundated but remain below normal receptacle height.	Water level is between 12 inches and 18 inches above the finished floor level. A significant number of wiring components and limited wiring are inundated, floodwaters above the normal receptacle height.	Water level is between 18 inches and 3 feet above the lowest floor level. A significant number of wiring components and a significant amount of wiring is inundated - floodwaters above normal wall switch height.	Water level is more than 3 feet above the lowest floor level. Most of the wiring components and a significant amount of wiring are inundated - floodwaters above normal wall switch height.
		Common Damage Details	If the main electrical power source is located in the basement, the panel will need to be replaced. All outlets (receptacles, switches, and lights) located in the basement should be replaced. All receptacles, switches, and outlets located above the flood water high mark can be left in place and reused.	Modern Romex wiring that is inundated only for short durations (without wetting the ends/joints/terminations) can be dried and reused. Older nonmetallic cable (with impregnated braided sheathings) should be replaced when wetted. When chemical contaminants are suspected in the floodwaters, all inundated electrical wiring and components will require replacement.	Modern Romex wiring that is inundated only for short durations while wetting the ends/joints/terminations should be replaced. Older non-metallic cable (with impregnated braided sheathings) should be replaced when wetted. When chemical contaminants are suspected in the floodwaters, all inundated electrical wiring and components will require replacement.	Modern Romex wiring that is inundated only for long durations should be replaced. Older nonmetallic cable (with impregnated braided sheathings) should be replaced when wetted. When chemical contaminants are suspected in the floodwaters, all inundated electrical wiring and components will require replacement.

SDE – Element Percentages (Electrical)

Element Percentages

Element:	Percent Damaged:	Element Percentage:	Element Cost:	Damage Values:
Foundation:	100.0%	21.7 %	$53,165.00	**$53,165.00**
Superstructure:	55.0%	16.4 %	$40,180.00	**$22,099.00**
Roof Covering:	0.0%	3.5 %	$8,575.00	**$0.00**
Exterior Finish:	55.0%	5.7 %	$13,965.00	**$7,680.75**
Doors and Windows:	100.0%	12.9 %	$31,605.00	**$31,605.00**
Cabinets and Countertops:	50.0%	3.6 %	$8,820.00	**$4,410.00**
Floor Finish:	100.0%	6.4 %	$15,680.00	**$15,680.00**
Plumbing:	100.0%	7.0 %	$17,150.00	**$17,150.00**
Electrical:	100.0%	4.0 %	$9,800.00	**$9,800.00**
Appliances:	0.0%	3.4 %	$8,330.00	**$0.00**
Interior Finish:	0.0%	10.8 %	$26,460.00	**$0.00**
HVAC:	0.0%	4.6 %	$11,270.00	**$0.00**
			Replacement Cost:	Computed Damages:
			$245,000.00	**$161,589.75**

SDE – Element Percentages (Appliances)

Element Percentages

Element:	Percent Damaged:	Element Percentage:	Element Cost:	Damage Values:
Foundation:	100.0%	21.7 %	$53,165.00	**$53,165.00**
Superstructure:	55.0%	16.4 %	$40,180.00	**$22,099.00**
Roof Covering:	0.0%	3.5 %	$8,575.00	**$0.00**
Exterior Finish:	55.0%	5.7 %	$13,965.00	**$7,680.75**
Doors and Windows:	100.0%	12.9 %	$31,605.00	**$31,605.00**
Cabinets and Countertops:	50.0%	3.6 %	$8,820.00	**$4,410.00**
Floor Finish:	100.0%	6.4 %	$15,680.00	**$15,680.00**
Plumbing:	100.0%	7.0 %	$17,150.00	**$17,150.00**
Electrical:	100.0%	4.0 %	$9,800.00	**$9,800.00**
Appliances:	0.0%	3.4 %	$8,330.00	**$0.00**
Interior Finish:	0.0%	10.8 %	$26,460.00	**$0.00**
HVAC:	0.0%	4.6 %	$11,270.00	**$0.00**
			Replacement Cost:	Computed Damages:
			$245,000.00	**$161,589.75**

SDE – Element Percentages (Appliances)

Appliances			0-25%	25-50%	50-75%	Over 75%
Description	Common, built-in appliances that would be included are the dishwasher, hot water tank, and some stoves.	Threshold Markers	**Water level is less than 6 inches above the finished floor level.** **Water level is in the floor area of the appliances but not into the equipment operating system.** **The appliances may be cleaned and reconditioned.**	**Water level is between 6 inches and 12 inches above the finished floor level.** **Water level is in the floor area of the appliances and into the equipment operating system.** **Some of the appliances will need to be replaced.**	**Water level is between 12 inches and 18 inches above the finished floor level.** **Water level is in the floor area of the appliances and into the equipment operating system.** **Most of the appliances will need to be replaced.**	**Water level is between 18 inches and 3 feet above the finished floor level.** **Water level is in the floor area of the appliances and into the equipment operating system.** **All of the appliances will need to be replaced.**
		Common Damage	If appliances (water heater, clothes washer/dryer) are located in the basement or under the floor spaces, these should be replaced. Appliances at or above the first-floor level should be cleaned and reconditioned, as needed. Gas-fired appliances should be checked by a service technician to verify whether the gas burners and controls and electric wiring systems were compromised. Replacement may be required.	If appliances (water heater, clothes washer/dryer) are located in the basement or the under floor spaces, these should be replaced. Appliances at or above the first-floor level should be cleaned and reconditioned, as needed. Gas-fired appliances should be checked by a service technician to verify whether the gas burners and controls and electric wiring systems were compromised. Replacement may be required. The clothes dryer and dishwasher systems and controls will likely be inundated and may require replacement.	All appliances located at or above the first-floor level should be cleaned and reconditioned, as needed. Gas-fired appliances should be checked by a service technician to verify whether the gas burners and controls and electric wiring systems were compromised. Replacement may be required. The clothes dryer and dishwasher systems and controls will be inundated and need to be replaced.	All appliances at or above the first floor level should be cleaned and reconditioned, as needed. Gas-fired appliances should be checked by a service technician to verify whether the gas burners and controls and electric wiring systems were compromised. Replace as necessary. The clothes dryer, washing machine, and dishwasher systems and controls will be inundated and need to be replaced.

SDE – Element Percentages (Appliances)

Element Percentages

Element:	Percent Damaged:	Element Percentage:	Element Cost:	Damage Values:
Foundation:	100.0%	21.7 %	$53,165.00	**$53,165.00**
Superstructure:	55.0%	16.4 %	$40,180.00	**$22,099.00**
Roof Covering:	0.0%	3.5 %	$8,575.00	**$0.00**
Exterior Finish:	55.0%	5.7 %	$13,965.00	**$7,680.75**
Doors and Windows:	100.0%	12.9 %	$31,605.00	**$31,605.00**
Cabinets and Countertops:	50.0%	3.6 %	$8,820.00	**$4,410.00**
Floor Finish:	100.0%	6.4 %	$15,680.00	**$15,680.00**
Plumbing:	100.0%	7.0 %	$17,150.00	**$17,150.00**
Electrical:	100.0%	4.0 %	$9,800.00	**$9,800.00**
Appliances:	50.0%	3.4 %	$8,330.00	**$4,165.00**
Interior Finish:	0.0%	10.8 %	$26,460.00	**$0.00**
HVAC:	0.0%	4.6 %	$11,270.00	**$0.00**
			Replacement Cost:	Computed Damages:
			$245,000.00	**$165,754.75**

SDE – Element Percentages (Interior Finish)

Element Percentages

Element:	Percent Damaged:	Element Percentage:	Element Cost:	Damage Values:
Foundation:	100.0%	21.7 %	$53,165.00	**$53,165.00**
Superstructure:	55.0%	16.4 %	$40,180.00	**$22,099.00**
Roof Covering:	0.0%	3.5 %	$8,575.00	**$0.00**
Exterior Finish:	55.0%	5.7 %	$13,965.00	**$7,680.75**
Doors and Windows:	100.0%	12.9 %	$31,605.00	**$31,605.00**
Cabinets and Countertops:	50.0%	3.6 %	$8,820.00	**$4,410.00**
Floor Finish:	100.0%	6.4 %	$15,680.00	**$15,680.00**
Plumbing:	100.0%	7.0 %	$17,150.00	**$17,150.00**
Electrical:	100.0%	4.0 %	$9,800.00	**$9,800.00**
Appliances:	100.0%	3.4 %	$8,330.00	**$8,330.00**
Interior Finish:	0.0%	10.8 %	$26,460.00	**$0.00**
HVAC:	0.0%	4.6 %	$11,270.00	**$0.00**
			Replacement Cost:	Computed Damages:
			$245,000.00	**$169,919.75**

SDE – Element Percentages (Interior Finish)

Element Percentages

Element:	Percent Damaged:	Element Percentage:	Element Cost:	Damage Values:
Foundation:	100.0%	21.7 %	$53,165.00	**$53,165.00**
Superstructure:	55.0%	16.4 %	$40,180.00	**$22,099.00**
Roof Covering:	0.0%	3.5 %	$8,575.00	**$0.00**
Exterior Finish:	55.0%	5.7 %	$13,965.00	**$7,680.75**
Doors and Windows:	100.0%	12.9 %	$31,605.00	**$31,605.00**
Cabinets and Countertops:	50.0%	3.6 %	$8,820.00	**$4,410.00**
Floor Finish:	100.0%	6.4 %	$15,680.00	**$15,680.00**
Plumbing:	100.0%	7.0 %	$17,150.00	**$17,150.00**
Electrical:	100.0%	4.0 %	$9,800.00	**$9,800.00**
Appliances:	100.0%	3.4 %	$8,330.00	**$8,330.00**
Interior Finish:	0.0%	10.8 %	$26,460.00	**$0.00**
HVAC:	0.0%	4.6 %	$11,270.00	**$0.00**
			Replacement Cost:	Computed Damages:
			$245,000.00	**$169,919.75**

SDE – Element Percentages (Interior Finish)

Interior Finish		0-25%	25-50%	50-75%	Over 75%
Description: Interior finish includes the gypsum board, drywall, plaster, or paneling that makes up the wall surfaces. It also includes trim around door baseboards, casings, chair rails, and ceiling moldings. Materials include low-grade wood/plastic composites, soft woods, and hard woods. Finishes include paint, stain, or varnish. This item also covers any exterior and interior painted surfaces. This includes all interior painted surfaces, but not the building or repairs of the underlying surfaces. This also includes those exterior siding materials (and trim work) that need to be painted, but not those that have inherent coloring within the materials themselves (brick, stucco, EIFS).	Threshold Markers	**Water level does not rise to the level of the first floor structure.** **The duration of the floodwaters is limited - less than 12 hours.**	**Water level rises just above the first floor level.** **The duration of the floodwaters is limited - less than 12 hours.**	**Water level is up to 3 feet above the first floor level.** **The duration of the floodwaters is more than 12 hours.**	**Water is more than 3 feet above the first floor level of the house.** **The duration of the floodwaters is more than 12 hours.**
	Common Damage	Wicking of the water and high moisture conditions into the finished materials at the subflooring and at the bottom of the walls. Water staining and damage possible at baseboard and the casings at the bottoms of door openings. Some adjustment/repair/ replacement may be necessary. No damage anticipated on door, cabinet, and window hardware. The baseboards and the bottom of the door casings may need to be cleaned and painted.	Water staining and damage likely at the baseboard and the casings at the bottoms of door openings. Some adjustment/repair/replacement may be necessary. Water damage at the lowest levels of the wall assembly - lower wall and trim may need to be removed and replaced. Minor damage anticipated on door, cabinet, and window hardware. After repairs to surfaces, the lower wall finishes, baseboards, and door casings will need to be primed and repainted. The bottoms of the cabinet bases in the kitchen and bathrooms may require repainting.	Water staining and damage at the baseboards and the casings at door openings need to be replaced. Water damage at the lowest levels of the wall assembly - wall and trim, window sills and window aprons, wall paneling, wainscoting and chair rails require removal and replacement. Wall surfaces should be removed to a height of 4 feet. Some damage anticipated on door, cabinet, and window hardware. Some replacement needed. After repairs to surfaces, the entire wall finishes, baseboards, and door and window casings will need to be primed and repainted, along with the vanity cabinets in the bathrooms.	Water staining and damage at the baseboards, and running trim and casings at door and window openings need to be replaced. Water damage at all the levels of the wall assembly - wall and trim, window sills and window aprons, wall paneling, wainscoting, and chair rails require removal and replacement. Wall surfaces should be removed to a height of 8 feet. Significant damage anticipated on door, cabinet, and window hardware. Some replacement needed. After repairs to surfaces, the entire wall finishes, baseboards, door and window casings, and window sashes will need to be primed and repainted along with the vanity cabinets in the bathrooms. Repaint both the upper and lower kitchen cabinets, where these are paint-grade cabinets.
Special Considerations for Coastal/High Velocity Floods		**Damage to the interior finishes are more likely during high-wind conditions due to the loss of protection from missing roof coverings and exterior finishes, and from subsequent water infiltration. The salt, erosion, and winds in coastal areas will have a damaging effect on the quality of exterior hardware. This will significantly increase the percent of damage.**			

SDE – Element Percentages (Interior Finish)

Element Percentages

Element:	Percent Damaged:	Element Percentage:	Element Cost:	Damage Values:
Foundation:	100.0%	21.7 %	$53,165.00	**$53,165.00**
Superstructure:	55.0%	16.4 %	$40,180.00	**$22,099.00**
Roof Covering:	0.0%	3.5 %	$8,575.00	**$0.00**
Exterior Finish:	55.0%	5.7 %	$13,965.00	**$7,680.75**
Doors and Windows:	100.0%	12.9 %	$31,605.00	**$31,605.00**
Cabinets and Countertops:	50.0%	3.6 %	$8,820.00	**$4,410.00**
Floor Finish:	100.0%	6.4 %	$15,680.00	**$15,680.00**
Plumbing:	100.0%	7.0 %	$17,150.00	**$17,150.00**
Electrical:	100.0%	4.0 %	$9,800.00	**$9,800.00**
Appliances:	50.0%	3.4 %	$8,330.00	**$4,165.00**
Interior Finish:	55.0%	10.8 %	$26,460.00	**$14,553.00**
HVAC:	0.0%	4.6 %	$11,270.00	**$0.00**
			Replacement Cost:	Computed Damages:
			$245,000.00	**$180,307.75**

SDE – Element Percentages (HVAC)

Element Percentages

Element:	Percent Damaged:	Element Percentage:	Element Cost:	Damage Values:
Foundation:	100.0%	21.7 %	$53,165.00	**$53,165.00**
Superstructure:	55.0%	16.4 %	$40,180.00	**$22,099.00**
Roof Covering:	0.0%	3.5 %	$8,575.00	**$0.00**
Exterior Finish:	55.0%	5.7 %	$13,965.00	**$7,680.75**
Doors and Windows:	100.0%	12.9 %	$31,605.00	**$31,605.00**
Cabinets and Countertops:	50.0%	3.6 %	$8,820.00	**$4,410.00**
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Plumbing:	100.0%	7.0 %	$17,150.00	**$17,150.00**
Electrical:	100.0%	4.0 %	$9,800.00	**$9,800.00**
Appliances:	50.0%	3.4 %	$8,330.00	**$4,165.00**
Interior Finish:	55.0%	10.8 %	$26,460.00	**$14,553.00**
HVAC:	0.0%	4.6 %	$11,270.00	**$0.00**
			Replacement Cost:	Computed Damages:
			$245,000.00	**$180,307.75**

SDE – Element Percentages (HVAC)

HVAC			0-25%	25-50%	50-75%	Over 75%
Description	The base HVAC system is a forced-air heating system (furnace) with ductwork. The air handler system is located inside the thermal barrier of the house. The percent damaged will be less for a boiler. A boiler system has a sealed piping system to distribute the heat while the furnace uses a duct system. Ducts with water infiltration will need to be cleaned, repaired, and re-insulated. By contrast, a boiler piping system only needs to have the distribution piping clean and re-insulated. Note: Old duct and HVAC insulation may contain asbestos - use appropriate caution and adjust the costs for removal, if found. A gas-fired or oil-fired furnace located in a basement or crawlspace will require replacement of the furnace assembly as soon as 12 inches of floodwaters are present. This will require an adjustment of the percent damaged to 75%, as soon as the water reaches the firebox level of this heating equipment. A central air conditioner or heat pump will have a ducted air distribution system. The outside condenser unit(s) will require reconditioning after any flooding conditions.	Threshold Markers	Water level is less than 6 inches above the lowest floor level. Water level is in the lower ducts but not into the air handler or equipment operating system. The condenser unit may be reconditioned if the water level is less than 6 inches from the bottom of the appliance. If the condenser unit is located below the flood level, it will need to be replaced.	Water level is between 6 inches and 12 inches above the finished floor level. Water level is into the lower ducts and the air handler, but not into the equipment operating system. The condenser unit may be reconditioned if the water level is up to 12 inches from the bottom of the appliance. If the condenser unit is located below the flood level, it will need to be replaced.	Water level is between 12 inches and 3 feet above the finished floor level. Water level is into the lower ducts, air handler, and the equipment operating system. The fuel-fired equipment (burners/controls) is inundated. The condenser unit needs to be replaced.	Water level is more than 3 feet above the lowest floor level. Water level is into the duct distribution system, air handler, and the equipment operating system. The fuel-fired equipment (burners/controls) is inundated. The condenser unit needs to be replaced.
		Common Damage	If HVAC equipment (furnace, air handler, heat pump) are located in the basement or the under floor areas, the equipment should be reconditioned or replaced. Water-inundated duct insulation should be removed and replaced. If the duct insulation is integral to the ducts (duct board or secured interior duct liners), the ducts should be replaced. All ducts that are being reused will require cleaning.	If portions of the HVAC equipment (furnace, air handler, heat pump) are located in the basement or the under floor areas, the equipment should be reconditioned or replaced. Water-inundated duct insulation should be removed and replaced. If the duct insulation is integral to the ducts (duct board or secured interior duct liners), the ducts should be replaced. All ducts that are being reused will require cleaning.	Portions of the HVAC equipment (furnace, air handler, heat pump) should be replaced. Water-inundated duct insulation should be removed and replaced. If the duct insulation is integral to the ducts (duct board or secured interior duct liners), the ducts should be replaced. All ducts that are being reused will require cleaning.	All HVAC equipment (furnace, air handler, heat pump) should be replaced. Water-inundated duct insulation should be removed and replaced. If the duct insulation is integral to the ducts (duct board or secured interior duct liners), the ducts should be replaced. All ducts that are being reused will require cleaning.

SDE – Element Percentages (HVAC)

Element Percentages

Element:	Percent Damaged:	Element Percentage:	Element Cost:	Damage Values:
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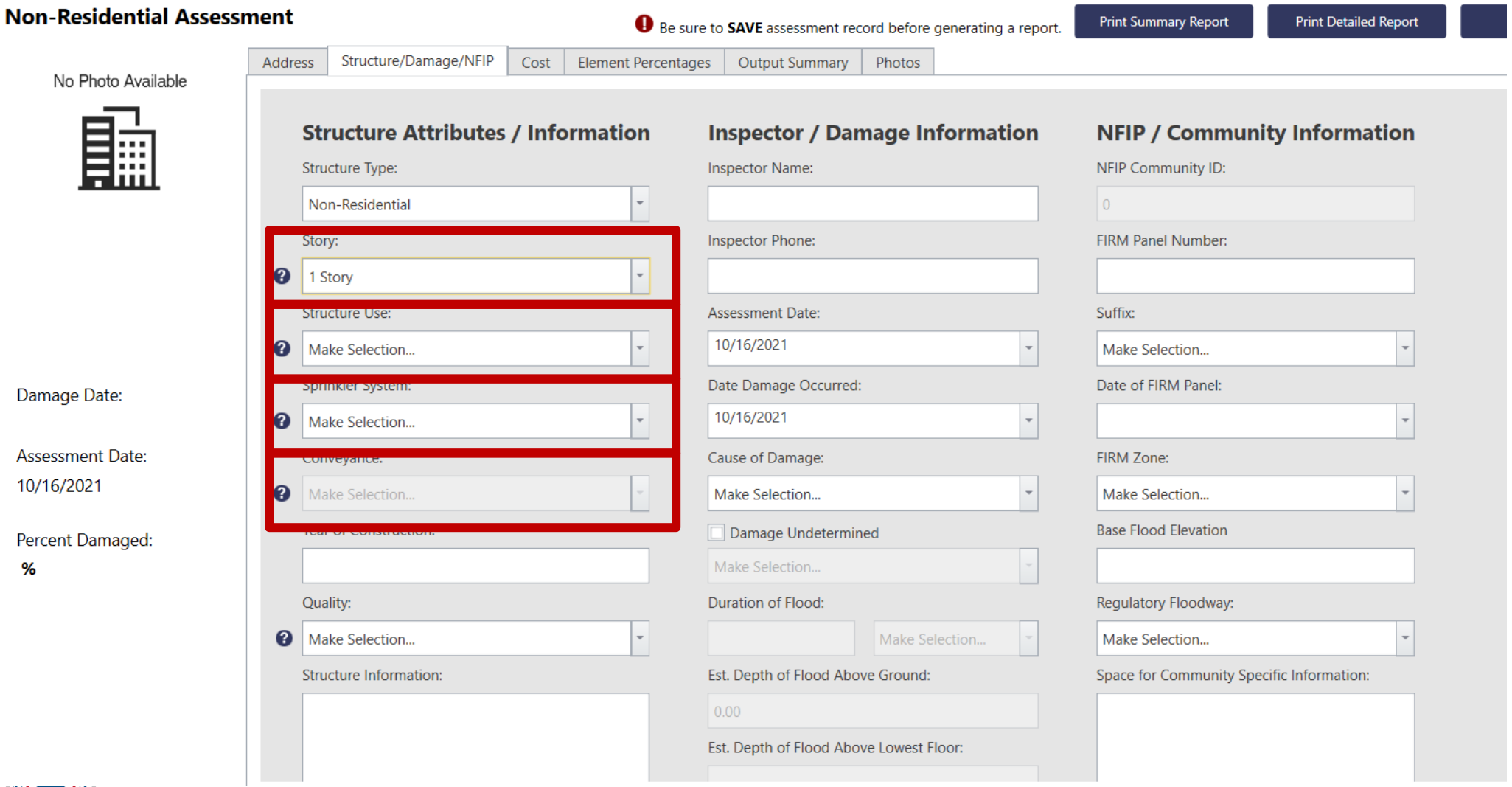
Superstructure:	55.0%	16.4 %	$40,180.00	**$22,099.00**
Roof Covering:	0.0%	3.5 %	$8,575.00	**$0.00**
Exterior Finish:	55.0%	5.7 %	$13,965.00	**$7,680.75**
Doors and Windows:	100.0%	12.9 %	$31,605.00	**$31,605.00**
Cabinets and Countertops:	50.0%	3.6 %	$8,820.00	**$4,410.00**
Floor Finish:	100.0%	6.4 %	$15,680.00	**$15,680.00**
Plumbing:	100.0%	7.0 %	$17,150.00	**$17,150.00**
Electrical:	100.0%	4.0 %	$9,800.00	**$9,800.00**
Appliances:	50.0%	3.4 %	$8,330.00	**$4,165.00**
Interior Finish:	55.0%	10.8 %	$26,460.00	**$14,553.00**
HVAC:	100.0%	4.6 %	$11,270.00	**$11,270.00**

Replacement Cost:	Computed Damages:
$245,000.00	**$191,577.75**

SDE Non-Residential

SDE – Non-Residential



SDE – Non-Residential

Address | Structure/Damage/NFIP | Cost | Element Percentages | Output Summary | Photos

Element Percentages

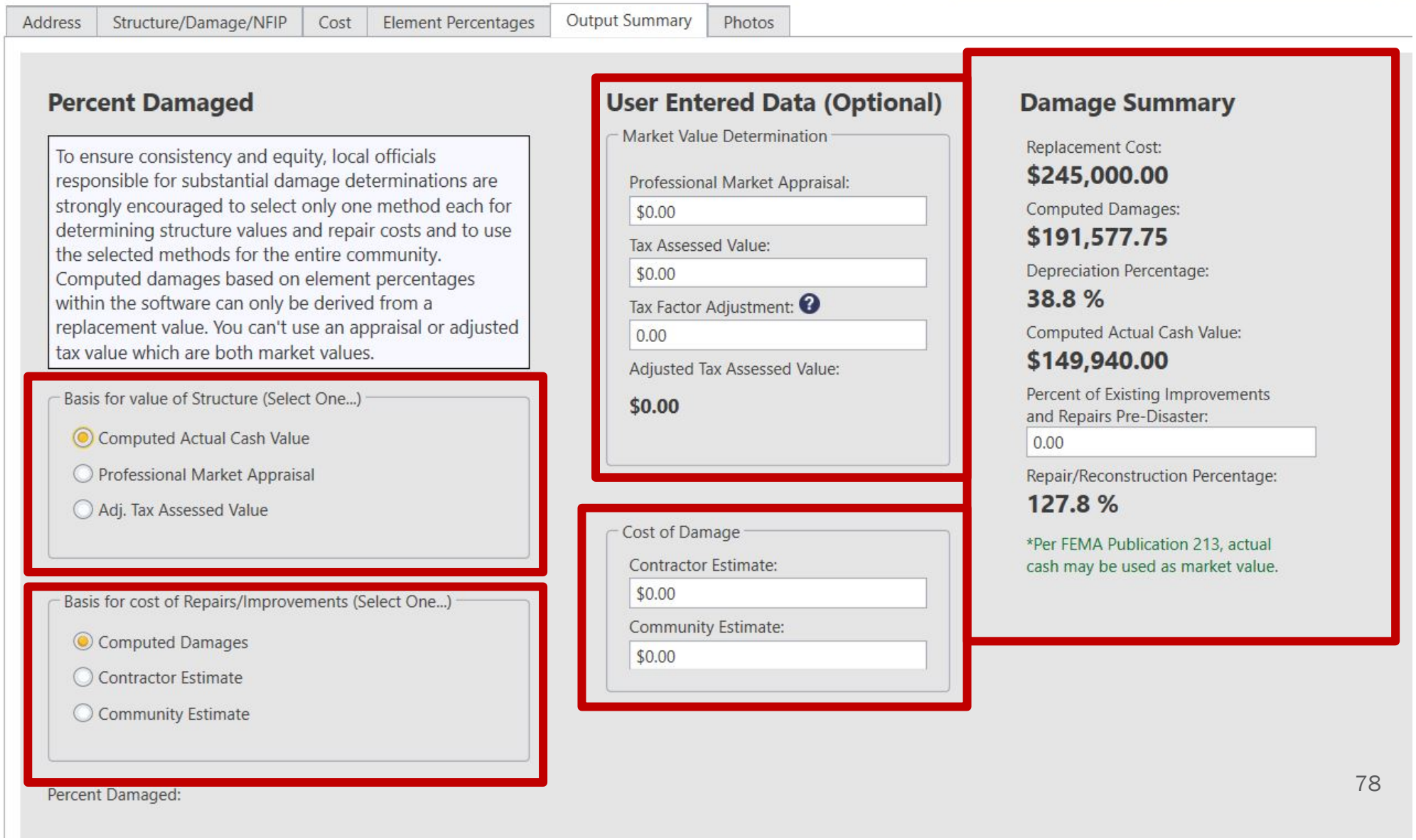
Element:	Percent Damaged:	Element Percentage:	Element Cost:	Damage Values:
Foundation:	0.0%	12.0 %	$0.00	**$0.00**
Superstructure:	0.0%	24.0 %	$0.00	**$0.00**
Roof Covering:	0.0%	6.0 %	$0.00	**$0.00**
Plumbing:	0.0%	10.0 %	$0.00	**$0.00**
Electrical:	0.0%	14.0 %	$0.00	**$0.00**
Interiors:	0.0%	18.0 %	$0.00	**$0.00**
HVAC:	0.0%	16.0 %	$0.00	**$0.00**

Replacement Cost:	Computed Damages:
$0.00	**$0.00**

SDE – Non-Residential

SDE Reports

SDE – Output Summary



SDE – Output Tab

SDE Substantial Damage Estimator 3.0

Residential Assessment

Be sure to **SAVE** assessment record before generating a report.

Print Summary Report | Print Detailed Report | Check Spelling | Save

Address | Structure/Damage/NFIP | Cost | Element Percentages | Output Summary | Photos

152 Main Street
USA
New Jersey

Damage Date:
9/1/2021 9:17 AM

Assessment Date:
10/14/2021

Percent Damaged:
100.0 %

Percent Damaged

To ensure consistency and equity, local officials responsible for substantial damage determinations are strongly encouraged to select only one method each for determining structure values and repair costs and to use the selected methods for the entire community. Computed damages based on element percentages within the software can only be derived from a replacement value. You can't use an appraisal or adjusted tax value which are both market values.

Basis for value of Structure (Select One...)

- (•) Computed Actual Cash Value
- ( ) Professional Market Appraisal
- ( ) Adj. Tax Assessed Value

Basis for cost of Repairs/Improvements (Select One...)

- (•) Computed Damages
- ( ) Contractor Estimate
- ( ) Community Estimate

Percent Damaged:

User Entered Data (Optional)

Market Value Determination

Professional Market Appraisal: $200,000.00

Tax Assessed Value: $160,000.00

Tax Factor Adjustment: 1.00

Adjusted Tax Assessed Value:
$160,000.00

Cost of Damage

Contractor Estimate: $100,000.00

Community Estimate: $125,000.00

Damage Summary

Replacement Cost:
$245,000.00

Computed Damages:
$191,577.75

Depreciation Percentage:
38.8 %

Computed Actual Cash Value:
$149,940.00

Percent of Existing Improvements and Repairs Pre-Disaster: 0.00

Repair/Reconstruction Percentage:
127.8 %

*Per FEMA Publication 213, actual cash may be used as market value.

SDE – Output Tab

SDE Substantial Damage Estimator 3.0

Residential Assessment

Be sure to **SAVE** assessment record before generating a report.

Print Summary Report | Print Detailed Report

Address | Structure/Damage/NFIP | Cost | Element Percentages | Output Summary | Photos

152 Main Street
USA
New Jersey

Damage Date:
9/1/2021 9:17 AM

Assessment Date:
10/14/2021

Percent Damaged:
95.8 %

Percent Damaged

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Basis for value of Structure (Select One...)

- ○ Computed Actual Cash Value
- ◉ Professional Market Appraisal
- ○ Adj. Tax Assessed Value

Basis for cost of Repairs/Improvements (Select One...)

- ◉ Computed Damages
- ○ Contractor Estimate
- ○ Community Estimate

Percent Damaged:

User Entered Data (Optional)

Market Value Determination

Professional Market Appraisal: $200,000.00

Tax Assessed Value: $160,000.00

Tax Factor Adjustment: 1.00

Adjusted Tax Assessed Value:
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SDE – Output Tab

Main Menu File Tools Custom Fields Database Functions Import/Export Reports Help (Database Name: (Database Name Not Entered))

SDE Substantial Damage Estimator 3.0

Residential Assessment

Be sure to **SAVE** assessment record before generating a report. Print Summary Report | Print Detailed Report | Check Spelling | Save

Address | Structure/Damage/NFIP | Cost | Element Percentages | Output Summary | Photos

152 Main Street
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New Jersey

Damage Date:
9/1/2021 9:17 AM

Assessment Date:
10/14/2021

Percent Damaged:
100.0 %

Percent Damaged

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Percent Damaged:

User Entered Data (Optional)

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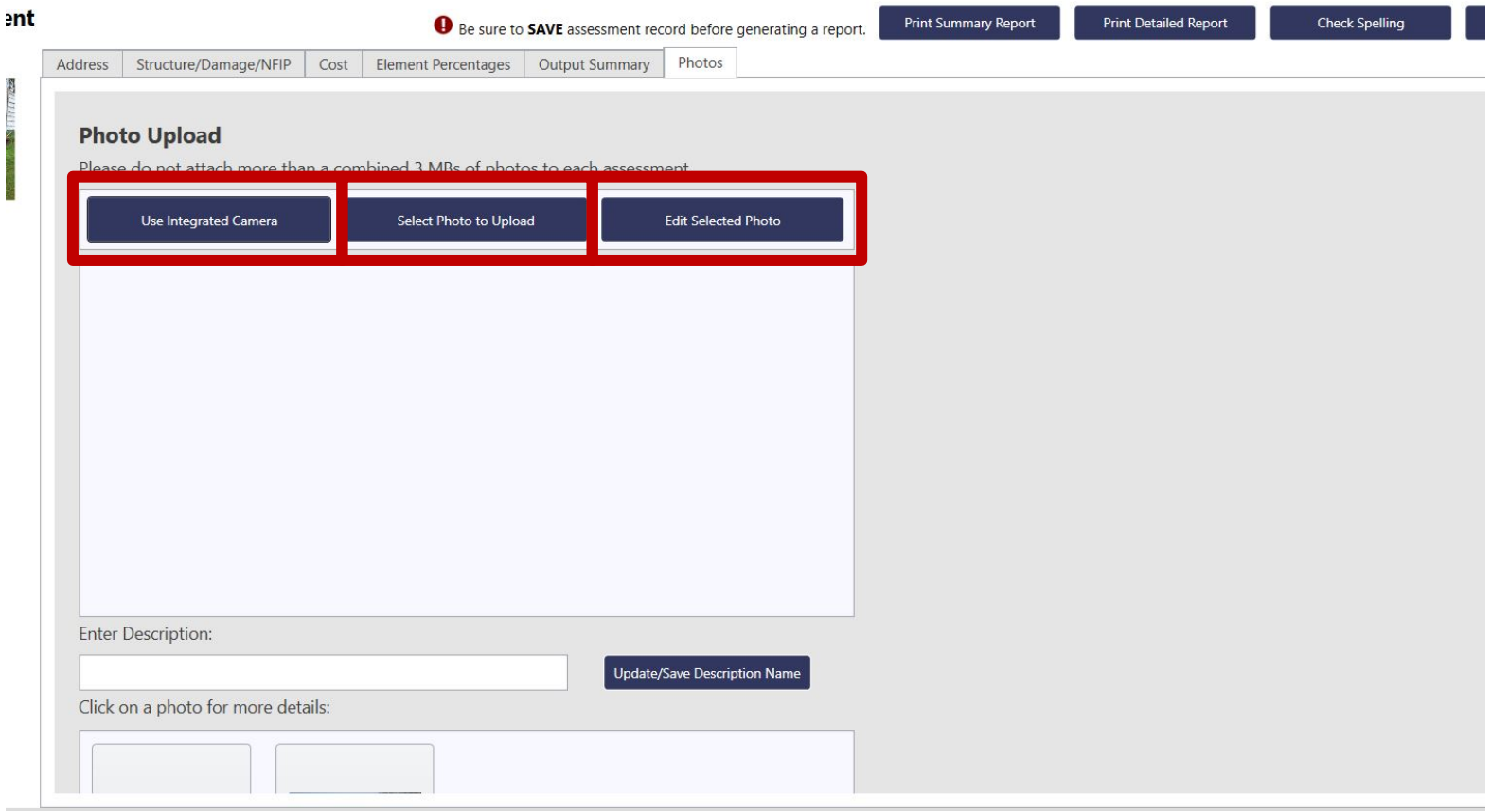
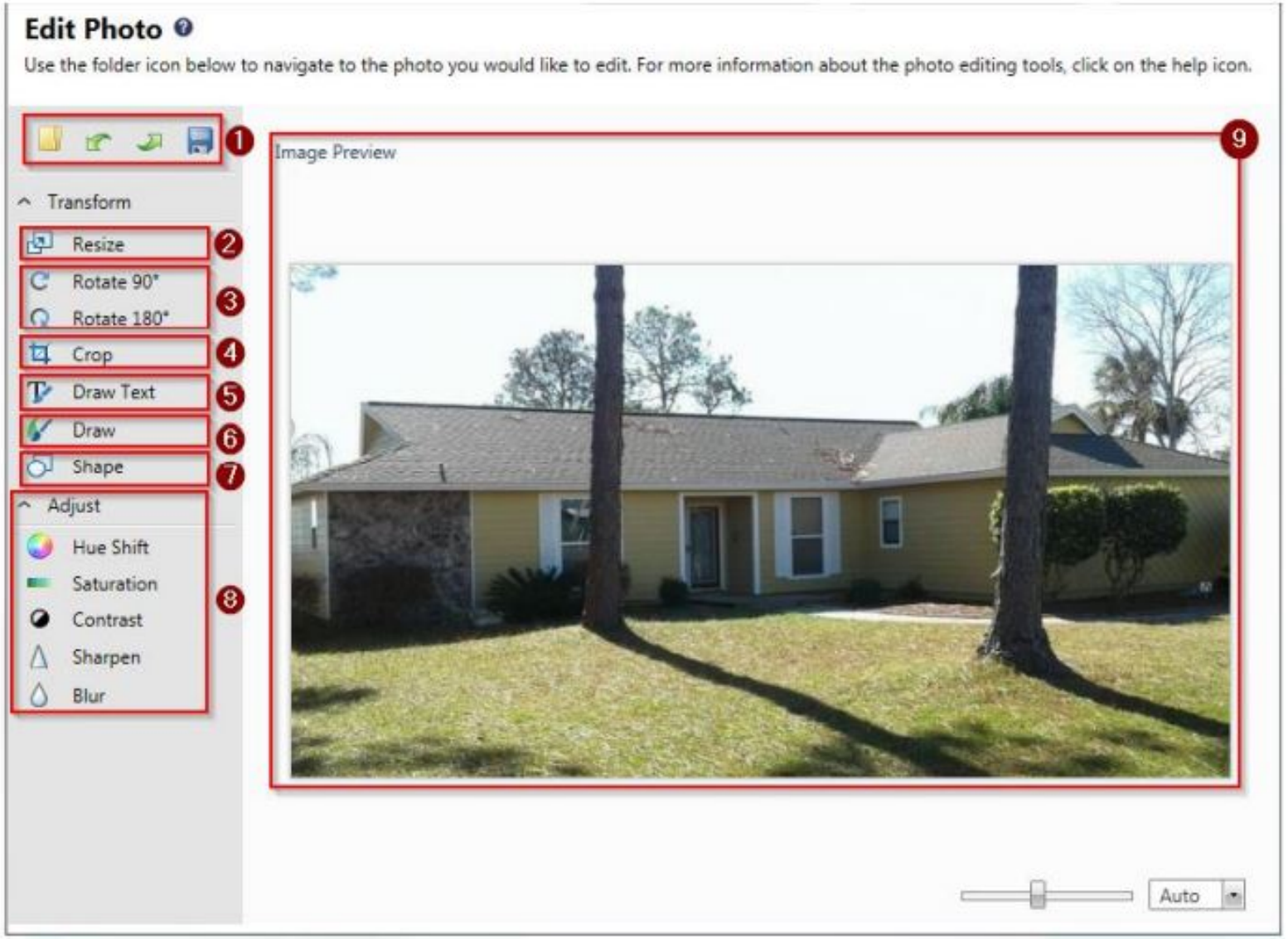
SDE – Photo Tab

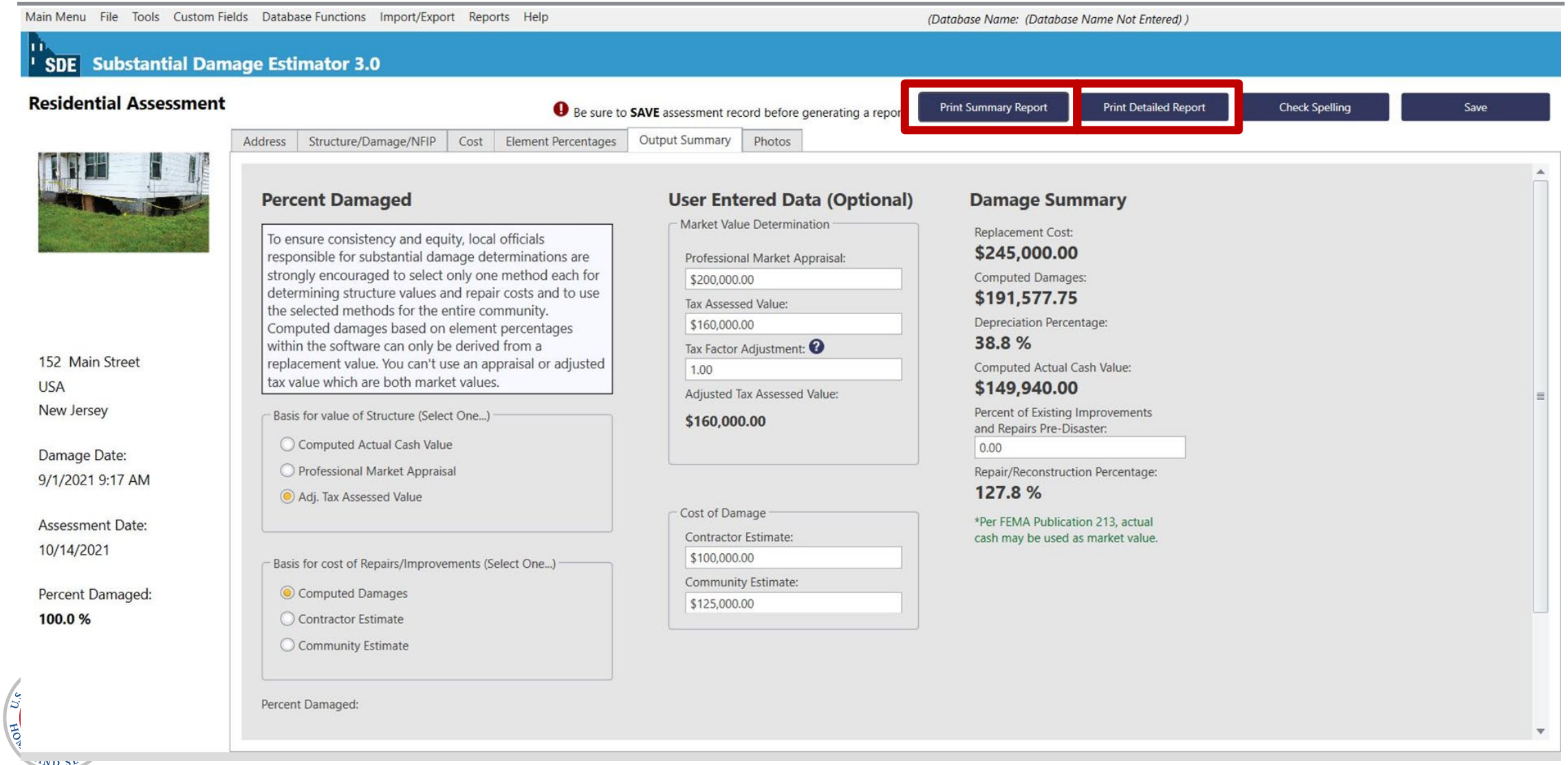


SDE – Photo Tab



FEMA

SDE – Reports


Main Menu File Tools Custom Fields Database Functions Import/Export Reports Help
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SDE Substantial Damage Estimator 3.0
Residential Assessment
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Professional Market Appraisal
Adj. Tax Assessed Value
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Contractor Estimate
Community Estimate
Percent Damaged:
User Entered Data (Optional)
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Damage Summary
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Computed Damages:
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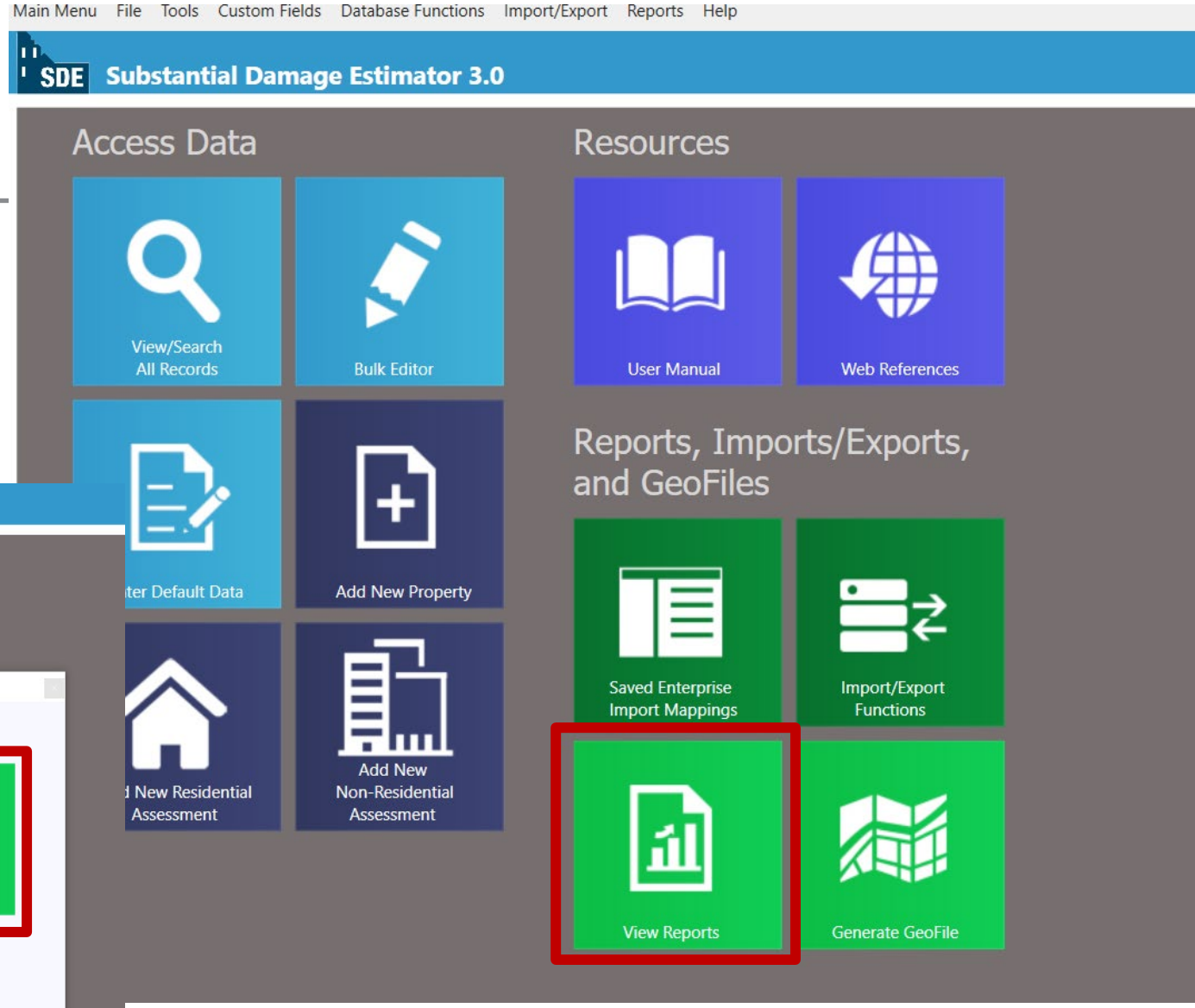
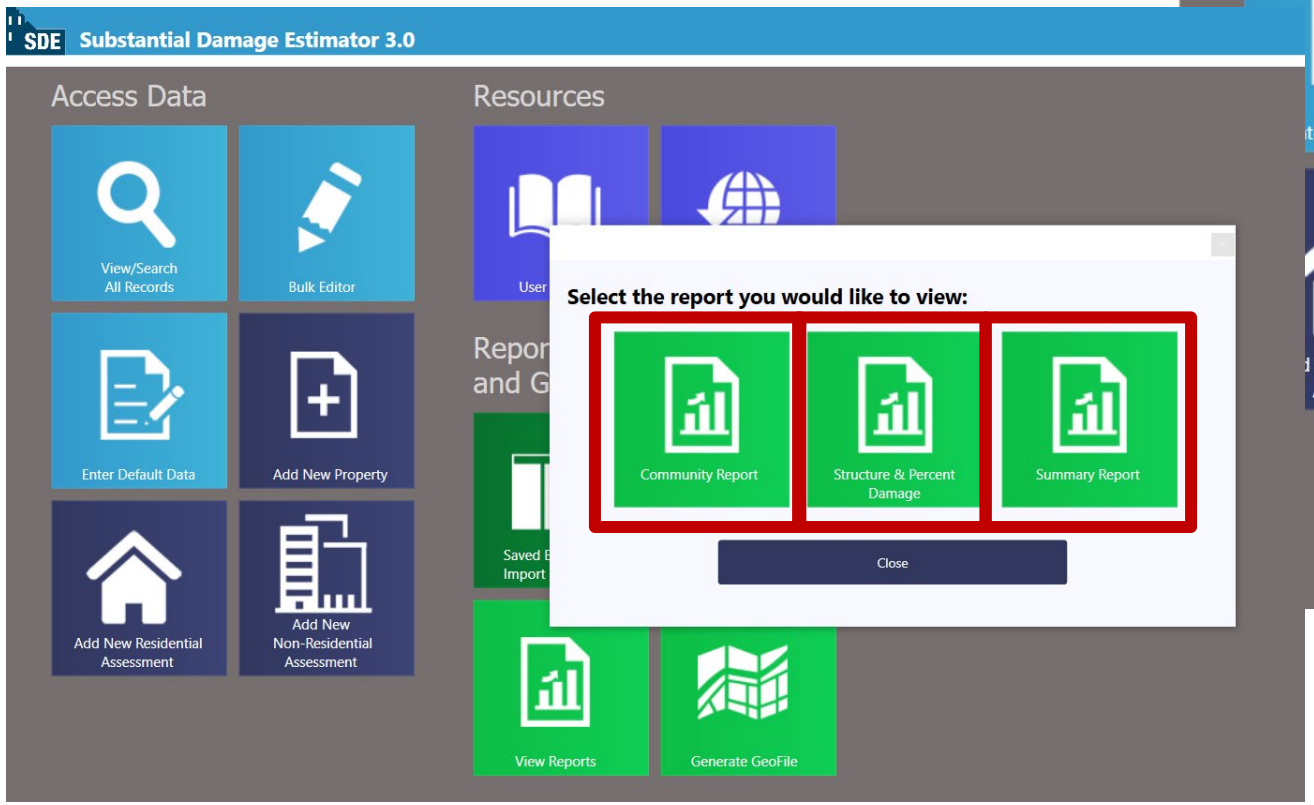
Depreciation Percentage:
38.8 %
Computed Actual Cash Value:
$149,940.00
Percent of Existing Improvements and Repairs Pre-Disaster:
0.00
Repair/Reconstruction Percentage:
127.8 %
*Per FEMA Publication 213, actual cash may be used as market value.

SDE – Reports

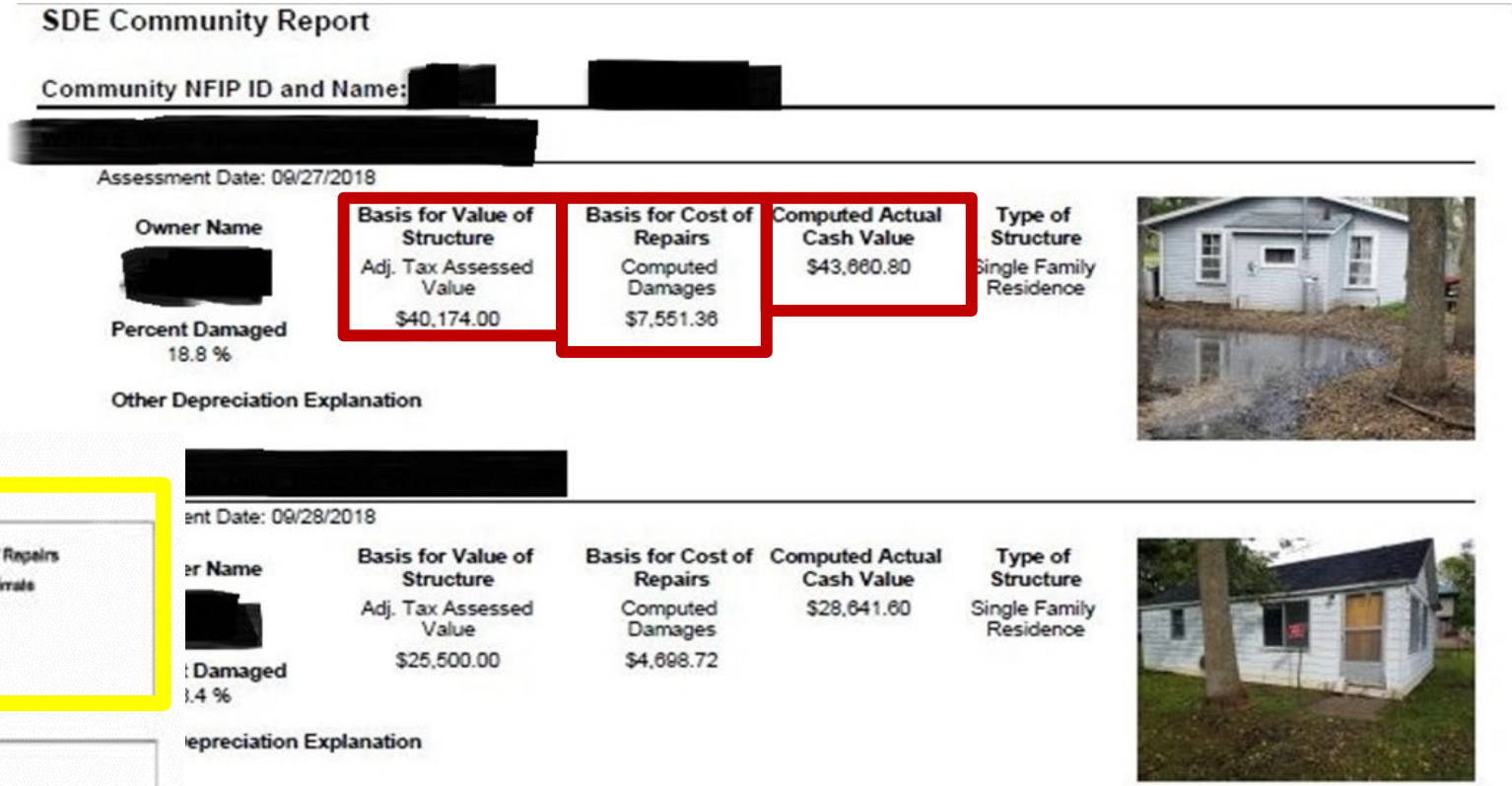
- One page Structure report
- Detailed structure report (5 pages)
- Community Report





SDE – Reports

- Community Report



SDE Community Report

Community NFIP ID and Name: [redacted]

Assessment Date: 09/27/2018

Owner Name	Basis for Value of Structure	Basis for Cost of Repairs	Computed Actual Cash Value	Type of Structure
[redacted]	Adj. Tax Assessed Value $40,174.00	Computed Damages $7,551.36	$43,660.80	Single Family Residence

Percent Damaged 18.8 %

Other Depreciation Explanation

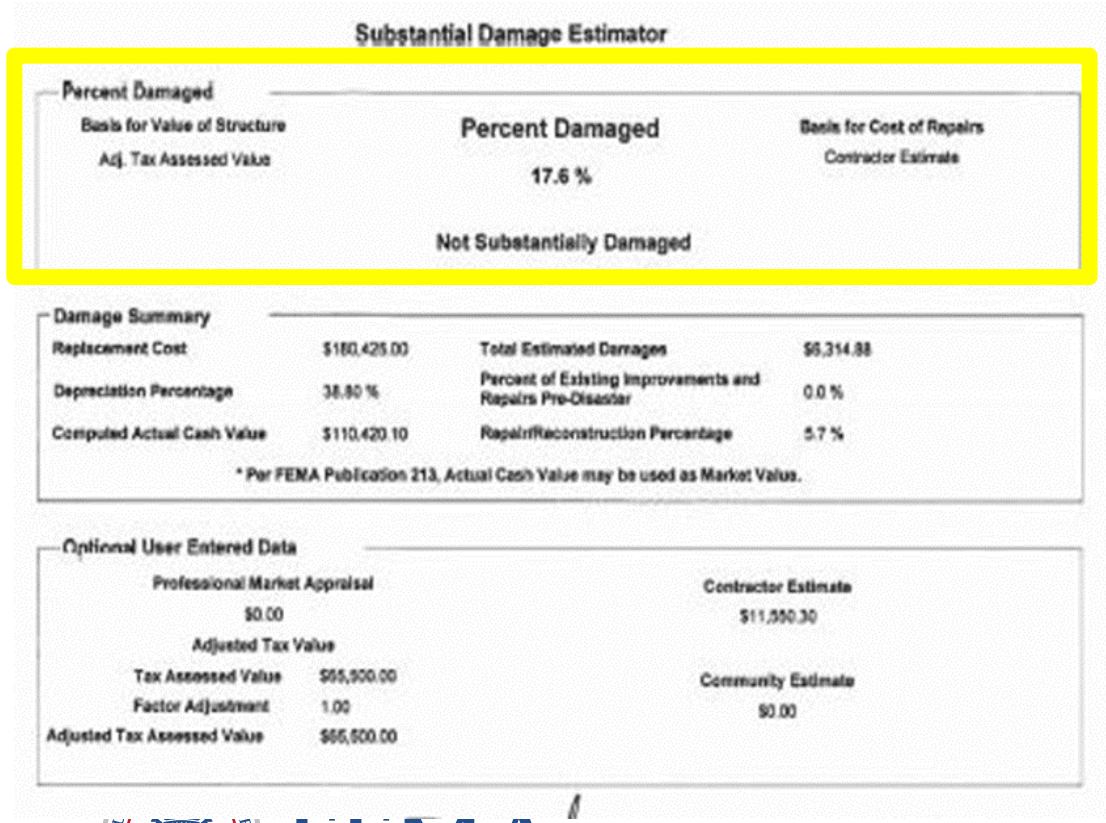
[redacted]

ent Date: 09/28/2018

er Name	Basis for Value of Structure	Basis for Cost of Repairs	Computed Actual Cash Value	Type of Structure
[redacted]	Adj. Tax Assessed Value $25,500.00	Computed Damages $4,698.72	$28,641.60	Single Family Residence

Damaged .4 %

epreciation Explanation



Substantial Damage Estimator

Percent Damaged

Basis for Value of Structure	Percent Damaged	Basis for Cost of Repairs
Adj. Tax Assessed Value	17.6 %	Contractor Estimate

Not Substantially Damaged

Damage Summary

Replacement Cost	$160,425.00	Total Estimated Damages	$5,314.88
Depreciation Percentage	38.80 %	Percent of Existing Improvements and Repairs Pre-Disaster	0.0 %
Computed Actual Cash Value	$110,420.10	Repair/Reconstruction Percentage	5.7 %

* Per FEMA Publication 213, Actual Cash Value may be used as Market Value.

Optional User Entered Data

Professional Market Appraisal	$0.00	Contractor Estimate	$11,550.30
Adjusted Tax Value			
Tax Assessed Value	$65,500.00	Community Estimate	$0.00
Factor Adjustment	1.00		
Adjusted Tax Assessed Value	$65,500.00		

Best Practice – Include a copy of a detailed SDE report and a blank floodplain permit with the SD/SI determination letter.

Summary

Lesson's Learned

- SDE data needs to be accurate and consistent to demonstrate credibility to the community and structure owners
- Use pilot inspections, with all inspectors in one group, before starting the inspections so that everyone is on the same page.
- Start slow so that the inspectors feel comfortable with the data requirements
- Review first inspections in detail – easier to identify errors and data inconsistencies
- Work with community staff 3 to 7 days in advance to identify available GIS data and have daily databases ready for the inspectors
- Gauge capacity and need for technical assistance

Substantially damaged (35–65 percent damaged)

Critical Substantial Damage Range

Substantial Damage determinations between 35 percent and 65 percent are the most critical and these determinations are the ones most likely to be challenged by structure owners. Therefore, local officials may want to perform additional reviews of the field-collected data to ensure that the determinations are defensible.

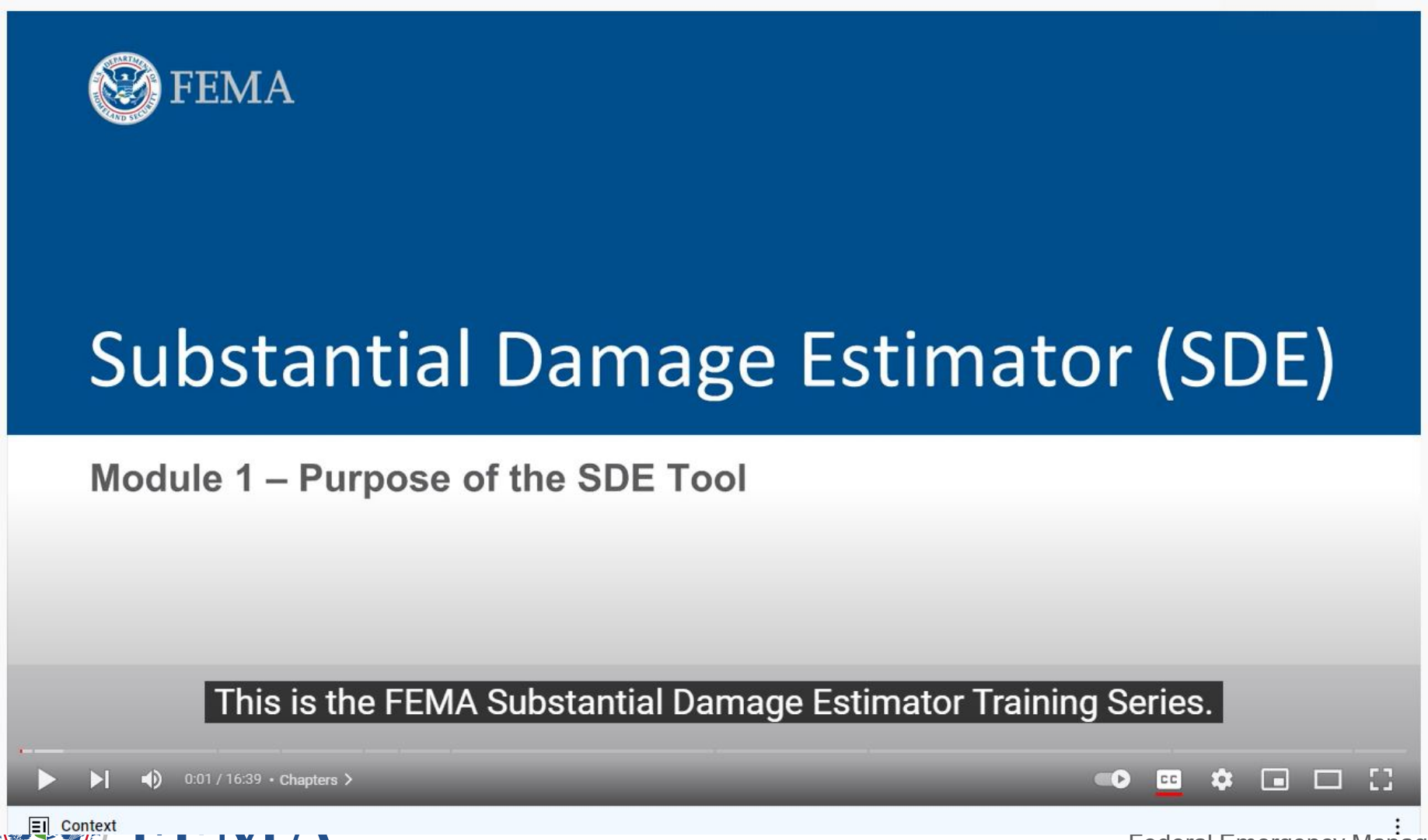
Exterior Inspections

Summary of Substantial Damage Determinations

- **UNIFORMLY, ETHICALLY, EQUITABLY AND CONSISTENTLY!**
- Make SD determination before issuing permits using defendable costs and market value
- Assure that structure meets current requirements

FEMA

SDE Tool – YouTube



What Next?

Substantially Damaged

Not Substantially Damaged

Permitting Flood Repair in the SFHA

- Currently ordinance regulations must be followed if substantially damaged.
- Citizens who decide to make improvements to their buildings on top of the damage.
- Don’t forget that inspection will be required to verify compliance.

New Jersey NFIP Model Floodplain Development Permit

For: Community Name, Permit Version 1.0, March 11, 2021

The Floodplain Development Permit application assists communities in evaluating impacts of activities proposed within New Jersey regulated floodplains or FEMA’s Special Flood Hazard Areas (SFHAs). All activities must be in compliance with the regulations and standards set forth by local, state, and federal entities. For residents and property owners to be eligible for national flood insurance rates under the National Flood Insurance Program (NFIP), For communities to receive certain kinds of federal monies, the community must agree to meet certain floodplain development standards. The Floodplain Development Permit application packet is a tool to ensure these standards are met. It should be noted that depending on the type of development, *you may be required to hire a surveyor or engineer to help complete the required forms*.

Prior to applying for a Floodplain Development Permit, the Applicant **MUST** obtain other required federal, state, and local permits, including the required New Jersey Land Resource Protection Permits set forth by the New Jersey Department of Environmental Protection (NJDEP). Refer to *Appendix B* of this application for a list of potential permit-by-rules, general permits-by certification, and general permits, or see your local Floodplain Administrator. All permits obtained for the project **MUST** be attached to this application.

If approved, a community official, or the Floodplain Administrator (FPA), will perform inspections throughout the project, as well as when the project is completed to ensure that the development is compliant with the requirements of the Local Flood Damage Prevention Ordinance, *thus helping you get a better premium rate on flood insurance.*

If you are proposing development of any kind (constructing a new building, adding on to an existing building, clearing land, placing fill, mining, drilling, etc.) in a floodplain as defined by NJDEP or FEMA, you **MUST** submit this application to your local FPA. Depending upon the type of development you are proposing, additional forms and/or permits may be required.

Per NFIP participation rules, if the property you propose to develop is located within a Special Flood Hazard Area on a FEMA FIRM, you **MUST** obtain a Floodplain Development Permit prior to beginning the project in accordance with the requirements of the local Flood Damage Prevention Ordinance of your community. Failure to do so may incur penalties, including high insurance rates.

For the purposes of this application, the “Applicant” is considered either the property owner, builder, or engineer. The “Applicant” cannot be the FPA. Typically, the Applicant completes Part I, II, & III of this application and submits the information to the local FPA. If any information is missing by the Applicant, the FPA will assist in filling in the missing information. The FPA reviews the submission, forms a determination, then notifies the Applicant of whether or not additional information is needed. Once all required materials have been submitted, the FPA will make a permitting decision and either issue a permit, which may include conditions of approval, or deny the requested permit.

[Add any community-specific text here.]

Appeals

- Owners may appeal decisions, orders, and determinations made by local officials, including substantial damage determinations.
- Review Appeal section in your Flood Damage Prevention Ordinance.
- Even in the post-disaster recovery period, appeals should be handled according to the community's established process.

Enforcement Options

- All NFIP participating communities have an enforcement section in their ordinances
  - Penalties
  - Fines

MITGATION

“Mitigation is the effort to reduce the loss of life and property by lessening the impacts of disasters. Stated plainly, hazard mitigation can keep natural hazard, like flooding, from becoming major disasters.”

Mitigation’s Value to Your Community Fact Sheet - FEMA

FEMA

Increase Cost of Compliance (ICC)

Increased Cost of Compliance (ICC) coverage is one of several resources for flood insurance policyholders who need additional help rebuilding after a flood. It provides up to $30,000 to help cover the cost of mitigation measures that will reduce flood risk.

FEMA

Disaster Recovery Reform Act (DRRA) Section 1206

- Code Administration and Enforcement amended Sections 402 and 406 of the Stafford Act.
  - Section 402: “provide assistance to state and local governments for building code and floodplain administration and enforcement, including inspections for substantial damage compliance.”
  - Section 406: “base and overtime wages for extra hires to facilitate the implementation and enforcement of adopted building codes for a period of not more than 180 days after the major disaster is declared.”

Applicants who seek reimbursement must alert FEMA 90 days from the Recovery Scoping Meeting

Disaster Recovery Reform Act (DRRA) Section 1206

FUNDING IS LIMITED FOR 180 DAYS AFTER THE DISASTER DECLARATION DATE

WORK ELIGIBILITY CRITERIA

- Performed in a designated area of the major disaster declaration.
- Relate to the repair, replacement or retrofit of disaster-damaged structures (public, private and residential) in the jurisdiction of the Applicant.
- Consistent with the work normally done to administer and enforce building code/floodplain ordinance.

SUBSTANTIAL DAMAGE DETERMINATIONS	FLOODPLAIN MANAGEMENT ADMINISTRATION & ENFORCEMENT	BUILDING CODE ADMINISTRATIO ENFORCEMENT
Conduct initial substantial damage (SD) field surveys Prepare repair cost and market value estimates for SD Enter damage inventory administrative data into the Substantial Damage Estimator or comparable data collection software Track cumulative SD and repetitive loss, if required Hire, train, supervise, train, license staff Inform property owners of damage determination and provide compliance requirements Review, adjudicate, and resolve Substantial Damage Determination appeals	✓ Process disaster-related floodplain permits ✓ Provide public training, info & outreach on compliance ✓ Review disaster-related development for compliance ✓ Hire, train, supervise, train, license staff ✓ Inspect all disaster-related development ✓ Monitor impacted areas for unpermitted construction activities ✓ Process, maintain, and track temporary occupancy permits and inspect temporary occupancy buildings ✓ Provide training and information to staff, contractors, and the public on unique considerations for repair of disaster-damaged historic buildings	✓Review and process applications for b permits; certificates of occupancy; certi of compliance ✓Hire, train, supervise, certify, and licer as required to conduct eligible activities ✓Provide training and outreach to the p building code and building permit requi ✓Establish construction plan review and inspection processes, procedures, and instructions for permit holders ✓Inspect structures ✓Monitor impacted areas for unpermit construction activities ✓Identify and carry out corrective actio ✓Review and issue elevation certificate

Question and Answer Session

FEMA

Contact Information

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

For assistance or questions contact the State of New Jersey; Department of Environmental Protection; Bureau of Flood Engineering Technical Assistance at:

- Kenya Lovill, kenya.lovill@dep.nj.gov; or
- Rebecca Jones, rebecca.jones@dep.nj.gov; or
- (609) 292-2296

FEMA

dr-4614-nj-fmi@fema.dhs.gov

For assistance with downloading or installing the tool, email FEMA-BuildingScienceHelp@fema.dhs.gov or call at 866-927-2104.

FEMA