

Rapid Building Damage Assessment

Version 1.0

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Introduction

One of the ESRI sample solutions for Collector for ArcGIS is the Building Damage Assessment tool. This document details how to convert that concept into a damage assessment tool that is compatible with the ATC-20 Rapid Assessment form.

About ATC-20

Applied Technology Council (ATC)-20, is a widely accepted standard for post-earthquake safety review and tagging of structures. ATC-20 is designed to train inspectors, facility managers, architects, engineers, contractors and other building professionals, the methodology for post-earthquake building evaluation.

The procedure is designed to allow the inspector to rapidly review a building and determine if the building can be occupied (green tag), requires additional reviews or has partial damage (yellow tag), or should be closed until demolition or upgrading (red tag).

Application Usage

This tool is to be used by local inspectors use the form when performing damage assessments after an earthquake or other natural disaster. We have found that enabling attachments is useful. A tracking layer is also added to the web map to track the location of inspectors a 5 minute intervals.

Schema

The Damage Assessment tool was not designed to replace the forms used by field crews, but rather relay most important information back from the field to emergency management staff.

A screenshot of a mobile application interface for a Building Damage Assessment tool. The interface is displayed on a smartphone screen with a blue header bar containing the Verizon logo, signal strength, time (7:02 PM), and battery level (39%). Below the header, there are icons for Cancel, settings, a map, a camera, and Submit. The main content area shows a location field with a house icon and coordinates (Lat: 42.422164° Long: -123.326562°). Below this is a section titled "Building Damage Assessment:" followed by a list of fields, each with a right-pointing arrow: Inspector ID, Affiliation, Inspection Date, Building Name, Address, Primary Occupancy, Building Damage, Damage Comments, Posting, and Inspected (Green). At the bottom, there is a partially visible field labeled "Restrictions".

Fields

Field	Alias	Type	Width	Description	Domains	Values
INSPECTORID	Inspector ID	Text	50	Unique Inspector ID		
AFFILIATION	Affiliation	Text	50	Organization Representing		Jackson County
INSPECTDATE	Inspection Date	Date		Date of Inspection		04/16/2014
BUILDINGNAME	Building Name	Text	50	Primary name of building		Jackson County Courthouse
ADDRESS	Address	Text	72	Physical address of structure		10 South Oakdale Ave
BLDINGUSE	Primary Occupancy	Text	50	Primary Use of structure	PrimaryOccupancy	Dwelling, Other Residential, Public Assembly, Emergency Services, Commercial, Offices, Industrial, Government, Historic, School, or Other
DAMAGPER	Building Damage	Text	20	Estimated damage to building in percent.	BuildingDamage	None, 0-1%, 1-10%, 10-30%, 30-60%, 60-100%, or 100%
DAMAGCOM	Damage Comments	Text	150	Evaluation Summary		
POSTING	Posting	Text	20	Inspected (Green), Restricted Use (Yellow), Unsafe (Red)	PostingPlacard	Inspected (Green), Restricted Use (Yellow), Unsafe (Red)
RESTRICTION	Restrictions	Text	200	Placard Restrictions		
ACTIONS	Further Actions	Text	32	Barricade Needed, Structural Evaluation, Geotechnical Evaluation	FurtherActions	Barricade Needed, Structural Evaluation, Geotechnical Evaluation, or Other
NOTES	Notes	Text	250	Additional Comments		Comments

Domains

FurtherActions

Code	Description
Barricade Needed	Barricade Needed
Structural Evaluation	Structural Evaluation
Geotechnical Evaluation	Geotechnical Evaluation
Other	Other

PrimaryOccupancy

Code	Description
Dwelling	Dwelling
Other Residential	Other Residential
Public Assembly	Public Assembly
Emergency Services	Emergency Services
Commercial	Commercial
Offices	Offices
Industrial	Industrial
Government	Government
Historic	Historic
School	School
Other	Other

BuildingDamage

Code	Description
None	None
0-1%	0-1%
1-10%	1-10%
10-30%	10-30%
30-60%	30-60%
60-100%	60-100%
100%	100%

Posting

Code	Description
Inspected	Inspected (Green)
Restricted	Restricted (Yellow)
Unsafe	Unsafe (Red)