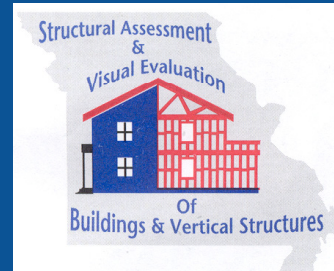


Missouri SEMA S.A.V.E. Coalition Program Overview



Missouri S.A.V.E. Coalition



Engineers
Architects
Building Inspectors
Other Qualified Individuals Certified Under SAVE
All Volunteer Professionals



The S.A.V.E. Board of Directors Come From the Coalition's Participating Professional Organizations:

- American Council of Engineering Companies/Missouri (ACEC/MO)
- American Institute of Architects/Missouri - (AIA/MO)
- American Society of Civil Engineers - (ASCE)
- Missouri Society of Professional Engineers - (MSPE)
- Structural Engineers Association of Kansas & Missouri - (SEAKM)
- Earthquake Engineering Research Institute - (EERI)
- Society of American Military Engineers/St. Louis - (SAME)
- Missouri Seismic Safety Commission - (MSSC)
- Missouri Association of Code Enforcement - *NEW* (MACE)



What S.A.V.E. Does

- Mostly Rapid Visual Inspections per ATC-20 and ATC-45
- Exterior Only, Structural Life Safety
- Post Inspection Placards:

UNSAFE
DO NOT ENTER OR OCCUPY
(THIS PLACARD IS NOT A DEMOLITION ORDER)

This structure has been inspected. Found to be structurally damaged such as to result in failure. An immediate danger.

Date: _____

This facility was inspected under emergency conditions by _____

Inspector ID / Agency: _____

Facility Name and Address: _____

Do Not Remove, Alter, or Cover this Placard until Authorized by Governing Authority

RESTRICTED USE

Caution: This structure has been inspected and found to be damaged as described below.

Date: _____

Caution: occupants using inspection may increase damage and risk.

Entry, occupancy, and normal use are restricted as indicated below.

Structure undamaged

Entry allowed for access to contents

Other restriction: _____

Facility Name and Address: _____

Inspector ID / Agency: _____

Do Not Remove, Alter, or Cover this Placard until Authorized by Governing Authority

STRUCTURALLY INSPECTED
LAWFUL OCCUPANCY PERMITTED

This structure has been inspected and found to be in good condition. Occupancy has been found.

Date: _____

Inspected Exterior Only

Inspected Exterior and Interior

Report any unsafe condition to local authority. Inspection may be required.

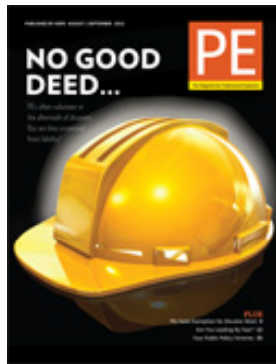
Inspector Comments: _____

Inspector ID / Agency: _____

Facility Name and Address: _____

Do Not Remove, Alter, or Cover this Placard until Authorized by Governing Authority

- Joplin EF-5 Deployment Data used by FEMA, Missouri National Guard, NIST, and ASCE Researchers



**SAVE Coalition
Implemented by
RSMo 44.023**

**SEMA Authorized to
Establish Volunteer
Inspection Program**



S.A.V.E. Volunteer Service

Duration = 3 days
**Liability = Willful & Gross
Negligence Only**
Duty With = Local Jurisdiction
**Expenses = Local Jurisdiction
Reimbursement**





Missouri SAVE Coalition




Around 1,100 Members Currently




It Starts With ATC-20 Training & SAVE Membership

Source: SEMA

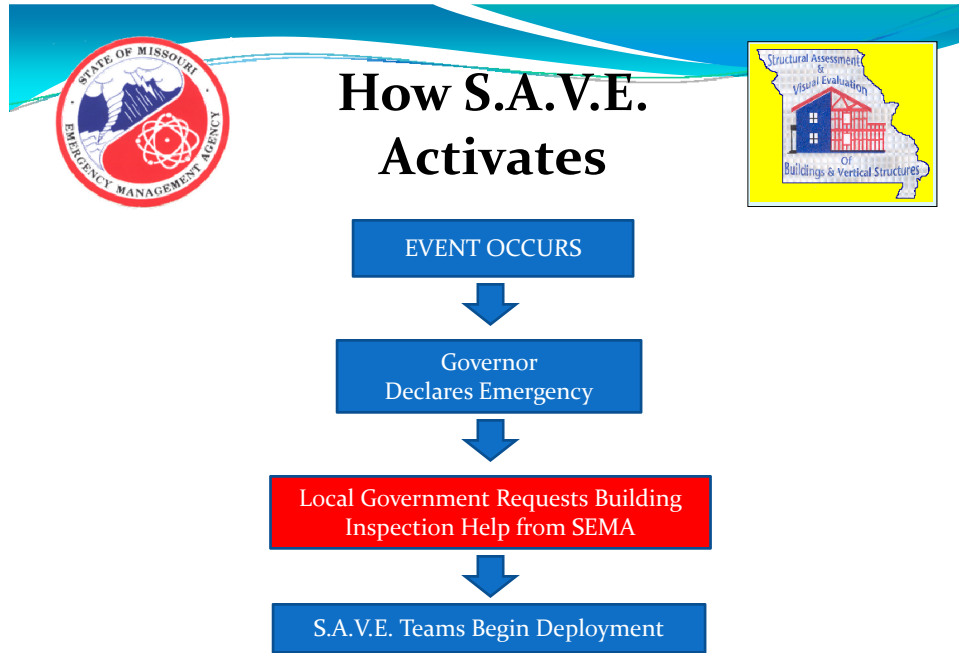


S.A.V.E. Resource Typing



Four Categories of Inspectors:

- 1. Structural I:** Licensed Architect or Licensed P.E. (Structural) with 5 years experience in design and/or construction
- 2. Structural II:** Non-Licensed Architect or Engineer or a Certified Building Inspector / Code Official; or a Carpenter or Iron Worker with 5 years experience
- 3. Special Inspector I:** Licensed P.E. (Non-Structural)
- 4. Special Inspector II:** Non-Carpenter or Non-Iron Worker trade experience in construction, or a Certified Building Inspector / Code Official



S.A.V.E. Deploys Number of Teams Based on Scope of Event

- Two or Three Person Teams with at least One Structural I or Special I per Team
- S.A.V.E. members from just outside the disaster site deployed first
- S.A.V.E. Statewide Coordinator deploys to State EOC





Local Government Responsibilities



1. Sign Memorandum of Agreement
2. Appoint Local Incident Commander
3. Identify Priority Structures
4. Deputize S.A.V.E. Members
5. Provide Workers Compensation Ins.
6. Reimburse travel expenses



Logistics By Local Community



Local Support for SAVE Teams

1. Food, Lodging
2. Transportation within Disaster Area
3. Meeting/Assembly Place
4. Electric, Phone, Internet, Copies

(Desirable But NOT Required)



SEMA S.A.V.E.

Structural Assessment and Visual Evaluation Coalition

Joplin EF-5 Tornado Deployment

May 25 – 28, 2011



Joplin EF-5 Event Time Line

- May 22nd 5:41 pm Tornado Strikes
- May 22nd 5:42 pm Search and Rescue Efforts Begin
- May 23rd 8:10 am S.A.V.E. Regional Coordinators Begin Phone Tree Call Down
- May 24th 10:39 pm City of Joplin Requests Building Inspection Help from SEMA
- May 25th 10:19 am S.A.V.E. SW Regional Coordinator Deploys to Joplin
- May 26-28 S.A.V.E. Inspection Team Deployment

Daily Briefing



Photo Credit: Ben Ross – S.A.V.E.

Refresher Training

WIND DAMAGE EVALUATION GUIDELINES

REV 5-1-06
MO SEMA

RED TAG

- ❖ Building total collapse
- ❖ Building partial collapse (below roof line)
- ❖ Building moved off of foundation
- ❖ Mobile home significantly off of foundation
- ❖ Building or any story significantly out of plumb
- ❖ Severe damage to primary structural member
 - Roofs with 25% or more damage to sheathing / framing
 - Walls with 25% or more damage to sheathing / framing on any one wall
- ❖ Racking of walls
- ❖ Walls with cracks 1/8" and greater
- ❖ Masonry walls with separation, at corners
- ❖ Collapsed chimneys which penetrate roof
- ❖ Toxic / hazardous materials or conditions
- ❖ Large fissures in ground; massive ground movement; slope displacements

AREA UNSAFE

- ❖ Falling hazards
- ❖ Downed power lines
- ❖ Ruptured gas lines
- ❖ Toxic / hazardous materials or conditions

YELLOW TAG

- ❖ Minor damage to primary structural member
 - Roofs with 10% - 25% damage to sheathing / framing
 - Walls with 10% - 25% damage to sheathing / framing on any one wall
- ❖ Collapsed parapets
 - Also possible AREA UNSAFE
- ❖ Collapsed chimneys laying on roof
- ❖ Damage to appended structures (e.g. carports or porches), main building O.K.

Wind Damage Examples

Approx. 15% Roof Damage
YELLOW

Approx. 35% Roof Damage
RED

Approx. 10% Damage to One Wall
YELLOW

Approx. 35% Damage to One Wall
RED

House O.K.
Carport Column Missing & Carport Roof Sags
YELLOW
Note: Dwelling O.K.; Do not use carport until repaired

MO SEMA REV 5-1-06

Field Copies of Damage Area Maps



Photo Credit: Ben Ross - S.A.V.E.

Results

- 69 S.A.V.E. Members Deployed Over 3 Days
 - 22 on Day 1 - 11 Teams
 - 28 on Day 2 - 11 Teams
 - 62 on Day 3 - 23 Teams
- Over 1,100 Hours Donated
- Value of Donated Time - More Than \$110,000



Results

- More than 7,700 Structures Inspected



- 36% Unsafe



- 6% Restricted Use



- 58% Did Not Present Life Safety Problems



Lessons Learned

- S.A.V.E. Program Worked Well
- An Automated Volunteer Communication System is Needed
- Automated Data Collection is Needed
- Better Transportation
- Formal SAVE Leader Training