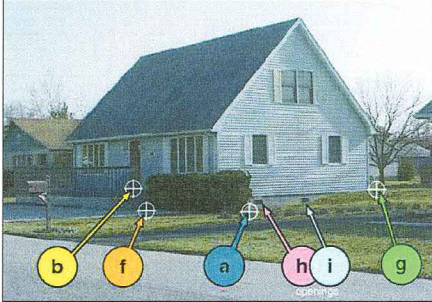


Elevation Certificate and LOMA



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Kansas Society Land Surveyors



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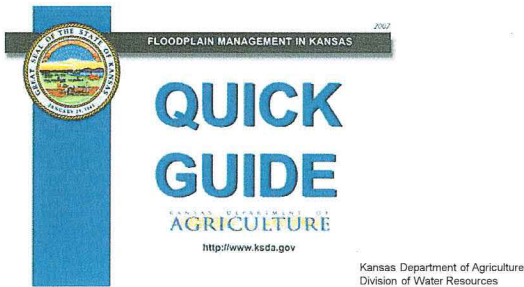
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Presentation Adapted From Quick Guide



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Discussion Topics

- Basics of the National Flood Insurance Program
- Why do we need elevation certificates.
- FEMA maps
- Base Flood Elevation
- Elevation Certificates
- When is LOMA better than EC
- Where to get additional information

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National Flood Insurance Act of 1968

- **Established the National Flood Insurance Program**
- **Federally subsidized flood insurance was made available to communities that voluntarily enacted land use and control measures**
- **Prior to the 1968 Act the sole relief available to flood victims was special disaster loans**

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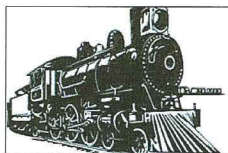
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Biggert Waters 2012

Actuarial rating requires an elevation certificate. Actuarial rating triggered by:

- Selling the property;
- Allowing policy to lapse;
- Repetitive flood losses;
- Purchasing a new policy.



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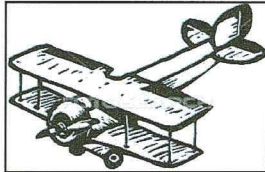
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**Homeowner Flood Insurance  
Affordability Act of 2014**

Slower glide path toward actuarial rating. Actuarial rating still requires an elevation certificate. Biggert Waters Requirements not changed for:

- Commercial property;
- Non-primary residence.



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**Common Acronyms and Definitions**

- LOMA – Letter Of Map Amendment
- BFE – Base Flood Elevation
- EC – Elevation Certificate
- FHBM – Flood Hazard Boundary Map
- FIS – Flood Insurance Study
- FIRM – Flood Insurance Rate Map
- DFIRM – Digital FIRM
- LOMA OAS – Letter Of Map Amendment Out As Shown
- NFIP – National Flood Insurance Program
- SFHA – Special Flood Hazard Area

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**Base Flood**

One Percent Annual Chance Flood  
100-Year Flood

Base Flood means the flood elevation that has a 1% chance of being equaled or exceeded each year. The base flood is the flood used by most Federal and state agencies and by the National Flood Insurance Program (NFIP) as the standard for floodplain management and to determine the need for flood insurance.

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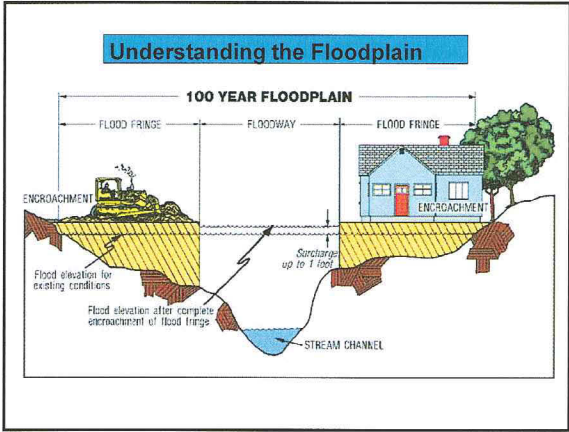
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### Why Do Communities Regulate the Floodplain?

- To protect people and property
- To ensure that federal flood insurance is available
- To save tax dollars
- To avoid liability and lawsuits
- To reduce flood losses in Kansas

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### Southern Jefferson County surveyors reprimanded, fined

(Headline from Beaumont Enterprise in Beaumont, Texas in February of 2009.)



Incorrect land surveys prevented hurricane damaged homes from being rebuilt. Two Texas surveyors were fined \$6,000 each for filing incorrect elevation figures.

Full and complete details available on the internet. You may find it to be interesting reading.

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### Community Responsibilities



NATIONAL FLOOD INSURANCE PROGRAM

- Adopt an ordinance
- Require floodplain development permits
- Review permits to assure sites are reasonably safe from flooding
- Require residential structures to be elevated above the BFE
- Require other buildings to be elevated or flood proofed
- Conduct field inspections and cite violations
- Require Elevation Certificates to document compliance
- Carefully consider requests for variances
- Resolve non-compliance and violations
- Advise FEMA when updates to flood maps are needed

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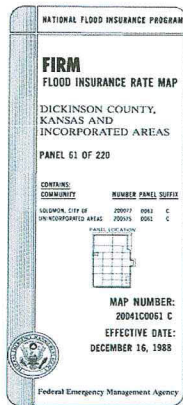
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### Start With The Flood Map

- What type of map is it?
- Community Name
- Panel of the Map
- Community Number
- Site diagram
- Community Number with Panel Number
- Revisions
- Effective Date




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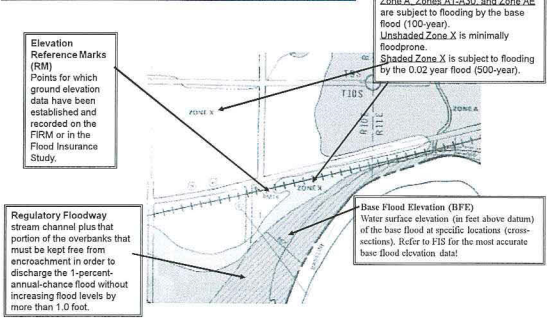
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### The Flood Insurance Rate Map (FIRM)



**New FIRM only has note about RM**

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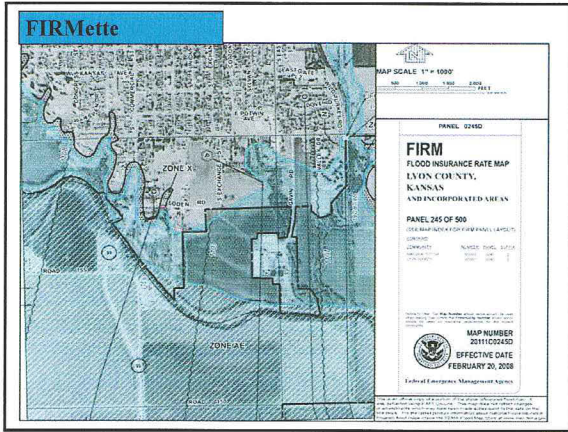
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Start at msec.fema.gov  
Map Service Center  
also called Flood Map  
Information Exchange  
or FMIX.

Search Address

Search All Products

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Search All Products

Choose one of the three search options below and optionally enter a product date range:

Jurisdiction:  Jurisdiction Name:  Product ID:

Use Drop Down List

Map Service Center Product Date Range:

Search

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**Search All Products**

Choose one of the three search options below and optionally enter a posting date range:

Jurisdiction Jurisdiction Name Product ID

Year: [KANSAS] Jurisdiction Name or FIRM ID: [SHAWNEE COUNTY] Product ID: [ ]

City: [SHAWNEE COUNTY] (Use Firms, County, or ZIP Code) Firm Number, LPMC Code, Quarter

County: [SHAWNEE COUNTY]

Map Server Center Panning Date Range: [ ]

Date Range: [ ] To: [ ]

**Search** Clear All Fields

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**Search Results for SHAWNEE COUNTY \***

Click [subscribe](#) to receive email notifications when products are updated.

- Effective Products (297)
  - Historic Products (83)
  - Pending Products (9)
  - Preliminary Products (0)
  - Flood Risk Products (0)
  - FIRM Panels (95)
    - FIS Reports (2) DL ALL
    - LOMC (198)
    - NFHL Data-State (1)
    - NFHL Data-County (1)

**Search Results Open Below On Same Page.**

**Select Effective Products**

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**Search** Clear All Fields **List Opens Up**

**Search Results for SHAWNEE COUNTY \***

Click [subscribe](#) to receive email notifications when products are updated.

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- Effective Products (297)
  - FIRM Panels (95) DL ALL
    - FIS Reports (2) DL ALL
    - LOMC (198)
    - NFHL Data-State (1)
    - NFHL Data-County (1)
  - Preliminary Products (0)
  - Pending Products (9)
  - Historic Products (83)
  - Flood Risk Products (0)

**Select FIRM Panels**

**Do Not Select DL ALL!**

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Jurisdiction Jurisdiction Name Product ID

Year: [KANSAS] Jurisdiction Name or FIRM ID: [SHAWNEE COUNTY] Product ID: [ ]

City: [SHAWNEE COUNTY] (Use Firms, County, or ZIP Code) Firm Number, LPMC Code, Quarter

County: [SHAWNEE COUNTY]

Map Server Center Panning Date Range: [ ]

Date Range: [ ] To: [ ]

**Search** Clear All Fields **List of Panels Opens**

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**Search Results for SHAWNEE COUNTY \***

Click [subscribe](#) to receive email notifications when products are updated.

Product ID	Effective Date	LPMC	Size	Download	View
2017020804	05/29/2011		319K	<a href="#">DL</a>	<a href="#">View</a>
2017020805	05/29/2011	<a href="#">DL ALL</a>	379K	<a href="#">DL</a>	<a href="#">View</a>
2017020806	05/29/2011		219K	<a href="#">DL</a>	<a href="#">View</a>
2017020807	05/29/2011	<a href="#">DL ALL</a>	309K	<a href="#">DL</a>	<a href="#">View</a>
2017020808	05/29/2011	<a href="#">DL ALL</a>	439K	<a href="#">DL</a>	<a href="#">View</a>
2017020809	05/29/2011	<a href="#">DL ALL</a>	619K	<a href="#">DL</a>	<a href="#">View</a>
2017020810	05/29/2011		139K	<a href="#">DL</a>	<a href="#">View</a>
2017020811	05/29/2011		139K	<a href="#">DL</a>	<a href="#">View</a>
2017020812	05/29/2011		139K	<a href="#">DL</a>	<a href="#">View</a>
2017020813	05/29/2011		139K	<a href="#">DL</a>	<a href="#">View</a>
2017020814	05/29/2011		139K	<a href="#">DL</a>	<a href="#">View</a>

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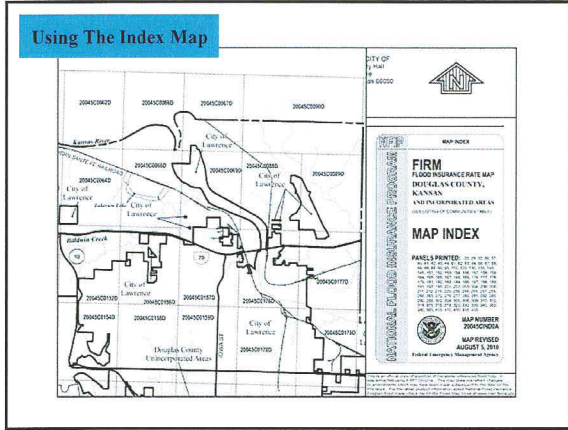
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### Using The Index Map



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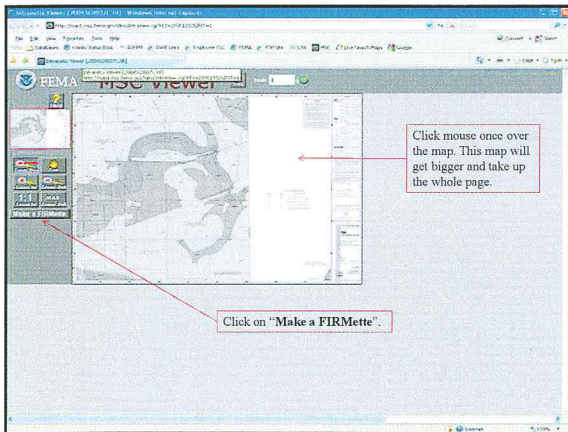
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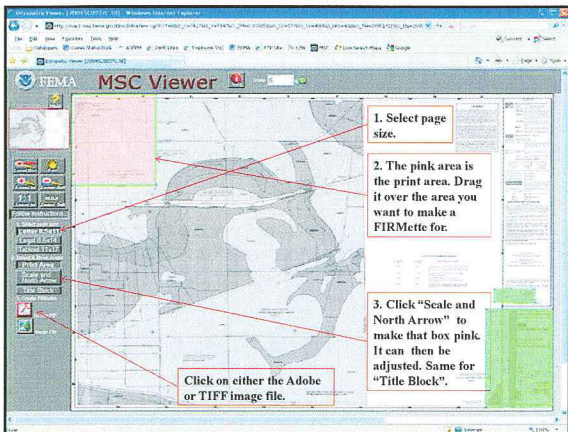
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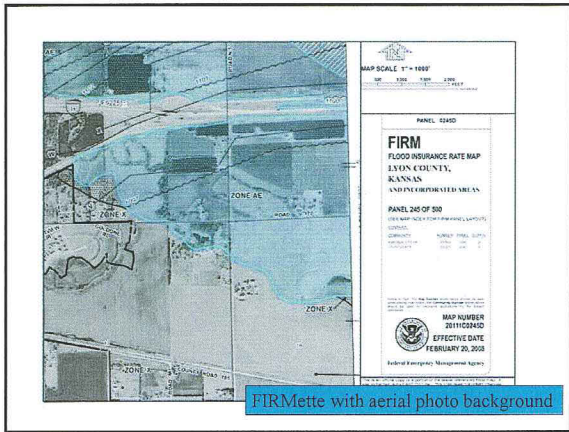
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FIRMette with aerial photo background

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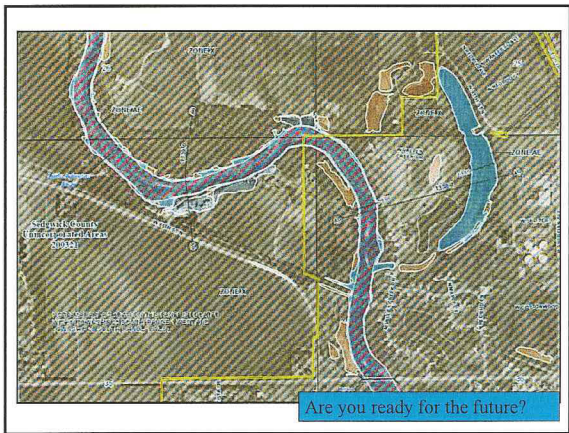
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Are you ready for the future?

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**Flood zones**

**Zone A** – Areas subject to inundation by a 100-year flood. Because detailed hydraulic analyses have not been performed, no base flood elevation or depths are shown.

**Zone AE** – Areas subject to inundation by a 100-year flood as determined by detailed methods. Base Flood elevations are shown within these zones (zone AE is used on new and revised maps in lieu of zones A1-A30).

**Zone AO** – Areas subject to inundation by 100-year shallow flooding (usually sheet flow or sloping terrain) where average depths are between one and three feet. Average flood depth derived from detailed hydraulic analyses are shown within this zone.

**Zone AR** – Area of special flood hazard that resulted from the decertification of a flood-protection system that is in the process of being restored.

**Zone B, C and X** – Areas of moderate or minimal hazard from the principal source of flooding in the area, as identified in the community flood insurance study (FIS). Buildings in these zones, however, could be flooded by severe, concentrated rainfall where local drainage systems were inadequate. Local stormwater drainage systems are not normally considered in the community's FIS. The failure of a local drainage system creates areas of high flood risk within Zones B, C and X. Flood insurance is available in participating communities but is not required by regulation (zone X is used on new and revised maps in place of zones B and C).

Which of these zones require an elevation certificate for PostFIRM structures?

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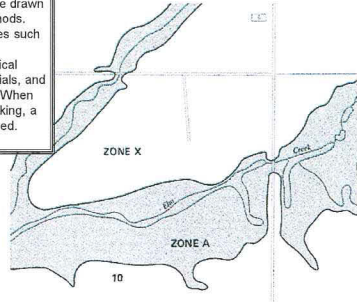
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### Approximate Flood Zones and Unnumbered A Zones

Approximate flood zones are drawn based on approximate methods. FEMA checked other sources such as the U.S. Army Corps of Engineers, the U.S. Geological Survey, the state, local officials, and sources of historic records. When existing information was lacking, a rough analysis was performed.



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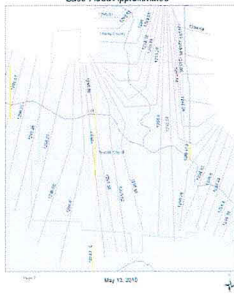
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City of Tecost  
Base Flood Approximates



### Water Surface Elevation

If two elevations overlap on same property use the higher number. This can happen in areas where streams and rivers converge.

In some communities that only have approximate A Zones the Division of Water Resources can provide water surface elevations. If this information is used on a LOMA or EC it should be noted.

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### Flood Map Revisions Issued by FEMA

- Letter of Map Amendment (LOMA)
- Letter of Map Revision (LOMR)
- Letter of Map Revision Based on Fill (LOMR-F)
- Physical Map Revision (LOMR PMR)
- LOMA Out As Shown (LOMA OAS)

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**Activities that Require Permits**

- Constructing new buildings or additions to existing buildings
- Substantially improving existing buildings
- Placing manufactured (mobile) homes
- Subdivision of land
- Temporary buildings and accessory structures
- Agricultural buildings
- Parking or storage of recreational vehicles
- Temporary or permanent materials storage,
- Roads, bridges, and culverts
- Fill, grading, excavation, mining, and dredging
- Altering stream channels




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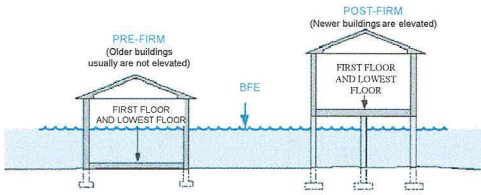
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**What is Meant by Pre-FIRM and Post-FIRM?**



Elevation certificates were not required for PRE-FIRM until BW12. There are many thousands of Pre-FIRM homes that will require an elevation certificate when sold. In some cases an elevation certificate may help the owner of a PRE-FIRM property to save money.

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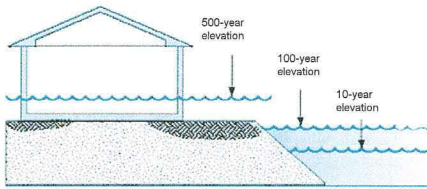
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**Nature Doesn't Read Maps**




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Nature Did Not Read The Flood Maps In 2007 In Coffeyville!



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What is the Elevation Certificate and How is it Used?

- The EC must be signed and sealed by a licensed land surveyor or professional engineer. Architects are not allowed to sign EC in Kansas.
- It can be used to show that sites are natural ground above the Base Flood Elevation. The EC alone will not eliminate insurance requirement.
- EC is used by communities to determine that properties are elevated properly.
- Insurance agents use the EC to write flood insurance policies.
- The Elevation Certificate (EC) is a FEMA form found at [www.fema.gov](http://www.fema.gov).



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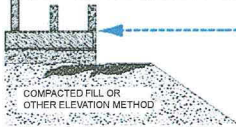
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Paperwork is Important for Your Community

Lowest Floor means the lowest floor of the lowest enclosed area (including basement). An unfinished or flood resistant enclosure that is not a basement is not the lowest floor if the enclosure is built as required in the local ordinance, which includes limited uses, such as a carport.



What is the "Top Of The Bottom Floor"?  
What is a basement?

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This is a common type of construction for commercial buildings.  
Think about most restaurants and retail stores you have ever been  
inside of.




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### Building Diagram 1B

Structures that use a raised slab or stem wall with fill.  
This picture is of a truck loading dock. We don't have many  
residences in Kansas built with this method of construction.

**DIAGRAM 1B**

All raised-slab-on-grade or slab-on-stem-wall-with-fill single- and multiple-floor buildings (other than split-level), either detached or row type (e.g., townhouses), with or without attached garages.

Existing Building Features – The bottom floor is at or above ground level (GNL) on at least one side.\*

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### Something New

In addition, a new Diagram Number has been developed to identify non-elevated buildings with a walkout basement. Non-elevated buildings with a walkout basement are identified as Diagram Number 2b. Non-elevated buildings with a basement that is not a walkout basement are identified as Diagram Number 2a. For buildings identified as Diagram Number 2a or 2b, insurers are to report Diagram Number 2 for the TRRP Plan.

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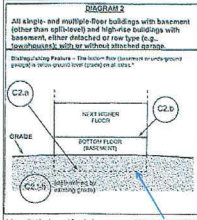
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## Building Diagram 2

Structures with basements. Basement defined as being below grade on all four sides. What we call a walkout basement is not a basement by the FEMA definition. A common feature of basements is window wells.




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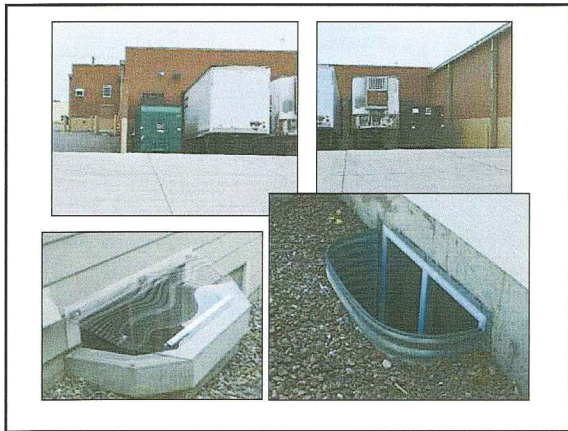
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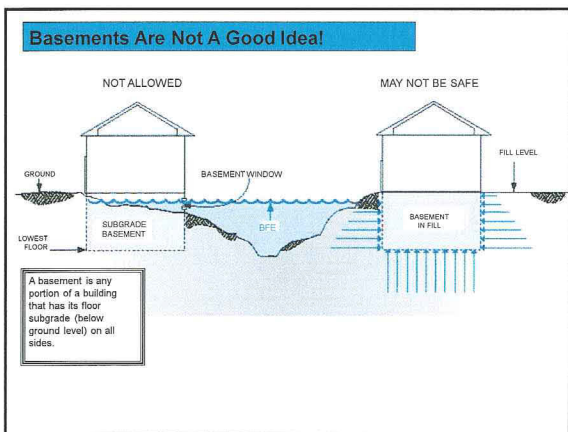
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### Building Diagram 3

Split-level buildings that are slab-on-grade.

**DIAGRAM 3**

All split-level buildings that are slab-on-grade, either detached or semi-detached (e.g., townhouses), with or without attached garages.

Distinguishing Feature - The bottom floor (including garage) is at or above ground level (grade) in all portions.

How does garage affect insurance?

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### Building Diagram 4

Split-level structure that is not slab-on-grade.

**DIAGRAM 4**

All split-level buildings (other than slab-on-grade), either detached or semi-detached (e.g., townhouses), with or without attached garages.

Distinguishing Feature - The bottom floor (including or excluding garage) is below ground level (grade) in all areas.

What about the front door?

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### Building Diagram 5

Structure elevated on piers, posts, columns...

**DIAGRAM 5**

All buildings elevated on piers, posts, pilas, columns, or parallel shear walls. No obstructions below the elevated floor.

Distinguishing Feature - Full of space, the area below the elevated floor is open, with an obstruction to floor joists below (open to air and/or water) opening to the exterior.

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**A larger diagram 5 house in Kansas.**



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**This one is elevated a little higher.**



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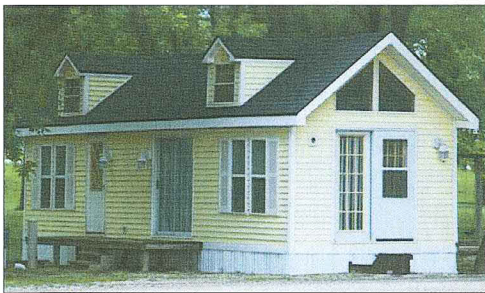
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**What about skirting?**



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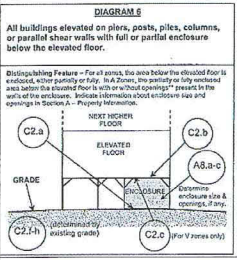
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### Building Diagram 6

Elevated structure with an enclosure below the elevated floor. DWR staff did not take this photo. Only seen this kind of building once in Kansas.




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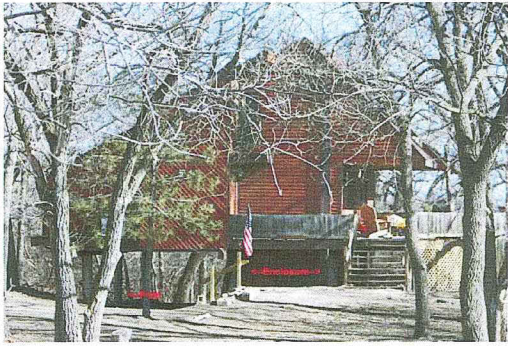
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This diagram 6 house is near Salina.




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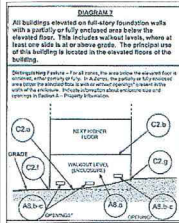
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### Building Diagram 7

Elevated on full-story foundation walls with enclosed area. Also could apply to a walkout basement.



Front View

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Rear View



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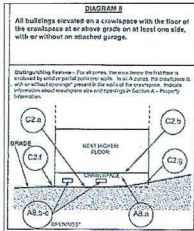
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### Building Diagram 8

Elevated on a crawlspace. Crawlspace at or above grade on at least one side.



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The crawlspace is unacceptable because the flood vents are blocked with pieces of wood. This can cause serious problems.



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### 2011 Rates

Flood Zone	Elevated Bldg	RESIDENTIAL		Non-Residential		
		Post-FIRM Rates	Pre-FIRM Rates	Post-FIRM Rates	Pre-FIRM Rates	
Insured Value \$150,000		-3	\$4,980	\$1,106	\$10,740	\$1,355
	→	-2	\$4,386	\$1,106	\$8,910	\$1,355
		-1	\$3,996	\$1,106	\$8,445	\$1,355
		0 @ BFE	\$1,119	\$1,106	\$2,250	\$1,355
	→	1	\$573	\$1,106	\$825	\$1,355
		2	\$369	\$1,106	\$480	\$1,355
	3	\$279	\$1,106	\$375	\$1,355	

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### Questions About Rating Floor



**PUTTING IT INTO PERSPECTIVE:**  
The rating floor is the lowest floor of the building, including any basement, crawl space, or other area below ground level. It is the floor that is used to determine the building's flood risk rating.

#### Insurance Agent's Lowest Floor Guide

**WHERE TO START:**  
The rating floor is the lowest floor of the building, including any basement, crawl space, or other area below ground level. It is the floor that is used to determine the building's flood risk rating.

**BASE:**  
The rating floor is the lowest floor of the building, including any basement, crawl space, or other area below ground level. It is the floor that is used to determine the building's flood risk rating.

**FFB:**  
The rating floor is the lowest floor of the building, including any basement, crawl space, or other area below ground level. It is the floor that is used to determine the building's flood risk rating.

**FFA:**  
The rating floor is the lowest floor of the building, including any basement, crawl space, or other area below ground level. It is the floor that is used to determine the building's flood risk rating.

**WHERE TO GET HELP:**  
The rating floor is the lowest floor of the building, including any basement, crawl space, or other area below ground level. It is the floor that is used to determine the building's flood risk rating.

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### Retrofit Project Can Pay For Itself


#### No substitute for elevation

Elevation lowers premiums.

#### ZONE A\* EXAMPLE

Under the Flood Insurance Reform Act of 2012, You Could Save More than \$90,000 over 10 Years if You Build 3 Feet above Base Flood Elevation\*

PREMIUM AT 4 FEET ABOVE BASE FLOOD ELEVATION	PREMIUM AT BASE FLOOD ELEVATION	PREMIUM AT 3 FEET ABOVE BASE FLOOD ELEVATION
\$9,100/year \$95,000/10 years	\$14,150/year \$141,000/10 years	\$1,227/year \$4,270/10 years



\*Based on a 10-year term, 10% interest rate, and a 10% discount rate. The example assumes a 10% discount rate and a 10% interest rate. The example assumes a 10% discount rate and a 10% interest rate.

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Vents were unblocked.



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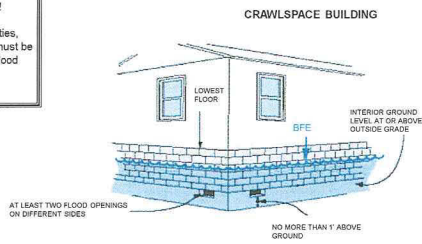
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### Enclosures Below the BFE

**IMPORTANT!!!**  
All under-floor utilities, including ductwork, must be above the Base Flood Elevation.



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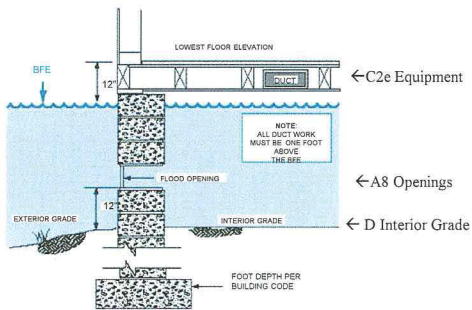
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### Crawlspace Details



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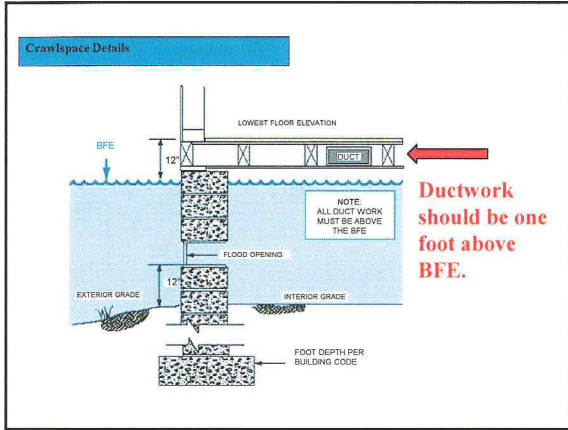
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**Building Diagram 9**  
Elevated on a subgrade crawlspace. Allowed under special circumstances only.

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**Distinguishing Features For Diagram 9**

**DIAGRAM 9**  
All buildings (other than split-level) elevated on a sub-grade crawlspace, with or without attached garage.

**Distinguishing Feature -** The bottom (crawl-space) floor is at or below ground level (grade) on all sides. (If the distance from the crawlspace floor to the top of the next higher floor is more than 8 feet, or the crawlspace floor is more than 2 feet below the grade (AG) on 3 sides, see Diagram 2.)

C2.a

C2.b

C2.f

C2.g

GRADE

NEXT HIGHER FLOOR

A8 U-C

A8.a

OPENINGS

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### Section A8

Lower floor enclosures, crawl spaces and openings.



Line A8.d is for engineered flood openings. There are several companies that make these openings. They certify the opening as being valid for a certain amount of square feet of enclosed space. This picture came from one company's website.



If engineered openings are not used line A8c must be an equal or greater number than line A8a for building diagrams 7, 8, and 9.

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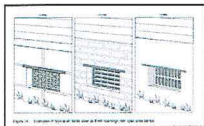
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### Section A8

The source on openings.



### Openings in Foundation Walls and Walls of Enclosures

Below Elevated Buildings in Special Flood Hazard Areas in accordance with the National Flood Insurance Program.

Technical Bulletin 1 / August 2016



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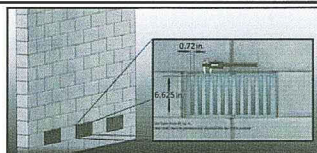
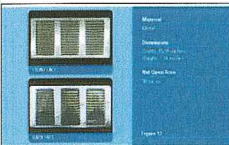
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### Section A8

New great resource on non-engineered openings.



### NON-ENGINEERED OPENING GUIDE

To Assist in the Compliance and Measurement Documentation of Non-Engineered Flood Openings for the Disaster-Relief Assistance with the National Flood Insurance Program

Non-Engineered Opening Guide - Vol. 1, January 2015

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### Section A9

This section is for attached garages. Filled out much like A8.  
Do not leave blank spaces. Use N/A if there is no garage.



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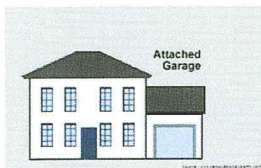
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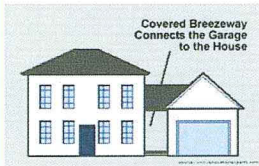
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### Attached Garages

Separate foundations  
Can be considered a separate structure  
Can be insured separately



Common wall  
Single structure  
One insurance policy



Could also have a separate EC

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### Utility Service Inside Enclosures

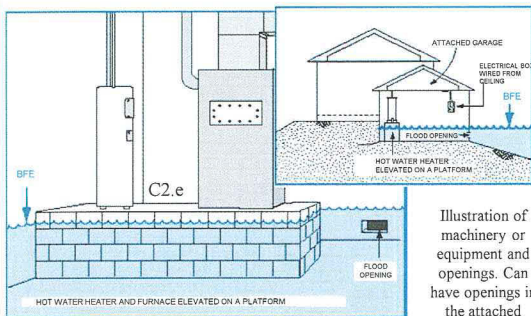


Illustration of machinery or equipment and openings. Can have openings in the attached garage but not in the house.

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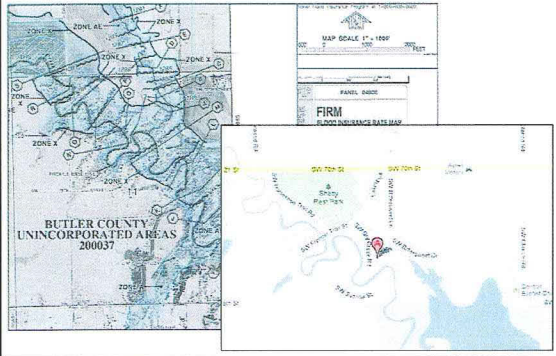
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**Line B9. Base Flood Elevation  
Use the Flood Insurance Study!**



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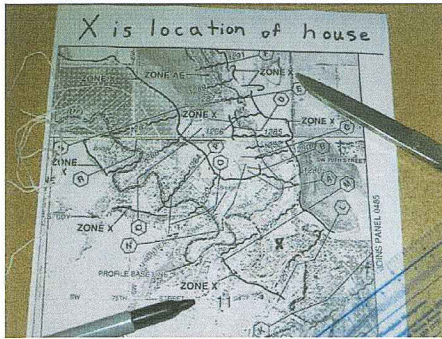
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**Made Copy of Map.  
Marked Location on Copy.**



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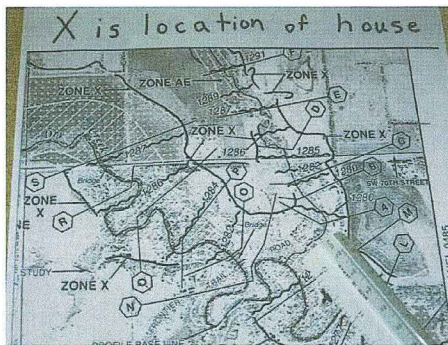
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**Measured Distance Between Cross Sections  
and to Property.**



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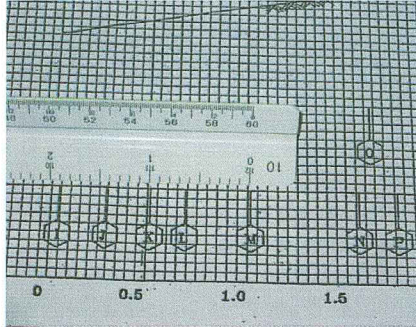
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**Measure Distance in Flood Profile and Make a Ratio to Find Location of Property.**




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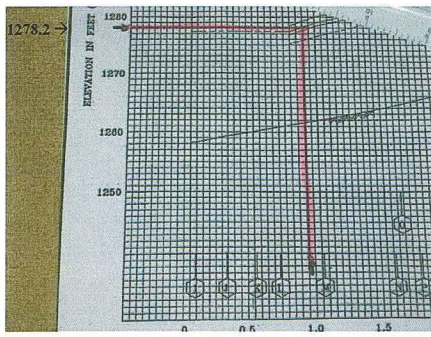
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**Mark Location. Draw Straight Line Up to 1% Line. Draw Straight Line Over to Elevation.**




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**Some Times a Property Will be Right on a Cross Section.**

CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH FEET	FLOODWAY		1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
			WIDTH ACROSS FLOODWAY	MEAN VELOCITY FEET/SECOND	REGULATORY CHANNEL	UPSTREAM FLOODWAY	DOWNSTREAM FLOODWAY	INCREASE
<b>DRY CREEK</b>								
A	1.22	1,161	7,915	1.1	1,222.1	1,222.1	1,275.8	0.7
B	1.82	781	4,622	2.6	1,222.7	1,222.7	1,275.4	0.7
C	2.35	635	3,885	3.5	1,230.2	1,230.2	1,277.2	1.0
D	3.32	694	3,874	3.3	1,235.5	1,235.5	1,283.5	1.0
E	4.82	671	4,070	2.8	1,247.9	1,247.9	1,288.9	1.0
F	5.52	1,164	2,798	3.1	1,258.8	1,258.8	1,291.8	1.0
G	5.78	385	2,299	5.3	1,255.4	1,256.4	1,277.3	0.9
H	5.88	782	2,517	1.6	1,252.7	1,252.7	1,267.3	1.0
I	6.62	868	4,195	3.1	1,277.4	1,278.4	1,278.4	1.0
J	8.29	1,070	2,797	2.3	1,277.4	1,278.4	1,278.4	1.0
K	8.62	1,299	4,217	2.2	1,277.4	1,278.4	1,278.4	1.0
L	6.69	524	3,176	4.3	1,277.4	1,276.5	1,277.5	0.9
M	1.02	770	3,872	3.7	1,279.8	1,279.8	1,279.2	0.7
N	1.84	889	3,172	3.6	1,281.6	1,281.6	1,282.4	0.8
O	1.43	303	2,971	4.8	1,281.9	1,281.9	1,282.7	0.8
P	1.19	761	3,588	2.6	1,283.4	1,283.4	1,283.2	0.8
Q	1.92	919	3,022	2.7	1,284.5	1,284.5	1,285.3	0.8
R	2.23	870	4,028	3.2	1,285.8	1,285.8	1,286.4	0.6
S	2.34	629	3,161	3.1	1,287.1	1,287.1	1,287.6	0.5
T	2.62	556	3,479	2.7	1,287.7	1,287.7	1,288.7	1.0
U	2.87	106	4,175	8.2	1,288.8	1,288.8	1,290.7	0.5
V	3.11	920	3,028	1.6	1,292.8	1,292.8	1,294.2	0.8
W	3.62	1,000	4,155	2.0	1,294.8	1,294.8	1,294.8	0.8
X	3.82	591	3,554	3.2	1,293.4	1,294.4	1,293.4	1.0

Notes: 1. When combined with Station per River. 2. Distance above mouth of South Tr. 3. This table without permission of Bankers Trust Co. from South Tr. Table

FEDERAL EMERGENCY MANAGEMENT AGENCY  
BUTLER COUNTY, AS  
AND INCORPORATED AREAS

FLOODWAY DATA  
DRY CREEK

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**Why Is It Important To Use the FIS?**

This is the actual elevation certificate for the same property on Dry Creek. Compare lines B9 and C2a with our results from using the Flood Insurance Study.

**ELEVATION CERTIFICATE**

Form No. FIS-2023 (October 2023)

1. Property Identification: [REDACTED]

2. Flood Hazard Zone: [REDACTED]

3. Elevation Data:

4. Building Footprint	[REDACTED]		
5. Lowest Floor	[REDACTED]		
6. Flood Hazard Zone	[REDACTED]		
7. Flood Hazard Category	[REDACTED]		
8. Flood Hazard Depth	[REDACTED]		
9. Flood Hazard Category	[REDACTED]		
10. Flood Hazard Category	[REDACTED]		
11. Flood Hazard Category	[REDACTED]		
12. Flood Hazard Category	[REDACTED]		
13. Flood Hazard Category	[REDACTED]		
14. Flood Hazard Category	[REDACTED]		
15. Flood Hazard Category	[REDACTED]		
16. Flood Hazard Category	[REDACTED]		
17. Flood Hazard Category	[REDACTED]		
18. Flood Hazard Category	[REDACTED]		
19. Flood Hazard Category	[REDACTED]		
20. Flood Hazard Category	[REDACTED]		
21. Flood Hazard Category	[REDACTED]		
22. Flood Hazard Category	[REDACTED]		
23. Flood Hazard Category	[REDACTED]		
24. Flood Hazard Category	[REDACTED]		
25. Flood Hazard Category	[REDACTED]		
26. Flood Hazard Category	[REDACTED]		
27. Flood Hazard Category	[REDACTED]		
28. Flood Hazard Category	[REDACTED]		
29. Flood Hazard Category	[REDACTED]		
30. Flood Hazard Category	[REDACTED]		

**60 Base Flood Elevations (Zone A0, use base flood depth) 1277**

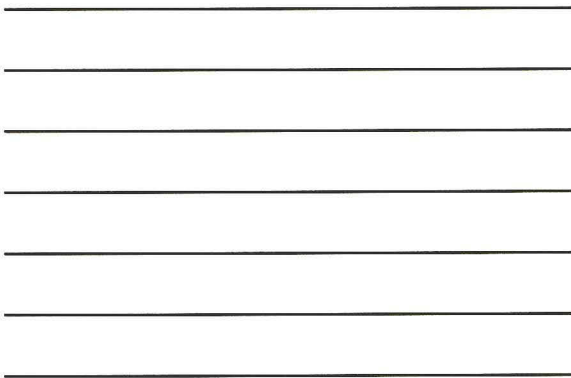
1. Top of bottom floor (including basement, crawl space, or enclosed floor)

2. Top of the next higher floor

3. Bottom of the lowest horizontal structural member (V-Zone only)

4. Attached garage (top of slab)

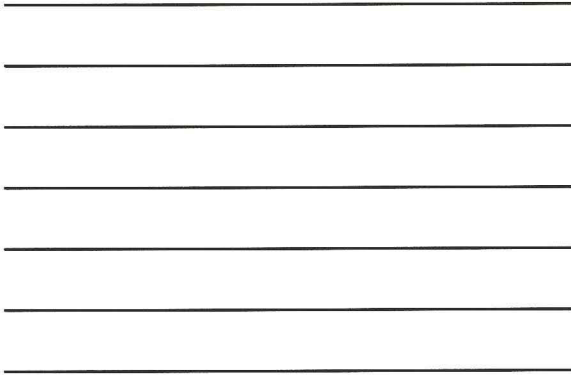
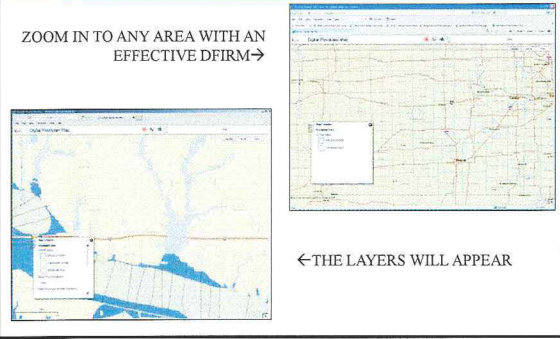
5. Lowest elevation of machinery or equipment servicing the building



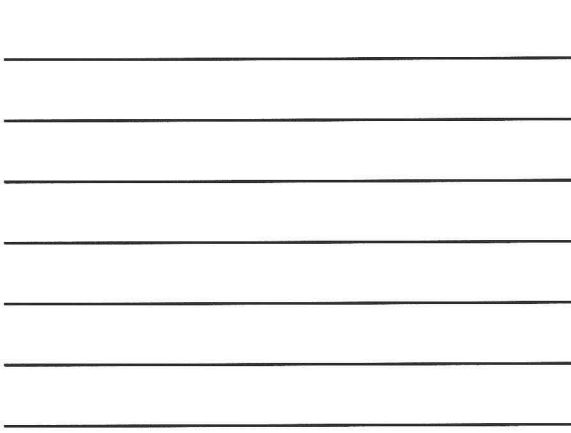
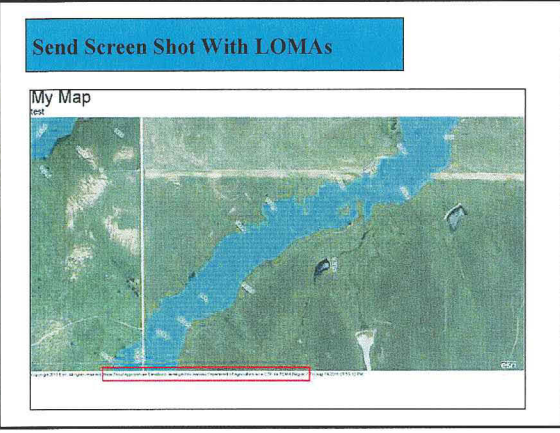
<http://gis.kda.ks.gov/ksfloodplain/>

**Kansas Digital Floodplain Map**

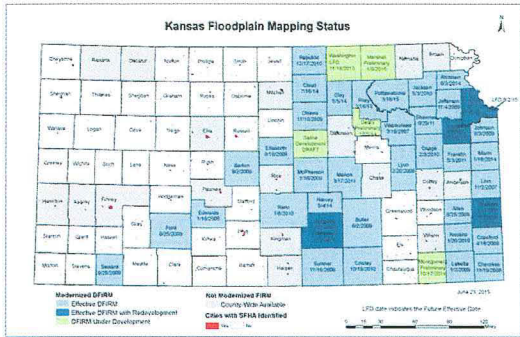
ZOOM IN TO ANY AREA WITH AN EFFECTIVE DFIRM →



**Send Screen Shot With LOMAs**



New mapped areas are added every year.




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**What if there is no Flood Insurance Study?**

**Line B10. Source of Base Flood Elevation**

When a surveyor or engineer uses the data from DWR website to interpolate a BFE they should identify it on the form. State the source of the data as, “**State, Division Water Resources**” and add a note saying, “**Data from DFIRM created under MapMod program.**” The FEMA reviewers will then look at the DFIRM to evaluate the BFE that was developed. If the BFE determination is good it will be approved. If there are problems the reviewers will ask for additional information.

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**DEPARTMENT OF ARMY**  
ENGINEERING CENTER  
WATERWAYS DIVISION  
1100 South Columbia  
Fort Belvoir, CO 80504

65-12-002

Mr. Mark England  
200 West 10th Street  
Lawrence, KS 66044

Re: USACMRA to your project for a Base Flood Elevation for property at 22145 East Park Walk, Junction City, MO, in the USACMRA project at 65-12-002, in the State of Missouri.

The National Flood Insurance Program's Flood Insurance Risk Management System (NFI-RMS) requires that the Flood Insurance Study (FIS) for the property at 22145 East Park Walk, Junction City, MO, be updated to reflect the latest flood data.

Using the Geary County FIS, we have determined that the Base Flood Elevation (BFE) for this property is 1065 feet National Geodetic Vertical Datum (NGVD 29). Any development on this site must be constructed to local flood plain regulations. To officially remove structures from flood insurance requirements, a letter of Map Amendment (LOMA) can be obtained from FEMA if the lowest adjacent grade and lowest floor elevations are above the BFE.

Very truly yours,  
Doris J. Manning, P.E.  
District Engineer

ENCLOSURE  
3/14/15  
31145102

## USACE Elevation Letter

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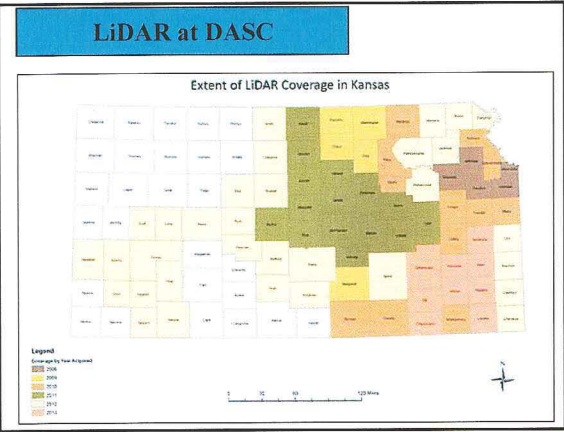
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### LiDAR Information

**Dane Bailey**  
785-296-7769  
Dane.Bailey@kda.ks.gov

**Tara Lanzrath**  
785-296-2513  
Tara.Lanzrath@kda.ks.gov

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### Elevation Data B11

**ELEVATION DATUM**  
Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at <http://www.ngs.noaa.gov/> or contact the National Geodetic Survey at the following address:

NGS Information Services  
NOAA NNCS12  
National Geodetic Survey  
SSAC-3, #9202  
1315 East-West Highway  
Silver Spring, Maryland 20910-3282  
(301) 713-3242

**B12 will not apply in Kansas.**

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**Section C. Building Elevation Information.**

C1. Check the appropriate box. If not finished construction a new certificate will be required when construction is complete.




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**Finished Construction C1?**

SLAB ON GRADE IS COMMON FOR COMMERCIAL BUILDINGS



**SECTION C - BUILDING ELEVATION INFORMATION (SURVEY REQUIRED)**

C1. Building elevations are based on:  Construction Drawings\*  Building Under Construction\*  Finished Construction  
 \*A new Elevation Certificate will be required when construction of the building is complete.  
 C2. Elevations - Zones A1-A30, AE, AH, A (with BFE), VE, V1-V30, V (with BFE), AR, ARIA, ARIAE, ARIA1-A30, ARAH, ARIAQ. Complete items C2 a-h below according to the building diagram specified in Item A7.  
 Benchmark Utilized \_\_\_\_\_ Vertical Datum \_\_\_\_\_  
 Indicate elevation datum used for the elevations in items a) through h) below:  NGVD 1929  NAVD 1988  Other/Source: \_\_\_\_\_

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**C2. Benchmark Utilized**



**SECTION C - BUILDING ELEVATION INFORMATION (SURVEY REQUIRED)**

C1. Building elevations are based on:  Construction Drawings\*  Building Under Construction\*  Finished Construction  
 \*A new Elevation Certificate will be required when construction of the building is complete.  
 C2. Elevations - Zones A1-A30, AE, AH, A (with BFE), VE, V1-V30, V (with BFE), AR, ARIA, ARIAE, ARIA1-A30, ARAH, ARIAQ. Complete items C2 a-h below according to the building diagram specified in Item A7.  
 Benchmark Utilized Survey Identifier \_\_\_\_\_ Vertical Datum Fig Benchmark \_\_\_\_\_  
 Indicate elevation datum used for the elevations in items a) through h) below:  NGVD 1929  NAVD 1988  Other/Source: \_\_\_\_\_

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**Benchmark information is not provided by FEMA.**

Survey at the following address:

NCS Information Services  
 NOAA, NNGS12  
 National Geodetic Survey  
 SSAC-3 #9202  
 1315 East-West Highway  
 Silver Spring, MD 20910-3282

To obtain current elevation, description, and/or location information for bench marks shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242, or visit its website at <http://www.ngs.noaa.gov>

Base map information shown on this FIRM was derived from U.S. Geological Survey Digital Orthophoto Quadrangles produced at a scale of 1:24,000 from photography dated April 30, 2002.

This map reflects more detailed and up-to-date stream channel configurations than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available

MAP SCALE  
 0  
 FEMA  
 FIRM FLOOD INS  
 BUTLER  
 KANSAS  
 AND INCON  
 SURGEANCE PROGRAM  
 PANEL 25 OF 8  
 (SEE MAP BOOK)  
 CORONAL  
 COMPANY

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For GPS Survey, indicate the benchmark used for the base station, the Continuously Operating Reference Station (CORS) sites used for an On-line Positioning User Service (also attach the OPUS report), or the name of the Real Time Network used.

NOAA's Online Positioning User Service (OPUS)  
 National Geodetic Survey  
 www.opus.noaa.gov

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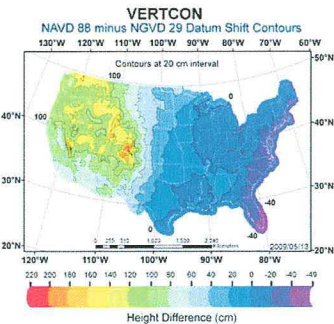
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**C2. Datum used should be same as B9.**

If you need to convert the datum try using Vertcon from NGS.




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**Building Elevation Information**

**Section C2**

Don't leave any spaces blank. When something does not apply put N/A on the line.  
Compare these terms to the building diagrams in case you have any questions.

- C2.a) Top of bottom floor.
- C2.b) Top of next higher floor.
- C2.c) Will always be N/A in Kansas.
- C2.d) Attached garage. If no garage N/A.
- C2.e) Lowest elevation of machinery...
- C2.f) Lowest adjacent grade. (LAG)
- C2.g) Highest adjacent grade. (HAG)
- C2.h) Lowest adjacent grade of deck...

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**Oops**

**Section C2 Common Mistakes**

- C2.a) Not using basement floor.
- C2.b) Two story house but line is blank or same as C2a.
- C2.c) Left blank instead of N/A.
- C2.d) Attached garage. No garage then put N/A.
- C2.e) Left blank or not documented in Section D.
- C2.f) Compare with B9 for potential LOMA.
- C2.g) Highest adjacent grade. (HAG)
- C2.h) Left blank when should have N/A or number.

Please also watch out for typing errors or transposing a numbers. Please check the box for feet instead of meters.

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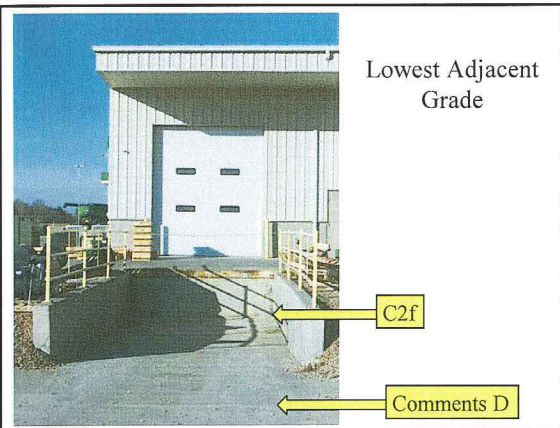
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### Completing the Elevation Certificate

**ELEVATION CERTIFICATE (partial)**  
Important: Read the instructions on pages 1-7

**SECTION C - BUILDING ELEVATION INFORMATION SURVEY REQUIREMENTS**

Elevation reference mark used (provide C1, then the elevation reference mark used below on the FIRST page)  Yes  No

1) Top of exterior floor (including basement or enclosure) \_\_\_\_\_ ft

2) Top of finished floor \_\_\_\_\_ ft

3) Bottom of lowest horizontal structural member (if present) \_\_\_\_\_ ft

4) Lowest garage floor (if applicable) \_\_\_\_\_ ft

5) Lowest elevation of necessary crane equipment serving the building \_\_\_\_\_ ft

6) Lowest adjacent grade (LAD) \_\_\_\_\_ ft

7) Highest adjacent grade (HAG) \_\_\_\_\_ ft

8) Top of permanent openings (flood vents) within 11.5' above adjacent grade \_\_\_\_\_ ft

9) Total area of permanent openings (flood vents) in CH \_\_\_\_\_ sq ft (see note)

In this example, the BFE is 48.5.

The slab-on-grade house was elevated on fill 1' above the BFE, and the vented garage is 2.5' below the BFE

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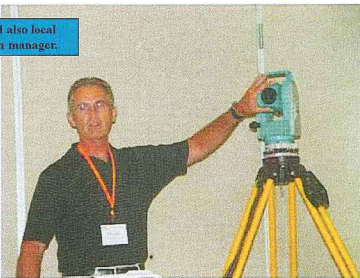
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### Section D

Please read the comment that states a copy should be provided to the Community Official.

Ron is a surveyor and also local community floodplain manager.




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### Section D

**SECTION D - SURVEYOR, ENGINEER, OR ARCHITECT CERTIFICATION (CONTINUED)**

\_\_\_\_\_  
(Signature of Surveyor, Engineer, or Architect)

\_\_\_\_\_  
(Title)

\_\_\_\_\_  
(Date)

- Location of equipment from C2e
- Engineered flood openings
- Benchmark information
- Interior grade for openings
- Datum conversion
- Anything that needs to be explained.

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### Section E

New development must have a base flood elevation. If elevation data is not available contact:

Flood Plain Management Service  
US Army Corps of Engineers Tulsa District  
Tulsa, OK 74128 918-669-7197

**SECTION E - BUILDING ELEVATION INFORMATION (SURVEY NOT REQUIRED) FOR ZONE AO AND ZONE A (WITHOUT BFE)**  
For Zones AO and A (without BFE), complete items E1-E3. If the Certificate is intended to support a LOMA or LOMF request, complete Sections A, B and C. For Items E4-E6, use standard gauges, if available. Check the measurement scale. Do not use floor only, water meters.  
E1. Provide elevation information for the following and check the appropriate boxes to show whether the elevation is above or below the highest adjacent grade (HAG) and the lowest adjacent grade (LAG).  
a) Top of bottom floor (including basement, crawlspace, or enclosure) is \_\_\_\_\_  feet  meters  above or  below the HAG.  
b) Top of bottom floor (including basement, crawlspace, or enclosure) is \_\_\_\_\_  feet  meters  above or  below the LAG.  
E2. For buildings equipped with permanent flood openings provided in Section B items B and B (see pages 8-9 of the instructions), the new higher floor elevations will be the elevations of the building is \_\_\_\_\_  feet  meters  above or  below the HAG.  
E3. Attached garage (top of slab) is \_\_\_\_\_  feet  meters  above or  below the HAG.  
E4. Top of platform of machinery and/or equipment servicing the building is \_\_\_\_\_  feet  meters  above or  below the HAG.  
E5. Some AHJs (not flood gauge number is available, is the top of the bottom floor obtained in accordance with the community floodplain management ordinance?) Yes  No  Unknown. The local official must certify this information in Section G.

### NFIP Reform Acts

Recent reforms have changed the game. Every case should be considered individually. In some cases, a property owner will save money on the cost of flood insurance by filling out Section E in an unnumbered Zone A without a survey or base flood elevation. In some cases forced placed insurance by the bank saves money.

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### Section F

#### Property Owner Certification

**SECTION F - PROPERTY OWNER (OR OWNER'S REPRESENTATIVE) CERTIFICATION**  
This property, based on the information provided in this certification, Section E, is not in a Special Flood Hazard Area (SFHA) based on community issued letters of Zone A0. If not applicable, the applicant in Sections A, B, and C, are correct on the basis of my knowledge.  
Property Owner or Owner's Authorized Representative's Name \_\_\_\_\_  
Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ ZIP Code \_\_\_\_\_  
Signature \_\_\_\_\_ Date \_\_\_\_\_ Telephone \_\_\_\_\_  
Comments \_\_\_\_\_  
 Check here if applicable.

For AO zones and some Pre-FIRM buildings unnumbered A zones.

The address here should be the mailing address of the property owner or property owner's representative who provided the information.

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### Building Photographs

Take the picture near a corner. You can show two sides in same photo. In two photos you'll show most of four sides (if there are no trees in the way).




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Floodplain Managers should refuse to accept incomplete elevation certificates.

Make an acceptable EC a condition of an occupancy permit.

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**Floodway "No Rise" Certification**

\*Floodways can be dangerous because water may flow very fast

\*Development is not allowed unless "no rise" in flood levels is certified

\*An engineer must evaluate the hydraulic impact of proposed development

\*A "no rise" certification is recommended and must be signed, sealed, and dated by a registered professional engineer

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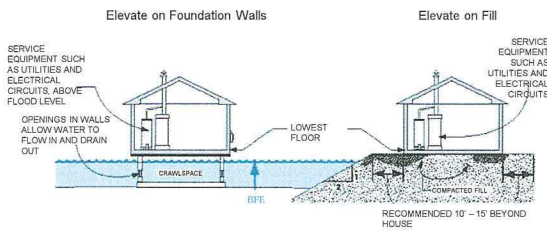
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**How to Elevate Your Floodplain Building**



A FEMA LOMR-F and a DWR Floodplain Fill Permit could be required when elevating on fill.

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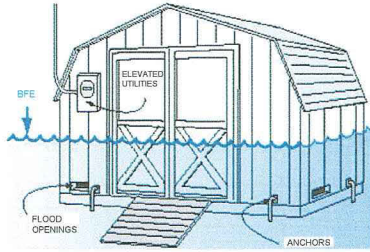
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### Accessory (Appurtenant) Structures

- Not habitable
- Anchored to resist floating
- Flood openings/vents
- Built of flood resistant materials
- Elevated utilities
- Used only for storage or parking
- Cannot be modified for a different use in the future



Elevation Certificate would be needed for this structure to document elevation of utilities and openings. Put it on a second form if not attached to the house.

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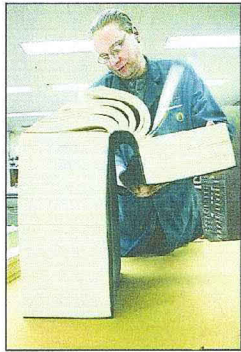
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### Read the Instructions



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### Lowest Adjacent Grade

#### Letter of Map Amendment (LOMA)

There are times that this form will save you time and save your clients money. Submitting a LOMA request is free.

A detailed form for a Letter of Map Amendment (LOMA). It contains multiple sections with checkboxes, text boxes, and headings. A blue arrow points to a specific checkbox in the lower right section of the form.

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## Use an EC with MT-EZ

When an elevation certificate has already been completed it can be attached to an MT-EZ form and submitted with a LOMA request. Fill out the MT-EZ form but leave lines blank that ask for elevation information. That is provided on the EC. This can only be done for a request to remove a structure. The EC form doesn't have any place on it for a metes and bounds description.

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## Instead of MT-EZ may need MT-I

The image shows a detailed FEMA MT-I form. It includes sections for 'PROPERTY INFORMATION', 'ELEVATION DATA', and 'APPLICANT INFORMATION'. The form contains numerous checkboxes and fields for providing specific details about the property and the applicant's request.

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## eLOMA

The free electronic LOMA program started only a few years ago. More information available on the FEMA website. Go to [www.fema.gov](http://www.fema.gov) and search for eLOMA. Can be approved in 5 minutes or less.

The image shows the FEMA eLOMA website interface. It features a header with the 'eLOMA' logo and 'ELECTRONIC LETTERS OF MAP AMENDMENT'. Below the header, there are several sections including 'WHAT IS eLOMA?', 'WHAT ARE THE ADVANTAGES OF eLOMA?', 'HOW DOES eLOMA DIFFER FROM TRADITIONAL LOMA', and 'GENERAL INQUIRIES'. The FEMA logo is visible at the bottom left of the page.

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## Online LOMA

Next best thing to eLOMA is the Online LOMA program. Submitting your documents online saves time and money on postal mail. It can result in your requests being processed more quickly.

**Online Letter of Map Change Fact Sheet**

**What is an Online Letter of Map Change (LOMC)?**

The property owner (applicant) has had an online request to a Special Flood Hazard (SFHA) area which requires a LOMC for a Letter of Map Change (LOMC) to be done in the area that will be regulated by the Flood Insurance Act. The LOMC is prepared or completed in any given year. A LOMC is a letter of map change which is used to update the Flood Insurance Rate Map (FIRM) to reflect the actual conditions on the ground. The LOMC is used to update the Flood Insurance Rate Map (FIRM) to reflect the actual conditions on the ground. The LOMC is used to update the Flood Insurance Rate Map (FIRM) to reflect the actual conditions on the ground.

**When is the Online LOMC Change Method?**

The Online LOMC Change Method is available for the following situations:

- Property owner has had a change in the property.
- Property owner has had a change in the property.
- Property owner has had a change in the property.

**When is the Online LOMC Change Method?**

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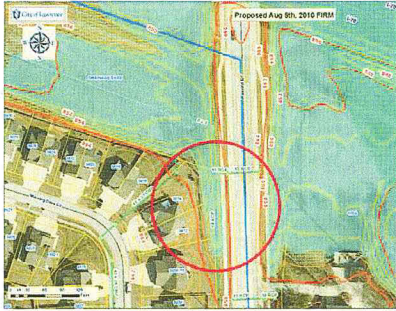
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"The bank says I have to buy flood insurance."

## LOMA with an Out As Shown determination

Although the house is not in the floodplain this property owner got a letter from the lender requiring flood insurance.



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## LOMA-OAS does not require a survey.

Fill out page one of the MT-EZ and send it in with a letter requesting an out as shown determination.

- **LOMA-OAS is a determination made by the Federal Emergency Management Agency (FEMA) for the property and/or buildings as to whether it is located within the special flood hazard area (SFHA). Only use this method if it is clear, visually, that the structure is not in the SFHA.**
- **Obtain the first page of the MT-EZ form** Found on FEMA's site at [www.fema.gov/plan/prevent/fhm/dl\\_mt-ez.shtm](http://www.fema.gov/plan/prevent/fhm/dl_mt-ez.shtm)
- **Documents Needed to Submit with MT-EZ Form:**
  - **Deed** Copy of property deed can be obtained from the Register of Deeds
  - **FIRMette** Created at [www.msc.fema.gov](http://www.msc.fema.gov) click on "FIRMette Tutorial" at the bottom of the screen or contact the local Flood Plain Administrator
  - **Map** Obtained from community's GIS department or a website like Google Maps with a good aerial photo

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**LOMA Based On Vertical Elevation.  
Sources of Data.**

- State website in cases with a DFIRM.
- USACE Tulsa
- LiDAR interpolation
- Performing your own study
- “Not Determined”

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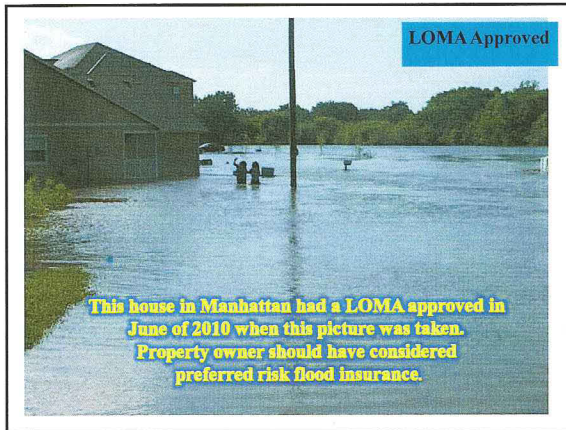
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**Want to Learn More?**

- For information and advice on permits and managing flood hazards, contact the NFIP State Coordinator at 1-785-296-5440 or visit our website at: <http://agriculture.ks.gov/divisions-programs/dwr/floodplain>
- To speak with the local FEMA Floodplain Specialist, contact Andy Megrail at FEMA Region VII, 1-816-283-7982 or [andy.megrail@fema.dhs.gov](mailto:andy.megrail@fema.dhs.gov).
- To view Flood Insurance Rate Maps visit FEMA's Flood Map Information Exchange on-line at <http://msc.fema.gov> . Can make a FIRMette, order maps, and check on LOMC there.
- FEMA's on-line publications can be found in the FEMA Virtual Library. Many are posted in the Portable Document Format (PDF). Go to [www.fema.gov/library/](http://www.fema.gov/library/) for more information. You can order printed copies of FEMA publications from the FEMA Distribution Center, at 1-800-480-2520.
- To learn about elevation and benchmark data see the Notes To Users on the FIRM or check the FIS. If you need more help, call the Information Services Branch of the National Geodetic Survey. The NGS number is (301) 713-3242.
- Excellent websites exist. One of the best is [www.floodsmart.gov](http://www.floodsmart.gov)
- Get to know the local community floodplain manager.
- Find a surveyor to fill out an elevation certificate at [www.ksis.com](http://www.ksis.com) .
- US Army Corps of Engineers at Tulsa (918) 669-7198.

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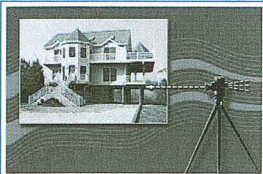
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FEMA 467-1



Floodplain Management Bulletin  
**Elevation Certificate**  
 May 2004

2004



See also the Insurance Agent's Lowest Floor Guide FEMA F-441 for more on building diagrams and rating information.

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How to Find A Land Surveyor



**KANSAS**  
 Society of Land Surveyors

Home About For the Public Resources Career Education Foundation Work Membership

**Our Mission**

**Upcoming Events**

**Become a Member**

**Find a Surveyor**

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**Questions?**

**Steve Samuelson**  
 6531 SE Forbes Ave., Suite B  
 Topeka, KS 66619  
 785-296-4622  
 steve.samuelson@kda.ks.gov

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