



Rigging Safety

Rigging The Force In Your Favor

Our webinar will begin shortly...





Rigging Safety

Rigging The Force In Your Favor

Risk Management



TODAY'S PRESENTER

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ICW Group



TODAY'S TOPICS



- The cost of poor rigging practices
- Safe rigging best practices
- Rigging system components
- Equipment and inspection review
- Understanding your load



90% *accidents due to human error*

80% *crane upsets due to exceeding capacity*

62% *fatalities due to contact with object/equip.*

297 *total crane-related deaths (2011-2017)*



Cost of Poor Rigging Practices

- Struck by falling objects hazard
- Property damage due to dropped objects
- OSHA fines
- Missed workdays
- Impact to premiums



Safe Rigging Best Practices



- Rigging should be performed by personnel who are qualified by proper training and experience.
- Any components used for rigging should be manufactured specifically for that purpose.
- Never exceed the rated capacity of the rigging components.
- Rigging components should be procured only from reliable sources.
- Rigging equipment/components should be inspected on a regular basis.
- Never stand under a raised load.

Safe Rigging Best Practices

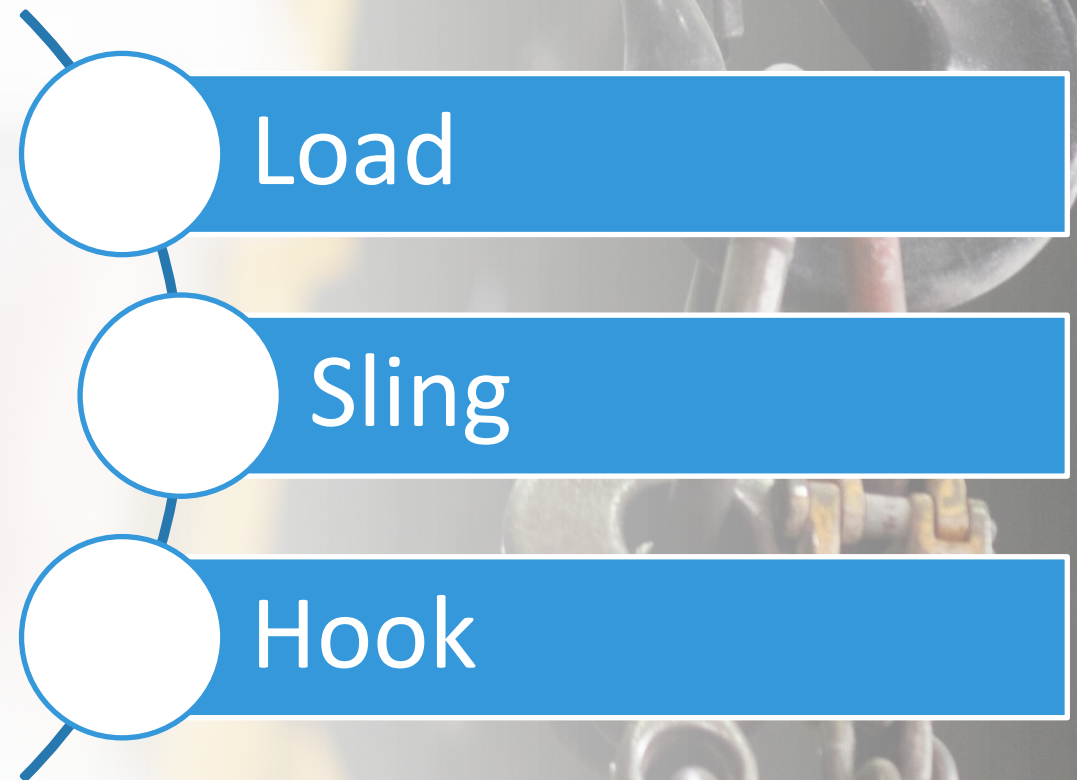
Definition of rigging

The components of a lifting system between the load to be lifted and the lifting equipment (such as an overhead crane)

Federal OSHA Standards for rigging are covered in 29CFR1926.251



Basic Components of a Rigging System



Understanding Your Load

- The weight of the load
- The approximate center of gravity of the load
- How the load can be hitched so the load will be under control when lifted



Types of Slings



Wire Rope



Alloy Chains



Synthetic Webbing

Safe Working Load

All slings must have permanently affixed and legible markings by the manufacturer that indicates the rated capacity (safe working load).



Inspections

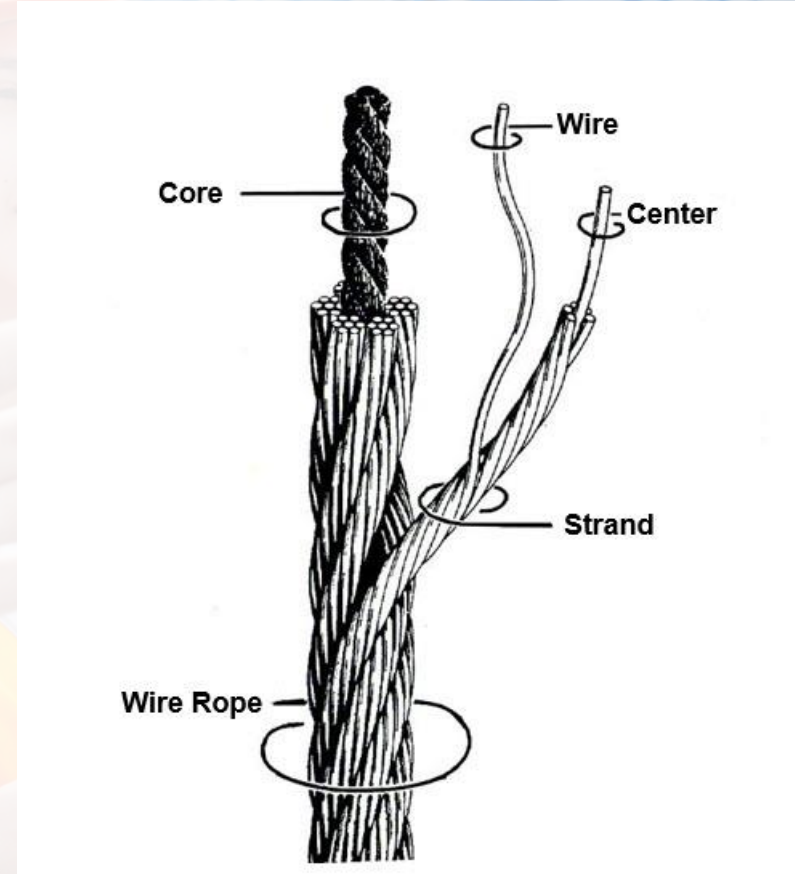
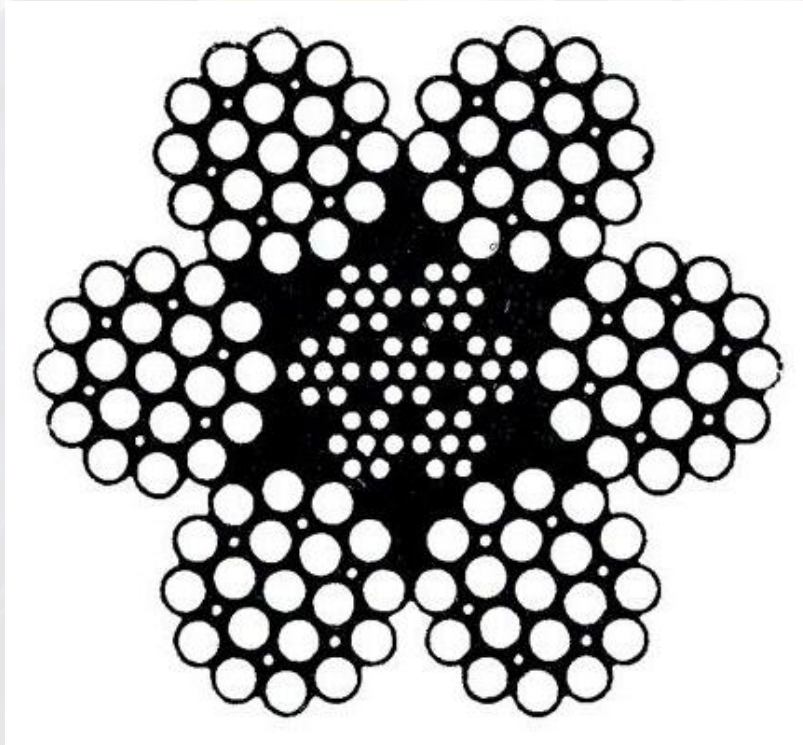
All slings (and other rigging components) should undergo a visual inspection prior to each use.

A comprehensive, thorough, documented inspection of slings (and other rigging components) should be made on a periodic basis. The inspection interval should be determined by:

- Frequency of use
- Severity of service conditions
- Nature of lifts being made
- Minimum interval should be one year

When not in use, slings (and other rigging components) should be stored in such a manner as to prevent damage.

Wire rope is a complicated rigging tool



Spicing & Forged Eye



Any spicing, addition of forged eyes, or similar should only be performed by the supplier



Inspections – What to Look For



Bird Caging



Kinking



Crushing



Broken Wires



Equipment & Inspection Review – Alloy Steel Chains



Only Grade 80 alloy steel chain should be used for overhead lifting



Alloy Steel Chains

Don't Use!

Job or shop hooks and links, or makeshift fasteners, formed from bolts, rods, etc., or other such attachments



Inspections

Wear

Stretching

Physical Damage

The comprehensive inspection should be made link by link when the chain is not under tension (i.e., “relaxed”)



Equipment & Inspection Review – Synthetic Webbing Slings



Inspections



Crushed Webbing



Broken Stitching



Charring/Melting

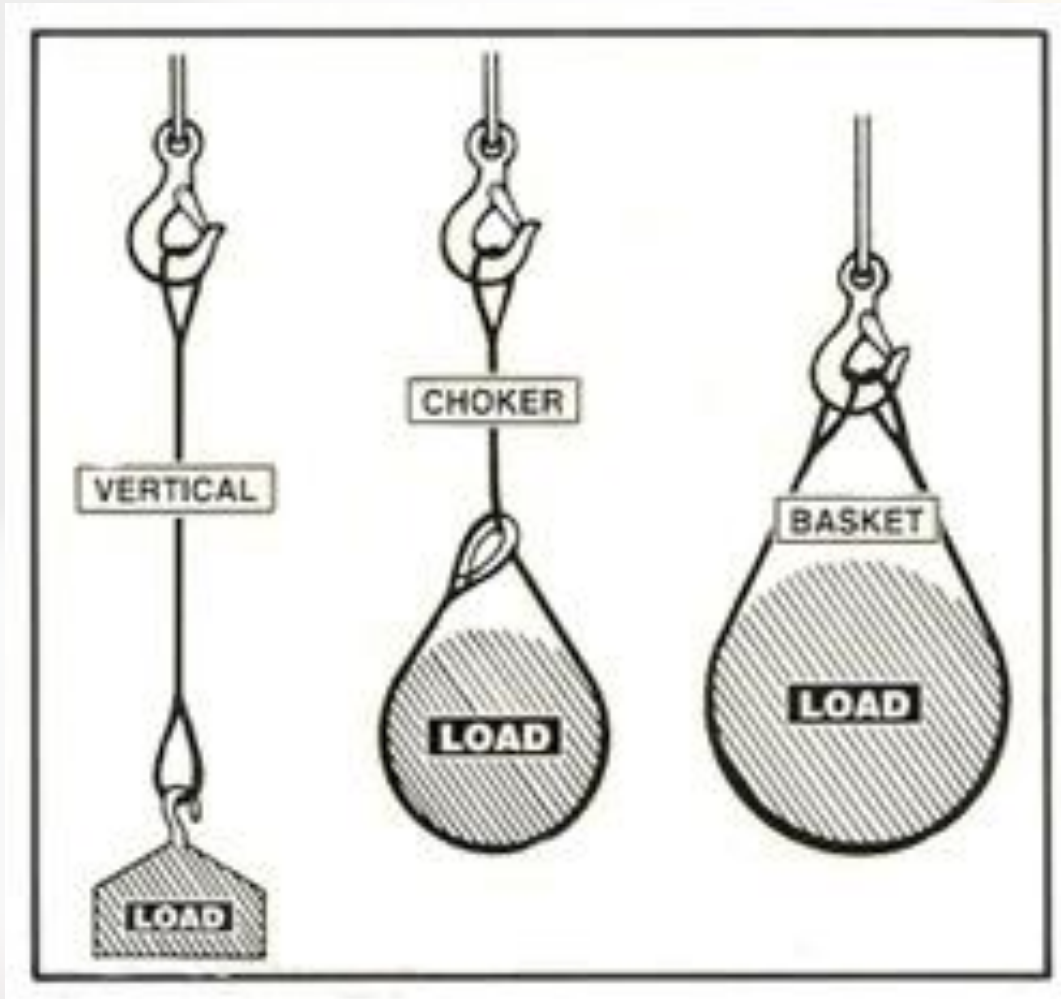


Chemical Damage

Inspections



Sling Position Types



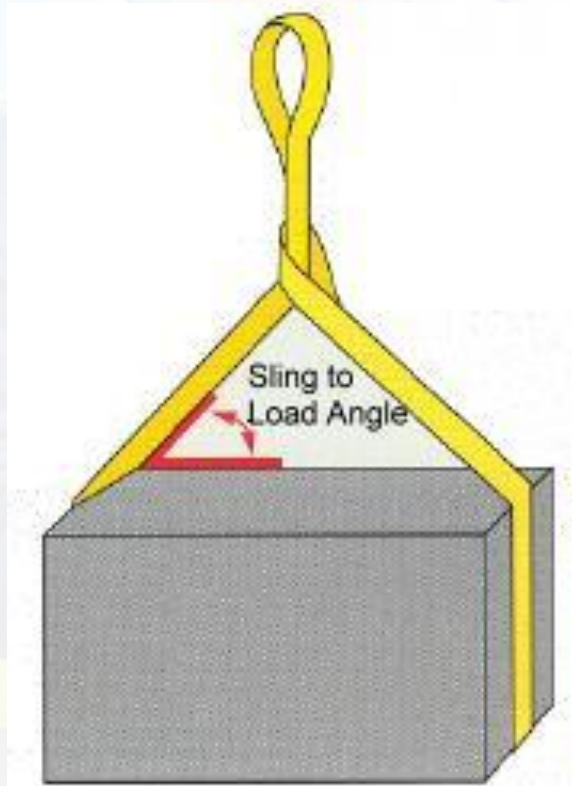
- Vertical
- Choker
- Basket

The rated capacity of the sling is dependent on the position type



Sling Angle Load Factor

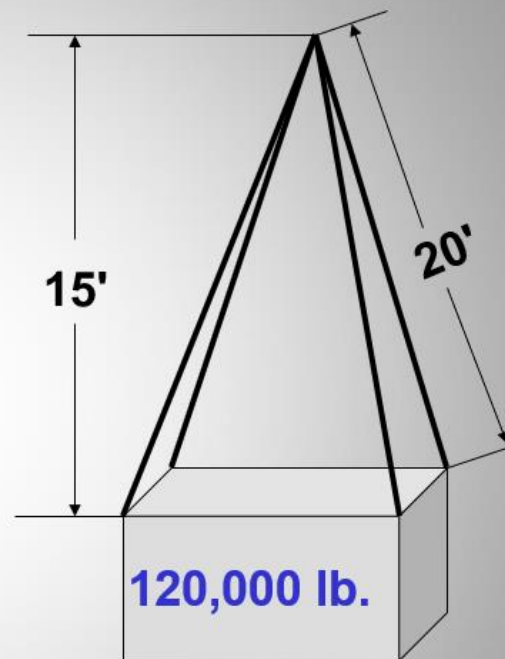
The safe lifting capacity decreases as the sling to load angle decreases



Sling Angles in Degrees	Factor	Sling Angles in Degrees	Factor
15	0.2590	55	0.8190
20	0.3420	60	0.8660
25	0.4320	65	0.9060
30	0.5000	70	0.9400
35	0.5740	75	0.9660
40	0.6430	80	0.9850
45	0.7070	85	0.9960
50	0.7660	90	1.0000

Example

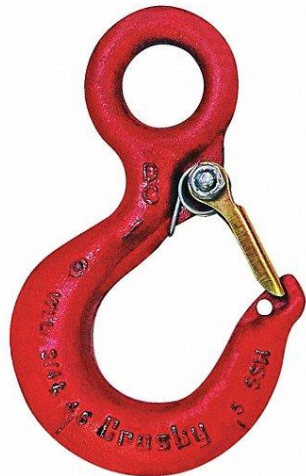
- Load = 120,000 pounds
- 4 load legs \div 120,000 equals 30,000 pounds each leg if vertical hitch
- Sling legs are 20 feet
- Height from top of load to lifting device is 15 feet
- $20 \div 15 = 1.33$
- Load on each leg is $1.33 \times 30,000 = 40,000$ pounds





Types of Hooks

- **Sling Hooks** – The load or force is applied to the base (bowl saddle)
- **Grab Hooks** – Contain a throat or slot of uniform width for securing on the link of a chain, usually to form a chain loop for securing the load



Sling Hook



Grab Hook



Inspections

Look For...

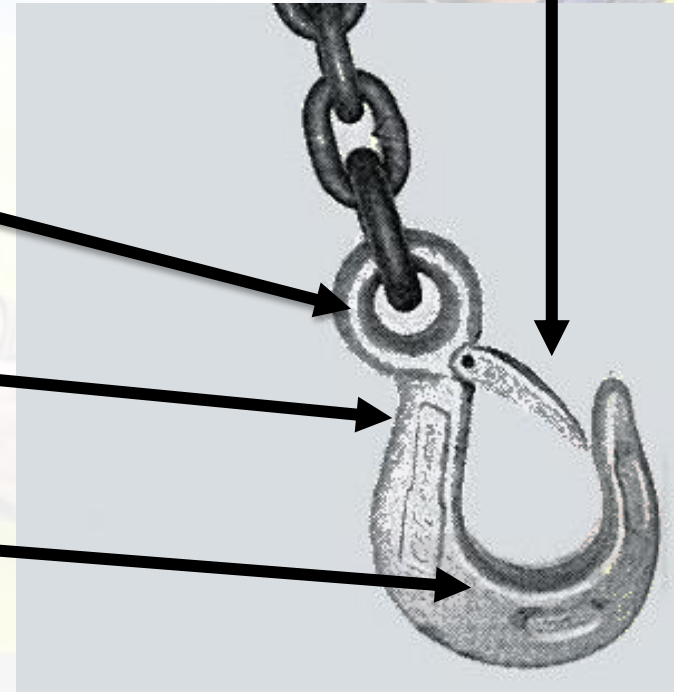
Wear, Deformation, Cracks, Sharp Nicks

Check for wear & deformation

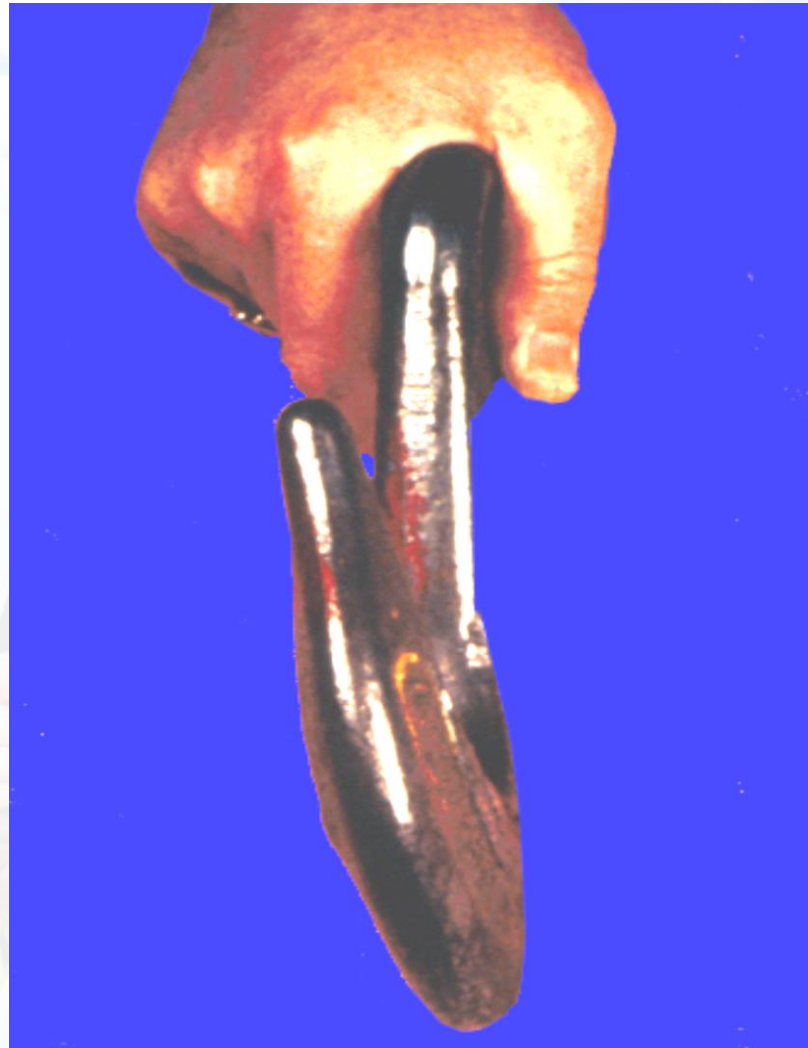
Check for twisting

Check for wear & cracks

Check throat opening



Twisting of Hook



Performing the Lift

- The position of the hook should be over the center of gravity of the load
- Lift the load slightly to test if the load is stable
- If the load is not stable, lower the load and reposition



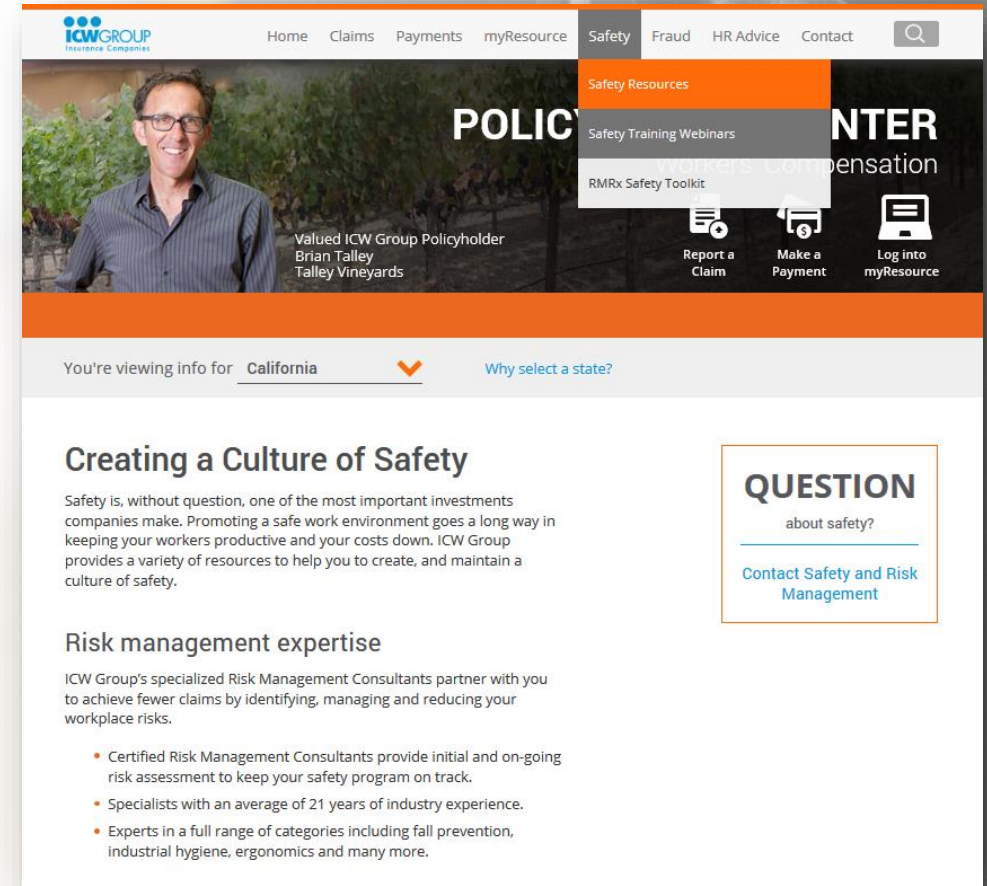


Safety Training Resources



- Safety *OnDemand*
 - Search “*Rigging Safety*” or “*Crane Safety*”
- Safety Talk meeting materials
- eLearning courses
- ICW Group risk assessments

icwgroup.com/safety



Policyholder Center



icwgroup.com/safety

Find helpful checklists for your inspections on our Policyholder Center

A screenshot of the ICW Group website's Policyholder Center. The page features a navigation bar with links for Home, Claims, Payments, myResource, Safety, Fraud, HR Advice, and Contact. A dropdown menu under 'Safety' is open, showing 'Safety Resources', 'Safety Training Webinars', and 'RMRx Safety Toolkit'. Below the navigation, there's a hero section with a photo of Brian Talley, a Valued ICW Group Policyholder from Talley Vineyards. To the right of the photo are icons for 'Report a Claim', 'Make a Payment', and 'Log into myResource'. Below the hero section, there's a state selector showing 'California' and a link 'Why select a state?'. The main content area has two sections: 'Creating a Culture of Safety' and 'Risk management expertise'. The 'Creating a Culture of Safety' section includes a 'QUESTION about safety?' box with a link to 'Contact Safety and Risk Management'. The 'Risk management expertise' section includes a list of bullet points about risk management consultants.

Home Claims Payments myResource Safety Fraud HR Advice Contact

Valued ICW Group Policyholder
Brian Talley
Talley Vineyards

Report a Claim Make a Payment Log into myResource

You're viewing info for California Why select a state?

Creating a Culture of Safety

Safety is, without question, one of the most important investments companies make. Promoting a safe work environment goes a long way in keeping your workers productive and your costs down. ICW Group provides a variety of resources to help you to create, and maintain a culture of safety.

QUESTION
about safety?
[Contact Safety and Risk Management](#)

Risk management expertise

ICW Group's specialized Risk Management Consultants partner with you to achieve fewer claims by identifying, managing and reducing your workplace risks.

- Certified Risk Management Consultants provide initial and on-going risk assessment to keep your safety program on track.
- Specialists with an average of 21 years of industry experience.
- Experts in a full range of categories including fall prevention, industrial hygiene, ergonomics and many more.



Questions?





Thank You!

