RIGGING RESOURCE CENTRE

WIRE ROPE SLING COMPETENCY ASSESSMENT

WORKER BEING EVALUATED:_____

EVALUATOR:_____

LOCATION:_____ **DATE:**_____

This evaluation form can be used as a demonstration or knowledge-based competency of a worker's understanding of a Wire Rope Sling. It can be used by either Workers or Employers to assess their knowledge.

The ASME B30.9 Standard has been used for reference when compiling this evaluation. ASME B30.9 states that the Wire Rope Sling Manufacturer specifications must also be referenced to provide specific information required for the Selection, Inspection, Limitations and Use.

EMPLOYER READ THE CAPITALIZED WORDS, can the Employer successfully explain and complete the following.	**YES**	**NO**
1) **COMPLIANCE TO STANDARDS** THE EMPLOYER TO VERIFY THE SLING IS COMPLIANT TO A STANDARD. Compliance to a standard should be confirmed in the manufacturer's specifications, *generally the ASME B30.9 standard in North America.*		
2) **DESIGN FACTORS** DOES THE EMPLOYER KNOW THE DESIGN FACTOR ASSOCIATED WITH THE SLING BEING USED? This is the point it will break above its rated load. *ASME B30.9 states 5:1 minimum.*		
3) **MANUFACTURERS SPECIFICATIONS** THE EMPLOYER MUST HAVE THE MANUFACTURERS SPECIFICATIONS READILY AVAILABLE. The only way a worker can be assessed is if they have been given the manufactures specification for the product being evaluated on, as manufactures specifications differ. *This information will provide the worker its limitations, use and inspection requirements.*		
4) **PERIODIC INSPECTIONS** THE EMPLOYER IS RESPONSIBLE TO ENSURE THAT THE SLING HAS HAD A PERIODIC INSPECTION**.** These are the inspections required by the ASME B30.9 standard that the employer must ensure are completed. *At a minimum annually.*		
5) **STORAGE** THE EMPLOYER IS RESPONSIBLE TO ENSURE PROPER SLING STORAGE WHEN NOT IN USE. Storage is important to stop or reduce possible damage to the sling whether it be mechanical, chemical or temperature related. *What is your company's storage policy?*		

WIRE ROPE SLING KNOWLEDGE Evaluator to READ THE CAPITALIZED WORDS and see if the worker can successfully explain the following.	**COMPETENT**	**NEEDS COACHING**
6) **MANUFACTURERS SPECIFICATIONS** DOES THE WORKER HAVE ACCESS TO THE MANUFACTURERS SPECIFICATIONS? The worker knows that manufacturers specification are available, where they are located, and why they have to be used.		
7) **DESIGN FACTORS** DOES THE WORKER KNOW THE DESIGN FACTOR ASSOCIATED WITH THE SLING BEING USED? The worker states the minimum required design factor of wire rope slings. *ASME B30.9 states 5:1 minimum.*		
8) **PERIODIC INSPECTIONS** CAN THE WORKER VERIFY THAT THE SLING HAS HAD A PERIODIC INSPECTION? These are the annual inspections required by the employer to complete. *As stated in the ASME B30.9 standard.*		
9) **MARKINGS - MANUFACTURER** SHOW ME THE MANUFACTURERS NAME MARKING ON THE SLING. The manufacturer's name or trademark must be marked on the information tag. *This may be an actual name, but in some cases is a trademark or abbreviation.*		
10) **MARKINGS – RATED LOAD** SHOW ME THE RATED LOAD MARKING ON THE SLING. The rated load must be marked on the information tag. Usually marked with WLL "working load limit" followed by a number and unit that can be US or Metric *E.g. 2200 lbs. or maybe 1000 kg.*		
11) **MARKINGS - SIZE** SHOW ME THE DIAMETER OR SIZE MARKING ON THE SLING. The wire rope diameter or size must be marked on the information tag and refers to the wire rope diameter. *Normally marked in inches (in) or millimeters (mm's)*.		
12) **MARKINGS - LEGS** SHOW ME THE NUMBER OF LEGS MARKING ON THE SLING. The number of legs must be marked on the information tag if the sling has more than one leg. *The slings rated load is based on its number of legs*		
13) **TEMPERATURES** ASK THE WORKER WHAT THE TEMPERATURE RANGE FOR THE SLING IS FROM THE MANUFACTURER. AND HOW CAN THE WORKER VERIFY THIS? The worker knows extreme temperatures can affect the sling, ASME B30.9 states not below -40C or above 204 C. *The worker must confirm with the manufacturer as they may differ.*		

WIRE ROPE SLING APPLICATION Evaluator to READ THE CAPITALIZED WORDS and see if the worker can successfully explain the following.	**COMPETENT**	**NEEDS COACHING**
14) **REMOVAL CRITERIA** HAVE THE WORKER INSPECT THE SLING AND TELL YOU REASONS TO REMOVE THE SLING FROM SERVICE. 1. Missing or illegible identification, 2. Broken Wires, 3. Severe localized abrasion or scraping, 4. Kinking, crushing, bird-caging, or other damage to the rope structure, 5. Evidence of heat damage, 6. Fittings that are cracked, deformed or worn, 7. Severe corrosion of the rope or fittings. *Manufacturer will give specific criteria and must be referenced.*		
15) **KINKED ROPE** IF THE SLING HAS A KINK HAVE THE WORKER DECRIBE WHAT A KINK IS AND HOW SEVERE A KINK IS ALLOWLED. The worker knows a kink is a permanent deformity of the strands or wires where they freeze or lock, this prevents them from sliding and adjusting, and reduces rope strength. *Slight bends in a rope where wires or strands are still relatively in their original positions would not be considered a kink.*		

16) **<u>BROKEN WIRES</u>** IF THE SLING HAS BROKEN WIRES HAVE THE WORKER DECRIBE HOW MANY BROKEN WIRES ARE ALLOWED. The worker knows that broken wire will reduce the strength of the rope. The number of broken wires allowed will differ for each manufacturer. *ASME B30 states for strand-laid and single-part slings, 10 randomly distributed broken wires in one rope lay, or 5 broken wires in one strand in one rope lay.*		
17) **<u>BRIDLE SLINGS</u>** IF A BRIDLE SLING IS BEING USED HAVE THE WORKER TELL YOU ITS RATING AT 60, 45 AND 30 DEGREES. The worker must be able to reference the rated loads from the manufacturer charts. *As slings are only required to be marked for one angle.*		
18) **<u>BRIDLE SLINGS</u>** IF A BRIDLE SLING IS BEING USED HAVE THE WORKER TELL YOU ITS SINGLE LEG RATING. The worker must reference the manufacturers chart to assess the slings single leg rated load. *The bridle will not provide individual leg ratings.*		
19) **<u>EYE DIAMETER</u>** IF THE OBJECT THE SLING EYE IS ATTACHED TO IS LARGE IN DIAMETER HAVE THE WORKER TELL YOU IF THE SLING WOULD BE AFFECTED. Over filling the sling eye will cause extra stress on the sling splice. *ASME B30.9 states, the object should not be wider than one half of the eye length.*		
20) **<u>EDGE CONTACT</u>** IF THE SLING IS BEING USED ON A SHARP EDGE OR SQUARE CORNER HAVE THE WORKER TELL YOU HOW TO PROTECT THE SLING All slings must be protected with a material of sufficient strength, thickness, and construction to prevent damage to the sling.		
21) **<u>EDGE RADIUS</u>** IF THE SLING IS BEING USED ON AN EDGE WITH A SMALL RADIUS HAVE THE WORKER TELL YOU THE EFFECT ON THE SLING. The slings rated load may be reduced if the edge radius is small. The worker must refer to the manufacturers' specifications. *Some manufactures do not allow wire rope to be used on corners.*		
22) **<u>CHOKE HITCH</u>** IF THE SLING IS BEING USED IN A CHOKE HITCH HAVE THE WORKER TELL YOU ITS RATINGA slings choke rating is not usually identified on the tag. Choke ratings are based on a 120° choke angle and are generally 75% of vertical hitch. *If the choke angle is less than 120° the worker needs to identify its reduced ratings using the manufacturers specifications.*		
23) **<u>BASKET HITCH</u>** IF THE SLING IS BEING USED IN A BASKET HITCH HAVE THE WORKER TELL YOU ITS RATING. A slings basket rating is not usually identified on the tag. Basket ratings are based on a 90° vertical hitch angle. *If the basket angle is less than 90° the worker needs to identify its reduced ratings using the manufacturers specifications.*		
24) **<u>BASKET HITCHES D:d RATIOS</u>** IF THE SLING IS BEING USED AROUND A DIAMETER HAVE THE WORKER TELL YOU IF THE RATED LOAD WOULD NEED TO BE REDUCED. The worker should give you the de-rated value based on your manufacture's specifications. *ASME B30.9 states, If the diameter of the load is less than 25 times the wire rope diameter the slings rated load must be reduced.*		
25) **<u>DOUBLE WRAPPING</u>** IF THE SLING IS DOUBLE WRAPPED AROUND THE LOAD HAVE THE WORKER TELL YOU THE EFFECT ON THE SLING. Double wrapping the sling will assist with load control by reducing the possibility of the sling slipping or sliding along the load. The worker must ensure the sling does not cross over itself below the load.		

26) **<u>ADJUSTING SLING LENGTH</u>** IF THE SLINGS LEG LENGTH NEEDS TO BE SHORTENED HAVE THE WORKER TELL YOU ACCEPTABLE WAYS TO SHORTEN THE LENGTH. Slings shall be shortened or adjusted only by methods approved by the sling manufacturer or a qualified person, shortening cannot be achieved knotting, twisting or by used wire rope clips. *The worker must check with the manufacturer for approved methods.*		
27) **<u>SLING ANGLES</u>** IF THE SLING IS BEING USED AT AN ANGLE HAVE THE WORKER TELL YOU THE ANGULAR RESTRICTIONS FOR THE SLING. Slings are restricted to a minimum horizontal sling angle. The worker must be aware of the minimum allowable horizontal sling angle from the manufacturer. *ASME B30.9 states the minimum horizontal sling angle is 30 degrees.*		
28) **<u>SLING TENSION</u>** IF THE SLING IS BEING USED OTHER THAN VERTICAL HAVE THE WORKER TELL YOU HOW THIS AFFECTS THE SLINGS TENSION. As the horizontal sling angle decreases the sling tension increase. The worker must be aware of the effects of the horizontal sling angle by referring to the manufacturers' specifications. *Normally if the horizontal sling angle is 60 degrees the tension increases by 1.155 times (15%), at 45 degrees the tension increases by 1.414 times (41%) and at 30 degrees the sling tension increase by 2 times (100%).*		
29) **<u>STORAGE</u>** HAVE THE WORKER TELL YOU WHERE THE SLING IS KEPT WHEN NOT IN USE. Storage is important to stop or reduce possible damage to the sling whether it be mechanical, corrosive, moisture, temperature or kinking related		

<u>COMMENTS:</u>

SIGNATURE OF WORKER BEING EVALUATED:

X_____

SIGNATURE OF EVALUATOR:

X_____