

SAFETY AND HEALTH STANDARDS

WORKING AT HEIGHTS

Effective Date: **03/24/11**Standard: **16.20**Document Number: **KUCSH0048**Rev: **05**

- o Whenever a risk assessment highlights a danger of falling or personnel are required to work above 6 feet a Working at Heights Permit must be completed by a competent person (See Exhibit 16.20.1)
- 16.20.3.2 Wherever practical, a safe working area must be provided by means of approved handrails, work platforms, or scaffolds to minimize the risk exposure. In such cases a Working at Heights permit is not required. In all other cases fall protection (100% tie-off) must be used. This includes situations in which work is being carried out from an elevating work platform or manlift.
- 16.20.3.3 Where overhead work is being conducted, there must be a system in place to prevent tools and equipment from falling and barricades must be erected around the work area to protect others below from falling objects. (See KUC Safety and Health Standard 16.3)
- 16.20.3.4 Full body safety harnesses equipped with suspension trauma safety straps are required for use on KUC property together with lanyards that provide shock-absorbing protection in the event of a fall. To ensure that all fall protection equipment is properly tested and certified, all fall protection equipment must meet or exceed OSHA and ANSI Z359.1 requirements.
- o Before each use, the harness, suspension trauma safety straps, and lanyard must be inspected by the user for cuts, breaks, loose rivets, torn threads, excessive wear, etc. Fall Protection equipment that has shown evidence of excessive wear or mechanical malfunction or has been exposed to a fall must be removed from service in a manner to ensure it cannot be used again. At no time shall a harness, suspension trauma safety straps, or lanyard that appears unsafe be used.
 - o A properly sized and approved full body harness equipped with suspension trauma safety straps must be worn tight enough to prevent the wearer from slipping out. The lanyard should be adjusted so as to restrict any fall to no more than a six-foot vertical drop and must ensure that in the event of a fall the worker will not contact any lower level.
 - o Lanyards must be attached to a secure anchorage point. There must be a system for ensuring that anchorage points are tested and approved by a qualified person to ensure that they are secure and can take the required load. Anchorage points should, where practical, be above the head of the at risk worker, and ensure that in the event of a fall the worker will neither swing nor contact any lower level. Handrails that are not designed to anchorage point specifications may not be used as an attachment point.

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lifeline attached separately from the work platform, hoisting cables or attachment, also there must be systems in place to prevent tools and equipment from falling.

- 16.20.3.8 Personnel working from platforms or buckets on any vehicle-mounted manlift, boom, JLG, scissors lift, etc., shall wear an approved safety harness with suspension trauma safety straps and have the lanyard attached to the platform, or platform / boom attachment point. A person must be designated to control the work platform, scissor-lift or man-lift (the basket), who is trained and competent to do so and qualified as required under local regulations. Where practical, the designated person should be in the 'basket'. There shall also be a system for ensuring the design, construction, certification, maintenance and inspection of elevating work platforms and man-lifts. (See KUC Safety and Health Standard 16.5)

16.20.4 **TRAINING**

- 16.20.4.1 In order to effectively implement the fall protection program, in-depth training is required. There are three types of training: The At-Risk Worker / Level I or equivalent, The Competent Person / Level II or equivalent, and The Qualified Person / Level III or equivalent.

- o All training shall be documented. Re-training is required whenever there is a change in the fall protection system or equipment.

16.20.5 **RESPONSIBILITIES**

- 16.20.5.1 Each individual is responsible for using adequate fall protection equipment as described in this standard.

- 16.20.5.2 The Area Supervisor must:

- o Complete a Working at Heights Permit whenever a risk assessment highlights a danger of falling or personnel are required to work above 6 feet.
- o Completed all provisions set out in "Personnel Hoisting Permit" prior to using a suspended work platforms or manbaskets.

- 16.20.5.2 Each Area Manager is responsible to ensure that the provisions of this standard are met including ensuring:

- o There is a practice in place for properly identifying and approving anchor points.
- o That a competent person provides fall protection training for all

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personnel exposed to a fall hazard.

- o That there is a system in place for providing emergency rescue for fall victims.

REFERENCES:

OSHA 29 CFR, 1910 & 1926. (www.osha.gov)

KUC Safety and Health Standards 16.3 Restricted Access- Barricading

KUC Safety and Health Standards 16.5 Aerial Lifts and Mobile Platforms

KUC Safety and Health Standards 16.7 Scaffolds

KUC Safety and Health Standards 16.21 Ladders

Rio Tinto Safety Standard C4 – Working At Heights

ANSI Z359.1 – Safety Requirements for Personal Fall Arrest Systems, Subsystems, and Components

REVISION HISTORY:

| MOC# | Description of Change | Prepared By | Date |
|-------|--|--|-------|
| 15030 | Scheduled review and update – last update 6/04. Also, the Working at Heights Committee completed a review and submitted recommended changes to the standard and to the permit. Updated format and Document number added. | C4 Standards Committee and KUC Safety and Health Standards Committee | 03/11 |
| | | | |

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WORKING AT HEIGHTS PERMIT (Standard 16.20)

PERMIT WILL REMAIN AT JOB SITE UNTIL JOB IS COMPLETE OR A NEW PERMIT IS ISSUED. EXPIRED PERMIT MUST BE SENT TO THE FACILITY RECORDKEEPING CENTER FOR FILING.

This permit is void if conditions change when working at heights.

Date and Time Issued: Expiration:

Purpose of Working at Heights:

Personnel Requesting Permit:

Permit Location:

TRACK completed for this task (Initials)

Yes No Can this working at heights task be eliminated or minimized by means of a work platform (i.e., scaffolding, permanent platform) to minimize the risk exposure? If yes, explain action taken on back of permit.

Yes No Is a JSA or risk assessment required for this task? If yes, explain action taken on back of permit.

Yes N/A If you are using an aerial lift for this job, have you verified the following: (1) Has the operator been task trained and has a current certification? (2) Has a pre-operational inspection been completed? (3) Is the annual inspection date for the lift current? (KUC Standard #16.5)

Yes N/A If you are using a ladder, do you know how to ascend and descend a ladder safely? (3-point contact) Has the ladder been tied off? Has ladder been inspected? (KUC Standard #16.21)

Yes N/A If you are using scaffolding, has it been inspected? (KUC Standard #16.7)

If any below items are not marked "yes" do not proceed with work.

Yes Are all "at risk workers" trained on fall protection equipment? (At Risk Worker / Level I competency trained or equivalent)

Yes Is the annual inspection date valid or current for all harnesses and lanyards?

Yes Did you check the harness, suspension trauma safety straps, and lanyard for cuts, abrasion, damage, knots, chemical attacks, heat or friction damage, UV-degradation, oil contamination, fitting damage. (Refer to the inspection instruction information packet on harness).

Yes Is your lanyard length correct to minimize the fall so you will not contact the ground or other obstruction in the fall path of worker? Calculate the Total Fall Distance (Freefall Distance + Deceleration Distance + Harness Effects + Safety Factor). (12.5 foot rule)

Yes Has a detailed method of rescue been identified for fall victims? Describe: (explain on reverse side)

Yes Did a competent person identify the anchor point?

Yes Has the anchor point been inspected by the user? Is the anchor point Engineered Temporary If the Anchor point is temporary describe i.e. included in Acceptable Anchorage Point Guidelines (10 inch angle iron etc...)

Yes Is the area below properly barricaded and tagged? (KUC Standard #16.3)

Yes Is there a method in place to keep tools and equipment from falling?

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Exhibit 16.20.2

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PERSONNEL HOISTING PERMIT**

Rev 3 – 03/11

Permit will be posted at work site until work is complete or a new permit is issued. This permit must be reviewed every shift and reissued if a change in conditions or work scope has occurred. Hoisting of personnel shall be promptly discontinued upon indication of any dangerous weather conditions or other impending danger. Permit must be reissued for each new work location. Permit must be reissued if personnel are newly assigned to the work.

Expired permit must be sent to the Safety Department for filing.

Date and Time Issued: Expiration:

Purpose of Work:

Personnel Requesting Permit:

Work Location:

TRACK completed for this task (Initials):

| General Requirements | |
|---|---|
| <input type="checkbox"/> | The use of a crane to hoist employees on a manbasket is prohibited, except when the erection, use, and dismantling of conventional means of reaching the worksite, such as a personnel hoist, ladder, stairway, aerial lift, elevating work platform or scaffold, would be more hazardous or is not possible because of structural design or worksite conditions. |
| <input type="checkbox"/> | Rotation resistant crane hoist rope is prohibited. |
| <input type="checkbox"/> | Hoisting of personnel while the crane is traveling is prohibited. |
| <input type="checkbox"/> | Repair or modifications to the manbasket and rigging is prohibited. |
| Crane Requirements | |
| Yes <input type="checkbox"/> | Load lines shall be capable of supporting, without failure, at least 7 times the maximum intended load. |
| Yes <input type="checkbox"/> | The total weight of the loaded manbasket and related rigging shall not exceed 50% of the rated capacity for the radius and configuration of the crane. |
| Boom angle during lift | <input type="text"/> ° Radius <input type="text"/> Feet |
| Crane load rating @ listed angle & radius | <input type="text"/> X 50% = <input type="text"/> Maximum Load |
| Yes <input type="checkbox"/> | Boom angle indicator, readily visible to the operator. |
| Yes <input type="checkbox"/> | Crane equipped with a device to indicate clearly to the operator, at all times, the boom's extended length. |
| Yes <input type="checkbox"/> | Crane equipped with an anti-two-blocking device. |
| Yes <input type="checkbox"/> | Crane equipped with a controlled load lowering system, other than the load hoist brake. Free fall is prohibited. |
| Yes <input type="checkbox"/> | Reviewed manufacturers lifting requirements as stated in crane operations manual. |
| Manbasket Requirements | |
| Yes <input type="checkbox"/> | The manbasket and suspension system designed by a qualified engineer or a qualified person competent in structural design. |
| Yes <input type="checkbox"/> | The suspension system designed to minimize tipping of the manbasket due to movement of personnel occupying the manbasket. |
| Yes <input type="checkbox"/> | The manbasket itself, except the guardrail system and personnel fall arrest system anchorages, capable of supporting, without failure, its own weight and at least 5 times the maximum intended |

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|---|--------------------------|--|
| Yes | <input type="checkbox"/> | Visual inspection of the crane, rigging, manbasket, and the crane base support or ground conducted by a competent person immediately after the trial lift to determine whether the testing has exposed any defect or produced any adverse effect upon any component or structure. |
| Yes | <input type="checkbox"/> | Any defects found during inspections, which create a safety hazard must be corrected before hoisting personnel. |
| Work Procedure | | |
| Yes | <input type="checkbox"/> | Load and boom hoist drum brakes, swing brakes, and locking devices engaged when the occupied manbasket is in a stationary position. |
| Yes | <input type="checkbox"/> | Hoisting of the manbasket performed in a slow, controlled, cautious manner with no sudden movements of the crane, or the manbasket. |
| Yes | <input type="checkbox"/> | Personnel to keep all parts of the body inside the manbasket during raising, lowering, and positioning. |
| Yes | <input type="checkbox"/> | Tag lines used unless their use creates an unsafe condition. |
| Yes | <input type="checkbox"/> | Crane operator to remain at the controls at all times when the crane engine is running and the manbasket is occupied. |
| Yes | <input type="checkbox"/> | Personnel being hoisted shall remain in continuous sight of and in direct communication with the operator or signal person. In those situations where direct visual contact with the operator is not possible, and the use of a signal person would create a greater hazard for the person, direct communication alone such as by radio may be used. |
| Means of Communications <input type="checkbox"/> Radio <input type="checkbox"/> Signal Person | | |
| Yes | <input type="checkbox"/> | Personnel occupying the manbasket shall use a harness equipped with suspension trauma safety straps and have the lanyard appropriately attached to the lower load block or overhaul ball, or to a structural member within the manbasket capable of supporting a fall impact for personnel using the anchorage. |
| Yes | <input type="checkbox"/> | No lifts shall be made on another of the crane's load lines while personnel are suspended on a manbasket. |
| Pre-Lift Meeting | | |
| Yes | <input type="checkbox"/> | A meeting prior to the trial lift attended by crane operator, signal person(s) (if necessary for the lift), personnel to be lifted, and the person responsible for the task to be performed held to review the appropriate requirements of this permit and the procedures to be followed. |
| Approvals | | |

PERMIT ISSUED BY SUPERVISOR: I have evaluated all portions of this permit and verify that acceptable conditions exist. All personnel have been instructed as to the conditions of the permit and are adequately trained to perform this job.

| | | | |
|----------------|------------|-----------|------|
| Supervisor | Print Name | Signature | Date |
| Superintendent | Print Name | Signature | Date |
| Plant Manager | Print Name | Signature | Date |
| Safety | Print Name | Signature | Date |
| Crane Operator | Print Name | Signature | Date |

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| Work Completion or Cancellation | | | | | |
|---------------------------------|--|-------|--|-------|----------|
| Completed or Cancelled By: | | Date: | | Time: | |
| | | | | | AM PM |
| If cancelled, provide reason: | | | | | |