

Scaffolding Practice

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1.0 Purpose

The Cenovus Scaffolding Safety Practice describes the potential hazards that Cenovus staff and service providers may encounter during their work on or with scaffolding. This document also establishes the Cenovus minimum safety requirements and expectations for conducting work on or with scaffolding.

2.0 Scope

This practice applies to all Cenovus operations and worksites, including Cenovus staff, contractors and service providers.

3.0 Process Requirements

3.1 Erecting Scaffold

When erecting scaffold, the following considerations must be included in the planning and execution of scaffold erection activity.

3.1.1 Competency

A competent person aware of scaffolding regulatory requirements for the authority having jurisdiction must be part of the scaffold system selection, planning and executing phases of the job.

The competent person must be aware of the anticipated loading based upon the work that the scaffold is planned to support. This will impact the selection of the scaffolding system, which may require additional stability and structural strengthening.

3.1.2 Protection of Workers

When handling scaffold materials, use ergonomically sound lifting and lowering techniques. Be careful when moving long objects to not strike persons, equipment or structures.

Simultaneous work should not be conducted on the ground or on any levels below the working lift where the scaffold is still being erected.

Protection from dropped objects must be installed during the scaffold erection.

When raising or lowering materials to upper levels of the scaffold, for any lift over six (6) metres, use a designed gin pole/pulley arrangement and not the guardrail. Avoid trying to lift loads overhand ("armstrong") using the guardrail as the fulcrum and/or brake.

3.1.3 Design and Engineering

When erecting a manufacturer's or an engineered scaffold system, ensure all components of the scaffold as stipulated by the manufacturer or professional engineer are properly installed.

If the installation of all components is not possible for any reason, do not use the scaffold until it has been inspected and approved by the manufacturer or a professional engineer.

Where required by unstable ground, overall height of scaffold or the anticipated presence of high winds, external anchors and guys may be necessary. Guy wire strengths and positioning must be established by a professional engineer.

3.1.4 Base Lift

Scaffolding is not always erected on flat, level ground. Ensure all base lift standards are fitted with base plates and, where required, screw jacks. Ensure the base lift is level, with the ledgers horizontal.

3.1.5 Lifts and Tie-ins

Scaffolds typically require stability support from the structure against which the scaffolding is erected. Depending on the number of lifts required to reach the intended height, plan in advance the requirements for tie-in locations, the type of tie-ins required and their impact on the support structure.

3.1.6 Working Platform

Each lift requires a working platform. When working on a scaffold, ensure all work surfaces are fully decked, with no gaps or spaces along the width of the bay, or the depth of the scaffold. The working platform (deck) must be constructed of materials meeting one of the following:

- the requirements of the regulations of the authority having jurisdiction
- the engineered design requirements stipulated by the manufacturer or professional engineer
- the structural standards established by Cenovus, if higher than regulatory requirements

3.1.7 Ladders

Portable ladders used to access scaffold lifts from the ground or between lifts must be appropriate for the intended use and meet commercial grade requirements (or be an integral part of the scaffold system).

Portable ladders must be firmly affixed to the scaffold at the top to prevent lateral movement and blocked or pinned at the base to prevent slipping.

Scaffold system ladders must be properly attached to the scaffold at the appropriate location, with the appropriate type of connector and monitored regularly for loosening or shifting.

When mounting scaffolds, like all ladder use, maintain three-point contact with the ladder when climbing or descending.

Fall arrest may not be required when traversing ladders, but is required when using a ladder as a working platform, where the height above a safe level is higher than 1.8 metres. Scaffold ladders are not to be used as working platforms.

3.1.8 Overhead Power Lines

Ensure the scaffold does not come into the proximity of overhead power wires. Conform to the minimum clearance distances as established by the Cenovus Overhead Power Line Encroachment Practice and training.

3.1.9 Guardrails

All working levels of a scaffold must be equipped with main upper guardrails around the circumference of the lift, a mid-level intermediate guardrail and a toe board (or kick plate). The heights and strengths of the guardrails must meet the requirements of the authority having jurisdiction, or Cenovus requirements, whichever is more stringent.

3.2 Dismantling Scaffold

When dismantling scaffold, the following considerations must be included:

3.2.1 Competency

Dismantling scaffolding is to be conducted by a competent worker (or workers) and is not conducted as the reverse of its erection. Erecting scaffolding is generally conducted horizontally by bay and then lift, across the face of the scaffolding. Dismantling should be conducted by way of removing full vertical sets of lifts from top down to base lift, starting at one end (or both ends) of the horizontal spread of the scaffold.

3.2.2 Protection of Workers

One of the largest hazards in scaffold dismantling is protection from falling objects. Do not deliberately drop scaffold components from upper lifts to the ground. Either use a gin block/pulley system to lower materials, or lower materials by hand from level to level, keeping the components in hand contact at every stage of the transfer.

Smaller components, like wedges or couplers, may be transported to the ground by using a satchel, canvas lifting bag or bucket, lowered by a pulley rope. Avoid lowering component containers by hand through controlling the rope over a guardrail, as the satchel, bag or bucket may be heavier than assumed, causing a dropped objects risk to those receiving the materials below. If possible, always secure objects or tools in baskets with covers or tool lanyards. Always know the working load limit for a satchel, bag or bucket. Never exceed the manufacturer's working load specifications.

Another significant hazard of scaffold dismantling is personal fall protection, where it may be difficult to connect a fall arrest system to an adequate overhead anchor, particularly where structural bracings are removed before the ledgers and vertical standards. To avoid workers relying on inadequate anchor points, always plan for fall arrest anchoring issues before starting the dismantling procedure, and always stop and re-evaluate when a new fall hazard is recognized.

3.2.3 Design and Engineering

Where the scaffold is guyed, or tied-in to the structure, the tie-ins and guys may need to be adjusted throughout the dismantling phase to maintain scaffold structural integrity and personnel safety.

3.3 Working on Scaffold

When working on scaffold, the following safeguards and actions are required:

3.3.1 Safe Work Permit and Tags

Prior to using a scaffold, check to see if the planned job requires a Safe Work Permit when the activity is conducted on scaffolding.

The worker must look for and review the scaffold tag:

- *Red tags* indicate the scaffold cannot be used.
- *Yellow tags* indicate that the scaffold can be used, but there are hazards present.
- *Green tags* indicate the scaffold can be used with normal attention to personal safety.

3.3.2 Protection of Workers

- Barricade the ground area beneath and immediately adjacent to the scaffold to prohibit working beneath the scaffold while work is being conducted above.
- Where simultaneous work must be conducted on and below a scaffold, a dropped objects netting should be installed, strong enough to stop dropped objects from striking workers below.
- Prior to starting work on a scaffold, ensure any ice, snow or debris that may dislodge and fall during the work is removed.
- When using fall arrest on scaffolds, ensure the anchor point selected for the personal fall protection system meets the requirements of the authority having jurisdiction.
- Inspect the working level for secure guardrails and for toe boards or kick plates. Toe boards or kick plates protect workers from dropped objects falling off the scaffold and serve as a warning when a worker steps to the edge of the decking.
- When working on a scaffold, always keep all body parts (and tools where possible) inside the guardrails. Do not use guardrails as steps to reach overhead.

3.3.3 Entryways and Ladders

- Access the scaffold using the designated entryways and designated ladders.
- Work is prohibited using a scaffold ladder as a work platform.
- A ladder cage is required if a ladder is more than six (6) metres (20 feet) in height.
- Workers are to maintain a three-points-of-contact approach when ascending or descending scaffold ladders.
- Move from level to level by way of the designated ladders, and not by using standards, ledgers, frames or braces as climbing points.

3.3.4 Tools and Materials

Hand-carrying of tools or materials while using ladders is prohibited. Tools may be carried up ladders on belts if the tools are properly secured, or in over-the-shoulder strap-satchels if the satchel has a closing top.

It is best to use a bucket or satchel to raise or lower tools or materials, controlled by a rope running through a gin block/pulley. Do not leave tools or equipment on scaffolding.

3.4 Inspecting Scaffold

The regulatory requirements for the regular inspection of scaffolding stipulate that the scaffolding must be inspected by a competent person at least every 21 days. Scaffolds being used in support of Cenovus activities will be inspected as follows:

- At intervals of not more than 21 calendar days, and the appropriate colour of tag will be legibly updated at that time
- Whenever a component of the scaffold has failed, regardless of it being a critical component or supporting equipment
- Immediately thereafter when the scaffold has been struck by a load or vehicle that displaces a portion of the scaffold or causes damage to any component of the scaffold
- Immediately thereafter when the scaffold has been subjected to a load in excess of its safe load (25% × its design load)
- When directed to inspect the scaffold by a representative of the authority having jurisdiction
- At any time the Job or Site Supervisor feels the scaffold requires an inspection

If a scaffold is found to not meet Cenovus’s standards for scaffold, the inspector shall Red Tag the scaffold and inform the Site or Job Supervisor to make sure that the scaffold is not to be used until the deficiencies have been rectified and the scaffold re-inspected by a competent person.

When a scaffold is *Red Tagged*, a suitable tag shall be displayed at every entrance to the scaffold, and any base-lift ladders shall be blocked-off or secured to prevent access (such as with a board or planking affixed to the ladder rungs, as a physical barrier).

3.4.1 Elements Inspected

A scaffold inspection involves assessing various important elements of the scaffold system:

- Scaffold tag:
 - Is in place at the ladder access point
 - expiry date accurate
 - appropriate colour

- properly filled-in with the legible name of the inspector and the date of the last inspection
- Bed plates and bases are secured and level.
- Bedplates are nailed to wooden sills or sole boards, or spiked/wedged to the ground to prevent slippage.
- The scaffold construction complies with the requirements of the manufacturer's system or the requirements of the professional engineer who authorized the scaffold (all components in place).

3.4.2 Condition of Components

The condition of the components is also inspected to ensure none is damaged or missing. Typical component issues include:

- Poles:
 - Bent
 - Flame cut
 - Split end
 - Cross-cut (sawn)
 - Mushroom headed
 - Missing or have damaged wedges (rosette/all-round system)
- Scaffold boards or decking:
 - Broken
 - Twisted
 - Warped
 - Split
 - Worn edges
 - Connection toes/hooks damaged
- Connectors:
 - Damaged (broken, warped, distorted)
 - Missing securing wedges or screws
 - Unsecured (only one half closed)

3.4.3 Installation

- The scaffold is appropriately braced (across the face and across the width).
- Where required by the scaffold system or engineer’s design, the scaffold is appropriately tied into the adjacent structure.
- The scaffold is not constructed of mix-matched scaffold system components.
- Wooden scaffold boards meet regulatory requirements.
- Wedges are in place and tight, and screw connectors are tight.
- The decking on the working levels covers all gaps or openings.
- Upper and intermediate guardrails are in place, effectively secured and meet regulatory requirements for strength.
- Toe boards or kick plates are installed on all sides of the scaffold lifts.
- Ladders are installed vertically and firmly connected.
- Protective shelter is securely fastened to the scaffold structure and not presenting a tripping hazard on ladders rungs or decking.
- Scaffold boards or decking has non-slip coating in slippery or icy conditions, as required.

4.0 Roles and Responsibilities

The following responsibilities apply to this practice:

Table 1: Roles and Responsibilities

Role	Description
Employer	<p>Responsible for planning the work and providing appropriate training for personnel erecting, using, inspecting or dismantling scaffolding. The employer is also responsible for ensuring, where personal protective or task protective equipment is required by the employee(s) to safely conduct the work, that such equipment is available and/or provided.</p> <p>In Alberta, the employer must ensure scaffolds erected to provide working platforms during construction activities comply with CSA Standard S269.2, Access Scaffolding for Construction Purposes.</p> <p>In British Columbia the employer must ensure that scaffolds used by workers are in a safe condition and are able to withstand the load, regardless of who erected the scaffold.</p> <p>An employer must ensure scaffolds are adequately erected and maintained to support four times the weight of the intended load, such that the load never exceeds one-quarter of the load for which the scaffold is designed.</p> <p>The employer must ensure a scaffold required to carry a load of greater than 367 kilograms per square metre must be designed and certified by a professional engineer and must be constructed, maintained and used in accordance with the certified specifications.</p>

Role	Description
Job or Site Supervisor	<p>Responsible, as the designated representative of the employer, to ensure the workers erecting, using, inspecting or dismantling scaffolding are provided with appropriate training and required task protective or personal protective equipment to safely conduct the work.</p> <p>The Job or Site Supervisor, on behalf of the employer, must ensure that a scaffold is colour-coded using tags at each point of entry, indicating its status and condition. The colour codes to be used are as follows:</p> <ul style="list-style-type: none"> • Green tag with the words "Safe for use" or similar wording to indicate the scaffold is safe for normal use • Yellow tag with the words "Caution: Potential or Unusual Hazard" or similar wording to indicate the presence of a hazard involving the scaffold • Red tag with the words "Unsafe for Use" or similar wording to indicate the scaffold is unsafe and is not to be used for work <p>The Job or Site Supervisor will ensure a scaffold tag is identified as 'Expired' 21 calendar days after the inspection that established the condition of the scaffold, requiring a new inspection to continue using the scaffold.</p>
Worker	<p>The worker is responsible to comply with the protective measures required by Cenovus or the employer regarding the erection, use, maintenance or dismantling of scaffolding.</p> <p>Workers are not to climb onto or otherwise use scaffolding on Cenovus work sites if they have not been verified competent to understand the hazards and requirements to use the scaffold system.</p> <p>A worker is not to use a scaffold if it has any of the following:</p> <ul style="list-style-type: none"> • A Red tag • A Yellow or Green tag that has expired • No tag, or a tag of any colour where the writing is not legible

5.0 Training and Competency

Competency describes the knowledge and skills required to successfully perform the technical aspects of a job. A worker must be able to demonstrate competency in safely performing work tasks or using equipment.

5.1 Training

It is expected that all personnel involved with scaffold work will be technically trained and competent to perform their role.

Most scaffolding used to support Cenovus activities will be erected by specialty contractors. However, some scaffolding may be erected by competent Cenovus personnel. In terms of scaffolding, the following definitions apply:

- **Competent:** In relation to a person, means adequately qualified, suitably trained, and with sufficient experience to safely perform a specific duty or work without supervision or with only a minimal degree of supervision.
- **Competent Worker:** With respect to a particular task or duty, includes a worker who is being trained to perform that task or carry out that duty and who is under close and competent supervision during that training.

Each Cenovus worksite should create and maintain a site-specific list of Cenovus staff deemed competent to erect, inspect and dismantle scaffolding.

Workers erecting, inspecting, dismantling or using scaffold must complete a self-review of this practice.

5.2 Competency Verification

Competency will be validated through formal, theory-based evaluations and practical skill demonstration. All theory-based training requires a written knowledge check (e. g. test, quiz, exam) that will be reviewed and assessed by a competent instructor. Practical skill assessments of task completion and equipment use must be conducted by a competent supervisor or mentor.

Workers may be required to attend additional training sessions or complete further on-the-job training if performance deficiencies are identified through formal assessments.

6.0 Quality Assurance

6.1 Performance Measurement

Compliance with this practice and program effectiveness shall be assessed through program assessments and internal audits, or other measurement criteria as specified in the COMS Assurance Standard. Measurement can also be accomplished through the tracking of appropriate Key Performance Indicators (KPI).

Business functions or departments impacted by this practice must include compliance and program effectiveness verifications in their business assurance program. Performance will be monitored and reported within the responsible departments at least every three years.

H&S Programs team will review Cenovus-wide program KPIs at a minimum every three years in conjunction with program review and update activities.

6.2 Management of Change

Proposed changes to this practice can be directed to H&S Programs and Projects.

6.3 Practice Verification

The document owner will complete and document reviews of this practice, as follows:

- At minimum once every three years
- If there is a significant regulation or industry best practice change that indicates the need for review
- If an incident investigation indicates the causes were related to unclear or inadequate written instructions described within this practice

If frequent and multiple variances are required due to operational needs, the reason(s) will be investigated and the document owner will determine if there is a business need to update the practice.

If submitted MOC requests indicate gaps or significant improvement opportunities, the document owner will determine if there is a business need to update the practice.

7.0 Glossary

Definitions and acronyms for safety documents are described in CEN-EHS243, Definitions and Acronyms. The following definitions and acronyms are specific to this document.

Cenovus uses many different types of scaffolds throughout its operations. The most common designs and their attachments or accessories are defined below.

Table 2: Terms and Definitions

Term	Definition
All-Round or rosette scaffold	Scaffold comprised of independent tubes of aluminum or steel with a proprietary wedge connector at each end that fits into slotted rings (rosettes) on specially designed vertical poles (standards), creating connections at fixed points. Stability is provided by longitudinal and transverse diagonal tube-braces sized to fit the distances between rosettes.
Brace (cross-brace)	Diagonally oriented tubes or poles used to provide longitudinal and transversal structural stability and strength to the scaffold.
Cantilever/outrigger bracket	Specially designed and engineered scaffold attachment point used to support offset scaffold levels. Experienced scaffold erectors are able to create a cantilever bracket with tube-and-clamp scaffolding. When used to as outrigger brackets, this is the connection point for external guy poles used to provide

Term	Definition
	additional structural integrity to tall scaffold structures (generally higher than three lifts).
Ledger	Horizontally oriented poles or frames mounted across the face of a scaffold to provide form and structural strength to the scaffold.
Scaffold bay	The basic horizontal construction of a scaffold. The distance between standards across the face of the scaffold. The front-to-back distance of the scaffold between the front and rear ledgers is the scaffold width.
Scaffold boards or platforms (decking)	The working surface of the scaffold, supporting the worker. The decking may consist of individual wooden planks meeting regulatory specifications, or pre-formed commercial decking in various lengths with specialty connectors for transoms. Decking should cover the full width of the scaffold at all levels.
Scaffold couplers	Scaffold pole joiners used to secure scaffold standards, ledgers and braces through a friction joint achieved by either screw plates or by hammering wedges into designed slotted joints (right-angle coupler, swivel coupler, etc.). For hammer-wedge couplers, wedges are always hammered narrow end down or narrow-end outwards from the scaffold structure in case of accidental loosening.
Scaffold jack	Supporting substructure for the base of a scaffold, typically with a fixed or swivelling flat base plate and a screw-operated levelling-jack (leveling jack, socket jack).
Scaffold ladders	Each design of scaffold has recommended ladder arrangements for movement between lifts. Scaffold ladders affixed to standards are quite common. Portable ladders used with scaffolding must be tied off to eliminate slippage or lateral movement.
Scaffold lift	The basic vertical construction of a scaffold, the vertical height of a level of scaffolding. The bottom-most level is the base lift.
Standard	Vertically oriented poles or frames employed to erect and secure the scaffold in the vertical plane.
Transom	Horizontally oriented poles or frames mounted front-to-back on a scaffold to support the working decking. Transoms connected to ledgers at standards are main transoms. Transoms connected to ledgers between standards are intermediate transoms.
Tubular frame scaffold	Scaffold comprised of welded frames of fixed size, available in various designs (laddered, doorway/gate, etc.), able to be slotted together in various configurations. Stability is provided by longitudinal and transverse poles with end connectors that slot into the frames.

Term	Definition
Tubular scaffold (tube & clamp)	Scaffold comprised of independent tubes of aluminum or steel, of pre-set lengths, connected horizontally, vertically and diagonally by fixed or swivel couplers. Stability is provided by longitudinal and transverse diagonal tubes (braces) connected by couplers.

Table 3: Acronyms, Initialisms and Abbreviations

Term	In Full
KPI	Key Performance Indicators

8.0 References

8.1 External Documents

The following external documents support this practice:

Table 4: External Document References

Document Type or Number	Document Title
Provincial OH&S Legislation	Alberta Occupational Health & Safety Code (Part 23 and Schedule 6)
Provincial OH&S Legislation	British Columbia’s OHS Regulation (Parts 4 and 13)

8.2 Internal Documents

The following Cenovus documents support this practice:

Table 5: Internal Document References

Document Type or Number	Document Title
Policy	Corporate Responsibility Policy
CEN-EHSReg787	Regulatory Definitions and Acronyms
CEN-EHS4982	Cenovus Scaffolding Safety (Toolbox Talk July 2013)