SAFETY AND HEALTH STANDARD
CONFINED SPACE ENTRY REQUIREMENTS

Effective Date:01/30/17	Standard: 16.2	Document Number: **KUCSH0038**	Rev: 11

16.2.1 **INTRODUCTION**

16.2.1.1 The purpose of this standard is to establish safety requirements, which include a permit system, for entry into confined spaces.

16.2.2 **DEFINITIONS**

16.2.2.1 **Confined space -** an enclosed or partially enclosed space that:

(a) Has been identified as such in a risk assessment;
(b) Is not intended or designed primarily as place of work;
(c) May have restricted entry and exit; and,
(d) May:
  (i) Have an atmosphere which contains potentially harmful levels of contaminant or explosive atmospheres;
  (ii) Not have a safe level of oxygen; or
  (iii) Cause entrapment or engulfment.

Confined spaces may include, but are not limited to:

(a) Storage tanks, process vessels, boilers, pressure vessels, tank-like compartments that have only a manhole for entry, ceiling and floor spaces;
(b) Open-topped spaces such as pits, or grease traps, or excavations more than 1.5 meters (5 feet) deep;
(c) Pipes, pumps, sewers, shafts, ducts, drains, tunnels, cellars, basements and similar structures; and,
(d) Abandoned workings and exploration adits.

16.2.2.2 **Entry** - the action by which a person passes through an opening into a confined space. Entry includes the work activities in the space and is considered to have occurred as soon as any part of the entrant's body breaks the plane of an opening into the space. However, this is not intended to prevent a person from inserting their hand or arm while holding a test instrument or probe into a confined space as part of an evaluation as provided for by this procedure.

16.2.2.3 **Entry Supervisor** - a competent person trained, tested and knowledgeable in the requirements of this standard with the overall responsibility for safe confined space entry operations. The Entry Supervisor must ensure that all the requirements of this standard are implemented at the confined space location.

16.2.2.4 **Tester** - a competent person knowledgeable in the requirements of this standard who has been trained and tested in the recognition and

evaluation of personnel exposures to potential confined space hazardous conditions, and in the use of monitoring equipment and procedures for atmospheric testing.

16.2.2.5 **Contaminant -** any dust, fume, mist, vapor, gas or other substance in liquid or solid form, the presence of which may be harmful to health and safety.

16.2.2.6 Authorized **entrant(s)** - personnel entering a confined space who have been properly trained and tested in confined space entry, and are deemed competent by the entry supervisor regarding the nature of hazards involved, precautions to be taken, the use of required protective and emergency equipment, and the emergency rescue procedures.

16.2.2.7 **Attendant (Standby person) -** a competent person trained and tested in the requirements of this standard and familiar with the rescue procedures. The Attendant is stationed outside the confined space at all times while personnel are within the space to monitor the authorized entrants and may perform no other duties that interfere with the primary duties.

16.2.3 **REQUIREMENTS**

16.2.3.1 Each plant shall conduct an annual Confined Space Inventory Audit to identify confined spaces. A register / inventory of all confined spaces is to be maintained and updated when new equipment or facilities are commissioned. Confined spaces shall be identified and signs erected at the entry points denoting that a permit is required prior to entry. Where signage is impractical i.e. adits, other means of highlighting the dangers need to be used.

16.2.3.2 A risk assessment is required prior to anyone entering a confined space. Entry to a confined space will only be allowed after a written approval, in the form of a permit, has been issued by an Entry Supervisor who is authorized to issue such permits. (See Exhibit 16.2.1)

16.2.3.3 Prior to entry into any space that meets the definition of a confined space but is not already identified as a confined space; a risk assessment must be completed to determine if it is to be treated as a confined space or to determine if other permits may be necessary.

16.2.3.4 Only trained, competent persons knowledgeable in the requirements of this standard shall implement the Confined Space Entry permit

procedures. All persons required to work in a confined space, or to act as a standby person, must be trained, competent and tested.

16.2.3.5 The confined space permitting process must include the following elements:

- o A risk assessment, including the need for a competent person to assess such things as oxygen levels, contaminants, temperature extremes, and concentrations of flammable substances;
- o Isolation procedures for contaminants and other energy sources;
- o The requirement for breathing apparatus;
- o The sign-in and sign-out of all persons entering the confined space;
- o Display of the permit;
- o Communication equipment;
- o Safety specification of equipment to be taken into the confined space;
- o Barricading;
- o Rescue plan and equipment;
- o Standby person; and,
- o A completion procedure.

16.2.3.6 Each plant shall designate and maintain an Emergency Response Team and develop a procedure to summon rescue and emergency services in the event of a confined space emergency.

16.2.3.7 The KUC Contract Administrator or their designate must review the elements of this Standard with contract employers working on KUC properties in conjunction with the Permit to Work. The contract employers must verify the training and instruction of their employees.

- o The contract employer must make arrangements through the KUC representative to obtain a Confined Space Entry permit prior to entering a confined space. An entry supervisor shall issue the Confined Space Entry permit.
- o The KUC Contract Administrator or their designate must inform the contract employer of the unique hazards and all precautions or procedures developed and implemented by KUC to protect personnel working in or near a confined space.
- o All confined space entry operations must be coordinated with the appropriate KUC representative.

16.2.3.8 Confined Space Entry permits will be issued for specific time periods. Each permit is site-specific because of the potential changing conditions.

- o If the permit expires before the completion of work, the Entry Supervisor shall re-assess and issue another permit before work is allowed to continue.
- o Any changes in atmosphere or scope of work will require a new or updated Confined Space Entry permit. Entrant(s) shall be removed until the permit is updated or reissued.

16.2.3.9 All lines, vents, or chutes supplying gases, chemical solutions, material, or steam to equipment shall be isolated by valving or disconnecting, separating and blanking. All mechanical or electrical equipment shall be isolated. Both of the above items shall comply with the established Isolation (LOCKOUT / TAG-OUT PROCEDURE). (See KUC Safety and Health Standard 16.12)

16.2.3.10 When entrance covers are removed or the confined space is left unattended, the opening shall be promptly guarded by a railing, temporary cover, or other barrier intended to provide adequate warning of the opening, prevent an accidental fall through the opening, and to protect employees working in the space from objects entering the space. (See KUC Safety and Health Standard 16.3)

16.2.3.11 A trained person (Tester) shall make appropriate tests of the atmosphere in confined spaces. Testing will determine if there is a mixture or concentration of flammable and / or toxic air contaminants or if there might be an oxygen enriched or oxygen deficient atmosphere. Entry shall be allowed only after it has been determined that explosive or toxic limits are not exceeded, and that the oxygen concentration is within acceptable entry conditions. To ensure proper instrument function, routine bump-test and calibrations of gas monitors shall be conducted according to manufacturer recommendations and applicable regulatory standards.

- o If the confined space is found to have, or is suspected of having, an oxygen enriched / oxygen deficient atmosphere or if it exceeds flammable limits or toxic limits and a Confined Space Entry permit is not issued, the Entry Supervisor shall ensure the area is:
  (1) Posted with an appropriate warning sign.
  (2) Purged and ventilated; and
  (3) Re-checked and a Confined Space Entry permit issued prior to entry under the conditions described in this standard.

Note: When the assessment has identified the need for ventilation, a documented ventilation procedure must be followed (See Appendix B Confined Space Ventilation SOP). Continuous forced air shall be used.

Personnel may not enter the space until it has been determined that all limits are within acceptable entry conditions. Ventilation will continue until all personnel have left the space. The atmosphere within the space shall be continuously tested to ensure that the continuous forced air ventilation is preventing the accumulation of a hazardous atmosphere.

- Continuous monitoring is required if any activity will take place that could potentially change the air quality such as changes in explosive air mixtures, the introduction of toxic gases / hazardous chemicals, or hot work. Personal or fixed air monitors are required to continuously monitor air quality. The Industrial Health or Safety representative shall determine types of monitoring equipment required.

WARNING: In the event of an alarm, the space shall be evacuated until the atmosphere can be returned to acceptable levels through ventilation.

- Where entry into a confined space is required and the toxic limits are exceeded or there is an oxygen deficiency, and acceptable levels cannot be maintained by ventilation, appropriate respiratory protection must be worn. Respiratory protection (i.e. air purifying respirators, airline respirators, SCBA, etc.) shall be specified by a Health or Safety representative or other qualified employee.
- Risk assessments must be developed for work activities that are more hazardous when carried out in a confined space such as; hot work (cutting and welding), chemical or steam cleaning, or abrasive blasting.

WARNING: In no case will entry be made into a confined space with an explosive atmosphere or oxygen-enriched atmosphere.

WARNING: Air purifying respirators shall not be worn in confined spaces with an IDLH (Immediately Dangerous to Life and Health) atmosphere or in an oxygen deficient atmosphere.

All gas monitors and accessories shall meet applicable regulatory standards. Gas monitors shall be configured to measure all gasses identified in the risk assessment of the specific confined space where work will occur. Plant personnel may purchase approved gas measurement accessories for their own work areas.

16.2.3.12 Each Confined Space Entry shall have an **Entry Supervisor** with overall responsibility for safe entry operations. The Entry Supervisor has primary responsibility for the entrant's safety and therefore, must be on-site and assume the following responsibilities:

- o Know the hazards that may be faced during the confined space entry.
- o Verify entry conditions.
- o Verify the presence of rescue and emergency services, as appropriate for the identified hazards, and that means of summoning services are operable.
- o Verify that all appropriate entries have been made on the Confined Space Permit, all tests specified on the permit have been conducted, and all procedures and equipment specified are in place.
- o Authorize the confined space entry by signing the permit.
- o Instruct attendant and each entrant of the nature of the hazards involved, precautions to be taken, and the means of emergency communication.
- o Terminate the confined space entry when necessary.
- o Ensure that when responsibilities for the confined space are transferred, the entry operations remain consistent with the permit terms and conditions.
- o Reevaluate the conditions within a confined space at regular intervals directed by the hazards present and operations performed within the confined space and when entry operations are transferred between Entry Supervisors.
- o If for any reason he or she has to leave site, they must first be relieved by another qualified entry supervisor. This must also be updated on the permit.
- o Forward the Confined Space Permit to the facility (record center) document control office at the conclusion of the task.

16.2.3.13 The authorized **entrant(s)** to a confined space shall be properly trained and instructed by the Entry Supervisor regarding: 1) the nature of hazards involved, 2) precautions to be taken, 3) use of required protective and emergency equipment i.e. radio and safety harness, lifeline, and 4) emergency rescue procedures.

- o All authorized entrants shall review and sign the Confined Space Entry permit before entering the confined space and sign out when exiting the confined space.
- o All required protective clothing and appropriate eye, face, head, hearing, respiratory, and foot protection shall be worn.

16.2.3.14 The **attendant** (standby person) will:

- Be positioned outside the confined space and perform no other duties that interfere with the primary duties.
- Remain in contact (i.e. visual, audio or other means of approved communications) at all times while personnel are within the space.
- Ensure each authorized entrant has reviewed and signed the Confined Space Entry permit before entering and sign out when exiting.
- Be equipped with a means of communication (i.e. radio, cellular phone) to summon assistance in an emergency situation without leaving his / her post.
- Not enter the space in the event of an emergency or problem.
- Keep unauthorized personnel out of the space.
- Make sure ventilation equipment is working.
- Monitor the atmospheric testing equipment.
- Attend the lifeline when that equipment is in use.
- Note any problems encountered during the entry operations on the permit.

16.2.3.15 **Rescue team** requirements:

- Rescue team members must be trained in the use of personal protective equipment including respirators, SCBA's, and rescue equipment.
- Rescue teams shall practice making confined space rescues at least once every twelve months by means of simulated rescue operation.
- One member of the rescue team shall maintain a current ERT Intermediate Level certification in basic first aid and CPR skills according to the current KUC Emergency Response Training Standard.

16.2.3.16 The following guidelines shall be followed when employees are working within a confined space:

- Ladders used to enter confined spaces shall be secured and shall not be removed while anyone is inside.
- Only approved and properly grounded electrical equipment and lighting shall be used.
- Cylinders containing oxygen, acetylene, or other fuel gases shall not be taken into a confined space.
- Special instructions written on the "CONFINED SPACE ENTRY PERMIT" shall be followed. A standard permit shall be used (see Exhibit 16.2.1). The Entry Supervisor issuing the permit, the

person conducting the atmospheric testing, the attendant, and all entrants must sign the permit.
- o The Entry Supervisor (or designee) shall remove the permit only after all work is complete and the procedure to return the permitted space back into service has been followed.

16.2.3.17 The following completion procedure must be observed when returning the permitted space back into service:

- o Verify all work is complete.
- o Verify all entrants and equipment are removed.
- o Verify all entrances are secured and all locks and tags are removed.
- o If applicable, notify operations personnel that the permitted space can return to service.
- o Remove permit and return to the facility record center.

16.2.4 **RESPONSIBILITIES**

16.2.4.1 Each individual including the Entry Supervisor, authorized entrant(s), and attendant is responsible to follow the entry permit procedure described in this standard.

16.2.4.2 Each Area Manager is responsible to ensure:

- o An annual audit is conducted to identify confined spaces and a sign is posted at each identified confined space designating that a confined space permit is required before entry.
- o That there is a designated rescue team and procedure to summon rescue and emergency services in the event of a confined space emergency.

16.2.4.3 KUC Contract Administrators are responsible for reviewing the elements of this Confined Space Entry Standard with contract employers.

16.2.4.4 A facility Safety or Industrial Hygiene representative shall review the plant Confined Space Permitting program annually to ensure compliance with this standard and / or the need for revisions to the facility procedures. The review shall include a documented analysis of cancelled permits retained during the previous 12 months and any problems encountered during the entry operations noted on the permit.

16.2.4.5 Safety, Industrial Hygiene or other trained and qualified persons are

responsible for conducting initial and refresher "Atmospheric Tester" training for individuals who perform atmospheric testing. Employees who have been trained but have not preformed this task within a 12 month period require refresher training. The training shall include information concerning the recognition and evaluation of potential confined space hazardous conditions, and the use of monitoring equipment and procedures for atmospheric testing.

16.2.5 **RECORDKEEPING**

16.2.5.1 Confined Space Entry permits shall be retained in the facility (record center) document control office for a minimum period of one year to allow for an annual documented review of the entry permit program.

REFERENCES:

OSHA 29 Confined Space Standard CFR 1910.146 (www.osha.gov)
KUC Industrial Hygiene Website
KUC Safety and Health Standard 16.1 Hot Work Permit
KUC Safety and Health Standard 16.3 Restricted Access Barricading
KUC Safety and Health Standard 16.12 Lockout /-Tagout (Isolation)
Rio Tinto Safety Standard C5 - Confined Spaces
KUC Emergency Response Standard
KUCSHSOP001 Confined Space Ventilation SOP

REVISION HISTORY:

MOC#	Description of Change	Prepared By	Date
12305	Review and update by the KUC Confined Space Champion and Custodians. Also, updated format and Document number added.	KUC Confined Space Champion and Custodians and KUC Safety and Health Standards Committee	06/10
14283	Revise Confined Space definition to include Rio Tinto Standard words. Noted as an Observation during the October 2010 Standards Audit.	KUC Confined Space Champion and KUC Safety and Health Standards Committee	12/10
18556	Changes submitted by the C5 Champion and Custodians includes clarification on monitoring requirements, defining when ventilation is required, and requiring an Entry Supervisor to be on site or be relieved by another qualified entry supervisor. Also, the permit was modified with rescue plan requirements.	KUC Confined Space Champion and Custodians and KUC Safety and Health Standards Committee	02/12

26209	Confined Space Ventilation – requirements added	RTKC Standards committee	Jun 2014
42055	Updates to Cover CRM verifications around confined space atmospheric monitoring.	KUC confined space Champions and Custodians – KUC IH team	January 2017

Attachment 16.2.1

KENNECOTT UTAH COPPER
CONFINED SPACE ENTRY PERMIT *(Standard 16.2)*

Rev 9 – 02/12

PERMIT WILL REMAIN AT JOB SITE UNTIL JOB IS COMPLETE OR A NEW PERMIT IS ISSUED. EXPIRED PERMIT MUST BE SENT TO THE FACILITY RECORD CENTER (DOCUMENT CONTROL).

This permit is void if conditions change within the confined space. Evacuate the confined space and do not re-enter until conditions are evaluated and a new permit issued.

DATE AND TIME ISSUED _____ EXPIRATION _____

EQUIPMENT ID & LOCATION _____

PURPOSE OF ENTRY _____

SPECIAL REQUIREMENTS

MECHANICAL OR ELECTRICAL EQUIPMENT LOCKED OUT / DE-ENERGIZED	Y	N/A	LIFELINE / EMERGENCY RESCUE EQUIPMENT	Y	N/A
LINES CAPPED, BLANKED OR BROKEN	Y	N/A	HOT WORK PERMIT	Y	N/A
SAFE ACCESS	Y	N/A	LIGHTING	Y	N/A
MEANS OF COMMUNICATION	Y		PURGE / FLUSH, INERT AND VENTILATE	Y	N/A
BARRICADING	Y	N/A	SEPARATE VENTILATION PLAN	Y	N/A

PERSONAL PROTECTIVE EQUIPMENT REQUIREMENTS

GOGGLES / FACE SHIELD	Y	N/A	SUPPLIED AIR	Y	N/A
HALF-FACE RESPIRATOR (Does the cartridge match the chemical contaminant?)	Y	N/A	PROTECTIVE CLOTHING	Y	N/A
FULL-FACE RESPIRATOR (Does the cartridge match the chemical contaminant?)	Y	N/A	OTHER PROTECTIVE EQUIPMENT (LIST BELOW)	Y	N/A

REQUIRED TESTS FOR EVERY ENTRY	**ACCEPTABLE ENTRY CONDITIONS** (Results of atmospheric testing must be provided in the appropriate column)			**DATE**						
				TIME						
% OF OXYGEN	19.5% - 23.5%									
% OF L.E.L. (L.F.L.)	10% OR LESS									
TESTS TO BE TAKEN AS APPLICABLE	**ACCEPTABLE ENTRY CONDITIONS**	Y	N/A							
CARBON MONOXIDE	30 PPM or less									
SULFUR DIOXIDE	2 PPM or less (>2 <100 PPM entry acceptable only with approved respiratory protection)									
HYDROGEN SULFIDE	5 PPM or less									
AMMONIA	25 PPM or less									
OTHER (SPECIFY)	REFER TO KUC OEL Standard 10.7									
THERMAL STRESS POTENTIAL	IF YES, SPECIFY ACTION REQUIRED									
	INITIALS OF TESTER									

INSTRUMENT USED _____ Serial# _____ Calibration Due: _____ Bump Test Time: _____ Sensor Zeroed ☐Y

CONTINOUS MONITORING REQUIRED: ☐Y ☐N (If No, why not?)_____

PERIODIC TESTS REQUIRED: ☐Y ☐N □□FREQUENCY _____

ADDITIONAL REQUIREMENTS

SIGNATURES REQUIRED:

TESTER: I have completed an evaluation of the atmospheric conditions applying to this permit and verify that acceptable entry conditions exist.

Print Name _____ Signature _____

PERMIT ISSUED BY (ENTRY SUPERVISOR (S) OF CREW (S)): I have completed or properly evaluated all portions of this permit and verify that acceptable entry conditions exist. All personnel have been instructed as to the conditions of the permit and are adequately trained to perform this job.

Print Name(s) _____ Signature(s) _____

_____ _____

_____ _____

EQUIPMENT TO BE TAKEN INTO THE CONFINED SPACE WITH SAFETY SPECIFICATIONS

Equipment	Safety Specifications

ENTRANT AND ATTENDANT TRAINING CHECKLIST

The Entry Supervisor shall instruct each entrant and attendant. Each entrant and attendant shall sign the permit after being instructed by the Entry Supervisor regarding the following:

TRACK completed for this task *(Initials)*: ☐

- Nature of Hazards involved.
- Risk Assessment
- Precautions to be taken. Each person shall be aware of the signs and symptoms of exposure and conditions under which the entrant should leave the confined space.
- Review completed entry permit.
- Means of emergency communication: Attendant to Rescue Personnel:- O Phone O Audible Signal O Radio O Page
- Attendant to workers: O Phone O Radio O Intercom O Audible Signal O Visual Hand Signal O Rope Signal
- Emergency Rescue Plan Reviewed
  PLANT EMERGENCY PHONE # _____
  PLANT EMERGENCY RADIO CHANNEL _____
- Attendant to maintain visual or verbal communication with the entrants where required.
- In the event of an emergency, attendant will summon assistance, but will not enter the space.
- Attendant will keep unauthorized people out of the space.
- Attendant will attend lifeline when it is in use.
- Attendant shall stay at the entrance at all times unless relieved by another trained attendant.

Has the availability of rescue services been verified, as appropriate, for the identified hazards? O Yes Has the required rescue equipment been identified? O Yes O N/A
Methods of Rescue: O External (Retrieval) O Internal: O Congested:
O Hauling System Required O Patient lowering system required Lowering area:
O Anchor overhead:

AUTHORIZED ENTRANT (S) I have reviewed this Confined Space Entry Permit, I have been trained on the entry requirements and understand the nature of the hazards involved and the precautions to be taken:

Print Name	Company	Initials	Time-In	Time-Out	Time-In	Time-Out

AUTHORIZED ATTENDANT (S): I have reviewed this Confined Space Permit, have been trained in the Attendant requirements and my responsibilities, and understand the nature of the hazards involved and the precautions to be taken:

Print Name	Company	Initials

Note: If additional space is required for authorized entrants or attendants, an additional roster sheet which includes time in and time out may be attached to the permit and must be returned to the plant Records Center (document control) with the completed permit.

COMPLETION PROCEDURE / SAFETY REVIEW

Project Completion Time / Date: _____

Were any problems encountered? If so please explain.	☐Yes	☐No
Was the work area cleaned, inspected and all tools & equipment removed.	☐Yes	☐No
Is the space / equipment ready to be placed into service? (i.e., closed, barricades and lock & tags removed)	☐Yes	☐No

Comments:

Permit Cancelled By:		Cancellation Date:		Time		AM / PM
Reason Cancelled:						

KENNECOTT UTAH COPPER
Confined Space Ventilation *(Standard 16.2)*

PURPOSE:

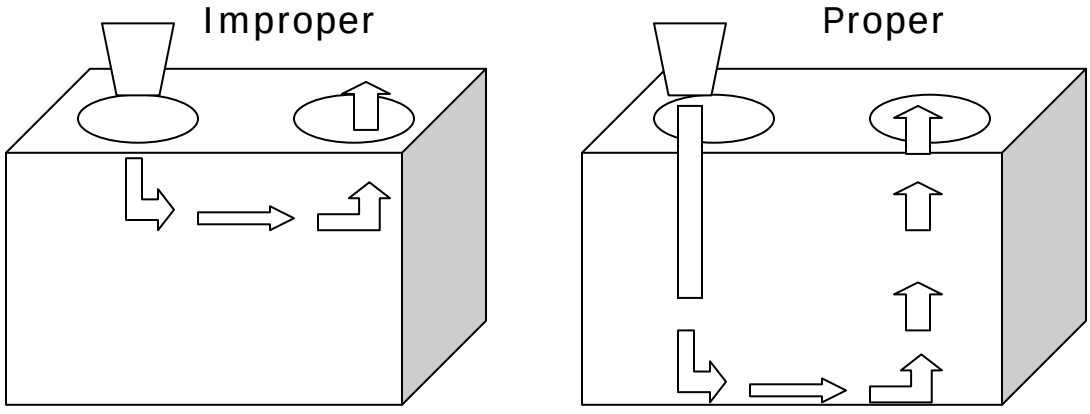
This procedure is to be used when atmospheric testing and/or the risk assessment have identified the need for ventilation, continuous forced air shall be used.

GENERAL VENTILATION PRINCIPLES:

- The air supply shall be from a clean source and may not increase the hazards in the space.
- Prior to entry, forced air ventilation must be performed until atmospheric testing renders the space safe for entry (acceptable entry conditions are met) and continue until work is completed and personnel have left the space.
- Forced air ventilation equipment must be adequate for the size of the space and length of ducting used.

PROCESS:

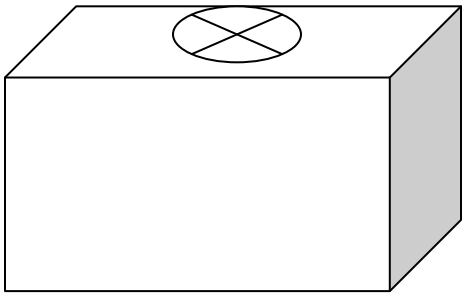
- Ventilating <u>equipment must be placed at the entrance of the space</u> and use ducting to direct airflow. Be aware of the direction of airflow and avoid short circuiting (see 2.4 below) by using proper lengths of ducting. Keep the ducting as straight as possible to avoid increased static pressure.
- Ventilation should be directed in immediate areas where personnel will be working. Ventilation should continue until all work is complete and personnel have left the space.
- The atmosphere must be continuously tested to ensure that continuous forced air ventilation is preventing accumulation of a hazardous atmosphere. Atmospheric tests should be conducted while forced air is running and while the forced air ventilation is turned off to give an accurate indication of the ventilation effectiveness.
- Examples of forced air ventilation:



When ventilating confined spaces, ensure adequate time for enough air changes to eliminate hazardous atmospheres. To ensure adequate air changes you must:

- Estimate the volume of the confined space in cubic feet (ft^3). This would be Length x Width x Height for a typical square or rectangular shaped confined space.
- Know the fan rating for forced air delivery. This is given in cubic feet per minute (cfm) and is typically listed on the fan motor.
- Divide the forced air delivery rating (cfm) of the fan by the volume (ft^3) of the confined space. This will equal the amount of air changes per minute or the amount of time it will take to completely change the air inside the space.

Example:



Length = 50 ft.
Height = 25 ft.
Width = 15 ft.

Volume = L x W x H = 18,750 ft^3
Fan rating = 1500 cfm

$$\frac{\text{Volume}}{\textbf{Fan rating}} = \frac{18{,}750}{\textbf{1500}}$$

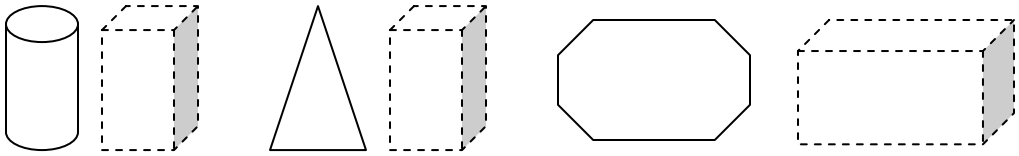
= 12.5 minutes per air change

Note: When using lengths of flexible ducting there will be a small amount of loss in the fan output velocity due to static pressure drop. Correct for this by allowing some additional time for air changes. A safe estimate would be for every 10 feet of ducting you will lose 20 cfm in fan output.

- Not all confined spaces are square or rectangular shaped. Some may be circular or cylinder shaped and others may be awkward or oddly shaped.

- To be safe when estimating the volume of a confined space, treat the space as if it were encompassed in a square or rectangle and use the volume of the encompassing square or rectangle for calculating air changes.

Examples:



Volume = Length x Width x Height = ft^3

- Situations where toxic contaminants are present (such as solvents or chemical vapors and/or mixtures) or are coming from multiple sources contact Safety or Industrial Hygiene personnel. Consult the Material Safety Data Sheets (MSDS) for the contaminant present. Vapor pressure, vapor density, along with rate of generation and synergistic effects of chemicals must be evaluated for proper ventilation and rendering the space safe for entry.

- Entry to confined spaces with atmospheres that do not meet acceptable entry requirements under the Confined space permit may only be accomplished by SCBA or supplied air respiratory protection.