

**PURPOSE/APPLICATION**

This safe work practice was created to provide guidance for safe demolition execution. Demolition activities should be directed and/or executed by persons trained specifically in demolition and deemed competent by the site Owner/Prime Contractor. Preparatory operations will include the overall planning of the demolition job, including the methods to be used to bring the structure down, the equipment necessary to do the job, and the measures to be taken to perform the work safely.

**PPE**

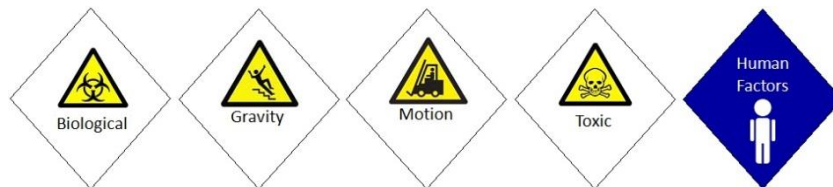
- CPES Minimum Requirements
- Additional requirements as identified in the Hazard Identification, Assessment and Control (HIAC) Process

**TRAINING**

- Equipment Specific

**HAZARDS & CONCERNS**

- All 13 CPES Hazard Sources should be considered
  - Gravity
  - Motion
  - Toxic
  - Biological
- Noise
- Fire/Explosion
- Injury
- Flying/ Falling debris


**PRECAUTIONS**

Planning for a demolition job is as important as actually doing the work. Therefore all planning work should be performed by a competent person experienced in all phases of the demolition work to be performed.

**Pre-Work/Job Planning**

- Prior to starting all demolition operations, an engineering survey of the structure must be conducted by a competent person. The purpose of this survey is to determine the condition of the framing, floors, and walls so that measures can be taken, if necessary, to prevent the premature collapse of any portion of the structure. When indicated as advisable, any adjacent structure(s) or improvements should also be similarly checked.
- Complete a pre-job site HIAC Refer to HSEMS Section 2 – Hazard Identification, Assessment and Control
- At the time of the survey an inspection of the site must also be undertaken in order to determine if any asbestos, lead, or other heavy metal or toxic, flammable or explosive materials that may be handled, disturbed or removed, have the inspection results available at the worksite, including any drawings, plans or specifications, as appropriate, to show the locations of any hazardous substances, ensure that any hazardous materials found are safely contained or removed.
- During the planning stage of the job, all safety equipment needs should be determined. The

required number and type of respirators, lifelines, warning signs, safety nets, special face and eye protection, hearing protection, and other worker protection devices should be determined during the preparation of the engineering survey. A comprehensive plan is necessary for any confined space entry.

- If it is necessary to maintain any power, water, or other utilities during demolition, such lines shall be temporarily relocated as necessary and/or protected. The location of all overhead power sources should also be determined, as they can prove especially hazardous during any machine demolition. All workers should be informed of the location of any existing or relocated utility service.

#### Utilities

- All electric, gas, water, steam, sewer, and other services lines shall be shut off, capped, or otherwise controlled, at or outside the building before demolition work is started. All energy sources need to be verified as zero energy. In each case, any utility company which is involved should be notified in advance, and its approval or services, if necessary, shall be obtained. Refer to COP-05 Lock Out Tag Out.

#### Site Securement

- If a dangerous or unstable wall is to be left standing, it must be adequately braced.
- If glass in a building or other structure could endanger workers it must be removed before other demolition commences. Glass removal must proceed in an orderly manner from the top to the bottom of the structure.
- Dangerous areas must be barricaded or guarded to prevent entry by workers or public. Warning signs must be displayed on all sides and approaches, or adequate protective canopies must be installed over the danger area, or adequate catch platforms or nets must be provided to stop materials from falling into areas accessible to workers.
- Heating devices should be situated so they are not likely to overturn and shall be installed in accordance with their listing, including clearance to combustible material or equipment. Temporary heating equipment, when utilized, should be maintained by competent personnel.
- Smoking shall be prohibited at or in the vicinity of hazardous operations or materials. Where smoking is permitted, safe receptacles shall be provided for smoking materials.
- Roadways between and around combustible storage piles should be at least 5 meters (15 feet) wide and maintained free from accumulation of rubbish, equipment, or other materials.
- When storing debris or combustible material inside a structure, such storage shall not obstruct or adversely affect the means of exit.
- Material and debris must not be allowed to accumulate on floors or on the ground outside the building or structure.
- Material and debris must be secured against unintentional movement as a result of weather conditions and/or weather activities.

#### Emergency Response Planning

- Prior to starting work, provisions should be made for prompt medical attention in case of serious injury. The nearest hospital, clinic, or physician shall be located as part of the engineering survey. The job supervisor should be provided with instructions for the most direct route to these facilities.

Proper equipment for prompt transportation of an injured worker, as well as a communication system to contact any necessary ambulance service, must be available at the job site. The telephone numbers of the hospitals, physicians, or ambulances shall be conspicuously posted.

- The telephone numbers of the local police, ambulance, and fire departments should be available at each job site. This information can prove useful to the job supervisor in the event of any traffic problems, such as the movement of equipment to the job, uncontrolled fires, or other police/fire matters. The police number may also be used to report any vandalism, unlawful entry to the job site, or accidents requiring police assistance.
- A **"fire plan"** should be set up prior to beginning a demolition job. This plan should outline the assignments of key personnel in the event of a fire and provide an evacuation plan for workers on the site.
- A suitable location at the job site should be designated and provided with plans, emergency information, and equipment, as needed. Access for heavy firefighting equipment should be provided on the immediate job site at the start of the job and maintained until the job is completed.
- Free access from the street to fire hydrants and to outside connections for standpipes, sprinklers, or other fire extinguishing equipment, whether permanent or temporary, should be provided and maintained at all times.
- Pedestrian walkways should not be so constructed as to impede access to hydrants.
- No material or construction should interfere with access to hydrants, Siamese connections, or fire extinguishing equipment.
- A temporary or permanent water supply of sufficient volume, duration, and pressure, required to properly operate the firefighting equipment, should be made available.
- Standpipes with outlets should be provided on large multistory buildings to provide for fire protection on upper levels. If the water pressure is insufficient, a pump should also be provided.
- An ample number of fully charged portable fire extinguishers should be provided throughout the operation. All motor driven mobile equipment should be equipped with an approved fire extinguisher.
- An alarm system, e.g., telephone system, siren, two-radio, etc., shall be established in such a way that employees on the site and the local fire department can be alerted in case of an emergency.

The following should be considered in all fire prevention planning:

- All potential sources of ignition should be evaluated and the necessary corrective measures taken.
- Electrical wiring and equipment for providing light, heat, or power should be installed by a competent person and inspected regularly.
- Equipment powered by an internal combustion engine should be located so that the exhausts discharge well away from combustible materials and away from workers.
- When the exhausts are piped outside the building, a clearance of at least six inches should be maintained between such piping and combustible material.
- All internal combustion equipment should be shut down prior to refueling. Fuel for this equipment should be stored in a safe location.
- Sufficient firefighting equipment should be located near any flammable or combustible liquid storage area.

- Only approved containers and portable tanks should be used for the storage and handling of flammable and combustible liquids.

#### Hazardous Materials

- If hazardous materials are discovered during demolition work that were not identified in the initial survey, all work must cease until such materials are contained or removed.

#### **REFERENCES / ADDITIONAL INFORMATION**

- HSEMS Section 2 – Hazard Identification, Assessment and Control
- COP-05 Lock Out Tag Out

#### **REGULATIONS**

Alberta OHS Code

Saskatchewan OHS Regulation

British Columbia OHS Regulation

#### ***Part 20 Construction, Excavation and Demolition***

##### ***20.9 Protection from falling materials***

- 1) *If falling material could endanger workers*
  - a) *the danger area must be barricaded or effectively guarded to prevent entry by workers, and conspicuous warning signs must be displayed on all sides and approaches, or*
  - b) *adequate protective canopies must be installed over the danger area, or*
  - c) *adequate catch platforms or nets must be provided to stop materials from falling into areas accessible to workers.*
- 2) *Temporary washroom facilities, offices and similar structures on a construction site must be*
  - a) *located outside areas where there is the potential of being hit by falling materials, or*
  - b) *covered by adequate protective canopies.*
- 3) *Protective canopies must be designed and constructed to safely support all loads that may reasonably be expected to be applied to them, but in no case less than 2.4 kPa (50 psf).*

#### ***Demolition***

##### ***20.111 Structural integrity***

- 1) *If a structure is to be demolished in whole or in part, the structure and any adjoining structures, the integrity of which could be compromised by the demolition, must be supported to the extent and in a manner prescribed by a professional engineer.*

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**DEMOLITION**

- 2) *Design of the support system described in subsection (1) must include a schedule, based on the stages of demolition, for installation of the components of the support system, and a copy of the support system plan must be available at the demolition site.*
- 3) *While salvage is taking place before or during the demolition process, the integrity of the structure must be maintained.*
- 4) *If the nature and method of demolition will not endanger workers and the stability of adjoining grounds and structures will not be compromised, engineered demolition plans and designs are not required.*

#### **20.112 Hazardous materials**

*Before work begins on the demolition or salvage of machinery, equipment, buildings or structures, the employer or owner must*

- a) *inspect the site to identify any asbestos, lead, or other heavy metal or toxic, flammable or explosive materials that may be handled, disturbed or removed,*
- b) *have the inspection results available at the worksite, including any drawings, plans or specifications, as appropriate, to show the locations of any hazardous substances,*
- c) *ensure that any hazardous materials found are safely contained or removed, and*
- d) *if hazardous materials are discovered during demolition work that were not identified in the inspection required by paragraph (a), ensure that all work ceases until such materials are contained or removed.*

#### **20.113 Disconnecting services**

*Demolition must not proceed until all electric, gas and other services which may endanger a worker have been disconnected as required by the owner of the applicable utility.*

#### **20.114 Glass removal**

- 1) *If glass in a building or other structure could endanger workers it must be removed before other demolition commences.*
- 2) *Glass removal must proceed in an orderly manner from the top to the bottom of the structure.*

#### **20.116 Protection from falling materials**

- 1) *If falling material could endanger a worker, the danger area must be guarded to prevent entry by workers or protected by adequate canopies.*
- 2) *A floor or roof opening through which material may fall and endanger workers must be adequately covered.*

#### **20.117 Throwing material**

*If material is to be dropped or thrown from upper floors, the area into which the material will fall must be barricaded to prevent workers from entering the area and conspicuous warning signs must be displayed to advise of the danger.*

#### **20.118 Stabilizing walls**

*If a dangerous or unstable wall is to be left standing, it must be adequately braced.*

#### **20.119 Dismantling buildings**



**SAFE WORK PRACTICE**

**SWP-63**

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**DEMOLITION**

*During the dismantling or renovation of a building or structure, materials of a size or weight which may endanger workers must not be loosened or allowed to fall, unless procedures are used that will adequately protect workers.*

**20.120 Housekeeping**

*Material and debris must not be allowed to accumulate on floors or on the ground outside the building or structure if workers will be endangered.*

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Developed by:	1. <u>Marty Fulkerth</u>	2. _____	Date:	<u>Oct 27, 2009</u>
	3. _____	4. _____		
Revised by:	1. <u>HSE Department</u>	2. <u>Todd Penney</u>	Date:	<u>May 1, 2012</u>
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