COVID-19 Attendance, Absenteeism and Staffing Capacity Challenges

Date: Oct 6, 2020

Duration: 70 minutes

Presenter: Vicki Giles from McLennan Ross

About the Speaker

Vicki’s practice focuses on the areas of employment, human rights, privacy, labour and administrative law. She advises employers on a wide variety of employment, personnel and labour issues (including collective bargaining) and has experience before all levels of court, arbitrators and the Alberta Labour Relations Board.

How to Conduct a Virtual Workplace Harassment and Violence Investigation

Date: Oct 6, 2020

Duration: 72 minutes

Presenter: Gail Rodgers, Correna Jones, and Adam Pie, from DLA Piper

About the Webinar

The COVID-19 pandemic has changed the ways in which businesses run

and there is still some time before it is ‘business as usual’. Most employers are grappling with new ways of working, with many of their employees working from home or in other unusual ways. However, it is clear that ‘business as usual’ issues can and do still arise. Thus, what should employers do if they become aware of an allegation of workplace harassment or violence? Global business lawyer Gail Rodgers draws on her extensive experience in virtual investigations to help you determine whether a remote investigation is the right step to take and what steps you should take if you decide to go forward with the investigation.

About the Speaker

Gail Rodgers concentrates her practice in pharmaceutical and medical device litigation, mass torts and government and internal investigations.

Gail represents clients on a wide variety of compliance matters, including the Foreign Corrupt Practices Act (FCPA) as well as advising and enhancing compliance programs in response to investigations. Gail handles investigations regarding bribery, corruption and potential sanctions and export control violations. She also advises on issues stemming from investigations, including concerns regarding data breach and data privacy.

She has extensive experience in a wide variety of state and federal litigation, including providing strategic advice at each stage of litigation, managing national discovery teams and implementation of national resolution programs. Gail acts as litigator and litigation manager handling individual matters in a lead capacity while also supervising and coordinating the work of attorneys drawn from multiple outside law firms. She also has significant experience as resolution counsel and has coordinated teams in the evaluation of individual and class action claims, resulting in the resolution of thousands of claims.

Gail handles commercial litigation matters involving multiple international jurisdictions. She also provides strategic business advice regarding avoidance of litigation and handling of complaints and claims regarding pharmaceutical, medical device and

nutritional supplements.

Electrical Contracting Checklist – Spanish

Lista de verificación de la auditoría de seguridad de la contratación eléctrica sobre el manejo adecuado de los equipos eléctricos.

Desenergizar

☐ ¿Están los aparatos eléctricos como los que están conectados a tierra?

☐ ¿Se instalan interruptores de circuito de falla de tierra en cada circuito temporal de 15 o 20 amperios, 120
voltios AC en lugares con construcciones o modificaciones?

☐ ¿Tiene instalaciones eléctricas en áreas peligrosas de polvo o vapor que cumplan con el código NEC?

☐ ¿Se abren siempre los medios de desconexión antes de cambiar los fusibles? ¿Están todos los conductos
y cajas eléctricas firmemente sujetos en su lugar?

☐ ¿Están todas las partes energizadas de los circuitos y equipos eléctricos protegidas contra el contacto
accidental por gabinetes o recintos aprobados?

☐ ¿Los interruptores de desconexión de los motores eléctricos de más de dos caballos de fuerza son capaces
de abrir el circuito cuando el motor está parado sin explotar?

☐ ¿Se proporciona protección de bajo voltaje en el dispositivo de control de los motores que accionan
máquinas o equipos que podrían causar lesiones por un arranque involuntario?

☐ ¿Están los interruptores de desconexión del motor a la vista del dispositivo de control del motor?

☐ ¿Está cada motor situado a la vista de su controlador o el

medio de desconexión del controlador puede
bloquearse abierto o se ha instalado un medio de desconexión separado en el circuito a la vista del motor?
☐ ¿Es el controlador de cada motor que excede los dos caballos de potencia nominal igual o superior a la
potencia del motor al que sirve?
☐ ¿Se instruye en RCP a los empleados que trabajan regularmente en torno a equipos o líneas eléctricas
energizadas?
☐ ¿Se prohíbe a los empleados trabajar solos en líneas/equipos eléctricos energizados de más de 600
voltios?
COMENTARIOS:
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Electrician Falls From Aluminum Ladder After Shock – Spanish

Tres trabajadores, un electricista licenciado y dos aprendices, estaban recableando un sótano residencial. Estaban usando una bombilla de 300 vatios, sacando energía de una conexión temporal a los cables de energía en un poste exterior.

El electricista intentó reconectar el servicio temporal fuera de la casa e instruyó a sus compañeros de trabajo para que continuaran con su trabajo en el interior. Luego fue a su vehículo a buscar herramientas. Mientras trabajaba solo, subió una escalera de aluminio en condiciones de lluvia intensa. Parado sobre pedazos de alfombra mojados y con respaldo de goma, cortó un cable que

conducía a la casa desde el poste. Llevaba zapatos de calle, sin guantes y sus alicates no estaban aislados. No usaba ningún tipo de equipo anticaídas.

Después de cortar el cable, recibió una descarga eléctrica. Cuando sus aprendices notaron la pérdida de energía, subieron inmediatamente del sótano y escucharon sus gritos.

Temerosos de tocar la escalera de aluminio, intentaron sin éxito desalojarlo del contacto con los cables dándole una patada a la escalera. Lo vieron soltarse del cable y caer de la escalera a una pasarela de asfalto a 20 pies de profundidad. Murió por graves heridas en la cabeza y el pecho.

Las violaciones de seguridad aquí fueron numerosas, particularmente con respecto al uso de escaleras de aluminio alrededor de la electricidad, los dispositivos de detención de caídas, el sistema de compañeros, el uso de guantes y calzado de seguridad adecuados y otras medidas de seguridad eléctrica.

La formación continua en seguridad para todos los empleados, nuevos o establecidos, puede ayudar a prevenir muertes como esta.

Emergency Action Plan – Spanish

INCIDENTE

20 de enero de 2020

VINELAND, N.J. (AP) – Un hombre de Filadelfia murió en un accidente industrial en una instalación de procesamiento de Nueva Jersey, dijeron las autoridades.

Los socorristas fueron llamados a la planta de almacenamiento de congelados Safeway en Vineland poco después de las 12:30 a.m. del

sábado, dijo la policía.

El teniente Brian Armstrong dijo que Felipe Rodríguez-Tzon, de 28 años, fue declarado muerto en la escena en un área refrigerada de las instalaciones. El trabajador ya había sido retirado de la maquinaria cuando llegó el equipo de emergencia, dijo el teniente Michael Feaster.

NECESITA SABER

Un **Plan de Acción de Emergencia** (EAP) es un documento escrito requerido por las normas particulares de OSHA. El propósito de un EAP es facilitar y organizar las acciones del empleador y del empleado durante las emergencias en el lugar de trabajo. Los planes de emergencia bien desarrollados y la capacitación adecuada de los empleados (de manera que los empleados entiendan sus funciones y responsabilidades dentro del plan) darán como resultado menos lesiones y menos graves para los empleados y menos daños estructurales en las instalaciones durante las emergencias. Un plan mal preparado, probablemente conducirá a una evacuación desorganizada o a una respuesta de emergencia, lo que resultará en confusión, lesiones y daños a la propiedad.

Requisitos mínimos

Elaborar un plan de acción de emergencia integral que se ocupe de los problemas específicos de su lugar de trabajo no es difícil. Implica tomar lo que se aprendió de la evaluación de tu lugar de trabajo y describir cómo responderán los empleados a los diferentes tipos de emergencias, teniendo en cuenta la disposición específica de tu lugar de trabajo, las características estructurales y los sistemas de emergencia.

Desarrollar e implementar un EAP

Elaborar un plan de acción de emergencia (EAP) no es suficiente para garantizar la seguridad de sus empleados. Cuando sea necesaria una evacuación, necesitará personas responsables y capacitadas que puedan supervisar y coordinar las actividades para

asegurar una evacuación segura y exitosa.

Elementos de evacuación

Una evacuación desorganizada puede dar lugar a confusión, lesiones y daños a la propiedad.

¿Luchar o huir?

Un incendio es el tipo de emergencia más común para el cual las pequeñas empresas deben planear. Los planes de evacuación que designan o requieren que algunos o todos los empleados combatan los incendios con extintores portátiles aumentan el nivel de complejidad del plan y el nivel de capacitación que debe darse a los empleados.

Shelter-in-Place

Los contaminantes químicos, biológicos o radiológicos pueden ser liberados en el medio ambiente en tal cantidad y/o proximidad a un lugar de negocios que es más seguro permanecer en el interior que evacuar a los empleados.

Bomberos, rescate, servicios médicos

Aunque la mayoría de nosotros nos alejamos rápidamente de los entornos peligrosos creados durante las situaciones de emergencia, un grupo de profesionales dedicados y bien capacitados de respuesta a emergencias y personal de servicios médicos se encarga de contener y mitigar estos incidentes, rescatar a las personas en situación de riesgo y proporcionar asistencia médica a los heridos.

Informar de las emergencias

Los empleados deben saber cómo reportar las emergencias. Algunos utilizan números de teléfono internos, intercomunicadores o sistemas de megafonía para notificar a otros empleados. Es importante que los empleados también notifiquen a las autoridades competentes, como los servicios de bomberos, médicos o de rescate,

si su empresa depende de este tipo de asistencia durante una emergencia.

Cuando así lo exijan algunas normas de la Administración de Seguridad y Salud Ocupacional, las empresas con más de 10 empleados deben tener un plan de acción de emergencia por escrito; las empresas más pequeñas pueden comunicar sus planes oralmente. El apoyo de la alta dirección y el compromiso y la participación de todos los empleados son esenciales para que el plan de acción de emergencia sea eficaz.

Los empleadores deben revisar los planes con los empleados cuando se ponen en marcha inicialmente y reevaluar y modificar el plan periódicamente cada vez que el plan en sí, o las responsabilidades de los empleados, cambien. Los procedimientos de emergencia, incluyendo el manejo de cualquier químico tóxico, deberían incluir:

- Procedimientos de escape y asignación de rutas de escape.
- Procedimientos especiales para los empleados que realizan o cierran operaciones críticas de la planta.
- Sistemas para dar cuenta de todos los empleados después de la evacuación y para la información sobre el plan.
- Rescate y tareas médicas para los empleados que las realizan.
- Medios para informar de incendios y otras emergencias.

La cadena de mando

El empleador debe designar un coordinador de respuesta de emergencia y un coordinador de apoyo. El coordinador puede ser responsable de las operaciones de toda la planta, la información pública y de asegurar que se llame a la ayuda exterior. Tener un coordinador de respaldo asegura que una persona capacitada esté siempre disponible. Los empleados deben saber quién es el coordinador designado. Los deberes del coordinador y del empleador incluyen:

- Determinar qué emergencias pueden ocurrir y ver que se desarrollen procedimientos de emergencia para abordar cada

situación.
- Dirigir todas las actividades de emergencia, incluida la evacuación del personal.
- Asegurarse de que los servicios de emergencia externos sean notificados cuando sea necesario.
- Dirigir el cierre de las operaciones de la planta cuando sea necesario.

Equipos de respuesta a emergencias

Los miembros de los equipos de respuesta a emergencias deben estar completamente capacitados para las posibles crisis y ser físicamente capaces de llevar a cabo sus tareas. Los miembros del equipo deben conocer los peligros tóxicos en el lugar de trabajo y ser capaces de juzgar cuándo hay que evacuar al personal o cuándo hay que contar con ayuda externa (por ejemplo, cuando un incendio es demasiado grande para manejarlo). Se debe capacitar a uno o más equipos:

- Uso de varios tipos de extintores.
- Primeros auxilios, incluyendo resucitación cardiopulmonar (RCP) y aparatos de respiración autónoma (SCBA).
- Requisitos delestándar de patógenos en sangre de la OSHA.
- Procedimientos de apagado.
- Procedimientos de control de derrames químicos.
- Procedimientos de búsqueda y rescate de emergencia.
- Respuesta de emergencia para materiales peligrosos.

Actividades de respuesta

La comunicación de emergencia efectiva es vital. En los planes debe establecerse un área alternativa para un centro de comunicaciones que no sean las oficinas de administración, y el coordinador de respuesta de emergencia debe operar desde este centro. La gerencia debe proveer alarmas de emergencia y asegurarse de que los empleados sepan cómo reportar las emergencias. Se debe mantener una lista actualizada del personal clave y de los números de teléfono fuera de servicio.

La contabilidad del personal después de la evacuación es fundamental. Una persona del centro de control debe notificar a la policía o a los miembros del equipo de respuesta a emergencias sobre las personas que se creen desaparecidas.

Los procedimientos de seguridad eficaces pueden impedir el acceso no autorizado y proteger los registros y el equipo vitales. Los registros duplicados de los archivos contables esenciales, los documentos legales y las listas de familiares de los empleados -que deben ser notificados en caso de emergencia- pueden guardarse en lugares fuera de las instalaciones.

Entrenamiento

Cada empleado necesita conocer los detalles del plan de acción de emergencia, incluidos los planes de evacuación, los sistemas de alarma, los procedimientos de notificación al personal, los procedimientos de cierre y los tipos de posibles emergencias. Cualquier peligro especial, como materiales inflamables, productos químicos tóxicos, fuentes radioactivas o sustancias que reaccionan con el agua, debe ser discutido con los empleados. Los simulacros deben realizarse a intervalos aleatorios, al menos una vez al año, y deben incluir a las autoridades policiales y de bomberos del exterior.

La capacitación debe realizarse al menos una vez al año y cuando se contraten empleados o cuando cambien de trabajo. Se necesita capacitación adicional cuando se introducen nuevos equipos, materiales o procesos, cuando cambia la disposición o el diseño de las instalaciones, cuando se han actualizado o revisado los procedimientos o cuando los ejercicios muestran que el rendimiento de los empleados es inadecuado.

Protección personal

Los empleados expuestos a o cerca de salpicaduras químicas accidentales, objetos que caen, partículas voladoras, atmósferas desconocidas con oxígeno inadecuado o gases tóxicos, incendios, cables eléctricos con corriente o emergencias similares necesitan

un equipo de protección personal adecuado.

Asistencia médica

Los primeros auxilios deben estar disponibles dentro de los 3 o 4 minutos de una emergencia. Los lugares de trabajo que se encuentren a más de 3 ó 4 minutos de una enfermería, clínica u hospital deben tener al menos una persona en el lugar capacitada en primeros auxilios (disponible en todos los turnos), contar con personal médico disponible para asesoramiento y consulta, y elaborar procedimientos médicos de emergencia por escrito.

Es esencial que los proveedores de primeros auxilios capacitados dispongan de suministros de primeros auxilios, que los números de teléfono de emergencia se coloquen en lugares visibles cerca de los teléfonos o en ellos, y que se disponga de servicios de ambulancia preacordados para cualquier emergencia. Puede ser útil coordinar un plan de acción de emergencia con los socorristas externos, como el departamento de bomberos, la sala de emergencias de los hospitales, los proveedores de servicios de emergencia y los equipos locales de materiales peligrosos.

Las emergencias inesperadas ocurren cada año en este país. Su empresa necesita un Plan de Respuesta a Emergencias para cubrir todos los desastres esperados e inesperados. Todos los empleados deben ser entrenados en los roles que desempeñarán en una emergencia.

Los incendios, los desastres naturales y otras emergencias pueden afectar a su lugar de trabajo sin previo aviso. Si bien no puede predecirlos, puede prepararse para ellos y la preparación salva **vidas, previene lesiones y limita los daños a la propiedad.**

NEGOCIOS / REGULACIONES

Según la **OSHA**, el propósito de un **Plan de Acción de Emergencia** (o EAP, por sus siglas en inglés) es facilitar y organizar las acciones de los empleadores y empleados durante las emergencias en el lugar de trabajo.

El objetivo de cualquier EAP es prevenir las lesiones de los empleados y los daños estructurales de la instalación durante las emergencias.

Norma de construcción de OSHA 1926.35(a) El plan de acción de emergencia se hará por escrito y abarcará las medidas designadas que los empleadores y los empleados deben tomar para garantizar la seguridad de los empleados contra el fuego y otras emergencias. **1926.35(e)(3)** Para aquellos empleadores con 10 o menos empleados el plan puede ser comunicado oralmente a los empleados y el empleador no necesita mantener un plan por escrito.

En caso de emergencia, todo el personal debe saber o estar al tanto:

- primeros auxilios básicos
- cómo informar de cualquier situación de emergencia
- el procedimiento de evacuación de emergencia, incluido el tipo de evacuación y la asignación de rutas de salida
- ¿cómo se ve o suena el sistema de alarma para alertar a los trabajadores de las emergencias
- los empleados designados que pueden ser obligados a quedarse para continuar las operaciones críticas de la planta
- cómo dar cuenta de todos los empleados después de la evacuación
- procedimientos para los empleados que realizan tareas de rescate o médicas
- nombre o cargo de los empleados a los que hay que contactar para obtener información sobre el plan

Entre los ejemplos de posibles emergencias en el lugar de trabajo para las que todo el personal debe estar preparado se incluyen:

- Incendios y explosiones
- Tornados y terremotos
- Fallas del equipo pesado
- Rescates en espacios confinados
- Incidentes con materiales peligrosos
- Rescates en cuevas
- Rescates de arrestos en otoño

- Lesiones de los trabajadores
- Incidentes de atropello/atrapamiento
- Emergencias médicas

Los planes de acción de emergencia específicos de cada lugar de trabajo deben estar en marcha. El EAP debe estar en un tipo de letra fácil de leer y colocado en múltiples lugares en el lugar de trabajo para que cada trabajador tenga la oportunidad de revisarlo cuando sea necesario.

El EAP básico que se publica debe incluir:

- Dirección y descripción de la ubicación del sitio
- Números de respuesta de emergencia para el 911, bomberos, policía, personal de emergencia
- Nombre y dirección de los centros médicos más cercanos
- Mapa de las instalaciones médicas más cercanas

ESTADÍSTICAS

De las 4.779 muertes de trabajadores en la industria privada en el año calendario 2018, 1.008 o el 21,1% fueron en la construcción, es decir, una de cada cinco muertes de trabajadores el año pasado fue en la construcción. Las principales causas de muerte de trabajadores del sector privado (excluyendo las colisiones en carreteras) en la industria de la construcción fueron las caídas, seguidas de los golpes con objetos, la electrocución y las atrapadas. Estos "Cuatro Fatales" fueron responsables de más de la mitad (58,6%) de las muertes de trabajadores de la construcción en 2018, informa BLS

La Cruz Roja Americana publicó estadísticas que ilustran su enorme contribución a la respuesta de emergencia y la recuperación de desastres en los Estados Unidos. A continuación se presentan estadísticas que abarcan los últimos seis meses de esfuerzos de socorro de la Cruz Roja en respuesta a incendios, inundaciones, huracanes, tornados y terremotos.

- De abril a septiembre de 2011, la Cruz Roja respondió:
- 25 grandes incendios multifamiliares

- 14 inundaciones
- 15 huracanes o tormentas tropicales
- 21 tornados
- 6 incendios forestales
- 7 inundaciones y tornados combinados
- Otras 4 tormentas
- Un terremoto
- Lanzaron 93 operaciones de socorro en casos de desastre en 42 estados y territorios
- Se abrieron 899 refugios
- Tuvo 121.854 pernoctaciones en refugios
- Proporcionó 2.337.542 artículos a granel
- Proporcionó 106.732 kits de limpieza
- Proporcionó 107.077 kits de confort
- Sirvió 1.864.065 comidas
- Sirvió 4.462.684 bocadillos
- Proporcionó 59.646 consultas de salud mental
- Proporcionó 69.235 consultas de servicios de salud
- Desplegados 24.178 trabajadores de la Cruz Roja

RECOMENDACIONES

Un plan de acción de emergencia es básicamente un plan de **“Cómo salir de aquí a salvo”**. Un buen plan debe anticipar todas las posibles emergencias, así como todos los desastres naturales y causados por el hombre que puedan ocurrir.

Los empleados deben practicar y revisar regularmente la respuesta de emergencia. La práctica expondrá los errores en el plan que podrían resultar en la pérdida de vidas.

Las recomendaciones para prepararse para las emergencias en el lugar de trabajo son:

- Sepa dónde se encuentran sus números de teléfono de emergencia y con qué agencia debe contactar primero.
- Saber dónde se encuentran las dos rutas de escape más cercanas.
- Aprende a usar un extintor de incendios. Deberías usarlo

sólo en un incendio pequeño. Si el fuego se sale de control, abandone el área. Heroísmos innecesarios han matado a muchos empleados.

- Aprende cómo y cuándo operar los sistemas de alarma internos.
- Saber cómo encontrar y operar unidades de lavado de ojos y duchas de seguridad. Éstas deben estar claramente marcadas y ser de fácil acceso. Antes de ayudar a una víctima de un incidente o antes de asistir a una emergencia, asegúrese siempre de que es seguro hacerlo. A veces el mejor plan es simplemente llegar a un lugar seguro. Un evento como un rescate fallido en un espacio confinado que resulte en múltiples muertes es un ejemplo de cómo se puede empeorar una mala situación tratando de ayudar.
- No exageres. Apresurarse o tomar malas decisiones cuando se trata de una emergencia puede resultar en más víctimas o crear una situación peor en general.
- Comprenda las políticas y procedimientos de su empresa en relación con emergencias climáticas específicas como un tornado o una inundación.
- Sepa dónde están los puntos de encuentro de emergencia en su lugar de trabajo. También familiarízate con la dirección de tu lugar de trabajo o de tu lugar de trabajo. Si tienes que llamar al 911, una de las primeras preguntas que te hacen es: “¿Dónde estás ubicado? ”.
- Saber dónde se encuentra el equipo de respuesta a emergencias en el lugar y cómo utilizarlo. También familiarícese con los interruptores de apagado de emergencia de los equipos o maquinaria.
- Conozca los signos y síntomas de las emergencias médicas comunes o las emergencias médicas que pueden ocurrir en su lugar de trabajo. Saber qué buscar puede marcar la diferencia para que alguien reciba la atención médica que necesita o no.

PREVENCIÓN

Realizar una evaluación de los riesgos

Los principales peligros en una emergencia, como un incendio, la liberación de sustancias químicas, un grave mal funcionamiento de una máquina, la violencia en el lugar de trabajo o un desastre natural, suelen ser sólo el comienzo de los daños y la destrucción. Una evaluación de los peligros arrojará luz sobre todos estos posibles peligros.

Identificación de los procedimientos de control de emergencia y del EAP escrito

El siguiente paso es usar los hallazgos de su evaluación de peligros para desarrollar **un Plan de Acción de Emergencia por escrito** (EAP). El plan debe incluir:

1. Todas las posibles emergencias, consecuencias, acciones requeridas, procedimientos escritos y recursos disponibles.
2. Una lista detallada del personal con el que hay que contactar en caso de emergencia y su papel en la misma.
3. Una lista de organizaciones externas con las que ponerse en contacto, como los servicios de bomberos, rescate y ambulancias; hospitales, departamentos de policía y cualquier organismo gubernamental; empresas de servicios públicos; y cualquier industria cercana que deba ser informada debido a un posible riesgo para la seguridad de sus trabajadores y sus operaciones.
4. Planos y mapas a gran escala que muestran las rutas de excavación, el equipo de emergencia, las zonas peligrosas (es decir, el almacenamiento de productos químicos), así como las líneas de gas y agua y otra información que se requiere según las normas de seguridad aplicables.

Un EAP debe incluir lo siguiente:

1. Asignaciones de personal: El EAP debe establecer una clara cadena de mando en la que todo el personal tenga claramente asignadas sus funciones en caso de evacuación. El EAP debería designar:

- Un líder con autoridad para ordenar una evacuación o cierre.
- Un número apropiado de guardias de evacuación para ayudar en la evacuación y asegurarse de que todo el mundo esté contabilizado antes de evacuar.
- Los individuos deben quedarse atrás para llevar a cabo o cerrar las operaciones vitales de la planta antes de evacuarse.
- Personas autorizadas a realizar tareas de rescate o médicas en caso de evacuación.

2. Como mínimo, el EAP debe incorporar los siguientes procedimientos:

- Procedimientos para informar sobre incendios y otras emergencias.
- Procedimientos de evacuación de emergencia, incluido el tipo de evacuación y la identificación de las rutas de salida.
- Procedimientos para ayudar a los empleados discapacitados que requieren asistencia para evacuar.
- Procedimientos para que los empleados que se quedan atrás operen las operaciones críticas de la planta antes de evacuarse.
- Procedimientos para dar cuenta de todos los empleados después de la evacuación.
- Procedimientos para los empleados que realizan tareas de rescate o médicas.

3. Sistemas de alarma y notificación, incluyendo:

- Un sistema de alarma que utiliza una señal distintiva que todos los empleados reconocen para comunicar las órdenes de evacuación o realizar otras acciones en el marco del EAP.
- Un sistema de megafonía u otro sistema de comunicaciones de emergencia que se puede utilizar para notificar a los empleados de la emergencia y contactar con los bomberos locales, la policía y otros responsables de la emergencia.
- Una fuente de energía auxiliar en caso de que se corte la electricidad.

4. EPP y ropa protectora: Los trabajadores con los que se cuenta

para extinguir incendios o que están expuestos de alguna manera al riesgo de incendio y explosión deben estar equipados con y usar el EPP y la ropa protectora apropiados.

- Protección de pies y piernas;
- Calzado de protección;
- Protección del cuerpo;
- Guantes o sistemas de guantes;
- Protección de la cabeza, los ojos y la cara; y
- Equipo de protección respiratoria.

Entrenamiento y educación

Los trabajadores deben recibir la formación y la educación necesarias para desempeñar sus funciones en el marco del PEA.

Otros temas para educar a los trabajadores incluyen:

- Amenazas, peligros y acciones de protección.
- Procedimientos de notificación, comunicación y alerta.
- Medios para localizar a los miembros de la familia en una emergencia.
- Procedimientos de respuesta de emergencia.
- Procedimientos de evacuación, refugio y rendición de cuentas.
- Ubicación y uso del equipo de emergencia.
- Procedimientos para el cierre de emergencia.

Asegurarse de que los trabajadores entiendan y puedan aplicar su formación en el trabajo por:

- Interrogando a los trabajadores sobre la lección después de que la entregues.
- Haciendo que los trabajadores demuestren los procedimientos cubiertos durante el entrenamiento.
- Haciendo que los trabajadores demuestren el uso apropiado del PPE cubierto durante el entrenamiento.
- Realizar simulacros de evacuación para verificar que los trabajadores pueden llevar a cabo el EAP y evacuar de forma segura en caso de incendio u otra emergencia.

Inspeccionar, supervisar, reforzar y mejorar

Debes revisar el EAP con cada trabajador que el plan cubre cuando:

- El EAP se desarrolla primero o el trabajador es asignado primero para llevar a cabo una responsabilidad bajo el plan;
- Las responsabilidades del trabajador bajo el EAP cambian; y
- Los cambios se hacen en el propio EAP.

La vigilancia debe llevarse a cabo de manera continua y permanente. El proceso de vigilancia nunca termina.

Emergency Action Plan Checklist – Spanish

La mayoría de los lugares de trabajo deben establecer y aplicar un plan de acción de emergencia. Utilice esta lista de verificación para determinar si su PAE incluye todos los elementos requeridos – o para ayudar a crear un nuevo PAE.

GENERAL			
Ítem	**Si**	**No**	**Comentario**
El PEA creado para incendios, explosiones, derrames químicos y otros desastres			
Evaluación de riesgos realizada para identificar posibles desastres causados por el hombre			
El PAE enumera la información de contacto del personal clave			

El PAE enumera la información de contacto de los socorristas locales			
El PAE proporciona comunicaciones de emergencia			
La PAE enumera los nombres, títulos, departamentos y números de teléfono de los contactos			
El PAE enumera las responsabilidades del personal clave			
El PAE enumera cómo se deben realizar las operaciones de rescate			
La PAE enumera la forma en que se prestará la asistencia médica			
El PAE describe cómo se puede contactar a los empleados en una emergencia			
EVACUACIÓN/REFUGIO EN SU LUGAR			
Ítem	**Si**	**No**	**Comentario**
El PEA identifica cuándo es necesaria la evacuación			
El PEA establece una clara cadena de mando para la evacuación			
Todos los empleados saben quién está a cargo de la evacuación			
La persona a cargo de la evacuación puede ordenar a los empleados que se refugien en el lugar			

El PAE detalla las responsabilidades de los diferentes miembros del personal en la evacuación según el tipo de emergencia			
El PAE identifica los sistemas y procedimientos de notificación de alarmas/emergencias			
El PAE designa a los guardias de evacuación			
El PAE describe claramente las responsabilidades de los guardias de evacuación			
El PAE describe claramente las rutas de evacuación y salida, incluyendo los adjuntos de los planos y mapas.			
Los mapas marcan claramente la ubicación de las rutas, salidas, puntos de reunión, equipos como extintores, botiquines de primeros auxilios, etc.			
Las rutas de salida están claramente marcadas			
Las rutas de salida se mantienen libres de equipos, escombros y otras obstrucciones			
Se han establecido procedimientos de evacuación			

El PAE identifica las zonas de concentración en función de los diferentes tipos de emergencias, por ejemplo, incendios, terremotos, derrames químicos, etc.			
El PAE se ocupa de la evacuación de los visitantes			
El PAE prevé un refugio en el lugar			
REPORTANDO EMERGENCIAS/ALERTANDO A LOS EMPLEADOS			
Ítem	**Si**	**No**	**Comentario**
El PAE establece un procedimiento para informar de incendios y otras emergencias, por ejemplo, llamar al 911.			
El PAE establece procedimientos de respaldo para informar de emergencias			
El PAE establece un sistema de alarma u otro método para alertar a los empleados de las emergencias			
El PAE establece procedimientos de respaldo para alertar a los empleados de las emergencias			
Las alarmas son distintivas y reconocidas por todos los empleados como una señal para evacuar o tomar otras acciones requeridas por el PAE			

Se han tomado medidas para notificar, instruir y ayudar a los empleados discapacitados y/o no angloparlantes en caso de emergencia.			
Los guardias de evacuación están a cargo de asegurar que todos los empleados salgan a salvo…			
ENTRENAMIENTO DE EMPLEADOS Y EJERCICIOS			
Ítem	**Si**	**No**	**Comentario**
El PAE establece un procedimiento para capacitar a los empleados en la respuesta			
La capacitación incluye la respuesta a diferentes tipos de emergencias			
El entrenamiento fue proporcionado cuando se creó el PEA por primera vez			
La formación se proporciona cuando se contratan nuevos empleados			

Direcciones de entrenamiento: · Visión general de la PAE · Funciones y responsabilidades individuales · Amenazas, peligros y medidas de protección · Procedimientos de notificación, alerta y comunicación · Procedimientos de respuesta de emergencia · Procedimientos de evacuación y refugio en el lugar · Ubicación y uso del equipo de emergencia · Procedimiento de apagado de emergencia · Procedimientos de primeros auxilios · Uso de extintores portátiles			
GESTIÓN DE EMERGENCIAS Y SEGUIMIENTO			
Ítem	**Si**	**No**	**Comentario**
El PAE establece un procedimiento para atender las necesidades inmediatas y continuas de los empleados			
El PAE establece un proceso de recuperación			
El PAE establece un proceso para la reanudación de las operaciones			
REVISIÓN DEL PAE			

Ítem	Si	No	Comentario
El PAE se revisa con los empleados			
El PAE se coloca en un lugar visible (o se revisa con los empleados oralmente si hay menos de 10 empleados)			
El PAE ha sido revisado con los socorristas locales o con otros participantes externos			
El PAE ha sido revisado con otros ocupantes del edificio o del sitio para asegurar la coordinación			
El PAE se revisa periódicamente			
El PAE se revisa después de los ejercicios de práctica			
La información de contacto de emergencia se mantiene actualizada			
El PAE es revisado después de renovaciones y cambios en los planos de la planta.			

Emergency Equipment – Spanish

INCIDENTE

STILLWATER, N.J. – Dos personas han muerto tras un incendio y un accidente fatal en el condado de Sussex.

El Star-Ledger informa de que el conductor de una ambulancia ha muerto después de que su vehículo se saliera de la carretera y se estrellara mientras transportaba a una víctima quemada del incendio de la casa al hospital. El paciente y otros miembros de la tripulación sobrevivieron al accidente.

Las autoridades informan de que un incendio en la carretera de Potters en Stillwater mató a una persona e hirió a otra. Un portavoz de la policía del Estado de Nueva Jersey informó de que la persona herida estaba siendo transportada cuando el conductor de la ambulancia sufrió un "problema médico".

El paciente fue transferido a otra ambulancia y llevado al hospital. El conductor de la ambulancia fue declarado muerto en la escena.

NECESITA SABER

Las emergencias inesperadas ocurren todos los días en muchas instalaciones, incluyendo laboratorios, oficinas, plantas, fábricas, sitios de construcción y edificios residenciales. Si no sabes qué hacer durante una emergencia, aumentan las probabilidades de que tú u otros a tu alrededor resulten heridos o muertos.

- Las emergencias incluyen clima severo, como vientos fuertes, inundaciones, tornados o huracanes
- Cortes de energía eléctrica
- Incendios
- Explosiones
- Infección generalizada
- Materiales peligrosos
- Terremotos
- Violencia en el lugar de trabajo
- Terrorismo

Equipo especial para emergencias

Sus empleados pueden necesitar equipo de protección personal para evacuar durante una emergencia. El equipo de protección personal

debe basarse en los peligros potenciales del lugar de trabajo. Evalúe su lugar de trabajo para determinar los peligros potenciales y los controles y equipos de protección adecuados para esos peligros. El equipo de protección personal puede incluir elementos como los siguientes:

- Gafas de seguridad, gafas protectoras o protectores faciales para proteger los ojos;
- Cascos y zapatos de seguridad para proteger la cabeza y los pies;
- Respiradores adecuados;
- Trajes químicos, guantes, capuchas y botas para proteger el cuerpo de los productos químicos;
- Protección especial del cuerpo para condiciones ambientales anormales, como temperaturas extremas; y
- Cualquier otro equipo especial o dispositivos de advertencia necesarios para los peligros exclusivos de su lugar de trabajo.

Elija los respiradores y otros equipos apropiados

Consulte con los profesionales de la salud y la seguridad antes de hacer cualquier compra. Las mascarillas de respiración seleccionadas deben ser apropiadas para los riesgos de su lugar de trabajo, cumplir con los criterios de las normas de la OSHA y estar certificadas por el Instituto Nacional de Seguridad y Salud Ocupacional.

La protección respiratoria puede ser necesaria si sus empleados deben pasar a través de atmósferas tóxicas de polvo, niebla, gases o vapores, o a través de áreas con deficiencia de oxígeno durante la evacuación. Existen cuatro categorías básicas de respiradores para su uso en diferentes condiciones. Todos los respiradores deben estar certificados por el NIOSH bajo el actual 29 CFR 1910.134.

Pruebe su equipo de emergencia con frecuencia para asegurarse de que esté listo cuando alguien lo necesite.

La instalación y prueba del equipo de empapado de emergencia según

los requisitos del Instituto Nacional de Estándares Americano (ANSI) puede ofrecer a los trabajadores tranquilidad en el trabajo. Sin embargo, la instalación de las soluciones de emergencia correctas de acuerdo con la norma ANSI no garantiza que los trabajadores usen las instalaciones en caso de emergencia.

Seis pasos críticos, pero a menudo pasados por alto, como la capacitación, la accesibilidad, la visibilidad, la funcionalidad, la privacidad y la señalización de asistencia, ayudan a garantizar que las duchas y las unidades de lavado de ojos estén listas para su uso y sean operadas por los trabajadores lesionados (y los que tratan de ayudarlos) cuando sea necesario.

NEGOCIOS / REGULACIONES

El equipo de emergencia, como anillos de rescate, cuerdas, tablas de extracción y camillas utilizadas para extraer a un buceador del agua debe ser directamente accesible. El oxígeno debe estar disponible y en cantidades suficientes para su uso hasta que llegue el personal médico de emergencia. En el caso de los buzos inconscientes, se utiliza un sistema de ventilación forzada. Este sistema debe estar equipado con una válvula de alivio de sobrepresión para evitar que se dañen los pulmones de la víctima cuando se utilice. Como en todos los sistemas de oxígeno, deben observarse todas las medidas de precaución conexas, como la de no entrar en contacto con grasa o contactos eléctricos desnudos.

Para la protección del personal de apoyo, no se recomienda el uso de desfibriladores en ambientes húmedos. Si se requiere para tratar un paro cardíaco, el sujeto debe ser transportado a una zona seca, donde sea seguro utilizar el desfibrilador.

En apoyo de una operación de buceo, una cámara hiperbárica debe ser accesible en un plazo breve, como 1 h, desde el momento y lugar de cualquier posible incidente. En caso de que no se pueda acceder directamente a ninguna cámara hiperbárica en el lugar, es necesario estudiar y practicar el transporte de un sujeto herido a la cámara de operaciones más cercana. Además, deben realizarse auditorías periódicas de estas cámaras para garantizar su

disponibilidad durante una emergencia.

En algunos casos, podría ser necesario el transporte en helicóptero. En tal caso, debe disponerse de una zona de aterrizaje dedicada y libre de obstáculos adyacente al lugar de la actividad de buceo, y el personal debe estar capacitado para interactuar adecuadamente con la tripulación del helicóptero. En caso de enfermedad de descompresión, el helicóptero no debe volar a más de 300 m (1000 pies) sobre el nivel del suelo.

Se debe disponer de equipo y recursos de emergencia adecuados, sistemas de comunicación, documentación (como procedimientos, listas de verificación, números de teléfono y manuales) cuando sea necesario para iniciar y apoyar debidamente las medidas de respuesta de emergencia descritas en la sección 23.11.4.

Los instrumentos, herramientas, equipo, documentación y sistemas de comunicación que se utilicen en las emergencias deben ser apropiados y mantenerse en buenas condiciones de funcionamiento, de manera que no sea probable que no estén disponibles por las condiciones de emergencia y ambientales postuladas. El equipo, las comunicaciones, los vehículos, etc., deben ser comprobados y probados periódicamente.

Todos los empleadores tienen la obligación de asegurar que el personal esté capacitado en los procedimientos de emergencia en el lugar de trabajo. Esto puede incluir qué hacer en caso de incendio, terremoto u otra emergencia; la identificación de la ubicación de las salidas de emergencia; y los procesos a seguir para evacuar el edificio en caso de emergencia. Estos procedimientos son específicos del lugar de trabajo y deben formar parte de la capacitación de todos los nuevos empleados. Además, los simulacros o revisiones periódicas de los procedimientos son importantes para garantizar que, si se produce una emergencia real, todos puedan reaccionar en consecuencia y de forma segura.

La orientación para cualquier nuevo puesto de trabajo, aunque sea temporal, debe incluir siempre la siguiente información:

- Ubicación de las salidas de emergencia

- La ubicación de los suministros de primeros auxilios o los procedimientos para llamar a un asistente
- Ubicación de los extintores de incendios
- Procedimientos de evacuación y estaciones de reunión
- Cualquier peligro presente en el sitio

Procedimientos de primeros auxilios

Proporcionar acceso a suministros o asistentes de primeros auxilios es un requisito de los empleadores en virtud del Reglamento sobre la seguridad y la salud en el trabajo, pero los requisitos varían según el tamaño del empleador y muchos otros factores. Por ejemplo, en algunos casos se exige que haya un encargado de primeros auxilios designado, mientras que en otros basta con proporcionar un botiquín de primeros auxilios provisto de una lista prescrita de suministros. Muchos entornos industriales e instituciones de capacitación en la C.B. están equipados con un puesto de primeros auxilios con un asistente capacitado. La persona que trabaja en esa estación puede prestar una amplia variedad de servicios, desde vendar cortes menores hasta detener hemorragias importantes y entablillar huesos rotos.

Todos los trabajadores deben saber dónde está la estación de primeros auxilios, quién la atiende y qué servicios están disponibles. Si sufre una lesión, no importa cuán leve sea, asegúrese de que el incidente sea reportado en el registro de la estación de primeros auxilios. Las irritaciones menores a menudo se convierten en problemas mayores, así que informe de todas las lesiones rápidamente.

Estación de lavado o duchas de emergencia

Puede haber ocasiones en las que se trabaja con ácidos o sustancias peligrosas, como soluciones de limpieza que pueden quemar la carne o salpicar los ojos. Si accidentalmente salpica o derrama una sustancia corrosiva sobre su piel, querrá lavar la zona afectada muy rápidamente con grandes cantidades de agua para diluir el ácido y minimizar el ardor. Por lo tanto, es necesario que conozca la ubicación de sus estaciones de lavado de ojos de

emergencia, lavabos o duchas en todo su lugar de trabajo.

Procedimientos y reglamentos de seguridad contra incendios

Los componentes que producen el fuego

Antes de que se produzca un incendio, estos tres componentes deben estar presentes:

- Combustible (un material combustible como la madera, la gasolina, el papel o la tela)
- Calor (suficiente para elevar el combustible a su temperatura de ignición)
- El oxígeno, generalmente en forma de aire (para mantener la combustión)

Cuando estos tres componentes se combinan, como se muestra en el triángulo del fuego (Figura 14), el resultado es una combustión rápida (fuego). Mantener estos tres componentes separados evitará que se produzca un incendio. Un incendio existente puede extinguirse eliminando cualquiera de los tres componentes:

- Retire el combustible (material combustible) de los alrededores del fuego. Por ejemplo, si se cierra la válvula de un conducto de gas, el resultado será la inanición.
- Quita el calor. Por ejemplo, aplicando agua, el resultado será el enfriamiento.
- Quita el oxígeno. Por ejemplo, si cubre el fuego con una tapa, una manta húmeda o algo de arena, o usa un extintor de dióxido de carbono, espuma o químicos secos, el resultado es asfixiante.

Recuerde, mantener estos tres componentes separados evitará que se produzca un incendio. Del mismo modo, un incendio existente puede ser extinguido eliminando cualquiera de los tres componentes.

ESTADÍSTICAS

Se registraron 5.250 lesiones laborales fatales en los Estados Unidos en 2018, un aumento del 2 por ciento en comparación con las 5.147 de 2017, informó hoy la Oficina de Estadísticas Laborales de los Estados Unidos. (Véase la tabla 1 y la tabla 1.) La tasa de lesiones laborales fatales se mantuvo sin cambios en 3,5 por cada 100.000 trabajadores a tiempo completo equivalente (FTE). Estos datos son del Censo de Lesiones Ocupacionales Fatales (CFOI).

Los incidentes de transporte siguieron siendo el tipo de evento fatal más frecuente, con 2.080, lo que representa el 40 por ciento de todas las muertes relacionadas con el trabajo.

Los incidentes relacionados con el contacto con objetos y equipos aumentaron en un 13% (de 695 a 786), impulsados por un aumento del 39% de los trabajadores atrapados en equipos o maquinaria en funcionamiento y un aumento del 17% de los trabajadores golpeados por la caída de objetos o equipos.

Las sobredosis involuntarias debidas al uso no médico de drogas o alcohol en el trabajo aumentaron un 12%, de 272 a 305.

La violencia y otras lesiones causadas por personas o animales aumentaron un 3% en 2018, debido a un aumento del 11% en los suicidios relacionados con el trabajo, de 275 a 304.

Las caídas, resbalones y tropezones fatales disminuyeron un 11 por ciento hasta 791, después de alcanzar un máximo en serie de 887 en 2017. Esta disminución se debió a una caída del 14 por ciento en las caídas a un nivel más bajo (713 a 615), el total más bajo desde 2013.

RECOMENDACIÓN

Seis pasos críticos para ayudar y asistir a los trabajadores lesionados y a aquellos que tratan de ayudarlos vienen con las siguientes recomendaciones:

1. **Entrena en el uso apropiado**

Si los trabajadores no pueden encontrar y operar rápidamente el equipo de emergencia más cercano, una simple lesión puede convertirse en grave o, lo que es peor, mortal. Por ejemplo, si no reciben una formación adecuada sobre el protocolo de emergencia, un trabajador con una grave contaminación ocular puede correr al baño para enjuagarse el ojo afectado. Lamentablemente, en el tiempo que puede tardar en llegar al baño más cercano, puede ser demasiado tarde y el resultado podría ser un daño ocular permanente. Además, el flujo de agua de los sanitarios estándar es insuficiente para lavar adecuadamente los contaminantes del trabajador lesionado.

Este desafortunado escenario es evitable. Primero, tener un sólido plan de respuesta de emergencia. Definir claramente los diferentes tipos de peligros en el lugar de trabajo e indicar las acciones a tomar en caso de una emergencia. Luego, todos los empleados deben ser entrenados en lo que constituye una emergencia y si una ducha de agua o una unidad de lavado de ojos es lo más apropiado para una situación particular. Lo más importante es que cada persona debe tener la oportunidad de probar el equipo para que se sienta cómoda activándolo.

2. **Instalar al alcance de la mano**

Para asegurar que el equipo se utilice en una emergencia, debe ubicarse cerca de los peligros potenciales. La norma de emergencia ANSI Z358.1-2004 requiere que el equipo de emergencia se coloque dentro de los 10 segundos de alcance de cualquier peligro. Como guía para la colocación, una persona promedio puede cubrir unos 55 pies en 10 segundos.

Para reducir al mínimo las lesiones, elimine todo el desorden o los obstáculos entre el equipo de peligro y el de emergencia. Además, los accesorios deben estar al mismo nivel que el peligro. Recuerde que los trabajadores discapacitados o lesionados no pueden subir o bajar escaleras para llegar a un accesorio. En el caso de los peligros que implican una sustancia cáustica o un ácido fuerte, la ducha o el lavaojos deben colocarse inmediatamente al lado del peligro.

En lugares remotos sin equipo de emergencia con cañerías, como las obras de construcción, se deben suministrar unidades portátiles. Los lavaojos alimentados por gravedad son una buena solución: especifique unidades que estén diseñadas para un fácil transporte y que puedan ser rellenadas rápidamente.

3. **Aumentar la visibilidad**

La ubicación es importante, pero la unidad también debe colocarse en un área bien iluminada y tener un signo visible para su rápida identificación. Aunque no hay un color específico designado para las duchas o lavaojos de emergencia en la norma ANSI Z358.1-2004 o en la norma ANSI Z535.1-2002 del American National Standard for Safety Color Code, elija un color amarillo brillante que se encuentre fácilmente en una emergencia. El amarillo es el color más visible y es el primer color que el ojo humano nota, según las investigaciones.

4. **Manténganse limpios y en funcionamiento**

Para un rendimiento óptimo durante una emergencia ocular, las unidades de lavado de ojos deben enjuagar los contaminantes sin exponer el ojo infectado al polvo u otros contaminantes. Una de las formas más fáciles de asegurarse de que el equipo está en buenas condiciones de funcionamiento es llevar a cabo los procedimientos de prueba semanales y anuales requeridos por la ANSI. Las pruebas de rutina brindan la oportunidad de inspeccionar las unidades en busca de corrosión y de eliminar cualquier resto que pudiera representar un problema.

Las cubiertas de polvo de lavado de ojos son beneficiosas para las aplicaciones industriales donde los contaminantes llenan el aire. En algunos casos, los cubrepolvos pueden ser adaptados a los equipos actuales. La cubierta antipolvo se balancea hacia atrás y hacia fuera del camino cuando se activa el mango de empuje.

Los colirios embotellados son un descuido común cuando se trata de la preparación para emergencias. Incluso si un frasco está sellado, la solución puede no ser estéril si ha pasado la fecha de caducidad del fabricante. Mantenga las tapas de los biberones limpias y listas para su uso.

5. **Proteger la privacidad de los usuarios**

La privacidad puede ser un factor importante para un trabajador que decida no usar una ducha de emergencia en una emergencia. Para ser efectivo, los usuarios deben desvestirse completamente para eliminar los contaminantes de su piel. En un entorno de género mixto, es fácil entender por qué esto sería una preocupación.

Instalar cortinas de privacidad alrededor de las duchas de hidromasaje o de las unidades combinadas de ducha y lavaojos es una forma fácil y efectiva de abordar el tema de la privacidad. Las cortinas de privacidad de laminado de vinilo amarillo de alta visibilidad que son resistentes a los productos químicos y al moho son buenas para las aplicaciones industriales. Un riel de cortina de acero inoxidable duradero y los soportes de montaje pueden proporcionar un soporte fuerte y resistente a la corrosión.

6. **Suena la alarma**

Para asegurar que el equipo de emergencia no sólo se utilice" sino que se use adecuadamente en caso de emergencia para ayudar a los usuarios a pedir ayuda a otros. Un sistema de alarma puede activarse tan pronto como se activa un equipo de emergencia. Las personas lesionadas pueden seguir tirando de la cadena sin la preocupación adicional de pedir ayuda. Una ventaja adicional de un sistema de alarma es que disuade a los vándalos de manipular el equipo de emergencia.

Consulte con el fabricante de sus aparatos de emergencia para determinar si hay otros accesorios o soluciones que ayuden a mantener el equipo listo para usar en caso de emergencia. Usted espera no necesitar nunca un accesorio de emergencia, pero una formación adecuada, la accesibilidad, la visibilidad, la privacidad, la funcionalidad **y la señalización de ayuda** pueden reducir al mínimo las lesiones y garantizar la preparación **para las emergencias**.

PREVENCIÓN

El equipo de emergencia en las industrias e infraestructuras

modernas, diversas y complicadas, adopta muchas formas diferentes.

Suponiendo que se tomen todas las medidas prudentes para asegurar que el equipo de emergencia esté disponible, ¿qué es lo siguiente más importante que hay que hacer?

Viene en una respuesta triple.

El equipo de emergencia debe ser:

1. Bien ubicado.
2. Mantenido adecuadamente.
3. Personal debidamente entrenado en el uso.

¿Dónde debe ubicarse el equipo de emergencia?

Se debe llevar a cabo un proceso de identificación de peligros para determinar todos los lugares en los que se puede necesitar equipo de emergencia.

Esto debería incluir equipo como:

- Equipo de extinción de incendios
- Duchas y baños de ojos en los que los trabajadores corren el riesgo de estar en contacto con sustancias nocivas (en particular sustancias corrosivas como los ácidos).
- Equipo de control de derrames

El equipo de emergencia debe estar ubicado en zonas de fácil acceso y a una distancia razonable de la fuente de peligro.

Entrenamiento

Es esencial capacitar a todo el personal para que conozca a fondo la ubicación de todos los equipos de emergencia y los métodos correctos para utilizarlos.

También es beneficioso asegurar que todos los funcionarios estén familiarizados con el uso y la ubicación del equipo de emergencia durante el proceso de capacitación inicial.

Mantenimiento

Para garantizar que todo el equipo de emergencia funcione correctamente, se deben realizar inspecciones y mantenimientos regulares. Esto pondrá a su equipo en un estado de preparación en caso de emergencia.

Reclutar personal cualificado para llevar a cabo todas las inspecciones de acuerdo con las hojas de control de las inspecciones controladas.

Asegúrese de mantener registros completos de las inspecciones y pruebas de los equipos de emergencia.

Los minutos y los segundos pueden parecer una eternidad en una situación de emergencia. Para prevenir lesiones y salvar vidas, se necesitan acciones rápidas.

FORMACIÓN – MÁS PREVENCIÓN

Las categorías específicas de procedimientos y equipo de emergencia requieren entrenamiento

- Alarmas, precauciones y advertencias;
- El fuego y el humo, incluida la ubicación de los detectores de humo, las máscaras de gas, el equipo de extinción y los soportes de supresión de incendios, así como los medios para suprimir un incendio, por ejemplo, el comando de descarga para purgar la atmósfera de un módulo aislado;
- Primeros auxilios, por ejemplo, un sistema de atención médica para la tripulación, incluidos los métodos de reanimación cardiopulmonar, la camilla estabilizada, las dosis de inyección intravenosa, etc. (véase Urgencias médicas);
- Equipo de recolección y desinfección de agua potable, refugio, fuego, radio, balizas, etc;
- La protección del medio ambiente contra los ambientes húmedos o secos y los ambientes fríos o calurosos como el

mar, la nieve o el desierto, incluyendo las prendas típicas que se utilizarán para cada propósito; y
- Protección contra la fauna o la señalización.

El último y menos deseable paso, una vez agotadas todas las medidas de seguridad preventivas, correctivas y de recuperación, o si el tiempo no permite controlar una contingencia repentina, es preparar a la tripulación para hacer frente a los casos de emergencia, es decir, los que requieren una acción inmediata para garantizar la supervivencia de la tripulación. El entrenamiento para emergencias debe realizarse de manera regular y repetida, y debe llevarse a cabo a bordo para lograr respuestas automáticas de la tripulación en caso de que se produzca una emergencia.

En todos los casos de emergencia, el orden de prioridad de las acciones de la tripulación es siempre:

- Asegurar su propia supervivencia;
- Cuida del vehículo;
- Asegurar los sistemas; y
- Salvar las cargas útiles o la ciencia.

Evacuación y salida

Toda evacuación de un vehículo espacial, independientemente de que se produzca en la órbita o en la plataforma de lanzamiento o el lugar de aterrizaje, se considera siempre una operación crítica. Se trata de un modo de emergencia que se lleva a cabo en un entorno generalmente hostil. Por ejemplo, la plataforma de lanzamiento contiene grandes cantidades de explosivos, materiales inflamables y pirotecnia, y el lugar de aterrizaje está contaminado por gases tóxicos y materiales traza generados por el sistema de propulsión del vehículo, o por la pirotecnia.

Enhancing Office Security – Spanish

Muchos de nosotros vivimos con una falsa sensación de seguridad. Pensamos que el crimen les sucede a otras personas y que el terrorismo sucede en otros países. Desafortunadamente, eso no es cierto. Los asesinatos ocurren cada 21 minutos y los asaltos cada 16 segundos. Esto es especialmente cierto en el lugar de trabajo. Los edificios de oficinas en particular son lugares comunes para ataques criminales de todo tipo: por trabajadores descontentos, por perpetradores y víctimas de violencia doméstica e incluso por transeúntes con problemas mentales que buscan un lugar para vivir.

"La seguridad es una ilusión. La vida es una aventura atrevida, o no es nada en absoluto."

-Helen Keller.

La realidad es que debemos considerar todo tipo de amenaza a nuestra seguridad personal, incluso en el lugar de trabajo. Hablemos de las formas de entrenar a los trabajadores de oficina para que presten atención a la seguridad.

Desarmar las amenazas con una planificación proactiva

El arma más grande de un atacante es el elemento sorpresa. Actuar de forma reactiva es estar a la merced del atacante. Eliminar la sorpresa requiere un comportamiento proactivo. Como gerentes de seguridad, deben asumir la responsabilidad de la seguridad del lugar de trabajo. La seguridad de las instalaciones es típicamente el trabajo del oficial de seguridad interna; pero no pueden estar en todas partes a la vez. Aquí hay algunas pautas que le ayudarán a eliminar los riesgos comunes y a mejorar la seguridad de su oficina o de otro lugar de trabajo:

- Ponga barreras de acceso. Limite el acceso a sus instalaciones a los empleados y visitantes autorizados. Para

mantener a todos los demás fuera, haga cumplir las prohibiciones de estacionamiento. Los atacantes a menudo conducen su vehículo directamente al edificio donde cometen sus ataques. Para reducir este riesgo, coloque divisores de concreto en las carreteras a lo largo del perímetro de sus instalaciones. Incluso puede usar barreras estéticamente agradables, como macetas, bancos de hormigón o esculturas.

- Retire los contenedores de basura. Retire los barriles de basura y los contenedores de residuos en las áreas comunes cerca de las entradas, tanto en el interior como en el exterior, donde los intrusos puedan tener acceso. Las oficinas ubicadas cerca de vecindarios residenciales podrían encontrar sus cubos de basura sobrecargados con desechos del propietario que podrían ser peligrosos o incluso explosivos.
- Asegure los respiraderos de la planta baja. Las rejillas de entrada de aire fresco a nivel de la calle están diseñadas para extraer aire para los sistemas de calefacción y refrigeración. Pero estos respiraderos plantean riesgos de bioterrorismo. Proteja su suministro de aire del sabotaje cercando las rejillas de ventilación en movimiento o moviéndolas a niveles más altos. Asegúrese de que el aire interior y exterior pase a través de filtros HEPA que eliminan todas las partículas de más de 1 micrón. También debe actualizar su sistema de detección de humo para aprovechar la nueva tecnología. Algunos detectores de humo ahora pueden detectar monóxido de carbono e incluso gas lacrimógeno, spray de pimienta y algunos gases nerviosos y armas químicas.
- Reduzca los puntos de entrada. Un único punto de entrada, siempre que sea posible, es lo mejor. Ayude al personal de seguridad a controlar quién entra en el edificio. También debería considerar la posibilidad de contratar a guardias entrenados para identificar posibles amenazas, en lugar de alguien que sólo comprueba las identificaciones. Los pedazos de papel con palabras y fotos laminadas en plástico son fáciles de falsificar.
- Instale cámaras de seguridad. Una cámara de seguridad es su ojo en el cielo. También necesita personas calificadas para

"monitorear el monitor". Pero recuerde que un solo guardia de seguridad viendo 50 pantallas de video no lo controlará. En grandes instalaciones, el guardia debe ser apoyado por guardias entrenados y motivados, dentro y fuera de la instalación, vigilando cada aspecto de su sitio en todo momento.

- Monitoreé el envío y la recepción. Este es un punto débil en la mayoría de los planes de seguridad a través del cual los intrusos pueden entrar. En el área de envío y recepción, el personal de seguridad debe:
    - Asegurarse de que nadie entre en el edificio; y
    - Revise y escanee todos los elementos antes de que entren en el edificio.
- Supervisar el uso de la web. Los empleados acceden a Internet en el trabajo tanto para actividades laborales como personales. También pueden usarla para actividades ilegales. De manera alarmante, el número de empleados que transmiten datos sensibles y de propiedad de la empresa a través de Internet está aumentando. Si esto es una preocupación en su organización, existen varias tecnologías de vigilancia que pueden ayudar a su departamento de IT a monitorear la actividad en línea. Muchas empresas utilizan estas técnicas para proteger sus inversiones.

Conclusión

Independientemente de las tecnologías y los métodos de seguridad que utilice, también debe pedir a un tercero que realice una auditoría de seguridad de sus instalaciones. Un profesional imparcial puede detectar las lagunas de seguridad y las vulnerabilidades exclusivas de su sitio y hacer recomendaciones para ayudar a asegurar el futuro de su lugar de trabajo, sus empleados y su negocio.

Enhancing Office Security

Many of us live with a false sense of security. We think crime happens to other people and terrorism happens in other countries. Unfortunately, that's not true. Murders occur every 21 minutes and assaults every 16 seconds. This is especially true of the workplace. Office buildings in particular are common sites for criminal attacks of all kinds—by disgruntled workers, by perpetrators and victims of domestic violence and even by mentally impaired transients looking for a place to shack up.

"Security is an illusion. Life is either a daring adventure, or it is nothing at all."
—Helen Keller.

The reality is that we must consider all manner of threat to our personal safety, including in the workplace. Let's talk about ways to train office workers to pay attention to security.

Disarm Threats with Proactive Planning

An attacker's greatest weapon is the element of surprise. To act reactively is to be at the attacker's mercy. Eliminating surprise requires proactive behavior. As safety managers, you must take responsibility for workplace security. Premise security is typically the job of the in-house security officer; but they can't be everywhere at once. Here are some guidelines to help you eliminate common risks and enhance the security of your office or other workplace:

- Place barriers to access. Limit access to your facility to employees and authorized visitors. To keep everyone else out, enforce parking bans. Attackers often drive their vehicle right into the building where they commit their attacks. To reduce this risk, erect concrete highway dividers along your facility's perimeter. You can even use aesthetically pleasing barriers, such as flowerpots,

concrete benches or sculptures.

- Remove trash containers. Remove trash barrels and waste bins in common areas near entranceways, both inside and outside, where trespassers might have access. Offices located near residential neighborhoods might find their trash bins overloaded with homeowner refuse that could be hazardous or even explosive.
- Secure ground floor vents. Street-level fresh air intake vents are designed to draw air for heating and cooling systems. But these vents pose bio-terrorism risks. Protect your air supply from sabotage by fencing off moving vents or by moving them to higher levels. Ensure that inside and outside air passes through HEPA filters that remove all particles larger than 1 micron. You should also upgrade your smoke detection system to take advantage of new technology. Some smoke detectors can now sense carbon monoxide and even teargas, pepper spray and some nerve gas and chemical weapons.
- Reduce entry points. A single point of entry, whenever feasible, is best. It helps security personnel control who enters the building. You should also consider hiring guards trained to identify potential threats, rather than someone who just checks IDs. Pieces of paper with words and photos laminated in plastic are easy to counterfeit.
- Install security cameras. A security camera is your eye in the sky. You also need qualified people to “monitor the monitor.” But remember that a single security guard watching 50 video screens won’t cut it. At big facilities, the guard should be supported by trained and motivated plainclothes guards, inside and outside the facility, watching every aspect of your site at all times.
- Monitor shipping and receiving. This is a weak point in most security plans through which intruders can get in. In the shipping and receiving area, security personnel must:
    - Make sure no one enters the building; and
    - Check and scan all items before they enter the building.
- Monitor web use. Employees access the Internet at work for

both job-related and personal activities. They may also use it for illegal activities. Alarmingly, the number of employees transmitting sensitive, proprietary company data via the Internet is increasing. If this is a concern in your organization, there are several surveillance technologies that can help your IT department monitor online activity. Many businesses use these techniques to protect their investments.

Conclusion

No matter what technologies and security methods you use, you should also have a third party conduct a security audit of your facility. An unbiased professional can spot security loopholes and vulnerabilities unique to your site, and make recommendations to help secure the future of your workplace, your employees and your business.

Environmental Safety Spill Reporting and Response – Spanish

Los trabajadores de una cooperativa agrícola dejaron caer accidentalmente un palé que contenía un agente de limpieza tóxico, aplastando dos contenedores y causando un derrame. Los trabajadores diluyen la solución derramada con agua y tiran el agua contaminada por un desagüe pluvial. Nadie le dice a la gerencia del incidente. Unos días más tarde, un biólogo del gobierno se da cuenta de peces muertos flotando en el riachuelo donde se descarga el desagüe pluvial. Va a la planta y le pregunta al gerente sobre el derrame. El gerente dice que no sabe nada al respecto. Y está diciendo la verdad. Pero después de que el

biólogo se va, el gerente hace una pequeña comprobación y se entera de lo que pasó. Los trabajadores involucrados le aseguran al gerente que "se ocuparon" del derrame. Pero, por supuesto, no han hecho nada más que eso. La compañía reporta el derrame tardíamente y es multada no sólo por no reportarlo sino por no capacitar a sus trabajadores en cómo responder adecuadamente a los derrames [R. v. Agrifoods International Co-operative Ltd.].

El derrame en Agroalimentos es el tipo de incidente que puede ocurrir en cualquier lugar, en cualquier momento a cualquier empresa. Y cuando ocurre, una respuesta rápida y efectiva de los trabajadores es crucial para contener el daño y garantizar el cumplimiento de los requisitos de información. Sin embargo, los abogados dicen que pocas empresas hacen un buen trabajo de preparación de los trabajadores en la respuesta al derrame. "No es que no lo intenten", dice un abogado. "Es que la planificación de la respuesta a los derrames tiende a ser irregular e ineficaz". Por ejemplo, el empleador de Agroalimentos entrenó a los trabajadores para usar agua para diluir los productos químicos derramados. Pero se olvidó de decirles que mantuvieran el producto químico diluido fuera de los desagües, alcantarillas y aguas superficiales y que informaran inmediatamente de todos los derrames a la dirección. La compañía pagó muy caro por estos descuidos.

Este artículo le dirá cómo crear una respuesta efectiva a los derrames y procedimientos de contención para sus trabajadores. También hay una Política Modelo en la página x y un Formulario de Reporte de Derrames en la página x que puede adaptar y usar como parte de su propio plan de contingencia de respuesta a derrames.

Lo que la ley requiere

Las leyes ambientales exigen que las organizaciones adopten medidas de respuesta para reducir los posibles daños causados por los derrames peligrosos. Los derrames más pequeños generalmente requieren contención, limpieza y eliminación. Los derrames de mayor envergadura pueden requerir la ayuda del gobierno y/o de contratistas privados de remediación de derrames.

Muchos estados y provincias canadienses también exigen un plan de contingencia para los derrames, estableciendo métodos para contener los diferentes tipos de derrames que son razonablemente previsibles en el lugar. Es posible que las organizaciones también tengan que presentar el plan al gobierno, dependiendo del tipo de operaciones que realice.

Por qué necesita un plan y una política de respuesta a los derrames

Casi cualquier organización que utilice, almacene o maneje sustancias peligrosas debería crear un plan de contingencia, aunque la ley no lo exija específicamente. Explicación: Los abogados dicen que la preparación de un plan de contingencia representa un punto de referencia informal o "mejor práctica" de la gestión ambiental. Por consiguiente, es probable que los jueces, fiscales y funcionarios reguladores consideren que la existencia de un plan es un factor crucial para determinar si la respuesta de una empresa ante un derrame cumple las normas de diligencia debida, incluso si la creación de dicho plan no está exigida por una reglamentación ambiental específica. "Recomendamos a cualquiera que almacene cualquier cantidad de contaminantes que prepare un plan", dice un funcionario del gobierno.

Un elemento clave de un plan de contingencia es una política organizativa y un conjunto de procedimientos que indican a los trabajadores cómo reaccionar ante los derrames. Un plan de respuesta a los derrames:

- Ayude a contener los efectos nocivos de los derrames para la salud y el medio ambiente;
- Facilite la investigación y la recopilación de la información necesaria para documentar el derrame y su impacto en virtud de las normas ambientales; y
- Dígale a los trabajadores cómo reportar los derrames de manera adecuada y oportuna y así evitar incidentes como el del caso de Agroalimentos.

Qué incluir en su póliza

Las políticas variarán dependiendo de sus operaciones, las sustancias peligrosas que maneje, las leyes de su provincia, etc. Pero los abogados dicen que todas las políticas deben incluir algunas disposiciones básicas:

Cláusula de propósito: Decirle a los trabajadores que la pronta respuesta e información sobre los derrames no es sólo un requisito legal, sino un asunto vital que afecta a la salud pública y al medio ambiente [Política Modelo, Sec. I].

Procedimientos de respuesta a derrames: Enumere las medidas que deben adoptar los trabajadores en respuesta a un derrame [Política modelo, sec. II a)].

Cubrir tanto los derrames menores como los mayores. "Los derrames menores típicamente involucran una sustancia conocida que no amenaza la seguridad del medio ambiente o de otras personas", explica un abogado de Ontario. Muchas organizaciones permiten que los trabajadores limpien estos derrames por sí mismos, siempre que reciban una formación adecuada en materia de limpieza. Los derrames mayores que amenazan la salud o el daño ambiental dicen que deben ser manejados por un equipo de limpieza especializado [Política Modelo, Sec. II(c)].

Las acciones adicionales que su política debería exigir para todos los derrames incluyen:

- Advertir a otros sobre los peligros asociados con la sustancia derramada;
- Ayudar a otros que puedan haber sido contaminados;
- Controlar las posibles fuentes de ignición si el derrame involucra materiales inflamables;
- Activar la alarma de incendios si el derrame representa una amenaza inmediata para la salud; y
- Evacuar el área, si es necesario.

[Política Modelo, Sec. II b)].

Requisitos de información: "Toda empresa debe tener al menos un

responsable de manejar un derrame, no importa cuán pequeño sea" dice un abogado ambientalista de BC. Dígale a sus trabajadores quién es ese contacto. Esta persona debe asegurarse de que el derrame sea contenido y limpiado adecuadamente y ser responsable de notificar a las autoridades y manejar las preguntas de los medios de comunicación, si es necesario. Otras personas que deben ser notificadas incluyen el presidente de la compañía, los gerentes de departamento y otros directamente afectados por el derrame.

Indicador: La ley exige que se informe de los derrames que puedan dañar el medio ambiente. Pero las leyes varían en cuanto a qué derrames deben ser reportados y a quién. Revise las leyes de su estado y provincia y asegúrese de que su política requiere que su coordinador de respuesta a derrames u otro empleado notifique a las autoridades correspondientes. [Política modelo, Sec. III].

Formulario de informe de derrame: Algunos estados y provincias requieren que las organizaciones completen un formulario de informe de derrames por cada derrame que ocurra en su propiedad. Saskatchewan incluso le da un modelo de formulario de informe. Exigir a sus trabajadores que completen un formulario de informe de derrame es una buena idea, incluso si su organización no está ubicada en una jurisdicción que lo requiera. "Es necesario tener un registro del incidente y de cómo se contuvo el derrame", explica un abogado [Política modelo, Sec. IV].

Conclusión

La respuesta inadecuada a los derrames es una de las pocas infracciones ambientales que son fáciles de evitar. Pero para hacerlo debe documentar e implementar su respuesta a los derrames y los procedimientos de reporte. Con el aumento de las acciones judiciales, esta es una tarea que ninguna empresa puede permitirse el lujo de ignorar.

Equipment and Machinery – Spanish

INCIDENTE

Un trabajador temporal de 20 años, fue asesinado en agosto de 2011 en su primer día de trabajo cuando fue aplastado por una máquina paletizadora. OSHA citó a Bacardi Bottling con 12 presuntas infracciones de OSHA.

Davis era empleado de un servicio de personal temporal, Remedy Intelligent Staffing, que es contratado por Bacardi Bottling para proveer trabajadores para ciertos trabajos. OSHA requiere que los empleadores protejan la salud y la seguridad de todos los trabajadores bajo su supervisión y control, incluso los trabajadores temporales que son empleados por otras compañías.

“El primer día de trabajo de un trabajador no debería ser su último día en la tierra”, dijo el Secretario Adjunto de Trabajo para la Salud y Seguridad Ocupacional, Dr. David Michaels. “Los empleadores son responsables de asegurar las condiciones de seguridad de todos sus empleados, incluyendo los temporales.”

Bacardi envió una declaración a EHS Today que dice, en parte, “Como una compañía familiar con una larga historia de operar como líder de la industria en seguridad en el lugar de trabajo, Bacardi toma en serio cualquier accidente y continúa extendiendo sus más sinceras condolencias a la familia. Siempre buscando mejorar las medidas de seguridad y el desempeño operacional, Bacardi llevó a cabo un reentrenamiento adicional de los empleados en los procedimientos de cierre y etiquetado, actualizó las políticas y procedimientos de seguridad, y completó una revisión exhaustiva de todo el equipo para prevenir que tal accidente ocurra de nuevo”.

Davis estaba limpiando vidrios de debajo del elevador de una máquina paletizadora cuando un empleado reinició la paletizadora. Bacardi Bottling no había entrenado a los empleados temporales en

el uso de cerraduras y etiquetas para prevenir la puesta en marcha accidental de las máquinas y para asegurar que sus propios empleados utilizaran los procedimientos para bloquear o etiquetar las máquinas. Las sanciones propuestas para las violaciones intencionadas y graves ascienden a 192.000 dólares.

Bacardi dijo que trabajó con OSHA después del incidente y "tomó medidas inmediatas para corregir cualquier problema de seguridad identificado por el inspector, en lugar de esperar hasta después de que se emitiera el informe final… La compañía comparte con OSHA los objetivos comunes de empleados bien entrenados y condiciones seguras en el lugar de trabajo".

Se han expedido dos supuestas citaciones voluntarias por no haber elaborado, documentado y utilizado procedimientos de cierre y etiquetado para el control de energía potencialmente peligrosa y por no haber formado a los trabajadores temporales en los procedimientos de cierre y etiquetado. Una violación deliberada es la que se comete con conocimiento intencional o indiferencia voluntaria de los requisitos de la ley o con simple indiferencia a la seguridad y salud de los trabajadores.

"Estamos viendo trabajadores no capacitados – muchos de ellos trabajadores temporales – asesinados muy pronto después de comenzar un nuevo trabajo. Esto debe terminar", dijo Michaels. "Los empleadores deben entrenar a todos los empleados, incluyendo a los temporales, sobre los peligros específicos de ese lugar de trabajo – antes de que empiecen a trabajar. Si Bacardi lo hubiera hecho, esta trágica pérdida de vidas podría haberse evitado."

OSHA también citó a Bacardi por nueve presuntas infracciones graves por exponer a los trabajadores a viajes, choques y peligros de incendio cuando las cintas transportadoras fijas permanentes cruzaban por el pasillo; obstruir las rutas de salida; exponer a los trabajadores a la caída de botellas y escombros de las cintas transportadoras aéreas y a peligros de descargas eléctricas. El empleador tampoco proporcionó un número adecuado de dispositivos de cierre y etiquetado para realizar procedimientos de cierre y etiquetado de fuentes de energía en diversos equipos, realizar una revisión periódica adecuada de los procedimientos de control de la

energía, llevar a cabo la revisión y el mantenimiento de máquinas y equipos sin capacitación en los métodos y medios de aislamiento de la energía, y exigir a los trabajadores el uso de gafas de seguridad y mangas largas al utilizar pistolas de aire comprimido a 90 libras por pulgada cuadrada. Una infracción grave se produce cuando hay una probabilidad sustancial de que la muerte o un daño físico grave pueda resultar de un peligro del que el empleador sabía o debería haber sabido.

LO QUE NECESITA SABER

Las máquinas necesitan moverse para realizar sus tareas. Ya sea una cinta transportadora que lleva la materia prima a un tanque de mezcla, prensas mecánicas que doblan la chapa o una prensa de taladro que perfora una pieza de madera, todas funcionan con movimientos que causan un grave riesgo para los trabajadores.

Los riesgos se producen porque los trabajadores a veces ponen sus manos u otras partes del cuerpo en el punto de operación, quedan atrapados entre dos partes móviles o no utilizan los procedimientos de seguridad adecuados para despejar una máquina atascada. No pasa un día sin que alguien muera por una máquina en movimiento o sufra una lesión grave, como una amputación, por haberse acercado demasiado o no haber seguido los procedimientos de seguridad básicos.

El trabajo con maquinaria y equipo siempre es peligroso. Pero los trabajadores corren un riesgo especial cuando intentan solucionar problemas con maquinaria que no funciona correctamente. Y la resolución de problemas es una tarea común en muchos lugares de trabajo. Por lo tanto, dados sus peligros inherentes, es importante que usted tenga una política de resolución de problemas para asegurar que los trabajadores puedan abordar con seguridad los problemas de la maquinaria.

Los peligros potenciales, e incluyen:

Peligros de seguridad

- El contacto con las partes móviles
- El contacto con la electricidad, el calor, el fuego, el frío y otras energías
- El contacto con gas o líquido presurizado

Peligros para la Salud

- El contacto con productos químicos nocivos o peligros biológicos
- El contacto con ruido, radiación y/o vibración dañinos
- La exposición a riesgos ergonómicos o de TME
- Es un hecho simple: las máquinas necesitan moverse para realizar sus tareas. Ya sea una cinta transportadora que lleva la materia prima a un tanque de mezcla, prensas mecánicas que doblan la chapa o una prensa de taladro que perfora una pieza de madera, todas funcionan con movimientos que causan un grave riesgo para los trabajadores.
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Las fallas de los equipos mecánicos que causan a los trabajadores lesiones a largo plazo o la muerte

Los empleadores utilizan cada vez más equipos y herramientas mecánicas para aumentar la productividad. Si bien esto puede reducir la cantidad de trabajo manual que algunos trabajadores deben realizar y reducir los tipos de lesiones que los trabajadores sufrieron una vez, el equipo y las herramientas mecánicas pueden ser peligrosos. Los trabajadores pueden sufrir

lesiones debilitantes o muertes cuando la maquinaria y las herramientas más pequeñas fallan o funcionan mal.

Razones de las fallas de equipos, maquinarias y herramientas

Las fallas mecánicas de equipos, maquinarias y herramientas pueden implicar muchos problemas, como la mala alineación de las piezas, las sobrecargas de energía, los juegos de engranajes rotos, las astillas o roturas de piezas y la contaminación por aceite. En algunos casos, la avería de una pieza puede causar más daños a la maquinaria y provocar su mal funcionamiento y que un trabajador resulte herido. Hay muchas razones por las que los equipos fallan y causan accidentes, entre ellas:

- **Desgaste y desgarramiento.** Las piezas de la maquinaria y las herramientas se desgastarán con el tiempo debido a su uso constante. En algún momento, deben ser reemplazadas debido al desgaste. Cuando los empleadores no las reemplazan debido al costo, funcionarán mal, a veces repetidamente si sólo se hacen reparaciones menores.
- **Diseño o fabricación defectuosa.** En algunos casos, la maquinaria, el equipo o las herramientas fueron diseñados o fabricados incorrectamente. Si el defecto es lo suficientemente grave, puede causar un accidente catastrófico en el lugar de trabajo si la maquinaria funciona mal o se avería.
- **Falta de entrenamiento.** Los trabajadores deben recibir capacitación en el uso seguro de equipo pesado, como montacargas, excavadoras y otra maquinaria y equipo pesado, antes de utilizarlos en el trabajo. Incluso los taladros, las sierras eléctricas y otras herramientas eléctricas pueden ser extremadamente peligrosas si los trabajadores las utilizan sin estar capacitados para su uso seguro. Muchos accidentes trágicos ocurren cuando los empleadores no toman en serio la seguridad de sus trabajadores y no invierten el tiempo necesario para capacitarlos adecuadamente.
- **Mantenimiento inadecuado.** Los empleadores tienen el deber de inspeccionar, reparar y reemplazar la maquinaria, el equipo y las herramientas de forma regular. Desafortunadamente,

muchos empleadores no lo hacen, lo que puede resultar en un trágico accidente en el lugar de trabajo.

- **Error del operador.** Muchos accidentes ocurren cuando los operadores de equipos y maquinaria cometen errores o acciones negligentes. Esto puede provocar sus propias lesiones o las de otros, como cuando un operador de maquinaria pesada golpea a un trabajador cercano.
- **Negligencia de terceros.** En algunos casos, un tercero, como un subcontratista o proveedor, puede haber proporcionado la maquinaria, la ha operado o le ha dado mantenimiento y puede haber causado un accidente por negligencia. Por ejemplo, el empleado de un subcontratista podría causar un accidente con una carretilla elevadora o una grúa en una obra de construcción que provoque lesiones a otros trabajadores.

NEGOCIOS / REGULACIONES

La ley de seguridad de las máquinas en el lugar de trabajo en Ontario se basa en la Ley de Salud y Seguridad Ocupacional (OHSA). Los reglamentos especificados en la ley son aplicables a lugares de trabajo específicos.

En la Ley, los artículos que tratan de las responsabilidades de los empleadores (artículo 25), los supervisores (artículo 27) y los trabajadores (artículo 28) establecen las obligaciones generales con respecto a la seguridad de las máquinas.

Las piezas móviles de las máquinas crean peligros en el lugar de trabajo y posibles lesiones relacionadas con la maquinaria, lo que hace que los protectores de las máquinas sean de vital importancia. La protección de las máquinas **puede ayudarle a proteger a los trabajadores de lesiones evitables.**

Los requisitos de OSHA para la protección de máquinas se encuentran en el **29 CFR 1910 Subparte O**, Protección de Máquinas **y Maquinaria.** La regulación se desglosa en estos componentes:

1910.211 – Definiciones 1910.212 – Requisitos generales para todas las máquinas 1910.213 – Maquinaria para trabajar la madera 1910.214 – Maquinaria de tonelería [Reservado] 1910.215 –

Maquinaria de ruedas abrasivas 1910.216 – Molinos y calandras en las industrias del caucho/plástico 1910.217 – Prensas mecánicas de potencia 1910.218 – Máquinas de forja 1910.219 – Aparatos de transmisión de potencia mecánica

El requisito general 1910.212(a)(1) establece que se deben utilizar uno o más métodos de protección de la máquina para proteger a los operadores y otros empleados de los peligros, incluidos los creados por los puntos de operación, los puntos de pellizco en funcionamiento, las piezas giratorias, las astillas volantes y las chispas.

Movimientos y acciones mecánicas peligrosas

Identificar los peligros es el primer paso para proteger a los trabajadores y promover la seguridad en el lugar de trabajo.

Mandatos de la Ley Federal

Según la ley federal, tienes derecho a un lugar de trabajo seguro. Su empleador debe proporcionar un lugar de trabajo libre de riesgos conocidos para la salud y la seguridad. Si tiene preocupaciones, tiene derecho a hablar de ellas **sin temor a represalias**. También tiene derecho a hacerlo:

- Ser entrenado en un idioma que entienda…
- Trabajar en máquinas que son seguras
- Se le proporcionará el equipo de seguridad necesario, como guantes o un arnés y una cuerda de salvamento para las caídas
- Estar protegido de los productos químicos tóxicos
- Solicite una inspección de la OSHA, y hable con el inspector
- Reporte una lesión o enfermedad, y obtenga copias de sus registros médicos…
- Vea las copias del registro de lesiones y enfermedades del lugar de trabajo
- Revisar los registros de lesiones y enfermedades relacionadas con el trabajo

ESTADÍSTICAS

La exposición de los empleados a máquinas no vigiladas o mal vigiladas es frecuente en muchos lugares de trabajo. En consecuencia, los trabajadores que operan y mantienen maquinaria sufren aproximadamente 18.000 amputaciones, laceraciones, lesiones por aplastamiento, abrasiones y más de 800 muertes por año.

La Administración de Seguridad y Salud Ocupacional (OSHA) nominó a las diez infracciones más citadas de OSHA en 2017. La protección de máquinas fue la número 8 en esta lista no tan famosa con 1.933 infracciones. En 2018, la protección de las máquinas era la número 9.

La falta de protección de las máquinas también tuvo la dudosa distinción de hacer la lista de las diez mayores penalizaciones monetarias de OSHA para el año – no una sino cuatro veces. De hecho, la mayor sanción monetaria propuesta, la asombrosa suma de 2,6 millones de dólares, surgió de un incidente en el que un trabajador fue aplastado hasta morir mientras limpiaba un fallo del sensor en una cinta transportadora robótica.

Según los datos más recientes de la Oficina de Estadísticas Laborales, las plantas manufactureras informaron de aproximadamente 2.000 accidentes en los que los trabajadores sufrieron aplastamientos de dedos o manos, o se les amputó un miembro en accidentes relacionados con la maquinaria. La tasa de amputaciones en la manufactura fue más del doble (1,7 por cada 10.000 empleados a tiempo completo) que la de toda la industria privada (0,7).

Hubo una disminución anual media del 2,8% en las tasas generales de mortalidad relacionada con los aparatos de 1992 a 2010. Las tasas de mortalidad relacionadas con máquinas móviles disminuyeron un promedio del 2,6% anual y las tasas relacionadas con máquinas estacionarias disminuyeron un promedio del 3,5% anual. Los grupos que siguieron corriendo un alto riesgo fueron los trabajadores de edad, los trabajadores por cuenta propia y los trabajadores de la agricultura, la silvicultura, la pesca, la construcción y la

minería.

RECOMENDACIONES

La identificación y el control de los peligros de la operación y el mantenimiento de equipos o maquinaria es el inicio del proceso para reducir y eliminar las lesiones graves o la muerte en las operaciones de equipos o maquinaria.

A continuación se presenta la lista de comprobación de seguridad de las cinco **recomendaciones**.

1. Responsabilidades del empleador:

- Tenga una copia del manual del operador de la máquina o equipo a disposición de sus trabajadores para que lo lean y se aseguren de que lo han leído y comprendido.
- Asegurarse de que los trabajadores que operan el equipo móvil estén debidamente capacitados y sean competentes.
- Pregúntese: ¿Ha proporcionado la instrucción e información adecuada a sus trabajadores sobre cómo operar correctamente el equipo o la máquina?
- Asegúrate de que todas las máquinas o equipos estén en buenas condiciones de funcionamiento y listos para operar.
- Asegúrate de que todos los escudos y protectores de las máquinas estén en buen estado y que las etiquetas de seguridad estén en el equipo.
- Mantenga su equipo según las instrucciones del fabricante (es decir, embrague, frenos, dirección).
- Asegúrese de que todo el equipo tenga una estructura protectora antivuelco (barra antivuelco).
- Confirme que los frenos del equipo funcionan bien en ambas direcciones (hacia adelante y hacia atrás).
- Confirme que todos los equipos que requieran cinturones de seguridad tengan uno en buen estado de funcionamiento.
- Comprueba que la máquina tiene protecciones donde las partes móviles pueden herir a los trabajadores.
- Asegurarse de que los procedimientos de cierre se anuncien y se sigan claramente.

2. Responsabilidades del trabajador

- Use la protección adecuada para los pies.
- Use protección para los ojos y los oídos.
- Aplíquese regularmente protector solar de acuerdo con las instrucciones, o use ropa protectora contra el sol.
- Asegúrate de que toda la ropa esté bien ajustada, y asegúrate el pelo largo con un sombrero o algún otro medio.

3. Comprobaciones de seguridad preoperativas

- Localice y asegúrese de que está familiarizado con todas las operaciones, controles y procedimientos de bloqueo de máquinas o equipos.
- Asegúrate de que todo el equipo o los escudos de las máquinas y los guardias estén colocados, seguros y funcionales. (Si falta alguna pieza de la máquina o necesita ser reparada, no opere el equipo).
- Lea el manual del operador y revise las etiquetas de seguridad adheridas al equipo antes de instalar o utilizar el equipo de toma de fuerza (PTO). (Si faltan etiquetas en el equipo, coloque etiquetas nuevas antes de usarlo).
- Utilice sólo implementos que cumplan las especificaciones indicadas en el manual del operador de la máquina.
- Guarda los registros de tus comprobaciones preoperativas.
- Asegúrate de que alguien sepa dónde estás, qué vas a hacer y cuándo esperas que vuelvas.

4. Comprobaciones de seguridad operacional

- Asegúrese de que la estructura de protección contra el vuelco (barra antivuelco) de la máquina esté en posición vertical.
- Al operar máquinas, abróchese el cinturón de seguridad antes de mover el equipo.
- Operar la maquinaria usando una velocidad menor, a menos que el manual del operador indique específicamente que es seguro usar la velocidad mayor.
- Mantenga a todos los espectadores alejados de los equipos y máquinas motorizadas.

- Evalúe la maquinaria caminando alrededor del equipo de operación.

5. Fin de las operaciones y limpieza

- Asegúrate de apagar, desconectar cualquier equipo motorizado y apagar el motor de la máquina una vez que termines el trabajo. Recuerde quitar y llevar las llaves antes de salir.
- Mantenga las etiquetas de advertencia limpias y sin material que obstruya. Reemplace las etiquetas dañadas o faltantes por otras nuevas que pueda obtener del proveedor del equipo.
- Espere hasta que todos los componentes móviles se hayan detenido completamente antes de bajar del equipo o de conectar, desconectar, ajustar, limpiar o reparar cualquier equipo alimentado.
- Mantén el área de trabajo segura, limpia y ordenada.

6. Listas de control

- Los pilotos deben pasar por una **lista de verificación previa al vuelo** que ayuda a garantizar el funcionamiento seguro del avión y comprueba que el sistema de respuesta de emergencia está listo para ser utilizado.

El mismo tipo de control debe hacerse antes de operar cualquier maquinaria o equipo

Un tipo de comprobación previa al trabajo se conoce como la comprobación del círculo de vehículos. Aquí hay ejemplos de cómo se lleva a cabo.

- Camina alrededor del equipo y comprueba si hay algún signo de problemas. En el caso de un vehículo de motor, por ejemplo, compruebe que la presión de los neumáticos sea adecuada, que las luces y los intermitentes funcionen correctamente, que haya suficiente aceite, combustible y líquido de batería, y que las ventanas estén despejadas/limpias.
- Otro tipo de comprobación de círculo es útil antes de poner en marcha cualquier vehículo. Camine alrededor del vehículo, pero esta vez mire los alrededores. Asegúrese de que no haya

nada que vaya a golpear cuando el vehículo comience a moverse, como otro vehículo, un niño que esté jugando detrás del vehículo o una obstrucción aérea como un cable eléctrico. Este tipo de revisión en círculo es especialmente importante si debe retroceder.

1. Asegúrate de que no causará peligro a otra persona cuando pongas en marcha la maquinaria. Si alguien está haciendo reparaciones o ajustes en el equipo, debe ser etiquetado con información de bloqueo y la energía debe ser desconectada.
2. Revise la maquinaria para detectar cualquier signo de desgaste o daño que pueda afectar a la seguridad de su funcionamiento. En el caso de los equipos de oficina, preste especial atención al estado de los cables y conexiones eléctricas.
3. Asegúrate de que los protectores de la máquina están en su lugar y funcionan correctamente.
4. Al examinar la maquinaria antes de su puesta en marcha, utilice sólo una fuente de luz segura. Por ejemplo, nunca examine la batería de un vehículo mientras usa un fósforo para la luz – podría resultar herido en una explosión.
5. Compruébalo tú mismo. ¿Lleva el equipo de protección personal (PPE) adecuado, como protección ocular cuando usa una herramienta eléctrica?

PREVENCIÓN

FORMACIÓN / INFORMACIÓN

Se requiere capacitación para utilizar el equipo de trabajo

La capacitación debe ser suficiente para garantizar que todas las personas sepan utilizar de manera competente cualquier equipo que utilicen en el trabajo, sin riesgos innecesarios para la salud y la seguridad de sí mismos o de otros. Por consiguiente, la capacitación depende de la tarea y de la medida en que el empleado ya tiene conocimientos y experiencia pertinentes. Es probable que las necesidades individuales de capacitación sean mayores cuando se contrata a una persona por primera vez, aunque también puede

requerirse capacitación adicional en cualquiera de los siguientes ejemplos:

- si la tarea de trabajo y sus riesgos asociados cambian;
- si se introduce nueva tecnología o equipo; y
- si el sistema de trabajo cambia

En muchos sectores industriales existen normas bien reconocidas para la capacitación, ya sea impartida en la propia empresa o por proveedores externos. Éstas suelen ir acompañadas de algún tipo de evaluación de la competencia para ayudar a garantizar unos niveles mínimos de consecución. Sin embargo, para muchas tareas sencillas, bastará con la capacitación en el empleo, que se evalúa localmente y se respalda con registros sencillos. También será necesario impartir cursos de repaso para asegurar que las aptitudes no disminuyan. Una vez más, la naturaleza y la frecuencia de la formación de repaso deben ser suficientes para garantizar la salud y la seguridad continuas, en la medida en que sea razonablemente viable.

Estar adecuadamente entrenado para preparar y comprobar el equipo de trabajo, no siempre significa un entrenamiento formal y certificado. A menudo, el trabajo de preparación o comprobación del equipo antes de su utilización puede realizarse siguiendo las instrucciones del fabricante, utilizando las habilidades básicas y el sentido común. Sin embargo, para ciertos tipos de equipo, hay planes industriales bien reconocidos que abarcan, por ejemplo, el montaje de ruedas abrasivas. También existen ciertos requisitos legales específicos para el equipo.

Información necesaria para el uso del equipo de trabajo

Todo trabajador que utilice u opere el equipo de trabajo, o cualquier otra persona que pueda verse afectada por el uso de dicho equipo, **debe ser consciente de los peligros que conlleva**.

Toda persona que utilice el equipo de trabajo debe estar debidamente **capacitada para el** uso seguro del equipo o la maquinaria. También debe haber una **supervisión** e inspección

adecuadas **del uso del equipo de trabajo** para garantizar que se sigan correctamente los procedimientos de seguridad.

Evaluaciones de riesgo:

Antes de que se utilice o se instale cualquier equipo o maquinaria de trabajo debe realizarse una evaluación de los riesgos. El objetivo de la evaluación de riesgos es identificar los peligros y el riesgo de lesiones que pueden surgir al utilizar el equipo de trabajo. La evaluación de riesgos también debe identificar las formas en que se pueden eliminar o reducir los peligros y riesgos.

Peligros

Hay muchas formas en que el equipo de trabajo y su uso pueden crear un riesgo de lesiones. Los peligros más comunes son:

- **Atrapamiento,** por ejemplo, cuando los dedos quedan atrapados en las partes móviles de una máquina
- **Impacto:** cuando los trabajadores son aplastados por las partes móviles del equipo o por otros elementos que están siendo procesados por una máquina
- **El contacto…** cuando el cuerpo entra en contacto con bordes afilados, partes calientes o elementos eléctricos vivos…
- **Enredos: cuando la ropa**, el cabello o las joyas quedan atrapados en las partes de una máquina
- **Expulsión:** cuando los trabajadores son golpeados por partes u objetos que salen volando o de las máquinas.

Mantenimiento

Los trabajos de mantenimiento sólo deben ser realizados por quienes estén capacitados para ello, que tengan los conocimientos y la experiencia necesarios para hacerlo:

- saber qué mirar
- saber qué buscar
- saber qué hacer, y
- ser conscientes de los riesgos innecesarios para sí mismos y para los demás, y poder evitarlos

En algunos casos, los trabajadores que realizan el mantenimiento de ciertos tipos de equipo deben tener una capacitación específica que sea pertinente para ese trabajo (por ejemplo, cuando puedan encontrar amianto).

Los empleadores tienen el deber de proporcionar un equipo de trabajo adecuado, bien diseñado y apropiado para el trabajo.

Al seleccionar nuevos equipos de trabajo los empleadores deben:

- obtener información completa sobre el uso seguro del equipo
- asegurar que el equipo tiene una marca de seguridad CE para mostrar que cumple con las normas
- organizar una capacitación adecuada para el uso del equipo

Inspecciones

Los empleadores están obligados por ley a proporcionar equipo seguro para su uso en relación con su trabajo. Cuando la seguridad del equipo dependa de las condiciones de la instalación o se exponga a condiciones que causen un deterioro que pueda dar lugar a situaciones peligrosas, debe inspeccionar su equipo para identificar si puede ser operado, ajustado y mantenido con seguridad. Hacer esto de forma regular puede ayudarle a detectar cualquier deterioro y a tomar medidas antes de que resulte en un riesgo para la salud y la seguridad.

Las frecuencias de inspección dependen del tipo de equipo de trabajo, de su uso y de las condiciones a las que está expuesto. Esto debe determinarse a través de:

- evaluación de riesgos, teniendo plenamente en cuenta las recomendaciones de los fabricantes
- el consejo de otros, como las asociaciones comerciales y los consultores
- otras fuentes, como los consejos publicados sobre salud y seguridad

Los diferentes tipos de inspección incluyen:

- comprobaciones rápidas antes de su uso (por ejemplo, el estado de los cables eléctricos de las herramientas eléctricas de mano, pruebas de funcionamiento de los frenos)
- controles semanales (por ejemplo, presiones de los neumáticos, presencia de protecciones, funcionamiento de los dispositivos de seguridad)
- exámenes más extensos, realizados cada pocos meses o más (por ejemplo, el estado general de una escalera, el examen minucioso de un arnés de seguridad, la prueba de un aparato portátil).

Uso de equipo y ropa de protección personal:

Esto puede ser necesario cuando no se pueden evitar ciertos peligros del equipo de trabajo. Ejemplos de equipo y ropa de protección personal que pueden ser necesarios cuando se utiliza el equipo de trabajo son:

- cascos de seguridad
- guantes
- gafas de seguridad
- protectores de oídos
- calzado de seguridad
- tipos de ropa – por ejemplo, prendas de alta visibilidad

El equipo o la ropa de protección personal deben:

- ser adecuados para la tarea que se está llevando a cabo
- dar una protección adecuada contra el peligro
- se ajustan de forma adecuada y cómoda

Aquí hay una docena de consejos de seguridad para la maquinaria básica:

- Sólo operará la maquinaria si ha completado con éxito la formación requerida y está autorizado a hacerlo.
- Saber cómo detener la maquinaria antes de ponerla en marcha.
- Compruebe si el área alrededor de la máquina está ordenada y

libre de obstrucciones.

- Use el equipo de protección personal (PPE) requerido, como calzado y gafas de seguridad.
- No use artículos sueltos, incluyendo guantes, cadenas colgantes, anillos o pelo largo sin sujetar. Éstos podrían quedar atrapados en las partes móviles y tirar de ti.
- Asegúrate de que todos los protectores de la máquina están colocados correctamente y de forma segura y se mantienen en buen estado de funcionamiento.
- No quite o deshabilite las protecciones de la máquina, a menos que la máquina requiera reparación o mantenimiento, usted está autorizado a realizar esas reparaciones o mantenimiento Y se sigan los procedimientos adecuados de bloqueo y etiquetado.
- Nunca intentes poner en marcha una máquina que tenga una etiqueta de bloqueo.
- Antes de usar la máquina, primero, asegúrese de que funciona correctamente. Informe a su supervisor si descubre algún problema.
- Si la máquina funciona mal mientras la está operando, informe el problema inmediatamente a su supervisor y no continúe usando la máquina hasta que haya sido inspeccionada y se haya determinado que es segura de operar.
- Nunca coloque sus manos o cualquier otra parte del cuerpo en el punto de operación o en otras partes móviles.

La esencia de proporcionar un lugar de trabajo seguro está encapsulada en los GRANDES TRES:

- Entrenamiento
- Mantenimiento

Inspecciones / Evaluación de riesgos

Electrical Contracting Checklist

Electrical contracting safety audit checklist on proper handling of electrical equipment.

De-Energize

☐ Are electrical appliances grounded?

☐ Are ground fault circuit interrupters installed on each temporary 15 or 20 ampere, 120 volt AC circuit at locations with construction or modifications?

☐ Do you have electrical installations in hazardous dust or vapor areas that meet NEC code?

☐ Are disconnecting means always opened before fuses are replaced? Are all electrical raceways and enclosures securely fastened in place?

☐ Are all energized parts of electrical circuits and equipment guarded against accidental contact by approved cabinets or enclosures?

☐ Are disconnecting switches for electrical motors in excess of two horsepower able to open the circuit when the motor is stalled without exploding?

☐ Is low voltage protection provided in the control device of motors driving machines or equipment that could cause injury from inadvertent starting?

☐ Are motor disconnecting switches within sight of the motor control device?

☐ Is each motor located within sight of its controller or is the controller disconnecting means able to be locked open or is a separate disconnecting means installed in the circuit within sight of the motor?

☐ Is the controller for each motor that exceeds two horsepower rated equal to or above the rating of the motor it serves?

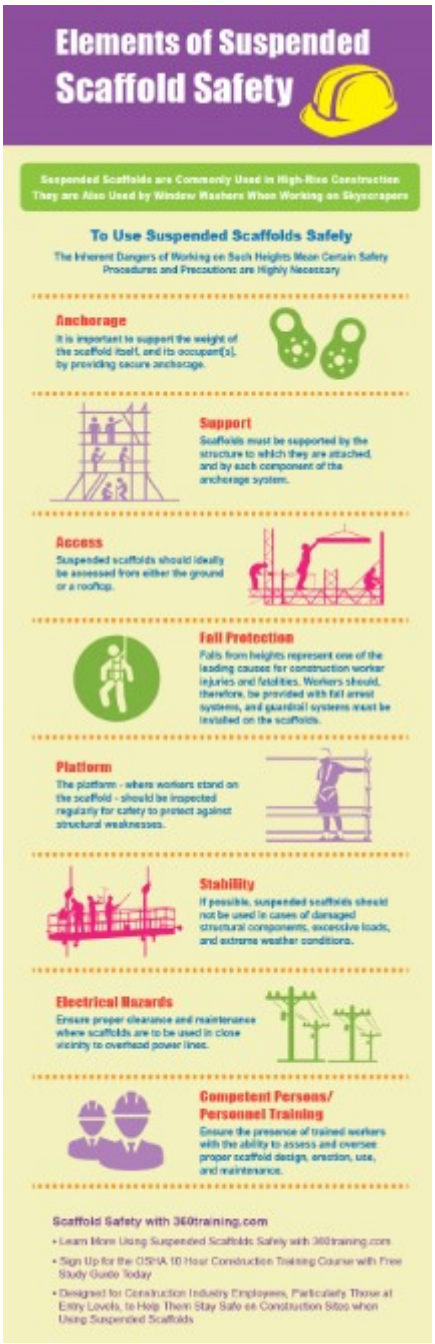
☐ Are employees who regularly work around energized electrical equipment/lines instructed in CPR?

☐ Are employees prohibited from working alone on energized lines/equipment over 600 volts?

COMMENTS:

_____
_____
_____
_____
_____
_____

Scaffold Infographic



Lockout

WHAT’S AT STAKE?

Lockout procedures and lockout products are critical parts of any workplace safety program, especially in industries involving heavy machinery and equipment. Lockout tools such as padlocks and safety

hasps prevent machines from being powered on while under repair or out of order. The addition of mandatory lockout tags is crucial in identifying the authorized personnel in charge of the equipment.

WHAT'S THE DANGER?

It is dangerous to leave hazardous machines or equipment out on the industrial work floor with just a verbal warning to employees not to use it. Employees may forget or simply ignore warnings and become severely injured by an unexpected outburst of hazardous energy. **This is why the lock and tag are so crucial to employee and visitor safety.**

Lockout/Tagout is to protect employees and property from damage due to unexpected start-up and reenergization of machines during servicing. In other words, the intent is to keep someone from starting the equipment when an employee is inside it.

Lockout/Tagout – Overview

- Safety while maintenance, cleaning or repairs are performed
- Prevents injuries
- Prevents damage
- Prevents errors
- Communicates risk in the workplace

HOW TO PROTECT YOURSELF

DEFINITIONS – EXPLAIN LOCKOUT TERMINOLOGY

Personal Lock:

A key type of padlock issued to a worker to be used only for locking energy sources in an inoperative or safe position. The company owns all personal locks and they are unique to the lockout system.

Scissors:

A multi-hole clamp device that is connected to a lockout point to allow more than one worker to lockout on a single system.

Tag:

A tag used to convey information about the individual, equipment or process involved in locked out. Tags without locks do not constitute lockout.

Zero Energy State:

State in which a machine, system or process has been rendered incapable of start-up or movement. Zero energy state means the elimination or control of:

- Electrical power
- Equipment balance).
- Hydraulic fluids under pressure
- Static electricity
- Energy stored in springs
- Unstable ground
- Potential energy from suspended parts
- Any other sources that might cause unexpected mechanical movement (e.g. freezing or thawing
- Steam
- Capacitors

There are established requirements that employers must follow to ensure employees are protected when exposed to hazardous energy through maintenance and equipment work. Facilities must:

1. **Develop**– create a lockout/tagout program specific to the machinery in your facility, including equipment that is not capable of being locked out
2. **Implement**– use lockout devices for equipment that can be locked out and tagout devices to identify who is performing maintenance
3. **Train**– teach employees the lockout/tagout procedures and be

sure authorized employees can perform the procedure accurately

GUIDELINES – LOCKOUT

- Personnel will not work on any equipment that represents a safety hazard unless that equipment is properly locked out.
- All personnel who will be working on the equipment are required to place their personal lock on the isolating devices or lockout box. This includes supervisors.
- The isolating device shall be secured in the inoperative position by the use of scissors and locks. Locks shall be identified with a tag indicating the name of the person applying them.
- Locks issued to an individual worker shall be operable only by that worker’s key and by a master key for emergency use, which shall be securely kept by the company.
- Locking a lock through another lock does not meet lockout requirements.
- When inserting locks into scissors, do not insert a lock into the last scissor hole, instead attach another scissor and insert your lock on the second scissor.
- Personnel must keep the key to their lockout locks on their person at all times.
- Only locks owned by the company and designated for lockout are to be used for lockout.
- Combination locks shall not be used at any time.
- If a worker has left work (quit, terminated, or injured) their personal locks must be removed from service until the keys are recovered.
- Personnel must remove their locks when they leave the work site or are no longer working on the equipment.
- No personnel shall remove any personnel lock other than their own, unless the proper procedure with documentation is followed.
- Shutting down the power generator without locking out the main disconnect does not fulfill the lockout requirements.
- Switches must not be opened under load due to risk of arcing

and explosion.
- Components that feed into or out of, or are interlocked with the component to be repaired or serviced must be isolated and locked out.

RESPONSIBILITIES

Supervisors:

- Educate all workers in the use of lockout procedure.
- Identify all sources of energy that require control and lockout.
- Control and administer the lockout locks.
- Ensure the lockout procedure is followed.

Workers:

- Follow the lockout procedure.
- Only remove one’s own locks from the system.
- Report any irregularities or non-conformance situations to their supervisor.

LOCKOUT PROCEDURE – SUMMARY

1. Identify the equipment or machine that needs to be locked out.
2. Ensure that the machine is stopped.
3. Identify and deactivate the main energy source.

1. Apply personal locks to the energy source.
2. Ensure that the lock out is effective.

When the work is complete or a worker is no longer required to work on the device, he must remove his own personal lock and return it to the lockout station. The worker with the last lock on the system must notify the supervisor that the work is complete and that he is ready to remove his lock.

1. The supervisor must verify that,

2. All workers are clear,
3. All equipment and tools are removed,
4. The machinery or process is clear to reactivate.
5. The worker must remove the last lock from the isolation points.

FINAL WORD

Proper lockout procedures save lives of workers working on or near locked out machinery. Procedures are an important safety measure when isolating equipment from energy source.

Electrical – Stats and Facts

DID YOU KNOW?

The Electrical Safety Foundation International (ESFI) is a non-profit organization dedicated exclusively to promoting electrical safety at home and in the workplace. Founded in 1994 as a cooperative effort by the National Electrical Manufacturers Association (NEMA), Underwriters Laboratories (UL), and the U.S. Consumer Product Safety Commission (CPSC), ESFI is funded by voluntary contributions from electrical manufacturers, distributors, independent testing laboratories, retailers, insurers, utilities, safety organizations, and trade and labor associations.

To better promote electrical safety in the workplace, ESFI provides statistical data on occupational electrical injuries and fatalities to help decision-makers better allocate safety resources for maximum impact. Our work builds on earlier work by the National Institute for Occupational Safety and Health (NIOSH), providing new information on electrical incidents as it becomes

available. The data in our reports cover U.S. occupational electrical accidents, including the total number of electrical injuries and fatalities, the industries and occupations in which they occurred, and the rates of electrical injury and fatality for selected industries.

The Electrical Safety Foundation International (ESFI) uses the U.S. Bureau of Labor Statistics' (BLS) Census of Fatal Occupational Injuries (CFOI) and Survey of Occupational Injuries (SOII) to distill information specifically pertaining to fatal and nonfatal occupational electrical injuries. Each year the ESFI publishes electrical injury information in tabular and graphical form on our website. The most recent data covers the 24 year period from 1992-2018, but mainly focuses on 2003-2018 data.

Fatal Electrical Injuries

- There were 160 electrical fatalities in 2018. An 18% increase over the previous year and the highest number of fatalities since 2011.
    - Fatality rates per 100,000 workers were 0.11 in 2018, compared to 0.13 in 2011.
- Contact with / Exposure to electric current accounted for 3% of all fatalities in 2018. In 2017, they accounted for 2.6%, in 2016 2.9%, 2015 2.7% and 3.1% in 2014.
- All electrically related fatalities were caused by electric shock, no fatalities were caused by burns.
- Construction industry accounted for 54% of all electrical fatalities, the same percentages as in 2017. Professional and business services accounted for 28% of electrical fatalities.
- The construction industry had the highest rate of fatal electrical injuries (0.8 / 100,000) followed by utility (0.55 / 100,000).
- In 2018, 9% of all electrical injuries were fatal.
- Good producing private industries (natural resources and mining, construction, manufacturing) accounted for 71% of fatal electrical injuries compared to 28% fatal injuries from service-providing private industries.

- The number of electrical fatalities varies between ages
    - 6% of electrical fatalities occurred in workers aged 20 – 24
    - 31% of electrical fatalities occurred in workers aged 25 – 34
    - 30% of electrical fatalities occurred in workers aged 34 – 44
    - 14% of electrical fatalities occurred in workers aged 45 – 54
    - 14% of electrical fatalities occurred in workers aged 55 – 64
    - 4% of electrical fatalities occurred in workers aged 65+
- Leading primary Source of Fatal Electrical Injury
    - Parts and Materials: 41%
        - Machine Tool and Electric Parts: 36%
    - Tool, Instruments and Equipment: 17%
    - Machinery: 14%
    - Vehicles: 14%
- “Constructing, Repairing, Cleaning” accounted for the leading worker activity for electrical fatalities at 63%. “Using or Operating Tools, Machinery” accounted for 23% of electrical fatalities.
- 35% of electrical fatalities occurred in Private Residences, 26% occurred in Industrial Place and Premises, and 13% in Street and Highway.
- The Construction and Extraction Occupations accounted for 47% of electrical fatalities, Installation, Maintenance, and Repair Occupations accounted for 21% and Building and Grounds Cleaning and Maintenance Occupations 15%.

Nonfatal Electrical Injuries

- There were a record low number of nonfatal electrical injuries in 2018, 1,560. A 29% decrease over 2017. There was an 8% decrease over 2016, the year with the previous lowest number of nonfatal electrical injuries.
- 17% of all nonfatal injuries resulting in days away from work could be attributed to electricity during 2018. In

2017, 0.25% could be attributed to electricity.

- The median number of days away from work for nonfatal electrical injuries was 4 in 2018, a 60% drop from 2017, returning to 2014 levels.
- The industries with the leading number of nonfatal electrical injuries:
    - Construction: 20%
    - Manufacturing: 16%
    - Leisure and Hospitality: 13%
    - Education and Health Services: 11%
    - Accommodation and Food Services: 10%
- Electrical shocks accounted for 1,080 of the non-fatal electrical injuries while burns accounted for 490.

Recent data from the U.S. Consumer Product Safety Commission shows that, on average, there are more than 400 electrocutions in the United States each year. Of these, about 180 are related to consumer products.

- Of the approximate 180 related to consumer products, large appliances are responsible for 10 percent.
- Electrocutions from wiring hazards, including damaged or exposed wiring and household wiring, totaled about 20 percent.
- Ladders contacting power lines caused nine percent of electrocutions; in another five percent of deaths, victims contacted the high power lines.
- Power tools were responsible for another nine percent of deaths.
- Landscaping, gardening, and farming equipment cause 67 percent of electrocutions each year.
- Data from the National Safety Council indicates that electrical hazards in the workplace cause nearly one fatality every day.
- Annually, electrical hazards are listed as the cause of about 4,000 injuries.
- While only a small portion of electrical incidents occur on the job, they’re far more likely to be fatal.
- Electricity ranks sixth among all causes of occupational

injury in the United States.
- Before the installation of Ground Fault Circuit Interrupters (GFCIs), which de-energize a circuit when they detect a ground fault, nearly 800 people died annually from household electrocutions. Now, less than 200 people die annually from household electrocutions.
- Twenty-five percent of U.S. consumers don’t understand the purpose of their GFCIs.
- More than 25 percent of consumers don’t know that GFCIs can help prevent electrocution.
- Nearly one-half of U.S. families never test their GFCIs.
- Among those who routinely test their GFCIs, none do so according to safety recommendations—at least one per month and after storms.

Electrocutions don’t tell the entire story. Electricity is the cause of more than 140,000 fires each year, resulting in 400 deaths, 4,000 injuries, and $1.6 billion in property damage. Total economic losses due to electrical hazards are estimated to exceed $4 billion annually.

Although Electrical Safety Month only happens once per year, remember we’re exposed to electricity every day so respect it, stay safe, and stay alive.

Report highlights

- 739 died from exposure to electricity.
- By occupation, workers in construction and extraction occupations (47%) and installation, maintenance, and repair occupations (22%) accounted for the largest number of deaths.
- 80% of fatal injuries from direct exposure to electricity occurred while workers were engaged in constructing, repairing, or cleaning activities.
- Workers who were fatally injured as a result of indirect exposure to electricity were most often engaged in construction, repairing, or cleaning activities (37%) or were using or operating tools or machinery (32%) at the time

of injury.

It’s been reported by Electrical Safety Foundation International that there are over 400 electrocutions in the United States each year. Of these, approximately 180 are related to consumer products. 10% of those were cause by large appliances.

In the workplace, the National Safety Council indicates that electrical hazards cause nearly one workplace fatality every day.

- Electrical hazards are listed as the cause of approximately 4,000 injuries annually.
- Electrical incidents are far more likely to be fatal.
- Electricity ranks sixth among all causes of occupational injury in the United States.
- Electricity is the cause of more than 140,000 fires each year, resulting in 400 deaths, 4,000 injuries and $1.6 billion in property damage.
- Total economic losses due to electrical hazards are estimated to exceed $4 billion annually.

In the workplace, Electrical Safety is especially important. Some workers are exposed to much more powerful electrical sources than at home. The dangers are compounded when procedures are not followed and the proper Personal Protective Equipment is not used.

Once specific area that needs focused attention is guarding against **arc flash**. An arc flash is the light and heat produced from an electric arc supplied with sufficient electrical energy to cause substantial damage, harm, fire, or injury. Electrical arcs experience negative resistance, which causes the electrical resistance to decrease as the arc temperature increases.

According to the Bureau of Labor Statistics (BLS):

- Arc flash injuries are not counted in the Electrical shock statistics (they are noted under burns), meaning that the true rates are even higher;
- 2,000 workers are treated in specialized burn trauma centers each year as a result of arc flash injuries;
- Every 30 minutes a worker suffers an electrical injury that

requires time off;

What this means to the employer in terms of cost

- Equipment, Litigation, & Medical Cost Associated with Electrical Hazards
- Monetary cost can easily exceed $1 million, which includes the costs of equipment replacement, downtime, and insurance
- Medical costs for severe electrical burns can exceed $4 million per person
- Work-related injuries can cost businesses well over $30 million in fines, medical costs, litigation, lost business and equipment costs

Morale Impact Associated with Electrical Hazard

- About 80% of electrically related accidents and fatalities involving “Qualified Workers” are caused by arc flash / arc blast. Even trained experts get hurt!
- 21% of electrical injuries (including arc flash) tended to be permanent.
- S. Department of Labor’s Bureau of Labor Statistics determined arc flash injuries accounted for 77% of all recorded electrical injuries.

Training and the use of proper personal protective equipment (PPE) is crucial in protecting employees from injury. Training should cover the care and use of the PPE, giving the qualified worker the empowerment to make life safety decisions. A good rule of thumb for Arc Flash protection is to use PPE that has an arc rating equal to or greater than the calculated incident energy.

Machines are prone to issues and unpredictability. Common sense tells us that workers need to wear protective gear when working in close proximity to potentially dangerous electrical equipment. Why then is it that many workers (even very qualified and experienced ones) aren’t more vigilant in donning PPE. We’ve heard the excuses that they feel that PPE slows them down and that they think the repair will be quicker without. **Don’t allow your employees to spend the rest of their lives regretting that decision.**

KEEP IN MIND

Electrical safety is a general practice of workers who are exposed to handling and maintaining electrically powered equipment. It is a set of guidelines they follow to mitigate electrical hazards and prevent its dangerous effects in case of an incident. Unable to adhere to electrical safety can lead to accidents, near misses, or even fatalities.

Working with electricity can be dangerous. Engineers, electricians, and other professionals work with electricity directly, including working on overhead lines, cable harnesses, and circuit assemblies. Others, such as office workers and sales people, work with electricity indirectly and may also be exposed to electrical hazards.

Electricity has long been recognized as a serious workplace hazard. OSHA’s electrical standards are designed to protect employees exposed to dangers such as electric shock, electrocution, fires, and explosions.

Electricity provides heat, light and energy, but, as useful as electricity is, we must never forget it is also dangerous.

Almost any kind of job you can think of today involves using electricity. That is why it is important for everyone to understand how to avoid electrical shock and electrical arcs.

Electricity exposes us to three primary hazards – shocks, arc flashes and arc blasts.

According to the National Fire Protection Association, a shock hazard is a dangerous condition associated with the possible release of energy caused by contact or approach to live parts.

The NFPA defines an arc flash hazard as a dangerous condition associated with the release of energy caused by an electric arc.

An arc blast is best defined as the rapid buildup of pressure which causes an explosion. Nearby material, such as copper, is melted, vaporized and thrown into the air, which is also

superheated.

Each of these hazards can be deadly.

There are many different kinds of electrical hazards, depending on where you work.

Whether the electrical shock comes from an overhead transmission line or an incorrectly grounded power tool, the results can be equally fatal.

In addition to the electrical shock hazard resulting from direct contact of live conductors with body parts, there exists a possibility of electric arcs.

An electric arc, or an arcing fault, is a flashover of electric current through air in electrical equipment from one exposed live conductor to another or to ground.

Arc flash hazard is the danger of excessive heat exposure and serious burn injury due to arcing faults in electrical power systems.

Electric arcs produce intense heat, sound blast and pressure waves. They have extremely high temperatures, radiate intense heat, can ignite clothes and cause severe burns that can be fatal.

Electric arcs produce some of the highest temperatures known to occur on earth – up to 35,000 degrees Fahrenheit, according to the NFPA. This is four times the surface temperature of the sun.

Electrocution remains the fourth highest cause of industrial fatalities, according to the National Institute for Occupational Safety and Health. The top three causes are traffic accidents, homicide and construction accidents.

Of those killed while working on voltages below 600 volts, almost half were working on energized equipment.

Most of these injuries and deaths, over 75 percent, could have been avoided according to the NIOSH.

Over 30,000 non-fatal electrical shock accidents occur each year; 600 to 1000 persons die each year from electrocution.

The extreme danger of working around electricity is this: There is no room for minimizing the effect once contact has been made. And the effect is instantaneous.

All it takes is one slip of the hand, a slight wrong move, or careless disregard for one seemingly small safety measure.

THE LEADING CAUSES OF ELECTRICAL ACCIDENTS, ACCORDING TO THE NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH:

- Drilling and cutting through cables
- Using defective tools, cables and equipment
- Failure to maintain clearance distances
- Failure to de-energize circuits and follow lockout/tagout procedures
- Failure to guard live parts from accidental worker contact
- Unqualified personnel working with electricity
- Improper installation/use of temporary electrical systems and equipment
- By-passing electrical protective devices

ARMY ELECTRICAL SAFETY REGULATION

The U.S. Army’s Electrical Safety Regulation is 385-26. It prescribes Army guidelines for protecting Army personnel, facilities and equipment from electrical hazards. It applies to all Department of the Army personnel, including military, civilian and contractors for safeguarding against the hazards associated with electrical energy.

EMPLOYEE SAFE WORK PRACTICES TO HELP ELIMINATE ELECTRICAL HAZARDS, ACCORDING TO AR 385-26:

- Know where the hazards are
- Properly maintain equipment
- No exposed parts or energized surfaces

- Use barriers and devices where appropriate
- No conductors to walk on or trip on
- No jewelry or other metal objects around electricity
- Never use plugs or receptacles that can alter polarity
- Properly plug all connecting plug-ins
- Install and use protective devices
- Stay away from all unguarded conductors
- Never overload a circuit or a conductor
- Inspect cords before each use
- Be sure plug and receptacle have proper mating configuration
- To unplug, never pull on the cord, pull on the plug
- Don’t use nails, staples, screws, etc. to attach or fasten a cord or plug
- Two conductor cords are illegal
- Damaged cords should never be used
- Ensure enough slack to prevent strain on plug or receptacle
- A plug-receptacle should have at least eight ounces of contact tension
- Cords should be kept clean and free of kinks and insulation breaks
- Cords crossing vehicular or personnel passageways should be protected, sign posted and used temporarily or in an emergency
- Cords should be of continuous length and without Splices
- Only approved equipment may be used in wet or damp areas. Always use ground fault circuit interrupters
- Never energize equipment when shields or Guards have been removed
- Always honor lockout/tagout situations

Why Eliminate Electrical Hazards?

On the job site, working around electricity can be very safe when workers properly identify and control hazards. But, inadequate training, lack of experience and failure to recognize potential hazards could result in electric shock or death.

The construction industry is most at danger from electrical hazards, accounting for 52% of all electrical fatalities in the US

workplace. Most of these incidents and fatalities were caused by direct worker contact with overhead power lines and contact with machines, tools, and hand-carried metallic objects. So how do we protect ourselves against these dangers?

This article provides a closer look at some common electrical hazards in the workplace and how to be safe around them. We also feature a collection of electrical safety checklists which you can use to assess electrical dangers on your worksite.

Who is at Risk?

Engineers, electricians, and overhead line workers are at the top of the list of professionals who are most exposed to electrical hazards. Common tasks that put these workers at risk include electrical installation and repairs, testing of fixtures and equipment and inspection and maintenance activities. However, people who are indirectly working with electricity like office workers are also exposed to electrical hazards.

Electrical Hazards: Know Your Limits!

Electrocution is one of the most common hazards across construction sites according to OSHA. Identifying electrical hazards can help raise awareness of the risks, their severity, and how it can harm workers.

Here are 7 common electrical hazards in the workplace and tips on what you can do to mitigate these risks:

1. Overhead Power Lines

Overhead powered and energized electrical lines have high voltages which can cause major burns and electrocution to workers. Remember to maintain a minimum distance of 10 feet from overhead power lines and nearby equipment. Conduct site surveys to ensure that nothing is stored under overhead power lines. Also, safety barriers and signs must be installed to warn nearby non-electrical workers of the hazards present in the area.

2. Damaged Tools and Equipment

Exposure to damaged electrical tools and equipment can be very dangerous. Do not fix anything unless you are qualified to do so. Thoroughly check for cracks, cuts or abrasions on cables, wires, and cords. In case of any defects, have them repaired or replaced. Lock Out Tag Out (LOTO) procedures should be performed at all times before commencing electrical maintenance and repairs. LOTO procedures are there to protect all workers on a worksite.

3. Inadequate Wiring and Overloaded Circuits

Using wires with inappropriate size for the current can cause overheating and fires to occur. Use the correct wire suitable for the operation and the electrical load to work on. Use the correct extension cord designed for heavy-duty use. Also, do not overload an outlet and use proper circuit breakers. Perform regular fire risk assessments to identify areas at risk of of bad wiring and circuits.

4. Exposed Electrical Parts

Examples of exposed electrical parts include temporary lighting, open power distribution units, and detached insulation parts on electrical cords. These hazards can cause potential shocks and burns. Secure these items with proper guarding mechanisms and always check for any exposed parts to be repaired immediately.

5. Improper Grounding

The most common OSHA electrical violation is the improper grounding of equipment. Proper grounding can eliminate unwanted voltage and reduce the risk of electrocution. Never remove the metallic ground pin as it is responsible for returning unwanted voltage to the ground.

6. Damaged Insulation

Defective or inadequate insulation is a hazard. Be aware of damaged insulation and report it immediately. Turn off all power

sources before replacing damaged insulation and never attempt to cover them with electrical tape.

7. Wet Conditions

Never operate electrical equipment in wet locations. Water greatly increases the risk of electrocution especially if the equipment has damaged insulation. Have a qualified electrician inspect electrical equipment that has gotten wet before energizing it.

Knowing your limits and applying the best electrical safety practices can help reduce the risk of electrical shock and death. It is safer to work within your scope of expertise instead of taking the risk of working beyond your capacity. If you are not confident to do the job, don’t hesitate to call for help from an authorized person.

Instead of relying on your memory, use a checklist when applying electrical safety practices in your workplace. A digital checklist is a powerful tool that can serve as a guide for performing work near electrical equipment and hazards.

Emergency Action Plan – Stats and Facts

DID YOU KNOW?

Emergency evacuations are more common than many people realize, including evacuations in the workplace. According to the U.S. Department of Homeland Security (DHS) Federal Emergency Management Agency (FEMA), the most frequent causes of evacuations in the U.S. each year are fires and floods. In addition, a wide variety of emergencies, both man-made and natural, may require a workplace to

be evacuated. These emergencies may include explosions, earthquakes, hurricanes, tornadoes, hazardous/toxic material releases, radiological and biological accidents, civil disturbances and workplace violence.

Emergency Evacuation is the immediate and urgent movement of people away from a threat or actual occurrence of a hazard.

This web page provides workers and employers guidance on planning for safe evacuations and shelter-in-place procedures during emergencies that may affect their workplace.

Deciding whether to shelter-in-place or evacuate to safety (i.e., get away from a threat or hazard) is among the most important decisions that must be made during an emergency. Employers should understand and plan for both scenarios. In any emergency, the local authorities may or may not be able to provide information immediately to assess the situation. Employers should consider how the situation might impact workers sheltering-in-place at a job site versus workers attempting to evacuate to safety.

If local authorities or the on-scene coordinator (e.g., incident commander or other official in charge) specifically give instructions to evacuate or seek medical treatment, do so immediately. In very hazardous situations, local officials may require mandatory evacuations. During other times, local officials may advise, or workers and employers may decide, to evacuate to avoid situations they believe are potentially dangerous.

Watch TV, listen to the radio, or check the Internet often for information or official instructions as it becomes available. Additionally, specific instructions and guidance from local officials may also be provided through mass media, sirens or other public address/alert systems, text alerts, emails, or telephone calls.

The construction industry is known for being one of the most dangerous fields to work in. Out of every 5,000 private-industry worker fatalities, 20 percent are in construction. That means one out of every five worker deaths is construction-related!

Construction also results in many non-fatal injuries that cost companies millions of dollars per year. This makes safety paramount in the industry. While safety measures and precautions, like those outlined by OSHA, can be costly upfront, their ROI can be massive.

A successful construction business will maintain effective safety programs, stay updated on OSHA regulations and pay the expenses involved even when business is slow. Not only because OSHA violations can range anywhere from a warning to $70K per incident, but because they care about their employees.

To illustrate the importance of worksite safety, we've compiled 25 construction safety statistics that cover the high number of injuries and fatalities, the cost of these accidents and the benefits of safe practices.

There were 5,250 fatal work injuries in the US in 2018, with falls a leading cause of death – and cuts in government oversight

Thousands of Americans die at work each year

The Bureau of Labor Statistics (BLS) reported 5,147 workplace fatalities in the US in 2017. Among these fatalities, 887 were due to fatal falls, the highest level reported in the 26-year history of the Census of Fatal Occupational Injuries.

There are two different categories for fatal falls: falls on the same level, such as slips or trips, and falls to a lower level. Both increased in 2017, with the majority, 713 fatalities, a result of workers falling to a lower level. In 2018, the latest year data is available, fatal falls decreased to 791, though overall workplace fatalities increased from the prior year to 5,250.

The US consistently outpaces other industrialized nations in workplace fatalities:

- The average rate of workplace fatalities in the United

States has hovered at 3.5 deaths for every 100,000 workers over the past decade.
    - In comparison, workplace fatality rates in the UK have remained under 1.0 death for every 100,000 workers over the past decade, and under 1.5 deaths for every 100,000 workers on average for the 15 earliest member states of the EU.

Transportation incidents are responsible for the highest number of deaths at work, and for more than a third of all work fatalities.

The majority of fatal workplace falls regularly occur in construction and disproportionately impact Hispanic workers, though fatal fall increases in 2017 are attributed to a wide range of industries.

Construction Fatality Statistics

1. One in five worker deaths annually is in construction.
2. Workplace fatalities that were crane-related fell to their lowest level recorded in 2017 with 33 deaths.
3. Construction workers accounted for 1008 (47 percent) of all fatal work injuries in 2018.
4. The “Fatal Four” leading causes of private sector working fatalities in the construction industry are falls, being struck by an object, electrocution and being caught in something or between two objects. These accidents are responsible for 58.6 percent of construction worker deaths.
5. Companies with 10 or fewer employees and those who are self-employed account for nearly half of all deaths on construction sites.
6. Of all industries, construction sees the most fatal falls, accounting for 51 percent of all falls in the United States.
7. During a 45-year career, there is a 1 in 200 chance that a construction worker will die from a work-related incident.

Non-Fatal Injuries in Construction

8. One in every 10 construction workers is injured annually.
9. Construction sees non-fatal injury rates that are 71% higher than any other industry.
10. Around half of serious workplace injuries go unreported each year.
11. Lifting, using a tool or machine, and carrying heavy objects are the leading causes of strain injuries in construction.
12. Workers who are between the ages of 35 – 34 are the most likely to be injured while working in construction.
13. Construction worker illnesses and injuries are down from 10.9 incidents per 100 workers in 1972 to 2.8 per 100 workers in 2017.
14. The Cost of Jobsite Injuries
15. One fatal injury costs an average of $991,027 in hospital costs.
16. The construction industry sees a 71 percent higher spend on workers' compensation than all goods-producing industries combined, more than twice the mean cost for the average employer in other industries.
17. 15 percent of overall workers' compensation costs are spent on workers who were injured at a construction site.
18. Work-related injuries have caused companies to lose 103,000,000 production days in 2018.
19. Indirect costs for injuries in the construction industry can be as much as 17 times more than direct costs.
20. Purvis Home Improvement Co. Inc was fined $1.79 million for a preventable fatal fall, the highest fine of 2019.
21. It Pays to Practice Safety
22. Construction companies can save an average of $32,000 for each medically consulted injury they avoid.
23. Construction companies can save $4 – 6$ in indirect costs for every $1 invested in direct costs by evading an injury in the workplace.
24. Construction site injuries account for 6–9 percent of project costs, while safety and health programs only account for 2.5 percent of project costs.

25. A company must sell an additional $1,667,000 in services to offset $50,000 in losses from injuries, illness or damage and still make a 3% profit.
26. Better and more frequent training, regular inspections and regular health and safety meetings with construction supervisors result in lower costs, fewer lost-time injuries and more profits.
27. Getting rid of the “Fatal Four” causes of construction worker deaths would save 591 lives in the U.S. each year.

KEEP IN MIND

A workplace emergency is an unforeseen situation that threatens your employees, customers, or the public; disrupts or shuts down your operations; or causes physical or environmental damage. Emergencies may be natural or manmade and include the following:

- Floods,
- Hurricanes,
- Tornadoes,
- Fires,
- Toxic gas releases,
- Chemical spills,
- Radiological accidents,
- Explosions,
- Civil disturbances, and
- Workplace violence resulting in bodily harm and trauma.

The objective of the Emergency Action Plan is to comply with the Occupational Safety and Health Administration’s (OSHA) Emergency Action Plans Standard, 29 CFR 1910.38, and to prepare employees for dealing with emergency situations. This plan is designed to minimize injury and loss of human life and company resources by training employees, procuring and maintaining necessary equipment, and assigning responsibilities.

Develop a Plan Ahead of Time

Many disasters are no-notice events, meaning that there is no warning before they occur. These types of events do not allow time for people to gather even the most basic necessities. Therefore, pre-planning is critical.

Workers may need to be trained to respond differently to different threats. For example, workers may be required to assemble in one area inside the workplace if threatened by a tornado or on an adjacent highway if threatened by a chemical spill. Moreover, a fire may require workers to evacuate to a pre-determined exterior location.

Emergency evacuation plans are developed to ensure the safest and most efficient evacuation. The evacuation plan must identify when and how workers are to respond to different types of emergencies. When developing the plan, it is important to ask questions and plan for worst-case scenarios. What would happen if the worksite caught fire, the nearby river flooded, or a chemical release occurred in the facility?

When developing an emergency action plan, it is important to determine:

- Conditions under which an evacuation would be necessary
- Conditions under which it may be better to shelter-in-place
- A clear chain of command and designation of the person in the workplace authorized to order an evacuation or shutdown
- Specific evacuation procedures, including routes and exits
- Specific evacuation procedures for workers in buildings (including high-rise buildings)
- For Workers
- Specific evacuation procedures and responsibilities for employers in buildings (including high-rise buildings)
- For Employers
- Specific evacuation procedures on construction sites or non-fixed facilities
- Procedures for assisting visitors and workers to evacuate

- Designation of which, if any, workers will remain after the evacuation alarm to shut down critical operations or perform other duties before evacuating
- A means of accounting for workers after an evacuation
- Special equipment for workers, such as appropriate respiratory protection

An **Emergency Action Plan (EAP)** is a written document required by some OSHA standards (including 29 CFR 1910.38(a) and 29 CFR 1926.35) to help facilitate and organize employer and employee actions during workplace emergencies. See OSHA's Emergency Action Plan Checklist for more assistance in developing an EAP.

- Appropriate personal protective equipment (PPE)
- Procedures that address special needs workers, such as those that may have physical limitations
- Any special actions for evacuation during an active shooter or other dangerous intruder situation

When to Evacuate

The emergency evacuation plan should identify the different types of situations that will require an evacuation of the workplace. As mentioned before, these may include explosions; earthquakes, hurricanes, tornadoes, and other natural disasters; releases of chemical, radioactive, or biological agents; and civil disturbances and workplace violence. The extent of evacuation may be different for different types of hazards.

The type of building employees work in may be a factor in the decision to evacuate during an emergency. Most buildings are vulnerable to the effects of disasters, such as tornadoes, earthquakes, floods, or explosions. The extent of the damage depends on the type of emergency and the building's construction. Modern factories and office buildings, for example, are framed in steel and may be more structurally sound than older structures. In a major disaster, however, nearly every type of structure will be affected. Some buildings will collapse and others will be left with weakened floors, walls, and roofs.

Evacuations during an Active Shooter or other Dangerous Intruder Situation

Active shooter and other dangerous intruder situations are unpredictable and evolve quickly. Typically, the immediate deployment of law enforcement is required to stop the shooting and mitigate harm to victims. Because active shooter situations are often over within 10 to 15 minutes, before law enforcement arrives on the scene, individuals must be prepared both mentally and physically to deal with an active shooter situation. Evacuation may be one option during an active shooter situation. This web page also describes sheltering in place during an active shooter situation in the "Shelter-in-Place" section below.

The Department of Homeland Security (DHS) provides the following guidance for evacuation during an active shooter situation:

If there is an accessible escape path, attempt to evacuate the premises. Be sure to:

- Have an escape route and plan in mind
- Evacuate regardless of whether others agree to follow
- Leave your belongings behind
- Help others escape, if possible
- Prevent individuals from entering an area where the active shooter may be
- Keep your hands visible
- Follow the instructions of any police officers
- Do not attempt to move wounded people
- Call 911 when you are safe

For more information, visit DHS's website for Active Shooter Preparedness.

Clear Chain of Command

It is common practice to select a responsible individual, with appropriate training or certifications, to lead and coordinate the

workplace emergency plan and evacuation. It is critical that the employer ensures that the workers know the identity of the coordinator, as well as understand that the coordinator has the responsibility for making life saving decisions during an emergency. The coordinator should be responsible for assessing the situation to determine whether an emergency exists, activating the emergency procedures, overseeing emergency procedures, notifying and coordinating with outside emergency services, and directing the shutdown of utilities or plant operations, if necessary.

Routes and Exits

Most employers create floor diagrams with arrows that designate all exit route(s). These diagrams should include locations of exits, assembly points, and equipment (such as fire extinguishers, first aid kits, automated external defibrillators (AEDs), and spill kits) that may be needed in an emergency.

Exit routes must be:

- Clearly marked and well lit
- Wide enough to accommodate the number of evacuating personnel
- Unobstructed at all times
- Unlikely to expose evacuating personnel to additional hazards
- Designed to avoid potentially hazardous areas or operations

What should Employers Do Before and During an Emergency Evacuation?

When there is an emergency, getting workers out of buildings (including high-rise buildings) may pose challenges. Preparing in advance to safely evacuate the building is critical to the safety of workers who work there.

For Employers

Before an emergency occurs:

- Employers must ensure doors are not locked from the inside and ensure that doorways, hallways, and stairways remain unobstructed or unblocked at all times.
- Regularly test all back-up systems and safety systems, such as emergency lighting and communication systems, and repair them as needed.
- Develop a workplace evacuation plan, post it prominently on each floor, and review it periodically to ensure its effectiveness.
- Identify and train floor wardens, including back-up personnel, who will be responsible for sounding alarms and helping to evacuate workers.
- Conduct emergency evacuation drills periodically.
- Establish designated meeting locations outside the building for workers to gather following an evacuation. The locations should be a safe distance from the building and in an area where people can assemble safely without interfering with emergency response teams.
- Identify personnel with special needs or disabilities who may need help evacuating and assign one or more people, including back-up personnel, to help them during an emergency.
- Ensure that during off-hour periods, systems are in place to notify, evacuate, and account for off-hour building occupants.
- Post emergency numbers on or near telephones.

Some businesses may be required to establish Emergency Action Plans meeting certain requirements (see 29 CFR 1910.38 and OSHA's compliance policy for emergency action plans and fire prevention plans, CPL 2-1.037, for more information).

When an emergency occurs:

- Sound appropriate alarms and instruct workers to leave the building.
- Notify police, firefighters, building security, and other appropriate emergency personnel.
- Ensure a person is designated to account for workers at pre-

determined meeting locations, and promptly notify emergency response personnel of any workers that are absent.
- Report to arriving responders the incident location, conditions, and the status of occupants (including any missing workers).
- Ensure that routes for emergency vehicles and paths for emergency responder access are clear.
- Inform arriving emergency responders of the incident location and conditions.
- Have knowledgeable workers available to advise emergency responders.

What should Workers Know Before and Do During an Emergency Evacuation?

For Workers

What should workers know before an emergency occurs?

- Be familiar with the worksite’s emergency evacuation plan.
- Know the pathway to at least two exits from every room/area at the workplace.
- Recognize the sound/signaling method of the evacuation or other alarms and their different meanings.
- Understand who to contact in an emergency, as well as the specific procedures they will be expected to use.
- Know how many desks or cubicles are between their workstations and two of the nearest exits to escape in the dark, if necessary.
- Know where the fire/evacuation alarms are located and how to use them.
- Report damaged or malfunctioning safety systems and back-up systems.
- Report changes in health that may affect their ability to safely evacuate, to their supervisor.

What should workers do when an emergency occurs?

- Listen carefully for instructions over the building’s

internal communication system and follow the instructions.
- When instructed, leave the area quickly, but in an orderly manner, following the work site’s emergency evacuation plan.
- Do not use elevators when evacuating a burning building, unless they are properly designed and designated “occupant evacuation elevators.”
- Report to the designated meeting place, and ensure they make contact with the person charged with worker accountability.
- Do not re-enter the building until directed to do so by authorities.

What should workers do if trapped?

- Stay calm and take steps to protect yourself.
- Go to a room with an outside window.
- Use a telephone/cell phone to call for help if possible.
- Stay where rescuers can see you and wave a light-colored cloth to attract attention.
- Specifically, during fire events:
- Go directly to the nearest fire- and smoke-free stairwell, recognizing that in some circumstances the only available exit route may contain smoke or fire.
- Crawl low, under the smoke, to breathe cleaner air. Test doors for heat before opening them by placing the back of your hand against the door so you do not burn your palm and fingers. Do not open a hot door. Find another exit route. Keep “fire doors” closed to slow the spread of smoke and fire.
- Stuff wet clothing, towels, or newspapers around the cracks in doors to prevent smoke from entering your room.
- Do not open or break windows unless absolutely necessary. Doing so could draw heat or smoke towards you.

Evacuation Procedures on Construction Sites or Non-Fixed Facilities

Typical construction site locations and the workers on such job sites are constantly changing, which in turn poses unique

challenges during emergency evacuations. In this section, there are some specific emergency evacuation procedures for construction sites. An evacuation plan should meet the requirements of OSHA's Employee Emergency Action Plans standard (29 CFR 1926.35).

Construction employers subject to 29 CFR 1926.35 (including at multi-employer worksites) are required to establish a plan for the types of evacuation to be used in an emergency. Every attempt should be made to ensure that all exposed employees are safely evacuated in the event of an emergency. Employers subject to 29 CFR 1926.35 must designate and train personnel to assist in the safe and orderly emergency evacuation of employees.

All employers should ensure:

- All workers on the site are trained and aware of evacuation alarms, evacuation routes, and emergency assembly areas
- Personnel are designated who will sound the evacuation alarms
- The primary routes needed for egress and for responding emergency vehicles are not blocked
- Personnel are designated who will be responsible for making sure the job site /structure is cleared of all workers
- A head count is taken at the assembly areas to account for all workers
- Personnel are designated to notify emergency services/facilities during any emergency activity that warrants an evacuation
- Workers do not re-enter the job site/structure without clear indication that the area/facility is safe for re-entry
- Workers do not leave the job site (emergency assembly area) unless advised to do so by a designated foreman/supervisor
- Designated personnel are certified or trained in rescue and medical duties to promptly respond to identified emergencies

Effective method(s) of alerting and communicating with workers is a critical element on construction sites. These communication methods must be understood by all workers. It is recommended that employers train and drill workers (including contractors) and volunteers on these emergency communication methods and procedures

to reduce injuries and fatalities, thereby saving lives on the job site.

Types of Alarm Systems that may be used on a construction site include:

- Verbal Communication
- Vehicle Horn
- Air Horns
- Cell Phone
- Radio
- Hand Signal

An emergency action plan on a construction site must be developed but may also require modification as conditions at the worksite change. All workers should be adequately trained on the importance of effective communication during emergencies, including those involving worksite evacuations. Training should be provided when the workers are initially assigned to the site and whenever there is a change on the site, which would affect the plan.

Assisting Visitors and Workers to Evacuate

Many employers designate individuals as evacuation wardens to help move workers from danger to safe areas during an emergency. Generally, one warden for every 20 workers should be adequate, and the appropriate number of wardens should be available at all times during working hours.

Wardens may be responsible for checking offices, bathrooms, and other spaces before being the last person to exit an area. They might also be tasked with ensuring that fire doors are closed when exiting. All workers designated to assist in emergency evacuation procedures should be trained in the complete workplace layout and various alternative escape routes if the primary evacuation route becomes blocked.

Workers designated to assist in emergencies should be made aware

of workers with special needs (who may require extra assistance during an evacuation), how to use and instruct others to use the buddy system, and any hazardous areas to avoid during an emergency evacuation. Special tools such as evacuation chairs are available and may be used to assist workers with special needs.

Visitors also should be accounted for following an evacuation and may need additional assistance when exiting. Some employers require all visitors and contractors to sign in when entering the workplace; employers then use this list when accounting for all persons in the assembly area. The hosts and/or area wardens, if established, are often tasked with helping visitors safely evacuate.

Emergency Equipment – Stats and Facts

DID YOU KNOW?

We've all read the statistic that tells us about 2,000 workers in the United States suffer eye injuries requiring medical treatment every day. It's usually attributed to NIOSH and followed or preceded by the admonition that at least 90 percent of those injuries were preventable through the use of the proper PPE and also emergency eyewash and shower equipment.

Safety PPE prevents hazardous exposures when used and maintained correctly. Workers in occupations where it is commonly used are quite familiar with it—their hard hat, high-visibility and/or protective apparel, fall harness, cut-resistant gloves, safety footwear, etc.—and appreciate why its use is required on the job. But eyewash and shower equipment is different, in that, like fire sprinklers and fire alarms, it's rarely needed in an actual

emergency situation. Fire sprinklers and fire alarms and share another similarity with emergency eyewash and shower equipment: You have to test it regularly to ensure it will function as needed when a real emergency happens.

Workplaces where employees may be exposed to harmful corrosive materials should be equipped with eyewash and shower units that are inspected *annually* to ensure they comply with the ANSI/ISEA Z358.1-2014 standard. These employers should activate these units *weekly* in order to make certain it is operational and to get rid of any sediment that may be in the supply line. This testing should continue as long as necessary to ensure there is flushing fluid supply at the device's delivery head and to clear sediment.

Placement of the emergency equipment is very important. Manufacturers say that it's key to have an appropriate flushing system located on the same level and within 10 seconds' travel distance, or about 55 feet, from the hazard; to protect the equipment and supplies against extremely hot or cold temperatures; and to get rid of any and all trip hazards between the hazard and the equipment. (In other words, a person in pain and with possibly obstructed vision should be able to traverse the path from hazard to the flushing units within seconds.)

Eye injury statistics are available from a variety of sources, including the American Optometric Association, the American Academy of Ophthalmology, NIOSH, the National Safety Council, and others. The National Safety Council's *Injury Facts, 2016 Edition* tells us there were 22,120 occupational eye injuries in the U.S. private sector during 2013, and these injuries accounted for 2.4 percent of the private-sector injuries that year resulting in days away from work. Injuries affecting the back, hand, head, and knees caused larger percentages of the lost-time cases that year, but eye injuries are especially costly and debilitating.

OSHA has stated that thousands of workers are blinded each year from work-related eye injuries that could have been prevented, and the agency reported that eye injuries alone cost more than $300 million per year in lost production time, medical expenses, and workers' compensation.

Still, it’s worth pointing out here that more injuries occur at home than anywhere else, according to CDC’s National Center for Health Statistics. We need to be wearing protective eyewear and avoiding vision hazards during activities at home just as we do in the workplace.

Potential eye hazards on the job include:

- Dust, concrete, metal, and particles
- Chemical splashes and fumes
- Radiation (especially visible light, ultraviolet radiation, heat or infrared radiation, and lasers)
- Bloodborne pathogens in health care from blood and body fluids

Some workers face multiple eye hazards, such as heat and particles simultaneously; conduct a hazard assessment before selecting eye protection for all types of hazardous exposures.

After an injured worker has used an eyewash or emergency shower unit for the specified 15-minute period, the individual should visit a doctor to determine whether anything more needs to be done for the preservation of his or her vision, the American Optometric Association advises.

More than 50,000 U.S. workers die each year due to occupational injuries and illnesses, according to Preventable Deaths 2014, a report released by the National Council on Occupational Safety and Health (National COSH).

“No one should have to risk their life simply to earn a living,” said Jessica Martinez, deputy director of National COSH. “Many of the injuries and illnesses that are killing American workers can be prevented. We know the safety systems, equipment and training that can stop people from dying on the job, and it’s absolutely urgent that we take action to protect workers and their families.”

Key findings of Preventable Deaths 2014 include:

- In 2012, at least 4,383 workers died from sudden traumatic injuries in 2012 – a preliminary figure that is likely to

increase when final data are released by the U.S. Bureau of Labor Statistics at the end of April.

- Tens of thousands of workers die each year from long-term occupational illnesses. One estimate puts the toll at 53,000 deaths annually, causing untold harm and suffering – and costing the U.S. economy $45.5 billion a year.
- Nearly 700 deaths can be prevented every year by timely adoption of a standard limiting workplace exposure to silica. This silent killer can cause silicosis, lung disease, cancer and other fatal conditions.

The report highlights data showing high risks in the workplace faced by Hispanic workers. For each of the past five years, the on-the-job fatality rate for Latino workers has been significantly higher than for U.S. workers as a whole.

Preventable Deaths 2014 also identifies proven approaches to prevention for each of the six major causes of occupational fatalities identified by the Bureau of Labor Statistics: transportation incidents, contacts with objects and equipment, falls to a lower level, workplace violence, exposure to harmful substances and environments, and fires and explosions.

The report also details actions taken by local health and safety coalitions to advocate for safer workplaces and to prevent workplace fatalities. Local organizations in California, Massachusetts, New York, Tennessee, Texas and Wyoming this week are issuing reports on workplace fatalities in their individual states in conjunction with Workers' Memorial Week activities.

Workers' Memorial Day Honors Workers

"Today, we honor the dead and fight for the living," said Jessica Martinez, deputy director of the National Council for Occupational Safety and Health. "We know that many of the injuries and illnesses that are killing American workers can be prevented. Employers must be held accountable when they fail to observe well-established well-established safety practices. And workers must have the education, training, resources and protection against retaliation they need to stand up for workplace safety."

Several groups are releasing reports about workplace injuries, illnesses and fatalities. These groups include:

California: WORKSAFE, “Dying at Work in California: The Hidden Stories Behind the Numbers.” Details the stories of temporary workers, transit workers and food processing workers. Outlines the industries with highest rate of fatalities, profiles the cost of workplace injuries and illnesses, and summarizes steps health and safety agencies need to take to prevent workplace injuries and fatalities.

Massachusetts: MASSCOSH, Dying for Work in Massachusetts: Loss of Life and Limb in Massachusetts Workplaces.” Details, background and recommendations on the 48 Massachusetts workers who died on the job; the estimated 480 who died from occupational diseases; the estimated 1,800 who were newly diagnosed with cancers caused by workplace exposure and the 50,000 more who were seriously injured at work.

KEEP IN MIND

Your employees may need personal protective equipment to evacuate during an emergency. Personal protective equipment must be based on the potential hazards in the workplace. Assess your workplace to determine potential hazards and the appropriate controls and protective equipment for those hazards. Personal protective equipment may include items such as the following:

- Safety glasses, goggles, or face shields for eye protection;
- Hard hats and safety shoes for head and foot protection;
- Proper respirators;
- Chemical suits, gloves, hoods, and boots for body protection from chemicals;
- Special body protection for abnormal environmental conditions such as extreme temperatures; and
- Any other special equipment or warning devices necessary for hazards unique to your worksite.

How do you choose appropriate respirators and other equipment?

Consult with health and safety professionals before making any purchases. Respirators selected should be appropriate to the hazards in your workplace, meet OSHA standards criteria, and be certified by the National Institute for Occupational Safety and Health.

Respiratory protection may be necessary if your employees must pass through toxic atmospheres of dust, mists, gases, or vapors, or through oxygen-deficient areas while evacuating. There are four basic categories of respirators for use in different conditions.

The Occupational Safety & Health Administration (OSHA) mandates certain industries must have specific items in their first aid kit. But for most offices, a first aid kit won't be enough in the event of a fire, tornado, or other threat. Do you know the location of the emergency equipment in your office? These items should be placed in an area where the whole team can access it immediately in the event of a crisis.

EMERGENCY MUST HAVES

First Aid Kit – OSHA mandates first aid supplies must be on hand to supply medical assistance "commensurate with the hazards of the workplace." checked and restocked every time something is used.

- Band Aids in various sizes
- Compression (Ace) bandages
- Gauze
- Antiseptic/Antibacterial cream
- Burn ointment
- CPR breathing barrier
- Disposable thermometers
- Tweezers
- Scissors
- Splints
- Instant cold packs and heating pads
- Pain reliever (both aspirin and non-aspirin ibuprofen)
- Tape
- Butterfly bandages
- Gloves – both latex and silicone-based as some people have

latex allergies

Fire Extinguisher – A critical item to have placed near the break room or anywhere in the office where a fire could start. Perform a visual inspection should happen at least once a month (looking for a broken hose or any sign of damage) then inspected by a professional annually and have hydrostatic testing conducted every two years.

Disability Evacuation Equipment – If you have a disabled person in the office, you should purchase a stair chair for going down the stairwell. Also consider what fire alarm system you have, as employees who are deaf or hard of hearing will not be able to hear the siren.

ITEMS TO CONSIDER

Battery Powered Radio – Having an official NOAA weather radio is never a bad choice, especially if your office is located in an area prone to hurricanes or tornadoes. And if you are in such an area, keep multiple flashlights in the office in the event of a blackout. These are battery-powered devices, so it's also a good idea to have extra batteries stocked along with…

Extended Shelter In-Place Supplies – a crisis may occur when your team cannot leave the office. Emergency food and water rations, portable showers, and emergency toilets are essential to surviving in a high-rise building, as you may be required to stay in place for a minimum of eight hours.

Automated External Defibrillator AED – thousands of employees experience cardiac function failures every year many of which result in deaths which could have been prevented by using an AED. If you acquire an AED for your office, you should consider who from your team should be trained to use the device. You may never know when you might need to use one, so having someone trained in this area before you acquire one, will mean that you're sufficiently prepared in case of an life-threatening emergency. A piece of equipment similar to the Philips Onsite AED defibrillator could be a good place to start, as it can offer additional help

during the process of CPR. It could help to save a life.

N95 respirator mask – this stronger version of a hospital mask filters particulate matter and different kinds of airborne chemical and biological elements. This is a filter, and not a "catch-all" but would be good to have on hand in the event of a chemical spill.

OTHER HELPFUL SUPPLIES

Basic Hygiene – Stocking contact solution, baby wipes, C Fold Paper Towels and feminine products are an extra measure of showing your employees you care for their overall well-being. Also, a sewing kit, useful in a pinch for numerous instances.

Extras! – Across the organization, employers should recommend individual employees have on hand extra doses of contacts, spare glasses, or critical medication for their personal use in the event of an emergency.

THINGS YOU REALLY DON'T NEED

Portable Generator – for the type of situation for your office, you should evacuate instead of attempting to shelter in place for the risk of carbon monoxide poisoning. Your building should already be supplied with a commercial generator in the event power goes out. If not, then it's worth knowing that FW Power have a lot of used generators for sale that could be of use to your business. A portable generator shouldn't be particularly necessary. If you're using a generator at home, outside, well ventilated area.

"Imaginative" items – parachutes or repelling equipment might help one person in an extreme situation, but it's far more likely that people would be harmed than helped.

Preparis Crisis Leaders and administrators can download their emergency kit checklist in their portal under Protocol & Policies. Our company offers a team available for consultative work to ensure your emergency preparedness plans are tailored to each and every employee's needs.

Based on new injury statistics, an American is accidentally injured every second and killed every three minutes by a preventable event – a drug overdose, a vehicle crash, a fall, a drowning or another preventable incident. A total of 14,803 more people died accidentally in 2016 than in 2015, the largest single-year percent rise since 1936.

Equipment-Machinery – Stats and Facts

DID YOU KNOW?

The demand for machines in the U.S. by the automotive, construction, and food sectors, for example, ensures revenues within the machinery industry. In 2019, the estimated value of shipments of the industry was US$359.2 billion. 9.1% of the value of shipments was generated by the subindustry “Metalworking machinery manufacturing”.

Machinery manufacturing is one of the largest and most competitive sectors of the U.S. manufacturing economy. Exports of capital equipment totaled $141 billion in 2018 alone. Leading markets for U.S. Taken as a whole, the European Union was the U.S. machinery manufacturers’ third-largest market in 2018, after Canada and Mexico. Among the wide range of machinery manufactured in the United States, construction machinery, engine equipment, industrial process controls, agricultural equipment, and turbines and turbine generator sets led U.S. exports in 2018.

The economic impact of machinery manufacturing extends throughout the U.S. economy. Machinery industries provide essential and highly sophisticated technology for many other manufacturing and service industries. Industrial process controls and other

automation technologies enable end-users to maximize the productivity of their equipment. Sales of many types of machinery are accompanied by a variety of high-value services as well, including specialized architecture, engineering, and logistics.

Tens of thousands of companies manufacture machinery in the United States. A majority of these manufacturers are small and medium enterprises (SMEs), but there are also many large, public companies and iconic American brands that trade on a global scale. Machinery is manufactured in almost every state, but production is concentrated particularly in the industrial Midwest, California, and Texas.

More than 1.1 million Americans are employed in the machinery manufacturing sector. These jobs are primarily in highly-skilled, well-compensated trades and professions. Leading employment categories include team assemblers, machinists, welders, tool-and-die makers, and mechanical and other engineers. Machinery manufacturing also supports the jobs of hundreds of thousands of Americans in a variety of other manufacturing and service industries.

In 2019, the breakdown of employer establishments in this industry was as follows: 36.4% of them were considered micro, employing less than five employees; small establishments accounted for 62.5%; and medium-sized establishments accounted for an additional 1.1% of the total number of establishments. Large employers, those with more than five hundred persons on payroll, accounted for 0% of the total establishments.

There are 3,399 industrial machinery and equipment wholesalers in United States.

Manufacturers in the United States account for 11.39% of the total output in the economy, employing 8.51% of the workforce. Total output from manufacturing was $2,334.60 billion in 2018. In addition, there were an average of 12.8 million manufacturing employees in the United States in 2018, with an average annual compensation of $84,832.13 in 2017.

Manufacturers help to drive the United States economy, with $1,397.03 billion in manufactured goods exports in 2018. That same year, $679.46 billion in exports was with our free trade agreement (FTA) partners. Small businesses comprised 96.60% percent of all exporters in the United States.

The 20 U.S. FTA partners purchased nearly 49 percent ($679.46 billion) of U.S. manufactured goods exports in 2018 – even though these countries represent only six percent of the world's population and 10 percent of GDP.

Machines are a critical part of our lives. They take various forms and allow people to work with less effort and improve production efficiency. Numerous types of heavy construction equipment are available for use to contractors from different industries, such as mining and construction, for performing a wide variety of work activities. Different types of heavy construction equipment are used different types of projects, or work activities at different levels (Kazan, 2013). One of every five-workplace fatalities is a construction worker (OSHA, 2018). However, without proper safeguarding and controls, physical contact with machines and powered equipment can result in severe workplace injuries and deaths (Marsh and Fosbroke, 2015). The Bureau of Labor Statistics of fatal occupational Injuries identified 761 contact with object and equipment related deaths on construction sites in 2016. 970 person were also died in construction and extraction sector and when the incidence rates were examined, this sector becomes in third row, (12.4). McCann (2006) reported in the study about excavation industry between 1992-2006 years in the United States that moving vehicle incidents are 53 % and struck by objects are 24% of vehicle related deaths on construction site. Besides, the half of deaths in excavation industry are actualized about heavy equipment-related incidents on construction sites. Workers on construction sites often find themselves with dangerous and life-threatening conditions

KEEP IN MIND

Employees work with machines, tools and equipment every day.

Workplaces couldn’t operate without them; however, interacting with them has potential for serious injuries or fatalities if they are not used and maintained properly.

The potential hazards are numerous, and include:

Safety hazards

- Contact with moving parts
- Contact with electricity, heat, fire, cold, and other energies
- Contact with pressurized gas or liquid

Health hazards

- Contact with harmful chemicals or biological hazards
- Contact with harmful noise, radiation, and/or vibration
- Exposure to ergonomic or MSD hazards

What the law says

Workplace machine safety law in Ontario is based on the Occupational Health and Safety Act (OHSA). Regulations specified under the Act that are applicable to specific workplaces.

In the Act, the sections dealing with responsibilities of employers (s.25), supervisors (s.27) and workers (s.28) set out general duties with respect to machine safety.

How machines, tools and equipment safety can affect your business

A safe environment is a productive workplace. **Health and safety is not simply a legal obligation: it is a business opportunity.** You can boost your bottom line by improving health and safety performance, which reduces the costs associated with avoidable losses and lost-time injuries, and leads to higher productivity.

Machinery can injure people by:

- crushing

- cutting
- shearing
- puncturing abrading
- burning
- tearing
- stretching.

Common injuries include:

- amputation
- crushing
- electric shock
- hearing loss
- ill health from hazardous chemicals or lack of oxygen

Causes and Types of Heavy Equipment and Machinery Accidents

Heavy equipment and machinery accidents can result from an endless list of factors. From operator error to equipment and machinery defects, if just one thing goes wrong, the consequences can be devastating. Some of the types of heavy equipment and machinery most-commonly involved in workplace accidents include:

- Backhoes and loaders
- Bulldozers
- Cherry pickers
- Combines and other farming equipment
- Cranes
- Dump trucks
- Electric hand trucks
- Excavators
- Forklifts
- Industrial and factory machines
- Trenchers
- Warehouse equipment and machinery

Some of the most-common factors involved in heavy equipment and machinery accidents include:

- Backing up
- Colliding with a stationary object
- Colliding with another piece of equipment
- Dropped loads
- Machinery entanglement
- Failure to check blind spots
- Objects falling from forklifts and other equipment
- Pinning workers between equipment and stationary objects

According to the U.S. Occupational Safety and Health Administration (OSHA), heavy equipment and machinery accidents are among the leading causes of serious and fatal accidents on construction sites, and safety standards governing the use of powered industrial trucks (such as forklifts) on jobsites are among those most-commonly violated by employers. Unfortunately, accidents happen even in the safest working environments, and this is why state workers' compensation laws entitle employees to "no-fault" benefits for their on-the-job injuries.

We provide three levels of machine safeguarding assessments. Choose the level of assessment that fits your needs.

- Level 1: Machine hazard assessments (cost-effective solution for the entire plant)
- Level 2: Machine safety assessments (detailed assessment by a senior safety engineer)
- Level 3: Risk assessment (task-based risk assessment ANSI/RIA process led by a senior safety engineer)

Detailed descriptions of each level are shown below. Contact us for questions or a discussion on which type of assessment is right for you. We can provide example reports upon request.

We provide an extensive library of courses to support you in developing a culture of safety and a healthy workplace environment. Our courses are available as open registration public workshops, on-site training courses or on-demand e-learning programs. Course topics include:

- Machine guarding and safety
- How to conduct a risk assessment

- Alternatives to lock-out/tag-out (LOTO)
- U.S. machine safety standards and codes
- Risk assessment workshops
- OSHA 10 and 30
- Lock-out / tag-out safety (LOTO safety)
- NFPA 70E – electrical safety in the workplace

Advisory services

- Functional safety certification services – We help system integrators ensure the safe and reliable operation of subsystem components and assemblies.
- Safety system design review – including functional safety and control reliability reviews
- On-site validation
- Development of risk assessment program
- Other custom services

8 Facts About Machine Operators

When you think of manufacturing plants odds are images of gigantic conveyor belts and equipment come to your mind. Equipment which is computerized, mechanical and made up of many different parts. Well these pieces of equipment can’t just run themselves, they need individuals who can set-up and operate them.

Who are the individuals who run these machines? **Well that would be machine operators!**

In order to get a grasp of the workers at the heart of the manufacturing industry FoodGrads is exploring the careers of machine operators. You will get the facts on the challenging, hands-on work of machine operators and they control nearly every aspect of the manufacturing process.

1. Machine Operators operate machinery

Machine Operators (also known as production operators) are:

professionals who operate multi-function process control machinery or single function machines to process and package food or

*beverage products. They **set up, maintain and disassemble their equipment** based the on the requirements of a particular packaging job. Production operators perform necessary per-operational activities to ensure proper equipment startup and operation on multiple pieces of equipment. As well through-out the manufacturing run they keep a close-eye that the same conditions are observed through out.*

Machine operators make sure their machines are working at full capacity, are stocked with the necessary materials and are well maintained. Doing so ensures that there is minimal downtime between the machines as downtime means the plant is not making money!

Finally, **production operators rarely work** by themselves and work in small teams within on their lines. Don't forget they also work with quality control!

2. Machine Operators troubleshoot

If you talk to any machine operator you likely will hear that one of the **most challenging parts of the job is troubleshooting equipment**. The machines could have problems such as the weight of the product being higher than it should be. A machine operator may troubleshoot this problem by changing the settings by making adjustments to system components and run a test batch to determine if the changes have solved the issue.

If the issues are something the machine operator are unable to fix they will **promptly communicate this with their production supervisor.** To come up with viable option they may contact maintenance or even request a part from an outside company.

Troubleshooting is an important technical skill related to the machine operator job, and must be done on a regular basis to ensure the health and longevity of your machinery. If a problem occurs during a shift, your machine operator needs to know what needs to be done to fix itâ€”and figure out the right procedure to do so in a relatively short amount of time. If your equipment is down for too long, it could result in damaging delays and setbacks

in deadlines, making quick-thinking skills and troubleshooting a priority for your future employees.

To test the troubleshooting abilities of your potential candidates, you should create a scenario that they may run into during their daily activity that tests their critical thinking skills. You'll get a better idea of how they perform under pressure, and how they might deal with an unexpected error in their workday.

3. Machine Operators have this education

In general, a production operator must have a **minimum of a high school diploma or GED to qualify for the job**. However, more specialized training may be necessary if the job demands working with high-tech equipment or machinery. Some companies provide on-the-job training so you don't need the formal education. Operating machinery is a good role where some one can start and work their way up in a company. For example, you can start in production work up to a lead production hand and then production manager.

4. Machine Operators clean their machines

Machine Operators are required to clean their equipment and have it ready for a next production run. For example, if a manufacturing plant deals with various allergens on the same equipment the machine operator has to **clean the equipment to prepare** for the allergen switch over. This might be something as simple as doing a typical wash and sanitation. As well, they assist in other daily clean-up production duties such as sweeping the floors and taking out the trash.

5. Machine Operators work shift work

Many manufacturing plants have continuous operations which include days, night, afternoon, weekends and continental. It is **not uncommon for machine operators to work different shifts** depending on the production logs. It is usually only after working at a company for a while does an individual stick to a certain set schedule.

6. Machine Operators keep track of documents

Although machine operators spend a lot of their time running machines they also **spend some of their time doing paper work.** Production operators may be required to keep up with certain quality checks such as weight, percent oxygen and moisture content. Once they perform these quality checks they fill out the required forms. Furthermore, paperwork might include production logs to record how much product was actually produced in a day.

7. Machine Operators make quality issues

Quality assurance isn't the only ones who help to ensure the quality of a product! **Production operators evaluate the quality of a product** as it proceeds through the production line by verifying product weight, colour, temperature and appearance in comparison to established parameters and quality markers. If they notice any issues, they will **raise their concerns with their lead hand**, supervisor and/or quality assurance personnel. They are the first line of defence so it is important that keep an eye out for potential defects.

8. Machine Operators have these set of skills

Being a production operator requires a range of skills however there are a few which are more essential than others. These skills include:

- **Ability to work in a fast pace-** Manufacturing plants are fast-paced environments and at times this can feel overwhelming. Machine operators are able to keep up in these environments because they are knowledgeable in their field. They also know the strength and weaknesses of their team members to help with the flow of their line.
- **Attention to detail-** It is necessary for machine operators to have an eye for detail because it ensures that operations run smoothly. If they do not pay attention to the detail, products could be made incorrectly, packaged in the wrong sized packaging or the be made in an unsafe manner.
- **Good communication skills-** To be an effective machine you need to be able to communicate information clearly. If

they’re unable to communicate effectively about an issue in their department, it could result in a shortage of supplies, a broken down machine, or even a workplace related injury.

What you can do

Machinery and other workplace equipment can be dangerous if not used properly. Anyone using equipment in the workplace needs to be thoroughly trained in its operation and kept up to date. Here are other ways to help staff stay safe when using equipment.

- Keep the work area clean, tidy, well swept/washed, and well lit; floors should be level and have a non-slip surface.
- Do not remove any guarding devices; make sure that they are in position and in good working condition before operating.
- Follow lock-out procedures before measuring, cleaning or making any adjustments.
- Check and adjust all safety devices before each job.
- Wear appropriate personal protective gear as prescribed, including CSA-approved safety glasses with side shields (prescription eye wear is *not* a substitute).
- Ensure that all cutting tools and blades are clean and sharp; they should be able to cut freely without being forced.
- Ensure there is enough room around the machine.
- Ensure that all stationary equipment is anchored securely to the floor.
- Keep hands away from the cutting head and all moving parts.
- Avoid awkward operations and hand positions: sudden slips could cause the hand to move into the cutting tool or blade.
- Do not leave machines unattended: turn the power off.
- Avoid distracting an operator; horseplay can lead to injuries.
- Avoid wearing loose clothing, gloves, neckties, rings, bracelets or other jewelry that can become entangled in moving parts; confine long hair; do not use rags near moving parts of the machine.
- Return all portable tooling to their proper storage place after use.

- Clean all tools after use.
- Do not use cutting fluids to clean hands.
- Use a vacuum, brush or rake to remove any cuttings.

Excavation and Trenching – Stats and Facts

DID YOU KNOW?

U.S. Bureau of Labor Statistics (BLS) data show that 271 workers died in trenching or excavation cave-ins from 2000 through 2006. A review of multiple national databases by NIOSH researchers found that trenching and excavation hazards during construction activities resulted in 488 deaths between 1992 and 2000 – an average of 54 fatalities each year. Sixty-eight percent of those fatalities occurred in companies with fewer than 50 workers. Forty-six percent of the deaths occurred in small companies with 10 or fewer workers. Hazards associated with trench work and excavation are recognized and preventable, yet injuries and fatalities associated with these hazards continue to occur. Regulations and consensus standards describe engineering controls, protective equipment, and safe work practices to minimize hazards for workers during trench work and excavations.

Trench fatalities are a serious problem in construction. Bureau of Labor Statistics data show that about 25 workers are killed each year in trench-related mishaps. Cave-ins cause about three out of every four fatalities; the remainder are commonly due to struck-bys or electrocutions.

In 2003, the nation experienced a spike in trench fatalities (53, according to preliminary data, later reduced to 48), inviting a detailed OSHA investigation which highlighted important facts

about trench dangers. Following its investigation, OSHA undertook a national emphasis campaign, distributing more information about trench hazards and stepping up enforcement. As a result, annual trench fatalities declined.

The results of OSHA's 2003 investigation are still useful in understanding why trench fatalities occur and how they can be avoided. The main reason trenches collapse is that they are not properly protected. Protective systems were properly employed in only 24 percent of the trenches. In the remainder, a protective system was either improperly used (24%), available but not in use (12%) or simply unavailable (64%).

Further, despite the fact that environmental conditions were a contributing factor in 68 percent of the fatalities, the competent person was not onsite when the fatality occurred 86 percent of the time. Most of the time (65%) the employer had not identified the soil type even though soil type is a factor in trench cave-ins.

Also, a disproportionate number of fatalities (36%) occurred on Mondays, probably because rain or other factors changed conditions over the weekend. Under OSHA regulations, the competent person must inspect trench work in progress before each shift and after any changes in conditions.

The OSHA investigations showed that schedule time was more important than safety in 88 percent of the incidents. Seventy-two percent of the fatalities occurred in trenches less than nine feet deep. Only nine percent occurred deeper than 15 feet.

The most commonly killed employees were construction laborers (53%), with plumbers and pipe fitters following next at nine percent. Most (58%) were killed while installing pipe.

Fifty-six percent of these fatalities were Hispanics, and 52 percent were foreign-born. For 44 percent, Spanish was their primary language. At least 30 percent had been working for their employer for less than a year, and most (59%) worked for a subcontractor.

Only six percent were union members. Since, nationwide, about 20

percent of construction work is union, the expected rate of union fatalities would be near 20 percent. The lower rate suggests that union jobs are safer, that supervisors and workers on union sites are better trained and that the union offers the kind of protection that workers need to speak up about safety issues on the worksite.

Just over half the employers had a written safety and health program, but, of these, only 40 percent covered trenching. Sixty-five percent provided no trench safety training. Most employers (71%) had never been inspected by OSHA, but 21 percent had been previously cited by OSHA for trench safety violations.

About three in every four fatalities occurred at residential worksites. Most companies were small; 42 percent had fewer than ten employees. Though, typically, five or less workers were present on the site when the incident occurred, most of the projects (52%) involved contracts worth $100,000 or more.

Although trench and excavation work can be very dangerous, injuries and fatalities are completely preventable. For LIUNA signatory contractors that participate in the LHSFNA, the OSH Division can provide assistance in the development and implementation of trench safety programs. For help, call the OSH Division.

OSHA is conducting a two-year-long special emphasis program to bring awareness to the hazards and risks associated with trenching and excavation. Its goal is to “by Sept. 30, 2019, increase trenching and excavation hazards abated by 10% compared to FY2017 through inspections and compliance assistance at workplaces covered by OSHA.”

KEEP IN MIND

An excavation is a hole left in the ground as the result of removing material. A trench is an excavation in which the depth exceeds the width. Trenching and excavation work is inherently dangerous. Hazards include cave-ins, struck-by injuries, electrical contact, and slips, trips, and falls.

An excavation is any man-made cut, cavity, trench or depression in the ground, formed by the removal of earth.

A trench is an excavation that is deeper than it is wide.

Without proper controls, working in or around any excavation poses many risks such as cave-ins, being struck by moving machinery, slips, falls and exposure to hazardous substances.

Because a significant number of deaths and injuries in sewer and underground utility work are directly related to trenching, it is important to know how to work safely in and around trenches.

As an employer you must:

BEFORE you dig:

- Ensure underground utilities are located and marked.
- If the work is within 600 mm of underground utilities, inform the authority of the underground utilities before digging.
- Ensure that the utilities are properly de-energized before starting the work.
- Ensure employees follow safe operating procedures.
- Instruct supervisors and employees on the requirements of the regulations and ensure they comply.

As the work progresses:

- Ensure that the walls of an excavation or trench are supported by shoring, bracing or caging unless:
- It is less than 1.2 m deep
- It is sloped or benched to within 1.2 m of the bottom with the slope or bench not exceeding 1 m of rise for each 1 m of run
- No employees are required to enter the excavation or trench, or
- It is cut into rock that is solid and stable.
- If not stable, walls and crests must be adequately supported by rock bolts, wire mesh, shoring or another equivalent method.

- When powered mobile equipment or mobile cranes are used near the edge, any shoring, bracing or caging is adequate to support the increased pressure.
- Ensure that shoring, bracing or caging is certified by an engineer and be prepared to provide proof of the certification to an officer on request.
- Ensure employees do not enter a trench more than 1.2 m deep unless it is properly supported by shoring, bracing, or caging, or is sloped or benched.
- Ensure a ladder extends 1 m above the trench and is no more than 15 m away from the employees or other safe means of access and egress is provided.
- Employees may enter an excavation 1.2 m or more in depth to install bracing as long as they remain a distance from the face equal to or greater than the depth of the excavation.
- Ensure employees do not enter the excavation or trench to install or remove the shoring or caging.
- Ensure that excavated material is kept at least 1.2 m away from the edge of an excavation or trench.
- Ensure the excavation or trench is kept reasonably free of water.
- Ensure that air testing is carried out in trenches with hazardous atmospheres before any employee enters the trench.
- Ensure there is an employee working on the surface who is able to observe those employees working in the trench.
- Follow the specific steps when using powered mobile equipment and cranes near excavations and trenches.
- Provide adequate illumination when work is carried out in or near an excavation or trench.
- Provide warning lights or reflective materials and an adequate barrier around the area to prevent accidental entry.
- Ensure trenches and temporary protective structures are inspected for potential hazards and defects.

As an employee you must:

- Follow safe work procedures established by your employer.
- Not work inside trenches if they are not adequately

protected from cave-ins and other risks.
- Wear all personal protective equipment provided by the employer, such as hard hats, safety boots and safety glasses.
- Conduct daily checks on temporary structures for possible defects.
- Be aware of all potential health and safety hazards/risks and the controls put in place to prevent them.
- Watch out for hazards in excavations including soil conditions.
- Report promptly to the supervisor any hazardous situations of equipment and work site.

Inspections

Sloping, shoring and trench boxes should be checked regularly.

Hydraulic Shoring

With hydraulic shoring, look for:

- Leaks in hoses and cylinders
- Bent bases
- Broken or cracked nipples
- Cracked, split, or broken sheathing

Report any of these conditions to your supervisor.

All shoring and bracing must be certified by an engineer.

After installation, inspect wales for signs of crushing. Crushing indicates structural problems and the need for more struts.

Always check areas near shoring where water may have seeped in. The combination of water and granular soil can lead to washout. This undermines the trench wall and has killed and injured employees on several occasions.

Timber Shoring

Check timber shoring before it’s installed. Discard any damaged or defective lumber.

With timber shoring, check for:

- Cracked or bowed sheathing
- Wales crushed where they join struts
- Loose or missing cleats
- Split or bowed wales
- Struts off-level

During use, check the box regularly and often to make sure that it is not shifting or settling more on one side than the other.

This can indicate the movement of soil or water underneath.

If the box is shifting or settling, get out and tell your supervisor about it.

Trench Boxes

Inspect trench boxes for damage, cracks in welds, and other defects.

In trench boxes, look for:

- Deformed plates
- Bent or distorted welds in sleeves and struts
- Missing struts
- Bent struts
- Holes, bends, or other damage to plates

Ground around trenches

The ground around trenches should be inspected for tension cracks. These may develop parallel to the trench at a distance of about one-half to three-quarters of the trench depth.

If you find cracks in the ground, alert the crew and double-check your shoring or trench box.

It’s dangerous to overlook damage or defects in protective systems.

What is meant by a trench and an excavation?

Generally speaking, an excavation is a hole in the ground as the result of removing material. A trench is an excavation in which the depth exceeds (is bigger than) the width.

What are the hazards associated with trenching and excavation?

Working in trenches and excavations is hazardous to both the workers who work inside them, and to workers on the surface. The hazards include:

- Cave-ins or collapses that can trap workers.
- Equipment or excavated soil falling on workers (e.g., equipment operated or soil/debris stored too close to the excavation).
- Falling into the trench or excavation.
- Flooding or water accumulation.
- Exposure to a hazardous atmosphere (e.g., gas, vapour, dust, or lack of oxygen).
- Contact with buried service lines such as electrical, natural gas, water, sewage, telecommunications, etc.
- Contact with overhead electrical lines.
- Slips, trips and falls as workers climb on and off equipment, or from inappropriate access and egress methods.
- Being struck by moving machinery, or by falling or flying objects.
- Hazards related to materials handling (e.g., lifting, struck by, crushed between, etc.).

What is meant by soil types?

Definitions of soil types vary by jurisdiction in Canada. In addition, some jurisdictions have not defined soil types, but do require preventative measures when an excavation reaches a certain

depth or proportion.

When a soil type is defined, the purpose is to try to identify or predict the potential for the soil to move and cause a collapse while the work is being done. Soil types typically use a scale of 1 to 4 where 1 is hard and dense to 4 which is loose, soft, wet or muddy soil, or a scale of A to C where A is hard and solid, and C is soft, sandy, filled or loose.

The soil type is determined by the characteristics of the soil's consistency, ease of removal, appearance, ability to excavate with hand tools vs. machine, water seepage, whether the soil has been excavated before, etc.

What you should do before you begin an excavation?

The employer or supervisor is responsible for the work, and must take the necessary steps to identify all the hazards and risks before beginning any work. These steps include to:

- Identify the soil type(s) related to the excavation or trench you are going to dig. Soil properties often vary widely within a single trench (e.g., the soil type changes from top to bottom and along the length of a trench).
- Look for the legislative requirements that apply in your jurisdiction and the type of protective measures to be taken.
- Locate all buried services. Contact the owners of any underground utilities/services that may be in that location and ask t
- Identify and locate overhead power lines.
- Make sure these services are de-energized as necessary.
- Know all of the contact numbers of these services if there is an emergency.
- Check areas adjacent to the site for potential hazards and sources that can impact the stability of soil. Be aware that nearby vehicles and equipment can cause the soil to vibrate and then collapse.

- Determine if nearby buildings or structures and their foundations may put pressure on the soil and affect the walls of the trench.
- Test for hazardous gas, vapours, and dust before entering.
- Test for oxygen levels in the space before entering, and during the work as required.
- Plan appropriate organization of the work site, and good housekeeping practices including moving debris and excavated soil far enough away from the excavation site.
- Remove water from the excavation.
- Protect workers from falling into the excavation.
- Identify appropriate personal protective equipment including high visibility apparel for vehicular traffic and make sure every worker wears them as required.
- Have a worker above ground when a worker is working in the trench to warn those in the trench of danger and to provide emergency help.
- Prepare work permits for work in confined spaces, as appropriate.
- Have a means of exit provided from the inside of the trench, usually no more than 8m (25 ft) away than any worker in the trench.
- Plan for adverse weather conditions (e.g. hot or cold environments, storms, etc.).
- Prepare an emergency plan and rescue procedures.
- Keep first aid boxes at the site.
- Educate and train workers about all existing and potential hazards and risks and appropriate safety measures.

What factors determine what is the appropriate protective system to use?

In general, trenches that are 1.2 metres (4 feet) deep or greater require a protective system unless the excavation is made entirely in stable rock. The factors to consider include:

- Soil type
- Depth of cut

- Water content of soil
- Changes due to weather or climate
- Surcharge loads (e.g., spoil, other materials to be used in the trench) and
- Other operations in the area

What are the different types of protective systems used to protect against cave-ins?

There are two basic methods of protecting workers against cave-ins:

- Sloping
- Temporary protective structures (e.g., shoring, trench boxes, pre-fabricated systems, hydraulic systems, engineering systems, etc.)

Sloping

Sloping involves cutting back the trench wall at an angle that is inclined away from the work area of the excavation. The angle of slope required depends on the soil conditions. Benching is a similar method to sloping.

Temporary protective structure

Saskatchewan Labour defines a temporary protective structure as “a structure or device in an excavation, trench, tunnel or excavated shaft that is designed to provide protection from cave-ins, collapse, sliding or rolling materials, and includes shoring, trench boxes, trench shields and similar structures.”

- **Shoring** is a system that supports the sides or walls. Shoring requires installing aluminum, steel, or wood panels that are supported by screws or hydraulic jacks. Some systems can be installed without the workers entering the trench. This option provides additional safety for those

workers. Wherever possible, install the shoring equipment as the excavation proceeds. If there is any delay between digging and shoring, no one should enter the unprotected trench.

- **Trench Boxes** are commonly used in open areas that are away from utilities, roadways, and foundations. Trench boxes can be used to protect workers in cases of cave-ins, but not to shore up or support trench walls. They can support trench walls if the space between the box and the trench wall is backfilled with soil and compacted properly. Otherwise, a cave-in or collapse may cause the trench box to tilt or turn over. Workers should not be present in the box when it has to be moved.
- **Other:** In some cases, the trench or excavation walls are made of rock but are not entirely stable. Support the walls by using rock bolts, wire mesh, or a method that provides equivalent support.

What should you NOT do during an excavation?

- Do not enter an unprotected trench deeper than 1.2 metres (4 feet).
- Do not start digging before locating and de-energizing the buried services.
- Do not enter a trench before testing the air for hazardous gasses and vapours, or the lack of oxygen.
- Do not place the sections of pipes, piles of spoil, unused tools, and timber, and other materials within 1 metre from the trench’s edge.
- Do not rely on natural freezing to act as a method of soil stabilization.
- Do not work under suspended or raised loads and materials.
- Never stand behind a backing vehicle.

What can be included in a trenching and excavation inspection checklist?

The following are some points to consider. Each circumstance will be different, so be sure to adapt the questions to suit your situation.

Underground/Utility Services

- Know the contact numbers?
- Located, identified and informed respective parties?
- Grounded, isolated, de-energized, or protected from unplanned release?

Housekeeping

- Excavated material, pipes etc. are placed 1 metre away from the edge of the excavation or trench wall?
- Are pumps available to remove water?
- Is the base and foot of the ladder secure, and free of garbage or water?
- Are materials placed on the site obstructing the worker’s or vehicle’s ability to move freely?
- Are established traffic controls used, where required, including adequate signage, personnel, and lighting?
- Has the excavation been marked to make the workers and others aware of the excavation (e.g., fence, flags, or other safeguards)?
- Are sanitary facilities available at the site, as appropriate?

General

- Are proper barriers or guardrails in place to protect anyone or equipment falling into the excavation or trench?
- Has the air in the excavation been tested for low oxygen, and hazardous gasses and vapours?
- Is a safe means of entry/exit provided such as a sufficiently long and secured ladder placed at appropriate distances (within 25 feet of all workers)?

- Are cracks visible in the ground around the trench or excavation that may indicate soil movement?
- Are there any signs of water seeping into the trench or excavation?
- Are workers wearing appropriate PPE (e.g., hard hats, respirators, , safety boots, hearing protection)?
- Are high visibility vests or clothing provided and worn by all exposed to vehicular traffic?
- Are first aid boxes available at the site?
- Are operators qualified to operate the heavy machinery/equipment?
- Does a competent person regularly inspect the excavation (at the start of each shift before work begins or after any event likely to have affected the strength or stability of the excavation)?
- Is there a competent person stationed at the surface of the trench to warn workers in the trench of danger and to provide emergency help?

Sloping

- Has the soil type been considered when determining the angle of the slope?
- Are they being sloped or benched back to a safe angle?

Temporary protective equipment, such as:

Timber Shoring

- Is the shoring equipment the right equipment as required for the depth of the trench/excavation and type of soil?
- Is the equipment damaged (e.g., cracked, crushed, split, or bowed)?
- Are there loose or missing cleats?
- Are the struts off level?

Trench Boxes

- Are the boxes damaged or have defects?
- Are the plates deformed, bent, have holes, or show other damage?

- Are the welds cracked, bent, or distorted?
- Are there missing or missing struts?
- Are trench boxes shifting or settling to one side?

Hydraulic Shoring

- Are there any visible leaks in hoses or cylinders?
- Are there bent bases?
- Is any equipment cracked, split, broken or cracked?

Facilities/Maintenance – Stats and Facts

DID YOU KNOW?

Maintenance planning requires solid data, much of which you'll obtain by collecting information on your own operations. It also helps to know what's happening in the industry as a whole—that way, your own metrics are compared within a larger context. This ultimately helps you gauge where your own maintenance management processes are. You'll get an idea of where you're doing well and where you might need to make improvements in terms of maintenance management.

In addition, these statistics show just how important modern technologies are in terms of improving operational reliability, no matter how well you're doing in comparison with the industry overall.

Maintenance costs, budgeting and spend

- Maintenance costs are estimated to range between 15% and 40%of total production costs (Dunn, 1987; Lofsten, 2000).
- Exterior building maintenance costs about $0.03 per square

foot for industrial buildings (BOMA, 2018).

- Running a piece of equipment to the point of failure could cost up to 10 times as much as a regular maintenance program would (Buildings.com, 2018).
- Every $1 worth of maintenance deferred could quadruple to $4 in capital renewal costs later on (Biedenweg).
- Predictive maintenance is highly cost effective, saving roughly 8% to 12% over preventive maintenance, and up to 40% over reactive maintenance (according to the U.S. Department of Energy).
- Between 2004 and 2008, the U.S. spent about 57% of its transportation infrastructure budget on new construction projects. The 43% leftover was spent on maintaining the 98.7% of roads remaining.
- The U.S. has over 47,000 bridges that are considered to be in urgent need of repairs, while 38% of all America's bridges need some form of repair work. It would take about 80 years to complete it all.
- The global market for enterprise asset management software is valued at $4 billion, and it's expected to grow at a CAGR of 11% per year. At that rate, its value will have doubled to $8 billion by 2022.
- As of 2018, about 53% of facilities use a CMMS to monitor their maintenance. Additionally, 55% use spreadsheets and schedules, and 44% still use paper.

CMMS and Software Adoption

- In 2017, 78% of companies who used a CMMS to manage their assets reported seeing improvements in equipment life.
- Up to 80% of all attempted CMMS implementations fail.
- Perhaps coincidentally, about 80% of all CMMS users don't use all the functions offered by the software.
- For one company in 2017, data visualization software reduced production hours by 320 hours while also increasing production by 15%.

Types of maintenance

- According to Plant Engineering’s 2018 maintenance survey, preventive maintenance is favored by 80% of maintenance personnel.
- In the same survey, it was shown that usage of predictive maintenance had risen from 47% to 51%, and that running equipment to the point of failure had dropped from 61% to 57%.
- Predictive Maintenance
- The overall use of predictive maintenance rose from 47% in 2017 to 51% in 2018, though preventive maintenance is still preferred by 80% of maintenance personnel.
- 80% of manufacturing plants use preventive maintenance, and over half use predictive maintenance with analytical tools.
- In 2012, the U.S. Bureau of Labor Statistics estimated that the nation would be short 10 million workers over the course of the following six years.
- Roughly 10% (and maybe even less) of industrial equipment ever actually wears out, meaning a very large portion of mechanical failures are avoidable.
- Predictive analytics yields a tenfold return on investment, and it results in a savings of 30% to 40%.
- As of 2018, the most common challenge facilities face is lack of resources, including human, technical, and strategic resources. The number of facilities who considered this a challenge was li 49%.
- Historically, total productive maintenance has been shown to increase plant capacity by over 10% and productivity by 50%, but over half of all attempts to implement TPM result in failure.
- 79% of businesses see predictive maintenance as the main application of industrial data analytics.
- Maintenance personnel
- The median salary of an industrial maintenance technician came out to $50,440 in 2017 (Bureau of Labor Statistics).
- The motor vehicle manufacturing industry pays the highest salary for maintenance technicians at $69,830 in 2017

(Bureau of Labor Statistics).

- Maintenance technicians are most widely employed by the plastics manufacturing industry at 3,830 The next runner up was motor vehicle parts manufacturing with 2,750 workers (Bureau of Labor Statistics).
- First line supervisors of maintenance workers tend to earn more, averaging at $68,120 per year (Bureau of Labor Statistics).
- Time management
- Out of an average working day, only 5% of the average maintenance worker's time is spent performing productive tasks (Plant Services, 2003).
- Doing the math for an average maintenance technician based on average salary, the total time spent on unproductive tasks comes out to about $38,082 in labor costs per personnel per year.
- An estimated 20.9% of wasted time results from travelling to different areas in the facility, with an additional 19.8% resulting from waiting for instructions (Plant Services, 2003).
- Poor maintenance strategies can reduce a company's production capacity by as much as 20% (Wollenhaupt, 2017).
- Production downtimes
- Roughly 82% of companies experienced at least one instance of unplanned downtime in the last three years (ServiceMax).
- A 2005 survey published by Thomas Industry Update found that the average cost of unplanned downtimes in the automotive industry amounted to $22,000 per minute.
- The average age of industrial assets in the United States is about 20 years, according to the Bureau of Economic Analysis. The number has grown significantly since 1990.
- Aging equipment is the leading cause of unplanned downtimes at 50%, with lack of time coming in at 14%, according to a 2016 survey by Plant Engineering.
- About 44% of all unscheduled equipment downtimes result from aging equipment, making it the leading cause of unscheduled downtime.
- Unplanned downtimes cost an estimated $50 billion every

year.
- Overall, downtime costs most factories somewhere between 5% and 20% of their productive capacity.
- Safety
- Poor compliance with lockout/tagout standards ranked number five in OSHA’s most frequently cited violations in 2018.
- Up to 30% of all manufacturing deaths are related to a maintenance activity.
- Companies can save between 12% and 18% by using preventive maintenance over reactive, and each dollar spent on PM saves an average of $5 later on.
- Factories throughout the U.S. are estimated to be using about $40 billion worth of outdated equipment.
- Internet of Things (IoT)
- As of 2017, about 53% of companies adopted big data analytics, which includes predictive maintenance and IIoT technologies.
- By 2024, IIoT technologies are predicted to help create nearly $800 billion in economic value.
- Roughly 30% of all manufacturers have difficulty understanding IoT.
- Even so, as of 2018 nearly half of all manufacturers are placing greater emphasis on IIoT technologies.
- Worldwide spending on IoT technology is estimated to reach $1.2 trillion in 2022 with a CAGR of 13.6%.
- The number of connected devices in use worldwide is estimated to be over 17 billion, with 7 billion IoT devices.
- Maintenance Career Outlook
- The U.S. employs a total of over 80,000 machinery maintenance workers.
- The nation also has over 131,000 aircraft service technicians and mechanics.
- About 1.3 million people currently work as general maintenance workers, with 302,000 working in the real estate sector.
- The job outlook for maintenance professionals is projected to grow at about 8% over the next ten years.
- The average salary for a maintenance technician in 2019 is

just under $39,000 per year.
- The top paying industry for machinery maintenance workers is the Federal executive branch at $72,350 per year as of 2019, followed closely by motor vehicle manufacturing at $71,330.

The following factors contributed to this outlook:

- Employment growth will lead to a moderate number of new positions.
- Several positions will become available due to retirements.
- There are several unemployed workers with recent experience in this occupation.

Here are some key facts about Facility operation and maintenance managers in the Regina – Moose Mountain region:

- Approximately 270 people work in this occupation.
- Facility operation and maintenance managers mainly work in the following sectors:
- Finance, insurance and Real estate and rental and leasing (NAICS 52-53): 16%
- Transportation and warehousing (NAICS 48-49): 12%
- Retail Trade (NAICS 44-45): 9%
- Wholesale trade (NAICS 41): 8%
- Information, cultural, arts, entertainment and recreation services (NAICS 51, 71): 7%

The number of U.S. employers offering flexible workplace options has grown by **40 percent in the past five years.**

- As many as **30-40 percent of all U.S. workers today are contingent**.
- **Seventy-seven percent of workplaces in the U.S.** use a combination of an open office and private, individual offices or a solely open office environment.
- Half of U.S. employees currently hold a job that is compatible with **at least part-time remote work.**
- Around **80-90 percent** of U.S. professionals say they would like the ability to **work remotely at least part-time**.
- By allowing employees to work from home even half the time, **the average company would save about $11,000 per**

person annually.

- **Forty-four percent of companies offer a flexible work structure**, such as allowing employees to choose when and where they work.
- The flexibility to make choices about where and how they work has a major impact on employee engagement, with **88 percent of highly engaged employees saying they can move around the workplace easily** and choose where to work within the office based on what they're doing.
- **Forty percent of U.S. employees rate themselves as "engaged" and "satisfied" or "highly engaged" and "highly satisfied"** with their workplace, placing them among the most engaged and most satisfied professionals in the world.
- **Fifty-two percent of corporate executives** say they plan to implement some level of **unassigned seating** in the workplace within the next three years.
- **Fifty-one percent** of all CRE leaders anticipate implementing a shared workplace model (such as a serviced office, co-working space, innovation center, or business incubator) in the next year.
- By 2020, available **office space will decrease by 17 percen**t and there will be 15 percent fewer desks per employee, according to market research company Frost & Sullivan.
- CBRE's Healthy Offices Research team found that promoting a healthy work environment with plants, circadian lighting and opportunities to meditate and exercise **improved work performance by 22 percent**.

Workplace Technology Statistics

Fifty-nine percent of executives plan to introduce mobile employee experience apps to help employees navigate an agile work environment.

Forty-eight percent of senior corporate real estate (CRE) executives utilize technology to capture more accurate data to support their business objectives.

Globally, **54 percent of employees** have the option to **bring their**

own device to work.

- Millennials, the first “digital native” generation, will make up **75 percent of the workforce** by 2030.
- **Fifty-eight percent of employees** at “technology laggard” companies have negative feelings towards their employers.
- Nearly a third of non-IT-supported software downloads were the result of an **employee needing an up-to-date tool the company didn’t provide** or for which the company didn’t offer a comparable alternative.
- The shortcomings of employer-provided smartphones has resulted in **43 percent of employees using their personal devices for work,** which makes the company more vulnerable to security risks.
- Despite the fact there are now more mobile devices in use than people on the planet, **employers supply fixed technology solutions over mobile solutions at a ratio of 2:1.**Over 80 percent of global employees are given a desktop computer and landline phone, but only 39 percent receive an employer-provided smartphone or laptop.

Smart Buildings and IoT Sensors

- Building connectivity is expected to add **more than $25 billion** to the building-controls market by 2025.
- Honeywell evaluated 500 buildings in seven U.S. cities and rated them on three key categories that define smart buildings: green, safe and productive. **On a scale of 1 to 100, the average smart building score is 35.**
- Deployment of IoT sensor technology in corporate real estate is expected to grow by **79 percent between 2015 and 2020.**
- Using sensor technology to monitor energy usage in office buildings can reduce energy costs by **as much as 20 percent.**

KEEP IN MIND

You have facilities and they all need one thing…Facility Maintenance. That’s where we come in. In today’s tough economy it’s more important than ever that you work to get as much life out of your equipment and facilities as possible. That includes

your Facility Maintenance. You also don’t want the burden of your own W-2’d employees draining your overhead as they are on the clock performing your Facility Maintenance. With Facility Maintenance USA you can “turn on the faucet” and “turn off the faucet” when you need a specific response to each of your Facility Maintenance needs.

This allows you to just pay for what you need. When you have an employee your challenge is justify his existence. When he finishes one task you need to quickly figure out the next one for him. If you don’t have anything for him to do next, then his overhead continues to run and the costs of the work that he has performed continue to increase. When you utilize Facility Maintenance USA you only pay for what you use.

Maintenance activities include keeping spaces, structures and infrastructure in proper operating condition in a routine, scheduled, or anticipated fashion to prevent failure and/or degradation. This includes one-to-one replacement of components and systems not requiring professional engineering or permitting. Maintenance activities do not involve a change in space classification or space use.

Examples of facilities maintenance include:

- Basic custodial services.
- Routine exterior painting of buildings and interior painting of public and common areas.
- General building repairs.
- Maintenance of building life-safety and security alarm systems, and systems such as heating, ventilation, air conditioning, plumbing, electrical and lighting.
- Pest control.
- Care of trees and shrubbery, lawns, sidewalks and snow removal.
- Maintenance and repair of door locks and door hardware.
- Some repair of classroom furniture.

Facility operation managers plan, organize, direct, control and evaluate the operations of commercial, transportation and

recreational facilities and the included real estate. Maintenance managers plan, organize, direct, control and evaluate the maintenance department within commercial, industrial, institutional, recreational and other facilities.

Facility operation managers perform some or all of the following duties:

- Plan, organize, direct, control and evaluate the operations of commercial, transportation and recreational facilities and the included real estate
- Oversee the leasing of space in the facility and the included real estate and the development of marketing strategies
- Plan, organize and direct administrative services such as signage, cleaning, maintenance, parking, safety inspections, security and snow removal
- Plan, organize, direct, control and evaluate construction projects to modify commercial, transportation and recreational facilities and real estate
- Oversee the installation, maintenance and repair of real estate infrastructures including machinery, equipment and electrical and mechanical systems
- Plan and manage the facility’s operations budget
- Prepare or oversee the preparation of reports and statistics related to areas of responsibility
- Hire and oversee training and supervision of staff.

Maintenance managers perform some or all of the following duties:

- Direct the maintenance and repair of an establishment’s machinery, equipment and electrical and mechanical systems
- Develop and implement schedules and procedures for safety inspections and preventive maintenance programs
- Co-ordinate cleaning, snow removal and landscaping operations
- Administer contracts for the provision of supplies and services
- Plan and manage a facility’s maintenance budget
- Hire and oversee training and supervision of staff.

Where do they work?

Facility operation managers are employed by a wide range of establishments, such as airports, harbours, canals, shopping centres, convention centres, warehouses and recreational facilities.

Maintenance managers are employed by a wide range of establishments, such as office buildings, shopping centres, airports, harbours, warehouses, grain terminals, universities, schools and sports facilities, and by the maintenance and mechanical engineering departments of manufacturing and other industrial establishments.

Preventive maintenance means understanding that completing maintenance before a malfunction leads to disruption is better than waiting until equipment or asset failure. This is basic business, but it comes at the cost of increasing the volume of work when organizations already want to cut back on facilities spend. Thus, more companies are looking for ways to optimize operations through outsourcing. Consider the recent report by McKinsey & Company External Link:

“Companies have no shortage of options at their disposal to optimize facilities management expenditures. Outsourcing is a well-established strategy that’s on the rise thanks to an influx of vendors, while integrated approaches to facilities management, workplace strategy, and technology all hold promise. The global market for in-house and outsourced facilities management is estimated to reach $1.9 trillion by 2024. The outsourced segment accounts for more than half the total and has attracted a growing number of vendors with new service offerings.”

All companies are moving to utilize the latest technologies and strategies to stay competitive, and since competition depends on keeping costs under control, facilities management preventive maintenance is the natural path to lowering facilities spend. So, what are the top trends affecting preventive maintenance?

Top Facilities Management Preventive Maintenance Trends

Preventive maintenance trends for 2020 range from outsourcing through the requirement for a mobile-first approach, as follows:

- Outsourcing is the new normal of preventive maintenance scheduling and completion.
- More organizations will look for a single provider, read "manager," approach to maintenance, streamlining maintenance management and avoiding the hassle of billing countless field service vendors and tracking invoices.
- Organizations will focus on improving the employee experience, as well as improving building occupant health through proactive, preventive maintenance.
- Flexible work arrangements will reduce the stress of performing and addressing maintenance needs.
- Maintenance will become data-focused and based on fact, not assumption.
- System integration will open new doors to savings and cost efficiency, taking advantage of the digital twin to all physical assets and using technology to optimize settings, lower maintenance frequency, and keep TCO in check.
- Mobile-first technologies will reduce barriers to better maintenance and visibility throughout it.

How to Improve Facilities Preventive Maintenance in 2020

Facilities Managers should follow these added tips to improve preventive maintenance and align organizational goals with the top trends in preventive maintenance through 2020:

- Connect facility assets through the IoT and focus on the use of IoT-enabled devices to improve space utilization and occupant experiences.
- Leverage a new computerized maintenance management system.
- Collect and apply data to understand the best-case maintenance schedule.

- Let data make the prioritization decisions and avoid budgeting crises.
- Integrate the CMMS with all facilities management platforms or service systems.
- Continuously build on a collaborative infrastructure to support the growth and continuation of facilities management preventive maintenance programs.
- Emphasize the value of remote access to asset maintenance schedules, as well as tracking compliance and device use in such activities to lower spend and boost ROI.

Fall Protection – Stats and Facts

DID YOU KNOW?

In 2016, 697 workers died in falls to a lower level, and 48,060 were injured badly enough to require days off of work. A worker doesn't have fall from a high level to suffer fatal injuries; 134 workers were killed in falls on the same level in 2016, according to *Injury Facts*. Construction workers are most at risk for fatal falls from height – more than seven times the rate of other industries – but falls can happen anywhere, even at a "desk job."

NSC data for 2016 includes falls from height and falls on the same level, by industry:

- Construction: 24,700 injuries, 384 deaths
- Manufacturing: 22,040 injuries, 49 deaths
- Wholesale trade: 10,250 injuries, 21 deaths
- Retail trade: 29,830 injuries, 29 deaths
- Transportation and Warehousing: 23,490 injuries, 46 deaths
- Professional and business services: 22,090 injuries, 111

deaths
- Education and health services: 43,660 injuries, 18 deaths
- Government: 63,350 injuries, 44 deaths

Most recent traumatic injury data show:

- 27% of the 900,380 nonfatal work injuries resulting in days away from work in 2018 were related to slips, trips, and falls[1]
- 235,740 injuries due to contact with objects and equipment in 2018 were so severe that they resulted in time away from work[1]
- In 2018, 1,276 U.S. workers died in work-related crashes involving motor vehicles (24% of all deaths)[2]
- Workers less than 25 years of age have higher rates of occupational injuries treated in emergency departments than other age groups[3]
- An estimated 2.5 million workers sustained work-related injuries and were treated in emergency departments during 2018[4]
- In 2018, the rate[5]of emergency department-treated, work-related injuries was estimated at 160 per 10,000 full-time equivalent workers
- Male workers accounted for approximately 65% of the work-related injuries treated in emergency departments
- The three leading causes of work-related injuries treated in an emergency department were contact with objects and equipment, overexertion and bodily reaction, and falls, slips and trips without a fall

Slip and Fall Statistics 2017

- 697 workers died in fall-related accidents in 2016
- 48,060 were injured severely enough during a fall to require days off work
- In 2016, 9.2 million people required emergency room treatment from fall-related injuries
- Falls are the number one cause of death for adults 65 and older

Slip and Fall Injuries

- More than 33,000 people died from falls in 2015.
- The National Safety Council's Odds of Dying list ranks falls as the 6th most likely cause of death, with the odds of dying as 1 in 127.
- Falls are the most common cause of traumatic brain injuries.
- Falls are the leading cause of non-fatal medically treated injuries in the U.S.
- Each year, over 8 million emergency room visits are due to slips, trips, and falls.
- Falls are the leading cause of injury-related death for adults age 65 and older.

Falls at Work

- In 2016 there were 229,240 nonfatal cases involving falls, slips, trips; the lowest since 2014.
- In 2016 there were 849 fatal work-related falls, slips, and trips (in all sectors), with an increase every year since 2011 with 681.
- Services, wholesale, and retail trade industries account for 60 percent of slip and fall accidents.
- At 25 percent, slip and fall injuries are the most frequently reported work accidents.
- Falls are the primary cause of lost time at work.
- 22 percent of falls result in more than 31 days of missed work.

Falls happen. In Canada, more than 40,000 workers get injured annually due to fall accidents. This represents a significant chunk of "lost-time injuries" accepted by workers' compensation boards or commissions across Canada. In addition to great economic loss, falls cause pain and suffering and also claim lives.

Despite prevention efforts, workers continue to fall because:

- working conditions such as poor lighting, slippery walking surfaces, and poor housekeeping practices exist;
- protective devices like guardrails are missing;
- equipment such as ladders and scaffolds are in poor

condition or not used properly;
- fall-protection equipment is not available, not used, or is misused; and
- work practices are poor due to unclear job procedures, lack of training for workers and workers rushing and taking short-cuts to meet deadlines.

Falling down on the job

In Ontario alone, 10 people died due to workplace falls in 2013. Each of these workers' families lost a spouse, brother, sister, son, daughter or parent as a result of the fall. Other workers suffered critical injuries such as broken limbs and backs, cracked ribs and head injuries.

All too often, we fail to recognize there is a problem or a potential problem until someone falls in our workplace, or we hear/read in/on the news that someone else has died or been seriously injured as a result of a workplace fall. Don't rely on luck or good fortune to protect you. All workplaces have a risk of fall injuries – whether they are same-level falls or falls from heights. Unless slip, trip and fall hazards are identified, assessed and controlled, workers will continue falling down on the job.

It's the law

The ideal method of fall prevention is the elimination of all fall hazards in the workplace. Realistically, this is seldom possible. However, occupational health and safety laws require employers to take every reasonable precaution to protect workers, provide information and instruction and ensure that workers properly use or wear any required equipment. Employers, supervisors and workers can be prosecuted for not complying with the law.

- A roofing contractor was fined $10,000 and jailed for 90 days when a worker fell 21 feet without fall arrest equipment.
- Another company was fined $100,000 when a worker fell from an unstable ladder and died as a result of his injuries.

KEEP IN MIND

Falls are among the most common causes of serious work related injuries and deaths. Employers must set up the work place to prevent employees from falling off of overhead platforms, elevated work stations or into holes in the floor and walls.

Employers must set up the work place to prevent employees from falling off of overhead platforms, elevated work stations or into holes in the floor and walls. OSHA requires that fall protection be provided at elevations of four feet in general industry workplaces, five feet in shipyards, six feet in the construction industry and eight feet in longshoring operations. In addition, OSHA requires that fall protection be provided when working over dangerous equipment and machinery, regardless of the fall distance.

To prevent employees from being injured from falls, employers must:

- Guard every floor hole into which a worker can accidentally walk (using a railing and toe-board or a floor hole cover).
- Provide a guard rail and toe-board around every elevated open sided platform, floor or runway.
- Regardless of height, if a worker can fall into or onto dangerous machines or equipment (such as a vat of acid or a conveyor belt) employers must provide guardrails and toe-boards to prevent workers from falling and getting injured.
- Other means of fall protection that may be required on certain jobs include safety harness and line, safety nets, stair railings and hand rails.

OSHA requires employers to:

- Provide working conditions that are free of known dangers.
- Keep floors in work areas in a clean and, so far as possible, a dry condition.
- Select and provide required personal protective equipment at no cost to workers.
- Train workers about job hazards in a language that they can

understand.

At **US Fall Protection**, we have found that our customers are not looking so much for products but rather solutions. And that is exactly what we pride ourselves in supplying. We offer risk assessment, risk control advice, engineering/design, fabrication, installation, system certification, comprehensive training, and annual inspections to ensure worker safety and legislative compliance. Simply put, **US Fall Protection** is your one stop shop for all height related risks.

Working at heights doesn't have to be dangerous. The right fall protection system can ensure safety and regulatory compliance. **US Fall Protection**'s mission is to take the danger out of working at heights in a way that doesn't sacrifice worker productivity. Whether horizontal, vertical, along inclines, or overhead, **US Fall Protection** will keep you safe. In fact, limiting liability by eliminating risk is in our blood. It is simply who we are and what we do.

Slip & Fall Quick Facts

- Fall fatalities are nearly equally divided between men and women. However, more women will experience a slip-and-fall accident. According to the Bureau of Labor Statistics, falls accounted for 5% of the job-related fatalities for women compared to 11% for men.
- Falls account for over 8 million hospital emergency room visits, representing the leading cause of visits (21.3%). Slips and falls account for over 1 million visits, or 12% of total falls.
- Fractures are the most serious consequences of falls and occur in 5% of all people who fall.
- Slips and falls do not constitute a primary cause of fatal occupational injuries, but represent the primary cause of lost days from work.
- Slips and falls are the leading cause of workers' compensation claims and are the leading cause of occupational injury for people aged 55 years and older. If

you are thinking about making a workers' compensation claim then you might want to take a look at using someone like the house of workers compensation lawyers to help you with your claim.

- According to the Consumer Product Safety Commission (CPSC), floors and flooring materials contribute directly to more than 2 million fall injuries each year.
- Half of all accidental deaths in the home are caused by a fall. Most fall injuries in the home happen at ground level, not from an elevation.
- Of all fractures from falls, hip fractures are the most serious and lead to the greatest health problems and number of deaths. The following statistics describe the slip-and-fall crisis affecting our nation's elderly.
- Each year in the United States, one of every three persons over the age of 65 will experience a fall. Half of which are repeat fallers.
- According to the CDC In 2005, more than 15,000 people over the age of 65 died as a result of a fall. Up from 7,700 a decade earlier.
- The CDC also reports that approximately 1.8 million people over the age of 65 were treated in an emergency room as a result of a fall.
- For people aged 65-84 years, falls are the second leading cause of injury-related death; for those aged 85 years or older, falls are the leading cause of injury-related death.
- Incidence of falls goes up with each decade of life.
- Of all deaths associated with falls, 60% involve people aged 75 years or older.
- Falls account for 87% of all fractures among people over the age of 65 and are the second leading cause of spinal cord injuries and brain injury symptoms.
- Half of all elderly adults (over the age of 65) hospitalized for hip fractures cannot return home or live independently after the fracture.
- Falls represent 40% of all nursing home admissions and are the sixth leading cause of death among people aged 70 years or older.

- Over 60% of nursing homes residents will fall each year.
- According to The National Institute on Aging, every year 30% of people over the age of 65 will sustain a fall, of which 10% will result in a serious injury.
- 67% of fall fatalities are among people aged 75 years or older.
- People over the age of 85 are 10-15 times more likely to experience a hip fracture than are people aged 60-65 years.
- 85% of worker's compensation claims are attributed to employees slipping on slick floors (Industrial Safety & Occupational Health Markets 5th edition)
- 22% of slip/fall incidents resulted in more than 31 days away from work (US Bureau of Labor Statistics (2002).
- Compensation & medical costs associated with employee slip/fall accidents is approximately $70 billion annually (National Safety Council Injury Facts 2003 edition).
- Occupational fatalities due to falls are approximately 600 per year down from 1200 during since the 1970s.
- Total injuries due to falls estimated at $13-14 million per year in U.S. Falls are the number one cause of accidental injury, resulting in 20.8 percent of all emergency room visits in 1995. (Motor vehicle accidents accounted for 11.9 percent of ER visits.)
- Disabling (temporary and permanent) occupational injuries due to falls are approximately $250,000-$300,000 per year.
- Falls occur in virtually all manufacturing and service sectors. Fatal falls however are in construction, mining and certain maintenance activities.
- According to Workers Compensation statistics from ITT-Hartford Insurance Company, falls account for 16% of all claims and 26% of all costs. This compares to 33% of costs associated with sprains and strains.
- According to the American Trucking Association, slips and falls are the leading cause of compensable injury in the trucking industry.
- Falls from elevation (approximately 40% of compensable fall cases, approximately 10% of occupational fatalities).
- Falls on the same level (approximately 60% of compensable

fall cases). (W. Monroe Keyserling, Ph.D. 2000)

Falls are 100% Preventable

Whether working from a ladder, roof or scaffolding, it’s important to plan ahead, assess the risk and use the right equipment. First, determine if working from a height is absolutely necessary or if there is another way to do the task safely.

- Discuss the task with coworkers and determine what safety equipment is needed
- Make sure you are properly trained on how to use the equipment
- Scan the work area for potential hazards before starting the job
- Make sure you have level ground to set up the equipment
- If working outside, check the weather forecast; never work in inclement weather
- Use the correct tool for the job, and use it as intended
- Ensure stepladders have a locking device to hold the front and back open
- Always keep two hands and one foot, or two feet and one hand on the ladder
- Place the ladder on a solid surface and never lean it against an unstable surface
- A straight or extension ladder should be 1 foot away from the surface it rests on for every 4 feet of height and extend at least 3 feet over the top edge
- Securely fasten straight and extension ladders to an upper support
- Wear slip-resistant shoes and don’t stand higher than the third rung from the top
- Don’t lean or reach while on a ladder, and have someone support the bottom
- Never use old or damaged equipment; check thoroughly before use

Employer responsibility

Employers must implement and use comprehensive fall-protection programs to reduce the risk of injuries. At a minimum, employers should:

- Become familiar with applicable legislation, codes and standards;
- Incorporate safety in work planning;
- Identify all slip, trip and fall hazards at the worksite;
- Put a fall-prevention program in place, including a company policy that outlines rules for housekeeping, lighting, inspections, etc.;
- Train employees in recognizing and avoiding unsafe conditions – how to clean up spills, use fall-protection equipment, install guardrails and use covers on holes in the floor, etc.;
- Provide written procedures for tasks involving fall hazards;
- Ensure that employees know, understand and follow procedures;
- Be clear and vigilant in their health and safety responsibilities and those of their supervisors – they must ensure that rules are followed;
- Provide appropriate protective equipment for employees and train them in its use;
- Continuously evaluate the fall-prevention program, ensuring that policies and procedures are working. If not, improve them;
- If a fall-related incident takes place, investigate it immediately, learn from it, and eliminate the cause; and
- Document all fall-prevention efforts.

Accidents waiting to happen?

Falls can be prevented. Workers aren’t falling because they are clumsy, careless or accident-prone. Workers are falling because of poor workplace conditions. Close examination of floors, walkways, catwalks, stairs, scaffolds, ladders, truck beds, rail-car floors, outdoor yards and all other working or walking surfaces will

likely reveal hidden slip, trip or fall hazards. The good news is that once they are revealed, they can be controlled.

Fatigue – Stats and Facts

DID YOU KNOW?

Occupational fatigue is a frightening yet mostly overlooked health condition that affects a majority of the labor force in North America. Because of the lack of awareness, people tend to misunderstand it as a normal part of working and underestimate it. But, there's more to workplace fatigue than just being tired.

To give you a better understanding of what occupational fatigue is and its effects, here are some statistics we compiled that we feel every modern worker today needs be aware of.

1. More than 69% of workers feel fatigued at work

According to a 2018 survey report by the National Safety Council (NSC), two-thirds of the US labor force experiences workplace fatigue. This means that almost 107 million out of the 160 million US workers are affected by occupational fatigue.

Fatigue, **which can be either acute or chronic**, is defined by the NSC as "feelings of tiredness, sleepiness, reduced energy, and increased effort needed to perform tasks at a desired level."

Not only can it reduce productivity, it affects safety as well. Unfortunately, many of these tired workers come from safety-critical industries like transportation, construction, manufacturing, and utilities.

2. Losing even two hours of sleep is similar to the effect of having three beers

According to numerous studies, being awake for long periods of time is akin to being inebriated. A loss of two hours of sleep is similar to having 3 beers, while a loss of 4 hours is equivalent to having a six pack in the amount of impairment.

The Canadian Centre for Occupational Health and Safety expands on those numbers with the following:

- Staying awake for 17 hours is equivalent to having a blood-alcohol content (BAC) of 0.05
- Staying awake for 21 hours is equivalent to having a BAC of 0.08
- Staying awake for 24 hours is equivalent to having a BAC of 0.10

In the US, the legal alcohol limit for driving varies from state to state. But, the standard is .008 for residential drivers and .004 for commercial drivers. This means that fatigued people who are driving home from work or as part of their work are putting themselves and the people around them at severe risk.

3. Fatigued people are 3 times more likely to be in a car crash

Just like when a person is intoxicated, the effects of being fatigued include reduced reaction times, ability to pay attention, and awareness of hazards. In fact, motor vehicle crashes are the leading cause of work fatalities.

Alarmingly, in 2005, the American Sleep Foundation statistics reported that:

- 60% of adult drivers, or 168 million people, reported driving while feeling drowsy.
- 37%, or 103 million people, have fallen asleep while driving.
- 13% of adult drivers confessed to driving while drowsy at

least once a month.
- 4%, or 11 million people, had or almost had an accident due to fatigued driving.
- 59% of night shift workers sleep less than 7 hours a day

Night shift workers are at a higher risk of developing occupational fatigue because they tend to sleep less than day workers. Our body has a circadian rhythm which tells us when to sleep and when to be awake. Night shift workers have a hard time getting more quality sleep because they are trying to override their natural sleeping pattern.

Employees working irregular shifts are even more vulnerable since their body clocks can't adapt to the changing sleep schedule.

4. The risk of injury on night shifts is 30% higher than day shifts

Fatigue-related safety risks peak during night shifts, **particularly between 2 am and 6 am**. The risk of injury on the night shift further increases as fatigued workers rack up their sleep debt, going up to 36% higher on the fourth consecutive night shift.

Sleep debt is the cumulative effect of regular lack of sleep. **For example, after losing two hours of sleep every day for ten days, your performance on the eleventh day will be as if you didn't have any sleep at all.**

5. 97% of fatigued workers have reduced cognitive performance

When people are affected by occupational fatigue, their cognitive abilities go down. This leads to poorer performance in terms of attention, vigilance, and memory.

Fatigued workers also tend to make more errors and become less productive. In industries where clear thinking is a necessity for safety, workplace fatigue can lead to accidents and even fatalities.

Cognitively demanding tasks include:

- **Monotonous tasks-**These are unstimulating and monotonous tasks like driving on the highway.
- **High alert tasks –**These are tasks like assembly line work wherein vigilance is a must.
- **Repetitive tasks –**Tasks that only use a limited number of muscles groups like data entry are repetitive tasks.

6. Workers with sleep problems are 1.62 times more likely to get injured than workers with no sleep issues

According to statistics released by the National Institute of Neurological Disorders and Stroke, about 40 million Americans suffer from chronic long-term sleep disorders

An additional 20 million people experience occasional sleep problems.

Unfortunately, 90% of the people who have sleep problems go untreated. The two most common sleep disorders are obstructive sleep apnea and insomnia.

Since sleep disorders can lead to lack of sleep or poor quality sleep, it can also contribute to occupational fatigue and, ultimately, a higher risk of injuries. **To resolve this, employers should screen their employees for sleep disorders and establish programs for their treatment.**

7. 13% of all workplace injuries are caused by fatigue.

Occupational fatigue usually play out in the following order:

1. First, the fatigued worker will experience decreased cognitive performance
2. Microsleeps or nodding off starts to occur as the body uncontrollably tries to get some sleep
3. Risk of injuries at the workplace starts to increase as a

consequence of the above two.

8. Up to 93% of all employers feel that fatigue is a safety issue, though only 72% of employees agree

Because of the effects of occupational fatigue on the body, it is truly a safety issue. At 93%, most employers agree with this statement. However, only 72% of employees recognize fatigue as a safety issue.

This means that many employees tend to overestimate their condition, making them poor judges of their own health. As such, it is the employer’s responsibility to establish fatigue risk management systems and encourage workers to join sleep health programs. It is also important to actively monitor the number of consecutive hours and days worked so that enough recuperative rest can be provided.

9. Only 20% of employees understand what occupational fatigue is

According to the NHS, 80% of employees are not aware of the causes and risks of occupational fatigue.

- Only 31% of workers know of the workplace factors that can lead to fatigue.
- Only 41% of workers believe that there should be a rest break when driving for more than 1.5 to 2 hours.
- 73% of workers failed to identify all the signs of drowsy driving.
- 89% of people failed to identify the high-risks of shift work.

Because of this lack of awareness on the employees’ part, it is the employers’ duty to educate their workers about occupational fatigue.

10. Fatigued workers lose 5.6 hours of productive time per week

Aside from safety, another side effect of occupational fatigue is poor productivity. Because of reduced cognitive performance, fatigued workers find it hard to concentrate and need more time to complete their tasks.

Healthy workers only have a productivity loss of 26%. On the other hand, fatigued workers have a 66% rate of lost productivity due to cognitive decline and inability to focus.

To counter this, companies should establish programs that help their employees maintain a good work-life balance. Steps should also be taken to improve the assessment and treatment of people with fatigue.

11. Fatigue costs employers about $136 billion a year in health-related lost productivity

There are two ways that occupational fatigue leads to health-related productivity loss.

- **Absenteeism**– Workers who are in poor health tend to take more time off from work to consult their doctors and get some time to recuperate. But, once they return to work, they are, once again, exposed to the factors that can lead to occupational fatigue, making it a continuous cycle.
- **Presenteeism**– These are fatigued workers who are present at work, but are not able to perform well because of health reasons.

Interestingly, out of the $136 billion spent on lost productivity, 84% is due to presenteeism rather than absenteeism, according the statistics.

12. The cost of fatigue is approximately $80 million per year for an average-sized company with 52,000 employees

The NSC collaborated with the Brigham and Women's Hospital to create the Fatigue Cost Calculator. Using this tool, it found that an American company with 1,000 workers lose $1.4 million dollars a year due to occupational fatigue. This is the combined cost of absenteeism, presenteeism, health care costs, occupational costs, and accidents.

On top of the financial loss, the Fatigue Cost Calculator can also identify how much savings a company can get from implementing a sleep-health education program that targets untreated sleep disorders. For example, an average-sized company can save up to $40 million in a year if 50% of their labor force participates in a sleep-health program.

13. Up to 2.5 million Americans are estimated to have chronic fatigue syndrome

Based on the 2015 report of the Institute of Medicine (IOM), up to 2.5 million people in the US are afflicted with chronic fatigue syndrome (CFS), with 90% of these cases left undiagnosed.

Compared to acute fatigue which can be resolved with enough rest and relaxation, CFS is a disabling and long-term illness that doesn't get better with rest. It is an illness that is often misunderstood and undiagnosed because of the lack of awareness in both the patient and doctor's part.

14. Chronic fatigue syndrome is most common in the 40 to 60 age group, which is over 33% of the working population

CFS is more common in women than men, and, among races, most common in white people. Though it can affect people of all ages, including children, it is most often diagnosed in adults aged 40

to 60. This age group comprises more than one-third of the US labor force.

Currently, there are no specific laboratory tests that can be used in directly diagnosing CFS. Also, there is no known cure for this illness, though there are some ways to manage its symptoms.

15. The top 2 causes of occupational fatigue are sleep deprivation and work environmental factors

A study published in October 2016 said that the major drivers of occupational fatigue are sleep deprivation and factors in the work environment like noise, temperature, and vibration. Other factors that can contribute to work fatigue include working time, changing shifts, and the type of tasks done.

These issues can be easily remedied with a change of schedule and an improvement in the work environment. But, workplace fatigue mostly goes unaddressed because most employers and employees are not well-educated about it.

Other Noteworthy Workplace Fatigue Statistics

To give you an even clearer idea about the effects of occupational fatigue, here are some other important statistics about workplace fatigue, particularly from the perspective of employers:

- 47% of employers have experienced productivity loss in their company due to fatigue.
- 50% of employers have had an employee fall asleep on the job.
- 57% of employers report absenteeism due to fatigue.
- 32% of employers report injuries and near misses due to fatigue.

Overcoming Workplace Fatigue

Experts say effectively combating workplace fatigue requires changes in both the personal lives of employees, plus good workplace policies. Some recommendations:

- Practice good sleep hygiene. Avoid using your computer or cell phones 1-2 hours prior to sleeping. Avoid stimulants like caffeine, and go to bed at a consistent and regular time.
- Stay Hydrated. Drinking adequate amount of water daily has been shown to have a major effect on brain function and energy levels.
- Move often (for office workers). Frequent movements encourage blood circulation and helps ward off fatigue. Incorporate ergonomic exercises every few hours that can be performed right at your desk.
- Eat Smarter. Food is the fuel to our bodies, and what you put in directly affects your output. Avoid overeating and foods high in artificial sugars. Pick fruits and high energy snacks instead.
- Alternate between sitting and standing. Prolonged sitting slows down our metabolism and makes us feel more sluggish. The golden ratio between sitting and standing for maximum health benefits according to research lies between 1:1 to 1:3, such as sit for 15 minutes and stand for 45 minutes (maximum). Use a tall chair optimized for standing desks to allow you to switch between the two positions easily.
- Introduce a Fatigue Risk Management System (FRMS). For employers, a proven method for helping fight workplace fatigue is to have a well thought out Fatigue Management System in place. This creates a process for monitoring, reporting, and dealing with workplace fatigue that everyone in the company can get on board with.

KEEP IN MIND

Fatigue is the state of feeling very tired, weary or sleepy resulting from insufficient sleep, prolonged mental or physical

work, or extended periods of stress or anxiety. Boring or repetitive tasks can intensify feelings of fatigue. Fatigue can be described as either acute or chronic.

Acute fatigue results from short-term sleep loss or from short periods of heavy physical or mental work. The effects of acute fatigue are of short duration and usually can be reversed by sleep and relaxation.

Chronic fatigue syndrome is the constant, severe state of tiredness that is not relieved by rest. The symptoms of chronic fatigue syndrome are similar to the flu, last longer than six months and interfere with certain activities. The exact cause of this syndrome is still unknown.

Employers and supervisors should be concerned about the impact of fatigue in the workplace as it can be considered a form of impairment, making fatigue a workplace hazard. However, fatigue levels are not easily measured or quantified; therefore, it is difficult to isolate the effect of fatigue on accident and injury rates. Awareness and observation of changes in behaviour is one method to identify fatigue. Factors that may influence fatigue are shift rotation patterns, balanced workloads, timing of tasks and activities, availability of resources, and the workplace environment (e.g., lighting, ventilation, temperature, etc).

Some research studies have shown that when workers have slept for less than 5 hours before work or when workers have been awake for more than 16 hours, their chance of making mistakes at work due to fatigue are significantly increased.

Research has shown that the number of hours awake can be similar to blood alcohol levels. One study reports the following:

- 17 hours awake is equivalent to a blood alcohol content of 0.05
- 21 hours awake is equivalent to a blood alcohol content of 0.08 (legal limit in Canada)
- 24-25 hours awake is equivalent to a blood alcohol content of 0.10

Fatigue is regarded as having an impact on work performance. Government of Alberta, Labour* reports that most incidents occur when people are more likely to want sleep – between midnight and 6 am, and between 1 to 3 pm. Government of Alberta, Labour also reports that fatigue affects people differently but it can increase a worker's hazard exposure by:

- reducing mental and physical functioning,
- impairing judgement and concentration,
- lowering motivation,
- slowing reaction time, and
- increasing risk-taking behaviour.

Signs and symptoms of fatigue include:

- weariness,
- tiredness,
- sleepiness, including falling asleep against your will ("micro" sleeps),
- irritability,
- reduced alertness, concentration and memory,
- lack of motivation,
- depression,
- giddiness,
- headaches,
- loss of appetite,
- digestive problems, and
- increased susceptibility to illness.

Because fatigue cannot be "measured", it is difficult to separate the effects of long working hours or lack of sleep to any changes in incident or injury rates.

However, studies report the effects of fatigue as:

- reduced decision making ability,
- reduced ability to do complex planning,
- reduced communication skills,
- reduced productivity or performance,
- reduced attention and vigilance,
- reduced ability to handle stress on the job,

- reduced reaction time – both in speed and thought,
- loss of memory or the ability to recall details,
- failure to respond to changes in surroundings or information provided,
- unable to stay awake (e.g., falling asleep while operating machinery or driving a vehicle),
- increased tendency for risk-taking,
- increased forgetfulness,
- increased errors in judgement,
- increased sick time, absenteeism, rate of turnover,
- increased medical costs, and
- increased incident rates.

There are many, many causes of fatigue.

Work-related factors **may** include long work hours, long hours of physical or mental activity, insufficient break time between shifts, changes to jobs or shift rotations, inadequate rest, excessive stress, having multiple jobs, or a combination of these factors.

Changes to home environments can also impact sleep such as a new baby, change in patterns and routines, new or changing caregiver roles.

Sometimes, a sleep disorder may cause fatigue. You should ask your doctor or health professional for more information. These conditions include:

Insomnia

People who suffer from insomnia often complain that they cannot fall asleep, or cannot stay asleep for a full night. They may frequently wake up during the night, wake up too early, not able to fall asleep at night, or have difficulty getting back to sleep if woken. Either way, they do not feel rested. Insomnia can be both short term (in response to a stressful event or change in environment) or long term.

Sleep Apnea

Most cases of sleep apnea are caused by a condition called “Obstructive Sleep Apnea”. Sleep apnea is a breathing disorder in which there are brief interruptions (lasting a minimum of 10 seconds) in breathing during sleep. This condition is caused by a narrowing (or collapse) of the throat or upper airway during sleep. This narrowing restricts or prevents breathing while you are sleeping (air cannot flow into or out of your nose and mouth even though your body continues to try to breathe). With sleep apnea, there are frequent interruptions to sleep making your sleep unrestful. People often complain of early morning headaches and excessive daytime sleepiness.

Symptoms of sleep apnea include:

- chronic, loud snoring,
- gasping or choking while sleeping,
- excessive daytime sleepiness, and
- personality changes or difficulties thinking.

Restless Legs Syndrome

With restless legs syndrome, people report sensations of creeping, crawling, pulling, or tingling which cause an irresistible urge to move their legs. This phenomenon usually happens as a person is trying to fall asleep, making sleep difficult. Movements may also occur during sleep, partially waking the person (even though they might not “notice”) and disrupting sleep patterns.

Narcolepsy

Narcolepsy is a rare condition associated with sudden sleep “attacks” where a person will have an uncontrollable urge to sleep many times in one day.

Other Situations

Substances such as nicotine, caffeine, and alcohol can affect the quality of sleep. Caffeine can remain in the body for about 3 to 7

hours and may affect sleep. Alcohol may shorten the time to fall asleep, but it disrupts later in the night. Nicotine also can disrupt sleep and reduce total sleep time.

Other substances such as over-the-counter medications or prescriptions may also affect sleep. For example, long-acting benzodiazepines (drugs used to relieve anxiety or insomnia) may contribute to daytime sleepiness.

Prevention

If you suspect you may have a medical condition that interferes with your sleep, go to your doctor and have any concerns investigated.

Sleep Hygiene

There is no one way to get a good sleep – what works for one person may not work for another. In general, suggestions include:

- Go to bed and get up at the same time every day.
- Exercise regularly.
- Eat at regular intervals and consume a balanced diet of fruits, vegetables, whole grains, healthy fats and protein.
- Use your bed primarily just for sleeping (e.g., do not watch television, read or do work in bed).
- If you are not sleepy, do not try to go to bed. Get up and read or do something quiet instead.
- Avoid caffeine, tobacco or alcohol – especially before bed time.
- Turn off the telephone ringer and answering machine speaker.
- Ask family members to be respectful if one person is sleeping. Family members can use headphones for the TV and radio if necessary.
- Make the room as dark and quiet as possible. Use heavy, dark curtains, blinds, or a sleeping eye mask. Soundproof the room where possible or use ear plugs.
- Most people sleep better when the room is cool. Consider using an air conditioner or fan in the summer months.

What are some tips for “good” eating habits that help encourage sleep?

The Dietitians of Canada have made the following recommendations:

Establish Regular Eating Times

Our bodies need energy provided by food to be able to perform our daily activities. Having meals at regular times is important to function at our best. If you tend to skip meals or eat at irregular times, you may experience fatigue, food cravings or increased eating at the next meal. Aim to have at least three meals a day including a variety of foods from the four food groups of Canada’s Food Guide. Try to have your “main meal” before going to work. A heavy meal during the night may cause heartburn, gas or constipation, as well as make you feel sleepy or sluggish.

Snack Ideas for Your Work Break(s)

Having snacks in between meals is a great way to keep us nourished and give us the energy we need to complete our work shifts. At breaks, opt for healthy snacks that include combinations from a variety of foods from the four food groups. Here are some ideas:

- crackers or fruit and cheese
- social tea cookies and milk
- yogurt and a small low fat muffin
- celery sticks with peanut butter
- baby carrots with low fat cream cheese dip
- cut up fresh fruit or have nuts mixed with plain yogurt

Check your Caffeine Intake

Excessive intake of caffeine can cause insomnia, headaches, irritability and nervousness. It is recommended that foods containing caffeine should not be consumed up to 8 hours before sleeping.

Common caffeine sources include:

- coffee
- tea
- iced tea
- cola drinks
- chocolate
- headache relievers

Alternatives:

- decaffeinated coffee or tea
- non-cola beverages
- water

Snacks for sleeping well

Going to bed with an empty stomach or immediately after a heavy meal can interfere with sleep. If you get home hungry, have a snack that is low in fat and easy to digest. A light snack before going to bed helps in getting a good restful sleep. Examples include:

- cereal with milk
- fresh fruit and yogurt
- oatmeal with raisins
- digestive cookies and milk
- piece of toast with a small banana
- multigrain bagel, toasted and lightly buttered

From: The Dietitians of Canada, 2017

What are some tips if driving?

According to the Canadian Council of Motor Transportation Administrators, 20% of motor vehicle collisions can be linked to fatigue. Therefore, the best advice is to **not** drive if you are tired. However, some tips include:

- Keep vehicle well ventilated.
- Avoid caffeine or other drugs to keep you awake (you will feel very tired when they wear off).

- Listen to the radio (especially “talk” radio).
- Eat lightly and avoid heavy fatty foods.
- Stop often (about every two hours). Take a walk and get some fresh air.
- Change drivers if you are travelling with others.

How can a workplace help keep workers “alert”?

Fatigue is increased by:

- dim lighting,
- limited visual acuity (i.e., due to weather),
- high temperatures,
- high noise,
- high comfort,
- tasks which must be sustained for long periods of time, and
- work tasks which are long, repetitive, paced, difficult, boring and monotonous.

Workplaces can help by providing environments which have good lighting, comfortable temperatures, and reasonable noise levels. Work tasks should provide a variety of interest and tasks should change throughout the shift. Awareness education and training about the implications of fatigue, the importance of sleep, balanced diet and exercise, and alertness strategies can also be helpful.

If extended hours/overtime are common, remember to consider the time required to commute home, meal preparation, eating, socializing with family, etc. Workplaces may wish to consider providing:

- on-site accommodations,
- prepared meals for workers, and
- facilities where employees can take a nap before they drive home.

Fire Extinguisher – Stats and Facts

DID YOU KNOW?

The first fire extinguisher ever produced was patented by Ambrose Godfrey in England in 1723. It contained a liquid which could extinguish a fire, along with a pewter chamber which contained gunpowder to use as an accelerant.

What we think of as a modern fire extinguisher was first developed in 1818 by Captain George William Manby. It contained 3 gallons of potassium carbonate solution within compressed air. Over the next century, fire extinguishers based on chemical foam, soda acid, and water-based solutions would also be developed.

There are several different types of fire extinguishers which are sold by the industry today. The three primary extinguishes that the average home or business uses are Class A, Class B, and Class C extinguishers. These fire extinguishers can be purchased independently, by class, or they can be purchased as a combined Class ABC-type fire extinguisher.

Important Fire Extinguisher Industry Statistics

- #1. The fire extinguisher manufacturing sector in the United States is a small, valuable component of the economy. Just 23 firms are currently active in the manufacturing process, employing about 1,300 people. In total, however, these firms produce about $1 billion in annual revenues. (IBIS World)
- #2. For the 5-year period which ended in 2017, revenues were mostly stable for the fire extinguisher industry in the United States, achieving annualized growth of 0.2%. (IBIS

World)

- #3. From 2011-2015, fire departments in the United States responded to about 38,000 fires at manufacturing or industrial properties each year. The annual losses from those fires included more than 270 injuries and $1.2 billion in direct property damage. (National Fire Protection Association)
- #4. Structure fires account for 20% of municipal fire department calls and are responsible for 49% of deaths that are associated with fires. (National Fire Protection Association)
- #5. The most popular type of fire extinguisher sold by the industry today is the Class A extinguisher, which accounts for 41.8% of total sales. In total volume, more than 18.8 million Class A fire extinguishers are sold globally each year. (Future Insight Markets)
- #6. For the 10-year period ending in 2027, the CAGR of the Class A fire extinguisher segment is expected to grow by 5.7% in volume. If achieved, that would allow the industry to sell over 34.7 million units. (Future Insight Markets
- #7. Fire protection systems are one of the most valuable segments of the overall fire control industry. In 2016, the global market for fire protection systems was valued at $52.19 billion. (Markets and Markets)
- #8. In 2015, there were 1.34 million fires reported in the United States. That meant a fire department responded to a call once every 23 seconds, on average. Almost half of these fires were classified as an outdoor fire. (Harrington Group)
- #9. Fire extinguishers can effectively put out 80% of all fires, even if the extinguisher is classified as a portable unit. When a fire extinguisher is used on a fire in the United States, 75% of the time, the fire department is not required to attend the incident. (EnGauge Inc.)
- #10. Data in Europe on fire extinguisher use is similar to data generated in the United States. In 2,600 tracked incidents, 81.5% of incidents with a portable fire extinguisher resulted in a fire being extinguished. In 74.6% of the incidents, the fire department was not required.

(EnGauge Inc.)

- #11. In 60% of all fire incidents which occur, the fire department is never notified if a fire extinguisher is present and accessible. Almost 2 million fires are handled entirely by a fire extinguisher in the U.S. every year. (EnGauge Inc.)
- #12. Another 147,000 fires within commercial structures are handled through the use of a fire extinguisher annually without the fire department being notified. (EnGauge Inc.)
- #13. The amount of estimated savings that the fire extinguisher industry is able to achieve in the United States from structure fire incidents is about $5 billion. In total, more than 5.3 million fires occurred where a fire extinguisher was the only needed form of suppression. (EnGauge Inc.)
- #14. The number of fires reported in the U.S. in 2015 is down 19.1% from the number of fires reported in 2006. (United States Fire Administration)
- #15. The number of deaths reported because of a fire are down 3% in 2015 from figures reported in 2006. (United States Fire Administration)
- #16. Total losses from fire-related incidents in the U.S. totaled $14.3 billion in 2015. That figure is down more than 20% from figures released in 2006. United States Fire Administration)
- #17. More than half of all residential building fires, over 380,000 in the U.S., are attributed to cooking. About 11% are attributed to heating, while another 6.4% are attributed to an electrical device malfunctioning. (United States Fire Administration)
- #18. Cooking is also the primary cause of non-residential building fires, accounting for 29.5% of tracked incidents. (United States Fire Administration)
- #19. 41% of the fires which are reported in the United States are classified as an outdoor fire. 30.4% of reported incidents involve a residential property. 14.5% of fire incidents are related to issues that involve a vehicle. (United States Fire Administration)

- #20. About 40% of people in the 85+ age demographic are killed when caught in a fire, which is 4x higher than the national fire death rate in the United States. (United States Fire Administration)
- #21. About 1.1 million firefighters are currently active in the United States, with 67% of fire departments operating on an all-volunteer basis. (United States Fire Administration)

Fire Extinguisher Industry Trends and Analysis

As long as there are structures, there will be a risk of fire. To mitigate that risk, the production of fire extinguishers will be necessary. That means there will be a consistent place for this industry in the developed world.

Fire extinguishers are a stable industry because the extinguishers are given expiration dates. Every year, there is a certain number of fire extinguishers which must be replaced because of local, national, or international building codes, laws, and regulations. That provides enough foundation for work that keeps the current industry active, though it does prohibit expansion on any type of scale.

Additional opportunities for the industry, through fire suppression systems and other types of proactive fire management, do offer the potential for industry growth. When combined with the extinguisher segment, there will continue to be opportunities for this industry for some time to come.

KEEP IN MIND

The federal portable fire extinguisher rule applies to the placement, use, maintenance, and testing of portable fire extinguishers provided for the use of employees. Employers are generally required to provide portable fire extinguishing equipment in the workplace for use in fighting incipient-stage fires. An “incipient-stage fire” means initial or beginning stage that can be controlled or extinguished by portable fire extinguishers.

A **fire extinguisher** is an active fire protection device used to extinguish or control small fires, often in emergency situations. It is not intended for use on an out-of-control fire, such as one which has reached the ceiling, endangers the user (i.e., no escape route, smoke, explosion hazard, etc.), or otherwise requires the expertise of a fire brigade. Typically, a fire extinguisher consists of a hand-held cylindrical pressure vessel containing an agent that can be discharged to extinguish a fire. Fire extinguishers manufactured with non-cylindrical pressure vessels also exist but are less common.

Safety tips

- Use a portable fire extinguisher when the fire is confined to a small area, such as a wastebasket, and is not growing; everyone has exited the building; the fire department has been called or is being called; and the room is not filled with smoke.
- To operate a fire extinguisher, remember the word **PASS**:
- **P**ull the pin. Hold the extinguisher with the nozzle pointing away from you, and release the locking mechanism.
- **A**im low. Point the extinguisher at the base of the fire.
- **S**queeze the lever slowly and evenly.
- **S**weep the nozzle from side-to-side.

For the home, select a multi-purpose extinguisher (can be used on all types of home fires) that is large enough to put out a small fire, but not so heavy as to be difficult to handle.

Choose a fire extinguisher that carries the label of an independent testing laboratory.

Read the instructions that come with the fire extinguisher and become familiar with its parts and operation before a fire breaks out. Local fire departments or fire equipment distributors often offer hands-on fire extinguisher trainings.

Install fire extinguishers close to an exit and keep your back to a clear exit when you use the device so you can make an easy escape if the fire cannot be controlled. If the room fills with

smoke, leave immediately.

Know when to go. Fire extinguishers are one element of a fire response plan, but the primary element is safe escape. Every household should have a home fire escape plan and working smoke alarms.

Portable Fire Extinguishers and Children

NFPA believes that children should not be trained how to operate portable fire extinguishers. Teaching children to use portable fire extinguishers runs counter to NFPA messaging to get out and stay out if there is a fire. Furthermore, children may not have the maturity to operate a portable fire extinguisher properly or decide whether or not a fire is small enough to be put out by the extinguisher. They may not have the physical ability to handle the extinguisher or dexterity to perform the complex actions required to put out a fire. In the process of extinguishing flames, children may not know how to respond if the fire spreads. NFPA continues to believe that only adults who know how to operate portable fire extinguishers should use them.

Catastrophic fires can rip through an office building in no time, leaving you completely exposed, vulnerable, and left to pick up the pieces. Being thoroughly prepared for an office fire will not only ensure that you comply with OSHA regulations in terms of the placement, maintenance, and accessibility of your building’s fire extinguishers, but it’ll offer peace of mind to you and your employees.

Portable fire extinguishers are specifically designed to fight different types of fires. The most common fire extinguisher classifications are as follows:

- **Class A**– Solid combustibles excl. wood, metal, cloth, paper, plastics, and rubber
- **Class B**– Flammable liquids incl. oil, gasoline, paint, and grease
- **Class C**– Energized electrical fire (Class C fire becomes null and void if electrical source is removed)

- **Class D**– Electrical equipment incl. outlets and appliances
- **Class K**– Cooking oil, animal and vegetable fats, and grease

It’s important to keep the following portable fire extinguishers in and around your workplace to ensure the safety of your employees and office building.

1. Air-pressurized Water Fire Extinguisher (APW)

As one of the most commonly used fire extinguishers for solid combustibles, water extinguishers cool the surface of the fuel to remove the heat source. Avoid using an APW on class B or C fires as it could cause the fire to spread or result in an electrical shock.

Usage: Class A fires

2. Carbon Dioxide Fire Extinguisher

Filled with Carbon Dioxide (CO_2) which is a non-flammable gas under extreme pressure, this particular fire extinguisher is effective in displacing oxygen or by completely removing the oxygen element. Carbon Dioxide Extinguishers shoot dry pieces of ice from the horn in order to cool the fire.

Usage: Class B and C fires

3. Dry Chemical Fire Extinguisher

This type of fire extinguisher is highly effective in separating the fuel from the oxygen source by applying a thin layer of fire-retardant powder on the fuel, interrupting the chemical reaction.

Usage: Class A, B, and C fires

4. Foam Fire Extinguishers

Foam extinguishers are ideal for creating a barrier between the liquid and the flame, preventing the vapor from being released into the air which results in fuel for the fire. As one of the

more commonly used fire extinguishers, they are a must-have for any office building.

Usage: Class B fires, but can be used on paper and wood as well.

Being fully prepared to fight any type of fire can prevent you from suffering major losses down the line. Keep your employees safe and your office building standing with the correct portable fire extinguishers at hand.

Do You Know What Kind of Fire Extinguisher Your Office Has?

Here in the United States, we have a proud tradition of setting things on fire. Starting with the Revolutionary War—up through the most recent *Transformers* movie—our nation has continually expressed a unique love of infernos, gunfire, rockets, and explosions. Where else can you chomp down on a chargrilled burger while waving a sparkler in the air and watching a monster truck blow flames out of its exhaust?

Yes, there's truly no country like the US. But the freedom to play with fire comes at a cost: the risk of injury, loss of life, lawsuits, fines, or regulatory action that follows fire-related accidents.

With the 4th of July happening next week, we've been thinking a lot about environmental health and safety. (We're a compliance company—what do you expect?) Namely, we've been contrasting intentional and unintentional fireworks: what should and shouldn't go up in flames, and what to do in the event of a dangerous fire.

General Requirements

Employers must…

- Provide portable fire extinguishers and mount, locate, and identify them so that they are readily accessible to employees without subjecting the employees to possible injury.

- Use only approved portable fire extinguishers.
- Not use portable fire extinguishers that use carbon tetrachloride or chlorobromomethane extinguishing agents
- Assure that portable fire extinguishers are maintained, fully charged, operating properly, and kept in designated places at all times except during use.
- Remove from service all soldered or riveted shell self-generating soda acid or self-generating foam or gas cartridge water type portable fire extinguishers that are operated by inverting the extinguisher to rupture the cartridge or to initiate an uncontrollable pressure generating chemical reaction to expel the agent.

Training And Education

Employers must…

- Provide an educational program to familiarize employees with the general principles of fire extinguisher use and the hazards involved with incipient stage fire fighting.
    - Provide this education when employees are first hired and once a year thereafter.
- Train employees (who have been designated to use fire fighting equipment in the emergency action plan) in the use of the equipment.
    - Provide this training when employees are first given this assignment and once a year thereafter.

Inspection, Maintenance, And Testing

Employers must…

- Inspect, maintain, and test all portable fire extinguishers in the workplace.
- Visually inspect portable extinguishers or hoses monthly.
- Perform an annual maintenance check on portable fire extinguishers. Stored pressure extinguishers do not require an internal examination.
    - Record the annual maintenance date and retain this record for one year after the last entry or the life

of the shell, whichever is less.
    - Make the record available to the Assistant Secretary upon request.
- Empty and maintain dry chemical extinguishers (that require a 12-year hydrostatic test) every six years. Dry chemical extinguishers that have non-refillable disposable containers are exempt from this requirement. When recharging or hydrostatic testing is performed, the six-year requirement begins from that date.
- Provide alternate equivalent protection when portable fire extinguishers are removed from service for maintenance and recharging.

Take Care of Accidents Waiting to Happen

Aside from following the relevant laws and regulations around fire safety, organizations of all kinds can take steps to reduce their chances of a fire-related accident:

- Limit access to flammable or combustible materials, and store them in a cool, dry place—away from other materials or devices that could catch on fire.
- Inspect electronic devices, as well as flammable and combustible materials, for damage and degradation. If something is broken or has expired, get rid of it.
- Plan ahead. Use flammable or combustible materials in a safe, open space, and wear proper protective materials. Create an emergency action plan, and train and periodically remind employees what to do in the event of a fire.
- Practice common-sense safety. Don’t light fireworks indoors, in crowded spaces, or during a windy day. Follow the instructions for using flammable or combustible materials. Don’t mix fire and alcohol.

Fire Prevention – Stats and Facts

DID YOU KNOW?

The National Fire Protection Association (NFPA) reports that there were 499,000 structure fires in the United States in 2018, unchanged from 2017. Of note, structure fires in 2016 was the lowest number of fires since the NFPA began collecting data in 1977. Structure fires peaked at 1,098,000 in 1977 and have been trending downward over the past 40 years.

Fires in structures not related to wildfires caused $11.1 billion in property damage in 2018, up 3.7 percent from the 2017 loss of $10.7 billion. The average loss for these structure fires was $22,244, up 3.7 percent from a year ago. Wildfires resulted in $10 billion in direct property loss in 2017.

Public assembly fires include fires in eating and drinking places and other entertainment venues, houses of worship and other places where people congregate. There are approximately 7,410 structure fires in eating and drinking establishments each year, according to a NFPA report based on data between 2010 and 2014.

According to the NFPA, fires in nightclubs are among the most deadly public occupancy fires, because they contain a large number of people in one main space. The deadliest nightclub fire in world history was the 1942 Cocoanut Grove fire in Boston, Massachusetts which claimed 492 lives followed by a fire at a disco/dance hall in Luoyang, China in December, 2000 that claimed 309 lives. A January, 2013 fire at the KISS night club in Brazil ranked third, claiming 242 lives. The 2003 Station Fire in Rhode Island claimed 100 lives, and ranks as number ten.

According to the most recent NFPA (National Fire Protection Association) data, in 2010 U.S. fire departments responded to an estimated 1,331,500 fires. These fires resulted in 3,120 civilian

fire fatalities, 17,720 civilian fire injuries and an estimated $15,478,000,000 in direct property loss.

Of these fires 98,000 were responded to in commercial or municipal buildings. Of the over $11.6 billion in property damage, more than $2.6 billion took place in these non-residential structures. This represents an average loss per reported incident in non-residential / commercial structures of over $34,000.

Fire Extinguishers Effectively Put Out 80% of All Fires

To highlight the effectiveness of extinguishers in the early stage fire fighting, a 2002 UK study performed by FETA (Fire Extinguishing Trades Association) and IFEDA (Independent Fire Engineering and Distributors Association)5 reviewed over 2100 fire incidents and found that in 80% of the cases a portable fire extinguisher successfully extinguished the fire and in 75% of those cases, the fire department was not required to attend.

A similar survey was conducted in 2002 by EUROFEU (European Committee of the Manufacturers of Fire Protection Equipment and Fire Fighting Vehicles)in 6 European countries and it found strikingly consistent results. In over 2600 incidents recorded it concluded that in 81.5% of cases the portable extinguisher successfully extinguished the fire and in 74.6% of the cases the fire department was not required to attend.

Extrapolating the results of these surveys to the U.S. market provides solid statistical evidence that in approximately 80% of all fire incidents a portable fire extinguisher is the only fire fighting tool needed to extinguish the fire. Further, they indicate that in 60% of all fire incidents the fire department is not notified (and thus the event would not appear in NFPA statistics).

Fire Extinguisher Success Rates

(Estimated)

- Fires Handled entirely by extinguishers with Fire Department not being notified = 1,997,250
- Commercial Structure fires handled entirely by extinguishers with Fire Department not being notified = 147,000
- Estimated savings in avoided property loss in commercial buildings = 147,000 X $34,000 equals $4.998 Billion
- Fires in which fire extinguishers were the only needed form of fire suppression = 5,326,000
- Fires in commercial structures in which extinguishers were the only needed form of fire suppression = 392,000

Although these are only estimates, these numbers make clear that the positive impact of fire extinguishers on society is tremendous. When fire extinguishers are not available to do their job because they are blocked, missing or depressurized, the results can be deadly, catastrophic and costly. en-Gauge's electronic fire extinguisher monitoring solution makes sure these vital life safety devices are available, accessible and working properly.

The U.S. Fire Administration (USFA) collects data from a variety of sources to provide information and analyses on the status and scope of the fire problem in the United States. Armed with this data, the fire service can use it to:

- Create a baseline for evaluating programs.
- Increase awareness.
- Motivate corrective actions.
- Set priorities.
- Target public education programs.

Fireworks

- Fireworks start an average of 18,500 fires per year, including 1,300 structure fires, 300 vehicle fires, and 16,900 outside and other fires. These fires caused an average of three deaths, 40 civilian injuries, and an average of $43 million in direct property damage, according

to the NFPA.

- In 2017 S. hospital emergency rooms treated an estimated 12,900 people for fireworks related injuries; 31 percent of those injuries involved injuries to hands and fingers, 22 percent involved the head, face and ears, 17 percent involved legs, 14 percent involved eyes, and 6 percent involved arms according to the Consumer Product Safety Commission.
- In 2011, fire departments responded to 370,000 home structure fires in the United States. These fires caused 13,910 civilian injuries, 2,520 civilian deaths and $6.9 billion in direct damage. (NFPA, 2013)

The Hard Facts

Every day, at least one child dies from a home fire and another 293 children are injured from fires or burns. Ninety percent of all fire-related deaths are due to home fires. Home fires can spread rapidly and leave families as little as two minutes to escape after an alarm sounds. (Safe Kids, 2013)

Children under 5 years of age are at the greatest risk from home fire death and injury; their death rate is nearly twice the national average. Each year, nearly 488 children ages 14 and under die in home fires, and another 116,600 children are injured from a fire/burn related incident. (Karter, 2010)

Often, children do not learn proper fire safety behavior such as dropping and rolling on the ground if clothing catches fire, crawling instead of running out of a house, or covering their mouths if it is smoky. Fire safety education is important and is powerful in preparing families and children for a fire emergency, especially when practiced.

Two of every five home fires start in the kitchen. Residential fire incidents peak from 5:00pm to 7:00pm during dinner preparation. Although fire incidents drop when people sleep, deaths are at their highest late at night and in the early morning hours. More than half of residential fire deaths occur in fires

that start between 11:00pm and 7:00am. The peak night hours are from 2:00am to 5:00am, when most people are in a deep sleep. Sixty-two percent of reported home fire deaths resulted from fires in home with no smoke alarms or no working smoke alarms. (NFPA)

Top Fire Safety Tips

- Working smoke alarms reduce the chances of dying in a fire by nearly 50 percent.
- For the best protection, install smoke alarms on every level of your home and in every sleeping area.
- Teach kids never to play with matches, lighters or fireworks.
- Keep a fire extinguisher and a phone close by in case of an emergency.
- Create and practice a home fire escape plan with two ways out of your house in case of a fire.
- Teach children to get low and get out when they hear the smoke alarm.
- Use safety in the kitchen. Limit distractions when cooking and don’t leave a hot oven or stove unattended.

KEEP IN MIND

Besides the obvious risks associated with 1.32 million fires reported in the United States that resulted in 3,400 deaths, 14,670 injuries, and more than $23 billion in property loss, the number of reported fires is on the downward trend. (In 2008, the number of fires reported was approximately 1.45 million.) While this is a noteworthy downward trend, fire-related deaths are on the rise. (USFA, 2017)

The majority of fires (77 percent) occur in the home, while the remaining 23 percent occur at work. (NFPA, 2017) This article will focus on what you, as an employee, can do to protect yourself and co-workers in the office. In addition, it will focus on specific steps that can be taken to prevent fires, as well as how to respond to fire emergencies.

Emergency Action Plans

One of the most important tasks that an employee can do regarding fire safety is to have a good working knowledge of the organization’s emergency action plan (EAP). Every employee should be trained on the EAP at the beginning of their employment and as frequently as necessary to maintain familiarity with the procedures. At a minimum, the training should occur at least annually.

An EAP should consist of methods for notifying employees in the event of an emergency and reporting an emergency, designated emergency evacuation routes and exits, procedures for assisting workers and visitors with disabilities, procedures to account for employees, and rescue and medical procedures. It is the employer’s responsibility to establish this plan; however, the employee has a responsibility to understand and participate in the plan and to make suggestions for improvement. After all, an employee’s life may depend on this plan.

Not every installation has an alarm system, or there may be areas where the alarm system is not effective, such as outside areas or in outbuildings. In these cases, it is necessary for the plan to address notification to those employees. In addition, the alarm system may have various sounds for different emergencies. Employees should be aware of these differences.

The first priority of employees in the event of a fire is to immediately evacuate the facility and go to their designated assembly point. The plan must address designated emergency evacuation routes. It is part of an employee’s responsibilities to become familiar with these routes. Furthermore, the employee should assist in making sure that the exits and routes are maintained in a manner free from obstruction. Employees also must familiarize themselves with a secondary route of escape in the event the first is blocked by fire.

One of the most overlooked aspects of any emergency action plan is that of employees and visitors with disabilities. In the event of a fire, elevators are programmed to close and go to the bottom

floor to prevent employees from entering and becoming trapped in a fire. This means that one of the escape routes for the second and higher floors is via stairwells. If an employee requires a wheelchair or crutches, they will need assistance in traversing the stairs. The EAP should not leave this to chance, but rather have designated employees responsible to assist.

Accounting for employees in the event of an emergency is vital. The EAP should address how to accurately account for all employees. Employees should always proceed to the assembly location and inform their supervisor or designated representative of their status.

Finally, in any emergency there is the potential for injury to employees. The EAP should also identify first aid and medical responders. Medical response and/or first aid kits should be available inside and outside the building structures that are easily accessible to the designated medical responders. In the event it is necessary to contact 911 services, employees should be designated to direct the responding teams to the location of the emergency.

Fire Extinguishers

The primary purpose of a fire extinguisher is to assist in clearing an evacuation route if necessary. A secondary purpose is to put out small fires. The Occupational Safety and Health Administration (OSHA), under 29 CFR 1910.157, requires that anyone who may be expected to use a fire extinguisher in the workplace be trained in their use. The first thing that one should be familiar with is that there are several classes of fires:

- Class A: Ash producing materials, such as wood or paper
- Class B: Chemical fires, such as gasoline, oils, etc.
- Class C: Energized electrical fires
- Class D: Metal fires
- Class K: Kitchen grease fires

It is important to understand the types of fire in order to determine which extinguisher to use. Most fire extinguishers in

the work area are classified as ABC, but you need to identify this before discharging them on a fire. A simple acronym for using a fire extinguisher is PASS.

- Pull the pin.
- Aim the nozzle at the base of the fire.
- Squeeze the lever.
- Sweep the nozzle from side to side.

The overriding rule when using a fire extinguisher is that if you are not comfortable, then evacuate the building and let the fire department put out the fire.

Fire Prevention Tips

The most effective means of fire safety lies in the prevention of their occurrence in the first place. The following tips are provided to assist in the prevention of office fires.

Housekeeping

Good housekeeping can not only prevent workplace injuries, it is also vital to preventing fires in the office. By maintaining combustible and flammable materials to a bare minimum, the potential for fires is greatly reduced, if not eliminated. Dust also can increase the likelihood of fires or dust explosions. Trash cans should be constructed of non-combustible materials, and dumpsters should be covered with lids. Another important prevention (and an OSHA requirement) is to store oily rags in a self-closing container constructed of non-combustible materials. Finally, flammable materials should be stored in flammable materials cabinets.

Electrical safety

A common occurrence in the office includes overloading of circuits by using multi-plugs, such as surge protectors. In some instances, there are multi-plugs that are plugged into multi-plugs. The typical circuit in an office building is tied to a 20-amp breaker. The amp rating for each device to be plugged into the outlet is

identified on the label. All devices to be plugged into the circuit are to be added together to get the total amps. Do not go over this rating.

Electrical cords are another concern in the office. Extension cords should be rated for commercial use when used in the office. Electrical cords can become frayed from sharp edges, vibration, or pulling them out of electrical outlets by the cord instead of the plug. Always pull the cords out of electrical outlets by the plug. All cords should be inspected at least annually to ensure that the insulation remains intact. Replace broken, frayed, or cracked electrical cords immediately. Many companies have a color-coded tape to identify inspections by the year. For example, green tape on both ends may represent that the cord was inspected in 2019.

Office appliances

Coffee pots, microwaves, toasters, etc., are commonplace in an office kitchen area. To prevent fires from these types of appliances, a person (usually by position) should be designated to turn these off at the end of each workday.

Space heaters

During winter and cold months, employees usually bring space heaters into the office. Prior to bringing them into the office, the employees should ensure that they are in proper working condition and are equipped with a turn-over safety device. Many companies have policies that require these devices to be inspected and permitted by company electricians.

Designated smoking areas

Smoking is a major source for potential fires. It is important that smoking only be allowed in designated areas. These areas should be equipped with “butt cans.” It is always a good idea to have a fire extinguisher located near the designated smoking area.

Summary

Fires are one of the most serious health and safety threats facing an office employee today. Employees should become intimately familiar with the company’s emergency action plan. Specifically, employees should ensure that they are aware of the evacuation procedures, including escape routes and medical response procedures. By becoming knowledgeable in the evacuation routes and procedures, an employee just may save her life or the life of another.

First Aid – Stats and Facts

DID YOU KNOW?

Safe practices at work, home, and play can prevent many injuries, illnesses, and deaths. Once injury or sudden illness has occurred, effective first aid can be the difference between a rapid or prolonged recovery, a temporary or permanent disability, and even life or death. If that isn’t motivation enough to make sure that you and your employees are first aid and CPR/AED trained, wait until you read the statistics.

The Occupational Safety and Health Administration, OSHA, defines first aid as “emergency care provided for injury or sudden illness before professional emergency medical treatment becomes available.”

The statistics for workplace and home injuries and deaths are alarming.* An incident can happen anywhere and to anyone.

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Statistics:

1. At work, injuries and illnesses kill about 2.2 million people in the world each year.
2. Unintentional injury is the leading cause of death in the U.S.for individuals younger than 44 years of age.
3. On average, 15 workers die each day in the U.S. from traumatic injuries.
4. More than 4 million workers suffer a nonfatal injury or illness each year.
5. In the U.S. about 1/3 of all injuries occur at home.
6. In the U.S. about 20% of injury deaths occur at home.
7. For every home injury death there are about 650 nonfatal home injuries.

Having someone in your workplace that is trained in first aid to deliver initial emergency procedures until EMS arrives can be the difference between life and death. Are you and your employees ready to respond in an emergency?Having someone in your workplace that is trained in first aid to deliver initial emergency procedures until EMS arrives can be the difference between life and death. Are you and your employees ready to respond in an emergency?

Recent polling by the Red Cross shows that nearly 40 per cent of Canadians say they have been in an emergency situation where they have had to perform first aid; however, only 18 per cent are

currently certified. Ahead of World First Aid Day September 8th, the Canadian Red Cross is calling on all Canadians to ensure they have the skills needed to save lives when an emergency happens.

“First aid is personal,” says Don Marentette, national manager of first aid programs with the Canadian Red Cross. “Canadians are more likely to use first aid skills to save the life of a loved one than anyone else. These are the stories you don’t often hear about, a mother saving her child from choking, for example.”

While many people believe first aid is usually administered on strangers, polling shows that nearly 60 per cent of Canadians who have had to provide first aid did so to help a family member.

“Although 68 per cent of Canadians say they can recognize the signs of a life-threatening health emergency, like choking or cardiac arrest, fewer than half believe they have the skills to provide life-saving basic first aid,” adds Marentette. “The Red Cross believes lapsed training and Canadians’ low confidence in their ability to save a life are directly related, and pose a risk in emergencies.”

There is a significant gap between Canadians’ perception of the importance of taking a first aid course, and actually taking one. Although nearly 98 per cent of Canadians say knowing how to perform first aid is important, 82 per cent have not taken a first aid course within the last three years.

We’ve featured several articles around CPR and First Aid, which are both universal skills that can benefit you in almost any scenario. However, if you’re still asking yourself the question, “Why do I need to know first aid?”, here are ten facts about CPR and First Aid Training to help provide an answer!

1. Sudden cardiac arrest* is the leading cause of death in adults (in 2015, 366,807 people died in the United States).
2. Most out-of-hospital cardiac arrests occur in public settings (39.5%), homes/residences (27.5%), and nursing homes (18.2%).
3. CPR can double or triple a person’s chance of survival from

sudden cardiac arrest and nearly 46% of out-of-hospital cardiac arrest victims survived when bystander CPR was administered.

4. Delivery of CPR is life-saving first aid, sustaining life until paramedics arrive by maintaining vital blood flow to the heart and brain.
5. If you aren’t trained in the combined rescue breathing and chest compression method of CPR, you can use compression-only CPR on a teen or adult who has collapsed.
6. Pediatric first aid is a specialized form of training that organizations often require staff to have if they are working with children, or that new parents can (and should) learn to support their babies and young children in the event of an emergency.
7. The use of an Automated External Defibrillator (AED) can save the lives of 30% or moreof those who suffer cardiac arrest. The earlier defibrillation occurs, the better!
8. Each year, there are over 2 million Canadians injured unintentionally; injuries leave 47,000 Canadians either partially or totally disabled; and immediate first aid can make the difference between complete recovery and disability.
9. Most bystanders won’t give CPR because they’re either scared of getting involved or that they will perform CPR incorrectly. Even someone with no training is better than no CPR at all.
10. There’s no minimum age requirement to learn CPR. The ability to learn it depends on body strength and the ability to successfully perform chest compressions. Studies have shown that children as young a 9 years old can learn and retain CPR skills!

KEEP IN MIND

Mental Health First Aid is a training course designed to give members of the public the skills to help someone who is developing a mental health problem or experiencing a mental health crisis. The evidence behind the program demonstrates that it builds mental

health literacy, decreases stigmatizing attitudes, and helps individuals identify, understand, and respond to signs of mental illness.

Canadian statistics show that one in five Canadians will experience a mental health problem this year. MHFA is an interactive workshop that teaches participants to recognize the signs that a person may be developing a mental health problem or experiencing a mental health crisis and how to provide initial help and guide the person to appropriate professional resources.

There are currently seven versions of MHFA with an additional one in development:

- Basic (12 hours)
- Adults who Interact with Youth (14 hours)
- Northern Peoples (18 hours)
- First Nations (20 hours)
- Inuit (3 days)
- Veteran Community (13 hours)
- Seniors (14 hours)
- Police (9 hours)

The course addresses four of the most common and most stigmatized mental health disorders and includes signs/symptoms, risk factors, and crisis first aid for specific situations:

- Substance-Related Disorders
    - Crisis First Aid for Overdose
- Mood-Related Disorders
    - Crisis First Aid for Suicidal Behaviour
- Anxiety and Trauma-related Disorders
    - Crisis First Aid for Panic Attack
    - Crisis First Aid for Acute Stress Reaction
- Psychotic Disorders
    - Crisis First Aid for Psychotic Episode

Additional sections are included in specific courses:

- Self-Injury Behaviour (Adults who Interact with Youth, Northern, and Inuit courses)

- Eating Disorders (Adults who Interact with Youth)
- Delirium (Seniors)
- Dementia (Seniors)

MHFA does not teach participants to become therapists or counsellors. Rather, it provides the skills, knowledge, and attitudes that allow someone to offer effective first aid intervention.

Emergency First Response region-specific (Americas) workplace courses offer a convenient, complete and ongoing solution to meeting regional workplace compliance standards in CPR, AED and First Aid training. Emergency First Response courses encompass adult, child and infant CPR and first aid skills, and incorporate Automatic External Defibrillator (AED) training and emergency oxygen use. Courses are flexible in design to accommodate scheduling and training needs and can be taught together or alone in any combination.

Our courses meet OSHA Guidelines 29 CFR 1910.151 compliance standards for workplace safety at the local, regional and national levels. Courses follow Guidelines 2005 for Cardiopulmonary Resuscitation and emergency cardio-pulmonary care standards set by the Basic Life Support (BLS) Working Group of the International Liaison Committee on Resuscitation (ILCOR). New CPR & AED Course (Americas).

CPR & AED Course

This course is a stand-alone CPR and AED Course that takes about 2.5 to 4 hours to complete. It encompasses one and two rescuer CPR and AED training for adults with the option to include CPR and AED use on infants and children. The course is designed to meet regional and national compliance standards for workplace safety. Course materials support flexible delivery options, including the Emergency First Response Independent Study method, the video-guided approach and the Instructor-led technique.

The first step in any emergency is the recognition of the problem and providing help. When in doubt or when someone is seriously

injured or ill, you should always activate the emergency response system by calling 911. If you're not sure how serious the situation is, the 911 operator will ask you a series of questions to determine the seriousness of it.

Remain on the line until additional help arrives, or until the 911 operator tells you to hang up. Emergency system dispatchers can guide you through the steps of performing cardiopulmonary resuscitation (CPR), using an automatic external defibrillator (AED), or delivering basic care until additional help arrives.

Whether you are at home, work, or school, know where the first aid kit and the AED are kept and be familiar with their contents. Know how to activate the emergency response system (by calling 911 if in the United States). Be aware of any policies in the workplace regarding medical emergencies.

After determining the problem, the next step in providing help is to determine the unresponsiveness of the injured or ill person. The best way to determine this is to tap the person and talk loudly to them: "Are you okay?" After determining unresponsiveness, yell for help. Look for any medical identifications, such as a necklace or a bracelet. This may provide a valuable clue to the cause of the situation. One set of goals to keep in mind for first aid would be what we like to call the "Three P's."

THE THREE P'S

- **Preserve life**– your main goal should be to keep the person alive.
- **Prevent further injury**– keep the injured person safe and from becoming injured any more. It is always recommended that you do not move them until help arrives.
- **Promote recovery**– try to help fix their injuries as best as you can.

Why Employees Need First Aid Training

Whether the workplace is an office or a construction site, it has two common traits – valuable employees who may be injured or become ill and the need to protect them with adequate first aid procedures.

The good health and resulting productivity of employees is one area that is often overlooked as a means of improving a company's profitability. The size of this opportunity is indicated by a National Safety Council estimate that in 1997, there were more than 80 million lost workdays due to unintentional injuries. The astounding cost to American businesses was $127 billion, or an average of $980 per worker.

Whether employees work in a high-hazard or low-hazard environment, they face a variety of risks. Shock, bleeding, poisonings, burns, temperature extremes, musculoskeletal injuries, bites and stings, medical emergencies and distressed employees in confined spaces are just a sampling of the first aid emergencies which might be encountered in your business. These risks are compounded when employees don't feel well. Their lack of concentration can result in costly injuries.

If your employees aren't prepared to handle these types of injuries on all shifts and their coworkers are left untreated until an ambulance arrives, a victim's condition may worsen and injuries can become far more debilitating, which leads to greater medical costs and lost productivity.

It makes good business sense to provide first aid and appropriate training to all your employees. By making such a minimal investment in keeping your employees safe and well-trained, you could net big returns, along with a competitive advantage. Moreover, it's the law.

The Occupational Safety and Health Administration (OSHA) requires businesses to provide first aid and CPR training to employees in the absence of a nearby clinic or hospital. While safety always begins with prevention, not every work-related injury can be

prevented. Your primary first aid training goal should be to give employees the necessary tools and information they need to care for an ill or injured person, if necessary, until advanced help arrives.

“The outcome of occupational injuries depends not only on the severity of the injury, but also on the rendering of first aid care,” writes OSHA in its 1991 Guidelines for Basic First Aid Training Programs. “Prompt, properly administered first aid care can mean the difference between life and death, rapid vs. prolonged recovery, and temporary vs. permanent disability.” Since each site is so different, OSHA requires first aid training to be specific to the needs of the workplace. Proper training varies with the industry, number of employees and proximity to emergency care.

Although OSHA’s 1991 guidelines specify the requirements for a first aid program, OSHA does not teach or certify programs. Therefore, employers are faced with numerous programs to choose from, and the choice can be difficult. Because of this, a consensus group comprised of a panel of government and private experts developed the National Guidelines for First Aid in Occupational Settings in 1997.

This new and detailed curriculum identifies the skill training that makes a workplace first aid responder competent to provide care. Responding to OSHA’s requirement that every employer provide first aid assistance in the workplace, these guidelines document the minimum knowledge and skills necessary for an individual to provide basic life support care to an ill or injured person until professional emergency response arrives.

While starting a first aid program can be simple and inexpensive, it involves several essential steps:

Recognize that it is your responsibility as an employer to determine the requirements for your first aid program. As you assess your workplace, be mindful of the jobsite or work process that could cause illness or injury to employees. What types of accidents could reasonably occur in your workplace? Consider such

things as falls, hazardous machinery and exposure to harmful substances. Be sure to put your evaluation in writing for reference purposes. Remember that, while OSHA does not recommend nor approve programs, it may evaluate your program's adequacy during an inspection.

Assess the location and availability of a medical facility to your workplace. If a hospital, clinic or other such emergency response is not readily available, for instance, within three to four minutes, you must have at least one employee trained in first aid and CPR per shift. There is no recommended number of trained employees to have on staff; it largely depends on your facility's size and type of operations. Responding in a timely manner can mean the difference between life and death, so it is crucial that you have an appropriate number of employees trained.

For organizations in multiple sites, such as construction operations, a larger number of employees must be trained. Many experts believe all employees should know how to provide first aid and CPR to ensure that help is always at hand. At a minimum, each department or location should have a responder available on each shift.

Make sure you have suitable first aid supplies readily available at all times. Effective Aug. 17, 1998, OSHA added an Appendix A to its very basic First Aid and Medical standard found in 29 CFR 1910.151. It requires the employer to reference ANSI Z308.1-1978, Minimum Requirements for Industrial Unit-Type First Aid Kits.

According to OSHA, the contents of the kit listed in the ANSI standard should be adequate for small worksites. However, larger or multiple operations should consider the need for additional first aid kits and additional types of first aid equipment and supplies in larger quantities. OSHA suggests consulting a local fire and rescue department appropriate medical professional or first aid supplier for assistance in these circumstances.

OSHA recommends you periodically assess your kit and increase your supplies as needed. Place your first aid supplies in an easily accessible area, and inform all your employees of its location.

Along with a well-stocked, workplace-specific first aid kit, other basic supplies normally include emergency oxygen, blankets, stretchers, directional signs, eyewash stations and burn stations.

In addition to these items, if blood-related incidents are anticipated, you must provide appropriate personal protective equipment (PPE) as mandated in OSHA's Bloodborne Pathogens standard (29 CFR 1910.1030). It lists specific PPE for this type of exposure, such as gloves, gowns, face shields, masks, and eye protection.

On-site safety inspections, review of hazards and emergency dispatch, assessment, implementation, escape and treatment should be discussed in your training program. Employees must be trained to act and think quickly to avoid delayed treatment during an emergency. Ask yourself, whether each employee knows how to report an injury or illness.

Outline the accident investigating and reporting procedures and relay that to your employees as part of your company's policy. Early recognition and treatment of an injury or illness is essential.

Employees must be aware of emergency contact information. It is best to post emergency procedures and emergency office contact numbers with your first aid supplies or in another highly visible and accessible area. Make sure that your field personnel also have suitable supplies and office contact numbers readily available. Appoint an employee in each department to watch for hazards and evaluate its current first aid status. Set a deadline to report any hazards or first aid needs to a manager or supervisor for improvement or correction.

Since people tend to forget their first aid training over time, OSHA recommends refresher training be conducted to recharge employees' knowledge of first aid procedures. At a minimum, employees should be certified annually to perform CPR and once every three years to perform first aid. If such training sounds burdensome, consider that it can produce safer work practices and fewer incidents among employees.

Keeping the workplace safe involves three basic elements: steps to prevent or minimize accidents, adequate first aid supplies and proper first aid training. The employer uses training to make sure its employees know what to do, how to do it and who is in charge in case a first aid or emergency situation occurs. Proper first aid training not only satisfies OSHA requirements, but fosters good will among employees, who recognize the care that their company expends to provide a safe and healthy environment for its most valuable asset: its employees.

Not every job is dangerous, but every employer is responsible for the safety of their employees in the workplace. One of the best ways for employers to meet their legal and moral obligations to their employees is to provide first aid training to employees. Having employees trained provides benefits that aren’t always obvious. In this article we’ll look at some of the ways that first aid training can benefit both employers and employees.

Benefits for employers

1. Faster response during an emergency

In the event of an emergency, a fast employee response can save lives. Employees trained in first aid will understand the steps to take during an emergency, thanks to increased confidence and preparation. A quick response can reduce recovery time, leading to less time lost from injuries.

2. Reduce workplace accidents through awareness

First aid training helps employees learn to be more conscious of safety in the workplace, leading to a reduced number of accidents and injuries. Minimizing risk to workers and decreasing workplace incidents is a benefit to everyone, but for employers it has implications within all aspects of business operations.

3. A more positive work environment

By making first aid training available to employees, employers can show their workforce that they care about providing a safe work environment. First aid training provided in the workplace can even be used as an excellent team-building exercise and morale booster.

Benefits for employees

Safety in the workplace

Employees benefit from others around them receiving first aid training because it keeps them safer. Besides the benefits to employers that we've already noted, a safe work environment is an attractive benefit for employees.

Safety at home

Training in first aid is just as useful outside of the workplace. Knowing first aid could someday help to save the life of a friend or family member. First aid training is especially important for anyone living with someone at risk of cardiac arrest.

Safety while working alone

First aid training can teach employees how to properly use first aid kits, and to stay calm during an emergency. These skills are important for providing first aid to others, but for employees who work alone these same skills could help buy time until help can arrive.