

NIGHT TIME WORK ZONE SAFETY GUIDE



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PAVEMENT
MAINTENANCE & RECONSTRUCTION

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Pavement maintenance can be performed during the day, or at night to accommodate the needs of the clients. Meeting requirements of the job to execute successfully is important no matter the time of day. However, there is added exposure to danger for employees who work after the sun sets including operational risk, as well as physical and mental wellbeing.

CREATE A PLAN

Contractors should create a plan that allows workers to stay safe and work without getting in harms way. All crew members should also understand their

specific role to maintain safety. Depending on the scope of the project, traffic control devices, lighting and other safety measures may be utilized.

Features of a safety plan could include:

- Ensure all workers have undergone a risk assessment test to identify potential hazards on and around the jobsite
- Conduct a site walk-through before the shift begins and continue to evaluate the site as the night goes on
- Check that all crew members are wearing the correct PPE, including high visibility safety vests and other reflective gear, protective footwear, hard hats, face shields etc.
- Educate employees about the importance of sleep and that they are aware of the dangers coming to and from work due to fatigue
- Identify all exits and evacuation routes in the event of an emergency

Regardless of a project, day or night, safety is always a concern. To enhance the safety at night, contractors should barricade the jobsite by using cones, caution tape and reflective construction signage on the ends of the approach and at all entrances for parking lots. This will ensure the safety of both the workers as well as the traveling public. This is a way to communicate with the drivers that the lot or jobsite is under construction.

TIP!



When working in an unfamiliar area at night, call the local police department to inform them your crews will be onsite doing maintenance work. This clears up communication and protects your crew from unwanted visitors.

LIGHTING OPTIONS

Since workers will not have natural lighting, the jobsite should have enough artificial light that will allow the crew to continue with their work. The length of work activity for one night may dictate either that the lighting plan be continuous for the length of the jobsite or that a mobile system be used so that the lighting moves with the various work activities.

1. **Portable Light Plant Towers** – This lighting consists of numerous luminaires mounted to a mast arm that is capable of holding the luminaires at various mounting heights. The mast arm is attached to a trailer with a generator that can be towed by a vehicle. To prevent glare, these lighting systems should not be aimed toward traffic and should be aimed downward at the work and rotated outward no greater than 30 degrees from straight down unless the light has been designed specifically to prevent glare.
2. **Balloon Lighting** – This type of lighting consists of a large balloon type luminaire that provides a fairly large area of evenly distributed light and is relatively glare-free. Balloon lights can be mounted on slow-moving equipment or on portable light towers.
3. **Factory-Installed Lights on Equipment** – Headlights installed on most equipment do not normally provide adequate lighting for most work operations and as a large component of glare should not be used when facing any oncoming traffic.

When developing a lighting plan, contractors should consider the type of work activities that will be completed, therefore the level of lighting the job requires.

1. **LEVEL I:** Level I illuminance is important in areas where the work crew is in motion, moving from spot to spot. This level of illuminance is appropriate for tasks requiring low accuracy, involving slow-moving equipment, and where there are large objects to be seen. Level I illuminance requires 5-foot candles (fc)* of average maintained illuminance.
2. **LEVEL II:** Areas on or around construction equipment; asphalt paving, milling and concrete placement/removal. Level II illuminance is recommended for areas on or around construction equipment to provide a safer environment for the workers operating the equipment, allowing them to perform tasks that require a moderate level of accuracy. Level II illuminance requires 10 fc of average maintained illuminance.
3. **LEVEL III:** Pavement or structural crack/pothole filling; joint repair, pavement patching/repairs; installation of signal/electrical/mechanical equipment. Level III illuminance is appropriate for those tasks that require a greater level of vision or for tasks with a higher level of difficulty. Level III illuminance requires 20 fc of average maintained illuminance.

**According to the American Traffic Safety Services Association (ATSSA) a foot candle (fc) is defined as a unit of illumination that is equal to one lumen per square foot, or 10.764 lux.*



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PHYSICAL AND MENTAL PERFORMANCE

When working unusual hours, that the body might not be accustomed to, there can be a huge effect on both your mental and physical health. The human body follows daily circadian rhythms, which regulate body temperature, metabolism, digestion, blood pressure, secretion of adrenaline, sleeping and walking.

In the mid-afternoon and overnight, everyone's circadian rhythm dips. Sleepiness comes in waves, hunger is subsided, reaction time is slower and the memory isn't as sharp as earlier in the day. This dip in the circadian rhythm is something that night operators and crew members must confront.

Contractors should be aware of these risks to help themselves and others to work safely. Workers can manage their fatigue better and enhance their alertness and recognize how fatigued they are if properly educated. Warning signs include:

- Physical changes such as sleepiness or difficulty keeping eyes open, excessive yawning, blurred vision or loss of focus, or lack of energy
- Changes in behavior/mood such as irritability, an inability to concentrate, becoming quiet and more withdrawn, lack of motivation
- Mental/intellectual changes including difficulty concentrating, an inability to remember what you did in the last five minutes, difficulty starting and completing tasks

Fatigue also correlates with higher maintenance costs, lost productivity, increased turnover, absenteeism, and presenteeism, higher health and wellness costs, reduced customer service quality, higher operating risks and liabilities, and, ultimately, reduction in overall operating profit.

Managers and supervisors should learn to recognize signs and symptoms of potential health effects associated with night shifts. Workers who are being asked to work night shifts should be monitored for the signs and symptoms of fatigue.



IMPROVE ENERGY AND ALERTNESS DURING THE NIGHT SHIFT

Understanding what takes place with your body and mind is the first step to a better, more productive life while working overnight. The next step is to adjust behavior based on those warning signs.

- Become aware of your “biological clock time” so you can schedule a break during expected drowsy periods
- Take a nap one to four hours before the first night shift
- Play a mental game to keep your mind active
- Talk to a co-worker about a common interest for just a few minutes to stimulate your mind
- If operating, seek opportunities to get out of your sweeper or off the machine for a break
- Drink caffeinated coffee, tea or soda – but use caffeine wisely
- Snack on pretzels, fruit, or vegetables; avoid candy and other sugary foods on breaks or mealtime
- Wear layers of clothing that you can add or shed depending on your body temperature
- Keep your sweeper cab cool (below 70° F) and well-ventilated, when applicable
- If permitted, turn on a radio

Everyone is different, so finding the right combination of techniques that suit the individual may take time.

Physical and mental well-being go hand in hand on the jobsite no matter the time of day. Promoting education, resources and safety measure can keep your crew from experiencing burnout and over exhaustion. By keeping your employee's safety and well-being in mind, they understand they are a valued and appreciated part of the company.

WHAT SHOULD CONTRACTORS BE EATING?

There's a relationship between the foods you eat and your energy and alertness when working overnight. Unfortunately, the foods that are most readily available to contractors on the go are exactly the foods you shouldn't be eating.

AVOID

- Fatty and fried foods entirely during the shift
- Pastries
- Potato and corn chips
- Subs and pizza
- Whole milk dairy products

INDULGE

- Pasta, rice, and potatoes, particularly whole wheat pasta, brown rice and sweet potatoes - which contain more fiber and nutrients
- Whole grain breads and cereals
- Fruit and vegetables
- Fish, lean meats (such as skinless chicken breast and turkey)
- Soybeans, tofu and beans
- Skim or low-fat milk and cheese products

Preparing food ahead of time and packing your own meals might be the easiest solution to meeting this criteria. Bring plenty of water and healthy, well-balanced, easy-to-digest foods to keep your brain sharp during the late hours of the night.

- **Sandwiches.** Use whole wheat, rye or bread alternative like lettuce leaf, and substitute a bagel, an English muffin, or pita bread once in a while. Between those healthy slices try chicken, tuna, turkey, lean beef, seafood, low-fat cheese or a reasonable amount of peanut butter with low-sugar jam. Top appropriate sandwiches with lettuce, tomato, onions, zucchini and just about any other vegetable.
- **Soup.** You can't go wrong with chicken or vegetable soups containing pasta or rice. While this might be more difficult out on a sweeper route or line marking crew, having healthy soup on hand in a thermos can provide a nice energy boost.
- **Salads.** These too, might be difficult to eat during a shift, but that doesn't mean you should avoid them. Include a variety of greens, a healthy protein and a variety of fresh vegetables. Apply a reasonable amount of a low-fat dressing.
- **Snacks.** Many people reach for candy bars or donuts to get an energy boost – and they do provide that. But it lasts only about 20 minutes, and most people feel even more fatigued after that “sugar high” wears off. Stick with fresh fruit, unsalted pretzels, fig bars, low-fat crackers, low-fat yogurt, graham crackers or even dry sugar-free cereal to get a solid energy boost.

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