



**Safety Program
Improvement Partnership**



Shelly, Twinsburg Risk Reduction Project: *Night Work*

Sustainable Risk Reduction Potential for Night Work



Liberty
Mutual™

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Shelly, Twinsburg
Risk Reduction
Project:
Night Work
(The *Safest* Way)

風 險

In traditional Chinese, risk is expressed with two characters; one representing *danger* and the other *opportunity*

- **There is danger in everything we do**
- **This fact creates opportunity...**

Damodaran, *Value & Risk: Beyond Betas*; 2003

Exploiting the Opportunity...

- Depends on *identifying* sources of uncertainty and *targeting* those that are *actionable*
- Begins with the fostering of *creative tension...*

Creative Tension...

- **Comes when a gap is recognized between *what the organization wants to be* (vision) and *what it is* (reality)**
- **Is resolved in one of two ways:**
 - = **Adjusting the vision to meet the reality**
 - ***(Aspiring to the mean)***
 - = **Adjusting the reality to meet the vision**
 - ***(Aspiring to excellence)***



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Organizations that
relentlessly *adjust their
reality* to meet their
vision are known as
World Class...



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**We seek to be known
as *World Class* when it
comes to *Night Work*,
especially as it relates
to our business growth**



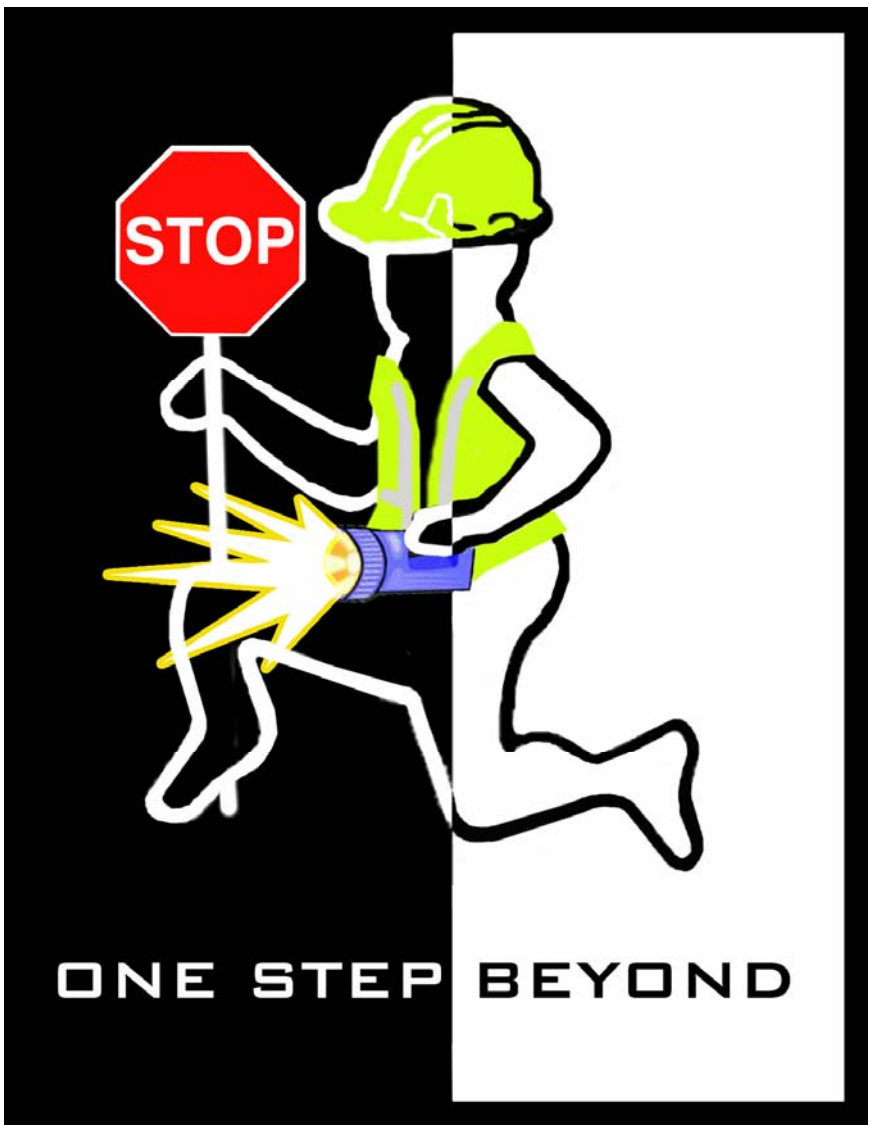
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We Are:



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Our Vision:



Reflect
and
Illuminate

Webster on Reflection

- **To throw back or bend light from a surface**
- **To think *seriously*...**

Webster on Illumination

- **To provide or brighten with lights**
- **To make understandable; clarity**
- **To provide *intellectual or spiritual enlightenment and understanding...***



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We have identified those sources of uncertainty and have targeted those that are most actionable

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A few examples...

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Our equipment didn't
anticipate night work; we
can't be seen, or see, well



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We look like every
other stationary
object on our night
sites

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**Our plants are not
engineered for consistent
night illumination or
reflection**

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Hazards easily seen during the day, drive accidents in the night



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**Simply put, what we see and
how we are seen during the
day...**

**Does not serve us well at
night!**

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Our charge: create a map that will reduce risk in an area that matters — so that it *stays reduced* locally and nationally

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Then This:

Concerns (Injury + Event + Causation, e.g. Head injury from falling from ladder when foot slipped)	Frequency (Rate Frequency of Exposure)	Likelihood (Rate Likelihood of Concern)	Severity (Rate Severity of Concern)	Relative Risk
Falls from no illumination for fixed routine tasks (fueling, greasing, etc.)	3	3	3	27
Falls from no illumination for dynamic walking surfaces (erosion, ruts, etc.)	5	5	2	50
Contact with overhead wires while moving equipment in poor lighting	4	5	4	80
Falls from poor illumination of exposed castings or planed surface edges	5	3	1	15
Falls outside work site from inability to accurately judge ground conditions	3	3	1	9
			Risk Index	181

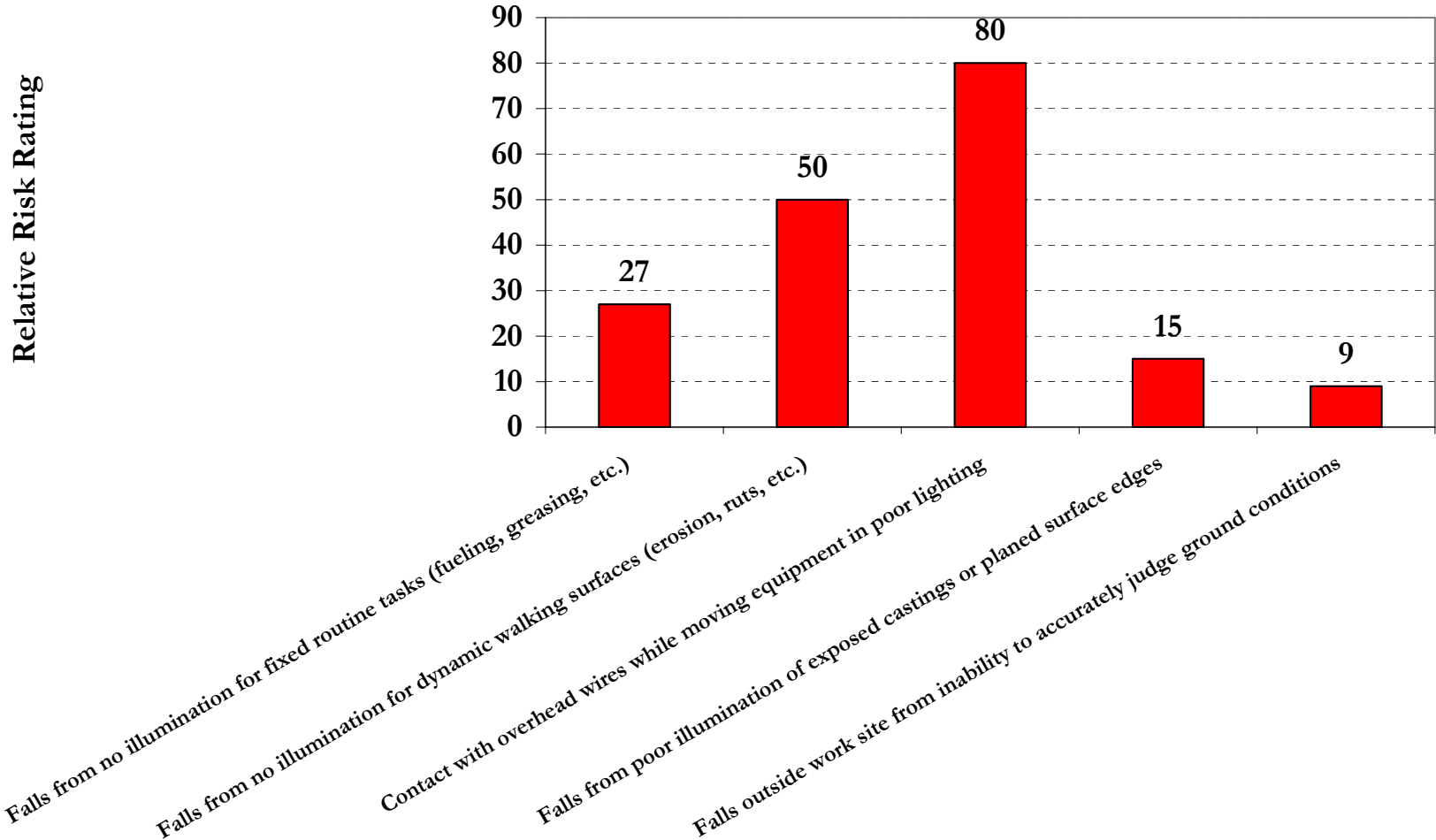


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To Produce This:

Performance Leadership Summary
Shelly Company, Twinsburg, OH
Illuminate Site Hazards



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To organize our risk analysis, we identified 8 logical, balanced sources of risk from night work:

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We experience risk
when we don't have
good reflection for our
people, our equipment,
our traffic control or
our site hazards



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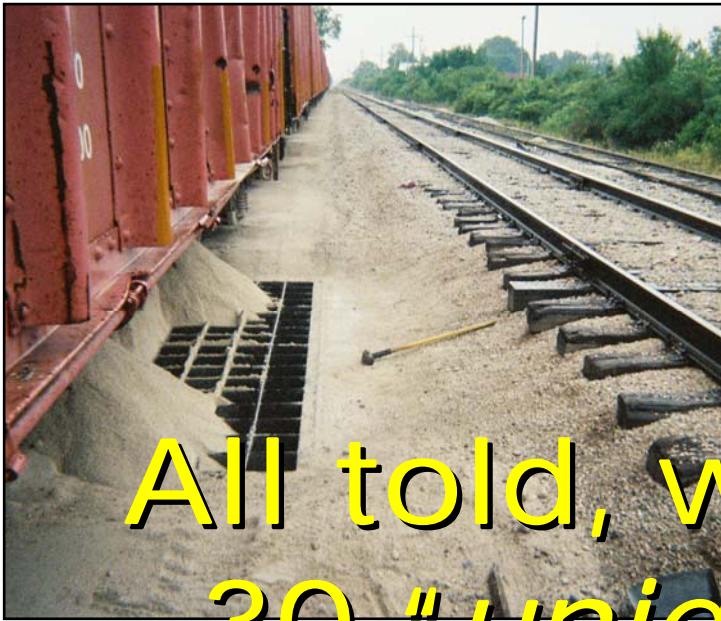


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And, we experience
risk when we don't
have good illumination
for our people, our
equipment, our traffic
control or our site
hazards

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All told, we identified
30 "unique to night
work ways" for one of
ours to get hurt





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Using our F-L-S
methodology, our
baseline relative risk
score for risk unique to
our night work is 828



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**How significant is
this?**

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From a Business Perspective:

- **In 2004, we produced 30% of our asphalt at night**
- **In 2005, we produced 47% of our asphalt at night**
- **In 2006, we produced 60% of our asphalt at night**
- **All told, we've doubled our night asphalt business in three years; *it's our future***





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From a Resource Perspective:

- In 2004, we had 3 night projects
- In 2005, we had 3 night projects
- In 2006, we had 11 night projects
- All told, that's 40% of our work force that has migrated to night work; *it's our future*





From a Safety Perspective:

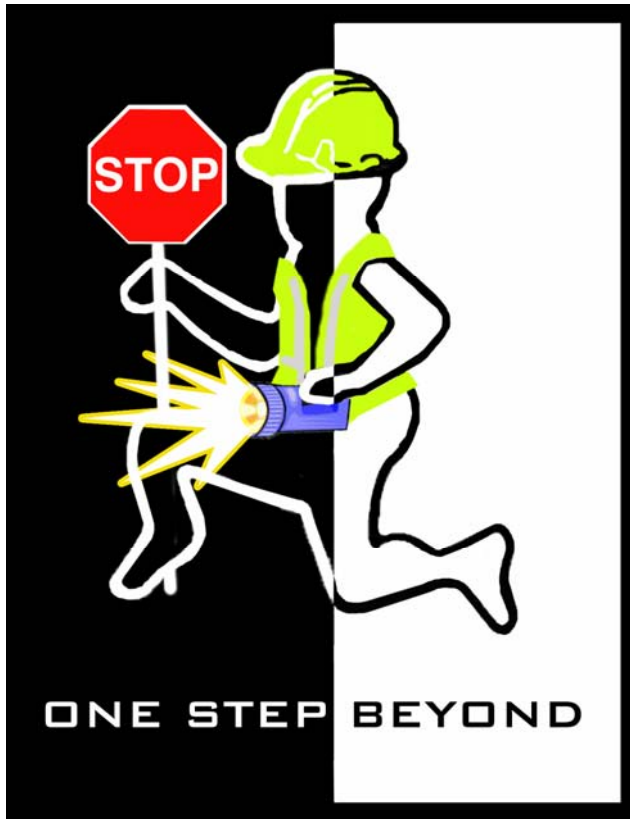
- **We each went into the field to observe natural behavior and create current baselines**
- **We found a general lack of uniformity and understanding of what needs to be done for night work**



That Risk Exists Because ...



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**Reflect and
Illuminate**

**We believe our
company can cut
its' relative risk for
night work by 39%
if we as a
company accept
and support our
vision and
recommendations**

Recommendations for Reflection

- **Assemble and distribute a standardized night flagger kit**
 - **Necessary PPE**
 - **Reflective gear**
 - **Laminated “tool box talk”**
 - **Provide training on purpose, use, maintenance and replacement**
 - **Update flagger training**
 - **Implement a kit swap out program**

Recommendations for Reflection

- **Standardize and provide (lime yellow) reflective rain gear**
- **Equip mechanics and plant workers with reflective tear away vests**
- **Distinguish workers from fixed objects with standardized reflective tape on all hard hats and reflective bands for wrists and ankles as appropriate**



Recommendations for Reflection

- **Incorporate different color cones in traffic control to delineate exits**
- **Include “reflect and illuminate” standards on pre-trip inspections and direct work to the shop for better control**
- **Incorporate reflectivity standards into sign maintenance (cleaning), demarcation and replacement**



Recommendations for Reflection

- **Improve visibility of access/egress at plants (stairs, walkways, and handrails)**
- **Improve visibility of access/egress on rolling stock (stairs, walkways, and handrails)**
- **Highlight equipment profiles with standardized reflective tape placement and Shelly emblems**



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Recommendations for Reflection

- **Reflect fixed hazards (bridge conveyors as an example)**
- **Encourage regular use of light colored clothing (painter's pants as an example)**

Recommendations for Illumination

- **Phase in engineered lighting plans for facilities using baseline risk profiles**
- **Provide access/egress lighting on all mobile equipment**
- **Equip the night workforce with LED miner lights**
 - **Provide training on purpose, use, maintenance and replacement**

Recommendations for Illumination

- **Assemble and distribute a standardized worker safety kit**
 - **Anticipate all aspects of night work**
 - **Include “red flashing ball”**
 - **Laminated “tool box talk” and critical behavior self-checklist**
 - **Provide training on purpose, use, maintenance and replacement**
 - **Update all relevant training**
 - **Implement a kit swap out program**

Recommendations for Illumination

- **Equip flaggers with personal balloon lighting**
- **Provide light wands for consistent communication when dumping trucks**
- **Install clearance lamps on paver wings**
- **Provide magnetic area lighting for equipment**

Recommendations for Illumination

- 
- **Equip trucks with handheld “police style” spotlights (mounted and hand held as appropriate)**
 - **Anticipate and light staging areas and designated parking areas**
 - **Designate and light clean-out areas for haul trucks**



Supporting Recommendations

- **Examine night work scheduling from an exposure point of view (Sunday nights versus Friday nights as an example)**
- **Pilot additional “rolling foot candles”**
- **Review all policies and SOPs to assure consistency with “reflect and illuminate” recommendations**



Supporting Recommendations

- **Create a “transition to night work” training unit supported by research and lessons learned from other industries**
- **Provide training and integrate “reflect and illuminate” standards into bid and preplanning activities**
- **Identify and manage a “night work hierarchy”**



Supporting Recommendations

- **Orient TRACK for an early season “reflect and illuminate burn-in”**
 - **Publish transferable ideas and best practices in newsletter**
 - **Celebrate early “reflect and illuminate” successes for individuals and crews**
 - **Needs to be proportionate to our night work levels**



Supporting Recommendations

- **Charge a cross-functional team with creating a “coach and appreciate” process to advance reflect and illuminate behaviors**
 - **Reflective logo stickers for hard hats**
 - **Include “penny pitch” exercise in management training**
 - **Start 2007 season with “track-like” observations for management**



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Supporting Recommendations

- **Share safety and production updates**
 - **Expand the daily call-in report to include safety performance**
- **Produce and share night equipment status reports**





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Using our risk
reduction blueprint, our
new risk score for risk
unique to our night
work is 504



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**That's an overall risk
reduction for night
work of 39%**



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Risk

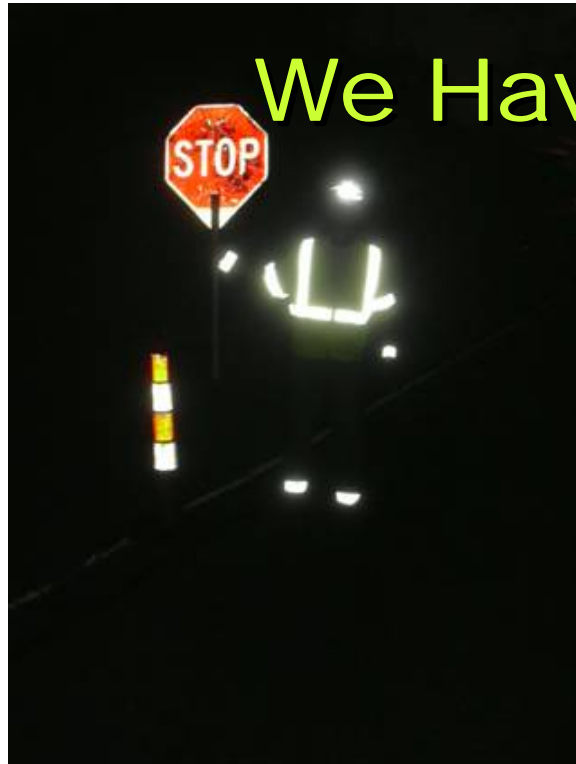


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We Have This:



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**So, what else is
needed?**

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**Doesn't it make
sense that those
closest to the risk
have the most to say
about it?**

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**Here's what we
think...**

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What about you?

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