ARE GREEN JOBS SAFE JOBS?

Credit: Gotham Gazette

NEW YORK COMMITTEE FOR OCCUPATIONAL SAFETY AND HEALTH

116 John Street, Suite 604, New York NY 10038

212-227-6440, www.nycosh.org

Green Jobs – Definition (1)

- Jobs that contribute substantially to preserving or restoring environmental quality
- including jobs in:
  - Agriculture
  - Manufacturing
  - Construction
  - Installation
  - Maintenance
  - Scientific and technical, administrative, & service-related activities.

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Green Jobs – Definition (2)

- Narrow definition may focus solely on environmental components of job.
- But, green jobs also need to be decent jobs - pairing concerns like energy efficiency & low emissions with traditional labor concerns:
  - wages & benefits
  - career advancement
  - job security
  - occupational health & safety
  - other working conditions & worker rights.

- A job that is exploitative, harmful, or fails to pay a living wage is not a green job.

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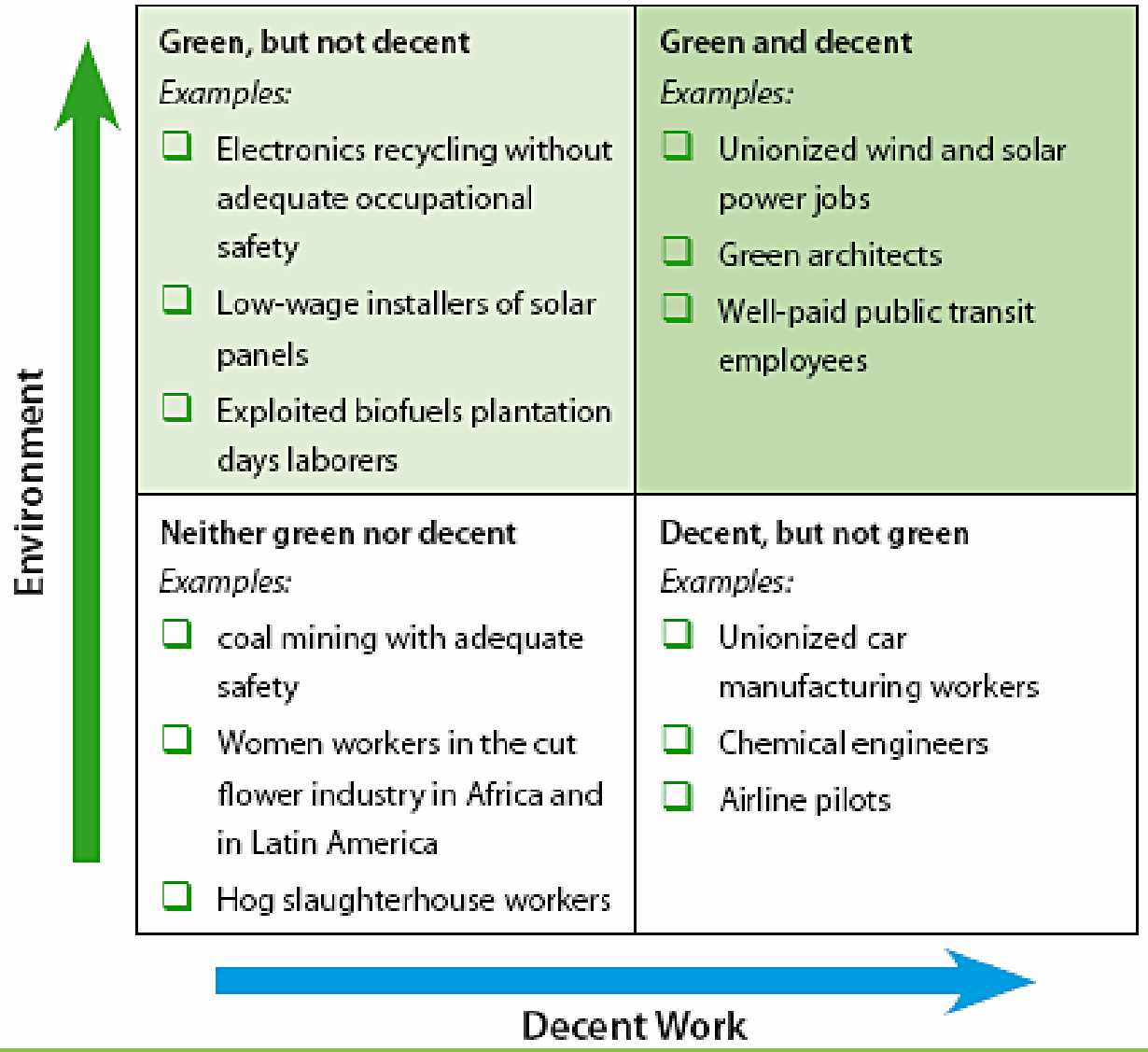
Figure I.1-1. Green and Decent Jobs? A Schematic Overview



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Sustainability & Jobs

- As economy transitions toward greater sustainability:
  - Additional jobs will be created - as in manufacture of pollution control devices added to existing production equipment.
  - Some employment will be substituted - as in shift from fossil fuels to renewables, or from truck to rail-car manufacture, or from landfilling & waste incineration to recycling.
  - Some jobs may be eliminated without direct replacement - as when packaging materials are discouraged or banned & their production is discontinued.
  - Many existing jobs (especially in construction & maintenance) will be redefined as day-to-day skill sets, work methods, and profiles are greened.

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CHALLENGES & OPPORTUNITIES

- Green collar employment offers **pathway out of poverty** in economically depressed or marginalized areas.
- Historically, racial & ethnic minorities had limited access to apprenticeship programs for skilled trades.

- Doors to new green economy need to be fully opened to those excluded from equitable access to jobs in the “old” economy due to discrimination and/or to lack of skills, resources, or opportunities.

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CHALLENGES & OPPORTUNITIES

Green collar equity issues:

- In addition to numbers of jobs & access to jobs, there is range of qualitative questions:
  - occupational profiles & work skills
  - wage & benefits
  - opportunities for advancement
  - respect for worker representation (unionization)
  - openness to worker participation & empowerment.

- To fully identify, adopt, & implement green opportunities in the workplace, the active involvement of workers, unions, & community-based organizations is essential.

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CHALLENGES & OPPORTUNITIES

Just Transition:

- Transition to green economy:
  - new green jobs
  - greening of some existing jobs
  - job losses, particularly in energy-intensive industries, extractive industries, & possibly road transport.

- As result, calls re-emerging for *just transition:*
  - adequate assistance to those harmed
  - new opportunities to be shared by diverse worker, social, & community constituencies.
- Labor movement roots:
  - mid-1980s, NJ Ciba-Geigy chemical plant closed down due to environmental concerns
  - OCAW attempted to negotiate “Superfund for Workers”
    - income protection for plant’s workers
    - government-funded retraining for displaced employees.

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American Recovery and Reinvestment Act of 2009

- "...create jobs, restore economic growth, & strengthen America's middle class..."
- "...modernize the nation's infrastructure, enhance America's energy independence, expand educational opportunities, preserve & improve affordable health care, provide tax relief, & protect those in greatest need..."
- +/- $787 billion.

- Requirements for OSH training?
- $ for OSH training?

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GREEN OCCUPATIONAL SAFETY & HEALTH: example - WEATHERIZATION

- Weatherization:
  - cost-effective energy efficiency measures in buildings.
  - includes energy efficiency measures for:
    - the building envelope
    - heating & cooling systems
    - the electrical system
    - electricity-consuming appliances.

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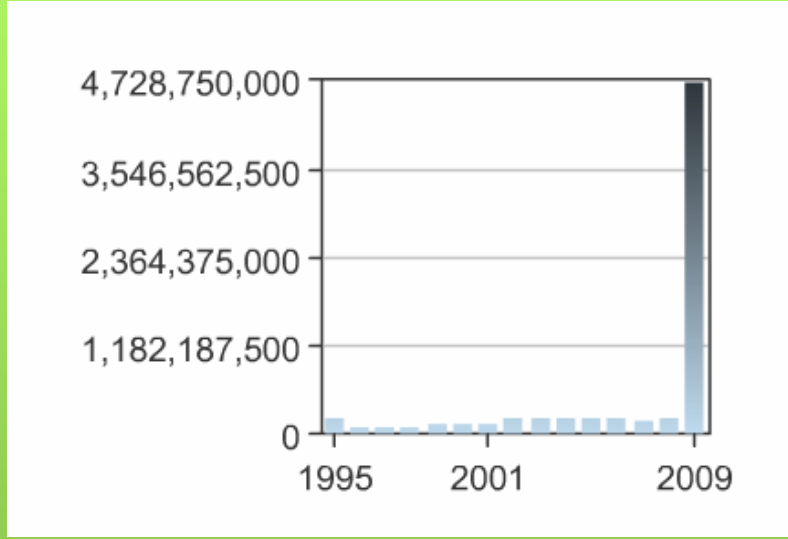
WEATHERIZATION: A GROWTH INDUSTRY

- U.S. Department of Energy (DOE) Weatherization Assistance Program (WAP):
  - Provides weatherization services to low-income families.
  - 2008 program created 21,000 weatherization jobs.
  - Recovery Act funding is projected to create 133,345 additional weatherization jobs within 2 years.



Federal WAP funding in $ by year

WEATHERIZATION: A GROWTH INDUSTRY

- Weatherization providers:
  - Small contractors
  - Community-based non-profits.
- Will lack:
  - OSH experience
  - OSH expertise
  - OSH knowledge
  - OSH resources
  - OSH $.

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WEATHERIZATION WORK: HAZARD ASSESSMENT

Ladders

29 CFR 1926.1053

Fall Protection

29 CFR 1926.501

WEATHERIZATION WORK: HAZARD ASSESSMENT

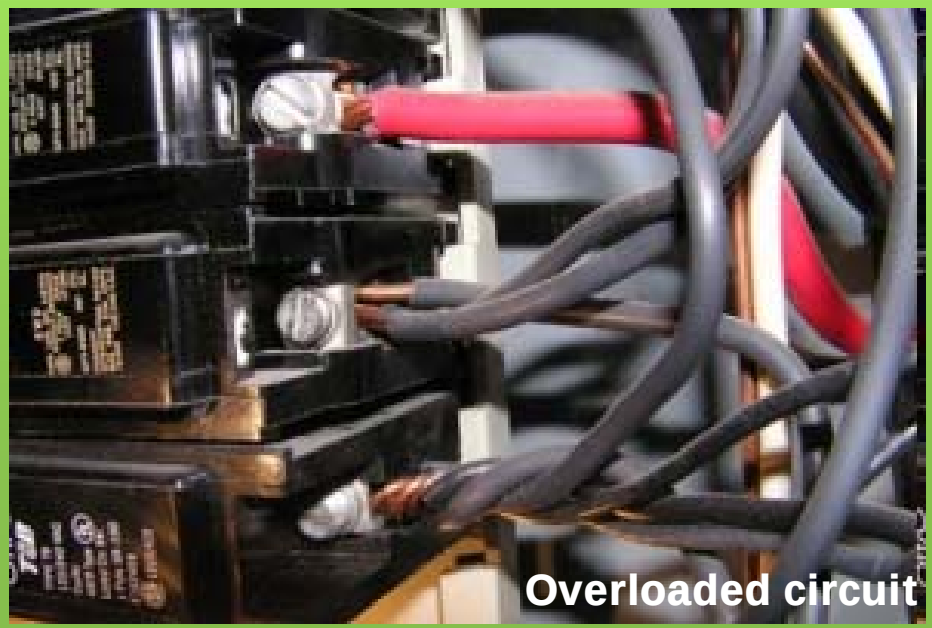
Hand & power tools

- 29 CFR 1910 Subpart P
- 29 CFR 1926 Subpart I

WEATHERIZATION WORK: HAZARD ASSESSMENT

Electrical

- 29 CFR 1926 Subpart K
- 29 CFR 1910 Subpart S



Overloaded circuit

Knob & tube wiring

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WEATHERIZATION WORK: HAZARD ASSESSMENT

Walking/Working Surfaces

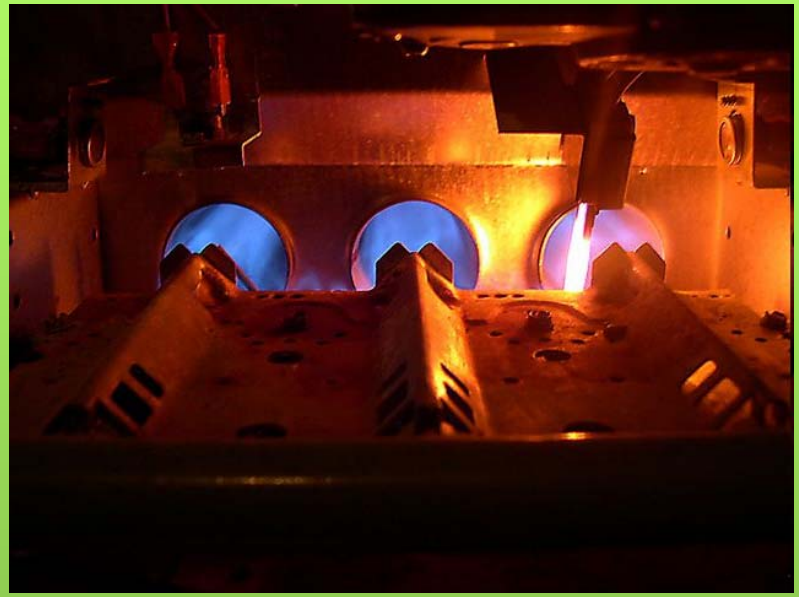
- 29 CFR 1910 Subpart D
- 29 CFR 1926 Subpart X

WEATHERIZATION WORK: HAZARD ASSESSMENT

Confined Space

- 29 CFR 1910.146 (permit-required confined space)
  - Applicable?
  - Can be used for guidance.

WEATHERIZATION WORK: HAZARD ASSESSMENT



Storage & handling of liquefied petroleum gases

- 29 CFR 1910.110

Carbon monoxide

- 29 CFR 1910.1000

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WEATHERIZATION WORK: HAZARD ASSESSMENT

Respiratory Protection

- 29 CFR 1910.134
- 29 CFR 1926.103

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WEATHERIZATION WORK: HAZARD ASSESSMENT

Hazard Communication (chemicals)

- 29 CFR 1910.1200

WEATHERIZATION WORK: HAZARD ASSESSMENT

Asbestos

- 29 CFR 1910.1001
- 29 CFR 1926.1101
- NYS Industrial Code Rule 56
- NYC Asbestos Control Program

WEATHERIZATION WORK: HAZARD ASSESSMENT

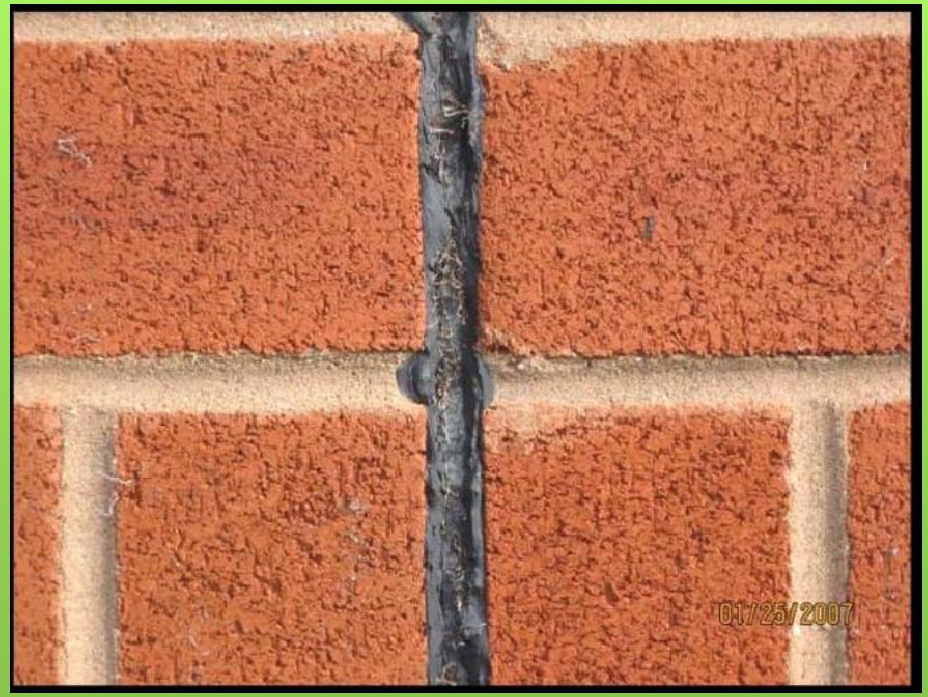
Lead

- 29 CFR 1926.62
- § 402(c)(3), Toxic Substances Control Act (TSCA)

WEATHERIZATION WORK: HAZARD ASSESSMENT

PCBs in caulk

- OSHA: no applicable standard
- EPA: Current Best Practices for PCBs in Caulk - Removal & Clean-Up of PCBs in Caulk & PCB Contaminated Soil & Building Material



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WEATHERIZATION WORK: HAZARD ASSESSMENT

Mold

- No OSHA standard
- NYC DOHMH Guidelines on Assessment & Remediation of Fungi in Indoor Environments

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WEATHERIZATION WORK: example of obstacles to HAZARD ASSESSMENT

- "Two-part polyurethane spray foam insulation is increasingly used by weatherization providers to air seal and insulate."
  (DOE WAP)

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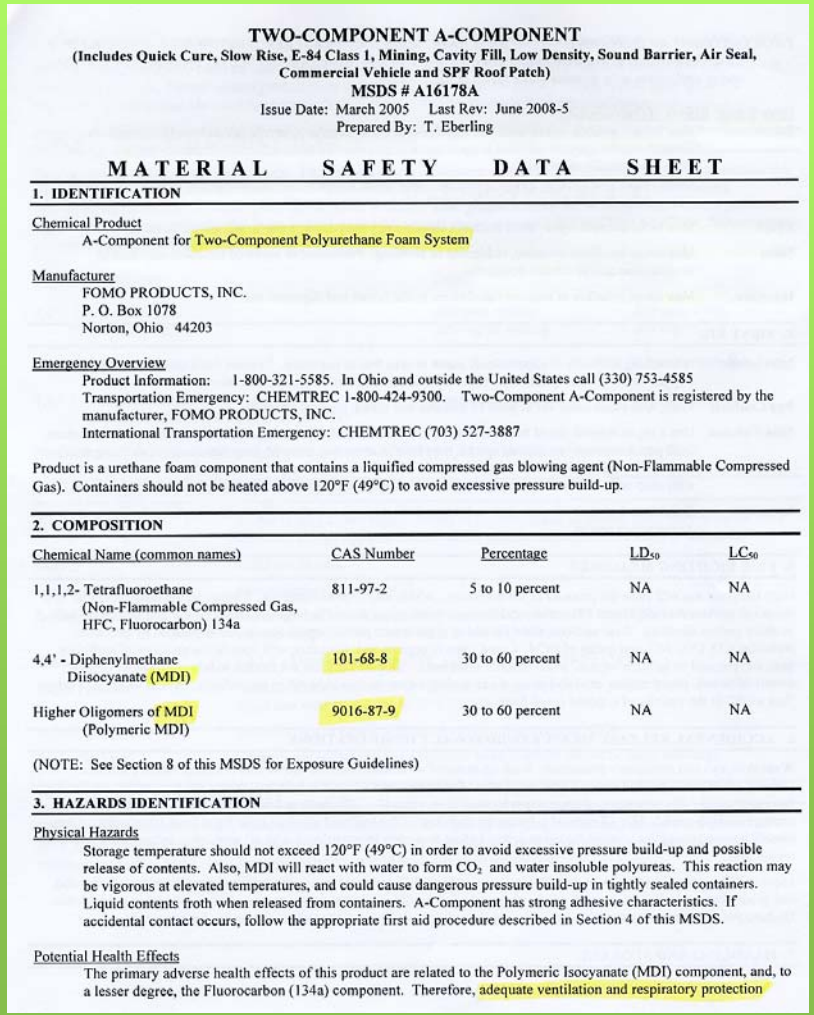
WEATHERIZATION WORK: example of obstacles to HAZARD ASSESSMENT



TWO-COMPONENT A-COMPONENT
(Includes Quick Cure, Slow Rise, E-84 Class 1, Mining, Cavity Fill, Low Density, Sound Barrier, Air Seal, Commercial Vehicle and SPF Roof Patch)
MSDS # A16178A
Issue Date: March 2005 Last Rev: June 2008-5
Prepared By: T. Eberling

MATERIAL SAFETY DATA SHEET

1. IDENTIFICATION

Chemical Product
A-Component for Two-Component Polyurethane Foam System

Manufacturer
FOMO PRODUCTS, INC.
P. O. Box 1078
Norton, Ohio 44203

Emergency Overview
Product Information: 1-800-321-5585. In Ohio and outside the United States call (330) 753-4585
Transportation Emergency: CHEMTREC 1-800-424-9300. Two-Component A-Component is registered by the manufacturer, FOMO PRODUCTS, INC.
International Transportation Emergency: CHEMTREC (703) 527-3887

Product is a urethane foam component that contains a liquified compressed gas blowing agent (Non-Flammable Compressed Gas). Containers should not be heated above 120°F (49°C) to avoid excessive pressure build-up.

2. COMPOSITION

Chemical Name (common names)	CAS Number	Percentage	LD_{50}	LC_{50}
1,1,1,2- Tetrafluoroethane (Non-Flammable Compressed Gas, HFC, Fluorocarbon) 134a	811-97-2	5 to 10 percent	NA	NA
4,4' - Diphenylmethane Diisocyanate (MDI)	101-68-8	30 to 60 percent	NA	NA
Higher Oligomers of MDI (Polymeric MDI)	9016-87-9	30 to 60 percent	NA	NA

(NOTE: See Section 8 of this MSDS for Exposure Guidelines)

3. HAZARDS IDENTIFICATION

Physical Hazards
Storage temperature should not exceed 120°F (49°C) in order to avoid excessive pressure build-up and possible release of contents. Also, MDI will react with water to form CO_2 and water insoluble polyureas. This reaction may be vigorous at elevated temperatures, and could cause dangerous pressure build-up in tightly sealed containers. Liquid contents froth when released from containers. A-Component has strong adhesive characteristics. If accidental contact occurs, follow the appropriate first aid procedure described in Section 4 of this MSDS.

Potential Health Effects
The primary adverse health effects of this product are related to the Polymeric Isocyanate (MDI) component, and, to a lesser degree, the Fluorocarbon (134a) component. Therefore, adequate ventilation and respiratory protection

- **per MSDS for A component for <u>2-component polyurethane foam</u> system:**
  - **30-60% diphenylmethane diisocyanate (MDI)**
  - **30-60% polymeric MDI**

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WEATHERIZATION WORK: example of obstacles to HAZARD ASSESSMENT

- NIOSH Alert 96-111: Preventing Asthma & Death from Diisocyanate Exposure
  - Powerful irritants to mucous membranes of eyes & gastrointestinal & respiratory tracts.
  - Direct skin contact can cause marked inflammation.
  - Respiratory irritation may progress to chemical bronchitis with severe bronchospasm.
  - Can sensitize workers, making them subject to severe asthma attacks if re-exposed - even at concentrations below NIOSH REL. Death from severe asthma in sensitized subjects reported.
  - Cases of hypersensitivity pneumonitis (HP) also reported in workers exposed to isocyanates.
  - International Agency for Research on Cancer (IARC): data sufficient to show that TDI causes cancer in animals.
  - WHO: TDI should be considered potential human carcinogen.

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WEATHERIZATION WORK:
example of obstacles to HAZARD ASSESSMENT

Varying guidance for safe work practices with MDI

- **Manufacturer's MSDS:**
  - "Adequate ventilation & respiratory protection."
- **DOE WAP:**
  - Use fans to ventilate enclosed areas.
  - Where legal limits may be exceeded, use negative pressure, half-face respirator with OV cartridges & dust/mist pre-filters, or preferably positive pressure, supplied air respirator.
- **NIOSH**
  - Where feasible, substitute less hazardous material for isocyanates.
  - Ventilation should be principal method for minimizing isocyanate exposure.
  - Use appropriate PPE such as coveralls, footwear, chemical-resistant gloves & goggles, full faceshields, & suitable respiratory equipment.
  - Use of respirators is least preferred method of controlling worker exposures. Appropriate respirators:
    - self-contained breathing apparatus with full facepiece operated in pressure-demand or other positive-pressure mode, or
    - supplied-air respirator with full facepiece operated in pressure-demand or other positive-pressure mode in combination with auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.

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GREEN INITIATIVES ARE ABOUT RAISING THE BAR

- Green building initiatives:
  - Goal is to surpass current methods & achieve state-of-the-art energy efficiency & environmental practices.

- Green jobs:
  - Goal is living wage, not minimum wage.

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GREEN INITIATIVES ARE ABOUT RAISING THE BAR

- Shouldn't green jobs aim to raise the bar by meeting & exceeding OSHA standards in order to provide safe & healthful work?

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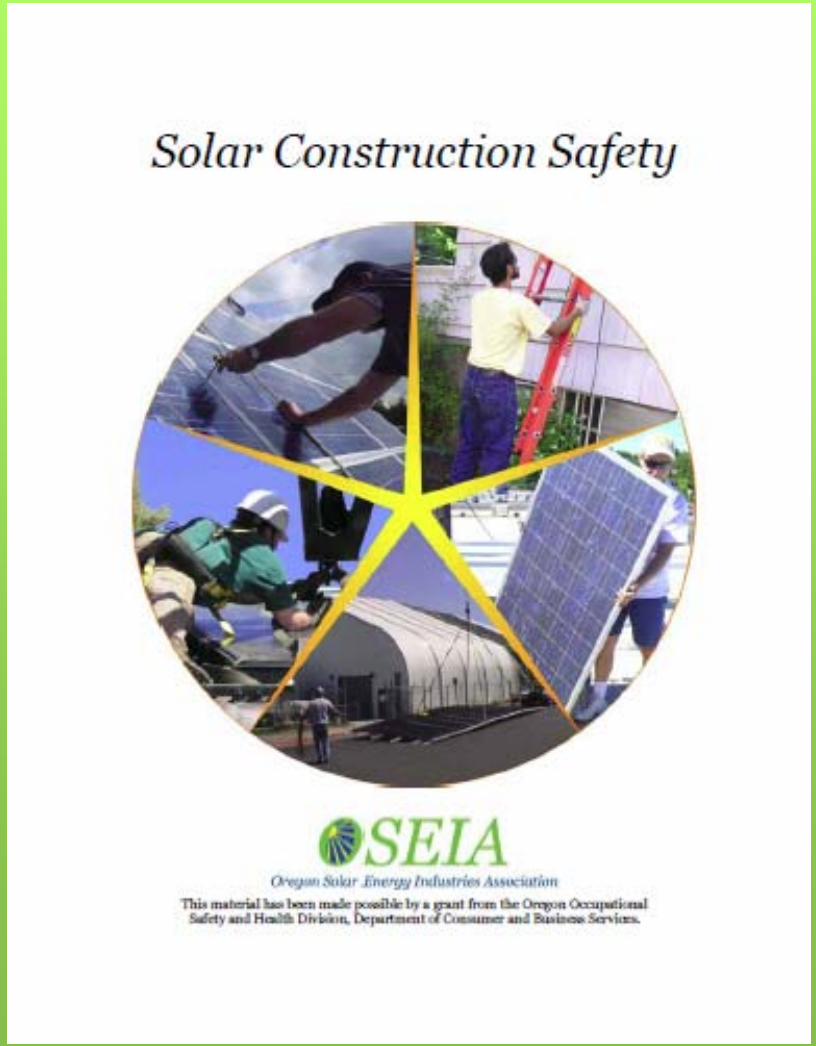
NYCOSH Comparison: NYS DEC Brownfield Chemicals & OSHA-Regulated Airborne Substances

Document	*Table*	*Target Category*	*# of Substances*	*# without OSHA Standards*	*% without OSHA Standards*
6 NYCRR Part 375 (Draft)	375-3.8 (a) & (b)	Metals	16	1	7%
		PCBs/Pesticides	18	12	67%
		Semivolatile Organic Compounds	21	14	67%
		Volatile Organic Compounds	31	14	45%
Technical Support Document[2]	4.1-1	Volatile Organic Compounds	55	15	27%
		Semivolatile Organic Compounds	64	46	72%
		Pesticides/Arochlors	28	17	61%
		Other (dioxin)	1	1	100%
		Inorganics	24	8	33%
	4.1-2	Volatile Organic Compounds	30	12	40%
		Semivolatile Organic Compounds	16	10	63%
		Pesticides	15	9	60%
		PCBs	7	2	29%
		Other (dioxin)	1	1	100%
		Inorganics	11	4	36%
	4.1-3	Volatile Organic Compounds	23	13	57%
		Pesticides/PCBs	17	10	59%
		Inorganics	16	1	6%
	5.1.1-2	Inhalation Toxicity Values	85	36	42%

PROFESSIONAL (non-regulatory) STANDARDS & GUIDANCE



Example:

- Oregon Solar Energy Industries Association, Solar Construction Safety Manual
  - General jobsite safety
  - Hazard assessment
  - PPE
  - Emergency response plan
  - Lifting safety
  - Ladder safety
  - Fall protection
  - Solar plumbing safety
  - Solar electrical safety
  - OSHA rules & information.

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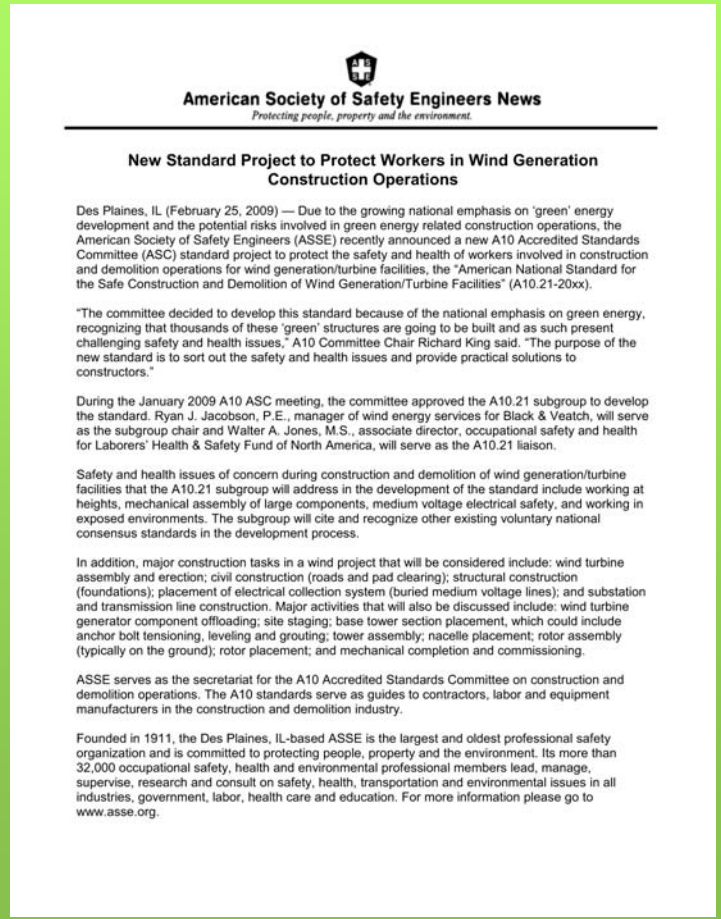
PROFESSIONAL (non-regulatory) STANDARDS & GUIDANCE

Example:

- American Society of Safety Engineers, American National Standard for the Safe Construction & Demolition of Wind Generation/Turbine Facilities
  - working at heights
  - mechanical assembly of large components
  - medium voltage electrical safety
  - working in exposed environments
  - wind turbine assembly & erection
  - wind turbine generator component offloading
  - tower assembly
  - nacelle placement
  - rotor assembly & placement
  - mechanical completion & commissioning.



American Society of Safety Engineers News

Protecting people, property and the environment.

New Standard Project to Protect Workers in Wind Generation Construction Operations

Des Plaines, IL (February 25, 2009) — Due to the growing national emphasis on 'green' energy development and the potential risks involved in green energy related construction operations, the American Society of Safety Engineers (ASSE) recently announced a new A10 Accredited Standards Committee (ASC) standard project to protect the safety and health of workers involved in construction and demolition operations for wind generation/turbine facilities, the "American National Standard for the Safe Construction and Demolition of Wind Generation/Turbine Facilities" (A10.21-20xx).

"The committee decided to develop this standard because of the national emphasis on green energy, recognizing that thousands of these 'green' structures are going to be built and as such present challenging safety and health issues," A10 Committee Chair Richard King said. "The purpose of the new standard is to sort out the safety and health issues and provide practical solutions to constructors."

During the January 2009 A10 ASC meeting, the committee approved the A10.21 subgroup to develop the standard. Ryan J. Jacobson, P.E., manager of wind energy services for Black & Veatch, will serve as the subgroup chair and Walter A. Jones, M.S., associate director, occupational safety and health for Laborers' Health & Safety Fund of North America, will serve as the A10.21 liaison.

Safety and health issues of concern during construction and demolition of wind generation/turbine facilities that the A10.21 subgroup will address in the development of the standard include working at heights, mechanical assembly of large components, medium voltage electrical safety, and working in exposed environments. The subgroup will cite and recognize other existing voluntary national consensus standards in the development process.

In addition, major construction tasks in a wind project that will be considered include: wind turbine assembly and erection; civil construction (roads and pad clearing); structural construction (foundations); placement of electrical collection system (buried medium voltage lines); and substation and transmission line construction. Major activities that will also be discussed include: wind turbine generator component offloading; site staging; base tower section placement, which could include anchor bolt tensioning, leveling and grouting; tower assembly; nacelle placement; rotor assembly (typically on the ground); rotor placement; and mechanical completion and commissioning.

ASSE serves as the secretariat for the A10 Accredited Standards Committee on construction and demolition operations. The A10 standards serve as guides to contractors, labor and equipment manufacturers in the construction and demolition industry.

Founded in 1911, the Des Plaines, IL-based ASSE is the largest and oldest professional safety organization and is committed to protecting people, property and the environment. Its more than 32,000 occupational safety, health and environmental professional members lead, manage, supervise, research and consult on safety, health, transportation and environmental issues in all industries, government, labor, health care and education. For more information please go to www.asse.org.

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GREEN JOBS & OSH - CONCLUSIONS

1. **Safe and healthful work must be an integral component of green jobs.**

2. **The federal stimulus package contains no specific requirements for OSH or for OSH training.**

3. **Many commercial & non-profit employers will have little or no OSH resources, experience, or expertise.**

4. **Many applicable OSHA standards are outdated & do not reflect current scientific knowledge & professional guidance.**

5. **Many of the harmful chemical & biological agents & work practices & conditions that workers in green jobs will encounter are not regulated by OSHA.**

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GREEN JOBS & OSH – RECOMMENDATIONS

1. **Safe and healthful work must be an integral component of green jobs.**

2. **Stimulus package contracts should specifically reference applicable OSHA standards. OSHA should enforce applicable standards.**

3. **Employers who receive stimulus funding should be required to implement comprehensive safety & health programs including a written program, hazard assessment & control, & worker & union participation. Worker safety & health training should be required for all jobs funded through the stimulus program.**

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GREEN JOBS & OSH – RECOMMENDATIONS

4. An oversight committee should be established to provide guidance on workplace safety & health, utilizing applicable OSHA standards & other applicable regulatory requirements, & best professional practices and guidance where legal standards do not exist or are outdated. The committee should include representatives from government, business, labor, & CBOs, as well as scientific & other experts.

5. Compliance with legal and professional standards should be a condition for funding.

6. Passage of H.R. 2049, The Protecting America's Workers Act, would strengthen the Occupational Safety and Health Act by expanding coverage, increasing whistleblower protection, & increasing penalties for certain violations.

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REMEMBER

WORKERS ARE THE CANARIES FOR THE COMMUNITY & THE ENVIRONMENT

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