

Safety Training for Small Construction Contractors: Lessons Learned from Colombia and the USA

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Overview

- Research project: Hispanic construction workers in USA
- Safety Climate in the Construction industry in Colombia

Construction industry

- Multiple contractors
- Strong competition
- Transient workforce
- Temporary multi-organizations
- Evolving work environment
- Workers' isolation

Small construction companies

- Subcontractors
 - Lower in the construction project hierarchy
- OSH knowledge versus risk level
- Financial resources
- OHS Personnel
- Perceptions about safety and health

Hispanic construction workers

- “Protección en Construcción”
- Community-based participatory research
 - City of Lawrence (MA)
 - Laborers Local 175
 - Community organizations
 - University of Massachusetts Lowell
- Preventing fall hazards and silica exposure in residential construction
- Higher injury rates among Hispanics

(NIOSH Grant #5R01OH008750)

Hispanic workers' safety climate

Challenges faced by Hispanic construction workers:

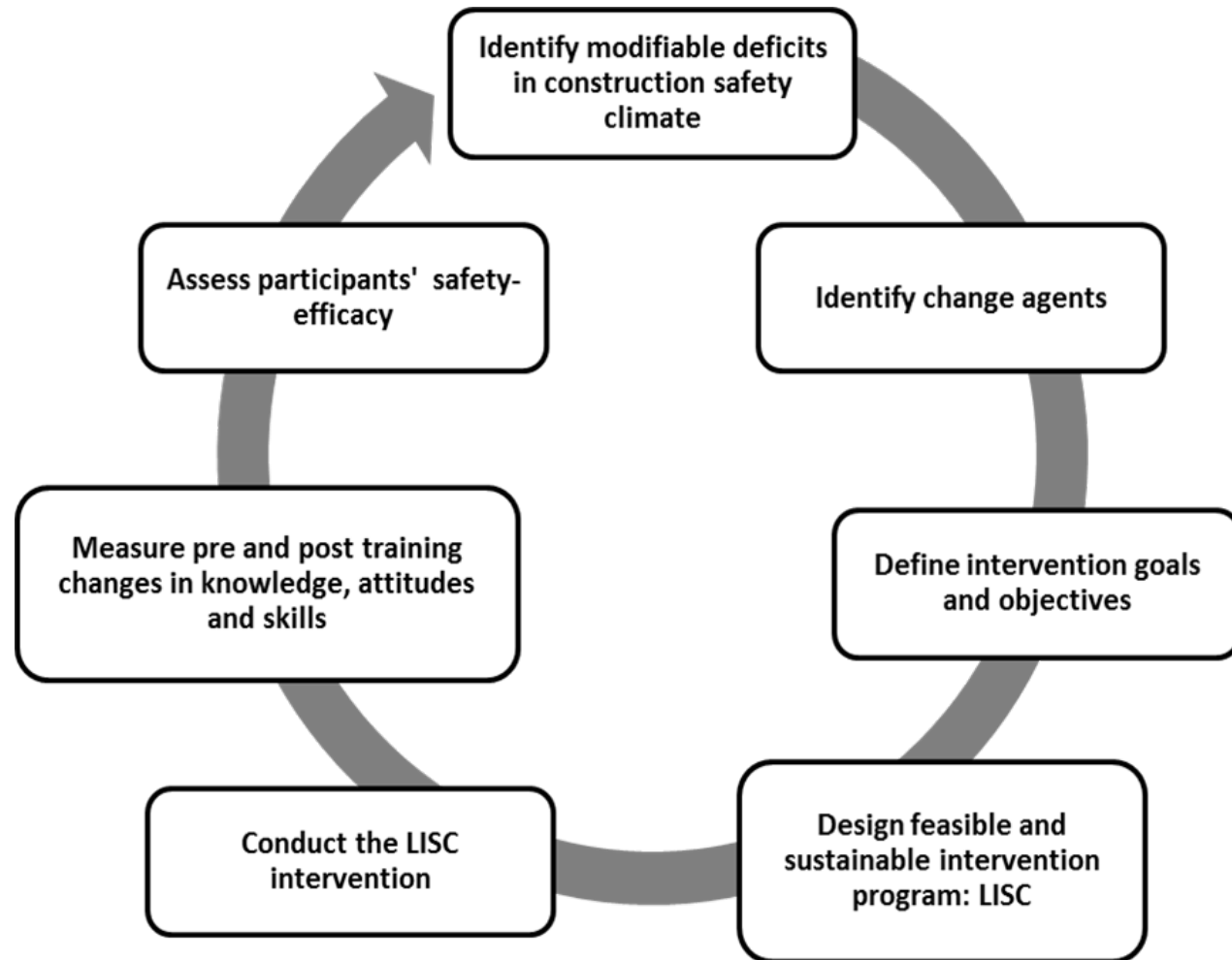
- Greater production pressures
- Lack of training
- Blurred responsibility for safety
- Hazardous and hostile environments
- Significant fear of retaliation
- Need for the job
- Fewer means to speak up

Safety Leadership

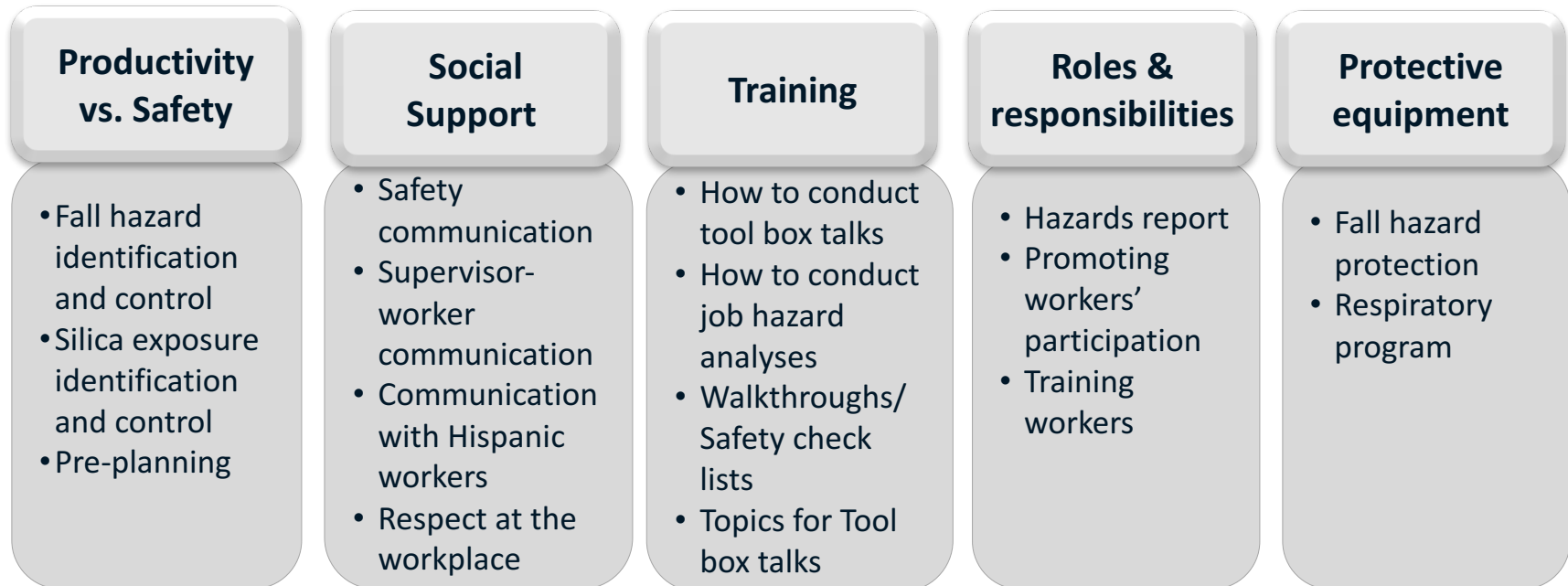
Supervisors are the most appropriate target of training interventions

- Workers need to be encouraged and supported by supervisors
- Effectively influence workers' safety behavior and attitudes
- Perform the role of worker trainer and communicator of safety
- Influence positive changes in the worksite
- Most permanent employee

Intervention framework



“Leaders in safe construction” (LISC)



Approaching small companies



Outreach team



Partnership with local lumbers



Vocational schools



Building Trade Associations

Training delivery

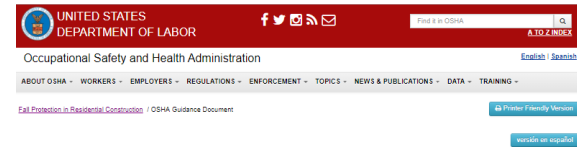
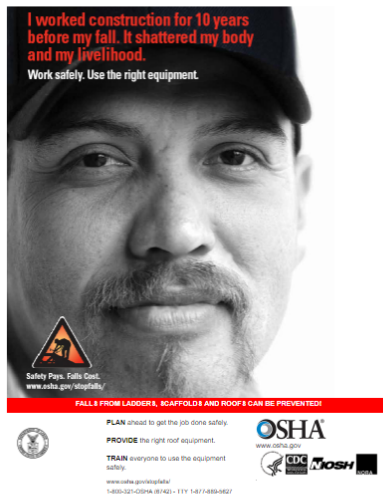


Active learning strategies



Classroom sessions

Training material



OSHA GUIDANCE DOCUMENT
FALL PROTECTION
IN
RESIDENTIAL CONSTRUCTION
OSHA GUIDANCE DOCUMENT
FALL PROTECTION IN RESIDENTIAL CONSTRUCTION



Training material

Module 2 Site Safety Leadership and Communication Skills



Módulo 2 Habilidades de Liderazgo y Comunicación en el Sitio de Trabajo



Fall Prevention Equipment Catalog

Lawrence Latino Safety Partnership:
Protección en Construcción
www.lawrenceworksafe.org

Prepared by: Victor Fajardo III
Lawrence Community Connections
(978) 683-3479
Sponsored by NIOSH Grant R01DH008750

Grainger Industrial Supply / Website: www.Grainger.com/
121 Marston Street
Lawrence, MA 01841
(978) 794-4773

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Anchorage Connectors
Body Belts
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Carabiners
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Connector Devices

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Fall Limiters
Guardrails
Harnesses
Horizontal and Vertical Life-
lines
Lanyards
Rope Grabs
Self-Retracting Lifelines
Vacuum Anchor Systems



Jackson Lumber,
215 Market Street
Lawrence, MA 01843
(978) 686-4141
<http://www.jacksonlumber.com/>

In Stock

Compliance in a
can



Additional benefits

Attention Construction Supervisor License Holders:

Starting July 2011, the Massachusetts Board of Building Regulations and Standards began requiring continuing education for holders of the Massachusetts Construction Supervisor License. Twelve credits of approved courses must be taken every 2 years. (<http://1.usa.gov/SupervisorCEs>)

The Leaders in Safe Construction Program has partnered with the North East Builders Association of Massachusetts to offer our six-hour supervisors training course for APPROVED continuing education credits at a discounted rate (for a limited time). The in-class portion gives you five credits and you can get another 1 credit for the on-site class. All credits apply toward the 12 credit goal. The modules on Health and Safety Topics and Safety Planning count toward the worker safety credit requirement.

Beneficios de ser un Contratista LISC

NO TIENE COSTO PARA LOS CONTRATISTAS LISC es un programa gratuito. No hay costo alguno para los contratistas por el programa LISC. *(Si los supervisores deseen recibir créditos de educación continua, hay una cuota para su formación).*

CUMPLIMIENTO CON LA LEY Muchas de las actividades en LISC también son requeridas por OSHA.

VISITAS EN EL TERRENO las visitas al lugar de trabajo basados en su horario, la cuales no van a interferir con su trabajo, puesto que se le dará una atención personalizada.

OBTENER LA CERTIFICACIÓN Los contratistas que completan el programa LISC, reciben un certificado LISC y el logo de LISC.

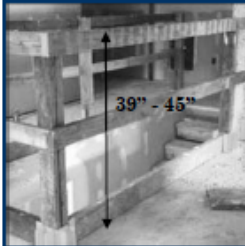
Este certificado será publicitado en los periódicos y estaciones de radio locales. El logo LISC puede ser utilizado para promocionar su empresa con sus clientes.

Involving other stakeholders

Guardrails Prevent Fatal Falls

Top edge height between 39 and 45 inches; Midrail at 21 inches

Must be able to hold 200 pounds of force



Guard or cover all holes, openings, stairways and skylights

Plan ahead to prevent falls

If you have questions about safety and health and residential construction, contact:

The City of Lawrence Inspectional Services
City Hall (978) 620-3130

National Institute for Occupational Safety and Health
1-800-CDC-INFO (1-800-232-4636)
www.cdc.gov/niosh

OSHA Consultation Program
Free and voluntary assistance for employers
MA Department of Labor Standards
(617) 989-7177
www.mass.gov/dols

Massachusetts Coalition for Occupational Safety and Health
A non-profit organization for workers and community members
(617) 825-7233
www.masscoosh.org

Links to Additional Information

Nail Gun Safety: A Guide for Construction Contractors
<http://1.usa.gov/NailGun>

Fall Prevention Requirements
<http://1.usa.gov/OSHAResFalls>
<http://www.osha.gov/stopfalls>

Lawrence's Lead Abatement Program
<http://bit.ly/LawrenceLead>

Lead in Construction
<http://1.usa.gov/OSHALead>

Asbestos in Your Home
<http://1.usa.gov/EPAAsbestos>

The following organizations collaborated to make this brochure possible:



The City of Lawrence Inspectional Services
<http://www.cityoflawrence.com/inspectional-services.aspx>



City of Lawrence Mayor's Health Task Force
<http://www.lawrencemhtf.org/>



Protección en Construcción: The Lawrence Latino Safety Partnership
www.lawrenceworksafe.org

With support from NIOSH Grant R01OH 008750

For Contractors and Homeowners

Safety in Residential Construction



Pre-Post Evaluation Survey Results

| Training | <i>n</i> | PRE | POST | Mean difference PRE-POST | p-value | Cohen's term <i>d</i> ^a |
|----------------------------|----------|--------------|--------------|-----------------------------|---------|---------------------------------------|
| | | mean (± sd) | mean (± sd) | | | |
| Knowledge | | | | | | |
| Fall prevention | 53 | 0.54 ±(0.22) | 0.61 ±(0.21) | 0.11 | 0.050 | 0.50 |
| Silica exposure | 52 | 0.53 ±(0.23) | 0.81 ±(0.20) | 0.28 | 0.001 | 1.22 |
| Leadership & communication | 63 | 0.73 ±(0.29) | 0.94 ±(0.13) | 0.21 | 0.001 | 0.72 |
| Safety planning | 53 | 0.47 ±(0.42) | 0.47 ±(0.42) | 0.00 | 0.958 | |
| Attitudes | | | | | | |
| Fall prevention | 53 | 0.90 ±(0.25) | 0.97 ±(0.12) | 0.07 | 0.044 | 0.28 |
| Leadership & communication | 63 | 0.78 ±(0.31) | 0.90 ±(0.24) | 0.13 | 0.021 | 0.42 |
| Safety planning | 53 | 0.56 ±(0.47) | 0.58 ±(0.47) | 0.20 | 0.764 | 0.43 |
| Skills | | | | | | |
| Fall prevention | 53 | 0.75 ±(0.32) | 0.96 ±(0.13) | 0.22 | 0.002 | 0.69 |
| Leadership & communication | 63 | 0.68 ±(0.41) | 0.94 ±(0.17) | 0.25 | 0.001 | 0.61 |
| Safety planning | 52 | 0.60 ±(0.30) | 0.77 ±(0.25) | 0.17 | 0.001 | 0.57 |

^aCohen's term *d* (effect size): small 0.2; medium 0.5; large 0.8; very large 1.3

Construction Industry in Colombia



Small construction companies in Colombia

- Small and medium construction companies
- Small contractors/subcontractors
- S&H Regulation as a burden
- High severe and fatal injury rates

Safety Climate in Construction

| Workers' trust in efficacy of safety systems | mean | sd |
|---|------|--------|
| We who work here consider that a good safety representative plays an important role in preventing accidents | 3.35 | (0.61) |
| We who work here consider that safety training is good for preventing accidents | 3.40 | (0.65) |
| We who work here consider that safety rounds/evaluations help find serious hazards | 3.26 | (0.53) |
| We who work here consider safety training is meaningless | 3.45 | (0.58) |

NOSACQ-50 Safety Climate Questionnaire
Workers n=266 ; 26 companies

Marin et al, 2017

Workers' compensation in Colombia



Workers' compensation in Colombia

- Legislation
 - Percent of the annual premiums
- Consulting services
- Training activities

Training for small companies

- Compliance with regulations
- Different levels
 - Workers
 - Safety Leaders
 - Supervisor/Owner
- No additional cost

Training for small companies

- Technical skills
 - Labor-Management Safety Committees
 - Work permits
 - Safety Management Systems
 - Stress prevention
- Soft skills
 - Leadership and communication
- Health promotion
 - Smoking cessation

Fall Protection Regulation (2012)

- Employers' responsibility
 - Provide equipment, training, occupational medical examinations, and surveillance.
- Training through a government education agency
- Fall prevention program implementation
- Certification
 - Workers (40-hr)
 - Competent person (80-hr)
 - Administrative responsible (10-hr)

“I couldn’t pass the fall protection training test. I didn’t have enough time to respond to all the questions. I was afraid to ask for an oral evaluation. Then we came to the construction site and talked with the site manager. She hired a fall protection trainer and he came here to the worksite and trained us very well but outside in the building. After that, we went to the training center and all of us passed the test.”

Construction worker

“I sent twelve workers to take the fall protection training. Two of them failed the written test. They could barely read and write. I did not want them to feel like they were wasting their time because they spent two days and they did not pass it. So, I hired a safety instructor to help them with the test preparation. The next time they asked for an oral examination. They passed and received the certification.”

Resident Engineer

OSH Management Systems (2017)

- Regulation for the implementation of a Safety and Health Management System
 - Less than 10 workers
 - Between 11 – 50 workers
- Workers' compensation insurance companies must provide a 50-hr training program
- Consulting services
 - Safety and Health Policy
 - Hazard identification and control
 - Emergency preparedness
 - Incident investigation

Strategies at different levels

- Regulation level
- Company level
- Supervisor-worker level
- Worker level

In conclusion...

- Using of existing materials and knowledge
- What and how
- Involving stakeholders
- Knowledge plus tools to control the risk
- Additional benefits
- Adapting to the realities of small contractors



“Protección en Construcción” (PenC)

Cora Roelofs, ScD (PI)

Milagro Grullon (co-PI)

Michael Gagliari (co-PI)

Susan Shepard, ScD

Doris Anziani

NIOSH Grant #5R01OH008750



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