This survey was developed and undertaken by the CPWR Ergonomics Community of Practice to obtain more information on the extent to which construction contractors are taking action to reduce manual materials handling on their worksites.

The survey was developed and administered online using the Qualtrics platform. The outreach took place in the first quarter of 2016. The survey sample included 81 contractors reached through the group’s network contacts (outreach to contractor associations and use of CPWR’s CONDOR database): 48 reached during January and February, and 33 reached during the first two weeks in March. The sample includes six contractors located in California. The survey took between 5-10 minutes to complete and participants were allowed to skip questions.

This report summarizes overall findings from the survey. Four cross-tabulations were run by: 1) type of construction (new commercial, new residential, industrial, commercial renovation/retrofit/repair, residential renovation/retrofit/repair, heavy & highway, and “other”); 2) type of contractor – general vs. specialty trades; 3) whether or not strategies to minimize manual materials handling were incorporated into site planning; and 4) California vs. non-California contractors. Notable differences between the overall means and subcategories observed from the cross-tabulations are included in the findings below; however, it is important to note that these differences were based on a very small number of responses.

Demographics:

The majority of respondents reported having been in business 10+ years (95%) and employing more than 50 construction workers (72%). Sixty-three percent (63%) were specialty trades contractors, 28% were general contractors, and 9% reported “other” in describing their business. The majority employed union labor (89%), 10% did not, and 1% were not sure. Roughly two-thirds of respondents reported doing commercial and industrial construction (specialty trades contractors were more likely to say they performed commercial and industrial work than general contractors), 16% reported doing heavy & highway work, and 15% performed residential construction (general contractors were more likely than specialty trades contractors to say they perform residential and heavy & highway work). Notable differences between the California contractors and the rest of the sample were that all of the California contractors performed new commercial work and none performed residential renovation/retrofit and repair work.

The majority of respondents considered themselves knowledgeable about hazards that cause musculoskeletal disorders (MSDs) as well as about how to prevent such hazards. Eighty-five percent of respondents reported being “somewhat knowledgeable” (55%) or “very knowledgeable” (30%) about hazards that cause MSDs, while 79% reported being “somewhat knowledgeable” (54%) or “very knowledgeable” (24%) about prevention. While the California contractors’ knowledge about the hazards that cause MSDs was similar to the other contractors, they considered themselves slightly less knowledgeable about how to prevent them (0% very knowledgeable/80% somewhat knowledgeable).

Lifting Limits:

Roughly half of respondents (49%) reported having a weight limit for lifting or carrying heavy materials, and half (51%) reported they did not have lifting limits. More respondents working in residential
construction reported not having lifting limits than in other types of construction (73% of residential renovation and 64% of new residential vs. 48% in new commercial and 51% in industrial).

Of the 49% that set any limit, two-thirds (65%) reported limits at 50 lbs. (NIOSH recommended weight limit) and 13% reported a lower level (35lbs. or less). The remaining 22% reported limits of 75lbs. (17%) or 100lbs. (5%).

Respondents most commonly reported that limits were enforced by foremen or site supervisors (68%) and through daily huddles or job safety analyses (63%), followed by safety officers or health and safety committee members (43%), collective bargaining agreements (13%), warning labels (8%), or “other” (1 response - written safety procedures).

The reasons most frequently cited for setting lifting limits were scientific evidence of the value (40%), owner/general contractor requirements (18%), workers’ compensation insurance premium modifications (15%), and collective bargaining agreements (15%). Twelve of the respondents (30%) selected “other”, including:

- Recommendation from insurance to help manage soft tissue injury risk
- Effort to follow OSHA ergonomic focus
- Discussion amongst similar contractors
- Prevent employees from getting hurt/too many workers being hurt/wanted to reduce employee injuries
- Basic weight we felt would be safe for transportation through job site, easy to lift, easy to manage/good old common sense
- Functional capacity evaluation
- It is the weight of a full can of welding rod…this limit is well under the 110 lbs. of an oxygen cylinder which is an object that personnel on the site were regularly lifting and we felt posed considerable risk

When the 51% who did not have lifting limits were asked why they don’t set limits, the top response was “not sure what limit to set” (54%). This was followed by limits would be “too difficult to enforce” (34%), “not sure it would be effective in preventing injuries” (34%), and “materials handling equipment cannot always be available on the jobsite” (22%). Other responses included: “too many materials would be subject to the limit” (15%), “materials handling equipment is not commercially available for the types of materials and equipment handled” (7%), “would require more materials to be handled by two person teams and more labor” (5%), and “would require more investment in material handling equipment” (2%). Roughly a third of respondents also selected “other” reasons including: specifying a limit does not necessarily reduce the risk; mechanical aids are incorporated into practices whenever possible; workers are trained on proper lifting and equipment to assist; and common sense – employees determine how much they can lift.

For those without a limit, the top motivators for setting a limit included regulations (54%), owner/general contractor requirements (51%), and workers’ compensation insurance premium modifications (46%), collective bargaining requirement (44), and scientific evidence of the value of setting wage limits (39%). Seventeen percent (17%) also mentioned other motivators including the
potential to or a guarantee it would reduce injuries and availability of equipment to allow efficient drywall installation.

Storage of Materials on Site:

Forty-eight percent (48%) reported that materials to be manually handled are typically stored off the ground between knee and waist height, while 52% reported they were not. The subcategories that were more likely to say they do not store materials off the ground included:

- Respondents working in residential construction (73% of new residential and 64% of residential)
- General contractors (57%)
- Contractors in California (83%)

The most common reason reported for storing materials off the ground was to protect the materials (56%), followed by scientific evidence of the value of storing materials off the ground (31%), workers compensation insurance premium modification (10%), and owner/general contractor requirement (5%). Just over a fourth (28%) of respondents also listed “other” reasons including ones related to employee safety, a need for storage space, and access and mobility.

Among the 52% who did not store materials off the ground, the top reasons for not doing so included: not having equipment or simple structures to support materials off the ground (52%; 80% California); not having enough space to accommodate the storage (45%; 60% California); concern that storage off the ground may create a safety hazard (31%; 20% California); work processes will only allow for storage on the ground (29%; 60% California); the supplier who delivers the materials determines how they are stored (12%; 0% California); and no good evidence that storage off the ground will help prevent injuries (5%; 0% California). Roughly a fourth (24%) mentioned “other” reasons including that it’s not always possible due to site conditions, materials are stored in carts/baskets that are easy to move but the heights vary, and they use lifting equipment such as skid steers, track holes, front end loaders, and sidebooms.

When asked what would motivate them to store materials off the ground, the top response was greater availability of equipment or simple structures to support materials off the ground (57%); followed by: to protect the materials (45%); owner/general contractor requirements (45%); regulatory requirements (38%); workers’ compensation insurance premium modifications (31%); scientific evidence of the value (31%); and collective bargaining requirements (21%). Twelve percent (12%) listed other reasons related to showing the benefits out-weigh the costs and the availability of onsite storage.

Planning for Manual Materials Handling in Site Planning:

The majority of respondents (89%) reported some amount of planning for manual materials handling. Twenty-one percent (21%; 1-17% California) of respondents reported incorporating strategies to minimize manual materials handling into site planning before the project starts, 11% (0% California) reported doing it when the project is underway, and 57% (67% California) reported doing it both before and while the project is underway. The remaining 11% (1-17% California) do not plan for materials handling.

The size of the contractor and the length of time they had been in business also related to the likelihood of planning.
Sixty-seven percent (67%) of respondents who planned before, during a project or both employed more than 50 construction workers, 12% employed 26-50 workers, 4% employed 11-25 workers, 4% employed 6-10 workers, and 1% employed less than 5 workers.

Eighty-eight percent (88%) of those who planned had been in business 10 years or longer, 3% had been in business 5-10 years.

Forty-three percent (43%) of the contractors that planned for manual materials handling set weight limits and 42% typically stored materials off the ground between knee and waist height.

The top planning strategies respondents reported included: locating materials delivery and storage as close as possible to where it will be used (77%; 100% California); including materials handling equipment in the bid and work plan (72%; 50% California); providing training for workers and supervisors to reinforce the goal of minimizing manual materials handling (64%; 75% California); requiring training on how to use material handling equipment (59%; 75% California); planning for clear, level pathways for the transport of materials to where they are used (58%; 50% California); reviewing materials handling frequently at safety and production meetings (54%; 75% California); and coordinating with suppliers on where and how materials will be placed on site (49%; 100% California).

The least often cited strategies were “storage of materials between knee and waist height” (16%; 0% California), “heavy materials are clearly labeled with weights” (14%; 25% California), and “heavy materials are clearly labeled with warnings to not move by hand or by yourself” (9%; 0% California).

Among those who did not plan for manual materials handling (11%) the most commonly cited reasons for not doing so included: difficulty coordinating and directing deliveries, particularly with a large number of subcontractors; lack of experience in planning; lack of control over where suppliers drop materials; and not being sure that the benefits are worth the effort. When asked what would cause their company to plan for manual materials handling, the top responses were evidence that doing so would have a positive financial impact, to protect the materials, and workers' compensation insurance premium modifications.

Communications:
When asked to rank their top five sources of health and safety information, OSHA ranked number “1” as the most frequently used source of information (n=56 responses), followed by contractor associations (n=48), insurance companies (n=45), other contractors (n=34), and trade publications (n=30).

When asked for the top five ways to provide them with information about safer tools, equipment, materials, and work practices, training programs came in first (n=52), followed by toolbox talks (n=50), email (n=47), websites (n=41) and seminars/meetings (n=39).
Observations:

- The majority of respondents were bigger (50 or more employees), more established (in business 10 years or longer), union contractors, who consider themselves knowledgeable about MSDs and how to prevent them.

- Reported behaviors to manage manual materials handling were split with roughly half saying they set lifting limits and store materials between knee and waist height and half saying they do not.

- Although roughly half of all respondents said they use weight limits and store materials between knee and waist height, these were the least often cited strategies contractors included in their plans to minimize manual materials handling.

- Top three motivators for adopting manual materials handling strategies among those that are not already doing so included: workers' compensation incentives, owner/general contractor requirements, and to protect materials. Other key motivators included evidence of a positive financial impact, availability of equipment, and regulatory requirements. Interest in protecting materials was a greater motivator for storing materials between knee and shoulder height than workers' compensation incentives indicating that contractors may not be making the connection between how materials are stored and the risk for injury.

- Top reasons for not adopting safer materials handling practices centered on not knowing the limits to set, a lack of space, equipment/simple structures for safe storage, and planning experience, and it is too difficult.

- The three highest ranked sources for health and safety information were OSHA, contractor associations, and trade publications.

- The three preferred channels for obtaining health and safety information included training programs, toolbox talks, and email.