



CONTRACTOR TIP SHEET FOR SAFE MANUAL MATERIALS HANDLING

Improve Materials Handling Practices,
Prevent Injuries,
Save Money.

CPWR's Best Built Plans program helps contractors of ALL sizes plan ahead to prevent soft tissue injuries caused by manually lifting and moving heavy construction materials.



Sprains, strains, and other soft tissue injuries are common, painful, and expensive. They are a leading cause of disabling injuries suffered by construction workers and cost the industry billions EACH YEAR. **Just one injury can cost your company thousands of dollars in lost productivity and higher insurance premiums.**



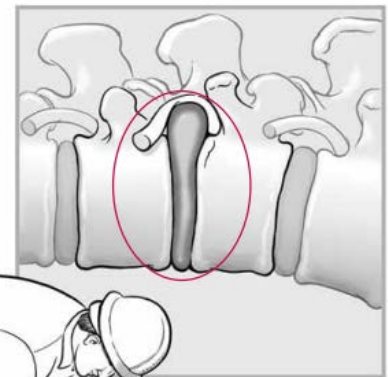
They also create a financial burden for workers and their families, and worse, put *injured workers who rely on pain medication to continue working at increased risk of opioid addiction.*

None of these outcomes are good for your business or your employees. Fortunately, thinking through how materials will be selected, delivered, stored, lifted, and moved BEFORE a job starts (and at every stage along the way) can prevent painful injuries, give workers longer careers, and help your company stay productive and profitable.

Use this guide to get started. For additional information on how to develop a plan to prevent manual materials handling injuries, visit bestbuiltplans.org or watch this [short \(6-minute\) video](#) introduction to the program and how to use it.

What are soft tissues injuries and what causes them?

Soft tissue injuries, including sprains and strains, are painful injuries involving damage to the muscles, nerves, tendons, ligaments, joints, cartilage, or spinal discs. They can happen suddenly, but more often they develop gradually over time and can be life changing for the worker – making *ongoing prevention* a much better option than *treatment*.



Herniated disc

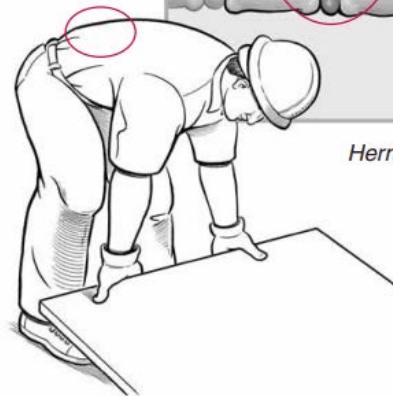


Image credit: NIOSH/CDC.

[Simple Solutions: Ergonomics for Construction Workers.](#)

In construction, most of these injuries are to the back, shoulders, and knees. They are commonly caused by:

- ✓ **Lifting or moving heavy materials** (50 pounds or more) without equipment or help from a co-worker.
- ✓ **Bending and twisting** while lifting and moving materials.
- ✓ **Working in awkward postures** (near the floor, overhead, or stretching to reach work).



It's important to keep in mind that **just because a worker CAN do something, does not mean they SHOULD**. When workers lift materials that are too heavy or work in awkward positions, their soft tissues (tendons, muscles, etc.) are being damaged. But because these injuries often happen over time, a worker may not feel any significant pain until it's too late.

To Learn more, watch [“What Causes Soft Tissue Injuries?” \(8-minute video\)](#)

Image credit: MCAA

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How can my company prevent soft tissue injuries caused by handling materials?

Injuries resulting from handling materials can be prevented in a variety of ways – if you plan ahead!

A good place to start planning is by working closely with your employees to identify:

- The heavy materials typically used;
- How the materials are stored, lifted, and moved; and
- If there are safer approaches. *Then use the safer approaches for your jobs.*

As an employer, it's important to know what's happening on your job sites when it comes to manual materials handling policies and practices. Do you have a plan in place? If you don't know, or you're not sure what it includes, it's time to check! **Whether you're just getting started planning for materials handling or you'd like to improve your company's process, we suggest thinking through your plans at each project stage.**

The most important thing is just to get started! Everyone plans differently and it can be challenging to get started. ***While it's best to start when bidding on a project to ensure the equipment and resources needed to work safely are in your budget, the good news is that you can start wherever makes the most sense for you and your crew.*** The following table can help guide you through planning at each project stage.

STAGE OF BUILDING	EXAMPLES OF ITEMS TO CONSIDER WHEN PLANNING:
<p>1. BIDDING This is when decisions are made and put in writing – especially about items that need to be ordered and/or that have a cost!</p>	<ul style="list-style-type: none"> ✓ What building materials are being used? How much do they weigh and are there lighter options? ✓ Where and how will the materials be delivered and stored?
<p>2. PRE-JOB Before work begins update your plan (if there have been changes since your bid/estimate was accepted) and meet with your employees.</p>	<ul style="list-style-type: none"> ✓ Who is responsible for making sure materials are delivered and stored as planned, lifting equipment and labor for team lifts are available and used, and paths for moving materials are clear of hazards? ✓ When and where will training on safe lifting practices and/or equipment be provided?
<p>3. ON-THE-JOB When work is underway, have regular meetings with your employees to review and update plans as needed.</p>	<ul style="list-style-type: none"> ✓ Are updates needed because of new hazards or changes to job site conditions? ✓ Do workers know how to plan their routes for moving materials?
<p>4. LOOK BACK (LESSONS LEARNED) Towards the end of the job, review the steps taken to protect workers and the lessons learned. Use the lessons learned on your next job.</p>	<ul style="list-style-type: none"> ✓ What worked from the original plan? What could have been done better? ✓ Involve your employees to get their perspective of what worked or could be done better.

The complete Best Built Plans program contains a [more detailed contractor planning tool](#) and is available on bestbuiltplans.org. It includes additional questions and key points to consider at each project stage, as well as resources to help you develop and implement your plan.

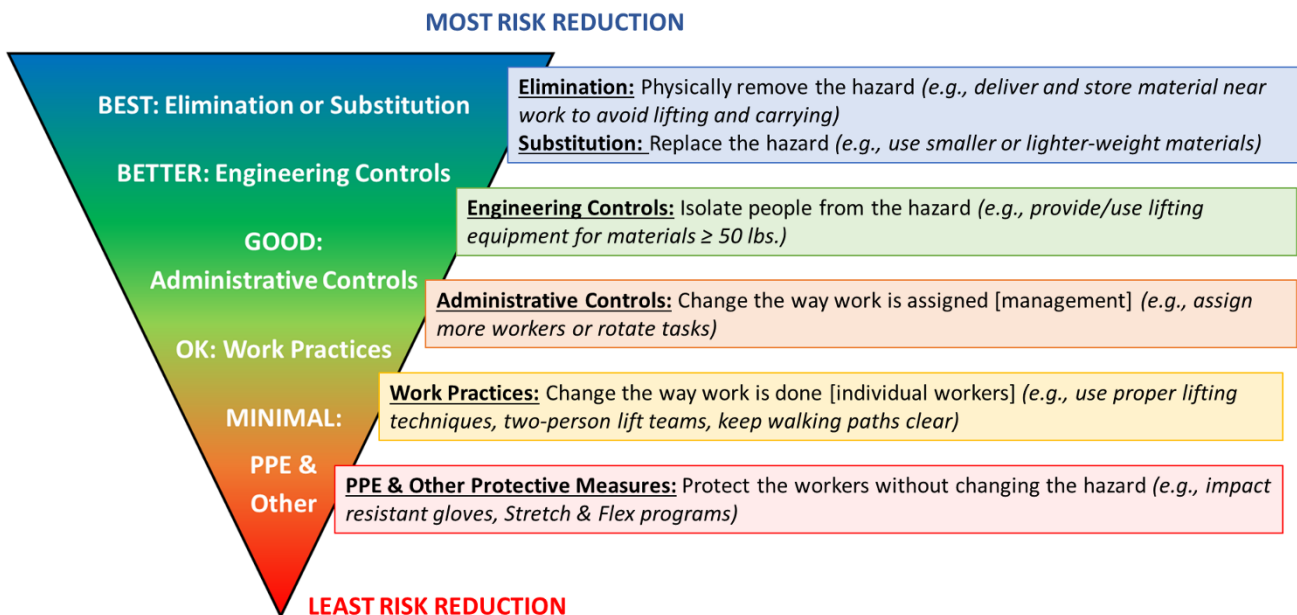
As you think through what you need at various stages, keep in mind that some methods are more protective than others! **Use the following hierarchy of controls to select the most effective methods for your sites.**

What is the Hierarchy of Controls?

The hierarchy of controls is a method for **identifying** and **ranking** ways to protect workers from hazards. The following hierarchy of controls uses examples specific to manual materials handling.



Hierarchy of Controls for Manual Materials Handling to Reduce Soft Tissue Injuries



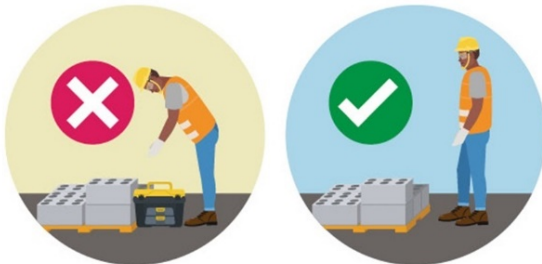
Consider the following specific ways to prevent strains, sprains, and other soft tissue injuries:

- ✓ **Purchase lighter-weight materials (SUBSTITUTION).** In some cases, there may be an equivalent material that weighs less than what you're using. See [Weights of common building materials](#) for additional information on common weights.
- ✓ **Deliver and store materials close to where they will be used and off the ground (ENGINEERING CONTROL/WORK PRACTICE).** Stack materials so the ones on top are used first. This may require purchasing different shelves and equipment, so it's best to consider this before the job begins. See [Storing options](#) for additional information.

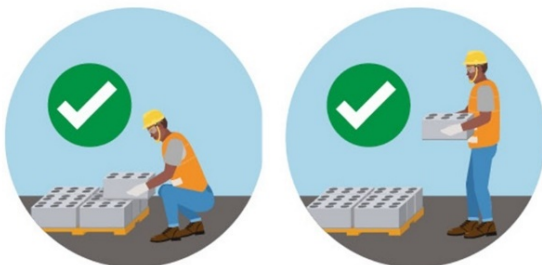
- ✓ **Limit the weight one person can lift to 50 pounds AND provide solutions to help them stick to it (ENGINEER CONTROL/WORK PRACTICE).** Provide lifting equipment (carts, dollies, etc.) to lift and move heavy materials (more than 50 pounds) and oversized materials and/or require team lifts when equipment is unavailable. Consider using the [Revised NIOSH Lifting Equation](#) to help calculate risk of lifting something manually and see [Lifting equipment](#) for additional information.
- ✓ **Establish direct and clear pathways (WORK PRACTICE)** for moving materials to prevent struck-by and slip and trip hazards.
- ✓ **Train employees (OTHER PROTECTIVE MEASURE)** on the risks and how to use safe lifting and carrying practices to help avoid strains, sprains, and other soft tissue injuries. The complete Best Built Plans program contains [training resources for both contractors and workers](#), including presentations, videos, and handouts that review safe lifting and carrying practices.



WHEN PREPARING AND LIFTING MATERIALS...



- ✓ Make sure you have clear access – remove obstacles between yourself and the materials.
- ✓ Keep your neck and back aligned and straight.



- ✓ Bend your knees and move slowly and smoothly.
- ✓ Position your feet shoulder-width apart and slightly staggered.

WHEN CARRYING MATERIALS...



- ✓ Make sure you have a clear path.
- ✓ Stand straight and bring the load close to your body. DO NOT hunch over.
- ✓ Stay focused. DO NOT let your mind drift.



- ✓ Lead with your foot when turning instead of twisting with your body.
- ✓ Move smoothly, steadily, and not too fast.

How can I effectively implement a manual materials handling plan with my crews?

The online Best Built Plans Contractor Planning Tool includes tips and **free resources** to help crew leaders and workers carry out plans at each stage of the project, including:

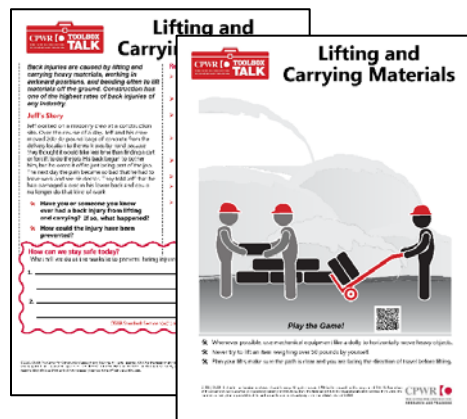
- ✓ A [Pre-job Checklist](#) to use before work begins
- ✓ A [Materials Handling Checklist](#) to use when work is underway
- ✓ A [Look Back Guide](#) to use at the end of a job to determine what worked or could have been done better

CPWR's [Construction Solutions](#) is another source of information on how to prevent soft tissue and other types of construction-related injuries.

If some of these ideas are new to your crews, make sure they understand the causes and the impacts of sprains, strains, and other soft tissue injuries. Remember, training plays an important role in preventing these types of injuries!

The following supplemental resources* can help you train and educate your employees and gain their support:

- ✓ The Best Built Plans [Worker Training Program](#): use the whole program or select the portions and handouts that work best for your company.
- ✓ [Interactive planning, lifting, moving, and stretching activities and related smartphone games](#): workers can test their knowledge of safe practices.
- ✓ **Smartphone games**: [“Lift Coach: Plan Your Route”](#) and [“Lift Coach: Plan Your Lift”](#)
- ✓ **Toolbox Talks**: use during weekly or daily meetings in your office or on-the-job, with new topics recently added and more coming soon, including:
 - Planning for Safety
 - Plan Your Lift
 - Plan Your Route
 - Materials Handling: Lifting and Carrying Materials
 - Materials Handling: Drywall
 - Best Lifting Practices – Large Sheets
 - Best Lifting Practices – Team Lift for a Wall
 - Best Lifting Practices – Small Bags
- ✓ **Hazard Alert Card on Back Injuries**: hand out to workers. *Pocket-size versions are available for free from CPWR. To order, click on this link to download the [CPWR Publications Order Form](#), complete the form and e-mail it to: news@cpwr.com, or print and mail it to: CPWR, 8484 Georgia Ave., Suite 1000, Silver Spring, MD 20910, ATTN: Communications.*



* NOTE: Click [here](#) for a Spanish Version of the Best Built Plans Planning Tool and select resources

If you need to create buy-in from leadership, consider using the [Contractor Training Program](#) to get them on board.

In addition to being available as a 50-minute video, the contractor training program has been broken down into 8 short sections that can be viewed in order or based on interest:

- ✓ [Section 1 – Why Should a Company Develop an Ergonomics Program?](#)
- ✓ [Section 2 – What Causes Soft Tissue Injuries?](#)
- ✓ [Section 3 – What Should an Ergonomics Program Include?](#)
- ✓ [Section 4 – Developing the Five Key Elements of Your Ergonomics Program](#)
- ✓ [Section 5 – Ergonomic Best Practices](#)
- ✓ [Section 6 – Process Improvement: Project to Company-Wide Ergonomics Program](#) (*introduces the free tools and resources available through the Best Built Plans program to help*)
- ✓ [Section 7 – Preventing Soft Tissue Injuries to Prevent Addiction](#)
- ✓ [Section 8 – At-A-Glance – Creating an Ergonomics Program](#)

CPWR – The Center for Construction Research and Training (CPWR) is a nonprofit dedicated to reducing occupational injuries, illnesses and fatalities in the construction industry. We have hundreds of FREE resources for contractors and workers covering an extensive number of construction safety and health topics at www.cpwr.com!