

A Developmental Evaluation of CPWR's Best Built Plans Program to Reduce Injuries from Manual Materials Handling



DECEMBER 2024

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EXECUTIVE SUMMARY

The construction industry has high rates of soft tissue injuries from manual materials handling (MMH) tasks, even though many solutions are available to reduce the injury risks. Between 2015 and 2019, CPWR-The Center for Construction Research and Training (CPWR) and its Ergonomics Community of Practice (ECOP) developed, piloted, and evaluated a new program, Best Built Plans (BBP), designed to help construction contractors proactively plan for safe MMH in work tasks at all project stages. This early work indicated that a traditional evaluation approach may be ineffective for a complex and persistent safety problem, such as the work-related musculoskeletal disorders (WMSDs) BBP is trying to address. Developmental Evaluation (DE) was identified as a promising approach that could help CPWR strengthen interventions like the BBP program, facilitate use by contractors, and achieve their goals. In the case of the BBP program, the goal is to increase the use of safe MMH practices to prevent injuries. This evaluation approach uses real-time data and input from target audiences to improve an intervention's utility by identifying barriers and making necessary changes to the design, development, or implementation process. In coordination with a separate CPWR research project conducted by Washington University on implementation, this study tested the use of DE with two small groups of contractors who used the BBP program during two six-month periods referred to as Waves 1 and 2. The contractor groups used the program's resources and provided feedback on what was helpful, barriers, and ways to strengthen the BBP program. Each contractor was assessed for their stage of change related to the use of safe MMH practices at the beginning (baseline - before being given the BBP program) and at the end of the six-month test period to see if they had made plans (preparation stage) or taken action (action stage) to improve safe MMH practices from using the BBP program. After Wave 1, CPWR and its ECOP reviewed the contractor feedback, addressed barriers identified, and designed new or modified program elements to improve the usability of the BBP program. Wave 2 contractors used this modified version of the BBP program and provided feedback.

The results showed that at baseline, 4 of the contractors participating in Wave 1 were already in the preparation or action stages and the remaining 6 were at the precontemplation or contemplation stages (i.e., had no plans to engage in safe MMH practices). By the end of the test period, a small positive shift was documented with 2 (33%) of these 6 contractors progressing to the preparation or action stages of change. At the end of the six-month test period, the number of contractors planning or taking action to use safe MMH practices had increased to 6 (60%) of the participating contractors.

A more notable improvement was found with the Wave 2 contractors who used the modified version of the BBP program based on Wave 1 feedback. At baseline, only 3 (25%) of the 12 contractors were engaged in safe MMH practices (preparation or action stages) and the remaining 9 (75%) were in the precontemplation or contemplation stages. After using the modified version of the BBP program, 5 (56%) of these 9 contractors had progressed to the preparation or action stages and 2 of the contractors who were already engaging in safe practices at baseline had expanded their safe MMH practices. This means that at the end of the six months, the number of contractors at the preparation or action stages increased to 8 (or by 67%) of the 12 participating

contractors. Although the number of participating contractors was small, the increase in contractors developing safe MMH practices after using the modified BBP program suggests that using a DE approach can improve an intervention's usability and acceptance by a target audience.

To supplement this information and address the low contractor participation resulting from the timing of the study (during and immediately following the COVID-19 pandemic), an additional group of 10 contractors (Contractor Program Review) conducted a one-time review of and provided feedback on the modified version of the BBP program used by the Wave 2 contractors. The findings from the Wave 2 contractors and this panel are now being used by CPWR to make further improvements and additions to the BBP program's website and resources.

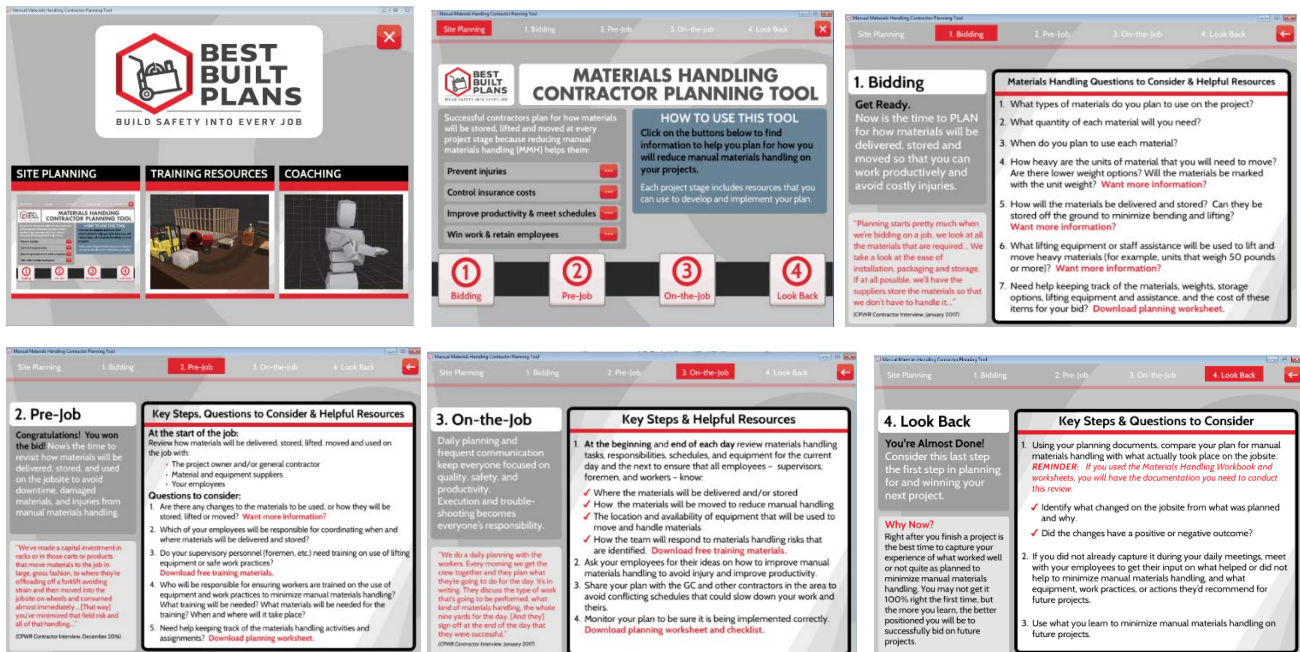
INTRODUCTION

Construction workers are at high risk for developing work-related musculoskeletal disorders (WMSDs), such as strains, sprains, back pain, carpal tunnel syndrome, and shoulder injuries due to the physically demanding nature of the work they perform. Manual materials handling (MMH) in work tasks is the leading cause of these soft tissue injuries.¹ Construction workers are often observed lifting very heavy loads manually and using poor body positions to perform tasks due to working conditions on job sites. Although CPWR – The Center for Construction Research and Training (CPWR), Washington University researchers, and many others have developed interventions (e.g., training programs, new materials) and identified equipment to help reduce workers' exposures in lifting and carrying tasks, adoption by the industry has been slow – particularly among small- to medium-sized construction contractors who often have limited time, staff, and financial resources to devote to implementing interventions.² Barriers to using these programs, materials, and equipment include a lack of pre-job planning to ensure the equipment is on site when needed; the higher costs associated with using lighter-weight materials and having lifting equipment available; and a work environment that prevents workers from using safer MMH practices even when trained.³

In 2015, CPWR established an Ergonomics Community of Practice (ECOP) focused on: a) advancing the use of evidence-based interventions designed to reduce WMSDs; b) engaging stakeholders in addressing barriers to use; and c) identifying new research needs for WMSDs. The ECOP, composed of researchers, safety and health professionals, insurance representatives, construction contractors, labor representatives, and other subject matter experts, narrowed its focus on WMSDs caused by MMH. Through surveys and interviews with contractors, the ECOP identified barriers and facilitators to using safer MMH practices and steps taken by safety-minded contractors to reduce the risks for MMH-related injuries. Next, CPWR and the ECOP applied social marketing principles to develop resources to help construction employers and their employees overcome the barriers. The key barriers identified include: 1) lack of awareness of the risks, solutions, and benefits of safer practices; 2) limited time to find and access material weights and lifting and storage options; and 3) lack of organization and experience for planning.

The resulting Best Built Plans (BBP) program is a suite of free planning and training resources that companies of all sizes can use to plan for safe MMH. The program was designed to be flexible. Contractors do not need to use all the available resources. They can select the resources that best meet their business and workforce needs. The goal is to motivate all contractors to engage in the practices used by safety-minded contractors to reduce MMH risks. These practices are: 1) plan for safe MMH on all projects; 2) enforce a weight limit; and 3) store materials off the ground closer to the waist height of workers.⁴ The original version of the BBP program (Image 1) had to be downloaded and used on a personal computer. It included a planning tool and step-by-step guidance that walked users through specific questions and key points to consider at the Bidding, Pre-Job, On-the-Job, and Look Back stages of a project, and provided access to supplemental resources, including: worksheets to help develop and track a plan for MMH; lists of common material weights, lifting equipment, and storage methods; training programs and materials to raise worker awareness of the importance of planning and safe lifting and carrying practices (hazard alert cards, toolbox talks, and interactive training and coaching resources).

Image 1 – Original Version of the BBP Program



In 2018 and 2019, a select group of large specialty and general contractors pilot-tested the BBP program on one or more active or planned projects, offering CPWR valuable feedback on its benefits, challenges, and suggestions for enhancing or expanding the program. Simultaneously, CPWR made the BBP program publicly available through a link on its website with instructions for downloading the program. Those who used the link were given the option to provide feedback through an online survey or by contacting CPWR directly. New features and materials developed based on the pilot and other feedback included⁵:

- A website (www.bestbuiltplans.org) that mirrored the planning tool portion of the BBPPC-based program.
- A Mobile App that provided ready access to the contractor planning tool and interactive training and coaching materials on a cell phone or tablet (instructions for accessing the App and downloading the original PC-based version were included on the new website).
- New training programs and materials for workers and contractors.
- An instructional video in English and Spanish that introduced the BBP program.

With these changes, CPWR set out to scale up and present the BBP program to a broader audience of contractors, with a focus on small and medium-sized contractors and those who employ trades with high rates of soft tissue injuries. Based on what was learned through the BBP pilot evaluation, CPWR decided using a traditional evaluation approach may not be effective for interventions designed for complex and persistent safety problems, such as the WMSDs the BBP program is trying to address.

USING A DEVELOPMENTAL EVALUATION APPROACH

During the 2019-2024 research cycle, CPWR's Research to Practice (r2p) program set out to explore new evaluation tools for programs designed to address challenging health and safety issues, such as WMSDs. Developmental Evaluation (DE) was identified as a promising approach. Unlike traditional program evaluation approaches that measure outcomes against pre-determined goals and in as controlled an environment as possible, DE leverages real-time (or near real-time) data and feedback from target audiences to identify and implement necessary changes to the design, development, or implementation process. DE is rapid, creative, and ever-evolving as more is learned.⁶ The evaluation approach is broad, supportive of innovation and adaptation, and allows for responsive updating of the intervention in an iterative manner and before the evaluation is complete. Where a traditional process evaluation approach might ask the question "Are we doing the **things right?**," a DE approach also asks, "Are we doing **the right things?**"^{7,8}

CPWR's DE plan for Best Built Plans:

CPWR's r2p program used the BBP program to test this evaluation approach and address the following questions:

1. Is the version of the BBP program available at the time of this study useful and easy to use by contractors of all sizes, including those small-to-medium-sized?
2. Which program elements should be kept, discarded, changed, and added (i.e., which worked, didn't work, what's needed) to achieve the BBP program's intended goal?
3. Is there value in using the DE approach to advance awareness and use of interventions for persistent and complex safety and health construction issues?

This BBP program DE was based on feedback collected from contractors who trialed the BBP program as part of a concurrent CPWR research study conducted by Washington University on implementation. As discussed in more detail in the next section, in the Washington University research study, two groups of contractors were introduced to the BBP program over two separate six-month periods (Wave 1 and Wave 2) and were asked to identify what they liked/ found most useful (positive), what was not useful or didn't work (barriers), and what needed to be changed or developed to help them create a safe MMH plan to reduce their WMSDs. After the Washington University researchers collected data and summarized the Wave 1 contractors' feedback, they shared it with CPWR's r2p team and the ECOP so the BBP program could be modified and new resources could also be created to address implementation bottlenecks and other barriers identified. The BBP program website was modified, and new materials were created and uploaded to the website. This version of the BBP program website and resources was evaluated by the Wave 2 contractors and participants in a one-time Contractor Program Review.

Washington University Study Plan:

The Washington University research team enrolled contractors into the study in two waves. Wave 1 enrollment occurred between January 2020 and November 2021, with contractor participation running through June 2022. Wave 2 enrollment occurred between January and October 2023, with participation running through May 2024. They recruited contractors of all sizes (large ≥ 100 employees, medium = 20-99 employees, small <20 employees), including specialty contractors and with a preference for those employing trades that perform work tasks commonly involving lifting and carrying heavy loads (e.g., ironworkers, pipefitters, roofers, drywall installers, bricklayers, laborers, and glaziers). During each Wave, the researchers established a baseline by conducting an interview with each contractor to learn about their current efforts to reduce workers' exposures to MMH risks, assessing their stage of change (precontemplation, contemplation, preparation, taking action), and introducing them to the BBP program. The researchers then met with each contractor monthly over a six-month period to document the contractors' positive opinions and barriers to using the BBP program materials and tools; capture ideas for improving the BBP program; and learn what, if any, changes the contractor had made to improve safe MMH practices in their company. The researchers summarized the Wave 1 contractors' feedback and shared the findings with CPWR's r2p team and the ECOP. Following the DE approach, both teams used the feedback to modify existing or create new program elements to overcome the barriers identified. After these changes were completed, the Washington University research team recruited the Wave 2 contractors to test the modified BBP program elements and used the same data collection plan previously described.

Since this research study was conducted during and immediately following the COVID-19 pandemic, contractor participation was low. To supplement the feedback gathered through Waves 1 and 2, the researchers evaluated an additional group of contractors called the Contractor Program Review. This group of contractors was asked to do a one-time systematic review of the BBP program website and provide their opinion about the usefulness and relevance of the information and tools (positive findings) and the barriers. A summary of the results from Wave 2 and the Contractor Program Review was then given to the CPWR r2p team for an additional round of changes to the BBP program.

RESEARCH FINDINGS: WAVE 1

Between January 2020 and June 2022, 10 contractors participated in Wave 1 [9 large (>100 employees), and 1 small (<20 employees)]. Four were categorized as employing high-risk trades (drywall installers, roofers, ironworkers, bricklayers, laborers) for WMSDs because common work tasks involved frequent and/or heavy lifting and carrying of materials. Seven of the participating contractors performed commercial or light commercial work and three were residential contractors.

Wave 1 Contractors' Stages of Change at Baseline and Six Months:

Based on the information obtained from the interviews with Wave 1 contractors at baseline and six months, contractors were categorized into a stage of change. The category corresponded to the company's intentions to plan and/or take actions to reduce the MMH risks in their workers' tasks. Baseline results showed 4 (40%) of the 10 contractors were at the planning (preparation) or taking action stages and the remaining 6 (60%) were in the precontemplation or contemplation stages of change (they had no plans for safe MMH practices). By the end of the test period, a small positive shift was documented with 2 (33%) of the 6 contractors in precontemplation or contemplation stages at baseline progressing to the preparation or action stages for safe MMH practices, bringing the total number of contractors using safe MMH practices to 6 (60%) of the participating contractors.

Wave 1 Contractor Feedback on the BBP program:

The following is a summary of the contractor feedback collected from the Wave 1 contractors:

Positive findings:

- There was a lot of useful information on the website, such as the downloadable forms and documents were helpful (e.g., weights of common building materials, lifting and storage equipment). (An example is shown in Image 1)
- The games contain good information (but they can't require employees to play them – see Barriers).
- Between baseline and six months, researchers observed improvement in the contractors' basic knowledge about the risks from lifting and carrying materials manually (i.e., heavy weight and size of the object, obstacles in paths and distance traveled, poor body positioning from work at ground level or overhead, and frequent/repeated handling of heavy objects).

Barriers:

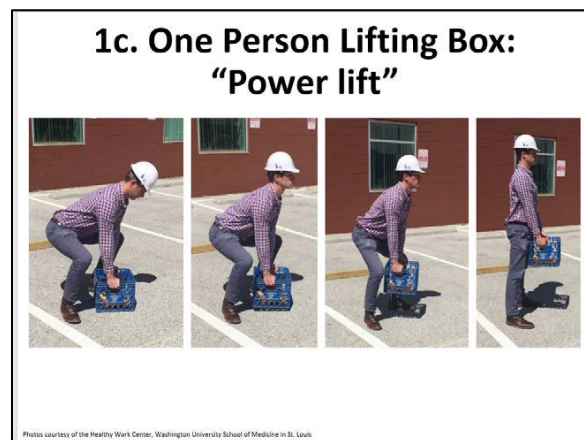
- Limited time to spend on developing a safe MMH plan and/or adapting the information from the website for use in their safety programs.
- The website was hard to navigate, making it difficult to relocate a "favorite" page or resource.
- The large volume of information on the website is overwhelming, particularly for contractors with little or no background knowledge of MMH risks and controls. Note: The researchers observed gaps in the contractors' understanding of the physical risks of lifting tasks.
- Lack of guidance on how to apply the available information to create a plan for safe MMH, and the current online and downloadable versions of the planning tool do not offer the flexibility or ease that an online interactive planning tool would.
- Lack of trade-specific information and "off-the-shelf" materials relevant to their trade(s).

- The availability of the interactive training and coaching materials only through the downloadable PC-based version of the program or Mobile App which requires a user to access multiple platforms.
- Hyperlinks to materials (particularly training materials and toolbox talks) that took the user outside of the main BBP webpages. (An example is shown in Image 3)
- Company rules restricting the use of personal electronic devices during work time or workers unwilling to download work-related materials onto their personal devices limited the usefulness of the “games”.

Image 2 – Example of a useful document listing the weights of common building materials

Examples of Weights of Common Building Materials									
<i>(Please note – The list is in alphabetic order by material category. These examples were identified through a search of the Internet and the CPWR Solutions database (www.cpwrcolutions.org) as of October 2021. CPWR does not endorse any specific material, equipment or product.)</i>									
1 Updated: October 2021									
2	Category of Material	Construction Material	Size or Coverage	Units	Weight per unit (lbs)	Total Weight (lbs)	Source	Link	Other Resources/ Comments
3	Abrasive blasting	Crushed glass blast media	1 bag	1	50	50	MSC Industrial Supply	http://www.msdirect.com/product/details/52405891	
4	Abrasive blasting	Glass bead blast media	1 bucket	1	25	25	Northern Tool + Equipment	http://www.northerntool.com/shop/tools/product_200136774_200136774	lower weight option
5	Abrasive blasting	Glass bead blast media	1 bucket	1	50	50	Harbor Freight	https://www.harborfreight.com/50-lb-glass-bead-80-grit-abrasive-media-61874.html	

Image 3 – Example of a linked resource not located within the BBP webpages



APPLICATION OF WAVE 1 FINDINGS

From March 2022 through May 2023, CPWR’s r2p program staff met regularly with the ECOP to review the Wave 1 contractor findings and to explore how to address the barriers.

Table 1 contains a summary of the barriers identified by the Wave 1 contractors that CPWR addressed, the changes or additions proposed, and the modifications made in response to each before the Wave 2 review.

Table 1 - Wave 1 Contractor Feedback & Responses:

Barriers	CPWR/ECOP Plan	BBP Program Modifications
<p>The website was hard to navigate, making it difficult to relocate a “favorite” webpage or resource</p>	<p>Revise the webpages to be more user-friendly</p>	<ol style="list-style-type: none"> 1. Added different “pathways” for different users based on their readiness to use the BBP planning tool and/or interest in planning vs. training. 2. Re-designed the BBP program webpages, including simplifying the navigation panel on the right side of the webpage and navigation icons on the bottom of each webpage.
<p>The large volume of information on the website is overwhelming, particularly for contractors with little or no background knowledge about MMH risks and controls. Note: The researchers observed gaps in the contractors’ understanding of the physical risks of lifting tasks.</p>	<p>Revise the webpages to be easier to read and understand</p> <p>Develop shorter videos for contractors based on information in the existing training materials on the BBP website</p>	<ol style="list-style-type: none"> 1. Reduced the amount of text on each page and reformatted various pages to increase the use of tables and graphics instead of paragraphs of text for easier reading and comprehension and less scrolling, when possible. 2. On the Contractor Planning Tool homepage, added the Hierarchy of Controls for Manual Materials Handling graphic. 3. Created additional resources that simplify and consolidate concepts and help guide users step-by-step through recommended planning processes, including Pre-Job and On-the-Job planning checklists and a Look Back guide. 4. On the Contractor Training Program homepage, created and posted eight new brief videos (6-8 minutes long) based on the information from the original single contractor video (51

		minutes). Two of these videos cover the background about risks and solutions for lifting tasks [Contractor training series (videos 2 & 5)].
Lack of guidance on how to apply the available information to create a plan for safe MMH, and the current online and downloadable versions of the planning tool do not offer the flexibility or ease that an online interactive planning tool would	Creating a new interactive tool would be time-consuming and costly. The decision analysis algorithm was too complicated. Decided to add text/choices to guide decisions.	<ol style="list-style-type: none"> 1. On the Best Built Plans home page, added “Are you ready to begin planning for manual materials handling”? – YES; NOT SURE; or I’M A TRAINER 2. On the Training homepage, gave the contractor choices: Contractor Training, Worker Training, Interactive Training
Lack of trade specific information and “off-the-shelf” materials relevant to their trade(s)	Make minimal changes -- decided it was difficult to add trade-specific materials given the complexity of construction projects while keeping the website simple	<p>No changes made by CPWR.</p> <p>During the Washington University study, one contractor created trade-specific video toolbox talks and uploaded them to YouTube. Washington University developed a “how-to” guide based on this process.</p>

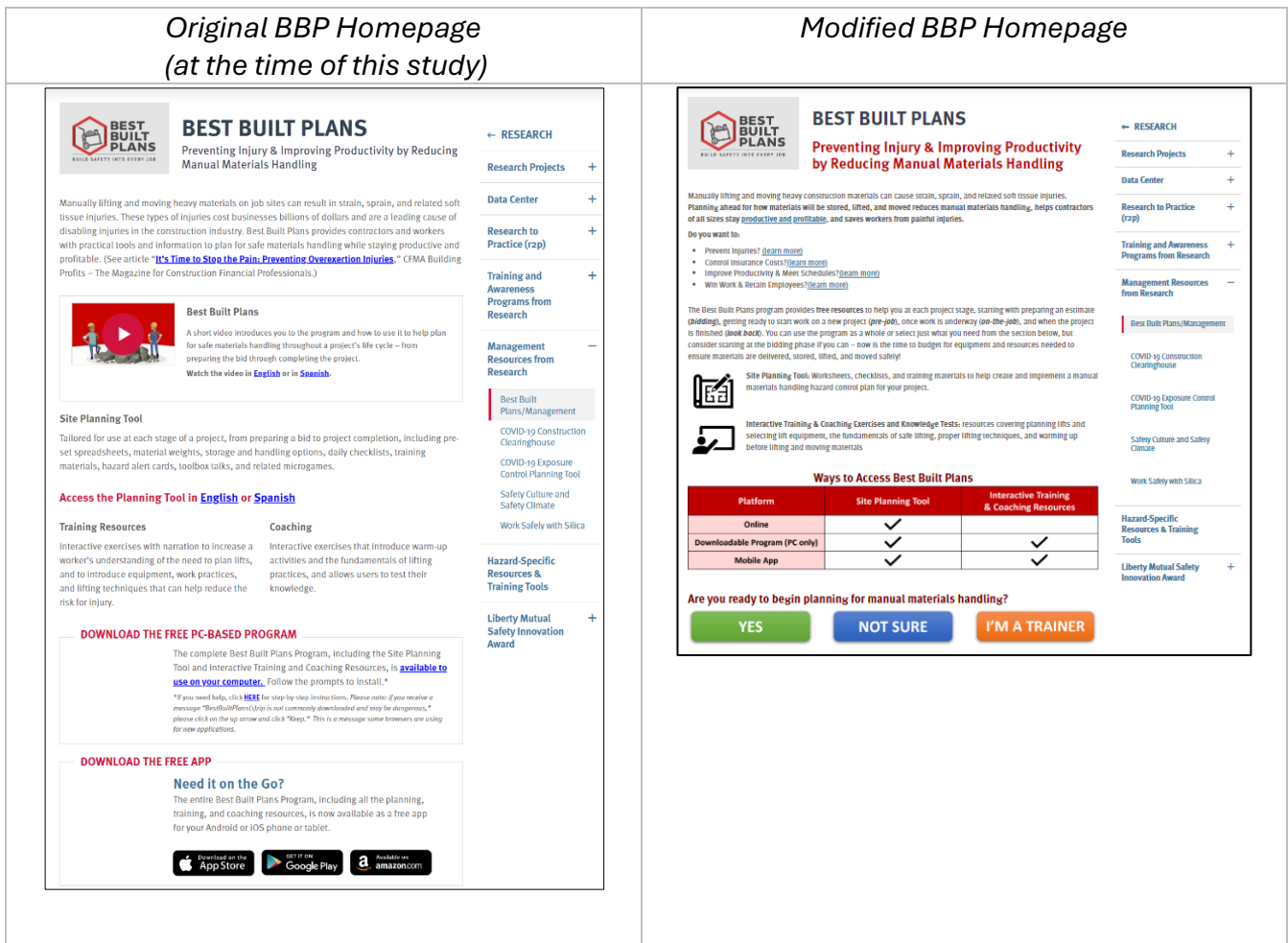
The following sections provide additional detail on the modifications described in the table above.

BBP Program Webpage Modifications and New Resources to Address Barriers:

Best Built Plans Homepage:

It was determined that the entry point for accessing the BBP program resources, creating an easy-to-understand and use Homepage is critical. The CPWR r2p team and ECOP discussed many ideas (e.g., decision tree, web-based planning tool) for structuring this page to help guide contractors toward creating or improving a safe MMH plan while also making it more visually appealing and easier to read and navigate. In the end, a simple decision tree approach was used that involved asking the user “Are you ready to begin planning for manual materials handling?” with response options of “YES”, “NOT SURE”, or “I’M A TRAINER”. The original version of the Homepage and the modified version are shown in Image 4.

Image 4 – Comparison of original and modified BBP website home pages

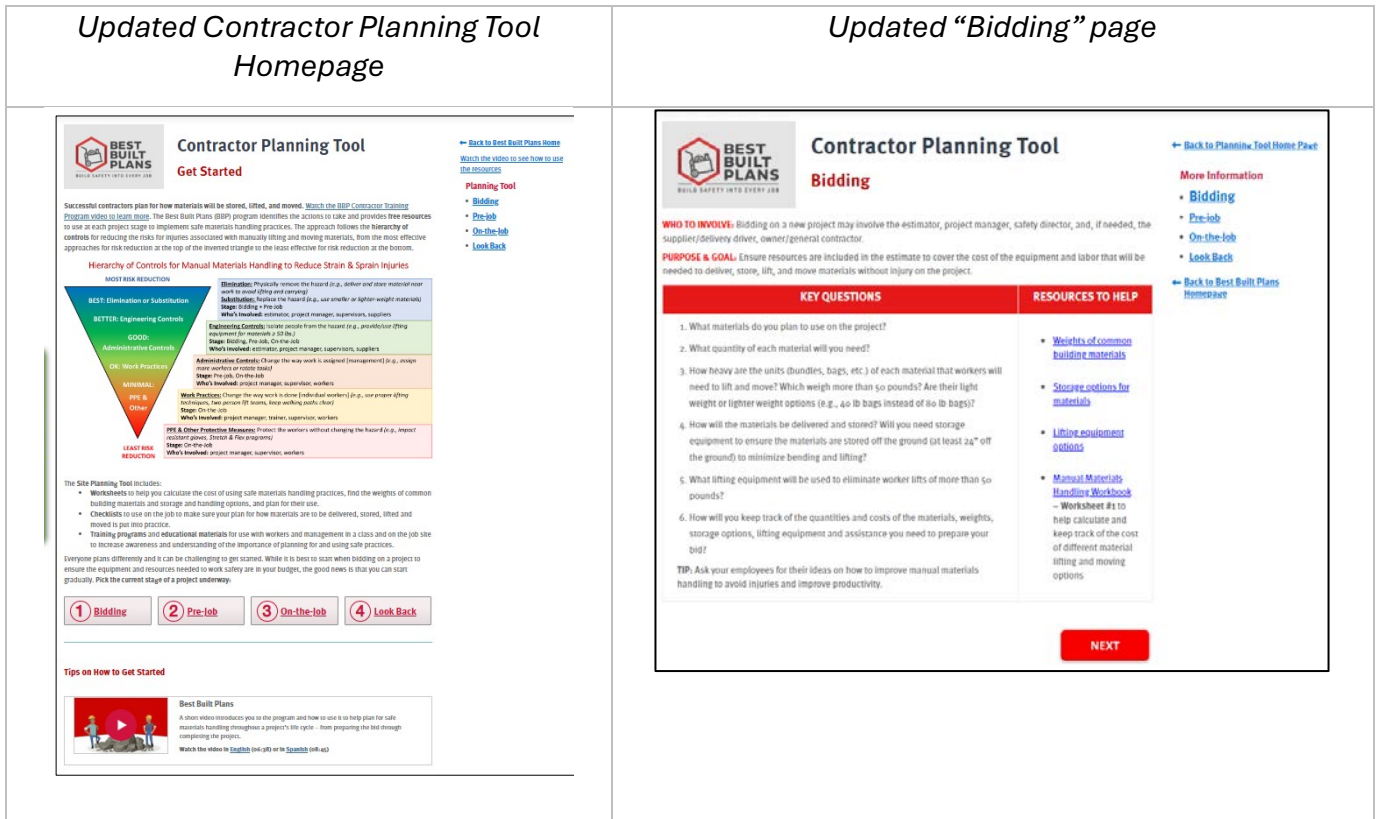


Click on “Yes” for Contractor Planning Tool Section:

The “YES” option leads the user directly to the modified version of the Contractor Planning Tool main webpage. This updated page (Image 5) includes: 1) a new Hierarchy of Controls for Manual

Materials Handling graphic; and 2) clickable buttons for each stage: Bidding, Pre-Job, On-the-Job, and Look Back. Each button opens to a modified version of the webpage for that construction stage. These pages remain similar in concept to the previous versions; however, they were updated to highlight who should be involved in planning/implementation and the purpose and goal of planning at that stage. The Key Questions were revised based on the feedback and for clarity as needed, and the format was made more consistent and simplified by splitting the Key Questions and hyperlinks to downloadable resources into two columns. The updated Bidding page is shown as an example in Image 5.

Image 5 – Updated Contractor Planning Tool Home page and Bidding page



The following describes new and modified materials related to contractor planning that were added, including:

a) **Hierarchy of Controls for Manual Material Handling graphic** (shown on Planning Tool main page - Image 5)

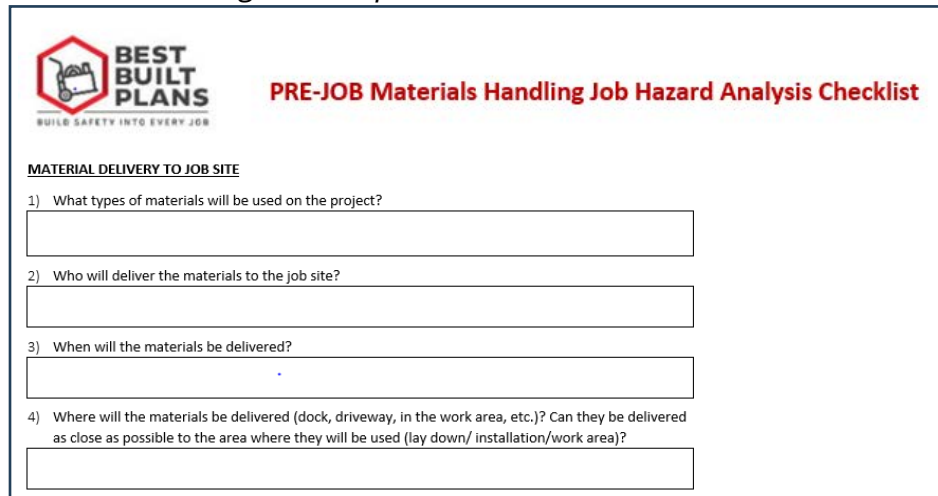
This graphic was created to offer a clear, visual guide for understanding when and how to plan for MMH to have the biggest impact and to strengthen the case for employers on why MMH prevention planning should start at the bid stage.

b) **Pre-Job Checklist** (Pre-Job page)

This checklist was developed to address the need for more step-by-step instructions and/or a table that would quickly walk a contractor through what is needed for pre-job

planning to prevent soft tissue injuries from MMH. The checklist includes instructions for filling it out, space to identify the project and who is completing the checklist, space and prompts for material delivery, location of installation materials, and other overexertion-related hazards and actions for prevention. Image 6 shows some of the types of information collected on this checklist.

Image 6 – Snapshot from Pre-Job Checklist



BEST BUILT PLANS
BUILD SAFETY INTO EVERY JOB

PRE-JOB Materials Handling Job Hazard Analysis Checklist

MATERIAL DELIVERY TO JOB SITE

1) What types of materials will be used on the project?

2) Who will deliver the materials to the job site?

3) When will the materials be delivered?

4) Where will the materials be delivered (dock, driveway, in the work area, etc.)? Can they be delivered as close as possible to the area where they will be used (lay down/ installation/work area)?

c) *Daily Checklist (On-the-Job page)*

This checklist was developed to provide additional guidance on executing the concepts described in the On-the-Job section and quickly walk a contractor through what is needed for pre-task planning.

d) *Look Back Guide (Look Back page)*

The original Look Back page only included questions to consider at this stage. This guide was developed to encourage contractors to engage in this step and realize the benefits. The goal of the guide is to make it easier and more efficient to capture lessons learned in a way that will directly benefit future projects.

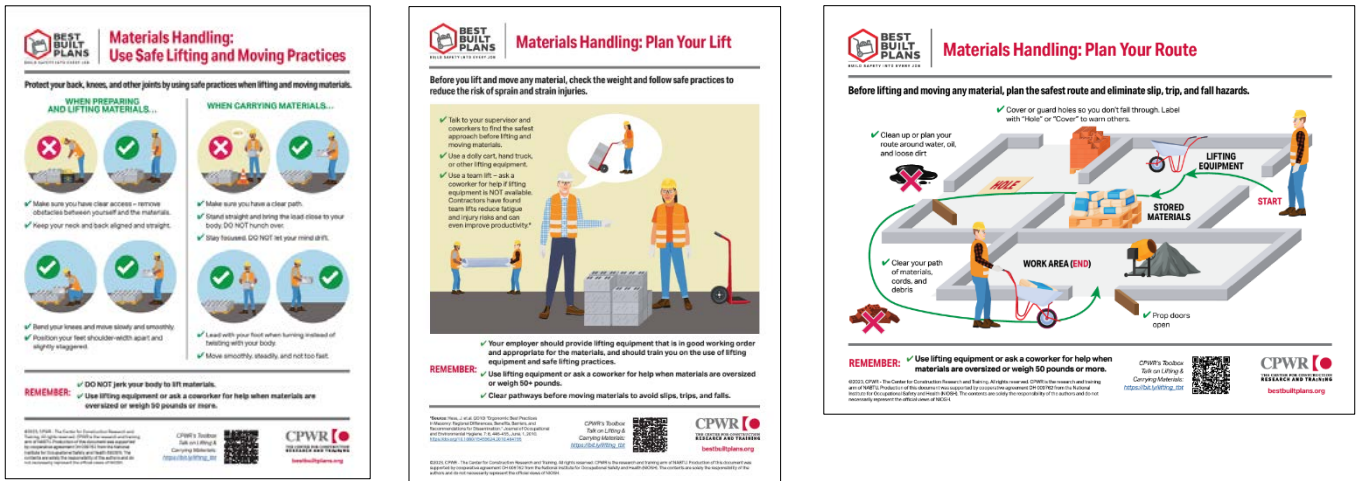
e) *Revised Key Questions on each phase of the construction page*

The Key Questions were updated for clarity and consistency as needed, and new ones were added to ensure users consider everything necessary at each stage.

f) *New infographics/posters for workers in English and Spanish: Use Safe Lifting and Moving Practices; Plan Your Lift; Plan Your Route (Image 7)*

As learned during the original BBP program pilot and confirmed through this study, graphics and visuals can help raise awareness. The new infographics are based on lessons taught in the Lift Coach Plan Your Route and Plan Your Lift games. Although the contractors in this Wave identified company- and worker-level reasons for not using them, the games have been highly rated when played and used in CPWR and other ergonomics training programs to reinforce safe MMH practices. To ensure that key information from the games makes it into the hands of workers more easily, three infographics/job site posters were developed for use on job sites and other areas where workers may see them (e.g., company office, inside panel of a company vehicle).

Image 7 – Newly created infographics were based on concepts in the Lift Games



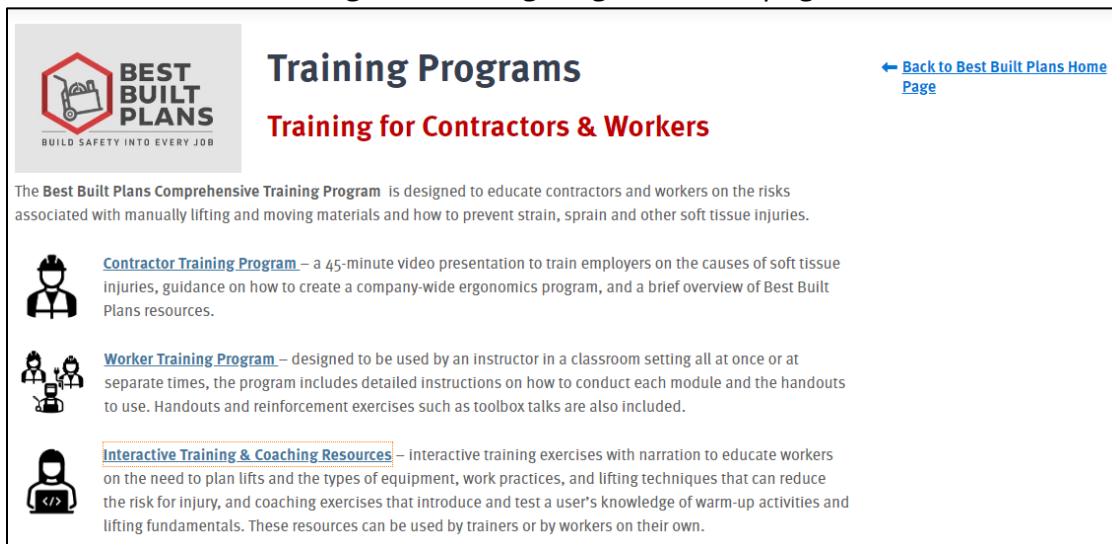
“Not Sure” Option – Contractor Planning Tool Learn More:

The “Not Sure” webpage was added for those contractors still in the precontemplation or contemplation stages of change. This page includes an abbreviated version of the Contractor Planning Tool main page. It is intended to help a contractor to quickly understand what would be involved in developing a plan for safe MMH. A user can move forward to the four construction stages from this page.

“I’m a Trainer” Option for Training Programs Homepage:

The Training Programs homepage (Image 8) shows the overall categories of training materials available for contractors and workers. The design of this page and the addition of three internal program pages (one for each type of training resource) were updated to reflect requests for less scrolling, more images, and easier navigation.

Image 8 – Training Programs homepage



In addition to redesigning the layout of this section, the team updated and re-recorded the Contractor Training Program. The updated program can be viewed in its entirety or in shorter sections created for use when time is limited or a contractor wants to learn more about a specific topic (Image 9).

Image 9 – Series of Contractor Training Program videos



The following list includes other new training materials developed by the Washington University Research Team (separate from the resources developed by CPWR). It is important to note that these were not available on the BBP program website when the next evaluation steps occurred, however they were shared with and used by some of the researchers in Wave 2.

- a) Toolbox Talk – Materials Handling: Plan Your Route
- b) Toolbox Talk – Importance of Planning for Safety
- c) Toolbox Talk – Materials Handling: Plan Your Lift
- d) Toolbox Talk – Best Lifting Practices - Large Sheets
- e) Toolbox Talk – Best Lifting Practices - Long Objects
- f) Toolbox Talk – Best Lifting Practices - Team Wall Raise
- g) Toolbox Talk – Best Lifting Practices - Small Bag Lift
- h) Tip Sheet – Importance of Planning to Reduce Injuries: Materials Handling

All of the other revisions and new materials received approval and were uploaded to the CPWR Best Built Plans website between January 30, 2023 and July 15, 2023.

RESEARCH FINDINGS: WAVE 2 AND SUPPLEMENTAL PROGRAM REVIEW

Between January 2023 and May 2024, 12 contractors, consisting of large- and medium-sized contractors (7 large, 5 medium, 0 small) participated in Wave 2 of the study. Seven were categorized as employing high-risk trades (drywall installers, roofers, pipefitters, laborers). Two contractors performed residential work, and the majority (10) performed commercial or light commercial work.

As mentioned earlier, to address the low contractor participation resulting from the timing of the study (during and immediately following the COVID-19 pandemic) and supplement the feedback, a separate group of 10 contractors (8 large, 1 medium, 1 small) were asked to do a one-time review of the updated version of the website and materials used for Wave 2 (Contractor Program Review).

Stage of Change of Wave 2 Contractors at Baseline and at Six Months:

Based on the information obtained from the interviews with the contractors at baseline and at six months, contractors were categorized into a stage of change. Each category showed their company's intentions to implement plans or take actions to reduce the MMH risks in their workers' tasks. Results at baseline showed 9 (75%) of the 12 Wave 2 contractors were not considering safe MMH practices in their safety programs (precontemplation or contemplation stages) and the remaining 3 (25%) were in the preparation or action stages. By six months, after using the modified BBP program website and resources, 5 (56 %) of the contractors who had no safe MMH practices at baseline had progressed to either plan for or implement safe MMH practices and 2 of the contractors who were already in the preparation or action stages at baseline had expanded their safe MMH actions. Overall, 7 (58%) of the contractors made positive changes in their approach to safe MMH after using the modified version of the BBP program. At the end of the six-month test period, the number of contractors at the preparation or action stages had increased to 8 (67%) of the Wave 2 contractors. In addition, the research team observed that all the contractors had gained knowledge about the need for safe MMH practices.

Results of Contractors' Adoption of Safe MMH Practices:

The results showed more of the Wave 2 contractors who used the newly modified version of the BBP program (proportionately and numerically) moved from inactivity (precontemplation or contemplation stages) to planning (preparation stage), taking action, or expanding their MMH efforts than the Wave 1 contractors. Although the number of participating contractors was limited, it is reasonable to conclude the increased adoption of safe MMH practices among Wave 2 contractors can be attributed to the modifications made to the BBP program. This also suggests that employing a DE approach can enhance an intervention's usability and acceptance among its target audience.

It is important to note, however, that other factors may have contributed to these results: a) timing – it was 3 years after the pandemic began by the time Wave 2 contractors participated so they had more capacity to make changes to their safety programs, and b) possible selection bias – the Wave 2 contractors who volunteered to participate may have had a greater interest in the topic or

in participating in research studies. The greater change for Wave 2 was not likely due to their type of work as the groups had similar rates of high-risk trades (Wave 1: 40%; Wave 2: 58%), nor related to contractor size. While one might expect to see more changes among large contractors, fewer Wave 2 contractors were large-sized (58%) compared to Wave 1 (90%).

Wave 2 and Program Review Contractor Feedback on the BBP program:

The following is a summary of the feedback from contractors (both Wave 2 and the Contractor Program Review) who used the modified version of the BBP program:

Positive findings:

- The amount of information, much of it new to them, about MMH, its risks, and ways to control the risks was appreciated.
- The BBP program website was found to be organized and easy to navigate.
- Availability of downloadable documents was positive, with specific mentions of the key questions and newly created materials (Hierarchy of Controls graphic, infographics/posters, checklists).
- The information on the website made them think about the risks for MMH differently, and they recognized the need to engage people in their organization - who previously might not have been involved (i.e., estimators, project managers, suppliers, delivery drivers) in addressing MMH risks.
- The new toolbox talks are helpful. Note: the toolbox talks that were still being reviewed and had not been posted were shared and, in some cases, used by the contractors.

Barriers:

- Too much information to fully understand what the program is about. This was particularly difficult for contractors with little or no background knowledge about MMH risks and controls.
- The website is too wordy – it would take a contractor 2-3 hours to review everything to know what the program involves.
- Lack of contractor experience and comfort using computers could limit use of the website.
- Lack of guidance on how to apply information and resources (checklists, weights lists, infographics, etc.) to create an MMH plan or incorporate them into an existing safety program, and for smaller-sized contractors, how to use the resources if a formal planning process is not in place or help from a third party isn't available. Smaller contractors need a concise message.
- Lack of knowledge of the physical risk of lifting tasks. The training program for workers is too formal to use on worksites and there are no training videos like those in the contractor training program.
- Navigation challenges – it often took 3-4 clicks to get to certain information and it was hard to get back. You get lost as you go deeper into the website.
- Resistance from estimators and project managers because they think MMH risks should be handled by safety staff and the workers.

The following table summarizes the barriers identified by contractors in Wave 2 and the Program Review shows if the barrier had also been identified by the Wave 1 contractors, and includes suggestions for addressing the barrier.

Table 2 – Feedback from Wave 2 and Contractor Program Review Compared to Wave 1:

Barriers from Wave 2 Contractors	Repeated from Wave 1	Barriers from Contractors Program Review *	Modifications Suggested and/or Made
Too much information to fully understand what the program is about. This was particularly difficult for contractors with little or no background knowledge about MMH risks and controls.	Yes	The website is too wordy - it would take a contractor 2-3 hours to review everything to know what the program involves.	Create a simple document with the most important information from BBP about the causes of injuries in work tasks. This product was published in September 2024.
Lack of contractor experience and comfort using computers could limit the use of the website.	No		Previous suggestion addresses this barrier.
Lack of guidance on how to apply information and resources (checklists, weights lists, infographics, etc.) to create an MMH plan or incorporate them into an existing safety program, and for smaller-sized contractors, how to use the resources if a formal planning process is not in place or help from a	Yes	Smaller contractors need a simpler message.	Consider creating a model program template.

third party isn't available.			
Lack of knowledge of physical risk from lifting tasks.	Yes	The training program for workers is too formal to use on worksites and there are no training videos like those in the contractor training program.	Create a short worker training video about the risks and controls related to MMH.
Navigation challenges – it often took 3-4 clicks to get to certain information and it was hard to get back.	Yes (similar but not identical)	You get lost as you go deeper into the website.	Have an index page of all the BBP program materials.
Resistance from estimators and project managers because they think MMH risks should be handled by safety staff and workers.	No		

* Additional minor edits suggested by the Program Review group are included in Appendix A.

APPLICATION OF WAVE 2 AND PROGRAM REVIEW GROUP FEEDBACK

The Wave 2 findings indicated the changes made based on Wave 1 feedback positively influenced these contractors' use of the BBP program and contributed to a greater number of them making progress toward building a safe MMH program. However, as noted in Table 2, some of the same barriers cited in Wave 1 were also raised by the Wave 2 contractors and the Contractor Program Review group, suggesting some of the changes made following the first round were not sufficient or did not meet the needs of the contractors in Wave 2, who at baseline appeared to be less aware or knowledgeable about the risks from MMH. Although there were significant changes made to the BBP website after Wave 1, and some contractors felt the ease of navigation was positive, others continued to be overwhelmed by the amount of information available and had difficulty navigating the site. Similar to the Wave 1 contractors, they expressed a need for more guidance on how to create an MMH plan using the available resources and for a simple way to get the basic information about MMH risks and controls before being introduced to the concepts for planning a safe MMH. This need may reflect the fact that the contractors in Wave 2 included several who only used informal processes to bid, plan work, and communicate with workers on the job. These

contractors need other simple ideas about how to add MMH controls into their companies' practices at all levels to move from an informal to a more formal planning process.

BBP Modifications to Address Continued Barriers

Development of a Contractor Tip Sheet

As an initial step in addressing these continued barriers, CPWR developed a Contractor Tip Sheet for Safe Manual Materials Handling, which provides much of the same information, guidance, and access to resources as the online BBP program in a 7-page printable format. Contractors can review and reference the material as needed, with the option to continue with the full BBP program when they feel ready to do so.

Image 10 – Pages from the Contractor Tip Sheet for Safe Manual Materials Handling

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 16-minute video](#) introduction to the program and how to use it.

What are soft tissue 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.

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)

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:
 a. The heavy materials typically used;
 b. How the materials are stored, lifted, and moved; and
 c. 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 practices and procedures. 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 whenever 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:
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!	<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?
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.	<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?
3. ON-THE-JOB When work is underway, have regular meetings with your employees to review and update plans, as needed.	<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?
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.	<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 [user-friendly 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.

Additional Updates to the Online BBP Program (Next Steps)

Following the iterative DE process, the CPWR r2p team is currently using the findings from Wave 2 and the Program Review contractors to make additional improvements to the BBP program. At minimum, CPWR plans to make several additional adjustments to the online version of the program, such as changing the wording on the “I’m a Trainer” button to make it clear the information within is for anyone interested in ergonomics training and not only professional trainers.

CPWR also intends to continue to use the DE approach as it scales up the BBP program to ensure the program’s goal (increased use of safe MMH practices) is achieved and is responsive to industry needs – particularly the needs of those contractors with fewer resources and a limited knowledge of safe MMH practices.

CONCLUSION

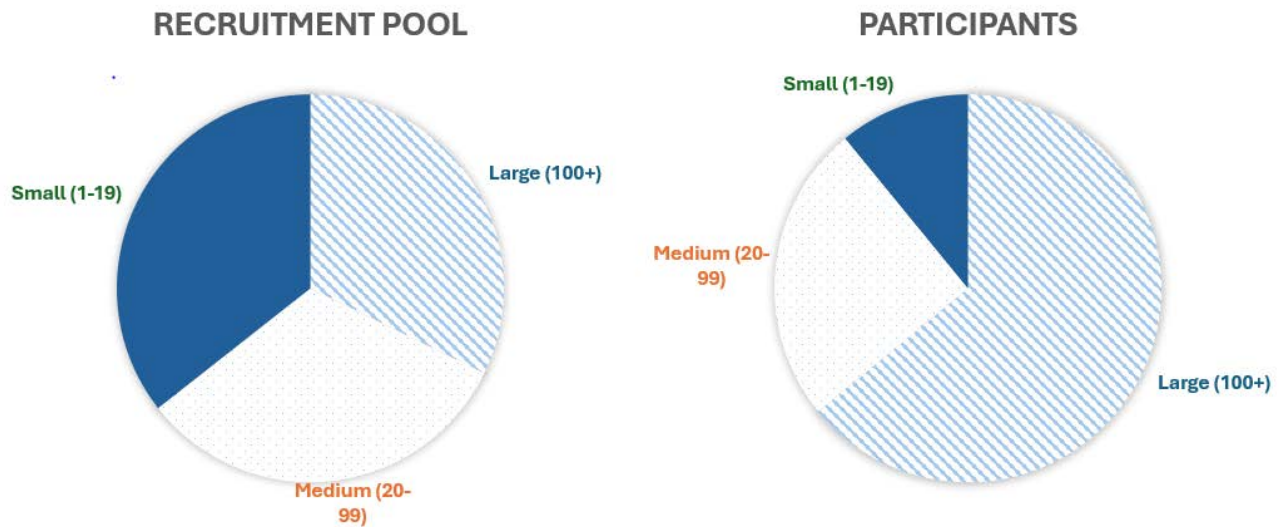
This test of the DE approach indicates it is a useful way to gain meaningful information about barriers to addressing complex problems in the construction industry, such as soft tissue injuries. The strength of the approach is the flexibility it provides for assessing an intervention with various audiences who would benefit from using it and responding to concerns and changing needs as they are identified. This ongoing and iterative process increases the likelihood that an intervention will be used and achieve its goal. For the BBP program DE, even though the number of participants was small, the feedback received has already improved the program and its utility for more types of contractors. As noted earlier, by the end of both Waves more contractors had moved to the preparation or action stages of change or improved their existing plans for safe MMH. Additional rounds of the DE process are needed to ensure the products are usable by contractors of all sizes with a focus on small contractors' needs and to evaluate the effectiveness of the safe MMH programs created by participating contractors. Finally, further investigation into how to better disseminate the BBP program and reach small- and medium-sized contractors is still needed. The identification of contractors in Wave 2 who were not aware of the need to add safe MMH into their safety program underscores the need to raise awareness of the BBP program and for it to be easy to use by contractors with limited knowledge of WMSDs.

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APPENDIX A: BEST BUILT PLANS CONTRACTORS' PROGRAM REVIEW REPORT

This small project was added to the overall research plan in August 2023 to gather more contractor feedback on the Best Built Plans (BBP) program and the changes made following Wave 1. Participants were recruited between January and April 2024. Efforts were made to recruit a mix of contractors by type of construction and size. The Washington University research team reached out to 59 contractors [19 or 32% large size (100+), 19 or 32% medium size (20-99), 21 or 36% small size (1-19)]. The majority (49 or 83%) did not participate. Of these 35 did not respond to the request (9 large, 12 medium, 14 small), 13 (2 large, 6 medium, 5 small) were not interested, and 1 small contractor was out of business. The remaining 10 contractors (17% of the original pool) participated. Eight were large contractors and the remaining two were medium and small contractors.



Each participant conducted a one-time review of the BBP program website (bestbuiltplans.org) by following the instructions on the evaluation form (see Appendix B for evaluation form). The research team estimated the evaluation would take approximately 1.5 hours. Following their review, each contractor participated in a 30-minute interview with a research team member to share what they liked (positive findings), barriers to use, and suggestions for improving the program.

The following summary of the feedback is based on the completed evaluation forms and the follow-up interviews.

I. Home page

a. Positive

- i. The home page is clean and easy to follow.
- ii. The background information could be used to educate others (project managers, estimators)

b. Barriers

- i. The embedded links could be missed.
- ii. The website is too wordy.
- iii. The table listing types of programs was confusing as there was no way to access the Mobile App and downloadable program on the page.

II. Contractor Planning Tool main page

a. Positive

- i. Introductory video is well done, clear, and helpful.
- ii. Program sounds as though it will be informative to both management and employees, and customizable by companies.
- iii. Documents, including the bidding and pre-job checklists, weights list, storage and lifting equipment lists, toolbox talks, MMH workbook, daily checklist, and look back guide are helpful.
- iv. The layout following 4 stages of construction is helpful.
- v. The hierarchy of control graphic will be educational for all in the company.
- vi. The key questions included for each phase of construction are an easy format to follow.
- vii. Navigation is easy for computer-literate individuals and the redundancy (side bar and bottom "next") is helpful.

b. Barriers

- i. The location of the link to the introductory video at the bottom of the "contractor planning tool" page is not easy to find, and most contractors will not want to watch the 55-minute video on the first line of the page.
- ii. If contractors think they must use all the materials, they may resist using the program because of the time it would take to fill out all of the worksheets and track progress. This is particularly the case for contractors who perform work that is done the same way/conditions on each project. These conditions may need much less formal planning and benefit from using just the simpler checklists that only ask about unique issues related to MMH on a job (e.g., environment, access to delivery).
- iii. The questions on the Bidding page about tracking MMH are not appropriate for this phase.
- iv. The key personnel who have meaningful information to offer during the Look Back phase may have left the project before the look back (debrief) so an ongoing process may help document lessons along the way.
- v. Contractors not familiar with MMH issues may be overwhelmed by the large amount of information and not be clear on how to get started.

III. Training

a. Positive

- i. The contractor and worker training programs look useful for general education (particularly for large contractors with designated safety personnel and formal training meetings).

- ii. The training program format (video and PowerPoint) and availability in English and Spanish is helpful.
- iii. The BBP Mobile App may also be useful in some training programs.

b. Barriers

- i. Videos for contractors, which contain basic information that would be useful for all (not just contractors), may not be used by all that could benefit because they are listed under the contractor heading.
- ii. Workers are unlikely to use the interactive training programs on the Mobile App on their own.
- iii. The worker training program is not conducive to use on a job site.
- iv. No videos were offered to use for training workers.

IV. Overall

a. Positive

- i. Navigation was easy (5 out of 10 contractors).
- ii. The training materials, including the PowerPoint are useful.
- iii. Resources, such as direct links to equipment ideas, toolbox talks, checklists, and the workbook, are useful.
- iv. The Bidding and Pre-Job planning sections stood out as being particularly useful.
- v. Eight of the 10 contractors said they would incorporate changes into their program. The remaining 2 were not sure.

b. Barriers

- i. Navigation was difficult and became more so the deeper a user got into the website – it was easy to get lost.
- ii. The website is wordy and needs more visual aids.
- iii. The Program would be overwhelming for small contractors because they do not have the resources to designate one person for health and safety.
- iv. It takes at least 2-3 hours to go through all of the material in the program to understand what is there, and many contractors cannot afford the time to do that.
- v. Companies whose workers perform the same task on every project are not going to go through the planning tool each time for repetitive/routine work.

Suggestions for Addressing Barriers

I. Homepage

- a. Move the table on the BBP homepage (showing the types of programs) off this page and make it clear in the new location that the downloadable and Mobile App versions of the planning tool include the interactive training programs, but do not include the new resources from Wave 1.
- b. Make the hyperlinks easier to find.
- c. Better describe what an MMH plan will look like and what is required on the homepage.
- d. Smaller contractors need a simpler message for the background (consider a statement separate from the “evidence” provided on the four subpages: Prevent Injuries, Control Insurance Costs, Improve Productivity, and Win Work & Retain Employees).

- e. Consider adding a statement about how sprains and strains reduce a worker's quality of life.
- f. Several contractors/safety personnel did not think the "I'm a Trainer" button applied to them because that is not what they do.

II. **Contractor Planning Tool main page**

[Easily changed or created]

- a. Move the hyperlink for the introductory video to the first line of the page (not at the bottom) and explain that the contractor video provides more in-depth learning about designing a comprehensive program.
- b. Make each level of the hierarchy of control (HOC) a different color, rather than a gradual change and add a link/feature that you can click on to make it larger (important as some felt the text was too small).
- c. Create a sample checklist as a Word Document for the Bidding stage (already have a checklist for Pre-Job, On-the-Job, and Look Back guide; there is a work sheet for the Bidding stage, but many were unfamiliar with the Excel format of it).
- d. Add a question to the Bidding page asking whether manual materials handling can be eliminated (all done mechanically).
- e. Ask a question to the Pre-Job page asking how they intend to eliminate or minimize the amount of material handled (add use of devices).
- f. Add space for the quantity of materials and frequency to the On-the-Job checklist.
- g. Don't use the "next" button at the bottom of each page between the stages, list all the buttons as someone may want to go out of order.
- h. Create a downloadable guide for the contractor planning tool and place the icon to this new simple document "front and center" on the planning page.
- i. Weights list – add a column for trade.
- j. Add a note that they can use a plan created for routine work, if it reflects site-specific safety needs.

[Not easily changed or created]

- k. Add alternative material handling devices to the video.
- l. Create a filled-in sample set of documents for the project that shows how to capture lessons learned along the way.
- m. Create a new checklist for contractors who do the same jobs repetitively, often for short durations (i.e., do more than one job in a day). These contractors may benefit from a different type of checklist.
- n. Add trade-specific information (ex: the weights of common materials and equipment lists).
- o. Create an interactive tool that is filled out online and compiled automatically into a basic MMH plan.
- p. Prioritize and reduce the key questions or separate them into the ones they all SHOULD consider and the ones they MAY consider. This would simplify the process, particularly for small contractors or those that do their planning informally.

III. **Training**

[Easy to change]

- a. Make the knowledge check tool at the end of the worker training instructor manual more visible to users earlier in the training program.

[Not easily created or changed]

- b. Create short videos for workers like those available for the contractors
- c. Have lifting equipment and material weight information easier to view and to identify trade specific information
- d. Create a short (6 minute) good/bad MMH practices video for workers.

IV. Other

- a. Create an index page of all the BBP program materials.
- b. Make the BBP icon on each page a hyperlink to the program's homepage or add a "Back to Best Built Plans homepage" button at the bottom of each page (it is currently at the top).
- c. Simplify and condense the text on the website and use simpler guided interfaces such as the "Are you ready to begin planning for manual materials handling?" currently used on the homepage.
- d. Use "click here to learn more" links to cut down on text as much as possible
- e. Create a page that helps contractors quickly find trade specific information available in the program
- f. Create a template for contractors to develop their company's material handling policy.

APPENDIX B: BEST BUILT PLANS EVALUATION FORM



Evaluation Form for Best Built Plans Program

The Best Built Plans program provides free planning and training resources on material handling to contractors for each stage of a construction project to help them reduce exposure to manual materials handling risks. To help us learn what we can do to improve the program, please complete this form. We will ask you to review specific materials and then answer a few questions. You may either print it out or complete it electronically. Contact Sam Kurtz at kurtzs@wustl.edu if you have any problems or questions.

I. Please answer the following questions:

1. What is the name of your company? _____
2. On average, how many field employees do you employ? _____
3. What are the trades of your field employees? _____
4. List the most common tasks involving material handling performed by your employees.

II. Go to the Best Built Plans website [Best Built Plans Homepage](http://bestbuiltplans.org) (bestbuiltplans.org) and review the information.

- a. Is the information on the Best Built Plans homepage organized and simple to understand?*

- b. This page presents the background for creating a manual material handling program. Is this information helpful? Do you feel there is anything missing? _____*

1. Follow the “Yes” button at the bottom of the homepage (shown in the picture below).

Are you ready to begin planning for manual materials handling?



- a. **Read** through the main page.*
- b. At the bottom of the page, under the “Tips on How to Get Started”, watch the 6-minute video. Does the program content described in the video sound like it will be useful to your company? Why or why not? _____*

c. Refer to the Hierarchy of Controls graphic on the page. The graphic contains a lot of information without much explanation. Is the graphic easy to understand?

2. At the bottom of the Contractor Planning Tool webpage, follow each radio button (shown in the picture below). **Review the information and materials on each page and answer the questions in the table below:**



	<i>Review the “key questions”. Are the key questions helpful and important? Explain</i>	<i>Review the resources below for each radio button. Describe which resources do you feel will be most useful?</i>
<i>Bidding</i>		Weights of common building materials Lifting equipment options
<i>Pre-Job</i>		Manual Materials Handling Workbook: Pre-job worksheet Pre-Job Checklist
<i>On-the-Job</i>		Materials Handling Checklist Posters/Infographics Lift Coach Games (Just read the description)
<i>Look Back</i>		Look Back Guide

a. Does your company have the “key questions” incorporated into your processes at each phase of construction? Please explain your answer. _____

b. Do you like the format of the “key questions” as a list on each page or would you prefer a different format? _____

c. Was it easy or challenging to navigate between pages and resources? Briefly explain your answer. _____

3. Navigate back to the [Best Built Plans Homepage](http://bestbuiltplans.org) (bestbuiltplans.org). Follow the “I’m a Trainer” button at the bottom of the page.

Are you ready to begin planning for manual materials handling?



Review the main “Training Programs” page and each program listed

on the page.

a. Contractor Training Program

i. Do the videos look worth viewing? Is there other information or a different format you would prefer to learn about this information? _____

b. Worker Training Program

i. Do you think these materials could be used for training your workers? _____

c. Interactive Training and Coaching Resources

i. Download the Best Built Plans App through either the Apple, Google or Amazon app stores. Type “Best Built Plans” and click on the logo here. Skim through the app and spend no longer than 5 minutes looking through it.



Play, shown

ii. Do you feel the information in this app is useful? If yes, how could the app be used by a company? Please briefly explain your answer. _____

4. You have now reviewed the entire program. **Please provide your overall assessment of the program by answering the following questions.**

a. *On a scale of 1-10 (1= unable to navigate, 10= easy to navigate), how would you rate the navigation of the Best Built Plans website. Please explain your rating.*_____

b. *What information in the Best Built Plans program do you feel is most useful?*

c. *Do you plan to use any materials from the program? If yes, please describe what you would use.*_____

Please send your completed form to Sam Kurtz kurtzs@wustl.edu in advance of the interview.