CPWR

Development of a Workforce Sustainability Model for Construction

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Final Report

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Development of a Workforce Sustainability Model for Construction
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Abstract

The physical work environment in construction is often intense. It can place physical demands on workers and expose workers to adverse conditions that are not present in other industries. The intense environment negatively affects the construction workforce, leaving minimal perceived value and incentive for new workers to enter the industry and the existing workforce to remain in the industry. The construction workforce has experienced high turnover rates and poor safety performance over the last few decades. Achieving diversity and equity are also top concerns in the construction industry. Many construction organizations do not invest in workforce development and have no long-term plans to cultivate the workforce. This deficiency may be a key reason behind the perceived low value of being an employee in the construction industry. Moreover, there are no holistic tools and resources available across the industry to help organizations cultivate the construction workforce. This research study was intended to fill this gap in practice by developing informed tool to assess and improve workforce sustainability (i.e., continuing workforce development) in construction. Using a mixed-methods research approach that relied on semi-structured interviews and informal discussions with industry professionals and academics, a review of the literature, and a multi-round subject matter expert survey, a workforce sustainability assessment tool was developed. The developed tool includes three levels of components (attributes, indicators, and metrics) to characterize a workforce and assess its level of sustainability.

Keywords: Workforce development, social sustainability, equity, diversity and inclusion, training and education, competence, and maturity.

Key Points Summary

- Achieving workforce sustainability includes the process of hiring and facilitating an environment for a coherent, viable, and healthy individuals who are highly skilled and competent, and then nurturing and maintaining the requisite skills and competencies constantly.
- A practical tool consisting of a model and evaluation process is developed to assess and improve workforce sustainability in the construction industry. The developed tool is referred to as a workforce sustainability assessment tool.
- The workforce sustainability assessment tool consists of three levels of components organized in a hierarchy, from the most general to the most specific. The three levels of components are attributes, indicators, and metrics, respectively.
- The workforce sustainability tool includes eight attributes (nurturing, diversity, equity, health and well-being, connectivity, value, community, and maturity) synthesizing important features to characterize a workforce and reveal its level of sustainability. For

each attribute, multiple indicators are recognized and collectively used to assess and improve the attribute. In total, 42 indicators of workforce sustainability are identified in the study. In turn, for each indicator, a metric (a measurement unit with different scales) is determined and used to quantify the indicator.

- The workforce sustainability score, calculated from the aggregated values and weights of the attributes, indicators, and metrics using the described tool, ranges from 7.5 to 29. This range of values is divided into three levels of workforce sustainability: high (score higher than 21), intermediate (score ranges from 13 to 21), and low (score lower than 13). For each level, a different action is required to improve workforce sustainability within an organization.

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Introduction

The unique nature of building construction and high degree of organizational complexity on jobsites make the construction industry one of the most hazardous (BLS 2016) and waste-generating (EPA 2016) industries in the United States (US). For example, the number of work-related fatal injuries in the construction industry was the highest among all US industries in 2015 (BLS 2016). Even though construction comprises a small percentage of the overall US workforce, about 20% of the total occupational fatal injuries in the US are associated with construction operations (Abdelhamid and Everett 2000). The industry is taking steps to improve the safety and health of its workforce, yet continued efforts and vigilance are needed to prevent further injuries and fatalities from occurring.

Sustainable development is, in part, expected to reinforce social equality, health, and well-being of construction stakeholders. The US Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED) rating system, the most widely used green building rating system in the US construction industry, is designed to promote sustainable development. The rating system focuses primarily on environmental and economic aspects of sustainability associated with the design, construction, and use of facilities. Unfortunately, the rating system is limited in its attention to the social context of sustainability, especially worker health and safety (Hinze et al. 2013). In order to attain a sustainably safe industry, social sustainability must receive high priority in the construction industry. Social sustainability in construction can be described as "a life-enhancing process to accomplish social equity among all construction stakeholders [including construction workers] in terms of health, education, economic welfare, and other human rights" (Karakhan and Gambatese 2017). As sustainable development is a comprehensive vision to holistically address the environment, economy, and society, common practices for implementing sustainability in the US construction industry can be considered incomplete. Previous studies have indicated that LEED rating system credits predominantly overlook the impact of construction operations on worker health and safety (NIOSH 2010).

To respond to this deficiency and sustain workers' health and safety throughout their working lives and beyond, workforce sustainability must be clearly defined, measurable, achievable, results-focused, and time-bound. Based on a comprehensive literature search, the researchers found no prior studies that provide a model or framework for assessing workforce sustainability in construction. The present study is intended to bridge this gap in knowledge and practice by developing a practical model of workforce sustainability for construction. Workforce sustainability is defined by the investigators as *a property of a workforce that reflects the extent to which the workforce can perform its desired function over a selected period of time*. A workforce may exhibit a high or low level of sustainability based on the extent to which it safely, skillfully, and collaboratively performs its function. The time period over which workforce sustainability is assessed may be a defined finite period of time or indefinitely. A workforce may

be self-sustaining or require external inputs to maintain its presence and ability to perform its desired functions. Workforce sustainability can be "created and nurtured via employment practices, [procedures, and policies] that link employee work-life balance and well-being to employment experiences over the course of employees' working lives, enabling them to perform well over time while also thriving in their personal and family lives" (Kossek et al. 2014). The developed workforce sustainability model is expected to promote providing a sustainable career for construction workers and a sustainable industry for all construction stakeholders. This goal is in line with the overall mission of the National Institute for Occupational Safety and Health (NIOSH) and The Center for Construction Research and Training (CPWR).

It should be emphasized that, for the purpose of this study, the construction workforce consists of all members of a construction-related organization who are involved, directly or indirectly, in the construction process, whether laborers, managers, supervisors, engineers, or other individuals.

Literature Review

A review of literature indicates that the extreme workplace conditions in the construction industry may impact the construction workforce negatively. Over the past ten years, the construction industry has consistently incurred high numbers of occupational fatal and non-fatal injuries. In 2015 alone, 937 fatalities were reported in construction according to the Bureau of Labor Statistics (BLS 2016). The hazardous nature of construction work limits interest in employment in the industry. The relatively low level of productivity in construction compared with other industries (e.g., manufacturing) reported in literature (Allmon et al. 2000; Rojas and Aramvareekul, 2003) is another example of the extreme workplace conditions in construction. Figure 1 illustrates the discrepancy between worker productivity in construction relative to other US industries.

Moreover, the CPWR Chart Book indicates that the labor force within the construction industry is aging (CPWR 2013). The proportion of older workers in the workforce (workers aged between 45-65 years) increased from 25% to 39% between 1985 and 2010, while the proportion of younger members of the workforce (workers aged under 35 years) significantly decreased by roughly 50% over the same period of time (CPWR 2013). In addition, education attainment of the construction workforce is lower than that in all other US industries except for agriculture (CPWR 2013). The work environment in the construction industry is intense. Many construction laborers work more than 40 hours per week in extreme environments (CPWR, 2013). Long working hours influences a person's health and prosperity adversely and can lead to conflicts between work and family responsibilities (Pfeffer 2010), causing work-life stress and potential performance errors in the workplace (e.g., safety incidents).

Furthermore, the construction industry has been consistently identified as an industry that does not attract skilled and new workers anymore. Among Millennials (the generation of people born between 1982 and 2002), there is convincing evidence that a large percentage of high-school students, both males and females, is reluctant, if not resistant, to pursuing a career related to construction (Escamilla and Ostadalimakhmalbaf 2016).

Construction & Non-Farm Labor Productivity Index (1964-2003)
Constant $ of contracts / workhours of hourly workers
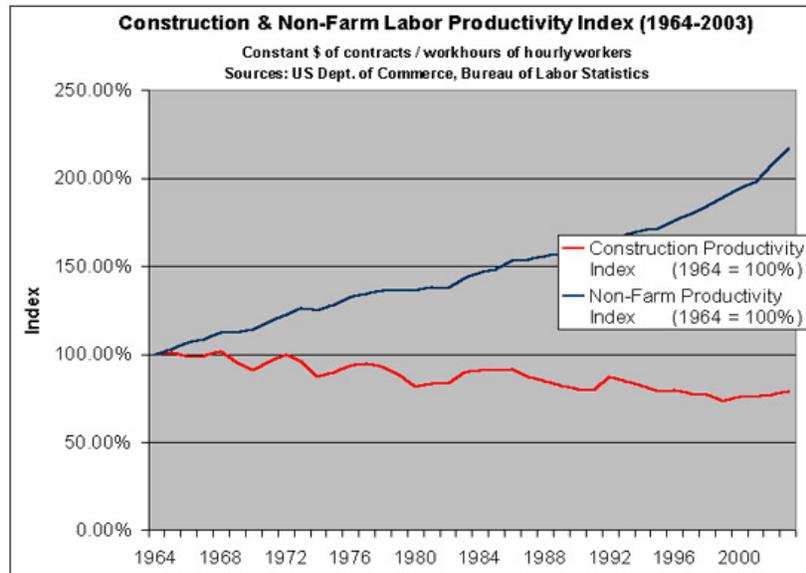Sources: US Dept. of Commerce, Bureau of Labor Statistics

Figure 1: Labor Productivity Index for Construction Industry vs. Other Industries

Based on the aforementioned circumstances, there is an essential need to improve workforce sustainability in construction. This study aims to address this industry issue by developing a workforce sustainability model that incorporates essential attributes and applicable indicators needed to assess and improve workforce sustainability in construction. The model is designed to include considerations for multiple aspects of the construction workforce, such as work-life balance, skill development, education attainment, and diversity. Successful development of the model provides a practical tool to assess and improve workforce sustainability in practice. There is currently no similar tool available to enable construction stakeholders, including organizations and employers, to assess and improve the level of sustainability with respect to the workforce.

Previous studies primarily focused on either organizational sustainability or sustainability of a specific facility based on its design/construction, as opposed to sustainability of a workforce. Valdes-Vasquez and Klotz (2013) developed a framework to characterize the necessary considerations of social sustainability within construction organizations. The framework predominantly focused on organizational sustainability, rather than on the workforce. Relatedly, Rajendran (2006) created the Sustainable Construction Safety and Health (SCSH) rating system

to evaluate and sustain worker safety and health on construction projects. The SCSH rating system is limited to the project level and only considers occupational health and safety in its evaluation process, without addressing other critical elements of workforce sustainability, such as equity and diversity. A realistic and holistic sustainability model should ideally include multiple attributes to characterize critical qualities of the workforce. In such as model, worker health and safety would ideally be only one attribute of the model. The development of such a holistic tool is an important contribution to scientific knowledge because it could enable researchers to study, quantify, and investigate trends and phenomena with respect to workforce sustainability (e.g., investigating the relationship between workforce sustainability and key project performance indicators such as workplace safety, work quality, and productivity).

Research Objectives

As mentioned above, the primary goal of this study is to develop a workforce sustainability model for construction. The study involved the identification and quantification of essential attributes that affect workers' lives and careers in construction and, hence, construction workforce sustainability. One unique aspect of the study and model is that they were based on the perspective of the workforce and how workers feel with respect to their employment. That is, the model addresses sustainability from the worker's perspective, not from the perspective of the employing organization or the project stakeholders. The model developed is intended to be a practical tool to assess and improve workforce sustainability in construction at the team, division, company, and industry levels.

The specific objectives of the study to attain the overall research goal were to:

1. Identify essential attributes that characterize critical qualities and characteristics of a workforce and assess its level of sustainability;
2. Assign a weighting to each attribute that reveals the level of influence that each attribute should have on workforce sustainability;
3. Identify and quantify applicable indicators for assessing and improving each attribute of workforce sustainability; and
4. Develop a formal workforce sustainability model and an evaluation process for assessing and improving workforce sustainability in the construction industry.

To achieve the study objectives, four tasks were planned for this study as follows:

1. Construct a conceptual model of workforce sustainability that recognizes the essential key attributes of workforce sustainability (Objective #1);
2. Identify, select, and qualify a panel of experts on the topic of workforce sustainability (Objectives #1, #2, and #3);

3. Develop a questionnaire and conduct a multiple round Delphi survey to identify/verify and quantify workforce sustainability attributes and indicators (Objectives #2 and #3); and

4. Develop a practical workforce sustainability model and evaluation process to assess and improve workforce sustainability (Objective #4).

Research Methods, Tasks, and Accomplishments

A mixed-methods research approach that relied on semi-structured interviews and informal discussions with industry professionals and academics, a review of literature, and a Delphi process was carried out to perform the research tasks listed above. Each task, along with the methods used and the results achieved, is presented below.

Task #1: Construct a conceptual model of workforce sustainability that recognizes the essential key attributes of workforce sustainability

To achieve this task and construct a workforce sustainability conceptual model, semi-structured interviews and informal discussions with industry professionals and academics in different fields of study related to workforce development and social sustainability as well as a review of available literature on the topic were carried out concurrently. This approach provided breadth and depth to the development of the conceptual model, leading to comprehensive and inclusive results. While the review of literature provided considerable breadth and captured multiple features of workforce sustainability, the input received from the interviews and discussions assisted with combining similar features into one attribute (e.g., combining education and training into one attribute referred to as "nurturing") and providing a thorough process. Each attribute of the conceptual model describes and includes multiple features needed for achieving desired qualities and characteristics of workforce sustainability.

The developed conceptual workforce sustainability model included eight key attributes that characterize a workforce and reveal its level of sustainability. The attributes are: nurturing, diversity, equity, health and well-being, connectivity, value, community, and maturity, as illustrated in Figure 2. Definitions of each attribute are provided in Table 1. The semi-structured interviews and informal discussions regarding the development of the conceptual model involved experts from both industry (e.g., workforce development trainers/consultants) and academia (e.g., university professors specialized in social sustainability and human sciences). Similarly, the literature search involved reviewing both industry and academic sources. For example, one of the researchers attended a day-long workshop in Seattle, WA to learn about equity and social justice, and discuss with industry professionals how these elements can be included in the intended workforce sustainability model. Industry professionals who participated in the workshop represented different types of organizations (owners, contractors, non-profit organization, training agencies, etc.) and, therefore, the feedback received was comprehensive and reflected multiple perspectives. Collecting data from multiple perspectives is valuable. That being said,

this study focused on the perspective of workers and what they feel is needed to make them more sustainable.

Figure 2: Workforce Sustainability Conceptual Model

The intended workforce sustainability model consists of three levels of components organized in a hierarchy, from the most general to the most specific as shown in Figure 3. These three levels of components are attributes, indicators, and metrics, respectively. Each of the levels is briefly described below:

- Attributes: the foundational qualities and characteristics of workforce sustainability;
- Indicators: practices, procedures, and policies that reveal the presence and level of each attribute within the workforce, and which can be used to assess and improve each attribute and, as a result, the overall level of workforce sustainability; and
- Metrics: measurement units and scales used to measure the extent or degree to which the practices, procedures, and policies (i.e., indicators) are actually implemented in practice within an organization to maintain and/or improve workforce sustainability.

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Table 1: Description of Workforce Sustainability Attributes

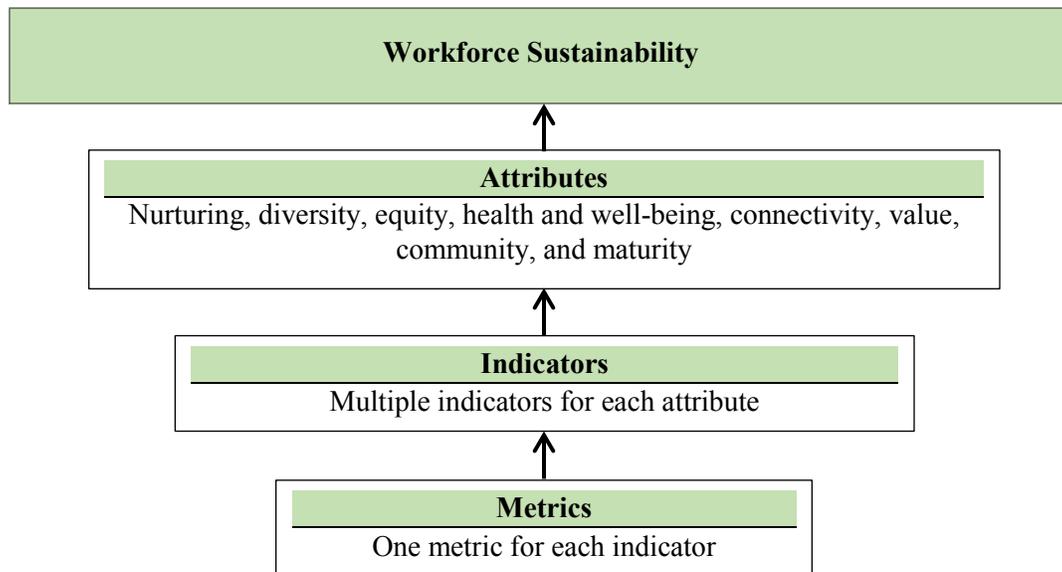| Attribute	Definition
Nurturing	The extent to which workers feel supported, encouraged, educated, and trained in their work and as individuals
Diversity	The extent to which the workforce is diversified and inclusive with respect to personal characteristics (e.g., gender, experience, race, social status, education, etc.) and to which diversity is integrated into and promoted within the workplace
Equity	The extent to which workers feel treated and compensated fairly compared to other workers, and evaluated fairly without discrimination with respect to personal characteristics, employment level, payment, work load and responsibilities, promotion, work opportunities, and so forth.
Health and Well-being	The level of workplace health, safety, and contentment that workers feel and experience physically, mentally, and socially during and after work operations within their work career and beyond
Connectivity	The degree to which workers feel connected, and willingly desire to connect, to peers, fellow employees, and management through open channels and two-way communication, and feel engaged in the operations, leadership, planning, and decision-making process
Value	The extent to which workers feel that they and their families are valued, respected, appreciated, and recognized by others in the workforce and the organization, financially and emotionally, for their work performance, contributions, and loyalty
Community	The extent to which workers feel they are accepted by, share similar interests with, and have camaraderie and cohesiveness in growth and achievement together with others in the workforce, with the organization, and with the industry as a whole
Maturity	A reflection of the extent to which workers have and/or gain leadership, responsibility/accountability, and competence in social, technical, environmental, and economic terms with respect to work performance, cooperation, problem-solving, collaboration, idea-generation and innovation, and work involvement and integration. A mature workforce should be able to gain, develop, and carry on the aforementioned competencies effectively and efficiently as a group and as individuals throughout their working and non-working life and be responsible/accountable towards self and others

Figure 3: Structure of the Intended Workforce Sustainability Model

For the review of industry resources, the researchers examined existing industry tools, reports, and certification programs about topics related to workforce sustainability. The review results are summarized in Table 2. It is evident that there is support in the resources for the existence of all eight attributes as important constructs of workforce sustainability. For example, the JUST label (https://living-future.org/just/), a disclosure program administered by the International Living Future Institute to demonstrate social equity and enhance employee performance in the workplace, recognizes the importance of education (nurturing), diversity, equity, and safety and health in the workplace and implements metrics to quantify each of these components. Similarly, the World Happiness Report (2017), a landmark survey used to rank people's happiness and well-being across different countries, acknowledges the role of employment practices and the significance of work environment on individuals' level of sustainability, including their happiness with respect to their working and non-working careers. According to the World Happiness Report, education (nurturing), diversity, equity, health and well-being, and sharing (connectivity and community), are key contributors to influence job satisfaction and employee happiness. In 2017, Gallup, Inc., a well-known research-based, global performance-management consulting company that conducts public opinion polls to identify issues and propose solutions with respect to workforce and organizational sustainability, released its latest report titled "State of the American Workplace," also known as the Gallup report (Gallup 2017). The Gallup report describes what workers need and summarizes, from the perspective of workers, methods to improve employee engagement (connectivity) and performance at work (maturity). The report

includes numerous practices and policies to improve worker engagement and performance at work, including providing career development opportunities, fair payment, job stability, work-life balance, and family support to improve and sustain workers in the workplace (Gallup 2017). Each of the aforementioned practices can be easily classified under one or more of the eight workforce sustainability attributes shown in Figure 2. For brevity purposes, other industry sources are not discussed in this report but are summarized in Table 2.

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Table 2: Confirmation of Key Workforce Sustainability Attributes — Industry Sources

	Source	Workforce Sustainability Attributes							
		Nurturing	Diversity	Equity	Health & Well-being	Connect-ivity	Value	Community	Maturity
Industry Tools and Reports	Just Label[1]	X (education)	X	X	X	X	X (employee benefits)		
	World Happiness Report[2]	X	X	X	X	X (sharing)		X	
	Gallup Report[3]	X				X (employee engagement)	X		X (employee performance)
	United Nations ISD[4]	X	X	X	X		X		
	Workforce Happiness Index[5]	X	X		X	X (engagement)	X		
	Corporate Social Responsibility (CSR) Report[6]	X	X		X			X	X (competence & ethics)
	Social Accountability (SA) 8000 Standard[7]	X (training)	X	X	X		X (wages & welfare)		

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[1] The Just Label User Manual. International Living Future Institute. Available at
http://justorganizations.com/sites/all/themes/pixture_reloaded/files/16%200607%20Just%20Manual_Updated.pdf
[2] The World Happiness Report. The Sustainable Development Solutions Network (SDSN), United Nation (UN). Available at
http://worldhappiness.report/ed/2017/
[3] State of the American Workplace Report. Gallup, Inc., Washington, DC. Available at
http://news.gallup.com/reports/199961/7.aspx?g_source=REPORT&g_medium=topic&g_campaign=tiles
[4] United Nations ISD (United Nations Indicators of Sustainable Development)
http://www.un.org/esa/sustdev/natlinfo/indicators/guidelines.pdf
[5] Workforce Happiness Index. Chapter 17 in "Killer Analytics: Top 20 Metrics Missing from Your Balance Sheet." by M. G. Brown.
Available at https://onlinelibrary.wiley.com/doi/10.1002/9781118691731.ch17, John Wiley & Sons, Inc.
[6] Corporate Social Responsibility (CSR) Report: Deep Change for the Great. By SK E&C, Available at
http://www.skec.com/file_download/2017_SKEC_CSR_Report_ENG.pdf
[7] Social Accountability 8000: International Standard. Social Accountability International, Available at http://www.sa-intl.org/_data/global/files/SA8000Standard2014(3).pdf

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In the same way, the researchers identified and reviewed academic publications and relevant research articles. Similar to that found in the industry sources, there was overwhelming support in the academic literature for the inclusion of the eight workforce sustainability attributes. Kossek et al. (2014) studied workforce sustainability and identified multiple organizational strategies used to promote work-life balance and foster workforce sustainability. The strategies identified provide support for seven attributes, namely nurturing (e.g., professional development), diversity, health and well-being, connectivity (e.g., strong connections among employees), value (e.g., compensation and benefits), community, and maturity. For instance, knowledge sharing (a form of maturity) was identified as an effective strategy for promoting a sustainable workforce. Likewise, Raheem and Ramsbottom (2016) identified key contributors of social sustainability in highway construction. The study conducted by Raheem and Ramsbottom found that employee awareness (nurturing), diversity, equity and respect, health and safety, quality of living (value), and responsibility (a form of maturity) are vital attributes of social sustainability and important factors of a positive work community. A summary of the findings from the academic literature review is provided in Table 3.

Table 3: Confirmation of Key Workforce Sustainability Attributes — Academic Sources

	Reference	Workforce Sustainability Attributes							
		Nurturing	Diversity	Equity	Health & Well-being	Connectivity	Value	Community	Maturity
Academic Articles	Kossek et al. (2014)	X	X		X	X	X (compensation & benefits)	X	X (knowledge sharing)
	Raheem and Ramsbottom (2016)	X (awareness)	X	X	X		X	X	X (leadership & responsibility)
	Chang et al. (2016)	X		X	X		X (wages & welfare)	X	
	Woodcraft et al. (2013)		X	X		X (engagement)	X	X	
	Bacon et al. (2012)	X	X	X	X	X	X		
	Torjman (2000)	X			X			X	X (skills development)
	Zarrabi and Fallahi (2014)	X	X	X	X		X		
	Haralson (2010)	X				X (employee engagement)			X
	Mani et al. (2014)	X		X	X		X		X (ethics)

Task #2: Identify, select, and qualify a panel of experts on the topic of workforce sustainability

After developing the conceptual workforce sustainability model and confirming the model attributes with current resources and literature, the researchers constructed a detailed workforce sustainability model using both findings from literature and input from experts on the topic. To gain input from experts, the researchers elected to use the Delphi process. The Delphi process is an interactive, structured, and systematic data-collection protocol used to obtain information and knowledge that relies on a structured group of experts. The group (panel) of experts plays a

substantial role in the Delphi process and, therefore, the selection of its members is crucial to the success of the process (Hallowell and Gambatese 2010; Sierra et al. 2016).

To ensure that the study results are comprehensive, experts in related fields of study (workforce development, human factors, social sustainability, and so forth) from both academia and industry were considered for participation on the expert panel in the study. The inclusion of both academics and industry professionals from different fields of study can eliminate, or at least minimize, potential biases toward one or more of the workforce sustainability attributes and can help guarantee that the study is of both theoretical and practical value. A specific two-step process was used to identify, select, and qualify the selected panel of experts. As a starting point, the primary criteria used for selecting potential industry experts were their position and experience within their organizations and the role and responsibility they have, or have had, with respect to human resources and workforce development. For example, the selection of potential experts from academia relied on authorship of journal and conference papers related to the topics of human resources and workforce development. Based on the established criteria, a total of 67 potential expert panelists were initially identified. From the list of 67 potential panelists, 42 were invited to participate in the study. The researchers determined that the invited 42 individuals have extensive knowledge and experience regarding workforce development and/or social sustainability.

The researchers contacted, via telephone and/or email, each of the 42 invitees to solicit their participation on the panel. Nineteen potential experts from different fields of study representing both academia and industry agreed to participate on the Delphi panel. However, in the end, only 16 experts (5 from academia and 11 from industry) provided the background and experience information requested and participated in the initial survey round. An expert panel size of 8-18 members is recommended in literature to optimize the Delphi process (Mitchell 1991; Hallowell and Gambatese 2010). Accordingly, the panel size created for the study was considered practical and adequate assuming that participation would not significantly drop in subsequent rounds of the Delphi process. Adequate panel size provides confidence that the study results are of high quality, and that if any panelists drop out during the Delphi process, a sufficient number of experts participate in the later rounds of the process.

The second step taken to establish the panel was to use existing literature to *quantitatively* validate that the identified 19 participants were qualified to be members of the Delphi panel. To this end, the study by Hallowell and Gambatese (2010) was utilized for this purpose. Hallowell and Gambatese identified multiple criteria, and assigned a weighting to each criterion, to qualify whether a participant is an expert. The criteria and their weightings are shown in Table 4. These criteria were used to qualify the expert panelists for inclusion in the study. According to Hallowell and Gambatese, a minimum total score of 11 points is needed in order to confidently qualify a participant as an expert and, therefore, include him/her on the Delphi panel. The results of the qualification process for the 16 participants who provided information and participated are presented in Table 5. Based on the table, it can be seen that all 16 participants received high

scores and were, therefore, considered qualified for inclusion in the Delphi panel. Fifteen participants scored above 20; only one participant scored below 20 but the score is still above the 11-point threshold set by Hallowell and Gambatese.

Table 4: Suggested Criteria to Qualify Expert Panelists [Hallowell and Gambatese (2010), modified]

Criterion	Weighting (each)
Professional registration	3 points for each valid registration
Years of professional experience	1 point
Academic or industry publications	Book: 4 points; journal article/book chapter: 2 points; conference paper: 1 point; industry publication: 1 point
Member of a committee	3 points
Advanced degrees	BS: 4 points; MS: 2 points; PhD: 4 points
Leading positions or roles	3 points

Table 5: Qualification of the Delphi Panel and Points Awarded to Each Panel Member ($n = 16$)

Identifier	Highest Degree	Years of Experience	Member of Committee	Leading Positions	Publicat-ions	Professional Registration	Total Points
A-1	PhD	18	2	1	9	PMP, CRIS	55
A-2	PhD	14	1	0	9	-	41
A-3	PhD	31	5	2	217	CIH	372
A-4	PhD	14	1	1	42	PE	92
A-5	PhD	28	2	3	201	-	297
I-1	BS	15	0	0	0	aPHR	22
I-2	BS	8	2	1	0	OHST, CHST	27
I-3	MS	20	1	2	0	PE	35
I-4	BA	16	0	0	0	LEED AP	23
I-5	MS	37	0	2	2	PE	53
I-6	MS	5	0	0	2	-	14
I-7	MBA	40	3	0	2	PE	60
I-8	MS	35	0	1	0	PE	47
I-9	BS	30	2	1	0	-	43
I-10	MS	15	0	1	0	PE	27
I-11	BS	40	2	0	9	-	62

Regarding demographic information, the panel was found to be diverse. Ten experts are male, five are female, and one did not express his/her gender. With respect to race and ethnicity, the majority of the panel consisted of white individuals but other races and ethnicities (e.g., Hispanic/Latino and Black/African American) were also represented. The panelists had different

job titles ranging from project manager to university professor—including human resource/workforce development program manager. The panel members stated that they are involved in both field and office work activities and work, or have worked, for different types of organizations including design firms, construction firms, architecture/engineering/construction (AEC) associations, universities, research institutes, workforce development organizations, and regulatory agencies. As shown in Table 5, all of the panel members held at least a Bachelor's degree in construction, workforce development, or a related field at the time of the study.

Task #3: Develop questionnaires and conduct a multiple round Delphi survey to identify/ verify and quantify workforce sustainability attributes and indicators

In parallel with the identification and selection of a qualified panel of experts, three questionnaires (one for each Delphi round) were developed by the research team. The aim of the questionnaires was to obtain insights from the expert panel regarding the important attributes and indicators of workforce sustainability.

The questionnaires were then distributed to the Delphi panel in three rounds (one questionnaire in each round). The first-round questionnaire was pilot tested with a few experts who were not selected for inclusion in the Delphi panel, and suggested revisions were incorporated into the questionnaire prior to dissemination. Moreover, since the research process included the involvement of human subjects, both the survey protocol and questionnaires were submitted to Oregon State University's Internal Review Board (IRB) for review and approval. Copies of the three questionnaires are provided in Appendix I.

Following the prescribed protocol for the Delphi method, the questionnaires were distributed to participants via e-mail in multiple rounds. Each participant was given the opportunity to provide his/her responses, and then re-assess, and revise if desired, his/her responses in subsequent rounds in light of those responses received from the other members of the panel. The researchers managed the process independent of the panel and maintained confidentiality amongst the panel members. This protocol created a collaborative effort among the panelists even though the participants never met online or in person or knew the identities and backgrounds of the other panel members. This feature is one of the primary advantages of the Delphi technique. The outputs of the Delphi technique are expected to capture and incorporate different perspectives and viewpoints about the topic of workforce sustainability, especially given that the panel is diverse and highly qualified. Although variability in participant responses can raise concerns in some cases, the variability in the present study converged into consensus in later rounds of the Delphi process, and a final output that the majority of the panel agreed with was reached, as will be discussed below. To reiterate, the primary goal of the Delphi process was to identify/verify and quantify workforce sustainability attributes and indicators using the

conceptual model described in Task #1 above. Each round of the Delphi process is described in more detail below.

Round #1*: Verify and quantify workforce sustainability attributes*

As noted above, out of the 19 experts who initially expressed willingness to participate in the study, only 16 responses were collected and analyzed in the first round. The first round questionnaire was divided into two parts. The first part solicited demographic and qualifying information about the Delphi panel members for Task #2. The second part asked the panel members to evaluate the conceptual workforce sustainability model (described in Task #1) as a foundation for this study and to indicate the level of influence that each of the eight attributes (described in Table1) should have on workforce sustainability.

Overall, 14 of the 16 Delphi panel members (87.5%) indicated that they agree, either fully or partially, that the proposed conceptual workforce sustainability model is an accurate method to reflect workforce sustainability, and its eight attributes (nurturing, diversity, equity, health and well-being, connectivity, value, community, and maturity) are important qualities and characteristics to assess and evaluate the level of workforce sustainability in the construction industry. Only two panelists disagreed with the proposed workforce sustainability model and said it is inaccurate, indicating that priorities in the construction industry continually shift and it may not be possible to develop a model that can correspond to these continued shifts all the time. The researchers carefully read through the explanations that the two dissenting participants provided for why they thought the model is inaccurate. The researchers also met personally with one of the participants to discuss the participant's response in detail. To respond to the panelists' feedback, all comments were studied in detail and changes were incorporated into the model as appropriate.

It should be noted here that although the majority of the expert panelists agreed that the conceptual workforce sustainability model is an accurate method to assess and improve workforce sustainability, some respondents thought that there was still room for improvement and, accordingly, suggested additional qualities and characteristics to include in the description of the attributes. For example, one participant mentioned that in addition to being treated equally and valued by the company, employees should be well-compensated and financially appreciated for their hard work in order to feel valued and sustain their employment. Another participant argued that "accountability" is an essential characteristic of workforce sustainability and, therefore, should be addressed by the model. Moreover, it was suggested that employee drive/desire be incorporated into the model to indicate that employees have rights but also responsibilities to address at work. That is, unless employees willingly desire to improve, high levels of workforce sustainability cannot be achieved. All of the suggestions received were incorporated into the model whenever possible. For instance, being responsible and accountable

is a characteristic of maturity and, therefore, these qualities were included into the maturity attribute of workforce sustainability.

In addition, the study participants were asked to provide a rating, based on a 5-point Likert scale, of the level of influence that each attribute should have on workforce sustainability. The rating ranged from 1 to 5 where "1" indicates "low influence" and "5" indicates "extreme influence". The ratings provided were collected, analyzed, aggregated, and then returned back to the panel for re-assessment and confirmation. This refinement process is necessary to achieve a high level of consensus and a final decision that all panelists support.

Round #2*: Finalize workforce sustainability attributes and identify potential indicators of each attribute*

The objectives of this survey round were to: (1) reach consensus about the level of influence (obtained in Round #1) that each attribute has on workforce sustainability; and (2) identify applicable indicators of each attribute that can be used to assess and improve workforce sustainability in construction.

As suggested by Mitchell (1991) and Hallowell and Gambatese (2010), the median value of the panel's responses was used, as opposed to the mean, to determine the level of influence of each attribute. The median is less likely to be influenced by potential outliers and, therefore, was selected as a measure of consensus. With respect to consensus, literature suggests using either standard deviation (SD) or interquartile range (IQR) (Mitchell 1991; Hallowell and Gambatese 2010) to assess the level of consensus amongst the panelists. For the purpose of this study, the standard deviation was utilized for measuring consensus. More specifically, the researchers established that for the present study, consensus is reached whenever the standard deviation is less than 2.

In Round #2, the panel members were asked to re-assess the level of influence of the attributes using the aggregated group median from Round #1 as a point of reference. The panel members were also asked to explain their responses if it was distant (i.e., a difference of two or more units) from the aggregated group median. Following this methodology, the panel members had the opportunity to update, or retain, their responses depending on the aggregated group response. Table 6 summarizes the descriptive statistics of Round #2 responses regarding the level of influence of the workforce sustainability attributes. Fifteen experts participated in this survey round and provided responses; only one person did not complete the survey and therefore was removed from the panel in subsequent rounds. Based on Table 6, it can be seen that the standard deviation was less than 2, and therefore consensus reached, for all attributes.

Table 6: Descriptive Statistics of Round Two Responses regarding Influence of Attributes on Workforce Sustainability ($n = 15$)

Measure	Influence of Workforce Sustainability Attributes (1 = low influence, 5 = extreme influence)							
	Nurturing	Diversity	Equity	Health & Well-being	Connect-ivity	Value	Comm-unity	Maturity
Median	4.00	3.00	5.00	4.00	3.00	4.00	3.00	3.00
Mean	4.00	2.87	4.33	4.00	3.20	4.00	3.27	3.20
Mode	4.00	3.00	5.00	4.00	3.00	5.00	3.00	3.00
SD	0.53	1.25	1.05	0.85	0.94	1.07	1.03	0.94
IQR	1.07	2.49	2.09	1.69	1.88	2.14	2.07	1.88
Min. value	3.00	1.00	1.00	3.00	1.00	2.00	2.00	1.00
Max. value	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00

To achieve the second objective of this round, the panel members were asked to suggest applicable indicators that can be used to assess and improve certain qualities and characteristics with respect to the workforce sustainability attributes. The indicators can take the form of practices, procedures, policies, or other means implemented by an organization/employer or the workforce itself to sustain a high level of nurturing, diversity, equity, and so forth. Achieving high levels of nurturing, diversity, equity, etc. eventually leads to improved workforce sustainability at the team, division, company, and industry levels.

The identification of applicable indicators for each attribute is an essential component of the study to ensure practical feasibility of implementation of the intended workforce sustainability model. Applicable indicators to the *nurturing* attribute of workforce sustainability, for example, can be practices, procedures, and policies that the organization (i.e., the employer), or the employees themselves, implement or achieve to provide support, encouragement, education, and training to the workforce as a group and as individuals. Such practices, procedures, and policies to nurture the workforce can include professional development, continuing education, technical

skills, and other practices/procedures/policies aimed at increasing workers' technical skills, comfort in the workplace, and awareness in the work environment. The specified practices, procedures, and policies mentioned above are expected to make workers feel nurtured and supported and, therefore, can be considered applicable indicators to assess and improve the nurturing attribute of workforce sustainability.

Numerous indicators were suggested by the panel, too many for all to be included in the model and create a model that is feasible to implement in practice. To shorten the list of indicators, similar indicators were grouped together, and the wording of some suggested indicators was modified to improve clarity and maintain consistency with industry terms. Indicators that were suggested by less than 3 experts were re-evaluated and compared with literature to determine inclusion or exclusion in the final list of indicators. That is, if the literature reports that the indicator is an important construct of workforce sustainability, then the indicator was retained and included in the shortened list. Otherwise, the indicator was removed from the list of indicators. Following this protocol, 54 indicators were retained. While comparing with literature, the researchers were also able to identify an additional seven indicators not suggested by the panel but reported in literature as important indicators of workforce sustainability. The seven indicators are safety policy, company newsletter, employee happiness, union-friendly workplace, workload trade-off, local community at work and workforce integration in industry. These seven indicators were added to the list. In the end, the list included a total of 61 indicators (54 plus 7). The list of 61 indicators was then returned to the panel for confirmation and re-assessment using the same methodology used in this round.

Round #3: *Finalize applicable indicators of each attribute and assign a weighting for each indicator*

The objectives of this survey round were to: (1) finalize applicable indicators for each attribute and (2) assign a weighting that indicates the level of influence of the indicator on its applicable attribute using the same 5-point Likert scale and methodology referred to hereinbefore. To achieve the objectives of this round, the study participants were asked to review each indicator in the list and provide a recommendation on whether the indicator should be retained or removed from the final list of indicators. If the recommendation was to retain the indicator, the participants were also asked to rate, on a 5-point Likert scale where 1 = low influence and 5 = extreme influence, the level of influence of the indicator on its applicable attribute and suggest whether the indicator should be included in the final model as essential or auxiliary. Essential indicators refer to those practices, procedures, and policies that are required to assess and improve workforce sustainability, while auxiliary indicators are elective and preferred but not required practices/procedures/policies to assess and improve workforce sustainability.

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Out of the 15 panelists who participated in the previous round, 13 experts completed the survey and provided responses in Round #3. After receiving the responses, a two-step process was implemented to determine whether to retain or remove an indicator from the final workforce sustainability model. First, indicators that received 70% consensus or more for inclusion in the model (i.e., at least 70% of the panelists indicated to retain the indicator) were retained. Second, for those indicators that received less than 70% consensus, the level of influence suggested for those indicators was examined. If the level of influence was rated as being low (i.e., 3 or less) based on the aggregated group median suggested by the panel, the indicator was removed. Otherwise, the indicator was retained and included in the final workforce sustainability model. Following this process, 19 indicators from the original list of 61 indicators were either removed or combined with similar indicators (13 indicators were removed and 6 indicators were combined), leaving a list of 42 indicators. This list was used to develop the final workforce sustainability model. A complete list of the indicators along with descriptive statistics is provided in Appendix II.

The next task was to determine the level of influence of each indicator. The same criteria as described previously were applied. That is, the group median value was used to indicate the level of influence of each indicator and consensus was considered achieved if the standard deviation was less than 2. Based on the responses received, consensus was achieved for all indicators.

The final task of this survey round was to determine whether each indicator should be essential or auxiliary. Based on the collective input from the panel members, an indicator was considered essential if the majority of the panel (i.e., more than 50%) stated that the indicator is essential to assess and improve workforce sustainability. Otherwise, the indicator was considered auxiliary. Eventually, 32 indicators were considered essential and only 10 indicators were considered auxiliary to obtain a more accurate measure of workforce sustainability. To provide an example, ethnic and racial diversity was considered an essential component to achieve a high level of workforce sustainability, while knowledge and skill diversity was considered a preferred characteristic of a sustainable workforce. This is to say that a work group can still have a high level of workforce sustainability even if the team members have limited experience and specific skill set if other desired characteristics are present although a diversified skill set is preferred. The same can be said about leadership and communication skills (essential characteristics of a mature and sustainable workforce) and outreach and volunteering (preferred characteristics of a mature and sustainable workforce). Evaluating solely the essential indicators will provide an assessment of workforce sustainability that may be sufficient for an organization's needs, however evaluating both the essential and auxiliary indicators will provide a more accurate assessment. Evaluating just the auxiliary indicators would not provide a confident assessment. That being said, a company can choose not to evaluate auxiliary indicators, but the final workforce sustainability assessment will not be comprehensive and perhaps less accurate than if

the company does so. The type of each indicator whether essential or auxiliary is indicated in Appendix II.

Task #4: Develop a practical workforce sustainability model and evaluation process to assess and improve workforce sustainability

Based on the results collected from the literature review and the Delphi process, a practical workforce sustainability assessment tool was developed (see Appendix III for a complete description of the developed assessment tool). The workforce sustainability tool consists of a model and evaluation process of workforce sustainability. This practical tool will assist construction employers and researchers in the process of assessing and improving workforce sustainability in construction at different levels (individual, team, division, organization, and industry). The process can help companies sustain a motivated, connected, and healthy workforce composed of workers who are highly skilled, diverse, and competent. The model consists of three levels of components organized in a hierarchy, from the most general to the most specific. As described in above, these three levels of components are attributes, indicators, and metrics, respectively.

The top two-levels (attributes and indicators) were rigorously identified and quantified using both a review of avaliable liturature and the Delphi technique as described above. For the lower level (metrics), the Delphi panel was consulted regarding the measurement units and the scales that should be used for the metrics in Round #3, but the feedback received was limited. Accordingly, the metrics suggested for the workforce sustainability assessment model should be re-evaluated and validated in future research. For the purpose of the present study and development of the model, the researchers used the feedback received from the Delphi panel combined with results obtained from literature to improve the reliability and minimize bias in the metrics. However, in some cases the researchers relied on their judgment in the process of finalizing the metrics for the workforce sustainability assessment tool. That being said, whenever possible, these judgments were rooted to feedback received from the Delphi panel or metrics identified in the literature, or to both. Suhr (1999) pointed out that any decision involves some level of subjectivity but stated that basing decision-making on relevant data (i.e., the feedback recieved from the Delphi panel or information avaliable in literature) yields objective findings. For example, within the diversity attribute, the expert panel suggested "the extent to which work crews match demographic of population in their local area" as a metric to assess "ethnic and racial diversity". However, the expert panel did not specify limits or levels to quantify this indicator of diversity. In this case, the JUST label, a disclosure program for socially just and equitable organizations, was used as a reference available in literature to describe the metric levels for this indicator. More precisely, the percentage of deviation from the current state census data on aggregated Caucasian and non-Caucasian ethnicity and racial demographics was used to quantify the extent to which ethnic and racial diversity is implemented in organizations. The

JUST label provided relevant and useful information in multiple cases, while other references from literature were also used when needed.

The workforce sustainability assessment tool is structured such that a score is calculated based on the extent to which an organization fulfills each indicator. Based on the structure of the tool, the maximum possible score is 29. This score was calculated based on summing the median values of the eight workforce sustainability attributes shown in Table 6 above. A score of 29 represents the highest workforce sustainability score that a company or organization can reach according to the model. Recognizing that perfection is not always possible, three workforce sustainability levels were created. Each level covers a range of scores. The highest level was determined, based in part on probability theory from statistics, as deviating up to three standard deviations (3σ) from the maximum possible score would still indicate a *high* level of workforce sustainability. Three standard deviations from the top score of 29 yields a score of 21. Hence, the "High" level of workforce sustainability was established for any scores above 21. Using the same notion, an *intermediate* level of workforce sustainability was determined to be the range of values falling between three and six standard deviations (3σ - 6σ) away from the maximum possible score (from 13 to 21). Lastly, the level of workforce sustainability was considered *low* if the final score is more than six standard deviations (6σ) away from the maximum possible score (below 13). A short description of the three levels of workforce sustainability is provided in Table 7.

Table 7: Workforce Sustainability Levels and Scores

Score	Level	Description
Above 21	High	Desirable level for sustaining the workforce; monitor and adjust as needed
13 - 21	Intermediate	Acceptable level but improvements are needed to some or all attributes
Below 13	Low	Insufficient practices, policies, and procedures in place to sustain a productive workforce; corrective actions are required

The development of the workforce sustainability assessment tool is expected to be the foundation for subsequent and future workforce development studies in the field of construction engineering as this tool is the first of its kind to identify and measure workforce sustainability attributes, indicators, and metrics. It should be noted that the application, implementation, and validation of the developed workforce sustainability assessment tool was not part of this study given the inherent scope and nature of the Small Study Program. Future studies are needed that apply, assess, and validate the developed tool within construction projects and organizations. Such a validation study would confirm the accuracy and utility of the tool, and identify potential areas of improvement in the tool if needed. In addition, a supporting study is needed to examine the

correlation between the level of workforce sustainability calculated and key performance indicators, such as work quality, safety performance, and worker productivity. It is expected that such an additional study would help to justify the importance of workforce sustainability and generate interest in, and diffusion of, the workforce sustainability assessment tool in the construction industry.

Deviations from Plan

There were no major changes in the staffing, research plan, or methods used for the study.

Future Research Plans

The developed assessment tool, shown in Appendix III, is designed to assess and help improve workforce sustainability in the construction industry. The tool was academically developed following a rigorous protocol and sound research methodology that relied on a comprehensive review of literature and a panel of experts on the topic. To ensure practicality, a specific review of literature that focused on industry sources (tools, reports, and certification programs) was carried out along with the review of academic literature, as shown in Tables 2 and 3. Moreover, the inclusion of experts from industry was emphasized during the process of identifying, qualifying, and selecting potential members for the Delphi panel. In the end, more than 65% of the Delphi panelists (i.e., 11 out of 16 experts) represented industry as shown in Table 5. These steps were intentionally planned and performed to ensure accuracy and practicality of the developed assessment tool.

However, the developed assessment tool may still not be used by a large number of organizations due to its length (the time required to perform the assessment) and lack of awareness of its availability. Translating this tool into a user-friendly, web-based application, similar to the SCSH rating system (http://sustainablesafetyandhealth.org), Safety Climate Assessment Tool (S-CAT) (https://safetyclimateassessment.com), and Construction Solutions tool (www.cpwrconstruction solutions.org), can significantly minimize this issue. In order for a tool to penetrate the market and reach a high level of diffusion, it has to be reliable, accessible, and easy to use. Developing a web-based application tool and basing it on the findings from this research study would achieve these aims. Accordingly, the researchers recommend further research in this vein. Such research can also include a process to validate the workforce sustainability metrics to minimize any potential bias and enhance the reliability of the model.

On a larger scale, the researchers believe that applying, assessing, and validating the developed assessment tool with empirical data from different construction projects and organizations is needed in order to document the impact of certain workforce sustainability attributes on project and organizational performance measures (e.g., work quality and labor

productivity). Further research to explore the impacts of different levels of workforce sustainability is recommended.

Dissemination Plan and Publications

The researchers will extract and submit a conference paper and a journal article from this report. The conference paper will be submitted to either a construction-related conference (e.g., ASCE *Construction Research Congress*) or a safety/sustainability-related conference (e.g., *CIB W099 conference*). Similarly, the journal article will be submitted to a peer-reviewed, construction-related journal such as the ASCE *Journal of Construction Engineering and Management*.

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Appendices

Appendix I

Delphi Questionnaires

Appendix II

Workforce Sustainability Indicators

Appendix III

Workforce Sustainability Assessment Tool

Appendix I: Delphi Questionnaires

This appendix contains the questionnaires and supporting documents used in each round of the Delphi process.

Workforce Sustainability Report

Development of Workforce Sustainability Model for Construction

Dear Participant,

We would like to thank you for taking the time to participate in these multiple rounds of survey and be part of the expert panel for our research study.

Your responses to this survey and personal information provided will be kept confidential. All identifiable information connecting respondents to their responses will be removed as part of the data collection process. Publications generated from the research study will not include any information that can be used to identify respondents.

If you have any questions about the survey, please contact the researchers listed below. If you have questions about your rights or welfare as a survey participant, please contact the Oregon State University Institutional Review Board (IRB) Office at 541-737-8008, or by email at IRB@oregonstate.edu

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Workforce Sustainability Report

Delphi Survey Questionnaire

Part I: Demographic Information

Q1 What is your gender?

- ○ Male
- ○ Female
- ○ Prefer not to say

Q2 What is your race/ethnicity origin?

- ○ American Indian or Alaska Native
- ○ Asian
- ○ Black or African American
- ○ Hispanic or Latino
- ○ Native Hawaiian or other Pacific Islander
- ○ White
- ○ Other, please specify _____
- ○ Prefer not to say

Q3 What type(s) of organization(s) do you represent or work for? Please select all that apply.

- ○ University
- ○ Research Institute
- ○ Architecture, Engineering, or Construction Association
- ○ Design Firm
- ○ Construction Firm
- ○ Design and Construction Firm
- ○ Owner
- ○ Regulatory Agency
- ○ Workforce Development Organization
- ○ Other, please specify: _____

Q4 What is your job title?

❍ Faculty Member (please specify rank) _____
❍ Independent Researcher (please specify) _____
❍ Project Manager
❍ Sustainability/Environmental, Health, and/or Safety (SHS/EHS) Manager
❍ Human Resources/Workforce Development Manager or Director
❍ Corporate Social Responsibility Manager or Director
❍ Other, please specify: _____

Q5 Where is your work located currently?

❑ List of states

Q6 What degree(s) have you earned and in what area(s)? Please list only those degrees that relate to the focus of the study (e.g., civil/construction engineering, workforce development-related degree, human factor, sociology, health and well-being, safety, sustainability, etc.).

❑ BSc (or equivalent degree) _____
❑ MSc (or equivalent degree) _____
❑ PhD (or equivalent degree) _____
❑ Other, please explain: _____

Q7 How many years of professional experience do you have working for the following entities? Please select all that apply.

❍ University _____
❍ Research Institute _____
❍ Architecture, Engineering, or Construction Association _____
❍ Design Firm _____
❍ Construction Firm _____
❍ Design and Construction Firm _____
❍ Owner _____
❍ Regulatory Agency _____
❍ Workforce Development Organization _____
❍ Other, please specify: _____

Q8 Please list the professional committee(s) that you are/were the chair or a member of.

Please, specify only the committees that relate to the focus of the study (e.g., workforce training and development, safety, and sustainability), and whether you are/were a member or the chair of the committee.

- ❑ _____
- ❑ _____
- ❑ _____

Q9 Please list the leading position(s) or role(s) that you have filled within your current or previous organization with respect to workforce training and development, safety, and sustainability effort (e.g., Human Resources/Workforce Development Manager).

- ❑ _____
- ❑ _____
- ❑ _____

Q10 How many workers/students/employees/etc. have you supervised throughout your working career?

- ❑ List of numbers. Please specify type (e.g., students) _____

Q11 How many published works (e.g., papers, articles, reports, etc.) have you authored or co-authored on topics related to the construction workforce, workforce development, workforce diversity, employee training, human factors, sociology, safety, health and well-being, social sustainability, work-life balance, etc.? Please select all that apply and specify the number of published works for each

- ❑ Academic/Scientific Journal article _____
- ❑ Book or book chapter _____
- ❑ Conference paper _____
- ❑ Invited conference paper _____
- ❑ Industry publication (technical article, technical report, etc.) _____
- ❑ Other, please explain: _____

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Q12 How many academic or industry presentation(s) have you given, either nationally or internationally, with respect to the construction workforce, workforce development, workforce diversity, employee training, human factors, sociology, safety, health and well-being, social sustainability, work-life balance, etc.? Please specify the type and number for each.

- ❑ _____
- ❑ _____
- ❑ _____

Q13 What professional registrations and certifications do you have with respect to civil/construction engineering, workforce development, safety, sustainability, etc.? Please, select all that apply.

- ❑ Professional Engineer (PE)
- ❑ LEED Accredited Professional (LEED AP)
- ❑ Certified Safety Professional (CSP)
- ❑ Associate Safety Professional (ASP)
- ❑ Certified Workforce Development Professional (CWDP)
- ❑ Other, please explain: _____

Q14 Please list in the space provided below all types of experience that you have had, positions you occupied, and so forth with respect to workforce development and human resource management.

_____
_____
_____

Workforce Sustainability Report

A detailed description of the developed conceptual workforce sustainability model was provided to the participants for their review before they can answer this part of survey round. The description included the purpose of the study, definition of the concept, structure of the intended final model, and detailed definitions and illustrations of suggested attributes of workforce sustainability. After that, the participants were asked to answer the following questions to the best of their knowledge.

Q15 To what extent have you been involved with or contributed to the following area of workforce development throughout your working career as a researcher, educator, or industry professional

1. Nurturing (i.e., worker support, encouragement, and training)
   Use graphic slider with "not involved at all" to "extremely involved"
   Use another graphic slider to indicate years of involvement

2. Diversity (i.e., workforce diversity)
   Use graphic slider with "not involved at all" to "extremely involved"
   Use another graphic slider to indicate years of involvement

3. Equity (i.e., social equity in the workplace)
   Use graphic slider with "not involved at all" to "extremely involved"
   Use another graphic slider to indicate years of involvement

4. Health and well-being (i.e., occupational health and safety)
   Use graphic slider with "not involved at all" to "extremely involved"
   Use another graphic slider to indicate years of involvement

5. Connectivity (i.e., worker communication, interaction, and integration in the workplace)
   Use graphic slider with something "not involved at all" to "extremely involved"
   Use another graphic slider to indicate years of involvement

6. Value (i.e., respect, appreciation, and recognition of workforce)
   Use graphic slider with "not involved at all" to "extremely involved"
   Use another graphic slider to indicate years of involvement

7. Community (i.e., community at work; camaraderie and cohesiveness in the workplace)
   Use graphic slider with "not involved at all" to "extremely involved"
   Use another graphic slider to indicate years of involvement

8. Maturity (i.e., employee maturity)
   Use graphic slider with "not involved at all" to "extremely involved"
   Use another graphic slider to indicate years of involvement

Workforce Sustainability Report

Q16 Please indicate your agreement with the following statement: Overall, the proposed conceptual workforce sustainability model is an accurate method to reflect workforce sustainability, and its eight attributes (nurturing, diversity, equity, health and well-being, connectivity, value, community, and maturity) are important qualities and characteristics to assess and evaluate the level of workforce sustainability (i.e., the identified eight attributes capture essential qualities and characteristics of workforce sustainability).

- ❍ 5: Strongly agree (i.e., inclusive and comprehensive model)
- ❍ 4: Agree (i.e., representative and comprehensive model)
- ❍ 3: Somewhat agree (i.e., comprehensive but inconclusive model)
- ❍ 2: Disagree (i.e., inconclusive and selective model)
- ❍ 1: Strongly disagree (i.e., faulty and misleading model)

Suggestions, thoughts, comments, criticisms, etc. _____

Q17 Please indicate the level of influence that each attribute should have on workforce sustainability:

1- <u>Nurturing</u>: the extent to which workers feel supported, encouraged, educated, and trained in their work and as individuals

- ❍ 5: Extreme influence
- ❍ 4: High influence
- ❍ 3: Moderate influence
- ❍ 2: Minor influence
- ❍ 1: Low influence
- ❍ 0: I do not know

2- <u>Diversity</u>: the extent to which the workforce is diversified with respect to personal characteristics (e.g., gender, experience, race, social status, education, etc.) and to which diversity is integrated into and promoted within the workplace

- ❍ 5: Extreme influence
- ❍ 4: High influence
- ❍ 3: Moderate influence
- ❍ 2: Minor influence
- ❍ 1: Low influence
- ❍ 0: I do not know

3- <u>Equity</u>: the extent to which workers feel treated fairly, evaluated equally, and respected without discrimination in terms of personal characteristics, employment level, payment, work load and responsibilities, promotion, work opportunities, and so forth

- ◯ 5: Extreme influence
- ◯ 4: High influence
- ◯ 3: Moderate influence
- ◯ 2: Minor influence
- ◯ 1: Low influence
- ◯ 0: I do not know

4- <u>Health and well-being</u>: the level of workplace health, safety, and contentment that workers feel and experience physically, mentally, and socially, during and after work operations within their work career and beyond

- ◯ 5: Extreme influence
- ◯ 4: High influence
- ◯ 3: Moderate influence
- ◯ 2: Minor influence
- ◯ 1: Low influence
- ◯ 0: I do not know

5- <u>Connectivity</u>: the degree to which workers feel connected to peers and fellow employees, integrated into the work community, and engaged in the operations, leadership, and decision-making process

- ◯ 5: Extreme influence
- ◯ 4: High influence
- ◯ 3: Moderate influence
- ◯ 2: Minor influence
- ◯ 1: Low influence
- ◯ 0: I do not know

6- <u>Value</u>: the extent to which workers feel that they and their families are valued, appreciated, and recognized by others in the workforce and the organization for their work performance, contributions, and loyalty

- ◯ 5: Extreme influence
- ◯ 4: High influence
- ◯ 3: Moderate influence
- ◯ 2: Minor influence
- ◯ 1: Low influence
- ◯ 0: I do not know

7- <u>Community</u>: the extent to which workers feel they are accepted by, share similar interests with, and have camaraderie and cohesiveness in growth and achievement together with others in the workforce and with the organization as a whole

- ❍ 5: Extreme influence
- ❍ 4: High influence
- ❍ 3: Moderate influence
- ❍ 2: Minor influence
- ❍ 1: Low influence
- ❍ 0: I do not know

8- <u>Maturity</u>: a reflection of the extent to which workers have and/or gain competence in social, technical, environmental, and economic terms with respect to work performance, cooperation, problem-solving, collaboration, idea-generation and innovation, and work involvement and integration. A mature workforce should be able to gain, develop, and carry on the aforementioned competences effectively and efficiently as a group and as individuals throughout their working and non-working life.

- ❍ 5: Extreme influence
- ❍ 4: High influence
- ❍ 3: Moderate influence
- ❍ 2: Minor influence
- ❍ 1: Low influence
- ❍ 0: I do not know

If you have any additional comment or suggestion, please feel free to write them in the space provided below

_____
_____
_____

The first round of the survey is complete. Thank you for taking the time to complete this survey. Your input is very much appreciated.

If you have any questions or want to learn more about our research, please feel free to reach us at karakhaa@oregonstate.edu, john.gambatese@oregonstate.edu, or densimm@vt.edu.

Workforce Sustainability Report

Part I: Workforce Sustainability Attributes

In this part, the participants were asked whether they wanted to retain or update their responses for round #1 based on the aggregated group response (i.e., the median value) using the 5-point Likert scale used before. The question asked about the level of influence that each of the eight attributes should have on workforce sustainability. When the updated, or retained, response was two or more units away from the aggregated group response, the participants were asked to explain their responses and why they chose to keep their response distant from the group median. The following table was used to collect the responses for this round.

Attribute	Previous response	Group aggregated response	Retain response? (Y/N)	If No, updated response	If final response is two units away from group response, please justify
Nurturing					
Diversity					
Equity					
Health and well-being					
Connectivity					
Value					
Community					
Maturity					

Note:

Rating Scale:
- *5 = Extreme influence*
- *4 = High influence*
- *3 = Moderate influence*
- *2 = Minor influence*
- *1 = Low influence*
- *0 = I do not know*

Workforce Sustainability Report

In this part, the participants were asked to suggest and identify potential indicators that can be used to assess and improve each of the identified eight workforce sustainability attributes (nurturing, diversity, equity, health and well-being, connectivity, value, community, and maturity). Before presenting the question, a full description of what constitutes an indicator with multiple examples was provided.

Along with each suggested indicator, the participants were asked to provide a weighting to indicate the relative level of influence that the suggested indicators should have on their applicable attributes. The question of interest is shown below.

Q1 Please list all potential indicators that can be used to assess and improve each of the eight workforce sustainability attributes along with a weighting indicating the level of influence that each suggested indicator should have on its applicable attribute(s) using the same scale shown above.

Example: Indicating "OSHA 10 hour training (3)" as a response means that you suggest "OSHA 10 hour training" as an indicator with "moderate influence" (3) on the qualities and characteristics of the attribute.

   1- <u>Nurturing</u>: the extent to which workers feel supported, encouraged, educated, and trained in their work and as individuals
- ❑ Indicator 1: _____
- ❑ Indicator 2: _____
- ❑ Indicator 3: _____
- ❑ Indicator 4: _____
- ❑ Indicator 5: _____

2- <u>Diversity</u>: The extent to which the workforce is diversified and inclusive with respect to personal characteristics (e.g., gender, experience, race, social status, education, etc.) and to which diversity is integrated into and promoted within the workplace

❑ Indicator 1: _____
❑ Indicator 2: _____
❑ Indicator 3: _____
❑ Indicator 4: _____
❑ Indicator 5: _____

3- <u>Equity</u>: The extent to which workers feel treated and compensated fairly compared to other workers, and evaluated fairly without discrimination with respect to personal characteristics, employment level, payment, work load and responsibilities, promotion, work opportunities, and so forth.

❑ Indicator 1: _____
❑ Indicator 2: _____
❑ Indicator 3: _____
❑ Indicator 4: _____
❑ Indicator 5: _____

4- <u>Health and well-being</u>: The level of workplace health, safety, and contentment that workers feel and experience physically, mentally, and socially during and after work operations within their work career and beyond

❑ Indicator 1: _____
❑ Indicator 2: _____
❑ Indicator 3: _____
❑ Indicator 4: _____
❑ Indicator 5: _____

5- <u>Connectivity</u>: The degree to which workers feel connected, and willingly desire to connect, to peers, fellow employees, and management through open channels and two-way communication, and feel engaged in the operations, leadership, planning, and decision-making process

❑ Indicator 1: _____
❑ Indicator 2: _____
❑ Indicator 3: _____
❑ Indicator 4: _____
❑ Indicator 5: _____

6- <u>Value</u>: The extent to which workers feel that they and their families are valued, respected, appreciated, and recognized by others in the workforce and the organization, financially and emotionally, for their work performance, contributions, and loyalty

- ❑ Indicator 1: _____
- ❑ Indicator 2: _____
- ❑ Indicator 3: _____
- ❑ Indicator 4: _____
- ❑ Indicator 5: _____

7- <u>Community</u>: The extent to which workers feel they are accepted by, share similar interests with, and have camaraderie and cohesiveness in growth and achievement together with others in the workforce, with the organization, and with the industry as a whole

- ❑ Indicator 1: _____
- ❑ Indicator 2: _____
- ❑ Indicator 3: _____
- ❑ Indicator 4: _____
- ❑ Indicator 5: _____

8- <u>Maturity</u>: A reflection of the extent to which workers have and/or gain leadership, responsibility/accountability, and competence in social, technical, environmental, and economic terms with respect to work performance, cooperation, problem-solving, collaboration, idea-generation and innovation, and work involvement and integration. A mature workforce should be able to gain, develop, and carry on the aforementioned competencies effectively and efficiently as a group and as individuals throughout their working and non-working life and be responsible/accountable towards self and others

- ❑ Indicator 1: _____
- ❑ Indicator 2: _____
- ❑ Indicator 3: _____
- ❑ Indicator 4: _____
- ❑ Indicator 5: _____

The second round of the survey is complete. Thank you for your continued commitment to this study. Your input is highly appreciated.

Thank you!

Workforce Sustainability Report

Round Three

Part I: Indicators of Workforce Sustainability Attributes

In this round of the survey, the participants were asked to suggest whether each indicator should be retained or removed from the list of indicators compiled from the previous round. In addition, the participants were asked to provide, in light of the aggregated group response (i.e., the median), a weighting to indicate the level of influence that each identified indicator should have on desired qualities and characteristics of its applicable workforce sustainability attributes. Moreover, the participants were asked to suggest whether the indicator should be listed in the final model as essential or auxiliary. Essential indicators refer to those that are required practices/procedures/ policies to assess and improve workforce sustainability, while auxiliary indicators are preferred but not essential practices/procedures/policies to assess and improve workforce sustainability. Finally, the participants were asked to suggest one or more metrics to measure each indicator.

Metrics were defined as "scales used to measure or quantify the extent or degree of implementation to which practices, procedures, or policies (i.e., indicators) are actually implemented by a company or an organization in practice to enhance workforce sustainability." We also provided the following examples to ensure that the participants understand what a metric is.

Examples: A self-assessment of employee happiness in the workplace is an example of a metric to measure the "Employee Happiness" indicator of the "Value" attribute. A survey can be utilized to obtain information related to self-assessment of employee happiness. However, the survey in this case is NOT a metric; the self-assessment of employee happiness is the metric, and the survey is just a data collection tool used to obtain information about the metric. To provide one more example, the number of annual training hours could be used as a metric to measure the "Leadership and Communication Training" indicator of the "Maturity" attribute.

Then, the indicators were presented to the expert panelists in the following format and the panelists were asked to answer the four questions shown in the table below. Only the nurturing attribute is shown below but for the actual survey, the participants were given similar table to each of the other seven attributes.

Nurturing: The extent to which workers feel supported, encouraged, educated, and trained in their work and as individuals

Nurturing attribute (suggested indicators)	Group response	Retain indicator? (Y/N)	Level of influence, if retained	Essential or Auxiliary	Suggested metrics to assess indicator
Productive performance appraisals	4				
Professional development/continuing education	3				
Employee onboarding and mentoring process	4				
Technical skill training	4				
360 degree evaluation by peers	4				
Non-work related skill development	3				

Note: The group response is basically the level of suggested influence of the indicator that was provided by the panel in the previous round of the survey (Round #2).

The third round of the survey is complete. Thank you for your continued commitment to this study. Your input is highly appreciated.

Thank you!

Appendix II: Workforce Sustainability Indicators

The following table provides a complete list of the indicators and its type (essential or auxiliary), and the summary statistics from the Delphi panel regarding the level of influence of each indicator.

Workforce Sustainability Report

Attribute	Indicator	Type	Level of Influence (1-5)		
			Median	Mean	SD
Nurturing	1. Productive performance appraisals	Essential	4	3.69	0.72
	2. Professional development/continuing education	Essential	4	3.66	0.98
	3. Onboarding process	Essential	4	4.23	0.72
	4. Technical skill training	Essential	4	4.00	0.58
Diversity	1. Corporate statement/policy on diversity and inclusion	Essential	4	3.60	1.06
	2. Ethnic and racial diversity	Essential	3	3.20	0.83
	3. Gender diversity and inclusiveness at labor force level	Essential	4	3.50	0.87
	4. Gender/ethnic diversity in leadership/management positions	Essential	5	4.33	1.03
	5. Knowledge and skill diversity	Auxiliary	3	2.80	0.83
Equity	1. Equality, social justice, and non-discrimination	Essential	4	3.70	1.04
	2. Pay structure transparency	Essential	4	4.00	0.82
	3. Equitable pay/compensation within organization	Essential	4	3.77	1.37
	4. Equitable pay/compensation at industry level	Essential	4	3.77	0.55
	5. Merit-based recruitment and promotion process/plan	Essential	4	4.00	0.6
Health and Well-being	1. Safety policy and zero injury goal	Essential	4	3.75	0.94
	2. Safety and health program	Essential	4	4.00	0.58
	3. Safety toolbox meetings and training	Essential	4	3.77	0.58
	4. Breaks and social interactions during workdays	Auxiliary	4	3.92	0.86
	5. Annual physical/medical check-up	Auxiliary	4	3.64	0.48
Connectivity	1. Worker involvement in decision-making	Essential	4	4.10	0.62
	2. Regular meetings with supervisor (one-on-ones)	Essential	4	3.70	0.75
	3. Employee stock ownership plan/program (ESOP)	Essential	4	3.30	1.07
	4. Social pleasure and connecting activities during workdays	Auxiliary	3	3.20	0.77
	5. Teamwork approach within organization	Auxiliary	3	3.50	0.89
Value	1. Full-time employment and long-term commitment policy	Essential	4	4.00	0.71
	2. Health insurance and retirement plan	Essential	4	4.50	0.50
	3. Family resources	Essential	4	3.60	0.89
	4. Work-life/family balance	Essential	4	4.10	1.00
	5. Job stability and retention	Essential	4	4.10	0.67
	6. Employee benefit program	Essential	4	4.00	0.58
	7. Performance feedback and appreciation	Essential	4	4.20	0.37
	8. Fair compensation	Essential	4	3.90	0.77
Community	1. Company social events	Essential	3	3.20	1.05
	2. Workforce integration in industry	Essential	3	3.00	0.90
	3. Local community at work	Auxiliary	3	3.10	0.75
	4. Workload trade-off	Auxiliary	3	2.60	0.92
Maturity	1. Leadership and communication skills	Essential	5	4.40	0.74
	2. Accountability (set performance standards)	Essential	4	3.40	0.74
	3. Competence-based education	Essential	4	3.90	0.73
	4. Competence-based training	Auxiliary	3	3.20	0.70
	5. Multiskilling	Auxiliary	3	3.50	0.90
	6. Volunteering	Auxiliary	3	3.20	0.57

Workforce Sustainability Report

Note: SD stands for standard deviation

Appendix III: Workforce Sustainability Assessment Tool

This appendix contains the workforce sustainability assessment tool created. The tool is written in anticipation that it will be published and used as a standalone document independent of the final study report.

Workforce Sustainability Assessment Tool

The Center for Construction Research and Training (CPWR)

John Gambatese, Ali Karakhan, and Denise Simmons   Nov. 2018

WORKFORCE SUSTAINABILITY ASSESSMENT TOOL

Executive Summary

The construction workforce has experienced high turnover rates over the last decades. The high turnover rates make it challenging to attract, develop, and retain a young, skilled, and competent workforce in the industry. These high turnover rates have been caused by many factors including among others the negatively perceived work values of many positions, the high number of fatalities in the industry each year, the high exposure to health hazards in a typical construction environment, and the lack of opportunities for career progression and development in the industry. Little research has been conducted on workforce development in construction. Similarly, there are no industry tools readily available to develop and sustain the workforce in the construction industry. Existing tools are solely focused on one or a few elements (e.g., training) rather than implementing a holistic and concrete approach to develop and sustain the construction workforce.

The Center for Construction Research and Training (CPWR) funded as a part of its Small Study Program a research study led by researchers from Oregon State University and University of Florida to explore the topic of workforce sustainability in construction. Workforce sustainability is more evolved and reaching than workforce development. Achieving workforce sustainability includes the process of hiring and facilitating an environment for a coherent, viable, and healthy individuals who are highly skilled and competent, and then nurturing and maintaining the requisite skills and competences constantly. The workforce sustainability concept is a big step forward that The Center for Construction Research and Training (CPWR) funds and supports to foster and advance the life of construction employees.

The goal of the research study was to develop a practical assessment tool (a model and evaluation process) for assessing and improving workforce sustainability in construction. This document is intended to describe this practical assessment tool, both the model and the evaluation process. The developed assessment tool is voluntary and can be used by any organization (profit or non-profit whether public or private) within the Architecture, Engineering, and Construction (AEC) industry to assess and/or improve workforce sustainability. The assessment and/or improvement can be made at at the individual, team, division, organization, or even entire industry level. Improved workforce sustainability demonstrates healthy and diverse work communities where each member of the workforce is accepted, respect, protected, and treated fairly and equally regardless of race, ethnicity, nationality, etc. In order to create and nurture a high level of workforce sustainability, members of the workforce should feel safe and valued, be engaged in the decision-making and connected to peers and fellow employees, and have access to training and professional development opportunities throughout their career. Such opportunities can enable them to progress and mature over the years.

Workforce Sustainability Report

The workforce sustainability assessment tool consists of a total of eight attributes and forty-two indicators as described below. For each indicator, a metric is used to evaluate the extent of application of the indicator in practice and assign a quantified value to the indicator.

What is Workforce Sustainability?

Workforce Sustainability is defined as a property of a workforce that reflects the extent to which the workforce can perform its desired function over a selected period of time, be adaptable to workplace environment and market demands, and be resilient to internal and external work- and personal-related challenges. This property can be influenced by several attributes (i.e., qualities or characteristics) described below in more detail. A workforce may exhibit a high or low level of sustainability based on the extent to which it safely, skillfully, and collaboratively performs its function with respect to certain attributes.

The workforce sustainable assessment tool was developed based on an academically rigorous study performed by researchers at Oregon State University and University of Florida. The workforce sustainability model on which the assessment tool is founded is based on the perspectives of the employees (i.e., the workforce) and how they feel about their sustainability as a group and as individuals, as opposed to the viewpoint of the organization. Employees, or the workforce in this regard, are any members of a construction-related organization who are involved, directly or indirectly, in the construction process, whether laborers, managers, supervisors, engineers, or other individuals. Given its applicability throughout the workforce and connection to work quality, it is expected that orgnizations will benefit from creating a sustainable workforce.

How to Improve, Nurture, and Sustain Workforce Sustainability

Workforce sustainability can be nurtured, improved, and sustained via employment practices, procedures, and policies that an organization (the employer) or the workforce itself (the employees) implement in the workplace to provide support, encouragement, education, and training to employees whether as a group or as individuals.

Structure of the Workforce Sustainability Assessment Tool

The workforce sustainability assessment tool consists of three levels of components organized in a hierarchy, from the most general to the most specific as shown in the diagram below. These three levels of components are attributes, indicators, and metrics, respectively. Each of the levels is briefly described below.

- Attributes are foundational qualities and characteristics of workforce sustainability. There are eight attributes that characterize a workforce and disclose its level of sustainability, as shown in the figure below. These attributes are: nurturing, diversity, equity, health and well-being, connectivity, value, community, and maturity.

- Indicators are practices, procedures, and policies that reveal the presence and level of each attribute within a workforce, and which can be used to assess and improve each attribute and, as a result, the overall level of workforce sustainability.

- Metrics are measurement units and scales used to measure the extent or degree to which the practices, procedures, and policies (i.e., indicators) are actually implemented in practice within an organization to maintain and/or improve workforce sustainability.

Within the assessment tool, indicators are either essential or auxiliary for assessing the level of workforce sustainability. Among the 42 indicators of workforce sustainability, 32 indicators are considered *essential* and 10 are considered *auxiliary*. Essential and auxiliary in this context refer to the role of the indicator in providing a full and accurate assessment of the level of workforce sustainability within an organization, and do not indicate the level of influence of the indicator on overall workforce sustainability. For example, the leadership and communication skills indicator is widely acknowledged as a fundamental measure of maturity and, therefore, is considered essential for complete assessment of maturity. Correspondingly, outreach and volunteering are preferred features of maturity meaning that if they are not evaluated, maturity can still be assessed with adequate accuracy. However, to acquire a more accurate and comprehensive assessment of workforce sustainability, it is recommended that all indicators, both essential and auxiliary, be evaluated. Assessing solely the auxiliary indicators would not provide an accurate level of workforce sustainability. The designations "E" and "A" associated with each indicator are used to indicate whether the indicator is essential or auxiliary, respectively.
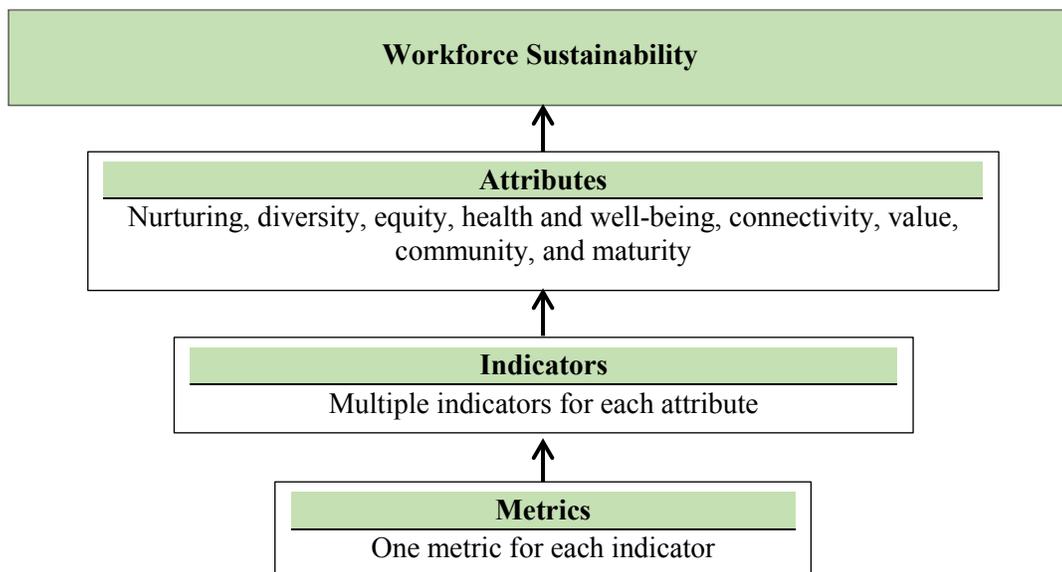

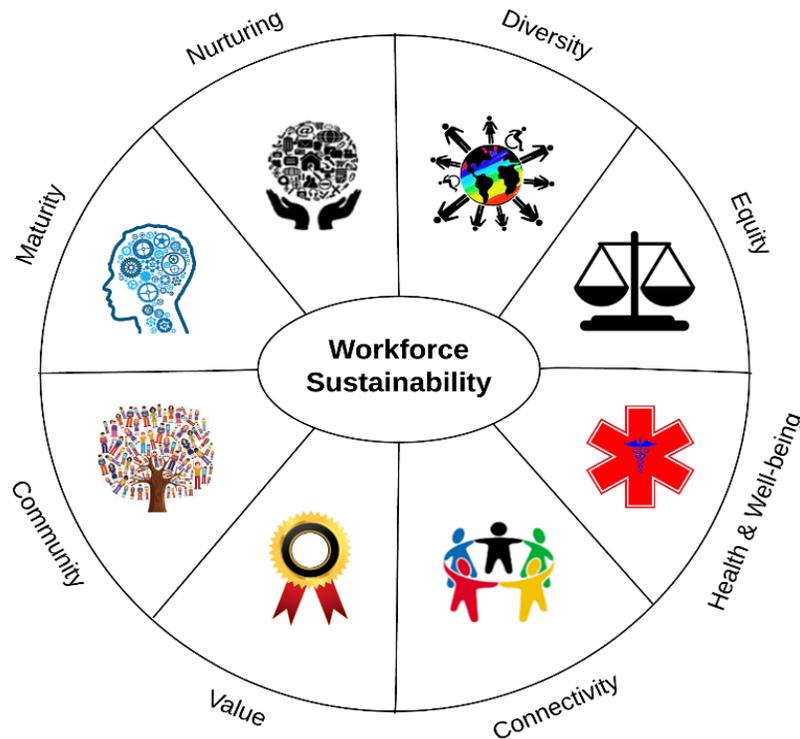Diagram illustrating the three levels of components of workforce sustainability

Figure illustrating workforce sustainability attributes

Possible Score and Levels of Workforce Sustainability

The maximum possible score for workforce sustainability is 29. This score is calculated based on the aggregated and weighted values of the eight workforce sustainability attributes and their 42 indicators. The score is divided into three major levels of workforce sustainability. Any score above 21 may be considered an indication of a *high* level of workforce sustainability. A score falling from 13 to 21 may be an indication of an *intermediate* level of workforce sustainability. An intermediate level of workforce sustainability indicates that additional or modifications to practices, policies, and/or procedures would be required for all or some attributes. Lastly, if the score is below 13, then this is considered an indication of a *low* level of workforce sustainability. In this case, current practices, policies, and procedures are insufficient to sustain a productive workforce and corrective actions are required. The scores and levels are not arbitrary; they were carefully determined, in part, by relying on a statistics theory. The calculation sheet on the next page summarizes the scores and levels of workforce sustainability, and how they are determined using the developed assessment tool.

Following the summary calculation sheet, a detailed description of each indicator and the metrics used to measure each attribute is then provided.

WORKFROCE SUSTAINABILITY ASSESSMENT

Workforce Sustainability Score – Summary Calculations		

	Attribute Weighted Scored	Possible Weighted Score
Nurturing	(from page A3-11)	4
Diversity	(from page A3-18)	3
Equity	(from page A3-25)	5
Health and well-being	(from page A3-32)	4
Connectivity	(from page A3-39)	3
Value	(from page A3-49)	4
Community	(from page A3-55)	3
Maturity	(from page A3-63)	3

Workforce Sustainability Score = _____ out of 29 (total possible score)

Workforce Sustainability Level (check one):

_____ High (workforce sustainability score above 21)
_____ Intermediate (workforce sustainability score from 13 to 21)
_____ Low (workforce sustainability score below 13)

Description of workforce sustainability levels

➔ *High* means the level of workforce sustainability is desirable for sustaining the workforce, and practices, policies, and procedures should be monitored and adjusted as needed

➔ *Intermediate* means the level of workforce sustainability is acceptable, but improvements are needed to some or all attributes

➔ *Low* means the practices, policies, and procedures in place are insufficient to sustain a productive workforce and corrective actions are required

1.0 NURTURING

Attribute: Nurturing

The extent to which workers feel supported, encouraged, educated, and trained in their work and as individuals.

Attribute weight: 4

Attribute Indicators:

There are four indicators of the nurturing attribute:

1. (E) Productive performance appraisals
2. (E) Professional development/continuing education
3. (E) Technical skill training
4. (E) Onboarding process

1.0 NURTURING (cont'd)

Indicator 1: **Productive Performance Appraisals**

A productive performance appraisal is the process of documenting and evaluating employees for past performance on a regular basis, and providing critical feedback on what they did well and what should be improved. This feedback loop is an essential part of an employee's career development and can lead to a motivating work environment and continuous improvement process.

Type: Essential   Possible points: 4

Indicator Metric:

Measurement unit: Frequency of implementation

Scales:
1 point
Organization does not have a specific plan for and never implements productive performance appraisals in a systematic manner.

2 points
Organization has a plan co-developed by employer and employees with specific performance goals. The organization formally implements the plan with at least two face-to-face meetings each year.

3 points
Organization has a plan co-developed by employer and employees with specific performance goals. The organization formally implements the plan with regular face-to-face meetings (three- to four-times a year).

4 points
Organization has a plan co-developed by employer and employees with specific performance goals. The organization formally implements the plan with frequent face-to-face meetings and evaluates the progress during semi-annual performance reviews. Four-point

Indicator Points Earned =

1.0 NURTURING (cont'd)

Indicator 2: **Professional Development/Continuing Education**

Professional development (also referred to as continuing education) programs are education opportunities relevant to construction that are provided for employees in the form of lectures, courses, webinars, or other types of educational activities. Professional development programs are delivered either to provide the knowledge required for a profession or to update employees' existing knowledge as opposed to providing the skills needed to perform a specific task. Successful organizations provide work-time support, access, and financial support for their employees to attend and engage in these education programs.

Type: Essential   Possible points: 4

Indicator Metric:

Measurement unit: Annual funds dedicated to support employee continuing education programs

Scales:
  1 point
      Organization has no annual dedicated fund for continuing education and no policy to allow employees to attend professional development and education programs.

  2 points
      Organization dedicates an annual fund of 0.5% of payroll for professional development purposes, allows employees to attend approved programs during paid work time, and pays 50%, or more, of associated costs.

  3 points
      Organization dedicates an annual fund of 1.0% of payroll for professional development purposes, allows employees to attend approved programs during paid work time, and pays 50%, or more, of associated costs.

  4 points
      Organization dedicates an annual fund of 1.5% of payroll for professional development purposes, allows employees to attend approved programs during paid work time, and pays 50%, or more, of associated costs.

Note: Education programs, and participation in the programs, need to be approved by the organization.

Indicator Points Earned = _____

1.0 NURTURING (cont'd)

Indicator 3: **Technical Skill Training**

Technical skills are the abilities required for employees to perform specific tasks relevant to their job positions. Technical skill training corresponds to providing the necessary performance skills and is different from professional development and continuing education. Professional development and continuing education programs aim at providing the knowledge required for a profession, whereas performance skills are associated with the ability to put the knowledge into practice.

Type: Essential   Possible points: 4

Indicator Metric:

Measurement unit: Number of annual training hours

Scales:
  1 point
      Organization provides, on average, 0-10 hours of skill training annually for each full-time equivalent (FTE) employee.

  2 points
      Organization provides, on average, 10-20 hours of skill training annually for each full-time equivalent (FTE) employee.

  3 points
      Organization provides, on average, 20-30 hours of skill training annually for each full-time equivalent (FTE) employee.

  4 points
      Organization provides, on average, more than 40 hours of skill training annually for each full-time equivalent (FTE) employee.

Notes:
1. Attending an industry conference is a form of professional development, while an internship opportunity that focuses on specific sets of practical skills is considered a form of training.
2. The training hours should be job skills-related (e.g., roofing or bricklaying) and typically exclude safety and health, diversity, anti-harassment, and other similar types of training.

Indicator Points Earned = ____

1.0 NURTURING (cont'd)

Indicator 4: **Onboarding Process**

Onboarding is the process of integrating new employees in the workplace and getting them adjusted to the social and performance aspects of the organization smoothly and efficiently. The onboarding process can take the forms of formal meetings, lectures, videos, printed materials, and/or computer-based orientations designed to introduce new employees to the company culture and available resources.

Type: Essential   Possible points: 4

Indicator Metric:

Measurement unit: Existence of a formal onboarding process

Scales:
  1 point
>   Organization has no formal onboarding process for new employees and only provides informal, quick orientation for new employees.

  2 points
>   Organization only provides a cursory, informal 1-day to 1-week orientation for all new employees.

  3 points
>   Organization has a formal onboarding process for new employees in which orientation is only one part of the process.

  4 points
>   Organization has a formal onboarding process for new employees in which orientation is only one part of the process. In addition, the onboarding process is directly supervised by upper management and human resource professionals and includes a mentorship plan that lasts for multiple weeks or months depending on the nature of the position.

Indicator Points Earned =

1.0 NURTURING (cont'd)

Attribute Weighted Score Calculation

	Points Earned	Possible Points
Indicator 1		4
Indicator 2		4
Indicator 3		4
Indicator 4		4

Total Points Earned = ____ out of 16 (total possible points)

Attribute Weighted Score = [(total points earned) ÷ (total possible points)] × (attribute weight)

= [____ ÷ (16)] × (4)

= ____

2.0 DIVERSITY

Attribute: Diversity

The extent to which the workforce is diversified and inclusive with respect to personal characteristics (e.g., gender, experience, race, social status, education, etc.) and to which diversity is integrated into and promoted within the workplace.

Attribute weight: 3

Attribute Indicators:

There are five indicators of the diversity attribute:

1. (E) Diversity and inclusion policy
2. (E) Ethnic and racial diversity
3. (E) Gender diversity and inclusiveness at labor force level
4. (E) Gender/ethnic diversity in leadership/management positions
5. (A) Knowledge and skill diversity

2.0 DIVERSITY (cont'd)

Indicator 1: **Diversity and Inclusion Policy**

Diversity and inclusion can bring numerous benefits to organizations and help them attract skilled and competent workforce. A diverse and inclusive workplace is an ideal place for community support, career progression, innovation, maturity, and so forth. Accordingly, organizations need to show that they are committed to creating and nurturing diversity and inclusion in the workplace.

Type: Essential   Possible points: 4

Indicator Metric:

Measurement unit: Existence of a comprehensive diversity and inclusion policy

Scales:
  1 point
        Organization has no written statement or policy on diversity and inclusion.

  2 points
        Organization has a formal and written statement or policy on diversity and inclusion that is signed by the chief executive officer (CEO) and/or other senior corporate officers and publicly posted and available to every employee.

  3 points
        Organization has a formal and written statement or policy on diversity and inclusion that is signed by the chief executive officer (CEO) and/or other senior corporate officers, is publicly posted and available to every employee, and is verbally communicated from top management to employees on all jobsites.

  4 points
        Organization has a formal and written statement or policy on diversity and inclusion that is signed by the chief executive officer (CEO) and/or other senior corporate officers, is publicly posted and available to every employee, and is verbally communicated from top management to employees on all jobsites regularly. The statement/policy clearly states that ethnical/gender diversity and inclusion is one of the top core values of the organization and is directly monitored and evaluated by top management.

Indicator Points Earned = _____

2.0 DIVERSITY (cont'd)

Indicator 2: **Ethnic and Racial Diversity**

Ethnic and racial diversity at work is an important element to improve work and team dynamics, and to support the presence of a supportive and healthy work environment. The goal of this indicator is to assess ethnic and racial diversity within construction organizations and to encourage them to establish a workforce that is as ethnically and racially diverse as the community around them.

Type: Essential   Possible points: 3

Indicator Metric:

Measurement unit: Ethnic and racial diversity attainment within organization

Scales:
  1 point
      Organization has a workforce with more than 25% deviation from the current state census data on aggregated Caucasian and non-Caucasian ethnicity and racial demographics within each organizational unit.

  2 points
      Organization emphasizes the importance of ethnic and racial diversity in hiring and promotion within, and has a workforce with a maximum of 25% deviation from the current state census data on aggregated Caucasian and non-Caucasian ethnicity and racial demographics within each organizational unit.

  3 points
      Organization emphasizes the importance of ethnic and racial diversity in hiring and promotion, and has a workforce with a maximum of 10% deviation from the current state census data on aggregated Caucasian and non-Caucasian ethnicity and racial demographics within each organizational unit.

Note: Statistics data used to show current census information regarding aggregated Caucasian and non-Caucasian ethnicity and racial demographics can be community-, region-, or state-related. The metric for this indicator is adapted from the JUST label.

Indicator Points Earned =

2.0 DIVERSITY (cont'd)

Indicator 3: **Gender Diversity and Inclusiveness at Labor Force Level**

Gender diversity at the labor force level refers to *representing* both genders in an organization with respect to its labor force, and gender inclusion at the labor force level means that the organization successfully *integrates* employees from both genders in the planning, decision-making, leadership, and other critical activities within the organization. A diverse and inclusive workplace will typically have low turnover rates, enabling the organization to strive for economic growth and success, and avoid substantial costs resulting from employee turnover.

Type: Essential   Possible points: 4

Indicator Metric:

Measurement unit: Deviation from a gender-balanced labor force (50% men and 50% women)

Scales:
  1 point
      Organization has a workforce with more than 25% deviation from a gender-balanced workforce

  2 points
      Organization has a workforce with a maximum of 25% deviation from a gender-balanced labor force and has established and implements a clear plan of how to integrate women into planning, decision-making, leadership, other critical activities within the organization

  3 points
      Organization has a workforce with a maximum of 20% deviation from a gender-balanced labor force and has established and implements a clear plan of how to integrate women in the planning, decision-making, leadership other critical activities within the organization

  4 points
      Organization has a workforce with a maximum of 15% deviation from a gender-balanced labor force and has established and implements a clear plan of how to integrate women in the planning, decision-making, leadership other critical activities within the organization

Note: Ideally, a gender-balanced labor force is comprised of 50% men and 50% women. However, it was acknowledged during the development of this tool that the 50:50 goal may be overreaching given many industry circumstances and the low number of available female workers in construction, and, therefore, an alternative target limit (65:35) was established.

Indicator Points Earned = _____

2.0 DIVERSITY (cont'd)

Indicator 4: **Gender/Ethnic Diversity in Leadership/Management Positions**

Building a diverse workforce starts at the top with diversity at the leadership/management level. Diversity in leadership/management personnel ensures that the organization, and its culture, fosters acceptance, respect, and inclusion of all employees regardless of gender, race, and ethnicity.

Type: Essential   Possible points: 5

Indicator Metric:

Measurement unit: Diversity attainment at leadership/management level

Scales:
  1 point
      Organization has a management and senior leadership staff with more than 30% deviation from a gender-balanced management/leadership and/or the current state census data on aggregated Caucasian and non-Caucasian ethnicity and racial demographics.

  2 points
      Organization has a management and senior leadership staff with a maximum of 30% deviation from a gender-balanced management/leadership and/or the current state census data on aggregated Caucasian and non-Caucasian ethnicity and racial demographics.

  3 points
      Organization has a management and senior leadership staff with a maximum of 25% deviation from a gender-balanced management/leadership and/or the current state census data on aggregated Caucasian and non-Caucasian ethnicity and racial demographics.

  4 points
      Organization has a management and senior leadership staff with a maximum of 20% deviation from a gender-balanced management/leadership and/or the current state census data on aggregated Caucasian and non-Caucasian ethnicity and racial demographics.

  5 points
      Organization has a management and senior leadership staff with a maximum of 15% deviation from a gender-balanced management/leadership and/or the current state census data on aggregated Caucasian and non-Caucasian ethnicity and racial demographics.

Indicator Points Earned = _____

2.0 DIVERSITY (cont'd)

Indicator 5: **Knowledge and Skill Diversity**

Knowledge and skill diversity is an important characteristic of a sustainable workforce. Knowledge diversity can sometimes be derived from gender and ethnic diversity but expanding it to include skill diversity is a critical step to enhancing the overall level of workforce sustainability within an organization.

Type: Auxiliary   Possible points: 3

Indicator Metric:

Measurement unit: Existence of a policy to establish knowledge and skill diversity

Scales:
  1 point
      Organization does not have a formal and specific policy to establish work groups that are diverse with respect to knowledge and skills

  2 points
      Organization has a formal and specific policy to establish work groups that are diverse with respect to knowledge and skills. The organization can demonstrate that more than 50% of its work groups have knowledge and skill diversity with respect to the work they perform.

  3 points
      Organization has a formal and specific policy to establish work groups that are diverse with respect to knowledge and skills. The organization can demonstrate that more than 80% of its work groups have knowledge and skill diversity with respect to the work they perform.

Note: A work group with knowledge and skill diversity is a group where its members have adequate collective knowledge (e.g., education and experience) and set of skills that complement the group and enable its members to perform their work safely and effectively.

Indicator Points Earned = _____

2.0 DIVERSITY (cont'd)

Attribute Weighted Score Calculation

	Points Earned	Possible Points
Indicator 1		4
Indicator 2		3
Indicator 3		4
Indicator 4		5
Indicator 5		3

Total Points Earned =   out of 19 (total possible points)

Attribute Weighted Score = [(total points earned) ÷ (total possible points)] × (attribute weight)

$$= [\quad \div (19)] \times (3)$$

$$=$$

3.0 EQUITY

Attribute: Equity

The extent to which workers feel treated and compensated fairly compared to other workers, and evaluated fairly without discrimination with respect to personal characteristics, employment level, payment, work load and responsibilities, promotion, work opportunities, and so forth.

Attribute weight: 5

Attribute Indicators:

There are five indicators of the equity attribute:

1. (E) Equality, social justice, and non-discrimination
2. (E) Pay structure transparency
3. (E) Equitable pay/compensation within organization
4. (E) Equitable pay/compensation at the industry level
5. (E) Merit-based recruitment and promotion process/plan

3.0 EQUITY (cont'd)

<table>
<tr><td>**Indicator 1**: **Equality, Social Justice, and Non-discrimination**</td></tr>
</table>

All human beings are entitled to the right to be treated equally without discrimination of any kind. With respect to the workplace, organizations should demonstrate that they treat their employees fairly and respectfully without any form of discrimination and that there is a written policy to emphasis and regulate equality, justice, and non-discrimination in the workplace.

Type: Essential   Possible points: 4

<table>
<tr><td>**Indicator Metric**:</td></tr>
</table>

Measurement unit: Demonstrated commitment to equality, justice, and non-discrimination

Scales:
1 point
  Organization has no written statement or policy on equality, justice, and non-discrimination.

2 points
  Organization has a formal, written equality, justice, and non-discrimination statement or policy, and there have been no complaints of any kind of discrimination against the organization in the past 12 months.

3 points
  Organization has a formal, written equality, justice, and non-discrimination statement or policy signed by the chief executive officer (CEO) or other senior corporate officers, and there have been no complaints of any kind of discrimination against the organization in the past 24 months.

4 points
  Organization has a formal, written equality, justice, and non-discrimination statement or policy signed by the chief executive officer (CEO) or other senior corporate officers, and there have been no complaints of any kind of discrimination against the organization in the past 36 months.

Indicator Points Earned = _____

3.0 EQUITY (cont'd)

Indicator 2: **Pay Structure Transparency**

Transparency within an organization means that the organization voluntarily formalizes a full-disclosure policy and provides ongoing open access on important information. Transparency establishes trust and confidence. Achieving transparency within an organization can help build a trusting relationship between employees and the organization (i.e., the employer). Transparency with regard to pay structure aims to encourage organizations to reveal the salaries of its employees. Transparency in pay structure can help establish trust between employees and their employer, and can promote equal pay and eventually minimize wage disparities.

Type: Essential   Possible points: 4

Indicator Metric:

Measurement unit: Disclosure of pay structure within organization

Scales:
1 point
Organization does not disclose any current information regarding financial aspects and salaries of its employees.

2 points
Organization voluntarily and publicly discloses financial information regarding the range of salaries of its employees.

3 points
Organization voluntarily and publicly discloses current information regarding financial aspects and salaries of its employees.

4 points
Organization voluntarily and publicly discloses current information regarding financial aspects and salaries of all employees including management and senior leadership staff.

Indicator Points Earned =

3.0 EQUITY (cont'd)

Indicator 3: Equitable Pay/Compensation within Organization

An equitable pay/compensation program is essential to ensure social equity in the workplace. An indispensable part of such a program is to ensure that the organization provides equitable pay/compensation for employees who perform similar jobs (equitable pay within job classifications) and that wage disparity between senior executives and onsite laborers is reasonable (equitable pay across job classifications). A successful equitable pay/compensation program can provide assurance to employees that they are working in an equitable workplace.

Type: Essential   Possible points: 4

Indicator Metric:

Measurement unit: Pay scale ratio within and across job classifications

Scales:
  1 point
    Organization has a pay scale ratio of more than 1:5 within job classifications and 1:30 across job classifications within the organization.

  2 points
    Organization has a maximum pay scale ratio of 1:5 within job classifications and 1:15 across job classifications within the organization.

  3 points
    Organization has a maximum pay scale ratio of 1:3 within job classifications and 1:20 across job classifications within the organization.

  4 points
    Organization has a maximum pay scale ratio of 1:2 within job classifications and 1:15 across job classifications within the organization.

Notes:
1. The pay scale ratio is a comparison between the amount of pay given to the lowest paid full-time employee and the amount given to the highest paid full-time employee in the organization.
2. Singular positions such as chief executive officer (CEO) are exempt from evaluation.
3. The ratios used in the metric scales were determined to allow different pay for differences in skills, education, experience, merit, and/or seniority.

Indicator Points Earned = _____

3.0 EQUITY (cont'd)

Indicator 4: Equitable Pay/Compensation at Industry Level

An equitable pay/compensation program is essential to ensure social equity in the workplace. In addition to providing equitable pay/compensation within and across job classifications, an organization needs to ensure that there is equitable pay/compensation for its employees compared to that in other organizations. Providing equitable pay/compensation for employees compared to the industry average can help the organization establish trust with its employees and attract skilled individuals.

Type: Essential   Possible points: 4

Indicator Metric:

Measurement unit: Variation from annual mean wage for the industry

Scales:

1 point

   Organization provides an annual mean wage that is 10% or more below the annual mean wage for the industry sector or occupation.

2 points

   Organization provides an annual mean wage that is within 10% variation from the annual mean wage for the industry sector or occupation.

3 points

   Organization provides an annual mean wage that is 10% or more above the annual mean wage for the industry sector or occupation.

4 points

   Organization provides an annual mean wage that is 20% or more above the annual mean wage for the industry sector or occupation.

Notes:
1. Organizations can use federal, state, or regional statistics to satisfy the requirement for this indicator. For organizations located within the United States, it is recommended that wage statistics from the Bureau of Labor Statistics (https://www.bls.gov/bls/blswage.htm) be utilized for this purpose.
2. The comparison with the annual mean wage for the industry can be made with reference to either industry sector (e.g., residential construction and commercial building construction) or occupation (e.g., carpenters and roofers).

Indicator Points Earned = _____

3.0 EQUITY (cont'd)

Indicator 5: **Merit-based Recruitment and Promotion Process**

A merit-based transparent recruitment and promotion process is critical to attract and maintain competent employees. The criteria for recruiting and promoting employees should be merit-based. That is, the decision of whether to hire or promote an individual is solely made based on the individual's ability, skills, experience, and education qualifications, rather than being a result of favors, family or political relations, or friendship. The top five criteria desired to achieve the intended process are: (1) processes and requirements for appointments and promotions are accessible to every employee and shared in a guideline or policy document; (2) vacancies are advertised as openly as possible, and the advertisement lists the job descriptions and responsibilities and highlights the skills and qualifications required for the job; (3) the policy incorporates rewards for exceptional and above-average performance; (4) each appointment/promotion decision is made and reviewed by at least two people ("four-eyes principle"); and (5) recruitment, hiring, and promotions are made based on a standard application form that is accessible to everybody.

Type: Essential   Possible points: 4

Indicator Metric:

Measurement unit: Comprehensiveness and transparency of recruitment/promotion process

Scales:
   1 point
      Organization has no formal, written process regarding recruitment and promotion of individuals.

   2 points
      Organization has a well-documented, formal process regarding recruitment and promotion of individuals, and the process includes three of the top five criteria mentioned above.

   3 points
      Organization has a well-documented, formal process regarding recruitment and promotion of individuals, and the process includes four of the top five criteria mentioned above.

   4 points
      Organization has a well-documented, formal process regarding recruitment and promotion of individuals, and the process includes all five of the top five criteria mentioned above.

Indicator Points Earned =

3.0 EQUITY (cont'd)

Attribute Weighted Score Calculation

	Points Earned	Possible Points
Indicator 1		4
Indicator 2		4
Indicator 3		4
Indicator 4		4
Indicator 5		4

Total Points Earned = _____ out of 20 (total possible points)

Attribute Weighted Score = [(total points earned) ÷ (total possible points)] × (attribute weight)

= [_____ ÷ (20)] × (5)

= _____

4.0 HEALTH AND WELL-BEING

Attribute: Health and Well-being:

The level of workplace health, safety, and contentment that workers feel and experience physically, mentally, and socially during and after work operations within their work career and beyond.

Attribute weight: 4

Attribute Indicators:

There are five indicators of the health and well-being attribute:

1. (E) Safety policy and zero injury goal
2. (E) Safety and health program
3. (E) Safety toolbox meetings and training
4. (A) Breaks and social interactions during workdays
5. (A) Annual physical/medical check-up

4.0 HEALTH AND WELL-BEING (cont'd)

Indicator 1: **Safety Policy and Zero Injury Goal**

Protecting employees and ensuring that the work environment is safe is the responsibility of employers, both legally and ethically. Accordingly, organizations should develop and implement an effective safety policy that fosters and advances the safety and health of employees. An effective safety policy should include an open-door policy for workers to report hazards and clear statements regarding compensation/benefits for work-related injuries. Establishing an effective policy can play a critical role in setting the safety culture for an organization. Once a positive safety culture is established, a zero injury goal becomes possible.

Type: Essential   Possible points: 4

Indicator Metric:

Measurement unit: Effectiveness and formality of safety policy

Scales:
  1 point
    Organization has an informal, unwritten, and not publicly posted policy on occupational health and safety of its employees.

  2 points
    Organization has a formal, written, and publicly posted policy on occupational health and safety of its employees that is endorsed by the chief executive officer (CEO) or other senior corporate officers.

  3 points
    Organization has a formal, written, and publicly posted policy on occupational health and safety of its employees that is endorsed by the chief executive officer (CEO) or other senior corporate officers. In addition, the organization has received Merit recognition in OSHA's Voluntary Protection Program (VPP) or other equivalent program for organizations located outside the United States.

  4 points
    Organization has a formal, written, and publicly posted policy on occupational health and safety of its employees that is endorsed by the chief executive officer (CEO) or other senior corporate officers. In addition, the organization has received Star recognition in OSHA's Voluntary Protection Program (VPP) or other equivalent program for organizations located outside the United States.

Indicator Points Earned = _____

4.0 HEALTH AND WELL-BEING (cont'd)

Indicator 2: Safety and Health Program

Developing and implementing a comprehensive safety and health program can contribute to reducing the number of workplace injuries and illnesses. As the program becomes more comprehensive, its effectiveness increases. Comprehensive and effective programs ultimately lead to improved workplace safety performance. Some of the key components of a program that have shown to be associated with lower injury rates include: (1) management leadership, (2) employee involvement, (3) hazard identification and control, (4) incident reporting and investigation, (5) housekeeping plan, (6) drug and alcohol testing, (7) respiratory/hearing protection plan, (8) material safety data sheet (MSDS) or equivalent plan, (9) emergency action plan, and (10) ongoing program review. The availability of such a program ensures that employees are aware of acceptable and unacceptable behaviors, and that there is a framework in place for decision-making regarding workplace safety.

Type: Essential   Possible points: 4

Indicator Metric:

Measurement unit: Comprehensiveness and effectiveness of safety and health program

Scales:
1 point
> Organization may have a safety and health program that addresses some of the key elements listed above, but the organization has experienced one or more reportable fatal or non-fatal injuries in the preceding 12 months.

2 points
> Organization has a safety and health program that addresses most of the key elements listed above, has been effectively implemented on projects, and has led to an absence of reportable fatal and non-fatal injuries in the preceding 12 months.

3 points
> Organization has a safety and health program with annual reviews that addresses most of the key elements listed above, has been effectively implemented on projects, and has led to an absence of reportable fatal and non-fatal injuries in the preceding 24 months.

4 points
> Organization has a safety and health program with annual reviews that addresses most of the key elements listed above, has been effectively implemented on projects, and has led to an absence of reportable fatal and non-fatal injuries in the preceding 36 months.

Indicator Points Earned = _____

4.0 HEALTH AND WELL-BEING (cont'd)

Indicator 3: **Safety Toolbox Meetings and Training**

Safety toolbox meetings and training can improve employee awareness about safety on the jobsite and ensure that employees can work safely and are alerted of potential hazards. Legal and ethical requirements necessitate that employers provide adequate training to their employees that are expected to work in hazardous situations. Accordingly, organizations need to provide formal safety training (typically annually) to their employees to ensure that they are safe. Furthermore, organizations should also provide 10-15 minute toolbox talks/meetings (informal safety training) daily, weekly, or monthly to ensure that the importance of safety is reinforced at work and employees are informed/updated regarding workplace safety concerns and challenges.

Type: Essential   Possible points: 4

Indicator Metric:

Measurement unit: Frequency of safety training

Scales:
  1 point
      Organization provides OSHA 10- and 30-hour training (or other equivalent training) to selected field employees and supervisor, and/or periodic toolbox talks/meetings to selected field employees.

  2 points
      Organization provides OSHA 10-hour training (or other equivalent training) to all field employees and supervisors, and at least monthly toolbox talks/meetings to all field employees.

  3 points
      Organization provides OSHA 10-hour training (or other equivalent training) to all field employees, OSHA 30-hour training (or other equivalent training) to all field supervisors, and at least weekly toolbox talks/meetings to all field employees or before each major operation.

  4 points
      Organization provides OSHA 30-hour training (or other equivalent training) to all field employees, including supervisors, and toolbox talks/meetings to all field employees daily and before each major operation.

Indicator Points Earned = _____

Workforce Sustainability Report

4.0 HEALTH AND WELL-BEING (cont'd)

Indicator 4: **Breaks and Social Interactions during Workdays**

Breaks and affirming social interactions (e.g., friendly competitions, volunteering, and cooperation) at work can impact employee behaviors, physical/emotional health, and performance. These factors can influence workplace safety performance considerably. Accordingly, breaks and social interactions should be designed in a way that fosters and advances employees' physical and mental health, and minimizes undesired outcomes such as fatigue or conflict at work.

Type: Auxiliary   Possible points: 4

Indicator Metric:

Measurement unit: Existence and length of breaks and social interactions at work

Scales:
  1 point
    Organization has no break policy or a maximum of a half-hour lunch break or rest time during a typical 8-hour shift schedule.

  2 points
    Organization has a policy that addresses overtime, night shifts, and work breaks. The policy provides at least a one-hour lunch break or rest time during a typical 8-hour shift schedule.

  3 points
    Organization has a policy that addresses overtime, night shifts, and work breaks. The policy provides at least one-hour breakfast and lunch breaks during a typical 8-hour shift schedule.

  4 points
    Organization has a policy that addresses overtime, night shifts, and work breaks. The policy provides at least one-hour breakfast and lunch breaks during a typical 8-hour shift schedule and includes plans to organize annual or bi-annual events during work hours to enhance social interactions among employees.

Note: A break is "a period of time during a shift in which employees are allowed to take time-off from work," while social interactions are activities in which employees interact with fellow employees.

Indicator Points Earned = ____

4.0 HEALTH AND WELL-BEING (cont'd)

Indicator 5: **Annual Physical/Medical Check-up**

An annual physical/medical check-up (also referred to as a wellness exam) is a preventive measure to reduce the risk of physical and emotional health problems. Organizations providing annual health check-ups for their employees can gain several benefits such as enhanced employee morale, reduced employee absenteeism, improved productivity, and lower risk of undesirable behaviors resulting from physical and emotional health problems (e.g., stress, fatigue, and emotional exhaustion).

Type: Auxiliary   Possible points: 4

Indicator Metric:

Measurement unit: Availability of and participation in annual physical/medical check-up

Scales:
  1 point
      Organization does not provide annual physical/medical check-ups for its employees.

  2 points
      Organization provides annual physical/medical check-ups for all full-time employees at no cost.

  3 points
      Organization provides annual physical/medical check-ups for all full-time employees at no cost, and more than 50% of the employees have had a physical/medical check-up in the preceding calendar year.

  4 points
      Organization provides annual physical/medical check-ups for all full-time employees at no cost, and more than 75% of the employees have had a physical/medical check-up in the preceding calendar year.

Indicator Points Earned = [   ]

4.0 HEALTH AND WELL-BEING (cont'd)

Attribute Weighted Score Calculation

	Points Earned	Possible Points
Indicator 1		4
Indicator 2		4
Indicator 3		4
Indicator 4		4
Indicator 5		4

Total Points Earned = _____ out of 20 (total possible points)

Attribute Weighted Score = [(total points earned) ÷ (total possible points)] × (attribute weight)

= [_____ ÷ (20)] × (4)

= _____

5.0 CONNECTIVITY

Attribute: Connectivity

The degree to which workers feel connected, and willingly desire to connect, to peers, fellow employees, and management through open channels and two-way communication, and feel engaged in the operations, leadership, planning, and decision-making process.

Attribute weight: 3

Attribute Indicators:

There are five indicators of the connectivity attribute:

1. (E) Worker involvement in decision-making
2. (E) Regular meetings with supervisor (one-on-ones)
3. (E) Employee stock ownership plan/program (ESOP)
4. (A) Social pleasure and connecting activities during workdays
5. (A) Teamwork approach within organization

5.0 CONNECTIVITY (cont'd)

Indicator 1: **Worker Involvement in Decision-making**

The most important asset of any organization is its workforce. Ensuring that workers are involved in decision-making improves employee morale and contributes to organizational success. Worker involvement in decision-making can be facilitated in many ways including roundtable events where employees can connect to peers and leadership, and provide insights before decisions are made. There are many ways to evaluate worker involvement in decision-making. For the purpose of this assessment, the employee survey question noted below is used to measure the perceived level of worker involvement in decision-making within an organization.

Type: Essential   Possible points: 4

Indicator Metric:

Measurement unit: Perceived self-assessment of employee involvement in decision-making

Scales:
  1 point
    Organization does not evaluate worker involvement in decision-making or receives a score less than 6.0 on the annual aggregated worker involvement rating scale in the preceding calendar year using the survey question below.

  2 points
    Organization receives a minimum score of 6.0 on the annual aggregated worker involvement rating scale in the preceding calendar year using the survey question below.

  3 points
    Organization receives a minimum score of 7.0 on the annual aggregated worker involvement rating scale in the preceding calendar year using the survey question below.

  4 points
    Organization receives a minimum score of 8.0 on the annual aggregated worker involvement rating scale in the preceding calendar year using the survey question below.

Note: Worker involvement in an organization should be annually assessed, with at least 70% workforce participation, using the following survey question: On a scale from "1" (not involved at all) to "10" (extremely involved), how would you rate your level of involvement in decision-making within your organization?

Indicator Points Earned = _____

5.0 CONNECTIVITY (cont'd)

Indicator 2: **Regular Meetings with Supervisor (one-on-ones)**

Although it is the technology and digital era, research has shown that face-to-face, one-on-one, meetings are still the most effective communication method. These meetings encourage two-way communication, strengthen relationships between supervisors and team members, and improve teamwork.

Type: Essential   Possible points: 4

Indicator Metric:

Measurement unit: frequency of face-to-face meetings

Scales:
   1 point
      Organization has no policy on face-to-face meetings with respect to both frequency and implementation of meetings

   2 points
      Organization has specific policy on face-to-face meetings and the meetings are formally held at a specific time at least monthly.

   3 points
      Organization has specific policy on face-to-face meetings and the meetings are formally held at a specific time at least bi-weekly.

   4 points
      Organization has specific policy on face-to-face meetings and the meetings are formally held at a specific time at least *weekly*.

Note: Face-to-face meetings vary in duration. They can be as short as 10 minutes or as along as 2 hours or more; both are acceptable as long as they are held formally and scheduled regularly.

Indicator Points Earned = _____

5.0 CONNECTIVITY (cont'd)

Indicator 3: **Employee Stock Ownership Plan/Program (ESOP)**

Employee ownership and profit-sharing can benefit both the organization and the employees. Employee ownership can be accomplished in multiple ways, but one of the most common methods is to use an employee stock ownership plan/program (ESOP). An ESOP is an employee-owner program that provides an opportunity for the employees to share ownership interest in their organization. This ownership interest strengthens the degree of connectivity of the workforce to their organization and generates a feeling of increased bonding and belonging.

Type: Essential   Possible points: 4

Indicator Metric:

Measurement unit: Existence of employee stock ownership plan/program (ESOP)

Scales:
1 point
>   Organization is large in size (i.e., more than 250 full-time employees) and has no employee stock ownership plan/program (ESOP).

2 points
>   Organization is small or medium in size (i.e., less than 250 full-time employees) and has no employee stock ownership plan/program (ESOP).

3 points
>   Organization has an employee stock ownership plan/program (ESOP) provided to employees with no up-front cost.

4 points
>   Organization has a successful employee stock ownership plan/program (ESOP) provided to employees with no up-front cost, and at least 50% of the organization's assets are owned by the employees.

Note: It is acknowledged in the scales described above that it is more challenging for a small- and medium-sized organizations to start and implement an employee stock ownership plan/program (ESOP).

Indicator Points Earned = _____

5.0 CONNECTIVITY (cont'd)

Indicator 4: Social Pleasure and Connecting Activities during Workdays

To ensure that employees are mentally and emotionally connected to their peers, fellow employees, and management personnel, social events for pleasure and connection purposes (e.g., eating off-site as a group, happy/free hour, planning a company-wide meeting where employees who do not usually work together can meet, and playing sports at work) are indispensable. These events can "break the ice" and facilitate high levels of connectivity among employees, improving both engagement and communication. High levels of employee connectivity positively influence work quality, work schedule, and productivity. Importantly, participation in these events should be voluntary.

Type: Auxiliary   Possible points: 3

Indicator Metric:

Measurement unit: Availability of pleasure and connecting activities at work

Scales:
  1 point
      Organization does not have any planned social activities for pleasure and connecting purposes during workdays.

  2 points
      Organization has specific and planned social activities for pleasure and connecting purposes during workdays. These events must be scheduled at least once each month.

  3 points
      Organization has specific and planned social activities for pleasure and connecting purposes during workdays. These events must be scheduled daily or weekly.

Indicator Points Earned = _____

5.0 CONNECTIVITY (cont'd)

Indicator 5: **Teamwork Approach within Organization**

A typical construction project includes different trades, competing priorities, and pressing deadlines. Accordingly, a teamwork environment that promotes and fosters cooperation, friendship, and loyalty is highly desired in construction. Teamwork can facilitate higher degrees of connectivity and engagement within the workforce, enhancing problem-solving and motivating the workforce for better performance. An organization adopting a teamwork approach should typically reward employees with helping behaviors and support small unit sessions and discussions within teams.

Type: Auxiliary   Possible points: 3

Indicator Metric:

Measurement unit: Employee assessment of effectiveness of teamwork approach

Scales:
  1 point
  > Organization does not formally implement a teamwork approach in its work aspects or receives an aggregated score of less than 6.0 in the preceding calendar year using the survey question shown below.

  2 points
  > Organization formally implements a teamwork approach in all aspects of its work and receives an aggregated score from 6.0 to 8.0 in the preceding calendar year using the survey question shown below.

  3 points
  > Organization formally implements a teamwork approach in all aspects of its work and receives an aggregated score of more than 8.0 in the preceding calendar year using the survey question shown below.

Note: Effectiveness of teamwork approach used in organization should be annually assessed, with at least 70% workforce participation, using the following survey question: On a scale from "1" (not effective at all) to "10" (extremely effective), how would you rate the effectiveness of the teamwork approach used in your organization?

Indicator Points Earned = _____

5.0 CONNECTIVITY (cont'd)

Attribute Weighted Score Calculation

	Points Earned	Possible Points
Indicator 1		4
Indicator 2		4
Indicator 3		4
Indicator 4		3
Indicator 5		3

Total Points Earned = out of 18 (total possible points)

Attribute Weighted Score = [(total points earned) ÷ (total possible points)] × (attribute weight)

$$= [\quad \div (18)] \times (3)$$

$$=$$

6.0 VALUE

Attribute: Value

The extent to which workers feel that they and their families are valued, respected, appreciated, and recognized by others in the workforce and the organization, financially and emotionally, for their work performance, contributions, and loyalty.

Attribute weight: 4

Attribute Indicators:

There are eight indicators of the value attribute:

1. (E) Full-time employment and long-term commitment policy
2. (E) Health insurance and retirement plans
3. (E) Family resources
4. (E) Work-life/family balance
5. (E) Job stability and retention
6. (E) Employee benefit program
7. (E) Performance feedback and appreciation
8. (E) Fair compensation

6.0 VALUE (cont'd)

Indicator 1: **Full-time Employment and Long-term Commitment Policy**

Long-term, full-time employment can be fundamental to the value of the job from the employee's perspective. It can provide a sense of job security and motivate the workforce to develop and excel at work. Full-time employment demonstrates the organization's commitment to its employees and provides the feeling that they are valued members of the organization.

Type: Essential   Possible points: 4

Indicator Metric:

Measurement unit: Percent of full-time employment in organization

Scales:
  1 point
    Organization maintains a minimum of 50% of its workforce on full-time employment with appropriate pay and benefits.

  2 points
    Organization maintains a minimum of 70% of its workforce on full-time employment with appropriate pay and benefits.

  3 points
    Organization maintains a minimum of 80% of its workforce on full-time employment with appropriate pay and benefits.

  4 points
    Organization maintains a minimum of 90% of its workforce on full-time employment with appropriate pay and benefits.

Note: Full-time employment for an individual is defined by the Internal Revenue Service (IRS) as an individual who is, on average, required to work at least 30 hours per week.

Indicator Points Earned = _____

6.0 VALUE (cont'd)

Indicator 2: **Health Insurance and Retirement Plans**

In order to demonstrate value to the workforce, employers should provide employees with a comprehensive health insurance plan, as well as a retirement plan whenever possible. Providing a health insurance plan ensures that employees and their families have access to health care to assist them in remaining healthy.

Type: Essential   Possible points: 4

Indicator Metric:

Measurement unit: Comprehensiveness of insurance plan

Scales:
   1 point
      Organization does not provide a comprehensive health insurance plan (medical, dental, and vision) to employees, provides a plan to employees but not to their families, or provides a plan to employees and their families but requires the employees to pay more than 50% of the insurance premiums.

   2 points
      Organization provides a comprehensive health insurance plan (medical, dental, and vision) to employees and their families, and the employees pay a maximum of 50% of the insurance premiums.

   3 points
      Organization provides a comprehensive health insurance plan (medical, dental, and vision) to employees and their families, and the employees pay a maximum of 25% of the insurance premiums. In addition, the organization provides a retirement plan for its employees when they attain a certain age.

   4 points
      Organization provides a comprehensive health insurance plan (medical, dental, and vision) to employees and their families, and fully pays 100% of the insurance premiums. In addition, the organization provides a retirement plan (with employer match or contribution) for its employees when they attain a certain age.

Note: The metric for this indicator is adapted from the JUST label.

Indicator Points Earned = ____

6.0 VALUE (cont'd)

Indicator 3: **Family Resources**

In order to attack skilled employees, the work environment needs to be family-friendly with resources that employees and their families can utilize. Organizations seeking a high level of workforce sustainability should have a family resources program that provides multiple resources to employees and their families and ensures they are valued and supported. Such a program should typically allow for family medical/emergency leave whenever needed and provide flexible work arrangements for employees with families.

Type: Essential   Possible points: 4

Indicator Metric:

Measurement unit: Existence and area of services of family resources program

Scales:
  1 point
      Organization has no family resources program to support employees and their families.

  2 points
      Organization has a family resources program to support employees and their families. The program includes at least one of the following components: access to child care, child care support/subsidy, family education support, family events, family-friendly spaces, and flexible work arrangements.

  3 points
      Organization has a family resources program to support employees and their families. The program includes at least two of the following components: access to child care, child care support/subsidy, family education support, family events, family-friendly spaces, and flexible work arrangements.

  4 points
      Organization has a family resources program to support employees and their families. The program includes at least three of the following components: access to child care, child care support/subsidy, family education support, family events, family-friendly spaces, and flexible work arrangements.

Note: A flexible work arrangement is when employees are allowed to work from home or in the non-standard hours when there is a family need or emergency.

Indicator Points Earned = _____

6.0 VALUE (cont'd)

Indicator 4: **Work-life/Family Balance**

Work-life/family balance is a term used to describe the balance employees need between time allocated for work and personal life in order to stay healthy and productive. Workplaces that provide a balanced, family-friendly work environment, from both policy and practice perspectives, experience higher levels of workforce sustainability. A balanced, family-friendly work environment enables members of the workforce to be healthier, more productive, and produce higher quality work.

Type: Essential   Possible points: 4

Indicator Metric:

Measurement unit: Policies and practices in place to ensure work-life balance

Scales:
   1 point
         Organization does not provide a minimum of 12 weeks of employment-protected maternity leave, a minimum of 2 weeks of employment-protected paternity leave, and a minimum of 10 weeks of employment-protected parental leave.

   2 points
         Organization provides a minimum of 12 weeks of employment-protected maternity leave, a minimum of 2 weeks of employment-protected paternity leave, and a minimum of 10 weeks of employment-protected parental leave.

   3 points
         Organization provides a minimum of 12 weeks of paid maternity leave, a minimum of 3 weeks of employment-protected paternity leave, and a minimum of 12 weeks of employment-protected parental leave.

   4 points
         Organization provides a minimum of 24 weeks of paid maternity leave, a minimum of 4 weeks of employment-protected paternity leave, and a minimum of 12 weeks of employment-protected parental leave.

Note: The metric for this indicator is adapted from the JUST label. More information about maternity, paternity, and parental leaves as well as the difference between them is available online at the following link: https://www.educaloi.qc.ca/en/capsules/maternity-paternity-and-parental-leave.

Indicator Points Earned = _____

6.0 VALUE (cont'd)

Indicator 5: **Job Stability and Retention**

Employee retention is critical for organizational success. Organizations maintaining high levels of employee retention are able to thrive, succeed, and achieve long-term results. Maintaining high levels of employee retention can be achieved if the organization provides long-term career objectives plans, a positive and supportive work environment, and enhanced job security to all employees.

Type: Essential   Possible points: 4

Indicator Metric:

Measurement unit: Turnover rate at organization level

Scales:
   1 point
        Organization has an annual turnover rate that is equivalent (plus/minus three points) to the overall industry average turnover rate for the preceding calendar year.

   2 points
        Organization has an annual turnover rate that is at least *three* points *below* the overall industry average turnover rate for the preceding calendar year.

   3 points
        Organization has an annual turnover rate that is at least *five* points *below* the overall industry average turnover rate for the preceding calendar year.

   4 points
        Organization has an overall turnover rate that is at least *ten* points *below* the overall industry average turnover rate for the preceding calendar year.

Note: Statistics and reports published by the Bureau of Labor Statistics (BLS), or equivalent agencies, can be used to determine the overall industry average turnover rate.

Indicator Points Earned =

6.0 VALUE (cont'd)

Indicator 6: **Employee Benefit Program**

For the purpose of this assessment, an employee benefit program is defined as any intrinsic or extrinsic rewards/benefits that employees are entitled to other than training and development, health insurance, retirement plan, maternity/paternity/parental leave, and child care support. Offering a solid employee benefit program adds more value to employees and strengthens their desire to become a loyal member of the organization. Recognized elements of a solid employee benefit program may include such items as: company vehicles, scholarships, group life insurance plan, paid vacations and holidays, paid sick leave, paid cell-phone, gym reimbursement or fitness program, profit sharing, employer student loan contributions, employer paid or provided housing, disability income protection, and allowances for lunch.

Type: Essential   Possible points: 4

Indicator Metric:

Measurement unit: Elements of employee benefit package

Scales:
  1 point
      Organization has an employee benefit package that includes two or fewer of the benefits mentioned above.

  2 points
      Organization has an employee benefit package that includes a minimum of three of the benefits mentioned above.

  3 points
      Organization has an employee benefit package that includes a minimum of four of the benefits mentioned above.

  4 points
      Organization has an employee benefit package that includes a minimum of five of the benefits mentioned above.

Indicator Points Earned = _____

6.0 VALUE (cont'd)

Indicator 7: Performance Feedback and Appreciation

Performance feedback and appreciation are critical for employees to grow. They add more value to the work and can motivate employees for better performance. Performance feedback can be given formally (e.g., in one-on-ones meetings) and informally (e.g., in-the-moment development advice given to employees during work operations); both types are effective as long as they are critical and provided in a timely-manner on an ongoing basis.

Type: Essential   Possible points: 4

Indicator Metric:

Measurement unit: Employee assessment of performance feedback in organization

Scales:
  1 point
      Organization does not formally evaluate the effectiveness of employee performance feedback or receives an aggregated score of less than 6.0 in the preceding calendar year using the survey question shown below.

  2 points
      Organization formally evaluates the effectiveness of employee performance feedback and receives an aggregated score from 6.0 to 7.0 in the preceding calendar year using the survey question shown below.

  3 points
      Organization formally evaluates the effectiveness of employee performance feedback and receives an aggregated score from 7.0 to 8.0 in the preceding calendar year using the survey question shown below.

  4 points
      Organization formally evaluates the effectiveness of employee performance feedback and receives an aggregated score of more than 8.0 in the preceding calendar year using the survey question shown below.

Note: Employee performance feedback should be annually assessed, with at least 70% workforce participation, using the following survey question: On a scale from "1" (extremely poor) to "10" (extremely high), how would you rate the quality of the performance feedback you received in your organization?

Indicator Points Earned = ____

6.0 VALUE (cont'd)

Indicator 8: **Fair Compensation**

Compensation is an essential component of any job. Providing fair compensation is imperative to recruit and retain skilled employees, maintain and increase employee morale, and encourage high performance. A skilled workforce, increased employee morale, and improved performance result in lower turnover rates, greater return-on-investment, and more job value, leading to higher levels of workforce sustainability. A fair amount of compensation complies with existing laws and regulations, reflects the nature and demands of the job, and provides what individuals need to support themselves and their families and live a decent life.

Type: Essential   Possible points: 4

Indicator Metric:

Measurement unit: Percent of compensation exceeding minimum

Scales:
  1 point
      Organization provides wages and benefits that meet or exceed the prevailing wage determined by the Federal Davis-Bacon Act, or applicable state prevailing wage statutes, whichever is higher.

  2 points
      Organization provides wages and benefits that exceed the prevailing wage determined by the Federal Davis-Bacon Act, or applicable state prevailing wage statutes, whichever is higher, by at least 10%.

  3 points
      Organization provides wages and benefits that meet or exceed the wage determined for the two adults (one working) family category as identified by the living wage calculator (http://livingwage.mit.edu).

  4 points
      Organization provides wages and benefits that exceed the wage determined for the two adults (one working and one child) family category as identified by the living wage calculator (http://livingwage.mit.edu) by at least 10%.

Note: Temporary and newly-hired entry-level employees who are in their first year of employment may be excluded from evaluation.

Indicator Points Earned = ____

6.0 VALUE (cont'd)

Attribute Weighted Score Calculation

	Points Earned	Possible Points
Indicator 1		4
Indicator 2		4
Indicator 3		4
Indicator 4		4
Indicator 5		4
Indicator 6		4
Indicator 7		4
Indicator 8		4

Total Points Earned = _____ out of 32 (total possible points)

Attribute Weighted Score = [(total points earned) ÷ (total possible points)] × (attribute weight)

$$= [\underline{\hspace{1cm}} \div (32)] \times (4)$$

$$= \underline{\hspace{1cm}}$$

7.0 COMMUNITY

Attribute: Community

The extent to which workers feel they are accepted by, share similar interests with, and have camaraderie and cohesiveness in growth and achievement together with others in the workforce, with the organization, and with the industry as a whole.

Attribute weight: 3

Attribute Indicators:

There are four indicators of the community attribute:

1. (E) Company social events
2. (E) Workforce integration in industry
3. (A) Local community at work
4. (A) Workload trade-off

7.0 COMMUNITY (cont'd)

Indicator 1: Company Social Events

To build camaraderie and cohesiveness within the workforce, company social events on non-working days or after working hours should be regularly organized. Company social events can be annual celebrations, parties, picnics, and other leisure activities on non-working days or after working hours such as sports, exercise, cultural, or other similar social activities. Companies organize or sponsor these social events to enable building a strong community at work. It must be mentioned that participation in these events should be voluntary but also acknowledged that low participation rates can diminish potential benefits of these events.

Type: Essential   Possible points: 3

Indicator Metric:

Measurement unit: Availability and frequency of company social events plus participation rate

Scales:
1 point
Organization arranged and/or sponsored less than two social events in the preceding calendar year and/or the overall participation rate in these social events was below 50%.

2 points
Organization arranged and/or sponsored a minimum of two social events in the preceding calendar year and the overall participation rate in these social events was above 50%.

3 points
Organization arranged and/or sponsored a minimum of four social events in the preceding calendar year and the overall participation rate in these social events was above 50%.

Indicator Points Earned =

7.0 COMMUNITY (cont'd)

Indicator 2: **Workforce Integration in Industry**

To ensure that employees are part of a larger community, workforce integration in the industry should be emphasized. Ensuring that the workforce is integrated in the industry can nurture employee growth and development, and enable a strong work community at the industry level, resulting in an enhanced the level of workforce sustainability across the industry.

Type: Essential   Possible points: 3

Indicator Metric:

Measurement unit: Demonstrated involvement and engagement in professional organizations

Scales:
  1 point
    Organization cannot demonstrate active involvement and engagement in the industry with 25% of its workforce being members of professional organizations.

  2 points
    Organization demonstrates active involvement and engagement in the industry, and at least 25% of its full-time employees are members of and actively involved in local chapters of professional organizations.

  3 points
    Organization demonstrates active involvement and engagement in the industry, and at least 35% of its full-time employees are members of and actively involved in local chapters of professional organizations.

Indicator Points Earned = _____

7.0 COMMUNITY (cont'd)

Indicator 3: **Local Community at Work**

Establishing a local community at work ensures that an organization and its workforce are part of the larger community surrounding a business. Being part of the surrounding local community provides support to employees and enables business success. Employees are usually more productive and provide higher quality services when they serve their own community. Accordingly, ensuring that a local community at work is established enhances the overall level of workforce sustainability and organizational success.

Type: Auxiliary   Possible points: 3

Indicator Metric:

Measurement unit: Demonstrated involvement and engagement in professional organizations

Scales:
  1 point
        Organization cannot demonstrate that at least 25% of its employees are from the local community and live within a maximum of 75 miles from where the workplace is located.

  2 points
        Organization can demonstrate that at least 25% of its employees are from the local community and live within a maximum of 100 miles from where the workplace is located.

  3 points
        Organization can demonstrate that at least 35% of its employees are from the local community and live within a maximum of 100 miles from where the workplace is located.

Note: To determine the distance between where employees live and work, the ZIP Codes for the employee's permanent home address and where the workplace is located can be used.

Indicator Points Earned =

7.0 COMMUNITY (cont'd)

Indicator 4: **Workload Trade-off**

Construction is a demanding occupation from physical and mental perspectives. Construction employees, including managers, laborers, superintendents, and engineers, usually work more than 40 hours per week in extreme environments. Long working hours impact employee health and prosperity, work-life/family balance, and growth causing potential physical and mental fatigue. A resilient work community should demonstrate the ability to overcome the abovementioned issues by allowing employees with a similar position and skill level to trade-off workload and hours (also referred to as job-sharing).

Type: Auxiliary   Possible points: 3

Indicator Metric:

Measurement unit: Practices in place for workload trade-off

Scales:
  1 point
    Organization does not allow employees with a similar position and skill level to trade-off workload and hours.

  2 points
    Organization allows employees with a similar position and skill level to trade-off workload and hours but only in special circumstances.

  3 points
    Organization has a policy in place to allow employees with a similar position and skill level to trade-off workload and hours if possible and determined that such a workload trade-off will not be associated with negative outcomes in terms of safety and quality.

Note: Workload trade-offs need to be approved by the organization and the employees are not automatically entitled to these benefits. The employees should formally apply for workload trade-off in writing and await for a final decision from management.

Indicator Points Earned = _____

7.0 COMMUNITY (cont'd)

Attribute Weighted Score Calculation

	Points Earned	Possible Points
Indicator 1		3
Indicator 2		3
Indicator 3		3
Indicator 4		3

Total Points Earned = _____ out of 12 (total possible points)

Attribute Weighted Score = [(total points earned) ÷ (total possible points)] × (attribute weight)

= [_____ ÷ (12)] × (3)

= _____

8.0 MATURITY

Attribute: Maturity

A reflection of the extent to which workers have and/or gain leadership, responsibility/ accountability, and competence in social, technical, environmental, and economic terms with respect to work performance, cooperation, problem-solving, collaboration, idea-generation and innovation, and work involvement and integration. A mature workforce should be able to gain, develop, and carry on the aforementioned competencies effectively and efficiently as a group and as individuals throughout their working and non-working life and be responsible/accountable towards self and others.

Attribute weight: 3

Attribute Indicators:

There are six indicators of the maturity attribute:

1. (E) Leadership and communication skills
2. (E) Accountability (set-performance standards)
3. (E) Competence-based education
4. (A) Competence-based training
5. (A) Multiskilling
6. (A) Volunteering

8.0 MATURITY (cont'd)

Indicator 1: Leadership and Communication Skills

Leadership and communication skills are crucial in construction workplaces. Effective leadership and communication are signs of maturity; they can improve employee self-awareness of safety hazards, responsibility and accountability, cooperation, problem-solving, collaboration, and innovation in the work environment, resulting in higher levels of workforce sustainability.

Type: Essential   Possible points: 5

Indicator Metric:

Measurement unit: Number of training hours for developing leadership and communication skills

Scales:
1 point
  Organization provided *no* training in the preceding calendar year with respect to developing leadership and communication skills.

2 points
  Organization provided a minimum of *two* hours of training in the preceding calendar year for each full-time equivalent (FTE) employee to develop leadership and communication skills.

3 points
  Organization provided a minimum of *four* hours of training in the preceding calendar year for each full-time equivalent (FTE) employee to develop leadership and communication skills.

4 points
  Organization provided a minimum of *six* hours of training in the preceding calendar year for each full-time equivalent (FTE) employee to develop leadership and communication skills.

5 points
  Organization provided a minimum of *eight* hours of training in the preceding calendar year for each full-time equivalent (FTE) employee to develop leadership and communication skills.

Indicator Points Earned = _____

8.0 MATURITY (cont'd)

Indicator 2: **Accountability (Set-performance Standards)**

Establishing set-performance standards is important to both employees to understand expectations, obligations, and responsibilities of their job as well as to organizations to enable performance evaluation and accountability. Accountability for employee performance in a workplace empowers the employees to take ownership of their work and improves overall performance outcomes.

Type: Essential   Possible points: 4

Indicator Metric:

Measurement unit: Policy in place to set clear expectations for positions

Scales:
  1 point
      Organization has no specific set-performance standards for positions to evaluate performance and hold employees accountable.

  2 points
      Organization sets clear expectations for positions and has specific set-performance standards related to quality and quantity of work expected from employees.

  3 points
      Organization sets clear expectations for positions and has specific set-performance standards related to quality and quantity of work expected from employees as well as the timeframe during which such standards should be achieved.

  4 points
      Organization sets clear expectations for positions and has specific set-performance standards related to quality and quantity of work expected from employees as well as the timeframe during which such standards should be achieved. The organization uses these performance standards to evaluate employee performance and, based on the evaluation results, provides specific training and coaching for performance improvement.

Indicator Points Earned = ___

8.0 MATURITY (cont'd)

Indicator 3: **Competence-based Education**

Competence is a set of defined knowledge, skills, abilities, and behaviors needed for employees to perform high-quality work in a professional manner. Sponsoring and providing educational opportunities to employees to obtain and maintain professional licensing and certification, such as a PE license and ASP, CSP, LEED AP, and PMI certifications, advances employee knowledge and professional creditability, leading to a higher level of maturity in the workplace.

Type: Essential   Possible points: 4

Indicator Metric:

Measurement unit: Sponsored and provided opportunities to obtain and maintain professional licensing and certification

Scales:

1 point
>   Organization does not sponsor and provide opportunities to the workforce to obtain and maintain professional licensing and certification.

2 points
>   Organization has a policy in place to sponsor and provide opportunities to the workforce to obtain and maintain professional licensing and certification.

3 points
>   Organization has a policy in place to sponsor and provide opportunities to the workforce to obtain and maintain professional licensing and certification. Currently, at least 25% of the construction managers, engineers, supervisors, and other personnel within the organization have a valid professional license or certificate.

4 points
>   Organization has a policy in place to sponsor and provide opportunities to the workforce to obtain and maintain professional licensing and certification. Currently, at least 50% of the construction managers, engineers, supervisors, and other personnel within the organization have a valid professional license or certificate.

 Note: A certificate of participation in a workshop or a conference is not considered a professional certificate.

Indicator Points Earned = ____

8.0 MATURITY (cont'd)

Indicator 4: **Competence-based Training**

As mentioned previously, competence is a set of defined knowledge, skills, abilities, and behaviors needed for employees to perform high-quality work in a professional manner. Sponsoring and providing training opportunities to employees related to business (to help employees understand how they fit within the company), computer and technology, problem-solving, time management, and work ethics develops the required skills and abilities. Developing these critical skills and abilities enhances the overall level of employee maturity as a group and as individuals.

Type: Auxiliary   Possible points: 3

Indicator Metric:

Measurement unit: Annual training hours related to business, computer and technology, problem-solving, time management, and work ethics

Scales:
   1 point
      Organization did not sponsor or provide training related to business, computer and technology, problem-solving, time management, and work ethics in the preceding calendar year.

   2 points
      Organization sponsored or provided, on average, a minimum of three hours of training related to business, computer and technology, problem-solving, time management, and work ethics for each full-time equivalent (FTE) employee in the preceding calendar year.

   3 points
      Organization sponsored or provided, on average, a minimum of five hours of training related to at least two of the followings (business, computer and technology, problem-solving, time management, and work ethics) for each full-time equivalent (FTE) employee in the preceding calendar year.

Indicator Points Earned = ____

8.0 MATURITY (cont'd)

Indicator 5: **Multiskilling**

Multiskilling (also referred to as cross-training) is the practice of creating crews with multiple skill-sets and making use of these crews to perform more than one task safely and efficiently. Multiskilling is an indication of workforce maturity; it can enhance employee collaboration, increase flexibility, improve productivity, reduce employee boredom resulting from repetition, and help mitigate workforce shortages in the construction industry.

Type: Auxiliary   Possible points: 3

Indicator Metric:

Measurement unit: Training and/or strategies in place related to multiskilling

Scales:
  1 point
      Organization has no specific training or strategies for creating crews with multiple skill-sets and making use of these crews.

  2 points
      Organization provides specific training and/or strategies for creating crews with multiple skill-sets and making use of these crews.

  3 points
      Organization provides specific training and/or strategies for creating crews with multiple skill-sets and making use of these crews. The organization purposely places employees in team assignments and gives the employees real-time feedback as to their performance in the team as well as rewarding employees for trying new positions/roles.

Indicator Points Earned = _____

8.0 MATURITY (cont'd)

Indicator 6: **Volunteering**

Volunteering comprises the services that individuals willingly provide to others and their community at no cost. Volunteering is an important measure of civic engagement and maturity. Volunteering, when administered or approved by the employer, provides mutual benefits to the work community (both employees and employers) and the broader community (e.g., industry or local community where work is located). With respect to the workforce, volunteering can help employees counteract stress and anxiety, increase self-actualization, and contribute to their community. Volunteering activities can include participation in outreach programs, providing services to vulnerable populations, and so forth.

Type: Auxiliary   Possible points: 3

Indicator Metric:

Measurement unit: Policy in place to support volunteering

Scales:
  1 point
      Organization has no specific policy related to volunteering and does not provide paid time-off to employees to participate in volunteer activities.

  2 points
      Organization has a written policy that promotes volunteering and provides up to 8 hours of annual paid time-off work to participate in volunteer activities if desired by the employees.

  3 points
      Organization has a written policy that promotes volunteering and provides up to 16 hours of annual paid time-off work to participate in volunteer activities if desired by the employees.

Note: The metric for this indicator metric is adapted from the JUST label.

Indicator Points Earned = _____

8.0 MATURITY (cont'd)

Attribute Weighted Score Calculation

	Points Earned	Possible Points
Indicator 1	_____	5
Indicator 2	_____	4
Indicator 3	_____	4
Indicator 4	_____	3
Indicator 5	_____	3
Indicator 6	_____	3

Total Points Earned = _____ out of 22 (total possible points)

Attribute Weighted Score = [(total points earned) ÷ (total possible points)] × (attribute weight)

= [_____ ÷ (22)] × (3)

= _____