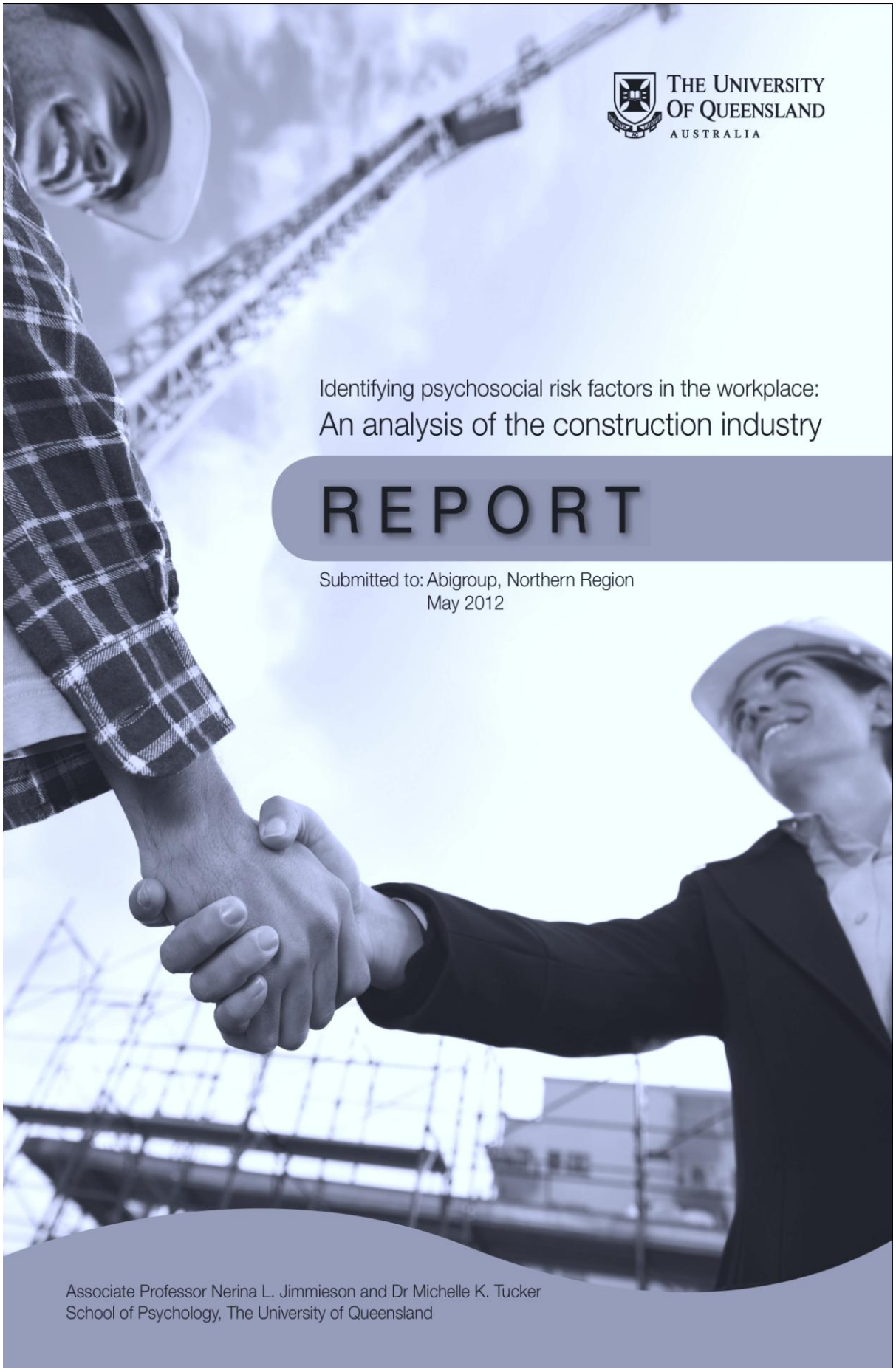
THE UNIVERSITY OF QUEENSLAND
AUSTRALIA
Identifying psychosocial risk factors in the workplace:
An analysis of the construction industry
REPORT
Submitted to: Abigroup, Northern Region
May 2012
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Executive Summary

The purpose of this report was to:

The purpose of this report was to present an assessment of psychosocial risk factors for psychological injury in the Queensland construction industry, including the following:

- To provide an assessment of psychosocial risk factors (as represented by a range of high demands and low resources) for psychological injury in a sample of Queensland construction workers.
- To summarise the trends identified in the focal variables for this sample and specific trends that exists as a function of age, site operatives, occupation, and project size.
- To compare this sample to previously collected normative data for the People at Work (PAW) Project.
- To improve the capacity of construction companies and other stakeholders to manage the risk of psychological injury in the workplace through the design and implementation of industry-specific stress management interventions.

The methodology involved:

- Construction sites throughout the Northern Region (ranging from Brisbane to Cairns) of Abigroup were invited to participate. Paper and pencil questionnaires were distributed to construction workers across 12 sites. A total of 721 surveys were distributed and 424 were returned, yielding a response rate of 58.8%.

Main findings in for job demands:

- The average number of hours worked per week was 54.92 (SD = 9.22).
- The highest reported job demand was cognitive demand, with a mean of 5.25 on a scale of 1 to 7, suggesting that, on average, construction workers feel as though they engage in cognitive monitoring and active problem-solving fairly often in order to meet the demands of the role.
- Role overload, emotional demand, role conflict, group task conflict, and group relationship conflict were viewed as moderate in level of occurrence.
- Role ambiguity, supervisor task conflict, and supervisor relationship conflict were the lowest rated job demands. These findings suggest that construction workers are usually clear on what is expected from them at work, and that they have little conflict with their supervisors in terms of tasks or relationships.
- In addition, 64.6% of the Abigroup, Northern Region sample agreed that they experienced cognitive demands. Role overload (13.7%) and role conflict (12.9%) were the next most prevalent job demands. The percentage of construction workers experiencing group relationship conflict (9.3%), emotional demands (8.8%), and group task conflict (6.6%) were low, and exposure to role ambiguity was negligible (0.7%).
- Abigroup, Northern Region employees reported less emotional demands (16.7% lower) than the Australian norm group.

- Differences in risk exposure as a function of age included:
  - Construction workers in the "21-30 years" age category reported lower means for emotional demand and supervisor relationship conflict than the overall sample.
  - Construction workers in the "31-40 years" age category reported higher means for emotional demand and group relationship conflict than the overall sample.
  - Construction workers in the "over 50 years" age category reported a lower mean for role ambiguity than the overall sample.
  - Construction workers in the "21-30 years" age category reported a higher mean for emotional demand than those in the "31-40 years" category.
  - Construction workers in the "over 50 years" category reported lower means for role ambiguity than those in the "21-30 years" and "41-50 years" age categories.
- Differences in risk exposure as a function of site operative included:
  - Tradespeople reported lower means for role overload, cognitive demand, and role ambiguity than the overall sample.
  - Labourers reported lower means for role overload, cognitive demand, emotional demand, role conflict, supervisor task conflict, and group task conflict than the overall sample.
  - Foremen reported higher means for role overload and cognitive demand than the overall sample.
  - Leading Hands reported a higher mean for cognitive demand than the overall sample.
  - Professionals reported higher means for role overload, emotional demand, role ambiguity, and role conflict than the overall sample.
  - Project/Site Managers reported higher means for role overload, cognitive demand, emotional demand, role conflict, and supervisor task conflict than the overall sample.
  - Other Managers reported higher means for role overload, cognitive demand, emotional demand, role conflict, supervisor task conflict, and group task conflict than the overall sample.
  - Tradespeople and Labourers reported a lower mean for role overload than Foreman, Professionals, Project/Site Managers, and Other Managers. In addition, Leading Hands reported a lower mean for role overload than Site/Project Managers and Other Managers.
  - Tradespeople and Labourers reported a lower mean for cognitive demand than Project/Site Managers and Other Managers.
  - Tradespeople and Labourers reported a lower mean for emotional demand than Professionals, Project/Site Managers, and Other Managers. Labourers also reported a lower mean for emotional demand than Leading Hands.
  - Tradespeople and Leadings Hands reported a lower mean for role ambiguity than Professionals. Tradespeople also reported a lower mean for role ambiguity than Other Managers.
  - Tradespeople reported a lower mean for role conflict than Other Managers. In addition, Labourers reported a lower mean for role conflict than Professionals, Project/Site Managers, and other Managers.
  - Tradespeople and Labourers reported a lower mean for supervisor task conflict than Other Managers. In addition, Labourers reported a lower mean for supervisor task conflict than Project/Site Managers.
  - Labourers reported a lower mean for group task conflict than Other Managers.
- Differences in risk exposure as a function of site operative included:
  - Administrators reported higher means for role overload and emotional demand than the overall sample.
  - Engineers reported a higher mean for role overload than the overall sample.
  - Electrical Workers reported lower means for role overload, supervisor relationship conflict, and group relationship conflict than the overall sample.
  - Carpenters reported higher means for group task conflict and group relationship conflict than the overall sample.
  - Operators reported lower means for role overload and role ambiguity than the overall sample.
  - Labourers reported lower means for role overload, cognitive demand, emotional demand, role conflict, supervisor task conflict, and group task conflict than the overall sample.
  - Administrators and Engineers reported a higher mean for role overload than Electrical Workers, Operators, and Labourers.

- Administrators reported a higher mean for emotional demand than Electrical Workers and Labourers. In addition, Engineers reported a higher mean for emotional demand than Labourers.
- Administrators reported a higher mean for role conflict than Labourers.
- Administrators and Carpenters reported a higher mean for supervisor task conflict than Labourers.
- Electrical Workers reported a lower mean for supervisor relationship conflict than Carpenters.
- Carpenters reported a higher mean for group task conflict than Electrical Workers and Labourers.

- Differences in risk exposure as a function of project size included:
  - Construction workers employed on "large projects" reported a lower mean for group task conflict than the overall sample.
- Role overload was a significant negative predictor of psychological well-being and job satisfaction.
- Cognitive demand was a significant positive predictor of psychological well-being and job satisfaction demonstrating that, contrary to initial expectations, cognitively demanding work enhances, rather than erodes, psychological well-being and job satisfaction.
- Emotional demand was a significant negative predictor of psychological well-being.
- Role ambiguity was a significant negative predictor of psychological well-being and job satisfaction.
- Supervisor relationship conflict was a significant negative predictor of psychological well-being and a significant positive predictor of musculoskeletal problems.
- Group relationship conflict was a significant negative predictor of job satisfaction.

Main findings for construction-specific job demands:

- Construction workers reported levels of task interdependency above the mid-point of the scale, indicating that they somewhat agreed that they depend on other people to do work in order to complete their own jobs.
- Pressures to meet contract deadlines and budgets were job demands that construction workers felt, on average, neutral about.
- In terms of pressure to accept work, construction workers indicated neutral views regarding feeling pressured to take jobs when they arise and not taking time off.
- Construction workers held neutral views regarding their concerns about becoming unemployed.
- Differences in risk exposure as a function of age included:
  - Construction workers in the "41-50 years" age category reported a higher mean for contract pressures than the overall sample.
  - Construction workers in the "21-30 years" age category reported a lower mean for contract pressures than those in the "41-50 years" category.
- Differences in risk exposure as a function of site operative included:
  - Tradespeople reported a higher mean for job insecurity than the overall sample.
  - Labourers reported a lower mean for task interdependency than the overall sample.
  - Leading Hands reported a higher mean for task interdependency than the overall sample.
  - Professionals reported a higher mean for task interdependency and a lower mean for job insecurity than the overall sample.
  - Project/Site Managers reported higher means for contract pressures and task interdependency and a lower mean for job insecurity than the overall sample.
  - Other Managers reported a lower mean for job insecurity than the overall sample.

- Tradespeople and Labourers reported a lower mean for task interdependency than Professionals and Project/Site Managers. In addition, Labourers reported a lower level of task interdependency than Leading Hands and Other Managers.
- Tradespeople and Labourers reported a higher mean for job insecurity than Professionals, Project/Site Managers, and Other Managers. In addition, Labourers reported a higher mean for job security than Foreman.
- Leading Hands reported a higher mean for job insecurity than Project/Site Managers.

- Differences in risk exposure as a function of occupation included:
  - Administrators reported a lower mean for job insecurity than the overall sample.
  - Engineers reported a higher mean for task interdependency and a lower mean for job insecurity than the overall sample.
  - Electrical Workers reported a lower mean for pressure to accept work than the overall sample.
  - Carpenters reported a lower mean for task interdependency and a higher mean for pressure to accept work than the overall sample.
  - Operators reported a higher mean for job insecurity than the overall sample.
  - Labourers reported a lower mean for task interdependency and a higher mean for job insecurity than the overall sample.
  - Administrators, Engineers, and Electrical Workers reported a higher mean for task interdependency than Labourers. Administrators also reported a higher mean for task interdependency than Carpenters. Engineers also reported a higher mean for task interdependency than Carpenters and Operators.
  - Carpenters reported a higher mean for pressure to accept work than Engineers, Electrical Workers, and Labourers.
  - Administrators and Engineers reported a lower mean for job insecurity than Carpenters, Operators, and Labourers.
- Differences in risk exposure as a function of project size included:
  - Construction workers employed on "small projects" reported a higher mean for contract pressures than the overall sample.
- Contract pressures were a significant negative predictor of psychological well-being and job satisfaction.
- Task interdependency was a significant positive predictor of psychological well-being and job satisfaction, demonstrating that, contrary to initial expectations, task interdependency enhances, rather than erodes, psychological well-being and job satisfaction.
- Pressure to accept work was a significant negative predictor of psychological well-being and job satisfaction.

Main findings for job resources:

- Support from supervisors and co-workers were the highest rated job resources, indicating that respondents, on average, perceived support from these two sources fairly often.
- Construction workers indicated that received praise and recognition from their supervisor fairly often.
- On average, individuals perceived that organisational systems and processes were just most of the time.
- Respondents held more neutral views towards the degree of perceived job control and change participation, indicating these occur, on average, just some of the time.
- The percentage of construction workers who felt supported from co-workers (74.5%) and supervisors (68.7%) was high. Feelings of praise and recognition from one's supervisor also were prevalent among the sample (63.2%). However, just half of

respondents agreed that their workplace was procedurally just (51.8%), and less than half of the sample agreed that they are consulted about change (41.4%) and have control over their job (36.4%).

- Results demonstrated that Abigroup, Northern Region employees report less emotional demands (16.7% lower) and more supervisor support (10.2% higher) when compared to the Australian norm group.
- However, Abigroup, Northern Region employees reported less job control (11.5% lower) than the Australian norm group.
- Abigroup, Northern Region employees reported higher co-worker support (13.5% higher) than the construction norm group.
- Differences in risk exposure as a function of age included:
  - Constructions workers in the "21-30 years" age category reported a higher mean for supervisor support than the overall sample.
- Differences in risk exposure as a function of site operative included:
  - Tradespeople reported a lower mean for job control than the overall sample.
  - Labourers reported a lower mean for job control than the overall sample.
  - Leading Hands reported a higher mean for co-worker support than the overall sample.
  - Professionals reported a higher mean for praise and recognition than the overall sample.
  - Project/Site Managers reported higher means for job control and procedural justice than the overall sample.
  - Other Managers reported a higher mean for job control than the overall sample.
  - Tradespeople reported a lower mean for job control than Project/Site Managers.
  - Labourers reported a lower mean for job control than Foreman, Leading Hands, Professionals, Project/Site Managers and Other Managers.
- Differences in risk exposure as a function of occupation included:
  - Administrators reported a higher mean for job control than the overall sample.
  - Engineers reported higher means for job control, supervisor support, and praise and recognition than the overall sample.
  - Electricians reported higher means for supervisor support, co-worker support, change participation, procedural justice, and praise and recognition than the overall sample.
  - Carpenters reported lower means for job control, procedural justice, and praise and recognition than the overall sample.
  - Labourers reported a lower mean for job control than the overall sample.
  - Administrators and Engineers reported a higher mean for job control than Carpenters and Labourers.
  - Electrical Workers reported a higher mean for procedural justice than Administrators, Carpenters, and Labourers.
  - Carpenters reported a lower mean for praise and recognition than Administrators, Engineers, Electrical Workers, and Operators.
- Differences in risk exposure as a function of project size included:
  - Construction workers employed on "small projects" reported a higher mean for change participation than the overall sample.
  - Construction workers employed on "large projects" reported a higher mean for procedural justice than the overall sample.
- Job control was a significant positive predictor of psychological well-being and negatively and a significant negative predictor of musculoskeletal problems.
- Supervisor support was a significant positive predictor of psychological well-being and job satisfaction.
- Co-Worker support was a significant positive predictor of psychological well-being and job satisfaction.
- Change participation was a significant negative predictor of musculoskeletal problems and a significant positive predictor of job satisfaction.

- Procedural justice was a significant positive predictor of psychological well-being.
- Praise and recognition was a significant positive predictor of job satisfaction.

Main findings for employee health outcomes:

- Mean level of psychological well-being was above the mid-point of the scale, denoting moderate-to-high levels of psychological well-being.
- Means for musculoskeletal problems, cardiovascular problems, sleep problems, headaches, and gastrointestinal problems were below the mid-point of the scale, suggesting low levels of these physical complaints.
- 72% of the sample agreed that they experienced job satisfaction. 65.8% of the sample indicated an absence of musculoskeletal problems, and 61.2% of the sample reported psychological well-being.
- Construction workers in this sample also reported more musculoskeletal problems (11.6% higher) than the Australian norm group.
- There were no disparities in employee health outcomes as a function of age.
- Disparities in employee health outcomes as a function of site operative included:
  - Leading Hands reported a higher mean for psychological well-being than the overall sample.
  - Project/Site Managers reported a lower mean for cardiovascular problems than the overall sample.
  - Other Managers reported a lower mean for gastrointestinal problems than the overall sample.
- Disparities in employee health outcomes as a function of occupation included:
  - Administrators reported a higher mean for musculoskeletal problems and a lower mean for cardiovascular problems than the overall sample.
  - Administrators reported a higher mean for musculoskeletal problems than Engineers and Labourers.
- Disparities in employee health outcomes as a function of project size included:
  - Construction workers employed on "small projects" reported a higher mean for musculoskeletal problems than the overall sample.

Main findings for employee job outcomes:

- Mean level of job satisfaction was above the mid-point of the scale, suggesting moderate-to-high levels of satisfaction and enjoyment with the job.
- Respondents indicated moderate feelings about the degree to which their jobs impacted on activities outside of work.
- Mean scores for the intentions items indicated very low likelihoods that employees would be submitting a workers' compensation claim, taking sick leave, seeking medical advice, changing jobs internally or externally as a result of work-related stressors.
- There were no disparities in employee job outcomes as a function of age.
- Disparities in employee job outcomes as a function of site operative included:
  - Tradespeople and Labourers reported a lower mean for work-home conflict than the overall sample.
  - Foremen reported a higher mean for work-home conflict than the overall sample.
  - Leading Hands reported a lower mean for workers' compensation intentions than the overall sample.
  - Professionals reported a higher mean for work-home conflict than the overall sample.

- Project/Site Managers reported a higher mean for work-home conflict and a lower mean for seek medical advice intentions than the overall sample.
- Other Managers reported a lower mean for workers' compensation claims intentions than the overall sample.
- Tradespeople reported a lower mean for work-home conflict than Foreman, Professionals, and Project/Site Managers.
- Labourers reported a lower mean for work-home conflict than Professionals.

- Disparities in employee job outcomes as a function of occupation included:
  - Administrators reported a lower mean for workers' compensation intentions than the overall sample.
  - Electrical Workers reported a higher mean for job satisfaction and lower means for work-home conflict, change jobs internally intentions, and turnover intentions than the overall sample.
  - Carpenters reported a lower mean for job satisfaction and higher means for workers' compensation intentions and seek medical advice intentions than the overall sample
  - Labourers reported a lower mean for work-home conflict than the overall sample.
  - Labourers reported a higher mean for work-family conflict than Engineers.
  - Carpenters reported a higher mean for workers' compensation intentions than Administrators and Engineers.
- There were no disparities in employee job outcomes as a function of project size.

Main findings for bullying and harassment:

- 16.9% of the sample indicated that they had been subjected to harassment and bullying once in a while, some of the time, fairly often, often, or daily.
- 29.5% of the sample indicated that they had witnessed harassment and bullying once in a while, some of the time, fairly often, often, or daily.
- The main source of harassment and bullying was co-workers, followed by supervisors.
- The most prevalent type of bullying and harassment was verbal abuse, followed by constant ridicule and being put down, and being humiliated through gestures, sarcasm, criticism, and insults.

Recommendations:

This report uses reliable and valid measures of psychosocial risk factors to determine possible priorities for the management of risk for psychosocial injury. The main findings and, hence, priorities for intervention include:

1. Monitoring those job demands (i.e., role overload, emotional demand, role ambiguity, and supervisor relationship conflict) and construction-specific job demands (i.e., contract pressures and pressure to accept work) shown to have statistically significant negative implications for psychological well-being.
2. Monitoring those job demands (i.e., supervisor relationship conflict) shown to have statistically significant positive implications musculoskeletal problems.
3. Monitoring those job demands (i.e., role overload, role ambiguity, and group relationship conflict) and construction-specific job demands (i.e., contract pressures and pressure to accept work) shown to have statistically significant negative implications for job satisfaction.
4. Promoting an optimal level of cognitive challenges and task interdependency to ensure that jobs are motivating and energerising for construction workers.
5. Maintaining support networks from supervisors and co-workers in light of their positive implications for psychological well-being and job satisfaction.

6. Improving job control, consultation during times of organisational change, and procedural justice, given that these were the job resources most lacking in the sample of construction workers studied in this report.
7. Enforcing a zero tolerance policy on harassment and bullying, with a specific focus on co-workers as the source and educating employees about the negative effects of verbal abuse for individuals.

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This report reflects data and subjective attitudes obtained from psychometric questionnaires completed by construction workers in Queensland. The report and conclusions derived are, therefore, managerial aids to the decision-making process and should be used in conjunction with other evidence that supports or refutes the material presented. In no way, should decisions be made on the basis of this report alone and responsibility for decisions based on this report and other evidence rests entirely with the recipients of this report. In no way can The University of Queensland and its representatives be held liable for decisions made on the basis of this report.

Acknowledgements

The Chief Investigators at The University of Queensland wish to extend their gratitude to Jonathan Dyer (Training Advisor, Learning and Development) from Abigroup, Northern Region who promoted this project to key stakeholders across Queensland.

We also thank the Safety and/or Site Managers for supporting this project at their respective worksites and for arranging for their staff to complete the questionnaire during work time.

Section 1 – Theoretical Background and Project Aims

A Definition of Occupational Stress

Drawing on a number of theoretical perspectives, including the stressor-strain approach (Beehr, 1995; Hurrell, Nelson, & Simmons, 1998), person-environment fit theory (French, Caplan, & Harrison, 1982), and cognitive-relational theory (Lazarus & Folkman, 1984), stress can be conceptualised as the state that occurs when external demands exceed an individual's internal resources to manage and respond (Lazarus, 1990; Maslach, 1986).

Lazarus (1990) defined occupational stress as a complexly determined process involving the interaction between the person and the environment. Specifically, occupational stress occurs when the demands one faces in the work environment (e.g., negative working conditions and experiences) take a toll on, or exceeds, the individual's personal resources to cope. Such circumstances bring about a change in either the physical or psychological condition of the individual, such that they are forced to deviate from normal functioning (Beehr & Newman, 1978).

Most theoretical models of occupational stress conceptualise this process as a causal flow from environmental conditions to employee outcomes, or in other words, from work stressors to strains (Lazarus, 1990; Lazarus & Folkman, 1984; Spector, Chen, & O'Connell, 2000). Conceptualising the stressor-strain relationship as a causal flow of events has allowed researchers to study and analyse this phenomenon by modelling it as a process with observable and measurable antecedents (stressors) and outcomes (strains).

Consequences of Occupational Stress

It has long been established that prolonged exposure to stressors incurred at work is linked to a vast array of negative outcomes for employees and their workplaces (Kahn & Byosiere, 1992). There is a large body of empirical evidence to show that psychosocial risk factors explain undesirable physical conditions, such as gastrointestinal malfunction (e.g., Chen, Wong, & Yu, 2009) and muscular-skeletal problems (e.g., Johnston, Jimmieson, Souvlis, & Jull, 2007). Experimental studies have demonstrated the causal relationship between task demands and cardiovascular reactivity, as indexed by changes in systolic and diastolic blood pressure (e.g., Flynn & James, 2009), whereas retrospective and prospective epidemiological studies have demonstrated the association between job demands and the set of physiological indicators that define metabolic syndrome, a pre-condition for cardiovascular mortality (see Chandola, Brunner, & Marmot, 2006, for a meta-analysis; see also Van der Doef & Maes, 1998, for a review).

The experience of stress at work also results in a range of dysfunctional psychological responses, such as anxiety, depression, and burnout (see Stansfeld & Candy, 2006, for a meta-analysis; see also Hausser, Mojzisch, Niesel, & Schulz-Hardt, 2010; Van der Doef & Maes, 1999, for reviews). In addition to the negative implications for physiological and psychological health, occupational stressors have been shown to influence employee attitudes, including reduced job satisfaction and less organisational commitment (Abramis,

1994), as well as employee behaviours that have consequences for organisational effectiveness, such as absenteeism (see Darr & Johns, 2008, for a meta-analysis) and job performance deficits (e.g., Gilboa, Shirom, Fried, & Cooper, 2008).

In addition, there are substantial social and economic implications. In Australia, according to the 17th Compendium of Workers' Compensation Statistics 2007/08 (Safe Work Australia, 2010), 6,845 workers' compensation claims were lodged in 2007/08 due to "mental disorders" (covering conditions such as anxiety, depression, and breakdowns), with the "psychological system" identified as the 6th most common bodily location (after back, hand, shoulder, knee, and ankle) for injury. An analysis of the causal mechanisms for injury revealed that "work pressure" and "work-related harassment and/or bullying" accounted for just over half of these claims. The 2007/08 data suggest that claims for mental disorders are most prevalent among medical and dental (15%) and community care (13%) workers.

Although comprising a small percentage of overall claims (4.7% in 2007/08), claims for mental disorders tend to be the one of the most expensive to manage. For the latest data available (up until 2006/07), mental disorder claims recorded the second-highest median time lost (10.6 working weeks), well above the overall median time lost of 3.9 working weeks. Mental disorders also recorded the largest increase in time lost, rising from 9.1 working weeks in 2002/03 to 10.6 working weeks in 2006/07. The high median time lost has implications for the dollar value of payouts. The median payout for such claims was $13,800 in 2006/07 (2.38 times the cost of the overall median payout of $5,800), with such payouts increasing on an annual basis (2003/04 = $10,900; 2004/05 = $11,200; 2005/06 = $13,600). An analysis of the causal mechanisms for injury across the 2002-2007 period also reveals that the median payment for claims due to "mental stress" increased by the largest amount (an increase of $3,100) across all mechanisms (in contrast, the next largest increase over the 6-year period was $1,700 for vehicle accidents). On a broader scale, occupational stress is estimated to cost the Australian economy $14.81 billion a year, with the direct costs (to employers) associated with stress-related presenteeism (defined as going to work but not fully functioning due to stress-related illness) and absenteeism amounting to $10.11 billion a year (Medibank Private, 2008).

In light of this compelling evidence, and the fact that Australians have been shown to be working the longest hours in the developed world – indeed, 1,855 hours each year compared to the annual average of 1,643 hours calculated for 17 developed nations (Tiffen & Gittins, 2004), it is clear that stress is one of the biggest occupational health and safety challenges facing Australia.

Occupational Stress in the Construction Industry

The construction industry employs 10.7% of the working population in Queensland, making it a significant employer of Queensland workers (Australian Bureau of Statistics, 2007). Construction companies are labour-intensive work environments operating in very competitive markets, having to complete projects that meet client expectations within strict schedules, constrained budgets, and tight profit margins, all of which contribute to long working hours and high workloads (Love, Edwards, & Irani, 2010; Sutherland & Davidson, 1989). In addition, construction projects/sites are dynamic social structures that typically

involve members drawn from multiple stakeholder groups, such as consultants, contractors, and subcontractors, making it a complex, diverse, and even interpersonally hostile work environment (Sidwell, 1990). As a consequence, construction workers are exposed to a range of task- and interpersonal-related stressors that can have deleterious effects for employee physical and psychological health, their sense of work-home balance, as well as project profitability and safety outcomes.

For instance, Leung, Chan, and Yuen (2010) found that task stressors (i.e., role overload, role ambiguity, role conflict, low job control, unfair rewards, and lack of feedback) and interpersonal stressors (i.e., poor workgroup relations) each predicted burnout in a sample of 142 construction workers in Hong Kong, with burnout, in turn, demonstrating a negative relationship with safe work behaviours. In the Australian context, for a sample of 232 male construction workers, it was found that the positive relationship between job schedule demands (i.e., long work hours and irregular work hours) and emotional exhaustion was mediated by heightened work-home conflict (Lingard & Francis, 2005). In a subsequent study, Lingard and Francis (2006) found that emotional support from supervisors and co-workers protected construction workers from exhaustion, and that practical support from supervisors and co-workers reduced the positive effect of work-home conflict on exhaustion. There also is evidence to suggest that the experience of stress varies as a function of job type. In this respect, Love et al. (2010) found that construction workers working for a contracting organisation on-site reported higher levels of poor mental health than consultants.

Project Variables

- Job Demands:
    1. Role overload
    2. Cognitive demand
    3. Emotional demand
    4. Role ambiguity
    5. Role conflict
    6. Supervisor task conflict
    7. Supervisor relationship conflict
    8. Group task conflict
    9. Group relationship conflict

- Construction-Specific Job Demands:
    1. Contract pressures
    2. Task interdependency
    3. Pressure to accept work
    4. Job insecurity

Job Resources:

1. Job control
2. Supervisor support
3. Co-Worker support
4. Change participation
5. Procedural justice
6. Praise and recognition

- Employee Health Outcomes:
  1. Psychological well-being
  2. Musculoskeletal problems
  3. Cardiovascular problems
  4. Sleep problems
  5. Headaches
  6. Gastrointestinal problems

- Employee Job Outcomes:
  1. Job satisfaction
  2. Work-home conflict
  3. Workers' compensation intentions
  4. Sick leave intentions
  5. Seek medical advice intentions
  6. Change jobs internally intentions
  7. Turnover intentions

Project Aims

The aim of this research project was to provide an assessment of psychosocial risk factors for psychological injury in the Queensland construction industry. In doing so, four main goals formed the basis for this research project:

1. To undertake an assessment of psychosocial risk factors (as represented by a range of high demands and low resources) for psychological injury in a sample of Queensland construction workers.
2. To identify trends in the focal variables for this sample and specific trends that exist as a function of age, site operatives, occupation, and project size.
3. To compare this sample to previously collected normative data for the People at Work (PAW) Project.
4. To improve the capacity of construction companies and other stakeholders to manage the risk of psychological injury in the workplace through the design and implementation of industry-specific stress management interventions.

Report Objectives

This report documents the research undertaken, and includes the following sections:

1. Data collection procedures for the questionnaire and sample size (**Section 2**)**.**
2. Description and references for all scales used in the questionnaire (**Section 3**).
3. Sample description (**Section 4**).
4. Summary of descriptive data for all risk factors and employee outcomes (health and job), as represented by means and standard deviations (**Section 5**).
5. Summary of the descriptive data for all variables according to age categories, including a comparison of each age category to the overall sample (t-tests) and a comparison among all age categories with each other (MANOVAs) (**Section 6**).
6. Summary of the descriptive data for all variables, according to site operatives, including a comparison of each site operative to the overall sample (t-tests) and a comparison among all site operatives with each other (MANOVAs) (**Section 7**).
7. Summary of the descriptive data for all variables, according to occupations, including a comparison of each occupation to the overall sample (t-tests) and a comparison among all occupations with each other (MANOVAs) (**Section 8**).
8. Summary of the descriptive data for all variables, according to project size categories, including a comparison of each project size category to the overall sample (t-tests) and a comparison among all project size categories with each other (MANOVAs) (**Section 9**).
9. Correlations between each risk factor and the employee outcomes (health and job) (**Section 10**).
10. Relationships between job demands and job resources with psychological well-being, musculoskeletal problems, and job satisfaction, assessed via hierarchical multiple regression analyses (**Section 11**).
11. People at Work (PAW) risk assessment profile, including normative comparisons with profiles for an Australian norm group and construction norm group (**Section 12**).
12. Bullying and harassment trends for the overall sample (**Section 13**).
13. Thematic analysis of qualitative comments provided by participants in regards to issues experienced due to task interdependency among contractors (**Section 14**).
14. Summary and recommendations (**Section 15**).

Section 2 – Sampling Procedure and Sample Size

Recruitment of Participants and Questionnaire Administration

Abigroup, Northern Region provided access to the construction workers that form the basis for this report. Data collection commenced in February, 2011 and was completed by March, 2012.

Construction sites throughout the Northern Region (ranging from Brisbane to Cairns) were invited to participate in the research by Jonathan Dyer (Training Advisor, Learning and Development). For those construction sites that agreed to participate, the contact details for the Site and/or Safety Managers were provided to the researchers at The University of Queensland (UQ) so that site visits for questionnaire administration could be arranged.

Paper-and-pencil questionnaires were distributed to employees by the UQ Researchers or, in circumstances where a site visit was not possible, by the primary contact at the construction site (under the supervision of the UQ Researchers).

Participants were provided with (1) an information sheet (outlining a summary of the aims and objectives of the research project, along with procedures for ensuring the confidentiality of responses), (2) the questionnaire, and (3) a reply-paid envelope, so that questionnaires could be returned directly to UQ. One-on-one questionnaire completion with the UQ Researchers was provided for those employees for whom assistance with reading was required.

Sample Size

Site	Surveys Distributed	Surveys Received	Response Rate
1	50	28	56.0%
2	20	11	55.0%
3	20	9	45.0%
4	100	40	40.0%
5	20	12	60.0%
6	100	32	32.0%
7	151	149	98.7%
8	100	63	63.0%
9	10	8	80.0%
10	30	13	43.3%
11	60	17	28.3%
12	60	34	56.7%
Site unknown	n/a	8	n/a
TOTAL	**721**	**424**	**58.8%**

Section 3 – Questionnaire

Information regarding measures used in the questionnaire is included in the tables below. Reliability for each multi-item scale was assessed with Cronbach's (1951) alpha coefficient, with all scales demonstrating high internal consistency among the items. Definitions for each of the constructs can be found in Appendix 1 (Glossary of Terms).

Table 3.1. Questionnaire Measures for Job Demands

Variable	Reference	Scale	Items	Reliability	Example Item
Role Overload	Cousins et al. (2004)	1-7	4	.86	I am pressured to work long hours.
Cognitive Demand	Jackson et al. (1993)	1-7	3	.79	Does your work need your undivided attention?
Emotional Demand	Kristensen et al. (2005)	1-7	3	.81	Does your work put you in emotionally disturbing situations?
Role Ambiguity	Cousins et al. (2004)	1-7	4	.87	I am clear what is expected of me at work.
Role Conflict	Haynes et al. (1999)	1-7	4	.88	I do things, which are accepted by one person, but not by another.
Supervisor Task Conflict	Jehn et al. (2008)	1-7	4	.91	Do you and your supervisor disagree about the work being done?
Supervisor Relationship Conflict	Jehn et al. (2008)	1-7	4	.96	Do you and members of your workgroup disagree about the work being done?
Group Relationship Conflict	Jehn et al. (2008)	1-7	4	.88	Are there bad feelings between you and your supervisor?
Group Task Conflict	Jehn et al. (2008)	1-7	4	.94	Are there bad feelings among members in your workgroup?

Table 3.2. Questionnaire Measures for Construction-Specific Job Demands

Variable	Reference	Scale	Items	Reliability	Example Item
Contract Pressures	developed for project	1-7	3	.87	I feel pressured by contract demands.
Task Interdependency	developed for project	1-7	6	.88	My work cannot be done unless other contractors/workers do their work.
Pressure to Accept Work	developed for project	1-7	2	.74	I do not get to take RDOs or public holidays.
Job Insecurity	Mauno et al. (2001)	1-7	1	n/a	I am worried about becoming unemployed.

Table 3.3. Questionnaire Measures for Job Resources

Variable	Reference	Scale	Items	Reliability	Example Item
Job Control	Cousins et al. (2004)	1-7	3	.78	I have a say in my own work speed.
Supervisor Support	Cousins et al. (2004)	1-7	4	.93	I can rely on my supervisor to help me out with a work problem.
Co-Worker Support	Cousins et al. (2004)	1-7	4	.92	I can rely on my co-workers to help me out with a work problem.
Change Participation	Cousins et al. (2004)	1-7	4	.86	Staff are consulted about proposed changes at work.
Procedural Justice	Bies & Moag (1986) Colquitt (2001)	1-7	4	.92	Employees in your workgroup are able to express their views and feelings during those processes.
Praise and Recognition	Siegrist et al. (2004)	1-7	3	.92	I feel that my supervisor values my contributions to the organisation.

Table 3.4. Questionnaire Measures for Employee Health Outcomes

Variable	Reference	Scale	Items	Reliability	Example Item
Psychological Well-Being	Goldberg (1972)	1-7	12	.85	Felt capable of making decisions about things?
Musculoskeletal Problems	Kuorinka et al. (1987)	1-7	5	.87	How often over the past 4 weeks, have you had trouble (ache, pain, discomfort) in your neck?
Cardiovascular Problems	Kessler et al. (2002)	1-7	8	.86	Over the past 4 weeks, how often did you feel your heart pound or race without exercising?
Sleep Problems	Schat et al. (2005)	1-7	4	.72	Over the past 4 weeks, how often have you had difficulty getting to sleep at night?
Headaches	Schat et al. (2005)	1-7	3	.88	Over the past 4 weeks, how often have you experienced headaches?
Gastrointestinal Problems	Schat et al. (2005)	1-7	4	.87	Over the past 4 weeks, how often have you suffered from an upset stomach (indigestion)?

Table 3.5. Questionnaire Measures for Employee Job Outcomes

Variable	Reference	Scale	Items	Reliability	Example Item
Job Satisfaction	Warr (1991)	1-7	3	.94	I enjoy my job
Work-Home Conflict	Netemeyer et al. (1996) O'Driscoll et al. (1992)	1-7	6	.96	My job does not allow me enough time to participate in activities outside of work
Workers' Compensation Intentions	developed for project	1-7	1	n/a	Do you seriously believe that, in the near future, you will put in a workers' compensation claim for a stress-related problem?
Sick Leave Intentions	developed for project	1-7	1	n/a	Do you seriously believe that, in the near future, you will take sick leave for stress-related problem?
Seek Medical Advice Intentions	developed for project	1-7	1	n/a	Do you seriously believe that, in the near future, you will seek medical advice for a stress-related problem?
Change Jobs Internally Intentions	developed for project	1-7	1	n/a	Do you seriously believe that, in the near future, you will change jobs within your organisation because of a stress-related problem?
Turnover Intentions	developed for project	1-7	1	n/a	Do you seriously believe that, in the near future, you will resign from your organisation because of a stress-related problem?

Section 4 – Sample Description

This section provides a description of the demographics for the sample of 424 construction workers who completed the questionnaire.

Gender

Gender	*N*	*%*
Male	382	90.1
Female	33	7.8
Missing	9	2.1

Age

	N		*M* (years)	*SD* (years)	Range (years)
	Valid	Missing			
Age	410	14	35.29	11.58	17 - 70

Age in Categories	*N*	*%*
Less than 21 years	18	4.2
21-30 years	163	38.4
31-40 years	115	27.1
41-50 years	61	14.4
Greater than 50 years	53	12.5
Missing	14	3.3

English First Language

English	*N*	*%*
Yes	370	87.3
No	26	6.1
Missing	28	6.6

Education Level

Education Level	*N*	%
Year 10	56	13.2
Year 12	63	14.9
Trade Qualification	87	20.5
Certificate	42	9.9
Associate Diploma	3	0.7
Diploma	46	10.8
Undergraduate Degree	78	18.4
Postgraduate Degree	23	5.4
Other	13	3.1
Missing	13	3.1

Employment Status

Employment Status	*N*	%
Full-time	289	68.2
Part-time	9	2.1
Casual	57	13.4
Apprentice/Trainee	11	2.6
Labour Hire	27	6.4
Self-Employed	22	5.2
No Response	9	2.1

Site Operatives

Site Operatives	*N*	%
Tradesperson	86	20.3
Labourer	83	19.6
Foreman	24	5.7
Leading hand	34	8.0
Apprentice	16	3.8
Professional	77	18.2
Administrative	19	4.5
Project/site manager	31	7.3
Other manager	25	5.9
No Response	29	6.8

Occupation

Occupation	*N*	%
Administration	47	11.1
Engineer	119	28.1
Electrical	24	5.7
Carpenter	56	13.2
Operator	33	7.8
Labourer	76	17.9
Missing	69	16.3

Project Size

Project Size	*N*	%
Minor (less than $1 million)	16	3.8
Small (greater than $1 million to $20 million)	28	6.6
Medium (greater than $20 million to $100 million)	51	12.0
Large (greater than $100 million to $400 million)	107	25.2
Major (greater than $400 million)	182	42.9
Missing	40	9.4

Years Worked at Same Employer

	N		*M* (years)	*SD* (years)	Range (years)
	Valid	Missing			
Years Worked at Same Employer	366	58	2.45	3.80	0 -30

Years in Categories	*N*	%
Less than 5 years	320	75.5
5-10years	33	7.7
11-15 years	4	0.9
16-20 years	4	0.9
Greater than 21 years	5	1.2
Missing	58	13.7

Years of Industry Experience

	N		*M* (years)	*SD* (years)	Range (years)
	Valid	Missing			
Years of Industry Experience	408	16	11.76	10.75	0 - 56

Years in Categories	*N*	%
Less than 5 years	117	27.6
5-9 years	139	32.8
10-14 years	42	9.9
15-20 years	45	10.6
Greater than 21 years	65	15.3
Missing	16	3.8

Hours Worked per Week

	N		*M* (hours)	*SD* (hours)	Range (hours)
	Valid	Missing			
Hours Worked per Week	360	64	54.92	9.22	21 - 80

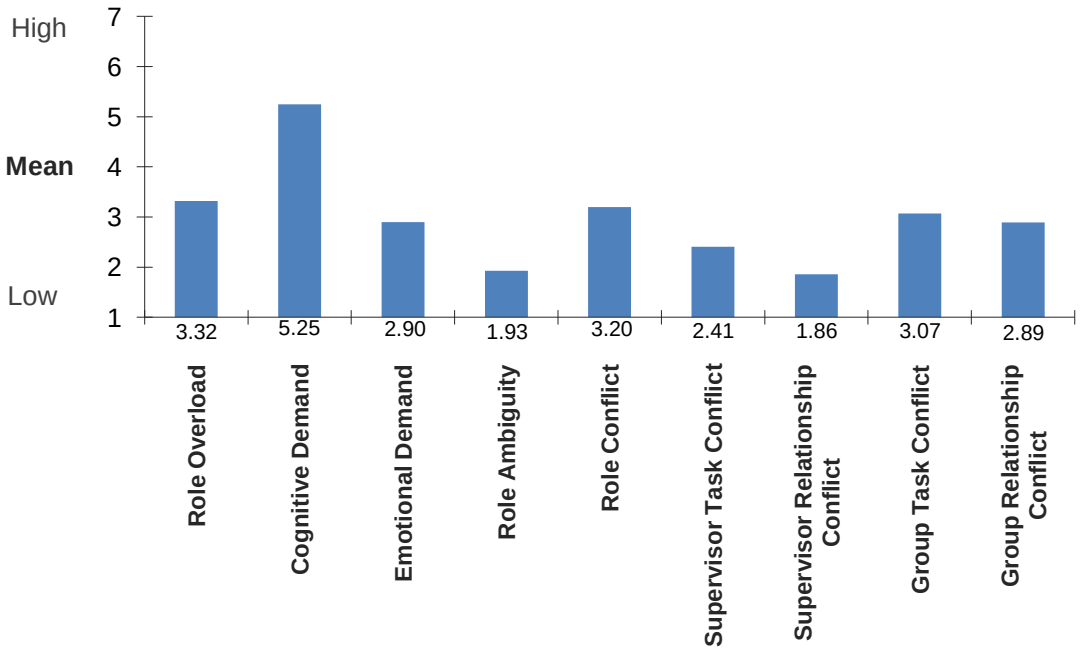
Section 5 – Overall Results

5.1 Job Demands

The mean and standard deviation for each of the nine job demand variables for the overall sample are presented below.

Scale	*N*	*M*	*SD*
Role Overload	416	3.32	1.31
Cognitive Demand	415	5.25	1.30
Emotional Demand	419	2.90	1.30
Role Ambiguity	419	1.93	0.88
Role Conflict	417	3.20	1.25
Supervisor Task Conflict	423	2.41	1.08
Supervisor Relationship Conflict	422	1.86	1.01
Group Task Conflict	422	3.07	1.08
Group Relationship Conflict	429	2.89	1.27

Range: 1 (never) to 7 (always)



Summary of Findings for Job Demands in the Overall Sample

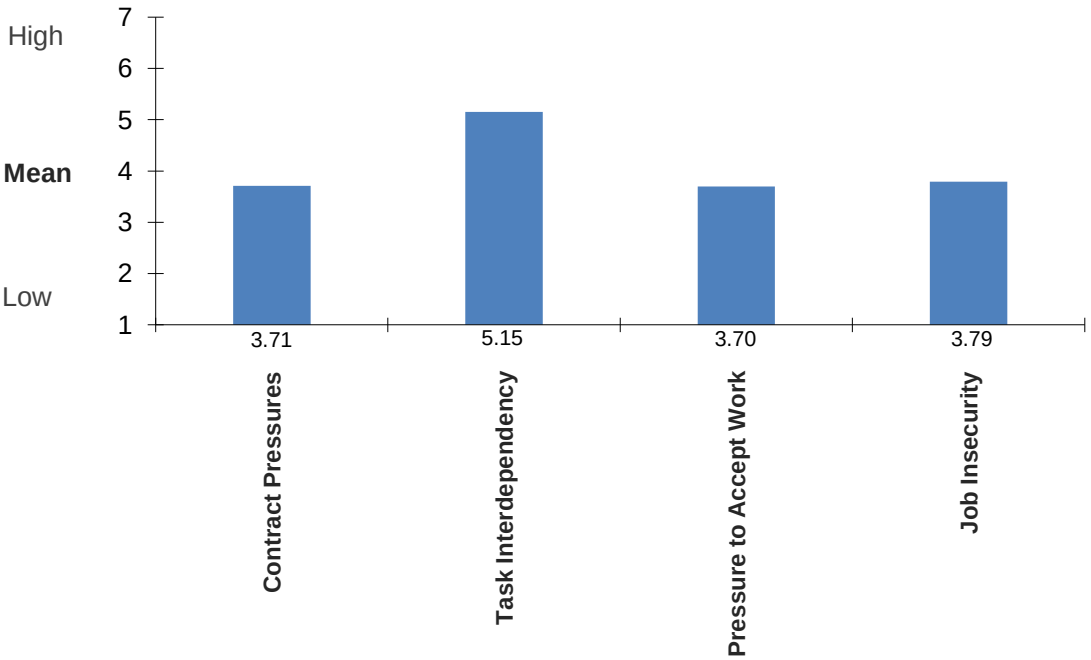
- The highest reported job demand was cognitive demand, 5.25 on a scale of 1 to 7, suggesting that, on average, construction workers feel as though they engage in cognitive monitoring and active problem-solving fairly often in order to meet the demands of the role.
- Role overload, emotional demand, role conflict, group task conflict, and group relationship conflict were viewed as moderate in level of occurrence.
- Role ambiguity, supervisor task conflict, and supervisor relationship conflict were the lowest rated job demands. These findings suggest that construction workers are usually clear on what is expected from them at work, and that they have little conflict with their supervisors in terms of tasks or relationships.

5.2 Construction-Specific Job Demands

The mean and standard deviation for each of the four construction-specific job demands for the overall sample are presented below.

Scale	*N*	*M*	*SD*
Contract Pressures	408	3.71	1.45
Task Interdependency	419	5.15	1.10
Pressure to Accept Work	413	3.70	1.73
Job Insecurity	413	3.79	1.95

Range: 1 (Strongly Disagree) to 7 (Strongly Agree)



Summary of Findings for Construction-Specific Job Demands in the Overall Sample

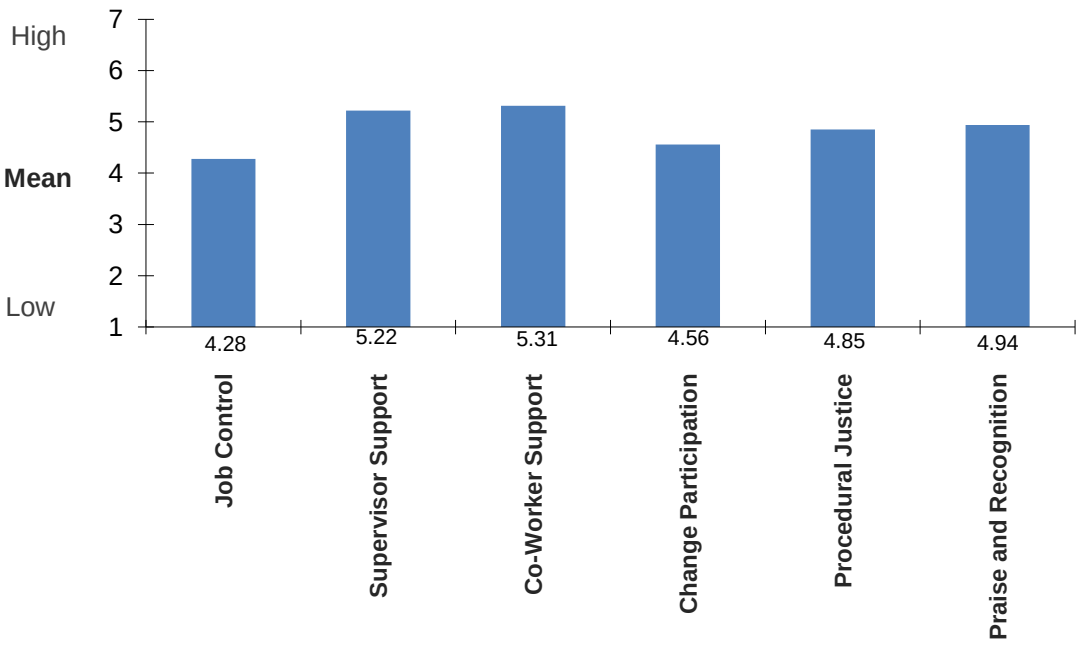
- Construction workers reported levels of task interdependency above the mid-point of the scale, indicating that they somewhat agreed that they depend on other people to do work in order to complete their own jobs.
- Pressures to meet contract deadlines and budgets were job demands that construction workers felt, on average, neutral about.
- In terms of pressure to accept work, construction workers indicated neutral views regarding feeling pressured to take jobs when they arise and not taking time off.
- Construction workers held neutral views regarding their concerns about becoming unemployed.

5.3 Job Resources

The mean and standard deviation for each of the six job resource variables for the overall sample are presented below.

Scale	*N*	*M*	*SD*
Job Control^	420	4.28	1.36
Supervisor Support*	418	5.22	1.21
Co-Worker Support*	419	5.31	1.11
Change Participation*	420	4.56	1.17
Procedural Justice*	417	4.85	1.08
Praise and Recognition*	421	4.94	1.35

^ Range: 1 (Never) to 7 (Always)
*Range: 1 (Strongly Disagree) to 7 (Strongly Agree)



Summary of Findings for Job Resources in the Overall Sample

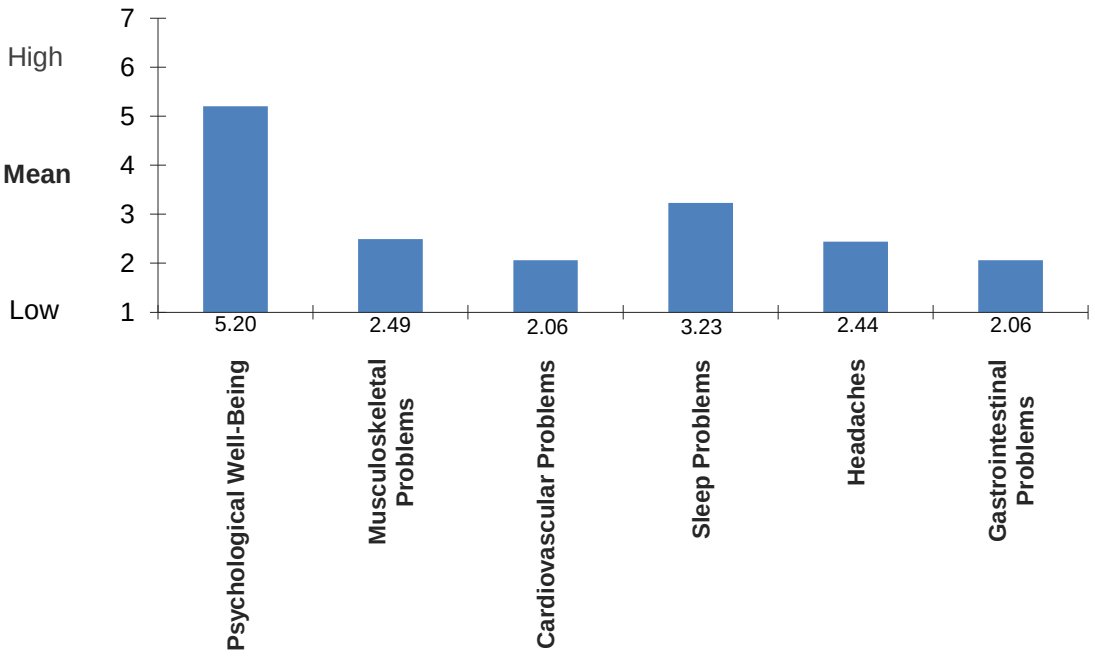
- Support from supervisors and co-workers were the highest rated job resources, indicating that respondents, on average, perceived support from these two sources fairly often.
- Construction workers indicated that received praise and recognition from their supervisor fairly often.
- On average, individuals perceived that organisational systems and processes were just most of the time.
- Respondents held more neutral views towards the degree of perceived job control and change participation, indicating these occur, on average, just some of the time.

5.4 Employee Health Outcomes

The mean and standard deviation for each of the six employee health outcomes for the overall sample are presented below.

Scale	*N*	*M*	*SD*
Psychological Well-Being	408	5.20	0.87
Musculoskeletal Problems	409	2.49	1.33
Cardiovascular Problems	411	2.06	0.89
Sleep Problems	407	3.23	1.17
Headaches	409	2.44	1.21
Gastrointestinal Problems	409	2.06	1.10

Range: 1 (Never) to 7 (Always)



Summary of Findings for Employee Health Outcomes in the Overall Sample

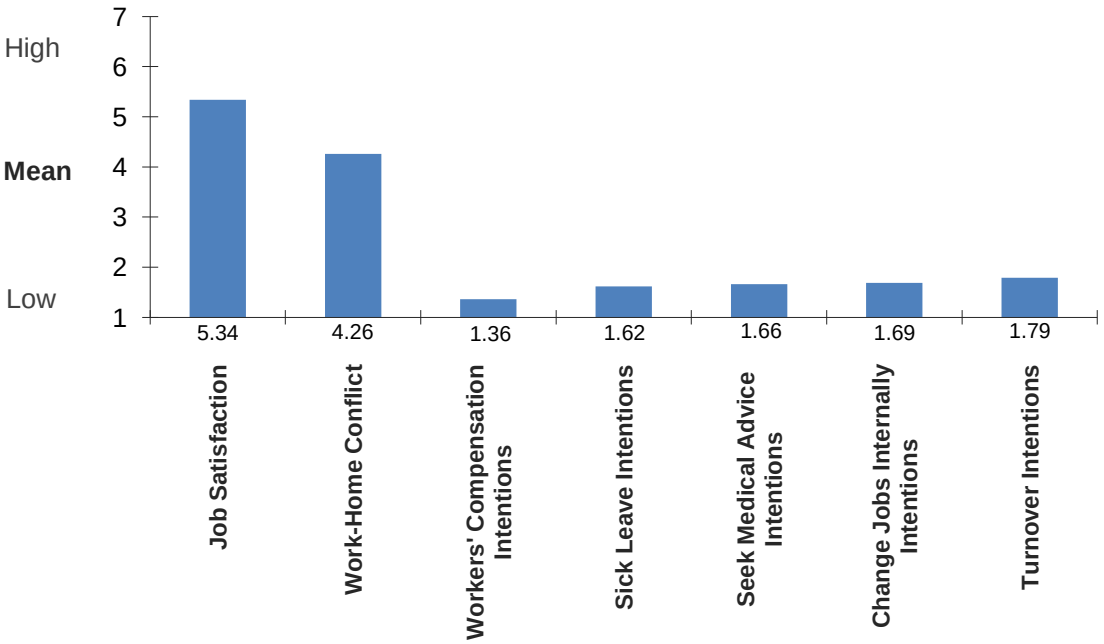
- Mean level of psychological well-being was above the mid-point of the scale, denoting moderate-to-high levels of psychological well-being.
- Means for musculoskeletal problems, cardiovascular problems, sleep problems, headaches, and gastrointestinal problems were below the mid-point of the scale, suggesting low levels of these physical complaints.

5.5 Employee Job Outcomes

The mean and standard deviation for each of the seven employee job outcomes for the overall sample are presented below.

Scale	*N*	*M*	*SD*
Job Satisfaction*	414	5.34	1.34
Work-Home Conflict*	413	4.26	1.61
Workers' Compensation Intentions^	410	1.36	0.91
Sick Leave Intentions^	410	1.62	1.18
Seek Medical Advice Intentions^	410	1.66	1.29
Change Jobs Internally Intentions^	410	1.69	1.30
Turnover Intentions^	410	1.79	1.39

*Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
^Range: 1 (Extremely Unlikely) to 7 (Extremely Likely)



Summary of Findings for Employee Job Outcomes in the Overall Sample

- Mean level of job satisfaction was above the mid-point of the scale, suggesting moderate-to-high levels of satisfaction and enjoyment with the job.
- Respondents indicated moderate feelings about the degree to which their jobs impacted on activities outside of work.
- Mean scores for the intentions items indicated very low likelihoods that employees would be submitting a workers' compensation claim, taking sick leave, seeking medical advice, changing jobs internally or externally as a result of work-related stressors.

Section 6 – Job Demands, Job Resources, Employee Outcomes by Age

Section 6 examines differences in job demands, construction-specific job demands, job resources, and employee (health and job) outcomes by age categories. Only those categories with a minimum of 20 respondents are included in these breakdown analyses. The results for each age category (i.e., 21-30 years, 31-40 years, 41-50 years, and over 50 years) are presented below.

First, the mean for each age category is compared to the overall sample and statistical significance for the mean difference is tested via t-tests (see Sections 6.1 to 6.4). Second, the age categories are compared among each other for each set of variables (see Section 6.5), with statistical significance tested via multivariate analyses of variance (MANOVAs).

6.1 Age Category: 21-30 years

Job Demands

Scale	*21-30 years* *n = 161 to 163*		*Overall Sample* *n = 415 to 429*		
	M	*SD*	*M*	*SD*	*t*
Role Overload	3.31	1.21	3.32	1.31	-0.09 (161)
Cognitive Demand	5.17	1.24	5.25	1.30	-0.84 (161)
Emotional Demand	2.66	1.19	2.90	1.30	-2.57 (160)*
Role Ambiguity	2.02	0.87	1.93	0.88	1.25 (162)
Role Conflict	3.15	1.14	3.20	1.25	-0.56 (161)
Supervisor Task Conflict	2.33	0.94	2.41	1.08	-1.07 (162)
Supervisor Relationship Conflict	1.72	0.76	1.86	1.01	-2.28 (161)*
Group Task Conflict	3.01	0.96	3.07	1.08	-0.85 (162)
Group Relationship Conflict	2.91	1.40	2.89	1.27	0.22 (160)

Range: 1 (never) to 7 (always)
*p< .05. **p < .01. ***p< .001.

Emotional Demand: mean (2.66) for "21-30 years" significantly lower than mean (2.90) for overall sample.
Supervisor Relationship Conflict: mean (1.72) for "21-30 years" significantly lower than mean (1.86) for overall sample.

Construction-Specific Job Demands

Scale	*21-30 years* *n = 162 to 163*		*Overall Sample* *n = 408 to 419*		
	M	*SD*	*M*	*SD*	*t*
Contract Pressures	3.52	1.27	3.71	1.45	-1.92 (162)
Task Interdependency	5.14	1.08	5.15	1.10	-0.08 (161)
Pressure to Accept Work	3.69	1.76	3.70	1.73	-0.05 (162)
Job Insecurity	3.64	1.82	3.79	1.95	-1.02 (162)

Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
*p< .05. **p < .01. ***p< .001.

Job Resources

Scale	*21-30 years* *n = 160 to 163*		*Overall Sample* *n = 417 to 421*		
	M	*SD*	*M*	*SD*	*t*
Job Control^	4.23	1.26	4.28	1.36	-0.48 (161)

Supervisor Support[#]	5.39	1.07	5.22	1.21	1.98 (161)*
Co-Worker Support[#]	5.44	0.95	5.31	1.11	1.68 (159)
Change Participation[#]	4.57	1.11	4.56	1.17	0.10 (160)
Procedural Justice[#]	4.87	0.99	4.85	1.08	0.19 (162)
Praise and Recognition[#]	5.04	1.37	4.94	1.35	0.90 (160)

^ Range: 1 (Never) to 7 (Always)
[#]Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
*p< .05. **p < .01. ***p< .001.

Supervisor Support: mean (5.39) for "21-30 years" significantly higher than mean (5.22) for overall sample.

Employee Health Outcomes

Scale	*21-30 years n = 160 to 163*		*Overall Sample n = 407 to 411*		
	M	*SD*	*M*	*SD*	*t*
Psychological Well-Being	5.21	0.87	5.20	0.87	0.20 (159)
Musculoskeletal Problems	2.39	1.26	2.49	1.33	-1.06 (161)
Cardiovascular Problems	2.13	0.84	2.06	0.89	1.04 (161)
Sleep Problems	3.19	1.19	3.23	1.17	-0.40 (161)
Headaches	2.47	1.17	2.44	1.21	0.33 (162)
Gastrointestinal Problems	2.06	1.07	2.06	1.10	0.04 (161)

Range: 1 (Never) to 7 (Always)
*p< .05. **p < .01. ***p< .001.

Employee Job Outcomes

Scale	*21-30 years n = 162 to 163*		*Overall Sample n = 410 to 414*		
	M	*SD*	*M*	*SD*	*t*
Job Satisfaction[#]	5.42	1.20	5.34	1.34	0.88 (162)
Work-Home Conflict[#]	4.33	1.49	4.26	1.61	0.56 (161)
Workers' Compensation Intentions[^]	1.29	0.74	1.36	0.91	-1.23 (162)
Sick Leave Intentions[^]	1.64	1.18	1.62	1.18	0.26 (162)
Seek Medical Advice Intentions[^]	1.65	1.20	1.66	1.29	-0.10 (162)
Change Jobs Internally Intentions[^]	166	1.23	1.69	1.30	-0.29 (162)
Turnover Intentions[^]	1.79	1.34	1.79	1.39	0.01 (162)

[#]Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
^ Range: 1 (Extremely Unlikely) to 7 (Extremely Likely)
*p< .05. **p < .01. ***p< .001.

6.2 Age Category: 31-40 years

Job Demands

Scale	*31-40 years* *n = 112 to 115*		*Overall Sample* *n = 415 to 429*		
	M	*SD*	*M*	*SD*	*t*
Role Overload	3.47	1.34	3.32	1.31	1.20 (112)
Cognitive Demand	5.34	1.26	5.25	1.30	0.78 (113)
Emotional Demand	3.18	1.28	2.90	1.30	2.37 (113)*
Role Ambiguity	1.93	0.82	1.93	0.88	-0.00 (113)
Role Conflict	3.31	1.28	3.20	1.25	0.92 (112)
Supervisor Task Conflict	2.44	1.04	2.41	1.08	0.28 (114)
Supervisor Relationship Conflict	1.96	1.07	1.86	1.01	0.97 (114)
Group Task Conflict	3.30	1.11	3.07	1.08	2.17 (114)*
Group Relationship Conflict	2.89	1.10	2.89	1.27	0.03 (113)

Range: 1 (never) to 7 (always)
*p< .05. **p < .01. ***p< .001.

Emotional Demand: mean (3.18) for "31-40 years" significantly higher than mean (2.90) for overall sample.
Group Task Conflict: mean (3.30) for "31-40 years" significantly higher than mean (3.07) for overall sample.

Construction-Specific Job Demands

Scale	*31-40 years* *n = 113 to 115*		*Overall Sample* *n = 408 to 419*		
	M	*SD*	*M*	*SD*	*t*
Contract Pressures	3.83	1.37	3.71	1.45	0.90 (112)
Task Interdependency	5.22	1.14	5.15	1.10	0.66 (114)
Pressure to Accept Work	3.72	1.71	3.70	1.73	0.15 (113)
Job Insecurity	3.90	2.13	3.79	1.95	0.57 (113)

Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
*p< .05. **p < .01. ***p< .001.

Job Resources

Scale	*31-40 years* *n = 113 to 115*		*Overall Sample* *n = 417 to 421*		
	M	*SD*	*M*	*SD*	*t*
Job Control^	4.35	1.34	4.28	1.36	0.54 (114)

Supervisor Support[#]	5.13	1.20	5.22	1.21	-0.83 (112)
Co-Worker Support[#]	5.20	1.15	5.31	1.11	-1.07 (113)
Change Participation[#]	4.49	1.32	4.56	1.17	-0.54 (113)
Procedural Justice[#]	4.93	1.15	4.85	1.08	0.72 (113)
Praise and Recognition[#]	4.95	1.27	4.94	1.35	0.04 (114)

[^] Range: 1 (Never) to 7 (Always)
[#]Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
*p< .05. **p < .01. ***p< .001.

Employee Health Outcomes

Scale	*31-40 years* *n = 112 to 113*		*Overall Sample* *n = 407 to 411*		
	M	*SD*	*M*	*SD*	*t*
Psychological Well-Being	5.14	0.86	5.20	0.87	-0.69 (112)
Musculoskeletal Problems	2.57	1.33	2.49	1.33	0.66 (111)
Cardiovascular Problems	1.95	0.80	2.06	0.89	-1.47 (112)
Sleep Problems	3.27	1.22	3.23	1.17	0.31 (111)
Headaches	2.43	1.16	2.44	1.21	-0.10 (111)
Gastrointestinal Problems	2.04	1.07	2.06	1.10	-0.17 (111)

Range: 1 (Never) to 7 (Always)
*p< .05. **p < .01. ***p< .001.

Employee Job Outcomes

Scale	*31-40 years* *n = 111 to 114*		*Overall Sample* *n = 410 to 414*		
	M	*SD*	*M*	*SD*	*t*
Job Satisfaction[#]	5.24	1.34	5.34	1.34	-0.76 (110)
Work-Home Conflict[#]	4.31	1.66	4.26	1.61	0.34 (113)
Workers' Compensation Intentions[^]	1.38	0.97	1.36	0.91	0.23 (112)
Sick Leave Intentions[^]	1.58	1.06	1.62	1.18	-0.45 (112)
Seek Medical Advice Intentions[^]	1.65	1.29	1.66	1.29	-0.12 (112)
Change Jobs Internally Intentions[^]	1.68	1.30	1.69	1.30	-0.07 (112)
Turnover Intentions[^]	1.78	1.39	1.79	1.39	-0.09 (112)

[#]Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
[^]Range: 1 (Extremely Unlikely) to 7 (Extremely Likely)
*p< .05. **p < .01. ***p< .001.

6.3 Age Category: 41-50 years

Job Demands

Scale	*41-50 years n = 59 to 61*		*Overall Sample n = 415 to 429*		
	M	*SD*	*M*	*SD*	*t*
Role Overload	3.54	1.40	3.32	1.31	1.23 (59)
Cognitive Demand	5.46	1.39	5.25	1.30	1.14 (59)
Emotional Demand	3.06	1.35	2.90	1.30	0.89 (58)
Role Ambiguity	2.00	1.09	1.93	0.88	0.53 (59)
Role Conflict	3.19	1.35	3.20	1.25	-0.07 (59)
Supervisor Task Conflict	2.52	1.06	2.41	1.08	0.84 (60)
Supervisor Relationship Conflict	1.81	0.88	1.86	1.01	-0.47 (60)
Group Task Conflict	3.02	1.17	3.07	1.08	-0.33 (60)
Group Relationship Conflict	2.86	1.30	2.89	1.27	-0.19 (59)

Range: 1 (never) to 7 (always)
*p< .05. **p < .01. ***p< .001.

Construction-Specific Job Demands

Scale	*41-50 years n = 58 to 60*		*Overall Sample n = 408 to 419*		
	M	*SD*	*M*	*SD*	*t*
Contract Pressures	4.32	1.54	3.71	1.45	3.03 (57)**
Task Interdependency	5.20	1.01	5.15	1.10	0.36 (59)
Pressure to Accept Work	3.74	1.62	3.70	1.73	0.20 (59)
Job Insecurity	4.03	1.89	3.79	1.95	1.00 (59)

Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
*p< .05. **p < .01. ***p< .001.

<u>Contract Pressures</u>: mean (4.32) for "41 -50 years" significantly higher than mean (3.71) for overall sample.

Job Resources

Scale	*41-50 years n = 60*		*Overall Sample n = 417 to 421*		
	M	*SD*	*M*	*SD*	*t*
Job Control^	4.36	1.37	4.28	1.36	0.43 (59)
Supervisor Support#	5.07	1.26	5.22	1.21	-0.92 (59)
Co-Worker Support#	5.13	1.14	5.31	1.11	-1.20 (59)

Change Participation[#]	4.49	1.09	4.56	1.17	-0.49 (59)
Procedural Justice[#]	4.80	1.01	4.85	1.08	-0.39 (59)
Praise and Recognition[#]	4.89	1.10	4.94	1.35	-0.32 (59)

^ Range: 1 (Never) to 7 (Always)
[#]Range: 1 (Strongly Disagree) to 7 (Strongly Agree)*p< .05. **p < .01. ***p< .001.

Employee Health Outcomes

Scale	*41-50 years n = 57 to 60*		*Overall Sample n = 407 to 411*		
	M	*SD*	*M*	*SD*	*t*
Psychological Well-Being	5.23	0.86	5.20	0.87	0.28 (57)
Musculoskeletal Problems	2.29	1.15	2.49	1.33	-1.28 (56)
Cardiovascular Problems	1.89	0.72	2.06	0.89	-1.82 (58)
Sleep Problems	3.30	1.09	3.23	1.17	0.50 (59)
Headaches	2.42	1.34	2.44	1.21	-0.10 (59)
Gastrointestinal Problems	1.99	1.11	2.06	1.10	-0.50 (59)

Range: 1 (Never) to 7 (Always)
*p< .05. **p < .01. ***p< .001.

Employee Job Outcomes

Scale	*41-50 years n = 60*		*Overall Sample n = 410 to 414*		
	M	*SD*	*M*	*SD*	*t*
Job Satisfaction[#]	5.24	1.40	5.34	1.34	-0.53 (59)
Work-Home Conflict[#]	4.28	1.72	4.26	1.61	0.11 (59)
Workers' Compensation Intentions[^]	1.35	1.10	1.36	0.91	-0.07 (59)
Sick Leave Intentions[^]	1.57	1.27	1.62	1.18	-0.33 (59)
Seek Medical Advice Intentions[^]	1.63	1.45	1.66	1.29	-0.14 (59)
Change Jobs Internally Intentions[^]	1.77	1.50	1.69	1.30	0.40 (59)
Turnover Intentions[^]	1.80	1.47	1.79	1.39	0.05 (59)

[#]Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
[^]Range: 1 (Extremely Unlikely) to 7 (Extremely Likely)
*p< .05. **p < .01. ***p< .001.

6.4 Age Category: Over 50 years

Job Demands

Scale	*Over 50 years n = 49 to 53*		*Overall Sample n = 415 to 429*		
	M	*SD*	*M*	*SD*	*t*
Role Overload	3.15	1.41	3.32	1.31	-0.85 (48)
Cognitive Demand	5.41	1.33	5.25	1.30	0.87 (51)
Emotional Demand	3.03	1.41	2.90	1.30	0.65 (52)
Role Ambiguity	1.52	0.67	1.93	0.88	-4.40 (50)***
Role Conflict	3.25	1.38	3.20	1.25	0.29 (50)
Supervisor Task Conflict	2.61	1.51	2.41	1.08	0.94 (51)
Supervisor Relationship Conflict	2.09	1.58	1.86	1.01	1.05 (51)
Group Task Conflict	2.93	1.18	3.07	1.08	-0.84 (51)
Group Relationship Conflict	2.88	1.31	2.89	1.27	-0.08 (51)

Range: 1 (never) to 7 (always)
*p< .05. **p < .01. ***p< .001.

Role Ambiguity: mean (1.52) for "over 50 years" significantly lower than mean (1.93) for overall sample.

Construction-Specific Job Demands

Scale	*Over 50 years n = 49 to 51*		*Overall Sample n = 408 to 419*		
	M	*SD*	*M*	*SD*	*t*
Contract Pressures	3.83	1.78	3.71	1.45	0.47 (48)
Task Interdependency	5.27	1.16	5.15	1.10	0.77 (50)
Pressure to Accept Work	3.82	1.87	3.70	1.73	0.47 (50)
Job Insecurity	3.96	1.89	3.79	1.95	0.65 (50)

Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
*p< .05. **p < .01. ***p< .001.

Job Resources

Scale	*Over 50 years n = 51 to 53*		*Overall Sample n = 417 to 421*		
	M	*SD*	*M*	*SD*	*t*
Job Control^	4.45	1.58	4.28	1.36	0.77 (50)
Supervisor Support#	5.01	1.60	5.22	1.21	-0.93 (51)
Co-Worker Support#	5.35	1.34	5.31	1.11	0.21 (52)

Change Participation[#]	4.60	1.17	4.56	1.17	0.24 (52)
Procedural Justice[#]	4.98	1.12	4.85	1.08	0.84 (51)
Praise and Recognition[#]	4.72	1.70	4.94	1.35	-0.96 (520

[^]Range: 1 (Never) to 7 (Always)
[#]Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
*p< .05. **p < .01. ***p< .001.

Employee Health Outcomes

Scale	*Over 50 years n = 49 to 52*		*Overall Sample n = 407 to 411*		
	M	*SD*	*M*	*SD*	*t*
Psychological Well-Being	5.35	0.89	5.20	0.87	1.17 (49)
Musculoskeletal Problems	2.88	1.57	2.49	1.33	1.77 (51)
Cardiovascular Problems	2.09	1.04	2.06	0.89	0.21 (50)
Sleep Problems	3.07	1.02	3.23	1.17	-1.12 (48)
Headaches	2.29	1.29	2.44	1.21	-0.83 (48)
Gastrointestinal Problems	2.10	1.15	2.06	1.10	0.25 (49)

Range: 1 (Never) to 7 (Always)
*p< .05. **p < .01. ***p< .001.

Employee Job Outcomes

Scale	*Over 50 years n = 50 to 53*		*Overall Sample n = 410 to 414*		
	M	*SD*	*M*	*SD*	*t*
Job Satisfaction[#]	5.30	1.51	5.34	1.34	-0.18 (52)
Work-Home Conflict[#]	3.99	1.75	4.26	1.61	-0.12 (51)
Workers' Compensation Intentions[^]	1.38	0.95	1.36	0.91	0.15 (49)
Sick Leave Intentions[^]	1.62	1.28	1.62	1.18	0.00 (49)
Seek Medical Advice Intentions[^]	1.68	1.33	1.66	1.29	0.11 (49)
Change Jobs Internally Intentions[^]	1.76	1.39	1.69	1.30	0.36 (49)
Turnover Intentions[^]	1.84	1.61	1.79	1.39	0.22 (49)

[#]Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
[^] Range: 1 (Extremely Unlikely) to 7 (Extremely Likely)
*p< .05. **p < .01. ***p< .001.

6.5 Differences Among Age Categories

Job Demands

	21-30 years *n* =157	31-40 years *n* = 107	41-50 years *n* = 55	Over 50 years *n* = 45	*F* (*df*)
Role Overload	3.31	3.47	3.54	3.15	4.228 (4, 375)**
Cognitive Demand	5.17	5.34	5.46	5.41	3.601 (4, 375)**
Emotional Demand	2.66	3.18	3.06	3.03	4.990 (4, 375)***
Role Ambiguity	2.02	1.93	2.00	1.52	3.348 (4, 375)**
Role Conflict	3.15	3.31	3.19	3.25	0.817 (4, 375)
Supervisor Task Conflict	2.33	2.44	2.52	2.61	1.576 (4, 375)
Supervisor Relationship Conflict	1.72	1.96	1.81	2.09	1.266 (4, 375)
Group Task Conflict	3.01	3.30	3.02	2.93	2.492 (4, 375)*
Group Relationship Conflict	2.91	2.89	2.86	2.88	0.006 (4, 375)

*$p < .05$. **$p < .01$. ***$p < .001$.

F (36,1377) = 2.185, $p < .001$.

Post Hoc Tests:

Role Overload: follow up tests revealed no significant differences among age categories.

Cognitive Demand: follow up tests revealed no significant differences among age categories.

Emotional Demand: mean (2.66) for “21-30 years” significantly lower than mean (3.18) for “31-40 years” (p = .012).

Role Ambiguity: mean (1.52) for “over 50 years” significantly lower than means for “21-30 years” (M = 2.02; p = .007) and “41-50 years” (M = 2.00; p = .022).

Group Task Conflict: follow up tests revealed no significant differences among age categories.

Construction-Specific Job Demands

	21-30 years *n* = 162	31-40 years *n* = 113	41-50 years *n* = 58	Over 50 years *n* = 48	*F* (*df*)
Contract Pressures	3.52	3.83	4.32	3.83	7.565 (4, 394)***
Task Interdependency	5.14	5.22	5.20	5.27	2.274 (4, 394)
Pressure to Accept Work	3.69	3.72	3.74	3.82	0.905(4, 394)
Job Insecurity	3.64	3.90	4.03	3.96	0.313 (4, 394)

*$p < .05$. **$p < .01$. ***$p < .001$.

F (16,1195) = 2.657, $p < .001$.

Post Hoc Tests:

Contract Pressures: mean (3.52) for "21-30 years" significantly lower than mean (4.32) for "41-50 years" (p = .002).

Job Resources

	21-30 years *n* =158	31-40 years *n* = 111	41-50 years *n* = 57	Over 50 years *n* = 49	*F* (*df*)
Job Control	4.23	4.35	4.36	4.45	1.104 (4, 388)
Supervisor Support	5.39	5.13	5.07	5.01	2.316 (4, 388)
Co-Worker Support	5.44	5.20	5.13	5.35	2.059 (4, 388)
Change Participation	4.57	4.49	4.49	4.60	1.081 (4, 388)
Procedural Justice	4.87	4.93	4.80	4.98	1.317 (4, 388)
Praise and Recognition	5.04	4.95	4.89	4.72	1.122 (4, 388)

*$p < .05$. **$p < .01$. ***$p < .001$.

F (24,1337) = 1.968, $p < .001$.

There were no significant differences in means across age categories for each of the job resource variables.

Employee Health Outcomes

	21-30 years *n* = 157	31-40 years *n* = 106	41-50 years *n* = 54	Over 50 years *n* = 43	*F* (*df*)
Psychological Well-Being	5.21	5.14	5.23	5.35	0.591 (4, 373)
Musculoskeletal Problems	2.39	2.57	2.29	2.88	1.536 (4, 373)
Cardiovascular Problems	2.13	1.95	1.89	2.09	1.432 (4, 373)
Sleep Problems	3.19	3.27	3.30	3.07	0.656 (4, 373)
Headaches	2.47	2.43	2.42	2.29	0.768 (4, 373)
Gastrointestinal Problems	2.06	2.04	1.99	2.10	0.202 (4, 373)

*$p < .05$. **$p < .01$. ***$p < .001$.

F (24,1285) = 1.073, *ns*.

There were no significant differences in means across age categories for each of the employee health outcomes.

Employee Job Outcomes

	21-30 years *n* =162	31-40 years *n* = 110	41-50 years *n* = 60	Over 50 years *n* = 50	*F* (*df*)
Job Satisfaction	5.42	5.24	5.24	5.30	1.304 (4, 395)
Work-Home Conflict	4.33	4.31	4.28	3.99	0.432(4, 395)
Workers' Compensation Intentions	1.29	1.38	1.35	1.38	0.750 (4, 395)
Sick Leave Intentions	1.64	1.58	1.57	1.62	0.264 (4, 395)
Seek Medical Advice Intentions	1.65	1.65	1.63	1.68	0.197 (4, 395)
Change Jobs Internally Intentions	166	1.68	1.77	1.76	0.152 (4, 395)
Turnover Intentions	1.79	1.78	1.80	1.84	0.116 (4, 395)

*$p < .05$. **$p < .01$. ***$p < .001$.

F (28,1403) = 0.707, *ns*.

There were no significant differences in means across age categories for each of the employee job outcomes.

6.6 Summary: Results by Age

Job Demands

- Construction workers in the "21-30 years" age category reported lower means for emotional demand and supervisor relationship conflict than the overall sample.
- Construction workers in the "31-40 years" age category reported higher means for emotional demand and group relationship conflict than the overall sample.
- Construction workers in the "over 50 years" age category reported a lower mean for role ambiguity than the overall sample.
- Construction workers in the "21-30 years" age category reported a higher mean for emotional demand than those in the "31-40 years" category.
- Construction workers in the "over 50 years" category reported lower means for role ambiguity than those in the "21-30 years" and "41-50 years" age categories.

Construction-Specific Job Demands

- Construction workers in the "41-50 years" age category reported a higher mean for contract pressures than the overall sample.
- Construction workers in the "21-30 years" age category reported a lower mean for contract pressures than those in the "41-50 years" category.

Job Resources

- Constructions workers in the "21-30 years" age category reported a higher mean for supervisor support than the overall sample.
- The MANOVAs revealed no significant differences in means across the four age categories for each of the job resource variables.

Employee Health Outcomes

- The t-tests revealed no significant differences between each of the four age categories and the overall sample for the employee health outcomes.
- The MANOVAs revealed no significant differences in means across the four age categories for each of the employee health outcomes.

Employee Job Outcomes

- The t-tests revealed no significant differences between each of the four age categories and the overall sample for the employee job outcomes.
- The MANOVAs revealed no significant differences in means across the four age categories for each of the employee job outcomes.

Section 7 – Job Demands, Job Resources, Employee Outcomes by Site Operatives

Section 7 examines differences in job demands, construction-specific job demands, job resources, and employee (health and job) outcomes by site operatives. Only those categories with a minimum of 20 respondents are included in these breakdown analyses. The results for each site operative (i.e., tradesperson, labourer, foreman, leading hand, professional, project/site manager, other manager) are presented below.

First, the mean for each site operative is compared to the overall sample and statistical significance for the mean difference is tested via t-tests (see Sections 7.1 to 7.7). Second, the occupations are compared among each other for each set of variables (see Section 7.8), with statistical significance tested via multivariate analyses of variance (MANOVAs).

7.1 Site Operative: Tradesperson

Job Demands

Scale	*Tradesperson n = 81 to 85*		*Overall Sample n = 415 to 429*		
	M	*SD*	*M*	*SD*	*t*
Role Overload	3.04	1.18	3.32	1.31	-2.14 (80)*
Cognitive Demand	4.91	1.22	5.25	1.30	-2.56 (83)*
Emotional Demand	2.68	1.18	2.90	1.30	-1.72 (83)
Role Ambiguity	1.71	0.77	1.93	0.88	-2.69 (84)**
Role Conflict	2.96	1.20	3.20	1.25	-1.80 (81)
Supervisor Task Conflict	2.30	1.08	2.41	1.08	-0.9 (84)
Supervisor Relationship Conflict	1.84	1.24	1.86	1.01	-0.12 (84)
Group Task Conflict	3.15	1.42	3.07	1.08	0.59 (84)
Group Relationship Conflict	2.96	1.36	2.89	1.27	0.45 (84)

Range: 1 (never) to 7 (always)
*p< .05. **p < .01. ***p< .001.

Role Overload: mean (3.04) for "tradesperson" significantly lower than mean (3.32) for overall sample.
Cognitive Demand: mean (4.91) for "tradesperson" significantly lower than mean (5.25) for overall sample.
Role Ambiguity: mean (1.71) for "tradesperson" significantly lower than mean (1.93) for overall sample.

Construction-Specific Job Demands

Scale	*Tradesperson n = 82 to 86*		*Overall Sample n = 408 to 419*		
	M	*SD*	*M*	*SD*	*t*
Contract Pressures	4.01	1.39	3.71	1.45	1.98 (81)
Task Interdependency	4.98	0.98	5.15	1.10	-1.61 (85)
Pressure to Accept Work	3.85	1.72	3.70	1.73	0.80 (85)
Job Insecurity	4.51	1.71	3.79	1.95	3.92 (85)***

Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
*p< .05. **p < .01. ***p< .001.

Job Insecurity: mean (4.51) for "tradesperson" significantly higher than mean (3.79) for overall sample.

Job Resources

Scale	*Tradesperson* *n = 84 to 85*		*Overall Sample* *n = 417 to 421*		
	M	*SD*	*M*	*SD*	*t*
Job Control^	3.98	1.36	4.28	1.36	-1.99 (93)*
Supervisor Support#	5.17	1.24	5.22	1.21	-0.35 (83)
Co-Worker Support#	5.22	1.23	5.31	1.11	-0.67 (84)
Change Participation#	4.65	1.24	4.56	1.17	0.68 (83)
Procedural Justice#	4.64	1.05	4.85	1.08	-1.89 (84)
Praise and Recognition#	4.78	1.50	4.94	1.35	-1.01 (84)

^ Range: 1 (Never) to 7 (Always)
#Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
*p< .05. **p < .01. ***p< .001.

Job Control: mean (3.98) for "tradesperson" significantly lower than mean (4.28) for overall sample.

Employee Health Outcomes

Scale	*Tradesperson* *n = 83 to 86*		*Overall Sample* *n = 407 to 411*		
	M	*SD*	*M*	*SD*	*t*
Psychological Well-Being	5.21	0.95	5.20	0.87	0.10 (82)
Musculoskeletal Problems	2.58	1.36	2.49	1.33	0.62 (84)
Cardiovascular Problems	2.22	0.89	2.06	0.89	1.69 (83)
Sleep Problems	3.08	0.94	3.23	1.17	-0.61 (85)
Headaches	2.36	1.07	2.44	1.21	-0.72 (84)
Gastrointestinal Problems	2.03	1.08	2.06	1.10	-0.26 (84)

Range: 1 (Never) to 7 (Always)
*p< .05. **p < .01. ***p< .001.

Employee Job Outcomes

Scale	*Tradesperson* *n = 86*		*Overall Sample* *n = 410 to 414*		
	M	*SD*	*M*	*SD*	*t*
Job Satisfaction#	5.35	1.33	5.34	1.34	0.04 (85)
Work-Home Conflict#	3.78	1.67	4.26	1.61	-2.69 (85)**
Workers' Compensation Intentions^	1.51	0.96	1.36	0.91	1.47 (85)
Sick Leave Intentions^	1.66	1.16	1.62	1.18	0.34 (85)
Seek Medical Advice Intentions^	1.73	1.17	1.66	1.29	0.57 (85)
Change Jobs Internally Intentions^	1.76	1.19	1.69	1.30	0.51 (85)

Turnover Intentions^	1.70	1.12	1.79	1.39	-0.77 (85)

#Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
^Range: 1 (Extremely Unlikely) to 7 (Extremely Likely)
*p< .05. **p < .01. ***p< .001.

Work-Home Conflict: mean (3.78) for "tradesperson" significantly lower than mean (4.26) for overall sample.

7.2 Site Operative: Labourer

Job Demands

Scale	*Labourer* *n =80 to 83*		*Overall Sample* *n = 415 to 429*		
	M	*SD*	*M*	*SD*	*t*
Role Overload	2.81	1.17	3.32	1.31	-3.94 (80)***
Cognitive Demand	4.77	1.40	5.25	1.30	-3.09 (80)**
Emotional Demand	2.39	1.26	2.90	1.30	-3.71 (91)***
Role Ambiguity	1.88	0.97	1.93	0.88	-0.42 (79)
Role Conflict	2.82	1.21	3.20	1.25	-2.85 (81)**
Supervisor Task Conflict	2.06	1.05	2.41	1.08	-3.01 (82)**
Supervisor Relationship Conflict	1.73	1.01	1.86	1.01	-1.21 (82)
Group Task Conflict	2.82	1.12	3.07	1.08	-2.02 (82)*
Group Relationship Conflict	2.87	1.34	2.89	1.27	-0.12 (81)

Range: 1 (never) to 7 (always)
*p< .05. **p < .01. ***p< .001.

Role Overload: mean (2.81) for "labourer" significantly lower than mean (3.32) for overall sample.
Cognitive Demand: mean (4.77) for "labourer" significantly lower than mean (5.25) for overall sample.
Emotional Demand: mean (2.39) for "labourer" significantly lower than mean (2.90) for overall sample.
Role Conflict: mean (2.82) for "labourer" significantly lower than mean (3.20) for overall sample.
Supervisor Task Conflict: mean (2.06) for "labourer" significantly lower than mean (1.86) for overall sample.
Group Task Conflict: mean (2.82) for "labourer" significantly lower than mean (2.89) for overall sample.

Construction-Specific Job Demands

Scale	*Labourer* *n = 81 to 82*		*Overall Sample* *n = 408 to 419*		
	M	*SD*	*M*	*SD*	*t*
Contract Pressures	3.51	1.34	3.71	1.45	-1.35 (80)
Task Interdependency	4.52	1.00	5.15	1.10	-5.74 (81)***
Pressure to Accept Work	3.75	1.72	3.70	1.73	0.28 (80)
Job Insecurity	4.90	1.69	3.79	1.95	5.93 (80)***

Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
*p< .05. **p < .01. ***p< .001.

Task Interdependency: mean (4.52) for "labourer" significantly lower than mean (5.15) for overall sample.

Job Resources

Scale	*Labourer* *n =81 to 83*		*Overall Sample* *n = 417 to 421*		
	M	*SD*	*M*	*SD*	*t*
Job Control^	3.57	1.41	4.28	1.36	-4.55 (82)***
Supervisor Support#	5.16	1.28	5.22	1.21	-0.42 (80)
Co-Worker Support#	5.29	1.32	5.31	1.11	-0.16 (80)
Change Participation#	4.51	1.21	4.56	1.17	-0.36 (82)
Procedural Justice#	4.73	1.09	4.85	1.08	-1.00 (80)
Praise and Recognition#	4.77	1.46	4.94	1.35	-1.04 (81)

^Range: 1 (Never) to 7 (Always)
#Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
*p< .05. **p < .01. ***p< .001.

Job Control: mean (3.57) for "labourer" significantly lower than mean (4.28) for overall sample.

Employee Health Outcomes

Scale	*Labourer* *n =78 to 81*		*Overall Sample* *n = 407 to 411*		
	M	*SD*	*M*	*SD*	*t*
Psychological Well-Being	5.29	0.87	5.20	0.87	0.87 (78)
Musculoskeletal Problems	2.29	1.27	2.49	1.33	-1.38 (77)
Cardiovascular Problems	2.15	0.98	2.06	0.89	0.80 (80)
Sleep Problems	3.14	0.99	3.23	1.17	-0.40 (79)
Headaches	2.34	1.23	2.44	1.21	-0.72 (80)
Gastrointestinal Problems	2.06	1.03	2.06	1.10	0.02 (80)

Range: 1 (Never) to 7 (Always)
*p< .05. **p < .01. ***p< .001.

Employee Job Outcomes

Scale	*Labourer* *n = 80 to 81*		*Overall Sample* *n = 410 to 414*		
	M	*SD*	*M*	*SD*	*t*
Job Satisfaction#	5.39	1.50	5.34	1.34	0.31 (79)
Work-Home Conflict#	3.89	1.54	4.26	1.61	-2.17 (80)*
Workers' Compensation Intentions^	1.53	1.15	1.36	0.91	1.34 (80)
Sick Leave Intentions^	1.70	1.32	1.62	1.18	0.57 (80)
Seek Medical Advice Intentions^	1.90	1.66	1.66	1.29	1.31 (80)

Change Jobs Internally Intentions^	1.91	1.52	1.69	1.30	1.33 (80)
Turnover Intentions^	1.99	1.64	1.79	1.39	1.09 (80)

#Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
^Range: 1 (Extremely Unlikely) to 7 (Extremely Likely)
*p< .05. **p < .01. ***p< .001.

Work-Home Conflict: mean (3.89) for "labourer" significantly lower than mean (4.26) for overall sample.

7.3 Site Operative: Foreman

Job Demands

Scale	*Foreman* *n = 23 to 24*		*Overall Sample* *n = 415 to 429*		
	M	*SD*	*M*	*SD*	*t*
Role Overload	3.97	1.13	3.32	1.31	2.82 923)**
Cognitive Demand	5.94	1.06	5.25	1.30	3.14 (22)**
Emotional Demand	3.08	1.24	2.90	1.30	0.72 (23)
Role Ambiguity	1.94	0.91	1.93	0.88	0.04 (23)
Role Conflict	3.46	1.08	3.20	1.25	1.14 (22)
Supervisor Task Conflict	2.55	0.99	2.41	1.08	0.70 (23)
Supervisor Relationship Conflict	1.80	0.88	1.86	1.01	-0.30 (22)
Group Task Conflict	3.26	0.84	3.07	1.08	1.11 (23)
Group Relationship Conflict	3.25	1.29	2.89	1.27	1.34 (22)

Range: 1 (never) to 7 (always)
*p< .05. **p < .01. ***p< .001.

Role Overload: mean (3.97) for "foreman" significantly higher than mean (3.32) for overall sample.
Cognitive Demand: mean (5.94) for "foreman" significantly higher than mean (5.25) for overall sample.

Construction-Specific Job Demands

Scale	*Foreman* *n = 23 to 24*		*Overall Sample* *n = 408 to 419*		
	M	*SD*	*M*	*SD*	*t*
Contract Pressures	4.24	1.56	3.71	1.45	1.65 (23)
Task Interdependency	5.19	1.29	5.15	1.10	0.14 (22)
Pressure to Accept Work	3.96	1.93	3.70	1.73	0.66 (23)
Job Insecurity	3.29	1.73	3.79	1.95	-1.41 (23)

Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
*p< .05. **p < .01. ***p< .001.

Job Resources

Scale	*Foreman* *n =23 to 24*		*Overall Sample* *n = 417 to 421*		
	M	*SD*	*M*	*SD*	*t*
Job Control^	4.64	1.26	4.28	1.36	1.39 (23)
Supervisor Support#	5.30	1.50	5.22	1.21	0.27 (22)
Co-Worker Support#	5.04	1.30	5.31	1.11	-1.01 (23)

Change Participation[#]	4.61	1.02	4.56	1.17	0.23 (22)
Procedural Justice[#]	5.20	0.99	4.85	1.08	1.72 (23)
Praise and Recognition[#]	4.78	1.17	4.94	1.35	-0.68 (23)

[^]Range: 1 (Never) to 7 (Always)
*Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
*p< .05. **p < .01. ***p< .001.

Employee Health Outcomes

Scale	*Foreman* *n =21 to 24*		*Overall Sample* *n = 407 to 411*		
	M	*SD*	*M*	*SD*	*t*
Psychological Well-Being	5.26	0.93	5.20	0.87	0.34 (23)
Musculoskeletal Problems	2.98	1.58	2.49	1.33	1.42 (20)
Cardiovascular Problems	2.11	1.02	2.06	0.89	0.24 (23)
Sleep Problems	3.24	0.76	3.23	1.17	0.12 (22)
Headaches	2.90	1.30	2.44	1.21	1.69 (22)
Gastrointestinal Problems	2.17	1.34	2.06	1.10	0.41 (22)

Range: 1 (Never) to 7 (Always)
*p< .05. **p < .01. ***p< .001.

Employee Job Outcomes

Scale	*Foreman* *n = 23 to 24*		*Overall Sample* *n = 410 to 414*		
	M	*SD*	*M*	*SD*	*t*
Job Satisfaction[#]	5.25	1.37	5.34	1.34	-0.32 (23)
Work-Home Conflict[#]	4.93	1.61	4.26	1.61	2.05 (23)*
Workers' Compensation Intentions[^]	1.39	1.12	1.36	0.91	0.13 (22)
Sick Leave Intentions[^]	1.48	1.08	1.62	1.18	-0.63 (22)
Seek Medical Advice Intentions[^]	1.52	1.12	1.66	1.29	-0.59 (22)
Change Jobs Internally Intentions[^]	1.65	1.23	1.69	1.30	-0.15 (22)
Turnover Intentions[^]	1.61	1.20	1.79	1.39	-0.73 (22)

[#]Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
[^]Range: 1 (Extremely Unlikely) to 7 (Extremely Likely)
*p< .05. **p < .01. ***p< .001.

Work-Home Conflict: mean (4.93) for "foreman" significantly higher than mean (4.26) for overall sample.

7.4 Site Operative: Leading Hand

Job Demands

Scale	*Leading Hand n = 33 to 34*		*Overall Sample n = 415 to 429*		
	M	*SD*	*M*	*SD*	*t*
Role Overload	3.08	1.08	3.32	1.31	-1.29 (33)
Cognitive Demand	5.74	1.35	5.25	1.30	2.10 (33)*
Emotional Demand	3.24	1.25	2.90	1.30	1.57 (33)
Role Ambiguity	1.68	0.80	1.93	0.88	-1.86 (33)
Role Conflict	3.29	1.51	3.20	1.25	0.33 (33)
Supervisor Task Conflict	2.76	1.30	2.41	1.08	1.60 (33)
Supervisor Relationship Conflict	1.96	1.22	1.86	1.01	0.49 (33)
Group Task Conflict	2.98	1.03	3.07	1.08	-0.52 (33)
Group Relationship Conflict	2.93	1.31	2.89	1.27	0.18 (32)

Range: 1 (never) to 7 (always)
*p< .05. **p < .01. ***p< .001.

Cognitive Demand: mean (5.74) for "leading hand" significantly higher than mean (5.25) for overall sample.

Construction-Specific Job Demands

Scale	*Leading Hand n = 34*		*Overall Sample n = 408 to 419*		
	M	*SD*	*M*	*SD*	*t*
Contract Pressures	3.73	1.66	3.71	1.45	0.06 (33)
Task Interdependency	5.53	0.87	5.15	1.10	2.54 (33)*
Pressure to Accept Work	3.82	1.81	3.70	1.73	0.40 (33)
Job Insecurity	4.03	1.93	3.79	1.95	0.72 (33)

Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
*p< .05. **p < .01. ***p< .001.

Task Interdependency: Mean (5.53) for "leading hand" significantly higher than mean (5.15) for overall sample.

Job Resources

Scale	*Leading Hand n = 33 to 34*		*Overall Sample n = 417 to 421*		
	M	*SD*	*M*	*SD*	*t*
Job Control^	4.55	1.36	4.28	1.36	1.12 (32)
Supervisor Support[#]	5.48	1.18	5.22	1.21	1.27 (33)

Co-Worker Support[#]	5.79	0.84	5.31	1.11	3.31 (33)**
Change Participation[#]	4.84	1.22	4.56	1.17	1.33 (33)
Procedural Justice[#]	5.07	1.22	4.85	1.08	1.04 (33)
Praise and Recognition[#]	5.12	1.45	4.94	1.35	0.71 (33)

^Range: 1 (Never) to 7 (Always)
[#]Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
*p< .05. **p < .01. ***p< .001.

Co-Worker Support: mean (5.79) for "leading hand" significantly higher than mean (5.31) for overall sample.

Employee Health Outcomes

Scale	*Leading Hand n = 33 to 34*		*Overall Sample n = 407 to 411*		
	M	*SD*	*M*	*SD*	*t*
Psychological Well-Being	5.49	0.79	5.20	0.87	2.11 (33)*
Musculoskeletal Problems	2.46	1.33	2.49	1.33	-0.11 (33)
Cardiovascular Problems	2.01	0.95	2.06	0.89	-0.30 (32)
Sleep Problems	3.16	0.72	3.23	1.17	0.45 (32)
Headaches	2.40	1.03	2.44	1.21	-0.22 (33)
Gastrointestinal Problems	2.07	1.00	2.06	1.10	0.08 (33)

Range: 1 (Never) to 7 (Always)
*p< .05. **p < .01. ***p< .001.

Psychological Well-Being: mean (5.49) for "Leading Hand" significantly higher than mean (5.20) for overall sample.

Employee Job Outcomes

Scale	*Leading Hand n = 33 to 34*		*Overall Sample n = 410 to 414*		
	M	*SD*	*M*	*SD*	*t*
Job Satisfaction[#]	5.39	1.63	5.34	1.34	0.19 (32)
Work-Home Conflict[#]	4.57	1.80	4.26	1.61	0.99 (33)
Workers' Compensation Intentions^	1.12	0.54	1.36	0.91	-2.63 (33)*
Sick Leave Intentions^	1.56	1.11	1.62	1.18	-0.32 (33)
Seek Medical Advice Intentions^	1.44	1.05	1.66	1.29	-1.22 (33)
Change Jobs Internally Intentions^	1.65	1.39	1.69	1.30	-0.18 (33)
Turnover Intentions^	1.76	1.26	1.79	1.39	-0.12 (33)

[#]Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
^ Range: 1 (Extremely Unlikely) to 7 (Extremely Likely)
*p< .05. **p < .01. ***p< .001.

Workers' Compensation Claims: mean (1.12) for "leading hand" significantly lower than mean (1.36) for overall sample.

7.5 Site Operative: Professional

Job Demands

Scale	*Professional* *n = 76 to 77*		*Overall Sample* *n = 415 to 429*		
	M	*SD*	*M*	*SD*	*t*
Role Overload	3.82	1.19	3.32	1.31	3.72 (76)***
Cognitive Demand	5.39	1.26	5.25	1.30	1.00 (76)
Emotional Demand	3.25	1.21	2.90	1.30	2.48 (75)*
Role Ambiguity	2.26	0.90	1.93	0.88	3.19 (76)**
Role Conflict	3.44	1.04	3.20	1.25	2.06 (76)*
Supervisor Task Conflict	2.48	0.79	2.41	1.08	0.75 (76)
Supervisor Relationship Conflict	1.89	0.77	1.86	1.01	0.34 (76)
Group Task Conflict	3.14	0.78	3.07	1.08	0.82 (76)
Group Relationship Conflict	2.65	1.11	2.89	1.27	-1.87 (76)

Range: 1 (never) to 7 (always)
*p< .05. **p < .01. ***p< .001.

Role Overload: mean (3.82) for "professional" significantly higher than mean (3.32) for overall sample.
Emotional Demand: mean (3.25) for "professional" significantly higher than mean (2.90) for overall sample.
Role Ambiguity: mean (2.26) for "professional" significantly higher than mean (1.93) for overall sample.
Role Conflict: mean (3.44) for "professional" significantly higher than mean (3.20) for overall sample.

Construction-Specific Job Demands

Scale	*Professional* *n =75 to 77*		*Overall Sample* *n = 408 to 419*		
	M	*SD*	*M*	*SD*	*t*
Contract Pressures	3.73	1.46	3.71	1.45	0.11 (75)
Task Interdependency	5.70	0.87	5.15	1.10	5.47 (74)***
Pressure to Accept Work	3.67	1.79	3.70	1.73	-0.15 (76)
Job Insecurity	3.12	1.88	3.79	1.95	-3.15 (76)**

Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
*p< .05. **p < .01. ***p< .001.

Task Interdependency: mean (5.70) for "professional" significantly higher than mean (5.15) for overall sample.
Job Insecurity: mean (3.12) for "professional" significantly lower than mean (3.79) for overall sample.

Job Resources

Scale	*Professional* *n = 76 to 77*		*Overall Sample* *n = 417 to 421*		
	M	*SD*	*M*	*SD*	*t*
Job Control^	4.52	1.12	4.28	1.36	1.91 (76)
Supervisor Support#	5.31	1.06	5.22	1.21	0.71 (76)
Co-Worker Support#	5.26	0.95	5.31	1.11	-0.49 (76)
Change Participation#	4.42	1.00	4.56	1.17	-1.18 (76)
Procedural Justice#	4.89	0.90	4.85	1.08	0.44 (75)
Praise and Recognition#	5.25	1.01	4.94	1.35	2.71 (76)**

^Range: 1 (Never) to 7 (Always)
#Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
*p< .05. **p < .01. ***p< .001.

Praise and Recognition: mean (5.25) for "professional" significantly higher than mean (4.94) for overall sample.

Employee Health Outcomes

Scale	*Professional* *n = 74 to 77*		*Overall Sample* *n = 407 to 411*		
	M	*SD*	*M*	*SD*	*t*
Psychological Well-Being	5.03	0.76	5.20	0.87	-1.95 (73)
Musculoskeletal Problems	2.38	1.29	2.49	1.33	-0.76 (76)
Cardiovascular Problems	2.05	0.83	2.06	0.89	-0.09 (76)
Sleep Problems	3.39	0.85	3.23	1.17	0.55 (74)
Headaches	2.50	1.18	2.44	1.21	0.48 (75)
Gastrointestinal Problems	2.29	1.28	2.06	1.10	1.56 (75)

Range: 1 (Never) to 7 (Always)
*p< .05. **p < .01. ***p< .001.

Employee Job Outcomes

Scale	*Professional* *n = 76 to 77*		*Overall Sample* *n = 410 to 414*		
	M	*SD*	*M*	*SD*	*t*
Job Satisfaction#	5.24	1.20	5.34	1.34	-0.72 (76)
Work-Home Conflict#	4.70	1.50	4.26	1.61	2.59 (76)*
Workers' Compensation Intentions^	1.33	0.86	1.36	0.91	-0.32 975)
Sick Leave Intentions^	1.74	1.31	1.62	1.18	0.78 (75)
Seek Medical Advice Intentions^	1.84	1.44	1.66	1.29	1.10 (75)
Change Jobs Internally Intentions^	1.76	1.46	1.69	1.30	0.44 (75)

Turnover Intentions^	1.91	1.53	1.79	1.39	0.67 (75)

#Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
^Range: 1 (Extremely Unlikely) to 7 (Extremely Likely)
*p< .05. **p < .01. ***p< .001.

Work-Home Conflict: mean (4.70) for "professional" significantly higher than mean (4.26) for overall sample.

7.6 Site Operative: Project/Site Manager

Job Demands

Scale	*Project/Site Manager n = 30 to 31*		*Overall Sample n = 415 to 429*		
	M	*SD*	*M*	*SD*	*T*
Role Overload	4.28	0.95	3.32	1.31	5.49 (29)***
Cognitive Demand	5.96	0.86	5.25	1.30	4.56 (30)***
Emotional Demand	3.82	1.13	2.90	1.30	4.50 (30)***
Role Ambiguity	2.00	0.63	1.93	0.88	0.62 (30)
Role Conflict	3.76	1.20	3.20	1.25	2.59 (30)*
Supervisor Task Conflict	2.85	1.02	2.41	1.08	2.42 (30)*
Supervisor Relationship Conflict	2.03	0.92	1.86	1.01	1.04 (30)
Group Task Conflict	3.32	1.03	3.07	1.08	1.37 (30)
Group Relationship Conflict	2.90	0.90	2.89	1.27	0.03 (30)

Range: 1 (never) to 7 (always)
*p< .05. **p < .01. ***p< .001.

Role Overload: mean (4.28) for "project/site manager" significantly higher than mean (3.32) for overall sample.
Cognitive Demand: mean (5.96) for "project/site manager" significantly higher than mean (5.25) for overall sample.
Emotional Demand: mean (3.82) for "project/site manager" significantly higher than mean (2.90) for overall sample.
Role Conflict: mean (3.76) for "project/site manager" significantly higher than mean (3.20) for overall sample.
Supervisor Task Conflict: mean (2.85) for "project/site manager" significantly higher than mean (2.41) for overall sample.

Construction-Specific Job Demands

Scale	*Project/Site Manager n = 31*		*Overall Sample n = 408 to 419*		
	M	*SD*	*M*	*SD*	*t*
Contract Pressures	4.25	1.23	3.71	1.45	2.43 (30)*
Task Interdependency	5.71	0.97	5.15	1.10	3.22 (30)**
Pressure to Accept Work	4.05	1.70	3.70	1.73	1.14 (30)
Job Insecurity	2.23	1.26	3.79	1.95	-6.93 (30)***

Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
*p< .05. **p < .01. ***p< .001.

Contract Pressures: mean (4.25) for "project/site manager" significantly higher than mean (3.71) for overall sample.
Task Interdependency: mean (5.71) for "project/site manager" significantly higher than mean (5.15) for overall sample.
Job Insecurity: mean (2.23) for "project/site manager" significantly lower than mean (3.79) for overall sample.

Job Resources

Scale	*Project/Site Manager n = 31*		*Overall Sample n = 417 to 421*		
	M	*SD*	*M*	*SD*	*t*
Job Control^	5.13	1.07	4.28	1.36	4.42 (30)***
Supervisor Support#	5.02	1.03	5.22	1.21	-1.11 (30)
Co-Worker Support#	5.34	0.81	5.31	1.11	0.20 (30)
Change Participation#	4.52	1.15	4.56	1.17	-0.17 (30)
Procedural Justice#	5.23	0.99	4.85	1.08	2.11 (30)*
Praise and Recognition#	4.91	1.11	4.94	1.35	-0.13 (30)

^Range: 1 (Never) to 7 (Always)
#Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
*p< .05. **p < .01. ***p< .001.

Job Control: mean (5.13) for "project/site manager" significantly higher than mean (4.28) for overall sample.
Procedural Justice: mean (5.23) for "project/site manager" significantly higher than mean (4.91) for overall sample.

Employee Health Outcomes

Scale	*Project/Site Manager n = 31*		*Overall Sample n = 407 to 411*		
	M	*SD*	*M*	*SD*	*t*
Psychological Well-Being	5.13	0.87	5.20	0.87	-0.46 (30)
Musculoskeletal Problems	2.35	1.18	2.49	1.33	-0.67 (30)
Cardiovascular Problems	1.70	0.56	2.06	0.89	-3.56 (30)***
Sleep Problems	3.23	0.77	3.23	1.17	-0.14 (30)
Headaches	2.43	1.33	2.44	1.21	-0.04 (30)
Gastrointestinal Problems	1.89	1.01	2.06	1.10	-0.96 (30)

Range: 1 (Never) to 7 (Always)
*p< .05. **p < .01. ***p< .001.

Cardiovascular Problems: mean (1.70) for "project/site manager" significantly lower than mean (2.06) for overall sample.

Employee Job Outcomes

Scale	*Project/Site Manager n = 31*		*Overall Sample n = 410 to 414*		
	M	*SD*	*M*	*SD*	*t*
Job Satisfaction[#]	5.20	1.20	5.34	1.34	-0.63 (30)
Work-Home Conflict[#]	4.83	1.10	4.26	1.61	2.85 (30)**
Workers' Compensation Intentions[^]	1.23	0.96	1.36	0.91	-0.78 (30)
Sick Leave Intentions[^]	1.39	0.76	1.62	1.18	-1.71 (30)
Seek Medical Advice Intentions[^]	1.29	0.64	1.66	1.29	-3.20 (30)**
Change Jobs Internally Intentions[^]	1.42	0.92	1.69	1.30	-1.63 (30)
Turnover Intentions[^]	1.58	1.18	1.79	1.39	-0.99 (30)

[#]Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
[^]Range 1 (Extremely Unlikely) to 7 (Extremely Likely)
*p< .05. **p < .01. ***p< .001.

Work-Home Conflict: mean (4.83) for "project/site manager" significantly higher than mean (4.26) for overall sample.
Seek Medical Advice Intentions: mean (1.29) for "project/site manager" significantly lower than mean (1.66) for overall sample.

7.7 Site Operative: Other Manager

Job Demands

Scale	*Other Manager n = 24 to 25*		*Overall Sample n = 415 to 429*		
	M	*SD*	*M*	*SD*	*T*
Role Overload	4.45	1.52	3.32	1.31	3.71 (24)***
Cognitive Demand	5.87	1.27	5.25	1.30	2.43 (24)*
Emotional Demand	3.51	1.29	2.90	1.30	2.33 (23)*
Role Ambiguity	2.27	0.97	1.93	0.88	1.76 (24)
Role Conflict	3.95	1.28	3.20	1.25	2.93 (24)**
Supervisor Task Conflict	3.08	1.14	2.41	1.08	2.94 (24)**
Supervisor Relationship Conflict	2.08	1.10	1.86	1.01	1.00 (24)
Group Task Conflict	3.66	1.11	3.07	1.08	2.65 (24)*
Group Relationship Conflict	3.00	1.06	2.89	1.27	0.51 (23)

Range: 1 (never) to 7 (always)
*p< .05. **p < .01. ***p< .001.

Role Overload: mean (4.45) for "other manager" significantly higher than mean (3.32) for overall sample.
Cognitive Demand: mean (5.87) for "other manager" significantly higher than mean (5.25) for overall sample.
Emotional Demand: mean (3.51) for "other manager" significantly higher than mean (2.90) for overall sample.
Role Conflict: mean (3.95) for "other manager" significantly higher than mean (3.20) for overall sample.
Supervisor Task Conflict: mean (3.08) for "other manager" significantly higher than mean (2.41) for overall sample.
Group Task Conflict: mean (3.66) for "other manager" significantly higher than mean (3.07) for overall sample.

Construction-Specific Job Demands

Scale	*Other Manager n =25*		*Overall Sample n = 408 to 419*		
	M	*SD*	*M*	*SD*	*t*
Contract Pressures	3.99	1.58	3.71	1.45	0.88 (24)
Task Interdependency	5.55	1.24	5.15	1.10	1.62 (24)
Pressure to Accept Work	3.66	1.80	3.70	1.73	-0.11 (24)
Job Insecurity	2.96	2.01	3.79	1.95	-2.07 (24)*

Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
*p< .05. **p < .01. ***p< .001.

Job Insecurity: mean (2.96) for "other manager" significantly lower than mean (3.79) for overall sample.

Job Resources

Scale	*Other Manager n = 24 to 25*		*Overall Sample n = 417 to 421*		
	M	*SD*	*M*	*SD*	*t*
Job Control^	4.84	1.16	4.28	1.36	2.42 (24)*
Supervisor Support#	5.13	1.54	5.22	1.21	-0.29 (24)
Co-Worker Support#	5.23	1.07	5.31	1.11	-0.37 (23)
Change Participation#	4.38	1.36	4.56	1.17	-0.67 (23)
Procedural Justice#	4.79	1.42	4.85	1.08	-0.21 (24)
Praise and Recognition#	4.99	1.39	4.94	1.35	0.16 (23)

^Range: 1 (Never) to 7 (Always)
#Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
*p< .05. **p < .01. ***p< .001.

Job Control: mean (4.84) for "other manager" significantly higher than mean (4.28) for overall sample.

Employee Health Outcomes

Scale	*Other Manager n = 24 to 25*		*Overall Sample n = 407 to 411*		
	M	*SD*	*M*	*SD*	*t*
Psychological Well-Being	5.14	0.88	5.20	0.87	-0.32 (24)
Musculoskeletal Problems	2.31	1.07	2.49	1.33	-0.83 (24)
Cardiovascular Problems	1.82	0.71	2.06	0.89	-1.65 (23)
Sleep Problems	3.51	0.88	3.23	1.17	0.92 (24)
Headaches	2.24	1.26	2.44	1.21	-0.79 (24)
Gastrointestinal Problems	1.72	0.69	2.06	1.10	-2.48 (24)*

Range: 1 (Never) to 7 (Always)
*p< .05. **p < .01. ***p< .0011.

Gastrointestinal Problems: mean (1.72) for "other manager" significantly lower than mean (2.06) for overall sample.

Employee Job Outcomes

Scale	*Other Manager n = 24 to 25*		*Overall Sample n = 410 to 414*		
	M	*SD*	*M*	*SD*	*t*
Job Satisfaction#	5.11	1.30	5.34	1.34	-0.87 (23)
Work-Home Conflict#	4.71	1.66	4.26	1.61	1.36 (24)
Workers' Compensation Intentions^	1.04	0.20	1.36	0.91	-8.00 (24)***

Sick Leave Intentions^	1.36	0.81	1.62	1.18	-1.60 (24)
Seek Medical Advice Intentions^	1.36	0.81	1.66	1.29	-1.85 (24)
Change Jobs Internally Intentions^	1.56	1.26	1.69	1.30	-0.52 (24)
Turnover Intentions^	1.96	1.74	1.79	1.39	0.49 (24)

#Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
^Range: 1 (Extremely Unlikely) to 7 (Extremely Likely)
*p< .05. **p < .01. ***p< .001.

Workers' Compensation Intentions: mean (1.04) for "other manager" significantly lower than mean (1.36) for overall sample.

7.8 Differences Among Site Operatives

Job Demands

	Tradesperson *n* = 75	Labourer *n* = 73	Foreman *n* = 20	Leading Hand *n* = 33	Professional *n* = 76	Project/Site Manager *n* = 30	Other Manager *n* = 24	*F* (*df*)
Role Overload	3.04	2.81	3.97	3.08	3.82	4.28	4.45	13.129 (8, 356)***
Cognitive Demand	4.91	4.77	5.94	5.74	5.39	5.96	5.87	4.667 (8, 356)***
Emotional Demand	2.68	2.39	3.08	3.24	3.25	3.82	3.51	7.244 (8, 356)***
Role Ambiguity	1.71	1.88	1.94	1.68	2.26	2.00	2.27	3.386 (8, 356)***
Role Conflict	2.96	2.82	3.46	3.29	3.44	3.76	3.95	4.765 (8, 356)***
Supervisor Task Conflict	2.30	2.06	2.55	2.76	2.48	2.85	3.08	4.298 (8, 356)***
Supervisor Relationship Conflict	1.84	1.73	1.80	1.96	1.89	2.03	2.08	0.988 (8, 356)
Group Task Conflict	3.15	2.82	3.26	2.98	3.14	3.32	3.66	3.009 (8, 356)**
Group Relationship Conflict	2.96	2.87	3.25	2.93	2.65	2.90	3.00	0.823 (8, 356)

*p< .05. **p < .01. ***p< .001.

F (72, 2124) = 2.226, p < .001.

Post Hoc Tests:

Role Overload: mean (3.04) for Tradesperson significantly lower than means for Foreman (M = 3.97; p = .037), Professional (M = 3.82; p = .003), Project/Site Manager (M = 4.28; p = .000), and Other Manager (M = 4.45; p = .000); mean (2.81) for Labourer significantly lower than means for Foreman (M = 3.97; p = .001), Professional (M = 3.82; p = .000), Project/Site Manager (M = 4.28; p = .000), and Other Manager (M = 4.45; p = .000); mean for Leading Hand (3.08) significantly lower than means for Site/Project Manager (M = 4.28; p = .002) and Other Manager (4.45; p = .000).
Cognitive Demand: mean (4.91) for Tradesperson significantly lower than means for Project/Site Manager (M = 5.96; p = .004) and Other Manager (M = 5.87; p = .036); mean for Labourer (4.77) significantly lower than means for Project/Site Manager (M = 5.96; p = .004) and Other Manager (M = 5.87; p = .036).

Emotional Demand: mean (2.68) for Tradesperson significantly lower than means for Professional (M = 3.25; p = .014), Project/Site Manager (M = 3.82; p = .000), and Other Manager (p = .021); mean for Labourer significantly lower than means for Leading Hand (p = .035), Professional (p = .001), Project/Site Manager (p = .000), and Other Manager (M = 3.51; p = .004).
Role Ambiguity: mean (1.71) for Tradesperson significantly lower than means for Professional (M = 2.26; p = .001), and Other Manager (M = 2.27; p = .030); mean (M = 1.68) for Leading Hand significantly lower than mean for Professional (M = 2.26; p = .039).
Role Conflict: mean (2.96) for Tradesperson significantly lower than mean for Other Manager (M = 3.95; p = .003); mean (2.82) for Labourer significantly lower than means for Professional (M = 3.44; p = .042), Project/Site Manager (M = 3.76; p = .021), and Other Manager (M = 3.95; p = .001).
Supervisor Task Conflict: mean (2.30) for Tradesperson significantly lower than mean for Other Manager (M = 3.08; p = .034); mean (2.06) for Labourer significantly lower than means for Project/Site Manager (M = 2.85; p = .028) and Other Manager (M = 3.08; p = .001).
Group Task Conflict: mean (2.82) for Labourer significantly lower than mean (3.66) for Other Manager (p = .016).

Construction-Specific Job Demands

	Tradesperson *n* = 82	Labourer *n* = 81	Foreman *n* = 23	Leading Hand *n* = 34	Professional *n* = 75	Project/Site Manager *n* = 31	Other Manager *n* = 25	*F* (*df*)
Contract Pressures	4.01	3.51	4.24	3.73	3.73	4.25	3.99	3.222 (8, 377)***
Task Interdependency	4.98	4.52	5.19	5.53	5.70	5.71	5.55	9.311 (8, 377)***
Pressure to Accept Work	3.85	3.75	3.96	3.82	3.67	4.05	3.66	1.108 (8, 377)
Job Insecurity	4.51	4.90	3.29	4.03	3.12	2.23	2.96	11.727 (8, 377)***

*p< .05. **p < .01. ***p< .001.

F (32,1381) = 5.981, p < .001.

Post Hoc Tests:

Contract Pressures: follow up tests revealed no significant differences among site operatives.

Task Interdependency: mean (4.98) for Tradesperson significantly lower than means for Professional (M = 5.70; p = .001) and Project/Site Manager (M = 5.71; p = .025); mean (4.52) for Labourer significantly lower than means for Leading Hand (M = 5.53; p = .000), Professional (M = 5.70; p = .000), Project/Site Manager (M = 5.71; p = .000), and Other Manager (M = 5.55; p = .000).

Job Insecurity: mean (4.51) for Tradesperson significantly higher than means for Professional (M = 3.12; p = .000), Project/Site Manager (M = 2.23; p = .000), and Other Manager (M = 2.96; p = .004); mean (4.90) for Labourer significantly higher than means for Foreman (M = 3.29; p = .007), Professional (M = 3.12; p = .000), Project/Site Manager (M = 2.23; p = .000), Other Manager (M = 2.96; p = .000); mean (4.03) for Leading Hand significantly higher than mean (2.23) for Project/Site Manager (p= .001).

Job Resources

	Tradesperson *n* = 80	Labourer *n* = 78	Foreman *n* = 22	Leading Hand *n* = 33	Professional *n* = 76	Project/Site Manager *n* = 31	Other Manager *n* = 24	*F* (*df*)
Job Control	3.98	3.57	4.64	4.55	4.52	5.13	4.84	8.177 (8,370)**
Supervisor Support	5.17	5.16	5.30	5.48	5.31	5.02	5.13	0.463 (8, 370)
Co-Worker Support	5.22	5.29	5.04	5.79	5.26	5.34	5.23	1.650 (8, 370)
Change Participation	4.65	4.51	4.61	4.84	4.42	4.52	4.38	0.944 (8, 370)
Procedural Justice	4.64	4.73	5.20	5.07	4.89	5.23	4.79	1.573 (8, 370)
Praise and Recognition	4.78	4.77	4.78	5.12	5.25	4.91	4.99	0.919 (8, 370)

*p< .05. **p < .01. ***p< .001.

F (48, 1800) = 2.482, p < .001.

Post Hoc Tests:

Job Control: mean (3.98) for Tradesperson significantly lower than mean (5.13) for Project/Site Manager (p = .000); mean (3.57) for Labourer significantly lower than means for Foreman (M = 4.64; p = .003), Leading Hand (M = 4.55; p = .002), Professional (M = 4.52; p = .000), Project/Site Manager (M = 5.13; p = .000), and Other Manager (M = 4.84; p = .001).

Employee Health Outcomes

	Tradesperson *n* =78	Labourer *n* = 76	Foreman *n* = 20	Leading Hand *n* = 32	Professional *n* =72	Project/Site Manager *n* =31	Other Manager *n* =24	*F* (*df*)
Psychological Well-Being	5.21	5.29	5.26	5.49	5.03	5.13	5.14	1.414 (8, 355)
Musculoskeletal Problems	2.58	2.29	2.98	2.46	2.38	2.35	2.31	2.152 (8, 355)*
Cardiovascular Problems	2.22	2.15	2.11	2.01	2.05	1.70	1.82	2.030 (8, 355)*
Sleep Problems	3.08	3.14	3.24	3.16	3.39	3.23	3.51	0.562 (8, 355)
Headaches	2.36	2.34	2.90	2.40	2.50	2.43	2.24	1.501 (8, 355)
Gastrointestinal Problems	2.03	2.06	2.17	2.07	2.29	1.89	1.72	0.828 (8, 355)

*p< .05. **p < .01. ***p< .001.

F (48, 1726) = 1.659, p < .01.

Post Hoc Tests:

Musculoskeletal Problems: follow up tests revealed no significant differences among site operatives.

Cardiovascular Problems: follow up tests revealed no significant differences among site operatives.

Employee Job Outcomes

	Tradesperson *n* = 86	Labourer *n* = 80	Foreman *n* = 23	Leading Hand *n* = 33	Professional *n* = 76	Project/Site Manager *n* = 31	Other Manager *n* =24	*F* (*df*)
Job Satisfaction	5.35	5.39	5.25	5.39	5.24	5.20	5.11	0.691 (8, 379)
Work-Home Conflict	3.78	3.89	4.93	4.57	4.70	4.83	4.71	4.296 (8, 379)***
Workers' Compensation Intentions	1.51	1.53	1.39	1.12	1.33	1.23	1.04	1.488 (8, 379)
Sick Leave Intentions	1.66	1.70	1.48	1.56	1.74	1.39	1.36	0.622 (8, 379)
Seek Medical Advice Intentions	1.73	1.90	1.52	1.44	1.84	1.29	1.36	1.045 (8, 379)
Change Jobs Internally Intentions	1.76	1.91	1.65	1.65	1.76	1.42	1.56	0.611 (8, 379)
Turnover Intentions	1.70	1.99	1.61	1.76	1.91	1.58	1.96	0.653 (8, 379)

*p< .05. **p < .01. ***p< .001.

F (56,2014) = 1.643, $p < .01$.

Post Hoc Tests:

Work-Home Conflict: mean (3.78) for Tradesperson significantly lower than means for Foreman (M = 4.93; p = .039), Professional (M = 4.70; p = .004), and Project/Site Manager (M = 4.83; p = .040); mean (3.89) for Labourer significantly lower than mean (4.70) for Professional (p = .022).

7.9 Summary: Results by Site Operatives

Job Demands

- Tradespeople reported lower means for role overload, cognitive demand, and role ambiguity than the overall sample.
- Labourers reported lower means for role overload, cognitive demand, emotional demand, role conflict, supervisor task conflict, and group task conflict than the overall sample.
- Foremen reported higher means for role overload and cognitive demand than the overall sample.
- Leading Hands reported a higher mean for cognitive demand than the overall sample.
- Professionals reported higher means for role overload, emotional demand, role ambiguity, and role conflict than the overall sample.
- Project/Site Managers reported higher means for role overload, cognitive demand, emotional demand, role conflict, and supervisor task conflict than the overall sample.
- Other Managers reported higher means for role overload, cognitive demand, emotional demand, role conflict, supervisor task conflict, and group task conflict than the overall sample.
- Tradespeople and Labourers reported a lower mean for role overload than Foreman, Professionals, Project/Site Managers, and Other Managers. In addition, Leading Hands reported a lower mean for role overload than Site/Project Managers and Other Managers.
- Tradespeople and Labourers reported a lower mean for cognitive demand than Project/Site Managers and Other Managers.
- Tradespeople and Labourers reported a lower mean for emotional demand than Professionals, Project/Site Managers, and Other Managers. Labourers also reported a lower mean for emotional demand than Leading Hands.
- Tradespeople and Leadings Hands reported a lower mean for role ambiguity than Professionals. Tradespeople also reported a lower mean for role ambiguity than Other Managers.
- Tradespeople reported a lower mean for role conflict than Other Managers. In addition, Labourers reported a lower mean for role conflict than Professionals, Project/Site Managers, and other Managers.
- Tradespeople and Labourers reported a lower mean for supervisor task conflict than Other Managers. In addition, Labourers reported a lower mean for supervisor task conflict than Project/Site Managers.
- Labourers reported a lower mean for group task conflict than Other Managers.

Construction-Specific Job Demands

- Tradespeople reported a higher mean for job insecurity than the overall sample.
- Labourers reported a lower mean for task interdependency than the overall sample.
- Leading Hands reported a higher mean for task interdependency than the overall sample.
- Professionals reported a higher mean for task interdependency and a lower mean for job insecurity than the overall sample.
- Project/Site Managers reported higher means for contract pressures and task interdependency and a lower mean for job insecurity than the overall sample.

- Other Managers reported a lower mean for job insecurity than the overall sample.
- Tradespeople and Labourers reported a lower mean for task interdependency than Professionals and Project/Site Managers. In addition, Labourers reported a lower level of task interdependency than Leading Hands and Other Managers.
- Tradespeople and Labourers reported a higher mean for job insecurity than Professionals, Project/Site Managers, and Other Managers. In addition, Labourers reported a higher mean for job security than Foreman.
- Leading Hands reported a higher mean for job insecurity than Project/Site Managers.

Job Resources

- Tradespeople reported a lower mean for job control than the overall sample.
- Labourers reported a lower mean for job control than the overall sample.
- Leading Hands reported a higher mean for co-worker support than the overall sample.
- Professionals reported a higher mean for praise and recognition than the overall sample.
- Project/Site Managers reported higher means for job control and procedural justice than the overall sample.
- Other Managers reported a higher mean for job control than the overall sample.
- Tradespeople reported a lower mean for job control than Project/Site Managers.
- Labourers reported a lower mean for job control than Foreman, Leading Hands, Professionals, Project/Site Managers and Other Managers.

Employee Health Outcomes

- Leading Hands reported a higher mean for psychological well-being than the overall sample.
- Project/Site Managers reported a lower mean for cardiovascular problems than the overall sample.
- Other Managers reported a lower mean for gastrointestinal problems than the overall sample.
- The MANOVAs revealed no significant differences in means across the seven site operatives for each of the employee health outcomes.

Employee Job Outcomes

- Tradespeople and Labourers reported a lower mean for work-home conflict than the overall sample.
- Foremen reported a higher mean for work-home conflict than the overall sample.
- Leading Hands reported a lower mean for workers' compensation intentions than the overall sample.
- Professionals reported a higher mean for work-home conflict than the overall sample.
- Project/Site Managers reported a higher mean for work-home conflict and a lower mean for seek medical advice intentions than the overall sample.
- Other Managers reported a lower mean for workers' compensation claims intentions than the overall sample.
- Tradespeople reported a lower mean for work-home conflict than Foreman, Professionals, and Project/Site Managers.
- Labourers reported a lower mean for work-home conflict than Professionals.

Section 8 – Job Demands, Job Resources, Employee Outcomes by Occupation

Section 8 examines differences in job demands, construction-specific job demands, job resources, and employee (health and job) outcomes by occupation. Only those categories with a minimum of 20 respondents are included in these breakdown analyses. The results for each occupation (i.e., administration, engineer, electrical, carpenter, operator, and labourer) are presented below.

First, the mean for each occupation is compared to the overall sample and statistical significance for the mean difference is tested via t-tests (see Sections 8.1 to 8.6). Second, the occupations are compared among each other for each set of variables (see Section 8.7), with statistical significance tested via multivariate analyses of variance (MANOVAs).

8.1 Occupation: Administration

Job Demands

Scale	*Administration* *n = 46 to 47*		*Overall Sample* *n = 415 to 429*		
	M	*SD*	*M*	*SD*	*t*
Role Overload	3.73	1.22	3.32	1.31	2.28 (45)*
Cognitive Demand	5.55	1.15	5.25	1.30	1.81 (46)
Emotional Demand	3.40	1.37	2.90	1.30	2.49 (49)*
Role Ambiguity	2.12	1.02	1.93	0.88	1.26 (46)
Role Conflict	3.52	1.29	3.20	1.25	1.68 (46)
Supervisor Task Conflict	2.68	1.19	2.41	1.08	1.56 (46)
Supervisor Relationship Conflict	1.85	0.80	1.86	1.01	-0.08 (46)
Group Task Conflict	3.09	1.06	3.07	1.08	0.13 (46)
Group Relationship Conflict	2.90	1.27	2.89	1.27	0.07 (45)

Range: 1 (never) to 7 (always)
*p< .05. **p < .01. ***p< .001.

Role Overload: mean (3.73) for "Administration" significantly higher than mean (3.32) for overall sample.
Emotional Demand: mean (3.40) for "Administration" significantly higher than mean (2.90) for overall sample.

Construction-Specific Job Demands

Scale	*Administration* *n = 47*		*Overall Sample* *n = 408 to 419*		
	M	*SD*	*M*	*SD*	*T*
Contract Pressures	3.55	1.40	3.71	1.45	-0.80 (46)
Task Interdependency	5.40	1.12	5.15	1.10	1.53 (46)
Pressure to Accept Work	3.59	1.79	3.70	1.73	-0.44 (46)
Job Insecurity	3.17	1.82	3.79	1.95	-2.33 (46)*

Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
*p< .05. **p < .01. ***p< .001.

Job Insecurity: mean (3.17) for "Administration" significantly lower than mean (3.79) for overall sample.

Job Resources

Scale	*Administration* *n = 46 to 47*		*Overall Sample* *n = 417 to 421*		
	M	*SD*	*M*	*SD*	*t*

Job Control^	4.83	1.11	4.28	1.36	3.38 (45)**
Supervisor Support#	5.07	1.29	5.22	1.21	-0.77 (46)
Co-Worker Support#	5.20	1.21	5.31	1.11	-0.64 (46)
Change Participation#	4.37	1.20	4.56	1.17	-1.07 (46)
Procedural Justice#	4.71	1.15	4.85	1.08	-0.82 (46)
Praise and Recognition#	5.09	1.38	4.94	1.35	0.72 (46)

^ Range: 1 (Never) to 7 (Always)
#Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
*p< .05. **p < .01. ***p< .001.

Job Control: mean (4.83) for "Administration" significantly higher than mean (4.28) for overall sample.

Employee Health Outcomes

Scale	*Administration n = 46 to 47*		*Overall Sample n = 407 to 411*		
	M	*SD*	*M*	*SD*	*t*
Psychological Well-Being	5.03	0.84	5.20	0.87	-1.36 (46)
Musculoskeletal Problems	3.17	1.42	2.49	1.33	3.27 (45)**
Cardiovascular Problems	1.83	0.80	2.06	0.89	-2.23 (46)*
Sleep Problems	3.56	1.22	3.23	1.17	1.84 (46)
Headaches	2.76	1.33	2.44	1.21	1.64 (45)
Gastrointestinal Problems	2.11	0.98	2.06	1.10	0.36 (46)

Range: 1 (Never) to 7 (Always)
*p< .05. **p < .01. ***p< .001.

Musculoskeletal Problems: mean (3.17) for "Administration" significantly higher than mean (2.49) for overall sample.
Cardiovascular Problems: mean (1.83) for "Administration" significantly lower than mean (2.06) for overall sample.

Employee Job Outcomes

Scale	*Administration n = 46 to 47*		*Overall Sample n = 410 to 414*		
	M	*SD*	*M*	*SD*	*t*
Job Satisfaction#	5.24	1.35	5.34	1.34	-0.51 (45)
Work-Home Conflict#	4.63	1.37	4.26	1.61	1.83 (46)
Workers' Compensation Intentions^	1.11	0.38	1.36	0.91	-4.64 (46)***
Sick Leave Intentions^	1.72	1.21	1.62	1.18	0.59 (46)
Seek Medical Advice Intentions^	1.43	0.83	1.66	1.29	-1.94 (46)
Change Jobs Internally Intentions^	1.53	1.18	1.69	1.30	-0.92 (46)

Turnover Intentions^	1.87	1.48	1.79	1.39	0.38 (46)

#Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
^Range: 1 (Extremely Unlikely) to 7 (Extremely Likely)
*p< .05. **p < .01. ***p< .001.

Workers' Compensation Intentions: mean (1.11) for "Administration" significantly lower than mean (1.36) for overall sample.

8.2 Occupation: Engineer

Job Demands

Scale	*Engineer* *n = 117 to 119*		*Overall Sample* *n = 415 to 429*		
	M	*SD*	*M*	*SD*	*T*
Role Overload	3.62	1.36	3.32	1.31	2.38 (116)*
Cognitive Demand	5.34	1.21	5.25	1.30	0.80 (117)
Emotional Demand	3.07	1.19	2.90	1.30	1.56 (116)
Role Ambiguity	2.02	0.87	1.93	0.88	1.14 (118)
Role Conflict	3.22	1.12	3.20	1.25	0.24 (117)
Supervisor Task Conflict	2.43	0.86	2.41	1.08	0.24 (118)
Supervisor Relationship Conflict	1.72	0.77	1.86	1.01	-1.91 (118)
Group Task Conflict	3.14	0.94	3.07	1.08	0.85 (118)
Group Relationship Conflict	2,83	1.23	2.89	1.27	-0.52 (117)

Range: 1 (never) to 7 (always)
*p< .05. **p < .01. ***p< .001.

Role Overload: mean (3.62) for "Engineer" significantly higher than mean (3.32) for overall sample.

Construction-Specific Job Demands

Scale	*Engineer* *n = 118 to 119*		*Overall Sample* *n = 408 to 419*		
	M	*SD*	*M*	*SD*	*t*
Contract Pressures	3.72	1.46	3.71	1.45	0.10 (117)
Task Interdependency	5.54	1.01	5.15	1.10	4.22 (118)***
Pressure to Accept Work	3.51	1.73	3.70	1.73	-1.21 (118)
Job Insecurity	3.21	1.89	3.79	1.95	-3.35 (118)***

Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
*p< .05. **p < .01. ***p< .001.

Task Interdependency: mean (5.54) for "Engineer" significantly higher than mean (5.15) for overall sample.
Job Insecurity: mean (3.21) for "Engineer" significantly lower than mean (3.79) for overall sample.

Job Resources

Scale	*Engineer* *n = 118 to 119*		*Overall Sample* *n = 417 to 421*		
	M	*SD*	*M*	*SD*	*t*
Job Control^	4.56	1.19	4.28	1.36	2.57 (118)*
Supervisor Support#	5.43	0.99	5.22	1.21	2.28 (118)*
Co-Worker Support#	5.32	1.02	5.31	1.11	0.13 (117)
Change Participation #	4.67	1.09	4.56	1.17	1.05 (117)
Procedural Justice#	4.90	1.10	4.85	1.08	0.46 (117)
Praise and Recognition#	5.25	1.12	4.94	1.35	2.98 (117)**

^ Range: 1 (Never) to 7 (Always)
#Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
*p< .05. **p < .01. ***p< .001.

Job Control: mean (4.56) for "Engineer" significantly higher than mean (4.28) for overall sample.
Supervisor Support: mean (5.43) for "Engineer" significantly higher than mean (5.22) for overall sample.
Praise and Recognition: mean (5.25) for "Engineer" significantly higher than mean (4.94) for overall sample.

Employee Health Outcomes

Scale	*Engineer* *n = 116 to 119*		*Overall Sample* *n = 407 to 411*		
	M	*SD*	*M*	*SD*	*T*
Psychological Well-Being	5.25	0.80	5.20	0.87	0.66 (115)
Musculoskeletal Problems	2.36	1.28	2.49	1.33	-1.12 (117)
Cardiovascular Problems	2.06	0.84	2.06	0.89	-0.06 (118)
Sleep Problems	3.11	1.21	3.23	1.17	-1.07 (117)
Headaches	2.56	1.28	2.44	1.21	1.00 (118)
Gastrointestinal Problems	2.05	1.19	2.06	1.10	-0.12 (117)

Range: 1 (Never) to 7 (Always)
*p< .05. **p < .01. ***p< .001.

Employee Job Outcomes

Scale	*Engineer* *n = 118 to 119*		*Overall Sample* *n = 410 to 414*		
	M	*SD*	*M*	*SD*	*t*
Job Satisfaction#	5.35	1.28	5.34	1.34	0.09 (117)
Work-Home Conflict#	4.54	1.56	4.26	1.61	1.95 (118)
Workers' Compensation Intentions^	1.25	0.79	1.36	0.91	-1.48 (118)
Sick Leave Intentions^	1.54	1.10	1.62	1.18	-0.81 (118)

Seek Medical Advice Intentions^	1.66	1.27	1.66	1.29	0.03 (118)
Change Jobs Internally Intentions^	1.71	1.34	1.69	1.30	0.20 (118)
Turnover Intentions^	1.88	1.47	1.79	1.39	0.68 (118)

#Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
^Range: 1 (Extremely Unlikely) to 7 (Extremely Likely)
*p< .05. **p < .01. ***p< .001.

8.3 Occupation: Electrical

Job Demands

Scale	*Electrical* *n = 23 to 24*		*Overall Sample* *n = 415 to 429*		
	M	*SD*	*M*	*SD*	*t*
Role Overload	2.77	0.90	3.32	1.31	-2.91 (22)**
Cognitive Demand	5.29	1.32	5.25	1.30	0.15 (23)
Emotional Demand	2.43	1.21	2.90	1.30	-1.91 (23)
Role Ambiguity	1.91	0.67	1.93	0.88	-0.18 (23)
Role Conflict	2.77	1.17	3.20	1.25	-1.80 (23)
Supervisor Task Conflict	2.13	0.86	2.41	1.08	-1.56 (23)
Supervisor Relationship Conflict	1.45	0.87	1.86	1.01	-2.32 (23)*
Group Task Conflict	2.69	0.96	3.07	1.08	-1.95 (23)
Group Relationship Conflict	2.44	0.96	2.89	1.27	-2.31 (23)*

Range: 1 (never) to 7 (always)
*p< .05. **p < .01. ***p< .001.

Role Overload: mean (2.77) for "Electrical" significantly lower than mean (3.32) for overall sample.
Supervisor Relationship Conflict: mean (1.45) for "Electrical" significantly lower than mean (1.86) for overall sample.
Group Relationship Conflict: mean (2.44) for "Electrical" significantly lower than mean (2.89) for overall sample.

Construction-Specific Job Demands

Scale	*Electrical* *n = 24*		*Overall Sample* *n = 408 to 419*		
	M	*SD*	*M*	*SD*	*t*
Contract Pressures	3.97	1.40	3.71	1.45	0.92 (23)
Task Interdependency	5.40	0.86	5.15	1.10	1.64 (23)
Pressure to Accept Work	3.06	1.40	3.70	1.73	-2.23 (23)*
Job Insecurity	3.71	1.83	3.79	1.95	-0.22 (23)

Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
*p< .05. **p < .01. ***p< .001.

Pressure to Accept Work: mean (3.06) for "Electrical" significantly lower than mean (3.70) for overall sample.

Job Resources

Scale	*Electrical* *n = 24*		*Overall Sample* *n = 417 to 421*		
	M	*SD*	*M*	*SD*	*t*
Job Control^	4.31	1.12	4.28	1.36	0.11 (23)
Supervisor Support#	5.66	0.88	5.22	1.21	2.42 (23)*
Co-Worker Support#	5.89	0.62	5.31	1.11	4.57 (23)***
Change Participation #	5.07	0.85	4.56	1.17	2.95 (23)**
Procedural Justice#	5.56	0.87	4.85	1.08	4.00 (23)***
Praise and Recognition#	5.36	1.01	4.94	1.35	2.05 (23)*

^Range: 1 (Never) to 7 (Always)
#Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
*p< .05. **p < .01. ***p< .001.

Supervisor Support: mean (5.66) for "Electrical" significantly higher than mean (5.22) for overall sample.
Co-Worker Support: mean (5.89) for "Electrical" significantly higher than mean (5.31) for overall sample.
Change Participation: mean (5.07) for "Electrical" significantly higher than mean (4.56) for overall sample.
Procedural Justice: mean (5.56) for "Electrical" significantly higher than mean (4.85) for overall sample.
Praise and Recognition: mean (5.36) for "Electrical" significantly higher than mean (4.94) for overall sample.

Employee Health Outcomes

Scale	*Electrical* *n = 24*		*Overall Sample* *n = 407 to 411*		
	M	*SD*	*M*	*SD*	*t*
Psychological Well-Being	5.41	0.86	5.20	0.87	1.18 (23)
Musculoskeletal Problems	2.36	1.15	2.49	1.33	-0.56 (23)
Cardiovascular Problems	1.95	0.80	2.06	0.89	-0.69 (23)
Sleep Problems	3.35	1.27	3.23	1.17	0.48 (23)
Headaches	2.29	1.06	2.44	1.21	-0.69 (23)
Gastrointestinal Problems	2.11	1.09	2.06	1.10	0.25 (23)

Range: 1 (Never) to 7 (Always)
*p< .05. **p < .01. ***p< .001.

Employee Job Outcomes

Scale	*Electrical* *n = 24*		*Overall Sample* *n = 410 to 414*		
	M	*SD*	*M*	*SD*	*t*
Job Satisfaction#	5.82	1.02	5.34	1.34	2.31 (23)*

Work-Home Conflict[#]	3.54	1.65	4.26	1.61	-2.13 (23)*
Workers' Compensation Intentions[^]	1.46	1.14	1.36	0.91	0.42 (23)
Sick Leave Intentions[^]	1.54	0.93	1.62	1.18	-0.41 (23)
Seek Medical Advice Intentions[^]	1.58	0.93	1.66	1.29	-0.40 (23)
Change Jobs Internally Intentions[^]	1.42	0.65	1.69	1.30	-2.05 (23)*
Turnover Intentions[^]	1.38	0.88	1.79	1.39	-2.32 (23)*

[#]Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
[^]Range: 1 (Extremely Unlikely) to 7 (Extremely Likely)
*p< .05. **p < .01. ***p< .001.

Job Satisfaction: mean (5.82) for "Electrical" significantly higher than mean (5.34) for overall sample.
Work-Home Conflict: mean (3.54) for "Electrical" significantly lower than mean (4.26) for overall sample.
Change Jobs Internally Intentions: mean (1.42) for "Electrical" significantly lower than mean (1.69) for overall sample.
Turnover Intentions: mean (1.38) for "Electrical" significantly lower than mean (1.39) for overall sample.

8.4 Occupation: Carpenter

Job Demands

Scale	*Carpenter* *n = 53 to 56*		*Overall Sample* *n = 415 to 429*		
	M	*SD*	*M*	*SD*	*t*
Role Overload	3.38	1.24	3.32	1.31	0.34 (52)
Cognitive Demand	5.04	1.10	5.25	1.30	-1.36 (52)
Emotional Demand	2.70	1.31	2.90	1.30	-1.15 (54)
Role Ambiguity	1.92	0.79	1.93	0.88	1.92 (54)
Role Conflict	3.31	1.27	3.20	1.25	0.61 (53)
Supervisor Task Conflict	2.58	1.14	2.41	1.08	1.09 (54)
Supervisor Relationship Conflict	2.08	0.98	1.86	1.01	1.65 (53)
Group Task Conflict	3.42	1.23	3.07	1.08	2.11 (54)*
Group Relationship Conflict	3.25	1.31	2.89	1.27	2.05 (55)*

Range: 1 (never) to 7 (always)
*p< .05. **p < .01. ***p< .001.

Group Task Conflict: mean (3.42) for "Carpenter" significantly higher than mean (3.07) for overall sample.
Group Relationship Conflict: mean (3.25) for "Carpenter" significantly higher than mean (2.89) for overall sample.

Construction-Specific Job Demands

Scale	*Carpenter* *n = 54 to 56*		*Overall Sample* *n = 408 to 419*		
	M	*SD*	*M*	*SD*	*t*
Contract Pressures	4.01	1.33	3.71	1.45	1.64 (53)
Task Interdependency	4.76	0.94	5.15	1.10	-3.06 (54)**
Pressure to Accept Work	4.46	1.60	3.70	1.73	3.52 (55)***
Job Insecurity	4.73	1.62	3.79	1.95	4.34 (55)***

Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
*p< .05. **p < .01. ***p< .001.

Task Interdependency: mean (4.76) for "Carpenter" significantly lower than mean (5.15) for overall sample.
Pressure to Accept Work: mean (4.46) for "Carpenter" significantly higher than mean (3.70) for overall sample.
Job Insecurity: mean (4.73) for "Carpenter" significantly higher than mean (3.79) for overall sample.

Job Resources

Scale	*Carpenter* *n = 53 to 56*		*Overall Sample* *n = 417 to 421*		
	M	*SD*	*M*	*SD*	*t*
Job Control^	3.74	1.30	4.28	1.36	-3.05 (53)**
Supervisor Support#	5.00	1.11	5.22	1.21	-1.44 (52)
Co-Worker Support#	5.14	1.04	5.31	1.11	-1.24 (55)
Change Participation#	4.28	1.27	4.56	1.17	-1.63 (54)
Procedural Justice#	4.49	0.91	4.85	1.08	-2.91 (54)**
Praise and Recognition#	4.30	1.40	4.94	1.35	-3.41 (55)***

^Range: 1 (Never) to 7 (Always)
#Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
*p< .05. **p < .01. ***p< .001.

Job Control: mean (3.74) for "Carpenter" significantly lower than mean (4.28) for overall sample.
Procedural Justice: mean (4.49) for "Carpenter" significantly lower than mean (4.85) for overall sample.
Praise and Recognition: mean (4.30) for "Carpenter" significantly lower than mean (4.94) for overall sample.

Employee Health Outcomes

Scale	*Carpenter* *n = 54 to 56*		*Overall Sample* *n = 407 to 411*		
	M	*SD*	*M*	*SD*	*t*
Psychological Well-Being	5.03	1.00	5.20	0.87	-1.25 (53)
Musculoskeletal Problems	2.84	1.44	2.49	1.33	1.80 (54)
Cardiovascular Problems	2.23	0.92	2.06	0.89	1.39 (53)
Sleep Problems	3.31	1.12	3.23	1.17	0.52 (55)
Headaches	2.42	0.98	2.44	1.21	-0.12 (54)
Gastrointestinal Problems	2.21	1.09	2.06	1.10	1.03 (55)

Range: 1 (Never) to 7 (Always)
*p< .05. **p < .01. ***p< .001.

Employee Job Outcomes

Scale	*Carpenter* *n = 56*		*Overall Sample* *n = 410 to 414*		
	M	*SD*	*M*	*SD*	*t*
Job Satisfaction#	4.98	1.36	5.34	1.34	-2.00 (55)*
Work-Home Conflict#	4.25	1.79	4.26	1.61	-0.04 (55)
Workers' Compensation Intentions^	1.70	1.11	1.36	0.91	2.27 (55)*
Sick Leave Intentions^	1.96	1.38	1.62	1.18	1.87 (55)

Seek Medical Advice Intentions^	2.13	1.54	1.66	1.29	2.26 (55)*
Change Jobs Internally Intentions^	2.05	1.49	1.69	1.30	1.82 (55)
Turnover Intentions^	1.96	1.39	1.79	1.39	0.94 (55)

#Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
^Range: 1 (Extremely Unlikely) to 7 (Extremely Likely)
*p< .05. **p < .01. ***p< .001.

Job Satisfaction: mean (4.98) for "Carpenter" significantly lower than mean (5.34) for overall sample.
Workers' Compensation Intentions: mean (1.70) for "Carpenter" significantly higher than mean (1.36) for overall sample.
Seek Medical Advice Intentions: mean (2.13) for "Carpenter" significantly higher than mean (1.66) for overall sample.

8.5 Occupation: Operator

Job Demands

Scale	*Operator* *n = 31 to 33*		*Overall Sample* *n = 415 to 429*		
	M	*SD*	*M*	*SD*	*t*
Role Overload	2.83	1.23	3.32	1.31	-2.31 (32)*
Cognitive Demand	5.40	1.57	5.25	1.30	0.53 (31)
Emotional Demand	2.80	1.15	2.90	1.30	-0.48 (31)
Role Ambiguity	1.59	0.70	1.93	0.88	-2.78 (32)**
Role Conflict	3.08	1.33	3.20	1.25	-0.52 (31)
Supervisor Task Conflict	2.35	1.27	2.41	1.08	-0.28 (32)
Supervisor Relationship Conflict	1.95	1.50	1.86	1.01	0.36 (32)
Group Task Conflict	3.10	1.21	3.07	1.08	0.14 (32)
Group Relationship Conflict	2.85	1.29	2.89	1.27	-019 (30)

Range: 1 (never) to 7 (always)
*p< .05. **p < .01. ***p< .001.

Role Overload: mean (2.83) for "Operator" significantly lower than mean (3.32) for overall sample.
Role Ambiguity: mean (1.59) for "Operator" significantly lower than mean (2.90) for overall sample.

Construction-Specific Job Demands

Scale	*Operator* *n = 32*		*Overall Sample* *n = 408 to 419*		
	M	*SD*	*M*	*SD*	*t*
Contract Pressures	3.65	1.64	3.71	1.45	-0.22 (31)
Task Interdependency	4.99	1.14	5.15	1.10	-0.79 (32)
Pressure to Accept Work	3.92	1.65	3.70	1.73	0.76 (31)
Job Insecurity	4.63	1.74	3.79	1.95	2.72 (31)*

Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
*p< .05. **p < .01. ***p< .001.

Job Insecurity: mean (4.63) for "Operator" significantly higher than mean (3.79) for overall sample.

Job Resources

Scale	*Operator* *n = 31 to 33*		*Overall Sample* *n = 417 to 421*		
	M	*SD*	*M*	*SD*	*t*

Job Control^	3.91	1.58	4.28	1.36	-1.33 (31)
Supervisor Support#	5.33	1.41	5.22	1.21	0.46 (32)
Co-Worker Support#	5.20	1.23	5.31	1.11	-0.53 (31)
Change Participation#	4.78	1.12	4.56	1.17	1.11 (30)
Procedural Justice#	4.95	1.09	4.85	1.08	0.55 (32)
Praise and Recognition#	5.20	1.28	4.94	1.35	1.14 (31)

^Range: 1 (Never) to 7 (Always)
#Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
*p< .05. **p < .01. ***p< .001.

Employee Health Outcomes

Scale	*Operator* *n = 31 to 33*		*Overall Sample* *n = 407 to 411*		
	M	*SD*	*M*	*SD*	*t*
Psychological Well-Being	5.33	0.83	5.20	0.87	0.89 (30)
Musculoskeletal Problems	2.63	1.49	2.49	1.33	0.54 (32)
Cardiovascular Problems	1.91	0.92	2.06	0.89	-0.90 (31)
Sleep Problems	3.07	0.99	3.23	1.17	-0.89 (30)
Headaches	2.42	1.17	2.44	1.21	-0.11 (31)
Gastrointestinal Problems	2.09	1.27	2.06	1.10	0.15 (31)

Range: 1 (Never) to 7 (Always)
*p< .05. **p < .01. ***p< .001.

Employee Job Outcomes

Scale	*Operator* *n = 32 to 33*		*Overall Sample* *n = 410 to 414*		
	M	*SD*	*M*	*SD*	*t*
Job Satisfaction#	5.37	1.22	5.34	1.34	0.16 (32)
Work-Home Conflict#	4.06	1.80	4.26	1.61	-0.62 (31)
Workers' Compensation Intentions^	1.44	0.88	1.36	0.91	0.50 (31)
Sick Leave Intentions^	1.62	1.13	1.62	1.18	0.03 (31)
Seek Medical Advice Intentions^	1.53	1.05	1.66	1.29	-0.70 (31)
Change Jobs Internally Intentions^	1.72	1.25	1.69	1.30	0.13 (31)
Turnover Intentions^	1.69	1.18	1.79	1.39	-0.49 (31)

#Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
^ Range: 1 (Extremely Unlikely) to 7 (Extremely Likely)
*p< .05. **p < .01. ***p< .001.

8.6 Occupation: Labourer

Job Demands

Scale	*Labourer* *n = 75 to 76*		*Overall Sample* *n = 415 to 429*		
	M	*SD*	*M*	*SD*	*t*
Role Overload	2.83	1.19	3.32	1.31	-3.55 (74)***
Cognitive Demand	4.85	1.38	5.25	1.30	-2.52 (74)*
Emotional Demand	2.44	1.35	2.90	1.30	-2.94 (74)**
Role Ambiguity	1.90	1.00	1.93	0.88	-0.22 (72)
Role Conflict	2.82	1.16	3.20	1.25	-2.83 (74)**
Supervisor Task Conflict	2.04	0.99	2.41	1.08	-3.24 (75)**
Supervisor Relationship Conflict	1.70	0.96	1.86	1.01	-1.44 (75)
Group Task Conflict	2.78	1.04	3.07	1.08	-2.43 (75)*
Group Relationship Conflict	2.81	1.35	2.89	1.27	-0.49 (74)

Range: 1 (never) to 7 (always)
*p< .05. **p < .01. ***p< .001.

Role Overload: mean (2.83) for "Labourer" significantly lower than mean (3.32) for overall sample.
Cognitive Demand: mean (4.85) for "Labourer" significantly lower than mean (5.25) for overall sample.
Emotional Demand: mean (2.44) for "Labourer" significantly lower than mean (2.90) for overall sample.
Role Conflict: mean (2.82) for "Labourer" significantly lower than mean (3.20) for overall sample.
Supervisor Task Conflict: mean (2.04) for "Labourer" significantly lower than mean (2.41) for overall sample.
Group Task Conflict: mean (2.78) for "Labourer" significantly lower than mean (3.07) for overall sample.

Construction-Specific Job Demands

Scale	*Labourer* *n = 73 to 74*		*Overall Sample* *n = 408 to 419*		
	M	*SD*	*M*	*SD*	*t*
Contract Pressures	3.54	1.44	3.71	1.45	-1.02 (72)
Task Interdependency	4.56	1.18	5.15	1.10	-4.94 (73)***
Pressure to Accept Work	3.63	1.78	3.70	1.73	-0.35 (73)
Job Insecurity	4.69	1.84	3.79	1.95	4.20 (73)***

Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
*p< .05. **p < .01. ***p< .001.

Task Interdependency: mean (4.56) for "Labourer" significantly lower than mean (5.15) for overall sample.
Job Insecurity: mean (4.69) for "Labourer" significantly higher than mean (3.79) for overall sample.

Job Resources

Scale	*Labourer* *n =74 to 76*		*Overall Sample* *n = 417 to 421*		
	M	*SD*	*M*	*SD*	*t*
Job Control^	3.81	1.39	4.28	1.36	-2.98 (75)**
Supervisor Support#	5.12	1.32	5.22	1.21	-0.66 (73)
Co-Worker Support#	5.26	1.36	5.31	1.11	-0.29 (73)
Change Participation#	4.47	1.22	4.56	1.17	-0.61 (75)
Procedural Justice#	4.76	1.10	4.85	1.08	-0.70 (73)
Praise and Recognition#	4.75	1.50	4.94	1.35	-1.12 (74)

^Range: 1 (Never) to 7 (Always)
#Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
*p< .05. **p < .01. ***p< .001.

Job Control: mean (3.81) for "Labourer" significantly lower than mean (4.28) for overall sample.

Employee Health Outcomes

Scale	*Labourer* *n =71 to 74*		*Overall Sample* *n = 407 to 411*		
	M	*SD*	*M*	*SD*	*t*
Psychological Well-Being	5.28	0.90	5.20	0.87	0.74 (72)
Musculoskeletal Problems	2.22	1.17	2.49	1.33	-1.93 (70)
Cardiovascular Problems	2.23	1.01	2.06	0.89	1.44 (73)
Sleep Problems	3.08	1.20	3.23	1.17	-1.08 (72)
Headaches	2.28	1.20	2.44	1.21	-1.15 (73)
Gastrointestinal Problems	2.04	1.02	2.06	1.10	-0.19 (73)

Range: 1 (Never) to 7 (Always)
*p< .05. **p < .01. ***p< .001.

Employee Job Outcomes

Scale	*Labourer* *n =73 to 74*		*Overall Sample* *n = 410 to 414*		
	M	*SD*	*M*	*SD*	*t*
Job Satisfaction#	5.48	1.49	5.34	1.34	0.83 (72)
Work-Home Conflict#	3.79	1.59	4.26	1.61	-2.52 (73)*
Workers' Compensation Intentions^	1.47	1.14	1.36	0.91	0.85 (73)

Sick Leave Intentions^	1.59	1.24	1.62	1.18	-0.18 (73)
Seek Medical Advice Intentions^	1.77	1.62	1.66	1.29	0.59 (73)
Change Jobs Internally Intentions^	1.78	1.46	1.69	1.30	0.55 (73)
Turnover Intentions^	1.86	1.60	1.79	1.39	0.40 (73)

#Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
^Range: 1 (Extremely Unlikely) to 7 (Extremely Likely)
*p< .05. **p < .01. ***p< .001.

Work-Home Conflict: mean (3.79) for "Labourer" significantly lower than mean (4.26) for overall sample.

8.7 Differences Among Occupations

Job Demands

	Administration *n* = 45	Engineer *n* = 113	Electrical *n* = 23	Carpenter *n* = 48	Operator *n* = 29	Labourer *n* = 68	*F* (*df*)
Role Overload	3.73	3.62	2.77	3.38	2.83	2.83	7.270 (5, 320)***
Cognitive Demand	5.55	5.34	5.29	5.04	5.40	4.85	1.529 (5, 320)
Emotional Demand	3.40	3.07	2.43	2.70	2.80	2.44	4.901 (5, 320)***
Role Ambiguity	2.12	2.02	1.91	1.92	1.59	1.90	1.365 (5, 320)
Role Conflict	3.52	3.22	2.77	3.31	3.08	2.82	3.095 (5, 320)**
Supervisor Task Conflict	2.68	2.43	2.13	2.58	2.35	2.04	3.137 (5, 320)**
Supervisor Relationship Conflict	1.85	1.72	1.45	2.08	1.95	1.70	3.298 (5, 320)**
Group Task Conflict	3.09	3.14	2.69	3.42	3.10	2.78	3.538 (5, 320)**
Group Relationship Conflict	2.90	2,83	2.44	3.25	2.85	2.81	2.108 (5, 320)

*p< .05. **p < .01. ***p< .001.

F (45,1399) = 2.226, p < .001

Post Hoc Tests:

Role Overload: mean (3.73) for Administration significantly higher than means for Electrical (M = 2.77; p = .034), Operator (M = 2.83; p = .026), and Labourer (M = 2.83; p= .001); mean (3.62) for Engineer significantly higher than means for Electrical (2.77; p = .025), Operator (M = 2.83; p = .015), and Labourer (M = 2.83; p = .000).

Emotional Demand: mean (3.40) for Administration significantly higher than means for Electrical (M= 2.43; p = .006) and Labourer (M = 2.44; p = .002); mean for Engineer (3.07) significantly higher than mean (2.44) for Labourer (p = .026).

Role Conflict: mean (3.52) for Administration significantly higher than mean (2.82) Labourer (p = .025).

Supervisor Task Conflict: mean (2.68) for Administration significantly higher than mean (2.04) for Labourer (p = .017); mean (2.58) for Carpenter significantly higher than mean (2.04) for Labourer (p = .045).

Supervisor Relationship Conflict: mean (1.45) for Electrical significantly lower than mean (2.08) for Carpenter (p = .005).

Group Task Conflict: mean (3.42) for Carpenter significantly higher than means for Electrical (M = 2.69; p = .013) and Labourer (M = 2.78; p = .017).

Construction-Specific Job Demands

	Administration *n* = 47	Engineer *n* = 118	Electrical *n* = 24	Carpenter *n* = 53	Operator *n* = 32	Labourer *n* = 72	*F* (*df*)
Contract Pressures	3.55	3.72	3.97	4.01	3.65	3.54	1.141 (5, 340)
Task Interdependency	5.40	5.54	5.40	4.76	4.99	4.56	10.896 (5, 340)***
Pressure to Accept Work	3.59	3.51	3.06	4.46	3.92	3.63	3.801 (5, 340)**
Job Insecurity	3.17	3.21	3.71	4.73	4.63	4.69	11.081 (5, 340)***

*p< .05. **p < .01. ***p< .001.

F (20,1119) = 6.121, p < .001.

Post Hoc Tests:

Task Interdependency: mean (5.40) for Administration significantly higher than means for Carpenter (M = 4.76; p = .037) and Labourer (M = 4.56; p = .000); mean (5.54) for Engineer significantly higher than means for Carpenter (M = 4.76; p = .000), Operator (M = 4.99; p = .050), and Labourer (M = 4.56; p = .000); mean (5.40) for Electrical significantly higher than mean (4.56) for Labourer (p = .006).

Pressure to Accept Work: mean (4.46) for Carpenter significantly higher than means for Engineer (M = 3.51; p = .004), Electrical (M = 3.06; p = .006), and Labourer (M = 3.63; p = .023).

Job Insecurity: mean (3.17) for Administration significantly lower than means for Carpenter (M = 4.73; p = .000), Operator (M = 4.63; p = .007), and Labourer (M = 4.69; p = .000); mean (3.21) for Engineer significantly lower than means for Carpenter (M = 4.73; p = .000), Operator (M = 4.63; p = .002), and Labourer (M = 4.69; p = .000).

Job Resources

	Administration *n* = 46	Engineer *n* = 117	Electrical *n* = 24	Carpenter *n* = 50	Operator *n* = 30	Labourer *n* = 71	*F* (*df*)
Job Control	4.83	4.56	4.31	3.74	3.91	3.81	8.620 (5, 332)***
Supervisor Support	5.07	5.43	5.66	5.00	5.33	5.12	1.955 (5, 332)
Co-Worker Support	5.20	5.32	5.89	5.14	5.20	5.26	1.957 (5, 332)
Change Participation	4.37	4.67	5.07	4.28	4.78	4.47	2.087 (5, 332)
Procedural Justice	4.71	4.90	5.56	4.49	4.95	4.76	3.288 (5, 332)**
Praise and Recognition	5.09	5.25	5.36	4.30	5.20	4.75	4.930 (5, 332)***

*p< .05. **p < .01. ***p< .001.

F (30,1310) = 3.094, p < .001.

Post Hoc Tests:

Job Control: mean (4.83) for Administration significantly higher than means for Carpenter (M = 3.74; p = .000) and Labourer (M = 3.81; p = .000); mean (4.56) for Engineer significantly higher than means for Carpenter (M = 3.74; p = .000) and Labourer (M = 3.81; p = .000).

Procedural Justice: mean (5.56) for Electrical significantly higher than means for Administration (M = 4.71; p = .024), Carpenter (M = 4.49; p = .001), and Labourer (M = 4.76; p = .034).

Praise and Recognition: mean (4.30) for Carpenter significantly lower than means for Administration (M = 5.09; p = .022), Engineer (M = 5.25; p = .000), Electrical (M = 5.36; p = .009), and Operator (M = 5.20; p = .028).

Employee Health Outcomes

	Administration *n* = 45	Engineer *n* = 113	Electrical *n* = 24	Carpenter *n* = 50	Operator *n* = 28	Labourer *n* = 70	*F* (*df*)
Psychological Well-Being	5.03	5.25	5.41	5.03	5.33	5.28	1.622 (5, 324)
Musculoskeletal Problems	3.17	2.36	2.36	2.84	2.63	2.22	3.976 (5, 324)**
Cardiovascular Problems	1.83	2.06	1.95	2.23	1.91	2.23	1.527 (5, 324)
Sleep Problems	3.56	3.11	3.35	3.31	3.07	3.08	1.653 (5, 324)
Headaches	2.76	2.56	2.29	2.42	2.42	2.28	1.541 (5, 324)
Gastrointestinal Problems	2.11	2.05	2.11	2.21	2.09	2.04	0.503 (5, 324)

*p< .05. **p < .01. ***p< .001.

F (30, 1278) = 1.990, p< .001.

Post Hoc Tests:

Musculoskeletal Problems: mean (3.17) for Administration significantly higher than means for Engineer (M = 2.36; p = .007) and Labourer (M = 2.22; p = .002).

Employee Job Outcomes

	Administration *n* = 46	Engineer *n* = 118	Electrical *n* = 24	Carpenter *n* = 56	Operator *n* = 32	Labourer *n* = 73	*F* (*df*)
Job Satisfaction	5.24	5.35	5.82	4.98	5.37	5.48	1.690 (5, 343)
Work-Home Conflict	4.63	4.54	3.54	4.25	4.06	3.79	3.368 (5, 343)**
Workers' Compensation Intentions	1.11	1.25	1.46	1.70	1.44	1.47	2.681 (5, 343)*
Sick Leave Intentions	1.72	1.54	1.54	1.96	1.62	1.59	1.164 (5, 343)
Seek Medical Advice Intentions	1.43	1.66	1.58	2.13	1.53	1.77	1.773 (5, 343)
Change Jobs Internally Intentions	1.53	1.71	1.42	2.05	1.72	1.78	1.159 (5, 343)
Turnover Intentions	1.87	1.88	1.38	1.96	1.69	1.86	0.735 (5, 343)

*p< .05. **p < .01. ***p< .001.

F (35,1420) = 2.000, p < .001.

Post Hoc Tests:

Work-Home Conflict: mean (3.79) for Labourer significantly lower than mean (M = 4.54) for Engineer (p = .028).

Workers' Compensation Intentions: mean (M = 1.70) for Carpenter significantly higher than means for Administration (M = 1.11; p = .018) and Engineer (M = 1.25; p = .038).

8.8 Summary: Results by Occupation

Job Demands

- Administrators reported higher means for role overload and emotional demand than the overall sample.
- Engineers reported a higher mean for role overload than the overall sample.
- Electrical Workers reported lower means for role overload, supervisor relationship conflict, and group relationship conflict than the overall sample.
- Carpenters reported higher means for group task conflict and group relationship conflict than the overall sample.
- Operators reported lower means for role overload and role ambiguity than the overall sample.
- Labourers reported lower means for role overload, cognitive demand, emotional demand, role conflict, supervisor task conflict, and group task conflict than the overall sample.
- Administrators and Engineers reported a higher mean for role overload than Electrical Workers, Operators, and Labourers.
- Administrators reported a higher mean for emotional demand than Electrical Workers and Labourers. In addition, Engineers reported a higher mean for emotional demand than Labourers.
- Administrators reported a higher mean for role conflict than Labourers.
- Administrators and Carpenters reported a higher mean for supervisor task conflict than Labourers.
- Electrical Workers reported a lower mean for supervisor relationship conflict than Carpenters.
- Carpenters reported a higher mean for group task conflict than Electrical Workers and Labourers.

Construction-Specific Job Demands

- Administrators reported a lower mean for job insecurity than the overall sample.
- Engineers reported a higher mean for task interdependency and a lower mean for job insecurity than the overall sample.
- Electrical Workers reported a lower mean for pressure to accept work than the overall sample.
- Carpenters reported a lower mean for task interdependency and a higher mean for pressure to accept work than the overall sample.
- Operators reported a higher mean for job insecurity than the overall sample.
- Labourers reported a lower mean for task interdependency and a higher mean for job insecurity than the overall sample.
- Administrators, Engineers, and Electrical Workers reported a higher mean for task interdependency than Labourers. Administrators also reported a higher mean for task interdependency than Carpenters. Engineers also reported a higher mean for task interdependency than Carpenters and Operators.
- Carpenters reported a higher mean for pressure to accept work than Engineers, Electrical Workers, and Labourers.
- Administrators and Engineers reported a lower mean for job insecurity than Carpenters, Operators, and Labourers.

Job Resources

- Administrators reported a higher mean for job control than the overall sample.
- Engineers reported higher means for job control, supervisor support, and praise and recognition than the overall sample.
- Electricians reported higher means for supervisor support, co-worker support, change participation, procedural justice, and praise and recognition than the overall sample.
- Carpenters reported lower means for job control, procedural justice, and praise and recognition than the overall sample.
- Labourers reported a lower mean for job control than the overall sample.
- Administrators and Engineers reported a higher mean for job control than Carpenters and Labourers.
- Electrical Workers reported a higher mean for procedural justice than Administrators, Carpenters, and Labourers.
- Carpenters reported a lower mean for praise and recognition than Administrators, Engineers, Electrical Workers, and Operators.

Employee Health Outcomes

- Administrators reported a higher mean for musculoskeletal problems and a lower mean for cardiovascular problems than the overall sample.
- Administrators reported a higher mean for musculoskeletal problems than Engineers and Labourers.

Employee Job Outcomes

- Administrators reported a lower mean for workers' compensation intentions than the overall sample.
- Electrical Workers reported a higher mean for job satisfaction and lower means for work-home conflict, change jobs internally intentions, and turnover intentions than the overall sample.
- Carpenters reported a lower mean for job satisfaction and higher means for workers' compensation intentions and seek medical advice intentions than the overall sample
- Labourers reported a lower mean for work-home conflict than the overall sample.
- Labourers reported a higher mean for work-family conflict than Engineers.
- Carpenters reported a higher mean for workers' compensation intentions than Administrators and Engineers.

Section 9 – Job Demands, Job Resources, Employee Outcomes by Project Size

Section 9 examines differences in job demands, construction-specific job demands, job resources, and employee (health and job) outcomes by project size. Only those categories with a minimum of 20 respondents are included in these breakdown analyses. The results for each project size category (i.e., small, medium, large, and major) are presented below.

First, the mean for each project size category is compared to the overall sample and statistical significance for the mean difference is tested via t-tests (see Sections 9.1 to 9.4). Second, the project size categories are compared among each other for each set of variables (see Section 9.5), with statistical significance tested via multivariate analyses of variance (MANOVAs).

9.1 Project Size: Small (greater than $1 To $20 million)

Job Demands

Scale	*Small Project* *n = 27 to 28*		*Overall Sample* *n = 415 to 429*		
	M	*SD*	*M*	*SD*	*t*
Role Overload	3.53	1.11	3.32	1.31	0.97 (26)
Cognitive Demand	5.26	1.41	5.25	1.30	0.05 (27)
Emotional Demand	3.27	1.13	2.90	1.30	1.75 (27)
Role Ambiguity	1.84	0.90	1.93	0.88	-0.53 (27)
Role Conflict	3.30	1.27	3.20	1.25	0.43 (27)
Supervisor Task Conflict	2.43	1.11	2.41	1.08	0.09 (27)
Supervisor Relationship Conflict	2.18	1.48	1.86	1.01	1.14 (27)
Group Task Conflict	3.20	1.17	3.07	1.08	0.57 (27)
Group Relationship Conflict	3.06	1.40	2.89	1.27	0.65 (26)

Range: 1 (never) to 7 (always)
*p< .05. **p < .01. ***p< .001.

Construction-Specific Job Demands

Scale	*Small Project* *n = 28*		*Overall Sample* *n = 408 to 419*		
	M	*SD*	*M*	*SD*	*t*
Contract Pressures	4.20	1.30	3.71	1.45	2.00 (27)*
Task Interdependency	5.30	0.90	5.15	1.10	0.87 (27)
Pressure to Accept Work	3.77	1.68	3.70	1.73	0.21 (27)
Job Insecurity	4.07	1.65	3.79	1.95	0.90 (27)

Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
*p< .05. **p < .01. ***p< .001.

Contract Pressures: mean (4.20) for "small project" significantly higher than mean (3.71) for overall sample.

Job Resources

Scale	*Small Project* *n = 28*		*Overall Sample* *n = 417 to 421*		
	M	*SD*	*M*	*SD*	*T*
Job Control^	4.44	1.48	4.28	1.36	0.58 (27)
Supervisor Support#	5.25	1.15	5.22	1.21	0.14 (27)
Co-Worker Support#	5.23	1.45	5.31	1.11	-0.28 (27)
Change Participation#	4.99	1.11	4.56	1.17	2.05 (27)*

Procedural Justice[#]	5.01	1.07	4.85	1.08	0.79 (27)
Praise and Recognition[#]	4.99	1.47	4.94	1.35	0.17 (27)

[^]Range: 1 (Never) to 7 (Always)
[#]Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
*p< .05. **p < .01. ***p< .001.

Change Participation: mean (4.99) for "small project" significantly higher than mean (4.56) for overall sample.

Employee Health Outcomes

Scale	*Small Project n = 26 to 28*		*Overall Sample n = 407 to 411*		
	M	*SD*	*M*	*SD*	*T*
Psychological Well-Being	5.03	0.67	5.20	0.87	-1.34 (25)
Musculoskeletal Problems	3.04	1.41	2.49	1.33	2.07 (27)*
Cardiovascular Problems	2.27	0.94	2.06	0.89	1.15 (26)
Sleep Problems	3.15	1.03	3.23	1.17	0.44 (27)
Headaches	2.63	1.36	2.44	1.21	0.74 (27)
Gastrointestinal Problems	2.12	0.97	2.06	1.10	0.32 (26)

Range: 1 (Never) to 7 (Always)
*p< .05. **p < .01. ***p< .001.

Musculoskeletal Problems: mean (3.04) for "small project" significantly higher than mean (2.49) for overall sample.

Employee Job Outcomes

Scale	*Small Project n = 28*		*Overall Sample n = 410 to 414*		
	M	*SD*	*M*	*SD*	*T*
Job Satisfaction[#]	5.12	1.52	5.34	1.34	-0.77 (27)
Work-Home Conflict[#]	4.50	1.36	4.26	1.61	0.93 (27)
Workers' Compensation Intentions[^]	1.43	1.03	1.36	0.91	0.35 (27)
Sick Leave Intentions[^]	1.68	1.25	1.62	1.18	0.25 (27)
Seek Medical Advice Intentions[^]	1.71	1.27	1.66	1.29	0.23 927)
Change Jobs Internally Intentions[^]	1.82	1.31	1.69	1.30	0.53 (27)
Turnover Intentions[^]	1.79	1.32	1.79	1.39	-0.02 (27)

[#]Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
[^]Range: (Extremely Unlikely) to 7 (Extremely Likely)
*p< .05. **p < .01. ***p< .001.

9.2 Project Size: Medium (greater than $20 to $100 million)

Job Demands

Scale	*Medium Project* *n = 49 to 51*		*Overall Sample* *n = 415 to 429*		
	M	*SD*	*M*	*SD*	*t*
Role Overload	3.48	1.37	3.32	1.31	0.83 (49)
Cognitive Demand	5.27	1.43	5.25	1.30	0.09 (50)
Emotional Demand	2.93	1.14	2.90	1.30	0.16 (48)
Role Ambiguity	2.13	1.26	1.93	0.88	1.15 (50)
Role Conflict	3.12	1.15	3.20	1.25	-0.49 (49)
Supervisor Task Conflict	3.12	1.00	2.41	1.08	1.03 (50)
Supervisor Relationship Conflict	2.54	1.18	1.86	1.01	0.06 (50)
Group Task Conflict	1.87	1.22	3.07	1.08	0.53 (50)
Group Relationship Conflict	3.16	1.16	2.89	1.27	-0.20 (49)

Range: 1 (never) to 7 (always)
*p< .05. **p < .01. ***p< .001.

Construction-Specific Job Demands

Scale	*Medium Project* *n = 50 to 51*		*Overall Sample* *n = 408 to 419*		
	M	*SD*	*M*	*SD*	*t*
Contract Pressures	3.93	1.46	3.71	1.45	1.05 (49)
Task Interdependency	4.94	1.15	5.15	1.10	-1.33 (50)
Pressure to Accept Work	3.75	1.51	3.70	1.73	0.26 (50)
Job Insecurity	3.33	1.85	3.79	1.95	-1.76 (50)

Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
*p< .05. **p < .01. ***p< .001.

Job Resources

Scale	*Medium Project* *n =50 to 51*		*Overall Sample* *n = 417 to 421*		
	M	*SD*	*M*	*SD*	*t*
Job Control[^]	4.53	1.16	4.28	1.36	1.55 (49)
Supervisor Support[#]	5.09	1.22	5.22	1.21	-0.74 (50)
Co-Worker Support[#]	5.33	1.03	5.31	1.11	0.10 (49)
Change Participation[#]	4.40	1.01	4.56	1.17	-1.16 (49)
Procedural Justice[#]	4.78	1.07	4.85	1.08	-0.50 (49)
Praise and Recognition[#]	4.90	1.32	4.94	1.35	-0.21 (49)

[^]Range: 1 (Never) to 7 (Always)

[#]Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
*p< .05. **p < .01. ***p< .001.

Employee Health Outcomes

Scale	*Medium Project* *n = 50 to 51*		*Overall Sample* *n = 407 to 411*		
	M	*SD*	*M*	*SD*	*t*
Psychological Well-Being	5.23	0.88	5.20	0.87	0.25 (49)
Musculoskeletal Problems	2.14	1.27	2.49	1.33	-1.96 (50)
Cardiovascular Problems	1.84	0.83	2.06	0.89	-1.90 (49)
Sleep Problems	3.25	0.96	3.23	1.17	-0.70 (50)
Headaches	2.24	1.12	2.44	1.21	-1.26 (50)
Gastrointestinal Problems	1.71	1.13	2.06	1.10	-2.19 (49)

Range: 1 (Never) to 7 (Always)
*p< .05. **p < .01. ***p< .001.

Employee Job Outcomes

Scale	*Medium Project* *n = 51*		*Overall Sample* *n = 410 to 414*		
	M	*SD*	*M*	*SD*	*t*
Job Satisfaction[#]	5.14	1.38	5.34	1.34	-1.02 (50)
Work-Home Conflict[#]	3.89	1.62	4.26	1.61	-1.64 (50)
Workers' Compensation Intentions[^]	1.35	1.13	1.36	0.91	-0.45 (50)
Sick Leave Intentions[^]	1.41	0.98	1.62	1.18	-1.51 (50)
Seek Medical Advice Intentions[^]	1.39	0.98	1.66	1.29	-1.95 (50)
Change Jobs Internally Intentions[^]	1.49	1.14	1.69	1.30	-1.25 (50)
Turnover Intentions[^]	1.73	1.34	1.79	1.39	-0.34 (50)

[#]Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
[^]Range: 1(Extremely Unlikely) to 7 (Extremely Likely)
*p< .05. **p < .01. ***p< .001.

9.3 Project Size: Large (greater than $100 to $400 million)

Job Demands

Scale	*Large Project* *n = 104 to 107*		*Overall Sample* *n = 415 to 429*		
	M	*SD*	*M*	*SD*	*t*
Role Overload	3.25	1.32	3.32	1.31	-0.55 (105)
Cognitive Demand	5.46	1.10	5.25	1.30	1.93 (103)
Emotional Demand	2.82	1.33	2.90	1.30	-0.59 (105)
Role Ambiguity	1.92	0.81	1.93	0.88	-0.12 (106)
Role Conflict	3.38	1.37	3.20	1.25	1.37 (105)
Supervisor Task Conflict	2.33	1.03	2.41	1.08	-0.79 (106)
Supervisor Relationship Conflict	1.76	0.89	1.86	1.01	-1.11 (105)
Group Task Conflict	2.87	1.01	3.07	1.08	-2.08 (106)*
Group Relationship Conflict	2.73	1.23	2.89	1.27	-1.32 (104)

Range: 1 (never) to 7 (always)
*p< .05. **p < .01. ***p< .001.

Group Task Conflict: mean (2.87) for "large project" significantly lower than mean (3.07)for overall sample.

Construction-Specific Job Demands

Scale	*Large Project* *n = 106*		*Overall Sample* *n = 408 to 419*		
	M	*SD*	*M*	*SD*	*T*
Contract Pressures	3.62	1.48	3.71	1.45	-0.63 (105)
Task Interdependency	5.18	1.19	5.15	1.10	0.27 (105)
Pressure to Accept Work	3.77	1.82	3.70	1.73	0.42 (105)
Job Insecurity	3.47	2.04	3.79	1.95	-1.60 (105)

Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
*p< .05. **p < .01. ***p< .001.

Job Resources

Scale	*Large Project* *n = 106 to 107*		*Overall Sample* *n = 417 to 421*		
	M	*SD*	*M*	*SD*	*t*
Job Control^	4.38	1.30	4.28	1.36	0.77 (105)
Supervisor Support#	5.08	1.23	5.22	1.21	-1.21 (105)
Co-Worker Support#	5.43	1.02	5.31	1.11	1.18 (105)
Change Participation#	4.54	1.23	4.56	1.17	-0.19 (105)
Procedural Justice#	5.07	1.02	4.85	1.08	2.21 (106)*

Praise and Recognition[#]	4.95	1.31	4.94	1.35	0.10 (105)

[^]Range: 1 (Never) to 7 (Always)
[#]Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
*p< .05. **p < .01. ***p< .001.

Procedural Justice: mean (5.07) for "large project" significantly higher than mean (4.85) for overall sample.

Employee Health Outcomes

Scale	*Large Project n = 102 to 106*		*Overall Sample n = 407 to 411*		
	M	*SD*	*M*	*SD*	*t*
Psychological Well-Being	5.25	0.87	5.20	0.87	0.58 (105)
Musculoskeletal Problems	2.52	1.25	2.49	1.33	0.21 (101)
Cardiovascular Problems	2.03	0.84	2.06	0.89	-0.42 (105)
Sleep Problems	3.29	0.95	3.23	1.17	1.42 (102)
Headaches	2.48	1.24	2.44	1.21	0.31 (103)
Gastrointestinal Problems	2.11	1.09	2.06	1.10	0.49 (104)

Range: 1 (Never) to 7 (Always)
*p< .05. **p < .01. ***p< .001.

Employee Job Outcomes

Scale	*Large Project n = 105 to 107*		*Overall Sample n = 410 to 414*		
	M	*SD*	*M*	*SD*	*t*
Job Satisfaction[#]	5.34	1.35	5.34	1.34	0.02 (106)
Work-Home Conflict[#]	4.32	1.63	4.26	1.61	0.35 (105)
Workers' Compensation Intentions[^]	1.29	0.83	1.36	0.91	-0.92 (104)
Sick Leave Intentions[^]	1.50	1.05	1.62	1.18	-1.13 (104)
Seek Medical Advice Intentions[^]	1.63	1.26	1.66	1.29	-0.26 (104)
Change Jobs Internally Intentions[^]	1.58	1.15	1.69	1.30	-0.97 (104)
Turnover Intentions[^]	1.80	1.42	1.79	1.39	0.07 (104)

*Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
^Range: 1 (Extremely Unlikely) to 7 (Extremely Likely)
*p< .05. **p < .01. ***p< .001.

9.4 Project Size: Major (greater than $400 million)

Job Demands

Scale	*Major Project* *n = 179 to 182*		*Overall Sample* *n = 415 to 429*		
	M	*SD*	*M*	*SD*	*t*
Role Overload	3.39	1.29	3.32	1.31	0.77 (178)
Cognitive Demand	5.21	1.26	5.25	1.30	-0.39 (180)
Emotional Demand	2.94	1.33	2.90	1.30	0.40 (180)
Role Ambiguity	1.93	0.83	1.93	0.88	0.06 (177)
Role Conflict	3.18	1.20	3.20	1.25	-0.24 (178)
Supervisor Task Conflict	2.45	1.13	2.41	1.08	0.51 (180)
Supervisor Relationship Conflict	1.84	0.95	1.86	1.01	-0.35 (181)
Group Task Conflict	3.15	1.05	3.07	1.08	1.05 (180)
Group Relationship Conflict	2.99	1.33	2.89	1.27	1.04 (180)

Range: 1 (never) to 7 (always)
*p< .05. **p < .01. ***p< .001.

Construction-Specific Job Demands

Scale	*Major Project* *n = 179 to 182*		*Overall Sample* *n = 408 to 419*		
	M	*SD*	*M*	*SD*	*t*
Contract Pressures	3.61	1.40	3.71	1.45	-0.95 (178)
Task Interdependency	5.19	1.05	5.15	1.10	0.56 (180)
Pressure to Accept Work	3.67	1.74	3.70	1.73	-0.25 (181)
Job Insecurity	4.01	1.89	3.79	1.95	1.58 (181)

Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
*p< .05. **p < .01. ***p< .001.

Job Resources

Scale	*Major Project* *n = 179 to 182*		*Overall Sample* *n = 417 to 421*		
	M	*SD*	*M*	*SD*	*t*
Job Control[^]	4.20	1.32	4.28	1.36	-0.81 (180)
Supervisor Support[#]	5.32	1.20	5.22	1.21	1.07 (178)
Co-Worker Support[#]	5.23	1.16	5.31	1.11	-0.93 (179)
Change Participation[#]	4.53	1.18	4.56	1.17	-0.36 (181)
Procedural Justice[#]	4.75	1.06	4.85	1.08	-1.27 (179)
Praise and Recognition[#]	5.00	1.34	4.94	1.35	0.64 (180)

[#]Range: 1 (Strongly Disagree) to 7 (Strongly Agree)

^Range: 1 (Never) to 7 (Always)
*p< .05. **p < .01. ***p< .001.

Employee Health Outcomes

Scale	*Major Project* *n = 178 to 182*		*Overall Sample* *n = 407 to 411*		
	M	*SD*	*M*	*SD*	*t*
Psychological Well-Being	5.17	0.87	5.20	0.87	-0.50 (177)
Musculoskeletal Problems	2.51	1.33	2.49	1.33	0.22 (179)
Cardiovascular Problems	2.10	0.89	2.06	0.89	0.53 (180)
Sleep Problems	3.21	0.82	3.23	1.17	-0.72 (180)
Headaches	2.47	1.20	2.44	1.21	0.29 (180)
Gastrointestinal Problems	2.10	1.09	2.06	1.10	0.45 (181)

Range: 1 (Never) to 7 (Always)
*p< .05. **p < .01. ***p< .001.

Employee Job Outcomes

Scale	*Major Project* *n = 179 to 182*		*Overall Sample* *n = 410 to 414*		
	M	*SD*	*M*	*SD*	*t*
Job Satisfaction#	5.40	1.34	5.34	1.34	0.62 (178)
Work-Home Conflict#	4.40	1.33	4.26	1.61	1.18 (181)
Workers' Compensation Intentions^	1.41	0.94	1.36	0.91	0.75 (181)
Sick Leave Intentions^	1.79	1.32	1.62	1.18	1.70 (181)
Seek Medical Advice Intentions^	1.79	1.41	1.66	1.29	1.25 (181)
Change Jobs Internally Intentions^	1.85	1.47	1.69	1.30	1.49 (181)
Turnover Intentions^	1.86	1.49	1.79	1.39	0.66 (181)

#Range: 1 (Strongly Disagree) to 7 (Strongly Agree)
^Range: 1 (Extremely Unlikely) to 7 (Extremely Likely)
*p< .05. **p < .01. ***p< .001.

9.5 Differences Among Project Size Categories

Job Demands

	Small *n* = 26	Medium *n* = 47	Large *n* = 99	Major *n* = 172	*F* (*df*)
Role Overload	3.53	3.48	3.39	3.39	0.463 (4, 354)
Cognitive Demand	5.26	5.27	5.21	5.21	0.449 (4, 354)
Emotional Demand	3.27	2.93	2.94	2.94	0.750 (4, 354)
Role Ambiguity	1.84	2.13	1.93	1.93	0.636 (4, 354)
Role Conflict	3.30	3.12	3.18	3.18	0.784 (4, 354)
Supervisor Task Conflict	2.43	3.12	2.45	2.45	0.502 (4, 354)
Supervisor Relationship Conflict	2.18	2.54	1.84	1.84	0.455 (4, 354)
Group Task Conflict	3.20	1.87	3.15	3.15	1.608 (4, 354)
Group Relationship Conflict	3.06	3.16	2.99	2.99	1.192 (4, 354)

*p< .05. **p < .01. ***p< .001.

F (36, 1298) = 1.141, *ns*.

There were no significant differences in means across project size categories for each of the job demand variables.

Construction-Specific Job Demands

	Small *n* =28	Medium *n* = 50	Large *n* = 105	Major *n* = 178	*F* (*df*)
Contract Pressures	4.20	3.93	3.62	3.61	5.857 (4, 371)***
Task Interdependency	5.30	4.94	5.18	5.19	2.409 (4, 371)*
Pressure to Accept Work	3.77	3.75	3.77	3.67	0.952 (4, 371)
Job Insecurity	4.07	3.33	3.47	4.01	2.780 (4, 371)*

*p< .05. **p < .01. ***p< .001.

F (16,1125) = 2.985, p < .001.

Post Hoc Tests:

Contract Pressures: follow up tests revealed no significant differences among project size categories.

Task Interdependency: follow up tests revealed no significant differences among project size categories.

Job Insecurity: follow up tests revealed no significant differences among project size categories.

Job Resources

	Small *n* = 28	Medium *n* = 48	Large *n* = 104	Major *n* = 175	*F* (*df*)
Job Control	4.44	4.53	4.38	4.20	1.075 (4, 365)
Supervisor Support	5.25	5.09	5.08	5.32	1.020 (4, 365)
Co-Worker Support	5.23	5.33	5.43	5.23	0.477 (4, 365)
Change Participation	4.99	4.40	4.54	4.53	1.291 (4, 365)
Procedural Justice	5.01	4.78	5.07	4.75	2.873 (4, 365)*
Praise and Recognition	4.99	4.90	4.95	5.00	0.194 (4, 365)

*$p < .05$. **$p < .01$. ***$p < .001$.

F (24,1257) = 1.620, $p < .05$.

Post Hoc Tests:

Procedural Justice: follow up tests revealed no significant differences among project size categories.

Employee Health Outcomes

	Small *n* = 25	Medium *n* = 48	Large *n* = 95	Major *n* = 174	*F* (*df*)
Psychological Well-Being	5.03	5.23	5.25	5.17	1.414 (4, 350)
Musculoskeletal Problems	3.04	2.14	2.52	2.51	2.820 (4, 350)*
Cardiovascular Problems	2.27	1.84	2.03	2.10	2.461 (4, 350)*
Sleep Problems	3.15	3.25	3.29	3.21	1.266 (4, 350)
Headaches	2.63	2.24	2.48	2.47	0.840 (4, 350)
Gastrointestinal Problems	2.12	1.71	2.11	2.10	2.906 (4, 350)*

*p< .05. **p < .01. ***p< .001.

F (24, 1204) = 1.285, *ns*.

Post Hoc Tests:

Musculoskeletal Problems: follow up tests revealed no significant differences among project size categories.
Cardiovascular Problems: follow up tests revealed no significant differences among project size categories.
Gastrointestinal Problems: follow up tests revealed no significant differences among project size categories.

Employee Job Outcomes

	Small *n* = 28	Medium *n* = 51	Large *n* = 105	Major *n* = 179	*F* (*df*)
Job Satisfaction	5.12	5.14	5.34	5.40	0.641 (4, 373)
Work-Home Conflict	4.50	3.89	4.32	4.40	1.095 (4, 373)
Workers' Compensation Intentions	1.43	1.35	1.29	1.41	0.305 (4, 373)
Sick Leave Intentions	1.68	1.41	1.50	1.79	1.458 (4, 373)
Seek Medical Advice Intentions	1.71	1.39	1.63	1.79	1.131 (4, 373)
Change Jobs Internally Intentions	1.82	1.49	1.58	1.85	1.115 (4, 373)
Turnover Intentions	1.79	1.73	1.80	1.86	0.080 (4, 373)

*p< .05. **p < .01. ***p< .001.

F (28,1324) = 1.024, *ns*.

There were no significant differences in means across project size categories for each of the employee job outcomes.

9.6 Summary: Results by Project Size

Job Demands

- Construction workers employed on “large projects” reported a lower mean for group task conflict than the overall sample.
- The MANOVAs revealed no significant differences in means across the four project size categories for each of the job demand variables.

Construction-Specific Job Demands

- Construction workers employed on “small projects” reported a higher mean for contract pressures than the overall sample.
- The MANOVAs revealed no significant differences in means across the four project size categories for each of the construction-specific job demand variables.

Job Resources

- Construction workers employed on “small projects” reported a higher mean for change participation than the overall sample.
- Construction workers employed on “large projects” reported a higher mean for procedural justice than the overall sample.
- The MANOVAs revealed no significant differences in means across the four project size categories for each of the job resource variables.

Employee Health Outcomes

- Construction workers employed on “small projects” reported a higher mean for musculoskeletal problems than the overall sample.
- The MANOVAs revealed no significant differences in means across the four project size categories for each of the employee health outcomes.

Employee Job Outcomes

- The t-tests revealed no significant differences between each of the four project size categories and the overall sample for the employee health outcomes (t-tests).
- The MANOVAs revealed no significant differences in means across the four project size categories for each of the employee job outcomes.

Section 10 – Correlations of Job Demands and Job Resources with Employee Outcomes

In this section, correlations are provided between job demands, construction-specific job demands, and job resources with employee health outcomes and employee job outcomes.

Correlation Table of Job Demands with Employee Outcomes (Health and Job)

	Role Overload	Cognitive Demand	Emotional Demand	Role Ambiguity	Role Conflict	Supervisor Task Conflict	Supervisor Relationship Conflict	Group Task Conflict	Group Relationship Conflict
Psychological Well-Being	r=-0.39 p = 0.000	r=-0.03 p=0.549	r=-0.41 p=0.000	r=-0.42 p=0.000	r=-0.35 p=0.000	r=-0.34 p=0.000	r=-0.43 p=0.000	r=-0.29 p=0.000	r=-0.26 p=0.000
Musculoskeletal Problems	r=0.17 p=0.001	r=-0.11 p p=0.028	r=0.19 p=0.000	r=0.11 p=0.031	r=0.13 p=0.010	r=0.11 p=0.032	r=0.19 p=0.000	r=0.08 p=0.099	r=0.09 p=0.077
Cardiovascular Problems	r=0.17 p=0.001	r=0.002 p=0.971	r=0.22 p=0.000	r=0.03 p=0.491	r=0.12 p=0.019	r=0.11 p=0.022	r=0.25 p=0.000	r=0.15 p=0.002	r=0.13 p=0.009
Sleep Problems	r=0.22 p=0.000	r=-0.09 p=0.059	r=0.31 p=0.000	r=0.18 p=0.000	r=0.19 p=0.000	r=0.19 p=0.000	r=0.22 p=0.000	r=0.14 p=0.004	r=0.20 p=0.00
Headaches	r-0.25 p=0.000	r=-0.03 p=0.575	r=0.26 p=0.000	r=0.21 p=0.000	r=0.21 p=0.000	r=0.20 p=0.000	r=0.23 p=0.000	r=0.18 p=0.000	r=0.18 p=0.000
Gastrointestinal Problems	r=0.11 p=0.022	r=-0.02 p=0.642	r=0.19 p=0.000	r=0.11 p=0.025	r=0.13 p=0.010	r=0.13 p=0.007	r=0.23 p=0.000	r=0.13 p=0.008	r=0.18 p=0.000
Job Satisfaction	r=-0.33 p=0.000	r=-0.03 p=0.608	r=-0.25 p=0.000	r=-0.35 p=0.000	r=-0.33 p=0.000	r=-0.36 p=0.000	r=-0.34 p=0.000	r=-0.26 p=0.000	r=-0.29 p=0.000
Work-Home Conflict	r=0.48 p =0.000	r=0.33 p=0.000	r=0.37 p=0.000	r=0.20 p=0.000	r=0.35 p=0.000	r=0.26 p=0.000	r=0.28 p=0.000	r=0.21 p=0.000	r=0.30 p=0.000
Workers' Compensation Intentions	r=0.08 p=0.131	r=-0.12 p=0.015	r=0.20 p=0.000	r=0.07 p=0.141	r=0.10 p=0.041	r=0.15 p=0.002	r=0.30 p=0.000	r=0.22 p=0.000	r=0.13 p=0.007
Sick Leave Intentions	r=0.15 p=0.003	r=-0.05 p=0.322	r=0.26 p=0.000	r=0.14 p=0.006	r=0.16 p=0.001	r=0.15 p=0.003	r=0.26 p=0.000	r=0.18 p=0.000	r=0.16 p=0.001
Seek Medical Advice Intentions	r=0.13 p=0.008	r=-0.08 p=0.131	r=0.26 p=0.000	r=0.11 p=0.022	r=0.10 p=0.044	r=0.15 p=0.003	r=0.25 p=0.000	r=0.16 p=0.001	r=0.13 p=0.008
Change Jobs Internally Intentions	r=0.17 p=0.001	r=-0.03 p=0.555	r=0.25 p=0.000	r=0.16 p=0.002	r=0.18 p=0.000	r=0.22 p=0.000	r=0.25 p=0.000	r=0.24 p=0.000	r=0.20 p=0.000
Turnover Intentions	r=0.24 p=0.000	r=0.03 p=0.529	r=0.33 p=0.000	r=0.18 p=0.000	r=0.23 p=0.000	r=0.21 p=0.000	r=0.25 p=0.000	r=21 p=0.000	r=19 p=0.000

Correlation Table of Construction-Specific Job Demands with Employee Outcomes (Health and Job)

	Contract Pressures	**Task Interdependency**	**Pressure to Accept Work**	**Job Insecurity**
Psychological Well-Being	r=-0.35 p = 0.000	r=0.05 p=0.323	r=-0.36 p=0.000	r=-0.146 p=0.003
Musculoskeletal Problems	r=0.19 p=0.000	r=.038 p=0.440	r=0.17 p=0.001	r= 0.11 p=0.035
Cardiovascular Problems	r=0.17 p=0.001	r=-0.07 p=0.152	r=0.25 p=0.000	r=0.20 p=0.000
Sleep Problems	r=0.26 p=0.000	r=0.01 p=0.870	r=0.29 p=0.000	r=0.18 p=0.000
Headaches	r=0.21 p=0.000	r=-0.03 p=0.560	r=0.20 p=0.000	r=0.15 p=0.002
Gastrointestinal Problems	r=0.16 p=0.001	r=-0.06 p=0.245	r=0.24 p=0.000	r=0.21 p=0.000
Job Satisfaction	r=-0.36 p=0.000	r=0.04 p=0.424	r=-0.35 p=0.000	r=-0.17 p=0.000
Work-Home Conflict	r=0.34 p=0.000	r=0.16 p=0.001	r=0.45 p=0.000	r=0.10 p=0.038
Workers' Compensation Intentions	r=0.19 p=0.000	r=-0.17 p=0.001	r=0.09 p=0.075	r=0.24 p=0.000
Sick Leave Intentions	r=0.21 p=0.000	r=-0.05 p=0.341	r=0.17 p=0.001	r=0.24 p=0.000
Seek Medical Advice Intentions	r=0.22 p=0.000	r=-0.08 p=0.097	r=0.15 p=0.003	r=0.25 p=0.000
Change Jobs Internally Intentions	r=0.22 p=0.000	r=-0.07 p=0.134	r=0.19 p=0.000	r=0.26 p=0.000
Turnover Intentions	r=0.29 p=0.000	r=0.05 p=0.919	r=0.24 p=0.000	r=0.22 p=0.000

Correlation Table of Job Resources with Employee Outcomes (Health and Job)

	Job Control	**Supervisor Support**	**Co-Worker Support**	**Change Participation**	**Procedural Justice**	**Praise and Recognition**
Psychological Well-Being	r=0.26 p = 0.000	r=0.45 p=0.000	r=0.49 p=0.000	r=0.34 p=0.000	r=0.42 p=0.000	r=0.42 p=0.000
Musculoskeletal Problems	r=-0.16 p=0.001	r=-0.14 p=0.007	r=-0.13 p=0.007	r=-0.21 p=0.000	r=-0.14 p=0.006	r=-0.18 p=0.000
Cardiovascular Problems	r=-0.21 p=0.000	r=-0.16 p=0.002	r=-0.21 p=0.000	r=-0.09 p=0.072	r=-0.11 p=0.025	r=-0.20 p=0.000
Sleep Problems	r=-0.15 p=0.003	r=-0.20 p=0.000	r=-0.21 p=0.000	r=-0.07 p=0.155	r=-0.09 p=0.079	r=-0.16 p=0.002
Headaches	r=-0.17 p=0.001	r=-0.19 p=0.000	r=-0.30 p=0.000	r=-0.18 p=0.000	r=-0.17 p=0.000	r=-0.18 p=0.000
Gastrointestinal Problems	r=-0.14 p=0.005	r=-0.17 p=0.001	r=-0.21 p=0.000	r=-0.12 p=0.018	r=-0.12 p=0.018	r=-0.17 p=0.001
Job Satisfaction	r=0.17 p=0.001	r=0.50 p=0.000	r=0.45 p=0.000	r=0.39 p=0.000	r=0.33 p=0.000	r=0.48 p=0.000
Work-Home Conflict	r=-0.06 p=0.267	r=-0.22 p=0.000	r=-0.24 p=0.000	r=-0.18 p=0.000	r=-0.15 p=0.002	r=-0.09 p=0.070
Workers' Compensation Intentions	r=-0.20 p=0.000	r=-0.27 p=0.000	r=-0.30 p=0.000	r=-0.12 p=0.020	r=-0.18 p=0.000	r=-0.24 p=0.000
Sick Leave Intentions	r=-0.18 p=0.000	r=-0.24 p=0.000	r=-0.29 p=0.000	r=-0.15 p=0.002	r=-0.20 p=0.000	r=-0.20 p=0.000
Seek Medical Advice Intentions	r=-0.16 p=0.001	r=-0.21 p=0.000	r=-0.25 p=0.000	r=-0.11 p=0.023	r=-0.14 p=0.006	r=-0.19 p=0.000
Change Jobs Internally Intentions	r=-0.16 p=0.001	r=-0.22 p=0.000	r=-0.31 p=0.000	r=-0.19 p=0.000	r=-0.18 p=0.000	r=-0.18 p=0.000
Turnover Intentions	r=-0.11 p=0.032	r=-0.27 p=0.000	r=-0.30 p=0.000	r=-0.23 p=0.000	r=-0.18 p=0.000	r=-0.21 p=0.000

Section 11 – Regressions of Job Demands and Job Resources with Employee Outcomes

This section examines the influence of job demands and job resources on the three employee outcomes that feature in the People at Work (PAW) Project (i.e., psychological well-being, musculoskeletal problems, and job satisfaction). A series of hierarchical regression analyses were conducted in which several control variables (i.e., gender, age, tenure, and negative affect) were entered at Step 1 and the relevant set of predictors (i.e., job demands or job resources) were entered at Step 2.

These analyses permit the simultaneous examination of all job demands (or job resources) in predicting the employee outcome of interest, after taking into account the effects of gender (dummy coded as 1 = male; 2 = female), age (treated as a continuous variable), tenure, and negative affect.

The effects of negative affect were statistically controlled in the correlational analyses. Watson and Pennebaker (1989) noted that negative affectivity – an aspect of personality – is likely to act as a nuisance variable in cross-sectional research that relies on self-report measures of stress and strain from a single source. This is because negative affectivity may be tapped by measures of both job demands and employee adjustment, thus inflating the correlations between these variables. Thus, the construct of negative affectivity was assessed using the 11-item version of the Multidimensional Personality Index (Agho, Price, & Mueller, 1992).

11.1 Psychological Well-Being

Relationship of Job Demands to Psychological Well-Being

Predictor		
	B	*B*
Step 1		
Gender	.008	
Age	.018	
Tenure	.022	
Negative Affect	-.492***	
R^2	**.243*** **	
Step 2		
Role Overload		-.147**
Cognitive Demand		.118*
Emotional Demand		-.134*
Role Ambiguity		-.258***
Role Conflict		-.021
Supervisor Task Conflict		.054
Supervisor Relationship Conflict		-.283***
Group Task Conflict		.047
Group Relationship Conflict		.039
ΔR^2		**.229*** **

*p< .05. **p< .01. ***p< .001.

The results in this table demonstrate that:

1. Negative affect was the only control variable significantly associated with psychological well-being (Step 1). There was no relationship between gender, age, and tenure with psychological well-being.
2. Role overload was significantly negatively related to psychological well-being. In other words, the higher the role overload experienced by respondents, the lower their psychological well-being.
3. Cognitive demand was significantly related to psychological well-being in a positive direction (i.e., the higher the cognitive demands individuals faced, the higher their psychological well-being.
4. Emotional demand was significantly negatively related to psychological well-being, demonstrating that high emotional demands reduced levels of psychological well-being.
5. Role ambiguity was significantly negatively related to psychological well-being (i.e., the higher the perceived role ambiguity, the lower the psychological well-being for the individual).
6. Supervisor relationship conflict was a significant negative predictor of psychological well-being.
7. No significant relationships were observed for psychological well-being in regards to role conflict, supervisor task conflict, group task conflict, and group relationship conflict.

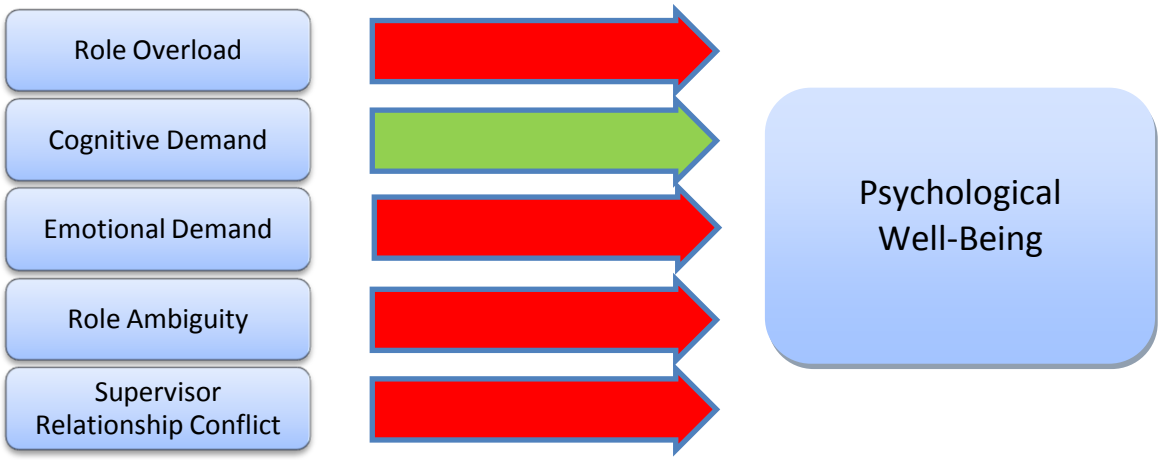


Figure 11.1: Regression results for job demands on psychological well-being.

Relationship of Construction-Specific Job Demands to Psychological Well-Being

Predictor		
	β	*β*
Step 1		
Gender	.008	
Age	.018	
Tenure	.022	
Negative Affect	-.492***	
R^2	**.243*** **	
Step 2		
Contract Pressures		-.204***
Task Interdependency		.129**
Pressure to Accept Work		-.162**
Job Insecurity		.064
ΔR^2		**.085*** **

*p< .05. **p< .01. ***p< .001.

The results in this table demonstrate that:

1. Negative affect was the only control variable significantly associated with psychological well-being (Step 1). There was no relationship between gender, age, and tenure with psychological well-being.
2. Contract pressures were significantly negatively related to psychological well-being. In other words, the greater the contract demands faced by individuals, the lower their psychological well-being.
3. Task interdependency was significantly positively related to psychological well-being, indicating that task interdependency increased levels of psychological well-being.
4. Pressure to accept jobs when they arise was related to lower levels of psychological well-being.
5. Job insecurity was not a significant predictor of psychological well-being.

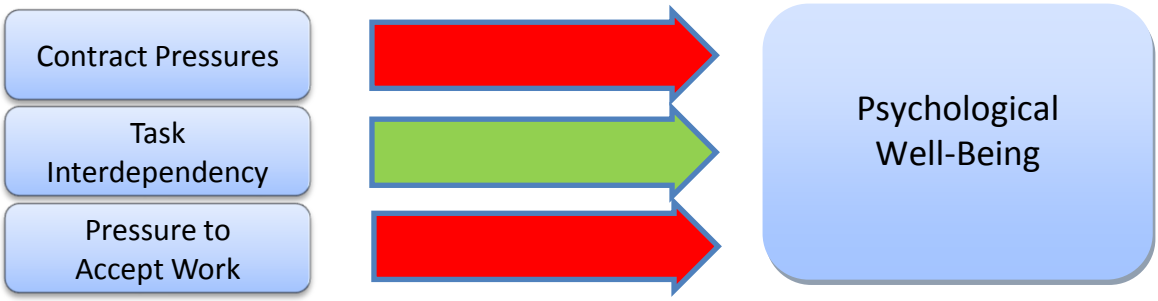


Figure 11.2: Regression results for construction-specific job demands on psychological well-being.

Relationship of Job Resources to Psychological Well-Being

Predictor		
	β	*β*
Step 1		
Gender	.008	
Age	.018	
Tenure	.022	
Negative Affect	-.492***	
R^2	**.243*** **	
Step 2		
Job Control		.099*
Supervisor Support		.127*
Co-Worker Support		.209***
Change Participation		.015
Procedural Justice		.100*
Praise and Recognition		.095
ΔR^2		**.224*** **

*p< .05. **p< .01. ***p< .001.

The results in this table demonstrate that:

1. Negative affect was the only control variable significantly associated with psychological well-being (Step 1).There was no relationship between gender, age, and tenure with psychological well-being.
2. Job control had a significant positive relationship with psychological well-being. Thus, the higher the job control perceived by employees, the higher their level of psychological well-being.
3. Supervisor and co-worker support were both positively related to psychological well-being. In other words, perceived support from supervisors and co-workers was shown to enhance psychological well-being.
4. Procedural justice had a significant positive relationship to psychological well-being. Employees who viewed workplace practices as fair reported higher levels of psychological well-being.
5. No significant relationships on psychological well-being were observed for change participation and praise and recognition.

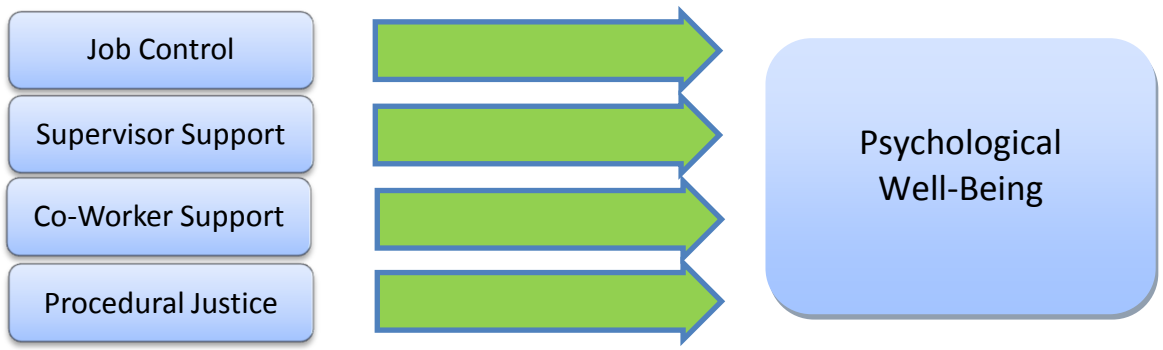


Figure 11.3: Regression results for job resources on psychological well-being.

11.2 Musculoskeletal Problems

Relationship of Job Demands to Musculoskeletal Problems

Predictor		
	B	*B*
Step 1		
Gender	.164**	
Age	.085	
Tenure	-.026	
Negative Affect	.226***	
R^2	**.087*** **	
Step 2		
Role Overload		.061
Cognitive Demand		.076
Emotional Demand		.006
Role Ambiguity		.088
Role Conflict		.005
Supervisor Task Conflict		-.120
Supervisor Relationship Conflict		.192**
Group Task Conflict		-.027
Group Relationship Conflict		-.027
ΔR^2		**.038**

*p< .05. **p< .01. ***p< .001.

The results in this table demonstrate that:

1. Gender and negative affect were significantly associated with musculoskeletal problems (Step 1). In regards to gender (t = -3.67; p = .000), females (M = 3.29) reported higher levels of musculoskeletal problems than males (M = 2.41). It should be noted that, in this sample, the vast majority of females (n = 24 out of 33 respondents) occupied managerial, professional, or administrative roles. Age and tenure did not predict musculoskeletal problems.
2. The only job demand that significantly positively related to musculoskeletal problems was supervisor relationship conflict. The higher the perceived relationship problems with one's supervisor, the higher the musculoskeletal problems.
3. The remaining job demands were not significantly related to musculoskeletal problems.

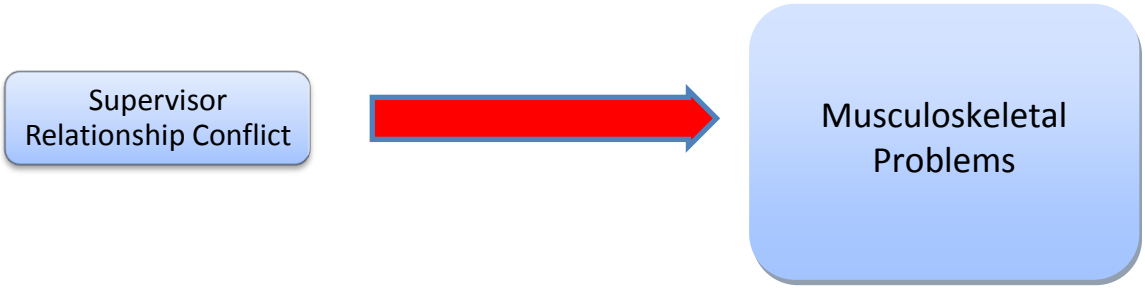


Figure 11.4: Regression results for job demands on musculoskeletal problems.

Relationship of Construction-Specific Job Demands to Musculoskeletal Problems

Predictor		
	β	*β*
Step 1		
Gender	.164**	
Age	.085	
Tenure	-.026	
Negative Affect	.226***	
R^2	**.087*** **	
Step 2		
Contract Pressures		.110
Task Interdependency		-.011
Pressure to Accept Work		.071
Job Insecurity		.030
ΔR^2		**.024**

*p< .05. **p< .01. ***p< .001.

The results in this table demonstrate that:

1. Gender and negative affect were significantly associated with musculoskeletal problems (Step 1). In regards to gender (t = -3.67; p = .000), females (M = 3.29) reported higher levels of musculoskeletal problems than males (M = 2.41). It should be noted that, in this sample, the vast majority of females (n = 24 out of 33 respondents) occupied managerial, professional, or administrative roles. Age and tenure did not predict musculoskeletal problems.
2. The construction-specific job demands were entered at Step 2 and none of these were significantly related to musculoskeletal problems.

Relationship of Job Resources to Musculoskeletal Problems

Predictor		
	β	*β*
Step 1		
Gender	.164**	
Age	.085	
Tenure	-.026	
Negative Affect	.226***	
R^2	**.087*** **	
Step 2		
Job Control		-.115*
Supervisor Support		.044
Co-Worker Support		.025
Change Participation		-.119*
Procedural Justice		-.018
Praise and Recognition		-.104
ΔR^2		**.047****

*p< .05. **p< .01. ***p< .001.

The results in this table demonstrate that:

1. Gender and negative affect were significantly associated with musculoskeletal problems (Step 1). In regards to gender (t = -3.67; p = .000), females (M = 3.29) reported higher levels of musculoskeletal problems than males (M = 2.41). It should be noted that, in this sample, the vast majority of females (n = 24 out of 33 respondents) occupied managerial, professional, or administrative roles. Age and tenure did not predict musculoskeletal problems.
2. Job control was significantly negatively related to musculoskeletal problems, demonstrating that, the higher an individual's perception of job control, the lower their level of musculoskeletal problems.
3. Change participation also was significantly negatively related to musculoskeletal problems. Thus, the more that respondents felt that they were consulted and involved in workplace changes, the lower their self-reported musculoskeletal problems.
4. Supervisor support, co-worker support, procedural justice, and praise and recognition had no significant relationship with musculoskeletal problems.

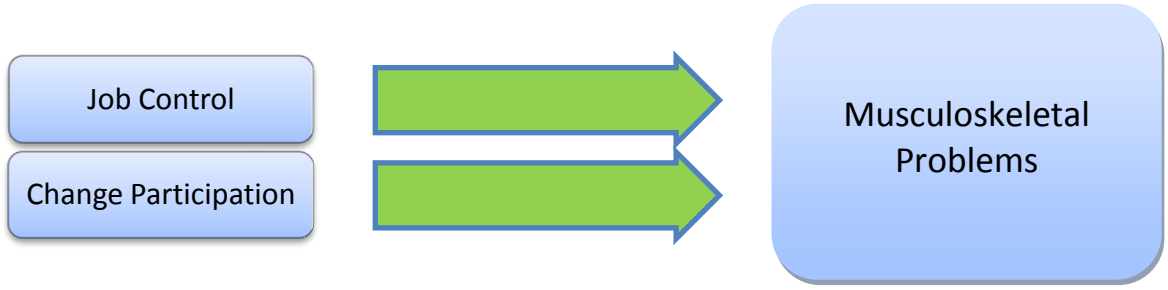


Figure 11.5: Regression results for job resources on musculoskeletal problems.

11.3 Job Satisfaction

Relationship of Job Demands to Job Satisfaction

Predictor		
	B	*B*
Step 1		
Gender	.085	
Age	-.096	
Tenure	.048	
Negative Affect	-.327***	
R^2	**.115*** **	
Step 2		
Role Overload		-.158*
Cognitive Demand		.112*
Emotional Demand		.029
Role Ambiguity		-.227***
Role Conflict		-.047
Supervisor Task Conflict		-.119
Supervisor Relationship Conflict		-.123
Group Task Conflict		.089
Group Relationship Conflict		-.117*
ΔR^2		**.188*** **

**p*< .05. ***p*< .01. ****p*< .001.

The results in this table demonstrate that:

1. Negative affect was significantly associated with job satisfaction in a negative direction (Step 1). The remaining control variables were not significantly related to job satisfaction.
2. Role overload was significantly negatively related to job satisfaction.
3. Cognitive demand was significantly positively related to job satisfaction. In this respect, the higher the perceived levels of cognitively challenging work, the higher the levels of job satisfaction.
4. Role ambiguity and group relationship conflict both had a significant negative association with job satisfaction.
5. Emotional demand, role conflict, supervisor task conflict, supervisor relationship conflict, and group task conflict were not related to job satisfaction.

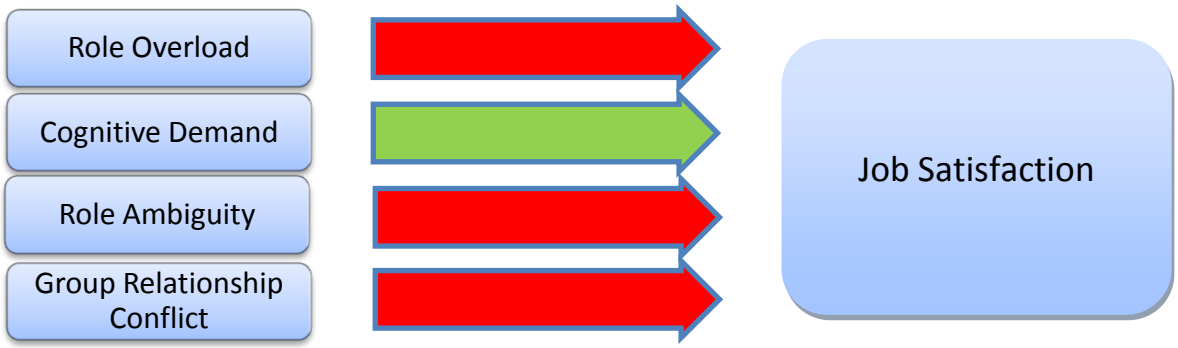


Figure 11.6: Regression results for job demands on job satisfaction.

Relationship of Construction-Specific Job Demands to Job Satisfaction

Predictor		
	β	*β*
Step 1		
Gender	.085	
Age	-.096	
Tenure	.048	
Negative Affect	-.327***	
R^2	**.115*** **	
Step 2		
Contract Pressures		-.225***
Task Interdependency		.102*
Pressure to Accept Work		-.171**
Job Insecurity		.023
ΔR^2		**.100*** **

*p< .05. **p< .01. ***p< .001.

The results in this table demonstrate that:

1. Negative affect was significantly associated with job satisfaction in a negative direction (Step 1). The remaining control variables were not significantly related to job satisfaction.
2. Contract pressures were significantly negatively related to job satisfaction. The greater the pressure related to contracts, the lower the individual's level of satisfaction with their job.
3. Task interdependency had a significant positive relationship to job satisfaction. The greater the interdependency on others to complete work, the higher the individual's levels of job satisfaction.
4. Pressure to accept work exerted a significant negative effect on job satisfaction. The more pressure an individual perceived to accept jobs, the lower their levels of job satisfaction.
5. Job insecurity was not related to job satisfaction.

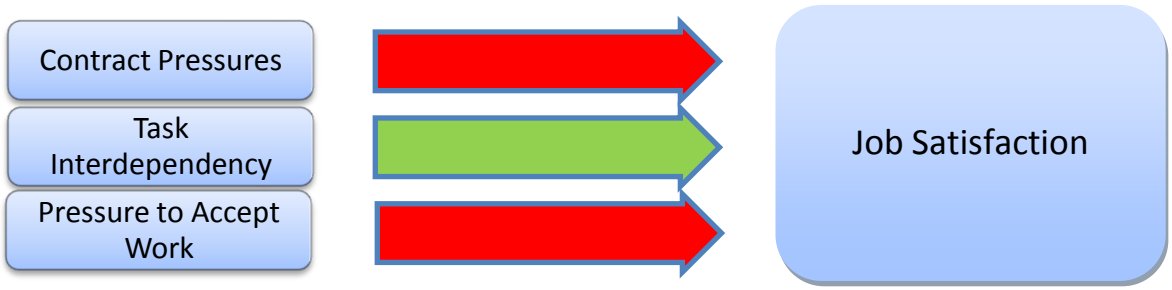


Figure 11.7: Regression results for construction-specific job demands on job satisfaction.

Relationship of Job Resources to Job Satisfaction

Predictor		
	β	*β*
Step 1		
Gender	.085	
Age	-.096	
Tenure	.048	
Negative Affect	-.327***	
R^2	**.115*** **	
Step 2		
Job Control		.000
Supervisor Support		.205**
Co-Worker Support		.141*
Change Participation		.120*
Procedural Justice		-.018
Praise and Recognition		.191**
ΔR^2		**.259*** **

*p< .05. **p< .01. ***p< .001.

The results in this table demonstrate that:

1. Negative affect was significantly associated with job satisfaction in a negative direction (Step 1). The remaining control variables were not significantly related to job satisfaction.
2. Supervisor and co-worker support were both significantly positively related to job satisfaction. The greater the perceived levels of support from supervisors and co-workers, the more satisfied individuals were with their jobs.
3. Change participation was significantly positively related to job satisfaction. The more respondents were involved and consulted regarding workplace changes, the more satisfied they were with their jobs.
4. Praise and recognition was positively related to job satisfaction. The more an individual's contributions and successes were recognised and praised, the higher their levels of job satisfaction.
5. Job control and procedural justice were not related to job satisfaction.

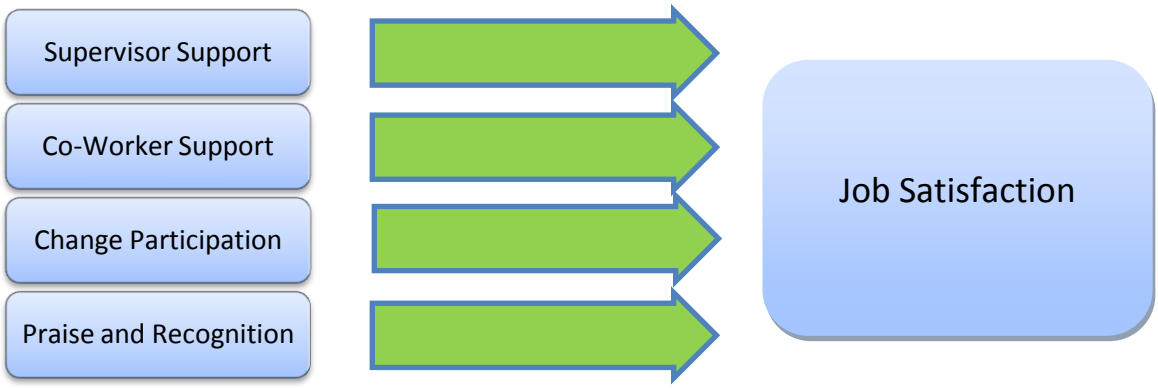


Figure 11.8: Regression results for job resources on job satisfaction.

11.4 Summary

Job Demands

- Role overload was a significant negative predictor of psychological well-being and job satisfaction.
- Cognitive demand was a significant positive predictor of psychological well-being and job satisfaction demonstrating that, contrary to initial expectations, cognitively demanding work enhances, rather than erodes, psychological well-being and job satisfaction.
- Emotional demand was a significant negative predictor of psychological well-being.
- Role ambiguity was a significant negative predictor of psychological well-being and job satisfaction.
- Supervisor relationship conflict was a significant negative predictor of psychological well-being and a significant positive predictor of musculoskeletal problems.
- Group relationship conflict was a significant negative predictor of job satisfaction.

Construction-Specific Job Demands

- Contract pressures were a significant negative predictor of psychological well-being and job satisfaction.
- Task interdependency was a significant positive predictor of psychological well-being and job satisfaction, demonstrating that, contrary to initial expectations, task interdependency enhances, rather than erodes, psychological well-being and job satisfaction.
- Pressure to accept work was a significant negative predictor of psychological well-being and job satisfaction.

Job Resources

- Job control was a significant positive predictor of psychological well-being and a significant negative predictor of musculoskeletal problems.
- Supervisor support was a significant positive predictor of psychological well-being and job satisfaction.
- Co-Worker support was a significant positive predictor of psychological well-being and job satisfaction.
- Change participation was a significant negative predictor of musculoskeletal problems and a significant positive predictor of job satisfaction.
- Procedural justice was a significant positive predictor of psychological well-being.
- Praise and recognition was a significant positive predictor of job satisfaction.

Predictor	Psychological Well-Being	Musculoskeletal Problems	Job Satisfaction
Job Demands			
Role Overload	-		-
Cognitive Demand	+		+
Emotional Demand	-		
Role Ambiguity	-		-
Role Conflict			
Supervisor Task Conflict			
Supervisor Relationship Conflict	-	+	
Group Task Conflict			
Group Relationship Conflict			-
Construction-Specific Job Demands			
Contract Pressures	-		-
Task Interdependency	+		+
Pressure to Accept Work	-		-
Job Insecurity			
Job Resources			
Job Control	+	-	
Supervisor Support	+		+
Co-Worker Support	+		+
Change Participation		-	+
Procedural Justice	+		
Praise and Recognition			+

Section 12 – People at Work (PAW) Risk Assessment Profile

People at Work (PAW) Risk Assessment Profile

As part of the People at Work (PAW) Project, a standardised risk assessment profile has been developed for feedback to managers and other stakeholders. The People at Work (PAW) report presents "percentage of agreement" values for a subset of the job demands, job resources, and employee outcomes examined in this research project. The 7-point response scale for all variables are converted to the following 3 categories:

1-2.999 (disagree)	3-4.999 (neutral)	5-7 (agree)

From Table 12.1, it can be seen that 64.6% of the Abigroup, Northern Region sample agreed that they experienced cognitive demands. Role overload (13.7%) and role conflict (12.9%) were the next most prevalent job demands. The percentage of construction workers experiencing group relationship conflict (9.3%), emotional demands (8.8%), and group task conflict (6.6%) were low, and exposure to role ambiguity was negligible (0.7%).

In terms of job resources, the percentage of construction workers who felt supported from co-workers (74.5%) and supervisors (68.7%) was high. Feelings of praise and recognition from one's supervisor also were prevalent among the sample (63.2%). However, just half of respondents agreed that their workplace was procedurally just (51.8%), and less than half of the sample agreed that they are consulted about change (41.4%) and have control over their job (36.4%).

For the employee outcomes, it can be seen that 72% of the sample agreed that they experienced job satisfaction. 65.8% of the sample indicated an absence of musculoskeletal problems, and 61.2% of the sample reported psychological well-being.

Normative Comparisons with People at Work (PAW) Data

Next, the results for the sample provided by Abigroup, Northern Region have been compared to a set of Australian norms (N = 6,513) based on a broad range of industries and occupations. If the results are 10% higher or 10% lower than the norms in question, they are colour coded red or green accordingly. Red denotes a less favourable outcome compared to the norm group, whereas green denotes a more favourable outcome compared to the norm group. Results demonstrate that Abigroup, Northern Region employees report less emotional demands (16.7% lower) and more supervisor support (10.2% higher) than the Australian norm group. However, Abigroup, Northern Region employees report less job control (11.5% lower) than the Australian norm group. Construction workers in this sample also reported more musculoskeletal problems (11.6% higher) than the Australian norm group.

The Abigroup, Northern Region results also have been compared to norms specific to the construction industry (n = 479). The results for Abigroup, Northern Region are consistent with the construction norm group for all variables, with the exception of co-worker support. In this respect, Abigroup, Northern Region employees report higher co-worker support (13.5% higher) than the construction norm group.

Table 12.1 Normative Comparisons with People at Work (PAW) Data

	% Agree **Abigroup Sample N = 424**	% Difference **Australian Norms N = 6,513**	% Difference **Construction Norms N = 479**
		< -10%	< -10%
		-10<+10%	-10<+10%
		>+10%	>+10%
Job Demands			
Role Overload	13.7%	-0.2%	-0.2%
Cognitive Demand	64.6%	-5.7%	-6.4%
Emotional Demand	8.8%	-16.7%	-2.2%
Role Ambiguity	0.7%	-0.3%	-0.1%
Role Conflict	12.9%	+3.2%	+1.5%
Group Task Conflict	6.6%	+0.1%	-2.9%
Group Relationship Conflict	9.3%	-4.0%	-2.2%
		> +10%	> +10%
		-10<+10%	-10<+10%
		< -10%	< -10%
Job Resources			
Job Control	36.4%	-11.5%	-7.7%
Supervisor Support	68.7%	+10.2%	+8.5%
Co-Worker Support	74.5%	+5.3%	+13.5%
Change Consultation	41.4%	-0.8%	-6.2%
Procedural Justice	51.8%	+1.4%	-2.8%
Praise and Recognition	63.2%	+1.5%	+6.8%
		> +10%	> +10%
		-10<+10%	-10<+10%
		< -10%	< -10%
Employee Outcomes			
Psychological Well-Being	61.2%	-1.1%	-5.2%
Musculoskeletal Problems (r)	65.8%	+11.6%	+9.5%
Job Satisfaction	72.0%	-2.6%	-1.6%

Section 13 – Bullying and Harassment

This section reports the results in relation to bullying and harassment, including (1) the frequency of experiencing and witnessing bullying and harassment, (2) the sources of bullying and harassment and the types of bullying and harassment construction workers encounter.

According to Workplace Health and Safety Queensland's Prevention of Workplace Harassment Code of Practice (2004), workplace harassment is where a person is subjected to behaviour (other than sexual harassment), that is repeated, unwelcome and unsolicited, where the person considers the behaviour to be offensive, intimidating, humiliating or threatening, and where a reasonable person would consider the behaviour to be offensive, humiliating, intimidating or threatening. Workplace harassment covers a wide range of behaviours, including:

- abusing a person loudly, usually when others are present
- repeated threats of dismissal or other severe punishment for no reason
- constant ridicule and being put down
- leaving offensive messages on email or the telephone
- sabotaging a person's work, for example, by deliberately withholding or supplying incorrect information, hiding documents or equipment, not passing on messages and getting a person into trouble in other ways
- maliciously excluding and isolating a person from workplace activities
- persistent and unjustified criticisms, often about petty, irrelevant or insignificant matters
- humiliating a person through gestures, sarcasm, criticism and insults, often in front of customers, management or other workers
- spreading gossip or false, malicious rumours about a person with an intent to cause the person harm

Experience of Bullying and Harassment - Overall Sample

Construction workers responded to the question "In the last month, have you been subjected to workplace bullying/harassment in your workgroup?"

Frequency	*N*	Percentage
Never	279	65.8%
Rarely	73	17.2%
Once in a while	32	7.5%
Some of the time	16	3.8%
Fairly often	8	1.9%
Often	6	1.4%
Almost daily	6	1.4%
No response	4	0.9%
TOTAL	424	

Witnessing of Bullying and Harassment - Overall Sample

Construction workers responded to the question "In the last month, have you witnessed workplace harassment/bullying in your workgroup?"

Frequency	*N*	Percentage
Never	208	49.1%
Rarely	91	21.5%
Once in a while	45	10.6%
Some of the time	38	9.0%
Fairly often	21	4.9%
Often	7	1.7%
Almost daily	11	2.6%
No response	3	0.7%
TOTAL	424	

Source of Bullying and Harassment - Overall Sample

Construction workers who indicated that they had witnessed or been subjected to bullying were asked to indicate the source of bullying. Employees responded to the question "Please indicate the primary source of the harassment/bullying behaviour."

Source	Frequency	Percentage
Supervisor	46	10.8%
Subordinate	4	0.9%
Co-Worker	75	17.7%
Project/Site Manager	11	2.6%
Customer	5	1.2%
Supervisors from other contractors	11	2.6%
Workers from other contractors	24	5.7%
Other	5	1.2%
No response	243	57.3%
TOTAL	424	

Type of Bullying and Harassment - Overall Sample

Construction workers responded to the question "In the last month, have you been subjected to any of the following repeated behaviours to such an extent that you have been offended, intimidated, humiliated, or threatened by?"

Type	*Never*		*Rarely*		*Once in a while*		*Some of the time*		*Fairly often*		*Often*		*Almost daily*		*No Response*	
	N	*%*	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*
Verbal abuse	234	55.2	86	20.3	47	11.1	22	5.2	17	4.0	5	1.2	9	2.1	4	0.9
Repeated threats of severe punishment for no reason	327	77.1	48	11.3	20	4.7	13	3.1	4	0.9	5	1.2	3	0.7	4	0.9
Constant ridicule and being put down	286	67.5	80	18.9	16	3.8	20	4.7	9	2.1	4	0.9	6	1.4	3	0.7
Offensive messages via phone, email or mail	372	87.7	29	6.8	7	1.7	11	2.6	1	0.2	0	0.0	0	0.0	4	0.9
Sabotage of your work	356	84.0	39	9.2	11	2.6	6	1.4	6	1.4	1	0.2	0	0.0	3	0.7
Maliciously excluded and isolated from workplace activities	349	82.3	42	9.9	13	3.1	12	2.8	1	0.2	4	0.9	0	0.0	3	0.7
Persistent and unjustified criticism	312	73.6	56	13.2	19	4.5	13	3.1	9	2.1	6	1.4	3	0.7	6	1.4
Humiliated through gestures, sarcasm, criticism, and insults	291	68.6	69	16.3	22	5.2	20	4.7	9	2.1	5	1.2	4	0.9	4	0.9
Subject of gossip or false, malicious rumours with intent to cause harm	308	72.6	64	15.1	15	3.5	15	3.5	6	1.4	9	2.1	4	0.9	3	0.7

Summary: Bullying and Harassment

- 16.9% of the sample indicated that they had been subjected to harassment and bullying once in a while, some of the time, fairly often, often, or daily.
- 29.5% of the sample indicated that they had witnessed harassment and bullying once in a while, some of the time, fairly often, often, or daily.
- The main source of harassment and bullying was co-workers, followed by supervisors.
- The most prevalent type of bullying and harassment was verbal abuse, followed by constant ridicule and being put down, and being humiliated through gestures, sarcasm, criticism, and insults.

Section 14 – Thematic Analysis of Qualitative Comments

This section provides a summary of the comments received from the 174construction workers who provided a written response to the following open-ended question: what are the consequences for you, when you have to rely on other contractors/workers to complete your own work?

All written comments were transcribed and a content analysis was undertaken. The vast majority of comments related to "missed deadlines and time delays" and nine other themes of relative equal occurrence also emerged. It also should be noted that 5% of the comments indicated that there were no negative consequences related to relying on others for one's own work completion. All of these themes are presented below, with a summary of typical comments.

1. Missed deadlines and time delays (42%)
2. Workflow problems (10%)
3. Poor quality work from other contractors (8%)
4. Implications for productivity, including reduced quality and increased costs (7%)
5. Increased workload and time pressure (7%)
6. Emotional stress (6%)
7. Reprimand (6%)
8. Negative impact on reputation for self and company (5%)
9. Loss of job control (4%)
10. Relationship conflict (2%)
11. Other issues of a more general nature (9%)
12. No negative consequences (5%)

Missed Deadlines and Time Delays

- My work does not get done.
- My work may be delayed due to not receiving the information I need.
- Time constraints and missed deadlines.
- There are implications for hitting targets and timeframes.
- Program pushes out.
- You may not meet the deadlines set in the original project plans.
- Time management, work schedules, and job completion become issues.
- Slows the pace and disrupts the schedule.
- Falling behind on schedule.
- Cannot meet client deadlines and there are delays in getting paid.

Workflow Problems

- I stop the work unless I have received appropriate and sufficient information from contractors and other workers.
- Having to correct work that has been done, resulting in delays and inefficiencies.
- Having to wait for others to complete their work.
- I do something else while waiting for others.
- Periods of procrastination while waiting for information.

- Time is wasted.
- Downtime.
- Impacts on the rosters.

Poor Quality Work from Other Contractors

- There are negative consequences for me if other contractors are not professional.
- Having to chase other people up constantly to check others' work.
- Sometimes we do not meet the standards that I would like.
- Sometimes bad work gets done and, therefore, time is wasted.
- Work not up to standard.
- Have to clean up the mistakes of others.
- If the quality of their work is poor, it will affect the quality of my own work and make my job more difficult.
- Having to clean up the mistakes of others.
- Sometimes the work is not up to the standard I would like.

Implications for Productivity (Including Reduced Quality and Increased Costs)

- Costs increase and productivity suffers.
- Wasted money and extra costs to the program.
- Productivity is reduced.
- Do not meet performance indicators.
- Inaccurate results.
- Job not completed properly.
- Overhead and costs overrun.

Increased Workload and Time Pressure

- When issues arise, it increases my workload significantly.
- I cannot complete my tasks.
- This places extra pressure on me.
- I end up having to work longer to meet my deadlines.
- Delays often mean changes to working hours.
- Increased pressure to complete tasks.
- Puts pressure on me to make sure the job meets standards.

Emotional Stress

- When completion times are not met, my stress levels increase.
- Frustration.
- Significant stress associated with having to make sure everything is organised.
- I worry about the unexpected.
- Increases in stress levels due to delays.

Reprimand

- If others do not do the work properly, you are blamed for it.
- Possible dismissal.
- You may be told to leave or get transferred somewhere less demanding.
- Could get fired for lack of appropriate "work attitude".

- Consequences from supervisor.
- We get the blame.
- Get into trouble.

Negative Impact on Reputation for Self and Company

- My reputation.
- I am portrayed as someone with bad management skills.
- It can make it appear as if I am not doing my job if other contractors do not deliver.
- It makes the company look bad.
- The output of others impacts on my ability to deliver.
- Work that is not up to my standards.

Loss of Job Control

- I am accountable for a result, whether it is my fault or not.
- Loss of control and I need to start chasing contractors up for their responsibilities.
- The job becomes out of my control.
- I feel stress because the task I am trying to complete is not fully in my control.
- I feel pressure to get the job done but I am helpless.

Relationship Conflict

- Verbal belittling.
- It is uncomfortable but necessary to provide feedback to others if they do not do their work correctly.

Other issues of a More General Nature

- When problems arise, talking to others to see what the problem is.
- Delays in payments being made.
- I need to provide the best information so that others do not fail in their tasks.
- Receiving or chasing items.
- It becomes my responsibility that they finish their work on time and on budget.

Section 15 – Summary of Findings and Recommendations

Job Demands

- The average number of hours worked per week was 54.92 (SD = 9.22).
- The highest reported job demand was cognitive demand, with a mean of 5.25 on a scale of 1 to 7, suggesting that, on average, construction workers feel as though they engage in cognitive monitoring and active problem-solving fairly often in order to meet the demands of the role.
- Role overload, emotional demand, role conflict, group task conflict, and group relationship conflict were viewed as moderate in level of occurrence.
- Role ambiguity, supervisor task conflict, and supervisor relationship conflict were the lowest rated job demands. These findings suggest that construction workers are usually clear on what is expected from them at work, and that they have little conflict with their supervisors in terms of tasks or relationships.
- In addition, 64.6% of the Abigroup, Northern Region sample agreed that they experienced cognitive demands. Role overload (13.7%) and role conflict (12.9%) were the next most prevalent job demands. The percentage of construction workers experiencing group relationship conflict (9.3%), emotional demands (8.8%), and group task conflict (6.6%) were low, and exposure to role ambiguity was negligible (0.7%).
- Abigroup, Northern Region employees reported less emotional demands (16.7% lower) than the Australian norm group.
- Differences in risk exposure as a function of age included:
  - Construction workers in the "21-30 years" age category reported lower means for emotional demand and supervisor relationship conflict than the overall sample.
  - Construction workers in the "31-40 years" age category reported higher means for emotional demand and group relationship conflict than the overall sample.
  - Construction workers in the "over 50 years" age category reported a lower mean for role ambiguity than the overall sample.
  - Construction workers in the "21-30 years" age category reported a higher mean for emotional demand than those in the "31-40 years" category.
  - Construction workers in the "over 50 years" category reported lower means for role ambiguity than those in the "21-30 years" and "41-50 years" age categories.
- Differences in risk exposure as a function of site operative included:
  - Tradespeople reported lower means for role overload, cognitive demand, and role ambiguity than the overall sample.
  - Labourers reported lower means for role overload, cognitive demand, emotional demand, role conflict, supervisor task conflict, and group task conflict than the overall sample.
  - Foremen reported higher means for role overload and cognitive demand than the overall sample.
  - Leading Hands reported a higher mean for cognitive demand than the overall sample.
  - Professionals reported higher means for role overload, emotional demand, role ambiguity, and role conflict than the overall sample.
  - Project/Site Managers reported higher means for role overload, cognitive demand, emotional demand, role conflict, and supervisor task conflict than the overall sample.
  - Other Managers reported higher means for role overload, cognitive demand, emotional demand, role conflict, supervisor task conflict, and group task conflict than the overall sample.
  - Tradespeople and Labourers reported a lower mean for role overload than Foreman, Professionals, Project/Site Managers, and Other Managers. In addition, Leading Hands reported a lower mean for role overload than Site/Project Managers and Other Managers.

- Tradespeople and Labourers reported a lower mean for cognitive demand than Project/Site Managers and Other Managers.
- Tradespeople and Labourers reported a lower mean for emotional demand than Professionals, Project/Site Managers, and Other Managers. Labourers also reported a lower mean for emotional demand than Leading Hands.
- Tradespeople and Leadings Hands reported a lower mean for role ambiguity than Professionals. Tradespeople also reported a lower mean for role ambiguity than Other Managers.
- Tradespeople reported a lower mean for role conflict than Other Managers. In addition, Labourers reported a lower mean for role conflict than Professionals, Project/Site Managers, and other Managers.
- Tradespeople and Labourers reported a lower mean for supervisor task conflict than Other Managers. In addition, Labourers reported a lower mean for supervisor task conflict than Project/Site Managers.
- Labourers reported a lower mean for group task conflict than Other Managers.

- Differences in risk exposure as a function of site operative included:
  - Administrators reported higher means for role overload and emotional demand than the overall sample.
  - Engineers reported a higher mean for role overload than the overall sample.
  - Electrical Workers reported lower means for role overload, supervisor relationship conflict, and group relationship conflict than the overall sample.
  - Carpenters reported higher means for group task conflict and group relationship conflict than the overall sample.
  - Operators reported lower means for role overload and role ambiguity than the overall sample.
  - Labourers reported lower means for role overload, cognitive demand, emotional demand, role conflict, supervisor task conflict, and group task conflict than the overall sample.
  - Administrators and Engineers reported a higher mean for role overload than Electrical Workers, Operators, and Labourers.
  - Administrators reported a higher mean for emotional demand than Electrical Workers and Labourers. In addition, Engineers reported a higher mean for emotional demand than Labourers.
  - Administrators reported a higher mean for role conflict than Labourers.
  - Administrators and Carpenters reported a higher mean for supervisor task conflict than Labourers.
  - Electrical Workers reported a lower mean for supervisor relationship conflict than Carpenters.
  - Carpenters reported a higher mean for group task conflict than Electrical Workers and Labourers.
- Differences in risk exposure as a function of project size included:
  - Construction workers employed on "large projects" reported a lower mean for group task conflict than the overall sample.
- Role overload was a significant negative predictor of psychological well-being and job satisfaction.
- Cognitive demand was a significant positive predictor of psychological well-being and job satisfaction demonstrating that, contrary to initial expectations, cognitively demanding work enhances, rather than erodes, psychological well-being and job satisfaction.
- Emotional demand was a significant negative predictor of psychological well-being.
- Role ambiguity was a significant negative predictor of psychological well-being and job satisfaction.
- Supervisor relationship conflict was a significant negative predictor of psychological well-being and a significant positive predictor of musculoskeletal problems.
- Group relationship conflict was a significant negative predictor of job satisfaction.

Construction-Specific Job Demands

- Construction workers reported levels of task interdependency above the mid-point of the scale, indicating that they somewhat agreed that they depend on other people to do work in order to complete their own jobs.
- Pressures to meet contract deadlines and budgets were job demands that construction workers felt, on average, neutral about.
- In terms of pressure to accept work, construction workers indicated neutral views regarding feeling pressured to take jobs when they arise and not taking time off.
- Construction workers held neutral views regarding their concerns about becoming unemployed.
- Differences in risk exposure as a function of age included:
  - Construction workers in the "41-50 years" age category reported a higher mean for contract pressures than the overall sample.
  - Construction workers in the "21-30 years" age category reported a lower mean for contract pressures than those in the "41-50 years" category.
- Differences in risk exposure as a function of site operative included:
  - Tradespeople reported a higher mean for job insecurity than the overall sample.
  - Labourers reported a lower mean for task interdependency than the overall sample.
  - Leading Hands reported a higher mean for task interdependency than the overall sample.
  - Professionals reported a higher mean for task interdependency and a lower mean for job insecurity than the overall sample.
  - Project/Site Managers reported higher means for contract pressures and task interdependency and a lower mean for job insecurity than the overall sample.
  - Other Managers reported a lower mean for job insecurity than the overall sample.
  - Tradespeople and Labourers reported a lower mean for task interdependency than Professionals and Project/Site Managers. In addition, Labourers reported a lower level of task interdependency than Leading Hands and Other Managers.
  - Tradespeople and Labourers reported a higher mean for job insecurity than Professionals, Project/Site Managers, and Other Managers. In addition, Labourers reported a higher mean for job security than Foreman.
  - Leading Hands reported a higher mean for job insecurity than Project/Site Managers.
- Differences in risk exposure as a function of occupation included:
  - Administrators reported a lower mean for job insecurity than the overall sample.
  - Engineers reported a higher mean for task interdependency and a lower mean for job insecurity than the overall sample.
  - Electrical Workers reported a lower mean for pressure to accept work than the overall sample.
  - Carpenters reported a lower mean for task interdependency and a higher mean for pressure to accept work than the overall sample.
  - Operators reported a higher mean for job insecurity than the overall sample.
  - Labourers reported a lower mean for task interdependency and a higher mean for job insecurity than the overall sample.
  - Administrators, Engineers, and Electrical Workers reported a higher mean for task interdependency than Labourers. Administrators also reported a higher mean for task interdependency than Carpenters. Engineers also reported a higher mean for task interdependency than Carpenters and Operators.
  - Carpenters reported a higher mean for pressure to accept work than Engineers, Electrical Workers, and Labourers.
  - Administrators and Engineers reported a lower mean for job insecurity than Carpenters, Operators, and Labourers.
- Differences in risk exposure as a function of project size included:
  - Construction workers employed on "small projects" reported a higher mean for contract pressures than the overall sample.

- Contract pressures were a significant negative predictor of psychological well-being and job satisfaction.
- Task interdependency was a significant positive predictor of psychological well-being and job satisfaction, demonstrating that, contrary to initial expectations, task interdependency enhances, rather than erodes, psychological well-being and job satisfaction.
- Pressure to accept work was a significant negative predictor of psychological well-being and job satisfaction.

Job Resources

- Support from supervisors and co-workers were the highest rated job resources, indicating that respondents, on average, perceived support from these two sources fairly often.
- Construction workers indicated that received praise and recognition from their supervisor fairly often.
- On average, individuals perceived that organisational systems and processes were just most of the time.
- Respondents held more neutral views towards the degree of perceived job control and change participation, indicating these occur, on average, just some of the time.
- The percentage of construction workers who felt supported from co-workers (74.5%) and supervisors (68.7%) was high. Feelings of praise and recognition from one's supervisor also were prevalent among the sample (63.2%). However, just half of respondents agreed that their workplace was procedurally just (51.8%), and less than half of the sample agreed that they are consulted about change (41.4%) and have control over their job (36.4%).
- Results demonstrated that Abigroup, Northern Region employees report less emotional demands (16.7% lower) and more supervisor support (10.2% higher) when compared to the Australian norm group.
- However, Abigroup, Northern Region employees reported less job control (11.5% lower) than the Australian norm group.
- Abigroup, Northern Region employees reported higher co-worker support (13.5% higher) than the construction norm group.
- Differences in risk exposure as a function of age included:
  - Constructions workers in the "21-30 years" age category reported a higher mean for supervisor support than the overall sample.
- Differences in risk exposure as a function of site operative included:
  - Tradespeople reported a lower mean for job control than the overall sample.
  - Labourers reported a lower mean for job control than the overall sample.
  - Leading Hands reported a higher mean for co-worker support than the overall sample.
  - Professionals reported a higher mean for praise and recognition than the overall sample.
  - Project/Site Managers reported higher means for job control and procedural justice than the overall sample.
  - Other Managers reported a higher mean for job control than the overall sample.
  - Tradespeople reported a lower mean for job control than Project/Site Managers.
  - Labourers reported a lower mean for job control than Foreman, Leading Hands, Professionals, Project/Site Managers and Other Managers.
- Differences in risk exposure as a function of occupation included:
  - Administrators reported a higher mean for job control than the overall sample.

- Engineers reported higher means for job control, supervisor support, and praise and recognition than the overall sample.
- Electricians reported higher means for supervisor support, co-worker support, change participation, procedural justice, and praise and recognition than the overall sample.
- Carpenters reported lower means for job control, procedural justice, and praise and recognition than the overall sample.
- Labourers reported a lower mean for job control than the overall sample.
- Administrators and Engineers reported a higher mean for job control than Carpenters and Labourers.
- Electrical Workers reported a higher mean for procedural justice than Administrators, Carpenters, and Labourers.
- Carpenters reported a lower mean for praise and recognition than Administrators, Engineers, Electrical Workers, and Operators.

- Differences in risk exposure as a function of project size included:
  - Construction workers employed on "small projects" reported a higher mean for change participation than the overall sample.
  - Construction workers employed on "large projects" reported a higher mean for procedural justice than the overall sample.
- Job control was a significant positive predictor of psychological well-being and negatively and a significant negative predictor of musculoskeletal problems.
- Supervisor support was a significant positive predictor of psychological well-being and job satisfaction.
- Co-Worker support was a significant positive predictor of psychological well-being and job satisfaction.
- Change participation was a significant negative predictor of musculoskeletal problems and a significant positive predictor of job satisfaction.
- Procedural justice was a significant positive predictor of psychological well-being.
- Praise and recognition was a significant positive predictor of job satisfaction.

Employee Health Outcomes

- Mean level of psychological well-being was above the mid-point of the scale, denoting moderate-to-high levels of psychological well-being.
- Means for musculoskeletal problems, cardiovascular problems, sleep problems, headaches, and gastrointestinal problems were below the mid-point of the scale, suggesting low levels of these physical complaints.
- 72% of the sample agreed that they experienced job satisfaction. 65.8% of the sample indicated an absence of musculoskeletal problems, and 61.2% of the sample reported psychological well-being.
- Construction workers in this sample also reported more musculoskeletal problems (11.6% higher) than the Australian norm group.
- There were no disparities in employee health outcomes as a function of age.
- Disparities in employee health outcomes as a function of site operative included:
  - Leading Hands reported a higher mean for psychological well-being than the overall sample.
  - Project/Site Managers reported a lower mean for cardiovascular problems than the overall sample.
  - Other Managers reported a lower mean for gastrointestinal problems than the overall sample.
- Disparities in employee health outcomes as a function of occupation included:
  - Administrators reported a higher mean for musculoskeletal problems and a lower mean for cardiovascular problems than the overall sample.
  - Administrators reported a higher mean for musculoskeletal problems than Engineers and Labourers.

- Disparities in employee health outcomes as a function of project size included:
  - Construction workers employed on "small projects" reported a higher mean for musculoskeletal problems than the overall sample.

Employee Job Outcomes

- Mean level of job satisfaction was above the mid-point of the scale, suggesting moderate-to-high levels of satisfaction and enjoyment with the job.
- Respondents indicated moderate feelings about the degree to which their jobs impacted on activities outside of work.
- Mean scores for the intentions items indicated very low likelihoods that employees would be submitting a workers' compensation claim, taking sick leave, seeking medical advice, changing jobs internally or externally as a result of work-related stressors.
- There were no disparities in employee job outcomes as a function of age.
- Disparities in employee job outcomes as a function of site operative included:
  - Tradespeople and Labourers reported a lower mean for work-home conflict than the overall sample.
  - Foremen reported a higher mean for work-home conflict than the overall sample.
  - Leading Hands reported a lower mean for workers' compensation intentions than the overall sample.
  - Professionals reported a higher mean for work-home conflict than the overall sample.
  - Project/Site Managers reported a higher mean for work-home conflict and a lower mean for seek medical advice intentions than the overall sample.
  - Other Managers reported a lower mean for workers' compensation claims intentions than the overall sample.
  - Tradespeople reported a lower mean for work-home conflict than Foreman, Professionals, and Project/Site Managers.
  - Labourers reported a lower mean for work-home conflict than Professionals.
- Disparities in employee job outcomes as a function of occupation included:
  - Administrators reported a lower mean for workers' compensation intentions than the overall sample.
  - Electrical Workers reported a higher mean for job satisfaction and lower means for work-home conflict, change jobs internally intentions, and turnover intentions than the overall sample.
  - Carpenters reported a lower mean for job satisfaction and higher means for workers' compensation intentions and seek medical advice intentions than the overall sample
  - Labourers reported a lower mean for work-home conflict than the overall sample.
  - Labourers reported a higher mean for work-family conflict than Engineers.
  - Carpenters reported a higher mean for workers' compensation intentions than Administrators and Engineers.
- There were no disparities in employee job outcomes as a function of project size.

Bullying and Harassment

- 16.9% of the sample indicated that they had been subjected to harassment and bullying once in a while, some of the time, fairly often, often, or daily.
- 29.5% of the sample indicated that they had witnessed harassment and bullying once in a while, some of the time, fairly often, often, or daily.
- The main source of harassment and bullying was co-workers, followed by supervisors.
- The most prevalent type of bullying and harassment was verbal abuse, followed by constant ridicule and being put down, and being humiliated through gestures, sarcasm, criticism, and insults.

Recommendations

This report uses reliable and valid measures of psychosocial risk factors to determine possible priorities for the management of risk for psychosocial injury. The main findings and, hence, priorities for intervention include:

1. Monitoring those job demands (i.e., role overload, emotional demand, role ambiguity, and supervisor relationship conflict) and construction-specific job demands (i.e., contract pressures and pressure to accept work) shown to have statistically significant negative implications for psychological well-being.
2. Monitoring those job demands (i.e., supervisor relationship conflict) shown to have statistically significant positive implications musculoskeletal problems.
3. Monitoring those job demands (i.e., role overload, role ambiguity, and group relationship conflict) and construction-specific job demands (i.e., contract pressures and pressure to accept work) shown to have statistically significant negative implications for job satisfaction.
4. Promoting an optimal level of cognitive challenges and task interdependency to ensure that jobs are motivating and energerising for construction workers.
5. Maintaining support networks from supervisors and co-workers in light of their positive implications for psychological well-being and job satisfaction.
6. Improving job control, consultation during times of organisational change, and procedural justice, given that these were the job resources most lacking in the sample of construction workers studied in this report.
7. Enforcing a zero tolerance policy on harassment and bullying, with a specific focus on co-workers as the source and educating employees about the negative effects of verbal abuse for individuals.

Next Steps

The following actions should be considered by Abigroup, Northern Region regarding the implementation of this research project:

1. Celebrate strengths and promote these to managers, employees, and clients, as well as other key stakeholders within the construction industry.
2. Results should be communicated to managers and employees, along with a brief explanation of the actions and next steps that will be taken in response to their participation in the research project.
3. More detailed action planning should be scheduled, either as an independent initiative associated with this psychosocial risk assessment exercise or embedded within existing organisational planning.

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Appendix 1 – Glossary of Terms

Job Demands

Role Overload
Role overload occurs when an individual feels pressured by excessive workloads, difficult deadlines, and a general inability to fulfil organisational expectations in the time available.

Cognitive Demand
Cognitive demand is defined as the degree to which an individual must engage in cognitive monitoring and active problem-solving in order to meet the demands of the role.

Emotional Demand
Emotional demand is experienced when individuals must engage in sustained emotional effort to complete their responsibilities and often involves the need to express organisationally congruent emotions.

Role Ambiguity
Role ambiguity is defined as the lack of clarity or uncertainty with respect to job responsibilities, or the perceived dearth of important job-related information. Unclear or constantly changing specifications regarding expectations and duties defining an individual's job also constitutes role ambiguity.

Role Conflict
Role conflict reflects the degree to which employees are expected to perform two or more mutually exclusive tasks simultaneously and has been described as incompatible demands and expectations placed on an employee, by different groups or persons with whom an individual must interact.

Supervisor Task Conflict
Supervisor task conflict refers to disagreements with one's supervisor regarding the work to be undertaken. Such conflict may involve differences in views about policies and procedures, disputes regarding allocation and distribution of resources, or disagreements in judgements and interpretation of facts.

Supervisor Relationship Conflict
Supervisor relationship conflict refers to identity-related issues whereby personal beliefs and values come into play, and refers to conflict with one's supervisor about interpersonal attributes or personal taste, disagreements about political preferences, or opposing values.

Group Task Conflict
Group task conflict refers to disagreements with one's colleagues regarding the work to be undertaken. Such conflict may involve differences in views about policies and procedures, disputes regarding allocation and distribution of resources, or disagreements in judgements and interpretation of facts.

Group Relationship Conflict
Group relationship conflict refers to identity-related issues whereby personal beliefs and values come into play, and refers to conflict with one's colleagues about interpersonal attributes or personal taste, disagreements about political preferences, or opposing values.

Construction-Specific Job Demands

Contract Pressures
Contract pressures refer to the degree to which individuals feel pressured by contract demands, timeframes, and budgets.

Task Interdependency
Task interdependency measures the degree to which employees rely on other workers to provide information and materials and their complete work in order to carry out their own job responsibilities.

Pressure to Accept Work
Pressure to accept work measures the degree to which employees feel pressured to accept contracts and work as they arise, including pressure to miss rostered days off and public holidays.

Job Insecurity
Job insecurity measures the degree to which employees are worried about becoming unemployed or losing their job.

Job Resources

Job Control
Job control is the degree to which an employee has the discretion to approach their work in a manner of their choosing. It reflects an employee's capacity to manage his or her activities at work, including choice of work tasks, methods of work, work pacing, work scheduling, control over resources, and control over the physical environment.

Supervisor Support
Supervisor support consists of both 'instrumental' support and 'emotional' support. Instrumental support refers to offering practical help to solve problems or providing tangible assistance or aid in the form of knowledge or advice needed to resolve the issue, whereas emotional support involves offering care or listening sympathetically to another person.

Co-worker Support
Co-worker support can be instrumental or emotional in nature. Instrumental support refers to practical help to solve problems or tangible assistance or aid in the form of knowledge or advice needed to resolve the issue, whereas emotional support involves care or listening sympathetically to another person.

Change Participation
Change participation refers to the degree to which employees are provided with information about organisational changes and provided the opportunity to participate in decisions that may affect their work.

Procedural Justice
One form of organisational justice is procedural justice which refers to employees' perceptions of the fairness of the procedures used to allocate resources and make decisions.

Praise and Recognition
This refers to an employee's feelings of self-worth that grow from the perception that the organisation and the people they work for value them and what they have to offer. Praise and recognition from supervisors can be in the form of encouragement, compliments, and other gestures of appreciation.

Employee Health Outcomes

Psychological Well-Being
Psychological well-being is a measure of normal psychological functioning and adjustment. It assesses the degree of distressing symptoms and psychiatric disorders in individuals in community settings.

Musculoskeletal Problems
Musculoskeletal problems are the self-reported pain and discomfort experienced by employees in the neck, shoulders, wrists/hands, upper back, and lower back areas.

Cardiovascular Problems
Cardiovascular problems are the self-reported cardiovascular symptoms experiences by employees in the four weeks leading up to completing the questionnaire. Symptoms include racing heart, aches and pains in the chest, and feeling short of breath without exercising.

Sleep Problems
Sleep problems are the self-reported difficulties in getting to sleep, remaining asleep, and sleep disturbances employees experienced in the four weeks leading up to completing the questionnaire.

Headaches
Employees reported frequency of headaches in response to frustrations and other hassles in the four weeks leading up to completing the questionnaire.

Gastrointestinal Problems
Gastrointestinal problems are the self-reported experience of upset stomach, indigestion, nausea, and bowel problems (constipation or diarrhoea) in the four weeks leading up to completing the questionnaire.

Employee Job Outcomes

Job Satisfaction
Job satisfaction is the extent to which employees enjoy their job. The scale is designed to assess employees' global level of satisfaction with their job.

Work-Home Conflict
Work-home conflict is a measure of perceived impact of work pressures and job responsibilities on the activities of employees outside of work. The scale measures the degree to which work demands interfere with the home life of employees.

Workers' Compensation Intentions
Workers' compensation intentions measure the likelihood that individuals will submit a workers' compensation claim in the near future for a stress-related problem.

Sick Leave Intentions
Sick leave intentions measure the likelihood that individuals will take sick leave in the near future for a stress-related problem.

Seek Medical Advice Intentions
Seek medical advice intentions measure the likelihood that individuals will seek medical advice in the near future for a stress-related problem.

Change Jobs Internally Intentions
Change jobs internally intentions measure the likelihood that individuals will change jobs within their organisation in the near future due to a stress-related problem.

Turnover Intentions
Turnover intentions measure the likelihood that individuals will resign from their organisation in the near future due to a stress-related problem.