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# Exclusion and Inclusion in the Australian AEC Industry and Its Significance for Women and Their Organizations

Valerie Francis<sup>1</sup> and Elisabeth Michielsens<sup>2</sup>

**Abstract:** Based on valuing individual differences and embracing all employees, diversity management is relatively widespread and evident in many organizations. However, discriminatory work practices and lack of support persist in the architecture, engineering, and construction (AEC) industry, with higher turnover for women and lower participation rates still evident. While well-meaning, these diversity strategies and practices are costly. Therefore, it is essential to understand the benefits women and their organizations gain, as well as attributes associated with more diverse and inclusionary workplaces. A theoretical framework based on social exchange theory was used to develop a questionnaire administered to professional women in the AEC industry. The sample was divided into two groups, women who experienced inclusion or exclusion, and comparisons made using a range of statistical tests. While inclusion did not affect women's career advancement, it was associated with increased satisfaction and decreased turnover intent. Inclusive companies had more female employees and leaders and also featured significantly higher mentoring and organizational training levels. The findings demonstrate inclusion to be essential for women's retention and an important management objective for the AEC industry. DOI: [10.1061/\(ASCE\)ME.1943-5479.0000929](https://doi.org/10.1061/(ASCE)ME.1943-5479.0000929). © 2021 American Society of Civil Engineers.

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## 4 Introduction

The Architecture, Engineering, and Construction (AEC) industry contributes significantly to most economies and is highly reliant on its people. Attracting and retaining the best workers and staff is essential to having an efficient, profitable sector, but meeting past and current vacancies has proven difficult (CIOB 2019; Kim et al. 2020). Attracting more women into the industry to address these skills shortages has been the impetus for various government and industry initiatives over the past several decades. It has also been the focus of many AEC companies' diversity management plans. However, women's representation in professional and managerial roles in the AEC industry remains low (Hickey and Cui 2020; US Bureau of Labor Statistics 2016).

Traditional work practices in AEC and gendered stereotypes about abilities and homosocial behavior all mitigate against women's inclusion and detract from women's work satisfaction and success (e.g., Dainty et al. 2000; Menches and Abrahams 2007; Ness 2012; Watts 2007). Women's higher turnover has been associated with long hours and family responsibilities (e.g., Menches and Abraham 2007; Ness 2012; Watts 2009). However, Shore et al. (2018) note that while family demands are often used as explanations for women not advancing, it does not account for ongoing gender disparity.

Concerns continue regarding women's lack of career advancement, and the scarcity of supportive work practices, have been the subject of much research (Clarke et al. 2015; Vinnicombe et al. 2018; Francis 2017; Hickey and Cui 2020). Extended and irregular

hours are typical, and the sector has not significantly altered its work practices to meet its employees' changing needs. Compared to their male counterparts, women's higher turnover rates are often associated with these issues as well as concerns regarding work inflexibility, lack of support, and reduced promotion (Lingard and Francis 2009; Glass et al. 2013; Hickey and Cui 2020). The literature in this area repeatedly identifies the need for women to fit in and posits that this and mentors can assist with women's advancement (Greed 2000; Dainty et al. 2007; Rosa et al. 2017).

So despite the adoption of diversity management practices within many AEC organizations, gender diversity within the workforce and lack of inclusion continue to be a problem. Mor Barak (2000) proposes that an organization's culture contributes to feelings of inclusion, which in turn lead to positive individual and organizational outcomes, and Acquavita et al. (2009) confirmed that exclusion was related to lower job satisfaction. Inclusive work cultures respect differences and successfully integrate a diverse range of workers and should provide an ideal environment for women, such as those in the AEC industry, to achieve both work and life success.

The purpose of this research was to understand more about the role of inclusion, the impact of diversity management practices, and how they relate to the work and life experiences of professional women. This issue has not previously been explored within the AEC industry.

## Drivers for Managing Gender Diversity and Gender Diversity Effectiveness

Social change and increases in women's labor force participation have accompanied legislative and organizational actions, which have helped workplaces become more diverse and inclusive. Equality and antidiscrimination law is commonplace globally, and emanating from this has been further legislation regarding workplace flexibility and parental leave, which further supports women, especially those with care responsibilities (Davidson and Burke 2016).

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Diversity management is the “management philosophy of recognising and valuing heterogeneity in organisations with a view to improving organisational performance” (Tatli and Özbilgin 2009, p. 244). It relates diversity policy and program development, which is then typically operationalized through human resource (HR) measures such as recruitment, training, and mentoring. Studies have shown that diversity enhances organizational flexibility, recruitment, retention, and engagement, and can provide competitive advantage (Armstrong et al. 2010; Zanoni et al. 2010; Kochan et al. 2003; Østergaard et al. 2011).

Nevertheless, while diversity management has been embraced within many organizations, there are still discrepancies in women’s employment. They continue not to have equal access to jobs, career development opportunities, remuneration, and the “glass ceiling” persists, symbolizing obstacles to career advancement (e.g., Vinnicombe et al. 2018; Hickey and Cui 2020). These impediments have been especially visible in the AEC industry: while female participation has improved, it is still male-dominated, with women lagging in terms of representation and career development (Powell and Sang 2013; WISE 2019; Francis 2017). While there are national differences, female representation in AEC professions is typically low; for instance, the US Bureau of Labor Statistics (2016) identified 7.4% of all architectural and engineering managers as women, with 6.7% being construction managers.

When considering gender diversity in the AEC industry, it is the business case for diversity that typically underlies policies and practices (Ness 2012). Urwin et al. (2013) identified the benefits of these as either external or internal. The internal business benefits include improved company performance, integration of diverse perspectives, lower turnover, enhanced creativity, and better problem-solving. External business benefits include improved talent recruitment, enhanced business insights, more significant market share, and cost-savings related to equality legislation compliance (Urwin et al. 2013). For the AEC industry, the business case for gender diversity has mostly focused on external benefits. These external benefits have been expressed in several ways, such as using the case for the greater recruitment of women to assist businesses in tackling industry skill shortages, or as a way of providing better and more motivated staff, or to improve customer satisfaction (Clarke et al. 2015; UKRC 2005; Dainty et al. 2004; Barnard et al. 2010).

The effectiveness of diversity management practices is still heavily debated (i.e., Noon 2018; Vassilopoulou 2017), with persisting challenges ranging from stagnant gender ratios, recruitment discrimination, pay gaps to progression barriers, harassment, and social network exclusion (Gifford et al. 2019). Even with companies’ promotion of their diversity management strategies, lack of diversity and inclusion continues to be a systemic issue for the sector.

The main explanation postulated for the lack of more tangible outcomes from diversity management strategies is considered to emanate from the underlying business case approach to diversity management in organizations (Noon 2007; Kirton and Greene 2010; Michielsens et al. 2008). This approach, which focuses on generic short-term actions, usually does little to change organizational values and can be perceived as insincere by employees (Nishii et al. 2018).

## 135 Inclusive Organizations

Inclusion can be defined as “. . . the degree to which an employee is accepted and treated as an insider by others in a work system” (Pelled et al. 1999, p. 1014). Inclusion is related to how

well-integrated marginalized groups, such as women in the AEC industry, are within their organizational setting and therefore can participate, contribute, and utilize their skills more effectively (Bilimoria et al. 2007; Shore et al. 2018). Li et al. (2019) further identify an inclusive climate as one in which all employees experience respect and belongingness.

Managing diversity and inclusion are linked, but while managing diversity focuses on the representation of variety in the workforce, inclusion is about creating a culture where all involved can participate and influence (Burnett and Kettleborough 2007; Roberson 2006). So while diversity management practices can be present within an organization, inclusion does not always result from these actions. Overall, the main themes appearing in various definitions of inclusion are the notions of acceptance and being a group insider, valuing individualism, and the contributions and talents of all employees (Shore et al. 2011).

Roberson (2006, p. 220), who regards the organization as a social entity, considers inclusion to involve all employees, with a precise aim of “leveraging the positive impact of diversity for organisational competitive business advantage.” The inclusive workplace is “based on a pluralistic value framework that respects all cultural perspectives represented among its employees” (Mor Barak and Daya 2014, p. 394). Different groups support each other to be fully engaged at all levels in the organization (Shore et al. 2018; Roberson 2017).

Inclusion is related to reducing turnover and absenteeism, with individuals more likely to endorse the organization to others as an employer (Dwertmann et al. 2016; Jauhari and Singh 2013). Dwertmann et al. (2016) consider that this is a form of reciprocal action, with positive work attitudes occurring. Women, particularly those underrepresented, receive less supervisor support on a day-to-day basis, demonstrating the level of support does vary (Brown et al. 2018).

## Organizational Support and Social Exchange Theory 172

Organizational support theory, developed by Eisenberger et al. (1986, p. 501), holds that “. . . in order to determine the personified organization’s readiness to reward increased work effort and to meet needs for praise and approval, employees develop global beliefs concerning the extent to which the organization values their contributions and cares about their well-being.” Organizational support will be affected by the organization’s actions that may be beneficial to an individual, such as rewards, promotion, training, and job security. Organizational support is often delivered through HR practices such as participation in decision making, the fairness of rewards, and growth opportunities (Allen et al. 2003; Robertson et al. 2017). Voluntary actions have been found to increase perceived organizational support more than compliance. (Djurkovic et al. 2008). A meta-analysis by Rhoades and Eisenberger (2002) revealed that perceived organizational support was related to improved job satisfaction, positive moods, and a lessening of withdrawal from the organization.

Social exchange theory, one of the most dominant theoretical lenses in the social sciences and management, underpins organizational support theory and explain these reciprocal relationships. It posits that as people interact, they feel the need to reciprocate any assistance provided, and if this occurs, a loyal relationship can develop (Cropanzano and Mitchell 2005). Social exchange theory and organizational support theory have been used in exploring both employer and employee workplace exchanges and the positive effects on employee behavior in the AEC industry. For instance, social exchange theory was utilized recently as the theoretical lens to



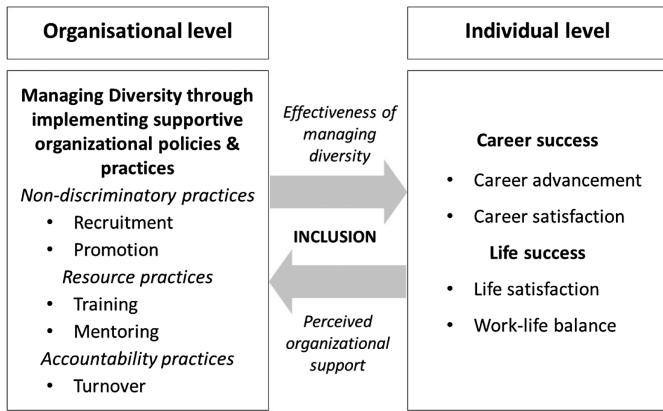


Fig. 1. Theoretical framework.

F1:1

200 explain female engineers' work experience and retention in the  
 201 AEC industry, with organizational support theory adopted to explore  
 202 AEC employees' turnover (Colquitt et al. 2013; Chew et al.  
 203 2020; Oyedele 2010).

## 204 Theoretical Framework

205 This paper developed a theoretical framework based on social exchange  
 206 theory and drew upon organizational support theory and diversity  
 207 management practices. The model developed is shown in Fig. 1. It  
 208 proposes that inclusion is a social exchange between the organization  
 209 and individual employees and is influenced by diversity management  
 210 effectiveness and perceived organizational support. For inclusion to  
 211 occur, both successful diversity management and perceived  
 212 organizational support must be evident. As already discussed, some  
 213 diversity plans and practices are successful, but some are not, resulting  
 214 in little change to the companies' gender composition. Their efficacy  
 215 is related to positive strategies outcomes and acceptance of being  
 216 genuine by corporate stakeholders (Nishii et al. 2018; Li et al. 2019).  
 217 This framework recognizes both these aspects and the social exchange  
 218 necessary between the organization and the individual employee in  
 219 order for inclusion to exist.

221 Diversity management is now relatively widespread, and Leslie  
 222 (2019) identified three types of diversity practices at the core of  
 223 these plans. These include: nondiscriminatory practices that focus  
 224 on decreasing bias and discrimination, resource practices to increase  
 225 support and opportunities, and finally, accountability practices  
 226 focusing on monitoring diversity goals such as gender composition  
 227 changes. This last practice has a clear focus on the diversity goal  
 228 outcome, with the other two practices focusing more on the diversity  
 229 goal progress (Leslie 2019). These practices are identified within  
 230 the developed framework, located at the organizational level, where  
 231 they are enacted.

232 From a corporate perspective, diversity initiatives' intended  
 233 consequences are that women would become more inclined to stay  
 234 and succeed (Leslie 2019; Roberson et al. 2017). As women place  
 235 a high value on both work and personal domains, women's success  
 236 has been taken to encompass both life and work (Ng et al. 2005;  
 237 Enache et al. 2011). Career success has objective and subjective  
 238 components, with men placing a greater value on the objective part,  
 239 and women valuing both relatively equally (Ng and Feldman 2014;  
 240 Ng et al. 2005; Powell 2018; Dyke and Murphy 2006). Career  
 241 advancement is the extrinsic aspect and career satisfaction the  
 242 intrinsic of career success, both of which are vital to women and the

243 organizations in which they work (Powell 2018; Ng et al. 2005).  
 244 Career advancement relates to the upward progressions within the  
 245 hierarchical ranks of an organization. It typically includes an  
 246 objective rather than subjective measurement, such as salary or  
 247 promotions assessed in terms of society's evaluation of achievement  
 248 (Melamed 1996; Nabi 1999). Career satisfaction is more subjective,  
 249 related to a person's overall satisfaction with their career. It has  
 250 increased in importance, particularly amongst women and older  
 251 workers (Ng and Feldman 2014; Dyke and Murphy 2006). Career  
 252 success is considered as both a motivator to participation as well as  
 253 means of retention.

254 In terms of life success, two main issues have been determined  
 255 by previous research, namely life satisfaction and work-family  
 256 conflict. Life satisfaction has significant individual and organiza-  
 257 tional consequences, because it both a predictor of job perfor-  
 258 mance and turnover, as well as burnout and morality (Erdogan  
 259 et al. 2012). Work-family balance is often cited as a reason women  
 260 leave the AEC sector with the inability to balance work and family  
 261 responsibilities of primary concern. Higher work-family conflict  
 262 levels are associated with organizational practices such as inflexible  
 263 work arrangements, inadequate supervisor support, and longer  
 264 working hours, negatively impacting individuals through higher  
 265 emotional exhaustion, greater turnover intent, and lower satisfac-  
 266 tion (Lingard and Francis 2009). The following sections discuss  
 267 the framework further and develop specific hypotheses to be  
 268 explored.

## Impact of Inclusion at the Organizational Level

270 Diversity is championed within organizations through corporate  
 271 or organizational policies and enacted by HR using strategies such  
 272 as targeted recruitment, training, mentoring, and team building.  
 273 (Subeliani and Tsogas 2005; Curtis and Dreachslin 2008). While  
 274 formal diversity policies are now relatively standard, especially in  
 275 large organizations, small to medium enterprises often adopt infor-  
 276 mal diversity policies to ensure recruitment, hiring, and perfor-  
 277 mance appraisal practices acknowledge diversity (Manoharan et al.  
 278 2019). As noted, Leslie (2019) categorizes diversity initiatives in  
 279 three ways: nondiscriminatory practices, resource practices, and  
 280 accountability practices. Nondiscriminatory practices focus on de-  
 281 creasing bias, which relates to women's recruitment into an organi-  
 282 zation and women's future success (Leslie 2019). While the  
 283 recruitment of women could be considered the ratio of new hires  
 284 by gender, it is the onboarding and continuation of such women  
 285 that better indicates diversity success. Thus the overall participation  
 286 of women in the organization and women in leadership roles is  
 287 considered in the framework.

288 Resource practices are considered opportunity-based and prefer-  
 289 ential practices adopted to facilitate an organization's diversity  
 290 goals (Richard et al. 2007). Within this category, Leslie (2019)  
 291 includes mentoring and career support for women as resource  
 292 practices. The offering and uptake of diversity measures such as  
 293 supportive work practices, including mentoring and training, would  
 294 also be expected to feature more in inclusive work environments.  
 295 In this study, mentorship and training, which feature highly within  
 296 organizational diversity management practices, will be considered.

297 Accountability or responsibility practices by more closely mon-  
 298 itoring outcomes and diversity goals have only more recently been  
 299 added to diversity management practices (Richard et al. 2007;  
 300 Leslie 2019). Examples of these could include adding diversity tar-  
 301 gets and outcomes to managers' individual performance goals or  
 302 even appointing a diversity manager to report diversity progress  
 303 (Leslie 2019). Ultimately, the retention of women is at the core

304 of these requirements, and for this reason, women's turnover inten- 366  
305 tions were used to represent the accountability practices. It is well 367  
306 known that women leave the industry at higher rates than men, so it 368  
307 would expect women will be less likely to leave an inclusive envi- 369  
308 ronment than an exclusive one (Singh et al. 2018). 370

309 The link between diversity and inclusion is evident (Burnett and 371  
310 Kettleborough 2007; Roberson 2006), and the framework devel- 372  
311 oped for this study conceptualizes inclusion as a social exchange, 373  
312 requiring effective diversity management. Based on this, hypothe- 374  
313 ses were developed, one for each of the diversity management prac- 375  
314 tices (Leslie 2019), linking diversity effectiveness and inclusion. 376  
315 They include: 377

316 Hypothesis 1 relating to nondiscriminatory practices: 378

317 *H1(a)*: There will be a difference in women overall in inclusive 379  
318 and exclusive organizations. 380

319 *H1(b)*: There will be a difference in women in leadership 381  
320 positions in inclusive and exclusive organizations. 382

321 Hypothesis 2 relating to resource practices: 383

322 *H2(a)*: There will be a difference in the level of organizational 384  
323 training in inclusive and exclusive organizations. 385

324 *H2(b)*: There will be an association between being mentored 386  
325 and organizational inclusivity. 387

326 Hypothesis 3 relating to accountability practices: 388

327 *H3*: There will be a difference in the level of turnover intent in 389  
328 inclusive and exclusive organizations. 390

## 329 Impact of Inclusion at the Individual Level

330 Inclusion as a social exchange between the organization and the 394  
331 individual also impacts the employee, with success in diversity 395  
332 initiatives and perceived organizational support experienced by 396  
333 individuals (Leslie 2019; Roberson et al. 2017). As previously 397  
334 discussed, women value both work and home domains, so success 398  
335 within both work and life is valuable. Collectively, career ad- 399  
336 vancement and career satisfaction are referred to as career success. 400  
337 Career advancement, the objective element, is an indicator of pro- 401  
338 motions and progression within the industry, with career satisfac- 402  
339 tion the subjective aspect of career success (Ng et al. 2005). Based 403  
340 on organizational support theory, those who perceive an environ- 404  
341 ment of inclusion will experience higher career success levels, 405  
342 both in terms of advancement and career satisfaction. This out- 406  
343 come was posited by Bilimoria et al. (2007) and intimated within 407  
344 much of the inclusion and women in management research. 408

345 Life success was conceptualized for this study as life satisfac- 409  
346 tion and work-life balance (or the reduction of work-family con- 410  
347 flict). Both have been identified as being valued by women and 411  
348 indicators of life success (Powell 2018; Watts 2009). Life satisfac- 412  
349 tion also has broader implications in terms of health and well-being, 413  
350 and an environment of inclusion should increase life success. This 414  
351 is grounded within the comprehensive work of scholars such as Ng 415  
352 and Feldman (2014) and the more recent work of Chew et al. 416  
353 (2020) on engineers' happiness. Based on this, further hypotheses 417  
354 were developed and include: 418

355 Hypothesis 4 relating to career success: 419

356 *H4(a)*: There will be a difference in the level of career advance- 420  
357 ment in inclusive and exclusive organizations. 421

358 *H4(b)*: There will be a difference in the level of career satisfac- 422  
359 tion in inclusive and exclusive organizations. 423

360 Hypothesis 5 relating to life success: 424

361 *H5(a)*: There will be a difference in the level of life satisfaction 425  
362 in inclusive and exclusive organizations. 426

363 *H5(b)*: There will be a difference in the level of life satisfaction  
364 in inclusive and exclusive organizations.

## Impact of Inclusion at the AEC Sector Level

366 Where possible, the study sought to identify organizational char- 367  
368 acteristics and provide further insights into inclusion within the sec- 369  
370 tor. While larger companies typically have numerically more 371  
372 women (as well as higher female participation rates), they may also 373  
374 be more inclusive as they have greater transparency in recruitment 374  
375 and promotional processes, as well as more defined policies with 375  
376 regard to work practices and policies such as work-life balance 376  
377 (Colgan and McKearney 2011). However, according to organiza- 377  
378 tional stage theory, older and larger companies become more for- 378  
379 malized in order to deal with increased complexity and increase 379  
380 reliability in their operations (Aldrich 1999). Therefore, smaller 380  
381 companies may have less formal policies but are known to be more 381  
382 flexible in whom they hire and in the provision, or otherwise, of 382  
383 flexible/informal work practices (Sine et al. 2006). These can ben- 383  
384 efit women, especially those with family responsibilities. It would 384  
385 seem midsized companies may provide a balance of formal and 385  
386 informal policies that suit women, with formal policies providing 386  
387 an assurance of policy provision and informal providing the flex- 387  
388 ibility women desire. 388

389 With a long history of equity, affirmative action, and legislative 389  
390 requirements, public sector organizations should provide more in- 390  
391 clusive work environments. Supportive work practices and stricter 391  
392 adherence to equal opportunity policies also tend to be more com- 392  
393 patible with the remit of the public sector (Colgan and McKearney 393  
394 2011). Due to civic organizations' nature, economic standards of 394  
395 performance differ from that of the private sector, and shareholders 395  
396 who typically oversee larger companies receive more institutional 396  
397 scrutiny (Dolcos and Daley 2009). 397

398 Understanding the different subsectors of the AEC industry 398  
399 may provide evidence of how inclusion can work in different 399  
400 project-based built environment companies. The professions within 400  
401 an industry influence its ability to change a company's gender com- 401  
402 position, with Ashcraft (2013) identifying that certain cultural 402  
403 norms develop, which relate to how individuals are perceived as 403  
404 appropriate, or otherwise, for a role (Ashcraft 2013). As Muhr and 404  
405 Sløk-Andersen's (2017, p. 368) state in their research regarding 405  
406 women in the military, professions that "culturally read as mascu- 406  
407 line seem to struggle with including women on equal terms with 407  
408 men." Improving diversity at the organizational level is also multi- 408  
409 faceted, which is often unacknowledged. Acker (1990), discussed 409  
410 in Healy et al. (2018), considers that entrenched stereotypes and 410  
411 associated inequity are hard to change, which would also be valid 411  
412 in the AEC industry. Gender parity has been realized within archi- 412  
413 tecture education for several decades, and while participation has 413  
414 increased within engineering, it is still much lower in construction 414  
415 management. Greater female participation is in technical consult- 415  
416 ancies, such as architectural practices and engineering consultants, 416  
417 than has been achieved in construction contracting. 417

418 Based on this, further hypotheses were developed relating to 418  
419 company demographics: 419

420 Hypothesis 6 relating to company demographics: 420

421 *H6(a)*: The level of inclusion will not be the same in different 421  
422 sized companies. 422

423 *H6(b)*: There will be an association between the employment 423  
424 sector and organizational inclusivity. 424

425 *H6(c)*: The level of inclusion will not be the same in technical 425  
426 consulting and construction contracting companies. 426

## Research Aims

427 Research on women's careers in the AEC industry has not yet em- 427  
428 pirically explored inclusion, diversity management practices, and 428

professional women's career and life experiences. This research aimed to understand the role of diversity management effectiveness on women's success, utilizing inclusion and exclusion as an exploratory lens. Based on the theoretical model developed for this study, it was hypothesized that diversity management effectiveness and women's success would be more evident in inclusive organizations. In particular, six overall hypotheses, outlined earlier, were explored.

## 434 Method

### 435 Methodology

Consistent with the research problem, this study used a quantitative, deductive process approach (Neuman 2003). Because the study's purpose was to examine the extent to which variation in inclusion was related to differences in other characteristics, a cross-sectional correlational field study was adopted. An advantage of utilizing this method is collecting data on several independent variables from a large sample.

### 443 Participants

Managerial and professional women working within the AEC industry in Australia were surveyed. In particular, female members of four Australian-based AEC professional bodies (namely, the Australian Institute of Building, Australian Institute of Quantity Surveyors, Chartered Institute of Building, and National Association of Women in Construction) were recruited, and female employees of various architectural, engineering, and project management practices. Snowball recruitment was also used, where women forwarded the survey to female colleagues. The total female

membership of all surveyed professional institutions was approximately 915, and female employees of participating organizations approached 120. A total of 463 completed surveys were submitted, representing a response rate of around 44.9% (if snowballing is not considered). This response rate would be regarded as high [for instance, Baruch and Holtom's (2008) metastudy of 49 studies, involving 68 surveys, found a mean response of 39.6%].

### Procedure

The survey was deployed using a password-controlled website, which allowed easy access for the sample. Internet-based surveys are frequently used due to their accessibility for participants and cost and time saving for researchers (Van Mol 2017). A tailored approach was adopted to minimize nonresponse, with initial e-mails sent by the professional bodies/employers and followed up with e-mail reminders at two and four weeks (Dillman 2006; Van Mol 2017). The study also adopted snowball recruiting.

### Measures

In addition to some demographic and organizational data, such as age and work experience, the survey also included the following variables.

#### Inclusion

Inclusion, not previously operationalized, was based on Pelled et al.'s (1999) definition regarding insider status and Bilimoria et al. (2007) description regarding acceptance. It was considered a composite measure of four variables: person-organization fit, gender equity, peer support, and supervisor support. These measures and their items are summarised in Table 1.

**Table 1.** The variables that constitute the inclusion measure

T1:1	Measure	Item	Response format	Source	Cronbach Alpha
T1:2	Person-organization fit	1. The things that I value in life are very similar to the things that my organization values.	A 7-point agreement scale, where a higher mean score related to a higher possibility of a person leaving their organization.	Organizational fit scale (Cable and DeRue 2002)	0.92
T1:3		2. My organization's values and culture provide a good fit with the things that I value in life.			
T1:4		3. My personal values match my organization's values and culture.			
T1:5	Gender equity	Wording changed for each item and the scale was anchored at either end at 1 and 5, representing either male or female inequity. Gender neutrality was at the middle point (3). All professional and managerial staff are treated equally in this matter.		Derived from the women workplace Culture scale (Bergman and Hallberg 2002)	0.81
T1:6		1. Considered for promotional opportunities.			
T1:7		2. High organizational support.			
T1:8		3. Allocated roles with lower levels of responsibility.			
T1:9		4. "Fit in" well.			
T1:10	5. Successful in obtaining fair compensation.				
T1:11	Supervisor support	1. How friendly and easy to approach is your supervisor?	5-point extent scale ranging from 1 (to a very little extent) to 5 (to a very great extent), with a higher score indicative of greater supervisor support.	Supervisory leadership scale (Taylor and Bowers 1972)	0.90
T1:12		2. When you talk with your supervisor, to what extent do they pay attention to what you're saying?			
T1:13		3. How much does your supervisor encourage people to give their best effort?			
T1:14		4. To what extent does your supervisor encourage subordinates to take action without waiting for detailed review and approval from them?			
T1:15		5. To what extent does your supervisor show you how to improve your performance?			
T1:16		6. To what extent does your supervisor encourage people who work for them to exchange opinions and ideas?			



**Table 1.** (Continued.)

	Measure	Item	Response format	Source	Cronbach Alpha
T1:17	Peer support	1. How friendly or easy to approach are the persons in your work group?	5-point extent scale ranging from 1 (to a very little extent) to 5 (to a very great extent), with a higher score indicative of greater peer support.	Peer leadership scale (Taylor and Bowers 1972)	0.91
T1:18		2. When you talk with persons in your work group to what extent do they pay attention to what you're saying?			
T1:19		3. How much do persons in your work group encourage each other to give their best effort?			
T1:20		4. To what extent do persons in your work group help you find ways to do a better job?			
T1:21		5. To what extent do persons in your work group provide the help you need so that you can plan, organize and schedule work ahead of time?			
T1:22		6. To what extent do persons in your work group exchange opinions and ideas?			

**Table 2.** Diversity management practices measures

	Measure	Item	Response format	Source	Cronbach alpha
T2:1	Nondiscriminatory practices				
T2:2	Women overall	1. What percentage of women typically work in your organization?	A response ranging from 0% to 100% used. A higher number was indicative of more women overall.	—	—
T2:3	Women leaders	1. What percentage of women are top decision-makers in your organization?	A response ranging from 0% to 100% used. A higher number was indicative of more women leaders.	—	—
T2:4	Resource practices				
T2:5	Mentoring	1. Many professionals have a colleague they regard as a mentor. Do you have someone you would regard as a mentor?	Yes/no	—	—
T2:6	Organizational training	1. I often participate in training and development activities in my organization.	A 5-point agreement response, where a higher value indicative of more training and development.	—	—
T2:7	Accountability practices				
T2:8	Turnover intent	1. I often think about quitting.	A 7-point agreement response, where a higher score related to a greater possibility of a person leaving their organization.	Michigan Organizational Assessment Questionnaire (Cook et al. 1981)	0.88 (interitem correlation for the two items was 0.784, $p < 0.001$ ).
T2:9		2. I will probably look for a new job in the next year.			
T2:10					

The Cronbach Alpha for each measure was above the recommended minimum of 0.7, indicating a high level of internal consistency (Pallant 2020). In order to calculate the inclusion values, the variables were standardized by transforming them into z-scores and then summed. By altering the scores for all variables, so they each had an average of 0 and a standard deviation of 1, counteracted the different scoring schemes' effect. The reliability of the inclusion measure was assessed, and the Cronbach Alpha was found to be 0.73. Two groups were formed, with those with inclusion scores above zero classified as "inclusive" and those below zero as "exclusive."

**Diversity Management Practices**

Diversity management practices were considered through three elements defined by Leslie (2019): nondiscriminatory practices (in terms of recruitment and promotion), resource practices (in terms of mentoring and training), and accountability practices (in terms of retention) (Leslie 2019). These measures and their items are summarised in Table 2.

Recruitment was assessed by respondents indicating what percentage of their workforce overall were women. To represent women's promotion, respondents were asked to identify what percentage of top decision-makers were women, and the term "women leader" was used to describe this variable. Resource practices were assessed using participation in mentoring and organizational training and development. As accountability for diversity is associated with women's retention, turnover intent was adopted in this study.

**Women's Success**

Career success was measured using two variables, namely career advancement and career satisfaction. Career advancement was measured using a three-item scale and as the survey was lengthy, career satisfaction was measured using a single question. These measures and their items are summarized in Table 3.

Life success was conceptualized using two variables, namely life satisfaction and work-life conflict. The highly regarded Satisfaction with Life Scale (SWLS) (Diener et al. 1985), along

**Table 3.** Career and life success measures

T3:1	Measure	Item	Response format	Source	Cronbach Alpha
T3:2	Career success				
T3:3	Career advancement	Three-item scale based on their level of responsibility, hierarchical position (to CEO), and salary	A 6-point response, where a higher score was indicative of a high level of career progression.	—	0.82
T3:4	Career satisfaction	1. What is your overall level of satisfaction with your career?	A 5-point satisfaction response, with a higher score indicative of a greater level of satisfaction.	—	—
T3:5	Life success				
T3:6	Life satisfaction	1. In most ways my life is close to my ideal.	A 7-point satisfaction response, with a higher value indicative of greater life satisfaction.	Satisfaction with Life Scale (SWLS) (Diener et al. 1985)	0.9
T3:7		2. The conditions of my life are excellent.			
T3:8		3. I am satisfied with my life.			
T3:9		4. So far I have gotten the important things I want in life.			
T3:10		5. If I could live my life over, I would change almost nothing.			
T3:11	Work-life conflict	1. The demands of my work interfere with my home and family life.	A 7-point agreement response, with a higher value indicative of more work to life conflict.	Boles et al. (2001)	0.9
T3:12		2. Because of my job, I can't involve myself as much as I would like in maintaining close relations with my family or spouse/partner.			
T3:13		3. Things I want to do at home do not get done because of the demands my job puts on me.			
T3:14		4. I often have to miss important family activities because of my job.			
T3:15		5. There is a conflict between my job and the commitments and responsibilities I have to my family or spouse/partner.			

with the Boles et al. (2001) scale were adopted. These measures and their items are also summarized in Table 3.

### Company Demographics

Company sector, type, and size were also measured, and these are summarized in Table 4. Company size categories were based on those defined by the Australian Bureau of Statistics. These are itemized in Table 4.

### Data Analysis

Prior to analyzing the data, it was assessed for missing data and outliers. The normality, linearity, and homoscedasticity of the data were then checked. There was no missing data and a few outliers

identified. As many statistical methods assume that the distribution of scores is normal, normality was assessed by consideration of skewness and kurtosis. Muthén and Kaplan (1985) consider variables with univariate skewness and kurtosis in the range of  $-1$  to  $+1$  as adequate. Following recommendations by Tabachnick and Fidell (2014) and Field (2017), the values of identified outliers were changed to one unit higher than the next highest score in the data set. This resulted in the univariate skewness and kurtosis of all variables to fall within Muthén and Kaplan's (1985) recommended range of  $-1$  to  $+1$ . In addition to skewness and kurtosis, the Kolmogorov-Smirnov test was also conducted. The Shapiro-Wilk test was not considered an appropriate method as it is typically recommended for small sample sizes ( $<50$  samples), while the

**Table 4.** Company demographics

T4:1	Measure	Item	Response format
T4:2	Company size	Approximately how many people are directly employed by your organization (within Australia)?	Company type was one of five groups: micro (1), small (2), medium (3), large (4), and extra-large (5).
T4:3		1. 1–4	
T4:4		2. 5–19	
T4:5		3. 20–199	
T4:6		4. 200–999	
T4:7		5. Over 1,000	
T4:8	Organizational sector	Is your organization within the public or private sector?	2-point categorical response using public sector and private sector as the options.
T4:9	Company type	How would you classify the company you work for?	9-point categorical response, which was then reclassified into Construction (1 and 2), Technical Consultancy (3, 4, 5, and 6), and Other (7, 8, and 9).
T4:10		1. Construction (head contractor)	
T4:11		2. Construction (subcontractor)	
T4:12		3. Engineering consultancy	
T4:13		4. Architectural practice	
T4:14		5. Project management consultancy	
T4:15		6. Cost management consultancy	
T4:16		7. Education and training	
T4:17		8. Legal	
T4:18		9. Other	



540 Kolmogorov–Smirnov test is used for  $n \geq 50$ . The Kolmogorov-  
541 Smirnov results were significantly nonnormal for each variable,  
542  $D(456) = 0.074-0.316$ ,  $p < 0.005$ .

543 Before the total score of the various scales was calculated, those  
544 known to contain a single factor were checked for unidimension-  
545 ality using a principal components analysis with a varimax rotation  
546 (Grayson 2004). Next, the various measures' reliability was deter-  
547 mined, with the coefficient Alphas for the different variables were  
548 determined (Field 2017). Nunnally (1978) recommends a minimum  
549 of 0.7, and this threshold was adopted.

550 As the variables which form part of inclusion were measured  
551 using different response formats, they were standardized by trans-  
552 forming them into  $z$ -scores before summing them.  $Z$ -scores trans-  
553 form a variable so that its mean is 0 and standard deviation is 1.  
554 Each variable was given an equal weighting within the composite  
555 scale.

556 To compare groups, participants who scored above zero were  
557 considered as inclusive (sample of 258), and those below zero were  
558 classified as exclusive (sample of 198).

559 In order to compare the experiences of the different groups of  
560 participants, statistical tests were conducted to compare the mean  
561 scores for variables between groups of women. Analyses of vari-  
562 ance (often abbreviated to ANOVAs) and independent  $t$ -tests were  
563 used to test for significant differences within parametric data. The  
564 independent  $t$ -tests to test for differences between two groups  
565 and the ANOVAs for differences between more than two groups.  
566 Chi-squared tests for independence and Mann-Whitney  $U$  tests  
567 were used for dichotomous and nonparametric data.

568 To compare differences in perceptions, experiences, and organi-  
569 zational attributes within the two work environments, independent  
570  $t$ -tests were used to compare career advancement, life satisfaction,  
571 career satisfaction, turnover intent, work-family conflict, and  
572 organizational training. Mann-Whitney  $U$  tests were used to com-  
573 pare women overall and women in leadership. Chi-squared tests for  
574 independence were used for the organizational sector and being  
575 mentored. One-way ANOVAs were used to company type and  
576 company size (Pallant 2020).

## 577 Results

### 578 Sample

579 The final sample consisted of 456 women. Their average age was  
580 35, and women had worked just over 10 years on average in AEC  
581 related roles. The average weekly working hours was 47, with  
582 nearly 90% working over 40 h/week. Most respondents worked  
583 in an office situation, with 75.4% working in a head or regional  
584 office and 24.6% site-based. The sample had women who had  
585 worked in the AEC industry from 1 year to over 40 years, with  
586 the average work experience being 10.2 years ( $SD = 7.48$ ). The  
587 largest percentage of participants, 51.5% worked in technical con-  
588 sultancies (architecture  $n = 69$ , engineering  $n = 76$ , project and  
589 cost management  $n = 90$ ), 37.5% worked for a construction con-  
590 tractor, and the rest of the sample (10.9%) worked in a variety of  
591 organizational settings ranging from legal firms to property con-  
592 sultancy. Around 81% worked in the private sector, and the major-  
593 ity of the sample (58.5%) worked in a large organization (200 or  
594 more employees). Each of the six overall hypotheses is considered  
595 in turn.

### 596 Hypothesis 1 Relating to Nondiscriminatory Practices

597  $H1(a)$ : There will be a difference in women overall in inclusive  
598 and exclusive organizations.

$H1(b)$ : There will be a difference in women in leadership po- 599  
sitions in inclusive and exclusive organizations. 600

601 Nonparametric tests, namely the Mann-Whitney  $U$  tests, were used  
602 as the women overall, and women leader variables, while being  
603 continuous, were not normally distributed. A statistically signifi-  
604 cant difference between the women overall in exclusive ( $M =$   
605  $24.26\%$ ,  $SD = 15.74$ , and  $n = 198$ ) and inclusive ( $M = 31.35\%$ ,  
606  $SD = 21.69$ , and  $n = 258$ ;  $U = 21,080$ ,  $z = -3.212$ ,  $p < 0.001$ )  
607 work environments was found. Furthermore, a significant differ-  
608 ence in women leaders in exclusive ( $M = 5.27\%$ ,  $SD = 12.02$ ,  
609 and  $n = 198$ ) and inclusive ( $M = 13.36\%$ ,  $SD = 23.191$ ,  $n =$   
610  $258$ ;  $U = 18,647$ ,  $z = -4.99$ , and  $p < 0.001$ ) work environments  
611 was also established. These results support Hypothesis 1(a) and  
612 1(b) and indicate that nondiscriminatory practices such as higher  
613 recruitment of women and more women in leadership positions  
614 are a feature of inclusive work environments.

### 615 Hypothesis 2 Relating to Resource Practices

616  $H2(a)$ : There will be a difference in the level of organizational  
617 training in inclusive and exclusive organizations.

618  $H2(b)$ : There will be an association between being mentored  
619 and organizational inclusivity.

620 An independent  $t$ -test explored differences in organizational train-  
621 ing. Participation in organizational training was also significantly  
622 lower in more exclusionary environments ( $M = 3.18$ ,  $SD = 1.07$ )  
623 than settings in which women felt included [ $M = 3.83$ ,  $SD = 0.88$ ;  
624  $t(454) = -7.172$ ,  $p < 0.001$ ]. A chi-squared test for independence  
625 (with Yates Continuity Correction due to 2-by-2 table) was under-  
626 taken to see if an association between being mentored and inclusive  
627 work environments existed. A significant association was found  
628 in relation to mentoring [ $\chi^2 = (1, n = 456) = 12.12$ ,  $p < 0.001$ ,  
629  $\phi = 0.16$ ]. These results support Hypothesis 2(a) and 2(b). These  
630 results indicate that higher levels of resource practices, such as  
631 training and mentoring, and a more inclusive work environment,  
632 are associated.

### 633 Hypothesis 3 Relating to Accountability Practices

634  $H3$ : There will be a difference in the level of turnover intent in  
635 inclusive and exclusive organizations.

636 Turnover intent was significantly higher in the exclusive work envi-  
637 ronment ( $M = 4.16$ ,  $SD = 1.76$ ) than in inclusive work environ-  
638 ments [ $M = 2.61$ ,  $SD = 1.48$ ;  $t(383.2) = 10.208$ ,  $p < 0.001$ ].  
639 These results support Hypothesis 3, indicating that women in  
640 work environments that are more exclusionary (than inclusive)  
641 may have lower retention rates as they indicate a higher level of  
642 turnover intent. This demonstrates inclusion and accountability  
643 practices to be related.

### 644 Hypothesis 4 Relating to Career Success

645  $H4(a)$ : There will be a difference in the level of career advance-  
646 ment in inclusive and exclusive organizations.

647  $H4(b)$ : There will be a difference in the level of career satisfac-  
648 tion in inclusive and exclusive organizations.

649 An independent  $t$ -test was undertaken to compare the career ad-  
650 vancement and career satisfaction for AEC female managers and  
651 professionals employed in work environments, which were per-  
652 ceived as more or less inclusive (Pallant 2020). No significant dif-  
653 ference in the scores for career advancement in the inclusive work  
654 environments ( $M = 3.44$ ,  $SD = 1.21$ ) and exclusive work environ-  
655 ments ( $M = 3.33$ ,  $SD = 1.13$ ;  $p = 0.31$ ) was found. This result  
656 was contrary to the hypothesis. However, there were highly signifi-  
657 cant differences in the scores for career satisfaction. In the exclusive

work environment, career satisfaction was significantly lower ( $M = 3.36$ ,  $SD = 0.930$ ) than in Inclusive work environments [ $M = 4.09$ ,  $SD = 0.71$ ;  $t(454) = -9.571$ ,  $p < 0.001$ ]. These results support Hypothesis 4(b), but not 4(a), and indicate that while women in work environments that are more inclusive do not advance more in their careers, they do have greater career satisfaction than women who feel excluded.

### 665 Hypothesis 5 Relating to Life Success

666 *H5(a)*: There will be a difference in the level of life satisfaction  
667 in inclusive and exclusive organizations.

668 *H5(b)*: There will be a difference in the level of life satisfaction  
669 in inclusive and exclusive organizations.

670 An independent *t*-test was conducted to compare work-family conflict and life satisfaction of AEC women in more inclusive work environments. Life satisfaction was significantly higher in more inclusive environments ( $M = 5.31$ ,  $SD = 1.07$ ) than settings in which women felt excluded [ $M = 4.46$ ,  $SD = 1.21$ ;  $t(454) = 7.879$ ,  $p < 0.001$ ]. A highly significant difference in the scores for work-family conflict in the exclusive work environments ( $M = 4.45$ ,  $SD = 1.32$ ) and inclusive work environments [ $M = 3.79$ ,  $SD = 1.37$ ;  $t(454) = 5.211$ ,  $p < 0.001$ ] was also found. These results support Hypothesis 5(a) and 5(b) and demonstrate the role of inclusion in women's life success. They indicate that women have lower life satisfaction and experience higher work-family conflict in work environments in which women experience exclusion compared to inclusion.

### 684 Hypothesis 6 Relating to Company Demographics

685 *H6(a)*: The level of inclusion will not be the same in different  
686 sized companies.

687 A one-way ANOVAs was used to explore differences by level of  
688 inclusive and organizational size (Pallant 2020). In this case, the  
689 inclusion variable was considered a continuous standardized variable with five groups: micro, small, medium, large, and extra-large, compared. The five categories were based on the Australian Bureau of Statistics (ABS) company size classifications. The large company category (over 200 people) was further divided, so those with greater than 1,000 employees could be considered. Most women were employed in large companies ( $n = 142$  for large;  $n = 125$  for very large), with 41 people working in small organizations, 134 in medium-sized organizations, and only 14 women in microbusinesses.

699 There was a statistically significant difference at the  $p < 0.05$   
700 level in the inclusion values for the different organizational groups  
701 [ $F(4, 451) = 2.77$ ,  $p = 0.027$ ]. Post hoc comparisons using the  
702 Tukey HSD test indicated that only the mean score of inclusion  
703 for the microcompanies was significantly different from that of  
704 the medium-sized company ( $p < 0.046$ ). Based on the inclusion  
705 and exclusion groups, smaller companies were represented at a  
706 higher rate than medium and larger companies, with microcompanies having the highest inclusion level. These results, therefore, support Hypothesis 6(a) that inclusion and organization size are associated, but it is the very small work environments that provide women with greater levels of inclusion.

711 *H6(b)*: There will be an association between the employment  
712 sector and organizational inclusivity.

713 Respondents were asked to indicate the sector in which their  
714 company operated. Two options were provided, namely the private  
715 sector and public (government-owned and operated). A more significant number of women worked within the private sector ( $n = 368$  versus  $n = 88$ ), which reflects employment in general

within the AEC industry. A chi-squared test for independence (with Yates Continuity Correction due to 2 by 2 table) was employed to investigate if an association between the sector and inclusive work environments existed. While more women in the public sector versus the private sector perceived their organization to be inclusive (57.1%) than exclusive (54.5%), no significant difference was found. Hypothesis 6(b) was, therefore, not supported.

724 *H6(c)*: The level of inclusion will not be the same in technical  
725 consulting and construction contracting companies.

726 The relationship between inclusion and the organizational type  
727 was also explored using a one-way ANOVA. Inclusion again was  
728 considered as the continuous standardized variable with three  
729 groups compared, based around common usage in the AEC sector,  
730 namely technical consulting (architecture  $n = 69$ , engineering  
731  $n = 76$ , project and cost management  $n = 90$ ), construction contracting ( $n = 171$ , head and subcontractors), and other ( $n = 50$ , law, etc.). There was a statistically significant difference at the  $p < 0.05$  level in the inclusion scores for the three different organizational types [ $F(2, 453) = 4.77$ ,  $p = 0.009$ ]. Post hoc comparisons using the Tukey HSD test indicated that the mean score of inclusion for technical consulting was significantly higher than that of the construction contracting ( $p < 0.008$ ), supporting Hypothesis 6(c). There were no other statistically significant differences between different groups.

## 742 Discussion

743 In this research, a model of inclusion, based on social exchange  
744 theory, investigated diversity management effectiveness and  
745 women's success using a sample of nearly 500 AEC professional  
746 women. Six overall hypotheses were developed and explored, and  
747 while the majority of these were supported, some were not. The  
748 results are discussed below.

### 749 Impact of Inclusion at the Organizational Level

750 The results demonstrate that when inclusion was evident, organizational diversity strategies were effective. In particular, three types of diversity strategies, defined by Leslie (2019), were considered, namely, nondiscriminatory, resource, and accountability practices. When considering nondiscriminatory practices in terms of recruitment and retention, not only were there significantly more women overall but more women in leadership in inclusive work environments. Organizations with higher representation of women are considered to have more equitable recruitment processes, so they may also have other equitable employment practices in place (e.g., flexible work), which Guillaume et al. (2013) consider to affect the emergence of an inclusive organizational culture. Also, feelings of identity and inclusion increase when individuals are part of groups in which they are demographically similar (Tajfel and Turner 2004; Chattopadhyay et al. 2004). So the presence of women themselves may well positively affect the perception of inclusion. Finally, a strong association between the presence of senior female managers and younger women professionals has been previously identified, underscoring the longer-term importance of women leaders fostering and supporting younger female cohorts (Goodman et al. 2003).

771 Resource practices typically provided through Human Resource Management (HRM) were also evident in organizations that women perceived to be more inclusive, with more mentoring and organizationally provided training evident in inclusive work environments. Both mentoring and training have been identified as necessary for women's careers, attracting considerable attention within AEC women's research (e.g., Worrall et al. 2010). Chan and



778 Dainty (2007) assert that supportive HRM practices are necessary  
779 to attract and retain AEC women.  
780 Turnover was considered in this research to represent account-  
781 ability practices, also referred to as responsibility practices. These  
782 practices aim to monitor diversity outcomes, with a focus on the  
783 overall goal of diversity rather than diversity processes (Leslie  
784 2019). The research found that the turnover intent of women  
785 who perceived their workplaces to exclude them was statistically  
786 higher. Reducing turnover is imperative for organizations, particu-  
787 larly when costs associated with lower work performance, retrain-  
788 ing, and further recruitment are considered (e.g., Hancock et al.  
789 2013). Mor Barak (2000) also identified that perceived inclusion  
790 positively affected retention so that inclusion can act as a preventa-  
791 tive strategy for women's turnover in the AEC sector (Davies  
792 et al. 2019).

### 793 **Impact of Inclusion at the Individual Level**

794 In this study, success was assessed in two ways: career success by  
795 considering career satisfaction and career advancement; and life  
796 success by considering life satisfaction and work-family conflict.  
797 Both aspects of success are known to be important to women  
798 (Erdogan et al. 2012). In this research, career satisfaction was sig-  
799 nificantly higher in the inclusive group. Career satisfaction is  
800 known to have significant organizational implications as the bene-  
801 fits spread beyond that of an individual employee. For instance, job  
802 satisfaction, which is closely linked with career satisfaction, is a  
803 known predictor for coworker support (LePine et al. 2002).

804 Interestingly, inclusion was not associated with women's career  
805 advancement. So despite the presence of mentors, along with more  
806 active recruitment of women and the presence of women leaders in  
807 an inclusive work environment, there was no difference in women's  
808 career advancement. The inclusion environment may hold the same  
809 underlying perceptions and subtle norms as the more exclusionary  
810 environment have about who is (and who is not) suitable for spe-  
811 cific roles (Ashcraft 2013). Perhaps, women leaders may not have  
812 as much organizational influence to affect change, or simply they  
813 do not support other women advancing (aka Queen Bee syndrome)  
814 (Funk 2004; Baumgartner and Schneider 2010).

815 Life success was conceptualized as life satisfaction and work-  
816 life balance. In more inclusive workplace environments, women  
817 had statistically higher levels of life satisfaction. This result is  
818 notable as life satisfaction is closely linked to many aspects of  
819 physical and mental health, demonstrating exclusionary contexts  
820 may have a severe impact on women's lives. Reduced life satisfac-  
821 tion has been found to relate to decreased mortality, heart disease,  
822 burnout, and sleeping disorders, and is also a better predictor of job  
823 performance than job satisfaction (Erdogan et al. 2012). Better life  
824 satisfaction is also related to higher career satisfaction, lower turn-  
825 over, increased helpfulness to subordinates, and higher productivity  
826 (Erdogan et al. 2012). Life satisfaction and happiness, while not  
827 synonymous, are intimately linked, and Chew et al. (2020) identi-  
828 fied happiness in engineers to be related to supervisor support. Life  
829 satisfaction is a valuable and positive attribute of employees and for  
830 any organization.

831 Work-family conflict was statistically higher in exclusionary  
832 environments and may explain the higher level of turnover intent.  
833 Women's departure from the AEC sector has been linked to work-  
834 family issues, but it has been demonstrated that organizational sup-  
835 port mechanisms reduce work-family conflict (Lingard and Francis  
836 2009). Work-family conflict in the AEC industry has been associ-  
837 ated with demanding roles, and it would seem that inclusive work  
838 environments do support workers with family commitments.

### **Impact of Inclusion at the AEC Sector Level**

840 Finally, this research also identified some AEC sector level char-  
841 acteristics of inclusive workplaces. Microsized companies, rather  
842 than larger, medium, or small companies, had significantly higher  
843 levels of inclusion. Considering more formal diversity programs are  
844 often found in larger organizations, this finding does appear  
845 counterintuitive. However, it is not just the formal policies that as-  
846 sist employees, but also the informal accommodations, such as un-  
847 scheduled time off, altered schedules, etc., which may be more  
848 forthcoming in smaller organizations (Behson 2002). While it  
849 was considered that midsized firms might provide that balance  
850 of formal and informal policies and thereby be more inclusive, this  
851 research found that very small organizations appear to facilitate in-  
852 clusion more readily. It may be that informal policy and practices  
853 have a more significant effect on inclusion as they are more closely  
854 related to a microsized firm's norms. Within these very small or-  
855 ganizations, accommodations and support linked with inclusion  
856 may be a more natural part of the way work is conducted. Research  
857 by Adkins et al. (2013) also suggests that ownership characteristics  
858 in terms of gender and family affect the work-family culture and  
859 work flexibility within smaller organizations.

860 As an area with a historically lower number of women, perhaps  
861 unsurprisingly, construction contracting had significantly higher  
862 exclusion levels than technical consultancies. Interestingly, it  
863 was found that architecture, which has had gender parity within  
864 education for several decades, had a lower percentage of inclusive  
865 organizations than engineering and other professional consultan-  
866 cies. Stead (2016) notes that architecture's culture is one of excep-  
867 tionalism, differing from all other professions. Perhaps this and the  
868 fact that the female architect's image is not so clear cut (Stead 2016)  
869 make them more outsiders than women who have gone into engi-  
870 neering, which focuses more on practical tasks and problem-  
871 solving within a strong norm of professionalism and ethics.

872 No differences in inclusion by organizational sector were found,  
873 which was unexpected. With their long association with diversity  
874 programs, public sector institutions did not embrace inclusion more  
875 than the private sector. Work-family conflict has been found to be  
876 higher for private sector AEC employees, but this was in a predomi-  
877 nantly male sample (Francis et al. 2013). Perhaps the formal pro-  
878 visions for child care, part-time work options, etc., within the  
879 public sector improve the work-family balance of public sector em-  
880 ployees, but not the underlying perceived organizational support  
881 needed for inclusion. However, these results can also be considered  
882 another way and may indicate that private sector companies are  
883 starting to taking the lead in the diversity area. This is good news  
884 for women wanting private sector work experience but concerned  
885 about managing work and family responsibilities.

### **Conclusions**

887 Significant changes have occurred within women's employment  
888 conditions, with the most notable being the equal opportunity legis-  
889 lation enacted within most western economies since the 1970s.  
890 Diversity has since replaced the term equality to highlight the value  
891 of individual differences in improving organizational performance  
892 (Cox 2001; Mor Barak 2016; Özbilgin and Tatli 2011; Robertson  
893 et al. 2017). More recently, the term inclusion has been embraced  
894 and is regarded as more participatory and proactive (Kossek and  
895 Pichler 2006). There is now a widespread understanding of the ben-  
896 efits of a diverse workforce and the role inclusion has to play, out-  
897 lined within both industry and academic literature (Michielsens  
898 et al. 2008; Wright et al. 2014). However, it has been challenging  
899 to identify specific effects because of the intricacy of organizational

900 processes (Hamdani and Buckley 2011; Fischer 2009). Evidence  
901 on the business impact remains unclear (e.g., Guillaume et al.  
902 2013).

903 Based on organizational support theory, which is grounded in  
904 social reciprocity, this research postulated inclusion to be a product  
905 of diversity management effectiveness and organizational support.  
906 The study found that diversity management alone is not enough,  
907 and the critical role organizational intent has to play. The study  
908 sought to understand the effect of inclusion on AEC women  
909 and their organizations and provided much needed empirical evi-  
910 dence in the area. Inclusion does matter to AEC women and their  
911 organizations.

912 From this work, it is apparent that AEC companies are not all  
913 the same, with companies having different inclusion levels. The  
914 research has also identified organizational and personal benefits  
915 from diversity and inclusion, which may help address the ability  
916 to attract and retain women within the AEC industry. However,  
917 it also highlights that many women in the industry continue to suf-  
918 fer in exclusionary environments.

919 An inclusive work culture that values differences and success-  
920 fully integrates a diverse range of workers does provide an ideal  
921 environment for AEC women to achieve both work and life suc-  
922 cess. Women in these environments experienced higher levels of  
923 career and life satisfaction and lower level of work-family conflict.  
924 Women's lack of career advancement has long been associated with  
925 a lack of support, mentors, and challenging work practices, with  
926 women required to fit in if they want to remain and succeed  
927 (e.g., Dainty et al. 2000; Worrall et al. 2010; Francis 2017). More  
928 inclusive environments do address some of these issues, but in this  
929 research, it was found that women's inclusion did not impact wom-  
930 en's career progression despite access to mentoring and support.  
931 This is a significant finding as much of the prior research has in-  
932 dicated their absence be the cause of women's lack of advancement.

933 The effectiveness of diversity programs in the inclusive group  
934 was also confirmed with statistically greater numbers of women  
935 overall, more women in leadership, and the presence of supportive  
936 organizational practice such as training and mentoring. The positive  
937 effect of inclusion for organizations was demonstrated through the  
938 women's higher career and life satisfaction, reduced work-family  
939 conflict, and lower turnover intent. These factors are not only ben-  
940 efiticial for women but are related to better work performance and  
941 reduced costs. When considering the variables used to measure in-  
942 clusion, it is also apparent that it is an achievable characteristic and  
943 should be a vital business objective. However, as this research dem-  
944 onstrates, these efforts must be genuine. Inclusion stems from  
945 organizational support that is nonmandatory compared to diversity,  
946 which is legislated or mandated (Shore et al. 2018). Leslie (2019)  
947 identifies that an absence of an ethical climate (and associated  
948 behaviors) can result in a diversity backfire, with the representation  
949 of women actually decreasing.

950 When examining the inclusive environment's attributes, it was  
951 apparent that inclusion did differ by organizational size and type,  
952 but not the organizational sector. It would appear in the inclusive  
953 group AEC women are at least accepted, demonstrating progress  
954 from earlier research. While they may still face career progression  
955 challenges, they are still in a much better position than women who  
956 experience exclusionary workplaces. Exclusion has some very con-  
957 10 cerning features that could be deemed as an OH&S issue. With  
958 their more negative features, exclusionary workplaces may be  
959 indicative of damaging and unethical workplaces that affect more  
960 than just female employees. Investigating diversity and inclusion  
961 may help illuminate sections of the AEC industry in need of urgent  
962 reform.

## Future Research

963

964 These findings indicate that further research is required to under-  
965 stand the evolution and benefits of more inclusive work environ-  
966 ments in the AEC industry. Qualitative longitudinal research  
967 during the implementation of a new diversity management plan  
968 could provide insights not gained through cross-sectional quantita-  
969 tive methods. The discovery that women's career advancement was  
970 not affected by inclusion requires further exploration. Various re-  
971 searchers previously identified mentoring and support as explana-  
972 tions for women's career progression issues; however, women's  
973 advancement was unaffected even when they are present. Also, this  
974 research sheds light on AEC work environments that could improve  
975 the work and life of employees. Understanding these and their ef-  
976 fect on male and female employees should be explored. Finally,  
977 more qualitative research involving microsize companies and en-  
978 gineering consultancies should be undertaken to understand why  
979 they are more inclusive than larger companies and architectural  
980 practices.

## Limitations

981

982 While the cross-sectional correlational field study method is widely  
983 adopted, it has some limitations, particularly regarding causality  
984 (Field 2017). Also, the sample was mainly women in the AEC in-  
985 dustry who were members of AEC professional bodies. While snow-  
986 ball sampling was encouraged, the research cannot claim that the  
987 sample was random, and some bias may exist. Being a professional  
988 association member may indicate an increased career focus and/or  
989 compliance with professional norms. However, the sample did re-  
990 present women of all ages, work experiences, and family situations.

991 The questionnaire was web-based, which can result in responses  
992 from nontargeted groups; however, a password-controlled site was  
993 used and would have mitigated against this. It was quite long, and  
994 the use of a single item for some variables (e.g., career satisfaction)  
995 was not ideal. Inherent in all studies involving people's perceptions  
996 are a range of issues; individuals respond about how they feel at one  
997 specific time. Also, individuals can be unwilling to reveal true feel-  
998 ings; social desirability bias may have played a part in their re-  
999 sponses. However, having a particular website for the study, a  
1000 large sample, assuring anonymity, and not linking the study back  
1001 to their workplaces should have minimized these issues. Finally, in  
1002 this study, the conceptualization of inclusion was based on the de-  
1003 scription by Bilimoria et al. (2007) and others. Standardized vari-  
1004 ables were used, and the sample of professional women was split  
1005 into two. Inclusion was classified as above one and exclusion below  
1006 one. It is acknowledged that inclusion is on a continuum, and the  
1007 random allocation was used to identify those experiencing higher  
1008 and lower inclusion rather than define where inclusion begins  
1009 and ends.

## Data Availability Statement

1010

1011 Some or all data that support the findings of this study may be avail-  
1012 able from the corresponding author upon reasonable request.

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1013

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