INCREASING THE PIPELINE OF WOMEN TO PROPERTY & CONSTRUCTION

THE IMPORTANCE OF SCHOOL BASED ENGAGEMENT

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FEBRUARY 2016
The National Association for Women in Construction (NAWIC) is a non-profit organisation established in 1995 with a mission to promote and improve the construction industry by the advancement of women.

The NAWIC community is comprised of member-based organisations, and meet often to exchange information, ideas and offer solutions to identified industry issues. The network also offers businesses, and in particular women, the opportunity to expand personal and business relationships, maintain awareness of industry developments, improve skills and knowledge, and make a foster the success of women.

Each year NAWIC offer the International Women’s Day Scholarship, dedicated to support females undertake projects of interest that will further opportunities for all women in property and construction. Thanks go to NAWIC, and their key sponsor CULT, for offering this opportunity in 2015, with the key research agenda focused on expanding diversity within our industry.

In 2016, it is unfortunate that as a society must continue to keep such a strong focus on ensuring equal opportunity for women in the workplace. While great advances in gender equality are being seen across the industry, it is important that we maintain a strong, and united focus on the advancement of women.

The research container herein aims to shed light on what opportunities we, as an industry, are currently missing; and how NAWIC and its industry members can change this narrative for the better.
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Executive Summary

Businesses currently focus their efforts on establishing workplace strategies to improve gender equity and diversity within the construction industry. This fails to address the root cause of low female representation:

...females tend towards pursuing tertiary and vocational training in the arts and humanities, generally resulting in health and community services, education and retail trade based career paths...¹

The number of women within the construction industry has varied little between 1987 and 2004², despite the marked uplift in the overall employment levels of women in the workforce. Only 2 to 5 percent of all female university graduates complete studies in fields likely to lead to a career in property or construction. Comparatively, 22 percent of all males in formal education during 2013 were completing engineering and related technology degrees, creating a strong pipeline of young men into the 2014 construction industry³.

In order to best effect positive change for the property and construction industry, it is recommended NAWIC assume a leadership position to raise awareness of the female pipeline challenges faced via their extensive member-based network; align future scholarship funding to measurable and outcomes based projects; realign the NAWIC website to better disseminate the distinct property and construction sectors, and women within them; and drive action for whole of industry based school partnerships to leverage the collective and extensive resources available.

¹ (Australian Bureau of Statistics, 2013)
² (Australian Bureau of Statistics, 2012)
³ (Australian Bureau of Statistics, 2013)
Introduction

The property and construction industry is one of the largest sectors in Australia, accounting for up to 9 per cent of our national workforce – however of the approximate 1 million people employed, only 12 per cent are women⁴.

We are failing to attract female talent, with just over 2 percent⁵ of all female graduates in 2013 choosing a field of study with skills aligned to a career in property or construction. Despite this industry is currently focused on retaining women, rather than increasing participation.

While programs to retain and support women are essential, we are missing a large opportunity to influence diversity:

To increase the female pipeline to property and construction

The research presented here demonstrates the key opportunities our industry is currently missing. This report presents findings of research conducted, and makes recommendations to NAWIC and industry on what actions could be undertaken in order to change the paradigm.

It should be made clear that there is no expectation for NAWIC to assume responsibility for these recommendations, without the support, and commitment, of industry too – as this will be essential to effecting positive change.

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⁴ (EY, 2015)
⁵ (Australian Bureau of Statistics, 2013)
Literature Review

Australia ranks among the top countries in the OECD Better Life Index\(^6\) for the liveability of our nation. Excellence in healthcare, education and economic prosperity are among the many indicators that see Australia as an OECD leader. Despite this, women are still unfairly represented for equal pay, entitlements and representation in the workplace. With a strong employment rank of top 25 percent of nations, Australia performs poorly against workplace gender equality at 21/36, lagging behind Russia, Israel and Portugal to name a few\(^7\).

According to the 2011 Census and Australia’s Gender Equality Score Card, women represent a mere 16.8 percent of all employees in construction and related industries; and only 10 percent of all managerial positions. Drawing from Australia’s Gender Equality Scorecard data set for construction industry voluntary reporting, these statistics drop dramatically to a mere 2 percent of all females in managerial positions.

Further, “the representation of women steadily declines when moving up the management levels”\(^8\). This reduces potential for female participation at CEO and Board leadership level, that relies heavily on sound and demonstrated industry experience\(^9\). Most troubling is the representation of women in the construction industry internationally, with a male to female ratio of 35 :1 for the top 20 OECD nations\(^10\).

A review of the Australian university enrolment and graduation rates per subject area provides some insight into the low representation of females in property and construction. In 2011, “the number of women and men studying architecture … was almost equal, but only 20 percent of registered architects in Australia were

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\(^6\) (OECD, 2014)  
\(^7\) (OECD, 2014)  
\(^8\) (Workplace Gender Equality Agency, 2014)  
\(^9\) (Workplace Gender Equality Agency, 2014)  
\(^10\) (Catalyst, 2013)
women”1. The same data source shows that “architecture and the building industry also record the worst pay discrepancy between female and male graduates in their first year out of university”, lending some insight as to why females may be less likely to apply their studies to future careers. This data also highlights a need to engage with students prior to tertiary education, during formative high school years.

Year 12 female career expectations are positively correlated with tertiary education preferences for arts, humanities and teaching12. This trend is consistent with low female participation in STEM fields; core professional skills necessary in the property and construction industry – indeed 75 per cent of occupations now require STEM skills13. International longitudinal studies following students from high school to mid-career show females are highly capable in STEM subject matter. However, typically strong verbal ability inadvertently leads away from STEM tertiary education and careers14. Universities have a unique position to drive greater female representation in STEM, and traditional male industries.

However, a short review of Australian universities including ANU, RMIT, Griffith University, and University of Canberra (UC) finds that only UC has a documented and publicly available strategy to attract and retain women in courses that are currently male dominated15. Yale University’s random double blind gender bias study, ‘Science Faculty’s Subtle Gender Biases Favor Male Students’, finds that male candidates for faculty positions are likely to be rated “significantly more competent and hireable than the identical female applicant. These participants also selected a higher starting salary and offered more career mentoring to the male applicants”16.

Similar results are found when analysing the representation of female educators at Australian universities, where women are less likely to secure leadership positions

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11 (Matthewson, 2013)
12 (Sikora, J., & Pokropek, A., 2011)
13 (University of Sydney, 2016)
14 (Association for Psychological Science, 2013)
15 (Australian National University, 2014) (Griffith University., 2013) (University of Canberra, 2013)
above ‘Lecturer’. This limits career progression and diversity in leadership positions for staff\textsuperscript{17}.

To resolve this problem we need to look at local and offshore education strategies, programs and pedagogy that have recognised these issues, and have actively begun a journey of change. The Smith Family Work Inspirations Program\textsuperscript{18} connects businesses and high-school students in meaningful engagement for students to “broaden their perspectives and develop aspirations, whilst also inspiring businesses to showcase their work and employment opportunities, engage with the future workforce and support their local community”.

Similarly, Big Picture Education\textsuperscript{19} founded in the United States, with a small presence in Australia, connects high-school students from years 9-12 to meaningful six-month work placements based on student interest areas. For that semester, the student is mentored by a business representative, and is provided a clear insight into the industry and future career opportunities.

This Literature Review clearly demonstrates a systemic and unresolved barrier to elevating female representation in property and construction. By drawing together this research, and then successfully responding, NAWIC can facilitate an essential stepping-stone towards change. This is necessary to realise a diverse, intellectually and economically robust property and construction industry.

\textsuperscript{17} (Parlour, 2013)  
\textsuperscript{18} (The Smith Family, 2014)  
\textsuperscript{19} (Big Picture Education, 2015)
Research Findings & Recommendations

Repositioning the Property and Construction Industry as a Female Employer of Choice

The property and construction sector is not positioning itself best as an attractive career opportunity for young women. Existing programs, opportunities and initiatives by government and industry are aligned to retaining women within the industry, however this does not support attracting women.

This is not unique to Australia. A recent study of school-aged students, conducted by the Equal Opportunities Commission in the UK, revealed that up to 80 percent of young women would be interested in pursuing a non-traditional career; however only 12 percent would consider the construction industry.\(^{(20)}\)

Student Mentor Participation

To gain a better insight into why that is, I worked with one of Stockland’s Sustainability Partner organisations, Australian Business and Community Network (ABCN), which supports students in achieving their career aspirations. ABCN is an Australian non-profit organisation that partners with schools and businesses. Their goal is to improve opportunities and outcomes for disadvantaged students by raising aspirations and increasing awareness of the personal, educational and vocational choices available. Established in 2005, ABCN is entirely business-funded by over 30 member companies, of which Stockland is an ongoing supporter.

Each year, ABCN offer mentoring and financial scholarships via the ABCN Scholarship Foundation, to:

\begin{quote}
exceptional students facing economic, family or social challenges, which impact on their studies or capacity to pursue their desired tertiary pathways.

Winners receive financial support over Years 11 and 12, and their first year of
\end{quote}

\(^{(20)}\) (UK Equal Opportunities Commission, 2008)
tertiary education, to spend on study resources and help alleviate financial hardship in their homes\textsuperscript{21}.

Sam*, one of the 2015 Scholarship recipients spent a week with me as part of her initial scholarship award. As her mentor during this time, I was able to gain insights into how secondary school students view the property and construction industry. Of most significant note was how Sam perceived Stockland as a business, and our industry as a sector on the first morning she spent time in our organisation. Broadly, Sam was initially hesitant about spending time with us, as she was challenged to see the alignment between her personal ambitions in science, and the property company she would be spending the working week with. By the end of the first day, Sam had:

- Joined me in project and consultant meetings;
- Participated at an internal Sustainability Team catch up; and
- Maintained an open conversation about ‘who Stockland is’, ‘what we do’, and ‘what opportunities are there here?’

This was enough exposure for Sam to immediately understand that the property and construction industry was not how she had envisaged; and realise that there were extensive opportunities for young, talented women such as herself to participate. At the close of the week, I interviewed Sam on how her understanding of our industry shifted over the course of five days. Key quotes are provided below; and a full transcript of the interview is at: Case Study Interview.

\begin{quote}
When you realised you would be spending some time at the office of a property development company, did you think it would be a place for women to work?

I didn’t think that you even worked in an office! I thought I would be with a man in a hard hat, on a construction site… No, I didn’t think it would be an industry that a woman could work in.
\end{quote}

\textsuperscript{21} (Australian Business and Community Network, 2016)

* Real name not disclosed for student anonymity
Now that you have spent time with us, would you recommend our industry to your female friends?

Yes... but only because I have spent time here and I have seen the opportunities. Employers like Stockland provide such diverse skill set opportunities... You can learn so much here. My perception has completely changed from automatically thinking property development is about tradies on a worksite. My notion that women don’t belong here is gone too. I absolutely think women should work in property.

Stockland Inspirations Program

To further support the insights gained by spending time with Sam, I also evaluated the ongoing success of our Stockland Inspirations Program. Stockland Inspirations is a low cost School to Business partnership, where students are invited to attend a local Stockland asset (i.e. Shopping Centre) and better understand the diversity of opportunities within our sector via exposure. Students are typically in senior secondary school years.

At the close of each session with a school cohort, students are requested to provide feedback on their experience. Based on responses from one of our most recent sessions, we found that:

- 77% of students found exposure to the property industry informative in considering their future careers;
- 62% found that exposure to the breath of career options inspiring;
- 92% reported talking with employers about future careers more helpful than speaking with teachers or career advisers; and
- 92% found participating in a program exposes and broadens an understanding of simply what careers exist post school.
Insights from initiatives such as businesses hosting a student, or partnering with a school to offer students exposure opportunities, demonstrates how knowledge is a powerful tool for young adults. Potentially the most significant barrier to students maintaining interest in STEM, is a lack of understanding for where those future skills can be meaningfully used. Business exposure begins to change that narrative for students, as they gain a greater understanding of career diversity and options available to them. This also presents businesses, and sectors, the opportunity to increase awareness and knowledge for a shared value outcome.

In order to increase the pipeline of women into the property and construction industry, it is essential that we begin to break down social misconceptions. We can’t hope to thrive, and attract young talent if our industry is not understood by the youth of today. This sentiment does not just extend to young women, but also young and talented men. While this research is based on increasing the pipeline of women to property and construction, it is worth noting that as an industry we should also be striving to attract the best talent across both sexes.
What Can NAWIC & Industry Do?

As a member based organisation, NAWIC has an expansive reach to property and construction organisations across Australia. In order to improve the perceptions and understanding of what the property and construction offers within school-aged cohorts, there must first be acceptance from the property and construction industry that there is a problem with the current paradigm.

NAWIC is well positioned to raise awareness, and drive change across the industry. As highlighted by EY’s research into gender diversity within organisations, there is a maturity curve for change underpinned largely by awareness and education.

Figure 1: EY Smart Curve Diagram

There is a clear misinterpretation of what the property and construction industry offers young and aspiring Australians – and a lack of industry focus on rectifying our

22 (EY, 2015)
negative image. This research project proposes that the property and construction industry currently sits between ‘Unaware’ and ‘Emerging Awareness’ when considering the negative impacts this misunderstanding causes our future talent pipeline.

NAWIC has the industry reach, and organisational alignment to foster greater awareness within the industry that there is a problem within industry. There are a number of ways NAWIC can open the conversation to industry, and generate movement along the smart curve:

1. Embed awareness of the current issue in upcoming events, including the National Conference

2. Incorporate awareness training into the regular Events scheduled throughout the National Network

3. Align at least one future scholarship to deliver an educational project based outcome in partnership with industry to begin addressing the need for collaboration and action in this space
Increasing the Female Pipeline to STEM Field Careers of Property & Construction

STEM fields - science, technology, engineering and mathematics- underpin professional skills necessary for career progression in property and construction. Whether you are seeking a corporate career, or prefer to work outdoors at a development site, STEM skills are a core component of the industry.

Young women typically opt away from these subjects in senior high school, unless they attend an all girls’ school\(^{23}\). Despite maths and science being mandatory subjects for most senior students across the country, female affinity with these subjects is far lower than their male counterparts.

This is not for lack of academic performance; indeed female students are more likely to outshine young men academically in this space\(^{24}\). So why is it that young women shy away from these subjects despite their academic prowess? Research shows that despite young women’s excellent performance in STEM fields, they typically do even better in the Humanities, and thus tend to focus greater efforts here.

Industry Survey

This tendency is also reflected in results from the industry research completed as part of this study. I released an industry survey, and invited male and female participants to respond. A total 165 responses were collected as part of this survey, and the results are presented throughout this report. A strong response was received across a range of leadership levels, industry skills, and gender.

\(^{23}\) (Institute of Physics, 2012)
\(^{24}\) (Stanford University, 2010)
While this survey is acknowledged as an industry focused data set, as a result of targeting existing property and construction employees, the intent is to demonstrate existing views and thoughts regarding our industry. The survey also sought to demonstrate how career aspirations shift over time, and this shift is more noticeable in females.

A full outline of the survey questions can be found at Industry Survey.

**Change from Childhood to Teenage Career Aspirations**

Female currently in the property and construction industry, of all ages, were asked to recall their preferred career as a primary school student, and then how that preference changed as they entered senior high school. Results were diverse, ranging from aspirations to be a vet or astronaut – through to a musician or journalist. Responses were separated into ‘STEM’ or ‘Humanities’ in order to present the data below.

A clear decline in female interest, and aspiration to be involved in STEM based careers was seen. As women progressed into secondary school, they gravitated more strongly towards Humanities, and careers associated with these skill sets.
Conversely, male interest in STEM fields increased during the same time period, with a progressive shift away from interest in the Humanities.

As outlined, it is not lack of achievement in STEM that steers young women away from maintaining an interest in these skills – therefore what is the rationale behind this difference? Research by leading STEM advocates in the USA suggest that women are discouraged to pursue an interest in STEM due to perceptions of masculine vs. feminine careers, and anticipated future hostility towards the individual if these boundaries are crossed\textsuperscript{25}. As young women typically continue to perform even more successfully in the Humanities, a subconscious bias steers them away from perceived future conflict, and into a safer career paths\textsuperscript{26}. This leads to a query of whether women currently in the industry believe it is a space safe for women to participate?

\textsuperscript{25} (Urry, 2013)
\textsuperscript{26} (Forbes, 2012)
Recommending the Industry to Women

As part of the survey, participants were also asked if they would recommend the industry to young women. An overwhelming majority of respondents (male and female) agreed they would advocate for young women to join the industry. For non-advocates, the most cited reason male dominance within the sector, which is seen as a prohibitor to women succeeding in their careers. Women were more likely to discourage female participation in the industry than male respondents.

Despite the strong support for young women to enter the property and construction, the industry stereotype of *male dominance* remains prevalent within the sector today. Interestingly, male respondents were more likely to perceive the industry as unappealing to young women, compared to female respondents.

![Figure 5: Would you recommend the industry to young women?](image)

![Figure 6: Women that View the Industry as Male Dominated and Unappealing to Women](image)

![Figure 7: Men that View the Industry as Male Dominated and Unappealing to Women](image)
Self Identification as a Property or Construction worker

Without disputing the fact that there is a strong male dominance within property and construction, we as an industry should also review how we quantify how we associate with the sector on a personal level. This is raised after identifying that many respondents to research throughout this project, despite operating within the property and construction industry, did not most strongly align themselves with the our core industry function or property development.

| Question: When asked about your profession, you most often respond: |
|-----------------------------|-----------------------|
| 17%                         | I am a consultant     |
| 10%                         | I am a marketer       |
| 50%                         | I am a property development professional |
| 9%                          | I am a sustainability professionals |
| 13%                         | Other                 |

While all of these professions comprise the property and construction industry, it appears that even existing employees (with the exception of Development or Project Managers) prefer to identify themselves with their own specialty, rather than align with the industry as a whole.

After seeking clarity on this from a number of current industry stakeholders, feedback suggests that the property and construction industry simply does not hold a comparable prestige, or recognition for a diverse industry, when referenced against speciality services within the sector. Female participants were more likely to feel greater pride in communicating their specialty skills, rather than aligning
themselves with the industry as a whole. This is reflected in survey participants’ perceptions of how well our industry is understood by external parties.

In order to effectively advocate for greater female participation, and enhance our outward facing image in order to attract young women to the sector, we must first take steps to enhance the outward face of the property and construction industry, and thus help to build greater pride for members of it. Of the survey respondents, 87% believe this change must be led from within the property and construction industry.
What can NAWIC and Industry do?

NAWIC can take steps to profile a greater number of successful female industry leaders of member organisations. Currently the NAWIC website provides information on the organisation and what it stands for, however does not profile any females in the industry.

One of the most successful ways to communicate opportunities for women in property and construction is to profile existing women. Case studies that shed light on a variety of female professionals – from Graduate through to Executive would provide new visitors to the website valuable information and insight into the diversity of careers that make up property and construction.

NAWIC may also consider providing more communications around the differences of property and construction. While we are a united sector, there are such diverse skills sets embedded across the two distinct fields that supporting information for first time visitors would be valuable. As a clear demonstration – if a young woman was to Google “women in construction Australia”, the first website hit is the NAWIC home page. Conversely, if a young woman was the Google “women in property Australia”, NAWIC does not feature in the top 15 hits.

NAWIC, with support from the industry, should take actions to improve access to information for all women seeking to learn about both property, and construction.
Shifting How We Think About Mentoring

Our industry offers many opportunities for aspiring youth to engage and learn. However, of all the mentor programs reviewed as part of this project, the dominant opportunities found to target secondary students were aligned with the Year 10 or above cohort seeking traineeships, or apprenticeships as an alternative to completing high school. While these programs are to be commended for supporting youth, including young women, into the workforce in a supportive network, it does not address the necessity of raising greater awareness of all opportunities available in property and construction – in particular corporate careers.

When considering what is offered in the corporate sphere, the majority of mentor programs on offer support undergraduate or graduate students. These participants have already made a conscious career path decision, with formal training to support their progression into property and construction. While graduate programs are important, again they do not break down gender-based industry stereotypes, and openly present the plethora of property and construction careers available to students, prior to specialist tertiary studies.

Annual STEM Education Conference

To effect change, we must engage with students during the years they forge an initial career path for themselves - senior high school. To learn more, I participated in the Annual STEM Education Conference. The conference was focused on sharing innovative student engagement techniques, to maintain a youth interest in STEM. A suite of Australian and International presenters attended, and a number of topics were focused on increasing female engagement through-out senior secondary school.

Some of the key topics covered throughout the conference are as follows:

- Business Partnerships
- Gender Stereotypes and STEM
- High School STEM engagement inspiring students
Shifting STEM from the research to practical space

With better STEM education what future innovations have potential

Participation in this forum of rich knowledge and experience enabled me to hone which areas of focus may lend greatest impact to NAWIC and the industry as part of this project. As such, the following section on mentoring focuses on selected business partnerships, each with an alternate governance structure, however all sharing the same aim: student success.

School Pedagogy and Business Partnerships

Big Picture Education (BPE) is a unique pedagogical model that encourages students to pursue project-based learning through business internships, several days per week (9-5pm), as a core component of their schooling. Beginning in grade 9, students self-identify career interest areas, and complete six-month internships supported by industry mentors.

One of the primary purposes of this pedagogical model is to empower youth in taking charge of their own futures. This comes in many layers, including allowing for independence and self-responsibility, empowering a student to guide their own learning by their personal interests, and connecting students with businesses that can offer a student an insight into a career of interest. This is a shared value approach to school and business partnerships – where students are able to gain first hand experience in areas of interest, and businesses are able to increase awareness and exposure to continually attract future talent.

I have recently completed a US-based business investigation of this model. The potential to break down barriers between students and businesses is evident, with proven results. Some examples of student comment on the model are presented below:
This research project has afforded the opportunity to understand what some of the key challenges BPE currently face, what value the property industry may realise should we choose to form partnerships with organisations like BPE, and how we might work together in order to realise shared value.

There is an excellent synergy between BPE’s pedagogical approach to education, and ability to align with the property and construction industry in an effort to achieve a shared value outcome. One of the greatest challenges BPE has in Australia is securing host organisations for their students to engage with, and learn from. The extensive management of host organisations across an entire student cohort per school requires that, as far as possible, ongoing and stable relationships are built with the private sector – and may be called on to host students each semester.

With the diversity of career opportunities within the property and construction industry, we have the collective scale to support BPE schools with that stability; while increasing our profile throughout secondary schools across Australia.
School Acumen Programs and Business Partnerships

Liasing with key educational stakeholders, such as respective state Education Departments, non-profit and community sector organisations, has formed a significant part of this research project. Each stakeholder brings to the table a different piece of the puzzle, which when combined, forms a coherent and robust strategy to improve female participation in STEM, broaden student’s knowledge of available career opportunities, and subsequently raise the profile of the property and construction industry.

Throughout 2015 a consistent and fundamental insight provided by the above stakeholders is the importance of school leadership. Initially it was difficult to understand why school leadership may have downstream effects to an industry such as ours – however this was made clear over time.

Across Australia, public schools are increasingly required to operate as small businesses – with financial, stakeholder, and strategy-setting requirements directed to principals and key staff. While the private school sector is established as a business, the public sector is not. This presents challenges to many Principals and their staff, as business responsibilities increase, in addition to delivering student education and engagement. Often, regardless of the school Index of Community Socio-Educational Advantage (ICSEA), the schools’ leadership will most greatly influence student success and engagement. The downstream impact to the property and construction sector is clear – without engaged students that are continually willing to learn and be open to new opportunities, mentor programs offered will not reach their full potential.

To understand how schools that are underperforming or experiencing leadership challenges can seek support to improve their business acumen and leadership abilities, I have liaised with Schools Connect. Schools Connect provide the Business Class program that matches businesses and secondary schools in disadvantaged areas that are in need of assistance – most often with business acumen – however partnerships can also be much broader. “Each partnership is driven by the needs of
each school. The partnerships cover defined areas – school leadership and governance, the curriculum, employability for students – as well as issues specific to each school27. By connecting schools with high performing businesses, organisations can support and impart critical knowledge and resources to help the school thrive. A demonstration case study is provided below:

**Warragul Regional College and KPMG**
**Leadership Project, Gippsland Cluster, Victoria**
**School Leadership Team**

Research suggests the two greatest factors influencing student outcomes are school leadership and teacher effectiveness. In order to maximise impact from its partnership with KPMG, Warragul Regional College has opted to focus on strengthening the school’s leadership and creating a culture of empowerment. The leadership project has evolved and covered a range of initiatives; including change management workshops, professional shadowing, establishing trusted adviser relationships for middle management and representation on the school council and whole school review panel.

**Quotes:**
There have been a number of moments where our partners have said, “hang on a minute, have you thought about...?” and it’s been really powerful. – Deputy Principal

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27 (Australian Business and Community Network, 2016)
* Schools Connect and ABCN merged in late 2015
Students at Wonthaggi Secondary College can no longer be excused for asking ‘why do we have to learn this?’ in maths. Over 350 of our students have had the opportunity to engage with real world maths on a large scale and utilise the unique resources at the Victorian Desalination project. The students had the opportunity to interact with scientists, engineers and IT professionals from all around the world.

The experience, co-designed by teachers at Wonthaggi Secondary College and Watersure staff, were designed to highlight the real world application of mathematics and increase students’ awareness of career opportunities in STEM fields.

*Quote*

‘I can see what we learn at school is actually relevant to normal jobs, like electricians and plumbers, not just higher up jobs like engineers and scientists.’

The programs and evaluation undertaken by Schools Connect demonstrates the overall leadership and operation of a school also impact student success. Business partnerships, such as those referenced above can have positive flow on effects to student performance. As discussed earlier, when coupled with opportunities for students to gain exposure to new industries and understand the practical application of their studies, participation in STEM skills becomes significantly more meaningful.

As a result of this stakeholder engagement with Schools Connect, Stockand are now reviewing opportunities to partner with the organisation in delivering *Business Class* programs to schools within our own communities.
In-School Engagement and Business Partnerships

The final model of business partnerships I reviewed, as part of this study was ‘in-school engagement’ opportunities across all ages. National Theatre for Children (NTC) is a non-profit organisation I have liaised closely with over the past year to better understand how ongoing STEM engagement can be successfully applied within schools.

Funded by business partnerships, NTC delivers live and interactive in school performances from K-12 on topics ranging from science and environmental awareness, to financial literacy, health and wellbeing, and social responsibility. Performances are structured to target the appropriate year levels, and appeal to the changing interests of students. In addition to school based theatrical performances, which are structured to be fun while communicating complex content, NTC provides ongoing in-class and at-home engagement options for students, parents and teachers – from online games, through to graphic novels.

Each performance given by NTC is designed to fun, engaging and also present complex content in an accessible way. By providing wrap around engagement opportunities, NTC are also able to measure how broadly their initial message is disseminated – i.e. parents and carers. Ongoing engagement and measurement provides an insight into what kind of content students of today are most likely to remain absorbed with, and therefore receive the greatest positive impact.

Much of NTC’s content is already strongly aligned to the property and construction industry, and STEM skillsets; however one of the greatest opportunities provided is customised performance content. NTC will work with an organisation or industry to build a custom suite of performances, targeted at raising awareness of a particular topic. As a low cost, high impact program – something of this nature offers our industry the opportunity to further raise our profile and mitigate prevailing industry stereotypes.

As a result of my ongoing liaison with NTC, Stockland have now committed to Piloting the program in schools across our Residential business nationally.
What can NAWIC & Industry do?

It is recommended that NAWIC extend an offer to their industry members, to propose strategic partnerships that present an opportunity for a shared value outcome. Several key criteria should form part of this ‘call to industry’, including:

- Alignment to NAWIC’s strategic focus, objectives, and vision
- Ability for a partnership to meet the following objective: “Offer shared value partnership between the property and construction industry, and secondary school students with a focus on female participants”
- Ensure any proposed partnership has a record demonstrated outcomes, which are measurable and reportable

**Example 1:**

A strategic partnership with an organisation such as BPE may allow female students greater access to the property and construction industry; while providing schools access to a pool of stable and diverse businesses as host organisations.

BPE is focused on achieving successful student based outcomes, with a track record of high performance and exceptional student engagement.

**Example 2:**

A strategic partnership with an organisation such as NTC may allow the property and construction industry the opportunity to mitigate prevailing stereotypes, and increase student awareness of the diversity of career opportunities available in our sector.
Recommendations Summary

This report has highlighted the clear link between female pipeline issues, and gender diversity within the property and construction industry. As committed at the outset of this research, I have highlighted where the existing gaps in our collective approach to gender diversity are, and made clear recommendations on how these may be addressed by NAWIC, and its member organisations.

Throughout this report, I have provided a roadmap of opportunities for NAWIC to pursue in order to achieve positive change. These include alternate industry mentoring pathways, student engagement opportunities, and achievable actions to reposition the property industry as an understood, and desirable employer for young Australian women.

While these recommendations are embedded into this report to align most strongly with the gaps identified, a final summary is also provided below:

1. NAWIC should empower their member organisations by raising awareness of the current ‘pipeline gap’ which is hindering our industry from taking a bottom up approach to gender diversity
   a. Steps include advocacy and awareness raising through communications, events and programs
   b. Reviewing the opportunity to align a future scholarship to a project based partnership establishment with a non-profit capable of supporting member organisations take action for change

2. NAWIC should take action, with the support of industry, to improve information access regarding the differences between property and construction – and opportunities offered in both distinct fields of our sector

3. NAWIC should seek industry feedback and knowledge sharing to develop a strategic approach to student engagement
a. Offer a call to industry regarding suitable partnerships, and their aims

b. Support the establishment of an industry led schools partnership program where industry resources are pooled for maximum positive impact

It is noted that NAWIC is a volunteer based organisation, and thus the above recommendations have taken this into consideration. In most instances, it is proposed that NAWIC leverage its leadership capacity to generate conversation and set a strategy for action; while industry member organisations execute against the strategy.

All of the partnerships, school programs, and other organisations profiled within this report are used only to demonstrate opportunities available to the property and construction industry. In order to achieve greatest value and support from the industry, it is recommended that all stakeholders be given the opportunity to recommend actions and partnerships aligned with the roadmap of action set herein.
Reflection

This research has provided an insight into why the property and construction industry must focus time, and resources into increasing the female pipeline. Key areas of opportunity have been highlighted, and recommendations for next steps to NAWIC and the industry have been included.

I would like to highlight that great work is already underway to address gender diversity and equity within the property industry. Programs such as *Male Champions for Change* are providing excellent opportunities for young women to progress their careers, and gain access to successful mentors. In addition, many property and construction organisations across Australia are working hard to increase the number of female employees, and reduce the pay gap continues to be seen. Indeed, organisations such as my own employer, Stockland, continue to maintain and improve upon independent verifications such as WGEA Employer of Choice for Gender Equality. This is a great tribute to organisational leadership in this space.

However, this is not enough. Many of the women, young and *more experienced*, I have engaged with throughout the course of this research project have described how they *fell* into the industry. It wasn’t a conscious choice to become part of property and construction – they never aspired to participate in this arena. I find this a troubling state of affairs, given the wide diversity of skills, opportunities and success one can find in this sector. From this research I can only conclude that there is a systemic misunderstanding of what our industry is, who we are, and what we can offer. I would hope that through targeted actions by NAWIC, and its industry members, we can begin to turn the tide on this paradigm, and push towards a space where young and talented females are *aspiring* towards a career with us.
Appendix
Case Study Interview

Case Study Interview
Female, 16 Years – Grade 10, Sydney

Career Aspirations:  As a primary school child I wanted to be a Doctor. Now that I am in high-school I would prefer to get into health and science more broadly. I’m thinking of researching diseases, or possibly psychology.

Had you ever heard of the property and construction industry before spending some time with Stockland?
I knew about Stockland because of your Merryland’s Shopping Centre… but I didn’t know that you did anything else. I didn’t realise there were companies dedicated to business within property and construction – I thought it was just building things on construction sites.

When you realised you would be spending some time at the office of a property development company, did you think it would be a place for women to work?
I didn’t think that you even worked in an office! I thought I would be with a man in a hard hat, on a construction site… No, I didn’t think it would be an industry that a woman could work in.

You mentioned you want to study science at University. Would you have considered property and construction as a career opportunity post that?
No! I imagined I could only use those skills in pharmaceuticals… not construction. I never knew that property would even have scientists.

Now that you have spent time with us, would you recommend our industry to your female friends?
Yes… but only because I have spent time here and I have seen the opportunities. Employers like Stockland provide such diverse skill set opportunities… You can learn so much here.

My perception has completely changed from automatically thinking property development is about tradies on a worksite. My notion that women don’t belong here is gone too. I absolutely think women should work in property.

**Do you think the industry is a good place for young women?**
Yes! There is so much opportunity to learn! The most valuable thing to me has been this exposure. When you tell me, and show me, and take me to meetings – even though I don’t know anything about property – it’s so interesting and I have learnt so much!

**Would you now consider the property and construction industry as a future career opportunity?**
Yes! I would definitely consider it now. It encompasses things I’m really interested in, and it’s such a diverse environment.
Industry Survey

1. **When asked about your profession, you most often respond:**
   a. I work in consultancy (i.e. engineering, urban design)
   b. I work in property development or construction
   c. I work in marketing
   d. I work in sustainability
   e. Other

2. **As a child I wanted to be (primary school age):**
   Free Text

3. **During senior high school I wanted to be:**
   Free Text

4. **As a higher education student (Uni/TAFE) I wanted to be:**
   Free Text

5. **Prior to my professional career, the first course I enrolled in was:**
   Free Text

6. **If you swapped courses part way through, what course did you graduation from?**
   Free Text

7. **During my professional career I have started/completed formal studies in:**
   Free Text

8. **In your professional career have you always worked in property and construction (or related consultancies)?**
   a. Yes
   b. No, I have worked in other industries too

9. **If you answered ‘No’ above, what other industries have you worked in?**
   Free Text

10. **Would you recommend the property and construction industry to young women, as a career path?**
   a. Yes
   b. No
   c. Please give a one sentence rationale for your answer:
      Free Text

11. **On a scale of 1 to 10, please rank your personal opinion on the following statements:**

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 2 3 4 5</td>
<td>6 7 8 9 10</td>
</tr>
<tr>
<td>There is a good balance of gender diversity in the property and construction sector</td>
<td></td>
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<tr>
<td>Young people probably view the property and</td>
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</table>
There is a misconception that property and construction is 'men on heavy machinery, working on a construction site'.

There is more to be done at an industry level to de-stigmatise the industry as male dominated.

People outside of the industry probably don’t comprehend the broad range of careers available in property and construction.

12. Would you consider working outside of the property and construction industry?
   a. Yes
      i. If you answered Yes, please specify which other industries you would consider working in:
         Free Text
   b. No

13. Please select your employment level:
   a. Development Professional | Consultant | Graduate
   b. Manager | Senior Consultant
   c. Senior Manager | Associate Director
   d. Team Leader | Director
   e. Executive
   f. Other

14. Please specify your Gender:
   a. Female
   b. Male

15. Please specify your Age:
    Free Text
Summary of Research Plan

The overall objective of this project, as outlined in the original proposal was to:

1. Provide a clear and transparent link between female pipeline issues and industry diversity;

2. Combine original and existing research to produce recommendations on how industry, educators and government can work collaboratively to start a journey of positive change for the female pipeline to our industry; and

3. Produce a roadmap of opportunities for NAWIC to pursue for positive change. This includes alternate mentoring paths, student engagement and target support for young women to enter the property and construction industry.

This report has delivered against its objective. A summary of the method and actions undertaken to complete this research is provided below, and is aligned with the methodology as presented in the original Scholarship proposal. Should future Scholarship candidates, or readers, be interested in discussing the project further, I would be very happy to accommodate.

Method Proposed and Executed

Literature Review & Research: Undertook detailed and diverse literature review from credible industry, university and peer reviewed journal articles. Examples of institutions include: Harvard Fullbright Research Centre, Harvard University WISTEM Mentor Program, Harvard Business School reviews, Yale Gender Biases research. A full list of resources presented within this final report can be found in the References.

Conferences: Two conferences were attended as part of the research for this project.

Over two consecutive days in June, I participated in the Schools Planning, Design and Construction Conference. This included liaison with key government
departments, educators and private sector delivery professionals. Key learnings included design innovation for positive impact on student participation and retention; and alternate pedagogy delivery models to support student outcomes.

Over two consecutive days in July, I participated in the *Annual STEM Education Conference*. This included liaison with industry government, private business, and non-profit representatives. Participation in focus group exercises centered on increasing female participation in STEM was a key component.

**Stakeholder Engagement:** Engagement with industry, non-profit organisations, government bodies and businesses was completed. Key examples of these include ABCN, National Theatre for Children, Big Picture Education, Big Bang Ballers, Victorian Education Department careers advisors, and school Principals or leadership staff.

**Mentor Program:** Mentoring was undertaken with ABCN Scholarship Foundation recipient, during November 2015.

**Data Collection:** Development, delivery and analysis of industry based survey created for the purposes of this research proposal. Additional data analysis and presentation of Stockland Inspirations Program was also completed for complementary insights.
References


Vickers, M., & Mo, M. *Reviewing the Big Picture Learning Design: The Story So Far*. Big Picture Education.