

# Review of the Current State of Hiring International Engineering Students

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Many graduate students studying at accredited construction management programs in the United States are international students. Often these students hope to take full-time positions with US-based companies upon graduation, ultimately looking to become permanent residents. However, there are many obstacles that must be overcome in order for that to happen. One obstacle appears to be a general lack of understanding on the part of many potential employers regarding what to expect when hiring an international student. This lack of a detailed understanding introduces perceived risk in the process and can limit an employer's willingness to consider strong international candidates for positions within their companies. The purpose of this paper is to provide an in-depth review and analysis of the current state of hiring international students and the processes required. In addition to helping employers understand the process, including potential benefits and risks, this analysis could also benefit academic programs attempting to place their international students.

**Key Words:** International Students, Diversity, Hiring Practices, Graduate Students

## Introduction

Enrollment of international students in US universities has been increasing steadily since the 1960s (Hazen and Alberts, 2006). Initially at least, the US attempted to increase international student enrollment as a result of Cold War-related fears that the former USSR was gaining an advantage in the science and engineering fields (Ong and Liu, 1994). However, these social or governmental policies have not likely played a big role in the enrollment increase evident in the last 15 years. Research suggests that recent increases have been generated on the student side of this equation. From the student's perspective, factors motivating enrollment in US universities include a possible lack of higher education in home countries, desire to experience a new culture, the availability of unique programs of study, and access to increased funding opportunities (Hazen and Alberts, 2006; Mazzarol and Soutar, 2002). Additionally, the perceived value of a degree from a US university can give the graduate a competitive edge when it comes to employment (Hazen and Alberts, 2006). The purpose of this paper is to provide an in-depth review and analysis of the current state of hiring international students and the processes required.

International student enrollment in the construction management discipline appears to be following the same overall trend. Graduate construction programs nationwide are replete with active, contributing multi-cultural students. Upon completion of their degrees, many of these students look for employment opportunities within the US. However, in an unpublished preliminary survey of companies attending a construction-related career fair, only 6 of 58 respondents stated that they would interview an international student. While this data is not generalizable as it is only one instance at one career fair, it is still a possible indication of an interesting phenomenon. There are many possible reasons why this might be the case, from government contracts which don't allow non-US citizens to a general lack of understanding of the complex process behind hiring an international graduate. While further identification and investigation of reasons behind employer concern regarding hiring international students are a part of a future research project, the dilemma faced by an increasing population of international students highlights a need for an improved understanding of the process. The purpose of this paper is to provide a review and analysis of the current state of hiring international students – the process required and the related benefits and challenges. This was accomplished by an in-depth literature review of government websites coupled with interviews of on-campus

personnel working with international students. In addition to helping employers understand the process, this analysis could also benefit academic programs attempting to place their international students.

## Literature Review

According to the most recent data available from the Institute of International Education, the overall number of international students has increased from 514,723 in 1999 to 1,043,839 in 2017 – an overall increase of 109.6%. China and India are reported as being the top senders, however students come to study in the US from all around the world and with varying emphases. While most fields have shown an increase, the increase in number of Engineering students has been one of the most dramatic (see Figure 1), from 76,748 in 1999 to 230,711 in 2017 – an increase of over 200% (Institute of International Education, 2018).

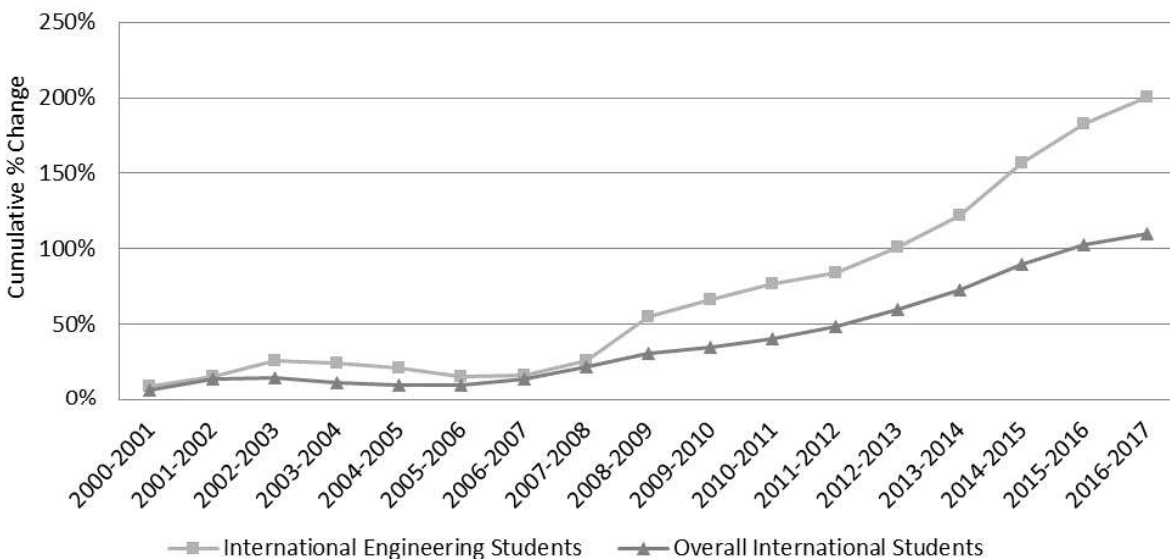


Figure 1: Cumulative Percent Change in International Student Enrollment at US Universities from 2000 to 2017

After completing their education, international students are faced with an important choice that affects both construction industry practitioners and construction academics. Do they attempt to navigate the visa and employment processes in order to stay in the US, or do they search for employment in their home country? The increasingly common decision to attempt to stay in the US means construction companies willing to employ internationals have an opportunity to potentially benefit from increased diversification in their workforce. It also suggests that academics and advisors will, of necessity, adapt to support these students in their placement efforts.

There are many factors that influence an international student's post-graduation decision to stay in the United States or return to their home country. Alberts & Hazen's (2005) research shows that professional, societal and personal considerations directly impact this choice:

1. *Professional factors*: Students often perceive the promise of professional opportunities in the US to be better than that available in their home countries. Also, governments in certain countries like China, Tanzania, etc., sponsor students to gain a US education and then provide incentives for them to return by making professional opportunities at home more attractive. These students return with enhanced English skills and are often welcomed back to promote westernization and globalization.
2. *Societal factors*: The cultural comfort and familiar ambience of one's home country are appealing to international graduates. Similarly, differences in lifestyle, language and culture can deter students from

staying in the US. Even the role of food in day-to-day life plays a major role. Feelings of stress, alienation and/or comfort are intangible factors influencing a student's decision.

3. *Personal factors*: In addition to responsibility to family, some students desire to serve and develop their home country with their recently acquired skills and education. In many countries, it is considered a moral obligation to live with family.

While the desire to stay or return home plays a critical role in this discussion, the ability to stay must also be discussed. In order for an international graduate to be able to stay in the states to work, they must be sponsored by a willing company. The availability of a sponsor, combined with some luck in the visa process, ultimately determines whether or not a graduate will be able to stay in the US to work, regardless of their level of interest in doing so.

The federal government offers 65,000 visas to graduating international students each year. These 65,000 available visas are outside of students that go to work for universities – an employment type for which there is no visa cap. Figure 2 includes data from 2012, 2013 and 2014 showing how quickly the general quota cap of student employment visas (H-1B visa) has been filled. In 2012, the quota cap wasn't reach for approximately 8 months whereas in 2014, and then again in 2015 and 2016 (not shown) the cap was reached in approximately 1 week (US Department of State, 2016).

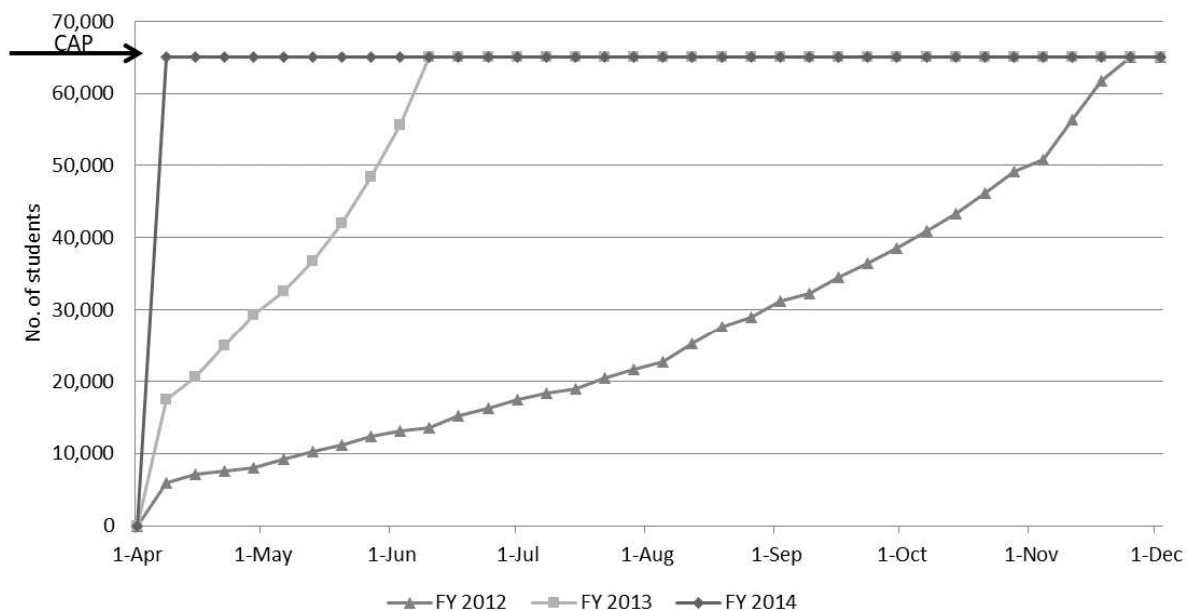


Figure 2: General Quota H-1B Filing History 2012-2014

There are also an additional 20,000 H-1B visas held annually for international students graduating with masters degrees. The data for this reserved class of visas shows a similar pattern to Figure 2. Not surprisingly, the decrease in time required to meet the quota correlates with the increase in international student enrollment. And while student enrollment has increased dramatically, the cap of 65,000 general H-1B visas is the same as when it was initially established as part of the Immigration Act of 1990. This dilemma accentuates the importance of reconciling the concerns that it appears many employers have related to hiring international graduates. Information about the benefits, risks and processes may improve employer understanding and decision-making relevant to this issue.

### *Diversity in the Workplace*

*Reported Benefits.* Diversity in the workplace is generally perceived as being a positive thing. And while the term, “diversity”, includes class, disability, background, age, etc., this paper focuses on diversity introduced by multi-cultural employees. Multi-cultural organizations can feature teams that successfully learn from colleagues of differing backgrounds with increased acceptance, sensitivity, and equality (Cox & Blake, 1991). A study conducted

by the Department of Trade and Industry (2005) in the UK, identified benefits of diversity in the workplace as follows: 1) reduced costs/improved financial performance, 2) access to a wider talent pool, 3) improved creativity, 4) innovation and improved problem-solving, 5) improved commitment and motivation, 6) enhanced reputation with clients and stakeholders. Other studies have shown that diversity can create new business opportunities through increased service range, improve production and the decision making process, and/or eliminate destructive and expensive discrimination litigation (Cox & Blake, 1991; Kossek et al., 2006; Steele and Sodhi, 2006). Diversity in the workplace can also specifically impact the productivity of US born employees. Ottaviano & Peri (2006) claims that US-born employees are more productive in a multi-cultural atmosphere – a benefit most likely resulting from reciprocal learning taking place between diverse peers with differing adaptability and creativity. Handled correctly, the resultant teamwork, participation, and cohesiveness are additional potential benefits of a multi-cultural environment (Dwyer et al., 2001).

Many companies attempt to capitalize on these competitive advantages through a deliberate process of diversity management. Companies lacking in diversity can change the composition of their work force in order to encourage an organizational culture shift. This can be accomplished by recruiting new employees from diverse backgrounds who can begin to change culture and corporate image by virtue of just being employees (Barak, 2013). The successful firm will be better able to manage their social resources and a wider array of product markets. However, according to Allison (1999), management should be cautious when addressing diversity to avoid two common pitfalls: 1) the superficial treatment of diversity which can have an adverse effect on productivity and company morale, 2) mixed messages from management or other involved parties which can result in a cycle of inequity.

*Reported Disadvantages.* Research has shown that diversity in the workplace can also create disadvantages. While misunderstandings are common even between native English speakers, the chance for miscommunication increases as a result of a multi-cultural environment. Non-verbal and verbal communication may or may not have the same meaning across the different cultures. These types of basic miscommunications can result in conflict and lost business opportunities (Barak, 2013). Jackson et al. (1991) stated that group member dissatisfaction and employee turnover were more common in diverse groups due to the natural tendency of organizations to seek out their own. Our natural tendency to find comfort in people similar to ourselves can quickly undermine efforts towards diversity. Because of this tendency, employers run the risk of experiencing negative dynamics such as racism in the form of stereo-typing, culture clashes and ethnocentrism (Sawin, 1995). These dynamics can often lead to costly and distracting litigation. To combat these disadvantages, employers typically have to invest in training to help employees on both sides of the equation deal with prejudice and conflicts in a professional manner. The cost of mitigating cultural ignorance and bias through training can be viewed as another disadvantage of diversity in the workplace.

### *Diversity in Construction*

The ramifications of diversity in the Architecture, Engineering and Construction (AEC) industry are not an exception to the benefits and disadvantages listed previously. Some would argue that the AEC industry is actually particularly well-suited to take advantage of the proclaimed benefits of diversity, while at the same time being a common place for poor performance in this regard (Clarke & Gribling, 2008; Loosemore & Chau, 2002). Loosemore & Chau (2002) stated that operationalized equal opportunity policies can help construction companies improve in this area as long as they are easy to understand, up-to-date, openly communicated, comprehensive and properly implemented. Furthermore, effective policies of this nature and improved hiring practices can set the stage for eliminating the racism that has plagued the construction industry by creating and supporting an anti-discriminatory culture. For example, “bicultural” employees can be used to bridge the cultural gap between local authorities or consultants and the construction project team (Dadfar & Gustavsson, 1992).

While the benefits the construction industry derives from diversity are similar to that reported for general business endeavors, research on problems associated with diversity has included some additional components. In a study conducted in the U.K. construction industry, Caplan et al. (2009) found the following additional problems: 1) under-representation of ethnic minorities in professional roles, 2) ethnic minority communities are less aware about the construction opportunities, 3) persistence of racism in the industry, 4) monitoring and lack of implementation of equal opportunity policies, 5) differences in training and educational experiences compared to white people, 6) lack of support networks.

Regardless of the industry and/or the position that is being filled, recruiting, hiring and training a new employee can be a risky and often expensive undertaking. Aside from the financial investment, if a new employee does not work out, it can impact the firm in a variety of ways. Poor performance from new hires can create disturbances and low morale in the workplace due to lack of cohesiveness between the team. It can also result in unhappy clients, have a negative impact on company reputation, and add expenses associated with termination and human resource management. Common risk management techniques utilized by employers in this regard are background checks, multiple layers of interviews, increased investment of time in the selection process and the training process. The general risks in the hiring process mentioned are amplified when the candidate is not a US born citizen. In this scenario, there is a possibility of investing money into an individual that, regardless of performance, may not be able to stay long-term. In order to understand these risks, a thorough analysis of the process required for long-term employment of an international student was conducted. A description of the process is included in this paper.

## Methodology

The methodology for this project consisted of two primary efforts. Due to the complex nature of the visa process, the initial effort consisted of an in-depth literature review of extant publications and government websites. This information was analyzed and synthesized. Data collected from the available literature was then compiled and qualitatively reviewed with on-campus personnel who worked closely with international students in their jobs. These conversations were face-to-face interviews and provided validity to the collected website data. Additionally, interviews ensured the data reflected actual current practice.

## Results

In all processes and concepts identified during the literature review, interviews with campus personnel confirmed actual practice in accordance with the proposed guidelines. This section includes the identified process international students must pursue, and thereby the process that hiring companies must also navigate, in order to obtain full time employment. There are three main phases for an international student to transition to permanent employment status in the US (USCIS, 2015). The first step in the process is for a student to extend their stay in the US after graduation and work under the F-1 Optional Practical Training option. The second step is for the student to change their visa status from F-1 to H-1B which allows them to continue working for an employer for several years. The final step is for the student to apply for permanent resident status and obtain a green card which will allow them to work for an employer indefinitely. The following sections provide detail on each stage of the process and Table 1 includes key bullet points of the same. Cost ranges listed do not include possible attorney fees for preparation of documentation.

### *Optional Practical Training*

International students are allowed to study at US universities with either an F-1 or J-1 visa. Receipt of an F-1 or J-1 visa is contingent on acceptance to a university. The primary differences between the two is in how the students' tuition is funded and if the permission to work during school breaks is automatic or not. Most construction management students will apply for an F-1 visa as they are privately funding their education and desire to gain internship experience during the summer semester. The F-1 visa allows for a 12 month allotment of Optional Practical Training (OPT). OPT is temporary employment related to the student's program of study. All 12 months can be used immediately after graduation or intermittently while the student is earning their degree, or a combination of the two. The use of the 12 month OPT is very common with F-1 visas; however, it must still be applied for by the student. It is important to note that the student can apply for the OPT without having a job offer eliminating the OPT as a barrier for internships. The OPT application process starts when a student requests their specific school's Designated School Official (DSO) to recommend their OPT to the Department of Homeland Security. Once the DSO's recommendation is made, the student must file with US Citizenship and Immigration Service where they then issue an employment authorization document (EAD) most commonly known as a "work permit." This process takes between 2 – 3 months and is fairly streamlined. It is uncommon for OPT to be denied as long as the company is in the student's field of study. Once the student is employed, the construction firm would notify the University's DSO on their starting date and specifics of employment.

The 12 month OPT can be extended by an additional 24 months in one of two ways. The first is only applicable for STEM (science, technology, engineering and math) degrees. Most construction management degrees would not be considered STEM; however, an engineering degree with a focus on construction would. The office of Visa and Immigration Services and a University's Registrar's Office would have a list of majors which are considered STEM. For STEM students, a 24 month OPT extension can be applied for the same way the original 12 month OPT was. However, for the OPT extension the student must have a job offer in hand, the employer would need to agree to participate in the government's "E-Verify" program and coordinate with the University's DSO to report the student's termination. For non-STEM students, the only way for the OPT to be extended is with an application for an H-1B visa. With an H-1B application the extension on the OPT is granted automatically. However, the OPT would be immediately terminated if the H-1B petition is rejected.

### *H-1B Visa*

The next phase in the international student's path to permanent employment is the H-1B visa. An H-1B visa is an employment-based, non-immigrant work permit. The H-1B visa allows the recipient to work for 3 years with the option for a one-time extension of an additional 3 years. To apply the student must have completed their degree and have a job offer. Their salary must meet or exceed the prevailing wage of the area they would be working in. Unlike the OPT, the employer must file the H-1B petition on behalf of the employee. The US imposed fees for the application range from \$1,500 to \$3,500 depending on the size of the company and an optional processing acceleration fee. In 2014 more than 172,000 H-1B visa applications were received for only 65,000 available visas. The lottery selection process is independent of the individual's qualifications and completely random. Fortunately for the employee, the extension of the H-1B for an additional 3 years (6 years total) is not subject to the cap or a lottery. Once the original H-1B visa is granted, unless the student's situation or status changes, they will likely be able to work for an additional 3 years. The same fees for the original H-1B visa are assessed again for the extension. If the student desires to stay in the US after their H-1B expires they must apply for a permanent resident card.

### *Permanent Resident Card*

A permanent resident card, which is commonly referred to as a "green card", is the documentation given to lawful permanent residents who have been given immigration benefits and are allowed to live and work in the US. There are several reasons why green cards are issued including family status, political asylum, employment and other special circumstances. Green cards provided for employment reasons must be sponsored by the employer. In order to sponsor a green card application, the employer must file a Labor Certificate with the Department of Labor and attest that there are no US workers available or willing to do the job that the applicant is doing. If the Labor Certificate is approved, they must then file an I-140 - Immigrant Petition for Alien Worker form. A maximum of 140,000 employment-based green cards are issued each year with no country receiving more than 7% (9,800). The fees for the application range from \$6,000 - \$8,000 depending on size of company and applicant.

Table 1

### *Visa Process for Long-Term Employment of an International Graduate*

<b>Visa Status</b>	<b>General Description</b>	<b>Cost</b>
1 OPT - Optional Practical Training	<ul style="list-style-type: none"> <li>• Maximum 12 months taken either during the school year or after graduation</li> <li>• Student can apply without a job offer but must have completed a minimum 1 full academic year</li> <li>• Coordinated through the university</li> </ul>	• No cost
2 OPT Extension	<ul style="list-style-type: none"> <li>• Extends OPT by 24 months</li> <li>• Available to students working in STEM-related fields</li> <li>• Available to non-STEM students with H-1B Application</li> <li>• Coordinated through the university</li> </ul>	• No cost

Visa Status	General Description	Cost
3 H-1B	<ul style="list-style-type: none"> <li>Permits work for 3 years</li> <li>Non-immigrant status</li> <li>Awarded by lottery – receipt likelihood dependent on number of applications</li> <li>Employer files on behalf of employee</li> </ul>	<ul style="list-style-type: none"> <li>\$1,500 - \$3,000</li> </ul>
4 H-1B Extension	<ul style="list-style-type: none"> <li>Extends H-1B an additional 3 years</li> <li>Not awarded by lottery</li> <li>Employer files for extension on behalf of employee</li> </ul>	<ul style="list-style-type: none"> <li>\$1,500 - \$3,000</li> </ul>
5 Permanent Resident Card (Green Card)	<ul style="list-style-type: none"> <li>Employer files on behalf of employee</li> <li>Must prove that there are no US workers available or willing to do the job in question</li> <li>Maximum 9,800 cards per country annually</li> </ul>	<ul style="list-style-type: none"> <li>\$6,000 - \$8,000</li> </ul>

### Discussion

After reviewing this process and discussing it with parties involved, a few key points from each visa status warrant highlighting. The OPT is a valuable opportunity for companies to “test the waters” with a new hire. There is no cost outside of regular employment expenses and the paperwork is handled by the international student office of involved university. Also, there is the added benefit that an international employee is not subject to the same Social Security (FICA) and Medicare tax requirements, potentially providing some savings to the employer. Perhaps the biggest challenge for students, and risk for employers, is apparent during the H-1B visa portion of the process. As the H-1B visa is awarded based on a lottery system, there is a solid chance that regardless of employee performance during the OPT stage, continued employment may not be an option. Of course the actual likelihood is dependent on the number of H-1B applications submitted before the government deadline in a given year. Data for 2014 suggests that approximately 1 in 3 applications were awarded H-1B status. This possibility enhances the risk that the investment made in hiring and training a new employee will not pay off.

Lastly, the final permanent resident card application portion of the process gives no preference to employees from countries with higher populations such as China and India. This puts students from these countries at a disadvantage over smaller countries as they all receive the same number of available permanent resident statuses annually. The employer carries the onus to show that there are no US workers available or willing to do the job. The employer must show that they have made a good faith effort to fill the position with a US national which may include newspaper and internet advertisement, fair salary ranges and adequate qualifications of the employing company.

### *Conclusions and Recommendations for Future Work*

This paper provides a review and analysis of the current state of hiring international students, the process required, and the related benefits and challenges. We conclude that although there are some magnified risks involved in attempting to hire an international graduate, there are also opportunities for increased benefits from workforce diversification. It is apparent that while the process required for long-term employment of an international graduate is relatively complex and involved, it can be navigated by the committed firm with some additional cost. The detailed description provided in this paper should help employers understand the process, and help academics and advisors understand how to better assist international graduates in their placement efforts.

Future research in this area should investigate perceptions and understandings of this topic from the employer’s viewpoint. Additional work could explore current best practices utilized by employers hiring international students.

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