



# THE SE3<sup>≡</sup> PROJECT

STRUCTURAL ENGINEERING ENGAGEMENT & EQUITY

RACIAL EQUITY  
TASK GROUP

2021-2022



## Civil/Structural Engineering Student Experience Survey Demographics Topic Brief

By the Structural Engineering, Engagement, and Equity Committee of the Structural Engineers Association of Northern California (SEAONC)

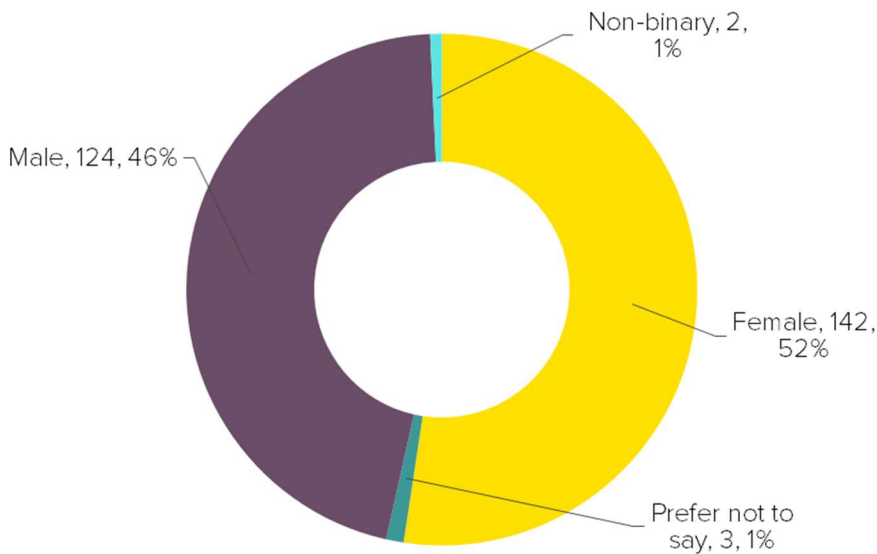
### Demographics Topic Brief

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The SEAONC SE3 Committee, Racial Equity Task Group distributed a survey to civil engineering undergraduate students, via department chairs and student groups, at a number of colleges across the US, from November 2020 through February 2021. In total, 271 undergraduate students responded to the survey. The survey is part of an ongoing effort to better understand the undergraduate civil engineering experience in American colleges. A previous report, also released by this Task Group, entitled “Racial Demographics of Civil Engineering Pathways in California: From Undergraduates to Industry Professionals” compares publicly available data of student demographics at civil, architectural, and structural engineering programs at colleges and universities in California and can be used in context when reviewing these survey data.

This Demographics Topic Brief represents an overview of the demographics applicable to the survey respondents.

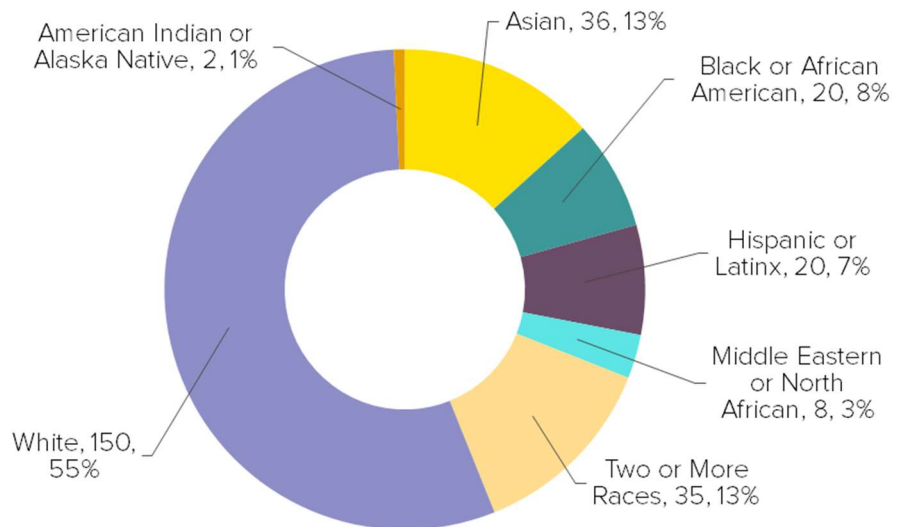
## Gender



52% (142) of the survey respondents identified as female, 46% (124) identified as male, and 3 respondents identified as non-binary. The proportion of female respondents was roughly double that reported in the 2020 NCSEA SE3 survey.<sup>1</sup> The American Society for Engineering Education (ASEE) reported that 28.3% of graduating Civil/Environmental engineers identified as women in their 2021 report titled “Engineering and Engineering Technology by the Numbers”.<sup>2</sup>

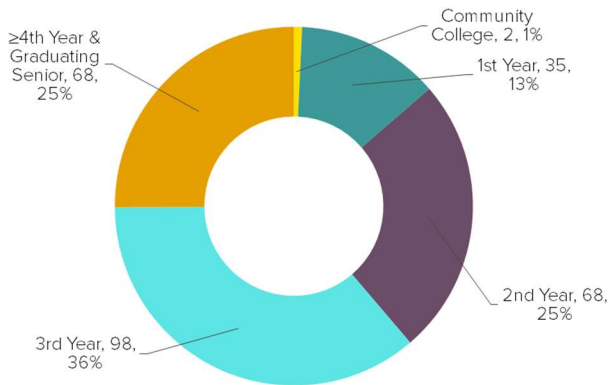
## Race/Ethnicity

The majority of the respondents identified as white (55% or 150 respondents), with Asian respondents being the next largest group (13% or 36 respondents). Thirteen percent (35) of respondents identified with two or more races, and Black and Hispanic/Latinx each comprised 7% (20) of the respondents. Middle Eastern or North African students and American Indian/Alaska Native students collectively made up less than 5% of respondents. For comparison, 77% of the 2020

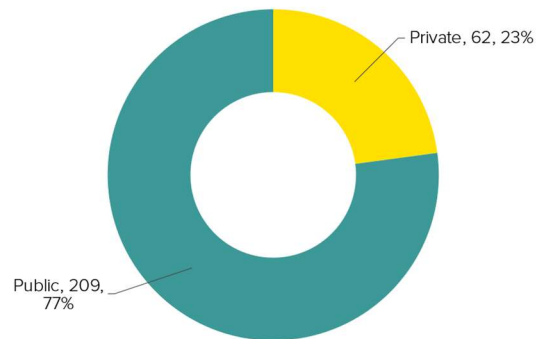


NCSEA SE3 survey respondents identified as white.<sup>1</sup> The 2021 ASEE “Engineering and Engineering Technology by the Numbers” report notes that 14.2% of Civil/Environmental Engineering bachelor’s degrees at American colleges were awarded to underrepresented minorities (Hispanic/Latinx, Black/African American, and American Indian/Alaska Native) in 2020, which is on par with the underrepresented minority representation in this survey.<sup>2</sup>

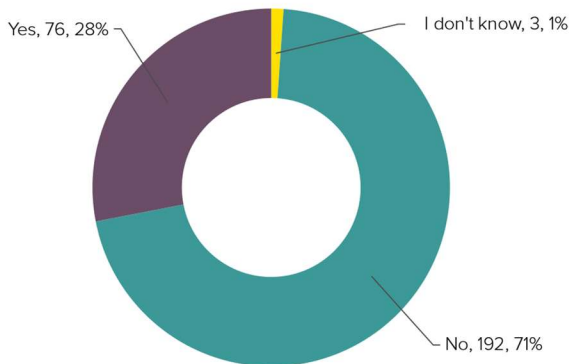
## Year in School



## Public vs. Private Institutions



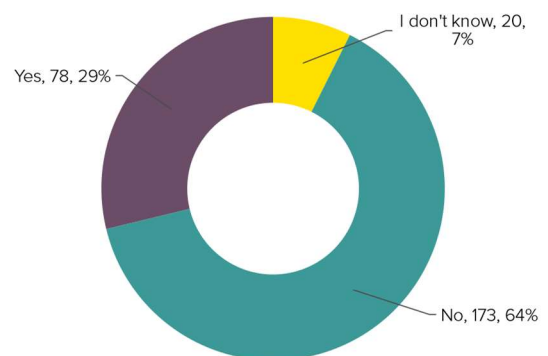
## First Generation Status



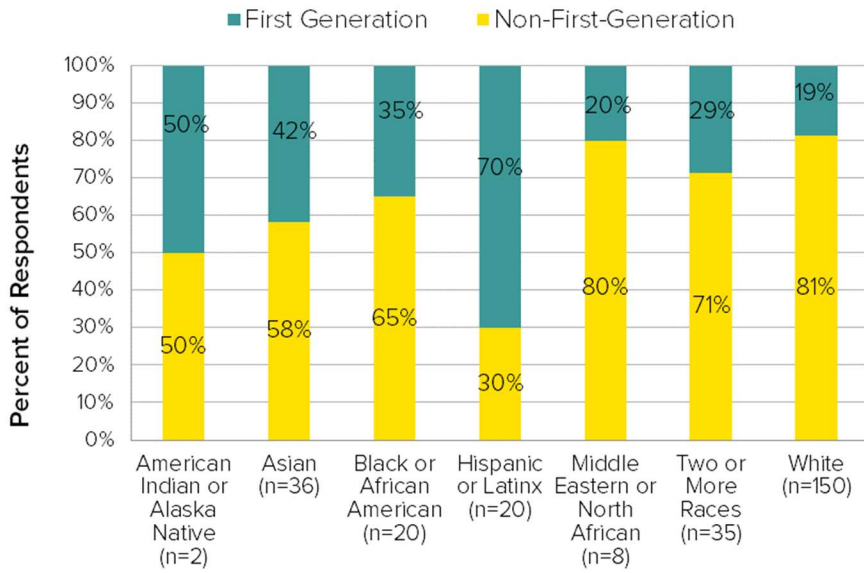
The majority (71% or 192) of the respondents identified as non-first-generation college students.

Pell Grant eligibility is a proxy for identifying students with low- and middle-class income backgrounds; however, this question would not apply to international students since Pell Grants are only awarded to domestic students. Overall, only 29% of respondents (78) reported being eligible for a Pell Grant.

## Pell Grant Eligibility

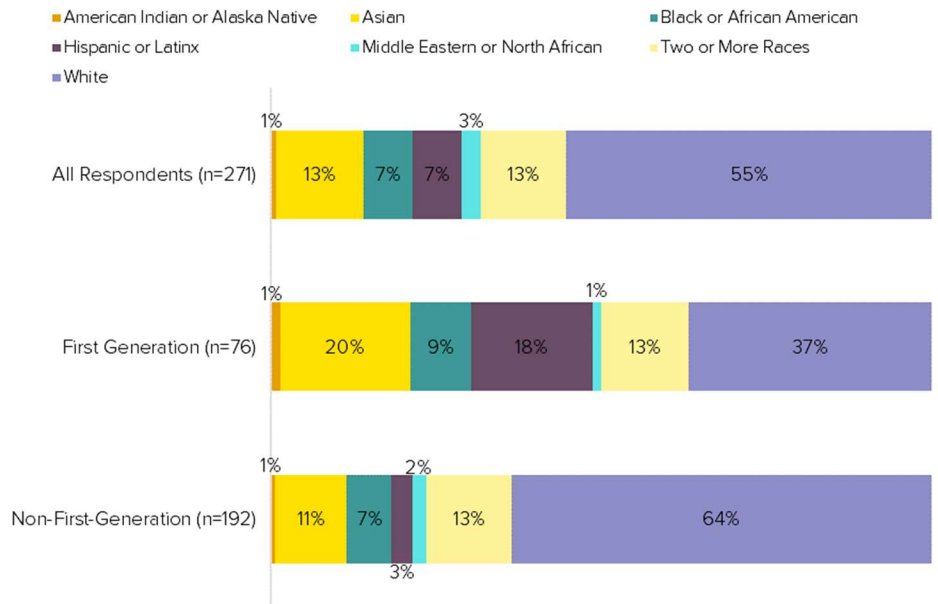


# First Generation Status and Race/Ethnicity



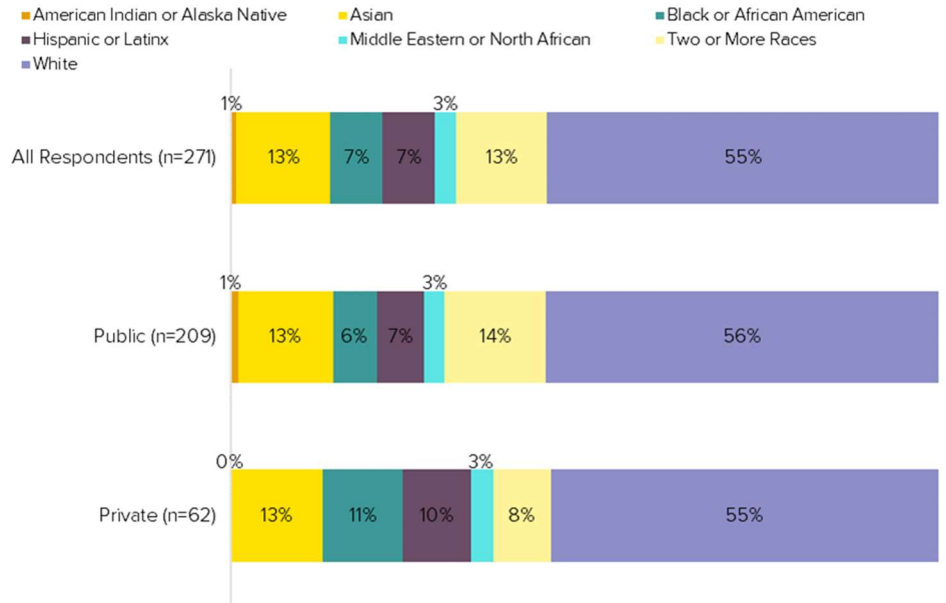
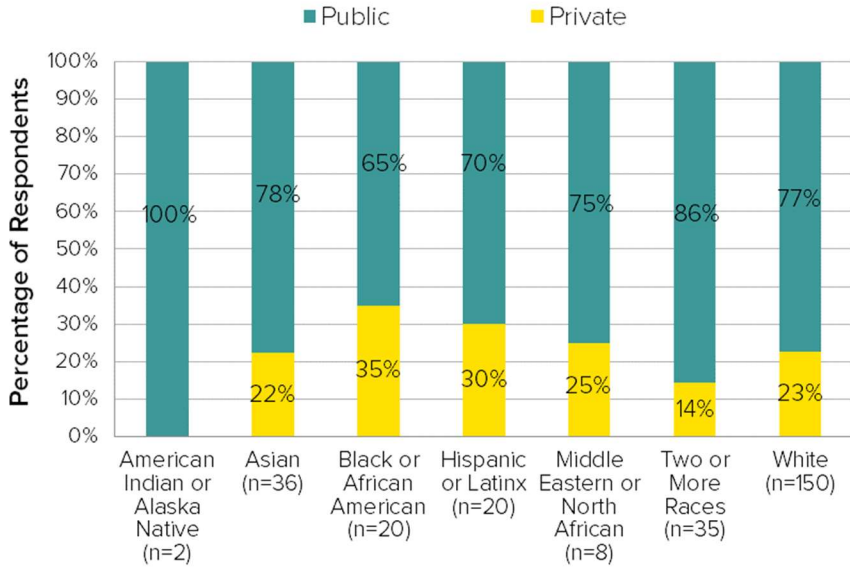
28% of all respondents reported being first-generation college students. In 2015-16, 56% of all undergraduates were first-generation college students.<sup>3</sup> This survey found that Hispanic/Latinx respondents had the highest percentage of first-generation status at 70% (14 of 20 respondents), followed by Asian respondents at 42% (15 of 36 respondents). White respondents had the lowest percentage of first-generation status at 19% (28 of 150 respondents).

Out of all the first-generation respondents, 37% were white, 9% were Black/African American, 18% were Hispanic/Latinx, 20% were Asian, and 1% were American Indian/Alaska Native and Middle Eastern or North African, respectively.



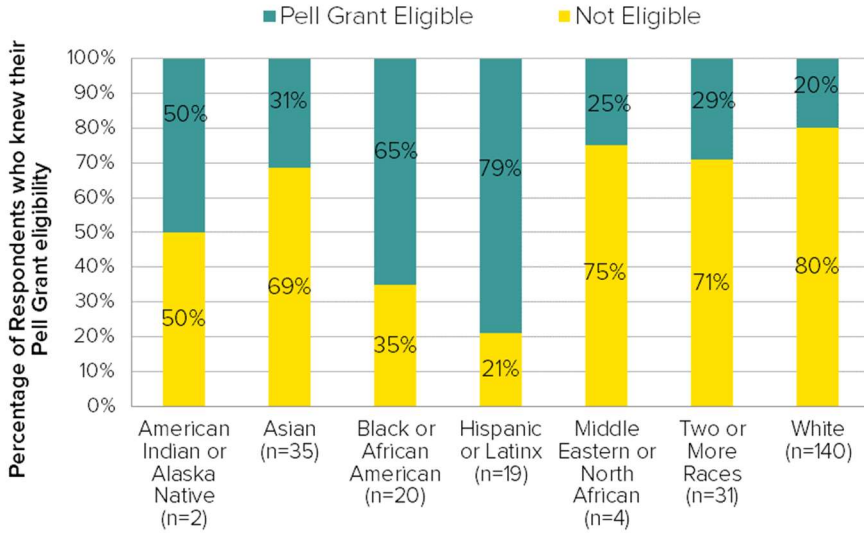
# Public vs. Private Institutions and Race/Ethnicity

Of all the respondents, 77% attended public schools while 23% attended private school. While the division between public and private school students was quite consistent across racial groups, Black respondents were most likely to have attended private school, at 35% (7 out of 20), while respondents of two or more races were most likely to have attended public school, at 86% (30 out of 35).



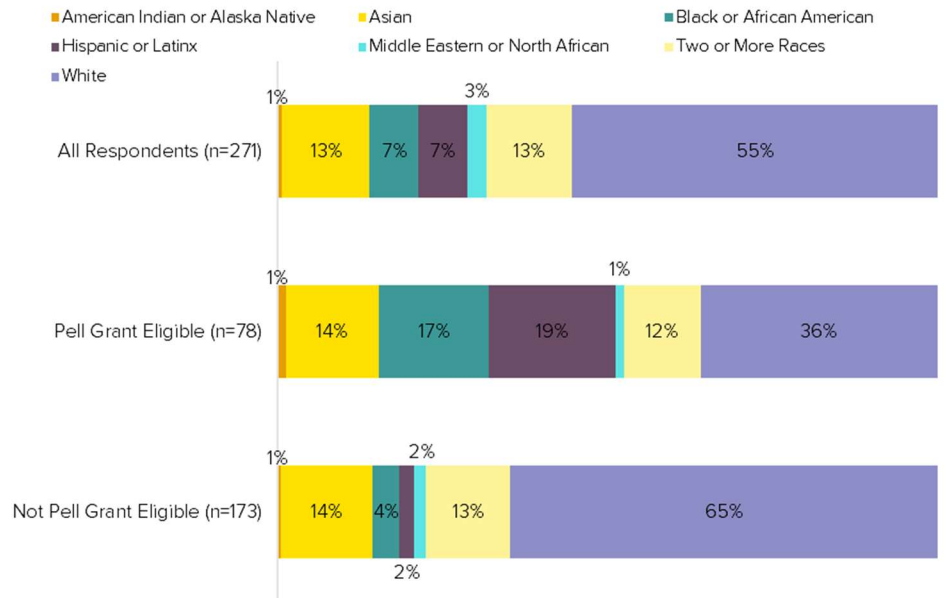
# Pell Grant Eligibility and Race/Ethnicity

Overall, only 29% (78) of our respondents reported being eligible for a Pell Grant. In the graphs in this section, the respondents who did not know their Pell Grant status were removed.

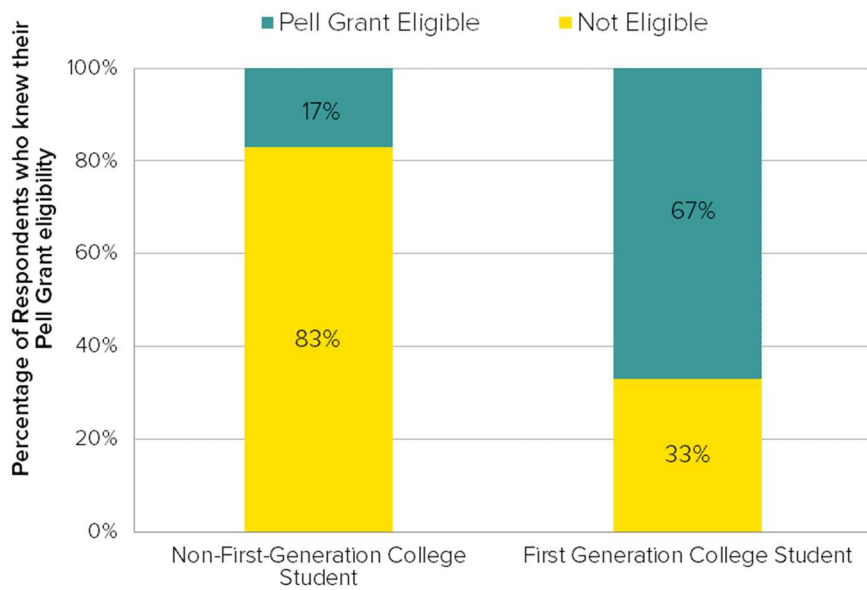


Of the respondents who knew their Pell Grant status, Hispanic/Latinx and Black/African American respondents were the most likely to report being Pell Grant eligible at 79% (15 respondents) and 65% (13 respondents), respectively. White respondents and Middle Eastern/North African students were the least likely to report being Pell Grant eligible at 19% (28 respondents) and 13% (1 respondent), respectively. A US Department of Education report summarized that in 2015-16, 38.7% of undergraduates in the US were eligible for a federal Pell Grant.<sup>4</sup>

While Black/African American and Hispanic/Latinx students each comprise 8% of the respondents who knew their Pell Grant eligibility, these groups comprise 17% and 19% of all Pell Grant eligible respondents, respectively. While white students comprise 56% of respondents who knew their Pell Grant eligibility, they comprise only 36% of Pell Grant eligible respondents.



## Pell Grant Eligibility and First Generation Status



Of the respondents who were not first-generation college students, 83% (150) identified as not Pell Grant eligible while 17% (31) identified as Pell Grant eligible. Of the respondents who were first-generation college students, 33% (23) identified as not Pell Grant eligible while 67% (47) identified as Pell Grant eligible. In our respondents, first generation status and Pell Grant eligibility were correlated.

## Discussion Questions

1. Looking at the “Gender” and “Race/Ethnicity” sections above, the demographics of our survey respondents differ from the demographics provided from the Demographics Topic Brief of the NCSEA SE3 2020 Survey and ASEE’s “Engineering by the Numbers” report. How do the gender and racial demographics contrast? Why do you think that is?
2. Based on this survey, respondents of color (other than those identifying as Middle Eastern or North African) had higher percentages of Pell Grant eligibility than their white counterparts. As a reminder, Pell Grant eligibility is a proxy for identifying low- and middle-income students. Did this surprise you? Why or why not? Did you have knowledge of the Pell Grant prior to reading this topic brief?

## References

1. Duk, S., Lakocy, A., Lyrenmann, L., McClure, R., Timmerman, A., and Wachter, M. (2020). “2020 Survey Topic Brief: Demographics.” <https://www.se3committee.com/publications>, NCSEA SE3 Committee. (Nov. 27, 2020).
2. Roy, J. (2021). “Engineering and Engineering Technology by the Numbers, 2019.” American Society for Engineering Education, <<https://ira.asee.org/wp-content/uploads/2021/02/Engineering-by-the-Numbers-FINAL-2021.pdf>> (January 15, 2022).
3. RTI International. (2019). First-generation College Students: Demographic Characteristics and Postsecondary Enrollment. Washington, DC: NASPA, <<https://firstgen.naspa.org/files/dmfile/FactSheet-01.pdf>> (January 15, 2022).
4. “Trends in Pell Grant Receipt and the Characteristics of Pell Grant Recipients: Selected Years, 2003–04 to 2015–16.” (2019). U.S. Department of Education, <<https://nces.ed.gov/pubs2019/2019487.pdf>> (January 15, 2022).

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