NCARB

NCARB BY THE NUMBERS

JUNE 2013

Introduction

This time last year, we were thrilled to present the very first release of *NCARB by the Numbers.* As a first dive into our steadily expanding data warehouse, we offered demographic insights about those entering the profession, provided information about the length of time required to complete the IDP and to get licensed, and delivered basic measures about our programs and services.

In this year's release, we've updated these key measures and have expanded the publication to include new metrics on the Architect Registration Examination® (ARE®). One positive trend that deserves to be highlighted is the health of the profession as a whole. The number of applications for NCARB Records among interns, as well as the number of interns completing the IDP and ARE, are very robust. The time to acquire an initial license has decreased over the past few years, and more women continue to enter the profession. We think all of these things point to a healthy and vibrant future for architecture.

We're especially excited to share data regarding the ARE. Until recently, information about the exam was fragmented among jurisdictional boards, the vendors that handle exam administration, and NCARB's own data repositories. Thanks to new vendor arrangements, NCARB now has access to comprehensive exam data and the ability to perform more substantial analysis. In the pages to follow, you'll find some high-level findings that reveal ARE trends both over time and among different intern populations.

While our ability to report out such data increasingly improves, we're still putting the tools in place to more deeply mine our data warehouse. The findings presented in this report serve as a solid foundation for ongoing efforts to understand how and why the architectural profession has changed, but they're only pieces of a very large picture. We look forward to providing a more complete analysis of the path to licensure as our data warehouse and analytical capabilities grow.

This is the second edition of *NCARB by the Numbers,* and we hope you find it a valuable resource for better understanding our incredible profession.

Michael J. Armstrong
Chief Executive Officer
National Council of Architectural Registration Boards

# Percentage of NCARB Record Applications by Gender

The percentage of NCARB applications by women has increased since the last edition of *NCARB by the Numbers*. In 2012, 3,063 applications (39.9 percent of applicants) were by women, an increase of 1.3 percentage points from 2011.

PERCENTAGE OF APPLICATIONS

APPLICATION YEAR

■ Male
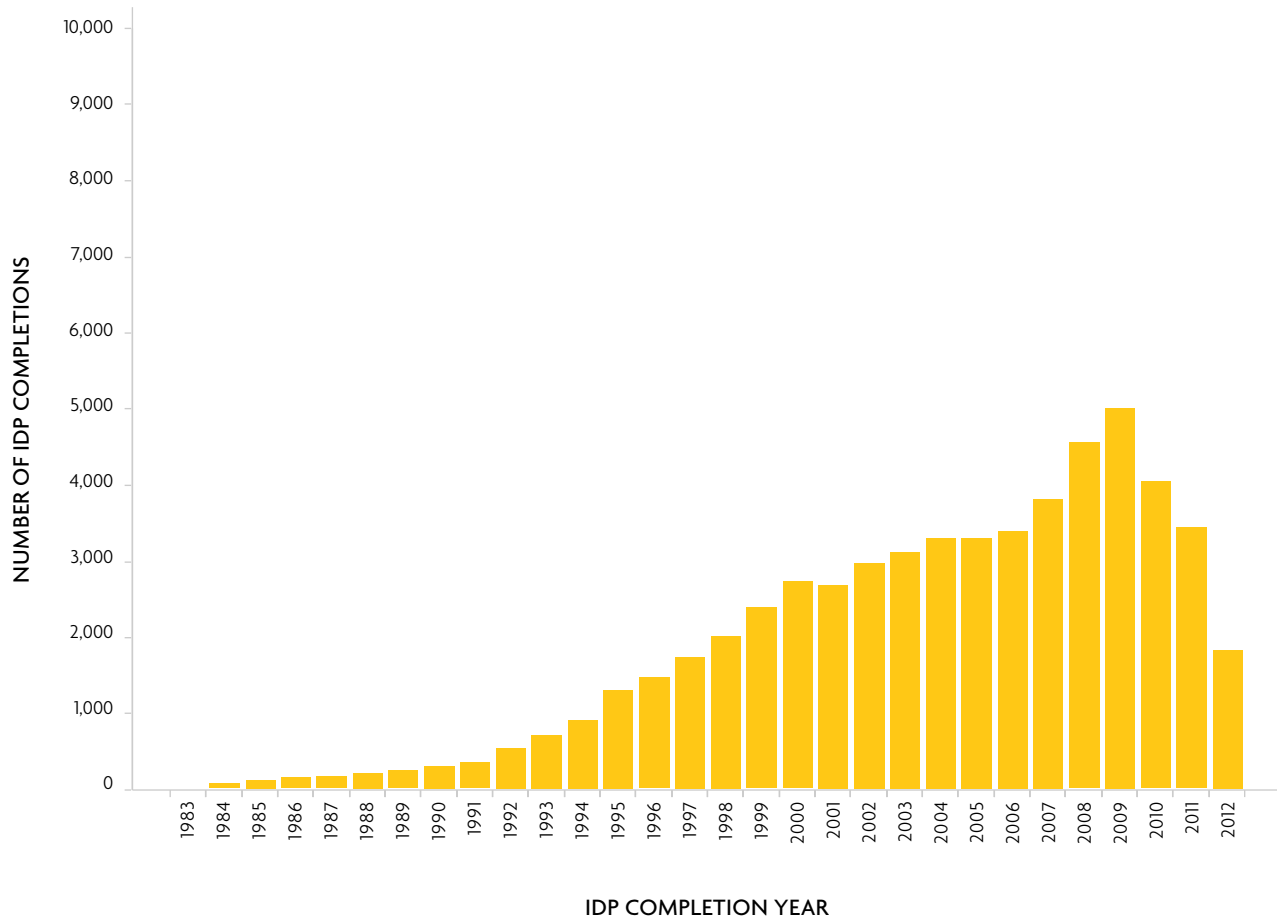■ Female
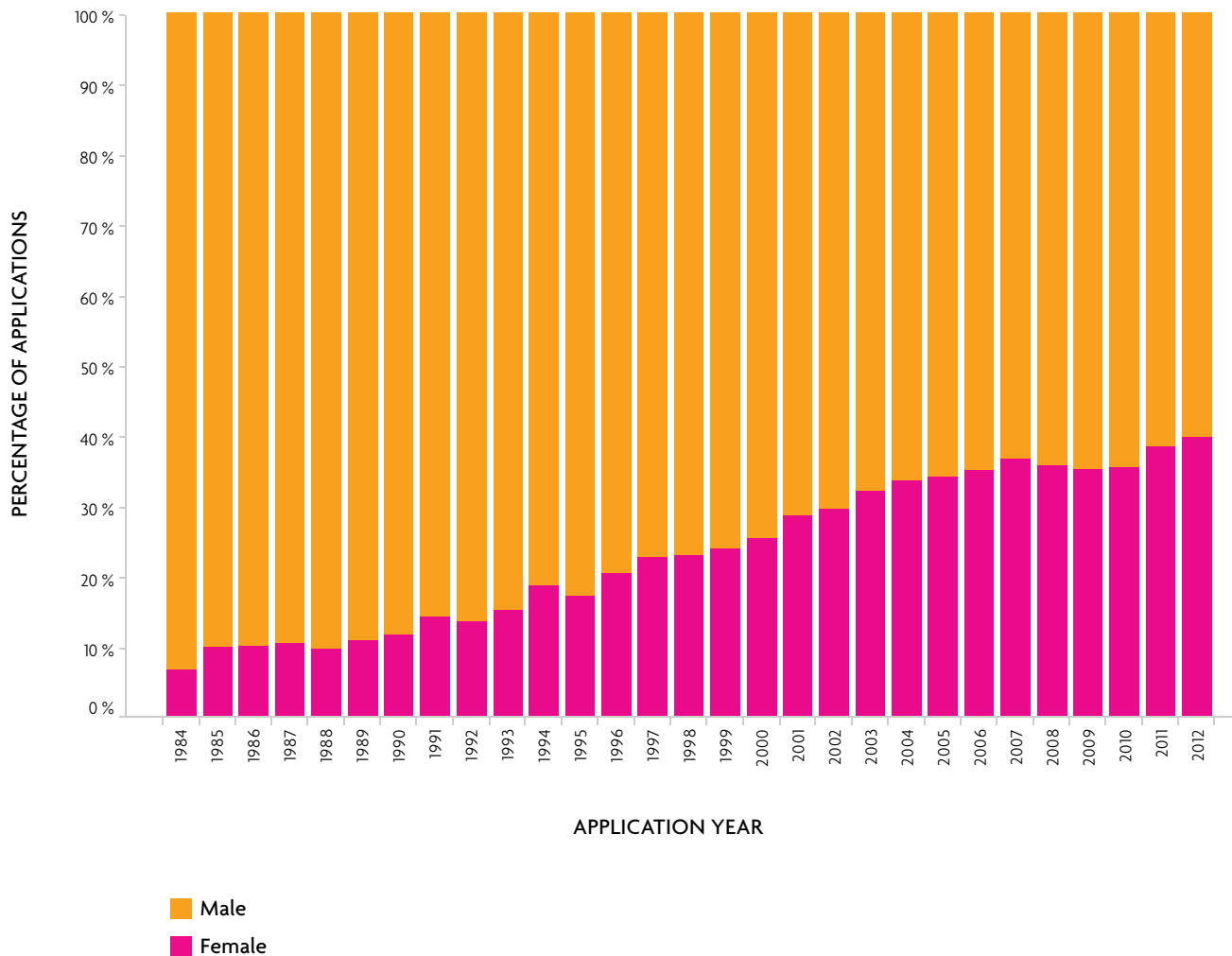
Time to Complete the IDP

In 2009, the reporting requirement for experience (aka the "Six-Month Rule") came into effect for all interns. As one of the biggest policy changes governing the reporting of experience, it's only natural to want to see what effect it has had on how fast or slow interns progress through the IDP. We can see here that interns who completed the IDP over the last two years have completed it more quickly from the peak in 2010. The mean years between the start and end of IDP has dropped from 6.18 for 2010 completions to 5.33 for 2012 completions.

YEARS

IDP COMPLETION YEAR

■ Mean
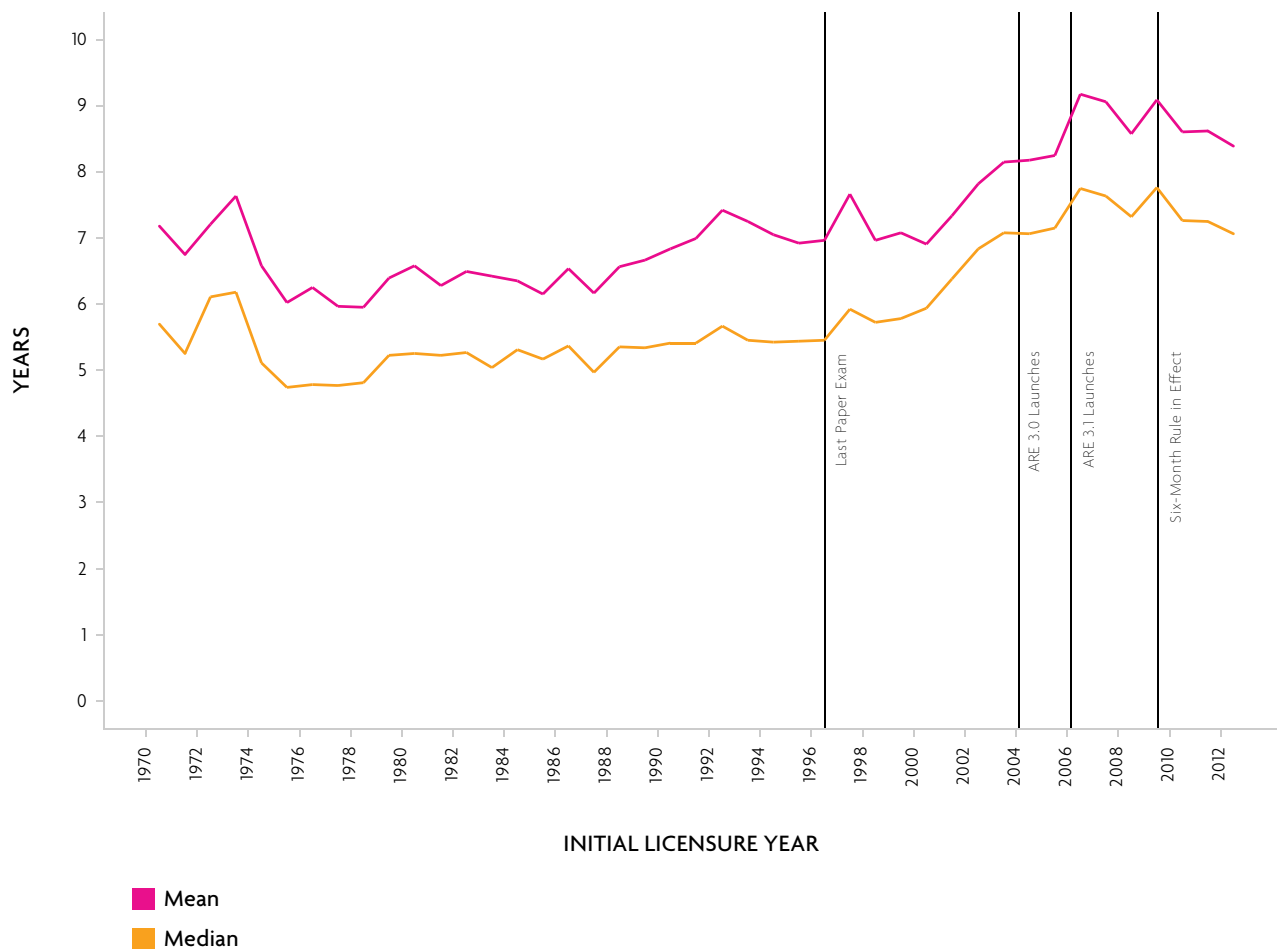■ Median
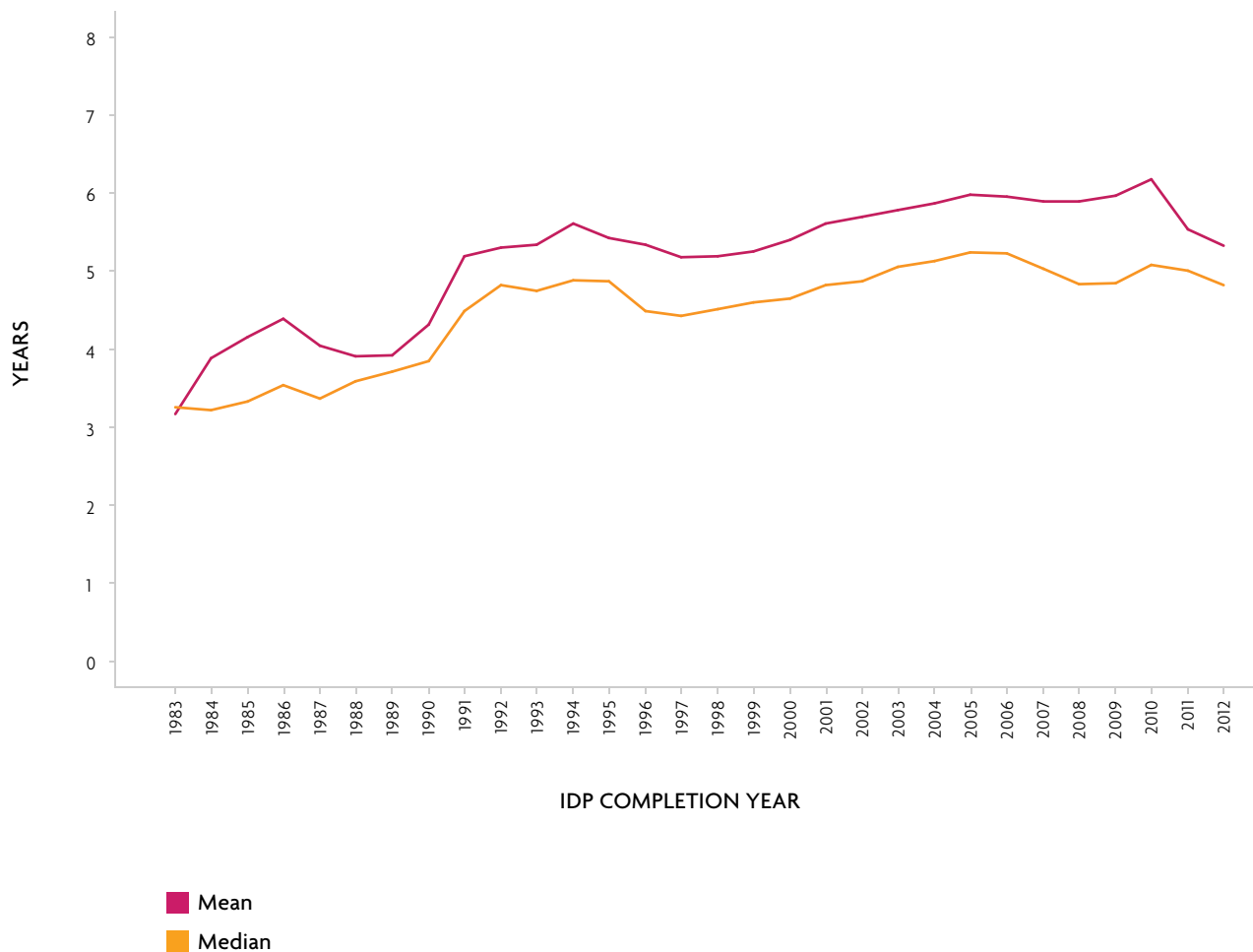
Intern IDP Completions per Year

The number of IDP completions in 2012 is down from 2011 and 2010. For the first time, a majority of interns completing the IDP in 2012 are candidates who have been subject to the reporting requirement since the inception of their Records. Most completions in prior years were from interns who had some opportunity to report historical experience.

NUMBER OF IDP COMPLETIONS

10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0

1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012

IDP COMPLETION YEAR

# Average Years Between Graduation and Initial Licensure

The average years between graduation and initial licensure has demonstrated a small decrease since 2011 and a slightly larger decrease since its peak in 2009. The amount of time between graduation and initial licensure is a product of many factors. NCARB program changes are among these, but changes in economic, technological, political, or personal conditions may influence the change in this measure over time. Some milestone markers for NCARB policy changes have been included on the chart to provide a context for analysis, but a complete understanding of exactly what influences the timeline to licensure is necessarily a very broad inquiry.

YEARS

INITIAL LICENSURE YEAR

Last Paper Exam

ARE 3.0 Launches

ARE 3.1 Launches

Six-Month Rule in Effect

■ Mean
■ Median

Average Age on Date of Initial Licensure

Similar to the chart indicating that time from graduation to licensure has decreased over the last few years, the average age of architects on the date of their initial license has also decreased since its peak in the mid-to-late 2000s.

AGE

INITIAL LICENSURE YEAR

- Mean
- Median
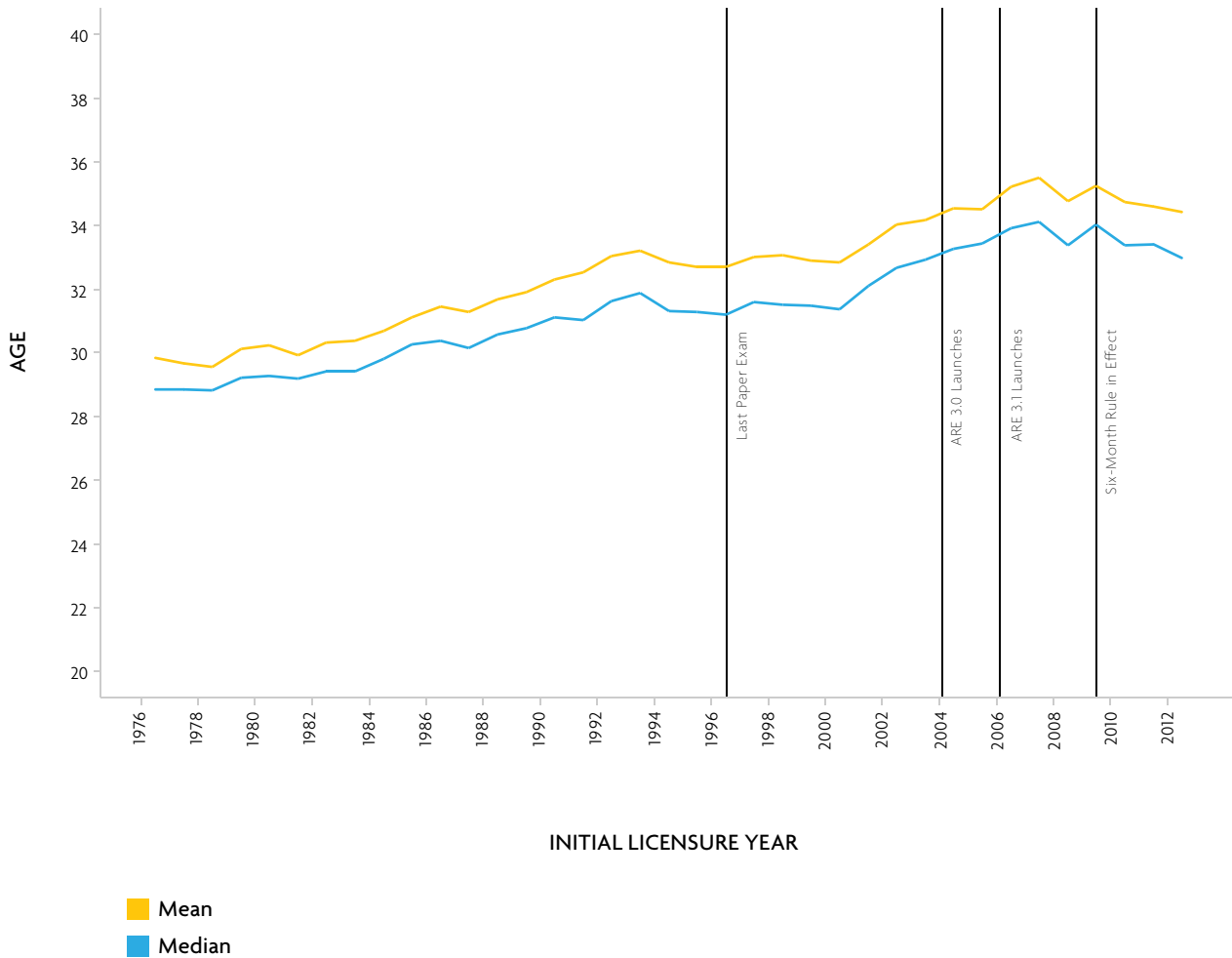
ARE Testing Volumes Over Time, by Year

Since computerized testing began in 1997, the number of divisions administered per year has risen steadily, but slowly. The average number of divisions administered per year is around 35,000. The volume of divisions spiked around important program changes—the transition from ARE 3.1 to ARE 4.0 demonstrated a dramatic increase in the number of administered divisions, with 2008 and 2009 both seeing over 50,000.

Avg(Y): 35,029.125

NUMBER OF ADMINISTERED DIVISIONS

TEST YEAR
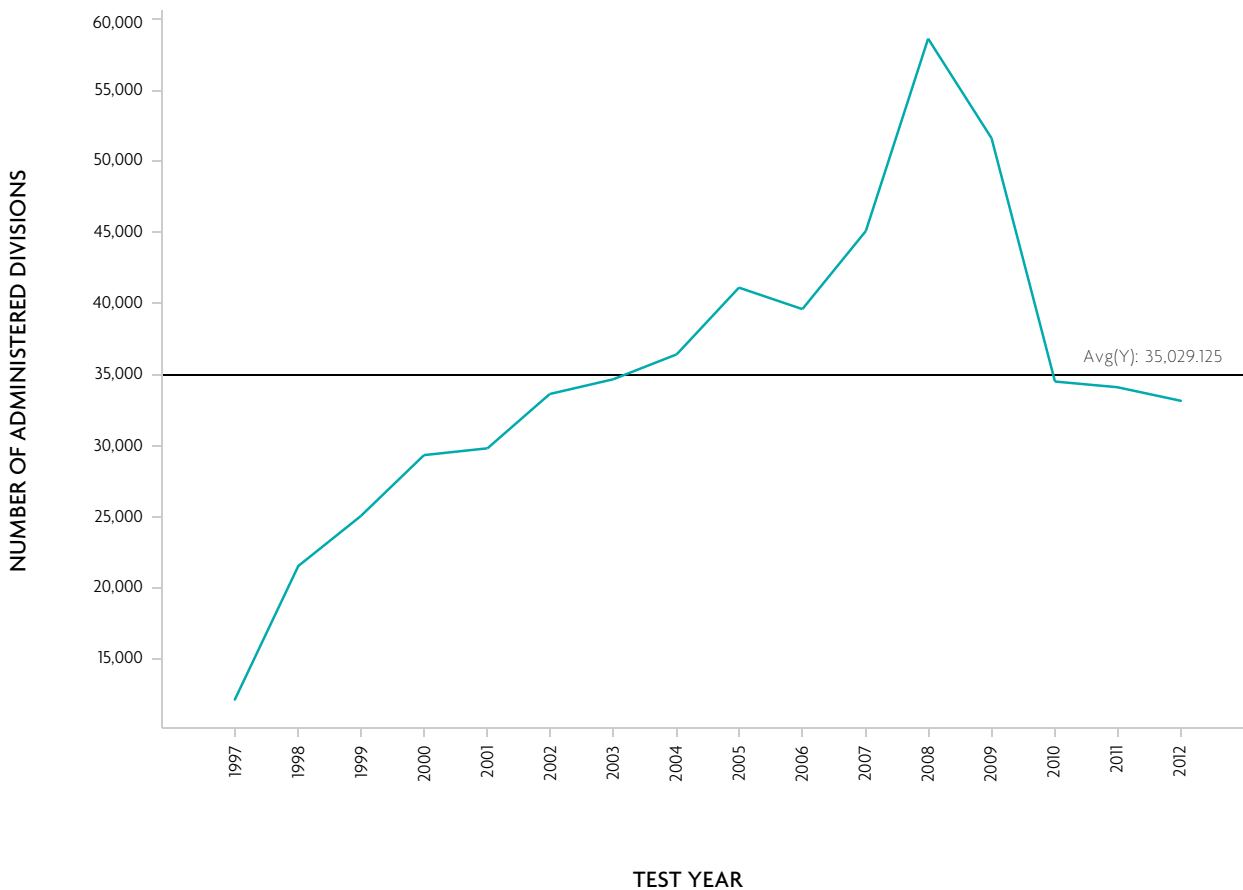
ARE Testing Volumes by Version Over Time, by Month

When we separate ARE 3.1 and ARE 4.0 and examine monthly volumes, we can more clearly see the phase-in period and subsequent abrupt transition between the two versions. ARE 4.0 divisions slowly ramped up after their introduction, with ARE 3.1 spiking before it's phase-out in July 2009. Additionally, some change in the volume of administered divisions is a result of the complete ARE consisting of only seven divisions in ARE 4.0, as opposed to nine divisions in ARE 3.0 and ARE 3.1.

NUMBER OF ADMINISTERED DIVISIONS

TEST MONTH
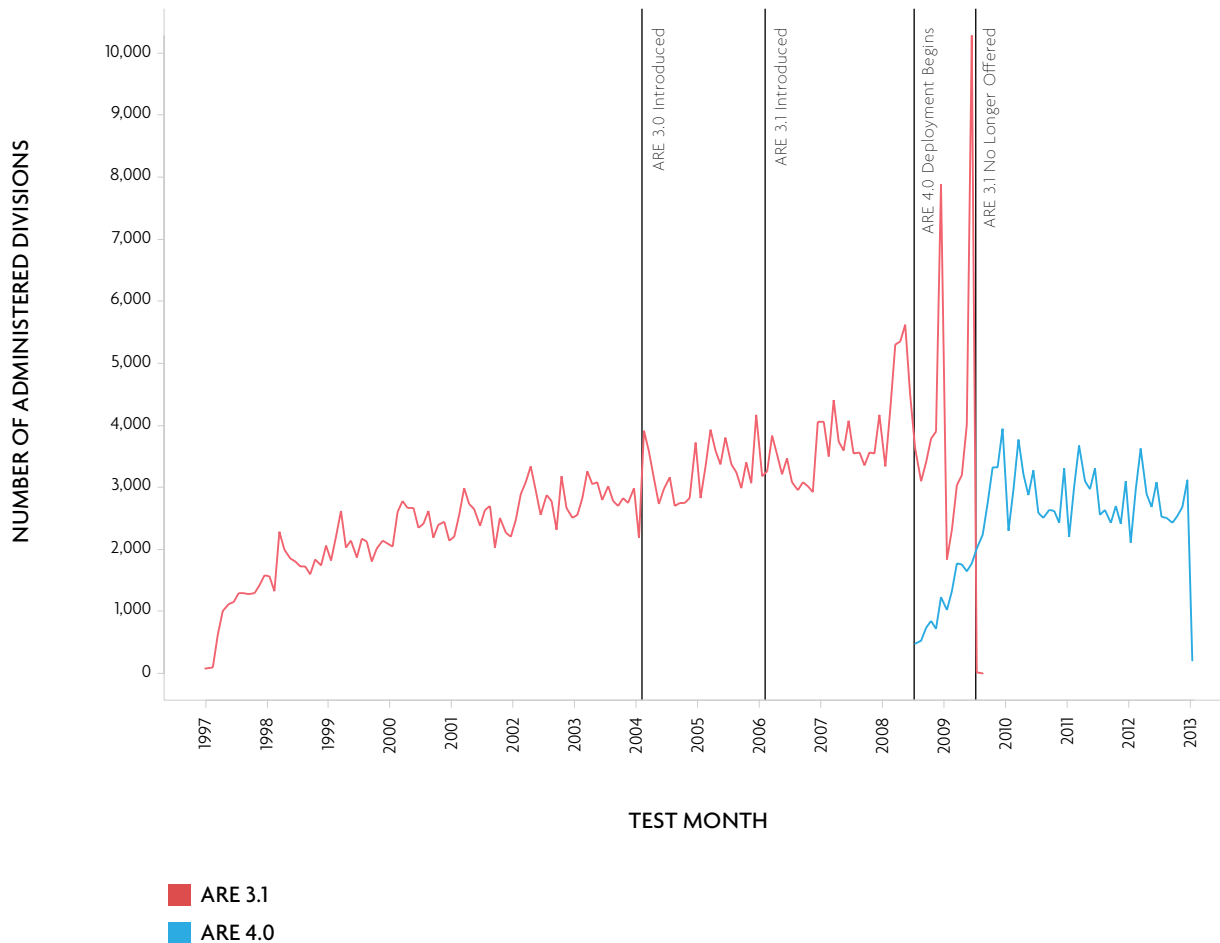
ARE 3.1
ARE 4.0

# ARE Testing Volumes by Division Over Time, by Month

The spikes in 2008 and 2009 were in anticipation of the launch of ARE 4.0. A great deal of the spike in ARE 3.1 was caused by the change to the "Building Technology" exam division. Failure to pass Building Technology required the candidate to complete four divisions in ARE 4.0. It was unsurprising that it was a high priority for candidates to pass Building Technology before 1 July 2009. Site Planning required the completion of two ARE 4.0 divisions if it was not passed before the transition. These facts also account for the spike in volume in December 2008. Since a failed division cannot be retaken for six months, many candidates attempted to pass exams in December, giving themselves a chance to retest in June if necessary.

Legend:
- All other divisions
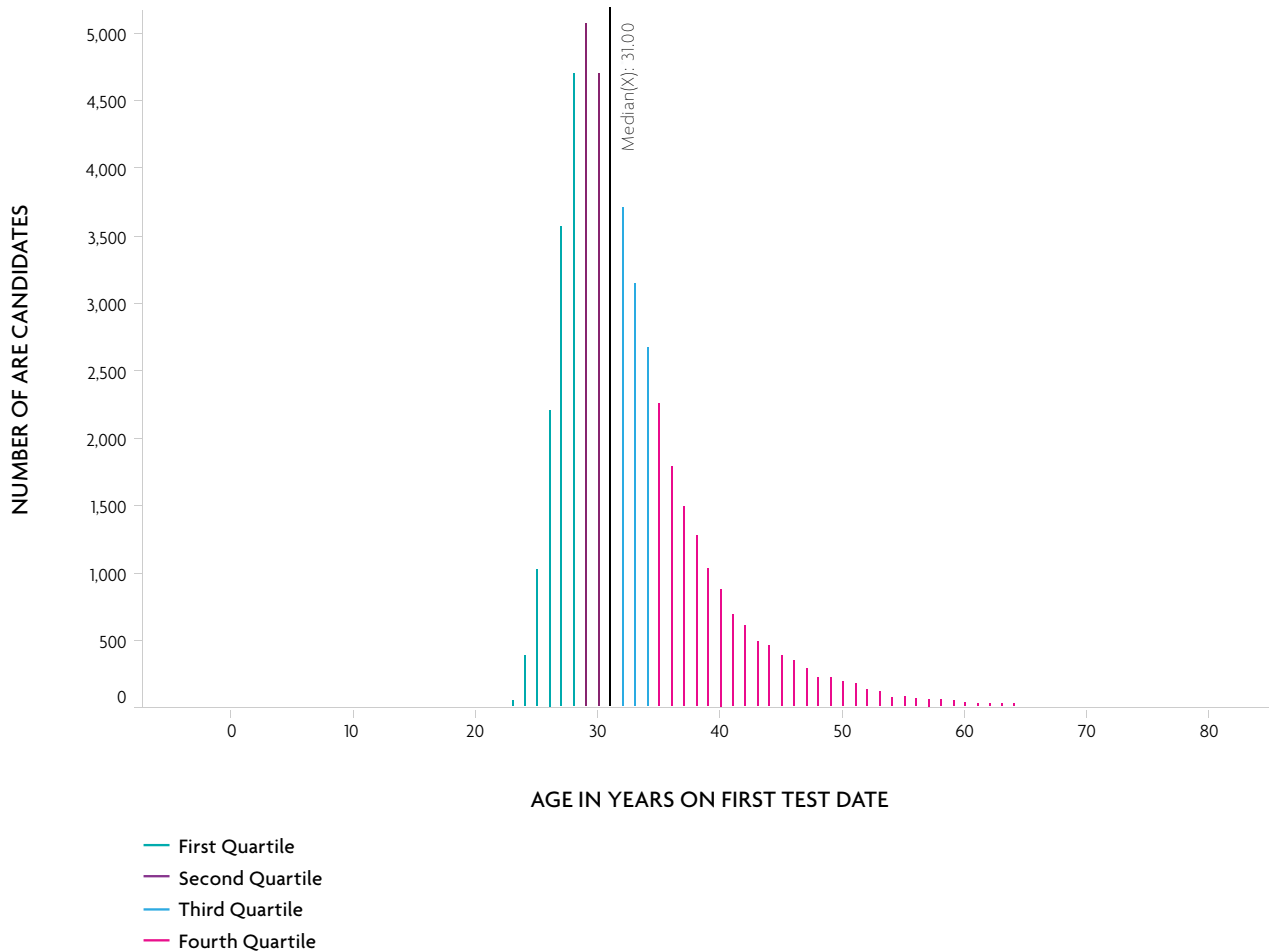- Site Planning
- Building Technology
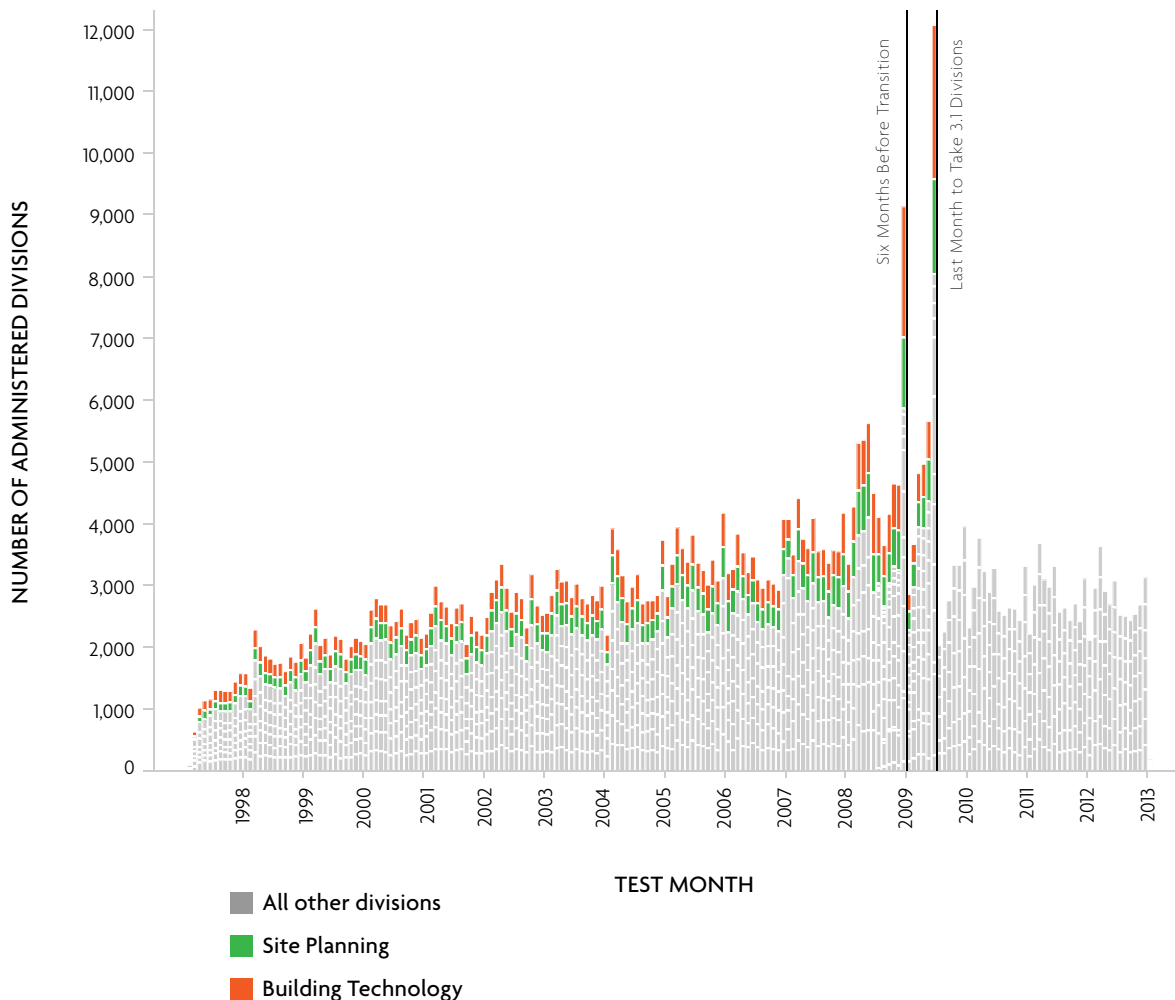
Average Age on Date of First Test

The age at which candidates sit for their first examination has been relatively static since computerized testing began. The median testing age for candidates in 2012 reached a universal low of 30.25 years of age.

AGE

Online Early Eligibility Available

YEAR OF FIRST TEST

■ Mean
■ Median
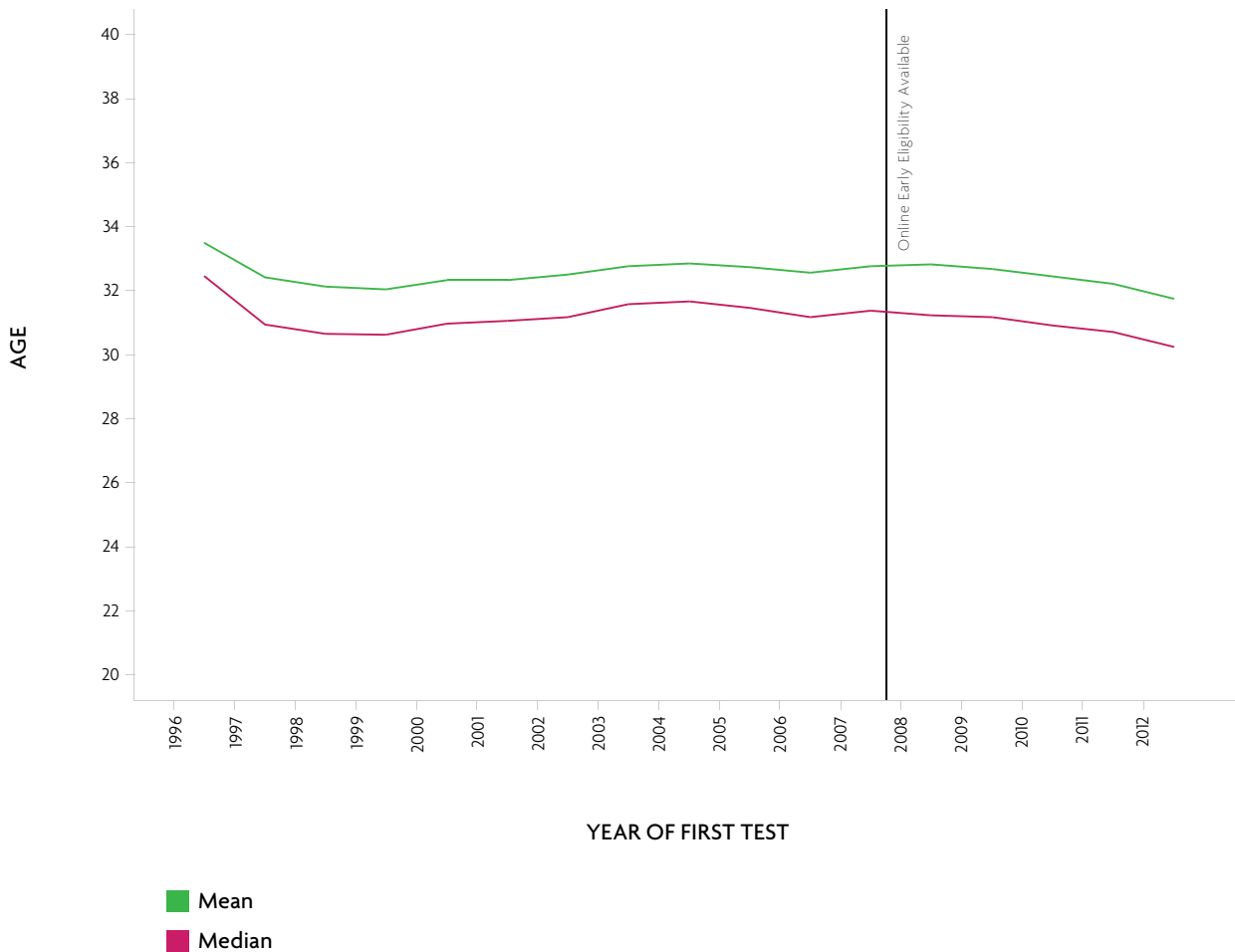
Frequency Distribution - Age on First ARE Test Date

Examining the frequency distribution for the candidate age on any division administered since 1996 reveals a right-skewed distribution that peaks in the early thirties. While some candidates sit for examinations at age 40 or above, 50 percent of all candidates throughout time sit for their first exam at age 31 or younger.

Median(X): 31.00

NUMBER OF ARE CANDIDATES

AGE IN YEARS ON FIRST TEST DATE

— First Quartile
— Second Quartile
— Third Quartile
— Fourth Quartile

ARE Pass Rate Over Time, by Month

The pass rate for all divisions of the exam over time has hovered around 70 percent since 1997. The introduction of ARE 4.0 in 2008 caused a brief drop in pass rates, but this has rebounded in recent years.

PERCENTAGE OF DIVISIONS PASSED

ARE 3.0 Launches
ARE 3.1 Launches
Online Early Eligibility Available
ARE 4.0 Launches
ARE 3.1 No Longer Offered

100 %
90 %
80 %
70 %
60 %
50 %
40 %
30 %
20 %
10 %
0 %

1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012

TEST MONTH

ARE Pass Rate by Division

Some divisions have lower pass rates than others. The divisions with the lowest overall pass rates are Programming, Planning & Practice and Building Design & Construction Systems. Materials & Methods has the highest pass rate of any ARE 3.1 or ARE 4.0 division. Pass rates for ARE 4.0 are slightly lower than historical examination versions.

OVERALL PASS RATE

DIVISION

■ ARE 3.1
■ ARE 4.0
■ Both versions
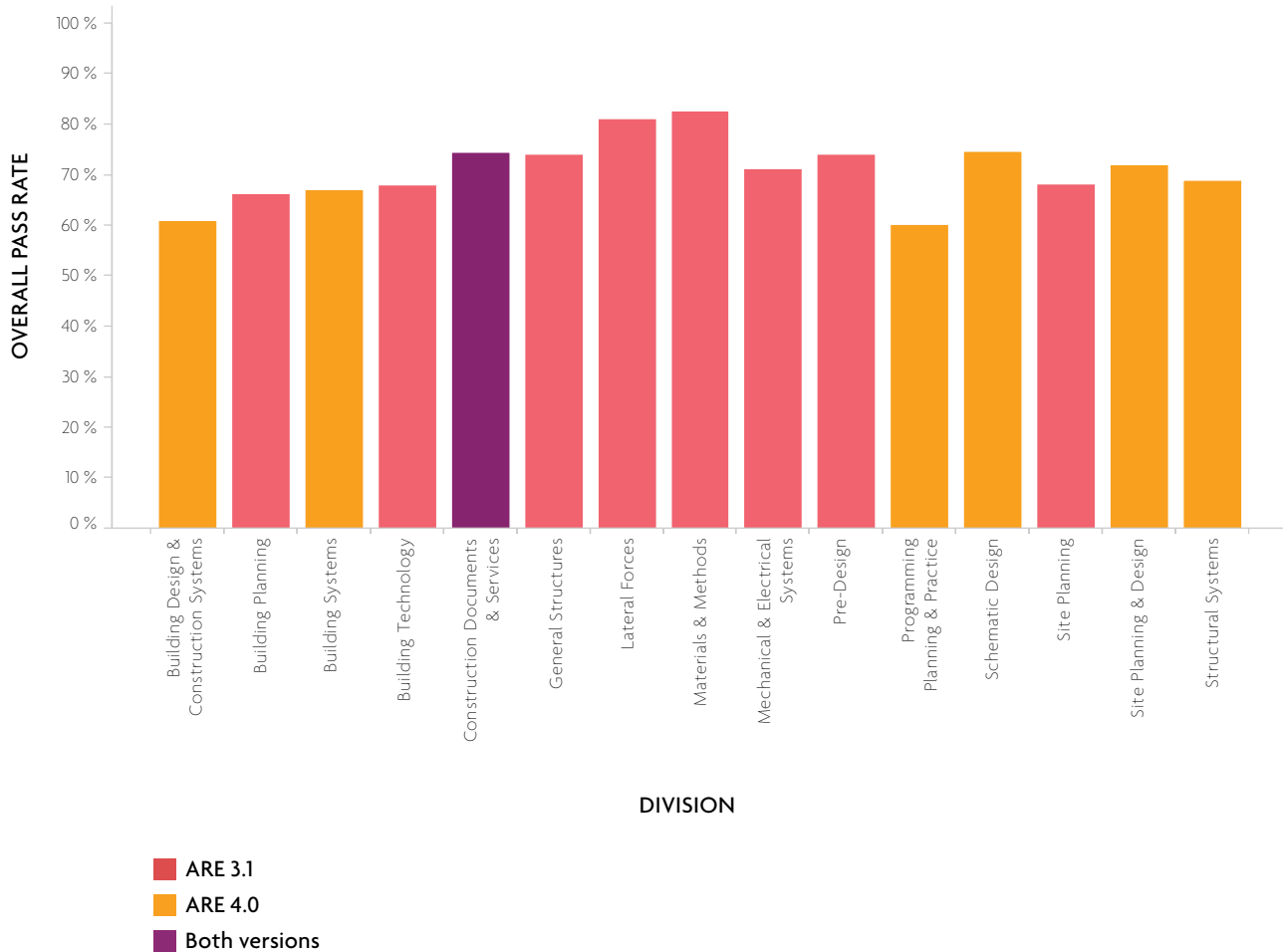
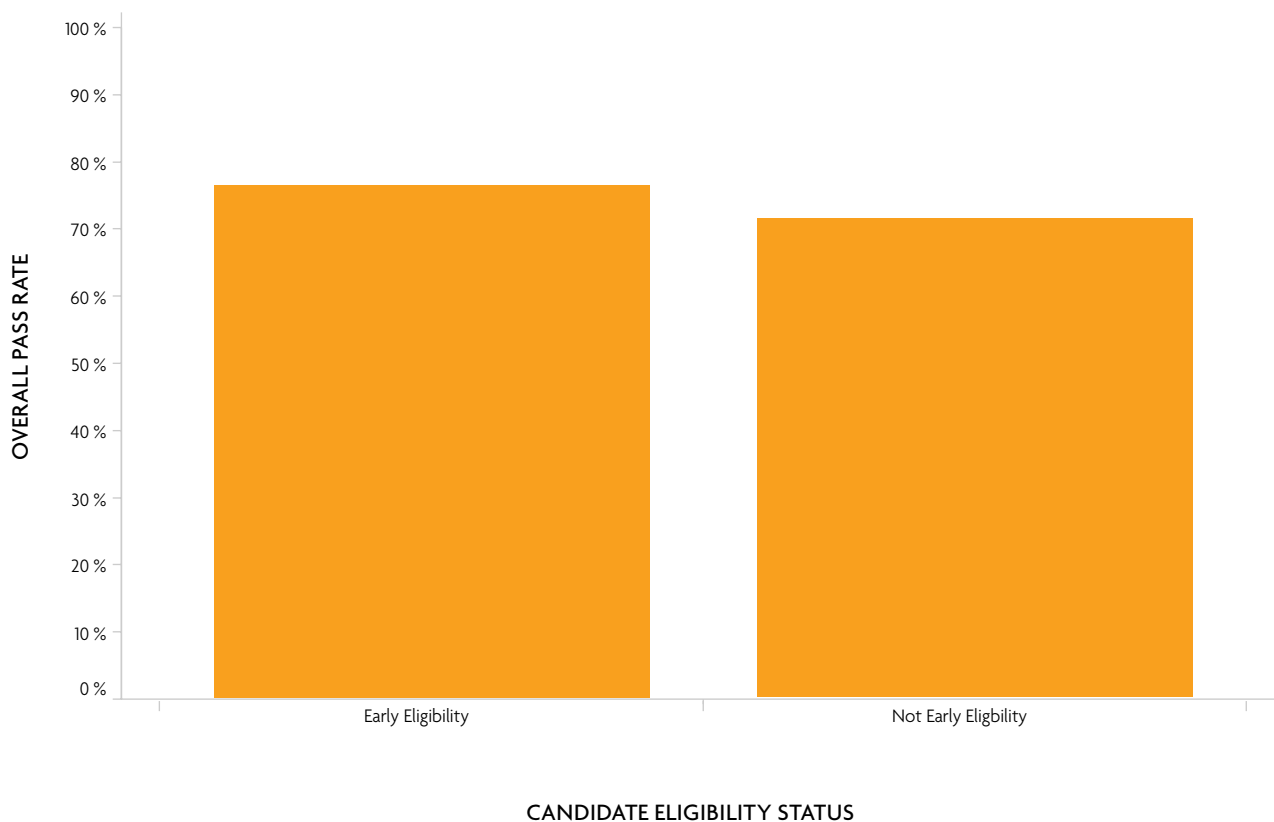# Overall ARE Division Pass Rate by Candidate Degree Program Type

The pass rate for divisions taken by candidates with degrees from NAAB-accredited programs is 10 percentage points higher than divisions taken by candidates without degrees from NAAB-accredited programs (76.11 percent versus 65.86 percent, respectively).

CANDIDATE DEGREE PROGRAM TYPE
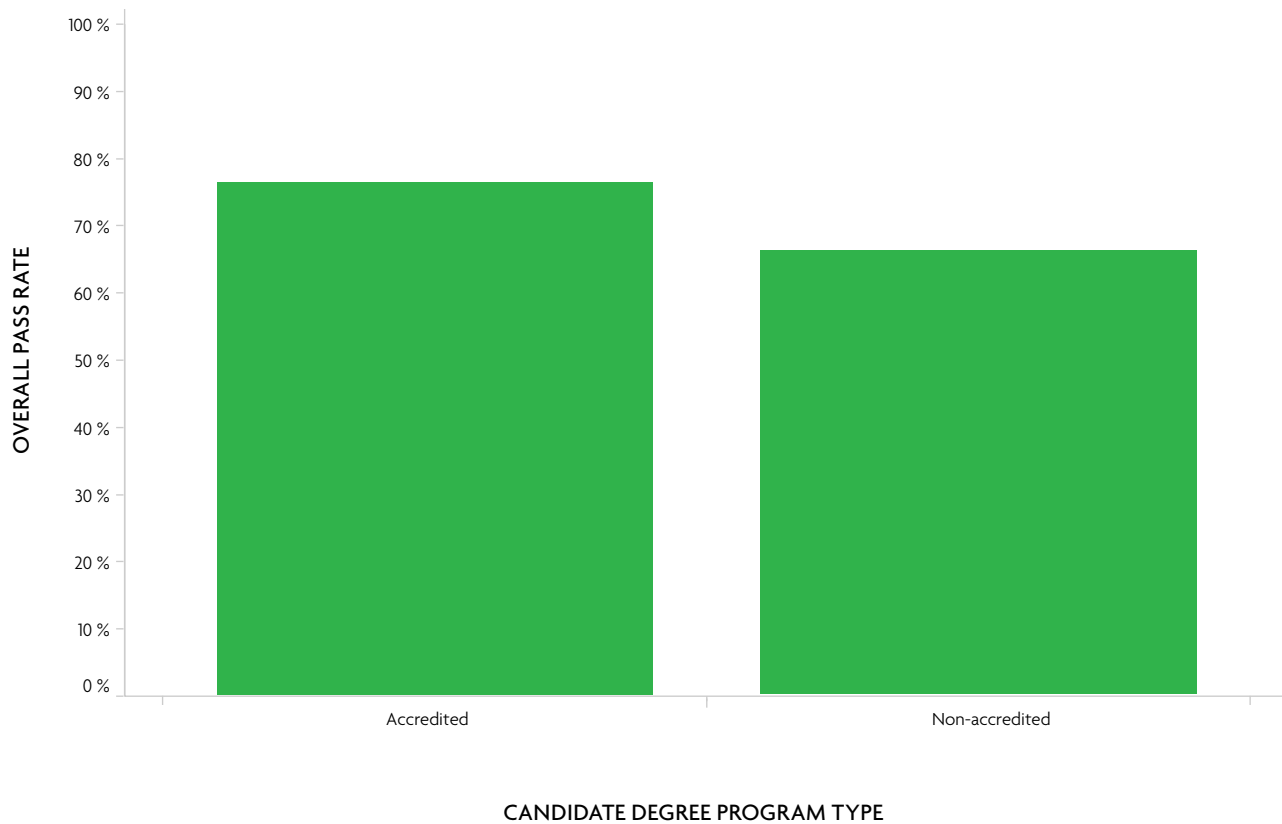
Overall ARE Pass Rate by Candidate Eligibility Status

The overall pass rate of divisions taken by people who began testing through the early eligibility program is 5 percentage points higher than those who began testing only after they completed the IDP. Positive effe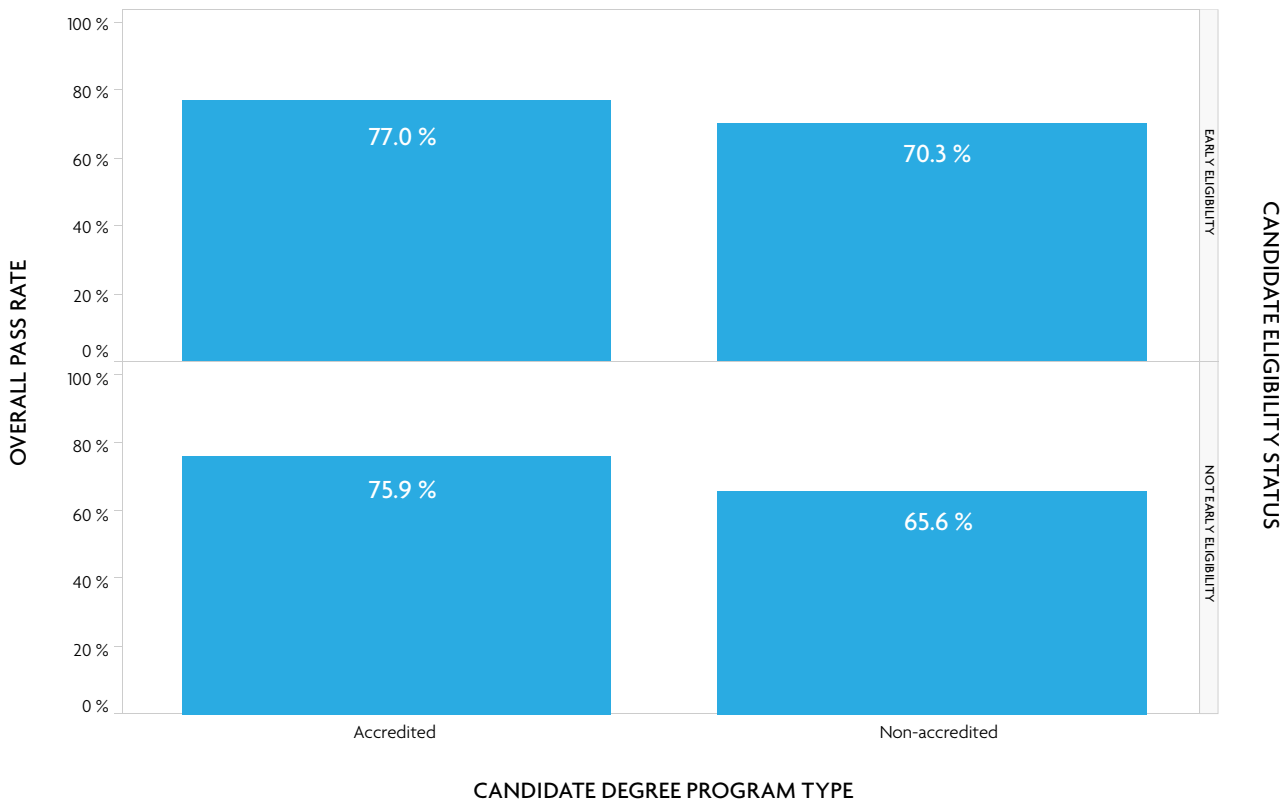cts of being in the IDP and ARE may explain some of the increased pass rate. Self-selection may also help to explain the discrepancy—candidates who decided to pursue degrees from NAAB-accredited programs may also be the same candidates who have elected to test and complete the ARE as soon as possible.

OVERALL PASS RATE

Early Eligibility

Not Early Eligbility

CANDIDATE ELIGIBILITY STATUS

Overall ARE Pass Rate by Candidate Degree Program Type and Eligibility Status

If we examine pass rates among early eligibility candidates and those with degrees from NAAB-accredited degree programs simultaneously, we can see that, even after controlling for the presence or absence of the degree from a NAAB-accredited degree program, candidates who tested before the completion of the IDP have higher divisional pass rates. This points to a possible real synergy between the simultaneous completion of the IDP and the ARE.

The following jurisdictions allow for some version of early eligibility: AL, AK, AZ, AR, CA, CO, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, MD, MA, MI, MN, MS, MO, MT, NE, NH, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VA, VI, VT, WA, WV, WI, WY

OVERALL PASS RATE

EARLY ELIGIBILITY

77.0 %

70.3 %

NOT EARLY ELIGIBILITY

75.9 %

65.6 %

Accredited

Non-accredited

CANDIDATE DEGREE PROGRAM TYPE

CANDIDATE ELIGIBILITY STATUS

ARE Completions, by Year

The number of people completing the ARE—all requisite divisions—has increased since its computerized delivery in 1997. While very few divisions of the exam were administered or completed in this first year, the number of candidates completing the exam quickly reached a few thousand over the next few years. On average, approximately 2,300 candidates complete the ARE every year. The highest numbers of ARE completions occurred in 2008 and 2009 during the transition from ARE 3.1 to ARE 4.0.

NUMBER OF ARE COMPLETIONS

Avg(Y): 2,322.6875

4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0

1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012

ARE COMPLETION YEAR
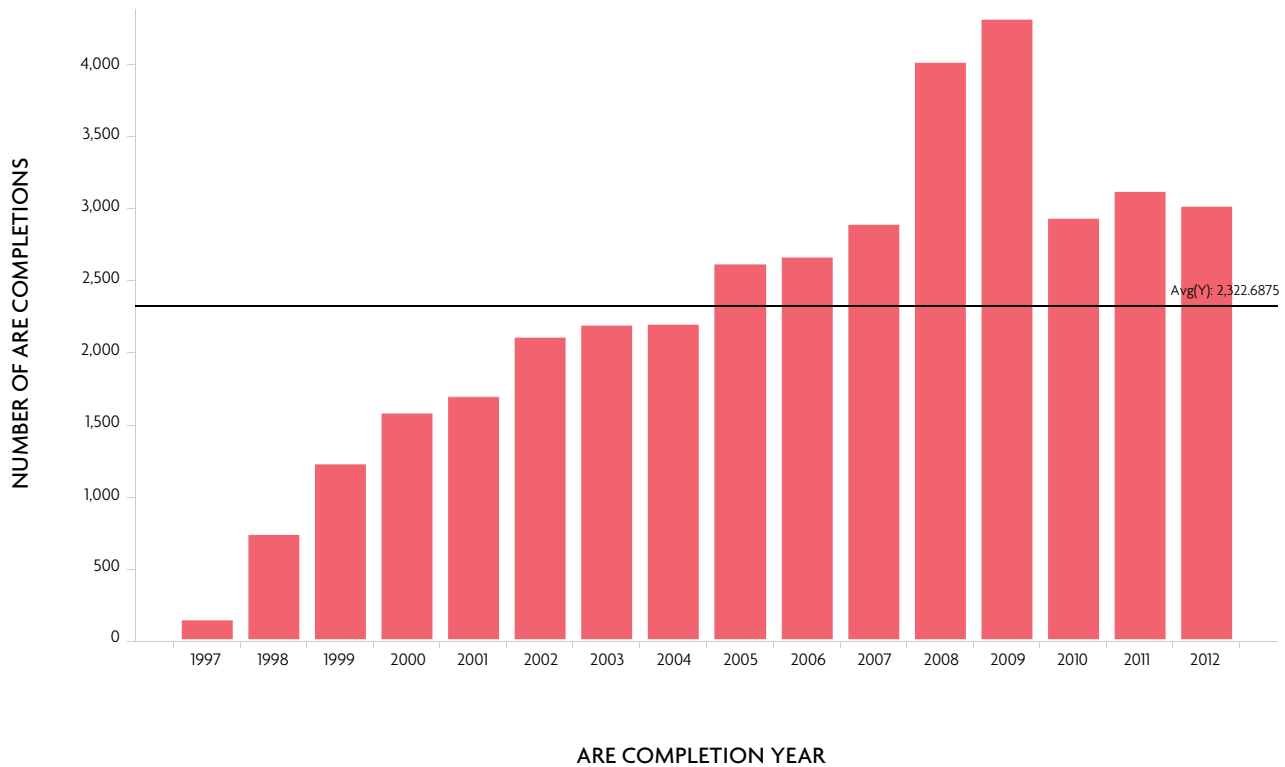
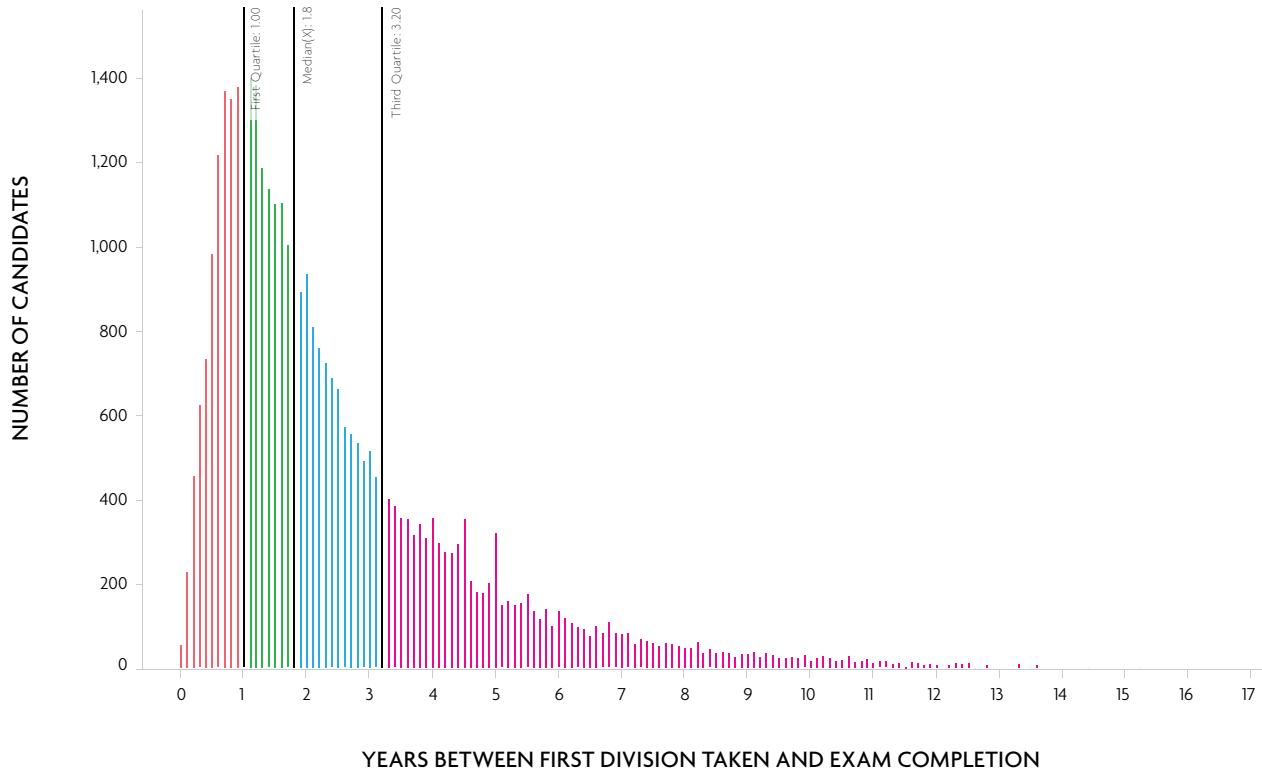# Years Between First Division Taken and Exam Completion, by Year

This box plot compares the distribution of ARE completion times between 1997 and 2012. The median time to complete the ARE has generally varied between 1 and 2.5 years since its computerized deployment in 1997.

YEARS

ARE COMPLETION YEAR
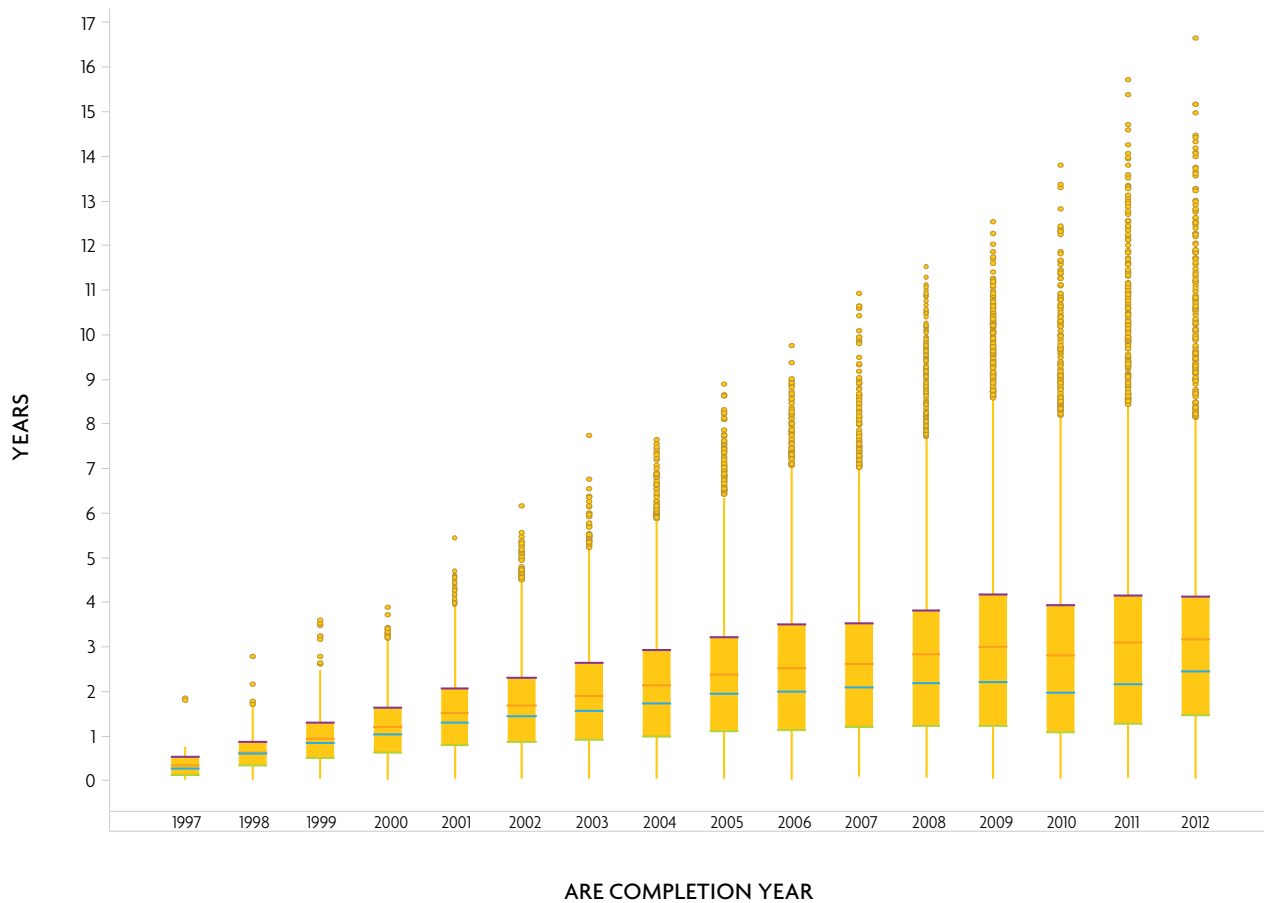
— Third Quartile
— Mean
— Median
— First Quartile

Frequency Distribution -
Years Between First Division Taken and Exam Completion

If we look at the distribution of completion times as a whole, similar to other programmatic timelines, we can see that it is heavily right-skewed. Twenty-five (25) percent of candidates completed the ARE in less than one year, 50 percent completed it in less than 1.8 years, and 75 percent completed it in 3.2 years or under.

NUMBER OF CANDIDATES

First Quartile: 1.00
Median(X): 1.8
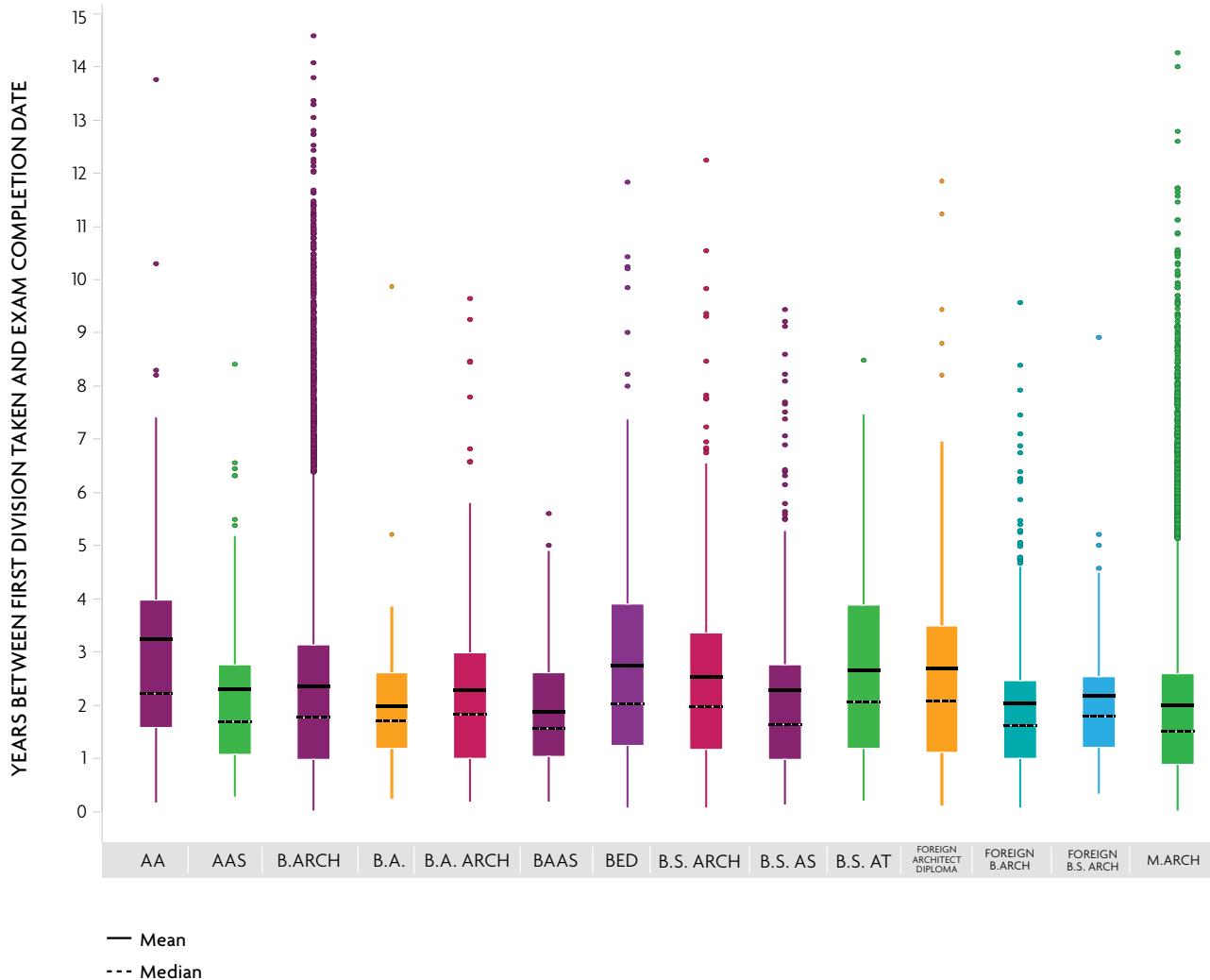Third Quartile: 3.20

YEARS BETWEEN FIRST DIVISION TAKEN AND EXAM COMPLETION

Frequency Distribution -
Years Between First Division Taken and Exam Completion

If we separate the candidates into those with a degree from a NAAB-accredited program and those without, we can see that the median completion time for those with a degree from a NAAB-accredited program was approximately 2.5 months shorter than the median completion time for those without a degree from a NAAB-accredited program.

First Quartile: 0.90
Median(X): 1.60
Third Quartile: 2.90

Candidates from NAAB-accredited programs

First Quartile: 1.10
Median(X): 1.80
Third Quartile: 3.20

Candidates **not** from NAAB-accredited programs

NUMBER OF CANDIDATES

YEARS BETWEEN FIRST DIVISION TAKEN AND EXAM COMPLETION
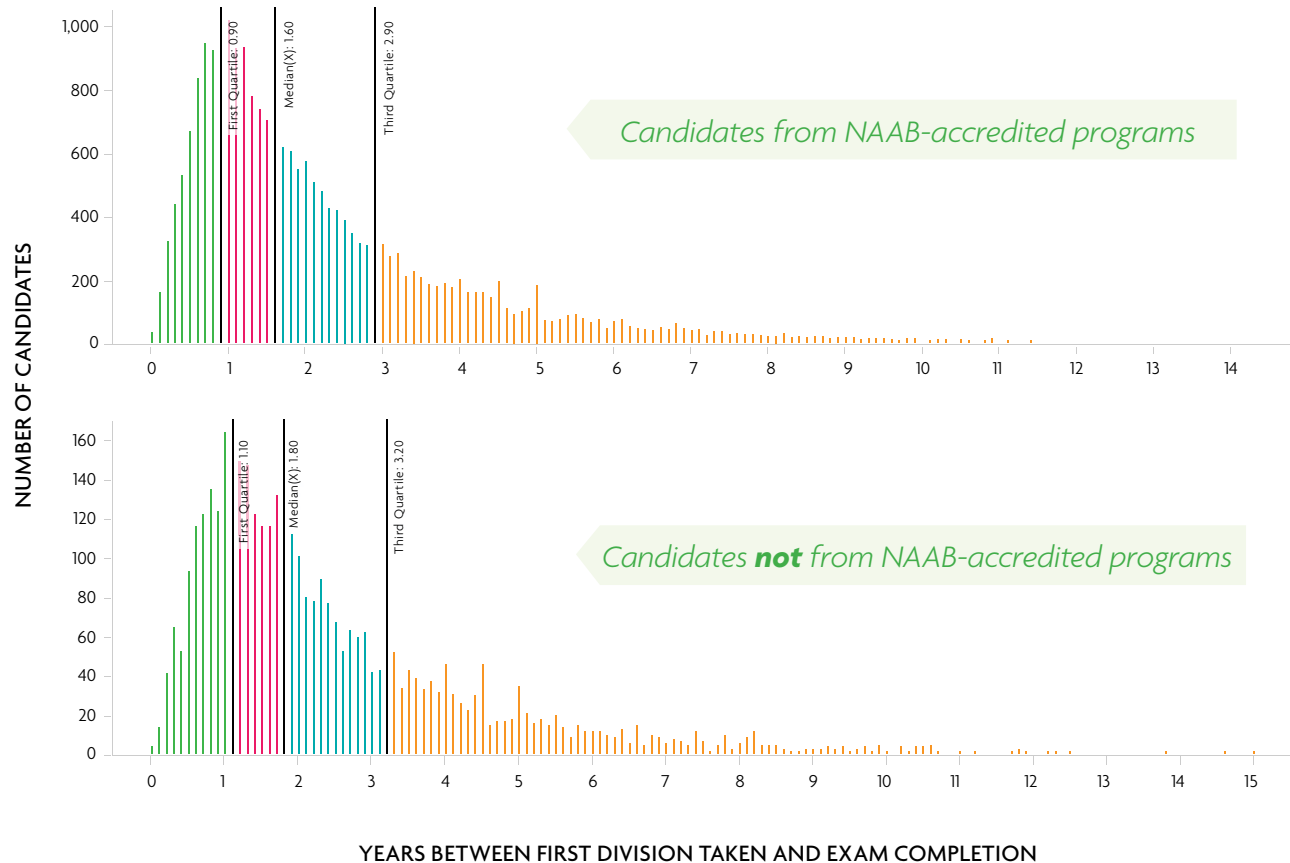
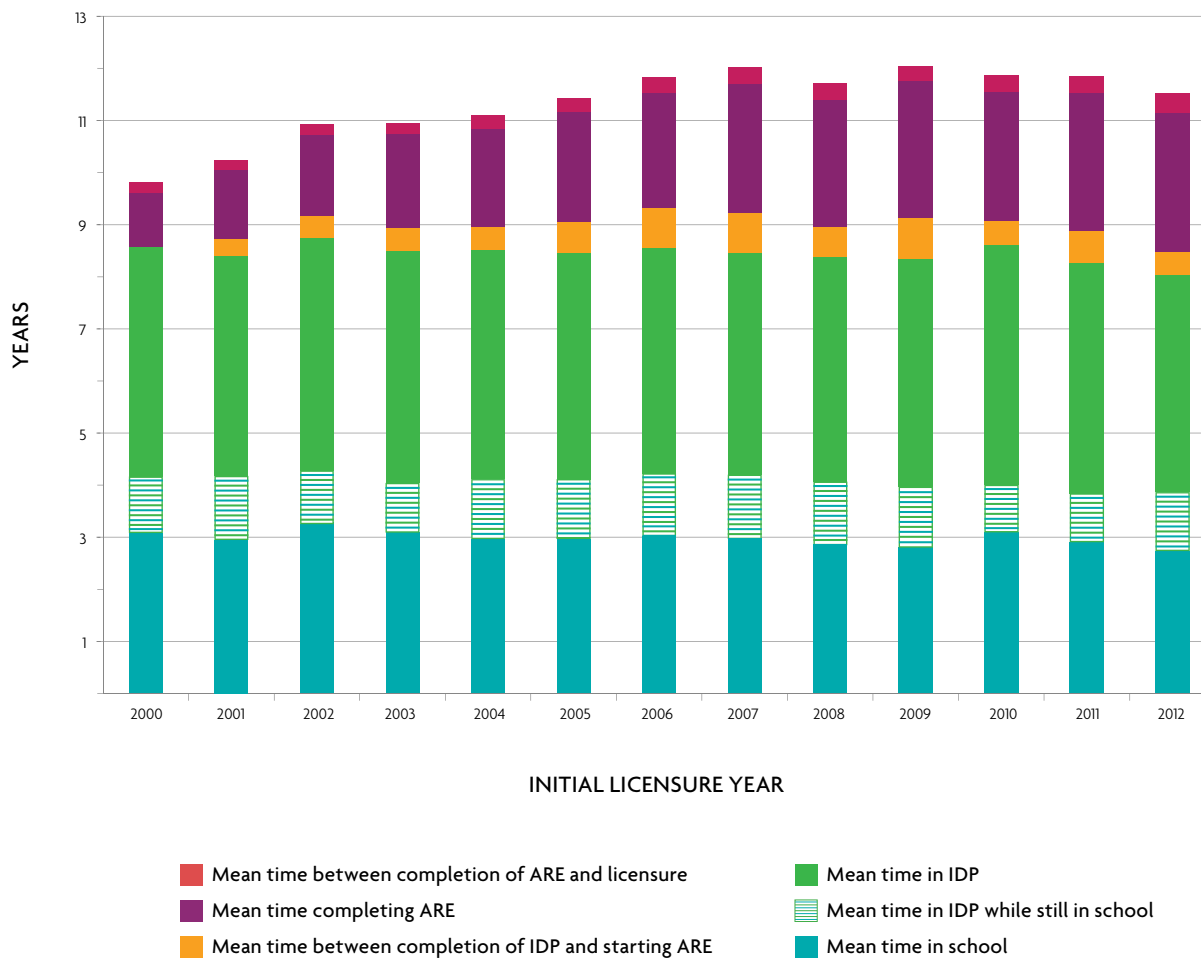# Years Between First Division Taken and Exam Completion Date, by Degree Type

Candidates with Masters of Architecture degrees have a median ARE completion time of 1.5 years—faster than all other major degree types. The Bachelor of Architecture degree has a median completion time of 1.76 years, which places it faster than other common degrees such as the Bachelor of Science of Architecture or Bachelor of Arts of Architecture.

YEARS BETWEEN FIRST DIVISION TAKEN AND EXAM COMPLETION DATE

AA | AAS | B.ARCH | B.A. | B.A. ARCH | BAAS | BED | B.S. ARCH | B.S. AS | B.S. AT | FOREIGN ARCHITECT DIPLOMA | FOREIGN B.ARCH | FOREIGN B.S. ARCH | M.ARCH

— Mean

--- Median

Timeline to Initial Licensure

This bar chart measures from the date that interns begin their architectural education, how long, on average, they spend in various stages on their path to licensure. Students are consistently taking advantage of the option to begin the IDP prior to completion of their degree from a NAAB-accredited program. Taking advantage of early eligibility to begin taking the ARE offers a similar opportunity to shorten the time to licensure, but most candidates are not using this option. On average, the gap between the completion of IDP and the beginning of the ARE has widened over time.

YEARS

INITIAL LICENSURE YEAR

■ Mean time between completion of ARE and licensure
■ Mean time completing ARE
■ Mean time between completion of IDP and starting ARE
■ Mean time in IDP
☰ Mean time in IDP while still in school
■ Mean time in school

Appendix

GENERAL DEFINITIONS

Mean: This is what most people think of when they think of the "average." It is the sum of all observations, divided by the number of observations.

> *Ex:* For the observations {0,5,4,9,10,14,2} the mean is (0+5+4+9+10+14+2)/7 = 6.285

Median: This is another measure of central tendency. When all observations are ordered from smallest to largest, it is the value that divides the sequence exactly in half.

> *Ex:* For the observations {0,5,4,9,10,14,2} the median is {0,2,4,5,9,10,14} = 5

> If the sequence contains an even number of values, the median is the mean of the two central values.

> For the observations {0,5,4,9,10,14,2,16} the median is {0,2,4,5,9,10,14,16} = (5+9)/2 = 7

One advantage of using the median as opposed to the mean is robustness; unlike the mean, the median is not dramatically affected by extreme observations. It may be a better choice for describing the "typical" value for many of the included metrics.

First Quartile: 25 percent of the distribution is below this value.

Third Quartile: 75 percent of the distribution is below this value.

TERM DEFINITIONS

Initial Licensure Date: Takes the "date licensed" date from each NCARB Record that is associated with an initial registration.

Graduation Date: This is the graduation date for the earliest reported education information. When available, this is the earliest reported degree from a NAAB-accredited program.

Date of Birth: Self-reported birth date in Record.

Application Date: The date on which the Record holder applied for his or her NCARB Record.

Gender: Although applications for an NCARB Record have a "gender" field, this field is frequently not completed. Instead of using this field to track gender, measures that use gender are calculated by using name prefixes. If the value of the name prefix is "Ms.," "Miss," or "Mrs.," then the Record is marked as "female." If the value of the name prefix is "Mr.," the Record is marked as "male."

TERM DEFINITIONS *continued*

Record Type: Generally, we are interested in the Record type at the time of application. These are "Intern Records" and "Architect Records."

NAAB: National Architectural Accrediting Board.

Degree Type: This is the name of the degree associated with the earliest reported education information. When provided, this is the earliest reported degree from a NAAB-accredited program.

Intern Development Program (IDP) Start Date:
This is the earliest date that is associated with a verified experience in an NCARB Record.

IDP End Date:
This is the last day of the last verified experience report that occurred before the IDP complete date.

IDP Complete Date:
When a Record is evaluated and marked as having satisfied all IDP requirements, it is date-stamped with an "IDP complete date."

**Architect Registration Examination®
(ARE®) Complete Date:**
This is the date on which a candidate has passed the necessary divisions of the ARE in order for the examination to be considered complete.

First Test Date:
This is the date on which a candidate takes his or her first division of the ARE.

Early Eligibility:
Some jurisdictions allow for candidates to pursue the ARE prior to completion of the IDP.