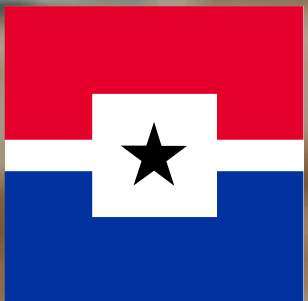


Educating a New Generation Of Industry Leaders



Dallas County
Community College District



THINK.
DESIGN.
BUILD.





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FEATURE ARTICLE

Middle Skills Education

Planners Are Reimagining Ways to Meld Instruction and Industry

by Carl Knutson

Many jobs of the future will require more than a high school diploma but less than a four-year degree. How should we prepare the next generation of employees?

Middle skills education, personalized curriculum, and student-directed training are playing an increasingly integral role in higher education. A new generation of students is already likely to hold different educational expectations and desires than their predecessors. Accommodating those

4 TAKEAWAYS

TO EXPAND DEVELOPMENT OF MIDDLE SKILLS EDUCATION . . .

1. Establish a relationship with your local government to understand the goals of

“...those jobs require more than a high school diploma, but potentially less than a four-year bachelor’s degree. That category of education, skills, and ultimately jobs includes about 35–50 percent of all new job openings projected after 2020.”

Agenda

- History of North Lake College and the relationship with CEF
- The need for a skilled workforce in the construction industry
- The new building
- Growing the program in the future
- Q&A

Learning Objectives

- How we developed an industry-led program that focuses on real-world career skills, enhancing the institution's academic offerings and supporting students' transition from higher education into the workplace.
- Industry's motivations and goals in this partnership—in particular, the gap between future workforce projections in the construction industry and the number of skilled workers ready to fill those positions.
- Integrating didactic elements into the design process to create a successful teaching building that can reinforce classroom concepts and skills and enhance the overall student learning experience.
- Establishing collaborative partnerships with K12 districts to identify and engage students who have the potential to thrive in an industry-focused education.

What is your current role in the Industry

University/College
Facilities Department

Academics/Strategic
Planning

Architect

Contractor

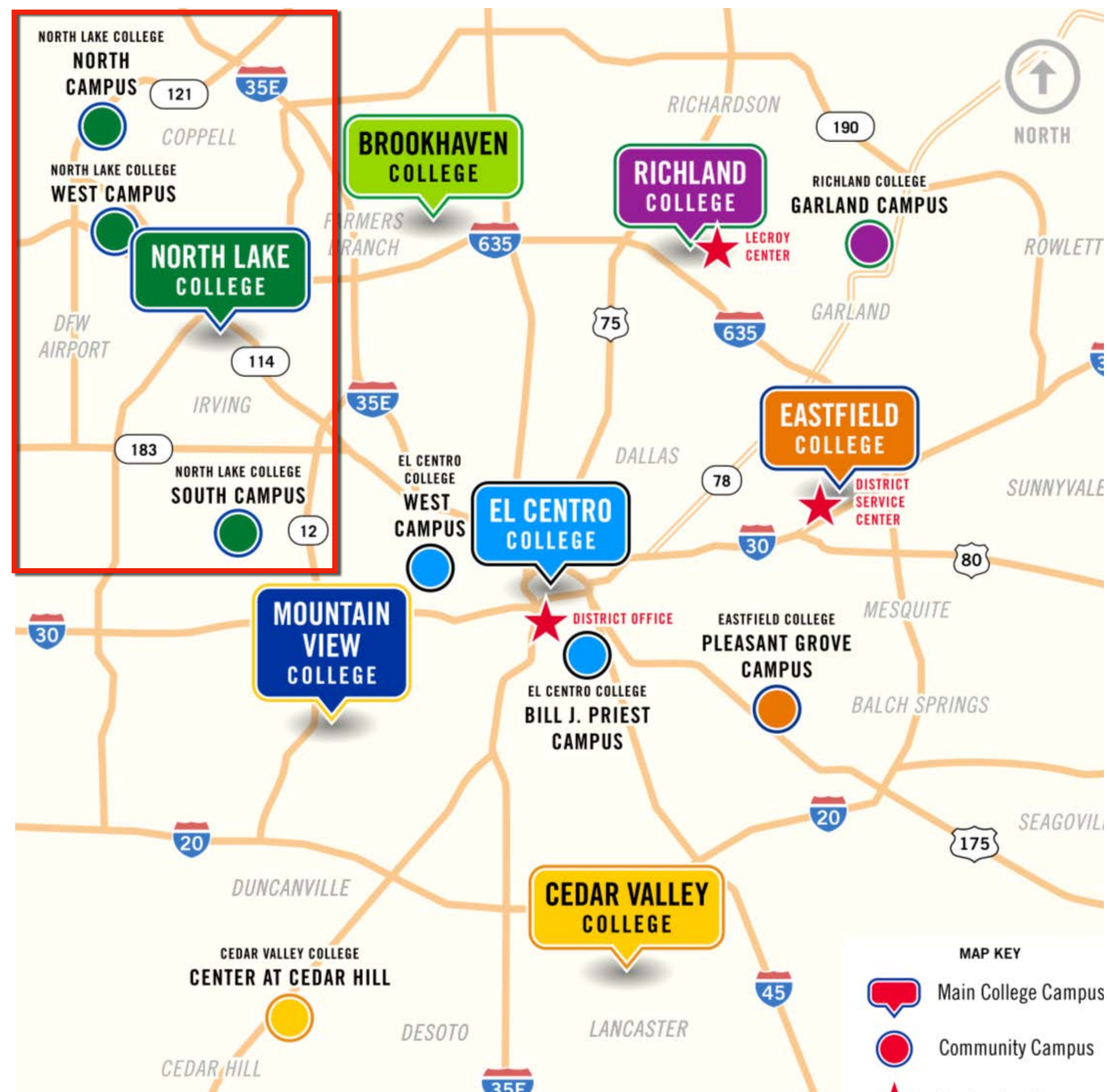
Other



Program History

Dallas County Community College System

- 7 Independently Accredited Colleges
- 2004 Bond Package added 5 campuses across the County
- 123,000 Credit, Workforce, and Community Students
- 300+ Technical Degrees and Certificates
- Home of the Dallas County Promise
- Moving to a One College model to improve the student experience
- Voter approved 2018 Bond Package allows for \$1.1B investment in Education and Workforce Training



North Lake College

- Opened in 1977 on 276 acres
- The main campus includes property leased by community partners including ISD Academy High School, Four Season Resort Hotel golf course, and DART light rail station.
- College demographics:
 - 11,500 credit and 4,000 non-credit per semester
 - 18% are first-time-in-college
 - Average age is 25
 - Approximately 10% are international students
 - 75% seeking to transfer to a university
 - 80% attending part time – and growing
 - Approximately 15% are dual credit students
- North Campus opened in 2018, located in Coppell, TX at the intersection of Dallas, Tarrant, and Denton counties. The Offering dual credit, academic transfer course, and now, Construction Management courses. Approximately 800-1000 students each semester.
- South Campus opened in 2019 in South Irving, TX. The campus houses an open-enrollment Early College High Schools, hosts a charter high school, and offers non-credit coursework in ESL.



North Lake College West Campus

- Opened 2000 in partnership with the Construction Education Foundation, after being located at the Central Campus since 1990.
- Approximately 1200 –1600 students per semester taking a mix of credit and non-credit offerings.
- Program offers 12 certificates and 2 associate degrees, along with a wide array of industry certifications.
- The program has outgrown the 60,000 square feet of classroom and lab space, and has expanded to the North Campus.
- The Construction Management program is one of eleven programs at two-year institutions in the U.S. accredited by the American Council for Construction Education (ACCE).
- The NLC-CEF partnership provides training for 1,300 construction companies in North Texas, and individuals graduate with an industry certification and a DCCCD certificate or degree.



North Lake College/ Construction Education Foundation Partnership

- Original partnership began in 1978 between NLC and Associated Builders and Contractors (ABC) and Associated General Contractors (AGC).
- CEF was formed in 1996 as the training arm of the industry and has been our partner since then.
- Partnered to design and equip the current West Campus facility that opened in 2000. Industry donated the equipment and finished out the labs.
- We continue to partner with the industry to design and open the NLC Construction Sciences Building, which is scheduled to open in the spring of 2021.



Other Partners in the Workforce Training Program



North Lake College Degrees

AAS in Construction Management

AAS in Construction Technology

AAS in Electrical Technology

CEF Certifications

Core (Survey of foundation Construction Skills)

Electrical

OSHA 10

OSHA 30

TCEQ Backflow

TCEQ Water Treatment

TDLR Apprentice Management

EPA Refrigerant Recovery

Pipefitting

Plumbing

Sheet Metal

First Aid/CPR

Carpentry



North Lake College Certificates

Commercial Carpentry

Commercial Electrical

Residential Building/Contractor

Commercial HVAC

Commercial Plumbing

Commercial Masonry

Pipefitting

Field Engineering

Welding

Surveying

Residential Carpentry

Supervisory Training

**Degrees and Certificates
Currently Offered**



Industry Need

What is the current average age for Skilled Craft Professionals (All Trades) in the U.S.?

25 years old

35 years old

45 years old

None of the Above

The Correct Answer is...

D—None of the Above

**The current average age
for Skilled Craft
Professionals in the U.S.
is **51 years old!****

...National Center for Construction Education and Research

**Construction Industry
Trends**



In the last 5 years, how much average construction cost escalation have you seen on your projects Per Year

Less than 1%

1-2%

2-3%

3-4%

4-5%

5% or More

- For the 7th consecutive year skilled trades are ranked among the TOP 5 hardest jobs to fill.
...The ManPower Group
- The average age of a person entering into professional skills training is 29 years old.
...U.S. Bureau of Labor Statistics
- By 2030, 41% of skilled craft professionals will be retired from ALL crafts
...U.S. Bureau of Labor Statistics
- *“Nearly half of what will be our built environment in 2030 doesn’t exist yet.”*
...The Brookings Institute
- 84% of commercial construction companies surveyed in Texas reported having difficulty finding skilled craft professionals.
...Associated General Contractors, Dallas Morning News, August 28, 2019
- In 2023, The United States will have a shortage of 1.5 million skilled craft professionals.
...National Center for Construction Education and Research



Construction Industry Trends



Construction occupations are projected to grow

10%

from 2014 to 2024.



The construction industry needs

240,000

craft professionals every year to keep up with expected demand.

Top construction skills mentioned in DFW area job listings in the last six months include:



Project Management



Construction Management



OSHA



Repair



Inspection



Electrical



Scheduling



Estimating



Plumbing

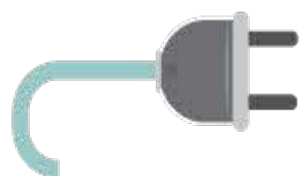
The largest occupation gaps projected over 10 years for the DFW region include:



Carpenters
(\$34,300)



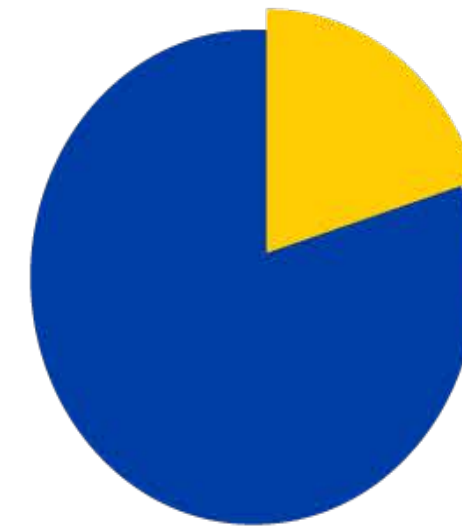
Plumbers & Pipefitters
(\$43,000)



Electricians
(\$44,000)



Construction supervisors
(\$64,900)



20%

of the skilled construction industry workforce is projected to retire in the next four years.



Globally

38%

of employers are having trouble filling jobs, and for the 4th consecutive year, **Skilled Trades Workers** are the hardest jobs to fill.

- 87% of millennial rate career growth and opportunity as important.

...National Center for Construction Education and Research

- *“27% of people with post-secondary licenses or certificates ~ credentials short of an Associate’s Degree - earn more than the average Bachelor’s Degree recipient...”*

...Harvard Graduate School 2011 Pathways to Prosperity

- 7/10 jobs require less than a 4 year degree.

...National Center for Construction Education and Research

- Craft Professionals make \$9,835 more annually than recent college graduates on average.

...BuildYourFuture.org

- *“Nationally, outstanding student loan debt sits at \$1.52 trillion, making it the second largest form of consumer debt trailing only mortgages. On an individual scale, the average borrower from the Class of 2018 received their diploma and left campus with \$28,565 in student loan debt...”*

...Forbes



Construction Industry
Opportunities

Highest Median Wages at Midcareer, by Major - The Chronicle of Higher Education

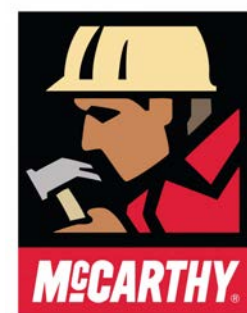
Rank	Major	Median wage early career	Median wage midcareer	Share with graduate degree
1.	Pharmacy	\$40,000	\$115,000	58.8%
2.	Computer engineering	\$65,000	\$106,000	39.9%
3.	Chemical engineering	\$68,000	\$103,000	48.8%
4.	Aerospace engineering	\$64,000	\$100,000	52.9%
4.	Electrical engineering	\$65,000	\$100,000	44.8%
6.	Mechanical engineering	\$63,000	\$98,000	41.0%
7.	Computer science	\$62,000	\$95,000	32.3%
8.	Physics	\$88,500	\$94,000	68.9%
9.	Civil engineering	\$60,000	\$90,000	37.7%
9.	Economics	\$55,000	\$90,000	42.2%
11.	Business analytics	\$57,000	\$88,000	23.8%
11.	General engineering	\$60,000	\$88,000	36.2%
13.	Industrial engineering	\$64,000	\$87,000	39.7%
14.	Construction services	\$56,000	\$85,000	10.4%
14.	Finance	\$52,000	\$85,000	30.5%
14.	Miscellaneous engineering	\$60,000	\$85,000	44.1%
17.	Engineering technologies	\$50,000	\$80,000	24.3%
17.	Mathematics	\$50,000	\$80,000	52.2%
19.	Architecture	\$45,000	\$75,000	37.4%
19.	Biochemistry	\$40,000	\$75,000	70.8%
19.	Information systems and management	\$50,000	\$75,000	24.0%
19.	International affairs	\$45,000	\$75,000	42.6%
19.	Miscellaneous physical sciences	\$46,000	\$75,000	56.2%
19.	Political science	\$42,000	\$75,000	51.7%
25.	Chemistry	\$41,000	\$74,000	65.0%
25.	Marketing	\$42,000	\$74,000	16.9%
27.	Accounting	\$50,000	\$72,000	29.7%
27.	Advertising and public relations	\$40,000	\$72,000	18.3%
27.	Miscellaneous technologies	\$37,000	\$72,000	16.8%
30.	Communications	\$40,000	\$70,000	23.3%
30.	General business	\$45,000	\$70,000	23.8%
30.	Geography	\$42,000	\$70,000	34.4%
30.	Nursing	\$50,000	\$70,000	26.4%

14. Construction services **\$56,000** **\$85,000** **10.4%**

19. Architecture **\$45,000** **\$75,000** **37.4%**

—from *The Chronicle of Higher Education*—August 2019

CEF Industry Partners



In Kind Donations





New Facility

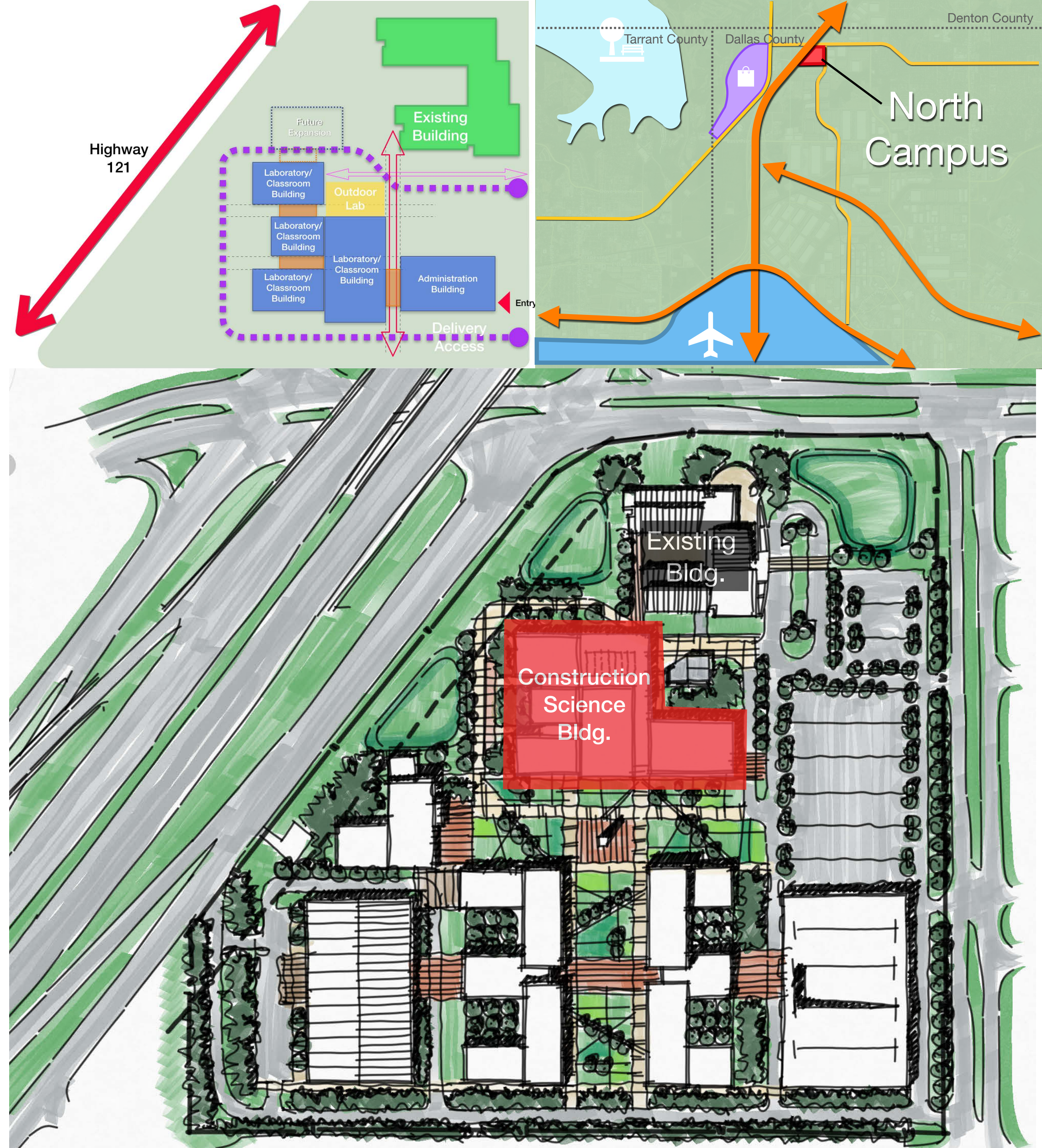
Current Facility

- 60,000 SF in rented facility
- All trades share the same space thus growth is constrained
- Space modification are restricted because the building isn't ours which hampers flexibility
- Wasn't designed to accommodate the instruction that is delivered there (it was a warehouse)
- No space for outdoor laboratory
- All trades share the same space
- Lease is ending in January 2021



North Campus Site

- 97,500 SF planned
- 126,651 cars pass site daily on Highway 121
...2018 figures TxDOT
- 34.4 Acres planned for future campus
- Campus sits near the intersection of 3 counties.
- Chance to elevate the image of the Workforce Training program.





Aerial View



View at Main Entry



View at South Facade



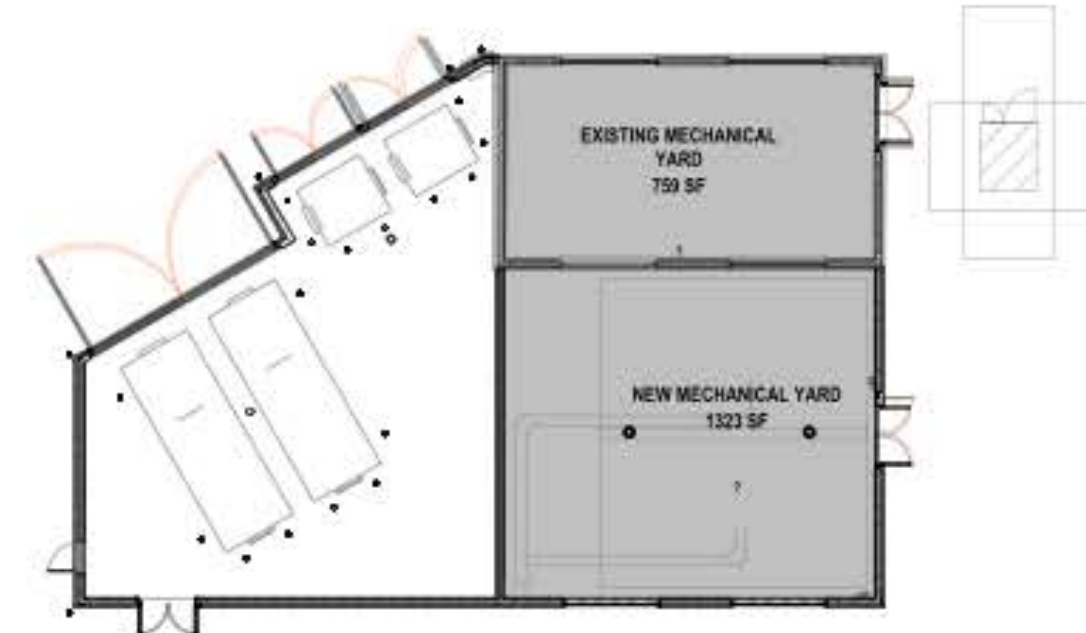
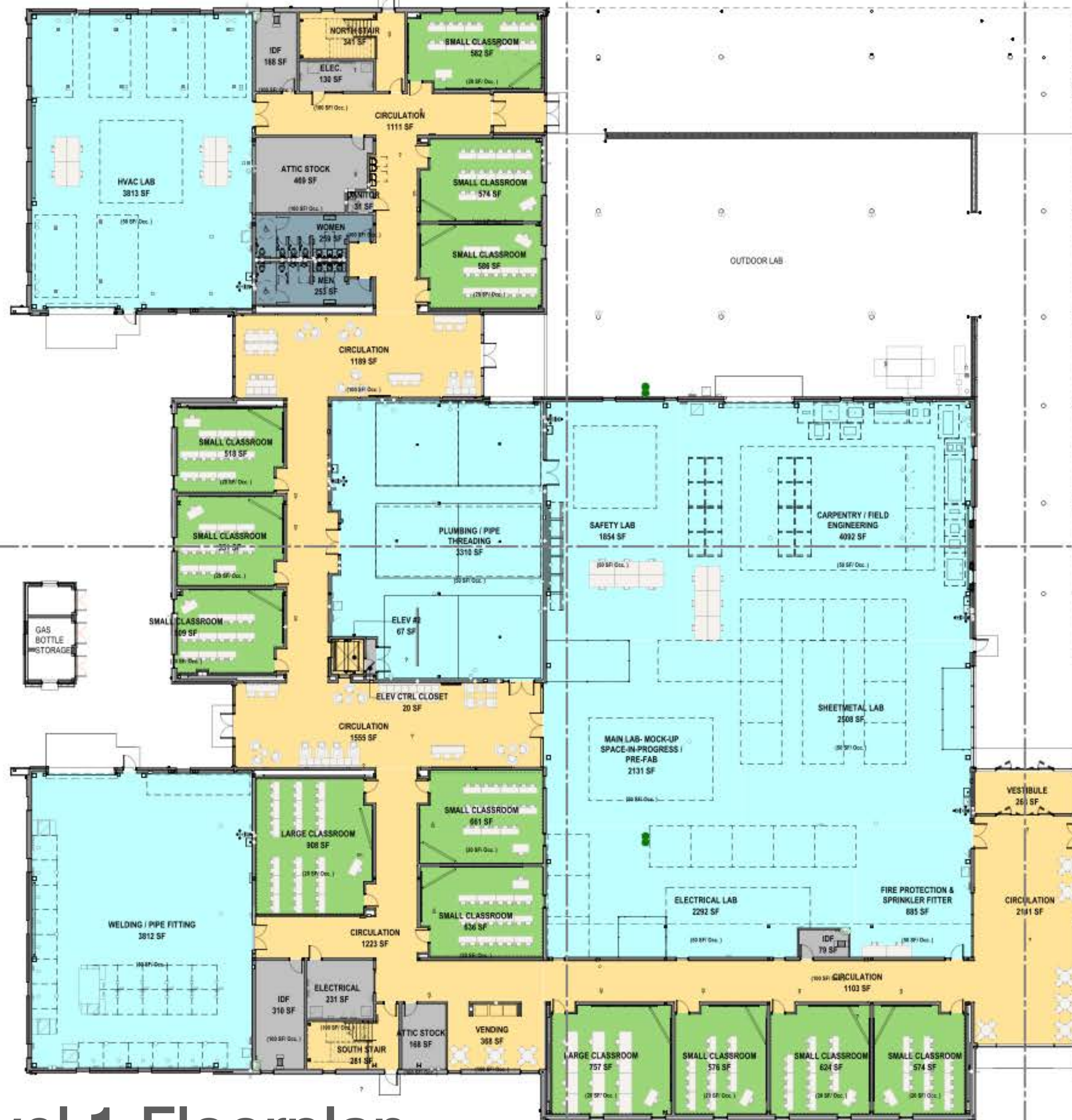
View From Highway



View From Highway

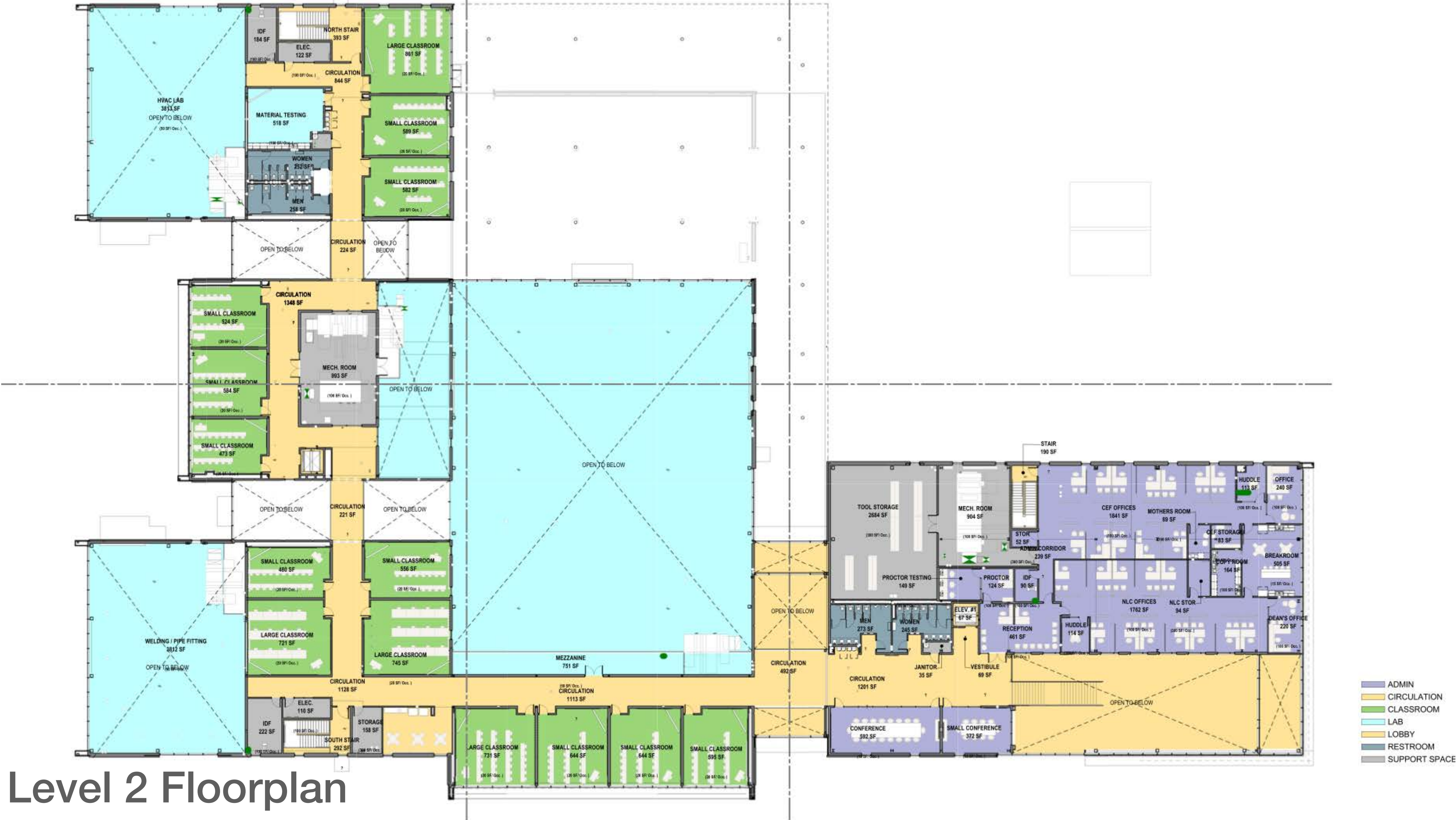


View at Exterior Lab



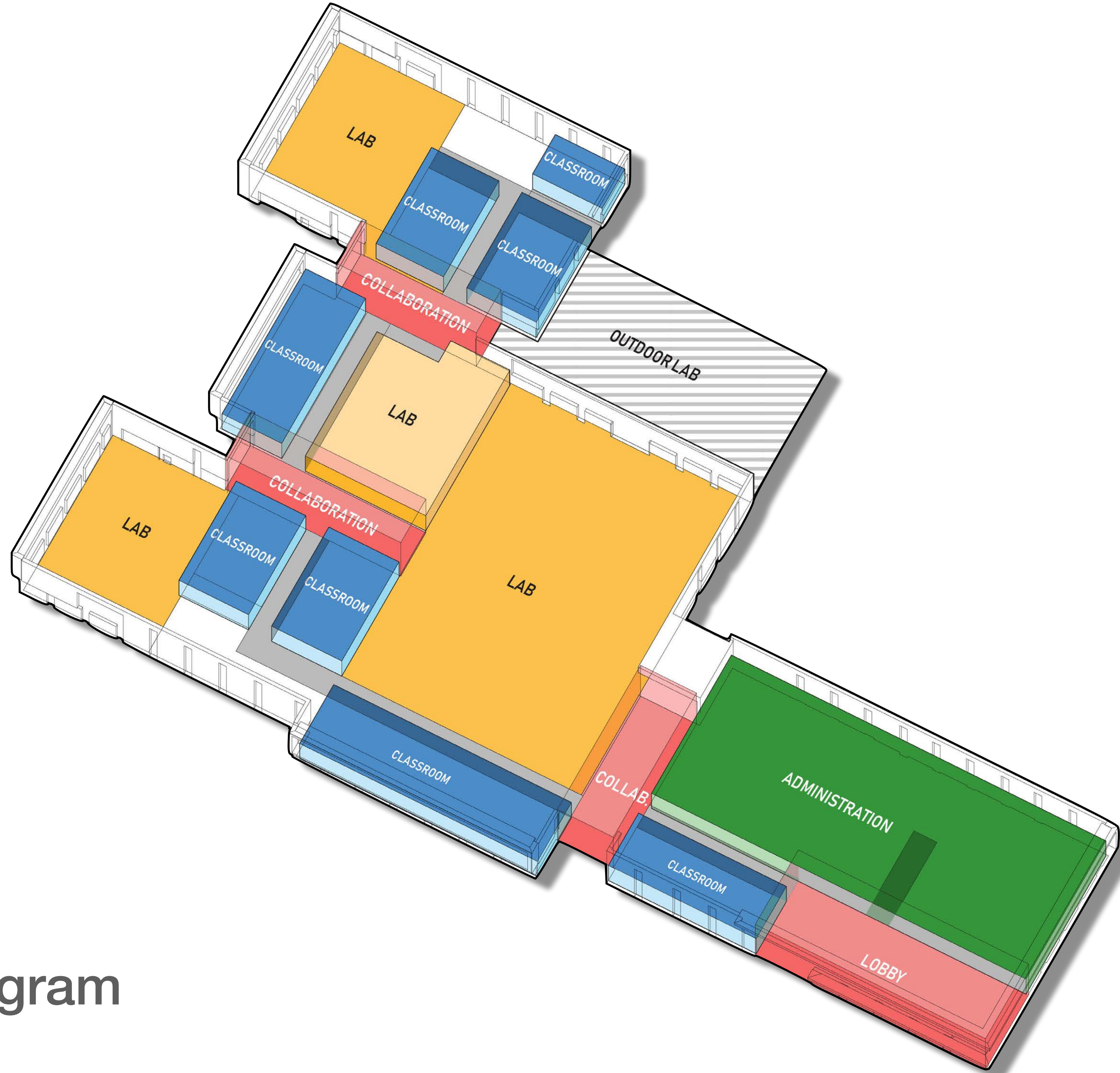
Level 1 Floorplan

- ADMIN
- CIRCULATION
- CLASSROOM
- LAB
- LOBBY
- MULTI-PURPOSE
- RESTROOM
- SUPPORT SPACES

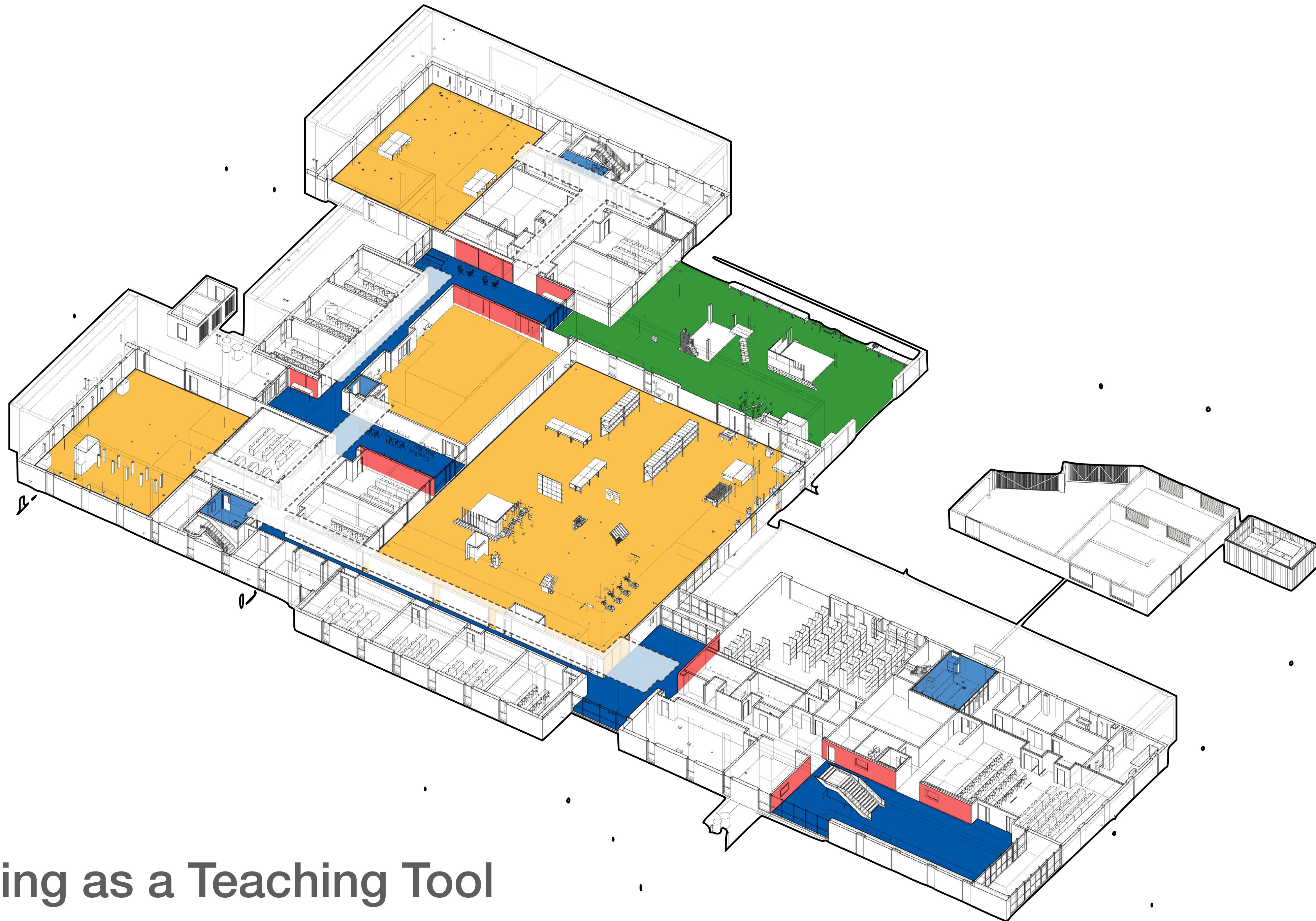


Level 2 Floorplan

- ADMIN
- CIRCULATION
- CLASSROOM
- LAB
- LOBBY
- RESTROOM
- SUPPORT SPACE



Massing Diagram



Building as a Teaching Tool



View at Entry Lobby



View at Collaborative Space



View at Collaborative Space



View at Typical Laboratory



View at Typical Classroom



View at Corridor



View at Outdoor Lab



View at Outdoor Lab



Future Growth

North Lake College P-Tech Program

- New audiences in early college high school model, P-Tech (pathways in Technology) in which students receive their high school diploma and an Associates of Applied Science at the same time.
- Expanded opportunity to provide both industry certifications *and* college degree or certificates at the same time.
- First class of juniors are on-site after their first two years at their high school.
- Two additional ISD's are in their “planning year” for a P-Tech in Construction.





Local School District Partners

UNT[®]

UNIVERSITY
OF NORTH TEXAS



TEXAS A&M UNIVERSITY

COMMERCE



UNIVERSITY OF
TEXAS
ARLINGTON

Universities where graduates have transferred for 4 year degrees

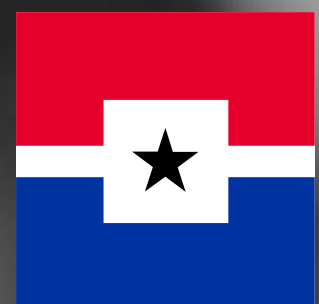


Companies that send their employees for training

Does your institution currently offer any industry specific non-degreed certificates

Yes

No



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Q & A