

ATTACHMENT A

FL Job Growth Grant: Santa Fe College Application

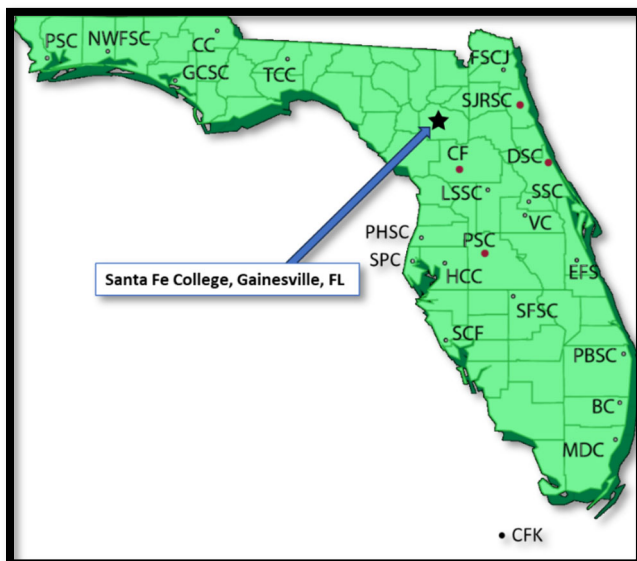
1. A.

Table 1: 2023-24 Florida Statewide and Regional (Workforce Development Area 9 – Alachua and Bradford counties) Demand Occupations List

SOC Code	Occupational Title	Annual Percent Growth (WDA9)	Annual Percent Growth (FL)	Regional (R) / Statewide (S) Demands	Annual Openings (Statewide)	2021 Hourly Wage, Mean	2021 Hourly Wage, Entry	In EFI* Targeted Industry?
47-4011	Construction and Building Inspectors	0.41	1.06	S	1,468	\$30.12	\$19.06	Yes
11-9021	Construction Managers	1.26	1.64	R	3,377	\$49.89	\$28.74	No
49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	1.20	1.22	R	3,401	\$31.26	\$20.64	No
51-1011	First-Line Supervisors of Production and Operating Workers	0.47	1.09	R	2,870	\$29.79	\$18.77	Yes
11-1021	General and Operations Managers	1.21	1.36	R	15,477	\$47.51	\$21.26	Yes
49-9021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	1.10	1.16	R	4,213	\$22.52	\$15.77	No
49-9041	Industrial Machinery Mechanics	1.59	2.15	S	1,828	\$26.07	\$18.12	Yes
47-2211	Sheet Metal Workers	-0.81	1.43	S	1,060	\$21.68	\$15.24	Yes
51-4121	Welders, Cutters, Solderers, and Brazers	0.61	1.35	S	1,917	\$21.31	\$15.86	Yes

*EFI-Enterprise Florida, Inc.

Map 1: Map of ET programs offered at Florida State Community Colleges in 2022-2023 (FLATE)



Map of ET programs offered at Florida State Community Colleges in 2022-2023 (FLATE)

C.

Table 2: Santa Fe College’s list of partnerships and their commitment and support

Company	Program	Offer expertise in training content development	Serve in a project advisory role	Provide hands-on training opportunities	Refer individuals to the program	Serve as prospective employers	Other
Bluegrass Educational Technologies	Manufacturing	X	X	X	X	X	
Goodwin Company	Manufacturing	X	X	X	X	X	
Fabco-Air	Manufacturing	X	X	X	X	X	
Festo Didactic Inc.	Manufacturing	X	X	X	X		Facilitate industry partners to recruit prospective employers
MG Squared, LLC	Manufacturing	X	X	X	X		Recruit trained and skilled workers to join their team
Oelrich Construction, Inc.	Manufacturing	X	X	X	X	X	Provide internships for students
Sandvik Mining & Rock Solutions	Manufacturing	X	X	X	X		Facilitate industry partners to recruit prospective employers
Tim Egan Construction, LLC	Manufacturing	X	X	X	X		Recruit trained and skilled workers to join their team
American Welding Society	Welding	X	X		X		Provide support for new workforce training programs
Airgas USA, LLC	Welding	X	X	X	X		Provide resources for safety & protective equipment
Crom, LLC	Welding	X	X		X	X	
E-One	Welding	X	X	X	X	X	
The Lincoln Electronic Company	Welding	X	X	X	X		Facilitate industry partners to recruit prospective employers
Miller Electric Mfg. LLC	Welding	X	X	X	X	X	
Weldtest Services, LLC	Welding	X	X	X	X		
Charles Perry Partners, Inc.	Welding & HVAC/R	X	X	X	X	X	
D.R. Baker Construction	Welding & HVAC/R	X	X	X	X	X	
Scherer Construction of North Florida, LLC	Welding & HVAC/R	X	X	X	X	X	

A+ Air Conditioning	HVAC/R	X	X	X	X	X	
Browning Heating & Air Conditioning, LLC	HVAC/R	X	X	X	X	X	
Charles Berg Enterprises, Inc	HVAC/R	X	X	X	X	X	
Comfort Temp Company	HVAC/R	X	X	X	X	X	
Newmans Heating and A/C, Inc.	HVAC/R	X	X	X	X	X	
Greater Gainesville, Chamber of Commerce	Manufacturing, HVAC/R, and Welding	<ul style="list-style-type: none"> Engage partners in the technology and manufacturing industry sectors to develop and implement engineering technicians in the engineering technology program, welding, and HVAC. 					
Career Source, North Central Florida	Manufacturing, HVAC/R, and Welding	<ul style="list-style-type: none"> Job matching and career counseling services Tuition assistance Access to paid and unpaid work experience in the advanced manufacturing occupations Occupational skill training in preparation for manufacturing Leadership development opportunities Support services Collaboration with Gainesville Area Chamber of Commerce and part of the statewide CareerSource Florida network to ensure the use of the program and equipment through services such as employed worker training, incumbent worker training, and job matching services to ensure trainees retain self-sufficient employment Participate as a member of the SF Advisory Board for ET A.S. degree program with a Specialization in Advanced Manufacturing 					

G.

Table 3: 2022-2030 Employment Projection Data, Workforce Development Area 9 (Alachua and Bradford Counties) & Florida Statewide

SOC Code	Occupational Title	Employment 2022 (WDA9)	Projected Employment 2030 (WDA9)	Percent of Growth 2022-2030 (WDA9)	Employment 2022 Florida	Projected Employment 2030 Florida	Percent of Growth 2022-2030 Florida
51-9141	Semiconductor Processors	1	1	0%	184	197	7.1%
47-4011	Construction and Building Inspectors	214	221	3.3%	11,272	12,224	8.4%
11-9021	Construction Managers	448	493	10%	36,585	41,387	13.1%
49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	478	524	9.6%	32,385	35,549	9.8%

51-1011	First-Line Supervisors of Production and Operating Workers	344	357	3.8%	25,514	27,736	8.7%
11-1021	General and Operations Managers	2,176	2,386	9.7%	154,799	171,598	10.9%
49-9021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	613	667	8.8%	38,358	41,917	9.3%
49-9041	Industrial Machinery Mechanics	212	239	12.7%	16,091	18,865	17.2%
47-2211	Sheet Metal Workers	227	259	-6.5%	9,108	10,152	11.5%
51-4121	Welders, Cutters, Solderers, and Brazers	122	128	4.9%	15,414	17,082	10.8%

(FloridaCommerce: <https://floridajobs.org/economic-data/employment-projections>)

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Table 4: Project Timeline

Project Timeline: Fall 2022 – Fall 2025			
Project	Key Staff	Outcome	Timeline
Design phase for the new construction	Director of Facilities, Consultant, Engineering Firm	pSF will hire an architectural and engineering firm to provide the design and engineering plans for the new construction.	Fall 2022-Spring 2024
Start of the new construction	Director of Facilities	SF will start the construction of the new Cellon Institute.	Summer of 2024
Completion of the new construction	Director of Facilities	The construction of the Cellon Institute will be completed by the summer of 2025.	Summer of 2025
Purchase equipment for the Cellon Institute	Department Director	Equipment for the new ETAM, Welding, and HVAC/R programs will be purchased.	Spring of 2025
Classes begin in the Cellon Institute	Department Director, Department Staff, Faculty Members	Classes for the new ETAM, Welding, and HVAC/R will start in the new building for the fall term in 2025.	Fall of 2025

Ralph W. Cellon Jr. Institute for Skilled Trades and Advanced Manufacturing



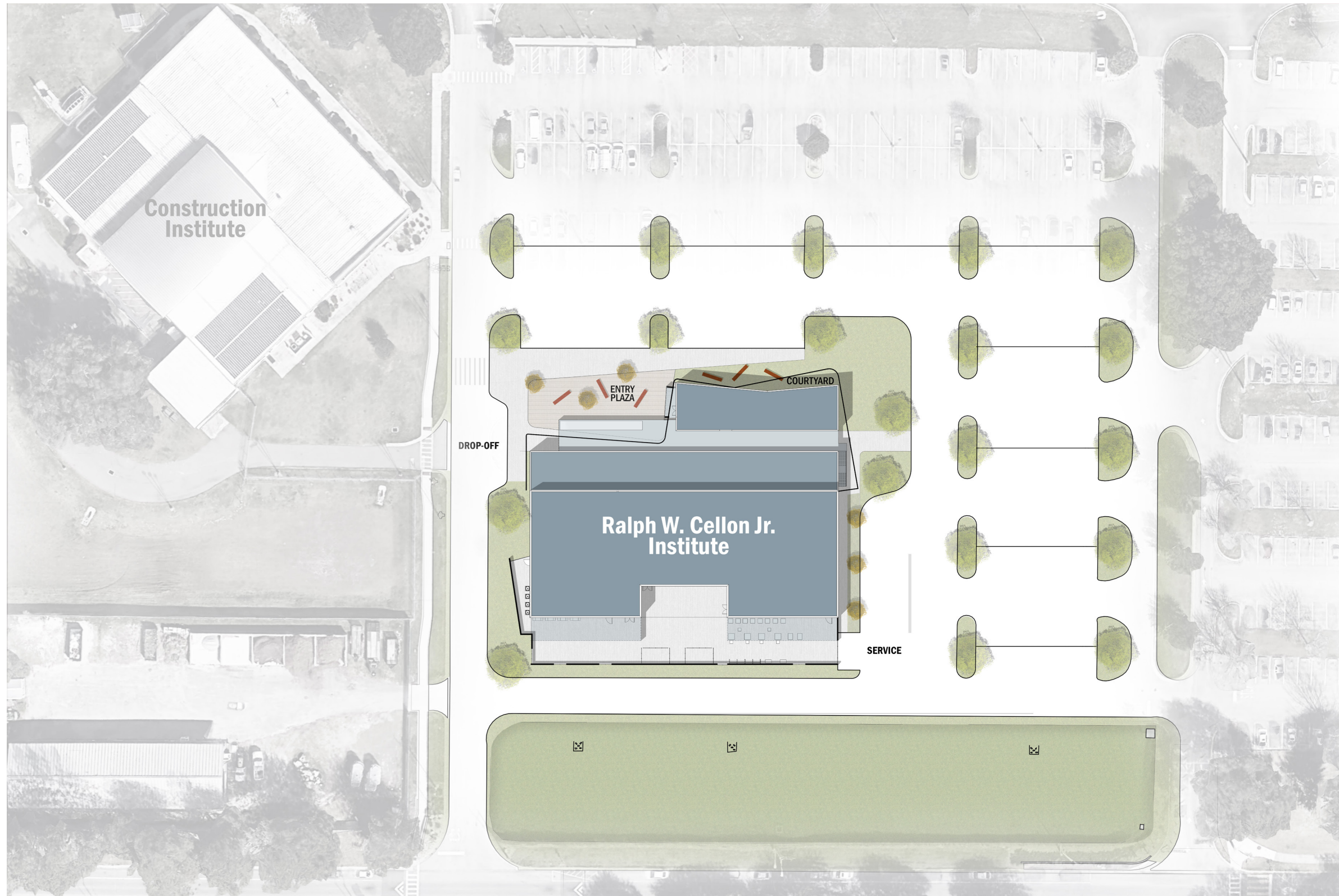
Ralph W. Cellon Jr. Institute for Skilled Trades and Advanced Manufacturing



REFINED INDUSTRIAL | FILTERED | CONNECTED SPINE | RAW AUTHENTICITY



PRECEDENTS



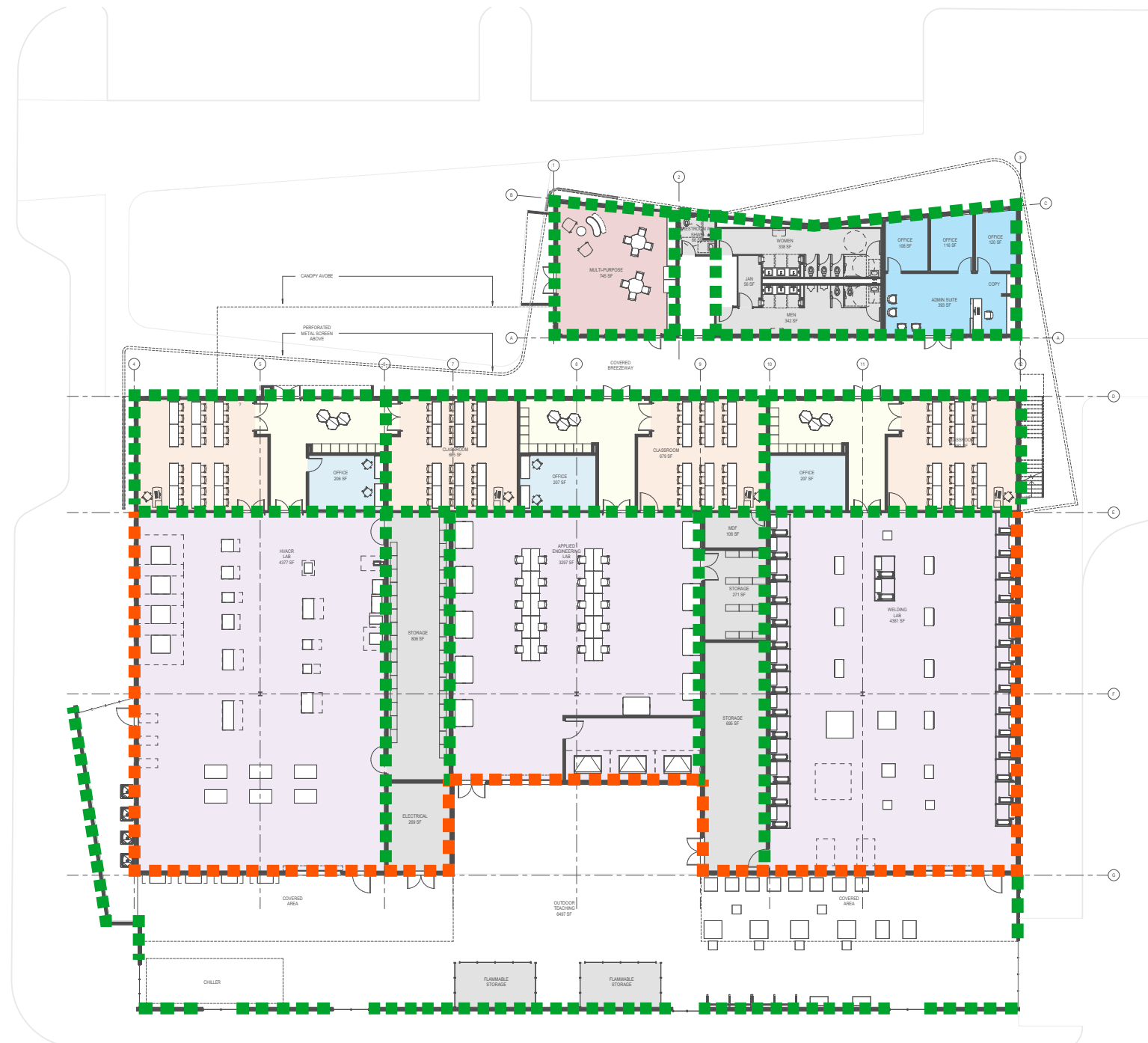
SITE PLAN
0 100 200

BUILDING AREA
22,865 GSF



FLOOR PLAN

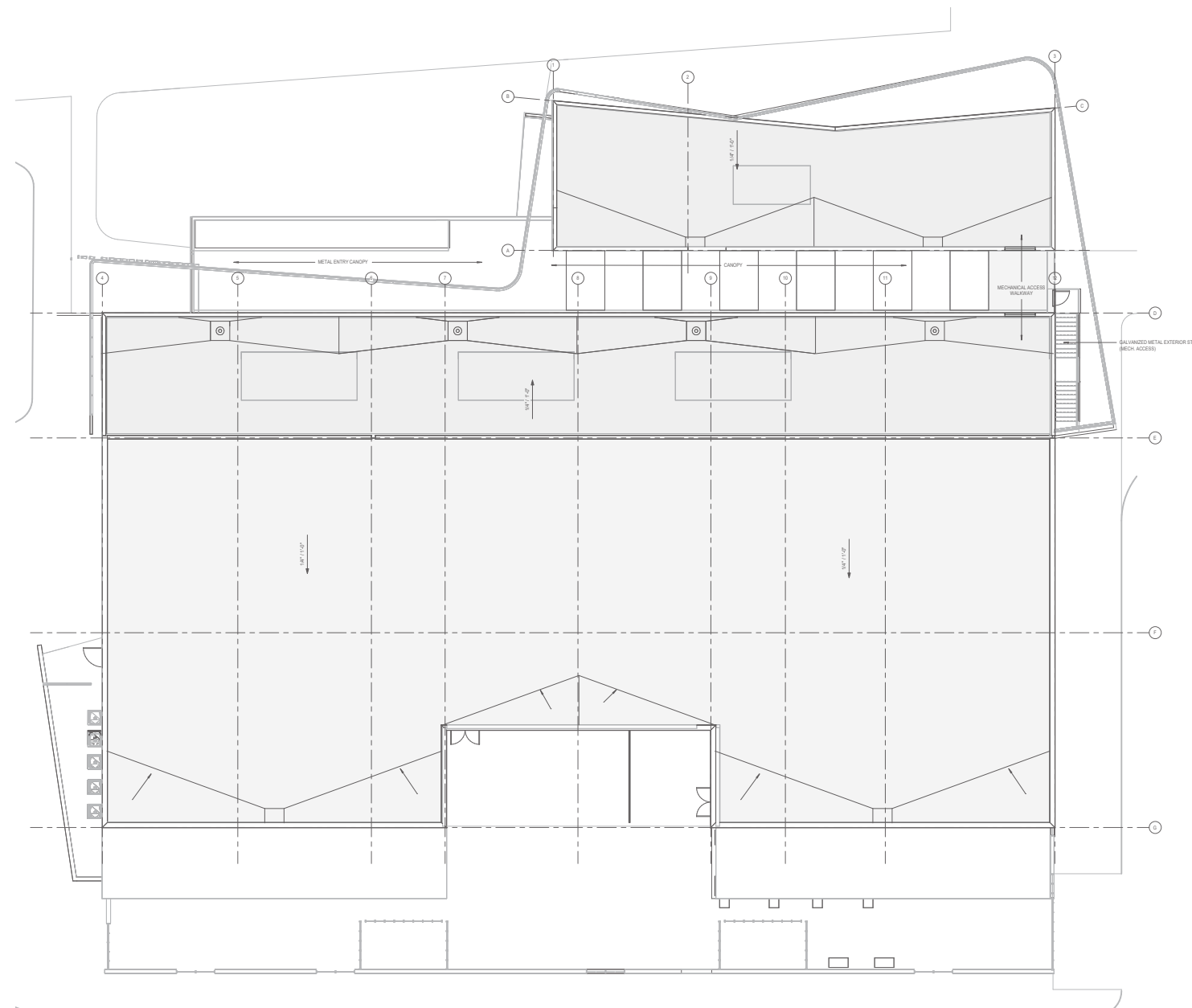
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LEGEND

- INSULATED CONCRETE TILT-UP PANEL
- TYPICAL CONCRETE TILT-UP PANEL






ROOF PLAN
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ENTRY PLAZA VIEW



NORTH-EAST COURTYARD VIEW

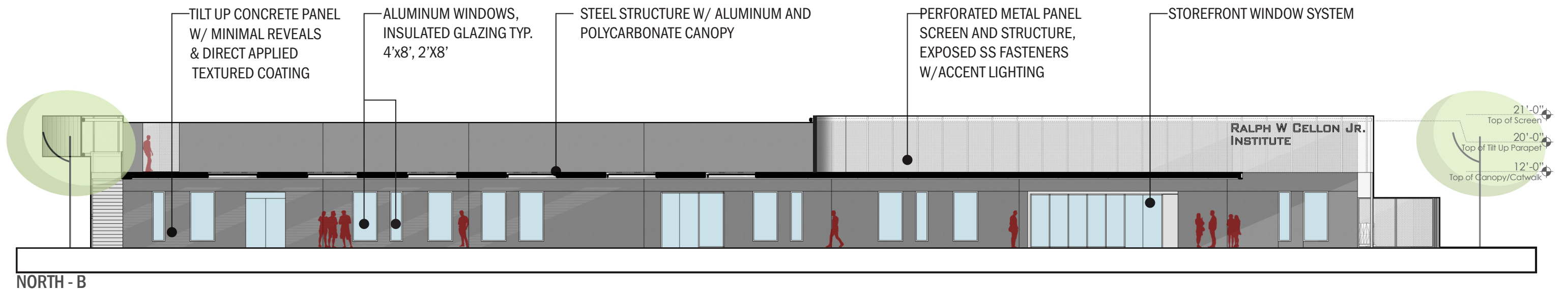
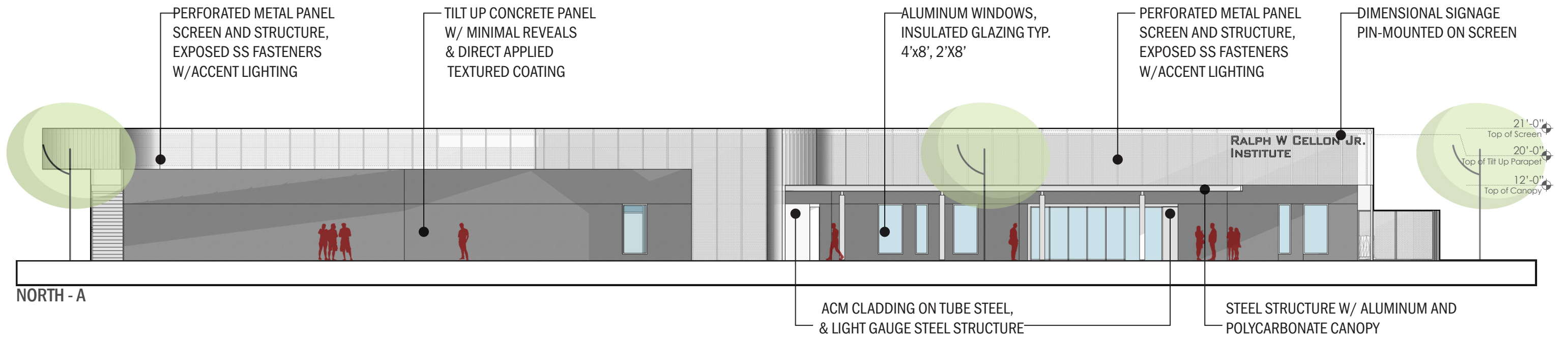


BIRD'S-EYE VIEW

SANTA FE COLLEGE | RALPH W. CELLON, JR. INSTITUTE

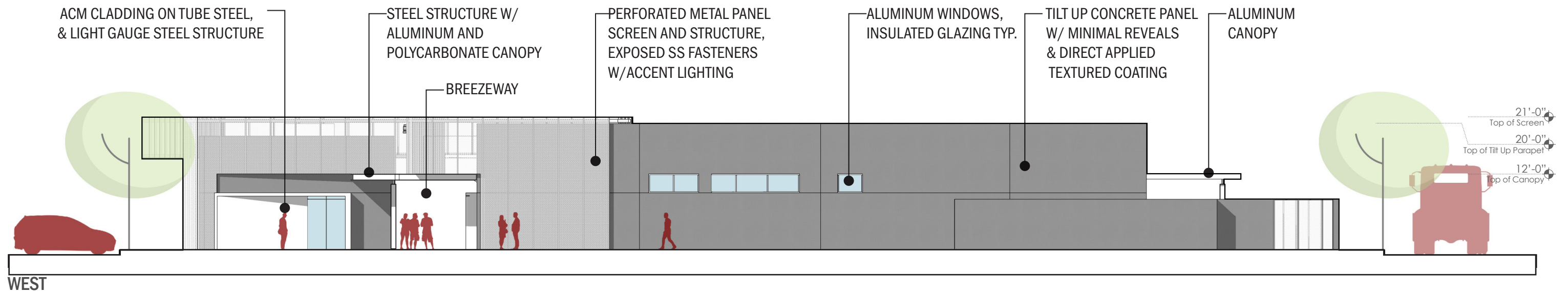
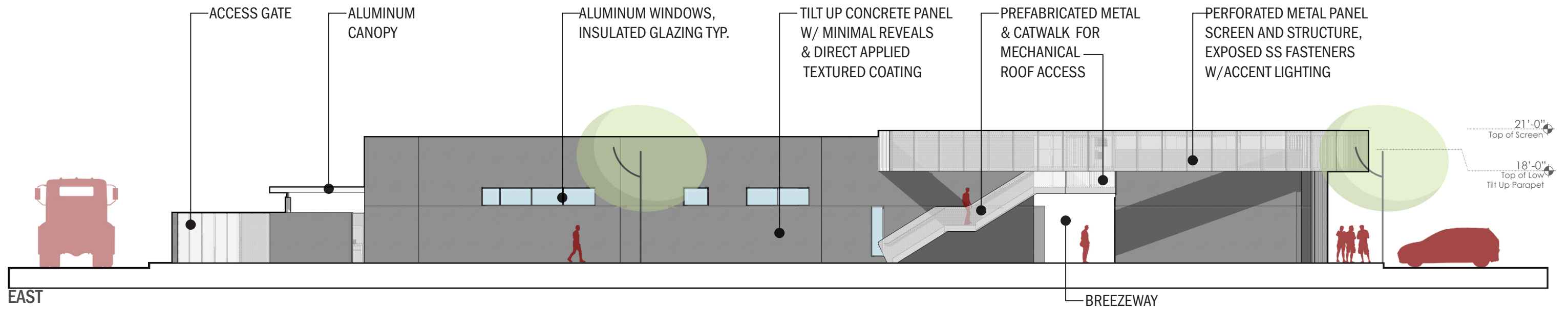
SF SANTA FE COLLEGE

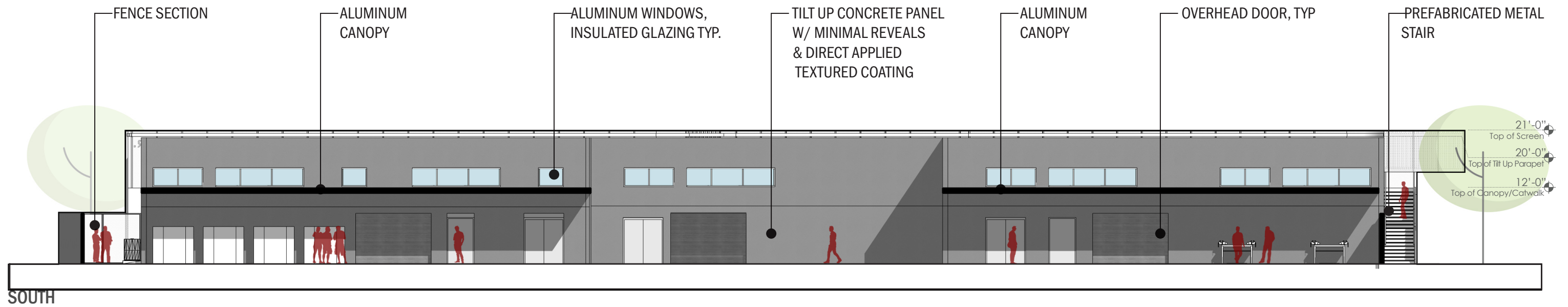
DLR GROUP

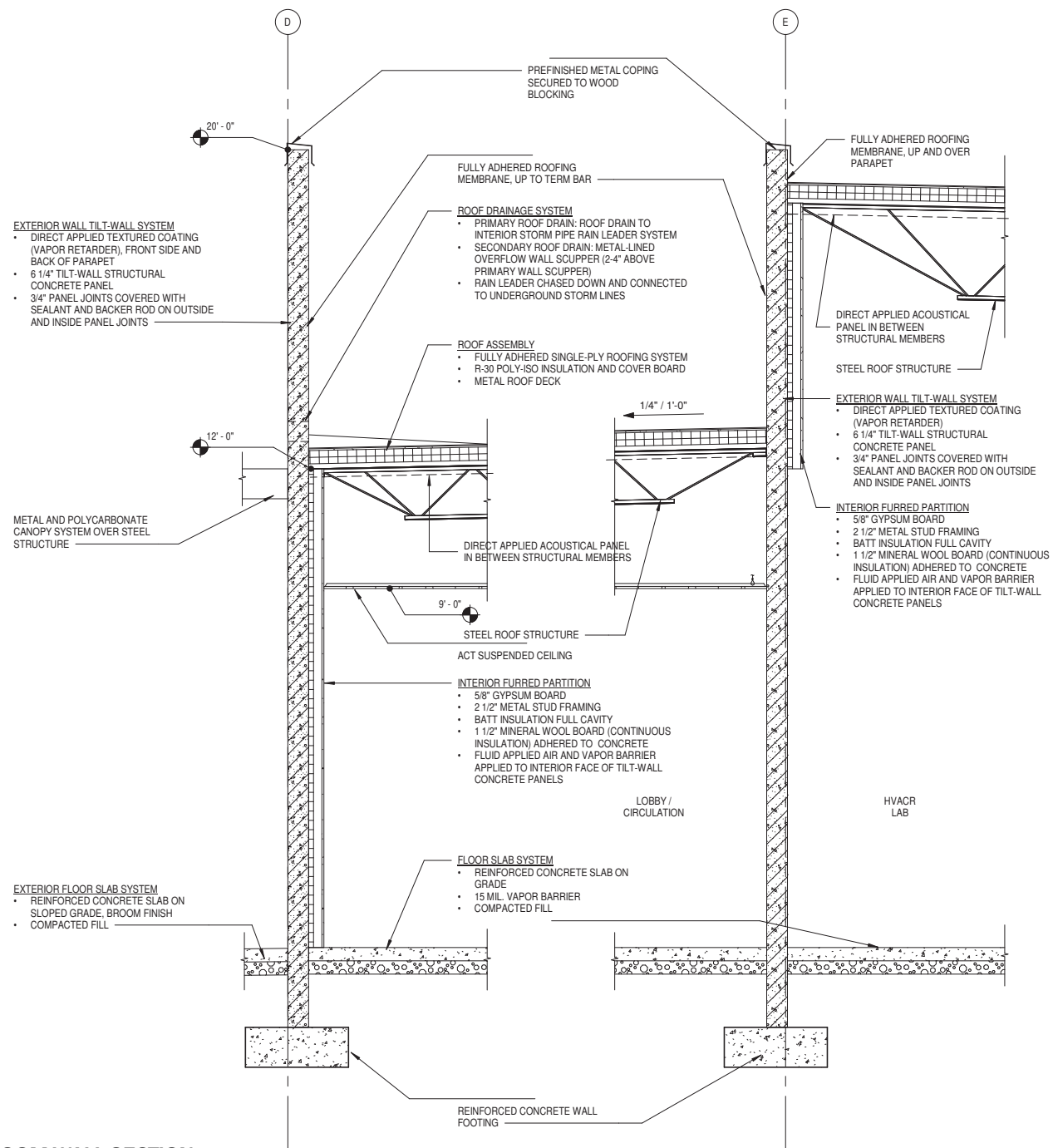


ELEVATIONS

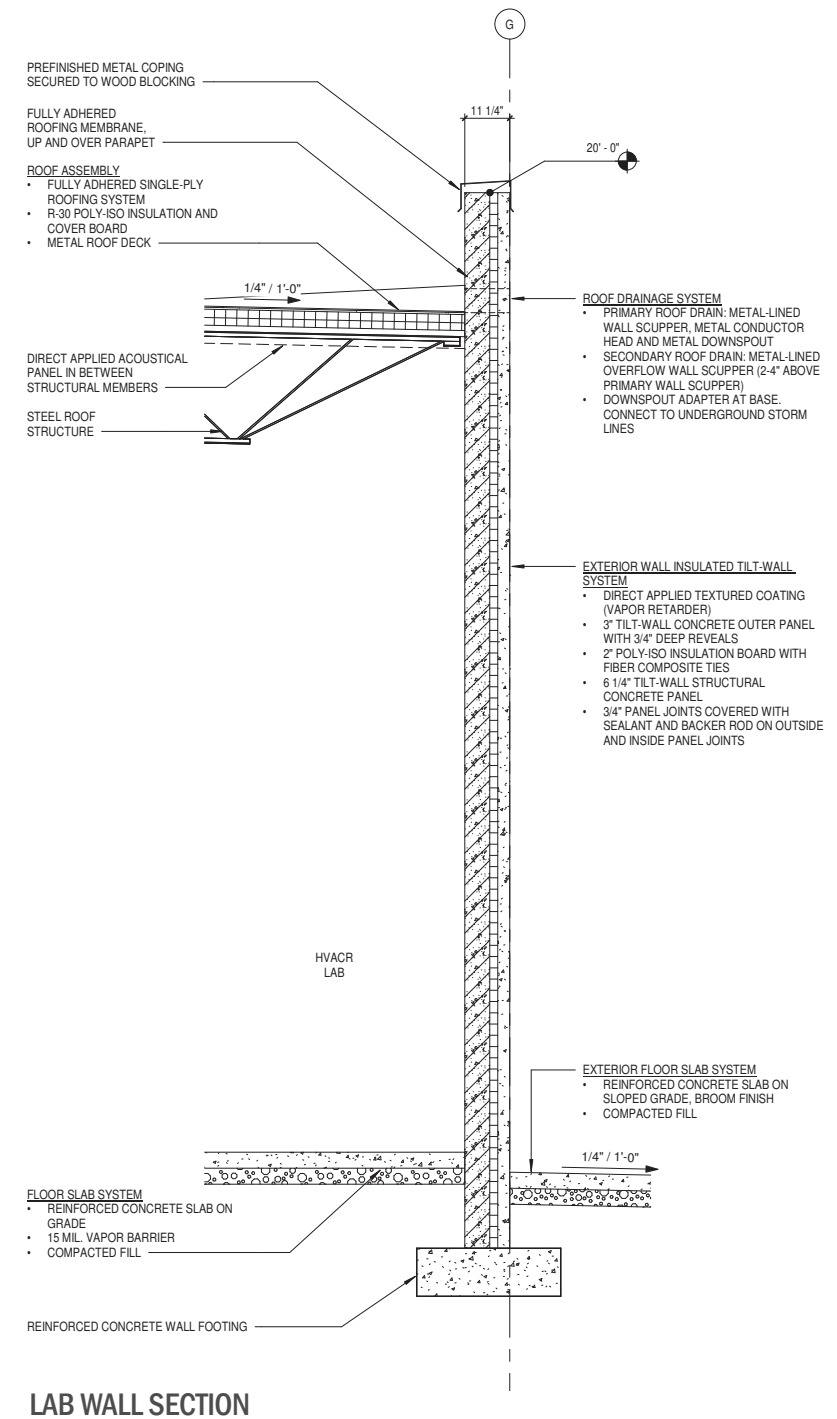








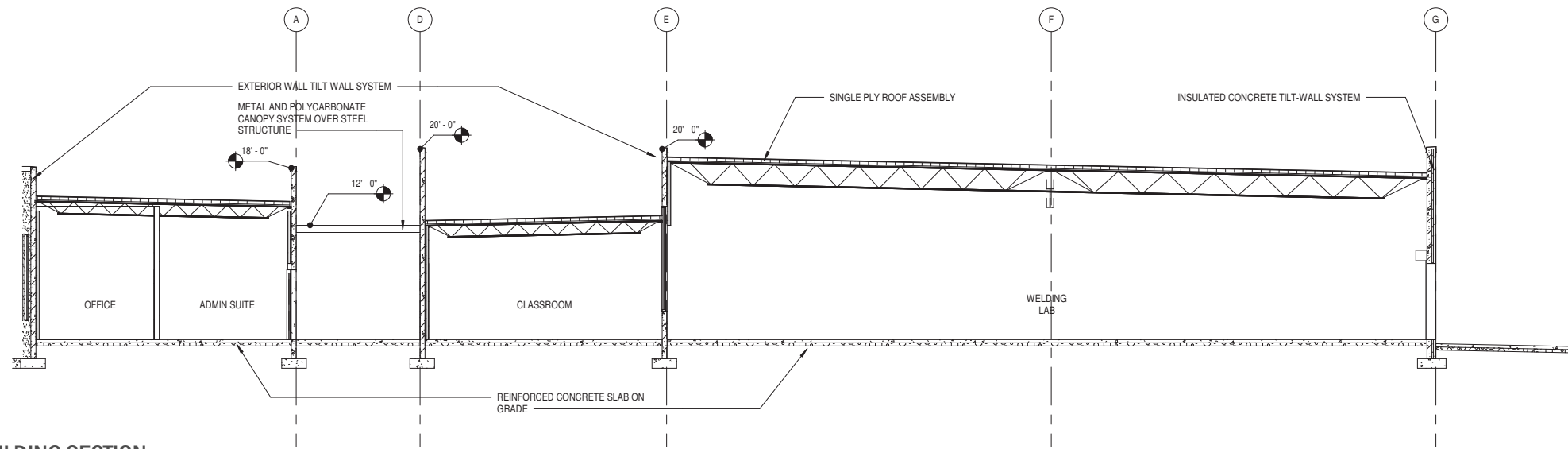
CLASSROOM WALL SECTION



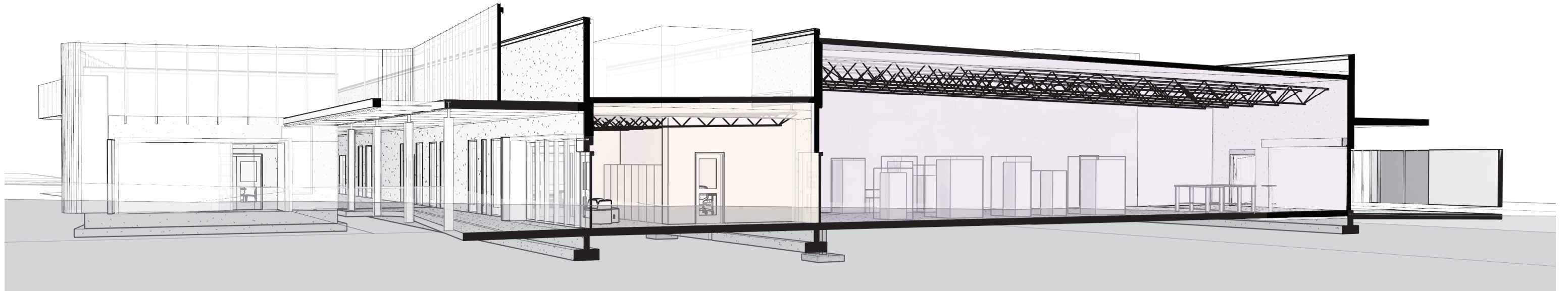
LAB WALL SECTION

WALL SECTIONS





BUILDING SECTION
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SECTION PERSPECTIVE

SECTIONS

ATTACHMENT D

Budget Narrative

Ralph W. Cellon Jr. Institute for Skilled Trades & Advanced Manufacturing

Santa Fe College (SF) is requesting funds to support the following budget items, which will facilitate the implementation of a new Ralph W. Cellon Jr. Institute for Skilled Trades and Advanced Manufacturing. All college and state purchasing procedures, including bid process and approvals, will be followed.

BUDGET	Year 1	Year 2	TOTAL	State Funds: Appropriation	SF & Local Contributions	Funding Requested
EQUIPMENT						
Welding Lab Equipment - Welding machines to fully equip the welding booths, equipment for the new fabrication area in the laboratory, double the equipment currently being used for Oxy-fuel cutting and plasma cutting, storage for materials and tools, shop tools, and a fork lift for material handling and student training.	\$650,000	\$0	\$650,000	\$650,000	\$0	\$0
HVAC/R Equipment - Additional equipment needed for the second classroom.	\$352,800	\$0	\$352,800	\$352,800	\$0	\$0
Advanced Manufacturing Equipment - Additional equipment needed for the second classroom.	\$797,200	\$0	\$797,200	\$797,200	\$0	\$0
TOTAL EQUIPMENT			\$1,800,000	\$1,800,000	\$0	\$0
PERSONNEL						
	\$0	\$0	\$0	\$0	\$0	\$0
TOTAL PERSONNEL			\$0	\$0	\$0	\$0
FRINGE BENEFITS						
	\$0	\$0	\$0	\$0	\$0	\$0
TOTAL FRINGE BENEFITS			\$0	\$0	\$0	\$0
FACILITIES						
Planning and Design costs -Fixtures, Furnishings and Equipment (FFE) costs	\$1,779,275	\$0	\$1,779,275	\$0	\$1,779,275	\$0
Construction costs	\$11,000,000		\$11,000,000		\$8,000,000	\$3,000,000
TOTAL FACILITIES	\$12,779,275		\$12,779,275	\$0	\$9,779,275	\$3,000,000
TRAINING MATERIALS						
	\$0	\$0	\$0	\$0	\$0	\$0
TOTAL TUTION & TRAINING COSTS			\$0	\$0	\$0	\$0
OTHER						
	\$0	\$0	\$0	\$0	\$0	\$0
TOTAL OTHER COSTS			\$0	\$0	\$0	\$0
A. TOTAL WORKFORCE TRAINING PROGRAM COSTS			\$14,579,275			
B. TOTAL OTHER WORKFORCE TRAINING PROJECT FUNDING SOURCES			\$11,579,275	\$1,800,000	\$9,779,275	
TOTAL AMOUNT REQUESTED			\$3,000,000			\$ 3,000,000

ATTACHMENT B Addendum to 2F

Santa Fe College														
ET Degree - AS - ADVANCED MANUFACTURING SPECIALIZATION (SOC Code 17-3027)										College Credit Certificates (CCC)				
FLDOE AS Engineering Technology (AS - 1615000001) - 21/22														
		AS	CCC	CCC	CCC	CCC	CCC	CCC	CCC					
		ET-AMS	MECH	ETSS	A	LM	PHM	CNC	CNC					
BET Aligned	Credit Hours	60	30	18	12	12	13	12	12	Software	Bluegrass Educational Alignment			
										Equipment	Equipment	Equipment	Equipment	
Year 1 - First Semester														
ENC 1101	English Composition I (General Education)	3								Not Applicable				
MAC 1105	College Algebra (General Education)	3								Not Applicable				
SLS 1106	First Year Experience Seminar	1								Not Applicable				
PHY 2053/2054 or higher	General Physics (General Education)	4								Not Applicable				
ETM 1010C	Mechanical Measurement & Instrumentation	3	3	3		3				Festo LX-LMS, zSpace-CTE	TP47221 -Metrology	TP1011 -Electronics	3351 -AC/DC	zSpace-CTE
ETI 1701	Industrial Safety	3	3	3						Festo LX-LMS, zSpace-CTE	3M-Safety			
Year 1 - Second Semester														
Various	Humanities Elective (General Education)	3								Not Applicable				
Various	Social Science Elective (General Education)	3								Not Applicable				
ETI 1810C	Intro to Electricity and Electronics	3	3	3			3			Festo LX-LMS, zSpace-CTE	TP1011 -Electronics	3351 -AC/DC	zSpace-CTE	
Various	Engineering Technology Elective	3								TBD				
ETS 2527	Electromechanical Components & Mechanisms	3	3							Festo LX-LMS, zSpace-CTE	46100-Mechanical	zSpace-CTE		
Year 2 - First Semester														
ETI 1843	Motors and Controls	3	3		3		3			Festo LX-LMS, zSpace-CTE, 3161-LVindSIM	8036-Ind Controls	zSpace-CTE		
ETS 1542	Introduction to PLCs	3	3		3					Festo LX-LMS, zSpace-CTE, Studio 5000, Factory Talk	3355-PLC	zSpace-CTE		
ETI 1110	Introduction to Quality	3		3		3				Festo LX-LMS, Festo MES, Siemens Step 7	MPS 403			
ETM 2315 C	Hydraulics and Pneumatics	3	3				3			Festo LX-LMS, zSpace-CTE, Festo-FluidSIM	zSpace-CTE			
ETM 2315 L	Hydraulics and Pneumatics Lab	1					1			Festo LX-LMS, zSpace-CTE, Festo-FluidSIM	TP101-Pneumatics	TP201 -Electro-Pneumatics	TP501-Hydraulics	TP601-Electro-Hydraulics
Year 2 - Second Semester														
ETD 1320C	Computer-Aided Drafting for Engineering	3	3	3						Festo LX-LMS, Fusion 360, KISSlicer	HX8610-LE Mill	HX710-LE Lathe	3D Printer Fabricator	
Various	Engineering Technology Elective	3								TBD				
ETI 1420	Manufacturing Processes & Materials	3	3	3			3	3		Festo LX-LMS, Festo MES, Siemens Step 7	MPS403			
ETI 1622	Concepts of Lean & Six Sigma	3				3				Festo LX-LMS, Festo MES, Siemens Step 7	MPS403			
ETS 2604	Robotics and Semiconductor Applications	3	3		3					Festo LX-LMS, zSpace-CTE, CIROS, FANUC, SCStudio	Festo-MPS Robot	DOBOT-CR3 CoBots		
Recommended Electives to Additionally Earn Both an Automation CCC and a Lean CCC														
ETS 1535	Automated Process Control	3			3					Festo LX-LMS, Festo-LVSim-PRO	6090-Process Control			
ETI 1644	Production and Inventory Control	3				3				Festo LX-LMS, Festo MES, Siemens Step 7	MPS403			
ETI 1931	Special Topics in Modern Manufacturing	3								Festo LX-LMS, Festo MES, Siemens Step 7	MPS403			
ETI 1949	Manufacturing Internship	3								Festo LX-LMS				
ENC 2210	Technical Writing									Not Applicable				
Recommended Electives to Additionally Earn Both a CNC CCC														
ETD 2364C	Intro to 3D CAD								3	Festo LX-LMS, Fusion 360, KISSlicer	Fabricator 3D Printer			
PMT 1250C	Computer Numerical Control (CNC) I								3	LE-Lead Controller	HX8610-LE Mill			
PMT 2254C	Computer Numerical Control (CNC) II								3	LE-Lead Controller	HX710-LE Lathe			

Articulated with MSSC CPT Cert

College Credit Certificates (CCC)

Mechatronics	0615000013-18/19
Engineering Technology Support Specialist	0615000007-18/19
Automation (PLCs)	0615040601-18/19
Lean Manufacturing	0615061302-18/19
PNEU/HYD & Motor Controls for Manufacturing	0615061303-18/19
CNC Machinist	0615000015/064805100/0615080501-18/19

Industry Certifications Available Using the Listed Equipment Depending on Contact Hours

- Semiconductor Manufacturing Certification**
- NC3-Festo Industry Certification Program (FICP) - All of Level 1 & 2.
- NC3-Festo-3M Intro to Mechatronics Certification
- NC3 - 3M Worker Health and Safety Awareness Certification
- NIMS Industrial Maintenance Technician (IMT) - Duty Areas 1, 2, 3, 4, 5, 6, 7,
- NIMS Machining Level 1
- PMMI Mechatronics Certification - All of Level 1 and Level 2.
- Manufacturing Skill Standards Council (MSSC) - Certified Production Technician (CPT) using the Festo LX Content.
- Siemens Mechatronics Systems Certification Program (SMSCP)- Level 1 and Level 2
- NOCTI Manufacturing Certifications

This course covers gears and gearboxes, belts and pulleys, chains and sprockets, alignments and measures found in the industrial environment.

	Year 2 - First Semester														
ETI 1843	Motors & Controls														

This course explores the theory and application of AC and DC motors.
It covers how different types of motors operate and how electronic motor control systems are designed and can be used to improve efficiency in a wide range of applications.

ETS 1542	Intro to PLCs														
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Provides basic operational concepts common to programmable controllers, focusing on PLC principles, programming, and the fundamentals needed for simple process control.

ETI 1110	Intro to Quality														
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This course defines the role of quality in an industrial environment.
Topics include the use of quality management techniques and quality philosophies, process development, techniques used in evaluation, approaches used on continuous operations, methods used to control quality, and the ISO series of standards.
The responsibility of quality assurance during the engineering, manufacturing, and marketing of a product is also covered.

ETM 2315 C	Hydraulics & Pneumatics														
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Introduces the student to the basic hydraulic and pneumatic systems and devices commonly found in advanced manufacturing facilities.
The underlying scientific principles will be covered and their practical applications.

ETM 2315 L	Hydraulics & Pneumatics Lab														
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Provides hands-on experiences to reinforce the basic principles of hydraulics and pneumatic systems and the operation of pumps and flow monitoring devices for simple but fundamental systems

Various	Engineering Technology Elective														
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	Year 2 - Second Semester														
ETD 1320C	Computer-Aided Drafting for Engineering														

This course is about using the major features of AutoCAD to make graphic displays including basic geometric figures, orthographic views of three-dimensional objects, architectural and construction drawings, and pictorial drawings of three-dimensional objects.
The major topics include the AutoCAD drawing, utility, file handling, text, editing, dimensioning, and plotting features.

Various	Engineering Technology Elective														
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ETI 1420	Manufacturing Processes & Materials														
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This course is an introduction to modern manufacturing materials, processes, and systems. Materials, processes and systems are the basic building blocks of modern manufacturing and are best taught together.
The student will learn to identify and distinguish appropriate materials and processing selections given general performance needs and production rates.
Material physical and mechanical properties are covered along with the equipment and processing methods used in modern manufacturing.

ETI 1622	Concepts of Lean & Six Sigma														
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This course provides a comprehensive overview of the Lean and Six Sigma methodologies including the Define, Measure, Analyze, Improve, and Control (DMAIC) process improvement paradigm, techniques, tools and metrics that are critical for process improvement success.
The course will include demonstration and use of Lean and Six Sigma tools.

ETS 2604	Robotics and Semiconductor Applications																		
<p>This course is designed to introduce students to the basic principles of robots, including classification, operation, maintenance, troubleshooting and applications in the robotics industry. Students use hands-on practices to become familiar with sections of a robotic system. Students will continue their training in semiconductor processing which emphasizes the same elements of assembling, integrating, and programming robots in a clean-room environment.</p>																			
Recommended Electives to Additionally Earn Both an Automation CCC and a Lean CCC																			
ETS 1535	Automated Process Control																		
<p>Introduces modern control theory and the use of sensors, actuators, and controllers. The student will be introduced to state of the art control systems used in industry and the elements that comprise a closed-loop network.</p>																			
ETI 1644	Production and Inventory Control																		
<p>A survey style course in production planning and inventory control including the topics of production planning and control, scheduling, MRP, capacity planning, among others.</p>																			
ETI 1931	Special Topics in Modern Manufacturing																		
<p>This course is designed to allow flexibility for presenting a variety of topics related to high-performance manufacturing principles and applications. Some special topics may require laboratory assignments or field work.</p>																			
ETI 1949	Manufacturing Internship																		
<p>This course is a structured and supervised internship for students in the Engineering Technology program of study. On the job experience will be integrated with bi-weekly class meetings to review and compare work experiences with respect to workplace skills and technical expectations.</p>																			
ENC 2210	Technical Writing																		
<p>A composition course focusing on writing for business, science, and technology. Assignments include letters, memos, resumes, reports, proposals, an oral presentation, and the use of graphics. Students use a variety of research and investigative techniques to produce documented papers on science, business or technological subjects.</p>																			
Recommended Electives to Additionally Earn Both a CNC CCC																			
ETD 2364C	Intro to 3D CAD																		
<p>This course is an introduction to new designing techniques and capabilities of solid modeling using 3D computer aided design software. Topics include the integration of advanced parametric solid modeling drawing tools.</p>																			
PMT 1250C	Computer Numerical Control (CNC) I																		
<p>The history and development of CNC (computer numerical control). Programming methods are reviewed with the emphasis of skills placed on programming, milling, drilling and turning with M and G code preparation. Manual and computer assisted programming are also reviewed. Students will program, set up and operate CNC machines.</p>																			
PMT 2254C	Computer Numerical Control (CNC) II																		
<p>This course expands on the CNC Programming I course, providing further study in computer-aided numerical control programming of CNC Lathes. It concentrates on the lathe series of machines and includes set-up, centering, turning, facing, filing, polishing, burning, thread cutting and other processes common to the lathe series.</p>																			

Santa Fe	Welding Technology	Course Descriptions						
PMT0102	Intro to Welding and Industrial Safety	120 hrs						
<p>This course is designed to develop the student’s understanding of workplace safety and organizational skills while introducing basic industrial manufacturing processes and documentation.</p>								
PMT0105	Welding Drawings and Fabrication	120 hrs						
<p>In this course students will develop and understanding of welding symbols and technical drawings that will be applied by fabricating a weldment using a combination of arc welding and thermal cutting processes.</p>								
PMT0126	Arc Welding Fundamentals	120 hrs						
<p>This course is designed to train students in the fundamentals of shielded metal arc welding, oxygen-fuel cutting, plasma arc cutting, and the safety practices required when using these processes in an industrial setting.</p>								
PMT0128	Shielded Metal Arc Welding I	120 hrs						
<p>In this course, students will demonstrate basic shield metal arc welding (SMAW) skills by performing surface and fillet welds in all positions on carbon steel.</p> <p>Oxygen-fuel and plasma arc cutting process are utilized to prepare materials.</p>								
PMT0129	Shielded Metal Arc Welding II	120 hrs						
<p>In this course, students will demonstrate intermediate shielded metal arc welding (SMAW) skills by performing groove welds on carbon steel plate and verifying their soundness through visual and destructive testing using applicable industry standards.</p> <p>Oxygen-fuel, plasma arc, and air carbon arc thermal processes will be utilized for both cutting and gouging operations.</p>								
PMT0130	Gas Metal Arc Welding	120 hrs						
<p>In this course, students set up, operate, and troubleshoot gas metal arc welding equipment and accessories to produce surface, fillet, and groove welds in all positions on carbon steel, stainless steel, and aluminum base metals.</p>								
PMT0143	Flux-Cored Arc Welding	120 hrs						
<p>In this course, students set up, operate, and troubleshoot flux-cored arc welding equipment and accessories to produce surface, fillet, and groove welds in all positions on carbon and stainless steel base metals.</p>								
PMT0137	Gas Tungsten Arc Welding	120 hrs						
<p>In this course students will set-up, operate, and troubleshoot gas tungsten arc welding equipment and accessories to produce surface, fillet, and groove welds on carbon steel, stainless steel and aluminum base metals.</p>								
PMT0182	Welding Certification	90 hrs						
<p>In this course students will select a specific qualified welding procedure to perform based on their employment goals. Laboratory exercises are focused on preparing the student for an industry standard welder qualification test at the end of the term.</p>								
Total Hours		1050 hrs						

Santa Fe	Advanced Welding Technology	Course Descriptions						
PMT0127	Shielded Metal Arc Pipe Welding	125 hrs						
<p>In this course students perform open root groove welds using the SMAW process in all positions on carbon steel pipe. Oxygen-fuel and plasma cutting operations are utilized to cut and prepare materials.</p>								
PMT0151	Gas Tungsten Arc Pipe Welding	125 hrs						
<p>In this course students perform open root groove welds using the GTAW process in all positions on carbon steel pipe. Thermal and machine cutting operations are utilized to cut and prepare materials.</p>								
PMT0174	Pipe Fitting	125 hrs						
<p>In this course students will utilize pipe fitting specifications in conjunction with technical drawings to cut, fit, and weld a pipe assembly using GTAW and SMAW process.</p>								
PMT0186	Stainless Pipe Welding	125 hrs						
<p>In this course, students will develop an understanding of pipe purging techniques and apply these techniques to complete open root groove welds on stainless steel pipe in all positions.</p>								
PMT0172	Heavy Wall Pipe Welding	125 hrs						
<p>In this course, students will utilize a combination of GTAW and SMAW processes to perform open root groove welds on heavy wall pipe. Students will also develop an understanding of and apply pre- and post-weld heat treatment.</p>								
PMT0168	Pipe Welding Certification	125 hrs						
<p>In this course students will select a specific qualified pipe welding procedure to perform based on their employment goals. Laboratory exercises are focused on preparing the student for an industry standard welder qualification test at the end of the term.</p>								
Total Hours		750						

Santa Fe	HVAC/R Technology	Course Descriptions						
	Term I							
ACR0000	Intro To HVAC/R	250 hrs						

The purpose of this course is to train students to work/train closely with the Lead Installer in Heating, air conditioning, ventilation and refrigeration equipment.

The student will gain knowledge in safety, employability skills, tools, basic electricity and electrical components.

ACR0001	HVAC/R Fundamentals	250 hrs						
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The purpose of this course is to prepare students for employment or advanced training in the heating, ventilation, air conditioning, and refrigeration industry.

The fundamentals course will cover topics such as basic electricity, troubleshooting controls motors and components, analyze fluids and pressures, fabricate and service tubing and pipe fittings.

EPA rules and regulations will be introduced with the goal being passing the EPA test for refrigeration recovery.

	Term II							
ACR0012	HVAC/R Service	250 hrs						

The purpose of this course is to allow the students to gain knowledge in the start-up and shutdown procedures required for HVAC systems utilizing test equipment for different manufacturers.

This course will introduce the use of combustible-type heating and test equipment to include gas valves and regulators.

To maintain and troubleshoot and repair commercial heating systems, demonstrate knowledge of retail refrigeration systems, commercial and industrial systems.

ACR0013	HVAC/R Intermediate	250 hrs						
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HVAC/R service practice students will be prepared to work alongside a journeyman mechanic to facilitate a transfer of skills that will enable the assistant to gain knowledge that will lead to a mechanic or technician skill level.

Skills taught in this course will include commercial compressors, commercial evaporative condensers, piping, construction drawings, commercial heating and A/C systems.

	Term III							
ACR0044C	HVAC/R Advanced Service Practice	350 hrs						

HVAC/R service practice students will be prepared to work alongside a journeyman mechanic to facilitate a transfer of skills that will enable the assistant to gain knowledge that will lead to a mechanic or technician skill level.

Skills taught in this course will include commercial compressors, commercial evaporative condensers, piping, construction drawings, commercial heating and A/C systems.