Huckabee

FRISCO INDEPENDENT SCHOOL DISTRICT

MCKINNEY EDUCATIONAL FACILITY (CRAIG RANCH)

April 12, 2021

SCHEMATIC DESIGN PRESENTATION

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FRISCO INDEPENDENT SCHOOL DISTRICT
MCKINNEY EDUCATIONAL FACILITY (CRAIG RANCH)

Frisco ISD

Dr. Mike Waldrip	Superintendent
Chad Rudy	Board President, Place 3
Rene Archambault	Board Vice President, Place 7
John Classe	Board Secretary, Place 6
Gopal Ponangi	Board Member, Place 1
Natalie Hebert	Board Member, Place 2
Dynette Davis	Board Member, Place 4
Debbie Gillespie	Board Member, Place 5
Kenny Chandler	Deputy Superintendent of Schools
Dr. Todd Fouche	Deputy Superintendent of Business and Operations
Melissa Fouche	Chief Technology Officer
Cory McClendon	Chief Leadership Officer
Dr. Wes Cunningham	Chief Academic Officer
Pamela Linton	Chief Human Resources Officer
Amanda McCune	Chief Communications Officer
Erin Miller	Chief Student Services Officer
Kimberly Smith	Chief Finanacial Officer

Project Design Team

Andre Brackens
Principal, Huckabee

Luke Powell, RID
Associate Principal, Huckabee

Konrad Judd, AIA
Chief Design Officer, Huckabee

Erin Evans, AIA
Project Architect, Huckabee

Mary Anne McGehee, RID
Interior Designer, Huckabee

Mike King, AIA
Planner, Huckabee

Kerri Ranney, AIA
VP Educational Practice, Huckabee

Civil Engineering/Landscape

RLK Engineering
Allen, Texas

MEPT Engineering

IEG
Westlake, Texas

Structural Engineering

Huckabee
Fort Worth, Texas

Food Service

FDP
Dallas, Texas

Roofing

Armko
Flower Mound, Texas

Acoustical

WJHW
Carrollton, Texas

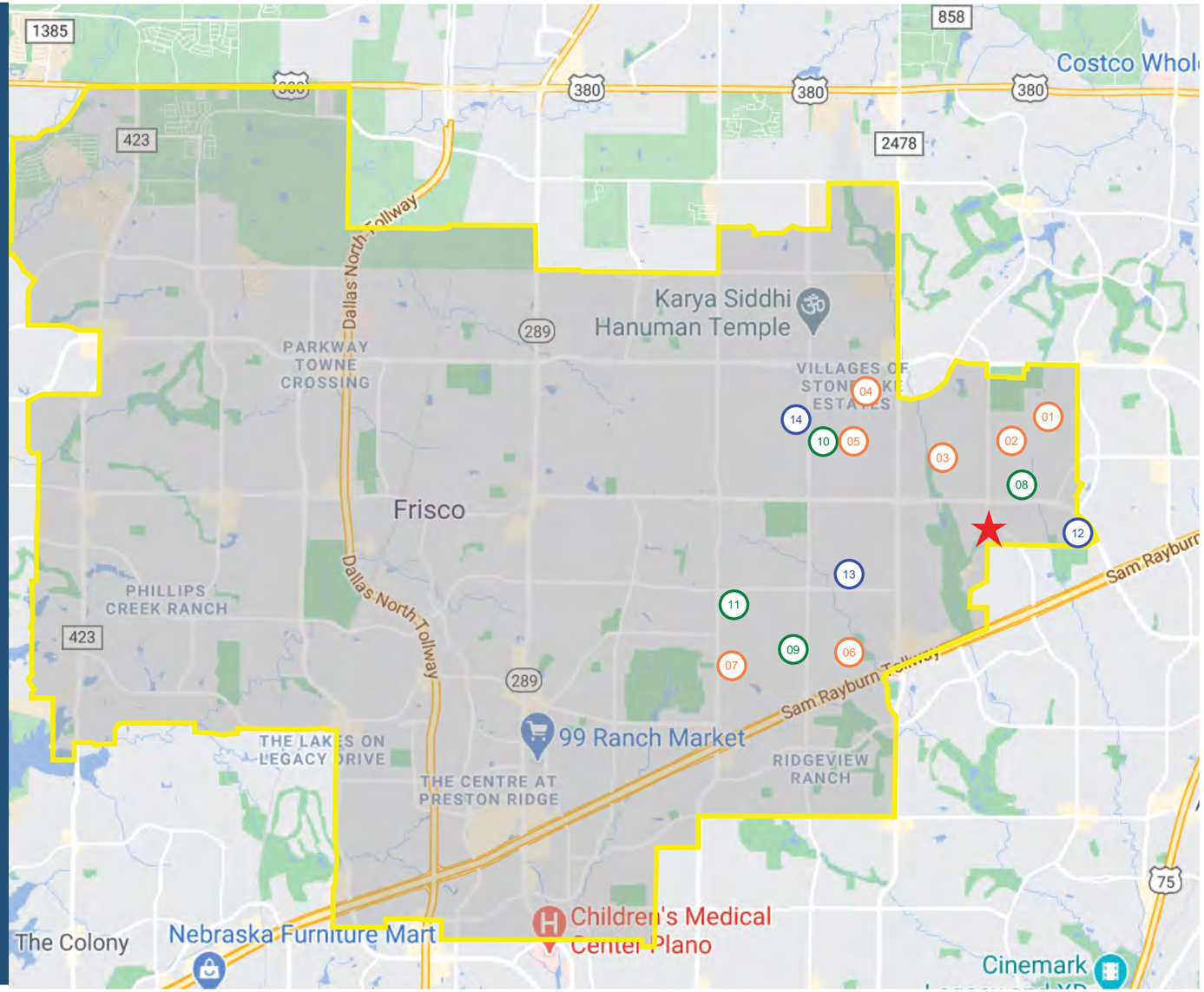
LEGEND

ELEMENTARY SCHOOLS
1. Elliott ES
2. Comstock ES
3. Ogle ES
4. Ashley ES
5. Norris ES
6. Isbell ES
7. Talley ES

MIDDLE SCHOOLS
8. Scoggins MS
9. Vandeventer MS
10. Nelson MS
11. Lawler MS

HIGH SCHOOLS
12. Emerson HS
13. Liberty HS
14. Independence HS

★ PROJECT SITE



PLANNING & DESIGN ENGAGEMENT:

37 district leadership and staff members participated in design charrettes with the Huckabee team.

EDUCATIONAL VISION

STUDENT UNION

STUDENT SAFETY AND WELLNESS

LEARNING OPPORTUNITIES EVERYWHERE

INSTRUCTION DRIVES THE DESIGN

CAPTURE A FUTURE READY PROFILE FOR STUDENTS

INQUIRY & PROJECT-BASED LEARNING

PROJECT SPECIFIC FRISCO ISD / HUCKABEE INTERACTIVE WEBSITE

FLEXIBLE AND ADAPTABLE SPACES

CHALLENGE BASED: ADI - ARGUMENT DRIVEN INQUIRY

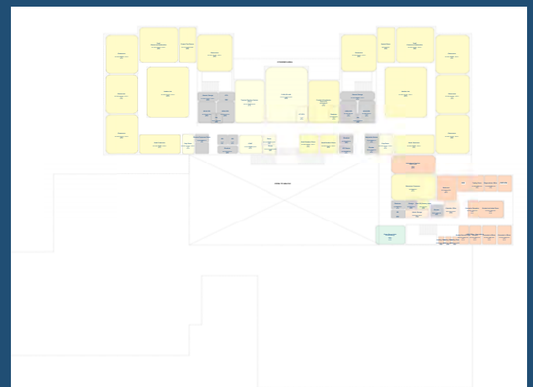
ENVIRONMENT WHERE STUDENTS WANT TO LEARN MORE THAN HAVING TO LEARN

BLENDING LEARNING AND PERSONALIZED LEARNING EXPERIENCES

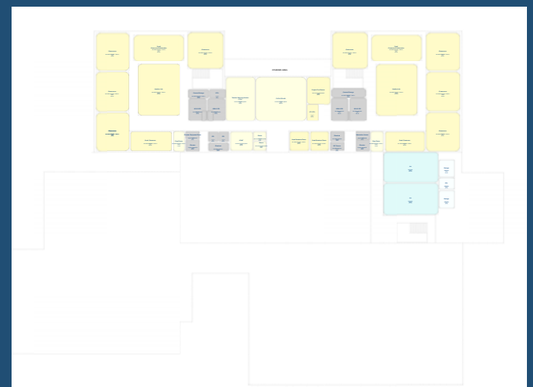
CONCEPTUAL MODEL – TOP VIEW

CONCEPTUAL MODEL – VIEW FROM NORTHBOUND ALMA ROAD

FIRST FLOOR ADJACENCY PLAN



SECOND FLOOR ADJACENCY PLAN



THIRD FLOOR ADJACENCY PLAN

CONCEPTUAL MODEL – TOP VIEW

CONCEPTUAL MODEL – VIEW FROM NORTHBOUND ALMA ROAD

ARCHITECTURAL

INTRODUCTION

As part of the 2018 Bond, Frisco ISD has partnered with Huckabee on the McKinney Educational Facility, Frisco ISD's first 5th/6thgrade campus. Frisco ISD Instructional Support Team (IST) has developed a unique program to maximize opportunities and focus on transitioning naturally from elementary to secondary school. Thus, creating a future ready space that is adaptable through architectural elements and furniture that enhances learning opportunities.

SITE

The 11.4-acre site is located on the west side of Alma Road, between Stacy Road and Sam Rayburn Tollway. A creek, which is delineated wetlands, runs north/south along the west side of the property. Accounting for the 100-year flood plain, and erosion hazard setback easement, approximately 8 acres of usable area remains. With the size constraints of the site, a three-story building will allow space for parking and outdoor play areas.

Best practices were employed with separation of the bus loop from the parent drop-off drive. Sidewalks and crosswalks are located to encourage walkers and bike riders from the neighboring community.

Outdoor play areas are located on the southwest side of the building so students will not have to cross drive lanes. The playareas will include play equipment, environmental learning areas, and a 60-yard field to promote health and wellness.

BUILDING

The three-story academic wing and Cafeteria/Library space will face the tree lined creek along the west side of the site, thereby creating a natural buffer for the adjacent homes. Single story, and two-story spaces along Alma Road and Kickapoo Drive will reduce the scale of the building.

The academic wing is divided into houses that are vertically aligned to reinforce a family culture. No ownership of classrooms provides a level of flexibility that allows teachers to instructionally meet students where they are and consistently prepare students for their short-term and long-term futures. Each house has classrooms surrounding open, science-capable collaboration spaces, with opportunities for privacy. All experiences are about giving agency and empowerment to both students and teachers. Student blending of the 5th and 6th grades is encouraged throughout the campus.

SPED is not centralized but is integrated into the school showing dignity to students through the design, normalizing the inclusion of SPED students in all types of on-campus experiences.

The Library is the heart of the school and serves as a Student Union that will foster family culture. Designed as an active learning environment while maintaining teachable areas, the Library promotes student blending between grade levels.

The Fine Arts (Band, Orchestra, Choir, and Theater) is designed to accommodate beginners and remain consistent with the programs offered in middle school. Visual Arts is located on the third floor, taking advantage of natural light and access to outdoor rooftop spaces. Because of the feeder pattern, there will be stronger relationships between teachers, students and programs between the 5th/6thgrade campus, middle school, and high school.

The physical safety of students is paramount and will be integrated into the overall design of the facility and site. Safe pedestrian and bike rider travel routes, safe transitions from the building to outdoor instructional amenities, and successful pedestrian flow throughout the building create smooth transitions from arrival to dismissal. Strong lines of sight between spaces and between functional areas allow for active and passive supervision. In addition, natural light, view windows, increased transparency, and additional elements like flexible furniture foster a strong collaborative campus culture. Focus on flexibility and inclusion provide for key connections for students and a strong sense of belonging. The design will meet the Frisco ISD safety and security expectations while exploring opportunities to provide the best environment for learning and community building.

The McKinney Educational Facility is designed with the belief that choice is key, investing in students and teachers alike to create a wholistic learning environment.

EXTERIOR

The building exterior will be designed to reflect the architectural elements of the neighboring single-family and multi-family housing while working within the aesthetics of the Craig Ranch Architectural Design Standards.

CIVIL

Site Structures:

No existing structures are on-site. The site is currently vacant and zoned AG. Rezoning to a PD will be necessary due to the current proposed building height.

Earthwork:

Significant earthwork will be needed on this site due to the existing slopes. There is also a considerable amount of existing fill on-site that may need to be removed and replaced as is appears to have been placed in an uncontrolled manner.

Site Pavement:

Site paving improvements will be based on the geotechnical engineer's recommendations. Typical parking and drives/fire lanes are proposed around the building. Furthermore, handicapped parking spaces and sidewalks, ramps, etc. will be proposed as necessary to bring the site into ADA compliance and provide pedestrian connectivity.

Drainage:

There is an existing stream that extends across this site in a north/south direction. This area is heavily treed and appears to be a jurisdictional stream so any encroachment to this stream will require mitigation through the USACE. At this time, proposed improvements are not planned to encroach upon this stream. However, this will require extensive retaining walls along the western fire lane and parking. All site drainage is proposed to be conveyed underground via pipe system to the existing stream. Stormwater detention will most likely not be required, but further study is needed per conversation with City staff.

Erosion Control:

An Erosion Control Plan will be required for this project. Erosion control devices/structures will be implemented as required.

Water:

Existing City water stub-outs are located along Kickapoo Drive.Water will be looped through-out the site to provide fire coverage as well as domestic and irrigation service for this site.

Wastewater:

An existing City wastewater stub-out exists towards the south end of the site in Kickapoo Drive. Proposed on-site wastewater will be directed towards this stub-out.

STRUCTURAL NARRATIVE

Design Analysis

Design Loads

•Dead Loads

Design dead loads for the structural frame will include self-weight of the structural elements and the following superimposed dead loads:

Ceiling and Mechanical at Roof	10 psf
Roofing and Rigid Insulation	15 psf

•Live Loads

Based on the anticipated functions to be contained in the building, the following superimposed live loads will be utilized in the design of the structural frame:

Public areas, corridors, lobbies	100 psf
Mechanical rooms	150 psf
Storage (minimum)	125 psf
Roof (unreducible)	20 psf

Main Building

The superstructure of the building must be adequate to resist the applied design loading, satisfythe performance criteria for such items as deflection and vibration control, and accommodate the architectural design. For this project, there are two systems being looked at as follows.

•Foundation

Currently there is no Geotechnical information available. Once this information is received, a meeting with the owner will be requested to discuss the potential foundation types based on the Geotechnical Report's recommendations. Based on our previous experience, either a slab-on-grade system with perimeter grade beams supported by either drilled concrete piers or concrete footings; or a structurally suspended slab over void-box with drilled concrete piers under the slab and other load bearing elements will likely be recommended.

Should a slab-on-grade system be used, it is anticipated that the ground floor will consist of a 5" concrete slab reinforced with #3 bars at 16" on-center each way over a prepared subgrade. Subgrade preparation is anticipated to consist of removal of on-site expansive soils and replacement with select fill; or a combination of moisture conditioned on-site soil and select fill. The slab-on-grade will be placed over a 15 mil, Class A vapor retarder. Perimeter grade beams are anticipated to be 18" wide x 24" deep with 20 plf of reinforcing. Grade beams are anticipated to be earth-formed with the vapor retarder wrapping to the outside face of the beam. Interior earth formed grade beams not supported by piers will be provided between metal building rigid frame supports.

Should a structurally suspended system be used, it is anticipated that the ground floor will consist of an 8" structural slab over carton void forms with 10 psf of reinforcing. The void depth is estimated to be between 8" to 12". The slab will be placed over a 15 mil, Class A vapor retarder. Perimeter grade beams are anticipated to be 18" wide x 24" deep with 30 plf of reinforcing. Grade beams will be isolated from the subgrade with 8" to 12" deep carton void forms, and soil retainers each side to prevent soil from entering the void space.

•Typical Elevated Floor Structure

The elevated second and third floors will be composite steel and concrete slabs over metal deck. For fire rating purposes, these slabs will be 6 ½" total thickness, normal weight concrete. These floors will typically be designed such that shoring of the framing members will not be required during placement of the concrete slab.

•Typical Roof Structure

The roof is expected to consist of metal deck on top of non-composite steel beams and joists space approximately 6'-4" maximum.

•Lateral Stability

To resist the lateral loads applied to the structure from incidental live load, wind load, and seismic load, the structure will be stabilized with braced frames, moment frames, and CMU shear walls (at the elevator shafts). The concrete slabs over metal deck and the metal roof deck will act as the floor and roof diaphragms to transfer lateral loads to the braced frames, moment frames, and CMU shear walls.

Storm Shelter (Gym and locker room)

Design Criteria.The storm shelter will be designed in accordance with the ICC-500. This includes specific design and detailing requirements, including designing the structure for 250 mph wind speeds and 100 psf roof live loads in lieu of the speed and load respectively noted for the main building above.

We recommend a precast concrete double tee and wall panel system due to the extreme loading that will be experienced at the storm shelter as well as the very stringent detailing and coordination requirements that are difficult to meet for the construction that is performed in the field (not in a fabrication shop as would be the case with a Precast Concrete System).

•Foundation

The foundation construction will likely match what is done for the main building. Refer to the previous section for additional information

•Typical Roof Structure

For the roof structure, we propose precast double tees. This is to accommodate the free span of the gym area and to resist the extreme live loads and wind loads that are required to be designed for at the storm shelter.

•Lateral Stability/Exterior walls

We propose the exterior walls to be precast concrete wall panels. These walls will both support the double tee wall panels for gravity loads and provide lateral loadresistance from the loads applied by the roof diaphragm. Atop the precast concrete double tees, we will detail a 4" thick concrete topping slab. This topping slab is required as a minimum assembly for debris impact and simultaneously acts as the roof diaphragm to transfer lateral loads to the precast concrete shear walls.

FIRE PROTECTION

The new building shall be fire protected via an extended wet pipe fire sprinkler system in accordance with UFC 3-600-01, NFPA 13 and the International Building Code. The fire protection system drawings and hydraulic calculations shall be performed by a NICET Level IV certified fire protection specialist or a Registered Fire Protection Engineer. Quick response, chrome recessed, or concealed heads will be used in areas with ceilings. Quick response, brass upright or pendant heads will be used in exposed areas with no ceilings. Dry heads will be used in areas subject to freezing.

PLUMBING

All plumbing systems to be installed in compliance with the 2018 International Plumbing Code and local amendments, ordinances, and standards.

Electric storage tank type water heaters will be used to serve the lavatories at each core toilet and any nearby janitor's mop sink. All hot water systems will have a hot water loop with a recirculation pump. Mixing valves will be provided where required for scald protection.

Plumbing fixtures will meet all applicable accessibility requirements of the Texas Accessibility Standards (TAS) and Americans with Disabilities Act (ADA). Fixtures shall be low water consumption design in compliance with the State and Local Water Conservation requirements. All Plumbing fixtures shall be high quality, commercial grade, vitreous china, or stainless steel. Water closets and urinals installed in the facility shall be low consumption models with manually operated flush valves. Lavatories shall have metering faucets with local scald protection devices. Shower heads shall also be with low consumption type.

HVAC SYSTEMS

The mechanical systems will be designed to comply with the 2018 International Energy Conservation Code, 2018 International Mechanical Code, and all local amendments, ordinances, and standards.

The primary heating and cooling system for this building shall be a combination of packaged rooftop mounted units (RTUs) and geothermal closed loop heat pumps (GHPs) with a vertical bore well field heat exchanger. The three-story classroom wing will be served by the GHPs. We will serve as many areas within the building with Geothermal as the site allows. The remainder of the rooms will be served with RTUs.

The Geothermal HVAC System shall be comprised of dedicated individual zone geothermal heat pumps (GHP) located in corridors or above classrooms. Each GHP contains its own fan, controls, and refrigerant cycle heating/cooling system. All GHP units of the building shall be served by a single geothermal heat exchanger well field loop.The water source heat pumps shall utilize R-410A refrigerant.Satisfying the building's cooling and heating loads will be accomplished through the individual GHP units without the need for auxiliary heat.

The vertical bore field heat exchanger shall be a closed loop comprised of pumps, expansion tanks, purge ports with provisions for make-up water, thermometers, pressure gauges and P/T plugs.Interior and exterior piping shall be thermally fused SDR-11 HDPE.Purge ports shall be located inside the building.

Loop pumps shall be provided at each individual GHP using a demand pumping arrangement to maximize energy efficiency of the Geothermal Closed Loop Heat Pump HVAC System.

Remainder of the building shall have packaged rooftop mounted, electronically controlled, heating, and cooling units (RTUs) utilizing direct expansion (DX) cooling and natural gas heating.Each zone shall have a separate unit and all return air shall be ducted back to the unit.

ELECTRICAL DESIGN

The electrical systems will be designed to comply with the 2018 International Energy Conservation Code, 2017 National Electric Code, and local amendments, ordinances, and standards.

277/480v 3ph 4w secondary feeders shall be extended from the pad mounted transformer into the building main distribution panels to serve the HVAC, Lighting, and the larger electrical loads. 120/208v 3ph 4w dry-type, transformers shall be provided to step 480v down to 120/208v for general outlet power.

Energy efficient LED lighting shall serve the interior lighting needs of the building. Exterior and parking lot lighting shall also be LED. Vacancy/ Occupancy sensors will be used to control interior lighting in each space. Spaces shall have a control system capable of switching between a General Lighting Mode and AV Mode. Spaces with exterior windows shall have daylight sensors that will automatically dim the space lighting to take full advantage of natural light coming through the windows.

Energy efficient LED emergency fixtures and exit signs with emergency battery packs will be utilized in all Emergency Egress pathways. The system will provide 90-minute emergency backup as required by NFPA 101.

COLOR LEGEND

- Pavement/Roads
- Sidewalks
- Grass
- Playing Fields
- Trees
- Building

NUMBER LEGEND

1. NEW BUILDING
2. PARENT DROP OFF
3. BUS DROP OFF
4. VISITOR PARKING
5. SPED BUS DROP OFF
6. PLAY AREAS
7. PEDESTRIAN WALKWAY
8. OUTDOOR STAGE AND COURTYARD
9. LIFE SKILLS COURTYARD
10. STUDENT ENTRY COURTYARD

SITE INFORMATION

Approximately 8 acres are usable of this 11.4 acre site.

Intended total parking count is 160 spaces, which matches the most recent elementary design parking count for the district.

Parent Stacking

Intended route: Enter Alma, to Chief Spotted Trail, to Squeezepenny Lane, to Kickapoo and around the northeast route around the building.

50 Passenger Vehicles able to stack on site.

Bus Loop

Intended Route: SPED Buses can enter off Alma and Drop off near Lifeskills. Other Buses can enter and exit off Kickapoo.

Up to 5 SPED Buses and 5 Main Buses can stack on site.

Visitor Access

Intended Route: Enter and Exit off Alma.

Service Vehicles Intended Route: Enter off Kickapoo and exit towards Chief Spotted Trail.

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MCKINNEY EDUCATIONAL FACILITY (CRAIG RANCH)

SCHEMATIC SITE PLAN

COLOR LEGEND

- Academic Space
- Academic Support
- Administration
- Administration Support
- Athletic Space
- Athletic Support
- Circulation
- Dining
- Dining Support (Kitchen)
- Fine Arts
- Fine Arts Support
- Library
- Support Space

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MCKINNEY EDUCATIONAL FACILITY (CRAIG RANCH)

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FLOOR PLAN - LEVEL 1

COLOR LEGEND

- Academic Space
- Academic Support
- Administration
- Administration Support
- Athletic Space
- Athletic Support
- Circulation
- Dining
- Dining Support (Kitchen)
- Fine Arts
- Fine Arts Support
- Library
- Support Space

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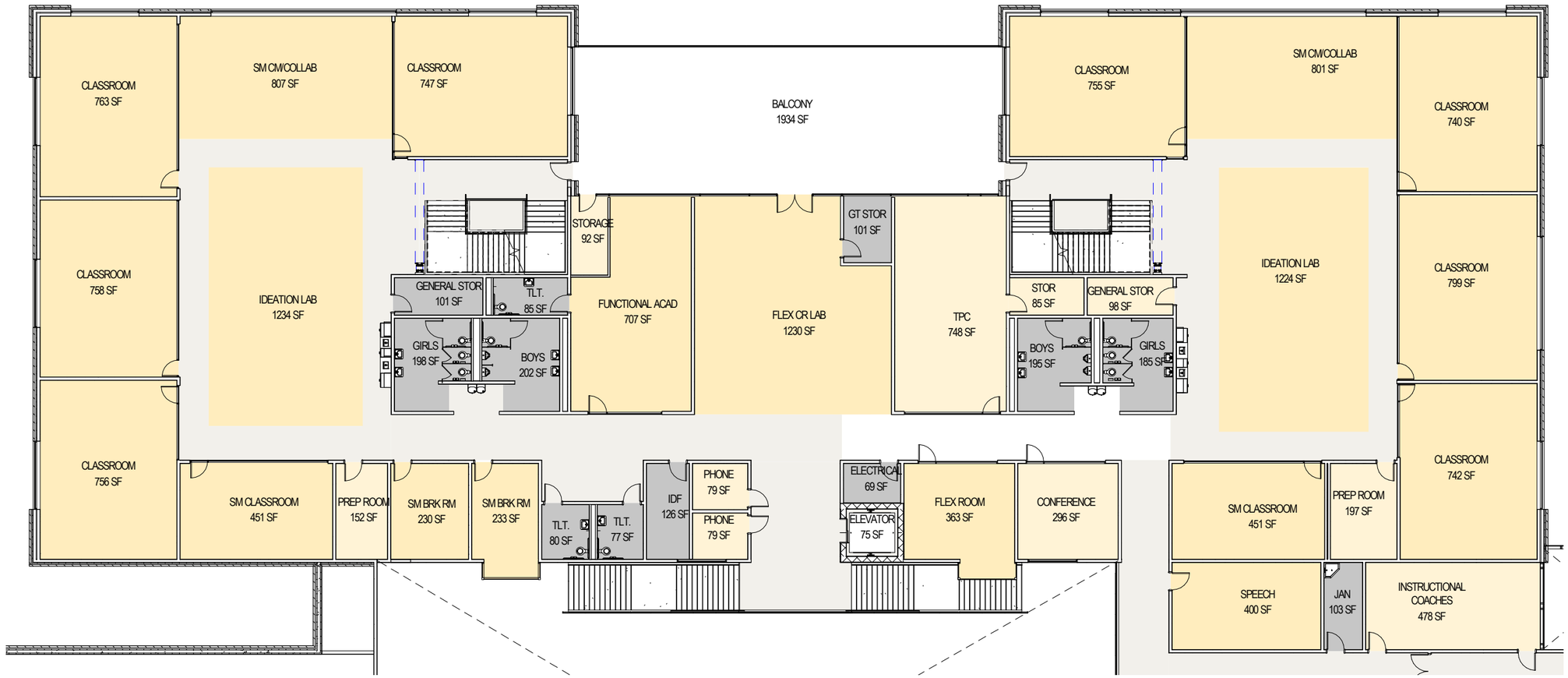
MCKINNEY EDUCATIONAL FACILITY (CRAIG RANCH)

FLOOR PLAN - LEVEL 2



COLOR LEGEND

- Academic Space
- Academic Support
- Administration
- Administration Support
- Athletic Space
- Athletic Support
- Circulation
- Dining
- Dining Support (Kitchen)
- Fine Arts
- Fine Arts Support
- Library
- Support Space

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ENLARGEDFLOOR PLAN - LEVEL 2

COLOR LEGEND

- Academic Space
- Academic Support
- Administration
- Administration Support
- Athletic Space
- Athletic Support
- Circulation
- Dining
- Dining Support (Kitchen)
- Fine Arts
- Fine Arts Support
- Library
- Support Space

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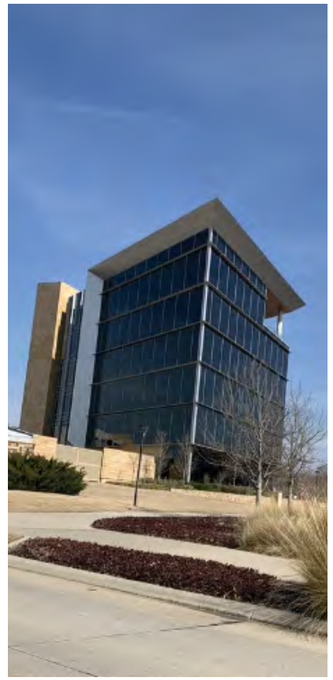
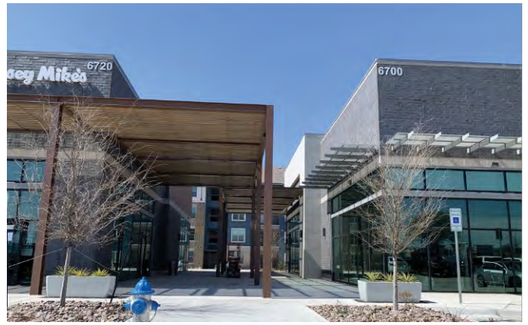
MCKINNEY EDUCATIONAL FACILITY (CRAIG RANCH)

FLOOR PLAN - LEVEL 3


CRAIG RANCH

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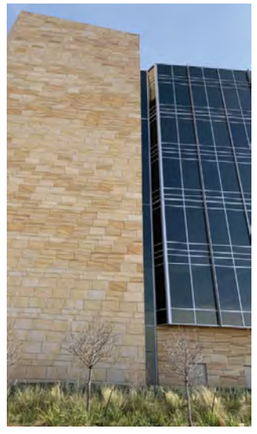

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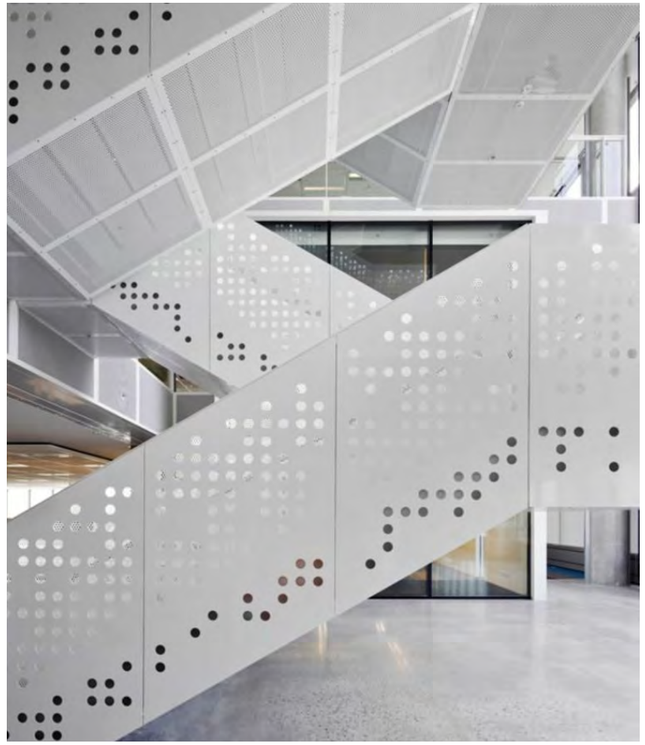

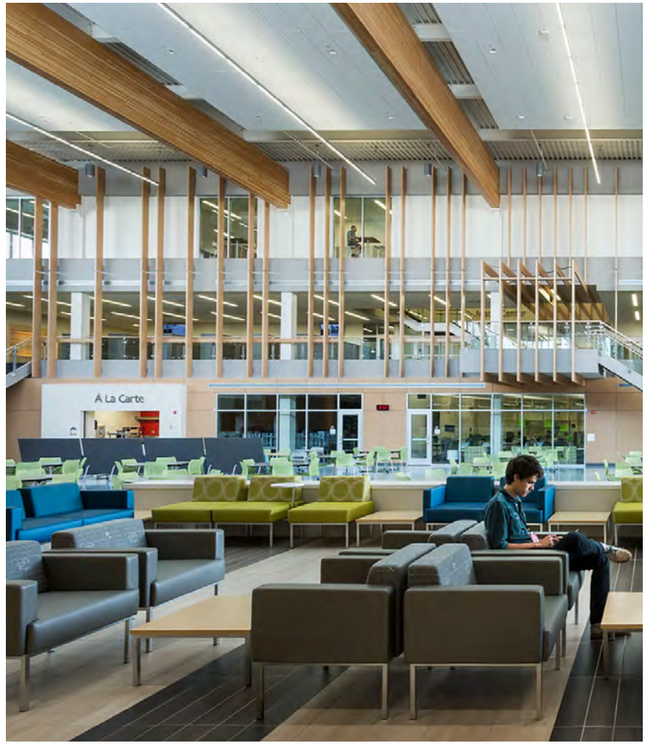

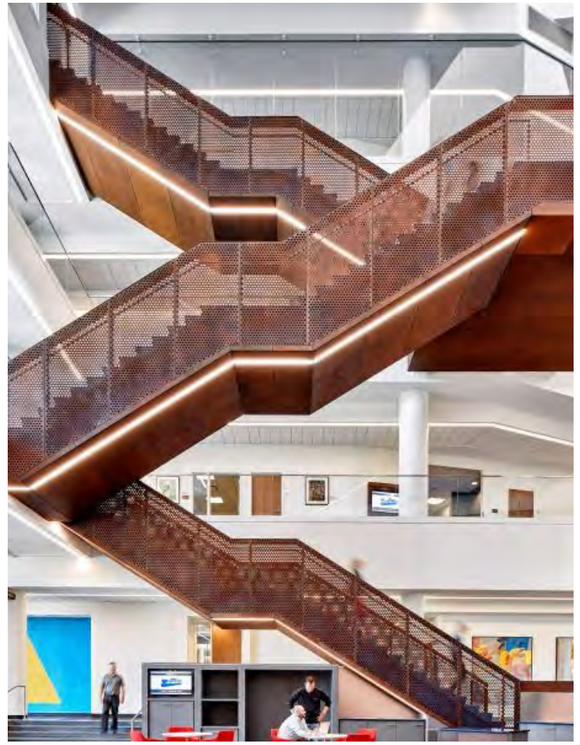

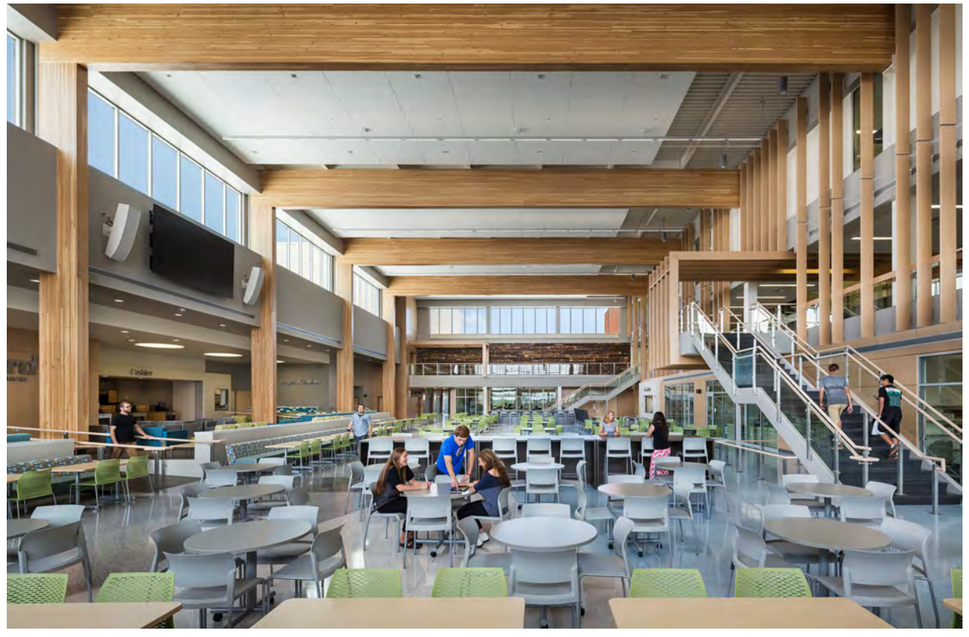

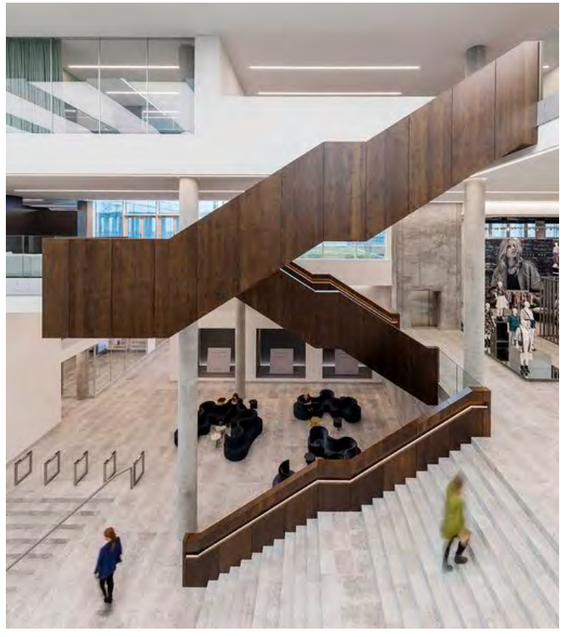

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PERSPECTIVE VIEW - BIRDSEYE

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PERSPECTIVE VIEW - SOUTHBOUND ALMA ROAD

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MCKINNEY EDUCATIONAL FACILITY (CRAIG RANCH)

PERSPECTIVE VIEW - KICKAPOO DRIVE

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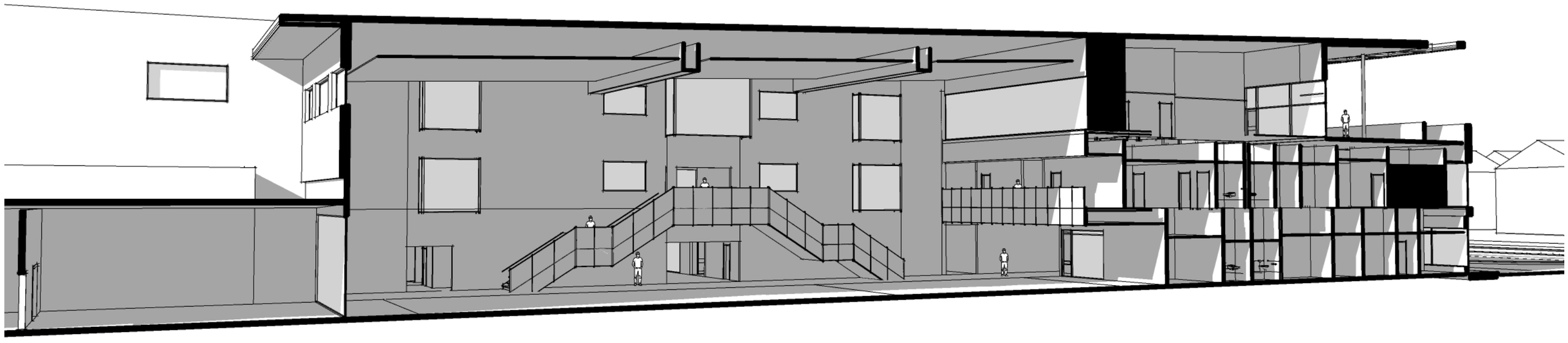
PERSPECTIVE VIEW - NORTHBOUND ALMA ROAD



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MCKINNEY EDUCATIONAL FACILITY (CRAIG RANCH)

PERSPECTIVE VIEW - BUILDING SECTIONS

Frisco ISD McKinney Educational Center

Program

Design for 1,050 Student Capacity 5th and 6th Grades	# of Spaces	Net Area (SF)	Student Capacity
INSTRUCTIONAL SPACES	118	48,364	975
SPECIAL EDUCATION	15	4,060	10
FINE ARTS	22	12,990	175
CORE SPACES	24	28,209	50
MAIN ADMINISTRATION	42	5,300	–
GENERAL FACILITY SUPPORT	21	6,975	–
BUILDING SUBTOTAL		105,898	–
WALLS & CIRCULATION (38%)		40,241	–
TOTAL	242	146,139	1,210

CAPACITY NOTES:

Functional Capacity at 80% of Max Capacity = 968
Functional Capacity at 85% of Max Capacity = 1,029
Functional Capacity at 90% of Max Capacity = 1,089

Total Learning Environment area per student provided, using Design 1,050 students = 40
Total Learning Environment area per student required by New TEA Standards = 36

SITE AMENITIES:

Outdoor Play 60 yards
Outdoor Learning Areas
Covered Outdoor turf area adjacent to Gym
Parking for 160

PROJECT DATES	2021						2022						2023		
	Feb.	— April	— June	— Aug.	— Oct.	— Dec.	Feb.	— April	— June	— Aug.	— Oct.	— Dec.	Feb.	— April	— June
Schematic Design															
Design Development															
Construction Documents															
Jurisdictional Review															
Bid Proposal															
Construction															

April 12, 2021

July 12, 2021

September 30, 2021

November 15, 2021

December 13, 2021

June 2023

TODAY
APRIL 12, 2021

QUESTIONS?

THANK YOU!

MORE THAN ARCHITECTS