RAMTECH Building Systems

1.0	**FRAME**	None provided, building is constructed in true modular fashion.
2.0	**FLOOR**	
2.1	**BOTTOM BOARD:**	.040 one piece rolled continuous construction board.
2.2	**INSULATION:**	R-30 Kraft faced fiberglass batts.
2.3	**JOISTS:**	2x10 #2 SYP installed transverse at 16" o.c. Corridor joists shall be spaced at 12" o.c.
2.4	**PERIMETER RAILS:**	Double 2x10 #2 SYP on all sides.
2.5	**DECKING:**	Single layer 3/4" tongue and groove plywood installed perpendicular to floor joists.
2.6	**COVERING:**	Sheet vinyl shall be plant installed in the restrooms and janitor's closet. 12" x 12" x 1/8" Vinyl composition tile shall be installed in corridors, IT room, Content Mastery and computer lab. Tile shall be site installed. Color shall be selected by client. 26 oz., olefin, solution dyed, level loop pile, polypropylene back, direct glue down, commercial carpet installed in remaining areas. Carpet shall be Philadelphia, Neyland 26 oz. or equal; color as selected by client. Carpet shall be site installed after all modules are set-up and installation is complete.
3.0	**EXTERIOR WALLS**	
3.1	**TYPE:**	IBC Framing
3.2	**STUDS:**	2x4 #2 SYP @ 16" O.C.
3.3	**BOTTOM PLATE:**	Single 2x4 #2 SYP.
3.4	**TOP PLATE:**	Double 2x4 #2 SYP.
3.5	**HEADERS:**	Double 2x4 #2 SYP on edge with 1/2" CDX plywood filler.
3.6	**SILLS:**	Flat 2x4 #2 SYP.
3.7	**WALL HEIGHT:**	All exterior walls shall be parapet type and built full height to conceal the roof line.
3.8	**FIRE BLOCKS:**	2x4 installed @ ceiling line.
3.9	**INTERIOR FINISH:**	5/8" Type "X" vinyl covered gypsum installed full height throughout, with the exception of the restroom and janitor's closet. VCG color shall be selected by client – standard selection choices. 9' fiberglass reinforced Class "C" panel laminated to 5/8" type "X" gypsum in restrooms and janitor's closet. Color shall be: White.
3.10	**INSULATION:**	R-13 Un-faced fiberglass batts installed to roof.

3.11	**SHEATHING:**	7/16" OSB sheathing installed full height all exterior walls. 15# Felt shall be installed full height entire perimeter. A water resistive barrier shall be installed full height entire exterior perimeter.
3.12	**EXTERIOR FINISH:**	5/16" Smooth Hardi-Panel siding shall be installed full height entire exterior. Seams shall be taped and floated on site. Siding shall be finished with colored primer coat and textured coat on site. Sherwin Williams *Ultra-Crete*, or equal. Color shall be selected by client.
3.13	**TRIM:**	3/4" x 3-1/2" Hardie Rustic trim shall be installed on around doors and windows, and at corners.
3.14	**PARAPET WALL CAP:**	The top of the parapet wall on all sides of the building will be finished with a 26 Gauge steel cap with baked on enamel finish. Color shall be selected by client.
3.15	**SKIRTING:**	Same material as used for exterior finish, refer to plans. Skirting shall be supplied with crawl space ventilation.

4.0 INTERIOR WALLS

4.1	**STUDS:**	2x4 #2 SYP @ 16" o.c.
4.2	**BOTTOM PLATE:**	Single 2x4 #2 SYP.
4.3	**TOP PLATE:**	Double 2x4 #2 SYP.
4.4	**HEADERS:**	Double 2x4 #2 SYP on edge with 1/2" CDX plywood filler.
4.5	**WALL HEIGHT:**	9'-1-1/2" Minimum. Corridor walls, walls dividing classrooms and janitor's closet walls shall be built full height to bottom of roof assembly.
4.6	**INTERIOR FINISH:**	5/8" Type "X" vinyl covered gypsum installed full height throughout, with the exception of the restroom and janitor's closet. VCG shall be Taupe. 9' fiberglass reinforced Class "C" panel laminated to 5/8" type "X" gypsum in restrooms and janitor's closet. Color shall be: White.
4.7	**INSULATION:**	All interior walls shall be insulated full height with R-11, 3-1/2" unfaced fiberglass batts.

5.0 MOULDING

5.1	**BASE:**	4" Vinyl cove base throughout. Color shall be selected by client. Base shall be site installed after all modules are set-up and installation is complete.
5.2	**WINDOWS:**	The jambs of all windows shall be finished the same as the walls.
5.3	**WALL TRIM:**	Wall seams and corners shall receive prefinished vinyl covered trims as applicable.

6.0 ROOF

6.1	RAFTERS:	2x10 #2 SYP installed @ 24" O.C. Rafters shall be installed so as to provide a minimum 1/4 IN 12 pitch.
6.2	RAILS:	2x10 #2 SYP.
6.3	WOOD TRUSS:	Double 1-1/2" pre-engineered wood girders shall be installed on each side of the matelines. Full height load bearing mate walls may substituted where possible.
6.4	BRIDGING:	1-1/2" steel angle installed @ 8' o.c. from truss to rafter.
6.5	CEILING:	2' x 4' x 5/8" acoustical mineral fiber panel in suspended T-grid system. Armstrong, Cortega # 769 with Prelude XL 15/16" exposed tee or equal. Ceiling shall be site installed after all modules are set-up and installation is complete.
6.6	SUB-CEILING:	5/8" Type "X" unfinished gypsum sheathing shall be installed on the bottom of the roof joist, trusses and face of walls above the ceiling.
6.7	CEILING HEIGHT:	The finished ceiling height throughout the building shall be 8'-10".
6.8	INSULATION:	R-30 Un-faced fiberglass batts installed between roof joists atop the gypsum sub-ceiling
6.9	SHEATHING:	7/16" OSB FR-"C" deck.
6.10	ROOFING:	45 mil white TPO fully adhered. The finished roofing shall have a class "C" fire rating.
6.11	ROOF DRAINAGE:	Scupper boxes with downspouts to grade.

7.0 EXTERIOR DOORS

7.1	DOORS:	36" x 80" x 1-3/4" and 72" x 80" x 1-3/4" 18 Gauge hollow core commercial steel. Pair doors shall consist of two 36"x80"x1-3/4" active panels with Mullion. Doors to have minimum U-Value of 0.70.
7.2	FRAMES:	Steel doors shall be equipped with 16-gauge knockdown commercial steel frames.
7.3	HARDWARE:	All exterior steel doors shall be equipped with 1-1/2 pr. of 4-1/2"x4-1/2" ball bearing, non-removable pin butt hinges, full weather-strip and threshold.
7.4	WINDOW:	Each pair exterior doors shall be provided with a 5" X 20" Window kit with ¼" safety glass.
7.5	EXIT DEVICE:	Doors shall be equipped a keyed panic bar with exterior lever handle pull, "Tell" or equal.
7.6	CLOSER:	A hydraulic closer with back check feature shall be provided on all exterior steel doors; "Tell" or equal.
7.7	FINISH:	The interior and exterior side of the steel doors and frames shall be painted color as selected by client.

8.0 INTERIOR DOORS

8.1	DOORS:	1-3/4" X 36" X 80" solid core wood, pre-finished; Jeld-Wen Imperial Oak or equal. 20 Minute fire rated if required per code.
8.2	FRAMES:	All interior doors shall be set in prefinished 20 ga. commercial steel frames with factory baked enamel finish; "Timely" or equal. Color shall be: Brown. 20 Minute fire rated if required per code.
8.3	HARDWARE:	All interior doors with the exception of the restrooms shall be equipped with 1pr. of 4-1/2"x4-1/2" self closing hinges and (1) 4-1/2"x4-1/2" mortise hinges US 26D Finish. Multi-occupant restroom doors shall be equipped with (1-1/2 Pr.) 4-1/2"x4-1/2" mortise hinges US 26D Finish
8.4	WINDOW:	Each classroom door shall be provided with a 5" X 20" Window kit with ¼" safety glass.
8.5	CLOSERS:	A hydraulic closer with back check feature shall be provided on multi-occupant restroom doors; "Tell" or equal.
8.6	PUSH/PULL:	Stainless steel push/pull hardware shall be provided on multi-occupant restroom doors.
8.7	KICK PLATE:	Stainless steel 8" X 34" kick plate shall be provided on push side of multi-occupant restroom doors.
8.8	LATCHSETS:	IT room and janitor's closet shall be shall be equipped with keyed lock set with lever handle, "Storeroom Function"; "Tell" or equal. Classrooms and offices shall be shall be equipped with keyed lock set with lever handle, interior push button to lock; "Tell" or equal. Staff restrooms shall be equipped with lever handle privacy sets, "Tell" or equal. Multi-occupant restroom doors shall be equipped with classroom function deadbolt; "Tell" or equal.

9.0 WINDOWS

9.1	TYPE:	36"x60" Aluminum framed, mill finish, fixed, glazing shall be tinted, dual pane insulated low-e glass and window screen. Windows shall have a minimum U-Value of .55 and a SHGC of .25
9.2	MINI-BLINDS:	N/A

10.0 ELECTRICAL

10.1	SERVICE:	120/208v- 3 phase- 4W- 60hz.
10.2	MAIN DISTRIBUTION PANEL:	The building shall be equipped with a 120/208V, Three phase, main distribution panel (MDP), exterior NEMA 3R. The MDP shall be equipped with a main breaker sized to accommodate the electrical loads of the building. **Provide Lockable Door.**
10.3	SUB-PANELS:	120/208v, Three phase, interior, flush mounted with main lug only. **Provide Lockable Door.**

10.4	**BREAKERS:**	All breakers shall be plug in type.
10.5	**ENTRANCE:**	EMT conduit stubbed through floor.
10.6	**CROSSOVERS:**	J-boxes shall be installed above the ceiling for electrical crossovers.
10.7	**RACEWAY/ CONDUCTORS:**	Minimum #12 AWG type THHN copper wire in concealed MC cable or EMT (electric metallic tubing) conduit.
10.8	**FLUORESCENT LIGHTS:**	2'x4', 120v, two, three or four tube, recessed, fluorescent light with acrylic diffuser. Lights shall be equipped with T-8 lamps and electronic ballasts. Lights shall be plant wired and secured to the roof joists for shipment to the job site.
10.9	**EXTERIOR EM LIGHT:**	Exterior emergency egress light per plans.
10.10	**EMERGENCY LIGHTS:**	Dual head emergency light with back up battery power shall be plant installed. Emergency lights shall be located in corridor, classrooms and restrooms. Refer to plans.
10.11	**EXIT LIGHTS:**	Dual faced 120 volt ceiling mount exit light with back up battery power shall be plant installed. One installed over each exterior door.
10.12	**RECEPTACLES:**	120v 20 AMP duplex specification grade grounding type with matching plastic cover; color white. Receptacles in Computer Room shall be no more than 3 per circuit. **Receptacles for DATA Racks shall be dedicated circuit with isolated ground.** Receptacles located in wet area's shall be provided with GFCI protection.
10.13	**SWITCHES:**	120v 20 AMP occupant sensor type in each classroom, capable of detecting occupancy by sensing a combination of heat and/or movement in the area of coverage. Switches shall be white in color. 120v 20AMP Toggle type in all other spaces.
10.14	**DATA/COMM:**	Back boxes, double gang j-box with single gang mud ring and 1" conduit to above ceiling with pull wire shall be plant installed. Complete Data/Comm system to be site installed, refer to spec section 16.13.
10.15	**FIRE ALARM SYSTEM:**	Back boxes, double gang j-box with single gang mud ring and 1" conduit to above ceiling with pull wire shall be plant installed. Complete Fire Alarm system to be site installed, refer to spec section 16.14.

11.0 PLUMBING

11.1	**WATERLINES:**	Water lines shall be CPVC or PEX with appropriate fittings. All fixtures shall be provided with shut-off valves.
11.2	**WASTELINES:**	**PVC-DWV-SCH-40 drain, waste and vent lines.**

11.3	**WATERHEATER:**	30 Gallon, 240v Electric with T&P valve. A shut-off shall be provided to allow Owner to provide cold water only to the lavatories.
11.4	**WATER CLOSET:**	White vitreous china tank type with open front seat and elongated bowl. Designated water closets shall be installed for the handicapped.
11.5	**MODESTY PARTITIONS:**	5'-0" high steel with baked on enamel finish modesty partition and urinal blinds. Units shall be installed 12" from floor with modesty door and lock.
11.6	**URINAL:**	White vitreous china wall hung with flushometer valve.
11.7	**LAVATORIES:**	Vitreous china wall hung with 4" washerless centerset faucet.
		Designated lavatories shall be installed for the handicapped and shall be equipped with Handi-guard water supply and drain protective covers and wrist blade handle.
11.8	**MOP SINK:**	(1) Single bowl fiberglass mounted on legs with laundry tray faucet.
11.9	**BREAK SINK:**	Double bowl stainless steel with swing spout faucet and hose spray.
11.10	**WATER COOLER:**	Wall mounted refrigerated electric water cooler per plans.
		Water cooler shall be installed for the handicapped.
11.11	**ACCESSORIES:**	Single roll toilet paper holder at each water closet.
		Stainless steel grab bars at each handicapped water closet.
		18"x36" metal edged mirror above each lavatory in restrooms only.
11.12	**FIRE SPRINKLER SYSTEM:**	Complete Fire Sprinkler system to be site installed, refer to spec section 16.15. Included only in building option with the Science Lab.

12.0 H.V.A.C.

12.1	**PACKAGED:**	Roof mounted 208v 3-phase, HVAC units; Lennox or equal.
		IT room shall be equipped with Friedrich model # P09B (Cooling Only) portable Air Conditioner. Unit shall have intake and exhaust vented to outside. NEMA 5-15P plug standard.
12.2	**HEATING:**	208v Electric resistance heat strip in each roof top unit, sized and designed per section 15.4.
12.3	**SUPPLY DUCTS:**	Rigid foil faced fiberglass duct with 1" wall thickness installed below rafters with insulated circular flex to designated diffusers.
12.4	**DIFFUSERS:**	24"x24" White stamped metal with adjustable damper, ceiling.
12.5	**RETURN AIR:**	Class "A" gypsum lined attic plenum.
12.6	**THERMOSTAT:**	(1) Programmable thermostat shall be provided for each H.V.A.C. unit, Luxpro PSP511 or equal.
12.7	**EXHAUST FANS:**	Ceiling mount with back draft damper installed in each restroom and janitor's closet.

13.0 CASEWORK

13.1 CABINETS: Provided in Content Mastery only.

All base and overhead cabinets shall be Aristokraft "New Oakland Wheat". Base cabinets shall be provided with drawers, doors and shelves. All cabinets shall be provided with all necessary hardware.

13.2 COUNTERS: All counters shall be constructed of 45# density particle board with "Formica" or equal high pressure plastic laminate. All counters shall be provided with a 4" straight backsplash on all adjacent surfaces. Color shall be selected by client.

14.0 FURNISHINGS

14.1 TACKBOARDS: Each classroom shall be equipped with (1) 4'-0" x 4'-0", #844N Claridge tack board with heavy duty satin finish aluminum frames.

14.2 MARKERBOARDS: Each classroom shall be equipped with (2) 4'-0" x 8'-0" Claridge #MLC or equal, 2048 white marker boards with heavy duty satin finished anodized aluminum frames and troughs.

14.3 FIRE EXTINGUISHERS: 10 Lb ABC type fire extinguishers installed in semi-recessed cabinet. Cabinet shall be # JL-1017 F10, Steel "White" full panel. Fire extinguisher MP-10.

15.0 DESIGN CRITERIA

15.1 FLOORS: The floor systems shall be constructed to accommodate a live load of 50 psf, in addition to the dead loads. 100 psf in corridor areas.

15.2 WALLS: The exterior walls shall be framed, braced and secured in accordance with the requirements of the IBC, based on 90 mile per hour wind loads, 3 second gust.

15.3 ROOFS: All structural components of the roof system shall be designed and erected to span their respective areas and carry a live load of 20 psf and a dead load of 10 psf.

15.4 HEATING: The heating system shall be designed to maintain an interior temperature of 72 degrees + or - 2 degrees.

15.5 COOLING: The cooling system shall be designed to maintain an interior temperature of 75 degrees + or - 2 degrees.

15.6 CODES: The building shall be built in accordance with the following codes.

A. International Building Code, 2009
B. International Plumbing Code, 2009
C. International Mechanical Code, 2009
D. National Electrical Code, 2011
E. International Energy Conservation Code, 2009
F. Texas Accessibility Standards, 2012

15.7 APPROVALS: A. State of Texas Industrialized, Housing and Building Rules, as administered by the Texas Department of Licensing and Regulations.

As part of this contract, Ramtech Building Systems, Inc. will provide drawings sealed by a Texas Registered Professional Engineer for the building that may be used for submittals to TDL&R's Architectural Barriers Section. Ramtech's design scope does not include accessibility elements required for the site and any required site improvements. It is the Owner's responsibility to have these designs developed and to make submittal as required by the Texas Architectural Barriers Act, through their design professional. This submittal should be made to:

Texas Department of Licensing and Regulations
Architectural Barriers Section
P.O. Box 12157
Austin, TX 78711

For full compliance with Texas Accessibility Standards (TAS), the following responsibilities must be addressed:

Owner's Responsibilities:

1. On any building that includes toilet facilities, provide Ramtech the ages of the primary use group so designs specific to that age group (children, etc) can be developed.
2. Generate site designs providing TAS compliant accessible routes to and from handicapped parking areas and the new building and any other essential function to the new building.
3. Make submittals to TDL&R's Architectural Barriers Section or a 3rd Party Registered Accessibility Specialist within 20 days after the site design plans are issued and pay all associated fees. Once the submittal is made, an "EABPRJA Project Number" will be issued and by state law must be reflected on any required permit applications.
4. Within 12 months after project completion, contact TDL&R's Architectural Barriers Section or a 3rd Party Registered Accessibility Specialist, reference the "EABPRJA Project Number" and seek a field inspection of the completed work.

Ramtech's Responsibilities:

1. Provide age appropriate design drawings sealed by a Texas Registered Professional Engineer for the building that may be used for submittals to TDL&R's Architectural Barriers Section.
2. Provide building construction in compliance with the approved design drawings.

16.0 FIELD ACTIVITIES

16.1 SITE PREPARATION: Demolition and removal of existing storage barn. Removal of existing tree within construction limits.

16.2 FOUNDATION: Ramtech shall design and construct a poured-in-place, engineered grade beam type foundation per plans.

16.3	**ENTRIES:**	Aluminum step, landing and ramp assemblies shall be provided at each entrance/exit.
16.4	**SIDEWALKS:**	Provide concrete sidewalks per site plan.
16.5	**PARKING:**	Provide a new asphalt parking area as shown on the site plan.
16.6	**ELECTRIC UTILITIES:**	Ramtech shall provide and install a main distribution panel (MDP) and all sub-panels, including interconnection of sub-panels to "MDP" providing a single point of connection at the MDP. Ramtech shall extend and connect the existing electrical service to the new building.
16.7	**WATER UTILITIES:**	Ramtech shall install all plumbing fixtures and piping, providing a single point of connection for water supply. Ramtech shall be responsible for extending and connecting site water service to the building and making the final connection.
16.8	**SEWER UTILITIES:**	Ramtech shall provide and install all drain, waste and vent piping, necessary to provide a single point of connection for the sanitary sewer. Ramtech shall be responsible for extending and connecting site sewer service to the building.
16.9	**FIRE LINE EXTENSION:**	Ramtech shall be responsible for extending and connecting site fire water service to the building and making the final connection. Included only in the building option with the Science Lab.
16.10	**DRIVE:**	Ramtech shall provide a new approach for the parking area off Fulton Street.
16.11	**DATA/COMM:**	(2) Cat-6 and (1) Video Jack shall be provided for each classroom. Computer room shall have (22) Cat-6 and (1) Video Jack. Jacks, cabling and racks shall be provided on site to include conduit and fiber connection to existing building.
16.12	**FIRE ALARM SYSTEM:**	Provide a complete Fire Alarm System with the following devices: horn/strobe alarms, manual pull stations, ceiling mounted smoke detectors, duct mounted smoke detectors, flame detectors and main Fire Alarm and Smoke Detection Control Panel in accordance with NFPA, TAS, state and local codes. System shall be stand-alone with outside monitoring capability (monitoring service expense and contract not included)

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16.13 FIRE SPRINKLER SYSTEM:

Provide a complete Engineered automatic wet pipe sprinkler system in accordance with NFPA, state and local codes. System to consist of Gate Valve, Alarm Valve, Check Valve, Fire Riser, Siamese Connection, Cross Main Pipe, Branch Lines and Pendant Chrome Sprinkler Heads. System design integrated with Structural, Mechanical, Fire Alarm Control Panel and other building services as applicable. Connection to Fire Alarm System devices include: activation devices (smoke detectors, heat detectors and manual pull stations) and audible alarm notification. Assumes adequate pressure from City Main Water Supply. Wet pipe equipment only, does not include devices associated with following suppression systems: deluge, foam, dry, clean agent, halon, or carbon dioxide. Exclusions: storage tanks, booster pumps, fire hose and cabinets.

Exclusions:

Taxes
Utility Impact Fee's
Electrical Utility Company Fee's
Electrical Transformer
Fire Hydrants
Exterior / Interior Signage