SOUTH TEXAS COLLEGE

REGIONAL CENTER FOR PUBLIC SAFETY EXCELLENCE

SOUTH TEXAS COLLEGE

PBK + G2 Solutions Group, Inc

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On behalf of the Partners, Principals and entire PBK staff, we wish to express our sincere appreciation to South Texas College for the opportunity to participate in the development of the Long Range Master Plan for the Regional Center for Public Safety Excellence. The process of creating the Long Range Master Plan has been thorough and inclusive, drawing from the insights, expertise and vision of multiple stakeholders.

We also extend our utmost gratitude to the South Texas College Board of Trustees, senior administrators, campus administrators, faculty, business and civic representatives that each actively participated in planning meetings, assisted with data collection and reviews, provided college system and campus-specific information and insight. Their commitment and contributions were invaluable to the success of the process.

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City of Donna Police Department

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Hidalgo County Sheriff's Office

U.S. Customs and Border Patrol

Pharr-San Juan- Alamo Independent School District

University of Texas Rio Grande Valley

The Master Planning Process

Creating a comprehensive master plan for a new Regional Center for Public Safety Center requires a highly collaborative process. It requires a significant time commitment from all participants. The process also requires collecting input from many stakeholders, including a variety of constituents representing groups from the South Texas College (STC) administration, faculty and community members, as well as representatives from several municipalities and State public safety organizations. In March 2016, South Texas College engaged PBK to assist them with the development of a LRMP. Throughout the process, there were several meetings with campus administrators and regional stakeholders. Each of these meetings was critical in understanding the physical and operational needs for this new center, and they provided insight into stakeholders, faculty and students' needs and wants. Each group brought forward their needs, discussed possible program offerings, and made projections for growth. Having each group contribute and share their vision(s) for the new Regional Center for Public Safety Excellence is the right way to ensure the master plan effectively addresses both present and future stakeholder expectations.

The South Texas College Regional Center for Public Safety Excellence Long Range Master Plan (LRMP) is designed to be a strategic road map for the physical development of the new campus over the next 20 years. The plan includes recommendations on program offerings based on the training and staff needs of the Rio Grande Valley. The LRMP serves as a valuable, fact-based planning tool for future facility related decision making. The results will be used to assist the college in determining where to focus and invest in terms of facilities and infrastructure. This is a very important step in guiding the College to realize the rewarding outcomes of its mission, purpose, core values and goals in meaningful and tangible ways – delivered in the form of facilities, learning environments, programs, opportunities and results.

Design Charrette

On June 20, 2016, a stakeholder Design Charrette was conducted to determine the design goals for the new campus. A charrette is an intensive planning session where participants and designers collaborate on a vision for the design and development of the projects. It provides a platform for sharing ideas and concepts, and allows for immediate feedback to and from designers. The biggest benefit of a charrette is that it empowers participating stakeholders to feel a sense of ownership in the overall plan.

Over the two-day charrette process the following items were discussed and carefully evaluated by the
stakeholders, which included:

- Types of Fire Training Components requested by Stakeholders and STC
- Drive track training components requested by Stakeholders and STC
- Firing Range training components requested by Stakeholders and STC
- Parking and Pedestrian Circulation
- Future Educational Facilities and Student Services

The discussion resulted in a draft of a 20-year master plan that was presented to the stakeholders at the end of the meeting for comments and further discussion. After gathering feedback and comments from the STC administration, faculty and community members, as well as representatives from several municipalities and state safety organizations, the final long range master plan was presented to the stakeholders on July 25th.

Below is the recommended priority of construction for the master plan elements

Proposed Phase 1

1. 21K + Education Building
2. JAG Express Drop Off
3. 160 + Parking Spaces
4. Skills/Skid Pad Driving Area

Future Phases

5. Multi Story Fire Training Structure
6. Two Story Residential Fire Training Structure
7. Firearm Training Classroom
8. EVOC Driving Track
9. Covered Shooting Rage
10. Cityscape with Simunition Building
11. Confined Space / Trench Rescue Training
12. Flashover Training
13. Flammable Liquid and Glass (F.L.A.G) Training Pad
14. Future Phase Campus Boulevard
15. Future 15,000sf Physical Plant
16. Future 50,000sf Educational Building
17. Future 25,000sf Student Services Buildings
18. Future 15,000sf Student Services Buildings

East El Rancho Blanco Road
330'
S. Cage Blvs/ Hwy 281
1300'
PSJA Southwest Early College High School
2575'
22 Acres
9 Acres
23 Acres
990'
South Veterans Blvs.
10
17
18
11
2934'
Main Floodway
1040'
1087'
62 Acres
1. 21K+ Education Building
2. JAG Express Drop Off
3. 160+ Parking Spaces
4. Future Phase Campus Boulevard
5. Future 50,000sf Educational Buildings
6. Future 25,000sf Student Services Buildings
7. Future 15,000sf Student Services Buildings
8. Future 15,000sf Physical Plant
9. Skills/Skid Pad Driving Area
10. EVOC Driving Track
11. Cityscape with Simunition Building
12. Multi Story Fire Training Structure
13. Two Story Residential Fire Training Structure
14. Confined Space/ Trench Rescue Training
15. Flashover Training
16. Flammable Liquid and Gas (F.L.A.G) Training Pad
17. Firearm Training Classroom
18. Covered Shooting Range
N
0' 100' 200' 400' 600'

LONG RANGE MASTER PLAN - AERIAL VIEW

LONG RANGE MASTER PLAN - AERIAL VIEW

LONG RANGE MASTER PLAN - AERIAL VIEW

1. 21,800 sf Education Building
2. JAG Express Drop Off
3. 500+ Parking Spaces
4. Campus Boulevard
5. 50,000 sf Educational Buildings
6. 25,000 sf Student Services Buildings
7. 15,000 sf Student Services Buildings
8. 15,000 sf Physical Plant

Site Design

The new Regional Center for Safety Excellence was master planned to provide space for future growth. The overall organization was conceptualized around providing separation between the public educational areas and the safety training structures. The public oriented parking and educational buildings are located on the west side of the site closest to the entry road making navigation of the campus simple for students, staff and visitors. The safety training structures are on the east side of the site which serve to isolate them physically and acoustically. The main entry access creates a central boulevard that highlights the five-story fire training tower immediately signaling the purpose of the campus. This boulevard starts as vehicular traffic and transitions to a large pedestrian walkway that connects the six campus buildings via a central quad.

This master plan provides over 180,000 sf square feet of educational space divided amongst six buildings, in addition, 500 plus spaces have been provided. Connecting the larger buildings together are smaller student services areas that can be used to help transition this center into a full campus as each new building is brought online. Also included in the master plan is a dedicated central plant to provide the infrastructure needed for the long term needs of the center.

Key Plan

12. Multi Story Fire Training Structure
13. Two Story Residential Fire Training Structure
14. Confined Space/ Trench Rescue Training
15. Flashover Training
16. Flammable Liquid and Gas (F.L.A.G) Training Pad

Site Design

The proposed fire training grounds will contain multiple fire training buildings, structures and props. These elements are designed specifically for fire training functions and incorporate the required operational and safety elements as defined within NFPA 1401 and NFPA 1403 guidelines for fire training buildings and structures.

The site layout and environment will simulate a real life city grid containing street lighting, fire hydrants and signage. Road widths will follow standard city guidelines for residential, city streets and cul-de-sac design.

The proposed placement of all fire training elements are shown in consideration of the existing site constraints, circulation requirements, safety, adjacencies and concurrent training activities.

All vehicular traffic circulation areas within the site will be constructed of reinforced concrete pavement designed to accommodate the heavy loads of fire apparatus (H2 load factor). Integral curbs and gutters will be used for storm and fire training water management. Areas adjacent to fire training structures will be provided with sidewalks and impervious surfaces designed for fire training evolutions.

Key Plan

F.L.A.G (Flammable Liquid and Gasses)

This testing and training area consists of a concrete pad area with a drive apron to the roadway. The area will be contained with a perimeter curb and sloped to a central area drain which is connected to the site clarifier.

A combination of live fire portable props will be used in this area such as split-flange fire, Christmas tree fire, pressure vessel fire and liquid fuel pan fire. These elements are part of a self-contained transportable trailer unit which is complete with on-board propane tanks and power generator.

Flashover Chamber

The flashover chamber is comprised of shipping containers. These simple structures are connected in a way to allow for burning of materials in an upper chamber area and allow students to sit and observe various fire behavior scenarios in the lower chamber area. By using internal dampers and draft stops, the instructor can recreate real-life burn conditions. This prop is essential in understanding how fire can reignite and rollover in certain situations.

The entire training prop itself is about 8' wide x 40' long x 12' high. It accommodates up to eight (8) students and one (1) instructor. The duration in time of the exercise ranges from 15-20 minutes.

Trench Rescue

The trench rescue prop is used to train firefighters in the safe shoring and extraction of personnel in below grade trenches. The prop structure is comprised of cast-in-place concrete retaining walls. The series of trench walls varies in widths from 36" to 48" with "T" intersections, "L" shape configurations and 45-degree adjuncts. The depth is 8'-0" minimum to 10'-0" maximum. All open trench areas shall be protected with removable fiberglass grate sections. For access, a set of concrete stairs shall extend from grade level down to the bottom of the trench. One wall within the trench prop will connect to the confined space prop creating a horizontal entry point.

Confined Space Training Prop

There are two (2) distinct components of the confined space training. One section is above ground, the other below ground. The above ground section is comprised of 36" diameter reinforced concrete pipe (RCP) section set just below finish grade level. Within the pipe sections will be breach insertion "slots" allowing the instructors to place various breaching media for the students. The above ground terminus will be a standard concrete headwall at one end and a standard junction structure at the opposite end which would connect to the underground portion of the confined space prop. The below ground portion of the confined space is comprised of various diameter high-density polyethylene (HDPE) pipe sections. These sections will be positioned in accordance with the standards for confined space training. Individual sections will terminate at standard concrete junction structures with surface manhole access points. One section will extend to the trench rescue prop area.

Vehicle Extrication Area

The proposed vehicle extrication area will be located toward the rear of the site in the same area as the F.L.A.G. Training and Confined Space / Trench Rescue Prop. This area is sized to accommodate up to twelve (12) vehicles. The area itself will have a perimeter fence for screening. The surface area will be of concrete paving. This area will be sloped to drain to an area drain which will connect to the site clarifier due to the presence of various caustic liquids such as brake fluids, transmission fluids, gasoline etc.

Propane Storage Tank(s)

The interior and exterior live fire props are fueled with propane gas. Interior props are utilizing propane vapor. Exterior props utilize both vapor and liquid propane. From the propane tank, piping will be distributed to each of the fire training buildings, site props and the F.L.A.G. terminating with above grade shut-off valves.

Dumpster Fire Prop

The dumpster prop is one that simulates a typical dumpster fire. The prop will be located near the parking areas of the three-story apartment.. The prop itself is surrounded by typical CMU trash enclosure walls and gates. Both liquid and vapor propane fuels are needed at this prop.

Overhead Obstruction

To further enhance the training ground setting, a series of telephone poles are installed. Between the poles are strung removable nylon ropes simulating power lines. At the residential structure, a single line is extended to rooftop structures to simulate power supply from a typical power pole.

Two (2) buildings are currently planned within the Fire Training grounds to be used specifically for the training of firefighters. The placement of the buildings are planned to accommodate the necessary circulation and apparatus placement. They are also set a distance apart to allow for concurrent training by college personnel and/or outside agencies or companies.

2-Story Residential (House) Fire Training Structure

A two-story structure will be erected to simulate a typical single family residence. The site will contain a fence for a backyard and synthetic grass for a front yard. This structure will have multiple roof systems for various slope training. The structure will have an internal stair leading to the upper floor area. There will also be single-story garage annex that connects internally to the structure. The access to the house will be from the street with a typical residential style driveway.

Within the contiguous structure will be multiple fire training elements and live fire props. Below is a sample list of training elements and props to be contained within the structure.

Fire Training Elements

- Breach Door
- Forcible Entry Door
- Central controlled smoke generation system
- Bailout window prop
- Repelling and tie-off anchors
- Movable Maze Panel wall system
- Multiple window types: Casement, sliding, pivots and hinge.
- Breach Walls and Openings

Live Fire Props

- Propane-Fueled Live Kitchen Fire Prop with Extension
- Propane-Fueled Live Fire Bedroom Prop with Rollover
- Exterior propane-fueled window fire prop
- Propane fueled hallway flashover prop
- Concealed propane-fueled attic fire prop
- Propane-Fueled Exterior gas meter prop.
- Interior Class “A” Burn Room (For burning of combustible materials)

Multi-Story Tower Fire Training Structure

A multi-story structure will be erected which will simulate several multi-story building styles including curtain wall, multi-family, hotel, commercial retail and high rise. The structure will contain a full height interior stair with rooftop penthouse for vertical circulation.

Integrated as part of the multi-story structure will be a single story retail portion. This portion will simulate a typical non-descript retail strip mall where the rear side would have standard roll-up doors and metal access doors. On the front side facing north will be multiple commercial facades with various features and parapet heights simulating many of the typical firefighting buildings. The interior of the structure will be open and flexible for reconfiguration of specific scenarios. A portion of the retail roof area structure will be unique with each of the four (4) ‘stores’ having an independent different roof structure for observation and sound training. Roof construction types would include:

- Open-Web steel truss framed
- Heavy timber (Glue-Lam) panelized roof system
- Wide flange steel framing
- Wood truss

Within the contiguous multi-story total structure will be multiple fire training elements and live fire props. Below is a sample list of training elements and props to be contained within the structure.

Fire Training Elements

- Fire Riser and Mock Sprinkler system
- Forcible Entry Door
- Central controlled smoke generation system
- Repelling and tie-off anchors
- Movable Maze Panel wall system
- Multiple window types: Casement, sliding, pivots and hinge.
- Dry-Pipe Riser with fire department connections
- Flat-Roof Breach Prop
- Pitched Roof Breach Prop
- Jib Crane for Material management
- Electrical Service Panel Prop
- Mock Fire Alarm Panel

Live Fire Props

- Propane-Fueled Live Balcony Fire
- Propane-Fueled Live Office Desk Fire with Extension
- Propane-Fueled Hallway Flashover
- Propane fueled warehouse rack and content fire

Exterior

The exterior composition of the fire training buildings will be of reinforced, solid-grouted concrete masonry units (CMU). The walls will be load-bearing supporting the interior floor structures as well as the roof structure. Additional architectural features will complement the facades of the buildings in correlation to the desired replication. The exposed CMU walls are to be of various block styles for aesthetic purposes such as colored block and split face. All CMU shall be sealed with an approved masonry sealer.

Due to the functions of training, the windows depicted shall use ¼" thick solid aluminum plate as the glazing. Window frame systems shall be heavy gauge hollow metal type with painted finish. Exterior doors shall be standard hollow metal type with full height hinges for durability. Doors and frames shall have paint finish. Selected doors will be equipped with a forcible entry prop latch which is used by the trainees. These units are constructed of heavy gauge, galvanized metal, with heavy duty springs.

Roof systems for the training buildings will be of two general types. For flat roof areas, the surface will be exposed concrete, with a two-part sealer applied. These areas are used by the trainee personnel for various activities. Pitched roofs as used on the 2-Story House structure will be constructed with heave duty metal framing and covered asphalt roof shingles. As with the flat roof areas, these roofs will be used in various exercises.

Interiors

The interior environment of the training buildings is to serve functionally for the trainers. To that extent, finishes such as ceilings, floorings, wall surfaces, casework are not used. During a training evolution, the rooms are dark, without light fixtures. Firefighters advance with charged fire hose lines throughout the buildings. The only lighting to be provided within the structures will be a lls will be standard precision face CMU units. Walls with outside corners shall utilize bull nose corners.

Floor and roof structures shall be constructed of exposed concrete. All floors shall be sealed with and approved concrete sealer system. The structural support of the floors will be determined by the structural engineer. Many of the training scenarios will incorporate the use of water. As the amount of water is extensive, all interior floors will be sloped for drainage. Slabs on grade will drain to interior oversized floor drains with removable strainers. Upper floors will drain to multiple exterior scupper and downspouts.

Vertical circulation stairs shall be constructed of heavy duty steel frame structures with concrete filled metal pans. Metal elements will have paint finishes while the concrete treads will be sealed. Handrails/Guardrails shall be installed on each side of all stairs per Life Safety and OSHA guidelines.

Typical Gas-Fueled Live Fire Training Props

As part of the training environment, the fire training building will be equipped with propane-fueled live fire props. These computer controlled training units generate interior fires to be extinguished by the firefighters. Each prop is individually controlled by the trainer and is equipped with multiple safety elements, such as "dead man's" shut off switch, integral smoke and heat evacuation, interior room temperature sensors and air samplers. Refer to Figure A at the end of this section.

Where live fire props are located within the building, those rooms shall be provided with a high temperature lining system to protect the masonry wall and ceiling structure. The lining systems are designed to withstand temperatures to 2,000º Fahrenheit. These are attached to a galvanized metal framing system secured to the building superstructure. Doors and windows located within the live fire prop rooms have high-temperature lining material installed on the inside face. Door and window frames need not be protected. Live fire props require equipment rooms which houses the fire prop control panels and equipment. These rooms shall be "dry" in nature and protected from interior fire training functions using locking doors with seals and thresholds.

The live fire props themselves and the supporting equipment shall be supplied and installed by the selected fire training equipment supplier. Refer to below for depiction of provided equipment.

FIgure A : Typical Gas-Fired Prop "Burn Room" Diagram

Product: **Typical High Rise /Commercial Buildings**

Location: **Fire Training Grounds**

Function/Application: The high rise and commercial fire training structures are used to simulate many of the technical and specialized training scenarios facing firefighters.

High Rise Facade

High Rise/Hotel

Commercial/Industrial Structure

Multi-Family Structure

Product: **Interior Live Fire Training Props**

Location: **Fire Training Buildings**

Function/Application: The live fire training props are computer controlled systems offering state-of-the-art fire training in a safe environment. All props are full-controllable utilizing hand-held controls which monitor all functions of the fire, room and operations. These props vary in their shape and effects.

Kitchen Fire Prop w/ Extension

Bedroom Fire

Living Room Fire w/ Rollover

Bedroom Fire/ Rollover

Product: **Interior Live Fire Flashover Training Prop**

Location: **Fire Training Tower**

Function/Application: This is the live fire flashover/rollover effect prop. It is not intended to be an extinguishable fire, as much as the understanding of fire traveling across ceiling structures. The system is controlled by the trainer through a handheld remote device. A supporting equipment room houses the necessary infrastructure.

Hallway Flashover

FireBlast System

Hallway Flashover

Product: **Miscellaneous Fire Training Props**

Location: **Fire Training Buildings**

Function/Application: These props simulate a variety of real-world elements essential in firefighter understanding and training. They are located in typical locations.

Electrical Panel Simulator

Gas Meter Flange Fire Prop

Forcible Entry Door

Exterior Dumpster Fire

Product: **Portable Live Fire Car Prop**

Location: **Fire Training Site Area**

Function/Application: This prop allows the users to locate the car anywhere on the site where a safe distance to combustible materials is maintained. It fully self-contained and portable which can be loaded onto its trailer and transported to other sites for remote training if desired.

Car FIRETRAINER® O-100

Kidde's portable Car FIRETRAINER® O-100 replicates various vehicle fire emergencies. The O-100 fire simulator allows the operator to safely control the training scenarios at the push of a button, while clean-burning propane fuel eliminates environmental concerns.

The Car FIRETRAINER® O-100 is extremely versatile with the ability to replicate scenarios such as:

- engine fire
- multiple passenger compartment fires
- fuel spill fire

The car fire prop's functional axles and wheels allow the mock-up to be moved easily. An optional transport trailer with on-board propane storage is also available, allowing the car fire simulator to be transported to numerous training locations.

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Optional transport trailer with on-board lpg storage

Car Trainers

Vehicle fires potentially create the most hazardous and challenging response that law enforcement and fire personnel encounter. Awareness of the hazards is essential in scene safety from arrival through incident. Fireblast CAR Trainers offer multiple training hazard scenarios that provide effective safe approach strategies and tactics. The CAR Trainers are available with two unique operator control systems delivering simplicity of operation, through a design that allows flexibility at the point of control.

Car Trainer Photos

Click here to see the Car Fire Trainer video

Falcon CAR

The Falcon CAR Trainer represents a mid size vehicle with interior seats and dash board accessories. The unit includes an operating hood, doors, and trunk. This unit incorporates the Falcon burner system and controls. Training scenarios include fires in multiple locations throughout the trainer.

Falcon CAR Equipment

- Operator control station
- Programmable logic controller
- Falcon pilot and burner system
- Burner management
- Engine fire
- Front seat fire
- Rear seat fire
- Trunk fire
- Flammable liquid fire

Falcon Portable Equipment

- Dot compliant transporter
- Dual LPG cylinders
- Storage compartments

Product: **Portable F.L.A.G. Training Props**

Location: **Fire Training Site Area**

Function/Application: This system of prop allows the users to change between applications of the actual live fire prop unit. The props are portable which will allow them to be transported to remote locations for training elsewhere.

Flammable Liquid and Gas Trainer

Hazardous material response to flammable liquid and gas incidents demand quick and effective response which is generated from specialized training. Specialized training in hazardous material response effectiveness can be achieved by the consistent realistic training scenarios of the FLAG and FLAG II Advanced Trainers. With a broad range of training scenario capabilities, each model includes innovative and advanced training solutions.

FLAG Trainer

The FLAG Trainer provides an assortment of training modules that represents a variety of flammable liquid and gas incidents commonly found in first responder response.

FLAG Trainer Equipment

- Dot compliant transporter
- Dual LPG Cylinders
- Operator control module
- Flammable liquid spill fire
- OS&Y line breech fire
- Gas meter fire
- LPG pressure relief & ground fire
- Boil over fire

FLAG II Advanced

The FLAG II Advanced offers a variety of training modules providing techniques for larger incident management, with the integration of automated controlled fire spread.

FLAG II Advanced Equipment

- Dot compliant enclosed transporter
- Dual LPG Cylinders
- Multi burner operator control station
- Programmable logic controller
- Burner management
- Ignition modules
- Running flammable liquid spill fire
- Split flange fire
- Gas meter fire
- Christmas tree fire

Click here to watch the FLAG Valve Cart Prop video

Click here to watch the FLAG Back Stop Prop video

FLAG Trainer Photos

Portable Fire & Haz-Mat FIRETRAINER® O-100

Kidde's Portable Fire & Haz-Mat FIRETRAINER® O-100 provides *all hazards* training capability. The FIRETRAINER® O-100 allows the operator to safely control training scenarios at the push of a button, while clean-burning propane fuel eliminates environmental concerns. The enclosed transport trailer with on-board propane storage allows training to take place at numerous locations. Ease of setup means low startup and shutdown time and ease of operation results in improved fire ground efficiency.

Features include:

- 14, 20 or 32-ft custom trailer
- 160-gallon on-board lpg supply
- Rear ramp door
- Christmas tree (industrial pipe) fire
- Horizontal propane tank fire
- Split flange fire
- Flammable liquids (fuel spill) fire
- Operator "deadman" controls
- On-site startup and operation / maintenance training
- Operation & maintenance manual
- 1-year parts warranty
- 24/7 technical phone support

Options include:

- 11.2 ft^2 flammable liquids simulator
- Substitute or additional live fire props (ask for availability)
- Wireless controls
- Multi-control stand (for central control of up to 3 props)
- 110V power inverter
- Vinyl graphics package

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Enclosed transport trailer with on-board lpg storage

Christmas Tree (Industrial Pipe) Simulator

Horizontal Propane Tank Fire Simulator

Split Flange Fire Simulator

24 ft^2 Flammable Liquids Fire Simulator

Product: **Trench Rescue Area**

Location: **Fire Training Area**

Function/Application: The trench rescue area is sub-terrain prop system of concrete trenches for designed for specific training applications. It is interconnected to one of the confined space pipe legs. For our project we will use below grade and CIP (Cast-In-Place Concrete) for all side walls, bottom and access stairs.

Rough Trench

Typical Layout Shape

Smooth Trench

Product: **Flashover Chamber**

Location: **Fire Training Area**

Function/Application: The flashover chamber is a free-standing structure designed to simulate various fire behavior conditions which can be observed by students in a controlled environment.

Product: **Typical Residential Training Building**

Location: **Fire Training Grounds**

Function/Application: The residential fire training structures are to simulate the layout, circulation and roof systems found in neighborhood residential communities which are the most common firefighter responses structures.

Single Story Residence with Basement

2-Story Residential Structure

9. Skills/Skid Pad Driving Area
10. EVOC Driving Track
11. Cityscape with Simunition Building

a. Sand Stop
b. Earth Berms

Site Design

The Emergency Vehicle Operations Center (EVOC) will include a state-of-the-art driving course to include all of the necessary elements to train both new and experienced officers. The EVOC complex will provide the foremost driver training facility in the region. Elements will include a Highway Response Course and a Driving Skills Pad.

Key Plan

Urban Driving Course (located within the EVOC Driving Area)

This course simulates an urban driving environment that includes city streets, controlled and uncontrolled intersections, and various types of road surfaces (asphalt, dirt, gravel, and concrete). Students will apply learned accident avoidance techniques, vehicle dynamics and department policy requirements relating to emergency and pursuit driving, turning and backing techniques, steering and braking techniques.

Highway Response Course

This highway-style course will allow students to demonstrate high-speed driving skills. Students will apply learned accident avoidance techniques, vehicle dynamics and department policy requirements relating to emergency and pursuit driving. Students will apply learned techniques to avoid a hazardous situation by steering, braking, or accelerating to avoid a collision or other crash

Driving Skills Pad

A concrete pad is where officers will apply learned skid control techniques during controlled braking exercises, straight line skids and 90-degree turning skids. The pad may also be used to set up various slow speed exercises using traffic cones. Officers will apply learned techniques for serpentine, 9-3 steering, shuffle steering, lane changes, backing, and parking.

EVOC Complex Training Scenarios

Serpentine steering
High risk stops
Diminishing clearance exercises primarily for large rigs
Braking techniques (ABS and non-ABS)
Confined space turns
Pursuit training
Offset alley maneuvers
Skid control practice
Four-corner exercises to acquaint drivers with the location and clearance of each side of the car
Proper seating and steering techniques
Emergency driving maneuvers
Controlled braking
Urban environment driving techniques
Proper backing techniques and practice
Complex cone course driving
Vehicle dynamics training
Combined pursuit techniques

Driving Track

Pursuit Driving

Course Signs

City Street Markings

Collision Avoidance

Product: **Slow Skills Driving Pad**

Location: **Fire Training Area**

Function/Application: The slow skills driving pad is a heavy duty, reinforced concrete area designed for driver/operator training. Within the pad area are depicted the various law enforcement and fire apparatus driving layouts using colored dots by which the instructor can quickly set up the cones in the pre-measured configurations.

DRIVING PAD SHOWING POLICE DRIVING LAYOUTS

DRIVING PAD SHOWING FIRE DRIVING LAYOUTS

17. Firearm Training Classroom
18. Covered Shooting Range

Exterior Design

The exterior construction of the shooting range building can be either constructed of “Tilt-Up” concrete walls or solid-grouted masonry. The shooting range building will be constructed with a secondary exterior façade wall that compliments the other campus buildings in color and forms. The walls will be load-bearing walls. Additional architectural features such as windows, trims, and accents can be incorporated to enhance the overall aesthetics.

Key Plan

The interior area of the shooting range building is an acoustic and ballistic separated space environment for the safe use and training of live firearms. The entire space is fitted with various equipment and elements to provide for safety in all aspects of firearm instruction including handguns, rifles and shotguns.

The interior range area The second range will have fifteen (15) lanes of 50-yard distance for instruction of all firearms. This range will have a tactical training area extending to the 25-yard line from the target line which will prevent any errant ballistic vertical misfires.

A selected range vendor will be installing their systems as further described below. The MEP elements will be coordinated for installation in harmony with the range equipment.

Firing Range Training

• 50-yard handgun and shotgun firearms training utilizing a fixed target line and advancing firing line.

- o Fixed 50-Yard Shooting Distance
- o 25-Yard full tactical or lateral firing capabilities.

Tactical Ballistic Walls

• The front 25-Yards of the range will be designed to accommodate full tactical firearms training. The exterior perimeter walls will be fully grouted CMU or tilt-up concrete. These walls will be protected with a ballistic composite material with steel plate to a height approximately 9'-0" or bottom of the suspended ballistic baffles.

Shooting Range Roof / Ceiling

The roof / ceiling configuration will be comprised of a concrete slab roof on metal deck over steel structure protected by a series of suspended angled ballistic baffles. The roof structure shall be designed to accommodate the a minimum suspended weight of 45 lbs./SF. The baffles will be an air-space composite of AR 500 steel plate angled to re-direct ballistic rounds. The underside will have secondary composite material to prevent ricochet and spatter. In addition to protecting the structure from ballistic impact, the suspended baffles will protect the HVAC and Electrical systems above.

Shooting Range Floor

The floor of the range shall be smooth finished reinforced concrete slab. All control and expansion joints will be sealed. The floor shall have proper lane markings for both distance and width. The entire floor area shall be sealed with a roll-on applied or spray-applied sealer to prevent the migration of lead into the porous concrete.

Acoustical Separation

The exterior walls and roof structure of the range will have additional acoustic dampening and absorbing applications.

- o Roof: The underside of the exposed roof and structure shall have a spray-applied acoustic material similar to a monocoat system. Material shall be placed on all steel members and metal deck systems to reduce interior echo and reverberation..
- o Interior walls of the range will have a surface applied rigid acoustic membrane system extending from the floor level to the underside of the ballistic baffles.
- o Suspended Baffles: The underside of the re-directive ballistic baffles will have surface applied rigid acoustic membrane applied. This also serves to eliminate ricochet and spatter.
- o Exterior Wall: To reduce ambient noise to adjacent or outdoor areas, a secondary wall or face brick material should be applied with a fibrous-filled air-gap between elements.

Range Equipment – Bullet Trap

There are two (2) predominant types of bullet containment traps to be considered.

- o The Steel Containment shall be of a typical inverted "V" steel trap designed to capture ballistic rounds via a deceleration chamber. The trap is construction of 3/8" AR 500 steel.
- o The Elevated Rubber Media bullet trap shall be of an inclined steel frame with a of 3/8" AR 500 steel backstop. The backstop is filled with 18"-24" deep field of rubber media designed to absorb bullet rounds.

Range Equipment – Targeting Equipment

The targeting systems in each bay will include a Laptop PC-based programmable control system (located in the range control room), utilizing electric or pneumatic actuators for fixed-position, turning targets and dual running man targets. The targeting system will be interfaced with the target lighting / dimming system. The targeting system will allow remote control of target courses from within the range area.

Support Equipment – Sound System

Communication between the control room and the range will be facilitated by a two-way intercom system. In addition, more sophisticated sound system capability in each bay will allow use of prerecorded training sounds to facilitate situational fire arms training scenarios.

Support Equipment – Portable Bleachers

Prefabricated aluminum riser seating for 20 people

Product: **Overhead Range Ballistic Protection**

Location: **Shooting Range**

Function/Application: The range will be protected on all sides from errant rounds. The roof is protected using a series of suspended baffles spaced for tactical and fixed line shooting. The tactical provides 100% protection of vertical errant shots while the fixed line provides “0” daylight. The underside of baffles will be faced with acoustic panels.

Meggitt Training Systems

Ballistic Baffles and Guards

Air-Space Ceiling System, Model JQ12
The area extending from the firing line to typically twelve feet downrange is one of the most critical areas in a range where a misdirected shot could compromise shooters safety. Meggitt Training Systems ceiling system reduces the risk of injury or damage from a vertically misdirected shot by stopping the path of the round and trapping it in an air-space panel.

The ceiling system is a series of panels that are composed of a thin layer of wood separated from a steel sheet by a wooden frame. A misdirected shot will penetrate the wood facing, traverse the air-space and strike the steel sheet. With insufficient velocity to exit the panel, the bullet does not return to the open range area. The air-space panels are suspended horizontally from the ceiling starting at the firing line and extending 12 feet downrange. After installation, acoustical material may be applied to the exposed panel surfaces to assist in noise abatement.

Air-Space Baffle, Model JA4
A series of angled air-space baffles are often required to protect the ceiling, lights, ducts, pipes, and range equipment downrange. The baffles are suspended from the ceiling at a 30° angle to the floor in intervals determined by ceiling height, range length and shooting activity. A seventy-five foot target distance range will typically require six rows of baffles. Load weight computations and suggested baffle placements are provided to the range planner as a part of Meggitt Training Systems drawing package.

Rubber Air-Space Guard, Model JA8B
The rubber air-space guard is the last baffle down-range in a facility equipped with a rubber bullet trap. It is suspended vertically from a slab ceiling or at a 30° angle in a baffled range.

Steel Redirective Guard, Model JR5B
In ranges equipped with a steel bullet trap, a steel redirective guard is mounted from the ceiling immediately ahead of the bullet trap to shelter the ceiling area and redirect rounds towards the bullet trap.

Steel Guard, Model JR7
When a range has a flat, slab ceiling, steel guards can often be used in place of air-space baffles. The angled steel guards protect all downrange protuberances such as light fixtures, conduit, and ducts from impact and will deflect bullets in the direction of the trap.

Note: The model numbers listed in this bulletin are for baffles and guards designed to accommodate all calibers of handguns, rimfire rifles, and shotguns. In ranges where shooting activities will include centerfire rifles, please add the suffix "C" to the model number.

MEGGITT

INDOOR RANGES

SAFETY BAFFLES™
U.S. PATENT # 5822936

- Impenetrable barrier
- Protect lighting, ventilation, and other utilities & equipment
- Help control acoustics and other sound issues
- Match the grade of baffles to the scope of the range: Handguns? Rifles?
- Fixed firing line baffles: Calculate line of sight from standing, kneeling, and prone positions
- Tactical movement baffles: Entire ceiling must be completely protected – not just certain areas
- Baffles are different than deflectors

A critical safety concern on any indoor range is making sure bullets can't escape to the outside. In addition to keeping fired bullets from exiting the range baffles offer protection for overhead lights, pipes, ventilation ducts, and other structures. Using an innovative combination of steel, wood, and acoustical tile, Action Target Baffles provide ballistic protection, sound abatement, and a polished, professional appearance.

To ensure you get exactly what you need for your specific range requirements, Action Target Safety Baffles come in 4 levels of protection.

Level 1: Baffles are made of 10-gauge steel, and will deflect and contain most standard handgun rounds fired at an angle of at least 45 degrees from perpendicular. Some damage to the steel plate may occur. Repeated rounds impacting in the same area may breach the baffle.

Level 2: Baffles are made of 1/4" mild steel, and will deflect and contain standard handgun rounds fired at an angle of at least 45 degrees from perpendicular with little or no damage to the steel plate. Baffle will also deflect and contain standard handgun rounds fired at a perpendicular angle with some potential damage to the steel plate.

Level 3: Baffles are made of 1/4" AR steel, and will deflect and contain standard handgun rounds fired at a perpendicular angle with no damage to the steel plate. Baffle will also deflect and contain high power rounds (.223 and .308) fired at an angle of at least 45 degrees from perpendicular. Some damage to the steel plate may occur.

Level 4: Baffles are made of 3/8" AR steel, and will deflect and contain standard handgun rounds fired at a perpendicular angle with no damage to the steel plate. Baffle will also deflect and contain high power rounds (.223 and .308) fired at a perpendicular angle. High power rounds fired at a perpendicular angle will cause damage to the steel plate. Repeated high power rounds fired at a perpendicular angle impacting in the same area may breach the baffle.

ACTION TARGET
BETTER EQUIPPED. BETTER PREPARED.

Product: **Sidewall Ballistic Protection**

Location: **Shooting Range**

Function/Application: The side walls of the range will be installed with a ballistic material that, while able to absorb errant ballistic rounds, also offers an acoustic baffling which reduces the noise levels and echoes within the range area.

RB RUBBER PRODUCTS
A Subsidiary of DASH MULTI-CORP
MADE IN THE USA

Ballistic Tile

Intended Uses (Applications)
- Indoor/Outdoor Shooting Range
- Military Training
- Gun Clubs
- Law Enforcement
- Security
- Firing Ranges

Benefits
- Assists in ricochet reduction
- 1 ½ inch thick self-sealing rubber
- Manufactured specifically for added safety in firing ranges
- Durable and resilient
- Reduces noise levels
- 100% Recycled Rubber
- Looks great round after round

Currently In Use At The Following Facilities
- California Highway Patrol- Sacramento
- Border Patrol – San Diego, CA
- Orange County Sheriff's Dept.
- DOD – Homeland Security Training Division – New Mexico

PARAGON TACTICAL

N-Gage™ Ballistic Rubber Wave Tile
Product Code(s): BMT-7100, BMT-7150, BMT-7200

PRODUCT NAME	N-Gage™ Ballistic Rubber Tile *For superior ballistic surface protection.*		
PRODUCT DESCRIPTION	The N-Gage BMT 7000 series is a ballistic rubber tile with a wave surface that offers a versatile design for range baffle and sidewall applications. The wave design is used for both ballistic protection and sound attenuation around bullet traps, firing ranges, safety walls, targetry shields and other areas where durable surface protection is required in a live fire training environment.		
PRODUCT NO. / CATALOG CODE	BMT-7100	BMT-7150	BMT-7200
DIMENSIONS / SIZE	❑ 24" X 24" X 1.0" 0.75" thick at low point	❑ 24" X 24" X 1.5" 1.25" thick at low point	❑ 24" X 24" X 2.0" 1.75" thick at low point
	Wave surface on one side and flat on opposing side with radial edge on flat side		
WEIGHT	19 lbs	29 lbs	38 lbs
	(note: method of adhesion will add to weight)		
COLOR(S)	BMT-7xx0 (*standard is Black*)		
FEATURES	❑ High density rubber compound *(density of approx 60 lbs per ft.)* ❑ Recommended application consists of a laminate method using rubber tile, OSB wood and AR rated steel plating ❑ Molded via pressurized heat form & bonding compounds *("hot process")*		
BENEFITS	❑ Eliminates ricochets and lead "splashback" ❑ Minimizes airborne lead pollution ❑ Reduces both indoor and outdoor noise levels ❑ Each tile can take up to approximately 2000-3000 rounds before needing replacement *(based on tile thickness, application and type of caliber)*		
WARRANTY	One (1) year warranty on material and manufacturing defects *Since we cannot control the use of our products, we neither imply nor accept any liability for the misuse of the product*		
INSTALLATION	❑ Attached with finish nails, screws or adhesive ❑ For use on Indoor or Outdoor applications ❑ *Call for price quote and availability*		
CUSTOM ORDERS	Other sizes and types are available; pure acoustical tiles also available *Call for availability of additional or custom ballistic tiles and designs*		
MSRP	*Call for Pricing*		
ADDITIONAL INFORMATION	Please visit www.ParagonTactical.com or call PH: 800-482-6994 (U.S.) Paragon Tactical, Inc. 1580 Commerce Street, Corona CA, 92880		

Product: **Public Address System**

Location: **Shooting Range**

Function/Application: The public address system will allow audible sound to be heard within the range during exercises. The system is equipped with a desktop microphone within the control room, as well as a wireless microphone for the instructor. An electronic timer is incorporated as part of the system, which can provide an audible alarm for timed events.

Product: **Portable Aluminum Bleachers**

Location: **Shooting Range**

Function/Application: Portable bleachers provide seating within the range area. The ability to tip and roll the bleachers allows the instructor the flexibility to move the units where instruction will be performed.

ALL-STAR BLEACHERS

Tip-n-Roll Bleachers:

- Manufactured in the USA
- Available in 3 row and 4 row configurations
- Lightweight Aluminum Structure
- 4" casters on each frame
- NoMar skids to protect the surface below

To order your bleachers today:
call 800.875.3141 or email salesdept@allstarbleachers.com

Our Tip-n-Roll Bleachers are available in the these sizes:

Item	R	H	Sts	D	Description	Wt
6A3S7.5	3	24"	15	5'	aluminum bleacher, 6" rise, 12" seat board, 7'6" length	222
6A3S15	3	24"	30	5'	aluminum bleacher, 6" rise, 12" seat board, 15' length	356
6A3S21	3	24"	42	5'	aluminum bleacher, 6" rise, 12" seat board, 21' length	503
6A3S27	3	24"	54	5'	aluminum bleacher, 6" rise, 12" seat board, 27' length	621
6A4S7.5	4	30"	20	7'	aluminum bleacher, 6" rise, 12" seat board, 7'6" length	269
6A4S15	4	30"	40	7'	aluminum bleacher, 6" rise, 12" seat board, 15' length	440
6A4S21	4	30"	56	7'	aluminum bleacher, 6" rise, 12" seat board, 21' length	618
6A4S27	4	30"	72	7'	aluminum bleacher, 6" rise, 12" seat board, 27' length	767

Product: **Range Hand Washing Sink**

Location: **Shooting Range**

Function/Application: Tests show that lead contamination to people occurs with the transfer of contaminates from the hands. The design includes this style of sink which accommodates multiple personnel before they enter back into the building.

Product: **Bullet Resistant Doors & Windows**

Location: **Shooting Range Control Room**

Function/Application: The control room is a key element to the operations and security of the shooting range. Optimal vision of the range and quick access is essential. To ensure safety, all construction surrounding the Control Room will be protected from errant ballistic rounds.

Product: **Shooting Range Floor Sealer**

Location: **Shooting Range**

Function/Application: To prevent lead from residing within the porous surface of exposed concrete, the entire slab area of the shooting range will have a clear sealer applied. This will allow for standard interior cleaning to remove lead particulates.

PRODUCT DATA

W. R. MEADOWS, SEALTIGHT

No. 368-C

CSI Code: 03050

JULY 2004
(Supersedes September 2002)

VOCOMP®-30

Water-Base Acrylic Concrete Curing and Sealing Compound

DESCRIPTION

VOCOMP-30 is a ready-to-use, 30% solids Concrete Curing and Sealing Compound formulated of special acrylic polymers in a true water-base carrier. VOCOMP-30 provides improved resistance to rain, sun, freezing temperatures, most acids and industrial chemicals, petroleum, deicing salts, cleaning agents (except aromatic solvents), diluted caustics and other pollutants.

Color-wise, VOCOMP-30 appears "milky-white" in the container and when first applied, leaves a "bluish" cast on the concrete for easy visual coverage. VOCOMP-30 dries clear to provide a transparent sheen finish. This sheen can be controlled by the number of coats applied. VOCOMP-30 meets maximum VOC content limits of 700 g/L for Concrete Curing and Sealing Compounds as required by the U.S. EPA Architectural Coatings Rule.

USES

VOCOMP-30 may be used wherever a thicker film, with a medium to high sheen, is desired to bring out the natural beauty of concrete without discoloring, checking or peeling. When properly applied, VOCOMP-30 provides an impermeable seal for superior moisture protection. It may be applied to simultaneously cure, seal and dustproof new and old, interior and exterior, horizontal and vertical concrete surfaces. VOCOMP-30 is ideal for curing, sealing and dustproofing driveways, sidewalks, patios, swimming pool areas and commercial and industrial floors. Horizontal surfaces protected with VOCOMP-30 offer excellent wearing qualities for foot and vehicular traffic. If, after prolonged usage, traffic patterns appear, the surface can be washed clean and recoated to restore the original beauty. Good concrete and good concreting practices should be used as VOCOMP-30 is not a cure-all for improperly mixed or placed concrete.

ADDITIONAL CURING AND SEALING COMPOUNDS FROM W. R. MEADOWS CAN BE FOUND BY VISITING OUR WEBSITE: www.wrmeadows.com

FEATURES AND BENEFITS

- Provides a ready-to-use, non-yellowing, water-base compound that seals and protects concrete in one quick and easy application
- Dries quickly on new concrete to provide a clear, tough, easy-to-clean sheen finish
- Applicable for use on new, old, interior, exterior, horizontal and vertical concrete surfaces
- Offers improved resistance to most chemicals, petroleum, abrasives and mortar droppings
- Application tools can be cleaned with soap and water
- VOC compliant... actual VOC content is less than 200 g/L

PACKAGING

1 Gallon (3.79 Liter) Units (4 per case)
5 Gallon (18.93 Liter) Pails
55 Gallon (208.20 Liter) Drums

COVERAGE

Broomed Surface: Approximately 300 sq.ft./gal. (7.35 sq.m/l.).

Troweled Surface: Approximately 500 sq.ft./gal. (12.26 sq.m/L).

SPECIFICATIONS

- ASTM C 1315, Type I, Class A
- ASTM C 309, Type 1, Class B
- AASHTO M 148, Type 1, Class B
- USDA Accepted

GreenLine Environmentally Responsible Products For Concrete Performance

CONTINUED ON REVERSE SIDE...

W.R. MEADOWS, INC.
P.O. Box 338 • HAMPSHIRE, IL 60140-0338
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www.wrmeadows.com

HAMPSHIRE, IL / CARTERSVILLE, GA
YORK, PA / FORT WORTH, TX / BENICIA, CA
POMONA, CA / GOODYEAR, AZ / MILTON, ONT.

Product: **Target Control System**

Location: **Shooting Range**

Function/Application: The target control system provides the trainer with full capabilities of all range systems such as, lighting, targets, and a running man unit. The main station is located in the control room while a wireless handheld unit provides the instructor control and mobility.

MEGGITT

RangeMaster™ 10K, Model RM10K

RangeMaster™ 10K allows you to create scenarios which consist of a set of target movements for specified durations. Once created, the training scenario program can be stored so it is accessible to run any time you need it.

RangeMaster™ 10K can also control a number of optional range support systems such as range and target carrier lighting, and signal light security systems. The Emergency Stop feature located on the home screen provides a quick and easy method for halting all range operations with a single press of the button.

The range layout is depicted using a grid of targets and provides a real time display of target conditions. Each target is identified by the lane number, distance location, lighting indicators, signal lights, and control mode. The range operator can acquire or release control of a lane by simply pressing the corresponding button on the touchscreen display. Releasing the target allows shooters to have independent control of their lane using the individual control units located at each firing position.

RangeMaster™ 10K allows multiple devices to control the range at the same time. For example, a range master could run a scenario on lanes 6 through 10 from RangeMaster™ 10K, while another range instructor is positioned at the firing line and operating lanes 1 through 5 with RangeMaster™ 10K wireless tablet controller. In short, RangeMaster 10K allows range masters unprecedented control over firing ranges through multiple wireless devices from any location in the range.

RangeMaster™ 10K, Model RM10K

Meggitt Training Systems revolutionized range operations by developing a range control system that allows range officers to leave the control room while still retaining complete control of the range. RangeMaster™ 10K control system combines touch screen technology and wireless communication to give range officers unprecedented control from any location in the range.

Handheld personal digital assistants (PDAs) and tablet personal computers provide the portability to allow range operators full automation of the range while interacting with the shooters at the line. With RangeMaster™ 10K, range operators are no longer confined to a control room so more time can be devoted to firearms instruction rather than range management.

RangeMaster™ 10K Touchscreen controller is intuitive, easy to navigate, and allows range personnel to operate their range by simply touching icons on the display screen. The screen is segmented into three main parts: target commands appear on the left side of the display, range layout is adjacent to this, and a menu bar appears across the bottom of the display.

Controls for sending commands to the targets are clearly identified and are similar in functionality to toolbars most Windows® users are familiar with. Along with the standard target actuation commands of FRIEND – FOE – EDGE, Rangemaster™ 10K can execute random target actuation when controlling the RTS-360™ target system. This command instructs the target to present a complete, unexpected turn to the left or right in increments up to 360 degrees.

Product: **Pivoting Targets System**

Location: **Shooting Range**

Function/Application: The range will be equipped with individual pneumatically or electrically activated pivoting targets. The targets can spin in either direction offering “shoot”, “no shoot” and “blade” appearances. The individual connections allow targets to operate independent of each other through the range control system.

Product: **“Running Man” Moving Target System**

Location: **Shooting Range**

Function/Application: Along with the pivoting targets, an integral moving target is planned. This system utilizes target, supported from on overhead track that move laterally across the range. These are controlled through the target control system.

Product: **Bullet Trap and Containment**

Location: **Shooting Range**

Function/Application: The trap system is considered a “total containment” trap that extends the full width of the range. It allows cross lane shooting. The system incorporates an integrated lead recovery unit as well as dust removal system.

TOTAL CONTAINMENT TRAP ™

Steel Containment Trap

Steel Containment Trap Cross Section

Rubber Media Bullet Trap

Rubber Media Outdoor Installation

East El Rancho Blanco Road
330'
S. Cage Blvs/ Hwy 281
1300'
22 Acres
9 Acres
23 Acres
South Veterans Blvs.
PSJA Southwest Early College High School
2575'
1300'
990'
3
1
2
9
2934'
Main Floodway
1040'
62 Acres
1087'
1. 21K+ Education Building
2. JAG Express Drop Off
3. 160+ Parking Spaces
4. Future Phase Campus Boulevard
5. Future 50,000 sf Educational Buildings
6. Future 25,000sf Student Services Buildings
7. Future 15,000sf Student Services Buildings
8. Future 15,000sf Physical Plant
9. Skills/Skid Pad Driving Area
10. EVOC Driving Track
11. Cityscape with Simunition Building
12. Multi Story Fire Training Structure
13. Two Story Residential Fire Training Structure
14. Confined Space/ Trench Rescue Training
15. Flashover Training
16. Flammable Liquid and Gas (F.L.A.G) Training Pad
17. Firearm Training Classroom
18. Covered Shooting Range

Shooting Range – Option 1

Shooting Range Floor (16,000 SF)	$96,000
Shooting Range Perimeter Walls (560 LF)	$19,750
Shooting Range Roof (20,000 SF)	$700,000
Shooting Range 15 Lanes @ 50-Yard Length Equipment	$1,100,000
50-Yard Fixed Shooting Line	
Tactical Range 0-25 yards	
Overhead Ballistic Baffles	
Full-Width Steel Containment Trap	
Dust Collection System	
Auger Bullet Retrieval System	
Overhead Pivoting Targets	
Overhead “Running Man” Target	
Shooting Range HEPA Ventilation System	$500,000
Acoustic Wall & Ceiling Treatments	$175,000
Range Electrical & Lighting	$160,000
Miscellaneous Equipment	$25,000
Classroom and Staging Area	$400,000
SUB TOTAL	**$3,175,750**

Shooting Range – Option 2

Shooting Range Floor (16,000 SF)	$96,000
Shooting Range Roof (20,000 SF)	$500,000
Shooting Range 15 Lanes @ 50-Yard Length Equipment	$580,000
Full-Width Steel Containment Trap	
Dust Collection System	
Auger Bullet Retrieval System	
Overhead Pivoting Targets	
Overhead “Running Man” Target	
Acoustic Wall & Ceiling Treatments	$65,000
Range Electrical & Lighting	$160,000
Miscellaneous Equipment	$25,000
Classroom and Staging Area	$400,000
SUB TOTAL	**$1,826,750**

These numbers could vary significantly based on the final selection of training props and materials. The provided cost assumption is only a suggestion, and the final selection of materials and training props have yet to be determined for this center. Overall site costs, including but not limited to: utility infrastructure, parking, access drives, landscaping and site lighting are not included in this estimate and must be provided by the civil engineer who is directly contracted with STC.

E.V.O.C. Driving Track

Driving Track Area (255,156 SF)	$1,658,514
Collision Avoidance	$23,500
Scenario Buildings (4 @ 1,200 SF each)	$600,000
Barriers and Buffer Zones	$440,000
Skills Driving Pad (87,929 SF)	$747,396
Signage and Area Lighting	$35,000
SUB TOTAL	**$3,504**

Two-Story Residential Fire Training Structure

Site Development (9,000 SF)	$31,500
Two-Story Structure (3,000 SF)	$450,000
Live Fire Training Props & High Temperature Lining (3 Live Fire Burn Rooms)	$520,000
SUB TOTAL	**$1,001,500**

Multi-Story Fire Training Structure

Site Development (14,725 SF)	$51,500
Multi-Story Structure (7,500 SF)	$1,312,500
Live Fire Training Props & High Temperature Lining (3 Live Fire Burn Rooms + 2 Effect Fires)	$580,000
Non-Fire Training Props	$45,000
SUB TOTAL	**$1,989,000**

Fire Training Ground Props & Structures

Site Development (50,875 SF)	$178,065
Vehicle Extrication Area (7,500 SF)	$45,000
HAZ-MAT / F.L.A.G. Portable Life Fire Props	$115,000
Dumpster Fire Prop & Enclosure	$46,500
Confined Space/Trench Rescue Area	$158,000
Flammable Liquid & Gas Training Prop	$245,000
SUB TOTAL	**$787,565**

Fire Training Miscellaneous Areas

Apparatus Truck Parking (8 Spaces)	$8,500
Propane Storage Tank(s)	$5,000
F.L.A.G. Area (6,000 SF)	$24,000
Shade Structures (2 total)	$24,000
Signage and Area Lighting	$15,000
SUB TOTAL	**$76,500**

THANK YOU

SOUTH TEXAS COLLEGE

PBK + G2 Solutions Group, Inc