

## Fine Tuned Structures, LLC

Consulting Structural Engineers

197 Fox Squirrel Run

Summerville, SC 29483

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<http://finetunedstructures.com>

### COMPANY PROFILE

Fine Tuned Structures, LLC (FTS) is a structural engineering consulting company. We have experience designing structures in all major building materials such as reinforced concrete, post-tensioned concrete, steel, masonry and wood. Our broad portfolio has projects in both private and public sectors which range from residential custom homes, to schools, to high rises. We can design in US custom units as well as in metric SI units applying all major US design codes, EUROCODE or British Standards.

Established in early 2011 when the construction industry was struggling to keep pace, we managed to survive the harsh times by being loyal to our clients, while striving to build and maintain an impeccable reputation. We have the expertise to deliver code-compliant, economically designed, unique structures to our Clients for competitive design fees.

#### We offer the following services:

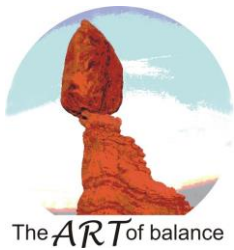
- Structural design of new structures
- Evaluation and renovation of existing structures including seismic retrofit
- 3D modeling of complex structures including application of all relevant loads per governing codes. Linear and non-linear structural analyses
- Structural observations, assessments and recommendations for repair and strengthening techniques based on conditions and cost
- Specialty structural repair design such as: concrete restoration, FRP structural strengthening, bridge jacking design and heavy lifting
- Post-tensioned and podium slabs design
- Design of parking garages barrier cable systems
- Value engineering
- Construction phase assistance including site visits and on-site support

To facilitate our design, we utilize several states of the art and well-respected software such as Tekla Structural Designer, ADAPT Edge, ADAPT Floor Pro, ETABS, SAFE, WoodWorks, Enercalc, Direct Design, Revit (BIM) including cloud collaboration. Fine Tuned Structures' plans are all generated in Revit. We use Revit cloud collaboration to facilitate collaboration with the architectural and other teams on our projects. Our lead engineers are licensed in numerous US states.

#### The core of FTS is represented by the following key personnel:

Pavel Pavlov, PE, SE. Founder and principal of FTS in charge of overall business operations. Pavel has more than 30 years of diverse structural engineering experience both in construction and in design with expertise in structural design in high seismic and high wind areas. He is a registered professional engineer in the states of Virginia, Kentucky, North Carolina, South Carolina, Georgia, Florida and Michigan. He is also a registered structural engineer in the states of Utah, Georgia, and Illinois, as well as recognized structural engineer in the state of Florida.

Anton (Tony) Gueorguiev, PE. Principal in charge of Washington, DC studio. Tony has more than 30 years of structural engineering experience. He is an expert in specialty structural repair and strengthening techniques utilizing reinforced, post-tensioned concrete and fiber reinforced polymer (FRP). He was directly involved in several building and bridge repair projects where jacking and heavy lifting was utilized. Tony is a registered professional engineer in the states of Virginia, Maryland, District of Columbia, New York, and California.



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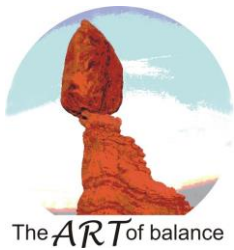
Vladimir Vasilev, Assoc. Prof., Dipl. Structural Engineer. Vladimir is the Chief Structural Engineer in charge of the engineering team in Sofia, Bulgaria office. He is an engineer with over 30 years of progressive experience in structural design, bridge engineering, academics, and research in the field of structural engineering, expert assessments and reports, and construction management.

Dimitar Battchiev, Dipl. Architect. Dimitar is a talented architect, specialized in structural/architectural detailing and Revit consulting. With over 29 years of extensive experience in architectural design in USA and Europe, structural and architectural detailing, and BIM consulting Dimitar brings a valuable BIM expertise which plays an integral part of our construction document delivery. He is the BIM manager for Fine Tuned Structure working from the office in Sofia, Bulgaria.

Kalin Pavlov. Managing director of the office in Sofia, Bulgaria. Kalin has been an active businessman and entrepreneur since 1996. He has diverse experience as a business manager and leader, which makes him invaluable partner and participant in Fine Tuned Structures' growth since company's inception. His expert knowledge of Revit deep understanding of the building design/detailing process is an example of a manager with truly hands-on experience.

### **FTS Selected US Projects:**

- **Oakbrook Schools new classroom and new art buildings - Ladson, SC – Engineer of Record** – two 10,000 sq. ft stand-alone buildings. One-story structures with flat roofs utilizing load bearing concrete masonry walls, steel joists and metal roof deck. Both buildings are supported on shallow foundations and are designed for high seismic, and wind loads as seismic design category D structures. The project will begin construction in early 2025.
- **Fair Haven Homes Skilled Nursing Facility – Forest City, NC – Engineer of Record** – 70,000 sq. ft. This is a new two-story facility located in very steep terrain. The structure utilizes reinforced concrete masonry unit load bearing and retaining walls, long-span composite slab, light gauge roof and load bearing walls, and structural steel framing. As part of the project design of numerous heavy reinforced concrete retaining walls was required to accommodate the building within the site topography. Designed for permanent lateral soil pressure and moderate wind and seismic loads. The design phase is completed. Construction is expected to begin in early 2025.
- **SanStone Short-term Care Facility** – Pinehurst, NC – Engineer of Record – 76,000 sq. ft. The project consists of four households connected to a central core area. This is a one-story facility utilizing non-combustible materials. All load bearing walls are light gauge framed. Wall structural sheathing utilizes Sure-Board structural sheathing which has superior strength to resist lateral loads compared to conventional plywood sheathing. It also meets the fire rating criteria set by the Client. The building utilizes a combination of hip, gable and flat roofs all framed with light-gauge roof trusses. The project is located in a moderate wind and seismic region. The building is supported on shallow foundations. Construction is expected to start in 2025.
- **Willow Oaks Kindergarten at Pinewoods preparatory school - Summerville, SC - Engineer of Record**– 22,000 sq. ft. One-story structure utilizing a combination of wood framing, reinforced concrete masonry walls and steel moment frames. The building is supported on shallow foundations. It is designed for high wind and high seismic loads as seismic design category D structure. Completed in 2024
- **Green Charter School - Mauldin, SC – Engineer of Record** – Structural renovation of this 80,000 sq. ft data center and converting it to a K12 charter school. The one-story structure utilizes reinforced concrete tilt up panels with steel joist girder moment frames and metal roof deck. The renovation required an outside-the-box approach from the design/build team to meet the school program while minimizing the construction budget. The building had to be modeled to evaluate its structural behavior under loading and identify structural elements that must be strengthened to meet design demand and new code provisions. The



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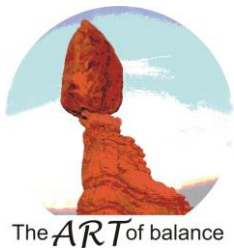
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building is designed as risk category III structure for the latest code at the time of the design. It is subjected to moderate wind and seismic loads. The project was completed in 2022.

- **1080 and 1090 Morrison Drive – Charleston, SC – Engineer of Record** – 110,000 sq. ft. The development includes three-story main building offering prime office space, adjacent six-story parking garage and a two-story mix-used building located in downtown Charleston, SC. The main building is composed of reinforced concrete frame structure with post-tensioned concrete slabs. The parking garage is of precast concrete. The smaller building utilizes reinforced masonry in combination with Versa-Dek composite metal deck slab and structural steel gravity frames. The site is adjacent to Cooper River. The building falls in type A flood zone. It is designed for hurricane level wind loads and as seismic design category D structure. The subgrade presents significant risk of liquefaction in case of a seismic event. For this reason, the design team selected to utilize precast prestressed concrete piles with pile caps, tie beam, and grade beams to support the buildings. The construction is expected to begin in early 2021.
- **Poinsette Memory Care – Charleston, SC – Engineer of Record.** Five-story approximately 91,000 sq. ft. senior care project, located in the historic downtown Charleston, SC. The structure is of reinforced concrete, frame type with post-tensioned two-way flat slabs. Unlike many structural firms in Charleston area, which delegate the slab design to others, Fine Tuned Structures designs the building and all structural components including the post-tensioned slabs, which streamlines construction and reduces the risk of coordination errors. The project presents many challenges - high wind and seismic demand, pile foundations over one of the city of Charleston deep flood control tunnel, irregular building shape. The building falls in type A flood zone and it is designed to withstand these loads in all waterproofed areas. It is supported on driven pre-cast, pre-stressed concrete piles.
- **Town Court – West Bloomfield Township, MI – Engineer of Record** – 254,000 sq. ft luxury apartment complex. The project consists of first level parking under a transfer slab supporting three stories of wood structure above. The swimming pool is elevated and integrated within the transfer level. There are a total of 192 apartment units. Clubhouse with pool deck, fitness room, community room and administration are located at the transfer level. Building is supported on shallow foundations. Transfer level is of composite steel system with VersaDek. Roof structure is provisionally designed to accommodate roof solar panels. Project is targeting LEED silver accreditation.
- **Patrick Square – Clemson, SC – Engineer of Record** – about 65,000 sq. ft. four-story independent senior living apartment building. The structure utilizes conventional wood framing in combination with tall reinforced concrete retaining walls to accommodate steep terrain. The building is located in moderate to high wind zone and is classified as seismic design category C. Simpson ATS continuous tie rod system in combination with conventional wood framed shear walls is used to resist all imposed lateral loads. The building is supported on reinforced concrete strip and spread footings.
- **White Oak North Grove – Spartanburg, SC - Engineer of Record.** Brand new 80,000 sq. ft. short and long term nursing home. Project consist of 6 building wings connected to a central core. One story occupancy group I-2 facility utilizing light gauge load bearing walls/shear walls and light gauge roof trusses with structural steel framing in the large open common areas and therapy suites. Building is supported on shallow foundations.
- **NCREP – Shallotte, NC – Engineer of Record** - 30, 000 sq. ft. luxury single family home with 19,000 sq. ft. luxurious pool and landscape. Insulating concrete form (ICF) concrete walls and slabs for the house, reinforced concrete for landscape structures. Structure is designed for 150 mph design wind speed and seismic design category C. **Winer of 2017 ICF Builders Award “The Best ICF Residential Project in the World”.**
- **6400 Bluewater Condominium – Hilton Head, SC – Engineer of Record** – 88,000 sq. ft. 6 story reinforced concrete structure with two-way post-tensioned flat slabs. Seismic design category D with 141 mph design wind speed and liquefiable soils. The building is supported on piles. FTS provided the full structural design including all post-tension slabs as well as full construction assistance until project completion.



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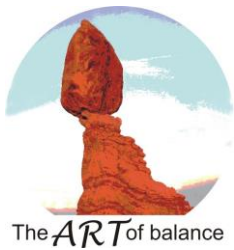
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- **Chicora School – Charleston, SC – Engineer of Record** – 74,000 sq. ft. two story public elementary school. Load bearing special reinforced masonry shear walls supported on spread footings. The structure is located in a hurricane zone with a design wind speed of 130 mph and seismic design category D.
- **La Hacienda Mexican Restaurant, North Charleston, SC - Engineer of Record** – 6,000 sq. ft. one story commercial building. Combined wood and steel framed structure with exterior and interior dining areas. Supported on spread footings. The design is based on the IBC 2012 provisions.
- **6300 Bluewater Condominium – Hilton Head, SC – Engineer of Record** – 58,000 sq. ft. 5 story reinforced concrete structure with two-way post-tensioned flat slabs. Seismic design category D with 130 mph design wind speed and liquefiable soils. The building is supported on piles. FTS provided the full structural design including all post-tension slabs.
- **Addition and Renovation of White Oak assisting leaving facility – Shelby, NC - Engineer of Record.** The project consists of new one and two story 16,000 sq. ft addition, new hip roof spanning without interior supports 72 ft over existing dining hall. Perimeter steel moment frames support AEGIS Ultra-span light gage roof trusses. Renovation included several areas in the existing facility. Steel framing is used for all renovated areas. Building is supported on shallow foundations.
- **Bluewater Condominium B – Hilton Head, SC – Engineer of Record** – 58,000 sq. ft. 5 story load bearing masonry with precast hollow core planks. Seismic design category D with 130 mph design wind speed and liquefiable soils.
- **White Oak Estates – Spartanburg, SC - Engineer of Record** – 14,000 sq. ft. one story assistance living facility. Load bearing masonry walls supported on spread footings. Seismic design category C and 90 mph design wind speed.
- **Cooper’s Ridge Apartments – Ladson, SC – Engineer of Record** – fifteen 4 story apartment buildings and club house – light frame wood structures supported on strip footings. All buildings are designed and detailed for seismic design category D and 120 mph design wind speed.
- **Straw Market – Myrtle Beach, SC – Engineer of Record** - 27 story reinforced concrete condominium tower with waffle slabs. Seismic design category D and 130 mph design wind speed. A dual system of specially reinforced concrete shear wall cores and peripheral specially reinforced concrete moment frames was used to resist the large lateral loads and overturning moment.
- **MDTA I-895 Bridge jacking – Engineer of Record** – structural design for steel frames to enable bridge jacking, repair and bearing replacement while maintaining traffic flow. Repair was performed by OTB Contracting.
- **Kingsley Town Center - Fort Mill, South Carolina – Subconsultant to Darden Engineering Services.** Structural design of podium post-tensioned slabs and the structures supporting them for three buildings part of a larger commercial development in Fort Mill, SC. Fine Tuned Structures is responsible for the design of the transfer slabs, all structural elements supporting these slabs and foundations. Darden Engineering Services is responsible for the design and detailing of the two-story wood frame structures supported by the transfer slabs. The buildings are mixed-use with commercial and parking spaces located on the ground floor and two stories of residential apartment units above the platform slabs. All are designed for seismic design category C.
- **Mt. Moriah Apartments – Durham, North Carolina – Subconsultant to Darden Engineering Services.** Structural design of podium post-tensioned slab for this 74,000 sq. ft. building. The slab supports a four-story wood structure. The building is in a sloped terrain and subject to a sustained earth pressure load. Fine Tuned Structures is responsible for the design of the transfer slab, the entire structure supporting this slab including all retaining walls and foundation elements. Darden Engineering Services is responsible for the design and detailing of the four-story wood frame structure supported by the podium slab. The building offers parking on the ground floor and four stories of residential apartment units above the platform slab.
- **Holiday Inn – Chattanooga, TN – Sub-consultant to Woods Engineering** for the entire concrete structure of the project. 8 story 190,000 sq. ft hotel in downtown Chattanooga. 3 levels of parking, transfer slab and four levels of hotel rooms. Reinforced cast in place concrete frame structure from ground to fourth floor.





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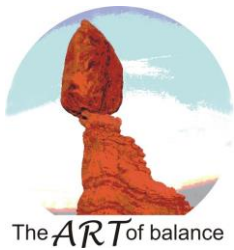
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Load bearing metal stud walls with pre-cast hollow core planks from the 4<sup>th</sup> floor up. FTS was responsible for creating a 3D structural analytical model for the entire building, design the fourth floor as two-way transfer post-tensioned slab, and design all columns, walls, and foundations.

- **Tanyard Parish - Wilmington, NC – Sub-consultant to Woods Engineering.** One-way reinforced post-tensioned (PT) platform slab with 64 ft. span PT girders supporting 2 and 3 story wood frame structure above. Seismic design category C and 130 mph design wind speed.
- **Strengthening PT beams in a metro station – Washington, DC – Sub-consultant to Freyssinet** for structural design. Specialty and comprehensive design for strengthening a post-tensioned girder with extremely deteriorated and corroded tendons. Strengthening included design of an additional structure – reinforced concrete frame (two oval shaped columns and tie beam) as mid support to the strengthened beam. Carbon fiber reinforced polymer design. Temporary supports design. Design of the jacking of the existing beam. Design check of the platform condition and capacity to bear additional loads. On-site engineering supervision and consultation to the Owner WMATA.
- **Bridge Jacking and Repair, Richmond, VA – Sub-consultant to Freyssinet** for structural design. Bridge jacking design for bearing replacement, pier and abutment retrofit.

### FTS Selected International Projects:

- **Building One – Christophe Harbour, St. Kitts, West Indies – Engineer of Record.** 4 story 14,000 sq. ft. commercial building. The first in Christophe Harbour development in the southern peninsula of this Caribbean Island. The building is to be the center of the Marina Village sub-division. Concrete frame structure utilizing insulating concrete form (ICF) walls and conventionally formed two-way reinforced concrete flat slabs. The building design was very challenging with a sustained earth lateral load, very high wind and seismic loads in Class F soils. Foundations consist of pile caps, steel driven piles and tie/grade beams connecting all members together to form a stiff grid. The project was completed in 2017.
- **Marina Village Shops – Christophe Harbour, St. Kitts, West Indies – Engineer of record.** Two one-story commercial buildings with an approximate total area of 5,000 sq. ft. The structure is of insulating concrete form (ICF) walls and Versa deck composite roof slab used for exterior dining area of open bar restaurant. The two shops are designed for permanent soil pressure from public streets on one side in combination with high wind and seismic loads. Both buildings are supported on spread and strip footings. The project was completed in 2017.
- **Sandy Bank Bay – St. Kitts, West Indies – Engineer of Record.** Club house, restaurant, sales office, club pool and 14 bungalows part of large resort development. The client is Christophe Harbour Development formerly part of Kiawah Development Partners. Masonry, concrete and wood framed structures. Seismic design category D and 130 mph design wind speed per ASCE 7-05 code. The project is located in the hurricane prone region of the Caribbean. The project was completed in 2012.
- **Bungalows at Sandy Bank Bay, St. Kitts, West Indies – Engineer of Record.** The project features four beachside and ten hillside bungalows as part of Christophe Harbour development on the Southern peninsula of St. Kitts. Each bungalow has a private infinity edge pool facing the Atlantic Ocean. The pool structural shell is constructed with reinforced concrete retaining walls. The foundations of all bungalows are of reinforced concrete. The bungalow walls are made with 8"x10" wood logs. The bungalow roof is an exposed wood frame structure that extends over porch adjacent to the pool deck. The project is located on a major hurricane path and in a highly active seismic region of the Caribbean. The wind design presented serious challenges for the structural engineering team due to the high wind speed combined with topographic effect on all hillside bungalows. All are designed for 130 mph wind per ASCE 7-05 code and as seismic design category D structures.
- **Belvedere Towers – Sofia, Bulgaria – Engineer of Record –** Two 11-story luxury condominium towers with 3-story shopping center and parking garage. Reinforced concrete frame utilizing shear walls, columns and



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two-way flat slabs. Both towers are supported by common reinforced concrete foundation mat and designed for the US equivalency of seismic design category C.

- **Lusail Katara Hotel – Doha, Qatar – Sub-consultant to Kling Consult GmbH** for the structural design of a signature 5 and 6-star hotel complex. The unique building resembles two crossed swords which represents Qatar's national symbol. The project estimated cost is \$1.75 billion and consists of two 200-meter-tall towers and 7 low rise buildings forming a 1400x400 ft promenade with lavish landscape, recreational facilities and two-story underground parking garage. The entire complex is founded on pile supported mat. The project was completed for the start of the FIFA World Cup in 2022.
- **Jewel of the Creek – Dubai, UAE – Sub-consultant to Kling Consult GmbH.** Large development comprised of 21 towers, yacht marina and commercial promenade designed around a creek running through the entire complex. The creek is integrated and supported by the parking garage structure. Towers vary in height from 14-24 stories. The entire complex is connected with a common five-story underground car park. Common reinforced concrete pile supported mat. All complex structures are reinforced concrete with some isolated areas utilizing structural steel. This very large development of about 1,000,000 sq. m. was constructed in several phases with the final one completed in 2024.
- **Creek Towers – Sorouh Reem Island - Abu Dhabi, U.A.E. – Sub-consultant to Kling Consult GmbH.** Two twenty three-story twin condo buildings. Reinforced concrete frame structure with shear walls cores, columns and post-tensioned slabs. 5-story below grade parking as part of the structure. The towers are each flanked by 7 stories of office space which are connected to the main towers with 7-story atriums. The complex main towers incorporate office and commercial space on the first 7 floors with residential units on the upper 15 floors. Each tower also has a swimming pool and health club at the top level.
- **Dubai Islamic Bank – Dubai, U.A.E. – Sub-consultant to Kling Consult GmbH.** 39-story business center with 1000-people conference auditorium, 5 levels of underground parking and ground level entry featuring 7-story tall atrium. The main structure is of reinforced concrete with a combination of central shear wall core and peripheral frames supporting reinforced concrete floors. The star-shaped plan has 8 segments, each at a different height, stepped every 5 stories. Seven of the eight steps are topped by an atrium ranging from 3 to 5 stories in height.
- **Octavian Business Bay – Dubai, U.A.E. – Sub-consultant to Kling Consult GmbH.** 19-story commercial tower with 4 underground parking levels, grade level, 3-story above ground parking and 16 levels of premium office spaces. Reinforced concrete structure with shear wall cores and columns supporting post-tensioned floors.
- **Screwworm Rearing Facility, Pacora, Panama – Subconsultant.** Design of industrial structure with reinforced concrete bearing walls and structural steel roof framing. Designed for the US equivalent of seismic design category D.

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