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Professional engineer with 39 years experience in design and evaluation of various structures including buildings, industrial facilities and bridges.

#### **Consulting Engineer; March 1994 to present**

#### Design – Residential; Single Family

- 1. Framing alterations for single-family house including steel column and concrete foundation for wind-resistance; Red Bank NJ (2017)
- 2. Header beam for bearing wall removal; Middletown NJ (2017)
- 3. Structural design for new pile-supported houses; Toms River, NJ (2016), Brick, NJ (2015)
- Header beam for bearing wall removal; Manalapan NJ, Bayonne NJ (2016), Mantoloking NJ, Millstone NJ, Ocean Grove NJ (2014)
- 5. New pile-supported foundation system and platform framing to support new single family modular houses; Lavallette NJ, Brick NJ, Toms River NJ (2014)
- 6. New support elements (concrete, steel, wood) to support single family houses in lifted position; Sea Bright NJ, Middletown NJ, Bay Head NJ (2013)
- 7. Framing for new two-story house on ocean, Beach Haven NJ (2012 2013)
- 8. Framing & foundations, addition to two-story residence, Millstone NJ (2010)
- 9. Framing & foundations; new two-story residence, Monmouth Beach, NJ (2009)
- 10. Pile-supported concrete foundations for new two-story house, Atlantic Highlands, NJ (2009)
- 11. Helical steel piles for support of single-family house with major settlement and cracked foundation; Woodbridge, NJ (2009)
- 12. Framing (steel & wood) and foundations for complete renovation of threestory residence with new two-story addition; Deal NJ (2008)
- 13. Framing & foundations; new two-story residence, Fair Haven NJ (2008)

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- 14. Wood framing & concrete foundations (walls & footings) for addition; Bernards Twp NJ (2007)
- 15. Wood framing and foundations for additions; Lower Makefield PA (2007)
- 16. Concrete foundations (pile-supported) for addition; Brick Twp NJ (2006)
- 17. Wood framing & foundations for new residence; Washington Twp NJ (2006)
- 18. Wood framing for new residence; Cinnaminson NJ (2006)
- 19. Wood framing & foundations for new residence, including evaluation & recommendations for precast foundation walls; Eagle Rock PA (2005)
- 20. Wood framing & concrete foundations (walls & footings) for new residence; Princeton NJ (2005)
- 21. Framing (wood & steel) for new residence; Dover Twp NJ (2005)
- 22. New steel girders and columns for framing modifications; Yardley, PA (2004)
- 23. Reinforce cracked block foundation wall with steel posts; Ewing NJ (2004)
- 24. Reinforce cracked brick foundations walls with reinforced block piers on concrete footings; Bordentown, NJ (2003)
- 25. Helical (augured) steel piles for underpinning residential foundations; Cherry Hill NJ; Newark, Delaware (1995 / 1996)
- 26. Replacement and strengthening of damaged concrete block foundation walls; Cherry Hill, NJ, Lindenwold, NJ, Washington Twp, NJ, Medord, NJ, Collingswood, NJ, Haddon Twp, NJ (1995 1998)

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#### <u>Design – Residential; Apartments</u>

- 1. Helical steel piles to underpin walls of two buildings; Woodbridge NJ (2008)
- 2. Reinforced block piers on concrete footings to brace cracked block foundation walls; New Windsor NY (2004)
- 3. New block support walls and concrete foundations for existing precast concrete exterior decks at apartment complex; Ocean Twp NJ (2003)
- 4. Steel framing for stairs and guard rails at three story apartment building renovation; Pennington, NJ (2001)
- 5. Underpinning repairs for apartment building; Elizabeth, NJ (2003)
- 6. Steel framing for stairs and guard rails at three story apartment building renovation; Pennington, NJ (2001)

#### <u>Design – Industrial / Commercial / Office</u>

- 1. Concrete retaining wall for detention basin; Hamilton NJ (2017)
- 2. New front entry addition for restaurant; Raritan NJ (2017)
- 3. Restaurant, framing alterations; Belmar NJ (2016)
- 4. Steel repairs, stair tower for NJ Transit; Kearny NJ (2016)
- 5. New auto service building; Shrewsbury NJ (2016)
- 6. Curtain wall design; Fort Lee, NJ, Brooklyn, NY (2015)
- 7. Concrete foundation wall (redesign) and temporary steel-pile retaining wall for new building; Paterson NJ (2014)
- Steel framing & foundations for additions & alterations to auto dealer building; Shrewsbury NJ (2014)
- Wood platform framing on timber piles for new lifeguard support building; Asbury Park NJ (2014)
- 10. Steel framing for new interior ramp in theater; Asbury Park NJ (2014)
- 11. Steel floor framing for two new garage buildings; Trenton NJ (2013)

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- 12. Steel framing to support solar panels over parking lots for college; Morris County NJ (2012)
- 13. Steel framing for new roof of commercial building; Ocean Twp, Monmouth County NJ (2011)
- 14. Major repairs to reinforced concrete building; Brick NJ (2011)
- 15. Framing for complete reconstruction of restaurant; Hamilton NJ (2010)
- 16. Concrete spill-collection basin at industrial facility; Manalapan NJ (2009)
- 17. Pile-supported block walls within stadium; Waterfront Park, Trenton NJ (2008)
- 18. Roof framing for new two-story restaurant; Ocean City NJ (2008)
- 19. Concrete slab to support fuel tanks; Hamilton (Mercer) NJ (2007)
- 20. Concrete retaining walls for stormwater management basin; Hamilton (Mercer) NJ (2006)
- 21. Steel framing and foundations for three new commercial buildings; Philadelphia PA (2005)
- 22. Foundations for new warehouse building; Carneys Point, NJ (2005)
- 23. Steel platform on existing steel tower, to support radar equipment for TV station; Philadephia PA (2003)
- 24. Temporary shoring to stabilize exterior stone walls and partially collapsed roof truss in existing industrial building. Design of new steel roof trusses. Hamilton (Mercer) NJ (2003 / 2004)
- 25. Steel framing, block walls, shallow foundations for one-story office building, Bellmawr, NJ (2003)
- 26. New railroad bridge, steel deck girders on steel pile bents; East Hanover NJ, Morristown & Erie Railway (2002)
- 27. Concrete foundations for transit car lift equipment, New Jersey Transit Base Facility, Bloomfield, NJ (2000)

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- 28. Braced sheeting for construction of retaining walls at approach to new truss bridge; Westport, CT (2000)
- 29. Concrete platforms & foundations for Locomotive Fueling Facilities; Avon, Indiana & San Luis Potosi, Mexico (1999)
- 30. Framing renovations for restaurant; Mantua, NJ (1999)
- 31. Repairs to wood roof truss over former theater; Audubon, NJ (1996)
- 32. Steel framing and stairs for elevated concrete deck; Pennsauken, NJ (1995)
- 33. Framing and foundations for conversion of former school building into medical offices; Deptford, NJ (1995)
- 34. Steel framing to support exterior supply piping; Salem, NJ (1994)
- 35. Pile-supported elevator foundation in existing building; Phila, PA (1994)

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### Investigations - Flood Damage

- 1. Evaluate 119 houses and commercial buildings along entire New Jersey shore for insurance companies resulting from flood insurance claims after hurricane Sandy. (2012 2013)
- 2. Evaluate 20+ residences along New Jersey shore for damage due to hurricane Sandy (2012 2013)
- 3. Foundation wall damage, residence on bay; Brick NJ (2011)
- 4. Evaluate condition of several municipal buildings after major flooding; Hightstown NJ (2011)
- 5. Collapsed & damaged foundation walls for commercial mall building; Pennington, NJ (2011)

#### <u>Investigations - Accident & Construction Damage</u>

- Collapse of roof trusses during construction; Berkeley Twp NJ (2013) Law Firm: Keefe Bartels
- Partial collapse of steel roof framing for warehouse building during storm;
   Monroe Twp NJ (2005 & 2007)
   Law Firm: Lowenstein Sandler PC (David A Van Grouw, Esq.)
- 3. Damage to roof of four story apartment building caused by collapse of masonry wall from building under construction; Hoboken, NJ (2000)
- 4. Collapse of steel truss highway bridge; Lebanon, NJ (2000)
- 5. Underpinning of 4-story masonry building; Hoboken, NJ (2000)
- 6. Welded steel pedestrian bridge hit by truck, Jersey City, NJ (1996)

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### <u>Investigations - Design & Construction Defects</u>

- 1. Defective design of new house for wind; Woodbridge NJ (2017)
- Evaluate design of new single-family house on existing foundation;
   Hopewell Twp NJ (2017). Law firm: Rothstein, Mandell, Strohm, Halm & Kurs
- Defective design & construction of single-family house; Sea Bright NJ (2017)
- 4. Lack of design for wind during alterations of single-family house; Avon By The Sea NJ (2017)
- 5. Evaluate floor framing, damage & excessive deflections during alterations; Ventnor NJ (2011, 2015, 2016) Attorney: Jack A Berenato
- 6. Determine cause of floor & foundation movement; Dennis NJ (2014)
- 7. Evaluate first floor framing. Extensive open joints in wood flooring of recently built house. Marlboro NJ (2011)
- 8. Inward movement of precast concrete foundation wall; Sea Girt, NJ (2009-2010).
- 9. Capacity of roof & wall framing for large, new house; Rumson, NJ (2010)
- 10. Damage to garage foundation caused by pile-driving at adjacent property; Long Beach Twp, NJ (2009)
- 11. Foundation walls & floor framing for modular house; Swedesboro NJ (2008)
- 12. Second-story addition; Woodbrige NJ (2008) Law firm: Galex Wolf LLC (Henry Wolfe, Esq.)
- 13. Cracked foundation walls, residence; Tinicum Township, PA (2007)
- 14. Additions to residence; Sayreville NJ (2007)
- 15. Wood roof trusses on medical office building; Hamilton (Mercer) NJ (2006)

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- 16. Extensive defects with 17 condo buildings (built 1998 2000), and site drainage; Hamilton (Atlantic County) NJ (2003 2008) Law Firm: Hill Wallack LLP (Michael S Karpoff, Esq.)
- 17. Evaluation of cracks in concrete foundation walls; Freehold Twp NJ and Princeton Twp NJ (2005)
- 18. Floor framing of residence; West Windsor NJ (2005)
- 19. Wood roof framing; 30 townhouse units; Hamilton (Mercer) NJ (2004)
- 20. Collapse of wood roof trusses during construction of commercial building; Williamsport, PA (2004) Law Firm: Thomas J Kelley & Associates (Thomas J Kelley, Esq)
- 21. Wood-framed garage building for residence; Hamilton (Mercer) NJ (2004)Law Firm: Peter Fless, Esq
- 22. Floor framing of residence; Newtown, PA (2003)

  Law Firm: Rosen, Schaffer & Dimeo PC (Frank N Dimeo Jr, Esq)
- 23. Wood roof trusses (two-piece) of residence; Moosic PA (2002) Law Firm: Thomas J Kelley & Associates (Thomas J Kelley, Esq)
- 24. Retaining walls and stairs around in-ground pool; Holmdel, NJ (2001)
- 25. Collapse of light gage steel framing for single story commercial building under construction; Washington Township, NJ (1999)
- 26. Evaluate cracks in concrete driveways for development of townhomes; Mount Laurel, NJ (1995)

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### <u>Investigations – Fire Damage</u>

- 1. Single family house; Howell NJ (2014)
- 2. Single family house; Bass River Twp NJ (2006)
- 3. Single family house; Hamilton (Mercer) NJ (2005)
  Law Firm: Katz & Dougherty LLC (Thomas G Tresansky Jr, Esq)

### <u>Investigations – Personal Injury</u>

- Fall injury exterior concrete stairs at restaurant; Edgewater Park NJ (2002)
- 2. Fall injury fence gate of community center for senior citizen housing development; Monroe, NJ (2002)
- 3. Fall injury failure of wood guardrail at three-story apartment building complex; Egg Harbor, NJ (2000)
- 4. Injury collapse of wood roof trusses during construction of commercial building; Hatboro, PA (1999)

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### Structural Analysis

- Evaluate steel roof framing for support of new HVAC equipment on roof; Neptune Twp NJ (2017)
- 2. Floor framing for alterations to residence; Potomac MD (2016)
- 3. Evaluate & develop framing design for new modular houses to be installed along NJ shore; Toms River, Bay Head & Middletown NJ (2014)
- 4. Analyze proposed curtain wall framing; South River NJ (2013)
- Evaluate steel roof framing of high school for solar panels; Ridgefield NJ (2012)
- 6. Evaluate steel roof framing for solar panel installation on roof of warehouse buildings; Roxbury Twp and Edison NJ (2012)
- 7. Roof framing of warehouse building complex, to support solar panels. Woodbridge NJ (2011)
- 8. Evaluation of roof framing for solar panel installations for residences; 100+ locations throughout NJ (2004 2012)
- Pile-supported foundations and precast plank flooring for new restaurant;
   Ocean City NJ (2007 2008)
- 10. Three-story modular apartment buildings; Bellmawr NJ (2004 2005)
- 11. Steel framing and curtain walls (EIFS on light gage steel) for three-story office building with extensive leaks; West Windsor NJ (2004)
- 12. Roof framing for storage of construction materials on school roof; Hamilton (Mercer), NJ (2003)
- 13. Steel floor framing and concrete deck to support scanner equipment; Newark Airport, Newark, NJ (2002)
- 14. Review plans, specifications and calculations for final design of bridges; Southern New Jersey Light Rail Transit System (SNJLRT) (2000)

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15. Analyze structural design of Shop & Administration Building; Camden, NJ, Southern New Jersey Light Rail Transit System (SNJLRT) (2000)

#### Reports

1. "Evaluation of Process For Assessments of Structural Flood Damage Claims After Hurricane Sandy", Second Edition, 107 pages, 11-20-17

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#### Evaluation of Structural Condition - Residential (not flood or fire)

- 1. Inspections of 40+ houses for bank-owned properties to determine repair requirements; New Jersey (2017)
- 2. House raised and resupported on piles; Mantoloking NJ (2017)
- 3. Reinforce foundation wall with steel brace posts; Ocean NJ (2015)
- 4. Floor framing & foundations; Keansburg NJ (2014)
- 5. Evaluate first floor framing with decay damage; Point Pleasant NJ (2012)
- 6. Foundations & first floor framing; Point Pleasant Beach NJ (2011)
- 7. Foundation evaluation for second story addition; Bay Head NJ (2011)
- 8. Foundations & first floor framing; Lavallette NJ (2010) Schlosser Real Estate
- 9. Cracked foundation walls; Lacey NJ (2010)
- 10. First floor framing & supports. Termite damage. Point Pleasant Beach NJ (2010)
- 11. Foundation walls & first floor framing for townhouse/ condo; Lavallette NJ (2009)
- 12. Evaluate house and garage for effects of pile driving on adjacent property; Long Beac h NJ (2009)
- 13. Foundation wall defects of recently built house; Wall NJ (2009)
- 14. First floor framing; Lavallette NJ (2008)
- 15. First floor framing. Develop repair requirements. Berkeley NJ (2008)
- 16. Exterior deck, for hot tub; Ship Bottom NJ (2008) REMAX
- 17. Foundations, first floor framing & roof framing. Develop repair requirements. Brick NJ (2008)

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# Structural Engineer with Daniel, Mann, Johnson & Mendenhall (DMJM) Newark, NJ; December 1996 to February, 2000

- Lead structural engineer for preliminary design phase of the Southern New Jersey Light Rail Transit System by NJ Transit. Responsibility for development of bridge program, including preliminary design of new and rehabilitated bridges on 34-mile alignment between Camden and Trenton. Extensively involved in environmental and historical permits. Prepared detailed calculations for structural assessment of existing subway tunnel in Camden, NJ to determine capability to support new LRT loading.
- ♦ Evaluation of causes for extensive cracking of large reinforced concrete frame for new Metro Station under construction; extension of Green Line, WMATA, Prince Georges County, MD. Developed repair plans involving strengthening of two level rigid frame with new reinforced concrete.
- Design of concrete platform, and steel canopy for new transit station at Garfield, NJ
- Assessment of bridges and viaducts for capital programs; MTA Metro (Baltimore) and MBTA transit systems (Boston).
- ♦ Development of calculations to verify structural integrity of damaged piles supporting bridge abutments in Maryland.

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# Structural Engineer with Design & Construction Department - Conrail, Philadelphia, PA; June 1977 to March 1994.

- ♦ Design of various structures including buildings, foundations, environmental structures, bridges, loading docks, canopies, retaining walls, piling, industrial floor slabs. Developed standard specifications, reviewed plans and produced calculations for outside review.
- ♦ Yard Office Building, Newark, NJ; Pile supported foundation, Reinforced masonry for seismic loads
- ◆ Intermodal Facility, Jersey City, NJ; Steel framing and foundations for large canopy; Pile supported building foundations
- ♦ Material Storehouse, Columbus, OH; Concrete loading dock and steel framed canopy; Building foundations, industrial pavement design
- ♦ Railroad bridge replacements, West Virginia; steel girder, multi-span bridges supported on steel piles over rivers
- Wasterwater Treatment Facility, Altoona, PA; concrete basins, clarifiers, building foundations for large railroad shops
- ◆ Fuel Tank foundations, Elkhart, Indiana; pile supported slabs for large storage tanks
- ♦ Development of computer program for detailed design of prestressed concrete railroad bridges.

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**Education:** Princeton University, BSE in Civil Engineering, 1977

Drexel University, graduate courses in Foundation Engineering

#### **Professional Engineer Registration**

- ♦ New Jersey GE-029049 (1983)
- ♦ Pennsylvania PE-042058-R (1991)
- ♦ Maryland 24066 (1999)
- ♦ South Carolina 28070 (2010) inactive
- ♦ New York 080404 (2002, 2015)
- ♦ District of Columbia 908250 (2015)

#### **Industry Organizations**

International Code Council (ICC)
NJ Society of Professional Engineers (NJSPE)
American Institute of Steel Construction (AISC)
Structural Building Components Association (SBCA)

#### **References: Architects**

John S DaCruz (609-252-1998) DaCruz Design, 214 Ewing Street, Princeton NJ 08540

Mark R Fitzsimmons (732-747-6481) 234 River Road, Red Bank NJ 07701

Jack Mus (609-306-0818) JM Architecture, 24 Laurelwood Road, Lawrenceville, NJ 08648

Christine R Balint (732-687-3466) 127 Wilson Road, Matawan NJ 07747

Steven M Bach, PE, RA (856-546-8611)
Bach Associates, 304 White Horse Pike, Haddon Heights, NJ 08035

#### **Consulting Firm**

Consulting services had been performed using the trade name of Structural Support, which is a registered trademark. Form of business changed to LLC.

Web site (<u>www.structural101.com</u>) has been available since November 2009. Focus has been on structural design for residential and wood-frame construction.