

Eliya Henin, Ph.D, P.E., S.E., PMP

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- Registered as Professional Civil Engineer (PE) and Professional Structural Engineer (SE) in Nebraska, Washington, Illinois, California, Tennessee.
- Certified Project Management Professional (PMP).
- Experience in precast/prestressed concrete products (bridge, building, and industrial products), such as girders, floor systems, manholes, electrical vaults, feed mills, flour mills, grain storage facilities, truck and rail receiving and ancillary buildings
- Design of several steel and concrete structures with seismic considerations.
- Strong background and knowledge in construction planning, coordination, and management.
- Experience in different project delivery systems including design-built and design-bid-built.
- Expertise in identifying, analyzing, and solving problems through communications and visualization.
- Progressive research activities and publications (17 articles in scholar journals and referred conferences).
- Outstanding teaching at both undergraduate and graduate levels

EDUCATION

Ph.D., University of Nebraska -Lincoln
Major: Construction Engineering
Minor : Structural Engineering

Lincoln, NE 5/2012

Dissertation: “*Efficient Precast/Prestressed Floor System for Building Construction*”

GPA: 3.983

This dissertation presents the development of a new precast concrete floor system that eliminates the limitations of conventional precast floor system and provides a competitive precast alternative to cast-in-place flat slab floor systems. The main features of the proposed system are span-to-depth ratio of 30, and flat soffit (no ledges or corbels), and adequate resistance to lateral loads, in addition to economy, consistency with prevailing erection techniques, and speed of construction. The new system is a total precast concrete floor system that consists of continuous columns, prestressed rectangular beams, prestressed hollow-core planks, and cast-in-place composite topping. Fully insulated precast sandwich panels that are alternative to hollow-core planks are also proposed for thermally efficient floor applications. These panels can be easily produced, as they do not require specialized equipment for fabrication, in addition to having comparative weight and capacity to hollow cores.

Research implementation

The proposed floor system was implemented in the construction of the Farmers Mutual Building (five-story office building), located at 1220 Lincoln Mall in Lincoln, Nebraska.

M.Sc., Assiut University
Major : Civil Engineering
Minor : Structural Engineering

Assiut, Egypt 6/2006

Thesis : “Buckling Behavior of Steel Frames with Corrugated Shear Walls”

B.Sc., with honors, Assiut University
 Major : Civil Engineering
 Minor : Structural Engineering
 Graduation Project: “Analysis and Design of Special Structures”
 Project Grade: Distinction

Assiut, Egypt 7/2001

PROFESSIONAL EXPERIENCE

US Army Corps Of Engineers (USACE)	Omaha, NE	6/2021 – Present
Omaha Public Power District	Omaha, NE	12/2018 – 6/2020

Senior Design Engineer (Structural)

- Provide the required engineering design, analysis, planning, estimate, and review for the district projects.
- Prepare material specifications, material contracts, outside service contracts, and any related contract management or construction inspection for assigned projects.
- Issue work orders for substation maintenance, autotransformer foundations design, so work is completed on time.
- Provide professional engineering review and stamping when required.
- Provide cost estimates and analysis of the District designs for external and internal customers.
- Communicate with customers to resolve conflicts and concerns regarding District designs.

Examples of work projects include:

345/161 KV Autotransformer Foundation – Elkhorn, NE

Provided the foundation design for the transformer (1,000,000 lbs.). Prepared the material specifications and contract and provided site observation during construction to ensure compliance with design intent.

161 KV Steel Tower Structure Renovation – Omaha, NE

Designed structural supports for new equipment and analyzed existing steel structure for adequacy with respect to new equipment loading.

161/15 KV Sub extension – Omaha, NE

Provided the foundation design for addition transformer, switches, PTs, and second containment concrete walls for SPCC. Also, I prepared the material specifications and contract and provided site observation during construction to ensure compliance with design intent.

Develop the Spill Prevention, Control, and Countermeasure (SPCC).

Develop a Spill Prevention, Control, and Countermeasure Plan (SPCC) that describes oil handling operations, spill prevention practices, discharge or drainage controls, and the personnel, equipment and resources at the Substation that are used to prevent oil spills from reaching navigable waters or adjoining shorelines. Each SPCC Plan is unique to its facility.

Ebmeier Engineering, LLC	Glenwood, Iowa	11/2017 – 11/2018
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Senior Structural Design Engineer

- Structural design of agricultural, commercial, and industrial structures, such as feed mills, flour mills, grain storage facilities, truck and rail receiving, and ancillary buildings. The design components include steel, concrete, and masonry design.

- On-site forensic engineering and analysis.
- Production drawing review, engineering research, and reports.
- Provide the required engineering design, planning, and estimates for projects bid.
- Mentoring entry-level engineers and engineering technicians.
- Provided a design scheduling and material estimates for the design-built project.
- Collaborate with construction managers in the construction plans and provide constructible design for design-built projects.
- Investigate and make recommendations for new software that would improve the design and constructability.

Examples of work projects include:

Milling Facility – Mendota, IL

I was integral part of design team for structure consisting of;

- ✓ Flour Milling Facility; consist of flour load out area (66 ft. x 60 ft. with 91 ft. height), Flour storage rectangular bins area (84 ft. x 55 ft. with 120 ft. height), and production area (84 ft. x 180 ft. with 120 ft. height).
- ✓ Grain Storage Facility; consisting of 20-35 ft. diameter grain storage bins.
- ✓ MIDDS Storage Structure; consisting of 2-35 ft. diameter MIDDS storage bins.

The design including deep foundation, foundation mat slab, concrete shear wall, columns, silo walls, floors, roof, steel towers, and steel bridges.

Grain Storage Facility Inspection – Vancouver, WA

I was part of the observation team that completed reinforcing logging investigation and submitted engineering report with findings and repair recommendations.

Rail Receiving Pit – Tenaha, TX

I provided the design of concrete rail and truck receiving pit (85 ft. x 10 ft.). The design including shallow mat foundation slab, concrete walls, steel bar gradings, and steel beams supporting the rails.

Omaha Public Power District

Omaha, NE

1/2015 – 11/2017

Senior Design Engineer (Structural)

- Provide the required engineering design, analysis, planning, estimate, and review for the district projects.
- Prepare material specifications, material contracts, outside service contracts, and any related contract management or construction inspection for assigned projects.
- Issue work orders for network maintenance, vault rebuilds, and manhole rebuilds, so work is completed on time.
- Provide technical directions and training to entry-level engineers.
- Provide technical assistance for the design of self-sustained poles or any special guying situation.
- Provide professional engineering review and stamping when required.
- Provide cost estimates and analysis of the District designs for external and internal customers.
- Communicate with customers to resolve conflicts and concerns regarding District designs.
- Investigate and make recommendations for innovations that would improve the economy and performance of any kind of distribution structure and equipment. This includes the use of precast vaults and developing standards for self-sustaining poles.

Examples of work projects

Precast Vault – Omaha, NE

Developed a new design for underground utility concrete vaults (12 ft x 24 ft x 13 ft). The new development used precast concrete segments instead of cast in place concrete. The new precast concrete vault saves 25 % from the total cost of the project and eliminate any construction delay due to the weather condition.

Transmission Concrete Pole – Omaha, NE

Developed a non-prismatic hexagonal hollow section, made of fiber-reinforced self-consolidated concrete (SCC), and are reinforced longitudinally using Glass Fiber–Reinforced Polymer (GFRP) bars. The static-cast operation and use of nonmetallic reinforcement make these poles corrosion free and significantly reduce their life cycle cost. The experience of implementing this approach for the developed poles gives an indication of the constructability of the proposed system and its ease of handling using the same equipment and procedures adopted for conventional poles

Ebmeier Engineering, LLC

Glenwood, Iowa 5/2012 -12/2014

Structural Design Engineer

- Structural design of agricultural, commercial, and industrial projects, including feed mills, flour mills, grain storage facilities, truck and rail receiving, and ancillary buildings.
- On-site forensic engineering and analysis.
- Production drawing review, engineering research, and reports.
- Provide design schedules and material estimates for the design-built projects.

Examples of work projects

Grain Storage Facility – Long Beach, CA

I was integral part of design team for structure consisting of 3 – 61 ft. diameter silo storage units. The project includes design of foundation on stabilized soil (CDSM design by others), design of silo slip walls and inserts, design of roof (structural steel and roof deck w/ metal decking) and roof inserts including frames for future explosion venting, design of tunnels, interior slabs, tunnel walls and inserts, design of roof conveyor platform structure for each silo, design of walkway bridges (as necessary) between silo structures.

Cement Storage Facility – Medley, FL

I was integral part of design team for structure consisting of 3-56 ft. diameter concrete silo. The projects includes demolition the existing roof ,design a new roof (structural steel and roof deck w/ metal decking and roof inserts), design of steel hoist frame , design of steel frames supporting the cement pipes charging the silos, and design of the temporary construction frames and deck during the construction stage.

Grain Storage Facility – Atchison, KS

I was integral part of design team for structural design of grain storage facility. The project includes; structural review of existing receiving Pit, onsite observation and identification of items of structural concern, review original receiving pit drawings, submittal of engineering report with recommendations, design of the truck receiving pit, structural design of concrete wall stiffening of damaged areas and for interior wall removal, design interior wall and pilaster demolition plan, design of truck driveway slab support framing and slab reinforcing, design of 3 truck receiving hoppers with grating at driveway level, design tunnel modification for bucket elevator boot pit.

Sand Storage Facility – Refugio, TX

Design of bucket elevator maintenance access doors/platforms and modified bucket elevator platform and lifting hoist. The project includes; review of existing bucket elevator structure for proposed modifications, design of elevated exterior platform, man access door, and interior bucket elevator platform for head pulley inspection and maintenance, design of man access door and interior bucket elevator platform above bucket elevator inlet for inspection and maintenance of buckets, design of hinged door system and sealed

latching system for easier maintenance access to bucket elevator (head pulley access doors, bucket maintenance access doors, clean out doors at bottom of bucket elevators), design of steel corbel to facilitate lifting of lower bearing for inspection and/or replacement, review of existing head drive platform structure and bucket elevators for structural adequacy to sustain 27,000 pound vertical lift above bucket elevators and 8,000 pound hoist capability for lowering items to the ground, develop a design concept for hoist availability to meet lifting requirements for motors, gearbox, bearings, covers, pulleys, and complete structural analysis and develop design concept for recommended structure modifications required to achieve desired hoist capability described above

Flour Milling Facility – Glidden, IA

Design of flour mill building, . The project includes; design of corn storage bin foundation, design of tempering bins foundation, and design of Mill Building Foundation

University of Nebraska- Lincoln

Lincoln, Nebraska

8/2009 – 5/2012

Research and Teaching Associate

- Design and fabricate several precast/prestressed concrete components, such as bridge girders, building beams, and sandwich wall panels.
- Instruct tutorials and labs for the following undergraduate courses:
 - ✓ Heavy / Civil Estimating (CONE 8666).
 - ✓ Construction Materials & Test (CNST 2520).
 - ✓ Architectural Structures II (CNST-3320).
 - ✓ Introduction to Structural Engineering (CIVE-341).
 - ✓ Strength of Materials (EMEC-3240).
- Collaborate with faculty advisors on research projects funded by organizations, such as National Science Foundation (NSF), Charles Pankow Foundation (CPF), Nebraska Department of Transportation (NDOT), and Hughes Brothers, Inc. Examples of work projects
 - ✓ Virtual Interactive Construction Education (VICE-Bridge), National Science Foundation \$200,000 Grant May 2011 – April 2013.
 - ✓ Bond-Dependent Coefficient of Glass Fiber-Reinforced Polymer (GFRP) Rods, Hughes Brothers Inc., \$3,500, July 2011.
 - ✓ Design and Construct of Tornado-Resistant Precast/Prestressed Concrete Sandwich Panel with NU-Ties, Composite Insulated Concrete Systems, LLC., \$1,350, Jan. 2011.
 - ✓ Testing NU-Tie Embedment, Hughes Brothers Inc., \$2,500, July 2010.
 - ✓ Load Rating of Complex Bridges, NDOR, \$23,518, July 09 – June 10.
 - ✓ Continuous Shallow Hollow-Core Floor System, Charles Pankow Foundation, \$105,000, November 08 – August 10.
 - ✓ Reinforced Concrete Tee Connection Behavior in Rectangular Storage Bins
 - ✓ Bond-Dependent Coefficient of Basalt Fiber-Reinforced Polymer (BFRP) Rods.
 - ✓ Design and Construction of Precast Prestressed Flat Soffit Shallow Floor System.
 - ✓ Design and Construction of Precast Concrete Sandwich Panels.
 - ✓ Bar-Splice for Precast Concrete Construction.

Assiut University

Assiut, Egypt

4/2006 – 8/2009

Assistant Lecturer

- Instructed the tutorials and labs for the following undergraduate courses:
 - ✓ Theory of Structures (C221, C321).
 - ✓ Design of Steel Constructions (C322).

- ✓ Design of Steel Bridges (C427).
- ✓ Contracts & Specifications (C428).
- Conducted research on the effect of FRP sheet confinement on the column compressive strength.
- Responsible for preparing plans, specifications, and estimates, project coordination and team supervision, including buildings, bridges, and other structures.

Assiut University

Assiut, Egypt

11/2001 – 3/2006

Research Assistant

- Instructed the tutorials and labs of the following courses:
 - ✓ Theory of Structures (C121).
 - ✓ Railway Engineering (C429).
 - ✓ Properties & Strength of Materials (C123, 225).
 - ✓ Design of Concrete Structures (C222).
- Conducted research in the buckling behavior of steel frames with and without corrugated shear walls.

United Consulting Engineering and Constructions (UCEC) Co.

06/2007-07/2009

6th of October City, Egypt.

Design and Construction Engineer

- Prepared the structural analysis and design of the following projects:
 - ✓ Three \$600,000 residential six-story buildings in New-Assiut City.
 - ✓ Several \$200,000 residential buildings in New-Assiut and 6th of October cities under the government program “Built Your Home”.
 - ✓ Two \$500,000 residential multi-story buildings.

Engineering Consultant company

Assiut, Egypt

06/2002-05/2007

Design and Construction Engineer

- Served as Construction Engineer for residential buildings, churches, schools, and hospitals.
- Designed and constructed steel trusses for covered halls.

JOURNAL PUBLICATIPNS***Published / Accepted / Submitted and in progress Articles.***

1. **Eliya Henin**, George Morcouc, and Maher K. Tadros “Design and Testing of Composite Precast/Prestressed Concrete Sandwich Panels with GFRP Ties” In progress.
2. **Eliya Henin**, and George Morcouc “Bond behaviour of helically wrapped sand coated deformed class fiber reinforced polymer (GFRP)bars in concrete” Construction and Building Materials Journal, Vol. 288, June 2021.
3. **Eliya Henin**, George Morcouc, and Raed Tawadrous “Effect of surface condition on the bond of Basalt Fiber-Reinforced Polymer bars in concrete”. Construction and Building Materials Journal, Vol. 226, November 2019, pp. 449–458.
4. George Morcouc, **Eliya Henin** and Maher K. Tadros “Shallow Precast Concrete Floor without Beam Ledges or Column Corbels” PCI Journal, Vol. 64, No. 4, July-August 2019, pp. 41–54.

5. **Eliya Henin**, and George Morcouc “Bond-Dependent Coefficient of Helically Wrap with Sand Coated Glass Fiber-Reinforced Polymer (GFRP) Bars” Advance in civil Engineering Materials journal, Vol. 7, No. 1, 2018, pp. 353–366.
6. **Eliya Henin**, George Morcouc, and Maher K. Tadros “Design, Fabrication, and Construction of Static-Cast Concrete Poles Reinforced with GFRP” Practice Periodical on Structural Design and Construction Journal, Vol. 22, No. 4, May, 2017.
7. **Eliya Henin**, and George Morcouc “Non-Proprietary Bar Splice Sleeve for Precast Concrete Construction” Engineering Structures Journal, Vol 83, Pp,1455-162, January, 2015.
8. George Morcouc, **Eliya Henin**, Maher K. Tadros, Faten Fawzy, and Mark Lafferty “A New Shallow Precast/Prestressed Concrete Floor System For Multi-Story Buildings in Low Seismic Zones” Engineering Structures Journal, Vol. 60, February, 2014.
9. **Eliya Henin**, George Morcouc, and Maher K. Tadros “Precast/Prestressed Sandwich Panels For Thermally Efficient Floor Applications” Practice Periodical on Structural Design and Construction Journal, 2014.
10. **Eliya Henin**, George Morcouc, and Maher K. Tadros “Flat Soffit Shallow Precast Concrete Floor System ” Practice Periodical on Structural Design and Construction Journal, Vol. 18, No. 2, May, 2013.
11. **Eliya Henin**, James D. Goedert, and George Morcouc “A Shallow Flat Soffit Precast Floor System: A Comparative Analysis” Journal of the American Institute of Constructors, Vol. 36, No. 02, October, 2012.
12. Fathalla El Amin, M. Farge, K. Hassan, and **Eliya Henin**, “Effect of the Spacing of Fasteners Used to Attach the Corrugated Shear Plate to the Envelope Frame on Its Elastic Behavior” Journal of Engineering Science, Vol. 34, No. 3, May 2006, Assiut University, Egypt.
13. Fathalla El Amin, M. Farge, K. Hassan, and **Eliya Henin** “Elastic Buckling Behavior of Steel Frames with Corrugated Shear Walls”, Journal of Engineering Science, Vol. 33, No. 3, May, 2005, Assiut University, Egypt.

CONFERENCES / WORKSHOP PUBLICATIONS

1. **Eliya Henin** and George Morcouc “Reinforcing Bar Splice Sleeve for Precast Concrete Construction” 14th International Conference on Structural & Geotechnical Engineering (ICSGE14), Cairo, Egypt, December, 2015.
2. Kromel Hanna, **Eliya Henin**, Nathan Toneies, and Maher K. Tadros “Design, Detailing and Testing of Cladding Panels Using GFRP Ties” Proceeding of the PCI Convention and National Bridge Conference, Salt Lake City, Utah, October, 2011.
3. George Morcouc, **Eliya Henin**, Mark Lafferty, and Maher K. Tadros “Design and Testing of Tornado-Resistant Precast/Prestressed Concrete Sandwich Panels with GFRP Ties” Proceeding of the PCI Convention and National Bridge Conference, Salt Lake City, Utah, October, 2011.
4. **Eliya Henin**, George Morcouc, and Maher K. Tadros “Precast Concrete Sandwich Panels for Floor and Roof Applications” Proceeding of the PCI Convention and National Bridge Conference, Salt Lake City, Utah, October 2011.
5. **Eliya Henin**, George Morcouc, and Maher K. Tadros “Construction of a Shallow Flat Soffit Precast Floor System” ASC 47th Annual International Conference, Omaha - Nebraska, April, 2011.

TECHNICAL REPORTS

1. Determination of Bond-Dependent Coefficient of Fiber-Reinforced Polymer (FRP) bars, August 2011.
2. Flat Soffit Shallow Precast Floor System, Nebraska University, May 2011
3. Testing of Tornado-Resistant Precast/Prestressed Concrete Sandwich Panel with NU-Ties, Nebraska University, February 2011.
4. Effect of NU-Tie Embedment on the Design of Precast Concrete Sandwich Panels, Nebraska University (Phase I and II), September 2010 and August 2011.

HONORS AND AWARDS

- University of Nebraska – Lincoln: Wrieth Scholarship of Excellence, 2011
- Precast/Prestressed Concrete Institute, Big Beam Contest (2010):
 - First Place Entry in Zone Three
 - Fourth Place Entry in the Nation
- University of Nebraska– Lincoln: Research Assistantship, 2009-2011.
- Egyptian Engineers Syndicate (EES): Award of Excellence, 2001.
- Assiut University: Award of Excellence, 1997-2000.

CERTIFICATED TRAINING PROGRAMS

- Effective Teaching
- Teaching with Technology
- Trends in Teaching
- Use of Technology in Teaching
- Communication Skills
- International publishing of Research
- Code of Ethics
- Research Team Management
- Credit Hour System

TECHNICAL SKILLS

- Structural Analysis and Design Software
 - SAP2000, ETABS, SAFE, RISA 3D, RISA Foundation, RISA Floor, and RISA Connection, and COSMOS
- Computer Aided Design Software
 - AutoCAD
- Building Information Modeling Software
 - Autodesk Revit
 - Graphisoft ArchiCAD
 - Vico Constructor
- Project Management
 - Oracle's Primavera
 - Procore construction management