6 Frassetto Way, Ste. E
Lincoln Park, NJ 07035

KEVIN K. MESYEF, P.E., S.E., C.W.I.
SENIOR MANAGING CONSULTANT

kkmesyef@engsys.com

Mr. Mesyef is a Senior Managing Consultant and Regional Operations Manager with ESi, based in New Jersey. He specializes in the investigation, analysis and planning of lifting and rigging operations, lift plans involving cranes or other load handling equipment, and evaluation, design and repair of structures in industrial facilities.

Mr. Mesyef specializes in the development of engineered lift plans and rigging plans and investigations involving cranes, hoists, and other lifting or hauling equipment. His experience includes the specification, review, analysis, and / or investigation of failures for lifting, rigging or hauling activities for bridge construction, oil and gas facilities, renewable energy projects, manufacturing facilities, commercial construction, communication towers, and other temporary or permanent structures.

Mr. Mesyef also has extensive experience in the investigation, evaluation and repair of damaged and distressed structures including residential, commercial, and industrial facilities, including refineries, gas plants, and chemical plants. Mr. Mesyef is regularly involved with and responsible for the development of repair plans and specifications, and preparation and / or implementation of quality control procedures.

Areas of Specialization

Investigation and Failure Analysis of Lifting, Rigging, and Hauling Operations
Development of Engineered Lifting and Rigging Plans
Construction Defects Investigation
Structural Evaluation of Buildings (Residential and Commercial) and Industrial Structures
Property Condition Assessments
Collapse and Structural Failure Investigations
Repair and Retrofit Design
Building Envelope Consulting and Water Intrusion Testing
Photovoltaic (PV) / Solar Panel Design, Inspection, and Failure Investigation

Education

M.S., Civil Engineering (Structural), University of Illinois-Urbana-Champaign, 2011
B.S., Civil Engineering (Structural), University of Illinois-Chicago, 2009

Registered Professional Engineer (PE)

State of Colorado…….	No. PE.0061466	State of Minnesota.....	No. 62033
State of Connecticut.....	No. PEN.0037639	State of Missouri……	No. 2020030503
State of Florida…….	No. 82626	State of Nebraska…….	No. E-17224
State of Hawaii…….	No. 18685	State of New Jersey….	No. 24GE06105200
State of Iowa…….	No. P26327	State of New York…….	No. 101029
State of Illinois……..	No. 062.066096	State of Ohio……..	No. PE.86453
State of Indiana……	No. PE11400457	State of Oregon…….	No. 103480PE
State of Kentucky…….	No. 38129	State Pennsylvania.....	No. PE096124
State of Louisiana……	No. PE.0050057	State of Texas…….....	No. 138851
State of Massachusetts..	No. 60053	State of Vermont……	No. 018.0135995
State of Michigan…….	No. 6201309984	State of Wisconsin…….	No. 45734-6

Registered Structural Engineer (SE)

State of Illinois……..	No. 081007828	State of Alaska……	No. 107331

Certified Welding Inspector (CWI)

Certificate No……...16081801

Training and Certifications

Credentials

Transportation Worker Identification Credential (TWIC)
Chicago Registered Self-Certification Professional (SCP)

Industry / Safety Certifications

OSHA 30-Hour & 10-Hour
eRailSafe Certification
Scaffold User & Erector Hazards Training
Fall Protection Competent Person
Aerial Boom Lift & Scissor Lift Operator Certification
ANST NDT Level 1, Ultrasonic Testing
ACI Level 1 Certified Field Technician (Expired)
Overhead Crane Inspector – Qualified

Technical Training

CE 263 Basic Surveying – Southern Illinois University of Carbondale, 2008
ASME PD442 – BPV Code, Section VIII, Div. 1: Design and Fabrication of Pressure Vessels, 2012
Fundamentals of Arctic Engineering – University of Alaska Anchorage, 2015
Structural Fire Engineering – ASIC, 2016
Fire Retardant-Treated Wood: The Basics – WoodWorks, 2016
RSMeans Facilities and Construction Estimating, 2017
Structural Building Condition Surveys: Looking for Trouble – ASCE, 2018
Interior Concrete Slabs-on-Ground Design – Half-Moon, 2019
Indiana Limestone Specifications & Detailing – ILIA, 2019
Extended Joint Systems for Slabs-on-Ground – WOC, 2019
Concrete Repair Fundamentals II: Waterproofing, General Protection & Corrosion Prevention – WOC, 2019
Completing Residential Foundation Systems for Ensuring Performance – WOC, 2019
Advanced Concrete Repair: Structural Distress, Assessment & Strengthening Solutions – WOC, 2019
Legal Aspects of Code Administration – ICC, 2020
Best Practices for Steel Joist + Steel Deck Construction – AISC, 2020
Performance-Based Structural Fire Engineering for Steel Buildings – AISC, 2020
Design + Detail Issues That Add Cost to Steel Projects – AISC, 2020
Evaluation of Foundation Distress and Causation for Distress off Building Structures, 2020
Assessment & Repair of Fire Damaged Concrete Structures, 2020
Practical Application of Non-Destructive Testing, 2020
Geotech Engineering and Testing, 2020
2019 Chicago Construction Codes – ICC, 2020
Adjacent Construction: Managing Risks in Dense Urban Environments, 2020
Externally Bonded FRP Composites for Strengthening Concrete Structures – Simpson Strong-Tie, 2022
Wood Construction & The Fire Investigator – AWC, 2022
Parking Structure Design, Construction and Maintenance – Halfmoon Education, 2023
Geo-Structural Investigation of Existing Structures (AWI092019) – ASCE, 2023
Scope Creep: Identifying and Reducing this Huge Project Management Pitfall – BQE, 2023
Fundamentals of Anchorage to Masonry (MAS101) – HILTI, 2023
Polymer Technology for Infrastructure Repair Polyurethane And Acrylic Chemical Grouts – Alchtek, 2024

Reimagine the Outdoor Experience: Understanding Rooftop Deck Systems – CEC, 2024
Designing and Constructing Solar PV Energy Systems: Residential and Small Commercial – HalfMoon, 2024
Designing to Withstand Tornadic Loads on Buildings – HalfMoon, 2024.

Lifting and Rigging

CROSBY Comprehensive Eight Hour Fundamentals of Rigging, 2014
ITI Lift Director & Critical Lift Planning, 2016
ITI Fundamentals of Rigging Engineering, 2020-2022
- Engineering Principles for Rigging and Load Handling Activities
- Lift Planning Procedure, Considerations and Execution
- Crane and Derrick Engineering, Installation and Planning
- Specialized Transport Planning and Engineering Considerations
- Rigging & Load Handling Equipment Engineering & Applications
- Alternative Load Handling Equipment Engineering and Applications
- Standards & Regulations for Load Handling Equipment

Overhead Crane Inspector – Qualified, 2024

Building Envelope / Waterproofing Systems

Structural Thermal Bridging in the Building Envelope – ASIC, 2018
Design Considerations for the Modern Building Envelope, 2016
Roofing & Waterproofing Forensics – CEC, 2019
Retrofit Single-Ply Roof Systems over Metal Panel Roofs – CEC, 2019
Avoid Leaks in Single-Wythe Masonry Walls – WOC, 2019
Addressing Moisture Durability and Energy Performance in Roof Assemblies – CEC, 2020
Deck Ledger Flashing and Stair Solutions – AWC, 2020
Key Requirements in Illinois: 2018 IECC – SEDAC, 2020
Introduction to Weather Resistant Barriers, 2020
Thermal Bridging: Small Details with a Large Impact, 2021
Moisture Control in Buildings: Designing, Constructing and Remodeling for Wet Weather – Half-Moon, 2021
Overview of 2022 Chicago Energy Transformation Code – SEDAC, 2023
Best Practices for Single-Ply Roofs – CEC, 2023
DON'T GO THERE: Navigating the Real Air Barrier Details – ABAA, 2023
Tips for Detailing Masonry Assemblies: Lessons Learned from IMI's Drawing Review – IMI (IIBEC), 2023
2021 IECC: Simplifying Energy Code Compliance – SEDAC, 2024
2021 IECC: Existing Buildings – Commercial – SEDAC, 2024
Roof Technology and Science I – IIBEC, 2024

Professional Affiliations

American Society of Civil Engineers (ASCE) / Structural Engineering Institute (SEI)
Structural Engineers Association of Illinois (SEAOI)
American Society of Mechanical Engineers (ASME)
American Institute of Steel Construction (AISC)
American Welding Society (AWS)
American Wood Council (AWC)
International Institute of Building Enclosure Consultants (IIBEC)

Positions Held

Engineering Systems Inc., Aurora, Illinois

Senior Managing Consultant / Regional Operations Manager, 2024 – Present
Senior Managing Consultant, Civil-structural Engineering, 2023 – 2024
Senior Consultant, Civil-structural Engineering, 2018 – 2022
Senior Staff Consultant, Civil-structural Engineering, 2016 – 2017

Brindley Engineering Corporation, Lisle, Illinois

Project Lead / Reliability Engineer, 2013 – 2015

Citgo Lemont Refinery, Lemont, Illinois

Reliability Engineer, 2011 – 2013

US Army Corps of Engineers, Champaign, Illinois

Structural Engineering Research Assistant / Engineer, 2010 – 2011

Accurate Group, Inc., Lincolnshire, Illinois

Field Engineer, 2010 – 2010

Technical Publications

“Structural Inspection of Corpus Christi Army Depot: Vol. 1-3” – November 2010
US Army Corp of Engineers, Construction Engineering Research Laboratory
Authors: Dr. Ghassan K. Al-Chaar, Vito Cinfio, Dominick Dowds, Sean Guzik, Dr. Moussa A. Issa, **Kevin Mesyef**, Yadira Perez, and Steve Sweeney

"Structural Evaluation of Heavy Wood Trusses at Corpus Christi Army Depot, Texas” – October 2010
US Army Corp of Engineers, Construction Engineering Research Laboratory
Authors: Dr. Ghassan K. Al-Chaar, Vito Cinfio, Dominick Dowds, Dr. Moussa A. Issa, Lisa Kallemeyn, **Kevin Mesyef**, and Steve Sweeney

“Evaluation and Repair of Tornado Damage to a Large Manufacturing Plant” – November 2018
Eighth Congress on Forensic Engineering
Author: Kevin Mesyef
Co-authors: Randall Bernhardt, Joseph Riddle, Dan Turner
This paper discusses the methods used to evaluate the damage to the building, including the use of drones to evaluate roofing damage. Additionally, discussion is provided regarding temporary protection methods to facilitate a compressed schedule with multiple trades literally working on top of each other and around plant activities while partially in operation. The paper also covers the required analysis of the existing structural systems and design and implementation of repairs.

Teaching & Technical Presentations

"Forensic Examination of Structures" – December 2017

This presentation included a discussion of structural engineering investigations of different types of material failures. Discussion was provided of the differences in the investigation for steel, concrete, masonry and wood structures. A case study for each material type was presented.

"Building Codes – Related to Construction Defects, Premises Liability and Professional Liability" – November 2017; December 2017

This presentation discussed what building codes are and why the codes are important to society. The presentation covered why knowledge of the codes is important to insurance professionals. A history of building codes in the United States was presented along with discussion of why various codes existed prior to the current unified codes and how codes and laws are enforced.

"Evaluation and Repair of Tornado Damage to a Large Manufacturing Plant" – Eighth Congress on Forensic Engineering – December 2018; Austin, Texas

This presentation covered the methods used to evaluate the damage to the building including the use of drones to evaluate roofing damage. Additionally, discussion was provided regarding temporary protection methods to facilitate a compressed schedule with multiple trades literally working on top of each other and around plant activities while partially in operation. The presentation also covered the required analysis of the existing structural systems and design and implementation of repairs.

"Photovoltaic Panel Installations and Building Codes", Nov. 2020

This presentation covers the applicable building code requirements and what is required when there is no locally adopted building code for the installation of photovoltaic (solar) panels on existing buildings. The presentation discusses the necessary inspection and engineering processes to ensure the installations are done properly and meet code. Several examples of what to look out for when purchasing or insuring a building with installed panels.

"Introduction to Lifting and Rigging Engineering", Apr. 2022, Apr. 2023, Apr. 2025

Guest Lecturer – Site Operations and Construction Safety (CAE 472), Illinois Institute of Technology.

"Welding for Engineers: What They Don't Teach you in School", Apr. '19, Apr. '22, Apr. '23, Feb. '24, Apr. '25

Guest Lecturer – Site Operations and Construction Safety (CAE 472), Illinois Institute of Technology.

"Engineering Considerations for Photovoltaic Panel(PV) Installations", Feb. 2024

Guest Lecturer – Site Operations and Construction Safety (CAE 472), Illinois Institute of Technology.

"Rapid Response to Construction Failures" – DTCI Employment Law & Construction Law Section Seminar, October 2023

This presentation discussed the role of the forensic engineer and construction attorney in responding to construction failures. The importance of mobilizing for rapid response, collecting evidence (using a variety of methods such as simple observations, photographs, laser scanning, and drone flights), and applying the scientific method to draw legitimate and defendable conclusions were discussed. Case studies and lessons learned were shared to help attorneys who represent design professionals, contractors, and owners be prepared for these high consequence events.

Selected Project Experience

Cranes, Rigging, and Hauling

- Performed failure investigation and analysis for collapsed bridge girder involving tandem crane lift during demolition of major tollway bridge overpass in Chicago, IL. Operation involved two mobile hydraulic cranes with respective capacities of 550t and 350t.
- Performed failure investigation and analysis for collapsed 100t lattice boom crawler crane with installed luffing jib due to wind loads in New Jersey.
- Performed inspection, structural analysis, and specification of repairs for damaged overhead semi-gantry crane with attached flipper crane in manufacturing facility in Illinois.
- Assisted in development of critical lift plan for barge operations at a well site to install injector head and extract pilings in Louisiana.
- Prepared rigging plan and design of temporary lifting lugs and specification of weld procedure for removal of deteriorated 10-ft. diameter, refractory lined, stainless steel stack lid assembly at industrial manufacturing plant in Illinois.
- Prepared rigging plan and design of permanent lifting lugs and specification of weld procedure for installation of new 10-ft. diameter, refractory lined, stainless steel stack lid assembly at industrial manufacturing plant in Illinois.
- Assisted with investigation and analysis of premature wire rope failure on overhead crane at large automotive manufacturing plant in South Carolina.
- Performed investigation and analysis of failed rigging operation during unloading of hanger doors from delivery truck in California.
- Performed failure investigation and analysis for collapsed barge mounted crane boom performing sheet piling installations for dam repairs in Wisconsin.
- Performed investigation and analysis of marine gantry crane hoist failure resulting in the dropping of a 135-ft. yacht during crane lift in Seattle.
- Assisted with investigation and analysis of wire rope failure on deck crane during lift while load was suspended at manufacturing plant in South Carolina.
- Design of hoist trolley beam associated with roof framing repairs and modifications at a manufacturing plant in Illinois.
- Performed failure investigation of custom-built barge crane failure during pile driving activities in Florida.
- Investigated crane lift accident during concrete piling cutting and removal resulting in a fatality in Florida.
- Performed failure investigation and analysis of toppled tower crane installed on a concrete matt foundation during erection at construction site in Florida.
- Performed forensic investigation and analysis of fallen locomotive fan housing removed by overhead gantry crane in diesel shop in Louisiana.
- Performed forensic investigation of failed rigging supporting steel brace during construction of multistory hotel in Chicago, IL.
- Performed analysis and design of retrofits for upgrading capacity of existing overhead hoist system from 7.5t to 10t in manufacturing facility in Nebraska.
- Performed analysis of existing structure and designed required retrofits and new supporting structure for installation of new overhead trolley system at manufacturing plant in Nebraska.
- Performed optimization analysis and designed various length lifting beams for repetitive use, rated for up to 50t and up to 40-ft. long.
- Performed forensic investigation of collapsed 600t crawler crane due to mechanical failure of superlift counterweight linkage component during lift in Illinois.