

Oscar Carmona | Country Manager, Colombia, MS., P.E.

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### Professional Summary:

Mr. Carmona has over 20 years of experience in structural and seismic design, construction, assessment, and the rehabilitation of existing structures. His work also encompasses pathology and forensic engineering analyses of buildings and bridges, electrical substations, road infrastructure, and hydroelectric generation projects throughout the Americas. He has a wealth of experience in structural dynamics and finite element modeling applied to the seismic design of buildings and infrastructure. Additionally, his background includes technical oversight of construction for various building types, including commercial, academic, hotel, hospital, and infrastructure projects.

Mr. Carmona has dedicated his skills to forensic engineering, conducting failure analyses and damage assessments for infrastructure and building projects across Colombia, Latin America, the Caribbean islands, and the USA. He has also served as an expert in insurance adjustment and conciliation processes for a variety of claims.

Mr. Carmona holds a Master's Degree in Engineering, with a focus on structural engineering and seismic vulnerability, a specialization in Earthquake-Resistant Engineering (structural engineering) and a specialization in Soil Mechanics from EAFIT University in Medellín, Colombia. Additionally, he served as a professor in the civil engineering undergraduate program at the University of Medellín, where he taught structural analysis and applied mechanics while completing his master's studies. He is a licensed civil engineer in Colombia and a licensed Professional Engineer (PE) in Texas, USA. Furthermore, Engineer Carmona has enhanced his qualifications with a master's degree in disaster risk management and climate change governance from Alfonso X El Sabio University in Spain.

In his role as Director of Colombia for EFI Global, Oscar offers independent consulting services focused on structural analysis, review, and engineering for property losses of all sizes—small, medium, and large—across buildings and infrastructure. His expertise serves a diverse clientele, including property owners, insurers, reinsurers, independent adjusters, and attorneys throughout Colombia and Latin America.

### Areas of Expertise:

- Forensic engineering
- Expert testimony (building and infrastructure, design, and construction processes)
- Vulnerability assessment of buildings and infrastructure
- Structural failure and pathology analysis
- Structural and finite element analysis
- Consulting engineering services
- Fire investigation in industrial and oil and gas facilities

### Licenses and Certifications:

Professional Engineer (PE) in Texas, USA, license # 159921  
Civil Engineer registered in Colombia, #05202-122205  
RPAS (Remotely Piloted Aircraft System) Operations Pilot

### Project Experience:

#### Forensic Engineering:

Evaluation of the damage sustained by the Royalton Resorts hotel chain's properties due to Hurricane Melissa in October 2025. This includes locations in Negril, Montego Bay, and Falmouth, Jamaica. A claim has been filed for property damage and business interruption totaling more than USD 140 million. Additional buildings within the affected area were also evaluated.

Temporary Metal Bridge, Cundinamarca, Colombia. A technical evaluation regarding the installation of a temporary metal bridge to facilitate access to a small hydroelectric power plant (SHP) for the removal and potential replacement of a generation unit that was impacted by a fire. 2025.

A building complex ranging from 15 to 24 stories tall, constructed of reinforced concrete, located in Bogotá, D.C. This includes an analysis of the causes and origins of the damage, as well as an evaluation of the extent of damage resulting from an earthquake originating in Meta. Year: 2025.

Slope failure incident in Antioquia, Colombia. A forensic investigation was conducted to assess the causes and origins of a slope failure that occurred during the construction of the Luna del Mar residential complex. This includes a technical evaluation of the stabilization measures needed before any potential instability event. Additionally, an assessment of the technical, construction, and mitigation documentation is included. Years: 2024-2025. Location: Pajarito sector, Medellín. Case number: 05001310300320240050600, Third Civil Court of the Medellín Circuit. Parties involved: Constructora Capital Medellín vs. CHUBB Seguros Colombia S.A. and Berkeley International Colombia S.A.

Reinforced Concrete Pier, Atlántico, Colombia. Evaluation of the damage extent resulting from a cargo ship collision, along with the assessment and monitoring of the demolition and repair activities. 2024-2025.

18-story reinforced concrete building complex, Bogotá D.C. Investigation into the cause and origin of the damage, assessment of the damage extent, and evaluation of the repair efforts following an earthquake that originated in Meta, 2024.

Steel hangar, Paraguay. Forensic analysis: evaluation of the cause and origin of the failure and collapse of the main door, which resulted in damage to multiple aircraft. 2024.

Highway 4G, Antioquia. Forensic analysis (cause and origin) of mass movement, degradation, and embankment subsidence. Assessment of construction documentation and mitigation measures. 2023-2025.

Assessment of the structural designs for two hospitals in Peru: the Caraz II-1 support hospital (situated in the district of Caraz, province of Huaylas, Department of Ancash) and the Cascas II-1 support hospital (located in the district of Cascas, province of Gran Chimú, Department of La Libertad). The newly constructed hospitals were designed with base seismic isolators (including

rubber isolators, rubber isolators with lead cores, and sliders). Objective: identification of potential design flaws or omissions as an expert witness in cases of professional civil liability. 2023-2024.

Hoffman-type masonry kiln, Peru. Structural evaluation and analysis of the kiln utilizing the finite element method. Review of construction process documentation and material specifications. 2023-2024.

Assessment of the nature and extent of damage to the Naranjal Bridge located at K50+300 on the Bogotá-Villavicencio Highway (heading towards Villavicencio). Validation of repair alternatives and estimation of associated repair costs. 2023-2024.

Numerous assignments for building evaluations in western Florida, USA, following Hurricane Ian. Evaluation of commercial, residential, and industrial structures made from concrete, wood, steel, and concrete blocks. Providing support for the EFI Global, Inc. team. 2022.

Concrete-faced earth dam in Colombia. Forensic engineering – Analysis of construction documents and their correlation to damage resulting from excessive settlement, along with an assessment of the cause and origin of leaks in the right abutment and sediment accumulation in drainage galleries. 2021-2023.

Evaluation of the reasons and source of the embankment failure on the Guataquí-Cambao road (PR66+850 of national route RN4508) that took place in July 2021. Hydrological, hydraulic, geological, and geotechnical factors were analyzed (2021-2023).

Expert evaluation to identify the cause and source of the failure of the Sevilla metal bridge on the FENOCO railway tracks within a mining region. The structural design, manufacturing process, transportation, and assembly of the metal framework were scrutinized.

Textile manufacturing facility, San Pedro Sula, Honduras. Evaluation of the loss and replacement of production machinery and auxiliary services across six production sites, along with an assessment of the loss and repair of civil infrastructure for industrial wastewater management. The damage resulted from regional flooding caused by hurricanes Eta and Iota in November 2020. Estimated loss value: exceeding USD 200 million.

El Alto Hydroelectric Power Plant, Panama. Evaluation of the damage sustained by the civil structures of the spillway bed and weir located downstream of the primary dam, following unprecedented flooding triggered by Hurricane Eta in November 2020.

Pacific Highway 1, Antioquia, Colombia. Involvement in a forensic investigation to determine the cause and origin, as well as the assessment of losses resulting from several landslides.

Pirámides del Sol Station, Metro de Lima, Perú. Evaluation of the extent of repairs conducted at the metro station.

Mocoa Electrical Substation, Putumayo, Colombia. Evaluation of the magnitude and financial impact of the damage at the 230-kW substation caused by an avalanche.

Cement, aggregates, and concrete facility located in Meta, Colombia. Estimation for the reconstruction and initiation of operations at the plant following damages incurred from regional flooding.

A partial collapse occurred in a two-story structure in Bello, Colombia. A structural evaluation of stability and required repair efforts is underway following the partial collapse of the two-story building.

MGM National Harbor Resort Casino is situated in Oxon Hill, Maryland, USA. Conducting field assessments and overseeing repair activities on over 85 precast concrete planters that are suspended from the facade of the casino's parking garage.

Playas Hydroelectric Power Plant Machine Room, located in Antioquia, Colombia. Forensic investigation: evaluation of the damage to civil works and the related costs resulting from a fire.

15-story residential building in Cali, Colombia. Evaluation of the costs for structural repairs needed due to the use of substandard concrete during the construction process.

Loss incurred from a fire at the Palm Kernel Oil Processing Plant in Meta, Colombia. Evaluation of the extent of damage and the costs associated with the loss of civil works and electromechanical equipment at the processing facility.

#### **Fire investigation:**

Evaluation of the cause and origin of the fire and explosion involving fuel tanks at the COMPAS port in Barranquilla, which took place in December 2022.

Collaboration on the expert analysis regarding the cause and origin of the fire affecting a DEMAG H485 mining excavator, along with an assessment of the costs related to material damage and the additional operational costs incurred by the mine as a result of this incident (2023-2024).

#### **Vulnerability and structural reinforcement projects:**

Post-earthquake evaluation in Mexico City, Morelos, and Puebla, Mexico. An assessment was conducted of over 30 buildings of various types following the earthquakes in September 2017.

Steel pedestrian bridge in Colombia. Seismic vulnerability evaluation, pathology analysis, and reinforcement design were carried out for the steel bridge linking two buildings of a public school.

Reinforced concrete structure of Empresas Varias de Medellín EEVVM, Medellín, Colombia. Implementation of both destructive and non-destructive testing for the seismic vulnerability evaluation of the building, along with monitoring its structural integrity and designing reinforcements for the mixed-use structure situated in a region with moderate seismic risk.

#### **Selected infrastructure projects — Structural Design or Risk Assessment:**

Pacific 1 Highway Concession, Colombia. Oversight of the construction for the USD 690 million highway concession initiative. This project comprises 32 km of new dual-carriageway, featuring over 50 bridges and 2 tunnels. The activities performed included technical oversight of the construction process along with an assessment of the construction timeline and budget.

Post-tensioned concrete bridge, San Matías, Colombia. The post-tensioned bridge has three spans and measures 104 m [340 ft] in length.

El Socorro Memorial Park, Medellín, Colombia. The seismic design for the park's buildings and urban furnishings.

Expansion of the Barrio Independencias Urban Viaduct, Medellín, Colombia. The structural design of the urban viaduct along with all associated furnishings for the EDU (public infrastructure office).

San Bartolomé and Oibita Small Hydroelectric Power Plants, Santander, Colombia. The structural design of various infrastructure components including weirs, intake and conveyance channels, recharge tanks, penstock pipe anchors, powerhouses, and both reinforced and post-tensioned concrete bridges for accessing the hydroelectric power plant.

### **Selected structural design and building construction inspection projects:**

Engineer Carmona has served as a structural engineer and/or director on projects undertaken for various firms across Colombia, Latin America, the United States, and the United Arab Emirates. Notable projects include:

- Premier Inn Hotel (Dubai, United Arab Emirates),
- Half Moon Oleander Golf Club and Vacation Resort (Montego Bay, Jamaica),
- Expansion of the Aventura Mall Shopping Center (Florida, USA),
- Flat Iron (Miami, Florida, USA),
- Paramount Miami World Center (Florida, USA),
- San Nicolás Shopping Center (Rionegro, Antioquia, Colombia).

### **Professional Experience:**

EFI Global | Colombia. Country manager, September 2020 – present.

DeSimone Consulting Engineers South America, Project Manager, 2019 – 2020.

DeSimone Consulting Engineers South America, Senior Project Engineer, 2014 – 2018.

Universidad de Medellín, Professor of the Chair, 2011-2013.

HMV Ingenieros SA, Ingeniero de Proyectos, 2011 – 2014.

Estructuras Interventorias y Proyectos Ltda —EIP—, Ingeniero de Proyectos, 2008 - 2011.

Horacio Londoño y CIA, Ltda —Medellín—, Supervisor Técnico y Administrativo, 2005-2008.

### **Education:**

Specialization in Soil and Foundation Mechanics, EAFIT University, Medellín, 2026.

MS. Applied Mechanics (seismic vulnerability assessment), EAFIT University, Medellín, 2012.

MS. Disaster Risk Management and Climate Governance. Alfonso X El Sabio University, Madrid, Spain, 2022.

Specialization in Earthquake Resistance Engineering, EAFIT University, Medellín, 2009.

B.Sc., Civil Engineering, EAFIT University, Medellin, Colombia, 2005.

**Affiliations:**

American Society of Civil Engineers (ASCE), USA. Regular member and member of the Forensic Engineering Division FED – Committee of Forensic Investigations CFI.

American Concrete Institute (ACI). Regular member.

Asociación de Ingenieros Estructurales y Geotecnistas de Antioquia (AIE). Regular member.

Asociación Colombiana de Ingeniería Sísmica (AIS). Member and participant of the AIS-100 Committee on Seismic Design and Construction Standards.