

David A. Weaver

Forensic Engineering Expertise

Structural Analysis/Design

Review appropriate documents, including project plans and specifications as it relates to the building structure for purposes of failure analysis and extent of resulting damages. In addition, being a licensed professional and structural engineer, replacement designs are provided upon request. Examples of past work includes failure analysis of collapsed structures (concrete, steel, wood, masonry), and various building components (windows, doors, glass, piping, roofing, exterior and interior cladding) as well as damage assessment of building structures after a fire, vehicle impact, snow overload, tornado, and hurricane, including expert witness testimony related to the aforementioned items.

Origin & Cause

Determine the source and responsible party or element related to the failure of a structural or architectural element, or water damage in a building. Examples of past work include failure of roofing and wall cladding causing moisture entry, humidity and condensation related losses, and groundwater entry including expert witness testimony related to the aforementioned items.

Building Fenestration/Building Envelope

The building envelope is a building's first line of defense to moisture entry. Identifying the type of system (single versus multiple barrier) and how the various adjoining materials' water, air, vapor, and thermal control layers connect is key to effective moisture management. Examples of past work include storefront window exams, residential window installations, exterior cladding specification and installation and roofing materials and installation.

Building Pathology/Construction Defects

The building pathologist relies on an in-depth knowledge of building design, construction, use, and changes as well as assessing the environment of use and the materials and how these interrelate to systematically identify, investigate, and diagnose defects in a building. Past work includes design and specification of repairs as an owner's representative and expert witness testimony related to the aforementioned items.

Construction Accidents/Slip and Fall

Determination of circumstances resulting in an accident. In-depth knowledge of the construction contracting process and the building codes is often the deciding factor in determination of cause and responsibility. Examples of past work include collapse of structures while under construction resulting in injury; slip, trip, and fall cases related to interior and exterior means of egress, stairs, dance floors, and public access areas; and personal injury-related falls from barrier protected elevated areas.

Qualifications & Training

- Residential Builder - Licensed by the State of Michigan
- Board Certified Building Inspection Engineer, Certified by the Building Inspection Engineering Certification Institute
- Registered Roof Consultant – International Institute of Building Enclosure Consultants (IIBEC)

- Level 1 Certified Infrared Thermographer, Certified by Infrasppection Institute
- Joints in Buildings, American Society of Civil Engineers, November 2022
- S-N Curves for Metal Fatigue, Best Practices, Origins, and Limitations, American Society of Civil Engineers, November 2022
- Advanced Snow Loads Using ASCE 7-16, American Society of Civil Engineers, November 2022
- Learning from Failures of Wood Framed Structures, American Society of Civil Engineers, November 2022
- Connection Solutions for Wood Framed Structures, American Society of Civil Engineers, October 2022
- Construction Vibrations, American Society of Civil Engineers, October 2022
- Gray Areas of Responsibility in Masonry Design, American Society of Civil Engineers, October 2022
- IMP Market – Technical Update Course T1, IIBEC Local Chapter, May 2022
- Ethics Forum: Conflicts of Interest - Vendors and Colleagues, National Society of Professional Engineers, December 2021
- Engineering Investigations of Hurricane Damage: Wind versus Water (AWI041515), ASCE On Demand, September 2021
- Geo-Structural Investigation of Existing Structures (AWI092019), ASCE On Demand, September 2021
- Engineering Ethics and the Law, NSPE On Demand, September 2021
- Architectural Concrete: Design and Construction Strategies to Maintain Appearance & Limit Water Intrusion (AWI091316), ASCE On Demand, September 2021
- Diagnosis, Repair, and Restoration of Building Facades (AWI031715)
- Structural Testing of Curtain Wall Systems (AWI050916), ASCE On Demand, September 2021
- Curtainwall Primer for Design Professionals (AWI1050916), ASCE On Demand, September 2021
- Building Enclosure Commissioning (BECx): What You Need to Know (AWI060619), ASCE On Demand, September 2021
- 2015 International Building Code Essentials – Structural Safety, ICC On Demand, September 2021
- 2015 International Building Code Essentials – Life Safety, ICC On Demand, September 2021
- 2015 IBC Accessible Means of Egress, ICC On Demand, September 2021
- Why Fenestration, Why? Water Testing Problems and Solutions, IIBEC Virtual Conference, June 2020
- Stuccometrics: Stucco Jointing – The Why, When, Where, and How, IIBEC Virtual Conference, June 2020
- Physical Testing for Wind Resistance of Retrofit Single-Ply Roof Systems Over Structural Metal Panel Roof Systems, IIBEC Virtual Conference, June 2020
- Performance Analysis of Aged TPO Membranes, IIBEC Virtual Conference, June 2020
- Moisture Movement and Condensation in Exterior Wall Assemblies, IIBEC Virtual Conference, June 2020
- Legal Import of Inconsistent Design Specifications and Manufacturer Warranties, IIBEC Virtual conference, June 2020
- Infrared Thermography: The Detective in Your Toolbox, IIBEC Virtual Conference, June 2020
- Go With the Flow – Properties and Applications of Cold Fluid-Applied Waterproofing, IIBEC Virtual Conference, June 2020

- Glass Breakage in Insulated Glazing Units in Spandrel Assemblies, IIBEC Virtual Conference, June 2020
- Detailing Specific Cladding Requirements for Mid-Rise Wood-Framed Buildings, IIBEC Virtual Conference, June 2020
- Defining the Ultimate Wall Through Testing, IIBEC Virtual Conference, June 2020
- Conventional Roof Assemblies: An Update to a Five-Year Field Monitoring Study, IIBEC Virtual Conference, June 2020
- Air Barriers Meet NFPA 285 – Burning Issues, IIBEC Virtual Conference, June 2020
- Indiana Statutes and Rules for Professional Engineers, RedVector On Demand, June 2020
- Architectural Sheet Metal: Lessons Learned by a Third-Generation Tradesman, International Institute of Building Enclosure Consultants, November 2019
- Mold In Office Buildings: It Won't Go Away, International Institute of Building Enclosure Consultants, November 2019
- Re-Examining the Energy Efficiency of Built-up Roofing and Modified-Bitumen Roof Systems, International Institute of Building Enclosure Consultants, November 2019
- Importance of Air Barrier Material Properties by Material Category: What You Need for Them to Work, International Institute of Building Enclosure Consultants, November 2019
- On the Weakening of Weathered Window Glass and Its Effect on Human Impact Resistance: Two Fatality Case Studies, International Institute of Building Enclosure Consultants, November 2019
- Open For Business – Overcladding Strategies for Institutional Buildings, International Institute of Building Enclosure Consultants, November 2019
- ASHRAE 90.1 and Cold-Weather Condensation, International Institute of Building Enclosure Consultants, November 2019
- Building Science and Physics vs. Architectural Sensitivity; Design of Enclosures in the Most Hostile of Environments, International Institute of Building Enclosure Consultants, November 2019
- The Physics Behind Lessons Learned in a Full-Size Blindside Mock-up, International Institute of Building Enclosure Consultants, November 2019
- Thermal Enhancements for Aluminum-Framed Curtainwalls: A Practical Perspective, International Institute of Building Enclosure Consultants, November 2019
- Air Barriers: They might be continuous, But Still in Danger of Allowing Building Component Damage, International Institute of Building Enclosure Consultants, November 2019
- Metal Roofing Systems, University of Wisconsin-Madison, December 2017
- Aging Infrastructure, Risks, and Making Tough Decisions, American Society of Civil Engineers, December 2017
- ASCE 7-10 Snow Load Provisions, American Society of Civil Engineers, December 2017
- Understanding Firewall Basics, American Society of Civil Engineers, December 2017
- Structural Thermal Bridging in the Building Envelope, American Society of Civil Engineers, November 2017
- One Hour Building Code, One Hour Safety, One Hour Legal Issues, Michigan Builders License and Continuing Competency, April 2017
- Exterior Concrete Wall Systems, RCI, Inc, December 2016
- Exterior Walls Technology and Science, RCI, Inc, December 2016
- Significant Changes to the Wind Load Provisions of ASCE 7-16 - NEWLY UPDATED, American Society of Civil Engineers, May 2016
- High Wind and Flood Design for New and Existing Buildings Using ASCE 24 and ASCE 7-10, American Society of Civil Engineers, May 2016

- Engineering Investigations of Hurricane Damage: Wind versus Water, American Society of Civil Engineers, February 2016
- Petrographic Analysis of Concrete Deterioration, American Society of Civil Engineers, May 2015
- Diagnosis, Repair, and Restoration of Building Facades, American Society of Civil Engineers, March 2015
- Post-Disaster Safety Evaluations, California Office of Emergency Services & Applied Technology Council, April 2014
- Connection Solutions for Wood Framed Structures, American Society of Civil Engineers, February 2014
- Investigation and Repair of Fire-Damaged Framing, American Society of Civil Engineers Webinar, February 2014
- ASTM F2948, FORCON International, Walkway Auditor Training Course, January 2014
- Standards and Methodology for Investigating Roofing, Waterproofing and Exterior Walls on Residential and Commercial Buildings, Building Envelope Institute, May 2013
- Advanced Design Topics in Wood Construction Engineering, Virginia Polytechnic Institute and State University, March 2012
- Leverage Your Knowledge with the 2010 AISC Specification and the 14th Edition Steel Construction Manual, December 2011
- Residential Builder Code – Legal-Safety, A Builders License Training Institute, February 2011
- Practical Connection Design for Economical Steel Structures, AISC Seminar, November 2010
- Design of Masonry Structures, American Society of Civil Engineers, October 2010
- Design Steel Your Way II, Efficient Analysis for Steel Design using the 2005 AISC Specification, AISC Seminar, September 2010
- Water Entry Prevention and Moisture Control in Buildings - Roofing Systems, Exterior Walls and Foundations, September 2008
- Earthquake Induced Ground Motions, July 2008
- Project Committee Member, ANSI/TP1 1-2007
- Presentation on Local Renovations, May 2007
- Building Pathology: Roofs, November 2006
- Basic Wind Loads ASCE 7-06 Revealed, November 2006
- Wood Design: Design Loads 2, Lateral & Wind Forces, November 2006
- Material Considerations in Steel, October 2006
- Building Pathology, October 2006
- Technical Council on Forensic Engineering I, SEI Structures Congress, May 2006
- Condition Assessment of Materials, SEI Structures Congress, May 2006
- Condition Assessment of Structures, SEI Structures Congress, May 2006
- Composition and Wood Roofs Damage Assessment, HAAG, Engineering, November 2004
- Mechanical Damage to Roofs and Automobiles, HAAG, Engineering, November 2004
- Commercial Roofs Damage Assessment, HAAG, Engineering, October 2004
- Inspection and Evaluation of Residential Roofing, HAAG, Engineering, October 2004
- Roof Technology & Science II, February 2004
- Roof Technology & Science I, January 2004
- Professional Standard of Care – Proof and Defense, July 2003
- Risk Management for the Design Professional - Advanced, July 2003
- Risk Managing Communication, Documentation, and Reports, July 2003

- Basics of Failure Investigations and Forensic Engineering, June 2003
- OSHA Concrete and Masonry Construction, June 2003
- Giving a Deposition, June 2003
- Concrete Evaluation and Repair I & II, June 2003
- Ethical Decision Making for Engineers, June 2003

Education

Master of Science Degree in Civil Engineering – Structural Engineering
Michigan Technological University, Houghton, MI
May 1993

Bachelor of Science in Civil Engineering
Michigan Technological University, Houghton, MI
May 1992

Inducted into Chi Epsilon (The Civil Engineering National Honor Society), President
1991/1992

Inducted into Tau Beta Pi (The National Engineering Society)

Licenses & Certifications

PE - Professional Engineer

Licensed by the State of Alabama - Number 36595-E
Licensed by the State of Arkansas - Number 17269
Licensed by the State of Colorado – Number PE.0058121
Licensed by the State of Connecticut - Number PEN.0032311
Licensed by the State of Florida - Number 83891
Licensed by the State of Georgia - Number PE042561
Licensed by the State of Idaho – Number 20404
Licensed by the State of Indiana - Number 11012149
Licensed by the State of Iowa - Number P23697
Licensed by the State of Kansas - Number 25306
Licensed by the State of Kentucky - Number 29775
Licensed by the State of Louisiana - Number 41653
Licensed by the State of Maine - Number PE15127
Licensed by the State of Michigan - Number 6201042701
Licensed by the State of Minnesota - Number 51548
Licensed by the State of Mississippi - Number 27784
Licensed by the State of Missouri - Number 2015004013
Licensed by the State of New Hampshire - Number 15347
Licensed by the State of New Mexico - Number 24272
Licensed by the State of New York - Number 098090-1
Licensed by the State of North Carolina - Number 045177
Licensed by the State of North Dakota - Number 10752
Licensed by the State of Ohio - Number 74936
Licensed by the State of Oregon - Number 92589PE
Licensed by the State of Rhode Island - Number 12189
Licensed by the State of South Carolina - Number 34304
Licensed by the State of South Dakota - Number 13160
Licensed by the State of Texas - Number 128468
Licensed by the State of Vermont - Number 018.0132278
Licensed by the State of Virginia - Number 402057719
Licensed by the State of West Virginia - Number 21280
Licensed by the State of Wisconsin- Number 45560

Licensed by the State of Wyoming- Number 15845
SE - Structural Engineer
Licensed by the State of Illinois - Number 081005568
Licensed by the State of Nebraska - Number E-16274
Residential Builder
Licensed by the State of Michigan - Number 2101181903
CBIE – Board Certified Building Inspection Engineer, Certified by the Building
Inspection Engineering Certification Institute
Level 1 Certified Infrared Thermographer, Certified by Infraspection Institute
RRC - Registered Roof Consultant, Certified by IIBEC, Inc
NAFE - Board Certified Diplomate in Forensic Engineering by the National Academy
of Forensic Engineers
SAP - Safety Assessment Program, Disaster Service Worker, certified by the State
of California, Number 75133

Employment History

Senior Forensic Engineer
Nederveld, Inc.
2003 - Present
Duties include department oversight specific to building-related assignments, structural and cause and origin investigations related to building pathology, structural analyses, calculations and plan of repair design.

Financial Representative
Northwestern Mutual Life, Grand Rapids, MI
2000 - 2003
Sold life, health, and disability insurance and investment products.

Structural Engineer
JDH Engineering, Inc., Grandville, MI
1994 - 2000
Duties included structural analysis and design of commercial, industrial, institutional, and residential buildings. Designs included multi-story and foundation structures in high seismic zones

Structural Engineer
Randers Engineering, Inc., Muskegon, MI
1993 - 1994
Duties included structural design and analysis of chemical processing facilities including design of blast resistant structures and a regional airport main terminal

Truss Designer
Ottawa Roof Truss, Zeeland, MI
1986 - 1993
Held various design and supervisory positions while attending high school and college

Graduate Research Assistant
Structural Engineering Department, Michigan Technological University
1992 - 1993

Teaching Assistant
Structural Engineering Department, Michigan Technological University

August 1991 - 1992

Professional Affiliations

Member: International Institute of Building Enclosure Consultants (IIBEC)
Member: Structural Building Components Association (SBCA)
Member: American Society for Testing and Materials (ASTM)
Member: National Society of Professional Engineers (NSPE)
Member: American Society of Civil Engineers (ASCE)
Member: National Academy of Forensic Engineers (NAFE)

Publications

Modeling the Behavior of Traditionally Connected Timber Frames
Michigan Technological University Thesis for the Master of Science Degree 1993

Expert Witness Experience

Courtroom Testimony

June 2017

Woodrow Fain and Teresa Fain vs Memberselect Insurance Company, Cousino Harris Disaster Kleenup of SE Michigan, LLC
Expert Witness for Cousino Harris Disaster Kleenup of SE Michigan, LLC on behalf of Johnston, Szykiel & Hunt, PC
Lenawee County Circuit Court # 14-5084-CK

October 2013

Michigan Commerce Bank vs City of Norton Shores
Expert Witness for Michigan Commerce Bank on behalf of Varnum LLP
Muskegon County Circuit Court # 12-48630-NZ

March 2009

JMJ Properties Inc vs Ingram Roofing Inc
Expert Witness for Ingram Roofing Inc on behalf of Auto-Owners Insurance Company
Lapeer County Circuit Court # 06-037006-CK

July 2006

James and Colleen Ziemer vs Wray's Septic Tank & Development Co.
Expert Witness for Wray's Septic Tank & Development Co. on behalf of Strain, Murphy & VanderWal P.C.
Kent County Circuit Court # 05-3202-GC

Arbitration

June 2017

James Werner vs State Farm Fire and Casualty Company
Expert Witness for State Farm Fire and Casualty Company on behalf of Sudekum Cassidy
Arbitration Number 35489AMN

November 2015

Robert Ryan and Nancy Ryan vs State Farm Fire and Casualty Company
Expert Witness for State Farm Fire and Casualty Company on behalf of Sudekum Cassidy
AAA Case Number 01-15-0004-6952

January 2013

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Houghtaling vs State Farm Fire and Casualty Company
Expert Witness for State Farm Fire and Casualty Company
Arbitration Number 22863AJSMN

August 2012
Mercer vs State Farm Insurance Company
Expert Witness for State Farm Insurance Company
Arbitration Number 21841AMN

December 2011
Hurley vs State Farm Insurance Company
Expert Witness for State Farm Insurance Company
Arbitration Number 19645AMN

July 2011
Monga vs State Farm Insurance Company
Expert Witness for State Farm Insurance Company on behalf of Sudekum Cassidy
& Shulruff
Arbitration Number 19334AMN

May 2009
Teubert vs State Farm Insurance Company
Expert Witness for State Farm Insurance Company on behalf of Sudekum Cassidy
& Shulruff
Arbitration Number 14314AMN

January 2009
Shields vs State Farm Insurance Company
Expert Witness for State Farm Insurance Company on behalf of Sudekum Cassidy
& Shulruff
Arbitration Number 13599AMN

January 2009
Bordignon vs State Farm Insurance Company
Expert Witness for State Farm Insurance Company on behalf of Sudekum Cassidy
& Shulruff
Arbitration Number 13600AMN

December 2007
Frederick Wolfgang Industries LLC vs AJ Veneklasen Inc.
Expert Witness for AJ Veneklasen Inc on behalf of Smith Haughey Rice & Roegge
American Arbitration Association # 54 110 01269 06

February 2006
Schester vs Ciraulo Brothers Building Co. dba Square Deal
Expert Witness for Square Deal on behalf of Candela & Penzato
Oakland County Circuit Court # 04-062-919-NI

Depositions

November 2020
Allen Long and Emi Long vs Scott Phillips, Donald E. Lord, and Harold Paul Gilley,
Jr., Inc, dba Re-Maz Properties
Expert Witness for Allen Long and Emi Long

382nd Judicial District, Rockwall County Texas, No. 1-18-1484

August 2020

Country Mutual Insurance Company a/s/o Ralph L. Turner and Sandra M. Turner vs P&W Builders, Inc.

Expert Witness for Country Mutual Insurance

Peoria Country Case No. 16-L-41

December 2018

Mid-States General and Mechanical Contracting Corp vs The State of Illinois, acting by and through its Capital Development Board

Expert Witness for State of Illinois Capital Development Board

State of Illinois Court of Claims # 16-CC-1783

August 2018 and October 2018

Nicole Kelps vs CTK2 Holdings Inc dba Shots on the River

Expert Witness for Nicole Kelps on behalf of Aardema Whitelaw, PLLC

Kent County Circuit Court Case # 17-09080-NO

April 2017

Murad Management Inc vs Hastings Mutual Insurance Company

Expert Witness for Hastings Mutual Insurance Company on behalf of Willingham & Cote, PC

Oakland County Circuit Court # 16-150935 CB

September 2016

Robert Matecki and Diane Matecki vs Andmar Builders, Inc.

DuPage County Circuit Court # 2007 CH 002212

June 2016

March 2016

Fain v. Member Select Insurance Company, and Cusino Harris Disaster Cleanup of SE Michigan

Expert Witness for Cusino Harris Disaster Cleanup of SE Michigan on behalf of Johnston, Szykiel & Hunt PC

State of Michigan 39th Circuit Court for Lenawee County Case #. 14-5084-CK

December 2015

Laura Dunham and Roger Dunham vs North Park Apartments LLC

Expert Witness for Straub Seaman & Allen PC

United States District Court Case # 1:14-cv-1312

April 2015

Foxfire at Valley Lakes, LLC, Future Artists and Contemporary Educators Showcase, Inc., aka FACES, Inc. vs Sheehan Construction Company, Inc. and Kenneth A Sebree and Associates, Inc., Kenneth A Sebree Individually, and John E Fisher and Associates, PC

Expert Witness for Hehner and Associates, LLC

Marion County Superior Court #49D02-1204-PL-013937

May 2014

Lee's Foreign Car Service, Inc vs AMCO Insurance Co., Allied Nationwide Insurance Co., Nationwide Insurance Co. of America
Expert Witness for Allied Nationwide Insurance Co. on behalf of Clausen Miller PC
Cook County Circuit Court # 2012 L 005769

September 2013

Michigan Commerce Bank vs City of Norton Shores
Expert Witness for Michigan Commerce Bank on behalf of Varnum LLP
Muskegon County Circuit Court # 12-48630-NZ

May 2013

James and Kathy Long vs State Farm Insurance
Expert Witness for State Farm Insurance on behalf of Sudekum, Cassidy & Shulruff Chtd
Du Page County Judicial Court # 2012 L 269

February 2013

Carlos and Roseanna Mata vs Jenkins-Granger LLC and Brazen & Greer Inc
Expert Witness for Brazen & Greer Inc on behalf of Kallas & Henk PC
Wayne County Circuit Court # 11-009318-NO

October 2012

Access-Ability Inc, vs Farm Bureau General Insurance Company of Michigan
Expert Witness for Farm Bureau on behalf of Stertz & Weaver
Michigan 42nd Judicial Circuit Court Case # 11-7701-CZ-1

October 2011

Nancy J. Brown vs Scott Anderson dba Anderson Construction and Matt Gamble dba Thermoguard Cellulose Insulation
Expert Witness for Nancy J. Brown on behalf of Williams, Hughes & Cook PC
Oceana County Circuit Court # 10-8446-CK

May 2008

George McLain and Laurie McLain vs Michael Luma dba Luma Insulation and Hastings Mutual Insurance Company
Expert Witness for Michael Luma on behalf of Bodwin & Stover PC
Jackson Circuit Court # 07-2266-CH

February 2008

Moyars et al vs. Freeman Harold Furr and Randy Muller
Expert Witness for Randy Miller on behalf of Starr Austen Tribbet Myers & Miller
Benton County Court # 04C01-0612-CT-196

December 2007

Frederick Wolfgang Industries LLC vs AJ Veneklasen Inc.
Expert Witness for AJ Veneklasen Inc on behalf of Smith Haughey Rice & Roegge
American Arbitration Association Number 54 110 01269 06

November 2007

Lisa G. Phillips vs. David Hamman, et ux.
Expert Witness for David Hamman on behalf of Konopa and Reagan, PC
St. Joseph Superior Court Case # 71DD05-0606-CT-00148

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August 2006

Calvary Baptist Church of Grayling Michigan Ecclesiastical Corporation vs Brotherhood Mutual Insurance Company et al

Expert Witness for Calvary Baptist Church on behalf of Bigler, Berry, Johnston, Szykiel & Hunt, PC

Crawford County Circuit Court # 05-6696-CK

August 2006

Auto-Owners Insurance Company vs Old Republic Insurance Company

Expert Witness for Auto-Owners Insurance Company on behalf of Strain, Murphy & VanderWal P.C.

Kent County Circuit Court # 05-3183-NI

December 2005

John Anderson vs Douglas Kast

Expert Witness for Douglas Kast on behalf of Allstate Insurance Company

Oakland County Circuit Court # 04-062405-NO

October 2005

Hastings Mutual Insurance Company vs William D Snyder et al

Expert Witness for Hastings Mutual Insurance Company on behalf of Logan & Associates

Grand Traverse County Circuit Court # 05-24484-CZ

June 2005

Todd Lemmen vs Michigan Soft Water of Western Michigan

Expert Witness for Michigan Soft Water of Western Michigan on behalf of Garan, Lucow & Miller

Ottawa County Circuit Court # 03-47817-CZ

December 2004

Auto-Owners Insurance Company as Subrogee of Taylored Homes Inc vs Patriot Homes and Tri-State

Expert Witness for Tri-State Service Center on behalf of Strain, Murphy & VanderWal P.C.

Ottawa County Circuit Court # 03-47966-ND

April 2004

Robert Defoy and Susan Defoy vs Philip Hanford

Expert Witness for Philip Hanford on behalf of Strain, Murphy & VanderWal P.C.

Mecosta County Circuit Court # 03-15778-NI