BTC

Professional Profile

Christopher R. Kottra, PE, REWC, CCCA
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REGISTRATIONS

- Licensed Professional Engineer **(PE)**, Illinois
- Registered Exterior Wall Consultant **(REWC)**
- Certified Construction Contract Administrator **(CCCA)**
- Certified Community Association Institute **(CAI)** Educated Business Partner **(EBP)**

PROFESSIONAL ACTIVITIES

- Member of International Concrete Repair Institute **(ICRI)**
  - Past President of Chicago Chapter
  - Member, Committee 410 – Masonry
  - Chair, Subcommittee 410-A Evaluation of Masonry Facade Structures
- Member of Sealant, Waterproofing, and Restoration Institute **(SWR Institute)**
- Member of Association of Professional Reserve Analysts **(APRA)**
- Member of Building Enclosure Council **(BEC)**

PUBLICATIONS

- Kottra, C. "**'L'-evating Concrete Facade Restoration to a New Level**" ICRI Concrete Repair Bulletin, March/April 2022.
- Kottra, C. "**Fundamentals of Traffic-Bearing Membranes**" RCI Interface, December 2017.
- Kottra, C. and Summers J. "**EIFS Come and EIFS Go; A Case Study on EIFS Cladding Rehabilitation**" RCI Interface, January 2017.
- Farahmandpour, K., Kottra, C., and Maze. S. "**What is a Transition Study and What Value Does it Provide?**" CAI Common Interest, Summer 2016.

PRESENTATIONS

Chris Kottra has been involved with numerous **speaking engagements** for **SWR Institute**, **ICRI**, **IIBEC**, **BEC**, **CAI**, and **ACTHA**. These presentations focused on various aspects of property maintenance such as the value of reserve studies, fundamentals of traffic membranes, and case studies on parking garage and window wall repair projects.

PROFESSIONAL EXPERIENCE

Chris Kottra has been involved in the **design and analysis** of many types of building systems since graduating in 2003. Prior to joining Building Technology Consultants, Inc. in 2009, Chris worked both as a design engineer and consulting engineer for small engineering companies in the Chicago area.

His professional experience includes:

- **Forensic investigation** of **building facades**, **roofs**, and **parking garages**;
- Investigation of **water leakage** issues;
- **Structural evaluation** and design;
- **Property evaluation**;
- Nondestructive **testing**;
- **Repair** and retrofit **design**;
- **Contract document** preparation;
- Construction **contract administration**
- **Transition studies**; and
- **Capital asset studies** (Reserve studies)

Chris Kottra has been involved with **concrete**, **masonry**, **terra cotta**, **EIFS**, and **stucco facade evaluation** and **repair** projects. His project experience also includes evaluation, repair design, and construction contract administration for numerous **parking garages** and **low-slope roof repair** projects. He has performed **capital asset studies** (reserve studies) for community library facilities as well as residential communities ranging from high-rise condominium buildings to multi-building townhome developments. During these studies, Chris was responsible for a condition evaluation of common elements to develop a **capital asset funding report** that laid out **major future expenditure**s for the owner.

EDUCATION

Chris Kottra earned his **Bachelor of Science** degree in **Architectural Engineering** with a Structural emphasis from the **Milwaukee School of Engineering** (MSOE) in 2003 and completed all coursework for a Master's degree in Structural Engineering in 2004, also at MSOE. Since his graduation, he has attended several seminars related to structural design and repair, failure analysis, and waterproofing.

REPRESENTATIVE PROJECTS

Fisher Corporate Center – Elgin, IL

Responsible for construction contract administration for a multi-phase **facade rehabilitation** project at this 400,000-square foot office building. Extensive water leakage began shortly after the building was constructed in 1992. An evaluation by BTC identified numerous deficiencies within the **EIFS panel** and **strip window** systems. The rehabilitation design included replacing all the EIFS panels with a **three-coat drainable stucco system** as well as **glazing pocket repairs** at the strip windows.

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474 North Lake Shore Drive – Chicago, IL

Responsible for the design and contract administration of a multi-phase **parking garage repair** project at this 63-story condominium building in downtown Chicago**.** The parking garage consists of the first 15 stories of the tower combined with an adjacent 15 story structure. Concrete deterioration within the parking garage had been caused by **corrosion of embedded steel reinforcement** and insufficient expansion joint configuration. Repairs included reconfigured **expansion joints,** miscellaneous **concrete repairs** on horizontal, vertical, and overhead surfaces, and application of a **TBM**. Design also included repair options for deteriorated **post-tensioned tendons** in concrete slabs.

Responsible for design, bidding, and contract administration of a **sealant** and **concrete louver repair** project. **Cracking** and **spalling** of the exposed **precast concrete** louvers and exposed aggregate precast concrete panels had been caused by corrosion of embedded steel reinforcement. Design included **3 levels of louver repairs** to address varying levels of deterioration. Replacing the concrete louvers with prefabricated **aluminum louvers** was considered for most severe areas of deterioration on the east elevation. Elsewhere, repairs to the louvers included patching of delaminated and spalled concrete, crack repairs, and application of either a **silicone elastomeric coating** or an **acrylic waterproofing coating**. Project also included **comprehensive sealant** replacement at window perimeters and joints between precast concrete facade panels.

210 East Pearson Condominium Building – Chicago, IL

Responsible for repair design, bidding assistance, and construction phase services for this 16-story structure built in 1926. Projecting **brick quoins** on offset corners on the south elevation exhibited significant **distress**. The 6 **limestone pediments** that cap the south elevation also showed signs of **deterioration**. Repairs included rebuilding the offset corners with new shelf angles and **through-wall flashing** at each floor. Design also included dismantling the limestone pediments and rebuilding them with a through-wall flashing. A **copper mansard roof** was designed to help protect the limestone pediments.

One Museum Park West Condominiums – Chicago, IL

Responsible for a detailed evaluation of **window wall system** to identify deficiencies contributing to **water leakage** at this **56-story**, **294-unit skyscraper**. Developed **retrofit** repair alternatives and phasing options for Owner's consideration. Based on repair alternative and phasing selected by Owner, designed repairs, and provided bidding assistance and construction phase services for a **window wall repair project**.

Responsible for **design**, **bidding assistance**, and **construction phase services** for repairs to upper and lower **parking garages.** Deficiencies identified during transition study were contributing to accelerated deterioration of the **cast-in-place concrete** structure. Repairs were necessary to ensure durability. Repairs included concrete patches, adding **floor drains** to improve drainage, application of a **traffic bearing membrane** (TBM), and **negative side waterproofing** along the perimeter **secant walls** below grade.

Responsible for a detailed **evaluation** of **waterproofing systems** to assess potential causes of apparent **leaks**. Field investigation included **exploratory openings** and systematic **water testing** to locate sources of the leaks. Subsequent report included short-term and long-term **recommendations for repairs** to the various waterproofing systems.

State Place Condominiums – Chicago, IL

Responsible for design, bidding assistance, and construction phase services for a **facade repair** project on the **high-rise** building of this 4-building condominium development in downtown Chicago. Repairs were needed to address **ongoing deterioration** and **water leakage** issues in the 26-story high-rise building. **Concrete repairs** included localized patches, routing and sealing of cracks, application of a **waterproofing coating** on walls, and application of an **elastomeric coating** on slab edges. Design also included sheet metal slab edge covers for east elevation above CTA tracks to reduce frequency of future repairs. Additional repairs included **balcony TBM** repairs, localized balcony railing repairs, **sealant replacement**, and elastomeric coating application on **DEFS** panels.

Responsible for evaluation, design, bidding assistance, and construction phase services for a **roof repair project**. Worked with the Association to develop **short-term repair options** to extend the life of the existing roofs to allow the Association to be better prepared for a large-scale roof replacement project. Repairs included an **elastomeric coating** at the high-rise modified bitumen roofs, liquid-applied **PMMA** membrane at grouped roof **penetrations** on the mid-rise buildings, and **sealant** repairs at steep-slope **standing-seam** metal roofs.

3520 North Lake Shore Drive – Chicago, IL

Responsible for preparing a detailed **cost estimate** with **phasing options** for extensive overdue **facade repairs** at this 13-story relic constructed in **1924.** Based on phasing selected by the Association, **designed repairs** and developed bidding documents, provided bidding assistance, and provided **construction contract administration** services. The project consisted of 2 phases in which 100% of the facade was reviewed. Rounded corners exhibiting significant deterioration were rebuilt during the first phase. Severely **corroded steel lintels** and **shelf angles** were replaced. The project also included miscellaneous **terra cotta**, brick masonry, **limestone**, and concrete repairs.

Park Point at Wheeling – Wheeling, IL

Responsible for construction contract administration for second phase of a **patio door** and **window replacement**, and **facade repair** project at this residential community. The development includes three 4-story buildings, with 32 units per building. Significant water leakage, distressed window frames, and cracked window glazing were reported shortly after the buildings were constructed in the early-2000's. An evaluation by BTC identified numerous deficiencies including **unaccommodated differential movements** in exterior wall components, **lack of flashing** around window and door openings, and under-performing windows and patio doors. Repairs included **replacement** of all windows and patio doors with **fiberglass** windows and doors, flashing at window and door openings, **expansion joints**, and **EIFS** cladding replacement.

Responsible for repair design, bidding assistance, and construction phase services for a **balcony repair** project to address continued **deterioration** of balcony **framing members**. Repairs included **recoating** of structural steel members, and replacement of wood **decking and joists**. Design included **composite decking**. **Structural calculations** and details were required for reattaching the existing balcony railings.

Harbor View Condominiums – Chicago, IL

Responsible for **design**, **bidding assistance**, and **construction phase services** for repairs to the 5-story **parking garage** inside this 30-story condominium building in the South Loop. Deficiencies identified during an evaluation were contributing to accelerated deterioration of the **conventionally reinforced cast-in-place concrete** structure. Repairs were necessary to ensure durability. Repairs included concrete patches, adding **floor drains** and **concrete crickets** to improve drainage, and application of a **TBM**.

Responsible for a detailed evaluation of various **facade** components including exposed **concrete**, **window wall system**, and a direct-applied exterior finish system (**DEFS**) cladding to assess potential causes of reported leaks. Field investigation included **exploratory openings** and systematic **water testing** to locate sources of leaks. Subsequent report included short-term and long-term **recommendations for repairs** to facade components.

Responsible for **design, bidding assistance,** and **construction phase services** for facade repairs to address deficiencies identified during evaluation. The project included replacing existing DEFS cladding with a **drainable EIFS** cladding system. Miscellaneous concrete repairs and **window wall sealant repairs** were also included.

Library Courte Condominiums – Des Plaines, IL

Responsible for **construction administration** during facade repairs. The development consists of one 9-story building and one 8-story building. Numerous **water leaks** were attributed to deficiencies in the **masonry wall construction** and window installation. Repairs included **through-wall flashing** at floor lines and lintels, masonry tuck pointing, brick and stone masonry replacement, and miscellaneous sealant repairs.

Other rehabilitation projects included installation of a prefabricated **metal panel over-cladding system** at penthouses, **balcony railing replacement**, and **replacement** of select **patio doors** and **windows**. The metal panel system was a **cost-effective alternative** to address poorly constructed walls that permitted leaks. Corroding steel railings were causing deterioration of concrete balconies. Design included replacing with **corrosion-resistant aluminum railings**, concrete repairs, and surface mounted posts. Windows and doors were replaced to upgrade poor performance criteria of the originals and to install an appropriate **flashing system**. Responsible for design, bidding assistance, and contract administration during the cladding, railing, and window replacement projects.

Also responsible for design, bidding assistance, and construction phase services for **waterproofing system** repairs at **plaza** over the parking garage between the buildings. Repairs were designed to address numerous reported leaks in lower level of garage. Repairs included a tie-in to the existing waterproofing system, installation of drain tiles for **additional drainage**, and a tie-in to the existing storm water drainage system.

The 20 East Cedar Condominium Building – Chicago, IL

Responsible for **evaluation** of **brick** and **architectural terra cotta facade** on this **vintage** 20-story condominium building. Based on requirements outlined in the City of Chicago's **Critical Facade Examination** program, documented the condition of the facade and recommended repairs. Repairs included removing and resetting of loose brick or terra cotta units, replacement of sealant at terra cotta joints, and masonry tuck pointing.

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Transition Studies – Chicago Area, IL

Responsible for a detailed **review** of **original design documents** and a thorough review of **critical building components** to assist homeowner associations as **ownership transitions** from the developer to the HOA. Responsibilities included **identifying potential deficiencies** in design and construction of all building components and systems that could lead to future maintenance and deterioration. Services included developing a **capital asset program** to plan for **future expenditures**. Representative projects included the following:

- **4 East Elm Street** (Chicago) – 24-story, 35-unit condominium building built in 2016
- **One Museum Park West** (Chicago) – 56-story, 294-unit condo building constructed in 2009
- **Illume** (Chicago) – 10-story, 79-unit condominiums constructed in 2018
- **The Ronsley** (Chicago) – 8-story, 40-unit development completed in 2019; Includes a century-old 5-story heavy timber framed structure with new construction added to the top and sides

Capital Asset Studies (Reserve Studies) – Chicago Area, IL

Responsible for developing a **capital asset program** for numerous residential communities and municipal facilities. The programs mapped the anticipated expenditures for the next 20 years for the client. During a field assessment, identified apparent building and site deficiencies that could result in **future maintenance and deterioration**. Performed a **financial analysis** to evaluate contributions to **reserve funds** and provided recommendations for future contributions. Representative projects included the following:

- **474 North Lake Shore Drive** (Chicago) – 63-story, 502-unit condo building constructed in 1990
- **3440 North Lake Shore Drive** (Chicago) – 19-story, 218-unit condo building constructed in 1956
- **3520 North Lake Shore Drive** (Chicago) – 13-story, 166-unit condo building built in 1924
- **3800 North Lake Shore Drive** (Chicago) – 95-unit condo building including a 17-story high-rise built in the 1920's and 4-story low-rise building built in the 1940's
- **3950 North Lake Shore Drive** (Chicago) – Three 23-story buildings, 660 condo units, built in 1955
- **Federal Square Dearborn Park Townhomes** (Chicago) – 17-building, 117-unit townhome community completed in 1993
- **State Place Condominiums** (Chicago) – 23-story high-rise with three 7-story mid-rises, 243-unit condominium association constructed in 2005
- **The Pointe at Lincoln Park** (Chicago) – 11-building, 153-unit townhome community built in 1996
- **Glen Ellyn Public Library** (Glen Ellyn) – 44,000 square foot library built in 1995
- **Batavia Public Library** (Batavia) – 54,000 square foot library built in 2001
- **Northbrook Public Library** (Northbrook) – 82,500 square foot library originally constructed in 1969 with additions in 1975 and 1999
- **Skokie Public Library** (Skokie) – 125,000 square foot library originally constructed in 1960 with additions in 1971 and 2003