Finance and Administration Committee
November 29, 2022

Action Item

FAC-2  Approval of Designer Selection - Raymond Petty Science Building Portico Waterproofing

Background Information

Petty Science Building was completed in 1938, and a partial building renovation and pedestrian bridge were constructed in 2008. Moisture infiltration has been a recurring issue at the Portico entry location. An investigation to identify the causes of these issues is necessary. The project's scope is to assess, identify and provide design solutions to address the moisture infiltration issues and provide repairs and/or replacement of the existing conditions. The project’s scope shall include waterproofing, flashing systems, masonry, stair, limestone, and handrail repairs or replacement as required. Additionally, windows, lintels, and interior spaces subjected to moisture infiltration shall be examined to determine the extent of repairs needed.

The University of North Carolina System website advertised the request for qualifications and letters of interest for design services for this project. Seven (7) firms submitted letters of interest, including two (2) from Guilford County.

The Designer Selection Committee reviewed the letters of interest and invited three (3) firms to an interview on November 9, 2022, to present their qualifications and recommends the following in ranking order.

1. Raymond Engineering, Raleigh, NC
3. SKA Consulting Engineers, Inc., Greensboro, NC

The firm Raymond Engineering is recommended as the Designer for the following reasons:

1. Raymond Engineering presented the most comprehensive approach to the project, from the initial assessment phase to construction completion.
2. They provided the most detail on risk mitigation through thorough review processes and working closely with the University and contractor. They demonstrated the capabilities and methodology needed to quickly respond to issues proactively and in real-time during construction.
3. Raymond Engineering is a comprehensive, HUB-certified design firm that can provide all services required for the project within their office.

**Attachment:**

See Raymond Engineering Letter of Interest below.

**Requested Action**

Based on the above information, that the Board of Trustees of the University of North Carolina at Greensboro approve the firm of Raymond Engineering. If agreeable terms cannot be met with the recommended firm, then the Board authorizes the administration to negotiate terms with the other firms in ranking order.

Robert J. Shea, Jr.
Vice Chancellor for
Finance and Administration
TAB 1
INFORMATION SHEET
Information Sheet

Firm Name: Raymond

☑ HUB Certified

Specify Type

☐ Female ☐ American Indian ☑ Hispanic ☐ Socially & Economically Disadvantaged

☐ Disabled ☐ Asian-American ☐ Black

Point of Contact: Jason Mobraten

E-mail Address: jason.mobraten@raymondllc.com

Street Address: 316 W. Millbrook Road, Suite 201

City: Raleigh

State: NC

Zip Code: 27609

County: Rockdale

Phone #: 919-872-7866

Fax #: 919-872-4486

Type of Firm (e.g. Architectural, Civil Engineering, Surveying, Etc.): Architectural, Engineering, Building Envelope

Consulting Firms

Architectural: ☐ Check If HUB

Mechanical: ☐ Check If HUB

Electrical: ☐ Check If HUB

Plumbing: ☐ Check If HUB

Structural: ☐ Check If HUB

Civil: ☐ Check If HUB

Landscape: ☐ Check If HUB

Interior Design: ☐ Check If HUB

Other (specify type): ☐ Check If HUB

Other (specify type): ☐ Check If HUB

N:\Custom\FDC_DEPT\DESIGN\Procedure Manual\Advertisement for Designer Service\Information Sheet
TAB 2

LETTER OF INTEREST
LETTER OF INTEREST

Jeff Manter  
UNC Greensboro Facilities Design & Construction  
Gray Home Management House  
105 Gray Drive  
Greensboro, NC 27412

Reference: Petty Science Building Portico Waterproofing

Dear Mr. Manter,

Our team reviewed your solicitation for building envelope services for your Petty Science Building Portico and we are genuinely excited to have the opportunity to continue building our working relationship with you and your team at UNC Greensboro (UNCG). We consider this project to be fully in line with our services, personnel, and experience.

From working with us over the years, you know Raymond is a strong business success story. For over 30 years, we have primarily been a building envelope design and commissioning firm supporting clients with industry leading roof and building envelope evaluation, design, and testing services. However, since 2015, our firm has expanded our services to provide a plethora of disciplines to better support our existing and new customers. We are proud to offer UNCG a full-service Architecture / Engineering team that includes talented Architects, Engineers, Interior Designers, Project Managers, and IIBEC, Inc. Professionals.

Raymond takes pride in driving transparency, accountability, and responsiveness in all of our client engagements to ensure we are meeting the best interests of our customers. Our firm approaches each project with an innovative and comprehensive methodology, while always keeping the client’s best interest as our top priority.

We appreciate you and your team considering our qualifications and aim to be your trusted partner, supporting your technical and urgent needs in the highest professional manner always. We are excited about the prospect of working with you again.

Jason Mobraten, Regional Vice President  
Jason.mobraten@raymondllc.com  
p: 919-872-7866 ext. 503 | m: 909-607-3773
TAB 3
PROJECT TEAM ORGANIZATION CHART
3.1 ADEQUATE STAFF AND PROPOSED CONSULTANT TEAM

Raymond will provide a dynamic and collaborative team of IIBEC, Inc. professionals, architects, and engineers that are dedicated to service the needs of UNCG. Because roofing and building envelope services make up a significant portion of our annual workload, our firm heavily invests in ensuring that we have an adequate number of roofing / building envelope professionals available for our projects. We understand the technical nuances and capacity stipulations that roof assessment projects require.

LEADERSHIP

Jason Mobraten, RA, RRC, REWC, LEED AP will be your Project Manager and main point of contact. With over 17 years of industry experience, Jason brings the building envelope background you will need for this project. Jason has performed work on some of the most significant facilities in North Carolina, including UNCG buildings, ECU, Duke University Admissions Building and more.


David Willers, PE, RBEC, REWC, RWC, RRC, LEED AP will serve as Senior Reviewer for the duration of this project. David brings over 20 years of experience in the State of North Carolina as an engineer. David has experience working at numerous North Carolina colleges and universities including UNCG, NCSU, ECU, UNC Chapel Hill and more.

Example Projects Include: UNCG Phillips Hawkins Dormitory | UNCG Lofts on Lee Fascia Repairs | UNCG Foust Building Condition Assessment | UNCG Tate Leak Investigation | ECU Neurosurgical and Spine Center Building Envelope Assessment and Repair | ECU Membrane Roof Replacement Student Recreation Center

KEY PERSONNEL

In the chart below, we have emphasized Raymond’s education, years of experience and specialized certifications.

<table>
<thead>
<tr>
<th>Name</th>
<th>Role</th>
<th>Certifications</th>
<th>Education</th>
<th>Year in Industry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jason Mobraten</td>
<td>Project Manager</td>
<td>RA, RRC, REWC, LEED AP</td>
<td>MA</td>
<td>Architecture</td>
</tr>
<tr>
<td>David Willers</td>
<td>Senior Reviewer</td>
<td>PE, RBEC, REWC, RWC, RRC, LEED AP</td>
<td>MS</td>
<td>Civil Engineering</td>
</tr>
<tr>
<td>Gretchen Cobb</td>
<td>Building Envelope Designer</td>
<td>RA</td>
<td>BA</td>
<td>Architecture</td>
</tr>
<tr>
<td>San Bawi</td>
<td>Building Envelope Testing</td>
<td>EIT</td>
<td>BS</td>
<td>Civil Engineering</td>
</tr>
<tr>
<td>Adam Cook</td>
<td>BE Consultant/Construction Administrator</td>
<td>RRC, RRO</td>
<td>BS</td>
<td>Construction Management</td>
</tr>
</tbody>
</table>

+50 additional engineering & project management professional
TAB 4

RELEVANT EXPERIENCE & OTHER IMPORTANT FACTORS
4.1 SPECIALIZED OR APPROPRIATE EXPERTISE IN THE TYPE OF PROJECT

HISTORY OF RAYMOND

Since 1992, Raymond has performed industry leading building envelope design, quality assurance, construction management, and asset management to clients spanning the Southeast. Our team’s technical expertise and past performance repertoire is unparalleled as our firm’s foundation has been built upon a roofing/building envelope and waterproofing background.

Raymond is a true building envelope firm. For over 30 years, we have provided industry leading design services to clients across the nation and built a reputation as a “go-to” firm for building envelope and roofing services alike. Because of this, we have heavily invested in ensuring our professionals carry industry-leading certifications to better serve our customers. We will provide UNCG with access to a high-quality building envelope team with a rich history of successfully managing state government projects.

DID YOU KNOW?
Raymond is one of the nation’s leading roofing and building envelope firms with over 25 IIBEC, Inc. certified professionals in house.

Our comprehensive building envelope services include the following:

<table>
<thead>
<tr>
<th>Building Envelope Design</th>
<th>Testing &amp; Inspection</th>
<th>Construction Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Wind Uplift Analysis</td>
<td>▪ Infrared Moisture Survey</td>
<td>▪ Pre-bid Conference, Bid Preparation and Review</td>
</tr>
<tr>
<td>▪ Drainage Analysis</td>
<td>▪ Nuclear Moisture Surveys</td>
<td>▪ Contract Preparation / Notice of Award</td>
</tr>
<tr>
<td>▪ Structural Analysis</td>
<td>▪ Unmanned Aerial Vehicle Surveys</td>
<td>▪ Construction Schedule Review</td>
</tr>
<tr>
<td>▪ Historical Preservation</td>
<td>▪ Electrical Capacitance Surveys</td>
<td>▪ Preconstruction Conference</td>
</tr>
<tr>
<td>▪ Façade Rehabilitation / Restoration</td>
<td>▪ Air Barrier Inspection / Testing</td>
<td>▪ Submittal and Schedule of Values Review</td>
</tr>
<tr>
<td>▪ Roofing, Waterproofing, Plaza / Terrace Systems</td>
<td>▪ Water Testing</td>
<td>▪ Requests for Information, Change Order Review</td>
</tr>
<tr>
<td>▪ Field Evaluation of Existing Conditions</td>
<td>▪ Technical Investigation</td>
<td>▪ Site Set Up / Storage / Construction Inspections</td>
</tr>
<tr>
<td>▪ Preparation of Construction Documents &amp; Specifications</td>
<td>▪ Litigation Support</td>
<td>▪ Interior Facility Preconstruction Inspection</td>
</tr>
<tr>
<td>▪ Cladding Replacement Design</td>
<td>▪ Research / Laboratory Testing</td>
<td>▪ Systems Testing / Infrared Analysis</td>
</tr>
<tr>
<td>▪ Fenestration Replacement Design</td>
<td>▪ Design / Code Review</td>
<td>▪ Fastener Withdrawal Testing</td>
</tr>
<tr>
<td>▪ Below foundation and grade waterproofing</td>
<td>▪ Construction Document Review</td>
<td>▪ Payment Application Review / Unit Price Verification</td>
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<td></td>
<td>▪ Construction Claims</td>
<td>▪ Progress Meetings</td>
</tr>
<tr>
<td></td>
<td>▪ Field Water Fenestration Testing (ASTM E1105)</td>
<td>▪ Pre-final / Punch List / Final / Warranty Inspections</td>
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<tr>
<td></td>
<td>▪ Field Air Fenestration Testing (ASTM E783)</td>
<td>▪ Closeout/Warranty/Submittals /As Built Drawings</td>
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<tr>
<td></td>
<td>▪ Field Air Leakage Testing (ASTM E1186)</td>
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<tr>
<td></td>
<td>▪ Roof Wind Uplift Testing (ASTM E907/FM 1-52/ TAS 124-20)</td>
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</table>
Raymond is proud to present a world class team for the UNCG. With a team of more than 50 architecture and engineering professionals, we have supported more than $30M in investigative and design services related to building envelope improvements over the past 30 years. We understand your specific requirements and have developed best practices in meeting the design criteria. Moreover, our best practices address all aspects of your project, such as inspection/testing services, design, feasibility, bidding, and construction administration that allows for minimal disruption of normal operations, combined with high-quality, safe work environments, on-time delivery, and cost-effective solutions. Our core services include roofing/structural and waterproofing design services, structural design, mechanical, electrical, and plumbing design, architecture, interior design, non-destructive testing and surveys, roofing/waterproofing analysis, construction management/administration and asset management services.

Raymond’s professionals are certified through the International Institute of Building Enclosure Consultants (IIBEC, Inc.), which is the leading industry trade organization for the building envelope discipline. IIBEC is committed to maintaining training, certifications, and leadership pertaining to roofing, waterproofing, and building envelope. Raymond is one of the leading companies within the United States affiliated and certified with IIBEC, Inc. and is uniquely qualified to provide the highest caliber of service and quality for roofing and building envelope projects. Through this organization, our staff must obtain educational certifications relevant to the roofing industry in order to maintain their certifications. Our involvement with IIBEC, Inc. spans over two decades. In fact, our Principal, Ray Ramos, was awarded the Outstanding Educator Award in 2017 for his commitment to exceptional delivery of IIBEC educational courses.

The IIBEC, Inc. recognized certifications of our staff include Registered Building Envelope Consultants (note: there are only 54 RBECs in the United States), Registered Roof Consultants, Registered Roof Observers, Registered Exterior Wall Consultants, and Registered Waterproofing Consultant. Each of these certifications requires extensive training on roofing and building envelope systems. Our staff regularly attend industry courses which include the following expertise:

- Low-Slope System Selection & Design
- Building a Resilient & Sustainable Future
- Exterior Walls Technology & Science
- Blast & Structural Security Fundamentals
- SBS Roofing Technology & Design
- Single Ply Roof Systems
- Wall Systems & Design
- PMMA Liquid Roofing & Waterproofing

Raymond is a true building envelope firm. For over 30 years, we have provided industry leading design services to clients across the nation and built a reputation as a “go-to” firm for building envelope and roofing services alike. Our team comes equipped with knowledge of virtually every roof system on the market. We will be an integral partner to UNCG and will work to provide you with a cost effective and efficient solution for your future projects.
4.1 PAST PERFORMANCE ON SIMILAR PROJECTS

Since 1992, Raymond has performed industry leading building envelope design, quality assurance, construction management, and asset management to clients spanning the Southeast. Our team's technical expertise and past performance repertoire is unparalleled as our firm's foundation has been built upon a roofing/building envelope and waterproofing background. Raymond brings a long history of providing higher education clients with award-winning building envelope design services. Our firm values strong client and team relationships and will ensure a successful project delivery at UNCG.

Our company's dedication to our clients has led to an outstanding repeat client rate – especially in the college and university sector. In fact, over 70% of our higher education work comes from repeat clients. To us, no bigger compliment attests to the value of our work. Our attention to detail coupled with proactive communication and understanding educational system requirements has allowed us to provide the best customer service possible.

University of North Carolina Greensboro – Phillips Hawkins Residence Hall Roof Replacement

“We at UNC Greensboro are pleased to give a recommendation to Raymond Engineering for services provided for the Phillips Hawkins Residence Hall Roof Replacement project. We were very pleased with the manner in which Adam Cook managed both Design and Construction phases of the project”.

-T.O (Buddy) Hale, Capital Project Manager

336-334-4431
tohale@uncg.edu

EXPERIENCE WITH HIGHER EDUCATION FACILITIES

As Raymond has grown, our commitment to the higher education sector has remained the same. Currently, Raymond is serving more than 15 higher education clients including UNC Greensboro, UNC Chapel Hill, ECU, North Carolina State University, Duke University, Auburn University, and Lenoir Community College. In addition to Section F in the SF330, we have provided additional projects that expand upon our experience below.

UNCG | Tower Village Re-roofing Design & Construction Administration

Raymond provided re-roofing services for UNCG for the Tower Village building. Our team provided re-roofing for the shingle and membrane areas, added fall protection systems, repaired gutters and downspouts, and repaired EIFS gable ends. Our team also performed a warranty inspection 23 months after completion and prior to the termination of the contractor's 2-year warranty and compiled a list of repair items for presentation to UNCG.

Relevancy: Building Envelope Consulting Services
Roof Replacement Design | Testing Services | Construction Administration | UNCG Facility

Architectural, Interior Design, Engineering, Building Envelope and Consulting Services
UNC Greensboro | 326 Tate Street Wall Investigation

The renovated theater at Tate Street experienced leaks at the front of the building and at the first and second floors at the rear of the building. Our team performed visual examinations and water testing at this location.

**Relevancy:** Waterproofing | Water Testing | Water Infiltration | Cost Estimating | Quality Control | UNCG Facility

UNC Greensboro | 840 Neal Street Wall Investigation

This UNCG office building experienced wall leaks on the west side of the building. Water entered the building at the 1st and 2nd levels of the building and leaked into the building at the elevator shaft at an unsealed wall joint. Our team performed water testing at the 1st floor and sprayed water onto the bricks for 5 minutes and waited 10 minutes to document any water intrusion. Raymond also performed water testing at the elevator shaft at the northeast wall joint.

**Relevancy:** Waterproofing | Water Testing | Water Infiltration | Cost Estimating | Quality Control | UNCG Facility

UNC Greensboro | Stone Building Roofing Consulting Investigation and Evaluation

Raymond was retained to provide roof restoration or replacement at the low-sloped modified bitumen area, including the replacement of gutters and downspouts. Our team provided a preliminary scaled roof plan of the area selected for roof work, and replaced the existing insulation and vapor barrier. Raymond a report of findings and recommendation to UNCG for review and comment.

**Relevancy:** Building Envelope Consulting Services | Roof Replacement Design | Testing Services | Cost Estimating | Quality Control | UNCG Facility
UNC Greensboro | Loft on Lee Fascia Repairs

Raymond was retained to provide roof restoration at the low-sloped modified bitumen area, including the replacement of gutters and downspouts. Our team provided a preliminary scaled roof plan of the area selected for roof work, and replaced the existing insulation and vapor barrier. Raymond provided a report of findings and recommendation to UNCG for review and comment.

Relevancy: Building Envelope Consulting Services | Roof Replacement Design | Testing Services | Cost Estimating | Quality Control | UNCG Facility

UNC Greensboro | Moore-Strong Residence Hall Roof Replacement

The Raymond team was engaged to provide roof designs and construction administration for this project. This on-going project consists of two phases: (1) developing plans and specifications for the replacement of the existing roof system; and (2) construction administration services (e.g., preparing contracts for signature, reviewing contractor submittals, etc.). Raymond conducted a pre-work conference at the site with all essential personnel to review the necessary aspects of construction (e.g., requirements, operations, safety, etc.). Our team also attended weekly progress meetings in conjunction with our quality assurance inspections to provide the owner with weekly progress reports to keep them apprised of progress throughout construction.

Relevancy: Building Envelope Consulting Services | Roof Replacement Design | Testing Services | Cost Estimating | Quality Control | UNCG Facility

UNC Chapel Hill | Friday Center Roof Replacement and Fall Protection

William and Ida Friday Center is a conference and classroom facility located on the South Campus of the University of North Carolina at Chapel Hill. Raymond was retained by the University to assess the conditions of multiple roof areas and provide our roof replacement recommendations that fit the Owners budget. After field visits and coordination meetings with the Friday Center’s staff it was decided that the upper roof areas would be replaced totaling 30,000 square feet. Raymond designed a new modified bitumen roof assembly to replace the building’s original single ply membrane system. The design included upgrades to the energy performance of the roof assembly, which was designed so that the new assembly would triple the R-Value of the original assembly. A new fall protection system was also designed that met OSHA’s requirements. Throughout the design of the project Raymond provided updated cost estimates and projected construction schedules to the client.

Relevancy: Building Envelope Consulting Services | Roof Replacement Design | Testing Services | Cost Estimating | Quality Control | UNCG Facility
## CURRENT WORKLOAD AND STATE PROJECTS AWARDED

Below we have provided our current workload, including state funded projects awarded in North Carolina.

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Client</th>
</tr>
</thead>
<tbody>
<tr>
<td>RAL1002.009 NCDOA New Revenue Building Wall Water Intrusion</td>
<td>NCDOA</td>
</tr>
<tr>
<td>RAL1002.010 Dobbs Building - Foundation Waterproofing</td>
<td>NCDOA</td>
</tr>
<tr>
<td>RAL1002.011 Fayetteville State Veterans Home</td>
<td>NCDOA</td>
</tr>
<tr>
<td>RAL1002.012 Dobbs Building Roof Replacement</td>
<td>NCDOA</td>
</tr>
<tr>
<td>RAL1004.012.001 Rowan Co. Maint. Office Reno. &amp; Addition - Recertify, Bid and Construction</td>
<td>North Carolina Department of Transportation</td>
</tr>
<tr>
<td>RAL1004.012.002 DIV 3 Traffic Services Roof Repairs</td>
<td>North Carolina Department of Transportation</td>
</tr>
<tr>
<td>RAL1004.023 NCDOT Old Art Museum Roof Replacement</td>
<td>North Carolina Department of Transportation</td>
</tr>
<tr>
<td>RAL1004.024 NCDOT Method Road Equipment Shop Roof Assessment</td>
<td>North Carolina Department of Transportation</td>
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<tr>
<td>RAL1004.025 NCDOT Masonry Cleaning Study</td>
<td>North Carolina Department of Transportation</td>
</tr>
<tr>
<td>RAL1004.026 NCDOT Complex Door Replacement</td>
<td>North Carolina Department of Transportation</td>
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<tr>
<td>RAL1008.009 ECU Neurosurgical and Spine</td>
<td>ECU Health Sciences Campus</td>
</tr>
<tr>
<td>RAL1011.019 St Catherines of Sienna, WF, NC</td>
<td>Baker Roofing</td>
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<tr>
<td>RAL1015.030 Summit Deck Repairs Summer 2021</td>
<td>Capital Associates</td>
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<tr>
<td>RAL1015.033 Summit Deck Repairs 2022</td>
<td>Capital Associates</td>
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<tr>
<td>RAL1015.034 4011 Westchase Blvd. Parking Deck Repairs 2022</td>
<td>Capital Associates</td>
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<tr>
<td>RAL1015.035 Summit Deck Elevated Walkway Slab Repairs</td>
<td>Capital Associates</td>
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<tr>
<td>RAL1015.036 2841 Plaza Place Observations &amp; Report</td>
<td>Capital Associates</td>
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<tr>
<td>RAL1018.012 Scott-Murray EFIS Investigation</td>
<td>Duke University</td>
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<tr>
<td>RAL1021.019 Hialeah Roof Structure Assessment</td>
<td>Resolute Forest Products</td>
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<tr>
<td>RAL1027.007 DWM Roof Replacement 2021-2022</td>
<td>City of Durham</td>
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<tr>
<td>RAL1032.024 6453 Thffield Drive Water Intrusion</td>
<td>Bost Homes</td>
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<tr>
<td>RAL1032.031 1129 Destination Dr. Inspection</td>
<td>Bost Homes</td>
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<tr>
<td>RAL1034.011 NCDPS Alcoholic Beverage Control Management Roof Replacement</td>
<td>NCDPS</td>
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<tr>
<td>RAL1034.014 Anson Correctional Institution Roof</td>
<td>NCDPS</td>
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<tr>
<td>RAL1037.002 Atlantec Engineers - UNCSA - Gray Building</td>
<td>Atlantec Engineers, PA</td>
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<tr>
<td>RAL1047.012 Mill River 850S Horticultural Bldg. 455 Roof Repair/Replacement</td>
<td>North Carolina State University</td>
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<tr>
<td>RAL1048.007 Stone Building Roof Replacement</td>
<td>UNC Greensboro</td>
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<tr>
<td>RAL1059.003 5 Schools - Roof Coatings</td>
<td>Wake County Public Schools</td>
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<tr>
<td>RAL1091.010 Waller Building Window Replacement</td>
<td>Lenoir Community College</td>
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<tr>
<td>RAL1098.004 Hagger Residence Building Enclosure Consulting</td>
<td>Safran Law</td>
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<td>RAL1121.004 Ft. Bragg Roof Design</td>
<td>Dewberry</td>
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<tr>
<td>RAL1121.005 NCDPS Dan River HVAC Upgrades</td>
<td>Dewberry</td>
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<tr>
<td>RAL1121.006 UNC Chapel Hill Phillips Hall</td>
<td>Dewberry</td>
</tr>
<tr>
<td>RAL1138.001 Ralph Johnson VAMC - Correct Roof and Lightning Protection</td>
<td>Dept of VA - VISN 7</td>
</tr>
<tr>
<td>RAL1147.001 Ronald McDonald House, CH</td>
<td>Clancy &amp; They's Construction Company</td>
</tr>
<tr>
<td>RAL1148.003 PSI 10 Lab Drive - Building Envelope Repairs</td>
<td>PSI CRO</td>
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<tr>
<td>RAL1164.002 Lowes Mooresville Roof Area B Prototype Repair</td>
<td>Lowe's Corporate Center</td>
</tr>
<tr>
<td>RAL1164.003 Lowes Flatbed Distribution Structural Assessment</td>
<td>Lowe's Corporate Center</td>
</tr>
<tr>
<td>RAL1165.001 VCU STEM BE, CA and Testing</td>
<td>Hourigan</td>
</tr>
<tr>
<td>RAL1168.002 Glenn Elementary Additions and Renovations</td>
<td>Little Diversified Architectural Consulting - Durham</td>
</tr>
<tr>
<td>RAL1168.003 Bethesda Elementary Additions and Renovations</td>
<td>Little Diversified Architectural Consulting - Durham</td>
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<tr>
<td>RAL1173.001 Johnson St Elementary School</td>
<td>Guilford County Schools</td>
</tr>
<tr>
<td>RAL1177.001 Century Building Masonry Restorations</td>
<td>Achuti, LLC</td>
</tr>
<tr>
<td>RAL1178.001 M521 Waterproofing Review, CAO and Testing</td>
<td>521 Partners, LLC</td>
</tr>
<tr>
<td>RAL1179.001 GCS Brooks Global Roof Design</td>
<td>Clark Nexsen</td>
</tr>
<tr>
<td>RAL1181.001 3516 Catalano Drive Leak Investigation</td>
<td>Exeter Building Company</td>
</tr>
</tbody>
</table>
4.4 Proposed Design Approach for the Project

Roofing Inspections

Raymond steadfastly partners with the International Institute of Building Envelope Consultants (IIBEC, formerly RCI) to ensure our Registered Roof Observers (RROs) up to date on the latest roofing technologies, systems, materials, techniques, and strategies. As roofing systems vary in installation materials and methods, Raymond understands it is critical to continue educating our personnel on every applicable system, so that our personnel can assess existing buildings with great accuracy. When conducting inspections and condition assessments, we understand that numerous factors go into the construction quality, even when evaluating two buildings with the same roofing system. Factors such as location, temperature, zoning codes, humidity, contractor experience, etc. can allow for significant quality deviations, which are important to understand during an inspection.

While inspections are conceptually straightforward, consistency across inspections is key. Raymond utilizes the Veritas Roof Asset Management System (www.veritas-am.co) to drive consistency and standardization across our RROs so that our recommendations and conclusions can be compared “apples to apples.” Starting with iPad Collector app, our personnel are trained on how to correctly collect, assess, analyze, and recommend through a standardized training program that emphasizes direct experience in the field.

Moisture Intrusion Surveys

Raymond has significant experience conducting moisture intrusion surveys and can perform a variety of testing to conduct root cause analysis. Air and water infiltration into barrier, cavity wall, and rain screen cladding systems can be difficult to inspect and evaluate, with testing needing to be both static and dynamic. Exterior walls need to be tested differently than roofing and waterproofing systems; for example, stage rigging on the building is typical of building envelope, but not appropriate for horizontal waterproofing projects, where non-destructive moisture surveys are more advantageous. When testing windows, we understand the modified standards of ASTM E1105, AAMA 501.2, or CSA A440, which can allow for dynamic tests such as water testing while drawing a vacuum from the interior. In contrast, static testing of the masonry wall cavity (via removal of masonry units) can be performed with an optical borescope, allowing for investigation of construction issues associated with the proper installation of air barrier waterproofing, flashing, and drainage provisions. Should corrective procedures involve the designed structural integrity, a stamped structural engineering report and recommendations of potential corrective action should be provided.

In the case of needed destructive testing (e.g., core samples), Raymond can perform core testing of the waterproofing at balconies, plaza decks, and parking garages to determine the presence and extent of moisture infiltration. Further, this type of investigation can be used to determine the extent of which waterproofing, overlay concrete, or other finishes must be repaired or replaced. Our team will coordinate our findings and decisions from field testing and sample applications into the design criteria, which will become part of the specifications for remedial field work and help in developing the construction budget.

Additionally, Raymond engineers and architects can conduct several non-destructive testing techniques related to the roofing and waterproofing systems, such as infrared, nuclear, vector mapping and electrical capacitance surveys.
Infrared testing is a non-invasive process for identifying areas where moisture may have infiltrated the roofing assembly. The infrared camera captures thermal images of the roof system which may identify areas of moisture infiltration. Infrared surveys can often identify moisture in the roof system before it becomes a major problem.

- **Nuclear Moisture Surveys:** Nuclear moisture detection is another non-invasive method of locating moisture in a roofing system. The meter can detect moisture as deep as 8” into the roof system and can be used on all types of roofs. Nuclear moisture detection is the only viable testing method that can provide percentage of moisture within the roof assembly layers. Unmanned Aerial Vehicle (UAV) Building Envelope Evaluation drone technology is used to perform Building Envelope Evaluation Surveys. The drone can easily reach difficult to access area which reduces the need for climbing or rappelling equipment – resulting in an improvement in safety. Additionally, the drone can be used to conduct infrared surveys and other visual surveys in a fraction of the time.

- **Air Barrier Testing:** Air Barrier Testing is performed to test the unintended movement of air into and out of a building enclosure. Testing your air barrier systems allows you to measure the diffusion of air caused by wind, stack and mechanical equipment pressures. Our personnel follow the ASTM E-783 standard test method.

- **Water Intrusion Testing:** Water testing is performed on building envelope assemblies with known water control problems to accurately identify suspect construction components and details. Our personnel follow ASTM E-1105 or AAMA 501.2 standard test protocol.

- **Wind Uplift:** Analysis Roof damage caused by wind occurs when negative air pressure above the roofing assembly is greater than the uplift resistance provided by mechanical fasteners, adhesives or ballast. As wind flows over the building, the pressure directly above the surface of the roof decreases. At the same time, internal air pressure increases due to air infiltration through openings, cracks, etc. The result is a net upward force on the roofing system. Raymond’s perform job specific calculations to assure that the roof meets the current standards.

- **Drainage Analysis:** All Raymond performs drainage analysis on all design project as a standard practice. Calculations are prepared to assure that there is adequate drainage capacity for both primary and secondary drainage systems. Structural Analysis. A structural analysis is performed on a building to determine the effects of loads on the physical structures and their components in the event that a new design will change the building loads.

- **Accessibility (ADA) Surveys:** Compliance with disability access laws is a serious and significant responsibility that applies to buildings open for business. The survey process is an accessibility review of the subject site and building.

- **Interior Space Assessments:** Successful interior space planning will have a large impact on how your space functions. Raymond can prepare a plan for your facility that will allow your site to reach its full efficiency and potential.

- **Core Sampling and Asbestos Testing:** Raymond will partner with a licensed environmental consultant to conduct core sampling as required and will work with environmental experts to determine if those materials contain hazardous materials. This generally includes identifying the composition of such things as the composition of the roof membranes determining moisture content and checking for asbestos-containing materials. When specialized sample analysis is required, we work with several materials testing laboratories with whom we have partnered.
ROOF / WATERPROOFING SYSTEM CONDITION EVALUATIONS

Raymond takes pride in driving standardization in our roof condition assessment reporting. Our goal is always to provide you the information you need to make an educated decision on the assets you maintain and where they stand in their lifecycle. We provide this service to numerous federal, state, local, K-12, and commercial entities in an ongoing and annual basis, so that our clients can make prudent decisions on maintenance, repairs, and re-roofing projects. We ensure you have the data you need to maintain your building portfolio for the long-term.

Starting with the Veritas Collector app, our inspectors will collect all applicable data digitally in the field, which can be made readily available to you and your team within minutes of the assessment (via the Veritas Collector app). The Collector app is ideal for maintenance teams that need to address roof and waterproofing deficiencies in-house and right away. Using the map-based interface, maintenance personnel can find the issues right away and address them easily. Our team will also provide formal condition assessments in standard Microsoft Word format or via the Veritas web portal (at your direction). This reporting will include a summary of all observed deficiencies, recommendations, capital expenditure projections, overall conditions assessments (e.g., “racking and stacking”), and photographic documentation.

- Our team will comply to recognized field standards (e.g., ASTM, IIBEC) and will take into account the intended use of the data (e.g., building maintenance vs. legal). And as applicable, we will: Review of existing construction and operation/maintenance documents.

- Examine the as-built construction and installation details.

- Cross-section analysis of core samples of deck, waterproofing, or roofing assembly and/or exterior wall components, sheet metal, sealants, and coatings.

- Infrared and capacitance moisture testing of the assembly at the core cut locations; and Condition surveys can be made in accordance with industry standards or applicable test protocols. Moisture testing and nondestructive surveys require use of the proper standards to achieve credible data. It is often insufficient to survey a roof or wall and identify areas of thermal differences. How differences in the thermal data equate to a specific amount of moisture is important. These issues cannot be resolved unless samples are taken from the assembly and tested for moisture content.

DESIGN APPROACH

ROOF REPAIR AND REPLACEMENT DESIGN
Raymond’s approach leverages our proven best practices, established from over 1,500 engagements with our clients. Customer service is our main priority. We work directly with you to develop a complete understanding of your requirements, constraints, goals, and objectives to ensure we meet and exceed all expectations. We consistently emphasize transparency through a range of metrics that guarantees the result well ahead of project completion.

In renovation projects, the document services process may begin with an examination of the existing field conditions. Waterproofing systems that are still under warranty may require negotiation with the material manufacturer before any work begins. It may be necessary to review and research the component’s material properties before the proposed waterproofing and cladding work can be specified. Development of the construction documents begins with an approved scope of work and an approved budget.
PRE-DESIGN PHASE

Upon project start, Raymond will map your needs, requirements, goals, and expectations. We will sit down with you and listen to your concerns and desires for your project. Our professionals will conduct a complete requirement review and analysis, starting with the details from your solicitation and going more in-depth as we meet with you and your team. These discussions lead into our initial site assessment, which is a data collection exercise that we will use to establish our design roadmap. Moreover, this investigation exercise focuses not only on confirming initial documentation, but also ensuring other constraints and considerations are immediately identified, thereby preventing costly future delays. We heavily invest in upfront data collection and planning, as it will be the basis for driving high-quality, effective cost estimates, and realistic scheduling for the project’s duration. Our entire team (from Client Executive to Designer) reviews our initial site assessment to guarantee relevant and productive conversations as we refine the project scope and requirements.

Our initial project meeting with you will develop the strategy necessary for a successful project (i.e., delivering on budget, schedule, and quality). We will cover the following topics with you:

- Outline of project team roles and responsibilities. We will provide introductions of key team members, ensure you have the correct POCs for our team, and discuss how we plan to communicate and deliver for your project.
- Findings from our initial site assessment. We will cover an overview of our site findings and discuss site-specific concerns and establish basic parameters to include code research, rough budgeting and timelines.
- Initial design and solution considerations. Our team will present several design options to explore and evaluate, the purpose is to find the right design concept without getting lost in detail too early.
- Detailed discussion on all requirements and constraints. Our team will collect your formal requirements.
- This critical process allows documentation as a reference point throughout the project (for all parties) and is the foundational piece we will design a successful project all around.

SCHEMATIC DESIGN (SD) PHASE

Following our project kick-off meeting with you, our team develops our initial Basis of Design for the project. We leverage our team of experienced architects and professional engineers to develop our 35% design solution, using all the key information collected and refined to this point. Moreover, prior to submitting our Basis of Design for your review, we perform an independent audit using non-key team members that can evaluate as an unbiased third-party. Our internal review allows us to best identify issues or factors that should be immediately discussed with you during our design presentation.

Post design and technical approach sign-off, our team focuses on full design delivery. We understand that a comprehensive site assessment is necessary to achieve high-quality results. Our overarching strategy will always emphasize upfront, proactive discovery and planning to effectively achieve and exceed the cost, schedule, and quality project goals. During our site assessment, we will perform:

- Comprehensive site measurements. Complete, accurate measurements of the site, with an emphasis on comparison against existing building documentation.
- Construction document review. Review of the historical documentation to determine any additional constraints that should be planned for and addressed and may not be readily visible to an inspector.

Following our assessment, our team members will digest the data and begin full design activities. Similar to our 35% design process, for each design phase (i.e., 65% and 90%), we drive to high-quality. Beyond straightforward internal reviews by both the project team and an independent team, we will conduct a senior-level review.
leveraging our most experienced and trusted personnel. Our goal is to identify and address the issues most concerning to you while also anticipating issues that may not fall within the scope of the project but are in your best interest to be aware of all while delivering a comprehensive, environmentally appropriate and responsive design.

4.5 EXPERIENCE WITH PROJECT COSTS/SCHEDULES

DEMONSTRATED ABILITY TO MEET TIME AND BUDGET

Raymond prioritizes accurate cost analysis and schedule control in every engagement; we understand that being on time and on budget is a critical success criterion for every project. Our approach is thorough and systematic – we dedicate the time and effort necessary to plan, check, and analyze the project costs throughout each phase of the project and for each key party involved.

First and foremost, our budgeting and forecasting efforts are based on strong cost estimation. In all engagements, Raymond uses cost estimation best practices to ensure the best budgeting and forecasting can be provided to our clients. We draw from historical project data (i.e., projects with comparable scopes of work), up-to-date and known manufacturer pricing, and current work type estimates to build the strong confidence levels in projected construction budgets. Furthermore, we conduct a feasibility analysis of our designs, project location logistics, and market pricing to determine factors that could impact the projected budget, drawing from our 29 years of experience and best practices.

Second, our cost controls focus on analysis, not accounting. Our goal is to be tracking progress and spending in near-real time, against the Schedule of Values. Most importantly, we are actively analyzing where the costs are coming from and against which line items in the project budget as they’re occurring, rather than at set points or near the end of the project. Our analysis aims to understand how performance is impacting the project’s budget, good or bad, and is done proactively rather than reactively. Accomplishing this effort requires us to work hand-in-hand with the contractor (and subcontractors) to ensure the most accurate and up-to-date data is always available. Our team members work with the relevant parties to establish the invoicing schedule, data requirements, and template to ensure data is accurate, timely, and actionable.

Finally, we provide an integrated cost and schedule progress report to our customers that provides immediate understanding of progress, resolved issues, and potential upcoming issues. Our goal is cost and schedule transparency to our clients throughout the project, in a reliable, timely, and easy-to-digest format. Furthermore, we work with our clients to set formal, periodic review meetings to discuss cost and schedule progress so as to prevent miscommunications, drive accountability, and resolve issues in a timely and cost-effective manner. Our goal is to ensure our clients always have the data they need at the correct project juncture (e.g., post-design and pre-bid) to make the most informed and best strategic decisions.

<table>
<thead>
<tr>
<th>Sample Projects Showing Experience with Schedule and Budget</th>
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<tbody>
<tr>
<td>Project</td>
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<tr>
<td>Duke University Card Gymnasium</td>
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<td>ECU Murphy Center</td>
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A/E Partner Cost Controls

At Raymond, we view design phase cost controls as the key pillars tied to our project management framework. We do not rely on software-only solutions that report metrics. Rather, our Project Managers actively manage all aspects of the project and the associated Key Performance Indicators (KPIs), of which, cost is one success criteria. First and foremost, we control our costs and successful project execution by understanding the project upfront and building the correct pricing based on real project understanding.

Raymond believes in fair pricing that prevents design phase changes orders, does not rely solely on using inexperienced personnel, and does not add risk (by cutting corners) to the project. We do not use “cookie cutter” pricing that merely takes a percentage of the estimated construction budget. Rather, we will start the project off right by taking advantage of the Negotiations phase (post-RFP) and making sure our pricing is realistic, understands your scope of work, and is reasonable. Accurate pricing based on upfront research and planning will set the project up for successful cost control later. Specifically, our pricing will based on: (1) direct scope of work discussions with the CO/COR and designated Project Manager; (2) an initial site visit at our cost; and (3) our understanding of project requirements, objectives, parameters, and constraints. This information will be used to inform each technical discipline’s scope of work and the associated level of effort necessary to meet your project objectives.

During a design project, cost controls are still critical for success, even with the A/E/C industry's preferred Firm Fixed Price (FFP) type contract. By design, the Owner cannot be charged additional fees if the A/E goes over on a FFP project, however, by monitoring our project budget judiciously, we can prevent several other outcomes that would impact the Owner's budget. First, proper cost management should go hand-in-hand with project progress tracking. Our Project Managers are trained to use our financial and project management software, Deltek Ajera, to track both; this prevents the scenario where we “over-burn” on the project and then inadequately staff the project later on. Second, proper cost and project planning should be tied directly to resource management and ensuring that the right personnel with the right skillsets and experience are available at the right time in the project, which is what our cost proposal is based on. Finally, if cost and project management are working together, then we are better positioned to advise you on what is possible. For example, if you have a small scope of work change, we can tell you right away if this is an adjustment (if approved) that we can adjust for at no additional fee. Or, we can provide better level-of-effort costs if this is a true design change. In both cases, strong cost and project management help to better position our team (and you) for any unexpected scenarios.

At all points during our projects, Raymond will provide you with Monthly Status Reports (MSRs) that indicate our overall progress, invoicing to date, upcoming project and invoicing schedule, and any potential issues. This will provide you with the progress transparency that can facilitate any and all communications on key performance indicators that will dictate success in your project.

Cost Estimating to Manage Construction Costs

Raymond recommends the use of cost estimating on all design and construction projects. Strong cost estimators can provide critical information on current market trends (e.g., material pricing), labor availability, and even construction seasonality. When used throughout the design process, cost estimates provide trusted insight into the potential design concepts, alternatives, and solutions that need to be accounted for within your overall construction budget.

Raymond has significant experience in working with cost estimating firms nationally, locally, within specific customer markets (e.g., federal, state, local, K-12, higher education, commercial), and by specific disciplines. We maintain several on-going working relationships with trusted partners that will provide accurate estimates based on historical and current trends for any construction project. We consider cost estimates to be part of an important conversation at each major design milestone (such as 35%, 65%, 95%). When used correctly, the 35% cost estimate can be valuable in prioritizing the chosen design concept over alternatives. At 65%, the cost estimate can ensure that the project remains on-track and/or discipline specific design alternatives can be chosen. At 95%, official budgets can be finalized for approval and any market anomalies (e.g., material price increases due to COVID-19) can be discussed and strategized for construction bidding.

A/E Cost Controls During Construction

Constructability will singlehandedly determine construction phase pricing; if the construction document set is complete, high-quality, and constructable, then pricing will accurately and reasonably reflect the design. More importantly, change orders will be minimized or prevented altogether. In both cases, the constructability reviews during the design phase are critical as the “first line of defense” in managing construction cost proposals. As mentioned in how we approach quality, Raymond uses a multi-tiered approach on our design projects. For any
given design project, the design team will produce the draft submittal set for an internal review by our Senior Reviewers, who are designated at the project start as third-party reviewers only. Senior review comments are then used by our technical team to update the submittal set prior to submission for your review. Additionally, at 65% and 100%, our internal review team will perform the constructability reviews to ensure that the design is complete and constructable from the construction (build) partner’s point of view. This review is looking to ensure that pertinent information is included and is clear (to prevent avoidable RFIs) and that the document set is accurate, realistic, and complete. We want to ensure that when the contractor receives our document set, ambiguity is avoided and that pricing and construction proceed smoothly. The outcome is to have a well-run construction phase that is on-time, on-budget, and of best-value to you.

Our team can also assist you in managing risk via cost control. Specifically, our cost estimates should be used to determine if the contractor price proposals accurately reflect a thorough understanding of the construction scope of work. For example, construction bids that come in significantly lower than other bids and/or the cost estimate should be red flagged; this practice is readily used by some contractors, as they will underbid to win the project, with the expectation that they will submit for numerous change orders during the project. Conversely, estimates that are significantly higher reflect an inability by the contractor to match current market pricing and/or a poor understanding of the scope of work. In each case, the cost estimate can be used to reliably assist your contractor selection.

During construction, Raymond will act as your representative to manage construction costs. This will manifest in our team’s ability to manage RFIs, mitigate change orders, and monitor or prevent contractor non-compliance. Our team will answer all RFIs related to design intent, submittal reviews, pay applications, alternative materials, and potential scope of work changes. Our goal is to ensure the design intent remains intact, construction is compliant, and cost is managed correctly. With the exception of unforeseeable circumstances, we will work with the contractor to determine if a change order is necessary and/or to determine the best path forward that manages cost, constructability, and/or work compliance. If necessary, we will also provide guidance on approving or denying pay applications and/or working with the Surety in the case of contractor noncompliance.

**SCHEDULE CONTROL**

Raymond understands that completing projects on-time is a critical success factor for any project. Since 1992, our company has been steadily working to improve in our project management processes, tools, and procedures to effectively drive the project from start to finish, while optimizing for the Key Performance Indicators (KPIs) that we know drive your success. KPIs such as on-time start percentage, number of change orders, and schedule adherence / attainment dictate how we manage projects.

Like our A/E peers, we know having strong project management allows timely starts and completions of projects, while driving efficiency, quality, and safety. Our in-house procedures, processes, tools, and experienced personnel will prevent the issues that a design project can face, such as not capturing your intent for the project, poor assumptions in constructability, limited discipline coordination, etc. Starting in the proposal process, we build our entire approach based on your project schedule goals; for us, resource management starts early. We will plan out the project (during our proposal generation) to project when we need specific skill sets and personnel, their level of effort, and balance availability overall. We believe that our strong planning upfront will enable strong schedule adherence later.

However, the key issue that drives late project starts (and later on schedule “crunching”) is that projects tend to be reactive by nature. Traditionally, the A/E is brought in by the customer upon the project approval, which may be the first time the A/E has ever heard of the project. This leads to turbulence at project start, as RFIs, estimates, disciplines, and staff are hurriedly positioned to try to achieve a timely project start.

For your project, we advocate for a strong program management approach rather than project management approach. Moving towards a program management approach allows for earlier communication between our A/E team and your Project Managers, leading to dramatically more time to proactively forecast and plan projects. Improved communication and planning leads to efficient projects that can always start on-time and are completed faster.

In our program management approach, you can expect our Program Manager to meet with your key Points of Contacts biweekly to discuss forecasts, potential requirements, logistics, and project intent. Our Team will be able to forecast and plan personnel scheduling, making sure they are available within potential project start date
windows. We will be able to assist in your cost estimating so that you can have more accurate budgets during
your quarterly and annual planning exercises (we will use our Certified General Contractors to prepare realistic
cost estimates based on your stated requirements). We will optimize communication, so that the conceptual
design meeting (or design charrette) can happen as the kick-off meeting, thereby propelling the project
immediately towards the 35% design milestone. We will work with your key stakeholders to know their schedules,
so that when a project is approved, we lock-in dates for key meetings right away.

Our model can be applied at minimum time costs to your personnel. Biweekly check-in meetings to discuss
forecasts and requirements can be setup, with the pre-planned site walks for immediately upcoming projects.
We will do this at our cost as it’s in our best interest for successful project delivery and your best interest for project
success. We will advocate to become a true extension of your existing in-house PM and A/E team.

During the project, our goal is to apply proactive project management. Specifically, our Project Manager is
responsible for analyzing our team’s performance vs. your project goals and requirements to see where issues
could potentially arise; we want to get ahead of any challenge (technical, programmatic, or contractual) that
might delay the delivery schedule. Reactive project management will only lead to schedule “crunches” that
jeopardize quality, cost, constructability, and on-time delivery. Our internal weekly progress review meetings will
review all potential issues, current challenges, and forecasted delivery objectives to ensure we are proactively
planning and meeting all requirements. In our Monthly Status Reports (MSRs), we will report on our internal
project KPIs so that you know how the project is truly progresses and we can collaborate on any items that your
team needs to provide guidance on.

4.6 CONSTRUCTION ADMINISTRATION CAPABILITIES

Raymond provides comprehensive construction phase services. Ranging from submittal reviews to final project
close-out, our team regularly represents the Building Owner on-site during construction and ensures your
interests are prioritized. During construction, we will engage our Designers of Record and dedicated team of
Quality Assurance and Construction Management personnel to review all documentation, pay applications, and
warranties, all while performing site visits and documenting contractor progress, issues, and resolutions. In this
section, we will highlight our overall services to provide you a clearer picture of our philosophy and processes.

SUBMITTAL REVIEWS

Prior to construction starting, Raymond’s design team will provide reviews of all contractor submittals to
ensure that all design intent, safety, and planning is done to the best interests of you and your project. In
addition to submittal reviews, Raymond’s Designer of Record will respond to any contractor Requests for
Information (RFIs) regarding any and all topics, with the intent of making sure the contractor understands the
construction requirements and the intent of the design (i.e., the rationale behind the design, to include material
selections, installation requirements, etc.). On any given construction project, our team will review the following
types of contractor submittals:

- Contractor project schedule
- Schedule of Values
- Bill of Materials
- Environmental protection and/or remediation plan
- Demolition debris management plan
- Site safety plan
- Installation qualifications
- Manufacturer’s product cut sheets that identify the manufacturer, specifications and model number
- Shop drawings that lay out the material dimensions and installation of assemblies
- Finished product components
- Material data sheets
- Samples
- Test, inspection, and field reports
- Commissioning plan
- Corrective action documents
- Temporary protection plans
- Warranties
- General RFIs
PLANNING & LOGISTICS

Raymond’s Designer of Record will host the initial PRECON meeting for the Owner-Architect-Contractor (OAC) group. During this meeting, held prior to construction starting, we will cover the full Scope of Work, responsibilities and communication channels for all parties, submittal approvals, and conduct a site walk. Additionally, we will ensure that the project starts correctly; specifically, we cover several key items that should be accounted for and documented prior to any construction project:

- **Rules & Guidelines.** This may include any “do’s and don’t’s” specific to your operational procedures, site requirements, or federal regulations (e.g., tobacco-free site).
- **Site Access Requirements & Points of Access.** We will cover any specific security requirements present at your site, in addition to pre-determined access points for contractors coming on-site or onto the building.
- **Traffic Considerations.** This includes logistic constraints (placement of material), flow of traffic in the work vicinity, and special event considerations (e.g., holidays).
- **Safety Requirements.** We will perform an overview of all safety requirements to include standard OSHA requirements, in addition to any client specific safety rules that go above and beyond. Safety will be held to the strictest priority.
- **Building Occupancy.** A review of the proposed schedule and how building occupancy is anticipated to impact the schedule or can be properly managed to prioritize productivity (both building occupants and the contractor) and safety.
- **Start & Completion Dates.** General overview of the planned schedule, with specific emphasis on achieving the start and completion dates.
- **Critical Pathways.** Discussion of any non-standard items that could impact the schedule. For example, post-COVID-19 material shortages and availability, which could delay the construction start date.

CONSTRUCTION ADMINISTRATION/MANAGEMENT

Within our construction phase responsibilities, our Designer of Record and Quality Assurance team will perform periodic site inspections. We will document contractor progress and non-compliance issues (if applicable), identify potential upcoming issues, provide action items and resolutions to technical issues, answer RFIs, and track level of effort and progress. Should non-compliance issues arise, we will document, provide recommendations to you, and escalate when appropriate. All written and photographic documentation will be provided to you and also be archived by Raymond for any future use. Examples of our QA reporting and software can be made available upon request.

For Raymond construction management is about transparency and accountability. First and foremost, our project manager will hold weekly Owner-Architect-Contractor (OAC) meetings to discuss progress, progress to plan, identified issues, resolved issues, future issues, budget, quality, and safety. Specifically, we will always cover Key Performance Indicators (KPIs) that align to the critical categories of Safety, Delivery, Productivity, and Cost. From experience, we know the KPIs necessary for ensuring you accurate, detailed, and effective progress reporting; moreover, we will use these metrics to drive accountability in the contractor’s performance (using their bid and proposal as a performance baseline). And while this allows for successful communication and accounting, our meetings also serve as documentation for potential warranty disputes and rapid issue resolution that drives successful cost and schedule execution.

Our team will hold periodic OAC meetings throughout the project to discuss overall construction projects items. (We will also facilitate OAC meetings specifically for contractor non-compliance, should that become an issue.) During OAC meetings, you can expect the following to be covered on a weekly basis:

- Progress to schedule
- Request for Information (RFI) overviews
- Pay application (invoicing) reviews (based on schedule of values), for example, % billed and % to
- Schedule of Values
- Graphical and numerical progress reporting (e.g., % completed)
- Inspection reporting
- Existing issues, future issues, resolutions

All data presented and discussed at the OAC will be made available to you (and the contractor) in formal reporting within 24 hours of the meeting. Our reporting will provide the granularity that Raymond customers have come to expect and appreciate as well: description of work completed, size of crewing, weather issues,
deficiencies identified, and issues to be addressed with associated schedule. Furthermore, our approach is always cognizant of cost and billing; to best protect you, we audit and manage the contractor billing to make sure it adheres appropriately to the Schedule of Values.

**APPROACH TO CONSTRUCTION COST MANAGEMENT**

As your construction phase representative, Raymond does not have direct oversight of contractor spending and overall construction costs. However, our philosophy is that through proper engagement with the contractor, we can be a facilitator to a well-run construction project that stays on-budget and on-time. Through proactive communication, troubleshooting, issue identification and prevention, and prompt RFI responses, we can help the contractor stay on the right course overall. The commitment you will see from our team includes:

- On-site owner representative that manages your best interests.
- All RFIs being answered within 24 hours, with a goal response time of within two hours.
- Documented potential issues and action items to prevent issues.
- Rapid resolution to technical challenges through the RFI process, review of contractor submittals, and/or guidance on the design intent.

Weekly review meetings with the contractor to discuss all open items, such as noted deficiencies, pay applications, construction progress, building occupancy communication, and other critical path items (such as material availability, staging, traffic and logistics, security/badging, etc.).

From our experience, consistent, proactive communication can prevent schedule delays before they happen, can help avoid non-compliance, and can help the contractor manage overall Key Performance Indicators (i.e., safety, quality, schedule, and cost). Throughout this process, we are always keeping you and your team up to date on all progress, issues, schedule, and costs.

**PROJECT CLOSE OUT**

Raymond will address, manage, schedule, and document all project close-out requirements. First and foremost, as the contractor nears the end of construction, Raymond will schedule periodic site walks with the Superintendent and/or Foreman to discuss documented defects or non-compliance that have not yet been addressed. Action plans and schedules will be addressed, documented, and followed-up on until all marked items have been properly resolved.

Should a manufacturer warranty be applicable to the project, Raymond will schedule the manufacturer site visit, inspection, and any follow-on inspections. All deficiencies will be properly documented and provided to the contractor for review and resolution. Additionally, Raymond personnel will conduct a final punchlist inspection to ensure that all items have been sufficiently resolved, prior to the contractor being released from the job. All items and reporting will be comprehensively documented for your records and packaged with the final manufacturer’s warranty. We will also provide a high-level summary of the warranty provisions for your reference; we have found this to be helpful to
building maintenance teams and understanding their responsibilities over time so that the warranty can be properly executed in the future, if necessary.

Finally, Raymond will assist with building the full project completion document set to close-out the project. This will include updating as-built drawings, collecting contractor release of claims forms, final pay application reviews, warranty sign-off, progress report and photographic documentation packaging, and final construction document set. All documents will be provided to your building maintenance and management team and also be archived by Raymond for potential future use.

4.7 PROXIMITY TO AND FAMILIARITY WITH THE AREA

LOCALITY

For your project, Raymond has proposed key personnel that will be able to directly support your project and site. Our Raleigh offices is located 1 hour and 28 minutes from your location and our team is designed to provide immediate, same-day support, for any reason. We will provide you with the technical expertise, immediate availability, and project prioritization that you need.

Raymond has worked on multiple projects for UNCG campus, and our team is actively engaged and is familiar with your facilities. We have worked on 10 projects for UNCG.

4.8 RECORD OF SUCCESSFULLY COMPLETED PROJECTS WITHOUT MAJOR LEGAL OR TECHNICAL PROBLEMS

LITIGATION STATEMENT

Raymond has no litigation resulting 30 years of work, across 944 clients, and 4,000 total projects. We believe that this is directly related to performing a thorough field investigation in preparing for design, preparing a complete and accurate design, having excellent communications with all parties during construction, and providing prompt responses to conditions that arise during construction.

4.9 ENERGY CONSERVATION/LEED AND RELATED EXPERIENCE

OUR PHILOSOPHY AND APPROACH TO SUSTAINABLE DESIGN

Sustainable (“green”) design means many different things to many different people, experts and non-experts alike. From a technical perspective, the perfect “green” building would generally be: a facility constructed of materials with no environmental impact during manufacturing; no CO\textsubscript{2} emissions when transporting materials to the site; no CO\textsubscript{2} emissions released during construction; is located so as to avoid negative environmental impacts (e.g., managing water run-offs, prevents traffic); captures new water and recycles used water; generates electricity; and promotes health for personnel inside the building. Realistically, most construction projects cannot achieve all of these ideal states – especially existing facility renovations. Yet, that doesn’t mean we cannot provide sustainable design.

At Raymond, we consider ourselves to be pragmatic; therefore, we recognize that not every project will achieve or even be eligible for LEED certification, but all projects can take a sustainable design approach. Or in other words, you can achieve sustainable designs, even if you do not pursue the certifications. Raymond’s philosophy is
to always explore sustainable options within the design as the success baseline – we will always present the sustainable options available to your project.

If you are considering if your project is eligible or should pursue LEED certification, our design team can provide a free consultation your project. Additionally, we can direct you to the specific information on the LEED certification process, evaluation categories, documentation, and requirements (provided by the United States Green Building Council (USGBC)). For your reference, we have provided the high-level LEED Rating System information in Table 1. Also, the high-level categories for LEED credits and their general description are provided in Table 2.

### Table 1: LEED Rating System

<table>
<thead>
<tr>
<th>LEED Rating System</th>
<th>Code</th>
<th>Description</th>
<th>Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building Design and Construction</td>
<td>BD+C</td>
<td>New Construction Core &amp; Shell</td>
<td>Schools, Retail, Hospitality, Data Centers, Warehouses &amp; Distribution Centers, Healthcare</td>
</tr>
<tr>
<td>Interior Design and Construction</td>
<td>ID+C</td>
<td>Commercial Interiors</td>
<td>Retail, Hospitality</td>
</tr>
<tr>
<td>Building Operations and Maintenance</td>
<td>O+M</td>
<td>Existing Buildings</td>
<td>Schools, Retail, Hospitality, Data Centers, Warehouses &amp; Distribution Centers</td>
</tr>
<tr>
<td>Neighborhood Development</td>
<td>ND</td>
<td>Plan and Build Project</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>LEED Zero</td>
<td>-</td>
<td>Requires BD+C or O+M rating</td>
<td>Projects w/net zero goals in carbon and/or resources</td>
</tr>
</tbody>
</table>

### Table 2: Category

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location &amp; Transportation</td>
<td>This category rewards thoughtful decisions about building location, with credits that encourage compact development, alternative transportation, and connection with amenities such as restaurants and parks.</td>
</tr>
<tr>
<td>Sustainable Sites</td>
<td>The Sustainable Sites category focuses on the environment surrounding the building, awarding credits for projects that emphasize the vital relationships among buildings, ecosystems, and ecosystem services. It focuses on restoring project site elements, integrating the site with local and regional ecosystems, and preserving the biodiversity that natural systems rely on.</td>
</tr>
<tr>
<td>Water Efficiency</td>
<td>The Water Efficiency section addresses water holistically, looking at indoor use, outdoor use, specialized uses, and metering. The section is based on an “efficiency first” approach to water conservation.</td>
</tr>
<tr>
<td>Energy &amp; Atmosphere</td>
<td>The Energy and Atmosphere category approaches energy from a holistic perspective, addressing energy use reduction, energy-efficient design strategies, and renewable energy sources.</td>
</tr>
<tr>
<td>Materials &amp; Resources</td>
<td>The Materials and Resources credit category focuses on minimizing the embodied energy and other impacts associated with the extraction, processing, transport, maintenance, and disposal of building materials. The requirements are designed to support a life-cycle approach that improves performance and promotes resource efficiency.</td>
</tr>
<tr>
<td>Indoor Environmental Quality</td>
<td>The Indoor Environmental Quality category rewards decisions made by project teams about indoor air quality and thermal, visual, and acoustic comfort. Green buildings with good indoor environmental quality protect the health and comfort of building occupants.</td>
</tr>
<tr>
<td>Innovation</td>
<td>Sustainable design strategies and measures are constantly evolving and improving. New technologies are continually introduced to the marketplace, and up-to-date scientific research influences building design strategies. The purpose of this LEED category is to recognize projects for innovative building features and sustainable building practices and strategies.</td>
</tr>
<tr>
<td>Regional Priority</td>
<td>Because some environmental issues are particular to a locale, volunteers from USGBC chapters and the LEED International Roundtable have identified distinct environmental priorities within their areas and the credits that address those issues. These Regional Priority credits encourage project teams to focus on their local environmental priorities.</td>
</tr>
<tr>
<td>Integrative Process</td>
<td>Beginning in pre-design and continuing throughout the design phases, identify and use opportunities to achieve synergies across disciplines and building systems.</td>
</tr>
</tbody>
</table>

[https://www.usgbc.org/leed](https://www.usgbc.org/leed)
On any project, whether certification is a goal or not, or its new construction vs. an existing facility renovation, our team will always provide design recommendations related to Waste Reduction, Pollution Prevention, and Energy Efficiency. (If LEED certification is a requirement, we will execute to the official USGBC process.) Our position is that sustainable design options should always be pursued. Financial analyses have concluded that sustainable design does not present significant cost increases in the upfront construction costs (an estimated 2-4% on green building design projects); in many cases, there are actually substantial financial savings from pursuing sustainable design, either in upfront construction costs or in longer-term building operation savings.

APPLICABLE SUSTAINABLE DESIGN APPROACHES TO ALL PROJECTS
Here, we present what we consider to be minimum sustainable design considerations that can be applied to nearly any projects, regardless of LEED certification requirements and goals.

Waste Reduction: For existing facilities, the opportunity to reduce waste and reuse materials should always be considered. Repairs should be the priority, with replacement being done strategically. Our team will start by performing an initial site inspection and providing a comprehensive accounting of the state of the building, along with recommendations on how best to reduce initial demolition and material waste. Roofing and façade projects are excellent opportunities for recoveries and repairs rather than full replacements. For heating and cooling upgrades, reuse / repurposing of ductwork should be evaluated. Repurposing electrical panels can also be considered, or salvaging materials for recycling on other projects can be considered. For example, lumber or wood siding from the original building can commonly find other uses in the future project or might be allocated to other local projects in that geography.

Pollution Prevention: Use of sustainable materials can be a significant factor in reducing the negative impact of the construction project. Sourcing local materials (i.e., reducing transportation costs to the construction site), less use of concrete (i.e., reduced CO$_2$ emissions from concrete production), and use of materials that decrease energy usage (e.g., increased R-values and Reflectivity of the building envelope materials to lower operational energy costs) are straightforward options to explore during design.

Energy Consumption: Many factors can be explored to optimize energy consumption. From the building envelope heat permeability to efficient heating/cooling/lighting systems to on-site energy generation, this factor can impact both upfront construction costs and long-term operational cost, all while having a long-term impact on the environment. Optimizing energy consumption needs to start in the project programming phase with determining the requirements and goals first. Building insulation (heat loss / permeability) is critical in the design. Newer projects may have the opportunity to adjust the building positioning on the site to better manage external factors (e.g., seasons, solar heat radiation absorption). Existing facilities will need to optimize the building envelope (insulation, energy efficient windows, followed by determining heating, cooling, and lighting system options. In addition to upgrading to these efficient MEP systems, control systems should also be optimized as part of the building operations. Smart sensors and programming that allow for optimizing energy use based on real-time building occupancy will represent significant energy savings long-term. Finally, a baseline project goal should be for all projects to achieve a 40% reduction in energy consumption compared to ASHRAE 90.1 2007 baseline building models.

OUR SUSTAINABLE DESIGN EXPERIENCE

Re-Roof Designs, L-6, L-45, B-4, B-77 and B-99, Dobbins Air Force Base, Marietta, GA. Raymond designed each roof assembly meet current International Building Code Congress Energy Code requirements. Existing metal roof panels and sheet metal components being removed are sent to metal recyclers. The specifications have a requirement for the use of Georgia manufactured/harvested products whenever possible. Light-colored roofing membranes are specified in order to reduce heat gain. **Relevancy: Pollution Prevention, Energy Consumption**

B110 & B110A Moisture Intrusion, Hampton Veteran Affairs Medical Center, Hampton, VA. Buildings 110 & 110A are on the historic register and were experiencing significant moisture intrusion through the building envelope. In this case, a waste reduction philosophy also matched well with the project’s historic preservation requirements. Raymond was able to perform NDT and destructive testing to determine masonry materials and locations of moisture intrusion. Rather than designing to façade replacements, Raymond was able to specify a façade coating system that limited replacement and repair work, while meeting SHPO requirements. **Relevancy: Waste Reduction**
TAB 5

MINORITY BUSINESS PARTICIPATION PLAN
Raymond is a certified MBE classification SBE with the NC Department of Administration's HUB office. We maintain certifications with the NC WRC and are a verified Service-Disabled Veteran Owned Small Business (SDVOSB) and a certified Small Business Administration 8(a) minority contractor. Our Minority Business Participation Plan involves the use of other Small Disadvantaged Businesses Enterprises (SDBE) and Historically Underutilized Businesses (HUB) on our design team when needed.
TAB 6
CURRENT SF-330
**SF330 Part I - Contract-Specific Qualifications**

**A. CONTRACT INFORMATION**

1. **TITLE AND LOCATION (City and State)**

   Petty Science Building Portico Waterproofing, Greensboro, NC

2. **PUBLIC NOTICE DATE**

   September 27, 2022

3. **SOLICITATION OR PROJECT NUMBER**

   287-21-24770-01

**B. ARCHITECT-ENGINEER POINT OF CONTACT**

4. **NAME AND TITLE**

   Jason Mobraten, Regional Vice President

5. **NAME OF FIRM**

   Raymond Engineering – Georgia, Inc. (Raymond)

6. **TELEPHONE NUMBER**

   919-607-3773

7. **FAX NUMBER**

   919-872-4486

8. **E-MAIL ADDRESS**

   Jason.mobraten@raymondllc.com

**C. PROPOSED TEAM**

<table>
<thead>
<tr>
<th>PRIME</th>
<th>JV PARTNER</th>
<th>SUBCONTRACTOR</th>
<th>9. FIRM NAME</th>
<th>10. ADDRESS</th>
<th>11. ROLE IN CONTRACT</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td></td>
<td></td>
<td>Raymond Engineering – Georgia, Inc. (Raymond)</td>
<td>316 W. Millbrook Rd, Suite 201 Raleigh, NC 27609</td>
<td>Project Management, Senior Review, Building Envelope Design, Building Envelope Testing, Construction Administration</td>
</tr>
</tbody>
</table>

**D. ORGANIZATIONAL CHART OF PROPOSED TEAM**

(Attached)
## E. Resumes of Key Personnel Proposed for this Contract

<table>
<thead>
<tr>
<th>12. NAME</th>
<th>13. ROLE IN THIS CONTRACT</th>
<th>14. YEARS EXPERIENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>JASON MOBRATEN, RA, RRC, REWC, LEED AP</td>
<td>PROJECT MANAGER</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>

### 15. FIRM NAME AND LOCATION (City and State)
Raymond | Raleigh, NC

### 19. RELEVANT PROJECTS

<table>
<thead>
<tr>
<th>(1) TITLE AND LOCATION (City and State)</th>
<th>(2) YEAR COMPLETED</th>
<th>(3) BRIEF DESCRIPTION (scope, size, cost, etc.) AND SPECIFIC ROLE</th>
<th>(4) CHECK IF PROJECT PERFORMED WITH CURRENT FIRM</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>a</strong> UNC Greensboro Foust Hall Building Rehabilitation Assessment, Greensboro, NC</td>
<td>2021-2022</td>
<td>Professional Services</td>
<td>Construction</td>
</tr>
<tr>
<td><strong>Senior Building Envelope Consultant</strong>: The scope of work includes simultaneous design of steep sloped sheet metal roof retrofits to 3 buildings 34,500 SF total, roof coating design for 7 buildings and general roof repairs to drains, gutters and expansion joints to 6 other buildings. Raymond team specifically designed a flexible membrane silicone solution to prevent direct attachment of a structural solution to the glass window system.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Check if project performed with current firm</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>b</strong> UNC Greensboro Jefferson Suites Limited Building Envelope Study, Greensboro, NC</td>
<td>2022</td>
<td>Professional Services</td>
<td>Construction</td>
</tr>
<tr>
<td><strong>Senior Building Envelope Consultant</strong>: Our team did an on-site assessment for Jefferson Suites which was constructed in 2011. Our team determined that location of EIFS failures and information to categorize failure type and identify scope needed for repairs for the building.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Check if project performed with current firm</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>c</strong> Lenoir Community College Student Center, Kinston, NC</td>
<td>2020</td>
<td>Professional Services</td>
<td>Construction</td>
</tr>
<tr>
<td><strong>Project Manager</strong>: Raymond was brought on to provide roofing and waterproofing services. Performed a drone infrared survey to determine if the main roof and gymnasium roof had wet insulation.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Check if project performed with current firm</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>d</strong> Booker T. Washington HS Window Replacement, Rocky Mount, NC</td>
<td>2020</td>
<td>Professional Services</td>
<td>Construction</td>
</tr>
<tr>
<td><strong>Project Manager</strong>: Provided the design to replace the exterior windows on the single-story portion of the High School facing Carolina Ave and Virginia Street. Raymond developed plans and specifications for the required work and repairs of the existing facility as defined by the owner's requirements in addition to developing construction/permitting documents.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Check if project performed with current firm</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Training, Awards, etc.)

Jason Mobraten has 17 years of architectural and design experience specializing in the building envelope field. Locally to North Carolina Mr. Mobraten has provided roof and building envelope designs and construction management for a variety of facility types, including those of a historic nature in Boston, MA and on the campuses of The Massachusetts Institute of Technology and Harvard University.  

- 17+ years of industry experience  
- Experienced in roof and building envelope design  
- Experience working with UNC Greensboro  

### 16. EDUCATION

<table>
<thead>
<tr>
<th>MA</th>
<th>Architecture</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA</td>
<td>Architecture</td>
</tr>
</tbody>
</table>

### 17. CURRENT PROFESSIONAL REGISTRATION (State and Discipline)

RA: **NC# 13657**, SC, GA, VA  
RRC: #0778  
REWC: #0087  
LEED AP #10308991
E. Resumes of Key Personnel Proposed for this Contract

<table>
<thead>
<tr>
<th>Name</th>
<th>Role in This Contract</th>
<th>14. Years Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>David Willers, PE, RBEC, REWC, RWC, RRC, LEED, AP</td>
<td>Senior Reviewer</td>
<td>a. Total: 26, b. With Current Firm: 13</td>
</tr>
</tbody>
</table>

Raymond | Raleigh, NC

**Education**
MS | Civil Engineering
BA | Civil Engineering

**Current Professional Registration**
PE: NC# 032455, TX, FL, GA, SC, VA
RBEC #0069 | REWC: #0069 | RWC: #099 | RRC: #0628
FSLI #2066 | LEED AP: #0274452

**Other Professional Qualifications**
- IIBEC Member
- Experienced in waterproofing design for roofs and walls
- Experience working with UNC Greensboro

David Willers currently serves as Director of Engineering for Raymond, having served as the Vice-President of North Carolina Operations and Senior Engineer for the past 6 years. David is a Registered Building Envelope Consultant with IIBEC, Inc. having also obtained the Registered Roof Consultant, Registered Waterproofing Consultant, and Registered Exterior Wall Consultant Credentials. David began work in the construction industry as an engineering field technician, performed structural engineering of buildings for 10 ½ years, and has provided building enclosure waterproofing design for roofs, walls, and windows since 2006.

**Relevant Projects**

**a. UNC Greensboro Moore-Strong Residence Hall Roof Replacement & Fall Protection, Greensboro, NC**

- **Year Completed:** 2019-2021
- **Role:** Structural Engineer

  Structural Engineer: Provided structural design services for the re-roofing of shingled areas, an addition of fall protection systems, and repairs to gutter and downspout systems. Raymond produced a design that best fit the requirements of the client as well as adhering to local building codes. David made sure to meet the fall protection requirements. As this was a high slope shingle roof, we made sure that the system would be both easily accessible to rooftop and building wall maintenance workers and provided the correct support and waterproofing systems.

**b. UNC Greensboro Phillips Hawkins Dormitory Roof Replacement & Fall Protection, Greensboro, NC**

- **Year Completed:** 2019-2020
- **Role:** Senior Reviewer

  Senior Reviewer: This project consisted of the full interior and exterior renovation of Duke University’s Undergraduate Admissions Building. Raymond has provided Architectural, Building Envelope, Structural Engineering, Interior Design Services, MEP Services, Project Management and Construction Administration for this project. All of the new structural modifications were detailed to allow installation of the new steel members in the existing confined spaces of the building.

**c. North Carolina State Education Assistance Authority Roof Replacement, Raleigh, NC**

- **Year Completed:** 2017-2018
- **Role:** Senior Reviewer

  Senior Reviewer: Oversaw the full roof replacement of this NC State Education Assistance Authority Building. The project included the replacement of a grave, built-up roof with a hybrid PVC membrane over a modified bitumen base ply.

**d. UNC Greensboro Foust Hall Building Rehabilitation Assessment, Greensboro, NC**

- **Year Completed:** 2022
- **Role:** Senior Reviewer

  Senior Reviewer: The scope of work was the removal and restoration of historic granite pavers, the installation of a new IRMA plaza deck roofing system, curtain wall waterproofing and restoration and the restoration and performance improvement of the building’s copper clad pyramids.
## E. Resumes of Key Personnel Proposed for this Contract

<table>
<thead>
<tr>
<th>12. NAME</th>
<th>13. ROLE IN THIS CONTRACT</th>
<th>14. YEARS EXPERIENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRETCHEN COBB</td>
<td>BUILDING ENVELOPE DESIGNER</td>
<td>a. TOTAL 16</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b. WITH CURRENT FIRM 1</td>
</tr>
</tbody>
</table>

| 15. FIRM NAME AND LOCATION (City and State) | Raymond | Raleigh, NC |

<table>
<thead>
<tr>
<th>16. EDUCATION</th>
<th>Raymond</th>
<th>Raleigh, NC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BA</td>
<td>Architecture</td>
</tr>
</tbody>
</table>

| 17. CURRENT PROFESSIONAL REGISTRATION | (State and Discipline) | Registered Architect: NY |

Gretchen Cobb has led projects involving partial to whole building envelope restoration and repairs, planning replacement of MEP systems and infrastructure upgrades, utility connections for phased and emergency projects for higher education clients. She has managed collaborative design and construction teams on projects ranging from exterior building envelope renovations, retrofits, and additions to small-scale interior renovations for ADA compliance, life safety and hospital equipment upgrades for Duke University & Health System and the University of North Carolina.

### Gretchen Cobb
- **Building Envelope Designer**
- **Total Experience:** 16 years
- **Current Firm Experience:** 1

**Otner Professional qualifications**:
- 16 years of experience
- Significant Building Envelope Investigation and Testing experience
- Experience working with higher education facilities

### Relevant Projects

<table>
<thead>
<tr>
<th>(1) TITLE AND LOCATION (City and State)</th>
<th>(2) YEAR COMPLETED</th>
<th>(3) BRIEF DESCRIPTION (scope, size, cost, etc.) AND SPECIFIC ROLE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NCDOT Division 3 Traffic Services Building, Castle Hayne, NC</strong></td>
<td>2022</td>
<td>Check if project performed with current firm</td>
</tr>
<tr>
<td><strong>Building Envelope Designer:</strong> Raymond was contracted to perform repairs to the existing roof for the project. Raymond performed all construction phases and investigated the existence of secondary closure by turned-ip panel pans.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Century Station U.S Post Office Partial Point Up, Raleigh, NC</strong></td>
<td>2022 (est)</td>
<td>Check if project performed with current firm</td>
</tr>
<tr>
<td><strong>Building Envelope Designer:</strong> Raymond was contracted to design and install new mortar joint repairs as needed at existing stone copings, cornice, dentils, brackets, quoins and projecting sills/banding for facility.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PSI CRO Building Envelope Design and Construction Administration, Research Triangle Park, NC</strong></td>
<td>2022 (est)</td>
<td>Check if project performed with current firm</td>
</tr>
<tr>
<td><strong>Building Envelope Designer:</strong> The deficiencies of the PSI CRO building consisted of ceiling stains adjacent to the exterior metal wall panel joints, and stains in general at the exterior ceiling board and lack of building envelope airtightness. Our team developed plans and specifications for the building envelope repairs and conducted a weekly periodic on-site observations of construction activities.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>NCDOT Transportation Complex Masonry Cleaning, Raleigh, NC</strong></td>
<td>2022 (est)</td>
<td>Check if project performed with current firm</td>
</tr>
<tr>
<td><strong>Building Envelope Designer:</strong> Raymond performed a masonry cleaning study. Performed a visual inspection and provided a summary report. This visual inspection and study provided awareness of the type of cleaning solutions recommended and a description of what actions are recommended to help maintain the masonry.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### E. Resumes of Key Personnel Proposed for this Contract

<table>
<thead>
<tr>
<th>12. NAME</th>
<th>13. ROLE IN THIS CONTRACT</th>
<th>14. YEARS EXPERIENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Bawi, EIT</td>
<td>Building Envelope Testing Support</td>
<td>a. Total: 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b. With Current Firm: 3</td>
</tr>
</tbody>
</table>

#### 15. Firm Name and Location (City and State)

Raymond | Raleigh, NC

#### 16. Education

<table>
<thead>
<tr>
<th>B.S.</th>
<th>Civil Engineering</th>
</tr>
</thead>
</table>

#### 17. Current Professional Registration (State and Discipline)

<table>
<thead>
<tr>
<th>EIT: Pending</th>
</tr>
</thead>
</table>

#### 18. Other Professional Qualifications (Publications, Training, Awards, etc.)

- Experience working with UNC Greensboro
- 3 years of experience in building envelope design

San Bawi brings a fresh perspective in building envelope design and investigation. He has provided services which include roof design, moisture evaluation and building envelope investigations. San brings an advanced level of proficiency with AutoCAD has experience with designing and specifying for over a year. He graduated with a Civil Engineering degree with a focus in Structural Engineering.

#### 19. Relevant Projects

<table>
<thead>
<tr>
<th>[1] Title and Location (City and State)</th>
<th>[2] Year Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>[a] UNC Greensboro Jefferson Suites Limited Building Envelope Study, Greensboro, NC</td>
<td>2022</td>
</tr>
</tbody>
</table>

**BE Testing Support:** Our team did an on-site assessment for Jefferson Suites which was constructed in 2011. Our team determined that location of EIFS failures and information to categorize failure type and identify scope needed for repairs for the building.

| [b] Duke University Gilbert-Addoms, Durham, NC | 2020               |

**BE Testing Support:** Building Envelope design support for this roof replacement project at a Duke Residence Hall. The project includes the replacement of steep-sloped Ludowici tile along with gutters and downspouts. The project also involves the repair of masonry through the replacement of sealants at coping joints, tuckpointing of chimneys and the application of a spray applied water repellent on brick masonry.

| [c] Booker T Washington HS Window Replacement, Rocky Mount, NC | 2021               |

**BE Testing Support:** Raymond was contracted to replace the exterior windows on the single-story portion of the facility. The scope of work includes evaluation of exiting window systems and code requirements, design of new windows systems, and construction and bid administration services.

| [d] Town of Cary Town Hall and Utility Sites, Cary, NC | 2017-2018           |

**BE Testing Support:** Provided quality assurance observation services during the construction of this roof replacement at the Town Hall building. The project also involves the roof replacement design and quality assurance observation services at separate utility sites across the Town.
E. Resumes of Key Personnel Proposed for this Contract

<table>
<thead>
<tr>
<th>12. NAME</th>
<th>13. ROLE IN THIS CONTRACT</th>
<th>14. YEARS EXPERIENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADAM COOK, RRC, RRO</td>
<td>BUILDING ENVELOPE CONSULTANT/CONSTRUCTION ADMINISTRATOR</td>
<td>a. TOTAL 18  b. WITH CURRENT FIRM 7</td>
</tr>
</tbody>
</table>

15. FIRM NAME AND LOCATION (City and State)
Raymond | Raleigh, NC

16. EDUCATION
B.S. | Construction Management

17. CURRENT PROFESSIONAL REGISTRATION (State and Discipline)
RRO: #1506
RRC: #824
FAA Drone Pilot: #395227

Adam Cook has sixteen years of experience in construction administration, roof design, and engineering which includes evaluating roofs and building envelopes, roof replacement design and quality assurance roles. He has worked with a wide variety of clients including state, local, k-12 and university, and commercial clients. He is a Registered Roof Consultant, Registered Roof Observer and is a certificated FAA Drone Pilot.

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Training, Awards, etc.)
- Experience working with UNC Greensboro
- 18 years of construction administration experience
- Certified FAA Drone Pilot

19. RELEVANT PROJECTS

<table>
<thead>
<tr>
<th>(1) TITLE AND LOCATION (City and State)</th>
<th>(2) YEAR COMPLETED</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. UNC Greensboro Phillip-Hawkins Residence Hall Roof Replacement, Greensboro, NC</td>
<td>2019-2020 2020</td>
</tr>
<tr>
<td>(3) BRIEF DESCRIPTION (scope, size, cost, etc.) AND SPECIFIC ROLE</td>
<td>Check if project performed with current firm</td>
</tr>
<tr>
<td><strong>Construction Administrator:</strong> Shingle and membrane roof replacement, addition of fall protection anchors at steep slope and low slope areas, custom retrofit debris guards at existing gutters.</td>
<td></td>
</tr>
<tr>
<td>b. UNC Greensboro Jefferson Suites Limited Building Envelope Study, Greensboro, NC</td>
<td>2022 N/A</td>
</tr>
<tr>
<td>(3) BRIEF DESCRIPTION (scope, size, cost, etc.) AND SPECIFIC ROLE</td>
<td>Check if project performed with current firm</td>
</tr>
<tr>
<td><strong>Construction Administrator:</strong> Our team did an on-site assessment for Jefferson Suites which was constructed in 2011. Our team determined that location of EIFS failures and information to categorize failure type and identify scope needed for repairs for the building.</td>
<td></td>
</tr>
<tr>
<td>c. UNC Greensboro Moore-Strong Residence Hall Roof Replacement, Greensboro, NC</td>
<td>2019-2020 2020</td>
</tr>
<tr>
<td>(3) BRIEF DESCRIPTION (scope, size, cost, etc.) AND SPECIFIC ROLE</td>
<td>Check if project performed with current firm</td>
</tr>
<tr>
<td><strong>Construction Administrator:</strong> Shingle and membrane roof replacement, addition of fall protection anchors at steep slope and low slope areas, custom retrofit debris guards at existing gutters.</td>
<td></td>
</tr>
<tr>
<td>d. Virginia Commonwealth University Building Envelope Design and Construction Administration Services, Richmond, VA</td>
<td>Ongoing 2024 (est)</td>
</tr>
<tr>
<td>(3) BRIEF DESCRIPTION (scope, size, cost, etc.) AND SPECIFIC ROLE</td>
<td>Check if project performed with current firm</td>
</tr>
<tr>
<td><strong>Construction Administrator:</strong> Raymond was contracted to provided building envelope design and construction administration services for Founders Hall. The scope of work includes review existing drainage and gutter design and perform drainage calculations.</td>
<td></td>
</tr>
</tbody>
</table>
Background
The building that houses Phillips-Hawkins Residence Hall opened in 1967 and was named after the Director of Public Relations (Phillips) and the Director of the Housing Bureau (Hawkins). Raymond currently supports UNC through our existing on-call contract to provide roof consulting services.

Scope of Work
The Phillips-Hawkins Residence Hall was experiencing water intrusion and the roof had reached UNC-G’s internal criteria for being aged out. Our team was contracted to provide re-roofing design, construction administrative, bidding phase and improvement services.

Technical Approach
Raymond prioritized the collection of all relevant and available building documents before starting the initial inspection. To ensure collection of the most accurate photographs of the areas of work, our team utilized drones during the inspection. Test cuts were made to determine if existing materials could be reused and Infrared scanning was utilized to determine the extent of water intrusion.

Our team generated an RFP for asbestos testing which was completed by a 3rd party contract. The existing roof system consisted of a 2-year shingle roof. The re-roofing took place on both shingle and membrane areas, adding fall protection systems where required, and repairing gutters and downspouts. The inspection concluded the roof membrane needed to be replaced and the gutter guards repaired. We were able to reuse insulation. The existing gutter guards were repaired and reused with custom gutters designed by Raymond.

Schematic and Design Development phase documents were presented for review and comment, and all design documents included logistics plans. After finalization of plans and specifications, our team aided with the bidding phase. Our team attended a pre-bid conference at the site to review the project requirements with prospective bidders and prepared meeting minutes for distribution to those who required them.

During the construction phase, our team attended the contractors weekly progress meetings in conjunction with our quality assurance inspections, conducted weekly progress meetings with the owner and contractor, reviewed contractor’s payment applications and any outstanding submittals. We recorded meeting minutes from weekly progress meetings in our inspection reports issued after each week’s inspection.

Project Challenges
This project was to be completed during summer break which caused some issues with scheduling. Our team worked with the owner to ensure no delay in progress and schedule times to be on site efficiently.

Benefits to the Customer
- This reroofing project allowed for the client to receive a new warranted roof system.
- By reusing existing materials, we saved the client money.
- The new gutters along with the gutter guards on shingle areas allow maintenance to be lowered.
- The installation of fall protection allows for better safety protections that were not there previously.
- Project was completed under the $247,405 construction budget. Schedule was extended due to COVID, construction was completed on time.

### 25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

<table>
<thead>
<tr>
<th>(1) FIRM NAME</th>
<th>(2) FIRM LOCATION (City and State)</th>
<th>(3) ROLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raymond</td>
<td>Raleigh, NC</td>
<td>Prime A/E</td>
</tr>
</tbody>
</table>
F. Example Projects Which Best Illustrate Proposed Team’s Qualifications For This Contract

<table>
<thead>
<tr>
<th>20. EXAMPLE PROJECT KEY NUMBER</th>
<th>21. TITLE AND LOCATION (City and State)</th>
<th>22. YEARS COMPLETED</th>
<th>23. PROJECT OWNER’S INFORMATION</th>
<th>24. BRIEF DESCRIPTION OF THE PROJECT AND RELEVANCE TO THIS CONTRACT</th>
</tr>
</thead>
</table>
| 2                            | UNC Greensboro Jefferson Suites Envelope Study, Greensboro, NC | 2022               | a. PROJECT OWNER: UNC Greensboro | Background

Jefferson Suites was constructed in 2011 and is UNCG’s first LEED Certified Residence Hall. The building is six stories with a total of 205,419 SF. The building’s exterior wall materials are brick, masonry veneer, cast stone, metal panels, aluminum curtain wall with insulated glazing. A variety of failures appeared within the Exterior Insulation and Finish System (EIFS) clad portions of the Jefferson Suites residence hall. Raymond was contracted to evaluate and determine the causes for the failures and provide recommendations for remediation and repair.

Scope of Work

Our team performed on-site assessment of the building’s failing stucco clad areas. Field data was used to provide a report detailing the locations and root causes of failure. Raymond provides recommendations for repair or replacement and a Rough Order of Magnitude (ROM) cost estimate.

Technical Approach

Raymond performed on-site assessment of the facility which included observations from: ground level, an aerial/basket lift, and with a drone. Observations began with visual-only, which provided insight for targeted deconstruction to record concealed conditions and detailing; information which was critical to diagnosing the various modes of failure.

Raymond worked alongside a contractor to deconstruct portions of the stucco system and select locations to determine how the system was detailed and which portions were failing to cause delamination and cracking.

Our team developed an envelope study which provided:

- An overview describing observations and recommendations
- Corrective recommendations and details
- Cost estimates for each repair type
- Building elevations with notations identifying location of current failures and indicate repair type

With widespread failures due primarily to installation deficiencies, Raymond recommended the stucco cladding be replaced. It was determined that effective and lasting repairs to the existing could not be performed in an economical approach.

Project Challenges

- Site access for observations on a tall building is always challenging. Raymond overcame it by using basket lift and drone.

Benefits to the Challenges

- Our report provided guidance for a path forward, supported by technical descriptions and cost estimation.

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

<table>
<thead>
<tr>
<th>(1) FIRM NAME</th>
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</tr>
</thead>
<tbody>
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<td>Raleigh, NC</td>
<td>Prime A/E</td>
</tr>
</tbody>
</table>

Relevancy
Higher Education Building | Masonry | Testing Services | UNC Greensboro

Project Details
Size: 205,419 SF
Design Fee: $25,900
Background
Raymond was retained to provide a full Property Condition Assessment on UNC Greensboro’s oldest building on campus, the Julius I. Foust Building (constructed 1892). The University’s long-term plan is to update the building to meet modern office requirements while maintaining its classification on the National Register of Historic Places. Our assessment will provide the University with a comprehensive plan for the building’s restoration.

Raymond’s Property Condition Assessment will comply with ASTM E1557 and ASTM E2018. The assessment report will identify the top five identified repair and renovation recommendations along with all other recommendations that will be required to restore the building. Raymond will also be reviewing the feasibility of introducing an elevator to the building and adding banquet programing space to the large attic. The site visit assessment concluded that the mechanical, plumbing, and overall accessibility of the building will need to be a priority for a renovation. On the exterior, the brick façade and windows will need to be fully restored.

Project Challenges:
The age of this building will be a significant challenge for our team due to the many previous renovations and building systems introduced and installed over the years. However, our... will allow us to coordinate with the client effectively and come up with comprehensive and creative solutions to these challenges.

Benefits to Customer:
80% of all major disciplines on this project are being performed by Raymond’s in-house engineers and architects. Our ability to provide multiple disciplines to the project will give UNC Greensboro a streamlined and effective approach to their assessment.
F. Example Projects Which Best Illustrate Proposed Team’s Qualifications For This Contract

21. TITLE AND LOCATION (City and State)

| Century Station U.S. Post Office, Federal Building, & Courthouse Masonry Restoration, Raleigh, NC |

22. YEARS COMPLETED

<table>
<thead>
<tr>
<th>PROFESSIONAL SERVICES</th>
<th>CONSTRUCTION (if applicable)</th>
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</thead>
<tbody>
<tr>
<td>2022 (est)</td>
<td>2022 (est)</td>
</tr>
</tbody>
</table>

23. PROJECT OWNER’S INFORMATION

<table>
<thead>
<tr>
<th>a. PROJECT OWNER</th>
<th>b. POINT OF CONTACT NAME</th>
<th>c. POINT OF CONTACT TELEPHONE NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achuti</td>
<td>Jason Robertson</td>
<td>919-219-7351</td>
</tr>
</tbody>
</table>

24. BRIEF DESCRIPTION OF THE PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, cost)

Background
The Century Station U.S. Post Office, Federal Building and Courthouse owned by the General Administration Services (GSA) was experiencing deteriorated mortar joints at copings, bandings, and projecting sills on all facades. Some areas of satisfactory mortar joints were observed; however, these joints were interspersed around deteriorated joints.

Approximately 6,520 sf of deteriorated mortar joints were observed at copings, quoins, and banding/projections sills on all facades.

On all facades (Martin St. Fayetteville St., Salisbury St. Alley) the mortar joints at the cornice, dentils, and brackets were 100% deteriorated. The deterioration consisted of open joints, debonded joints, and recessed joints.

Evidence of previous mortar joint repairs was observed that consisted of a skim coat of mortar over previously deteriorated mortar joints. In many locations the skim coat has begun to deteriorate.

Approximately 4,886 l.f. of deteriorated mortar joints were observed at Cornices, Dentils, & Brackets on all facades.

The level of deterioration of granite mortar joints varied throughout the building and for each façade; areas of deterioration were identified on our site investigation drawings and distinguished between open mortar joints, debonded mortar joints, and previous repairs that installed a skim coat of mortar over likely deteriorated mortar joints. Vertical and horizontal joints at the stone window surrounds were either deteriorated or have received a previous repair that installed a fillet skim coat of mortar over the joint. In many locations this skim coat has started to debond or has fallen out exposing a previously installed deteriorated or missing joint. Approximately 7,100 sf of deteriorated granite mortar joints were observed on all facades.

Scope of Work
For the Scope of Work Raymond was identified as the Historic Preservation Architect and was to provide design and construction administration services for this project. The scope required compliance with Section 106 of the National Historic Preservation Act and was identified as:

- Repointing Coping, Quions, and Banding / Projecting Sills: (Approximately 3,550 sf)

Relevancy
Higher Education Building | Envelope Design | Roof Replacement | Construction Administration | Project Management

Project Details
Size: 8,400 SF
Design Fee: $23,500
Construction Cost: $179,792

- Repointing Cornice, Dentils & Brackets: (Approximately 2,600 sf.)
- Repointing Granite Mortar Joints: (Approximately 4,100 sf)
- Sealant Joint Replacement approximately 500 sf of existing sealant joint located around existing wall stone penetrations
- Cleaning the entire building in accordance with The Secretary of the Interior’s Standards for the Treatment of Historic Properties.

Architectural, Interior Design, Engineering, Building Envelope and Consulting Services
Technical Approach

The site investigation observations indicated that the majority of the mortar joints at the following stone components are deteriorated and require repointing:

1. Copings
2. Bandings / Projecting Sills
3. Cornice
4. Dentils
5. Brackets
6. Window Surrounds

The coping and bandings/projecting sills were especially deteriorated at their skyward facing joints, which are also the most vulnerable joints on the building and likely to cause water infiltration into the wall assembly or interior of the building.

Typical granite mortar joints and quoins had varied levels of deterioration and required only spot repointing at deteriorated locations and where a skim coat of mortar have been identified. Due to the likely premature failure of skim coat mortar joints, in comparison to a repointed mortar joint, it was recommended that skim coat mortar joints are repointed regardless of their current level of deterioration.

In addition to deteriorated mortar joints, additional stone deficiencies were observed, such as spalls and cracks. To limit further deterioration of the stone, our team recommended that spalls and cracks are repaired. If the project cannot support all required repairs, Raymond provided the following priority hierarchy consideration:

1. Spalls and cracks that prohibit the proper installation of a new mortar joint.
2. Skyward facing spalls and cracks that have greater exposure to rain water and freeze/thaw.
3. Distance from grade; spalls and cracks that are difficult to monitor and cannot be observed from the ground have the potential to deteriorate further and become unidentified fall hazards.

Existing fall hazards were not observed during this site investigation and no existing make safe repairs are recommended.

Due to the quantities of deteriorated mortar joints exceeding the scope of work quantities, it was recommended that the restoration work is constrained to full elevations as it fits within the scope rather than spreading the work out onto several elevations. It was recommended that Martin Street and Fayetteville Street receive mortar joint repointing due to the site investigation findings and higher degree of weather exposure. Mortar joint repointing required on Martin Street and Fayetteville Street include:

1. Coping, Quoins, and Banding / Projecting Sills: 3,260 sf (3,500 sf included in scope of work).
2. Cornice, Dentils & Brackets: 2,444 sf (2,600 sf included in scope of work).
3. Granite Mortar Joints: 3,920 sf (4,100 sf included in scope of work).

Remaining mortar joint repointing quantities within the scope equals 576 sf We recommended that the unused quantities are applied to spall and crack repairs, this allowed for the following quantities to be included in the project on Martin Street and Fayetteville Street:

2. Cracks: 19 sf
Background
The North Carolina State Legislative Building has been home to the state legislature since 1963, replacing the State Capitol as seat of legislature in North Carolina. The building hosts the North Carolina General Assembly and includes the senate and house chambers, an auditorium, members’ offices, committee rooms, and press facilities. Designed by Edward Durrell Stone with the assistance of Halloway-Reeves, the building displays Stone’s mixture of classical and contemporary styles; the building sits on a 340-foot-wide podium of granite, has marble clad columns and curtain wall that reaches from the podium to the top of the second floor.

Scope of Work
In 2015 Raymond was retained as the prime engineer for restoration of the building’s curtain wall system, masonry repairs, reconstruction of the promenade and planters, replacement of the five copper pyramid roofs, and the ceiling restoration in the house chambers.

Technical Approach
To streamline the construction process, the project was divided into two phases. The first phase included the abatement of the interior ceilings, reconstruction of the copper-clad pyramids, and replacement of the low-sloped roof areas adjacent to the pyramids. The five pyramidal roofs cover the senate and house chambers on the east and west sides of the building, the auditorium to the north, the grand stairway to the south, and the rotunda to the center; the rotunda pyramid has 16 skylights allowing light to penetrate to both the first and second floors. Under each pyramid are coffered ceilings that are formed from the structural ribs of the roof deck, and each coffered pattern includes concentric diamonds that are outlined in gold. To avoid the risk of the ceiling material becoming loose and falling, Raymond performed asbestos abatement first and then painted the ceiling to match the original design.

Once this process was completed, our team moved onto creating a water-tight design for the old roof system. Our goal for the copper-clad pyramids was to match the diamond-shapes created by the false battens and the quilted pattern seams within each diamond. During our initial investigations, Raymond had discovered several problem areas that had been contributing to the leaking over the years (e.g., improperly sealed seams, the construction at the eaves were not watertight, and many of the tabs that used to help attach the false battens were not properly bonded).

Relevancy
NC Facility | Waterproofing | Curtain Wall Repairs | Masonry Repairs | Construction Administration

Project Details
Size: Pyramid ceiling restoration 17,780 sf | Copper Roofs 21,000 sf | Low-Sloped Roof 9,500 sf | Concrete Roof Overhang 8,000 sf | Promenade Waterproofing 22,500 sf | Promenade pavers 22,500 sf | Perimeter planter 940 sf.

Cost: $5,300,000
modeling software designed to calculate heat and moisture transport) of the existing design to determine a means for the copper-clad roof to ventilate and increase the R-value. The results of the analysis indicated that condensation was likely occurring between the vapor barrier and the fiberglass insulation during the winter. Our team designed an insulated and ventilated nail base with board insulation and an underlayment that would be applied over the existing plywood substrate to prevent this from occurring in the future.

The original design for the copper roof included both single and double locked seams. Our team decided to only use single locked seams to join the copper panels together, because they would be more watertight. To form the diamond shape, Raymond developed a design that used three coper panels of the proper dimensions and a design that specified how to assemble the four corners of diamond shaped assemblies. It took twenty-eight diamond shaped panels and eight triangle shaped panels to create each face of a pyramid. Supports were added under the folded edges of the panels and were hooked onto the folded edges of the under-turned edge. Next, they were soldered into place and false battens were pop riveted on top of them. Once finished, the appearance of our design matched the original design, save the removal of the square, black non-functional vents.

The second phase of this project focused on the promenade roof. This included the waterproofing of the IRMA roof system, restoration of the 88 perimeter windows, waterproofing of the gardens, and landscape design. The promenade, located on the main roof of the second floor, is open to the public, and includes four skylight gardens with planting and skylights that allow natural daylight to enter the interior gardens. An additional garden wraps around the full perimeter of the promenade, and the floor is clad in granite pavers, which had replaced the original marble pavers approximately 20-25 years ago.

To determine the exact locations of water entry on the promenade, Raymond performed destructive and non-destructive testing. One of the main sources of water infiltration occurred at the perimeter windows. After removing a section of the concrete roof deck to obtain a better vantage point, our team discovered that the EPDM membrane termination was no longer adhered below the sill of the window and the assembly did not have a drainage plane. In the original design, the granite promenade was meant to serve as a barrier system; however, breaches in the system due to material failures (such as sealants or cracked pavers) caused the assembly to swell and backup at the windows. Moreover, due to the failed membrane terminations and the windowsills, water was able to get behind the assembly and enter the building. This was exacerbated because the paver height was level with the sill of the windows, and the failed membrane was below the drainage plane of the promenade.

Raymond’s design included a main drainage plane that would be just above the concrete roof deck (below the pavers and insulation layers), so any future sealant or paver failures would not be detrimental to the system’s waterproofing ability. This design change required the removal of the entire promenade assembly, including all 88 windows. Subsequently, a torched down modified bitumen cap sheet was installed to act as a temporary roof. Over that a new re-enforced liquid applied waterproofing was installed, allowing for a seamless transition at windowsills once the windows were reinstalled.

Our team installed the new drainage board next. Afterwards, the original layer of insulation was re-installed along with a new layer of insulation boards (doubling the R-value); this second layer of insulation replaced the poured concrete from the existing assembly. Before the granite pavers were re-set, our team installed a layer of sand and filter fabric to create a smooth walking surface despite the inconsistency of the paver’s thickness. Concrete was used at the edges of the pavers to lock them in place and prevent them from rotating.

There are 28 4’x4’ planters on the promenade roof. Originally, a tube to the perimeter planter was used to drain them; however, the tube often became clogged and created drainage issues. Raymond designed a drainage system integral with the promenade drainage system, by setting the planters over 4”x4” cuts that were made in the pavers.

To fix the waterproofing and drainage issues in the four skylight gardens, our team used the same liquid applied waterproofing that was used on the rest of the roof. Also, a drainage layer and filter fabric were installed over the gardens’ surface. Once this was complete, soil was dropped in via a crane and a conveyor belt into the planters. New plants were then planted in a design that would limit overgrowth, so that the light entering the skylights would not be impeded.

**Project Challenges**
- The Legislative Office Building remained open to the public throughout the course of the
project, as it offers several daily tours and is a popular destination for field trips for many schools throughout the state. Raymond worked with the Contractors to develop a safety plan to ensure continued site access without safety issues during the construction phase.

- During asbestos abatement, Raymond took careful steps to protect all the non-removable desks and furniture in the house chambers from being damaged.

Benefits to Client

- Raymond kept in constant communication with the North Carolina State Construction Office and The General Assembly to develop a schedule that would allow the State Legislature to continue working uninterrupted.
- To guarantee that our design would not leak, Raymond constructed a mockup and performed a water test on it by spaying the mockup with water at a high velocity at the juncture of the four diamonds. As an extra precaution against possible leaks, our team also specified that butyl sealant be applied to the corner of the first diamond before the second was set in place.
- Though the building was not on the National Register of Historic Places, the client wished to preserve the building’s historical features, nonetheless. Raymond accommodated this requirement by adhering to the requirements of historical restoration projects.

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

<table>
<thead>
<tr>
<th>(1) FIRM NAME</th>
<th>(2) FIRM LOCATION (City and State)</th>
<th>(3) ROLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raymond</td>
<td>Raleigh, NC</td>
<td>Prime</td>
</tr>
</tbody>
</table>
F. Example Projects Which Best Illustrate Proposed Team’s Qualifications For This Contract

21. TITLE AND LOCATION (City and State)

Virginia Commonwealth University Hall Moisture Investigation, Richmond, VA

22. YEARS COMPLETED

PROFESSIONAL SERVICES

CONSTRUCTION (if applicable)

Ongoing 2024 (est)

23. PROJECT OWNER’S INFORMATION

a. PROJECT OWNER

Virginia Commonwealth University

b. POINT OF CONTACT NAME

Karen Nicely

c. POINT OF CONTACT TELEPHONE NUMBER

804-828-7080

24. BRIEF DESCRIPTION OF THE PROJECT AND RELEVANCE TO THIS CONTRACT (Include scope, size, cost)

Background

VCU’s Founders Hall is a historic 34,263 SF, four-story structure that was constructed from 1883 to 1885 with the appearance of at least three subsequent additions to the facility. The exterior envelope is solid brick with 1” of plaster on the interior walls, and the 255 windows are wood sash double hung.

Scope of Work

VCU contacted Raymond to perform an investigation of the facility after excessive water and moisture became evident within the building. Furthermore, the facility staff have noticed that the lack of dehumidification through the building’s mechanical equipment there could be the potential of mold growth within the building.

Technical Approach

In our investigation, our team noted that the buildings windows have deteriorated to the point where they are causing water and air to enter the building and allowing excessive moisture to enter into the mass masonry walls. The National Parks Services categorizes historic window restoration into 3 categories ranging in severity of deterioration: Repair Class 1 – Routine Maintenance, Repair Class II – Stabilization, and Repair Class III – Splices and Parts Replacement. From our observations, Founders Hall windows would fall into Repair Class II and Repair Class III. An additional step beyond window restoration would be to add interior windows, this would further improve the energy efficiency of the windows and should be considered after the original windows have been restored.

Further noted by our team was the roof systems, which have also failed to the point where they are no longer reliable. The original mansard roof is allowing both air and water to enter the building; its rainwater management is not properly functioning causing excessive moisture to come in contact with the masonry walls and wood windows. Our team recommended that below the mansard roof, a thermal and vapor envelope should be established either at the roof assembly or within the attic floor assembly.

The flat roofs are beyond their serviceable life; and like the mansard roof, their rainwater management is not efficient, causing deterioration of the wood cornices/gutters and the downspouts are causing excessive moisture to come in contact with the masonry walls and windows. The condition of the wood and concrete decking is not fully known; however, our team assumed that some decking replacement and repair will need to occur during construction.

During our report, our team discovered that the masonry walls are functioning and are in satisfactory condition, however, the mortar joints are in need of maintenance. Repointing the mortar joints would decrease the moisture absorption of the walls, and if the windows are restored and roof rainwater management is repaired, moisture entry through the walls would further decrease.

Relevancy

Higher Education Building | Waterproofing | Interior Walls | Window Replacement | Masonry Repairs | Mortar Joints

Project Details

Size: 139,479 SF
Design Cost: $139,479

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

<table>
<thead>
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<th>(1) FIRM NAME</th>
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<tbody>
<tr>
<td>Raymond</td>
<td>Richmond, VA</td>
<td>Prime A/E</td>
</tr>
</tbody>
</table>

Architectural, Interior Design, Engineering, Building Envelope and Consulting Services
Background
Schaub Hall was dedicated to NCSU on November 26th, 1968. It now houses the teaching, researching, and extension operations of the Department of Food, Bioprocessing, and Nutrition Science.

Scope of Work
Raymond was engaged to provide a water intrusion investigation. The primary objective was to determine the extent and possible reasons for water intrusion.

Technical Approach
Prior to testing and inspections, our team reviewed all available and necessary building drawings. The inspection consisted of visual observations and water testing. The areas included the windows on the first level of the northwest corner, the roof and expansion joint above the loading dock below the north west corner, a window at the second level near the south west corner, and a small second level roof on which only a visual inspection was conducted.

The visual inspection concluded that above the first-floor windows was a soffit that extended approximately 6’ out from the face of the windows and multiple areas of water damaged soffit were observed, the second and third floor windows were also operable awnings with vertical spandrel panels connecting the window units at the second and third floor slabs which appeared to be original to the building, and the small roof areas at the first and second floors were gravel surfaced built-up assemblies with copper flashings and appeared to be original to the building.

Water tests were performed at each location starting from the sills and working upwards to the window heads. Tests were stopped once water was seen in the interior of the building to avoid damaging materials and equipment. Tests were performed in 5’ liner increments (maximum), for a maximum of 5 minutes, 1 minute per 1 linear foot. A report of our teams’ findings was prepared along with recommendations and cost estimates.

Benefits to Client
- The repairs recommended to the client would provide an increase in the energy performance of the building and stop the leaking.
- The report provided clear and concise remedies to the water intrusion issues the client was experiencing.

Relevancy
Higher Education Building | Envelope Design | Roof Replacement | Construction Administration | Project Management

Project Details
Size: 2 Levels
Fee: $8,955

allows the client to efficiently plan ahead for repairs.
F. Example Projects Which Best Illustrate Proposed Team’s Qualifications For This Contract

21. TITLE AND LOCATION (City and State)
Capitol Building Water Intrusion Assessment, Raleigh, NC

22. YEARS COMPLETED
PROFESSIONAL SERVICES
CONSTRUCTION (if applicable)
2022
2024 (est)

23. PROJECT OWNER’S INFORMATION
North Carolina Legislative Office  Paul Coble 919-733-7044
North Carolina Legislative Office  Paul Coble 919-733-7044

24. BRIEF DESCRIPTION OF THE PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, cost)

Background
The State Capitol Building was constructed in 1833-40 at the same Raleigh site as the previous State House, which was destroyed in a fire in 1830. The Greek Revival architectural style was designed by architects Ithiel Town, Alexander Jackson Davis, and David Paton. Originally the Capitol was home to the General Assembly, Supreme Court, and Governor’s offices until the Supreme Court moved out in 1888 and the General Assembly moved to the Legislative Building in 1963. The State Capitol was listed on the National Parks Services National Register of Historic Places in 1970; the Capitol Area Historic District, which the Capitol Building is the core of, was listed in 1978.

Scope of Work
Ramond was retained to perform a comprehensive assessment of the building envelope (masonry walls and roofs) and mechanical systems of the Capitol Building, and provide a report with our recommendations and priorities, to enable the development of the scope of work for the Capitol restoration.

Technical Approach
During the site evaluation/investigation our team concluded:

- Flat and steep slope copper roof areas, including the internal gutter of the dome, are past its useful lifespan and we recommend replacement. Particular areas of concern are at the failed internal gutters where ponding and deteriorated wooden roof decking has been observed; patching of the copper gutter seams has occurred since 1996 and a more permanent solution is recommended with waterproofing redundancies to protect the interior of the building.

- The standing seam panels of the dome are performing adequately, however, the flat seam copper base flashing over the top of the circular stone gallery that has received a waterproof coating over its seams will soon need replacement. We recommend that the dome copper panels be replaced at the same time as the base flashing.

- Given the age and condition of the mechanical equipment, the existing indoor air handling units and outdoor condensing units should be removed, and a new mechanical system be installed.

- The rooftop equipment should be removed in its entirety, including, but not limited to the metal stairway and railing, electrical disconnects, and refrigerant piping.

Design choices complied with the National Parks Preservation Briefs for the recommended roof, dome, and masonry restoration.

Relevancy
NC Facility | Waterproofing | Interior Walls | Window Replacement | Masonry Repairs | Mortar Joints

Project Details
Size: 10,750 SF
Design Cost: $43,870
Construction Cost: $1,000,000
Project Challenges
The Capitol is one of the most important buildings in North Carolina, the project team was required to take the buildings history into account for all recommendations made.

Benefits to the Customer
- Raymond provided a comprehensive assessment of the building and developed a restoration scope of work and cost estimates.
- The project was completed on time and stayed on budget.
- The information developed during the assessment phase allowed for an efficient transition into design. The design will be historically accurate and comply with the Secretary of the Interior’s Standards for Rehabilitation.

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

<table>
<thead>
<tr>
<th>(1) FIRM NAME</th>
<th>(2) FIRM LOCATION (City and State)</th>
<th>(3) ROLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raymond</td>
<td>Raleigh, NC</td>
<td>Prime A/E</td>
</tr>
</tbody>
</table>
Background
Raymond is providing engineering consulting and construction administration services for the North Carolina Department of Revenue Building in Raleigh, NC.

Scope of Work
From our site walk on September 2, 2021, our team observed that the East Side of the New Revenue Buildings has breaches in the granite wall cladding at grade that is allowing mice and water to get inside of the building; visual observations also indicated that the granite cladding is experiencing structural attachment issues at some locations.

Raymond provided the following services during the Construction Document Phase:

- Reviewed available drawings
- Performed field work to assist us in the development of the design documents; field work was limited to the east side of the building and limited to visual observations at grade and first floor levels; no excavation work was performed other than moving mulch by hand in selected locations. We performed water testing at grade to determine possible sources of water entry and wall breaches that could allow mice to enter. In order to perform this testing, we required access into the interior of the building and the removal of limited raised floor panels (removal performed by Owner) for visual observation.
- Upon completion of all field activities, we prepared a potential scope of work narrative and meet with the NCDOA to develop scope priorities in order to prepare the design documents.

Bidding Phase Services:
Once the plans and specifications were finalized, we provided the bid documents to qualified contractors. We conducted a pre-bid conference at the project site to review the project requirements with prospective bidders and prepared any addenda/meeting minutes for distribution to all appropriate parties. We responded to questions and prepared any addenda to be issued during the bid period. Our team conducted the bid opening at the North Carolina State Construction Office, developed a certified bid tabulation form, and provided a recommendation for award letter. Work involved the following: removing and storing existing granite panels and panel clips on the east facing wall as indicated on the Drawings; removing the existing membrane and insulation down to the concrete substrate as indicated on the Drawings; cleaning/repairing areas of damaged concrete substrate; installing new cover board and wind framing; installing new membrane, insulation and board; installing stainless steel through-wall flashing; re-installing granite panels over the newly installed system; installing miscellaneous items.

Relevancy
NC Facility | Waterproofing | Interior Walls | Window Replacement | Masonry Repairs | Mortar Joints

Project Details
Design Cost: $12,300
Construction Cost: $123,100
Background
The Student Center at Lenoir Community College is used as a shelter during Hurricanes. During the last few hurricanes, the building began experiencing numerous leaks throughout the storm.

Scope of Work
Raymond was brought on to provide roofing and waterproofing services. We provided design drawing and specifications, bid the project, and will perform construction administration during the spring of 2019.

Technical Approach
At the start of the project, we performed a drone infrared survey to determine if the main roof and gymnasium roof had wet insulation. Based on the survey we determined that the insulation was mostly dry allowing for us to design a more cost-effective recover roof assembly over the main roof (23,000 sf) and a reinforced coating system over the gymnasium roof (15,000 sf). We also determined that the through wall flashing had deficiencies and would also need to be replaced. For the roof over the gymnasium, we decided to coat the existing roof system due to the gypsum roof deck.

Once the drawings and specifications were completed, we assisted Lenoir Community College in the bidding process. Construction was completed in the spring of 2019.

Benefits to the Client
- The design that we provided allowed for all roof areas to fit within the school's budget. We also secured a 20-year manufacturer's warranty for the roof system.
### G. Key Personnel Participation in Example Projects

<table>
<thead>
<tr>
<th>26. NAMES OF KEY PERSONNEL (From Section E, Block 12)</th>
<th>27. ROLE IN THIS CONTRACT (From Section E, Block 13)</th>
<th>28. EXAMPLE PROJECTS LISTED IN SECTION F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jason Mobraten, RA, RRC, REWC, LEED AP</td>
<td>Project Manager</td>
<td>x x x x x x x x x x x x x x x x x x x x</td>
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<tr>
<td>David Willers, PE, RBEC, REWC, RWC, RRC, LEED, AP</td>
<td>Senior Reviewer</td>
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<tr>
<td>Gretchen Cobb, RA</td>
<td>Building Envelope Designer</td>
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<tr>
<td>San Bawi, EIT</td>
<td>Building Envelope Testing Support</td>
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<tr>
<td>Adam Cook, RRC, RRO</td>
<td>Building Envelope Consultant/Construction Administration</td>
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#### 29. EXAMPLE PROJECT KEY

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<tr>
<th>#</th>
<th>TITLE OF EXAMPLE PROJECT (From Section F)</th>
<th>#</th>
<th>TITLE OF EXAMPLE PROJECT (From Section F)</th>
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<tbody>
<tr>
<td>1</td>
<td>UNC Greensboro Phillips Hawkins Dormitory, Greensboro, NC</td>
<td>6</td>
<td>Virginia Commonwealth University Hall Moisture Investigation, Richmond, VA</td>
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<tr>
<td>2</td>
<td>UNC Greensboro Jefferson Suites Envelope Study, Greensboro, NC</td>
<td>7</td>
<td>North Carolina State University Schaub Hall Building Envelope Investigation, Raleigh, NC</td>
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<tr>
<td>3</td>
<td>UNC Greensboro Julius I. Foust Facility Condition Assessment, Greensboro, NC</td>
<td>8</td>
<td>Capitol Building Water Intrusion Assessment, Raleigh, NC</td>
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<tr>
<td>4</td>
<td>Century Station U.S. Post Office, Federal Building, &amp; Courthouse Masonry Restoration, Raleigh, NC</td>
<td>9</td>
<td>New Revenue Building East Wall Water Intrusion and Foundation Repairs, Raleigh, NC</td>
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<tr>
<td>5</td>
<td>State Legislative Building Curtain Wall and Roof Restoration, Raleigh, NC</td>
<td>10</td>
<td>Lenoir Community College Student Center Roof Replacement, Kinston, NC</td>
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#### I. AUTHORIZED REPRESENTATIVE

The foregoing is a statement of facts

<table>
<thead>
<tr>
<th>31. SIGNATURE</th>
<th>32. DATE</th>
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<tr>
<td>[Signature]</td>
<td>10/19/2022</td>
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<table>
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<th>33. NAME AND TITLE</th>
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<tbody>
<tr>
<td>Jason Mobraten, Regional Vice President</td>
</tr>
</tbody>
</table>
ARCHITECT-ENGINEER QUALIFICATIONS
Part II – General Qualifications

2a. FIRM (or Branch Office) NAME
Raymond Engineering – Georgia, Inc. (Raymond)

2b. STREET
316 W. Millbrook Rd.
Suite 201

2c. CITY 
2d. STATE 
2e. ZIP CODE
Raleigh 
NC 
27609

6a. POINT OF CONTACT NAME AND TITLE
Jason Mobraten, RA, RRC, REWC, LEED AP | Regional Vice President

5. OWNERSHIP
a. TYPE
Corporation

b. SMALL BUSINESS STATUS
Service-Disabled Veteran Owned Small Business (SDVOSB) | SBA 8(a) Approved

7. NAME OF FIRM (If Block 2a is a Branch Office)
Raymond Engineering- Georgia, Inc

8a. FORMER FIRM NAMES
Raymond Engineering– Georgia, LLC

8b. YEAR ESTABLISHED
1992

8c. UNIQUE ENTITY IDENTIFIER
84-048-8324

9. EMPLOYEES BY DISCIPLINE

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<tr>
<th>Function Code</th>
<th>Discipline</th>
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<th>(II) BRANCH</th>
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<td>02</td>
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<td>16</td>
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<td>06</td>
<td>Architect</td>
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<td>08</td>
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<td>Scheduler</td>
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<td>Security Specialist</td>
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<td>57</td>
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<td>Plumbing Designer</td>
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<td>Registered Roof Observers</td>
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<td>CxA Commissioning</td>
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Total 87 12

10. PROFILE OF FIRMS EXPERIENCE AND ANNUAL AVERAGE REVENUE FOR LAST 5 YEARS

<table>
<thead>
<tr>
<th>Function Code</th>
<th>Experience</th>
<th>Revenue Index #</th>
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<tbody>
<tr>
<td>A06</td>
<td>Airports; Terminals &amp; Hangars</td>
<td>4</td>
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<tr>
<td>A11</td>
<td>Auditoriums &amp; Theaters</td>
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<tr>
<td>B01</td>
<td>Barracks; Dormitories</td>
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<tr>
<td>C06</td>
<td>Churches; Chapels</td>
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<tr>
<td>C10</td>
<td>Commercial Building; Shopping Centers</td>
<td>6</td>
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<tr>
<td>C15</td>
<td>Construction Management</td>
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<tr>
<td>D07</td>
<td>Dining Halls, Clubs, Restaurants</td>
<td>2</td>
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<tr>
<td>E02</td>
<td>Educational Facilities; Classrooms</td>
<td>7</td>
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<tr>
<td>F02</td>
<td>Field Houses; Gyms; Stadiums</td>
<td>3</td>
</tr>
<tr>
<td>C01</td>
<td>Garages; Vehicle Maintenance Facilities; Parking Decks</td>
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<td>H09</td>
<td>Hospital &amp; Medical Facilities</td>
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<td>H10</td>
<td>Hotel; Motels</td>
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<tr>
<td>H11</td>
<td>Housing (Residential, Multi-Family…)</td>
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<td>J01</td>
<td>Judicial and Courtroom Facilities</td>
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<tr>
<td>L04</td>
<td>Libraries; Museums; Galleries</td>
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<tr>
<td>M05</td>
<td>Military Design Standards</td>
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<tr>
<td>O01</td>
<td>Office Buildings; Industrial Parks</td>
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<tr>
<td>P08</td>
<td>Prisons &amp; Correctional Facilities</td>
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<tr>
<td>S09</td>
<td>Structural Design; Special Structures</td>
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<td>T02</td>
<td>Testing &amp; Inspection Services</td>
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<td>W01</td>
<td>Warehouses &amp; Deports</td>
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11. ANNUAL AVERAGE PROFESSIONAL SERVICES REVENUES OF FIRMS FOR LAST 3 YEARS

<table>
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<tr>
<th>Function Code</th>
<th>Revenue Index Number</th>
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<tr>
<td>$100,000 to less than $250,000</td>
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</tr>
<tr>
<td>$250,000 to less than $500,000</td>
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<tr>
<td>$500,000 to less than $1 million</td>
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<tr>
<td>$1 million to less than $2 million</td>
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</tr>
<tr>
<td>$2 million to less than $5 million</td>
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<tr>
<td>$5 million to less than $10 million</td>
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<tr>
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<td>8</td>
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<tr>
<td>$25 million to less than $50 million</td>
<td>9</td>
</tr>
<tr>
<td>$50 million or greater</td>
<td>10</td>
</tr>
</tbody>
</table>

12. AUTHORIZED REPRESENTATIVE The foregoing is a statement of facts

a. SIGNATURE

b. DATE
3.2.2022

c. NAME AND TITLE
Brent Iverson, Chief Operating Officer