CAMBRIDGE
REDEVELOPMENT
AUTHORITY

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MEMORANDUM

To: CRA Board

From: Erica Schwarz

Date: October 21, 2020

Re: 93-99 Bishop Allen Drive Commissioning Agent Selection

INTRODUCTION

Over the last ten months, CRA staff have been advancing plans for a major renovation of the recently purchased CRA property at 93-99 Bishop Allen Drive. Staff are now preparing for the construction phase of the project, including the selection of a commissioning agent.

The CRA's Owner's Project Manager, STV|DPM, led the procurement process for a commissioning agent, working closely with CRA staff. STV | DPM followed the 'written quotes' procurement method under Chapter 30B for services estimated between $10,000 and $50,000.

CONTRACT SCOPE – COMMISSIONING AGENT

The CRA sought a qualified commissioning agent to ensure that each of the following is achieved for the Project:

- All building systems designed for renovation will meet the end users' needs and can be maintained in accordance with the design intent.
- The construction documents shall accurately reflect the design intent for all building systems and are will be issued for public bidding under Chapter 149 for General Contractor and filed subcontractors to bid and construct of the project.
- The building systems are properly constructed and function individually and together in accordance with the design intent, established performance standards, and CRA's operational needs.
- At Project Completion, adequate documentation is to be provided to CRA. All appropriate training manuals must be completed at Project Completion.

RFP PROCESS: COMMISSIONING AGENT

Date	Activity	Additional Detail
September 25, 2020	Solicitation of written quotes	
October 2, 2020	Deadline for Questions	
October 9, 2020	Response Deadline	3 Responses were received.
October 9 – 16, 2020	Additional Analysis	Additional analysis done to identify which of the firms offering similar low bids was the most qualified.
October 21, 2020	Board Vote on Recommended Firm	

SELECTION RECOMMENDATION

The selection committee was made up of CRA staff Tom Evans and Erica Schwarz and our Owner's Project Management staff from STV|DPM of Timothy McKay and Robert Labrecque.

Three responses were received for the commissioning agent solicitation. Two responses were lower than the third, and were very close to each other. They were also both below the estimate in the CRA's project budget for this work. However, one of the firms, NV5, brings deeper relevant experience for this project, and is the recommended firm.

CONTRACT TERM

The CRA expects to enter into a contract that will start in late October, 2020 and conclude once project construction is complete; estimated to occur in fall of 2021.

CRA BOARD MOTION

To authorize the Executive Director to enter into a contract with NV5 for commissioning services for the renovations at 93-99 Bishop Allen Drive.

EXHIBITS

Exhibit A: RFP for Commissioning Services at 93-99 Bishop Allen Drive

Exhibit B: Response received recommended firm: NV5

Request for Proposals
For

Commissioning Agent Services
For the

Cambridge Redevelopment Authority

99-93 Bishop Allen Dr.
Cambridge, MA 02139

September 25, 2020

Proposals Due: October 9, 2020 at 2:00 p.m.

Cambridge Redevelopment Authority

Request for Proposal
for Commissioning
Services For the

99-93 Bishop Allen Dr. Renovation

NOTICE OF REQUEST FOR PROPOSALS

The Cambridge Redevelopment Authority (CRA) requests proposals from firms experienced in providing full commissioning services for the Renovated 99-93 Bishop Allen Drive Project (the "Project").

Printed and electronic proposals are due to Tim MacKay on Friday October 9, 2020 by 2:00 pm at the following address:

Tim MacKay, AIA
Senior Project Manager
Timothy.MacKay@stvinc.com
STV|DPM
One Gateway
Center Newton MA 02458

Each Respondent shall submit:

1) In a sealed package, three (3) hard copies of the proposal.

2) One (1) electronic copy in PDF format. Included in the electronic submission must be one version of the proposal that is less than 5MB.

Packages shall be clearly labeled "Cambridge Redevelopment Authority – 99-93 Bishop Allen Drive Renovation Project" and shall clearly identify the Respondent's name and business address, and the name and telephone number of the contact person.

This document (RFP) and all associated addenda will be included as an attachment to the contract between the Owner (CRA) and the selected firm. This RFP includes CRA's sample form of consultant agreement.

Please review this agreement and advise with your response any terms or conditions that are not acceptable Scopes of work contained within this document or are in addition to those listed specifically in the contract.

ADDITIONAL INFORMATION

Prospective respondents shall not communicate with CRA or any of their representatives, with exception to The STV/DPM Owners Project Manager (OPM), at any time during the RFP process except through written questions submitted prior to the deadline set forth herein. All questions must be submitted via email to:

Tim MacKay, AIA
Senior Project Manager
timothy.mackay@stvinc.com

The deadline for receipt of emailed questions is **12:00 p.m. on October 2 2020.** An addendum will be issued in response to questions received.

Project Schedule:

- 100% DD's issue date – September 18, 2020
- 100% CD's due on October 30, 2020
- Construction: January 18, 2020 through August 31, 2021
- Owner Move-in July – September 2021

Construction is scheduled to be complete by August 2021. CRA expects to have the building fully occupied and in use no later than September 2021.

ADDITIONAL INFORMATION

PROJECT OVERVIEW and PROJECT TEAM

Project Description

The Cambridge Redevelopment Authority recently purchased the property at 99-93 Bishop Allen Dr, Cambridge MA. This property was built in 1855 as four elegant row houses. In 1965, the property was purchased by Cambridge Community Services (today called Enroot), renovated, and converted into nonprofit office space. The property includes nearly 20,000 gross sf of brick and beam four-story structure, with the lowest floor partially below grade. The Building's last renovation was in 1965.

In 2020, CRA staff, the design team from Silverman Trykowski Associates and the Owners project Manager STV/DPM are working with tenants to identify the most appropriate renovation plans.

In coming months, the CRA will initiate construction for a renovation project that will:

- Replace the HVAC (heating, ventilation, air conditioning) systems
- New electrical service, security and tel./data systems
- Enhance life safety
- Improve accessibility and ADA compliance

- Improve the historic façade; new dormer cladding, windows throughout, masonry restoration and a new main entrance
- Install solar panels, including related roof modification and replacement
- Maximize the use of space for social missions
- Improve the quality of the working environment

Design Development Documents have been completed by Silverman Trykowski Associates, Inc. on September 18, 2020. Construction is currently scheduled to commence in January 2021. The desired completion date is August 2021.

Hard construction cost is estimated at approximately $6 million dollars, including both buildings, selective demolition/abatement, utilities, storm water, and site improvements, MEP systems, façade and interior renovations.

Client Description

The Cambridge Redevelopment Authority is committed to implementing imaginative, creative initiatives to achieve social equity and a balanced economic ecosystem. We work in the public trust to bring a human dimension to development improving the quality of life for residents, businesses, employees, and visitors. Their goal is to balance economic vibrancy, housing, and open space to create sustainable communities through new and revitalized development. They are an independent, agile public authority bringing a unique set of redevelopment tools to work in close partnership with the City of Cambridge and other organizations.

A. Core Team Members

Cambridge Redevelopment Authority
Tom Evans, Executive Director
Erica Schwarz, Community Project Manager

TSNE MissionWorks
Faisal Abid, Property Manager

Silverman Trykowski Associates, Inc.
David J. Silverman, AIA, Principal
Felice Silverman, FIIDA, Principal

MEP Engineers – AEI Engineers

STV|DPM
Bob Labrecque, Project Director
Tim MacKay, Senior Project Manager

General Contractor – TBD

General Scope of Services

In general, it shall be the responsibility of the commissioning agent (CA) to ensure that each of the following is achieved for the Project:

All building systems designed for renovation will meet the end users' needs and can be maintained in accordance with the design intent. A List of Systems to be Commissioned is included in the 100% Design Development Set inclusive of HVAC, Electrical, Life Safety and Plumbing. The DD Set can be downloaded from: https://sta-design.sharefile.com/d-s5f3110e65af4f049

- The construction documents shall accurately reflect the design intent for all building systems and are will be issued for public bidding under Chapter 149 for General Contractor and filed subcontractors to bid and construct of the project.
- The building systems are properly constructed and function individually and together in accordance with the design intent, established performance standards, and CRA's operational needs.
- At Project Completion, adequate documentation is to be provided to CRA. All appropriate training manuals must be completed at Project Completion.

The scope of work includes:

Design Phase

1. Assemble commissioning team and coordinate a commissioning scoping meeting with appropriate parties and identify responsibilities.
2. Attend monthly (minimum) project meetings with the Owners Project Manager and Design Team.
3. Develop Commissioning specifications and a construction phase commissioning plan.
4. Develop commissioning specifications ("Cx Specifications") for all commissioned equipment, for inclusion in the construction documents. Cx Specifications shall be coordinated for format and content with the construction specifications and shall, at a minimum, define the commissioning requirements for Plumbing, HVAC and Electrical technical specifications and for each system and piece of equipment identified in this RFP as subject, but not limited, to commissioning. Coordinate this with the architect and engineers and integrate the commissioning specifications into the overall project specification package. The commissioning specification will describe project team responsibilities; details of the commissioning process; reporting and documentation requirements, including formats; alerts to coordination issues, deficiency resolution; construction checklist and startup requirements and test plans; the functional testing process; specific functional test requirements, including testing conditions and acceptance criteria for each piece of equipment being commissioned.
5. Coordinate a controls integration meeting where the mechanical engineers, OPM, CRA, TSNE (Building Manager) controls and mechanical subcontractors and their equipment reps, and the CA discuss integration issues between equipment, systems and

disciplines to confirm that integration issues and responsibilities are clearly described in the specifications.

6. Attend subcontractor pre-bid meetings to answer commissioning related questions. Develop and update the commissioning plan as necessary.
7. Coordinate the commissioning work during the balance of design.
8. Perform focused and thorough reviews of the design, drawings and specifications. Commissioning design reviews shall be conducted at:
    - 100% Design Development Documents
    - 75% Construction Documents
        - Includes a "Page Turn" with the Design Team with Written report to follow.
9. Confirm completeness and adherence to the original design intent, performance standards, and regulatory requirements to any early packages received. Review cost estimates prepared by the Design Team and/or independent estimator and advise STV/DPM in writing on the level of completeness of the estimates during the design phase. Expect that the cost estimates will be prepared at:
    - 100% Design Development Documents
10. Review construction documents to assume their completeness and coordination among the various disciplines. Review critical engineering calculations and advise STV/DPM of any discrepancies found in the calculations and on any failure to meet design intent or performance standards. Work with the Design Team to make necessary corrections.
11. Assist in identifying training requirements and responsibilities for development of the training plan and participation by the CA team members in the training process. The training program shall assure that the building operation personnel of CRA and TSNE receive adequate training for the proper operation of the new systems in the facility. Define required O&M, as-built and commissioning deliverables and deliverable turnover procedures, with references to the construction specifications as appropriate, to ensure that CRA/TSNE receives all necessary documentation from the GC by substantial completion.

The commissioning plan and specifications shall meet the requirements of ASHRAE Guideline 0-2005 *The Commissioning Process*, Guideline 1.1-2007 *HVAC&R Technical Requirements for the Commissioning Process*, and any other current ASHRAE Guidelines.

All commissioning plan and specification reviews should include back-checks of previous design documents and narratives to ensure comments have been addressed.

Bidding Phase

1. Attend and participate in the pre-bid meetings for subcontractors by providing an overview of the commissioning process, explaining its value and importance to the Project, and the requirements of the Cx Specifications and the Cx plan, and answering questions regarding commissioning which may be raised.

2. Assist in responding to RFI's relating to commissioning, which are received during the Bidding Phase.
3. Assist in the evaluation of key sub-trade for conformance with commissioning requirements.

Construction Phase

1. Coordinate and direct the commissioning activities using consistent protocols and forms, centralized documentation, clear and regular communications and consultations with the project team.
2. Coordinate the commissioning work with the subcontractor and construction manager, to ensure that commissioning activities are being incorporated into the master schedule.
3. Revise the construction phase commissioning plan developed during design, including scope and schedule.
4. Attend Project construction meetings as frequently as stated in the scope of work, to advise the Project team on critical path milestone dates that impact commissioning issues and commissioning status and advise STV/DPM on such issues. Review construction meeting minutes and prepare revisions/substitutions relating to the commissioning process as necessary. Assist in resolving any discrepancies.
5. Perform site visits, as necessary, to observe component and system installations during construction, testing (including test and balancing), and start-up operations.
6. Request and review additional information required to perform commissioning tasks, including O&M materials, Test and Balancing reports, contractor start-up and checkout procedures. Before startup, gather and review the current control sequences and interlocks and work with contractors and design engineers to write detailed testing procedures.
7. Review requests for information and change orders for impact on commissioning and owner's objectives.
8. Review submittals and coordination drawings to confirm that trades are meeting contract document requirements and developing coordination drawings consistent with contract requirements. Provide timely comments to incorporate into the design team's submittal review comments.
9. Write and distribute construction checklists for commissioned equipment.
10. Develop a start-up and initial systems checkout plan with contractors for selected equipment.
11. Write the functional performance test procedures for equipment and systems. This will include manual functional testing, energy management control system trending and include stand-alone data logger monitoring.
12. Coordinate, witness, and document functional performance tests. Coordinate retesting as

necessary until satisfactory performance is achieved. The functional testing shall include operating the system and components through each of the written sequences of operation, and other significant modes and sequences, including startup, shutdown, unoccupied mode, manual mode, staging, miscellaneous alarms, power failure, security alarm when impacted and interlocks with other systems or equipment. Sensors and actuators shall be calibrated during construction check listing by the installing contractors, and spot- checked by the CA during functional testing. Analyze functional performance trend logs and monitoring data to verify performance.

a. Tests on respective HVAC equipment shall be executed, during both the heating and cooling season. However, some overwriting of control values to simulate conditions shall be allowed. Functional testing shall be done using conventional manual methods, control system trend logs, and read-outs or stand-alone data loggers, to provide a high level of confidence in proper system function, as deemed appropriate by the commissioning provider and the Owner.

13. Maintain an issues log and a separate record of functional testing. Report all issues as they occur directly to the Owner's Project Manager. Provide copies to the OPM, GC, and the Designer, along with written progress reports and test results with recommended actions. Review equipment warranties to ensure that the Owner's responsibilities are clearly defined.
14. Compile a Commissioning Report, which shall include:
    a. A brief summary report that includes a list of participants and roles, brief building description, overview of commissioning and testing scope, and a general description of testing and verification methods. For each piece of commissioned equipment, the report should contain the disposition of the commissioning provider regarding the adequacy of the equipment, documentation and training meeting the contract documents in the following areas:
        i. Equipment meeting the equipment specifications,
        ii. Equipment installation,
        iii. Functional performance and efficiency,
        iv. Equipment documentation, and
        v. Operator training.
    b. All outstanding non-compliance items shall be specifically listed. Recommendations for improvement to equipment or operations, future actions, commissioning process changes, etc. shall also be listed. Each non-compliance issue shall be referenced to the specific functional test, inspection, trend log, etc. where the deficiency is documented.
    c. Also included in the Commissioning Record shall be the issues log, commissioning plan, progress reports, submittal and O&M manual reviews, training record, test schedules, construction checklists, start-up reports,

functional tests, and trend log analysis.

15. Review GC and trade contractor submittals (**within seven 7 calendar days)** applicable to systems being commissioned, concurrently with review by the Design Team to obtain equipment and system information and ensure compliance with the commissioning needs and requirements. Advise STV, the GC, and the designer of any deficiencies noted that may impact the commissioning or intended system performance. Review Designer submittal documentation and comments. Assist in resolving any discrepancies.
16. Compile a Systems Manual that consists of the following: Owner's Project Requirements (by owner); Design Narrative and Basis of Design (architect and engineer); Performance Metrics; control drawings, sequences of control (by contractor); and a table of all set points and implications when changing them, schedules, instructions for operation of each piece of equipment for emergencies, seasonal adjustment, startup and shutdown, instructions for energy savings operations and descriptions of the energy savings strategies in the facility, recommendations for recommissioning frequency by equipment type, energy tracking recommendations, and recommended standard trend logs with a brief description of what to look for in them.

Commissioning Phase

1. Update and revise the Cx plan and related documentation, as necessary during the commissioning process.
2. Verify pre-functional checklist execution by site observation and spot checks. Review completed pre-functional checklists and approve systems as ready for functional performance testing.
3. Check the installing contractors' field calibration of sensors and actuators during functional testing. Observer Testing and Balancing including providing review and comments on TAB reports.
4. Working with equipment with vendors and appropriate subcontractors, witness and approve functional performance tests for each sub-system and system as established by the Cx plan. Services shall include:
    a. Witness and approve tests on HVAC equipment during both the heating and cooling seasons.
    b. Analyze functional performance trend logs and monitoring data to verify performance.
    c. Maintain a master deficiency and resolution log and a separate testing record. Provide periodic (monthly at a minimum, more often if necessary) written progress reports to the Designer, CM, and OPM, which include test results with recommended actions. Coordinate resolution of any deficiencies with the CM and the CM's subcontractors. Witness and document repeat testing, as necessary to verify that all deficiencies are corrected.

d. Witness all tests of commissioned equipment and systems which CRA/TSNE may contract for or which may be performed by manufacturer's personnel over which the CA may not have direct control. Document and include the test data and reports of such tests in the commissioning record. Submit commissioning record documentation to the CM for inclusion in the O&M manuals.

5. Participate in the training of the CRA/TSNE's building operations and maintenance staff in accordance with the requirements of the approved Training Plan. Verify and document, to STV/DPM, that training has been satisfactorily completed.
6. Compile and maintain a commissioning record and building systems book(s).
7. Review completed as-built drawings and records, including operation and maintenance manuals prepared by equipment manufacturers, fabricators or installers for inclusion in CRA/TSNE's O&M manuals.
8. Provide the necessary personnel to prepare documentation and perform testing.

Closeout Phase

1. Provide a Final Commissioning Report. At a minimum, the report shall include an executive summary, list of participants and the role of each participant, brief building description, overview of commissioning and testing scope, and a general description of testing and verification methods. For each piece of commissioned equipment, the report shall contain the opinion of the CA regarding the adequacy of the equipment, documentation and training, while satisfying the requirements of the contract documents in each of the following areas:
    a. Equipment/system specifications and design intent
    b. Equipment/system installation
    c. System functional performance and efficiency
    d. Equipment/system O&M and record documentation
    e. Operator training

    2. All outstanding non-compliance items shall be specifically listed. Recommendations for improvement to equipment or operations, future actions, commissioning process changes, and other appropriate matters shall also be listed. Each non-compliance issue shall be referenced to the specific functional test, inspection, trend log, and other records where the deficiency is documented. The functional performance and efficiency section for each piece of equipment shall include a brief description of the verification method used (manual testing, BAS trend logs, data loggers, or other as appropriate) and the CA's observations and conclusions from the testing.
3. The Final Commissioning Report shall include appendices with all acquired sequence documentation, logs, meeting minutes, progress reports, deficiency lists, site visit reports, findings, unresolved issues, communications, and all other relevant information.

Pre- functional checklists and functional performance tests and monitoring data and analyses shall be provided in a separate labeled binder.

4. The CX will validate all installed equipment by the contractor by verifying/filling in the information on the attached spreadsheet.

Post-Commissioning/Warranty Period

1. Witness and approve required seasonal or deferred testing and deficiency corrections and provide the final testing documentation for the Final Commissioning Report.
2. Review and approve the final testing documentation for the commissioning record and O&M manuals.
3. Return to the site at 10 months into the 12-month warranty period and review, with facility staff, the current building operation and the condition of outstanding issues related to the original and seasonal commissioning. Also interview facility staff and identify problems or concerns they have with operating the building as originally intended. Make suggestions for improvements and for recording these changes in the O&M manuals. Identify areas that may come under warranty or under the original construction contract. Assist facility staff in developing reports and documents and requests for services to remedy outstanding problems.

Deliverables

A. Commissioning Specification
B. Pre-functional inspection checklists
C. Functional performance test plan
D. Systems functional testing acceptance test reports
E. Draft commissioning report upon occupancy
F. Seasonal testing report
G. Final commissioning report
H. Comments on Construction Design Documents
I. Comments on relevant shop drawing submittals
J. Systems manual
K. End of Warranty review

II. Form of Contract

The selected firm will be issued a Contract Agreement from CRA, See sample agreement in Exhibit B.

III. Desired Qualifications

1. Firm and individual lead team members should have substantial experience acting as the Commissioning Agent for at least three (3) projects over 20,000 sf. of similar building

type, size, and complexity.

2. Certified Commissioning Professional standing by the Building Commissioning Association (BCA).
3. Massachusetts registration and licensing in all applicable disciplines, including but not limited to mechanical, electrical, and plumbing engineering.
4. Applicable engineer registration is desired.
5. Experienced in writing commissioning specifications.
6. Extensive experience in the startup, operation, and troubleshooting of all systems to be commissioned on the Project, including HVAC systems, test and balance of both air and water systems, building envelop, building automation and energy management control systems and lighting control systems.
7. Knowledgeable and experienced building operations, maintenance, and O&M training.
8. Experience in use of alternative and "green" energy sources.
9. Knowledgeable in test and balance of both air and water systems.
10. Experienced in energy-efficient equipment design and control strategy optimization.
11. Direct experience in monitoring and analyzing system operation using energy management control system trending and stand-alone data logging equipment.
12. Minority and/or Women owned business enterprises are encouraged to apply. The CRA adheres to the City of Cambridge's commitment to contracting and subcontracting with Minority owned and Women owned Businesses.
13. The CA will be an independent contractor and may not be an employee, consultant, or subcontractor of the GC, the Designer, or any member of the Design Team.

IV. Submission Requirements

These items must be met in order to be considered for this project. The submission shall include all of the following. Each item should be tabbed within the applicant's submission. Items can be combined:

1. Brief description of the firm's background including:
    a. Provide a cover letter that confirms the Principal in Charge.
    b. How many years has the organization been in business performing CA services?
    c. Is the firm a minority or women owned business?
    d. List justification and trade categories in which the proposing organization is legally qualified to do business and indicate registration or license numbers, where applicable.
    e. State the total dollar value of the work (construction value) performed by the Respondent as a CA during the current year and the prior five (5) years:

Year	Total Value of Work
2015:	$_____
2016:	$_____
2017:	$_____
2018:	$_____
2019:	$_____
2020:	$_____

2. Description of the firm's experience with particular attention to identifying projects of similar services, as well as comparable building type, size, scope, and complexity. Provide a list of these projects that have been substantially complete within the past five
(5) years, which includes project description, estimated/actual construction schedule, and names, telephone numbers, and other contact information for reference person(s), and other supporting material as needed. This information should be provided for at least three (3) projects of similar type and scale for which commissioning services were provided.
3. Identification of the Project team members with specific information on key Project personnel, including resumes documenting academic and professional experiments and achievements, number of years of experience dealing with similar projects and technologies and tenure with the firm, professional references, and position descriptions. Additionally, provide a list and brief description (including total cost, duration/timeframe) of all projects that each team member is working on that will be occurring concurrently with this project.
4. Provide a Project team organization chart showing communication among all

team members.

5. A synopsis of the firm's approach to the Project, including:
    a. Team organization,
    b. Proposed scheduling,
    c. How the Responding firm will manage the independent engineering and commissioning agent services expertly and efficiently,
    d. The firm's approach to integrating the commissioning into the normal design and construction process in order to minimize potential time delays,
    e. What the responding firm will do to foster teamwork and cooperation from contractors and the Design Team and what it will do to minimize adversarial relationships,
    f. How the responding firm intends to determine the appropriate level of commissioning effort for the various systems and equipment.

a) A complete list of the services that the team will be providing for independent engineering and the commissioning process to be followed, which are both required to be described in the response. Provide a description of the team's project approach for all of the activities listed in the scope description; identify any possible technical challenges and proposed solutions.

6. A sample commissioning plan developed by your firm for a similar project.

7. Identify any firms or individuals not part of your firm that will be collaborating on this Project. For each firm, provide a detailed description of their role in the independent engineering or commissioning services to be provided for the Project and a complete resume and description of the length and substance of their experience as it relates to those services and the Project.

8. Information regarding the related disciplines, including but not limited to mechanical, electrical, plumbing, and fire protection that will participate in the Project, whether these disciplines will be provided by your firm's personnel, or will be outsourced.

9. List and provide description of building projects that the firm currently has under contract as a CA, regardless of when or whether the work has commenced, including specifically: the name and location of each project, type of work provided, estimated or actual start date, estimated end date, whether or not the project is on schedule, contract price, percentage of work that is not yet complete, the dollar-value of the work that is not yet complete, the number of years or months remaining on the contract, and the annualized value of the incomplete work.

10. Evidence of the firm's stability, by providing detailed financial information that can be used to evaluate and ascertain the firm's ability to provide the required services for the duration of the Contract. Please not that each copy of the proposal must contain this information.

11. Documentation of insurance including: (I) professional liability insurance of not less than

$3,000,000; (ii) comprehensive general liability ("CGL") insurance of not less than $1,000,000; automobile liability insurance of not less than $1,000,000; (iv) statutory workers' compensation insurance coverage; (v) employer's liability insurance of not less

than $1,000,000; and (vi) umbrella or excess liability insurance of not less than $5,000,000 covering over the CGL, automobile liability and employer's liability coverage's; and all of such coverage's shall be provided on the terms set forth in the Consultant Agreement.

12. Three (3) references of persons who are familiar with the commissioning work of your firm.
13. Fee proposal for the above scope of work. Proposal will include billing rates for all key personnel contemplated to be assigned to the project along with the anticipated level of effort (hours) for the various phases and tasks. Proposal to be on respondent's letter head signed by a company principal.

RFP List of Exhibits:

Exhibit A – Basis of Design Documents:
https://sta-design.sharefile.com/d-s5f3110e65af4f049

Exhibit B – Sample Contract Agreement

Exhibit C - Owner Project Manager

EXHIBIT C

The Cambridge Redevelopment Authority has appointed STV|DPM to observe the work and to have such other responsibilities as the Owner and STV|DPM agree in writing. _____ (FIRM NAME) will:

a) Cooperate with STV|DPM in every way.

b) Provide full access to all parts of the Project and the Work to STV|DPM at all times during normal working hours.

c) Provide advance notice and invite STV|DPM to all project meetings and subcontractor meetings concerning the project.

_____ FIRM NAME will indemnify, defend and save STV|DPM harmless from any claims, losses, costs or expenses, including attorney's fees and court costs, arising from any occurrence or matter including, but not limited to, the exercise of any agency on behalf of CLIENT, undertakings and approvals authorized on behalf of CLIENT, personal injury, death and property damage, related to the conduct of the work including third party claims.

Until the Contractor has been given written notice to the contrary, STV|DPM shall act as the Owner's representative in connection with the project. STV|DPM shall attend regularly scheduled project meetings as well as all special project meetings of which it has been given adequate notice. Any action by STV||DPM shall be binding upon the Owner. The Owner may, by written notice pursuant to the provisions of this Agreement, designate another representative to act on its behalf.

Accepted by:

_____ _____

Name Date

_____

Company

SAMPLE AGREEMENT

PROFESSIONAL SERVICES AGREEMENT

This Contract Services Agreement (this "Agreement") is made and entered as of the ___ day of _____, 20___ by and between The Cambridge Redevelopment Authority (CRA), located at 255 Main Street, Cambridge, MA and _____ ("Consultant") located at , _____, _____, _____.

RECITALS:

WHEREAS, Consultant has certain professional skills, knowledge, experience and/or has access to personnel having same which are highly desirable to the CRA;

WHEREAS, the CRA desires to retain Consultant to provide such professional services to the Institute; and

WHEREAS, Consultant is willing to provide the Services in accordance with the terms of this Agreement.

NOW, THEREFORE, in consideration of the premises and for other good and valuable consideration the receipt and sufficiency of which are hereby acknowledged, the parties hereby agree as follows:

1. **Scope of Services**. Consultant shall provide the professional services described on Exhibit A "Request for Proposals for Commissioning Agent Services" dated September 25, 2020 and associated addendum as issued and [*insert proposal date*]_____, from Consultant attached hereto and incorporated herein (the "Services") to the CRA from time to time during the term of this Agreement as directed by the CRA or its representative. Consultant shall be available to consult with the CRA and others as directed by the CRA concerning the Services. In directing Services, the CRA or its representative shall establish the goals to be achieved by the Services, but not the details nor means by which such goals are accomplished.

2. Compensation. Assuming satisfactory performance, as compensation for the Services provided pursuant to this Agreement, the Institute shall pay Consultant [*describe compensation arrangement between consultant and Institute]* _____ _____ ($_____). Consultant shall submit to the Institute by the 30th day of each month for which services are provided, an invoice in reasonable detail and in a form acceptable to the CRA, of the Services performed during such month. Such invoice shall be submitted as the CRA shall direct. Within thirty-five (35) days after receipt of such documentation, the CRA shall pay to Consultant the fees for the Services reflected thereon subject to the terms and conditions set forth herein.

The CRA shall have no obligation to make any payment or reimbursement for any expenses or fees incurred in connection with the performance of Services pursuant to this Agreement except as provided in Exhibit A.

3. Term and Termination. This term of this Agreement shall begin as of the date hereof and shall continue for fourteen (14) months plus completion of seasonal testing or the 10-month warranty walk through whichever is later. The term of this Agreement may be extended for additional periods of time upon mutual written agreement of the parties. If the parties have not agreed upon the terms of any renewal agreement at the time the Term expires and Company requests that Consultant provide further Work, and Consultant agrees to provide such further Work, this Agreement shall continue on a month to month basis, until it is terminated by either party upon at least fifteen (15) days written notice to the other party, or until a new agreement is entered into by the parties.

4. Relationship of the Parties. The status of Consultant shall be that of an independent contractor and not that of any employee, agent or other partner of the CRA. Consultant shall have no power or authority to act on behalf of the CRA or in its name or to bind the CRA, either directly or indirectly, in any manner nor shall Consultant make any representation otherwise to any person. Consultant is retained solely for the purpose of providing the Services to the CRA. Consultant expressly assumes all tax liabilities associated with the compensation paid pursuant to this Agreement.

Nothing in this Agreement shall be understood or construed to create or imply any relationship between the parties in the nature of any joint venture, employer/employee, principal/agent or partnership. Consultant shall not be considered as having an employee status or as being entitled to any benefits available to the Institute employees, including but not limited to any pension or benefit plan, worker's compensation or unemployment compensation. Consultant acknowledges that Consultant is not engaged by the CRA in any other capacity and that Consultant shall not hold any other position with the Institute during the term of this Agreement nor shall Consultant file or apply for any unemployment benefit or similar payment with any federal, state or local agency.

5. Representations and Warranties of Consultant. Consultant represents, warrants and covenants to the CRA that: (I) Consultant possesses the requisite training, knowledge, skills, experience and expertise to provide the Services and shall provide the Services in accordance with the standards of care, skill and diligence consistent with recognized and prudent industry practices, all applicable laws and regulations, the Statement of Work, Exhibits, documents and procedures applicable to the Services and the degree of knowledge, skill and judgment normally exercised by professionals with respect to services of the same or similar nature; (ii) Consultant has the right, power and capacity

and is duly authorized and empowered to execute, deliver and perform this Agreement; (iii) this Agreement, upon execution thereof by the person representing Consultant below, will be the legal, valid and binding agreement of Consultant, enforceable against Consultant in accordance with its terms and applicable law; and (iv) Consultant's performance of Services pursuant to this Agreement does not violate any existing agreement or obligation between Consultant and a third party.

6. Conflict of Interests. It is the CRA's expectation that all employees and contractors adhere to the highest ethical standards. Consultant hereby undertakes that, at the date of the entering into force of the Contract, itself, its directors, officers or employees have not offered, promised, given, authorized, solicited or accepted any undue pecuniary or other advantage of any kind (or implied that they will or might do any such thing at any time in the future) in any way connected with the Contract and that it has taken reasonable measures to prevent subcontractors, agents or any other third parties, subject to its control or determining influence, from doing so.

7. Compliance with Laws. Consultant shall comply with all applicable federal, state and local laws in connection with the performance by Consultant of obligations of Consultant under this Agreement. Consultant agrees to release the CRA from any claims, other than breach of this Agreement, arising under or relating to this Agreement.

8. Indemnification. Consultant hereby agrees to defend, indemnify and hold harmless the CRA and its trustees, directors, officers, employees, representatives and agents (each a "CRA Indemnified Party") from and against any claims, demands, suits, settlements, damages, losses, liabilities, costs and expenses (including, without limitation, reasonable attorneys' fees) (each a "Claim") paid or incurred by, or asserted against any Institute Indemnified Party relating to or arising out of or in connection with (i) the breach of any of this Agreement by Consultant; or (ii) the negligence or willful misconduct of Consultant or any of its officers, directors, trustees, employees, representatives and/or agents except to the extent such Claim relates to, arises out of or in connection with the negligence of the CRL.

9. Insurance. Consultant shall at its own expense obtain and maintain:

Comprehensive general liability insurance, covering bodily injury in the sum of not less than two-million dollars ($2,000,000) per occurrence and $5,000,000 aggregate.

Workers' compensation insurance in accordance with the laws of the Commonwealth of Massachusetts, statutory limits; and Employers Liability with limits of $2,000,000.

Professional Liability Insurance of not less than $3,000,000.

Employers Liability of not less than $2,000,000.

Umbrella or Excess Liability of not less than $5,000,000 covering over the CGL

Automobile Liability of not less than $2,000,000.

All insurance required hereunder shall be maintained in full force and effect in a company or companies reasonably satisfactory to the CRA (A-VIII or better) and shall be maintained at Consultant's expense.

General Liability, required hereunder shall name "Cambridge Redevelopment Authority", its agents, its employees, representatives and its assign as additional insureds."

Certificates of insurance shall be supplied contemporaneously with the execution and delivery of a final contract and with the renewal of any insurance contracts during the term of this Agreement. Said certificates shall evidence compliance with all provisions of this section. The Certificate shall contain a clause requiring written notice to the Institution thirty (30) days in advance of the cancellation, non-renewal, or material modification of said insurance as evidenced by return receipt of United States certified mail. If the conveyance of additional insured status is provided only through an endorsement to the insured's policy, the Consultant shall be responsible for providing a copy of the endorsement with the certificate.

This insurance requirement shall not be construed as limiting in any way the extent to which Consultant may be held responsible for the payment of damages to any persons resulting from its operations or the activities of any person or persons for whom it is liable.

10. Notices. All notices, demands and other communications required or permitted hereunder or in connection herewith shall be in writing and delivered in person or sent electronically, by facsimile, nationally recognized overnight courier or registered or certified mail, return receipt requested and postage prepaid to the applicable party at its address or facsimile number set forth below or at such other address or facsimile number as any party hereto may designate as its address or facsimile number for communications under this Agreement by notice so given. Such communications shall be deemed effective on the (i) day on which delivered or sent if delivered in person, electronically (with confirmatory response electronically sent), or by facsimile (with answered back confirmation received); (ii) first (1st) business day after the day on which sent, if sent by a nationally recognized overnight courier; or (iii) third (3rd) business day after the day on which mailed, if sent by registered or certified mail to:

To the CRA:	With a Copy to:
Animal Rescue League of Boston 255 Main Street Cambridge, MA, 02412	STV/DPM One Gateway Center, Suit 951 Newton, MA, 02458
Attention: Tom Evans, Executive Director	Attention: Bob Labrecque Project Director

If to Consultant:

(Fax)

11. Assignment. Neither party shall have the right to assign this Agreement without the prior written consent of the other party.

12. Consultant Staffing. Consultant shall staff the Services with personnel acceptable to the CRA provided they remain in the Consultant's employ throughout the term of the Agreement. Consultant may make changes in this staffing or may hire or use independent consultants in connection with the work only with the advance, written consent and approval of the CRA, which shall not be unreasonably withheld. The Institute may require the Consultant to remove from the work any of its approved personnel or consultants to which the Owner develops a reasonable objection.

13. Entire Agreement. This Agreement constitutes the entire agreement and there are no oral or other representations regarding the subject of this Agreement that are binding on either party. All changes to this Agreement must by in writing, signed by both parties. It is understood and agreed that email correspondence shall not constitute "a writing" to this agreement unless expressly included herein.

14. Harassment. Harassment of any kind will not be tolerated on this project. Contractors and their employees are expected to comply with the CRA policy prohibiting harassment and intimidation.

15. Covid 19. Comply with Covid 19 Guidelines issued by the State and those of CRA:

16. Choice of Laws/Jurisdiction. The laws of the Commonwealth of Massachusetts shall govern the validity, construction and effect of this Agreement. All lawsuits arising out of this agreement, wherever derived, shall be resolved in Suffolk County in the Commonwealth of Massachusetts.

17. Order of Precedence. In the event of a conflict the more stringent requirement shall apply.

IN WITNESS WHEREOF, the parties hereto, intending to be bound hereby, have caused this Agreement to be executed by their respective duly authorized representatives as of the day and year first above written.

Signed by authorized signatory:

Cambridge Redevelopment Authority	**Consultant**
By: _____	By: _____
Print Name: _____	Print Name: _____
Title: _____	Title: _____
Date: _____	Date: _____

Attach copy of The Request for Proposal as Exhibit A

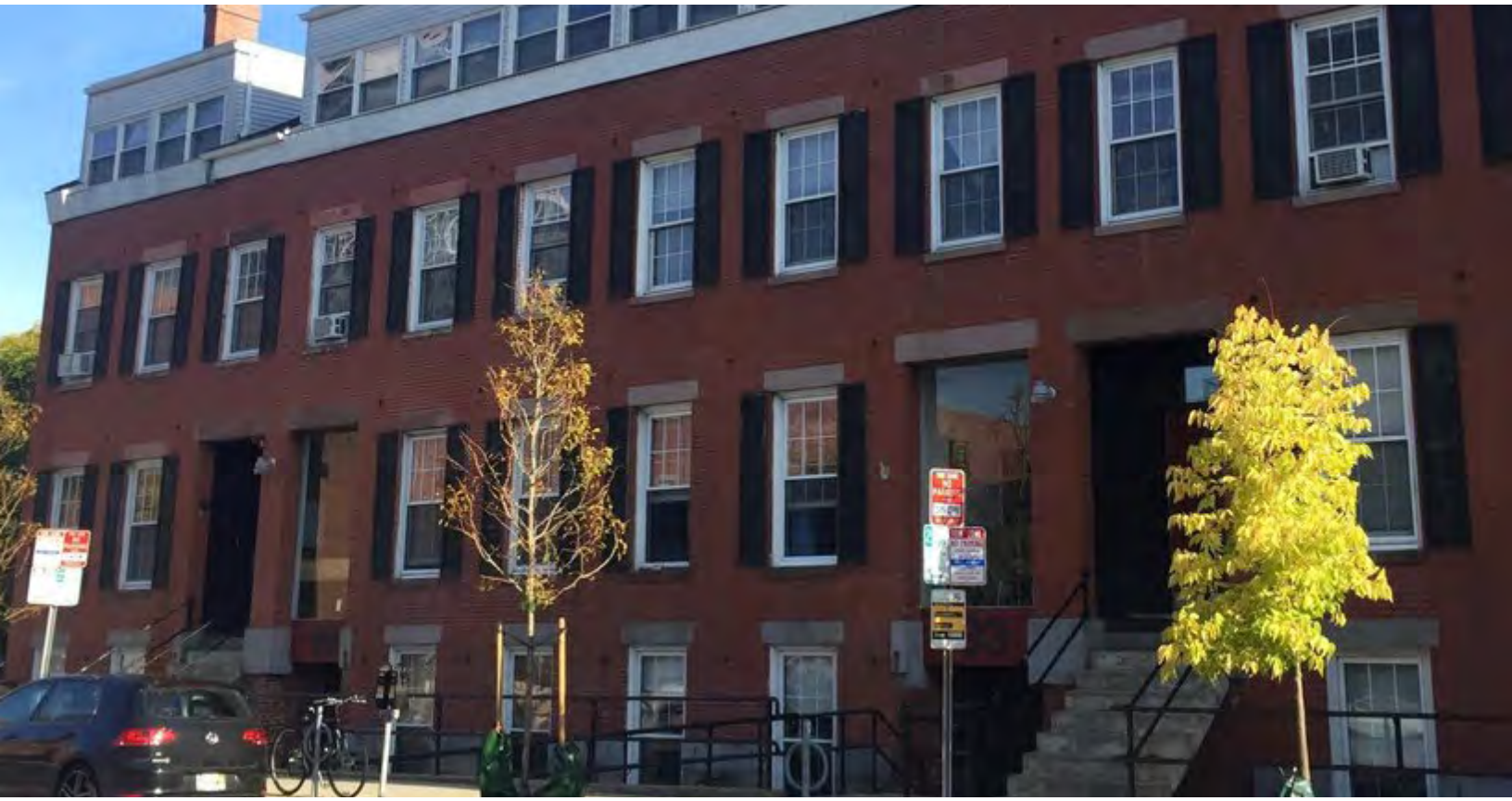
and the Consultant's Proposal as Exhibit B

CAMBRIDGE REDEVELOPMENT AUTHORITY, COMMISSIONING AGENT SERVICES FOR 99-93 BISHOP ALLEN DRIVE RENOVATION, CAMBRIDGE, MA

OCTOBER 9, 2020

Prepared For:

Mr. Tim MacKay, AIA
Senior Project Manager
STV|DPM
One Gateway Center
Newton, MA 02458



NV5

200 Brickstone Square
Andover, MA 01810
Phone: (978) 296-6200

TABLE OF CONTENTS

CONTACT INFO:

Carol Donovan, LEED AP
Associate Vice President | Director, Building Solutions Group
NV5
200 Brickstone Square
Andover, MA 01810
(857) 221-5914
carol.donovan@nv5.com

October 9, 2020

Mr. Tim MacKay, AIA
Senior Project Manager
STV|DPM
One Gateway Center
Newton, MA 02458

SUBJECT: COMMISSIONING AGENT SERVICES FOR 99-93 BISHOP ALLEN DRIVE RENOVATION, CAMBRIDGE, MA

Dear Mr. MacKay:

Richard D. Kimball Co. d/b/a NV5 (NV5), welcomes this opportunity to submit our qualifications for commissioning agent services for the 99-93 Bishop Allen Drive renovation project. We are honored to be sharing with you our vision for commissioning and the reasons we believe we are the right firm for this exciting project.

We understand the project consists of renovation of the 1855 property that the Cambridge Redevelopment Authority recently purchased. The renovation of the nearly 20,000 GSF building will include replacing the HVAC (heating, ventilation, air conditioning) systems, new electrical service, security and tele/data systems, enhance life safety, improve accessibility and ADA compliance, improve the historic façade; new dormer cladding, windows throughout, masonry restoration and a new main entrance, install solar panels, including related roof modification and replacement, maximize the use of space for social missions, and improve the quality of the working environment. Construction is currently scheduled to commence in January 2021, with the desired completion date of August 2021.

Our team of talented commissioning engineers has provided our services on several recent projects similar in size and scope. As a nationally recognized premier provider of commissioning services, we have a portfolio of more than 2,000 projects in progress or complete nationwide, with **over 200 LEED projects**. Our Massachusetts office has worked on 600+ of these commissioning projects in the last 25 years, including numerous projects involving historic building renovations. My team is positioned to give you unmatched service on this important project. I will be serving as the Principal in Charge, responsible for your overall satisfaction with our team's work, fee budgeting, scheduling, and internal coordination. NV5's Project Manager Jason Peterson, will be the day to day contact, and would attend meetings, coordinate and schedule the team, and lead the primary efforts for this project. Jason brings with him substantial technical expertise in design and commissioning of mechanical systems .

On all of our projects, NV5 strives to be a strong "team" player. We work collaboratively with all of our clients and with the rest of the project team to establish goals that will meet the client's needs through the closeout phase. We proactively bring issues and options to the project team early on in the process allowing the team to better determine the correct approach for the project in the design/planning stages.

For our quality management, our Commissioning Plan includes the commissioning team, the design team, construction manager and trades tasks and responsibilities. The teamwork required for projects and fostered by NV5's commissioning process, starts out during the design phase by the development of the Commissioning Plan embedded into the contract documents. The Plan is a comprehensive document that outlines the assignment of responsibilities and who will be responsible to execute each task throughout the project along with the data collection that will also be compiled along the way as we attempt to "Begin To Close Out The Job At The Start". Our final commissioning report will reflect this quality management initiative.

We appreciate the opportunity to present our qualifications for consideration. We are confident that we would meet your needs and exceed your best expectations. Please feel free to contact me at (857) 221-5914, or carol.donovan@nv5.com, with any questions you may have.

Sincerely,
Richard D. Kimball Co. d/b/a NV5

Carol Donovan, LEED AP
Director, Building Solutions Group

Firm Background 1

SECTION 1 - FIRM BACKGROUND

1. Brief description of the firm's background, including:

A. Provide a cover letter that confirms the Principal-in Charge.
Cover letter is included at the beginning of the proposal.

B. How many years has the organization been in business performing CA services?
Richard D. Kimball Co., Inc. d/b/a NV5 (NV5) has been in business performing IE/CA services for over 25+ years.

C. Is the firm a minority or women owned business.
No NV5 is not a minority or women owned business.

D. List jurisdiction and trade categories in which the proposing organization is legally qualified to do business, and indicate registration or license numbers, where applicable.

State	Registration or License Number
California	C3875292
Colorado	20161761923
Connecticut	966953
Delaware	3871780
Florida	F04000004416
Georgia	PEF004491
Illinois	6272-682-2
Maine	20080549 F
Maryland	1763478
Massachusetts	N/A
Nevada	12141
New Hampshire	RSA 293-A:15.03
New Jersey	041-506-460/000
New York	4716
North Carolina	c-3240
Pennsylvania	3659221
Rhode Island	144657
South Carolina	0806-18-0152
Texas	F-9962
Vermont	
Virginia	F179370-4
Washington	UBI No. 602-670-435 PAC Code R508654V

E. State the dollar value of work (construction value) performed by the Respondent as a CA during the current and prior five years.

Year	Total Value of Work ($)
2015	$1,436,151
2016	$1,314,290
2017	$1,014,993
2018	$1,563,429
2019	$1,839,032
2020	$1,126,216 (through Aug)

Similar Experience 2

2. Description of the firm's experience with particular attention to identifying projects of similar services, as well as comparable building type, size, scope and complexity that have been substantially completed within the past five (5) years. which includes project description, estimated/actual construction schedule, and names, telephone numbers, and other contact information for reference person(s), and other supporting material as needed. This information should be provided for at least three (3) projects of similar type and scale for which commissioning services were provided.

LITTLE BUILDING COMMISSIONING

BOSTON, MA | EMERSON COLLEGE

LEED V3 - NC EAp1 and EAc3 commissioning services for the century-old dormitory renovated in Boston's historic district. The project involved renovation of an existing 12-story, 740 room dormitory building built in 1917, located on the corner of Boylston and Tremont Street.

The project consisted of refurbishing the lower two levels of façade, removal and replacement of the façade front level 3 through 12, structural steel augmentations and replacement, MEP upgrades, the addition of a thirteenth floor and infilling of existing light wells with useable floor area.

Systems commissioned include: HVAC systems, chillers, cooling towers, CHW pumps, heat exchangers, condenser water pumps fan coil units, electrical and gas water heaters, lighting systems, OC sensors and emergency generator systems.

Construction cost: $140 million (approximately), Project Size: 278,049 SF.

REFERENCE
Mr. Joseph Knoll
Director of Facilities Management
Emerson College
617-824-8112
joseph_knoll@emerson.edu

ESTIMATED PROJECT SCHEDULE
December 2020

ACTUAL PROJECT SCHEDULE
TBD

LUNDER ARTS CENTER COMMISSIONING (LEED GOLD CERTIFIED)

CAMBRIDGE, MA | LESLEY UNIVERSITY

NV5 provided LEED commissioning services for the relocation of the Art Institute of Boston (AIB) from their current Kenmore Square location to what was formerly the North Prospect Church in Cambridge, MA. The 74,000 SF new College of Arts and Design will become a focal point for art work in Porter Square and on Massachusetts Avenue. This site has been designated by the Cambridge Historical Commission as a protected landmark.

In addition to moving and renovating the historic Church, the project also included the on-site construction of a new four-story terra cotta and glass building. The new building is connected to the church by a three-story glass entry commons.

The building uses 40 percent less energy than a building designed to the current energy code. The project achieved LEED Gold certification.

Systems commissioned include: chillers water/condenser water system, hot water system, terminal units, fan systems, air handling units, dust collection system, domestic hot water systems, booster pump system, sump pumps, water closet, emergency showers, lighting systems, and normal power distribution system.

Project achieved LEED Gold Certification.

Construction cost: $34 million, Project Size: 74,000 SF.

REFERENCE
Mr. George Smith
Director of Operations and Campus Planning
Lesley University
617-349-8886
ggsmith@lesley.edu

ESTIMATED PROJECT SCHEDULE
November 2016

ACTUAL PROJECT SCHEDULE
November 2016

NEW ACADEMIC ARTS CENTER COMMISSIONING

LOWELL, MA | DCAMM/MIDDLESEX COMMUNITY COLLEGE

NV5 provided LEED commissioning services including new mechanical support spaces; new building systems (HVAC, plumbing, electrical, teledata/ communication, security, and fire protection (alarms, sprinklers, standpipes); and connection to utilities for the new 19,600 SF Academic Arts Center for Middlesex Community College.

The project involved converting a historic two-story high Victorian Gothic brick building, formerly the B&M Railroad Depot (c. 1876), at 246 Central Street, in downtown Lowell, MA, into a new Academic Arts Center for Middlesex Community College. The property is listed on the State and National Registers or Historic places as a building which contributes to the significance of the Lowell National Park Historic District and Downtown Lowell Historic District. The Academic Arts Center provides space for the teaching of music, dance and theater with a 177-seat proscenium theater, a 108 seat music classroom & recital hall, and a dance studio that doubles as a black box class room/multipurpose space. The project presented acoustical challenges due to the adjacencies of the music classroom & recital hall, dance studio and theater.

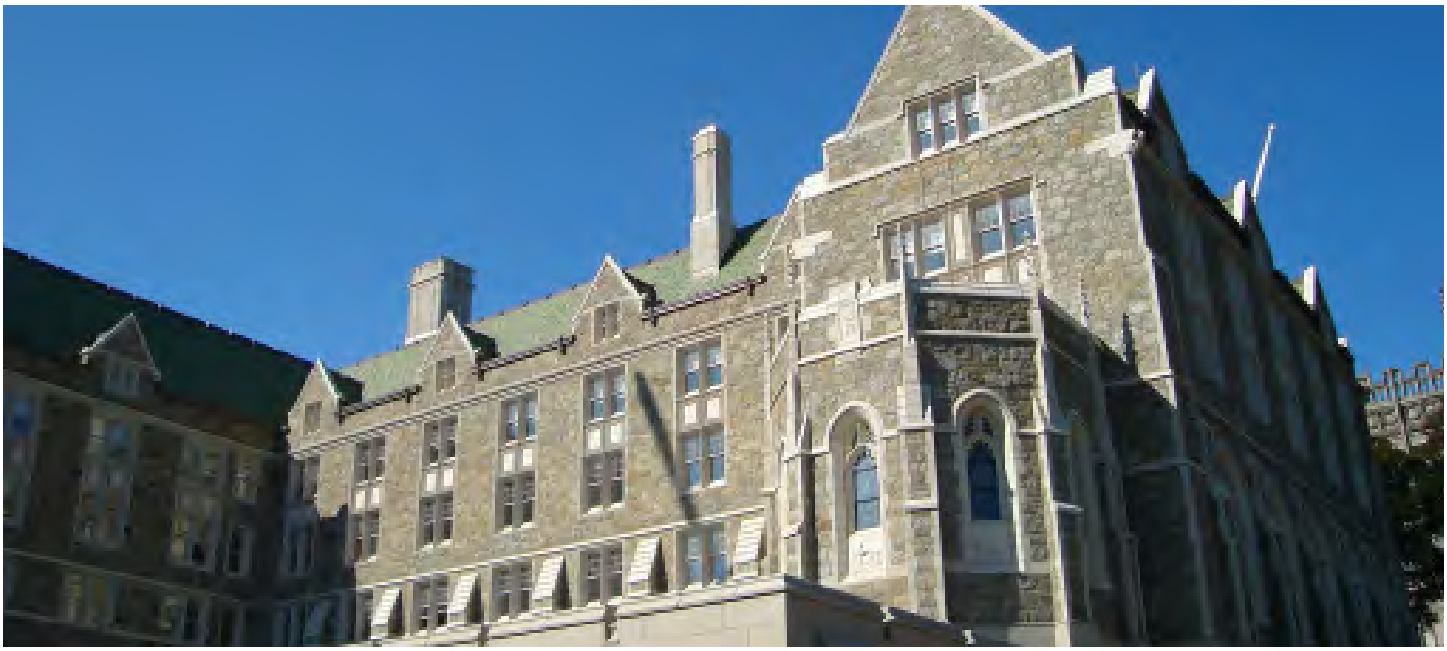
Systems commissioned include: chilled water systems, condenser water systems, decentralized systems including: fin tube radiation, radiant panels, unit heaters, split system AC's, domestic hot water distribution, drainage pumps, emergency standby power and distribution systems, fire Alarm, heating hot water systems, HVAC air distribution, lighting & controls, low voltage system, medium voltage systems, VAV air terminal units, ventilation systems, all associated VFD and DDC controls.

Construction cost: $23.3 million, Project Size: 19,600 SF.

REFERENCE
Ms. Marlene Silverstone, PE
Project Manager
Division of Capital Assest Management & Maintenance
617-727-4050 x 31531
marlene.silverstone@state.ma.us

ESTIMATED PROJECT SCHEDULE
December 2018

ACTUAL PROJECT SCHEDULE
August 2018



ST. MARY'S HALL COMMISSIONING

BOSTON, MA | BOSTON COLLEGE

MEP commissioning services for the St. Mary's Hall project which involved a complete 'gut' renovation as well as full exterior renewal and restoration. Built in 1918, with an addition added in 1931, St. Mary's Hall is a four-story, 115,000 SF building that houses Jesuit Community Residences and Boston College offices. The building is the second oldest building on the Chestnut Hill campus.

NV5 commissioned the project which included the following:

- Reprogramming and re-partitioning throughout
- Upgrades for accessibility and egress
- Full replacement of all mechanical, electrical and plumbing systems (plant and terminal equipment and distribution)
- Installation of a central air conditioning system for the entire building (the majority of the existing building was cooled via window A/C window units)
- Installation of a new fire alarm system, sprinkler system and emergency generator
- A new kitchen and servery area
- Two new elevators

Systems commissioned include: mechanical, plumbing, electrical, BAS/EMS, standby and emergency power, and campus energy metering system.

Construction cost: confidential, Project Size: 115,000 SF.

REFERENCE
Mr. Thomas Runyon
Project Manager
Boston College
617-552-8000
thomas.runyon@bc.edu

ESTIMATED PROJECT SCHEDULE
December 2015

ACTUAL PROJECT SCHEDULE
December 2015

Project Team 3

SECTION 3 - PROJECT TEAM

3. Identification of the Project team members with specific information on key Project personnel, including resumes documenting academic and professional experiments and achievements, number of years of experience dealing with similar projects and technologies and tenure with the firm, professional references, and position descriptions. Additionally, provide a list and brief description (including total cost, duration/timeframe) of all projects that each team member is working on that will be occurring concurrently with this project.

NV5's Commissioning Team - Roles and Responsibilities:

Carol Donovan, LEED AP, Director, Building Solutions Group/Principal in Charge

- Project Oversight
- Contract Negotiations
- Facility Management
- Project Deliverable Reviews
- QA/QC

Jason Peterson, Project Manager

- Overall Project Coordination
- Mechanical/Plumbing
- Field Observation
- Submittal Review
- Training Verification
- Field Testing
- Warranty Meeting

Peter Malloy, EIT, CEM, Lead Commissioning Engineer, Michael Papagni, PE, Senior Commissioning Engineer

- Field Observation
- Field Testing
- Manufacturer Startup Observation
- System Manual
- Deferred Testing
- Final Report

Keith Giguere, PE, Lead Electrical Engineer

- Electrical Cx including normal and emergency power, UPS systems and lighting controls.
- Design Reviews
- Submittal Reviews
- System Installation and Startups.

David de Sola, AIA, LEED AP, BD+C - 3iVe

- Building Envelope Commissioning

Resumes, references, workload are included at the end of this section.

4. Provide a Project team organization chart showing communication among all team members.

NV5's team is depicted on our Organization Chart included on the following page.

OWNERS PROJECT MANAGER

STV 100 Years | DPM

OWNER

CAMBRIDGE REDEVELOPMENT AUTHORITY

NV5

Carol Donovan, LEED AP
Director
Building Solutions Group | PIP

NV5

Jason Peterson
Project Manager
Commissioning Engineer

NV5
Mechanical/Plumbing/FP

Peter Malloy, EIT, EM
Lead Cx Engineer

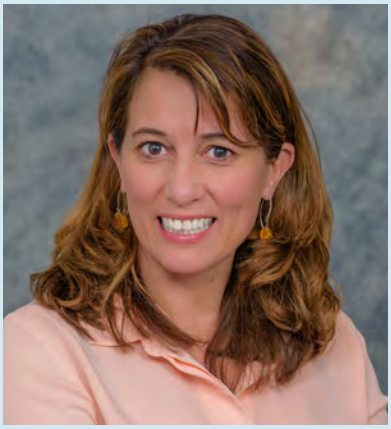
Michael Papagni, PE
Senior Cx Engineer

NV5
Electrical

Keith Giguere, PE
Senior Electrical Cx Engineer

3IVE
Building Envelope (MBE)

David de Sola, AIA, LEED AP
BD+C
Building Envelope Consultant



MECHANICAL COMMISSIONING
Boston, MA
carol.donovan@nv5.com
857.221.5914

EDUCATION
Worcester Polytechnic Institute,
BS, Mechanical Engineering

EXPERIENCE
30 years

TENURE WITH FIRM
12 years

REGISTRATIONS
LEED Accredited Professional

NEBB - Building System Commissioning Administrator

AFFILIATIONS
ASHRAE Committee -
TC 9.10 Laboratory Ventilation

TC 2.2 Plant and Animal Environment

National Environmental Balancing Bureau (NEBB)

International Society for Pharmaceutical Engineering (ISPE)

I2SL

CAROL DONOVAN, LEED AP

Director, Building Solutions Group

Carol is a Director of the Building Solutions Group and Mechanical Engineer with experience in design and construction directly relating to commissioning of HVAC systems and has a strong background in building resource efficiency. She has been providing commissioning and retro-commissioning services to academic, commercial and biosafety levels 2 and 3 laboratories, animal vivarium facilities, research and teaching laboratories, bio-manufacturing facilities, clean room and high hazard spaces.

Project Experience

MIDDLESEX COMMUNITY COLLEGE
HISTORIC ACADEMIC ARTS CENTER RENOVATIONS CX
Lowell, MA

EMERSON COLLEGE
LITTLE BUILDING, CENTURY OLD DORMITORY BUILDING CX
Boston, MA

UMASS LOWELL
COBURN HALL ADDITION AND RENOVATION ORIGINALLY OPENED IN 1897 CX
Lowell, MA

BERKLEY INVESTMENTS
22 BOSTON WHARF, FOUR-STORY FIT-UP ABOVE A SIX-STORY GARAGE CX
Boston, MA

BENTALL KENNEDY
109,000 GSF FIT-UP ABOVE AN EIGHT-STORY BUILDING CX
Boston, MA (LEED Gold Certified)

BOSTON PROPERTIES
325 MAIN STREET, NEW OFFICE BUILDING CX
Cambridge, MA

BOSTON PROPERTIES
BOSTON GARDEN OFFICE TOWER CX
Boston, MA

BOSTON PROPERTIES
GARAGE WEST OFFICE TOWER CX
Cambridge, MA

BOSTON PROPERTIES
SUBURBAN OFFICE TOWER - CORE AND SHELL CX
Waltham, MA

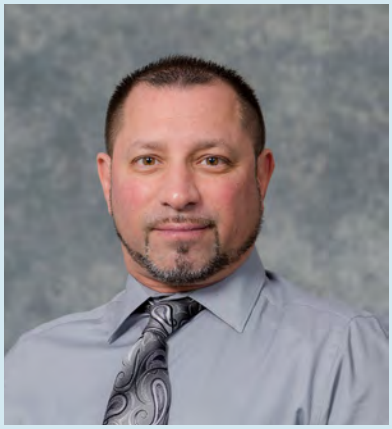
HYM INVESTMENT GROUP, LLC
ONE CONGRESS AT BULFINCH CROSSING, WPB2 OFFICE TOWER CX
Boston, MA

HYM INVESTMENT GROUP, LLC
BULFINCH CROSSING-WPB1 RESIDENTIAL BUILDING CX
Boston, MA

HYM INVESTMENT GROUP, LLC
BOSTON LANDING-NEW 311,000 SF, 125 QUEST STREET RESIDENCES CX
Boston, MA

LIBERTY MUTUAL
INFRASTRUCTURE UPGRADE CX
Boston, MA

GOOGLE
RENOVATION OF 9TH, 10TH & 11TH FLOORS, 5 CAMBRIDGE CENTER CX
Cambridge, MA



JASON R. PETERSON

Project Manager/Commissioning Engineer

Jason is Project Manager in NV5's Building Solutions Group. His responsibilities include building assessment studies and conducting MEP evaluation and Commissioning Functional Performance Testing. Jason is experienced with Computerized Maintenance Management Systems (CMMS), and assists in performing system troubleshooting and evaluation to improve energy management.

MECHANICAL COMMISSIONING
Andover, MA
jason.peterson@nv5.com
978.296.6265

EDUCATION
Northeastern University, BS, Mechanical Engineering Technology

Northeastern University, Building Design and Management Certificate Program

Wentworth Institute of Technology, Autodesk Training Center Certificate Program & AutoCad Certification

EXPERIENCE
25 years

TENURE WITH FIRM
20 years

AFFILIATIONS
American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE)

Project Experience

UMASS LOWELL
COBURN HALL ADDITION AND RENOVATION ORIGINALLY OPENED IN 1897 CX
Lowell, MA

CITY OF BOSTON
HISTORIC MCCORMACK OFFICE BUILDING, CX
Boston, MA (LEED Gold Certified)

BENTALL KENNEDY
22 BOSTON WHARF, 109,000 GSF FIT-UP ABOVE AN EIGHT-STORY BUILDING CX
Boston, MA (LEED Gold Certified)

BOSTON PROPERTIES
191 SPRING STREET OFFICE RENOVATION LEED-CS EAP1 & EAC3 CX,
Lexington, MA (LEED Gold Certified)

CISCO
OFFICE RENOVATIONS LEED CI CX, 125 HIGH STREET
Boston, MA

SKANSKA USA
NEW MIXED–USE FACILITY, 1350 BOYLSTON ST., LEED-NC EAP1 AND EAC3 CX
Boston, MA (LEED Gold Certified)

GOOGLE
5 CAMBRIDGE CENTER, 2ND FLOOR TENANT IMPROVEMENTS, PHASE II CX
Cambridge, MA (LEED Gold Certified)

ORACLE
NYC OFFICE FIT-OUT CX
New York, NY

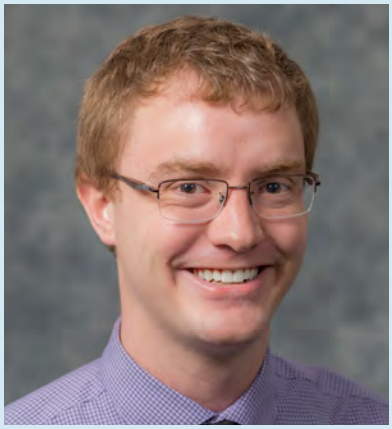
PERKINS + WILL
11TH FLOOR. TENANT FIT-OUT LEED-CI (EAP1 & EAC3) CX
Boston, MA (LEED Gold Certified)

WILMER HALE
60 STATE STREET TENANT IMPROVEMENT, CX LEED-CI
Boston, MA

GRANT THORNTON
INTERIOR FIT-OUT, 5 STATE STREET, CX
Boston, MA

FOREST CITY COMMERCIAL GROUP
26 LANDSDOWNE STREET, BASE BUILDING UPGRADES CX
Cambridge, MA

CONNELL REAL ESTATE & DEVELOPMENT CO.
50 CONNELL DRIVE NEW BUILDING CX
Berkeley Heights, NJ (LEED Silver



PETER MALLOY, EIT, CEM

Lead Commissioning Engineer

Peter has eight years of experience in mechanical engineering with an emphasis on energy conservation. His depth of experience in energy assessments provides him with an understanding of long-term operational issues as well as energy consumption. He has been involved in many aspects of mechanical engineering including HVAC systems design, heating/cooling load calculations, and the energy impacts of those systems with the associated costs. Peter's additional responsibilities include analysis of existing systems, system troubleshooting, and energy modeling of new and existing systems.

COMMISSIONING
Andover, MA
Peter.Malloy@NV5.com
781.721.8318

EDUCATION
BS, Mechanical Engineering,
Boston University, 2012

EXPERIENCE
8 years

TENURE WITH FIRM
6 years

REGISTRATIONS
Engineer-in-Training, MA #24152
Certified Energy Manager

Project Experience

MIDDLESEX COMMUNITY COLLEGE
HISTORIC ACADEMIC ARTS CENTER RENOVATIONS CX
Lowell, MA

EMERSON COLLEGE
LITTLE BUILDING, CENTURY OLD DORMITORY BUILDING CX
Boston, MA

BENTALL KENNEDY
22 BOSTON WHARF, 109,000 GSF FIT-UP ABOVE AN EIGHT-STORY BUILDING CX
Boston, MA (LEED Gold Certified)

BOSTON PROPERTIES
325 MAIN STREET CORE AND SHELL OFFICE BUILDING CX
Cambridge, MA

BOSTON PROPERTIES
HUB ON THE CAUSEWAY. MIXED-USE RETAIL, FUTURE OFFICE, HOTEL, RESIDENTIAL CX
Boston, MA

BOSTON PROPERTIES
SUBURBAN OFFICE CX
Waltham, MA

GOOGLE
CAMBRIDGE CENTER EXPANSION CX
Cambridge, MA

GOOGLE
RENOVATION OF 9TH, 10TH & 11TH FLOORS CX, 5 CAMBRIDGE CENTER
Cambridge, MA

HYM INVESTMENT GROUP, LLC
BOSTON LANDING C3 OFFICE CX
Brighton, MA

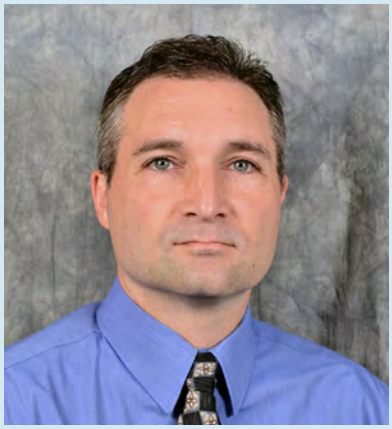
HYM INVESTMENT GROUP, LLC
ONE CONGRESS AT BULFINCH CROSSING, WPB2 NEW OFFICE TOWER CX
Boston, MA

HYM INVESTMENT GROUP, LLC
BOSTON LANDING 125 QUEST STREET RESIDENCES CX
Boston, MA

HYM INVESTMENT GROUP, LLC
NEW 21-STORY, NORTHPOINT PARCEL N RESIDENTIAL TOWER LEED CX
Cambridge, MA

NEW BALANCE
BOSTON LANDING C1 CELTICS/OFFICE LAB CX
Brighton, MA

LBC BOSTON
SN CONSULTANTS-BRIGHTON-1505 COMMONWEALTH RENOVATION
Brighton, MA



MECHANICAL COMMISSIONING
Andover, MA
michael.papagni@nv5.com
978.296.6269

EDUCATION
Wentworth Institute of Technology, BS Mechanical Engineering

EXPERIENCE
27 years

TENURE WITH FIRM
20 years

REGISTRATIONS
Registered Professional Engineer in MA #47575

AFFILIATIONS
American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE)

MICHAEL PAPAGNI, PE
Commissioning Engineer

Mike is a Senior Associate/Senior Mechanical Commissioning Engineer/ Project Manager with NV5's Building Solutions Group. His responsibilities include conducting Functional Performance Tests and performing building assessment and energy studies on mechanical systems in a variety of facility types, including system redesign and/or replacement. Mike's experience includes commissioning of healthcare, commercial, municipal and university facilities as well as mission critical/data centers.

Project Experience

BOSTON COLLEGE
HISTORIC 1918 ST. MARY'S HALL RENOVATION CX
Boston, MA

LESLEY UNIVERSITY,
NEW ARTS CAMPUS CX
Cambridge, MA (LEED Gold Certified)

BOSTON PROPERTIES
191 SPRING STREET 160,000 SF OFFICE RENOVATION, LEED-CS EAP1 & EAC3 CX
Lexington, MA (LEED Gold Certified)

BOSTON PROPERTIES
GARAGE WEST OFFICE TOWER CX
Cambridge, MA

BOSTON PROPERTIES
145 BROADWAY, 19-STORY OFFICE TOWER, CORE AND SHELL LEED V4 CX
Cambridge, MA (Targeting LEED Gold)

BOSTON PROPERTIES
325 MAIN STREET, NEW OFFICE BUILDING CX
Cambridge, MA

BOSTON PROPERTIES
HUB ON THE CAUSEWAY, MIXED-USE RETAIL, FUTURE OFFICE, HOTEL, RESIDENTIAL CX
Boston, MA

MANDARIN ORIENTAL
NEW MIXED-USE COMPLEX CX
Boston, MA

SKANSKA USA
121 SEAPORT SQUARE NEW CONSTRUCTION, LEED-CS EAP1 AND EAC3 CX
Boston, MA (Targeting LEED)

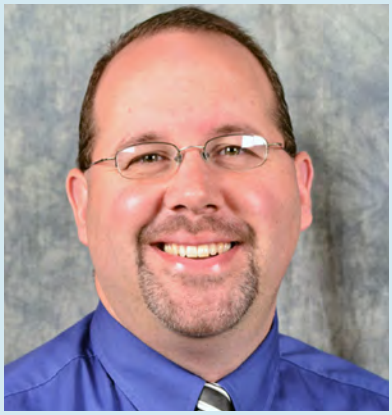
GENERAL SERVICES ADMINISTRATION
NORRIS COTTON FEDERAL BUILDING, CX AND RETRO-CX
Manchester, NH

GINKGO BIOWORKS
27W-8TH FLOOR BUILDOUT CX
Boston, MA

RBS CITIZENS BANK
DATA CENTER EXPANSION CX
Medford, MA

RBS CITIZENS BANK,
DATA CENTERS EAST PROVIDENCE OPERATIONS CENTER CX
East Providence, RI

NATIONAL DEVELOPMENT
WATERSTONE AT THE CIRCLE ADULT/ INDEPENDENT LIVING CX
Brookline, MA (LEED Silver Certified)



KEITH E. GIGUERE, PE

Lead Electrical Engineer

Keith is a Senior Associate and Senior Electrical Engineer whose experience includes design for lighting, power, and distribution systems for healthcare, laboratory, research, sports, educational and corporate facilities. His services include the preparation of electrical construction documents, calculations, and due diligence reports using the latest National Electrical Code, NFPA, ADA and applicable requirements.

ELECTRICAL
Andover, MA
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EDUCATION
Merrimack College
BS, Electrical Engineering

North Shore Community College
AA, Engineering Science

EXPERIENCE
26 years

TENURE WITH FIRM
15 years

REGISTRATIONS
Registered Professional Engineer in MA #49637

Also registered in RI

Project Experience

BLOOMBERG LP
100 SUMMER STREET OFFICES
Boston, MA

GRANTHAM, MAYO, VAN OTTERLOO LAW OFFICES
260 FRANKLIN STREET, TENANT IMPROVEMENTS
Boston, MA

SENTILLON
BRICKSTONE SQUARE TENANT IMPROVEMENTS
Andover, MA

FIDELITY INVESTMENTS
OFFICES AND COMPUTER LAB SPACE TENANT IMPROVEMENTS
Merrimack, NH

FIDELITY INVESTMENTS
56,000 SF TENANT IMPROVEMENTS
Merrimack, NH

MOTOROLA AT CROSS POINT
FIT-OUT
Lowell, MA

U.S. TSUBAKI INC.
OFFICE RENOVATION
Holyoke, MA

MASSMUTUAL
SOUTH BUILDING, OFFICE FIT-OUT
Springfield, MA

E INK
BILLERICA INNOVATION CENTER, SECOND FLOOR OFFICE BUILD-OUT, DESIGN AND CONSTRUCTION ADMINISTRATION,
Billerica, MA

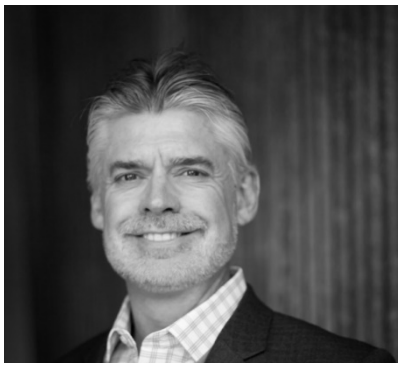
CABOT CORPORATION
BUILDING 2 ELECTRICAL SERVICE UPGRADES
Billerica, MA

IPG PHOTONICS
BUILDING 5 EXPANSION
Oxford, MA

IDEVICES
NEW FACILITY FIT-OUT
Avon, CT

GSA, O'NEIL FEDERAL BUILDING
BOILER REPLACEMENT
Boston, MA

NEWBRIDGE ON THE CHARLES
MULTIGENERATIONAL/SENIOR LIVING CAMPUS
Dedham, MA



DAVID DE SOLA, AIA LEED BD +C
Founding Principal - 3iVE LLC

Since founding 3iVE in 2005, David has provided exterior commissioning and consulting services for dozens of high-performance buildings throughout the Northeast. He is a frequent presenter at local, national, and international trade shows and building-science symposiums including ABX, ASTM, and the Nordic Symposium on Building Physics. David's clients are often institutional owners demanding the highest standards of exterior envelope performance including public and private universities, hospitals, and state agencies, such as Massachusetts' DCAMM and MSBA.

EDUCATION

Master of Architecture
Master in City Planning
Massachusetts Institute of Technology (MIT)

Bachelor of Arts
Skidmore College

REGISTRATION

Registered Architect
MA, TX, FL, CT
MA License 20195

ACCREDITATIONS

AIA, LEED BD+C, NCARB

MEMBERSHIP

ASTM

EXPERIENCE

3iVE LLC– Founding Principal 2005 – Present

- Building Exterior Commissioning Authority, Building Exterior Consultant. Award-winning projects, including: Harvard Business School's Chao Center, Dartmouth College's Life Sciences and Black Family Visual Arts Center, and Salem St. University's Frederick E. Berry Library
- Architectural Design with focus on robust and constructible assemblies

Goody, Clancy – Architect 1997 – 2006

- Architect, focus on exterior envelope and detailing. Award-winning projects including Dartmouth's Whittemore Hall and MIT's Picower Institute for Learning and Memory

Ondras Associates Architects 1995 – 1997

PRESENTATIONS AND PUBLICATIONS

2019: D. de Sola and T. Symonds, "Benefits of Whole Building Air Leakage Testing for Higher Educational Institutional Buildings," in *Whole Building Air Leakage: Testing and Building Performance Impacts*, ed. T. Weston, K. Nelson, and K. Wissink (West Conshohocken, PA: ASTM International, 2019), 191-210.

2018: Presenter, ASTM Symposium on Whole Building Air Leakage: "Testing and Building Performance Impacts," San Diego, CA

2017: Presenter, Durability + Design Material Selection Conference: "Quality Assurance and Installation Requirements for Liquid-Applied Air Barriers," Pittsburgh, PA

2017: Panel Discussion Moderator, Durability + Design Material Selection Conference: "Fluid-Applied Air Barriers Product and Installation Considerations, " Pittsburgh, PA

2004-2018: Speaker, ABX (formerly Build Boston): Exterior Detailing and Envelope Commissioning Topics, Boston, MA. "Best of Build Boston" 2011

2016: SSPC Paper and Presentation: "What Do You Need to Know to be a Part of the Emerging Air Barrier Market?" San Antonio, TX

2015: SSPC Building Science WUFI Workshop; Las Vegas, NV

2011: "Building Envelope Commissioning for Extreme Climates" 9th Nordic Symposium on Building Physics; Tampere, Finland

Below are client references for the project team:

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JASON PETERSON

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KEITH GIGUERE, PE

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3IVE, LLC

DAVID DE SOLA, LEED AP, BD+C

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Mr. Joseph Buckley, Chief Engineer
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Additionally, provide a list and brief description (including total cost, duration /timeframe) of all projects each team member is working on that will be occurring concurrently with this project.

Name	Anticipated Concurrent Projects
C. Donovan	**Hub on Causeway Cx Services, Boston, MA -** Project Manager for the core and shell LEED V4 commissioning services for a 1.87 million SF mixed-use development featuring three towers with retail, office, hotel and residential uses. . **Cost**: $1.2 billion (estimated). **Duration**: TBD.
	One Congress at Bulfinch Crossing, WPB2 Office Tower, One Congress Street, Boston, MA- Project Manager for the Commissioning services at One Congress at Bulfinch Crossing, a 1,000,000 SF, 44-story shell and core office tower **Cost**: TBD. **Duration**: TBD.
	Dartmouth College, Thayer/Computer Science Building Cx, Hanover, NH - Project Manager for the commissioning services for the 160,000 GSF, four-story building. The facility will be a mixture of offices, wet and dry labs with shared and specialty spaces. **Cost**: $80 million (estimated) **Duration**: 2021.
M. Papagni	**York Judicial Center Cx Services, RFP Biddeford, ME -** Project Manager for commissioning of the York Judicial Center. **Cost**: $62 million (estimated). **Duration**: 2022.
	Boston College, Institute for Integrated Science and Society, LEED Cx, Boston, MA - Project Manager for the LEED commissioning services for a new 157,000 SF Integrated Science and Society facility on the Boston College Campus. **Cost**: $160 million. **Duration**: 2020 (estimated).
	Rockland Public Schools, New Jefferson Elementary School, Cx Services, Rockland, MA - Project Manager for commissioning of the new 120,672 SF elementary school for 760 students, grades 1 through 4, on the site of the existing Memorial Park Elementary School. LEED-V4 verification is being sought for this project. **Cost**: $68.2M. **Duration**: TBD.
J. Peterson	**Town of Wellesley, Middle School Building Systems Commissioning, Wellesley, MA** - Commissioning services for the replacement of building systems at Wellesley Middle School. The facility is a three-story, 231,000 GSF building constructed in 1950. The project includes replacing two existing 7,200 CFM ventilation air handlers with new units in Gym A, replacing two existing 3,600 CFM ventilation air handlers with new units in Gym B, installing new air conditioning into the existing auditorium, new kitchen exhaust and make up air; exhaust fans for Type 1 hoods, dishwasher exhaust, condensate hood, and a new MUA unit. Construction cost is $10.3 million. **Duration**: TBD.
	MSBA, Boiler Replacement and Associated Work, Bigelow Middle School & F.A. Day Middle School, Newton, MA - Project Manager for the replacement of the boilers and associated equipment. **Cost**: TBD. **Duration**: TBD.
	Northeastern University, Matthews Arena Boiler Upgrade Phase 1, Commissioning (Cx) Services, Boston, MA - Project Manager for the replacement of the existing Matthews Arena HVAC/PLBG heating boiler system with a new system **Cost**: TBD. **Duration**: 2020 (estimated).
P. Malloy	**F0ZF Google 8CC, Office Tower Fit-Out Cx, 150 Broadway, Cambridge, MA -** Project Manager for commissioning services for the 8CC fit-out project. **Cost**: Confidential. **Duration**: TBD.
	One Congress at Bulfinch Crossing, WPB2 Office Tower, One Congress Street, Boston, MA- Mechanical commissioning services at One Congress at Bulfinch Crossing, a 1,000,000 SF, 44-story shell and core office tower **Cost**: TBD. **Duration**: TBD.
	Dartmouth College, Thayer/Computer Science Building Cx, Hanover, NH - Mechanical commissioning for the 160,000 GSF, four-story building. The facility will be a mixture of offices, wet and dry labs with shared and specialty spaces. **Cost**: $80 million (estimated) **Duration**: 2021.

Additionally, provide a list and brief description (including total cost, duration /timeframe) of all projects each team member is working on that will be occurring concurrently with this project.

Name	Anticipated Concurrent Projects
K. Gigeure	**University of Massachusetts Medical School, Clinical Wing Electrical Replacement, Worcester, MA -** Electrical design for the replacement of the six 45-year old electrical unit substations within the Medical School Building with new equipment that is code compliant, maintainable and safe to operate, including the physical separation of normal utility power and emergency life safety electrical equipment. **Cost**: Confidential. **Duration**: TBD.
	Dow Electronic Materials, Lithography Chemical Manufacturing Suite, Marlborough, MA - Electrical design for the renovation of the vacant Catalyst Room in the main building into a Lithography Chemical Manufacturing suite and demolition of adjacent construction, including part of a storage mezzanine. **Cost**: Confidential. **Duration**: TBD.
	Town of Bellingham, North Main Street Waste Water Pump Station Generator Replacement, Bellingham, MA - Electrical design for an in-kind replacement of the existing, interior mounted 175kW natural gas, stand-by generator with a new, interior mounted 175kW diesel generator at the North Main Street Waste Water Pump Station. **Cost**: Confidential. **Duration**: TBD.

Approach 4

Project Approach and Scope of Work

NV5 brings a commitment to provide the current best practices and value-add commissioning services solutions to every project's needs. Our goal is to deliver a building that works and give the O&M team the tools they need to keep it working. We are committed to working with the project team members to establish performance criteria for the systems and operational requirements associated with this project. These systems will be evaluated and documented and we will involve facility operations and user staff to ensure a successful turn-over process. As our commissioning engineers have also been design engineers, NV5 has the unique ability to interact very closely with the Design Team on the Owner's Project Requirements, Basis of Design, and approach as to how the systems will operate. Our years of experience help us understand the issues, timelines, and adversities.

There is flexibility within the commissioning process to refine the scope of work, understanding the needs of every project are unique. We are always committed to working with our clients to develop a scope of work that meets the needs and budget of the project.

Leadership

Our commissioning engineers are highly skilled and accomplished individuals with a solid foundation in engineering principles and controls as well as experience with new and emerging technologies. Our field personnel are extremely well-trained and are recognized for their resourcefulness and ability to perform all activities necessary to complete the commissioning process.

- Establish clear commissioning objectives and requirements in the commissioning plan (both design and construction phase) and the specifications and communicate them to the project team. Reinforce these objectives and the benefits regularly through commissioning team meetings.

- Establish strong working relationships with the designers and contractors and work collaboratively side by side on the job site. Being accepted as an integral member of the design and construction team increases our ability to effectively execute the commissioning process.

- Add value to the project team by injecting our considerable experience in constructing and operating similar facilities and acting as a technical resource to the project design and construction team in solving challenges and creating solutions.

- Work closely with project schedulers to support the integration of commissioning tasks into the master schedule and support the development of meaningful milestones to deliver a fully commissioned facility that meets the needs of the project.

- Enhance the project turn-over schedule and deliverable process by prioritizing commissioning activities and system turn-over activities early on before the project starts to drift and prevent the pile-up of turn-over documentation occurring at the very last stage of the project.

Approach to Managing the Project

- Communication and Teamwork

  We initiate communication with the project team in a project kickoff meeting, with the objective of bringing the members of our team and the client's organization together to form a successful project group. Key agenda items for this meeting are:

  1. Review of project scope, schedule and budget
  2. Current distribution system operations and maintenance philosophy
  3. Long range planning and other future impacts
  4. Client construction procedures and design standards
  5. Agreement on deliverables and project implementation process
  6. Completing and implementing a project-specific commissioning plan

With the information we learn through candid face-to-face joint meetings with all interested parties, NV5 will develop a final project commissioning sequence plan that includes the critical project services tasks and milestones integrated into the design, construction, testing, training and warranty phases.

- Consistency of Personnel
  Maintaining consistency in the personnel involved with the project is essential. For all projects, the project manager is directly involved in all site visits and other Cx related tasks. The project manager generally attends all meetings, with attendance by other personnel such as the technical lead as considered appropriate based on the task at hand. It is important to maintain consistent personnel on each aspect of the project as this establishes relationships within the project team which will help maintain a smooth commissioning process. All personnel involved with the project are available and committed to the project for the duration.

- Consistency of Approach
  Early in the project, expectations of the commissioning process are established within the Commissioning Specifications and Plan and are discussed during the commissioning meetings with the Owner, Designer, CM and subcontractors. The manner in which various tasks associated with commissioning are approached should be consistent through-out the project to meet the Owner's and project expectations and reduce any potential for project delays. Tasks such as submittal review, scheduling of site visits and issuance of field reports, field testing and the approach to resolving deficiencies on site are approached in a consistent manner with the entire Project Team.

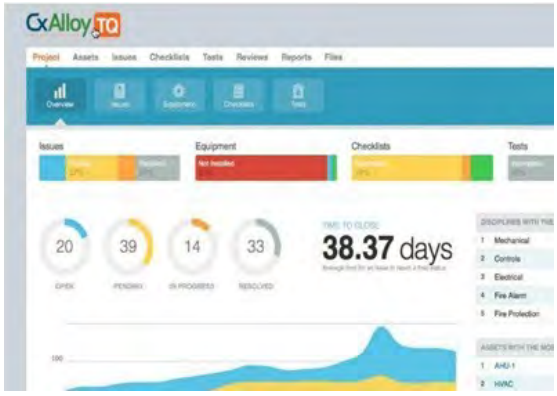
- Scheduling Site Visits
  Depending on the scope of work being performed, either the Project Manager or Technical Lead Engineer and in some occasions the Project Director will perform the field visit. Through ongoing communications with the Construction Team, NV5 remains informed of the scope of work being performed and selects the appropriate person to attend the visit. Site visits are scheduled at regular intervals in construction and are based upon the construction schedule. These often occur either monthly or biweekly, or even more frequently depending on the Client's needs and budget. It is recommended that these visits be performed monthly as a minimum once the MEP subcontractors are mobilized and installing distribution systems and components. As construction schedules continue to increase in speed, it is important that commissioning reviews be performed at a pace that allows for a thorough review of all aspects of the MEP installation – however it should be noted that the Commissioning Agent is not responsible for the QA/QC practices for the project, these responsibilities lie with the Contractor.

  Field reports are issued documenting conditions observed and any deficiencies identified following each site visit. Deficiencies are tracked in a Log included within the report, which is updated with each visit to reflect actions taken to address each deficiency.

- Functional Testing MEP Systems:
  During the construction phase of the project, NV5 will work closely with the Contractor in establishing and maintaining the schedule of commissioning events for the systems and activities outlined in the Master Equipment Matrix. Prior to scheduling functional testing of MEP systems, NV5 will work with the installing contractors to first confirm that the systems are complete and ready for functional testing. Completion of System Readiness Checklists will be requested including point to point check-out sheets, properly completed equipment start-up reports and fully executed TAB reports. Spot checks will be conducted to verify completion of controls and TAB. Additionally, NV5 will collect and review any outstanding punch list items that have been identified through-out the course of project.

  The final FPTs shall be used to demonstrate functional performance of the system. Any deficiencies will be documented by NV5 in a corrective action log for re-testing at a later date. It is expected that the contractor shall respond to the corrective action and proposed resolution within 3-5 business days after the test. NV5 will provide a follow-up review of BAS trending analysis to confirm control programming and logic. Trend analyses will be utilized to confirm corrective measures have been complete.

Project Management Tools
The NV5 team uses CxAlloy, a web-based commissioning platform, as a tool to help manage all aspects of the commissioning program. This software has been developed specifically for the commissioning industry and is extremely effective at housing and managing equipment and system data, documents, issue logs, checklists and reports. The system creates a singular, easy to use platform to promote effective communication and timely resolution of issues. The tool can be accessed from any mobile device (PC, tablets, phones, etc.) making updates extremely easy – and real time.



Overall Project Description:
We understand that commissioning services are being requested for the property at 99-93 Bishop Allen Dr., Cambridge MA. This property was built in 1855 as four elegant row houses. In 1965, the property was purchased by Cambridge Community Services (today called Enroot), renovated, and converted into nonprofit office space. The property includes nearly 20,000 gross sf of brick and beam four-story structure, with the lowest floor partially below grade. The Building's last renovation was in 1965.

The Cambridge Redevelopment Authority (CRA) will initiate construction for a renovation project that will:

- Replace the HVAC (heating, ventilation, air conditioning) systems
- New electrical service, security and tel./data systems
- Enhance life safety
- Improve accessibility and ADA compliance
- Improve the historic façade; new dormer cladding, windows throughout, masonry
- restoration and a new main entrance
- Install solar panels, including related roof modification and replacement
- Maximize the use of space for social missions
- Improve the quality of the working environment

Planned Construction Schedule:
Design Development Documents have been completed by Silverman Trykowski Associates, Inc. on September 18, 2020. Construction is currently scheduled to commence in January 2021. The desired completion date is August 2021.

SYSTEMS TO BE COMMISSIONED
For the purposes of this proposal the systems to be commissioned will meet the scope of work and minimum requirements outlined in the RFP. The project team may determine that additional systems or services should be included in the commissioning scope of work and we are committed to working with the project team to develop a scope of work that meets the needs and budget of the project. The systems outlined below were taken from the 100% design development documents:

Mechanical:

- VRF System including Heat Pumps (72), and Air Cooled Condensing Units (4) and Branch Controllers (7)
- Miscellaneous Fan and Terminal Units
- HVAC controls

Electrical:

- Lighting and daylighting controls

Plumbing:

- Domestic hot water systems, including water heaters, pumps, and controls

Design Phase Commissioning			
	Task	**Description**	**Deliverable**
1.	Commissioning Scoping Meeting	Assemble commissioning team and coordinate a commissioning scoping meeting with appropriate parties and identify responsibilities. NV5 to coordinate the commissioning work during the balance of design.	Commissioning Scoping Meeting Minutes
2.	Project Meetings	Attend monthly (minimum) Four (4) project meetings with Owner's Project Manager and Design Team to review the design and specific commissioning design review comments.	Meeting Minutes (it is assumed the Architect will provide the official minutes)
3.	Develop Commissioning Specification	Prepare Commissioning Specification to be included in project manual. Commissioning Specification will include Cx scope, roles & responsibilities, deliverables, schedule activity, startup/prefunctional checklist, functional performance test procedures, test guidelines and turnover documentation.	Preliminary Commissioning Specification Sections
4.	Preliminary Commissioning Plan	Prepare Preliminary Commissioning Plan that describes the Commissioning Process, Commissioning Team with specific Roles and Responsibilities. The Commissioning Plan will include description of systems to be commissioned. Scope includes one submission for review and comment, plus one update to incorporate review comments	Preliminary Commissioning Plan
5.	Controls Integration Meeting	Coordinate a controls integration meeting where the mechanical engineers, OPM, CRA, TSNE (Building Manager) controls and mechanical subcontractors and their equipment reps, and the CA discuss integration issues between equipment, systems and disciplines to confirm that integration issues and responsibilities are clearly described in the specifications.	Meeting Minutes

Design Phase Commissioning			
	Task	**Description**	**Deliverable**
6.	Focused Construction Document Review: 100% Design Development, 75% Construction Documents	Perform a focused review of a Construction Document progress submission, including "Page Turn" with the Design Team. • General review of HVAC, Plumbing, and Electrical commissioned systems • Commissioning Facilitation • Major concerns that could potentially affect operations and maintenance of the systems, including control system and strategies • Energy performance • Conformance with standard engineering and construction practices • Constructability issues • Review will include a back check of commissioning comments provided during previous reviews	Commissioning Design Review Log
7.	Training Plan Review	Assist in identifying training requirements and responsibilities for development of the training plan and participation by the CA team members in the training process. The training program shall assure that the building operation personnel of CRA and TSNE receive adequate training for the proper operation of the new systems in the facility. Define required O&M, as-built and commissioning deliverables and deliverable turnover procedures, with references to the construction specifications as appropriate, to ensure that CRA/TSNE receives all necessary documentation from the GC by substantial completion.	Commissioning Review Log

Bidding Phase			
	Task	**Description**	**Deliverable**
8.	Pre-bid Meetings	Attend and participate in the pre-bid meetings for subcontractors by providing an overview of the commissioning process, explaining its value and importance to the Project, and the requirements of the Cx Specifications and the Cx plan, and answering questions regarding commissioning which may be raised.	Meeting Minutes (it is assumed the Architect will provide the official minutes)

Bidding Phase			
	Task	Description	Deliverable
9.	RFI's	Assist in responding to RFI's relating to commissioning, which are received during the Bidding Phase.	Commissioning Issues Log
10.	Commissioning Conformance	Assist in the evaluation of key sub-trade for conformance with commissioning requirements.	Commissioning Review Log

Construction Phase Commissioning			
	Task	Description	Deliverable
11.	Final Commissioning Plan	Based on the final construction documents, update the Preliminary Commissioning Plan to identify specific systems to be commissioned. The Final Commissioning Plan will also include specific individual roles and responsibilities.	Final Commissioning Plan
12.	Construction Commissioning Kick-Off Meeting	Conduct an initial commissioning meeting with all contractors and commissioning team members. The purpose of the meeting will be to establish the purpose and proposed process for commissioning this facility in the construction, acceptance and warranties phases of the project. Review the individual roles and responsibilities of each participating commissioning team member as specified in the Construction Documents. Meeting will be scheduled in conjunction with a regular O/A/C meeting.	Meeting Minutes (it is assumed the Construction Manager will provide the official minutes).
13.	Duration Schedule for Commissioning Activities	Based on Final Commissioning Plan, prepare a duration schedule to show the duration, predecessors and successors for commissioning activities. This duration schedule will be provided to the Construction Manager to include commissioning activities in the project construction schedule. This will allow commissioning activities to be smoothly integrated into the overall construction process.	Duration Schedule with commissioning activities, predecessors, successors and key milestones.

Construction Phase Commissioning			
	Task	Description	Deliverable
14.	Construction Meetings	Attend Project construction meetings to advise the Project team on critical path milestone dates that impact commissioning issues and commissioning status and advise STV/DPM on such issues. Review construction meeting minutes and prepare revisions/substitutions relating to the commissioning process as necessary. Assist in resolving any discrepancies, schedule; and preparations for systems functional testing.	Construction Meetings
15.	Construction Observation Site Visits	In conjunction with meeting attendance, conduct site visits to the construction site during the construction phase to observe construction activity progress.	Field Observation Reports Commissioning Issues Log
16.	Submittal and Coordination Drawing Review	Based on final construction documents, prepare a list of selected submittals and coordination drawings for review by the Commissioning Authority. Review selected submittals and coordination drawings to support the commissioning process. Review will be for the purpose of developing appropriate System Readiness Checklists and Functional Test Plans. Reviews will focus on the ability to commission the systems, maintainability and general conformance to owner's requirements. Commissioning review of submittals and coordination drawings does not replace the Design Team responsibility for approval.	Submittal Request Checklist Commissioning Submittal Review Log
17.	System Readiness Checklists (SRC's)	Request and review additional information required to perform commissioning tasks, including O&M materials, Test and Balancing reports, contractor start-up and checkout procedures. Before startup, gather and review the current control sequences and interlocks and work with contractors and design engineers to write detailed testing procedures. Distribute checklists to contractors for completion. The System Readiness Checklists will be used to document completion of system, component and/ or equipment installation and to determine system readiness for functional testing.	Draft System Readiness Checklists issued for review System Readiness Checklists Issued
18.	RFI and CO Review	Review requests for information and change orders for impact on commissioning and owner's objectives.	Commissioning Issues Log

Construction Phase Commissioning			
	Task	Description	Deliverable
19.	Start-up and Checkout Plan	Develop a start-up and initial systems checkout plan with contractors for selected equipment.	Start-up Checklist
20.	Review Draft System Readiness Checklists (SRCs) and Develop Functional Performance Tests (FPTs)	Based on final construction documents (including applicable changes), and approved submittals, review Draft Systems Readiness Checklists from the contractors and develop Draft Functional Test Plans for systems to be commissioned. The Functional Performance Tests will be used to direct and document systems performance testing. Tests will include manual functional testing, energy management control system trending and include stand-alone data logger monitoring.	Draft System Readiness Checklists review Draft Functional Performance Tests issued for review
21.	Finalize Functional Performance Tests	Incorporate Owner, operator, design team, and construction team comments on the FPTs into Final Functional Performance Tests. Scope includes one submission of updated FPTs for each commissioned system.	Final System Readiness Checklists to be completed by the Construction Team Final Functional Performance Tests for use by commissioning authority to direct and document systems performance testing
22.	Master Issues Log	Maintain a Commissioning Issues Log to document commissioning issues identified during construction and functional testing. The Commissioning Issues Log will include recommended responsible party and recommendations for resolution of the issue. The Commissioning Issues Log will also be used to document progress toward resolution and the final resolution.	Commissioning Issues Log

Commissioning Phase			
	Task	Description	Deliverable
23.	Update Commissioning Plan	Update and revise the Cx plan and related documentation, as necessary during the commissioning process.	Updated Final Commissioning Plan
24.	Review Contractor Equipment Startup Checklists	Commissioning authority will review selected equipment startup reports prepared by installing contractor.	Contractor Equipment Startup Checklist (this checklist is part of the Submittal and Shop Drawing Review Checklist)

Commissioning Phase			
	Task	**Description**	**Deliverable**
25.	Review Completed Systems Readiness Checklists	The Contractor should, as part of his quality control program, complete the System Readiness Checklists prepared by the Commissioning Provider. The SRC will document both static inspection efforts and disciplined equipment start up testing. Commissioning Authority will verify pre-functional checklist execution by site observation and spot checks. Review completed pre-functional checklists and approve systems as ready for functional performance testing.	Field Observation Reports Commissioning Issues Log
26.	Systems Functional Performance Testing	Direct, facilitate, and document all FPT testing. FPT's shall be directed by the Commissioning Agent and performed by the contractors under the direction of the Cx Agent. The functional testing shall include operating the system and components through each of the written sequences of operation, and other significant modes and sequences, including startup, shutdown, unoccupied mode, manual mode, staging, miscellaneous alarms, power failure, security alarm when impacted and interlocks with other systems or equipment. Sensors and actuators shall be calibrated during construction check listing by the installing contractors, and spot- checked by the CA during functional testing. Analyze functional performance trend logs and monitoring data to verify performance.	Systems Functional Performance Testing
27.	TAB Plan Review	Observe Testing and Balancing including review HVAC systems Test and Balance Plan prepared by the TAB vendor. Review will be to determine general conformance with Owner's requirements.	Commissioning Review Log
28.	Training Plan Review & Monitor Training	Participate in the training of the CRA/TSNE's building operations and maintenance staff in accordance with the requirements of the approved Training Plan. Verify and document, to STV/DPM, that training has been satisfactorily completed.	Commissioning Issues Log
29.	Develop Commissioning Report	Compile a comprehensive commissioning report documenting all commissioning activities and documentation.	Commissioning Report
30.	Develop Systems Manual	Work with the design team, contractor and owner to develop Compile a Systems Manual that consists of the following: Owner's Project Requirements (by owner); Design Narrative and Basis of Design (architect and engineer); Performance Metrics;	Systems Operations and Maintenance Manuals Electronic (CD)

Commissioning Phase			
	Task	**Description**	**Deliverable**
		control drawings, sequences of control (by contractor); and a table of all set points and implications when changing them, schedules, instructions for operation of each piece of equipment for emergencies, seasonal adjustment, startup and shutdown, instructions for energy savings operations and descriptions of the energy savings strategies in the facility, recommendations for recommissioning frequency by equipment type, energy tracking Recommendations, and recommended standard trend logs with a brief description of what to look for in them.	Scope includes One Submission
31.	Review As-built Drawings and Operations & Maintenance Manuals	Review and approve As-built Drawings and Operations and Maintenance Manuals submitted by contractors for general conformance with specifications and Owner's requirements.	Commissioning Review Log

Closeout Phase			
	Task	**Description**	**Deliverable**
32..	Final Commissioning Report	Compile a comprehensive commissioning report documenting all commissioning activities and documentation.	Final Commissioning Report
33.	Equipment Installation Validation	The CX will validate all installed equipment by the contractor by verifying/filling in the information on the provided spreadsheet.	Equipment Spreadsheet (It is assumed spreadsheet to be provided by architect)

Post-Commissioning / Warranty Period			
	Task	**Description**	**Deliverable**
34..	Seasonal or Deferred Testing and Deficiency Corrections	Return to the facility to conduct seasonal or deferred testing and deficiency corrections to confirm systems work properly during all seasons. We have included two days of seasonal testing.	Field Observation Report Significant Outstanding Issues Corrective Action Plan

Post-Commissioning / Warranty Period			
	Task	**Description**	**Deliverable**
35..	Post-Occupancy Warranty Checkup and Review of Significant Outstanding Issues	Return to the project approximately 10 months after substantial completion to review the building operation with the facility occupants and O&M staff, and to discuss outstanding issues related to commissioning. Provide suggestions for improvements to systems operations. Interview facility staff and identify problems or concerns they have with operating the building as originally intended. Make suggestions for improvements and for recording these changes in the O&M manuals. Assist in developing warranty claims, documents and requests for service to remedy outstanding problems. Meet with the client to review the results on the Post-Occupancy Warranty Checkup and to review significant outstanding issues. Work with the client to develop a Corrective Action Plan to resolve these issues. We have assumed this will be performed during a one-day site visit at approximately ten months after substantial completion.	Field Observation Report Significant Outstanding Issues Corrective Action Plan

Sample Cx Plan 5

DCAMM
Lowell Justice Center
COMMISSIONING PLAN

I. INTRODUCTION

A. DCAMM is committed to commissioning the mechanical, plumbing, and electrical systems required for the reliable, safe, and efficient operation of the new court building in Lowell, MA. This process will verify that systems are complete and functioning properly upon project completion, and that the building staff has received appropriate system documentation and training.

B. Commissioning consists of systematically documenting that specified components and systems have been installed and started up properly and then functionally tested to verify and document proper operation through all modes and conditions.

C. DCAMM has hired NV5 as a third-party, independent commissioning authority to assist them with the commissioning effort.

II. SYSTEMS TO BE COMMISSIONED

Commissioned Systems		
System	**Equipment/Sub-Systems**	**Additional Notes**
HVAC Systems		
Building Automation System	Including a graphics package and verification of points and control.	
Heating Hot Water System	Including: • Hot Water Boilers (3) • Pumps (4) • Plate Heat Exchanger (1)	
Cooling Systems	Including: • Chillers (3) • Cooling Towers (3) • Pumps (10) • Air-Cooled Condensing Units (8) • Air Conditioning Units (49)	
HVAC Air Distribution Systems	Including: • Air Handling Units (5)	

	• Dedicated Outdoor Air Handlers (2) • Active Chilled Beams (470, 25% sampling rate) • Fans (26) • VAV Boxes (152, 25% testing) • Fan Coil Units (2)	
Space Heating Systems	Including: • Unit Heaters (19) • Air Curtains (4) • Fin Tube Radiators (470, 25% sampling rate) • Radiant Floor	
Plumbing Systems		
Domestic Water System	Including: • Domestic Water Heaters (3) • Recirculation Pumps (4) • Thermostatic Mixing Valves (3) • Booster Pump Skid (1)	
Sewage System	Including: • Storm Water Ejector Pumps (2) • Elevator Sump Pumps (4)	
Electrical Systems		
Electrical Systems	Including: • Heat Tracing Control Panels • Lighting Controls (25% sampling rate) • Fire Alarm system (25% sampling rate) • Security System (25% sampling rate) • PV Array System • Integrated Power Outage Test	
Fire Protection Systems		
Fire Protection Systems	Including: • Fire Pump • Pre-Action / Dry Pipe Sprinkler System	

III. COMMISSIONING SCOPE OF WORK

Construction Phase Commissioning		
Task	Description	Deliverable
Final Commissioning Plan	Based on the final construction documents, update the Preliminary Commissioning Plan to identify specific systems to be commissioned. The Final Commissioning Plan will also include specific individual roles and responsibilities.	Final Commissioning Plan **LEED Scope item: EA Prerequisite 1**

Construction Phase Commissioning		
Task	Description	Deliverable
Construction Commissioning Kick Off Meeting	Conduct an initial commissioning meeting with all contractors and commissioning team members. The purpose of the meeting will be to establish the purpose and proposed process for commissioning this facility in the construction, acceptance and warranties phases of the project. Review the individual roles and responsibilities of each participating commissioning team member as specified in the Construction Documents. Meeting will be scheduled in conjunction with a regular O/A/C meeting. **One (1) Meeting**	Meeting Notes (it is assumed the Construction Manager will provide the official minutes) **LEED Scope item: EA Prerequisite 1**
Duration Schedule for Commissioning Activities	Based on Final Commissioning Plan, prepare a duration schedule to show the duration, predecessors and successors for commissioning activities. This duration schedule will be provided to the Construction Manager to include commissioning activities in the project construction schedule. This will allow commissioning activities to be smoothly integrated into the overall construction process.	Duration Schedule with Commissioning Activities, Predecessors, Successors and Key Milestones **LEED Scope item: EA Prerequisite 1**
Submittal and Shop Drawing Review	Based on final construction documents, prepare a list of selected submittals and shop drawings for review by the Commissioning Authority. Review selected submittals and shop drawings to support the commissioning process. Review will be for the purpose of developing appropriate System Readiness Checklists and Functional Test Plans. Reviews will focus on the ability to commission the systems, maintainability and general conformance to Owner's requirements. Commissioning review of submittals and shop drawings does not replace the Design Team responsibility for approval.	Submittal Request Checklist Commissioning Submittal Review Log **LEED Scope item: Enhanced Cx Credit**
Maintenance Analysis	Review the staff size and skill sets for the Owner's maintenance staff in relation to the requirements of the new building. Provide staffing data for use in a LCCA for the project.	Maintenance Analysis
Controls Meeting	After receipt of the Controls Submittal, participate in, or conduct, a meeting with the Owner's representatives, Control Vendor, TAB contractor, Mechanical / Electrical Design team, mechanical sub-contractor and electrical sub-contractor to review the Controls Submittal and mechanical / electrical systems to be installed. Focus will be on how the selected sequences of operation interact with the mechanical/electrical systems and how well they meet the Owner's requirements. Additional focus will be on how the Controls Vendor will implement the sequences of operation and integration of the Controls Vendor	Meeting Notes (it is assumed the Construction Manager will issue official minutes). Marked-Up Controls Submittal and Sequence of Operations Commissioning Issues Log to track action items **LEED Scope item: EA Prerequisite 1**

Construction Phase Commissioning		
Task	Description	Deliverable
	programming and installation tasks into the construction schedule. **One (1) Meeting**	
Review System Readiness Checklists (SRCs) and Develop Functional Performance Tests (FPTs)	Based on final construction documents (including applicable changes), and approved submittals, review Draft Systems Readiness Checklists from the contractors and develop Draft Functional Test Plans for systems to be commissioned. The System Readiness Checklists will be used to document completion of system, component and/or equipment installation and to determine system readiness for functional testing. The Functional Performance Tests will be used to direct and document systems performance testing.	Draft System Readiness Checklists issued for review. Draft Functional Performance Tests issued for review. **LEED Scope item: EA Prerequisite 1**
Review Change Orders, ASI, and RFI	Review change orders, architect's supplemental instructions and requests for information (with design team response) for issues that affect commissioning. Review is for information only and does not constitute technical or contractual approval or disapproval.	Commissioning Requests for Information
Finalize Functional Performance Tests	Incorporate Owner, operator, design team, and construction team comments on the FPTs into Final Functional Performance Tests. Scope includes one submission of updated FPTs for each commissioned system.	Final System Readiness Checklists to be completed by the Construction Team Final Functional Performance Tests for use by commissioning authority to direct and document systems performance testing **LEED Scope item: EA Prerequisite 1**
TAB Plan Review	Review HVAC systems Test and Balance Plan prepared by the TAB vendor. Review will be to determine general conformance with Owner's requirements.	Commissioning Review Log
Construction Observation Site Visits	Conduct up to Twelve visits to the construction site during the Construction Phase to observe construction activity progress. Specific attention will be given to installation of mechanical, electrical, and plumbing systems for general conformance with specifications and manufacturer's installation requirements. The Construction Observations will also be used to verify corrective actions for issues identified on the Master Issues Log and reported completed by the Construction Manager and / or installing contractor(s). **We have assumed twelve (12) Site visits.**	Field Observation Reports Commissioning Issues Log **LEED Scope item: EA Prerequisite 1**

Construction Phase Commissioning		
Task	Description	Deliverable
Construction Phase Cx Meetings	Sebesta will participate in Progress Meetings with the Owner, Design Team, Construction Manager, Installing Contractors, EMCS Vendor and TAB Vendor. These meetings will used to discuss construction progress; progress of system installation; coordination between trades needed to complete installation; resolution of commissioning issues identified during construction; commissioning schedule; and preparations for systems functional testing. **We have assumed attendance at Twenty four 2-hr meetings.**	Construction Progress Meeting Notes (it is assumed the Construction Manager will provide the official minutes) Commissioning Issues Log **LEED Scope item: EA Prerequisite 1**
Master Issues Log	Maintain a Commissioning Issues Log to document commissioning issues identified during construction and functional testing. The Commissioning Issues Log will include recommended responsible party and recommendations for resolution of the issue. The Commissioning Issues Log will also be used to document progress toward resolution and the final resolution.	Commissioning Issues Log
Review Contractor Equipment Startup Checklists	Commissioning authority will review selected equipment startup reports prepared by installing contractor. Select equipment/systems start-ups will be observed. **We have included six eight-hour visits for start-up observation.**	Contractor Equipment Startup Checklist (this checklist is part of the Submittal and Shop Drawing Review Checklist) Commissioning Issues Log **LEED Scope item: EA Prerequisite 1**
Review Completed Systems Readiness Checklists	The Contractor should, as part of his quality control program, complete the System Readiness Checklists prepared by the Commissioning Provider. The SRC will document both static inspection efforts and disciplined equipment start up testing. The Commissioning Agent will review the completed SRC's to verify the Contractor's work has been completed. **We have included six six-hour visits for SRC observation.**	Commissioning Issues Log Marked-Up SRC Check Sheets and Supporting Start-Up Reports **LEED Scope item: EA Prerequisite 1**
Review TAB Report	Review TAB Report prepared by TAB vendor following system air and water balancing. Review will be focused on TAB results that affect system performance and/or commissioning. Specific attention will be given to equipment installation and operational issues identified by the TAB vendor. The Commissioning Agent will review the Final TAB Report concurrently with	Commissioning Issues Log **LEED Scope item: EA Prerequisite 1**

Construction Phase Commissioning		
Task	Description	Deliverable
	review by the design Engineer. **We have included one (1) visit for TAB observation.**	
Systems Functional Performance Testing	Direct, facilitate, and document all FPT testing. FPT's shall be directed by the Commissioning Agent and performed by the contractors under the direction of the Cx Agent. We will analyze trend logs of data acquired prior to or during testing. **We included three eight-hour site visits for re-testing as part of the base scope of work.**	FPT Check Sheets Commissioning Issues Log Daily Field Reports **LEED Scope item: EA Prerequisite 1**
Review Operations & Maintenance Manuals	Review Operations and Maintenance Manuals submitted by contractors for general conformance with specifications and Owner's requirements.	Commissioning Review Log **LEED Scope item: Enhanced Cx Credit**
Prepare Systems Manuals	Work with the design team, contractor and Owner to develop Systems Operating and Maintenance Manuals. These will contain system design, operations and sequence information, as well as traditional Operations and Maintenance data supplied by the contractor / vendor. The information in the manual is provided by others, the commissioning agent shall compile the manual.	Systems Operations and Maintenance Manuals - Electronic (CD) and one hardcopy release Scope includes one submission. **LEED Scope item: Enhanced Cx Credit**
Training Plan Review & Monitor Training	Review contractor and manufacturer training plans and agendas for general conformance with specifications and Owner's requirements. Provide evaluation forms to be used by training attendees to determine the effectiveness of the training. Monitor progress of training delivery and make suggestions for improvements. **This task does not include attending training sessions.**	Commissioning Review Log **LEED Scope item: Enhanced Cx Credit**
Final Commissioning Report	Compile a comprehensive commissioning report documenting all commissioning activities and documentation.	Commissioning Report **LEED Scope item: EA Prerequisite 1**
LEED Documentation	Provide data and other information needed by the Project Team to complete LEED submittal relative to basic and enhanced commissioning credits. Complete the LEED On-line templates for the commissioning credits.	Draft Templates and / or data in electronic format to support completion of the templates **LEED Scope item: Enhanced Cx Credit**

Construction Phase Commissioning		
Task	Description	Deliverable
Preventative Maintenance Data Compilation	Prepare Preventative Maintenance Data for uploading into CAMIS.	CAMIS Upload File (include PM data for systems/ equipment listed above this proposal)
Master Issues Log	Maintain a Commissioning Issues Log to document commissioning issues identified during construction and functional testing. The Commissioning Issues Log will include recommended responsible party and recommendations for resolution of the issue. The Commissioning Issues Log will also be used to document progress toward resolution and the final resolution.	Commissioning Issues Log **LEED Scope item: EA Prerequisite 1**

Post-Occupancy Phase Commissioning		
Task	Description	Deliverable
Seasonal Testing	Return to the facility to conduct seasonal testing to confirm systems work properly during all seasons. **We have included two days of seasonal testing.**	Field Observation Report Significant Outstanding Issues Corrective Action Plan **LEED Scope item: EA Prerequisite 1**
Post-Occupancy Warranty Checkup and Review of Significant Outstanding Issues	Return to the project approximately 10 months after substantial completion to review the building operation with the facility occupants and O&M staff, and to discuss outstanding issues related to commissioning. Provide suggestions for improvements to systems operations. Interview facility staff and identify problems or concerns they have with operating the building as originally intended. Assist in developing warranty claims, documents and requests for service to remedy outstanding problems. Meet with the client to review the results on the Post-Occupancy Warranty Checkup and to review significant outstanding issues. Work with the client to develop a Corrective Action Plan to resolve these issues. **We have assumed this will be performed during one-day site visits approximately six and ten months after substantial completion.**	Field Observation Report Significant Outstanding Issues Corrective Action Plan **LEED Scope item: Enhanced Cx Credit**
Implement Calibrated Building Model M&V Plan	Following one year of operation, update the building energy model created by the design team following the guidelines in IPMVP Volume III Option D: Whole Building Calibrated Model. Utilizing sub-meter data from the facility, usage patterns and schedules provided by the facility, and historical weather data.	M&V Report ***Add ALT. (assumes sub-metering will be installed)***

Post-Occupancy Phase Commissioning		
Task	Description	Deliverable
Estimated Savings Generated by Commissioning Process	Document the Estimated Savings generated by the commissioning process through the project.	Savings Analysis Report

IV. COMMISSIONING TEAM

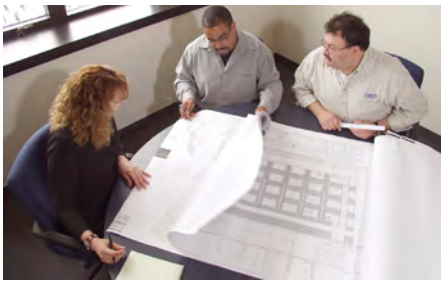
A. The Commissioning Team shall consist of representatives from the following parties involved in the design and construction of this facility. The time at which individual members join the team and the level of their participation during the different phases of the project will vary from member to member as defined under SCOPE.

1. Owner's Project Manager (PM)
2. Building Operations & Maintenance Staff (O&M)
3. Design Professionals (D)
    a. Architect – Finegold Alexander Architects, Inc.
    b. MEP Engineer – Arup
4. Construction Manager (CM)
5. Installation Contractors (CONTR)
6. Commissioning Authority (CA)
    a. NV5

V. SCOPE & TEAM MEMBER RESPONSIBILITIES

A. See the attached Roles and Responsibilities table and commissioning acceptance plan.

Subconsultant 6



7. Identify any firms or individuals not part of your firm that will be collaborating on this Project. For each firm, provide a detailed description of their role in the independent engineering or commissioning services to be provided for the Project and a complete resume and description of the length and substance of their experience as it relates to those services and the Project.

NV5 has included 3iVE on our team provided **Building Envelope Services**. 3iVE provides industry-leading building exterior commissioning (BECx), inspection, testing, and exterior design consulting for institutional grade buildings. Their firm has helped develop specifications, test methods, and BECx activities widely adopted by the BECx community. 3iVE's expertise and experience incorporates extensive involvement throughout the design and construction process including educational team-building design and construction meetings, design development review, shop reviews, pre-construction mock-up testing, QA/QC inspections, and field performance testing. Their blend of technical expertise with the organizational approach they use with the design, construction, and ownership team is unique in the industry and is a key to their outstanding results.

3iVE is accredited by the AIA and NCARB and participates in the development of ASTM standards. Their staff has assisted clients with a systematic building envelope commissioning approach on new construction and retrofit projects throughout the Northeast. Such work includes extensive experience on high-performance buildings including: schools and universities, libraries, municipal centers, laboratories, athletic centers, hospitals, and museums.

3ive is a Certified Minority Business Entity (MBE) with the Supplier Diversity Office in the State of Massachusetts (see certificate on the following page).

David de Sola – 3iVE Principal, AIA LEED BD+C, has extensive commissioning experience going back to the roots of the industry and will lead the Exterior Commissioning Team for this project. He brings the credentials of a seasoned registered architect and LEED accredited professional with experience both designing and commissioning historic buildings similar to this project. David's resume is included in Section 3 - Project Team.

Related Disciplines 7

8. Information on all related disciplines, including but not limited to mechanical, electrical, plumbing, and fire protection that will participate in the Project, whether these disciplines will be provided by your firm's personnel, or will be outsourced.

NV5 will be providing independent engineering and commissioning services for this project. As such, we have included NV5 mechanical, plumbing, electrical, fire protection commissioning engineers on our team.

Projects Under Contract 8

SECTION 8 - PROJECTS UNDER CONTRACT

9. List and provide description of building projects that the firm currently has under contract as a CA, regardless of whether the work has commenced, including specifically, the name and location of each project, the type of work provided, the estimated or actual start date, the estimated end date, whether or not the project is on schedule, the contract price, the percentage of work that is not yet complete, the dollar-value of work that is not yet complete, the number of years/months remaining on the contract, and the annualized value of incomplete work.

Our branch offices in Massachusetts average 35+ active commissioning projects at any given time. These projects range from small renovation projects, to multi-year, multi-phase projects involving design for new construction, etc.

As a rule, we control our workload to focus on our clients and take all necessary measures in ensuring projects are completed on time and on budget. As a result, we strive to manage our project and individual engineer's workload to meet our commitment to our jobs. They will therefore not interfere with the Cambridge Redevelopment Agency 99-93 Bishop Allen Dr. Cx project.

We believe your intent in asking for this information is to assess the ability of the staff who will be assigned to the Project to meet your desired schedule. We would like to assure you that the staff we are committing to you has the ability within their current workloads to be fully responsive to your needs and schedule on this project.

To address this question in an earnest and sensible manner, we are including the current active projects that the NV5 Team we are assigning to this project has underway.

The NV5 Team that is proposing on this Commissioning Contract is our core Commissioning Team.

This team's current active projects are as follows on the following MATRIX:

SECTION 8 - PROJECTS UNDER CONTRACT

The following MATRIX reflects the current and active commissioning projects NV5 has under contract.

Project	Public or Private	Type of Work	Start & End Dates	On Schedule?	NV5 Fee	% Complete	$ value of work not complete	Time Remaining On Contract	Annualized Value of Incomplete Work
Town of Brookline, High School Expansion Cx, Brookline, MA	PUBLIC	CX	12/19/18 Sept 2021	YES	$277,981	52%	$135,000	not applicable	$135,000
UMass Amherst, Totman Building, Kinesiology Lab 140 Cx, 30 Eastman Lane, Amherst, MA	PUBLIC	Cx	02/03/17 Fall 2020	YES	$24,150	90%	$2,415	not applicable	$2,415
Dartmouth College, North/West Utilities, Hot Water and Chilled Water Distribution Systems Cx, Hanover, NH	PRIVATE	CX	01/03/20 Dec 2022	Yes	$25,665	5%	$24,380	not applicable	$24,380
Dartmouth College, Dana Hall Renovations Cx, Hanover, NH	PRIVATE	Cx	07/17/18 Dec 2020	YES	$52,400	90%	$5,455	not applicable	$5,455
Dartmouth College, Thayer/Computer Science Building Cx, Hanover, NH	PRIVATE	Cx	07/17/18 Dec 2021	YES	$81,142	46%	$43,477	not applicable	$43,477
Boston College, Institute for Integrated Science and Society, LEED Cx, Boston, MA	PRIVATE	Cx	11/08/18 Jan 2022	YES	$244,832	10%	$220,348	not applicable	$220,348
York Judicial Center Cx Services, Biddeford, ME	PUBLIC	Cx	02/28/20 June 2023	YES	$111,500	5%	$105,925	not applicable	$105,925
Rockland Public Schools, New Jefferson Elementary School , Cx Services, Rockland, MA	PUBLIC	Cx	01/24/20 June 2021	YES	$94,126	5%	$89,420	not applicable	$89,420
Boston Properties, Core/Shell Lab Conversion Project, 200 West Street,Waltham, MA	PRIVATE	Cx	10/11/19 Dec 2020	YES	$52,350	14%	$45,779	not applicable	$45,779
One Congress at Bulfinch Crossing, WPB2 Office Tower, One Congress Street, Boston, MA	PRIVATE	Cx	03/13/19 Dec 2021	YES	$196,595	10%	$182,036	not applicable	$182,036
DCAMM, Lowell Trial Court Cx, Lowell, MA	PUBLIC	Cx	9/01/2015 Dec 2020	YES	$280,890	68%	$90,439	not applicable	$90,439
Town of Wellesley, Middle School Buildings Systems Cx, #WFMD-RFP-FY19-001, Wellesley, MA	PUBLIC	Cx	12/18/19 Oct 2021	YES	$86,500	10%	$77,850	not applicable	$77,850
MSBA, Boiler Replacement and Associated Work, Bigelow Middle School & F.A. Day Middle School, Newton, MA	PUBLIC	Cx	03/11/19 Sept 2021	YES	$34,700	50%	$17,350	not applicable	$17,350
F0ZF Google 8CC, Office Tower Fit-Out Cx, 150 Broadway, Cambridge, MA	PRIVATE	Cx	08/23/19 July 2021	YES	$71,511	19%	$59,996	not applicable	$59,996
UMBA, UMass Lowell, Coburn Hall Addition and Renovation Cx, Lowell, MA	PUBLIC	Cx	02/23/2018 Dec 2020	YES	$85,720	85%	$12,858	not applicable	$12,858
Google, F0RX - CAM 3CC Redevelopment Cx, Cambridge, MA	PRIVATE	Cx	11/18/2019 Sept 2022	YES	$148,843	5%	$141,027	not applicable	$141,027

SECTION 8 - PROJECTS UNDER CONTRACT

The following MATRIX reflects the current and active commissioning projects NV5 has under contract.

Project	Public or Private	Type of Work	Start & End Dates	On Schedule?	NV5 Fee	% Complete	$ value of work not complete	Time Remaining On Contract	Annualized Value of Incomplete Work
Boston Properties, Back Bay Station - Garage West Office Tower Cx, Boston, MA	PRIVATE	Cx	09/29/2018 Sept 2021	YES	$61,850	65%	$21,695	not applicable	$21,695
Cambria Hotel, 104 Canal Street Cx, Boston, MA	PRIVATE	Cx	11/06/19 On Hold	YES	$53,800	12%	$47,460	not applicable	$47,460
CitizenM Hotel, Commissioning (Cx) Services, Boston, MA	PRIVATE	CX	01/02/20 On Hold	Yes	$122,860	4%	$119,425	not applicable	$119,425
Bulfinch Crossing-WPB1 Residential Building Cx, Boston, MA	PRIVATE	Cx	09/01/16 Dec 2020	YES	$194,050	28%	$140,256	not applicable	$140,256
Town of Andover, Andover Senior Center, Cx, Andover, MA	PUBLIC	Cx	09/09/2020 Dec 2021	YES	$71,511	10%	$51,400	not applicable	$51,400
Town of Andover, Ballardvale Fire Station Cx, Andover, MA	PUBLIC	Cx	09/15/2020 Dec 2021	YES	$58,730	10%	$58,730	not applicable	$58,730

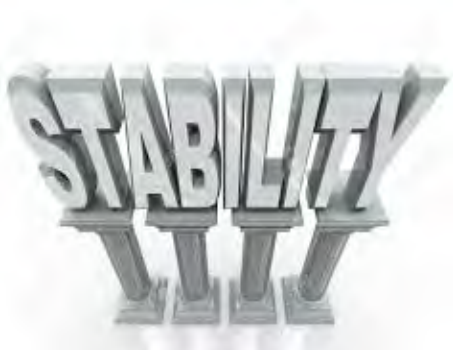
Financial Stability/Insurance 9

SECTION 9 - FINANCIAL STABILITY/INSURANCE

10. Evidence of the firm's stability, by providing detailed financial information that can be used to evaluate and ascertain the firm's ability to provide the required services for the duration of the Contract. Please note that each copy of the proposal must contain this information.

FINANCIAL STABILITY

NV5 is a leading provider of professional engineering and consulting solutions with a 60-year history. Over the last several years, we have experienced steady year-over-year growth as indicated in our attached financial statements. Our longevity and continued growth is a testament to our financial stability and the strength of our professional capabilities.



FINANCIAL STATEMENT SUMMARY

2019: Our 2019 Proxy Statement can be found here: https://ir.nv5.com/static-files/ff0719c3-8a53-42ad-827f-55d1a5524158

2018: Gross Revenues for the year totaled $418.1 million, an increase of 26% from 2017.. Net Revenues for 2018 were $334.3 million, an increase of 25% from 2017. Backlog was $390 million as of December 29, 2018, a 32% increase from $296 million as of December 30, 2017. Net Income was $26.9 million, excluding the impact of the 2017 Tax Reform, Net Income increased 48% from 2017

2017: Gross revenues for the year totaled $333 million, a 49% increase from 2016. Gross margin was 50% compared to 48% in 2016, which includes our reduced use of sub-consultants and cross-selling efforts. Net income increased 107%, from $11.6 million in 2016 to $24 million this year. We reported backlog of $296 million as of the end of the fourth quarter, a 34% increase from last year.

2016: Gross Revenues grew to $223.9 million for 2016, an increase of 45% from $154.7 million in 2015. Backlog grew to $220.8 million for 2016, a 30% in comparison to $155.3 million reported at December 31, 2015. Finally, net income for the full year 2016 was $11.6 million, a 37% increase from $8.5 million for the full year 2015.

2015: Over the last year, gross revenues grew to $154.7 million, an increase of 43% over $108.4 million in 2014. We also grew our backlog to $155.3 million in the fourth quarter of 2015, compared to the backlog of $82.1 million we reported at December 31, 2014. Finally, net income for the full year 2015 was up 74% to $8.5 million from $4.9 million in 2014, and net income increased 90% in the fourth quarter alone to $2.7 million from $1.4 million for the fourth quarter of 2014.

2014: Gross revenues grew to $108.4 million in 2014, an increase of 59% compared to $68.2 million in 2013. We reported organic revenue growth of 14% for the year ended December 31, 2014, which was well above our industry standard. We also grew our backlog to $82.1 million as of December 31, 2014, compared to the backlog of $60.2 million we reported at December 31, 2013. Finally, net income for the full year 2014 was up 77% to $4.9 million from $2.8 million in 2013.

2013: Gross revenues grew to $68.2 million in 2013, an increase of 13% over $60.6 million in 2012. We grew our backlog to $60.2 million at December 31, 2013, compared to the $45 million we reported at December 31, 2012. We are pleased with the strength of our balance sheet, and we are optimistic about reaching our growth goals.

Please see the attached link provided below to review NV5's Annual Reports which include our financial statements.

http://ir.nv5.com/financial-information/annual-reports

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 4/24/2020

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER
Cavignac & Associates
450 B Street, Suite 1800
San Diego CA 92101

CONTACT NAME: Certificate Department
PHONE (A/C, No, Ext): 619-744-0574 **FAX (A/C, No):** 619-234-8601
E-MAIL ADDRESS: certificates@cavignac.com

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A : Valley Forge Insurance Company	20508
INSURER B : Continental Casualty Co.	20443
INSURER C : Continental Insurance Company	35289
INSURER D : National Fire Ins. Hartford	20478
INSURER E : Berkley Insurance Company	32603
INSURER F :	

INSURED NV5INC0-01
Richard D. Kimball Co. dba NV5
200 Brickstone Square
Andover, MA 01810-1488

COVERAGES **CERTIFICATE NUMBER:** 318534731 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X **COMMERCIAL GENERAL LIABILITY**			6057040530	5/1/2020	5/1/2021	EACH OCCURRENCE	$ 1,000,000
	[ ] CLAIMS-MADE [X] OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence)	$ 1,000,000
	X Contractual Liab						MED EXP (Any one person)	$ 15,000
	X Cross Liab Incl						PERSONAL & ADV INJURY	$ 1,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$ 2,000,000
	X POLICY [X] PRO-JECT [X] LOC						PRODUCTS - COMP/OP AGG	$ 2,000,000
	[ ] OTHER:						Deductible	$ 0
B	**AUTOMOBILE LIABILITY**			6057040575	5/1/2020	5/1/2021	COMBINED SINGLE LIMIT (Ea accident)	$ 1,000,000
	X ANY AUTO						BODILY INJURY (Per person)	$
	[ ] ALL OWNED AUTOS [ ] SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	[ ] HIRED AUTOS [ ] NON-OWNED AUTOS						PROPERTY DAMAGE (Per accident)	$
								$
C	X **UMBRELLA LIAB** [X] OCCUR			CUE6076054554	5/1/2020	5/1/2021	EACH OCCURRENCE	$ 20,000,000
	[ ] **EXCESS LIAB** [ ] CLAIMS-MADE						AGGREGATE	$ 20,000,000
	[ ] DED [X] RETENTION $ 0							$
D	**WORKERS COMPENSATION AND EMPLOYERS' LIABILITY** Y / N	N / A		WC657040561	5/1/2020	5/1/2021	X PER STATUTE [ ] OTH-ER	
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? [N] **(Mandatory in NH)**						E.L. EACH ACCIDENT	$ 1,000,000
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$ 1,000,000
							E.L. DISEASE - POLICY LIMIT	$ 1,000,000
E	Professional Liability			AEC903639504	5/1/2020	5/1/2021	Each Claim Aggregate	$10,000,000 $20,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER

Specimen Certificate

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Fee Proposal 10

FEE PROPOSAL

We propose to provide all commissioning services and execute the work specified in the Request for Proposal for Commissioning Agent Services for the Cambridge Redevelopment Authority for 99-93 Bishop Allen Drive, Cambridge, MA dated September 25, 2020 for a lump sum fee as outlined below.

Commissioning		
Commissioning Phase	Estimated Hours	Proposed Fee
Design Phase	24	$3,225
Bidding Phase	6	$540
Construction Phase	84	$10,740
Commissioning Phase	54	$6,750
Closeout Phase	12	$1,080
Post-Commissioning/ Warranty Period	16	$2,160
Reimbursable Expenses (Estimated)		$500
Total Commissioning Services	**196**	**$24,995**

1. The following services are not included within this proposal:
   - Factory Witness Testing.
   - Testing, Adjusting and Balancing (TAB), oversight.

2. Submittal Reviews, provide one (1) review of major systems being commissioned.

3. General Contractor/Contractors will be required to be present to demonstrate the systems to NV5 per the FPT testing documents provided by NV5. All contractor labor costs associated with commissioning process are not the responsibility of NV5.

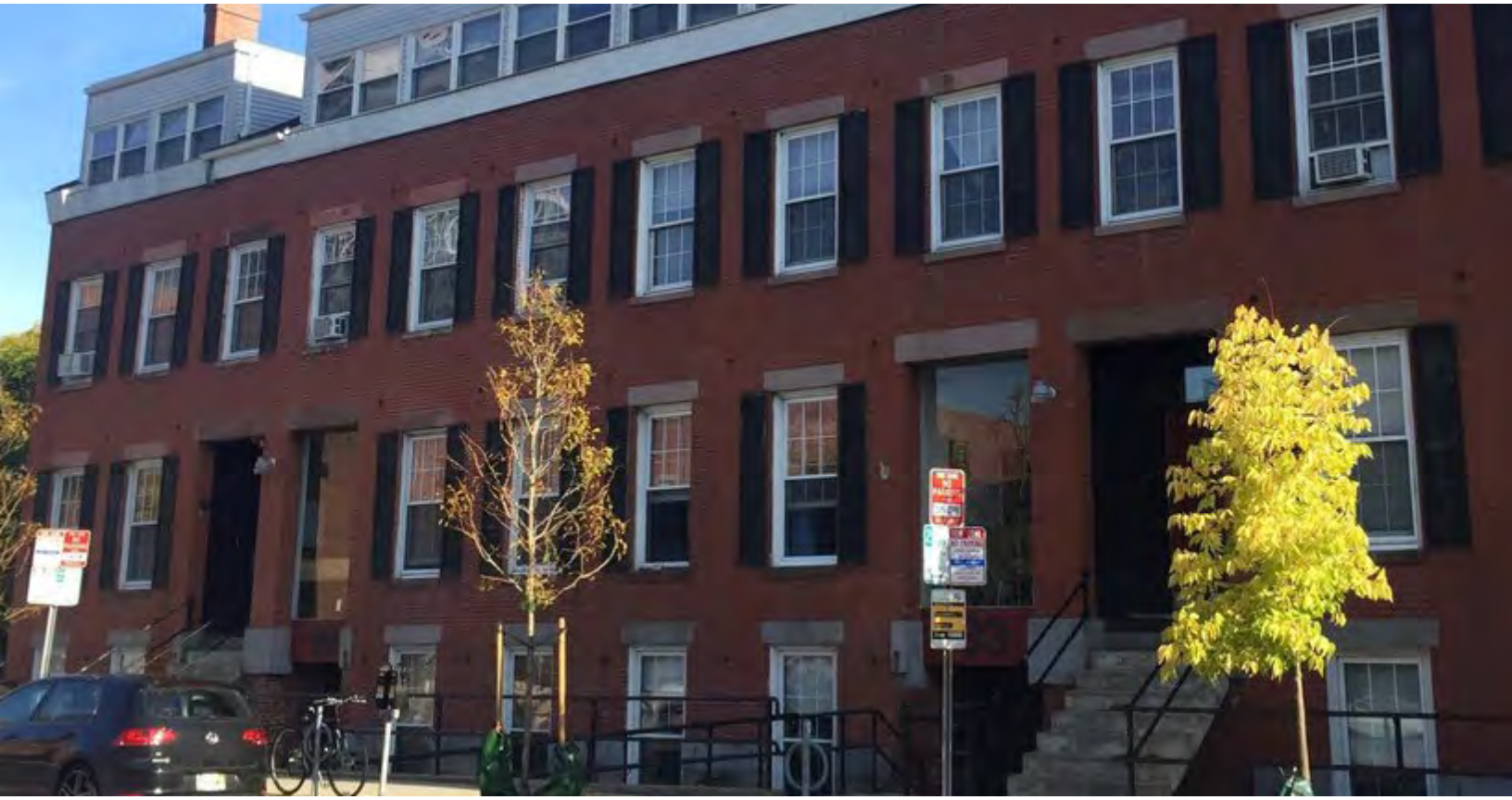
4. General Contractor or Subcontractors shall provide manufacturer representatives during the testing phase for those systems that require their technicians to demonstrate the packaged controls within their systems that the ATC Contractor cannot control, to the Commissioning Agent. All sequences of operations per design intent shall be tested. Testing documentation illustrating the sequences will be provided by NV5 prior to the testing phase for GC/Subcontractors review.

5. The proposed fee does not include “re-testing” of functional performance tests. NV5 will work with the Contractor and the appropriate Trade Contractors to coordinate any required re-testing and to consolidate the test time while on-site performing first time Functional Performance Test demonstration. If it becomes necessary to make additional trips to re-test, NV5 will charge a daily rate of $1,500.00 per day based on one (1) commissioning engineer on site to observe the re-testing.

6. Building Envelope Commissioning services are not included within this proposal and can be negotiated upon request. We have included a resume for our building envelope consultant.

SECTION 11 - FEE PROPOSAL/HOURLY RATES

NV5 Personnel	Discipline/Role	Hourly Rate
Carol Donovan, LEED AP	Director, Building Solutions Group/Project Manager	$225.00
Jason Peterson	Project Manager/Commissioning Engineer	$160.00
Michael Papagni, PE	Senior Mechanical Commissioning Support	$160.00
Scott Byrne, PE	Mechanical Commissioning Support	$125.00
Peter Malloy, EIT, CEM	Mechanical Commissioning Support/Energy Engineer	$125.00
Sam Lawrence	Mechanical Commissioning Support	$100.00
Keith Giguere, PE	Senior Electrical Commissioning Engineer	$230.00
Julie Rogers	Commissioning Specialist and Documentation Control	$125.00
3iVE Personnel	**Discipline/Role**	**Hourly Rate**
David de Sola, AIA, LEED AP BD+C	Building Envelope Consultant	$200.00



NV5

Delivering Solutions
Improving Lives