



CITY OF CAMBRIDGE  
INTEROFFICE CORRESPONDENCE

To : Robert Healy  
Assistant City Manager

Date : June 15, 1977

From : Conrad C. Fagone *CCF.*

Reference

Subject

Enclosed for your information are resumes of Arthur Ward for Chief Clerk of Works for the High School project, and Lewis Noll Assistant Clerk of Works.

These two positions were filled after advertising and screening fifteen applications for the Clerk's position, of which five were interviewed. Seven applications were received for the Assistant's, all of which were interviewed before final selection was made.

The interview process involved the Architect, Members of the School Building Committee, Mechanical Engineer, and myself. In the case of the Chief Clerk, the City Manager.

As I have stressed from the beginning, this project is probably the biggest single construction undertaking this City will enter into, and in order to avoid future problems, we have attempted to attain the best supervision we could find.

In addition, you asked for the names of the candidates who applied, I feel in the interest of confidentiality to the people who applied, it would not be fair to release these names. I will however, provide names to any responsible individual who seeks them. I am sure you are aware that many of these people are working and it might put them in an embarrassing situation to have their names released.

If you need any additional information please contact me.

65 Wenham Road  
Topsfield, Ma. 01983  
May 2, 1977

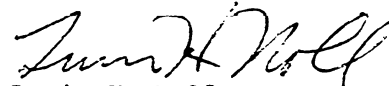
Eduardo Catalano, AIA  
300 Franklin Street  
Cambridge, Ma. 02139

Dear Sir:

I would enjoy overseeing the mechanical work associated with the Cambridge High School. I am familiar with rehabilitation work and new construction. I believe in strict compliance with the plans and specifications; and where there are shortcomings in these to make sure that the extra work is accurately accounted for. I can successfully control progress payments so that the contractor is not overpaid in the early stages of the work.

An interview and review of the plans and specifications would be appreciated.

Sincerely yours,

  
Lewis H. Noll

LHN:LAN

Enclosure: Resume

LEWIS H. NOLL  
65 Wenham Road  
Topsfield, Massachusetts 01983  
617-887-5182

## EXPERIENCE

### May 1976 to Present

Mechanical Coordinator with M.B.T.A. Construction Department. Limit cost and time over-runs in mechanical design and construction. Validate change orders and payment requisitions. Prepare mechanical cost estimates for budget. Redesign HVAC in existing problem areas. Validate mechanical designers plans, specifications and calculations.

### August 1974 to January 1976

Mechanical Engineer with Max O. Urbahn. Limit cost and time over-runs in mechanical design and construction for new and modified Post Office facilities. Validate change orders and payment requisitions. Survey existing facilities and submit upgrading recommendations. Redesign HVAC in existing problem areas. Validate mechanical designers plans, specifications and calculations.

### August 1970 to August 1974

Mechanical Engineer with McKee, Berger, Mansueto. Limit cost and time over-runs in mechanical design and construction of University of Massachusetts Extension at Columbia Point. Validate designers estimates. Prepare mechanical cost estimates. Validate change orders and payment requisitions. Validate mechanical designers plans, specifications and calculations.

### August 1966 to August 1970

Sales Engineer for Boston Filter Company. Make engineering surveys of potential HVAC installations. Calculate heat gains and losses. Select equipment. Layout equipment, size and layout air distribution and piping. Estimate job cost. Sell job designed. Designs done for constant temperature, high and low humidities, clean rooms, computer rooms, process chilled water comfort cooling.

### October 1959 to August 1966

Buyer for Gillette Safety Razor Company. Purchased Development Engineering pilot runs, machine parts, machinery, manufacturing and packaging materials, MRO.

### February 1957 to October 1959

Mechanical Engineer with General Electric Company SAED. Design and oversee construction of and modifications to major jet engine component test cells.

### June 1951 to February 1957

Mechanical Engineer with Westinghouse AGT. Design and oversee installation of all mechanical facilities projects. Sales Engineer with Westinghouse Sturtevant. Design HVAC projects including dust collecting systems and sell air handling equipment in Kansas and half of Missouri.

### September 1949 to June 1951

HVAC design draftsman with Black and Veatch, Consulting Engineers in Kansas City, Missouri.

## PERSONAL

Good health; married; 5 children; own home

## EDUCATION

BSME - University of Kansas

## PROFESSIONAL REGISTRATION

EIT 2075E - August 15, 1950 - Missouri

## PROFESSIONAL SOCIETIES

Associate Member MSPE and NSPE

# Ward Associates Inc.

1033 Massachusetts Avenue, Cambridge, Massachusetts 02138

## RESUME

NAME: Arthur F. Ward

ADDRESS: 249 Pond Street  
Rockland, Massachusetts 02370

TELEPHONE: 617-878-3617

MARITAL STATUS: Married - Two Children, 18 and 13.

EDUCATION: Wentworth Institute 1954  
Associates Degree Architectural Engineering:

\*University Maryland 1962  
Certificate National Ready-Mix Concrete  
Association Course.

\*Soils Mechanics, MIT 1963

\*Harvard University 1965  
Courses Contract Law, Certificate

\*Boston Architectural Center 1969,  
Certificate

PERSONAL: Registered Professional Engineer  
State of Massachusetts

Member of American Concrete Institute

Past President of Construction Specifications  
Institute

Certified Concrete Technician by  
Massachusetts Code Commission, Type A

Past Chairman Massachusetts Concrete  
Industry Board

\* Supervised Examination.

Investigations  
Construction Review  
Quality Control

617/354-7071

## EXPERIENCE:

September 1975 - Ward Associates, Inc.  
Present 1033 Massachusetts Avenue  
Cambridge, Massachusetts 02138

March 1962 - LeMessurier Associates/SCI  
September 1975 1033 Massachusetts Avenue  
Cambridge, Massachusetts 02138

POSITION: Associate

## RESPONSIBILITIES:

Upon employment with the above firm my assigned duty was to oversee the field construction of all projects. Sizes of projects range from 75 million dollars and under. My responsibility included examining and approving the following:

1. Reinforcing and structural steel shop drawings for each project assigned to me.
2. Excavations and soils for depositing concrete footings.
3. Formwork, reinforcement and structural steel installation.
4. Field tensioning of A325 and A490 High Strength Bolts installed by the Modified Turn-of-Nut Method.
5. On-site shielded metal arc welding (E60xx and E70xx) visually and by use of dye penetrant. Also M.I.G. welding of reinforcing bars in accordance with AWS D12.1.
6. Erection of structural steel column base plates, columns, shear heads, girders, beams, diagonal bracing, plate girders, trusses, and intermediate members (A36 and A441 steel).
7. Installation of corrugated metal subfloor, including welding, closures, gages.
8. Shear connectors for composite slab construction.
9. Reinforcing steel checked for size and arrangement for normal and composite slabs on metal subfloor.
10. Concrete placement finishing and curing for both normal and lightweight concrete.
11. Concrete mix designs submitted for approval by Contractor for both lightweight and normal concretes including approval of Mix Designs submitted for pumping concrete.

## EXPERIENCE (cont'd)

12. Mechanical connections for #10 and #18 reinforcement bars (cadweld) both vertical and horizontal positions.
13. Calculations for adequacy of formwork and shoring submitted by Contractors.
14. Set up for pile load tests including reset for uplift reaction piles.
15. Piles for final set vertical alignment, soundness, point elevation, cut-off and cleanliness prior to concreting.
16. Post-tensioning both strand and rod and confirming transfer stress.
17. Location of site borings and quality of samples retained.
18. Contractors request for changes and remedial work to original Contract when required.

My other duties included the following:

1. Obtaining, selecting, preparing and conducting consolidation tests on soil samples to determine maximum passive pressure, and triaxial tests on soil samples to determine shear values, including calculations and written reports.
2. Investigating building damages and failures.
3. Resolving problems resulting from mechanical, electrical and structural conflicts.
4. Consultations with Architects, Testing Agencies, and Contractors to determine inspection requirements for project scope and to aid the Contractor in perfecting techniques for upgrading the quality of the final product.
5. Visiting various steel fabricating shops to determine their capability of meeting quality and project schedule requirements for the scope of building under consideration and to file a written report to the Client.
6. Estimating and quantity take-offs when required to aid the Client in making decisions in change order payments.

August 1963

At the request of the Government Service Administration, and to conform with Federal requirements, I was approved by the Government Service Administration and assigned as full time Structural Resident Engineer on the new 21 million dollar John Fitzgerald Kennedy Office Building in Boston, Massachusetts.

## EXPERIENCE (cont'd)

The structure consisted of dual towers 17 stories in height connected by an elevator service and egress core and an attached 5-story Low Rise Building clad with exposed aggregate precast, and a concrete foundation mat placed over a 1-inch thick working mat and rising from grade level 22 stories of structural steel and slab/metal deck construction. The attached 6-story Low Rise was of reinforced concrete construction supported on individual and combined footings. The connection between the High and Low Rise Structures was a link designed to deform to account for differential settlement.

Excavation for the mat and footings was through rubble and remains of demolished buildings. Each footing excavation was examined and probed for subterranean cisterns, wells and french type drains.

The extent of the concrete work was such that the Contractor constructed on the site a concrete batching plant and aggregate storage and conveyance facilities. My responsibility required that I approve the plant installation and constantly observe dry batch quantities and mechanical properties stockpiled aggregates, and to insure that all ACI, ASTM and project specification requirements were adhered to.

It was my responsibility to approve all soils work including the authorization by the Government Service Administration, on \$2000.00 Purchase Order increments, to employ and supervise a Testing Agency to accomplish compaction testing of soil and to approve all compaction equipment used.

All other aspects of constructing the two High Rise and adjoining Low Rise Buildings were examined and approved by me prior to the application of colateral construction viz., Erection, High Strength Bolting and Welding of structural steel and fireproofing, reinforcement, electric welding and mechanical connectors, form-work, concrete batching, placement, finish and curing.

During the progress of Construction, I compiled data which was inserted into the Critical Patch Method Computer Program and used for monitoring construction progress and to evaluate monthly cost payments requested by the Contractor.

I also worked closely with Federal, State, City and M.B.T.A. officials aiding in the resolution of problems arising from municipal and Federal Code requirements. I was responsible to the Government Service Administration for hiring and supervising an Engineering Survey Party to re-establish actual City of Boston grid coordinates and Bench Mark for the varification of the actual building location within the property boundaries calculations of which and a detailed report was filed with the Architect. In

addition, I was required to submit detailed quantity take-offs, cost data, and progress reports to the General Service Administration daily and to review progress and Contractor Payment requests monthly.

November 1965

I was approved by the City of Boston Building Commission and was assigned as Chief Resident Engineer on the new 20 million dollar Boston City Hall, Government Center, Boston, Massachusetts.

The foundation system consisted of steel concrete filled pipe piles and caps with 10' deep x 48' long structural steel built-up girders spanning over existing subway tubes at the east and northwest sides of the project to support the building.

The superstructure was comprised of precast floor elements 1/2 span length which when assembled and joined by means of electric welding and cast-in-place concrete, became clear spans of 28 feet. The skin of the structure consisted of story height precast fin units which supported themselves, window units and mechanical induction units and concealed mechanical ducts and piping running vertically from floor to floor. The cast-in-place segments consisted of walls and core areas acting as shear walls on all four sides of the building. Structural steel trusses were employed at the upper level to support Mechanical Cooling Towers above and an attached structural hanger supported the floor slab below to eliminate column requirements in dual conference rooms below.

My responsibility included the overall supervision of structural elements, mechanical equipment and installation, plumbing and utilities and all Architectural aspects of the project. Under my direct supervision was an Assistant Engineer and Testing Agency personnel consisting of three Concrete Technicians, two Welding Inspectors and one Precast Inspector.

My other duties consisted of coordinating the inspection team, reviewing their work and resolving non-compliance problems, analyzing and passing on their requirements with respect to Contract and Code requirements and determination of Contractor's compliance with Contract Documents. In addition, new methods of construction and techniques for handling and erection of precast concrete units in the industry were adopted as well as new requirements, which had not yet been established, for field welding of reinforcement. This type of construction was new to the industry and demanded a working knowledge of the design, drawings, materials and methods and industrial practices to insure complete compliance with Contract requirements.

## EXPERIENCE (cont'd)

Daily reports of progress as well as monthly requisitions, examinations and approvals were required. Constant consultations and meetings were held with the Government Center Commission, Architect and Contractor to review and analyze changes in the work, Construction and Labor problems. My responsibility was to compile and verify back-up data for the Commission at these meetings.

August 1968

Upon return from the field I was assigned to coordinate and manage the Field Engineering Department and to establish a Specification and Materials Research Section. This included joining the Construction Specifications Institute and attending a condensed course in Specification make-up and writing. I was assigned to compile and write a Master Specification Program, computerized if possible, for Cast-in-Place Concrete, Precast Concrete, Pre & Post-tensioned Concrete, Structural Steel and miscellaneous specifications for various types of elements related to Structural Sections for use by Design Engineers in our three offices.

In addition, I reviewed all Concrete Design Mixes, consulted with 56 Design Engineers in regards to design problems and material usage cost analysis of construction methods, research on latest materials and methods, ASTM, PCI, AWS, AISC, ACI codes, publications and monographs. I also consulted with Clients in the initial design stages to resolve potential problems and to assist and offer suggestions for practical application of materials and methods.

I have assisted in the drafting of the Specifications for the New American Institute of Architects Building in Washington, D.C. and have reviewed, designed and commented on details for the Systems Precast Modular Housing in Memphis, Tennessee. In addition, I have been qualified as a professional witness in Arbitration proceedings involving Gevyn Construction Company vs Middlesex County.

I have reviewed over 100 projects from 3 million to 28 million dollars on various items for code and specification compliance, and reviewed all structural problems with the Partner in charge.

I compiled the Master Specification for the 75 million dollar University of Massachusetts Complex where cast-in-place concrete control will be based on the Standard ACI-214 standard deviation for statistical control. This Master was used for the five buildings comprising the complex with modifications for each structure. I was required to review, research and approve all materials submitted by the Contractor for compliance with specification requirements regarding equality.

I was responsible to the owner for the construction of the Union Mutual Life Insurance Building in Portland, Maine and Bowdoin

## EXPERIENCE (cont'd)

College Student dorms. This required examination of shop drawings, coordinating construction site meetings, inspection of reinforcement, structural steel erector and bolting, concrete placement and shoring, reviewing and approving concrete mix designs and structural changes during and after initial mill order. I have been responsible to the owner for the construction of the Contook Valley High School in Peterboro, New Hampshire, investigation and inspection of the Phillips Exeter Athletic Facilities at Exeter, New Hampshire, Nashua Elementary School and YMCA, Nashua, New Hampshire. My duties included the examination of shop drawings and their approval, site visits to inspect structural steel erection and high strength bolting procedures, meeting to discuss structural problems and changes with the owner, approval of concrete mix designs and establishing testing procedures.

I was in charge of the fire investigation at the University of Massachusetts and supervising a testing agency which was obtaining physical data of damaged concrete and reinforcement. The investigation was at the request of the Massachusetts Bureau of Building Construction.

In addition, I directed the Field Engineering Staff of which their duties were to observe construction of all our projects and report their findings directly to me for evaluation. This was on a national basis.

September 1959 to March 1962

Control Engineer and Consultant      Thompson & Lichtner Co., Inc.  
8 Alton Place  
Brookline, Massachusetts

My duties included:

Field Engineer and Control Engineer for the supervision and inspection of Centrifugally span cast iron and concrete pipe. Batching plant control, concrete placement, reinforcement installation, soils compaction and laboratory Proctor testing, Seamless steel/corrugated composite piles, piles at Prudential Center Foundation, welding supervision and inspection for various projects throughout New England. Load Test calculations and supervision for Fore River Shipyard "wetway". Carried out Topographical survey at South Weymouth Naval Air Station Runway extension from which borings were laid out.

Resident Field Engineer for the structural concrete frame and 2-story attached garage of the 21-story Charlesbank and 17-story 330 Beacon Street High Rise Apartment Buildings, also the Polaroid warehouse in Needham. Supervised the investigation of fire damage which occurred to the Charlesbank Apartment Building and drew up

## EXPERIENCE (cont'd)

remedial measures to correct damage. Related to the above was tensile testing of reinforcement, impact hammer testing of in situ concrete and Documentation.

Conducted various laboratory tests for testing concrete, cement, aggregates and soils. Including concrete design mixes, cylinder compression tests, reinforcing tensile testing, Los Angeles abrasion, soil compactions and gradation tests.

June 1957 to September 1959

Field Engineer

John A. Volpe Construction Company  
54 Eastern Avenue  
Malden, Massachusetts

My duties were:

I was not working as a Contractor but employed specifically to do field engineering work for the contractor which included control survey for establishing property lines, design and layout of roadways connected with Massachusetts State Highway Department, Routes 128 and 116. Responsible for computations and permanent records of work. Worked in conjunction with Massachusetts State Highway Department and New York, New Haven and Hartford Railroad Authorities to install by jacking, a storm drain system under existing Route 128 and railroad lines. Layout, and assisted State Authorities in the supervision of construction of underpass under Route 128. Advised and cooperated with town authorities in the layout for storm systems installed in existing Route 116, calculated and laid out roadway curves and property lines connecting project. Designed storm sewer collection and distribution chamber system and related lines and headwalls. Reclaimed land and relocated existing homes and roadways to accommodate access to new project. Conducted topographical and quantity surveys, computations and layout of all parking areas, roadways and utilities within the project limits by the coordinate system. Also engaged in building line and elevation, layout, form design and installation for entire project. Supervised by a Registered Professional Engineer.

After the completion of the project, I was assigned to the Northeastern University Graduate Center Project as office and field engineer, where my duties consisted of layout, office engineering, estimating, form design, purchase and procurement of materials and equipment, payroll records and negotiations with Client. Coordinated work with City of Boston Authorities to expedite work during week-end hours in constructing a tunnel from new to existing building.

June 1957 to September 1957

Field Engineer

Kenneth L. Brown  
Engineer Town of  
Burlington, Massachusetts

## EXPERIENCE (cont'd)

Duties included layout of private dwellings, sanitation lines and leaching fields in the Town of Burlington for the Town Engineer, including Subdivision, topographical surveys and percolation tests, including plot plan calculations regarding subdivisions minimum square footings.

June 1956 to June 1957

Field & Office Engineer

Aberthaw Construction Company  
28 State Street  
Boston, Massachusetts

My duties were Field Office and Layout Engineer at the Hersey Water Meter Plant & Office Building, Dedham, Massachusetts which included some design. I was then sent to Needham Industrial Center as Field Engineer to supervise construction of Crucible Steel Building and Dual Warehouse #2. After these structures were in place, I was sent to the Arthur D. Little Building in Cambridge, Massachusetts. My duties consisted of estimating, design, design of formwork, procuring machinery, equipment and materials and coordinating construction, including installation of wood friction piles and foundations. When the structure was in its final stages, I was transferred to the A.V.C.O. Development in Wilmington, Massachusetts and placed in charge of all utilities structures which included design of culverts, invert elevations and headwalls for storm system, parking areas, grades and footing layout and installation at building #4. Also included were documentation for payment of ledge, boulders and excavation which required cross-section some areas involved.

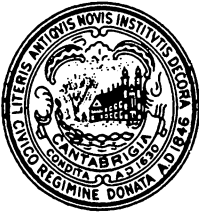
September 1952 to September 1953

Draftsman

Westinghouse  
Sturdivant Division  
Hyde Park, Massachusetts

Design and layout drafting of duct system to suit existing conditions at Singer Sewing Machine Company Building in Ohio. Was responsible to Chief Design Engineer to assure that structure would not be weakened by duct passage through existing members.

References will be supplied on request.



## CITY OF CAMBRIDGE

CAMBRIDGE, MASSACHUSETTS 02139  
Tel. 876-6800

EXECUTIVE DEPARTMENT  
JAMES L. SULLIVAN  
City Manager

June 20, 1977

To the Honorable, the City Council:

Enclosed per your request of last week are resumes and information regarding the Clerks of Works positions on the High School project.

Very truly yours,

Robert W. Healy  
Assistant City Manager

RWH/mbf  
Encs.

Agenda #1

S-372

Re: Clerks of Works position on the High  
School project.

In City Council,  
June 20, 1977

*-Placed on File-*