REQUEST for PROPOSAL

KALKIN HALL EXPANSION
FOR THE
SCHOOL OF BUSINESS ADMINISTRATION

ARCHITECTURAL AND ENGINEERING SERVICES

Facilities Design and Construction
Marsh Hall, Suite 10
31 Spear Street
Burlington, VT 05405

(802) 656-3291 | fax (802) 656-8410 | arch@uvm.edu
GENERAL

The University of Vermont (UVM) is soliciting proposals from qualified architectural firms and their consultant teams for professional services including design, document preparation, independent cost estimating services, and construction administration for the Kalkin Hall Expansion project. Submitting firms are to include the necessary services and associated fees for all civil, structural, mechanical, electrical, fire protection, independent cost estimating and any other consultants as required for a complete design proposal. Fees shall also include development of a minimum of five colored renderings and computer generated models for the University’s use in creating marketing and fundraising materials. All proposing firms shall have experience with the design of office space, support areas, classrooms and conference space in a university setting. UVM reserves the right to approve and/or recommend the choice of all consultants proposed by the architectural firm.

Construction of the Kalkin Hall Expansion project is subject to and conditioned upon final approval by The University of Vermont’s Board of Trustees. Board of Trustee consideration is anticipated for May 2014.

PROJECT DESCRIPTION

Historically, visiting students and parents often express reservations about the business school’s facilities and learning spaces as compared to competing schools; the School of Business Administration (BSAD) does not have sufficient study areas for both its undergraduate and graduate students. Consistent with UVM’s strategic plan for delivering a quality education with “extraordinary opportunities for learning” and “enhancing the cultural, social and economic life of Vermont… and the world”, BSAD is proposing an expansion to Kalkin Hall to accommodate anticipated growth in student enrollments and programs, most notably, in the international community and graduate-level programming.

This approximate 21,750 gsf expansion will address the long-standing need for creation of a more inviting “public oriented” entrance for visitors and guests. It will include a multi-purpose room that can be used for speakers, industry panels, career networking events, receptions, and other UVM-related events, as well as additional faculty offices, much needed classrooms, breakout/study rooms, and a case room for graduate students.

The four level (one sub-grade, three above grade) expansion is anticipated to run parallel to the west side of Kalkin Hall within the existing courtyard adjacent to Votey Hall and join the existing structure at the southeast and northwest ends of Kalkin Hall.

UTILITY INFRASTRUCTURE INFORMATION

The existing courtyard has many existing sub-surface utilities which need to be considered with any new construction in the area. These include: 6” high pressure steam piping, 2” pumped condensate piping, 6” cooling/condenser water lines, several small perimeter drain lines around both Votey and Kalkin, (2) 36” return and supply ventilation ducts serving the ground floor of Kalkin, and multiple 8” & 6” sanitary storm waste water lines from Votey. The existing Kalkin building is served domestic hot and heating hot water via heat-exchangers located in Votey. Distribution of this hot water is through ground floor, interior, corridors. That hot water is
generated by steam from the Central Heat Plant, this steam distribution is fed through the courtyard. There is steam generating capacity currently available from the Central Heat Plant for this proposed expansion. The primary chilled water for Kalkin is provided by the Central Chilled Water Plant, entering Kalkin on the south side. However, the Central Chilled Water Plant has no excess generating capacity and will need to have additional generating capacity provided as part of this project. There are two satellite chillers (one in Votey, one in Kalkin) with a common cooling tower located at Kalkin; these provide backup chilled water to both facilities and are to remain for redundancy only.

ANTICIPATED SCOPE OF WORK

The selected architectural team will review the program and conceptual layout provided by the University, and will provide schematic design, design development, construction documents, construction administration services and project closeout as part of the basic services requested. Submitting firms will include the services of a professional cost estimator in their fee to prepare three full scope estimates: one at the completion of schematic design, one at the completion of design development and the third at 50% completion of construction documents. The University expects to retain an independent estimator to provide concurrent estimates to be reconciled with the architect’s estimates.

The architect shall coordinate with The University of Vermont’s Campus Planning Services Department for permit submission and presentation. It may be necessary to provide presentation materials for public information meetings and City of Burlington Neighborhood Planning Assemblies. Firms and individuals considering this RFP should not contact city offices to obtain additional information. All inquiries must be directed through the UVM project manager.

The selected firm shall complete The University of Vermont’s Architect-Engineer (A/E) Checklist of Services attached hereto.

SUSTAINABLE DESIGN

Sustainable design practices must be followed for this project. In support of the University’s "Environmental Design in New and Renovated Buildings" policy, it is UVM’s intent to register this project with the USGBC, and to pursue, at a minimum, a LEED™ silver level certification. This requires the documentation and implementation of as many green building elements from the applicable LEED™ checklist as possible, from pre-construction through construction and owner occupancy.

The lead architect will identify a representative from their team to collect and submit the required LEED™ credit information to the USGBC.

The University may also retain a LEED™ accredited professional to audit the documentation. A third party commissioning agent will be hired by UVM for the project.

The University intends that all new construction and major renovation projects will participate in the University Construction and Demolition Waste Management Program, which includes following University specifications and utilizing an online construction and demolition waste tracking tool.
PROJECT SCHEDULE

The proposed project schedule is as follows:

- **Monday, November 11, 2013**: Request for Proposal available
- **Monday, November 11, 2013**: Legal notice - Burlington Free Press
- **Tuesday, November 19, 2013, 2:30 pm**: Mandatory site visit
- **Friday, November 22, 2013**: Deadline for questions
- **Monday, November 25, 2013**: Addendum to be issued (if necessary)
- **Friday, December 6, 2013, 2:00 pm**: Proposals due
- **Friday, December 20, 2013**: On-campus interviews
- **May 2015**: Anticipated construction start date

PROJECT BUDGET

The estimated target Cost of Work to be used to calculate fees is Eight Million ($8,000,000) dollars.

METHOD OF CONSTRUCTION

a) UVM expects to complete this project using a general construction delivery method. The form of contract is anticipated to be AIA A107 Abbreviated Standard Form of Agreement between Owner and Contractor for Construction Projects of Limited Scope with a Stipulated Sum, as modified by the University.

PROPOSAL REQUIREMENTS

Please submit twelve (12) hard copies and one (1) electronic copy of your proposal **tabbed and labeled per this list (by item number):**

1. Provide a brief description of your firm, type of ownership, length of time the firm has been in existence, number of personnel, and business approach.

2. Introduce your proposed project team, including consultants. Provide the resumes of all personnel to be assigned to the project, including the relevant experience that each team member will bring to the project. Identify and define the individual roles. Describe how the team has worked together previously on completed projects of similar scope.

3. Provide a list of at least three similar projects your firm/team has undertaken within the last five years including: description, size, original estimated cost as compared to original bid amount, final cost, date of completion, and owner. Provide a current contact person, telephone number and email address for all references.

4. Comment on the construction time frame proposed by UVM for the project. Is this realistic and achievable from your firm’s perspective? Include your anticipated schedule for completion of each design phase, allowing time for owner reviews, in order to meet the construction start date for the project.
5. Provide a list of current and pending project commitments by your firm.

6. Provide a fee proposal for the project per the attached Fee Proposal Matrix. Provide the methodology for charging for "additional services" including rate schedules. Provide an estimate of reimbursable expenses. Is the design team open to establishing a cap on these expenses? Include an hourly rate sheet for all firms carried in the proposal.

7. In the past ten years, has your firm (1) had claims made against it for claimed amounts in excess of $25,000 per project or (2) had any arbitration actions or lawsuits initiated against it for any claimed damages or losses arising out of services your firm has supplied to owners or clients who have hired your firm?

   If so, please describe the date(s) and parties involved in such claims, and describe the nature of the dispute, and if a lawsuit was filed, please identify the court where such suit was filed.

8. Provide proof of ability to furnish liability insurance covering claims arising out of negligent acts, errors, and omissions in rendering or failing to render professional services. Limits of liability shall not be less than $1,000,000 each claim and not less than $1,000,000 in annual aggregate.

PROPOSAL SELECTION CRITERIA

The University will use the following criteria to evaluate the proposals:

- Team's recent and demonstrated experience in designing successful administrative/classroom buildings in a university setting, especially ones similar in nature to the Kalkin Hall Expansion.
- Expertise, experience, and qualification of the design team proposed for the project.
- Expertise, experience, and qualifications of the consultants proposed for the project.
- Fee proposal, estimated reimbursable expenses, and hourly rate schedules.

The University may elect to solicit additional information from certain firms and award a contract to the most responsible bidder providing the best value to UVM based on the selection criteria. The University reserves the right to reject any or all proposals.

PROPOSAL TERMS

- Firms choosing to submit a proposal certify that they have reviewed the conditions of the non-negotiable AIA B102 and 201 Agreement documents, with language modified by the University, and that they will enter into this agreement with The University of Vermont if selected for this project.
- The University as an Instrumentality of the State of Vermont is governed by specific freedom of information laws. No aspect of the proposal(s) should be considered confidential. The University will not make the proposal(s) available for public review unless a request is presented in writing and the Office of the General Counsel determines the University is required to make the proposal(s) public under the freedom of information laws.
PROPOSAL DEADLINE

Twelve (12) hard copies and one (1) electronic copy of your proposal are due by 2:00 pm, on Friday, December 6, 2013, at the following address. Proposals received after that time will not be considered.

The University of Vermont
Department of Facilities Design and Construction
Marsh Hall, Suite 10
31 Spear Street
Burlington, VT 05405-0344
Attn: Ken Bean

The University may elect to solicit additional information from certain firms. The University reserves the right to reject any and all proposals.

MANDATORY CAMPUS SITE VISIT AND INFORMATION MEETING

The mandatory campus site visit and informational meeting will be held Tuesday, November 19, 2013, at 2:30 pm. The meeting will convene in Votey Hall, Room 254. Please view the following website for directions and parking information. http://www.uvm.edu/~tpswww/.

QUESTIONS

Verbal questions will be answered at the campus site visit and informational meeting. All other questions should be addressed in writing no later than Friday, November 22, 2013, to arch@uvm.edu.

END OF REQUEST FOR PROPOSAL

Attachment: Fee Proposal Matrix
A/E Checklist of Services
Courtyard Location Maps
Utility As-Built Site Plan
## Fee Proposal Matrix

### Kalkin Hall Expansion

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Additional disciplines may be included as needed.
Kalkin Hall Expansion
Architect-Engineer (A-E) Checklist of Services
November 11, 2013

The following architectural and engineering checklist defines the requirements for University of Vermont construction project design submissions. It is meant as a guide for obtaining uniformity and coherence in the presentation of design documents.

It is imperative that the A/E and consultants recognize that the UVM reviews are general in nature; that the detailed checking for technical accuracy, sufficiency, and coordination is the sole responsibility of the A/E and his consultants. Not-withstanding UVM approval, the A/E shall remain liable for all damages resulting from design errors and negligent performance by the A/E or its consultants.

All review comments shall be incorporated into the design documents prior to subsequent design phase submissions, unless the reviewer directs the A/E to disregard the comment. In this event, the A/E shall record such a direction in the A/E response column.

The A/E shall provide a written reply to all comments prior to the next submission. If the A/E intends to disregard a comment, the A/E shall provide a written explanation of variance with the comment to UVM within seven (7) days after receipt of the UVM review comments.

Identify phase for each submission: Schematic Design, Design Development, 50% Construction Documents, and 100% Construction Documents.

**Schematic Design (SD) Phase Submission**

The SD documents must be submitted to UVM for design review and approval.

Detailed Information: Schematic design phase submissions at a minimum shall include the following requirements, as applicable to the project. All plan drawings shall indicate the north arrow, column lines and the scale of the drawing.

A. **Site/Landscape**
   All site documentation shall:
   - Be coordinated with similar activities in other disciplines

   1) **Drawings**
      a) Existing site plan
         1) Vicinity Plan
         2) Location of benchmark that will control all project elevations
         3) Demolition Plan
         4) Facilities that may have interruption of any utility
         5) Orient north to be the top of the drawings in plan view
         6) Major landscaping
            - Major trees and memorial vegetation
            - Fences and barriers
         7) Site features and conditions
o Existing contours, especially at major grade changes
o Building footprint
o Setbacks
o Preliminary geotech information
o Proposed soil boring locations
o Seismic conditions
o Identifiable site constraints
o Utility lines
o Manholes, drains, utility access
o Security features
o Known historic or archaeological impact items

(8) Paved surfaces
o Major streets
o Vehicular routes
o Curbs
o Walks
o Pedestrian access routes
o Bicycle paths and parking
o Parking with handicapped locations
o Service areas
o Other paved areas

(9) Existing structures

(10) Existing buildings

(11) Buildings/Structures/other items to be demolished or removed

(12) Other elements
  o Nuisance land uses
  o Convenience nodes (mass transit, drop off area)

2) Reports/Calculations
   a) Basis of Design report
      (1) Analysis/description of conceptual design
         o Design objectives
         o Environmental determinants
         o Site utilities
         o Land forms
         o Site lighting
         o Pest management
         o Irrigation system
         o Lawns and plantings based on programming
         o Grading
         o Physical site characteristics
         o Impact of building on site
         o Impact of site on building
      (2) Concept plan for drainage and grading
      (3) Demolition requirements
      (4) Alternative materials, systems, and equipment
         o Site utilities
         o Fire protection
         o Paving

B. Architectural
   All architectural documentation shall:
   o Be coordinated with similar activities in other disciplines
   o Update LEED scorecard, provide submissions

1) Drawings
   a) Floor Plans
      (1) Demolition plan of each level
         o Limit of demolition work
      (2) Floor plan of each level – New work
o Area names
  ◦ Room names
  ◦ Public areas
  ◦ Service areas
o Column lines
o North Arrow
o Capacity information (Number of people, seating, etc.)
o Departmental assignments, if known
o Floor elevations in coordination with civil
o Light wells
o Mechanical areas
o Multilevel spaces
o Partition locations
o Planning grid or module
o Preliminary equipment and description
o Relative wall thickness
o Security features
o Skylights
o Vertical transportation
(3) Fire protection and means of egress plan
  o List features required by code
  o List features required by NFPA Standard 101 and FM Global
  o Fire protection analysis
  o Fire areas
  o Fire walls
  o Smoke zones
  o Travel distances
  o Areas of refuge
b) Interiors
  (1) Interior space allocation and utilization plan
    o Indicate major materials and systems
c) Exterior
  (1) Building exterior elevations
    o Finish grades
    o Major floor elevations above and below grade
    o Exposed mechanical and electrical equipment
    o Description of various design features
d) Sections
  (1) Building section (cross and longitudinal)
    o Relative thickness of floors
    o Relative thickness of walls
    o Major floor elevations
    o Finish grades
    o Major room names
    o Important site easements
    o Significant mechanical and electrical equipment
    o Relationship to site contours
    o Above-ceiling zoning analysis
    o Typical wall sections
    o Set interstitial space dimensions
    o Set floor-to-floor dimensions

2) Reports/Calculations
  a) Basis of Design report
  b) Architectural program
  c) Code analysis
     (1) Define building type
     (2) Define use category
d) Area analysis
    (1) Gross area tabulations
(2) Area tabulations for net and gross design areas by floor
(3) Space tabulation of net by room
e) Alternative materials, systems, and equipment
f) Description of Green/Sustainable Design elements included
   (LEED scorecard)

C. **Structural**
   All structural documentation shall:
   o Be coordinated with similar activities in other disciplines

1) **Drawings**
   a) Floor Plans
      (1) Demolition plan of each level
      (2) Building outline – plan view with column lines related to architectural plan
      (3) Indicate contemplated column footprint size
      (4) Column lines
      (5) North Arrow
   b) Sections
      (1) Indicate contemplated beam configuration and depth
      (2) Indicate interstitial levels

2) **Reports/Calculations**
   a) Basis of Design Report
      (1) Systems outlines
      (2) Development of conceptual design solutions in coordination with other disciplines
      (3) Design live loads and design wind loads stated
      (4) Two possible structural systems
   b) Indicate status of obtaining geotechnical data for structural design
   c) Code analysis

D. **Mechanical**
   All mechanical documentation shall:
   o Be coordinated with similar activities in other disciplines

1) **Drawings**
   a) Floor Plans
      (1) Demolition plan of each level
         o Limit of demolition work
      (2) New work plan of each level
      (3) Locate new and existing mechanical HVAC equipment
      (4) Layout out major components
      (5) Coordinate locations and size of mechanical rooms with architectural plans
      (6) Coordinate locations and size of vertical shafts with architectural plans
      (7) System flow diagrams indicating the basic arrangement, general distribution concept, and
          key features of each mechanical system
      (8) Identify connections to major utilities
         o Steam
         o Chilled water
         o Natural gas
      (9) Indicate intakes and exhausts relationships to:
         o Loading docks
         o Emergency generator
         o Adjacent buildings
         o Wind direction

2) **Reports/Calculations**
   a) Basis of Design report
   b) Code analysis
   c) Design conditions
      (1) Outside air temperature
(2) Inside air temperature
(3) Air changes
(4) Relative humidity
(5) Utility pressure
(6) Methodology for utility demands

d) Requirements for HVAC services

e) Special requirements
   (1) Fume hood
   (2) Biosafety cabinet
   (3) Other local exhaust requirements
   (4) Constant-temperature rooms
   (5) Clean rooms
   (6) Chemical storage

f) Overall HVAC system concepts

g) Equipment type and redundancies

h) Energy recovery systems

i) Preliminary equipment sizes based on building gross square feet area

j) Preliminary energy budget

k) Life-cycle cost analysis

l) Analysis of conceptual design solutions
   (1) Energy source
   (2) Energy conservation
   (3) Heating and ventilating
   (4) Air conditioning

m) Alternative materials, systems, and equipment

n) Design intent and scope of systems

o) Systems outline for proposed projects

p) Systems redundancies

E. **Plumbing**

   All plumbing documentation shall:
   - Be coordinated with similar activities in other disciplines

1) **Drawings**

   a) Floor Plans
      (1) Demolition plan of each level
         - Limit of demolition work
      (2) New work plan of each level
      (3) Locate new and existing plumbing equipment
      (4) Layout out major components
      (5) System flow diagrams indicating the basic arrangement, general distribution concept, and key features of each plumbing/piping system
      (6) Coordinate locations and size of vertical shafts with architectural plans
      (7) Identify connections to major utilities
         - Steam
         - Chilled water
         - Natural gas
         - Water
         - Special water (deionized, R.O.)
         - Sewer
         - Specialty gases (systems or tanks)
         - Vacuum
         - Compressed air

2) **Reports/Calculations**

   a) Basis of Design report
   b) Code analysis
   c) Basic system arrangement and zoning
   d) Primary features
   e) General sizing criteria (Flow and Pressure)
f) Equipment type and redundancies

F. **Fire Protection**
   All fire protection documentation shall:
   ○ Be coordinated with other disciplines

   1) **Drawings**
      a) Floor Plans
         (1) Demolition plan of each level
            ○ Limit of demolition work
         (2) New work plan of each level
         (3) Locate new and existing fire protection equipment or systems
         (4) Layout out major components

   2) **Reports/Calculations**
      a) Basis of Design report
      b) Code analysis
      c) Present conditions
      d) Requirements for fire protection
      e) Requirement for a fire pump and preliminary size
      f) Overall system concepts
      g) Analysis of conceptual design solutions
      h) Alternative materials, systems, and equipment
      i) Calculation of the required water supply
      j) Hydrostatic flow test
      k) Preliminary sprinkler water supply calculations
      l) Schematic plans with overall fire protection concepts
      m) Special fire suppression systems
         (1) Descriptions
         (2) Locations
         (3) Justification for use
      n) Integrated fire alarm
      o) Protection analysis report for each alternative

G. **Electrical**
   All electrical documentation shall:
   ○ Be coordinated with other disciplines

   1) **Drawings**
      a) Site Plans
         (1) Locate connection to medium voltage distribution
         (2) Locate emergency generators
         (3) Indicate demolition work
      b) Floor Plans
         (1) Demolition plan of each level
            ○ Limit of demolition work
         (2) New work plan of each level
         (3) Locate electrical distribution equipment
(4) Coordinate locations and size of electrical rooms/closets with architectural plans
(5) Single line indication of major feeder routes
(6) Tentative layouts of components
(7) Lighting plans
   o Location of lighting fixtures
   o Type of lighting fixtures
(8) Coordinate locations of vertical shafts with architectural plans
   c) Riser Diagram for normal and emergency power distribution

2) Reports/Calculations
   a) Basis of Design report
      (1) Code analysis
      (2) Description of primary service available
      (3) Overall electrical system concept
      (4) Analysis of conceptual design solutions
      (5) Description of all proposed systems
      (6) Description of emergency power system
   b) Electrical load calculations

H. Telecommunications
   All telecommunication documentation shall:
   o Be coordinated with other disciplines

1) Drawings
   a) Site Plans
      (1) Locate connection to telecommunication distribution
      (2) Indicate demolition work
   b) Floor Plans
      (1) Demolition plan of each level
         o Limit of demolition work
      (2) New work plan of each level
      (3) Locate new and existing telecommunication equipment
      (4) Coordinate locations and size of telecommunication rooms/closets with architectural plans
      (5) Single line indication of major pathway routes
      (6) Coordinate locations of vertical shafts with architectural plans
   c) Riser Diagram for telecommunication distribution

2) Reports/Calculations
   a) Basis of Design report
      (1) Description of telecommunication service available
      (2) Overall telecommunication system concept
      (3) Analysis of conceptual design solutions
      (4) Description of all proposed systems (Public address, audio/visual system, distributed antenna system, etc.)

I. Specifications
   1) General conditions of contract coordinated with the University of Vermont’s ‘General Requirements for Working at the University of Vermont’
   2) Outline of specifications or itemized list with criteria and quality standards

J. Costs
   Cost analysis
   o Prepared by independent professional estimating firm
   o Cost estimates reconciled with Owner’s independent cost estimator

Design Development Phase Submission

The DD documents must be submitted to UVM for design review and approval.

Design development phase submission, at a minimum, shall include following requirements as applicable to the
project in addition to the requirements from the schematic design phase. All plan drawings shall indicate the north arrow, column lines, and the scale of the drawing.

The Architect shall coordinate with the University of Vermont’s Campus Planning Services Department for permit submission and presentation.

A. Site/Landscape
All site documentation shall:
  o Be coordinated with similar activities in other disciplines

1) Drawings
   a) Plans
      (1) Vicinity Plan updated as required
      (2) Location of signage
      (3) Details
      (4) Existing Site Plan updated as required
          o Facilities that may have interruption of any utility
      (5) Proposed site plan
          o Existing site information
          o Building footprint
              ✷ Spot elevations at building
          o Proposed contours
          o Key design elements
          o Major landscaping
          o Utility lines
          o Concept plan for drainage and grading
          o Vehicular access routes
          o Parking area
          o Loading dock location and proposed access route
              ✷ Coordinate location of loading docks such that they are not near air intakes
          o Proposed pedestrian access routes
          o Proposed service areas
          o Construction access/lay down information
              ✷ Location for excavated material
              ✷ Site access routes for transporting/delivering project supplies
              ✷ Staging areas
              ✷ Construction office trailer locations
              ✷ Utility hookups, construction trailer
          o Limits of work showing location of site fence
          o Indication of future surrounding improvements

2) Reports/Calculations
   a) Basis of Design report
      (1) Establish final scope
          o Relationships
          o Form
          o Size
          o Appearance
      (2) Utilities statement: Companies, agencies, individual contact
      (3) Analysis/description of conceptual design solutions
      (4) Site safety plan
          o Fire protection
          o Hazardous material handling
      (5) Storm water management report
      (6) Erosion/sediment control report
      (7) Concept plan for drainage and grading
      (8) Demolition requirements
      (9) Alternative materials, systems, and equipment

B. Architectural
All architectural documentation will:
- Be coordinated with similar activities in other disciplines

1) **Drawings**
   a) **Plans**
      (1) Demolition plan of each level
      (2) Floor plans of each level
         - Identification of existing and new construction
         - General notes
         - Enlarged plan bubbles
         - Shelving and special features
         - Fixed equipment
         - Portable equipment
         - Other penetrations
         - Access areas/area ways
         - Door schedules
         - Finish schedules
         - Double line plans with precise wall thickness
         - All programmed rooms
         - Equipment rooms
         - Electrical rooms
         - Telephone closets
         - Mechanical rooms
         - Shafts
         - Circulation corridors
         - Stairs
         - Ladders
         - Elevators
            - Number
            - Type
            - Size
         - Automatic conveyances
         - Room names
         - Department or area names
         - Planning grid
         - Structural grid
         - Floor elevations
         - Equipment
         - Furnishings and other space-defining elements
         - Multilevel spaces
         - Light wells
         - Significant mechanical equipment
         - Significant electrical equipment
         - Capacity information (Number of people, seating, etc.)
         - Overall dimensions
         - Plan and layout of typical or repetitive spaces
         - Fire protection
            - Fire walls
            - Smoke walls
            - Smoke zones
      (3) Roof plan
         - Major roof elements
            - Skylights
            - Hatches
            - Major mechanical equipment
            - Major electrical equipment
            - Elevator machine rooms
      (4) Reflected ceiling plan
         - Suspended ceiling grids
         - Lighting fixtures
b) Interiors
(1) Interior space allocation and utilization plan
   o Establish the final scope relative to interior construction
   o Finish Schedule
     ♦ Finishes
     ♦ Colors
     ♦ Special interior design features
   o Furniture and equipment
     ♦ Furnishings
     ♦ Equipment selections
     ♦ Materials

c) Interior Elevations
(1) Building interior elevations
   o Typical spaces
   o Major spaces
   o Areas of special interest
   o Areas of special complexity

d) Exterior Elevations
(1) Building exterior elevations
   o Indicate all surface materials for all areas

e) Sections and Details
(1) Building Sections
   o Set floor-to-floor dimensions
   o Establish floor elevations
   o Set interstitial space dimensions
(2) Wall sections
   o Typical wall sections
     ♦ At window
     ♦ At solid wall
     ♦ At parapets and roofs
     ♦ At finished grades and footings
(3) Construction sections
   o Typical stairways
   o Typical elevator shaft and machine room
   o Utility coordination cross-sections

2) Reports/Calculations
   a) Basis of Design Report
   b) Area analysis
   c) Alternative materials, systems, and equipment
   d) Outline of program
   e) Design description narrative
   f) Design concepts and objectives
   g) Tabulation of net and gross areas
   h) Growth potential
   i) Description of Green/Sustainable Design elements included
      (LEED scorecard can be used to communicate intent even if certification is not intended)
   j) Alternate schemes
   k) Building envelope analysis
      (1) Recommendations for overall building envelope
      (2) Review of thermal vapor flow and moisture
      (3) Recommendation for vapor barriers
      (4) Recommendation for vapor isolation
      (5) Coordinate with Owner’s Building Envelope Consultant
l) Asbestos report – Provided by the University
m) Vertical transportation recommendations
   (1) Elevators
      o Number
      o Type
      o Size
      o Weight capacity
      o Speed
      o Arrangement
   (2) Other requirements

C. **Structural**
   All reports and documentation will:
      o Be coordinated with similar activities in each discipline

1) **Drawings**
   a) Floor plans
      (1) Demolition Plan
      (2) Structural floor plans, each level coordinated with architectural development
         o Indicate soil bearing capacities
         o Indicate potential structural framing system that coordinates with architectural and
           suitable for vibration transmission limitation required by scientific program
         o Fixed column reference lines
         o Basic structural system and dimensions
         o Bearing walls
         o Major bracing locations
         o Locate typical bay – relate to architectural
         o Preliminary sizing of major components
         o Columns
         o All framing members identified
            ♦ Girders
            ♦ Beams
            ♦ Joists
         o Indicate structural framing systems
      (3) Structural foundation plans
         o Footings
         o Foundation walls
         o Retaining walls
         o Grade beams
      (4) Details
         o Foundation details
         o Typical framing details
         o Sub drainage
         o Waterproofing
         o Damp proofing

2) **Reports/Calculations**
   a) Basis of Design report
      (1) Existing conditions
         o Underlying soil-bearing capacities
   b) Calculations for support of Hydronic and hydraulic piping
   c) Vibration requirements and analysis
   d) Summary of structural systems requirements
   e) Fire-resistive construction requirements
   f) Development of alternatives
      (1) Foundation design criteria
      (2) Coordination with piping systems that require support
      (3) Laboratory vibration analysis
      (4) Final structural design criteria
      (5) Comparative cost analysis of at least two structural systems
D. Mechanical
All mechanical documentation will:
  o Be coordinated with similar activities in other disciplines

1) Drawings
a) Floor Plans
   (1) Demolition plan
   (2) Locate associated existing mechanical equipment
   (3) Indicate connection to major utilities
   (4) Block layouts of mechanical spaces
      o Layout of major components in equipment rooms
      o Approximate equipment sizes and capacities
      o Required space for equipment
      o Required chases and clearances
      o Acoustical and vibration control
   (5) Energy conservation measures
   (6) Shafts
   (7) Mechanical Plan showing ducts
   (8) Double line drawing of ducts >150 mm (6 in.)
   (9) Single line drawing of ducts ≤150 mm (6 in.)
   (10) Indicate size of ducts
   (11) Indicate insulation/moisture prevention
   (12) Location of supply diffusers, return and exhaust grilles, coordinated
   (13) Reflected ceiling plan
   (14) Location of all equipment
b) Legend
c) Special or complex ductwork
d) Drawing sections through equipment rooms
e) Typical ductwork details
f) Details of unique conditions
g) Air conditioning systems
h) Exhaust systems
i) Refrigeration systems
j) Process systems
k) Equipment schedules
l) Air conditioning schedules
m) Ventilation units schedules
n) Refrigeration elements schedules
o) Fans schedules
p) Pumps schedules
q) Specialty system
r) System diagrams (one line flow and control diagrams)

2) Reports/Calculations
a) Basis of Design report
   (1) Plant analysis
   (2) Design intent and scope of systems
   (3) Systems outline for proposed project
      o Heating source
      o Refrigeration source
      o HVAC systems
      o Energy conservation
      o Redundancies
      o Building & energy management systems
   (4) Indoor design conditions U-value calculations
   (5) Outdoor design conditions U-value calculations
   (6) Theoretical water vapor migration
(7) Dew point and condensation potential
b) Room by room load calculations for space cooling and heating
c) Ductwork sizing in plenums and shafts
d) Energy analysis for at least three HVAC systems
e) Building energy model
f) Life cycle cost analysis
g) Energy recovery analysis
   (1) Energy conservation analysis
h) Connected load requirements
i) Wind analysis and laboratory exhaust plume study
j) Pressurization analysis
k) Energy study
l) Sizing calculations for ducts
m) Combustion air supply calculations
n) Boiler plants
o) Ventilation systems
p) Heating system
q) Calculations for fan pressures and pump heads
r) Calculations for required sound attenuation of major fans
s) Calculations for process systems

E. Plumbing
   All plumbing documentation will:
   ○ Be coordinated with similar activities in other disciplines

1) Drawings
   a) Demolition Plans
   b) Locate associated existing mechanical equipment
c) Indicate connection to major utilities
d) Floor Plans showing location and size of equipment
e) Locate piping
f) Double line drawing and piping >150 mm
g) Single line drawing and piping ≤150 mm
h) Indicate size of pipes
i) Indicate insulation/moisture prevention
j) Indicate piping system
k) Walk-in coolers, freezers, cold rooms
l) Refrigeration systems
   (1) Schematic piping
   (2) Wiring diagrams
   (3) Automatic controls
m) Plot plan for outside of building underground distribution
n) Riser diagrams
   o) Details
p) Detailing of unique conditions and vibration isolation engineering
q) One line flow and control diagrams
r) Chilled water
s) Condenser water
t) Hot water
u) Steam piping (including low quantities)
v) Air conditioning steam
w) Plumbing piping mains
   x) Pipes materials
   y) Drainage piping mains (waste and storm)
z) Utilities
   aa) Distribution layouts
   bb) Plumbing fixtures
   cc) Plumbing riser diagrams
dd) Schedules
2) **Reports/Calculations**
   a) Basis of Design report
   b) Coordination with structural for support of piping
   c) Provide cut-sheets for plumbing fixtures and equipment, with primary features/anticipated design options identified
   d) Plumbing calculations
      (1) Pump sizing
      (2) Tank sizing

F. **Fire Protection**
   All fire protection documentation shall:
   o Be coordinated with similar activities in other disciplines

1) **Drawings**
   a) Floor Plans
      (1) Demolition plans
      (2) Locate new and existing equipment
      (3) New fire protection mains
      (4) Booster system requirements
      (5) Fire pump requirements
      (6) Preliminary equipment layouts
      (7) Required space for equipment
      (8) Block layouts for the fire protection system
      (9) Plan drawings
      (10) Create legends
      (11) Locate piping
      (12) Indicate size of pipes
      (13) Equipment layouts
      (14) Ceiling plan drawings
      (15) Sprinkler locations

2) **Reports/Calculations**
   a) Basis of Design report
      (1) Strategy for meeting life safety codes
      (2) List any upgrade requirements to achieve fire protection policy
      (3) Sprinkler calculations
      (4) Fire pump calculations
      (5) Fire alarm requirements
   b) Approximate sizes and capacities of major components

G. **Electrical**
   All electrical documentation will:
   o Be coordinated with similar activities in other disciplines

1) **Drawings**
   a) Site Plan
      (1) Service transformer location
      (2) Location of emergency generators and feeder/conduit routing
      (3) Preliminary details for site electrical work
      (4) Indication of demolition work
   b) Floor Plans
      (1) Demolition plans
      (2) Layout of major components in all electrical equipment rooms
         o Preliminary sizes of major components
         o UPS
         o High-voltage systems
         o Service transformer
         o Emergency generator
      (3) Identify special features
         o Under floor raceways
o Floor outlets
o Occupancy sensors
c) Tentative layouts of components where space is critical
d) Lighting plans
   (1) Location of lighting fixtures
   (2) Type of lighting fixtures
e) Updated riser diagram for normal and emergency power distribution with feeder, conduit, and transformer sizes
f) Updated site plan indicating location of:
   (1) Feeder/conduit routing for medium voltage distribution
   (2) Location of emergency generators and feeder/conduit routing
   (3) Transformer vaults
   (4) Other major equipment
g) Lighting fixtures indicated with type, switching and circuiting information
h) Outlets for power with circuiting information
i) Connections for mechanical and plumbing equipment with disconnect and circuiting information
j) One line riser diagram of electrical distribution
k) One line riser diagram of auxiliary power distribution
l) Panel schedules
m) Grounding
n) Fire alarm
o) Telephone
p) All low-voltage systems

2) Reports/Calculations
a) Basis of Design report
   (1) Criteria for lighting
   (2) Criteria for electrical system
   (3) Lighting control concept
   (4) Systems outline and types of systems
b) Overall building connected load requirements
   (1) Normal power
   (2) Emergency power
c) Electrical service sizing calculations
d) Preliminary sizing for transformers, generator, UPS, etc.
e) Lighting calculations
f) Load calculations
g) Short circuit calculations
h) Voltage drop calculations

H. Telecommunication
All telecommunication documentation will:
   o Be coordinated with similar activities in other disciplines

1) Drawings
a) Site Plan
   (1) Conduit routing for telecommunication distribution
   (2) Preliminary details for site electrical work
   (3) Indication of demolition work
b) Floor plans
   (1) Demolition plans
   (2) Layout of major components in all telecommunication equipment rooms
      o Preliminary sizes of major components
   (3) Telephone connections
   (4) Data connections
c) Tentative layouts of components where space is critical
d) Updated riser diagram for telecommunication distribution conduit sizes
e) Layout of major components in all telecommunication equipment rooms
f) Layouts of components where space is critical
2) **Reports/Calculations**
   a) Updated basis of design report

I. **Specifications**
   1) General and supplemental conditions of contract
   2) Outline of specifications or itemize list with criteria and quality standards
      a) Significant architectural materials
      b) Engineering systems
      c) Equipment
   3) Outline of project specifications

J. **Costs**
   1) Cost Analysis
      a) Systems Cost estimate
         (1) Approximate quantities
         (2) Identification of potential items for value engineering
      b) Budget outline
         (1) Construction costs by an independent professional estimating firm, to be reconciled with the Owner’s independent cost estimator
         (2) Equipment included in budget
         (3) Equipment by owner

K. **Specifications**
   1) General and supplemental conditions of contract
   2) Edited project specifications

L. **Schedules**
   1) Construction schedule and phasing in bar chart form
   2) Project schedule diagram with phases of development

**Construction Document Phase Submission**

The CD documents must be submitted to UVM for design review and approval.

Detailed Information: The construction documents, at a minimum, shall include the following requirements as applicable to the project.

A. **Site/Landscape**
   All Site documentation will:
   o Be completed
   o Be coordinated with similar activities in other disciplines
   o Address all comments from Design Development phase

1) **Drawings**
   a) Floor Plans
      (1) Updated Vicinity Plan
      (2) Updated Existing Site Plan
      (3) Proposed Site Plan
         o Erosion control measures
         o Existing site information
         o Dimension major site features
         o Building footprint
         o Key design elements
         o Major landscaping
         o Utility lines
         o Vehicular access routes
         o Pedestrian access routes
         o Parking
         o Walks
Architect-Engineer (A/E) Checklist of Services

Kalkin Hall Expansion

(1) Site Planning
- Curbs
- Service areas
- Staking plan
- Proposed contours
- Construction access/lay down information
- Indications of phasing
- Limits of work/construction fencing
- Indication of future surrounding improvements
- Locate signage
- Security measures

(4) Planting plan
- Location of all trees, shrubs, and lawns
- Complete planting list
- Planting details

(5) Landscape details

(6) Demolition plans

(7) Utility plot plan
- Existing utilities and their connections
- Proposed trunk sewers
- Water distribution loop
- Fire water distribution loop
- Gas distribution mains
- Location arrangement of water treatment equipment

(8) Alternate schemes

2) Reports/Calculations
   a) Site Construction Document Design Report
      - Updated Basis of Design

B. Architectural
   All Architectural documentation will:
   - Be coordinated with similar activities in other disciplines
   - Address and provide responses to all comments from Design Development phase

1) Drawings
   a) Entire project site on one sheet for references
   b) Demolition plan of each level
   c) Floor plans of each level
      - (1) Signage location
   d) Roof plan
   e) Reflected ceiling plans
   f) Floor covering plan
      - (1) Material type
      - (2) Graphics
      - (3) Patterns
   g) Enlarged plans
   h) Fire protection egress plan
   i) Equipment plan
   j) Interior space allocation and utilization plan
   k) Interior elevations
      - (1) Signage location
   l) Exterior elevations
      - (1) Signage location
   m) Building sections
   n) Construction details
      - (1) Any unique condition not previously covered
   o) Installation plans
      - (1) Furniture
      - (2) Equipment
   p) Updated schedules
(1) Door schedules
(2) Finish schedules
(3) Equipment schedules

2) Reports/Calculations
   a) Architectural Design report
      o Updated Basis of Design
      o Updated Green/Sustainable Design

C. Structural
   All Structural documentation will:
   o Be coordinated with similar activities in other disciplines
   o Address all comments from Design Development phase

1) Drawings
   a) Demolition plan of each level
   b) Structural floor plans for each level and roof
      (1) Column reference lines
      (2) Final dimensions
      (3) All bracing
      (4) Sizing of all components
      (5) Special provisions for installation or removal of equipment
   c) Structural foundation plans
      (1) Locate grades
      (2) Indicate site information, i.e., manholes and important features
      (3) State concrete mix properties, steel reinforcement properties
      (4) Locate terrain features
      (5) State elevation of bottom of footings
      (6) Indicate concrete member
         o Dimensions of footings, foundation walls, grade beams
         o Spacing
         o Reinforcing
      (7) Locate finished and unfinished spaces
      (8) Pipe sleeves through footings
      (9) Pipe sleeves through below grade walls
      (10) Elevations
      (11) Top of slab elevations
      (12) Top of steel elevations
   d) Details
      (1) Sections, elevations, and details
      (2) Critical coordination clearances
      (3) Concrete reinforcement splicing details, where critical
      (4) Clarification of lengths or arrangement of reinforcement
         o Any condition not previously addressed
   e) Schedules
      (1) Schedules for slabs, beams and girders
      (2) Column schedule
   f) Structural notes
   g) Structural drawings and information is coordinated with architectural, HVAC, and electrical design

2) Structural Load Information
   a) Horizontal (wind and seismic)
   b) Live loads
   c) Dead loads

3) All Structural Members Sized
   a) Girders, beams, joists, slabs, columns, walls, shear walls, pads, and their reinforcing
   b) Beams – steel and concrete
   c) Joists
d) Open web joists
e) Concrete joists
f) Waffle slab
g) Space frames
h) Lintels
i) Type, extent, and direction of framing
j) Reference structural items to schedule

4) **Dimensioned Details**
   a) Large openings
   b) Nonstandard beam to column framing
c) Concrete stairs
d) Exterior wall construction
e) Window wash supports
f) Anchors and ties
g) Elevator shaft details
h) Vibration isolation details
i) Large mechanical equipment and anchorage
j) Typical framing details
k) Standard structural steel connections
l) Sump pump systems
m) Reference to appropriate schedules
n) Shear walls

5) **Reports/Calculations**
   a) Structural report
      (1) Completed computations
      (2) Special condition
      (3) General note
      (4) Boring logs
      (5) Girder diagrams
         o Live loads
         o Uniform loads
         o Concentrated loads
         o Reactions
         o Girder material
         o Stresses

D. **Mechanical**
   All mechanical documentation will:
   o Be a minimum of 100% complete
   o Be coordinated with similar activities in other disciplines
   o Address all remarks from Design Development phase
   o

1) **Drawings**
   a) Demolition plans
   b) Completed floor plans
      (1) Legend
      (2) Mechanical Plan showing ducts and piping
         o Double line drawing of ducts and piping >150 mm (6 in.)
         o Single line drawing of ducts and piping ≤150 mm (6 in.)
      (3) Indicate size of ducts and pipes
      (4) Indicate insulation/moisture prevention
      (5) Fire dampers
      (6) Smoke dampers
      (7) Balancing dampers
      (8) Location of all equipment
      (9) Indicate smoke detectors
         o Within ducts
(10) Special or complex ductwork
(11) Location of supply diffusers, return and exhaust grilles coordinated with reflected ceiling plan

c) Completed Sections
   (1) Drawing sections
      o Through equipment rooms
      o Typical ductwork
      o Through tight and congested ceiling spaces

d) Completed Details
   (1) Details of unique conditions
   (2) Details of component/equipment piping and duct connections
   (3) Control diagrams with points list, legend, and operating description
      o Air conditioning systems
      o Exhaust systems
      o Refrigeration systems
      o Heating systems

e) Completed Schedules
   (1) Equipment schedules with facility numbers and labeling requirements
      o Air conditioning
      o Ventilation units
      o Refrigeration elements
      o Fans
      o Pumps
      o Boilers/Heat exchangers

2) Reports/Calculations
   a) Completed Basis of Design report
   b) Completed Design reports
      (1) Sizing calculation for ducts, piping, and equipment
      (2) Calculations for fan pressures and pump heads
      (3) Calculations for required sound attenuation of major fans

E. Plumbing
   All plumbing documentation will:
   o Be coordinated with similar activities in other disciplines
   o Address and provide responses to all comments from Design Development phase

1) Drawings
   a) Demolition plans
   b) Completed plumbing system plan drawings
      (1) Legends
      (2) Show location and size of equipment, fixtures, valves, and accessories
         o Pumps
         o Tanks
         o Heat Exchangers
         o Heaters
         o Compressors
         o Sinks, emergency showers, and eye wash
         o Backflow preventers, pressure reducing valves
         o Lab air outlets and floor drains
         o Isolation valves and access panels
      (3) Locate piping
         o Double line drawing and piping >150 mm
         o Single line drawing and piping ≤150 mm
      (4) Indicate size of pipes
      (5) Indicate insulation/moisture prevention
      (6) Indicate piping system
         o Storm water
         o Cold water
o Condenser water
o Hot water/recirculation
o Steam piping (including low quantities)
o Waste
o Sanitary
o Vent
o Oxygen
o Compressed air
o Fuel gas
o Vacuum air
o DI/RO water
o Condensate drain
o Laboratory water and waste systems
o Chilled water
o Additional piping used for the project
c) Plot plan for outside of building underground distribution
d) Riser diagrams
e) Details
   (1) Detailing
      o Unique conditions
      o Vibration isolation
      o Fixture connection
      o Equipment connection
      o Bench top/utility ledge piping
f) One line flow and control diagrams
   (1) Lab waste and vent
   (2) Sanitary waste and vent
   (3) Hot and cold water/recirculation
   (4) Steam piping (including low quantities)
   (5) DI/RO water
   (6) Natural gas
   (7) Compressed gas
   (8) Chilled water
g) Completed schedules
   (1) Equipment schedules with facility numbers and labeling requirements
      o Water heaters
      o Pumps
      o Compressors
      o Tanks

2) Reports/Calculations
   a) Design report
      (1) Equipment selections based on manufacturer’s catalog data
      (2) Sizing calculations
         o Piping mains and principal branches
         o All equipment

F. Fire Protection
All fire protection documentation will:
o Be coordinated with similar activities in other disciplines
o Address and provide responses to all comments from Design Development phase

1) Drawings
   a) Demolition plans
   b) Plan drawings
      (1) Create legends
      (2) Indicate existing systems
      (3) Show location and size of equipment
      (4) Locate piping
      (5) Indicate size of pipes
(6) Equipment layouts
  c) Ceiling plan drawings
  (1) Sprinkler locations

2) Reports/Calculations
   a) Fire Protection Design Report
      o Update Basis of Design

G. Electrical and Communication
   All Electrical documentation shall:
   o Be coordinated with similar activities in other disciplines
   o Address and provide responses to all comments from Design Development phase

1) Drawings
   a) Completed site plan with demolition work and indicating location of:
      (1) Location of emergency generators and feeder/conduit routing
      (2) Transformer vaults
      (3) Pad mount transformer location
      (4) Auxiliary power system connection
      (5) Engine generator sets
      (6) Unit substations
      (7) Other major equipment
   b) Demolition plans
   c) Completed floor plans with
      (1) Room numbers
      (2) Room titles
      (3) Area functions
      (4) Lighting, fixtures indicated with type, switching, and circuiting information
      (5) Outlets for power with circuiting information
      (6) Connections for mechanical and plumbing equipment with disconnect and circuiting information
      (7) Layout of major components in all electrical equipment rooms
      (8) Layouts for special systems
   d) One line riser diagram of electrical distribution
   e) One line riser diagram of auxiliary power distribution
   f) Completed panel schedules
   g) Light fixture schedules
   h) Riser diagrams for:
      (1) Grounding
      (2) Fire alarm
      (3) Telephone
      (4) Paging
      (5) Television
      (6) All low-voltage systems

2) Reports/Calculations
   a) Updated basis of design report
   b) Lighting calculations
   c) Load calculations
   d) Short circuit calculations
   e) Voltage drop calculations
   f) Arc flash analysis

H. Telecommunication
   All telecommunication documentation will:
   o Be coordinated with similar activities in other disciplines
   o Address and provide responses to all comments from Design Development phase

1) Drawings
   a) Update site plan
(1) Conduit routing for telecommunication distribution
(2) Details for site electrical work
3) Demolition work
b) Demolition plans
c) Floor Plans
   (1) Layout of major components in all telecommunication equipment rooms
      o Sizes of major components
   (2) Telephone connections
   (3) Data connections
d) Layouts of components where space is critical
e) Laboratory planning module
f) Updated riser diagram for telecommunication distribution conduit sizes

2) Reports/Calculations
   a) Updated Basis of Design report

I. Specifications
   1) General and supplemental conditions of contract
   2) Completed project specifications

J. Summary
   All reports and other documentation will:
   o Be coordinated with similar activities in each discipline
   o Address all comments from the Design Development phase

   1) Basis of Design report
   2) Updated Green/Sustainable Design report
   3) Cost estimates
   4) Specifications
   5) Schedules
   6) All design calculations
   7) Reviews
      o Respond in writing to all Design Development phase review comments
      o Submit all documents for review
      o Attend review meetings as necessary to answer questions

Final Construction Documents Record Submission for UVM Approval

1) All drawings, reports, and other documentation will:
   o Be completed
   o Be coordinated with similar activities in each discipline
2) Final Basis of Design report for all disciplines
3) Final Green/Sustainable Design report for all disciplines
4) Final cost estimates
5) Final specifications
6) Drawings (sealed by registered architect, landscape architect, and professional engineers responsible for the design)
7) Final schedules
8) Final design calculations (sealed by registered architect, landscape architect, and professional engineers responsible for the design)
9) Reviews
   o Written responses to all 100% of Construction Document Phase comments
   o Submit all documents for review
   o Attend review conference calls as necessary to answer questions
10) Final deliverable
    o Electronic copy of CADD of PDF drawings
    o Electronic copy of specifications