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State of New Hampshire

DEPARTMENT OF ADMINISTRATIVE SERVICES
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November 23, 2023

His Excellency, Governor Christopher T. Sununu
and the Honorable Council
State House
Concord, New Hampshire 03301

Re: Statewide Architectural Services Consultant Agreement – JSA, Inc. for Professional Design and Construction Documents, On-site Observation, and Inspection for Architectural Services for Public Works' Projects.

REQUESTED ACTION

Authorize the Department of Administrative Services, Division of Public Works Design and Construction to enter into an agreement with JSA, Inc. (Vendor Code 272728) 273 Corporate Drive, Suite 100, Portsmouth, N.H. 03801 for Architectural Services required for planning, design and construction of various Public Works' Projects as necessary and required by the Department. The contract is effective from the date of Governor and Council approval through June 30, 2027. The amount expended under this agreement shall not exceed $750,000.

EXPLANATION

The Department proposes to retain the private consulting firm to expedite the current project workload and provide appropriate technical expertise as required for specific projects. This is one (1) of six (6) open-ended agreements for Architectural Services that will be presented for approval. The agreement will enable the Department to respond quickly to unscheduled project requests and possible emergencies regarding Architectural issues. The decision as to which projects will be assigned will be made on a case-by-case basis depending on the particular expertise required and the firm's current workload.

This type of consulting agreement will be funded from the monies for each project. The majority of projects needing this type of Architectural Services consultant work are maintenance and capital funded projects.

This agreement is a proposed contract with the Architectural Services firm selected to provide on-call Architectural Services. It is anticipated that Architectural Services can be handled by six (6) Architectural firms through the contract period.

The consultant selection process employed by the Department for this project is in accordance with RSAs 21-I:22, 21-I:22-c, and 21-I:22-d, all applicable Federal Laws and the Department's

procedures for "Selection of Engineers, Architects and Surveyors" dated July 28, 2005. Consensus scoring was used in this selection process in order to assure that the perspective of each committee member received proper consideration during scoring deliberations. The following members of the NH Division of Public Works Design and Construction were on the selection committee: Theodore Kupper, P.E – Director; Michelle Juliano, P.E. – Deputy Director; Timothy Smith, R.A. Public Works Project Manager IV; and Gary Brown, R. A. – Public Works Project Manager IV. Each member brings different strengths and knowledge to the table. This allows thorough discussion and weighing of the different perspectives during the scoring process. This process also makes follow-up explanations to the unselected firms easier.

In June 2023, the Division of Public Works Design & Construction solicited Registered Architects, by public announcement in the State, for interest in providing on-call Architectural Services. The following eleven (11) consultant firms submitted letters of interest.

Banwell Architects
CHA Architecture, P. C.
HL Turner Group
JSA Design
KOAL, PLLC
Mires PA, Dennis The Architects
Oak Point Associates, P. A.
Randall T. Mudge
Smith-Alvarez-Sienkiewycz
SMRT, Inc
Stone River

These firms were evaluated based on years of experience, experience on relative projects and past experience with the Division of Public Works, if any. The eight (8) rated firms listed below, were sent a Request for Technical Proposals:

Banwell Architects
CHA Architecture, P. C.
JSA Design
KOAL, PLLC
Mires PA, Dennis The Architects
Oak Point Associates, P. A.
Smith-Alvarez-Sienkiewycz
SMRT, Inc

The proposals were rated on the comprehension of the assignment, clarity of the proposal, capacity to perform in a timely manner, quality and experience of the project manager and team, and overall suitability for the assignment.

It is now the Department's intent to enter into Statewide Consultant Service Agreements with the six (6) highest rated firms as their legal documentation and Certificate of Insurance become available.

CHA Architecture, P. C.
JSA, Inc.
KOAL, PLLC
Oak Point Associates, P. A.
Smith-Alvarez-Sienkiewycz
SMRT, Inc

A copy of JSA, Inc.'s Statement of Qualifications is provided, herewith, for your information and convenience.

The subject agreement has been approved by the Attorney General as to form and execution. Copies of the fully executed agreement are on file at the Secretary of State's Office and the Department of Administrative Services, Division of Public Works Design & Construction.

Respectfully submitted,

Charles M. Arlinghaus,
Commissioner

Attachments: JSA, Inc.'s Statement of Qualifications

cc: Theodore Kupper, P. E.,
Director

Interview/Selection date: 10-Oct-23

COMMITTEE PROPOSAL RATING FOR ARCHITECTURAL STATEWIDE

Consultant Name	Comprehension of Assignment	Clarity of Proposal	Capacity to Perform in a Timely Manner	Quality and Experience of PM/Team	Overall Suitability for the Assignment	Total Score	Cumulative Score	
Banwell Architects							**80.5**	
Ted Kupper	4	4	4	5	5	22		
Michelle Juliano	5	4.5	4.5	5	5	24		
Timothy Smith	4	4	4.5	5	5	22.5		
Gary Brown	3	3	2	2	2	12		
CHA							**92.5**	<===== Highest Rating
Ted Kupper	5	5	5	5	4	24		
Michelle Juliano	4.5	4.5	5	5	5	24		
Timothy Smith	5	5	5	4.5	5	24.5		
Gary Brown	4	4	4	4	4	20		
JSA							**91.0**	<===== Highest Rating
Ted Kupper	5	4	5	5	5	24		
Michelle Juliano	5	5	5	5	5	25		
Timothy Smith	5	4	5	5	4	23		
Gary Brown	3	4	4	4	4	19		
KOAL							**91.5**	<===== Highest Rating
Ted Kupper	5	5	4	5	5	24		
Michelle Juliano	5	5	5	5	5	25		
Timothy Smith	5	5	4.5	5	5	24.5		
Gary Brown	4	3	3	4	4	18		
Dennis Mires PA							**82.5**	
Ted Kupper	5	5	4	4	4	22		
Michelle Juliano	4.5	4.5	4.5	5	4.5	23		
Timothy Smith	5	5	4	4.5	4	22.5		
Gary Brown	3	3	3	3	3	15		
Oak Point Associates							**93.0**	<===== Highest Rating
Ted Kupper	5	4	5	5	5	24		
Michelle Juliano	5	5	5	5	5	25		
Timothy Smith	5	5	5	5	5	25		
Gary Brown	4	4	4	3	4	19		
SAS							**93.5**	<===== Highest Rating
Ted Kupper	5	5	4	5	5	24		
Michelle Juliano	5	5	5	5	5	25		
Timothy Smith	5	5	4.5	5	5	24.5		
Gary Brown	4	4	4	4	4	20		
SMRT							**92.0**	<===== Highest Rating
Ted Kupper	5	4	5	5	5	24		
Michelle Juliano	5	5	5	5	5	25		
Timothy Smith	5	5	5	5	5	25		
Gary Brown	3	4	4	4	3	18		

JSA

DESIGN

Detailed Production Standards and Techniques for Quality Assurance

2023

F:\Office\JSA STANDARDS\Prod. Standards & Techniques 2023 or
See "Production" link on JSA intranet

JSA Inc.
Production Standards and Techniques –2023
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I. Project Management at JSA *(PM)*

A. Introduction

Every project requires effective project management to achieve the firm's high standard of quality, service and profitability. Following is an outline of office procedures which will guide the project teams. For purposes of this section certain roles are defined as follows:

1. Project Manager: The person who has overall responsibility for ***all*** aspects of the project, to include the performance of both the consultants and the client. At JSA, the project manager's role is expected to be very proactive.

   Generally, the project manager will help to negotiate the fees with the client and the consultants, thereby establishing the project budget and schedule. The project manager may have responsibility for several projects. The project manager has the day-to-day responsibility for managing the project workflow, for maintaining the established budget and for adhering to quality control procedures.

2. Project Principal: Every project has a project principal with authority for all aspects of the work.

   Assignment and contributions of the Project Architect, Job Captain, Intern I and Intern II roles are also critical to the success of each project. Definitions of these roles and their responsibilities are found in ***HR: Job Descriptions***

3. Quality and Sustainability Reviewer: The person or people who, through training and experience, will review the project design and the subsequent Construction Documents.

It is the responsibility of the project manager to define and monitor the project budget, project schedule and project work flow. The following defines the firm's standard procedures and techniques that facilitate this effort.

B. Project Budget Initialization & Project Numbers

In order to obtain a project number from Corporate Accounting the following minimum information is required by the Project Manager:

a. Client contact information
b. Actual or prospective fee
c. Actual or prospective consultant allocation.
d. Actual or draft Project Budget Up/Down Form

With this information, a ***Project Start-up Form*** can be completed by the Project Manager and given to Accounting at the start up of each project. On completion of the form, a project number will be generated by Corporate Accounting, and the IT department will generate the appropriate Correspondence and AutoCAD file structures. Any changes to the form, including final fee, should be incorporated as soon as possible to keep project accounting current.

The Project Start-up form exists in two formats and is utilized to capture project information and to calculate the project budget. These forms are specific to each office and updated yearly and must be utilized appropriately. Any questions concerning their use may be addressed to Accounting and/or Operations.

The most frequently used ***Project Set-up – 2021 Budget down*** template sets up budgets on a "fee down" basis (i.e. based on an established fee). It is set up to calculate the portion of the fee available for JSA "Direct Labor" by deducting from the total fee the following items:

1. Fees for consultants
2. Allowances for expenses (non-reimbursables)
3. Profit
4. Allowance for office overhead

The resulting budget defines that portion of the fee earmarked for JSA professional staff salaries or "Direct Labor." On page two, the total direct labor is divided among the several phases of the project and among the various employee categories in a proportion determined by the project manager on a project-by-project basis.

This information is used to calculate the budgeted staffing on page two by inserting the project schedule into the chart titled "Distribution of JSA Direct Labor Hours."

The ***Project Set-up – 2021 Budget up*** template provides an alternate means of project set up. This form will calculate fees a "budget up" basis, inputting assumptions about the hours required per phase and per employee category. This form reverses the calculation of the "fee down" form described above, and then adds overhead, fees for consultants, non-reimbursables, and profit to arrive at a fee. It is a useful document to initiate scope and fee negotiations.

C. Project Contract and Billing Files

1. **Project Managers** are responsible for initializing the Contract/Billing file for each project. **Accounting will maintain these files..**

2. **Project Managers** are responsible for ensuring that each project has a contract and budget established.

3. **Project Contract / Billing File** folders will be maintained with the following Contents and Organization

Contract Side – (Left Side)

- □ Contract (B141)
- □ Letter(s) of agreement/proposal with signature reports in sequence
- □ Budget information
- □ Consultant contracts/letters of agreement
- □ Additional service letters

Financial Side – (Right side)

- □ All invoices in sequence
- □ All end of month project progress

For tracking ease, project managers will fill in the checklist stamped on the outside of each of these file folders to allow the COO and Accounting to confirm the presence of the required documents in that folder.

C. Project Budget Monitoring and Invoicing

Project Managers will assist Accounting and the COO in the analysis and processing of consultant and client invoices.

Consultant Invoices: Approximately one week prior to monthly invoicing, Corporate Accounting circulates consultant invoices directly to Project Managers. The project managers are responsible for verifying *Job number, Percentage of completion by phase, Status of reimbursables under the contract.*

Project Managers approve, comment and/or reject consultant invoices and return to accounting through Office Assistants within two days of receipt to ensure proper and up-to-date recording of consultant expenses.

If any consultant invoice is to be wholly or partially rejected, the Project Manager will communicate and resolve the rejected invoice with the Consultant.

Project Progress Reports and Client Invoicing: The data defined above for each project is summarized in the *Project Progress Report, which* is prepared and distributed by Accounting monthly. Additionally, reports can be accessed by PMs through Ajera so that, project managers can assess the percentage of project completion vs. the percentage of fee expended, total hours recorded per phase, total fees invoiced per consultant, accounts receivable, and other data critical to the informed judgment of the project's financial health.

Client Invoice review by the Project Managers will be on the following basis:

- Review project reports for accuracy of input – JSA hours and personnel as well as consultant billings.
- Determine if applicable service work has been performed based on contract type, and/or advise on invoice amount to Accounting for invoice preparation at Corporate Accounting.

- Final invoices are sent to Project Managers for review.

Project Managers will analyze the adherence to Project Budget in part by utilizing the ***Document Completion Matrix***. This document includes an *Estimate to Complete* cell which to allow comparison with the projected Budget. Staff hours and utilization can be assessed in this document. This matrix will be submitted monthly to the Principal in Charge and should include estimations pertaining to Consultant work.

D. Project Schedule

With the owner and the consultants, the project manager defines a general milestone schedule for the project. (***Project Summary Schedule***) This schedule outlines the dates for concluding each phase of the project, the duration of owner reviews, the dates of intermediate printings, and the critical dates for initiating governmental reviews. The dates of major milestone issues and the required reviews preliminary to them are to be input in the ***Design/Quality Management Review calendar*** in Outlook.

Consistent with this milestone schedule, the project manager should prepare a workflow schedule. This schedule is for internal use and defines those portions of the construction documents which will be targeted during specific time frames. This schedule reflects the timing of production for documents needed for owner review, consultant coordination, and orderly in-house decision-making. The project schedule will be completed by the Project Manager for review by the Project Principal and Quality Assurance Reviewer at the project Pre-production Review meeting.

E. Developing Projections

Project Managers will work to coordinate and provide updated Revenue Projections to the COO during the weekly Project Management meeting:

- Work under contract:

    1. Review remaining gross contract amounts to be billed and remaining schedule.
    2. Verify remaining net contract amount by phase and allocate ***Net Fee*** according to schedule.
    3. Determine if additional services are, or will be, required.
    4. Notify COO by e-mail or other record-able media of any changes that arise as close to the event as possible

- Prospective work:
    a. Project opportunities
    b. "Committed" work with indeterminate schedule, fee or both.

    1. Determine, based on best practice and/or experience, an appropriate ***Net Fee*** for prospective project.
    2. Determine, based on best practice and/or experience, a reasonable schedule for project delivery allocate net fee by phase/time.
    3. Project budget up/down schedules are good tools for accomplishing items 1&2.
    4. Determine, based on best judgment, percentage success factor and insert in the appropriate column.

F. Project Workflow: Cartooning

At the completion of the Schematic Design Phase, the project manager should finalize the project drawing list. This list becomes the basis for "Cartooning" the drawing set. **Cartoon set production and review of it by Quality Management is required.**

Cartooning is the graphic preplanning of construction drawing content and composition. It should be done at the start of the production phase and is best accomplished by quick outline sketches on scaled down versions of large drawings. It allows early establishment of the drawing content and aids in the evaluation of drawing completeness and schedule conformance. The advantages of cartooning are:

1. efficient and orderly drawing layout,
2. early determination of the quantity of drawings,
3. helps to estimate manpower needs for construction drawings,
4. aids in delegation of specific production assignments, and
5. helps monitor drafting time.

Procedure for Preparing Cartoon Sets:

1. Use half size reduction of the planned sheet format, or 8-1/2 x 11. If using the half-sized sheet, resist the temptation to overdraw the information. CADD cartoon blanks are available from the CADD Manager. The purpose of the Cartoon set is not to provide a miniature facsimile of the final CD set, **rather** as a graphic planning and project production logistical tool.
2. Work through each drawing, blocking out to scale each anticipated plan, section, or elevation, for approximate size and location.
3. Block out and assign locations for schedules on drawings.
4. Determine, count, and assign locations for details within the typical detail sheet grid.
5. Give out copies of the cartoons as instructions to the project team members.
6. As conditions change during the construction document phase, the cartoons can be easily referenced, changed, and reorganized. A record set will be maintained by the project manager for reference at all times.

Review of the Cartoon Set by Quality Management will be a scheduled milestone.

G. Project Team Coordination

Once the work begins it is critical that there be coordination and good communication between the different people and disciplines who are directly involved in the document production both in-house and out. Effective communication can be the difference between a successful project and a difficult project.

This communication should be coordinated by the project manager and covers such topics as: terms of the contract(s); work being done; schedule targets for start, duration, and completion; fee expenditures; and project scope and program.

Communicate on a regular and frequent basis in the form of job meetings, project e-mail, written memoranda and/or informal discussions. In-house team meetings shall be held on a weekly basis to facilitate communication. Progress meetings, which include the owner and consultants, are to be scheduled minimally prior to each milestone document issue and as needed to support progress of design and documents. Meetings are to be posted on the ***Design/Quality Management Review calendar***, and notification provided to the Office Leader.

Once the JSA project team is assembled, the project manager will schedule a **"Pre-production Meeting"** The purpose of the meeting will be to review contractual scope, budget, schedule, and management procedures and, to begin to make specific production assignments to the individual team members. This meeting is more fully described under "Quality Assurance Reviews". Quality Management leaders will attend this meeting.

II. Quality Assurance Reviews *(QA)*

A. Introduction

Every project at JSA will be monitored through a uniform schedule of quality assurance review meetings. These meetings are to be scheduled by the Project Manager with the appropriate Quality Management leaders. The meetings will be held to review the project progress at the following points in the schedule:

1. Program and Pre-production (Kickoff) Meeting
2. ***Schematic Design*** Issue
3. ***Design Development*** Issue (35% Construction Documents)
4. ***Mid-Construction Documents*** Issue (65% Construction Documents)
5. ***Construction Document Coordination*** Issue (95% Construction Documents)
6. ***Construction Document*** Issue ("100%" Construction Documents)
7. Project De-briefing
8. Post Occupancy Evaluation (POE)

Drawing Issue Naming: Regular drawing issue sets will be identified using the above nomenclature for consistency. Additional progress sets required or requested will carry the appropriate Issue name and the modifier "Preliminary". All issue dates will be carried in the title block and Drawing Table of Contents. Likewise, the project manual will carry the appropriate Phase name and issue date on the cover and in the header of each section.

(For the purpose of establishing the percentages of construction documents above, it is assumed that the production of construction documents encompasses both the design development and construction documents phase. Thus the product of design development is also described as "35% Construction Documents.")

Review of documents to be issued at each of these milestones is to be coordinated with the Quality Management Leaders. Review meetings are to be scheduled in the ***Design/Quality Management Review calendar*** in Outlook by the Project Manager. Reviews should be scheduled a to allow a minimum of 10 working days for review prior to anticipated document issue.

Prior to delivery to Quality Management leaders, all documents are to be reviewed by appropriate members of the project team for general conformance with office graphic standards and plot quality. Completion of Quality Management checklists is required prior to the meeting as is updating of ***Document Completion Matrix***.

B. Meeting Agenda

The Project Principal, Project Manager, key team members, and the Quality Management and Project Sustainability reviewers should attend the review meetings. At each review meeting the following issues will be discussed:

- Status of Documentation/Completeness of Drawings
- Project Budget
- Project Schedule
- Staffing
- Modifications to Project Program
- Sustainability Strategies
- Changes to Scope of Work
- Performance of Consultants
- Relations with Client

Each review meeting will be recorded by memorandum, which will be distributed to the attendees by the Project Manager.

To inform the discussion of this agenda, the project manager should bring to each meeting a current set of drawings and updated copies of the following:

- Project Budget Form
- Current Project Progress Report
- Project Schedules (Milestone and/or Workflow)
- Project Completion Matrix
- Owner/Architect Agreement with any amendments or additional service authorizations
- Architect/Consultant Agreements with any amendments or additional service authorizations
- Outline of Outstanding issues / challenges
- Cartoon Set
- List of Drawings

C. Quality Assurance Review Meetings

To assist in evaluating the progress of work at the quality assurance reviews and in an effort to gain a higher level of consistency for our product at those milestone printings, the firm has established guidelines for each printing produced for internal QA/QC reviews. Requirements for each project may vary due to the nature of the project or the owner's stated needs. The owner's expectations should be determined well in advance of these milestones. (see also ***JSA Inc. Quality Assurance Review Criteria / Checklist***)

1. **Program / Pre-production (Kickoff) Meeting:** The purpose of this meeting is to review contractual terms and scope, budget, schedule, and management procedures. A minimum agenda for the pre-production meeting would include:
   a. Management Procedures:
      (1) Schedule
      (2) Cartoon Set and Drawing List (***JSA Standard Drawing Cartoon***)
      (3) Communication: in-house and with consultants -- assign the task of coordinating and communicating with consultants to one team member.
   b. Highlight Contractual Scope:
      (1) Review contract scope and/or distribute copy of contract to team members.
      (2) Identify reimbursable cost, non-reimbursable cost, basic services, and potential additional services.
   c. Review project schedule with focus on QA/QC review and issue deadlines.
   d. Review Sustainability strategies, goals and challenges.
   e. Review project budget in terms of man-hours and staffing implications.
   f. Review applicable codes and zoning requirements.
   g. Review team member responsibility.
   h. Review building program.
   i. Identify related yet out of scope work to be accomplished by the Owner or his representatives.
   j. Identify Key challenges

2. ***Schematic Design* Printing**: The work must be at a level that allows the owner to fully understand all nuances of the project concept. In addition, there may be specific requirements for area calculations, governmental approvals or finance packages. In general, the drawing set should include:

    a. All plans, including site and life safety plans
    b. All elevations
    c. Representative building sections
    d. Large scale partial plans of major features (lobbies, cores, atria, etc.)
    e. Preliminary exterior material selections
    f. Code Review.
    g. Sustainability Strategies Overview

3. ***Design Development Printing*** (35% Construction Documents): This is perhaps the most important milestone in the progress of the job, and will likely be the basis for the first comprehensive cost estimate. This printing should communicate sufficient information to the consulting engineers to enable them to begin their construction documents without significant changes thereafter. Most significantly, this printing and its graphic supplements will be presented to the owner for the last overall project design review

    Production should have reached the following minimum levels of completion. These percentages will be logged into the ***Document Completion Matrix*** which assesses level of project completion by dividing the sum of individual sheet completions by the total number of sheets. If the target completion percentages are not reached, the reason for the shortfall can be assessed using this document.

T.X	Title, Table Contents, Key Plan	100%
LS.X	Life Safety	80%
PH.X	Phasing	35%
A0.X	Site Plan	50%
A1.X	Building Plans	65%
A1.X	Reflected Ceiling Plans	25%
A2.X	Elevations	50%
A2.X	Partial Elevations	50%
A3.X	Building Sections	50%
A3.X	Wall Sections	5%
A4.X	Core, Stair and Elevator Plans	50%

3. ***Design Development Printing*** (35% Construction Documents): (cont.)

A4.X	Detailed Floor Plans	50%
A5.X	Interior Elevations	50%
A6.X	Vertical Circulation	25%
A7.X	Plan Details	5%
A7.X	Section Details	5%
A8.X	Partition Schedule	90%
A8.X	Window Types	50%
A9.X	Alternates & Miscellaneous	35%
Spec.	Finish Schedule	15%
Spec.	Door & Hardware Schedule	15%

- Presentation graphics indicating proposals for all major interior and exterior materials selections.
- Design sketches of important ornamental items: railings, light fixtures, cornices, spandrels, storefronts, etc.
- Outline or full draft specifications
- Design Development Workbook
- Sustainability Features Compilation and Review

6. ***Mid-Construction Documents*** Printing (65% Construction Documents): By this point plans, sections, and elevations need to be almost complete, awaiting final coordination and reference keying. Work from this point forward should be focused on detailing and consultant coordination. An objective assessment of the completeness of the construction documents set should indicate the following:

T	Title	100%
LS.X	Life Safety	95%
PH.X	Phasing	75%
A0.X	Site Plan	90%
A1.X	Building Plans	90%
A1.X	Reflected Ceiling Plans	90%
A2.X	Elevations	95%
A2.X	Partial Elevations	95%
A3.X	Building Sections	95%
A3.X	Wall Sections	90%
A4.X	Core, Stair and Elevator Plans	90%

6. ***Mid-Construction Documents*** Printing (65% Construction Documents) (cont.)

A4.X	Detailed Floor Plans	90%
A5.X	Interior Elevations	80%
A6.X	Stair and Elevator Sections	75%
A7.X	Plan Details	25%
A7.X	Section Details	25%
A8.X	Partition Schedule	97%
A8.X	Window Types	50%
Spec	Finish Schedule	90%
Spec	Door and Hardware Schedule	50%

Again, to assess the status of a given project at this printing, the project manager and project architect should estimate the percentage of completion for each drawing. These percentages can be added up and sum divided by the total number of sheets to determine the average level of completion. The goal is to meet or exceed the standard of 65%.

7. ***Construction Document Coordination*** Printing (95% Construction Documents): By this printing the set should be virtually complete. All that should remain is the final coordination of the work of the consultants and the completion of the details. At this point every detail should be identified and at least blocked out. Detailing of the project should be complete.

8. ***Checklists of Requirements***: In preparation for the Pre-production Meeting, Schematic Design, and Design Development Reviews, the project manager should complete the appropriate checklists of requirements. By this effort they will document the project status against a uniform minimum standard. By identifying any deficiencies, strategies for correction can be discussed, defined and implemented. The checklists are included on pages QA-7 through QA-15. (. ***JSA Inc. Quality Assurance Review Criteria / Checklist)***
Subsequent document reviews will be evaluated against the criteria given in Section IV, Drawing Content.

9. ***Check Set procedures***: To allow for continued and complete review and updating of drawing sets, the following procedures will be followed:
   - Project Architect / Job Captain will maintain the record Cartoon Set . Updates and revisions to this set shall be marked and or stapled into the set to allow review by team and Quality Management personnel.

9. ***Check Set procedures*** (cont.)
   - Project Architect / Job Captain will maintain a full size "check /rack set"

of drawings complete to date. Updating of this set may be at a rate determined by the Project Manager and depending on specific progress , but minimally should be refreshed weekly.

- The check set will be available for review and mark-ups by the Project Manager and Quality Management leaders at all times. Staff is encouraged to minimize extra printings and paper waste, but may print additional copies of drawing as required to facilitate work progress.
- Red-marks, sketches and other forms of corrections to the check set are to be yellowed out as completed to assure review and action. Yellowed-out Check sheets are to be maintained – either folded into the Check set for review and comparison or maintained in an otherwise open and available location.
- Project Architect / Job Captain will maintain full-size paper copies of all Issue sets and coordinate with IT staff that these sets have been archived per JSA standards.

JSA Inc. Quality Assurance Review Criteria / Checklist

A. Pre-production Requirements

Architectural

Prepare/review contract and scope. (Owner/Architect, Architect/Consultants)
Review program requirements and relationships
Preview project budget and schedule.
Prepare ***Drawing list***.
Prepare ***Project Start-up*** sheet.
Identify all review agencies (potentially) involved.
Obtain and review (Owner furnished) survey/zoning information.
Obtain and review (Owner furnished) soils/geotechnical information.
Identify Sustainable Design strategies and goals including LEED Certification.
Re-confirm Owner's ability to fund.
Confirm that Accounting has all budget and project initialization information on file.

JSA Inc. Quality Assurance Review Criteria / Checklist

A. Schematic Design Phase Requirements

Architectural

☐ **0 to 25%**

Prepare ***Cartoon set***.
Prepare written code review identifying building type, use, zoning, etc. Develop building egress plan.
Prepare 1/8" floor plans for all floors.
Prepare 1/8" building elevations.
Prepare 1/8" building sections with floor to floor heights and elevations.

☐ **25 to 50%**

Prepare 1/4" plans of critical core areas and major public spaces.
Identify (on floor plans) major use separations.
Calculate building area (GSF, NSF, FAR).

☐ **50 to 75%**

Update ***Drawing list***.
Prepare 1/4" interior elevations of major interior spaces.
Refine 1/8" scale building plans and elevations. Confirm and show overall dimensions. Prepare a perspective sketch or study model showing major building elements and massing. Show relation to adjacent structures.

☐ **75 to 90%**

Select (generic) interior building materials. Select (generic) exterior building materials.
Develop design sketches for ornamental items, including elevator cabs, railings, cornices, spandrels, storefronts, signage, custom light fixtures, furniture, etc.

☐ **90 to 100%**

Prepare presentation materials including: All building elevations.
At least one rendered building elevation indicating exterior materials. All floor plans.
Rendered floor plans and elevations (@ 1/4") of all principal public spaces indicating interior materials.

JSA Inc. Quality Assurance Review Criteria / Checklist

A. Schematic Design Phase Requirements (cont.)

Architectural

Materials sample boards (including alternate palettes as appropriate).
Review building area calculations.
Review and complete all schematic design issues.
Review and coordinate all consultant information.
Prepare or assist in preparing preliminary cost estimate if required.
Present schematic design to owner for approval.
Obtain Owner approval in writing.

Design Development Printing Checklist
(35% Construction Documents):

Production should have achieved the following minimum levels of completeness.

T	Title	100%
LS.X	Life Safety	100%
PX.X	Phasing	35%
A0.X	Site Plan	50%
A1.X	Building Plans	65%
A1.X	Reflected Ceiling Plans	25%
A2.X	Elevations	50%
A2.X	Partial Elevations	50%
A3.X	Building Sections	50%
A3.X	Wall Sections	5%
A4.X	Core, Stair and Elevator Plans	50%
A4.X	Detailed Floor Plans	50%
A5.X	Interior Elevations	50%
A6.X	Stair and Elevator Sections	25%
A7.X	Plan Details	5%
A7.X	Section Details	5%
A8.X	Partition Schedule	90%
A8.X	Window Types	50%
Spec.	Finish Schedule	15%
Spec.	Door & Hardware Schedule	15%

- Presentation graphics indicating proposals for all major interior and exterior materials selections.
- Design sketches of important ornamental items: railings, light fixtures, cornices, spandrels, storefronts, etc.
- Outline or full draft specifications
- Design Development Workbook

JSA Inc. Quality Assurance Review Criteria / Checklist
A. Schematic Design Phase Requirements (cont.)

Structural

☐ **0 to 25%**

Complete ***Code review*** including local and federal standards and seismic requirements.
Describe structural systems alternatives with order of magnitude cost information.
Review geotechnical data.

☐ **25 to 50%**

Prepare plans to illustrate typical framing scheme.

☐ **50 to 75%**

Develop preliminary foundation calculations and design.

☐ **75 to 90%**

Prepare design sketches of major structural elements including trusses, slurry walls, transfer girders, etc.

☐ **90 to 100%**

Coordinate design with other disciplines.
Prepare or assist in preparing preliminary cost estimate if required.
Prepare list of items/info required for design development.

JSA Inc. Quality Assurance Review Criteria / Checklist

A. Schematic Design Phase Requirements (cont.)

Mechanical/Electrical/Plumbing

☐ **0 to 25%**

Complete ***Code review.***
Prepare written analysis of mechanical system alternatives with order of magnitude cost information (initial and life-cycle).

☐ **25 to 50%**

Prepare written description of lighting requirements.
Provide preliminary description of all M/E/P equipment and space needs.
Identify all special requirements.

☐ **50 to 75%**

Prepare single line mechanical drawings for all areas.
Conduct a preliminary review with utilities. Provide a preliminary load letter to power company.

☐ **75 to 90%**

Prepare dimensioned design sketches of critical building/system elements including penthouse, vaults, fire control spaces, and ceiling sandwich .

☐ **90 to 100%**

Coordinate design with other disciplines.
Prepare or assist in preparing preliminary cost estimate if required.
Prepare list of items/info required for design development.

JSA Inc. Quality Assurance Review Criteria / Checklist

A.Schematic Design Phase Requirements (cont.)

Civil

☐ **0 to 25%**

Complete ***Code review.***
Prepare site plan showing utilities and proposed connections.

☐ **25 to 50%**

Prepare preliminary paving and grading plans. Prepare preliminary cut and fill calculations.

☐ **50 to 75%**

Prepare preliminary drainage plan.

☐ **75 to 90%**

Prepare preliminary storm water management plan.

☐ **90 to 100%**

Coordinate design with other disciplines.
Prepare or assist in preparing preliminary cost estimate if required. Prepare list of items/info required for design development.

JSA Inc. Quality Assurance Review Criteria / Checklist

B.Design Development Phase Requirements (cont.)

Architectural

☐ **0 to 25%**

Review SD submission. Provide comments to appropriate consultants.
Update project budget and schedule
Verify SD code review. Update as required.
Update ***Cartoon set*** and ***Drawing list***.
Identify required fire-resistive construction, separations, etc.
Establish schedule for (and then coordinate and record) regular design team progress/coordination meetings.

☐ **25 to 50%**

Prepare final 1/8" plans with overall dimensions.
Prepare major 1/8" building sections.
Select final architectural building systems (roofing, waterproofing, curtainwall, windows, elevators, skylight, etc.).
Prepare preliminary partition and exterior wall type schedules.

☐ **50 to 75%**

Develop typical wall sections, fully dimensioned.
Prepare 1/8" reflected ceiling plans.
Prepare 1/8" typical tenant plans.
Prepare final 1/8" exterior elevations indicating all materials and construction joints.
Prepare 1/4" vertical transportation (stairs, elevators, and escalators) plans and sections fully dimensioned.
Prepare preliminary schedules (door, window, louver, finish, etc.) Prepare format and preliminary table of contents for outline specification.

☐ **75 to 90%**

Prepare final 1/4" plans and elevations of cores and principle public spaces fully dimensioned. Distribute to consultants.
Develop all typical exterior and interior details, including all roofing and expansion joint details and specialty construction (skylights, loading docks, fire shutters, etc.).
Prepare dimensioned hard line sketches of all ornamental items.

JSA Inc. Quality Assurance Review Criteria / Checklist

B. Schematic Design Requirements (cont.)

Architectural

□ 90 to 100%

Update 3D drawings or model.
Complete outline specification, including proposed general and supplemental conditions.
Update presentation boards and sample boards as required.
Review and coordinate all consultant information.
Update or assist in updating preliminary cost estimate if required.
Present design development to owner for approval.
Obtain Owner's approval in writing.

JSA Inc. Quality Assurance Review Criteria / Checklist

B. Schematic Design Requirements (cont.)

Structural

☐ **0 to 25%**

Review and comment on other disciplines SD submission.
Verify SD code review. Update as required.
Describe final structural system.

☐ **25 to 50%**

Complete final floor load calculations
Identify all critical dimensions.
Provide preliminary typical beam and column sizes.

☐ **50 to 75%**

Complete foundation design.
Prepare typical and critical structural sections including ramps, foundation walls, exterior walls, etc.
Provide information for outline specification.

☐ **75 to 90%**

Prepare typical and critical structural details.
Prepare 1/8" plans showing all openings/penetrations, beams, and drop panels.
Review outline specification.

☐ **90 to 100%**

Review/coordinate with other disciplines.
Update or assist in updating preliminary cost estimate if required.
Prepare list of items/info required for construction documents.

JSA Inc. Quality Assurance Review Criteria / Checklist

B.Schematic Design Requirements (cont.)

Civil

☐ 0 to 25%

Review and comment on other disciplines SD *submission.*
Prepare final site plan and grading plan.

☐ 25 to 50%

Finalize utility entrance locations.
Complete storm water management calculations and plan.

☐ 50 to 75%

Prepare preliminary erosion control plan.
Prepare outline specification.

☐ 75 to 90%

Do final cut and fill calculations.
Prepare typical details for site, paving, and street.

☐ 90 to 100%

Review/coordinate with other disciplines.
Update or assist in updating preliminary cost estimate if required.
Prepare list of items/info required for construction documents.

III. Drawing Organization *(DO)*

A. Efficiency Through Uniqueness

The concept of uniqueness is at the core of efficiency. It is applied through:

1. Avoiding the repetition of identical notes from sheet to sheet, drawing to drawing, and detail to detail;
2. Eliminating the duplication of information such as graphically describing a material and then labeling the same material, or including specification information on the drawings;
3. Especially, avoid not drawing the same information redundantly at several scales or in several views (plan, section, and elevation). This latter point is central to the structure of the drawing set and is illustrated by the system of referencing discussed below.

B. Referencing System

This document describes a uniform system for organizing information within the drawing sets, based on the following concepts. (These concepts are also illustrated by the ***JSA Standard Drawing Cartoon*** set and the ***JSA Construction Drawing Template***)

1. Standardize the scales at which specific information is shown, for example, ***Interior Elevations*** at 1/4" = 1'-0".

2. Standardize the referencing trail from general to specific, and avoid repetitious referencing. For example, ***Building Plans*** should reference ***Detailed Floor Plans***, which reference ***Interior Elevations***, which reference ***Interior Section Details***. Through this order, there is no need for ***Building Plans*** and ***Detailed Floor Plans*** to both reference ***Interior Elevations***.

3. Tailor the level of information to be specific to the scale of the drawing and to eliminate unnecessary repetition. For example, an ***Elevator Jamb Detail*** can show all the materials and dimensions defining the relationship of the finish material and substrate to the door frame itself, which allows the ***Detailed Floor Plan*** to simply tie the door opening to the column grid, which allows the ***Building Plan*** to be restricted to the establishment of the column grid for the area defined by the ***Enlarged Floor Plan***. To achieve the purity of this organization, we need to know where specific information will occur and avoid the temptation to show everything we know on every drawing we produce, regardless of scale. **Chapter IV, *Drawing Content***, illustrates this concept in specific terms. Refer also to the ***JSA Drawing Cartoon Set*** for additional

specific drawing and graphic standards.

4. The 1/8" = 1'- 0" drawings, ***Site Plans***, ***Building Plans***, ***Building Sections*** and ***Building Elevations***, act in concert to define the start of the referencing trail. Each of these drawings should contain only limited information on the finer texture of detail necessary to construct a building. They should however take the primary role in defining where, within the drawing set, this information may be found.

5. Preparation of the Project cartoon set by the Project Manager allows for the organization of this information trail and ensures efficiency and clarity in the final drawing set.

C. The Referencing Trail

The ***Referencing Trail Diagram*** describes a specific and uniform system for tracing information through the set from the general to the specific. It is intended that the lines, which outline the path of information be exclusive. In other words, there should be no need to cross-reference between interior plan details and interior section details; thus, no connecting line is shown.

D. Drawing/Detail Numbering System

1. The following numbering system has been developed to assure uniformity within drawing sets. The system is intended to allow the flexibility for a drawing list to be developed early in the project and expanded if necessary without any renumbering of sheets under production. Obviously, renumbering during the course of a project presents unnecessary coordination headaches and should be avoided.

   The drawing groups and titles listed adequately represent the required drawing needs for most projects. There are occasions where a specific project will require documentation of a type not scheduled here; or a particular Owner may have a uniquely different document standard. In all cases, any variation from the JSA drawing standard organization is to be approved by Quality Management personnel and captured in the Cartoon Set.

2. A standard alphabetical prefix denotes the specific discipline of work covered by that group of drawings. This is also the required order of drawings in the set.

Architectural Projects

T	Title
LS	Life Safety
PH	Phasing
C	Civil
L	Landscape
A	Architectural
S	Structural
M	Mechanical
P	Plumbing
FP	Fire Protection
E	Electrical
K	Kitchen

Interiors Projects

T	Title
ID	Interior Design
M	Mechanical (if contracted)
P	Plumbing (if contracted)
FP	Fire Protection (if contracted)
E	Electrical (if contracted)
K	Kitchen (if contracted

3. **Architectural drawings** are further sub-divided into the groups below. Also See the CADD Manual Section "File Naming" for specific file naming conventions.

T 1	**Cover Sheet** Project Title Rendering	**No Scale**
T 2	**Drawing List, Symbols** Drawing list Symbols (Location Key if required)	**No Scale**
LS.C	**Life Safety: Building Code Analysis** ***JSA Code review template*** and diagrams	**No Scale**
LS.01	**Life Safety** Egress and Fire separation plans Fire Separation Section diagrams	**Scale Varies**
A0.01	**Site Information** Site Plan / Key Plan	**(largest possible)**
PH.01	**Phasing Plans**	**(As needed / NTS)**

Phasing Plans / Diagrams

	Demolition Drawings	
AD1.01	Demolition Plans	
AD1.11	Demolition Elevations	**(match Elevation scale)**
AD1.21	Demolition Building Sections	**(match Building Section scale)**
AL1.01	**Layout/Geometry Plans**	**(1/8" = 1'-0")**
	Building Plans	**(1/8" = 1'-0")**
A1.01	Floor plans, Roof Plans	
A1.11	Reflected Ceiling Plans	
A1.21	Finish / Floor Pattern Plans	
A1.31	Furniture Plans	
	Building Elevations	
A2.01	Exterior elevations	**(1/8" = 1'-0")**
A2.11	Partial elevations	**(1/4" = 1'-0")**
	Sections	
A3.01	Full and partial building sections	**(1/8" or ¼" = 1'-0")**
A3.11	Wall sections	**(1/2" or3 /4" = 1'-0")**
A4.01	**Enlarged Floor Plans** Core, lobby plans Large scale unit plans and unit RCP's and/or areas requiring greater dimensioning and notation	**(1/4" = 1'-0")**
A5.01	**Interior Elevations**	**(1/4" = 1'-0")**

	Vertical Circulation	
A6.01	Stair, Elevator & Escalator	**(1/4" = 1'-0")**
	Enlarged plans and sections	
	Elevators / Escalators	
A6.11	Related Details	**(3/4" = 1'-0")**
	Details	**(1 ½" = 1'-0" & larger)**
A7.01	Exterior plan details	
A7.11	Interior plan details	
A7.21	Exterior Section details	
A7.31	Interior Section details	
A7.41	Roof Details	
A7.51	Millwork Details	
	Wall & Partition Schedules and Details	
	Opening Schedules and Details	
A8.01	Fire Rated Assemblies and Details	**(1 ½" = 1'-0")**
A8.11	Exterior Wall Type Schedule	**(3" = 1'-0")**
A8.11	Interior Partition Type Schedule	**(3" = 1'-0")**
A8.21	Door & frame types and Details	**(1/4" and 1 1/2" = 1'-0")**
A8.31	Windows & Louver types and Details	**(1/4" and 1 1/2" = 1'-0")**
A9.01	**Alternates and Miscellaneous**	**(as required)**

Specifications:

Door and Hardware Schedule	**Section 08000**
Room Finish Schedule, Legend and Key	**Section 09000**
Millwork Schedule	

4. Drawings will be numbered consecutively within each number series. (i.e. A 1.02 - Second sheet of Architectural Floor Plans A1.0 series).

5. Drawings within specific categories, e.g. interior or exterior, plan and section, should be numbered consecutively beginning on the first detail drawing with number A1@ as the most upper left detail and continuing across to the right per standard writing convention. In contrast, on "gridded" detail sheets, the details are to be composed and numbered in rows bottom to top with consecutive rows organized from right to left. Detail numbers are not reused within a category.

Thus, if the first interior plan detail drawing contains details 1 through 20, the first detail on the ensuing interior plan detail sheet would be 21. Refer also to ***JSA Standard Drawing Cartoon*** set.

6. Occasionally an owner may request that we include within our drawing set drawings prepared by consultants or vendors under contract to the owner and not to JSA. In order to accommodate the owner, for their convenience in obtaining permits or bids, we ***must*** add the following language to each sheet furnished by the owner's consultant.

   *This drawing has been prepared by **name of the Owner's Consultant** under Contract to the Owner. The completeness and accuracy of the information shown in this drawing is solely the responsibility of **name of the Owner's Consultant**. JSA Inc has no responsibility for the information contained in this drawing.*

   Drawings so noted and included may be on a standard sheet per the project format but the JSA name should be deleted. These sheets should be similarly noted and referenced on the drawing Table of Contents

7. Of utmost importance is the clarity of information and it's readily accessible organization within the set. The systems laid out in this chapter are designed to provide information in a manner that orders it and prioritizes it by need – from general to specific, from global building organization to specific detail, component and finish.

8. While the standards provide a level of tired and true guidance, it will always be the responsibility of individual staff and teams to review and question the clarity of the finished product – both on the workstation screen, and most importantly, as plotted on the sheets that will be the issued.

IV. Drawing Checklist (*DC*)

See also ***JSA Standard Drawing Cartoon*** and ***JSA Construction Drawing Template*** for formatting, graphics and content organization standards.

A. Cover Sheet (*T-.1*)

1. Sheet Organization: Use standard sheet title block.
2. Project Title and Rendering.
3. Include Owner organization name and graphics
4. Include Consultant names and graphics. (All consultant information blocks are to include e-mail addresses).

Drawing Index, Symbols (*T-2*)

1. Sheet Organization: Use standard sheet title block.
2. Project Information
   a. Typical Graphic Keying symbols. Note that materials hatches and designations are to be shown in Specific Drawing Material Keys and Legends.
   b. Drawing Index: Coordinate with titles on drawings. Identify issue dates of each sheet starting with the Bid Set. Update on concurrent issue sets.
   c. Miscellaneous: There is additional space for other information such as location map or key plan (which minimally will be located on this sheet in lieu of Site Civil and/or Landscape Architecture drawings), project signs, etc.
   d. General Notes - where information is not otherwise located in the Project Manual.
3. Reference Information
   a. Typical Graphic Keying symbols. Symbols should be edited from JSA master lists.
   b. Material hatches and designations are to be shown as Specific Drawing Keys and Legends. Refer to ***Production Technique*** and ***CADD Standards***.
   c. Abbreviations: These belong in the specifications only.

B. Life Safety and Code Analysis

1. Zoning and Building Code Data / diagrams (**LS.C**): Use JSA ***Code Review Template*** Check with local and applicable AHJ's for added informational requirements.
2. Fire Separation and Egress Plans (***LS.01…***) (1/8" = 1'-0", or to fit)

C. Site Information Plans, Key Plans (A0.01 …)

(For projects without Site, Civil and/or Landscape Architecture Consulting. See also *Title Sheets: Reference Information*)

1. Site Information Plan (1/8" = 1'-0", or to fit)

   a. Property Description:
      (1) Road and street names
      (2) Property lines
      (3) Building(s)

   b. Orientation:
      (1) North arrow
      (2) Grid and grid north, if any
      (3) Orient north as shown on the building plans, unless site geometry prohibits.

   c. Construction Requirements:
      (1) Limit of work lines
      (2) Location of barricades, fences and gates, only if prescriptive locations are required. Generally the contract conditions will direct G.C. to locate as necessary for public safety or for approval of code officials.

   d. Site/Streetscape Features:
      (1) Differentiate *Existing* work from work in current scope
      (2) Identify removal or demolition of existing elements incl. curbs, paving, etc.

C. Site Information Plans, Key Plans (A0.01 ...)

1. Site Information Plan (1/8" = 1'-0", or to fit) (cont.)

   e. Note: It is preferable to incorporate the site plan information onto the floor plan closest to grade. In cases where the size of the site make this impossible use a separate site plan, but be aware of the potential coordination errors. The size of the site may also make a smaller scale more appropriate. As with all other consulting disciplines, coordination with Civil and Landscape drawings must be done so as not provide redundant or discrepant information. References to these others drawings are to be provided and will define where a particular scope is defined.

   f. Drawing key – graphic and symbol legend

2. Key Plans

   a. General: Orient same as floor plans. Key Plans are required when the project is too large for a complete floor plan to be shown on the floor plan drawing at the selected scale. Key plans show relationship of partial floor plans. Show bold outline only and match line locations. Indicate portion of plan represented by the drawing with hatch.

   b. Scale: As required to fit space in or adjacent to title block. Key plans may be NTS if necessary. If full sheet size, number as ***A0.01 ....***

D. Phasing Plans (*PH.01...*)

1. Phasing plans and diagrams (1/8" = 1'-0", or to fit – may be NTS as required to show full scope clearly)
   a. Use Phasing drawings to indicate project scope and building access information that is required to be phased. Reference areas of partial demolition and area separations that will define where both the contract and owner occupied areas are located and change by phase. This drawing defines general scope and locations. Actual contract work is defined in the balance of the Construction Drawings and should be referenced appropriately.

E. Demolition Plans (*AD.1.01 ...*); Demolition Elevations (*AD2.01 ...*)

1. Demolition Drawings (same scale as new construction drawings)

   a. Use demolition drawings to indicate existing conditions. Unless defining partial demolition of an existing element, dimensioning is not required. Dimensions of existing conditions necessary for new construction will be indicated with new construction information.

   b. Utilize demolition elevations and sections in addition to plans, as appropriate. Remember that the documents form a coordinated whole so that demolition information may be shown on building elevations if it will eliminate the need for an unnecessary demolition drawing. For clarity, on demolition drawings, direct the contractor to other drawings which may include further demolition information. Combine all Demo Dwg.'s in set.

   c. On demolition drawings it is assumed that everything shown is "existing". It is redundant to use poche to indicate existing construction and to use the word "existing" in notes.

   d. New column lines are generally differentiated from existing (where new columns are to be inserted into existing numbering). Where this occurs, utilize the "existing column bubble" graphic.

   e. Renovation warning: On new construction drawings take the attitude that everything indicated is new unless shown, by hatching to be existing. The occasional use of the word *new* leaves some doubt as to the status of items not indicated as *new* or existing. In other words, do not use the term "new." To further clarify, a typical note such as "All items and features are new and to be provided by the Contractor in this scope of work unless specifically described as "Existing". Typical all areas."

   f. It is frequently necessary to utilize a series of keyed demolition notes to cover repetitive information or to provide information on the graphic structure of the drawings. Keynotes allow for a clear and clean designation of widely varying scopes of work. The use of "keynotes" for this purpose is the preferred means of providing this information.

E. Demolition Plans (*AD.1.01 ...*); Demolition Elevations (*AD2.01 ...*)

1. Demolition Drawings (same scale as new construction drawings)(cont.)

   g. Demolition drawings often utilize their own set of symbols. If these cannot be covered on the title sheet, schedule these symbols on the first demolition drawing.

   h. Our liability insurance prohibits any involvement in the identification, removal or containment of hazardous materials as part of our professional services.

F. Layout / Geometry Plans (*AL.01 ...*)

1. Specific plans as required to clearly designate building geometry or defining construction (i.e. Masonry plan, etc.) (1/8" = 1'-0", or to fit – should match overall Building Plan scale and layout for clarity.)

G. Building Plans

1. **Floor Plans (*A1.01 ...*)** (1/8" = 1'-0" typically)

   a. General: Floor title, north arrow/building north, datum elevation(s), and key plan (if plan is match-lined or if the project is phased). Project North should be oriented up (or to the right) on the sheet. Indicate finish grades by spot elevation if not addressed by site plan.

   b. Dimensions: Show dimensioned structural grid lines or column numbers, building breaks and set backs, partitions, openings, shafts, and chases. Dimension all elements from structural grids. Do not repeat dimensions which are shown more clearly at a larger scale.

      Do not superimpose dimension numbers over other information - it will result in obscuring information which will lead to field error.
      Locate partitions relative to grid lines or face location only. Since the dimensioning system provides for precise partition (wall type) dimensioning, partition thicknesses may be included in a dimension string.
      If thicknesses of other materials must be given, use actual - **not nominal** - dimensions.
      The preferred dimensioning of partitions is from finish face of partition to

G. Building Plans

1. **Floor Plans (*A1.01 ...*)** (1/8" = 1'-0" typically) (cont.)

same-side finish face of "next" partition. Partition thickness is provided in partition type details. The dimensioning system used must be consistent and must provide sufficient back referencing to column lines and overall dimensioning to allow cross checking of work.

c. Rooms: Names, numbers to cross reference to the finish schedule provided in section 09000 of the Specification. Where possible, numbering shall start at the main vestibule or lobby area and proceed consecutively through the building in clockwise fashion. Project Manager shall verify that the Owner does not have a preferred system that would supercede this approach (including systems which may be preferred by the local AHJ).

d. Floor: Finish floor elevations, slab elevation changes, mat recesses, floor patterns (if not shown in detailed or separate plan), changes in materials, openings, shafts, and curbs. Coordinate floor material depression requirements with structural engineer.

e. Walls and Partitions: Graphic material indications to extent necessary for clarity. Provide adequate space pipe and duct chases. Provide a general note such as *All partitions are Type 1 unless noted otherwise* on each plan sheet to establish a default partition type.

f. Doors: Swing, door mark. Use floor plans for all door identification, do not duplicate on large scale detailed floor plans, unless significant repetition of type occurs, such as in Hotel projects.

g. Windows and Louvers: Dimension actual - **not nominal** - rough (or masonry) openings. Window dimension strings shall be located on the "outside" of the plan. If appropriate to the type of construction, locate window units by centerline.

h. Toilet Rooms: Show plumbing fixture layout schematically for consultant coordination. Indicate all typical required clearances for accessibility. Note: columns and beams make poor pipe chases. Dimensioning of fixture and toilet partitions shall occur on detail plans.

G. Building Plans

1. **Floor Plans (*A1.01 ...*)** (Scale: 1/8" = 1'-0" typically) (cont.)

   i. Miscellaneous Items: Show equipment (casework, fire stations, drinking fountains, gratings, lockers, shelving, chalkboards, railings, etc.) only when not shown on detailed plans.

   j. If plan must be match-lined, limit area shown beyond match line to the minimum necessary for clarity. This area is graphically redundant and must be updated for consistency.

   k. Referencing Detailed Plans: Some information shown primarily on detailed plans should be duplicated on floor plans in a schematic fashion for coordination with M/E consultant or for review of documents by code officials. Typically this includes such items as: stair layouts and traffic direction; toilet fixture and partition layout; drinking fountain location. Unless as noted above, omit information from floor plans which is duplicated on detailed plans, including material designations.

   l. Referencing: Use floor plans to reference building sections, interior elevations, detailed plans (1/4" = 1'-0"), plan details, and door types. (unless location is not evident from descriptive title), or any details referenced from detailed plans.

2. **Roof Plans** (Numbered consecutively with plans) (1/8" = 1'-0")

   a. General: Orient same as floor plans, drawing title, north arrow, datum elevations, column grid lines, roof mounted equipment, roof pavers, skylights, hatches, expansion joints detail references.

   b. Drainage: Roof drains, gutter, crickets, pitch to drains, scupper, high and low points on low-pitched roofs. On "flat" roofs, indicate typical high and low points. Preferred reference datum shall be top of roof deck.

   c. Materials: Type of roofing materials (coordinate with specs), roof walkways.

G. Building Plans

2. **Roof Plans** (Numbered consecutively with plans) (1/8" = 1'-0") (cont.)

   d. Miscellaneous: Parapets, splash blocks, decks, paving, special flashing conditions, ventilators, window washing equipment, equipment screens, and guardrails. Areas of tapered insulation will be designated with hatching and called out as having a required minimum slope (1/4" per foot or greater).

   e. Scope: Show roofs below main roof level (terraces, balconies, setbacks, courtyards) only as an outline. Materials, drainage, detail keying should be shown on floor plans where they occur. Note: Main roof plan may be at the same level as the penthouse. In that case, show main roof with penthouse floor plan and the penthouse roof as a separate plan.

3. **Reflected Ceiling Plans (*A1.11...*)** (Scale: 1/8" = 1'-0" or same as floor plans).

   a. General: Includes interior ceilings and soffits, and exterior soffits. Orient same as floor plans. All visible elements in the ceiling should be shown and may include: acoustical tile pattern, lighting fixtures, drapery pockets, smoke detectors, speaker outlets, mechanical diffusers, expansion, and/or control joints. Indicate sprinkler heads and access panels only where location is architecturally significant. Because we will not indicate all such items, include a note such as:

      Sprinkler head (access door) layout is not comprehensive and is shown to indicate architectural intent only. Provide system (quantity) to comply with all applicable codes (requirements of the Contract Documents).

      Be aware that trade contractors will typically rely on the consultant's documents for layout. Although the Specifications oblige the contractors to notify the architect of any discrepancies before proceeding with their work, experience has shown that if there is architectural importance to these layouts, it is crucial that our consultants documents be well coordinated to the architectural drawings.

      Provide a graphic schedule of symbols for the above items, in lieu of labeling.

G. Building Plans

3. **Reflected Ceiling Plans (*A1.11...*)** (Scale: 1/8" = 1'-0") (cont.)

   b. Dimensions: Visible elements must be located; dimensioning can often be given as *center* or *equal* spacing.

   c. Room and Walls: Walls and room names should be indicated; but wall types and materials, dimensions and doors are not shown.

   d. Miscellaneous: Ceiling materials should be indicated to assist in defining material and dimensional scope and be coordinated with the room finish schedule. Changes in materials and changes in levels should be shown by detail reference or elevation datum. Indicate detail references and reference to large-scale plans.

   e. Scope: In many cases partial RCPs are appropriate, in lieu of full floor plans, for example, building cores where all other spaces have non-critical layouts and uniform ceiling heights. Indicate limit of ceilings with a heavy line.

   f. The finish schedule will identify rooms without finished ceilings.

   g. Provide graphic symbol key indicating symbols. The key should indicate symbols at the same scale as utilized in the keyed drawing.

4. **Finish / Floor Pattern Plan (A1.21)** (1/8" = 1'-0")

   a. General: Orient same as floor plans, drawing title, north arrow, datum elevations, and column grid lines. Utilize to show extent and variation of different flooring materials.

   b. Dimensions: Visible elements must be located; dimensioning can often be given as *center* or *equal* spacing. Indicate and working points for pattern origin and layout; and transitions to other materials or patterns.

   c. Room and Walls: Walls and room names should be indicated; but wall types, materials and dimensions are not shown.

G. Building Plans

4. **Finish / Floor Pattern Plan (A1.21)** (1/8" = 1'-0") (cont.)

   d. Miscellaneous: May be utilized to show extent of some wall mounted trim and/or color/finish variations. Key enlarged details of specific floor patterns. Utilize graphic hatches and tones to differentiate between different types of materials – key by type to drawing legend.

   e. Scope: May be utilized to show extent of some wall mounted trim and/or color/finish variations. Indicate graphically all elements (transition strips, expansion joints etc.) that are within scope.

5. **Furniture Plan (A1.31)** (1/8" = 1'-0")

   a. General: Orient same as floor plans, drawing title, north arrow, datum elevations, column grid lines. Utilize to indicate and schedule bnoth fixed and moveable furniture, and in cases where not otherwise shown, fixed equipment.

   b. Dimensions: Locate fixed furniture and /or furniture modules. Clearly indicate what part of the component is being dimensioned to, recognizing that the main purpose for the drawing is generally to define and confirm clearances rather than specify pre-manufactured dimensions. Modular dimensioning can often be given as *center* or *equal* spacing. Tie back dimensioned furniture systems to fixed building or structural elements.

   c. Room and Walls: Walls and room names should be indicated; but wall types, materials and dimensions are not shown.

   d. Miscellaneous: Utilize graphic keys and legends to identify types and locations of furniture and/or equipment components– key by type to drawing legend.

   e. Scope: Clearly differentiate (generally by "ghosted" or dashed line), furniture which is being shown for layout but is not purchased and or installed within scope of present contract..

H. Building Elevations (1/8" = 1'-0") (***A2.01….***) (cont.)

1. General: Show structure grid lines for reference.

   a. *Elevation* crosshairs shall designate the top of floor levels and/or permanent hard surface such as stone. Show floor-to-floor heights from below grade slab to the high point of the roof. Indicate parapets or curb heights. Do not show sidewalk or exterior grade elevation (shown on plans). Do not show any horizontal dimensions. Show floor elevations in feet and inches, not decimals. Indicate, in separate dimension string, building height limit and elevation of measuring point, if applicable.

   b. Show heavy outline around elevation for portion of building in foreground or in normal elevation when portion of building is at angle. Show outline only for elevations shown obliquely. Below grade construction should be shown by dashed lines.

   c. For large size projects utilizing match lines, divide elevation at same locations as floor plans.

   d. Use partial elevations to show all conditions, i.e. side elevations of projections or set backs, oblique views, faces of areaways. Generally compose drawings by "unfolding" elevations. Portions of walls which are projected from the main wall less than one structural bay may be shown as part of the main elevation, with side elevations indicated in close proximity in the sheet. Unfolding and numbering the elevations counter-clockwise around the building will allow the sheet to be composed of consecutive elevations starting at the top left corner and working left to right in rows stacked top to bottom. Indication should be made whether curved and similar elevations are drawn "Projected" or "flattened".

   d. Site Work Elevations: Where site work elements would obscure building elements if shown on building elevations, draw separate site work elevations. If these elements can be described by grade elevations on the site plan and by selected details do not create an unnecessary drawing. For orientation, these elements (planter walls, curbs) may be shown as dotted lines on building elevations.

H. Building Elevations (*A2.01….*) (1/8" = 1'-0") (cont.)

2. Referencing
   a. Label elevations by geographical orientation or street names.
   b. Key plan (in title block) may be used to identify elevations in complex conditions such as courtyards or penthouses.

   c. Use elevations to reference window types. Only if necessary for clarity, indicate window types on plan also. Use both plans and elevations to reference building sections.

3. Scope

   a. For construction document purposes elevations should show limits of materials. Extensive rendering is not appropriate unless critical to the definition of the work. Reference larger scaled partial elevations, if necessary, to show patterning within a given material. Illustrate mullion patterns in the simplest form possible. It is common for elevations to include too much information because they are initially prepared for presentation purposes and then updated for working drawing use.

   a. Brick/masonry coursing information should generally be indicated on wall sections.

   b. ***Detail Elevations*** (1/4" to ½"= 1'-0") (***A2.11…***) may be required to define highly complex or detailed sections of the building. and may be accompanied by same scale detail plans or sections to clarify profiles and configurations.

I. Building Sections (*A3.01….*) (1/8"=1'-0")

1. General: Show structure grid lines for reference.

   a. An Elevation signifier (shaded crosshairs) shall designate the top of structure or permanent hard surface such as stone. Show floor-to-floor heights from below grade slab to the high point of the roof. Do not show sidewalk or exterior grade elevation (shown on plans). Do not show any horizontal dimensions. Show floor elevations in feet and inches.

I. Building Sections *(A3.01….)* (1/8"=1'-0") (cont.)

2. Referencing:

   a. Title sections with detail number and "*Building Section @ "description*".

   b. Key plan (in title block) may be used to identify location of sections.

   c. Building sections are the vertical equivalent of floor plans, in that their two principle purposes are to convey general information (floor to floor heights, setbacks, parapets) and to reference larger scale details (exterior section details). Building sections are the primary source for locating wall and site detail references and as such a series of partial building sections may be required. For general orientation show at least one section through the entire building, but limit the balance of the sections to the minimum depth from the face of the building necessary to illustrate all setback conditions. Building sections should be located to illustrate the side elevations of projections and recesses. If building sections are located carefully they should identify most (if not all) wall section conditions. Note that wall sections are to all be drawn in the same orientation and should be marked accordingly (Use *Opp hand* or *Sim.* designations only where required).

3. Scope:

   a. Building sections should show the outlines only of wall and floor construction and adjacent site conditions. Hatching should only be used to show extent of existing construction if appropriate.

J. Wall Sections *(A3.11….)* (1/2"= 1'=0"), (3/4"= 1'-0")

1. General: Show structure grid lines for reference.

   a. An Elevation mark (shaded "crosshairs") shall designate the top of structure or permanent hard surface such as stone. Show floor-to-floor heights from below grade slab to the high point of the roof. Do not show sidewalk or exterior grade elevation (shown on plans).

J. Wall Sections *(A3.11….)* (1/2"= 1'=0"), (3/4"= 1'-0")

1. General: Show structure grid lines for reference.
   a. (cont.)
      Do not show any horizontal dimensions. Show floor elevations in feet and inches. The elevations designated at these points are to be relative to a 0'-0" architectural datum. A general note will be utilized to reference the architectural datum back to engineering or civil datum (rendered as a decimal elevation above sea level).

2. Referencing:

   a. Title sections with detail number only.

   b. Keyed from building elevations and building sections.

   c. Wall sections are used to provide greater detail of exterior conditions. They are typically used where greater exterior wall complexity requires a more detailed section. When wall sections are included in a set, the 1/8" building sections will ordinarily convey less information about the exterior skin. The wall sections will then become the primary source for locating wall detail references. Like building sections, wall sections should be located to illustrate the side elevations of projections and recesses.
   d. The wall section sheets are to be composed and numbered left to right.

K. Enlarged Floor Plans *(A4.01)* (1/4" = 1'-0")

1. Scope: Large scale floor plans of specific areas showing components of buildings which can not be illustrated at smaller scale. Typically these areas include entry lobbies, elevator lobbies, toilet rooms, classrooms, and major public spaces. Use A4.X drawings to show stair and elevator plans when they are part of a core. Use A6.X drawings to show isolated stairs and elevators in plan.

K. Enlarged Floor Plans *(A4.01)* (1/4" = 1'-0") (cont.)

2. General

   a. Limit scope of detailed plans strictly to areas requiring the level of information which necessitates the larger scale. Avoid excessive "bleeding" of plan area beyond that necessary. Carefully coordinate limit of referencing bubble on floor plans to match area illustrated in detailed floor plans.

   b. Dimension all elements to structural grid. Leave dimensional breaks at non-critical location, i.e. not in center of floor paving pattern.

   c. Orient same as floor plans.

3. Referencing: Do not duplicate referencing which occurs on floor plans, for example door types, room finish schedule symbol, exterior plan details. Reference interior elevations, stair and elevator sections, and interior finish details as appropriate. In principle, references to exterior skin construction should occur exclusively on the building plans. If the plan complexity makes it advantageous to reference partition or door types on the detailed floor plans, delete this information from the appropriate portion of the building plans.

4. Toilet Accessory Schedule:

   a. If toilet room plans are included at 1/4" scale, toilet accessories should be referenced with the proper symbol: a letter in a small circle. (See CADD standards for size and type).

   b. A toilet accessory schedule should be located on the detailed plan sheet which provides mounting heights and calls out the item with terminology consistent with the specifications.

L. Interior Elevations *(A5.01 ...)* (1/4" = 1'-0")

1. Scope: Interior elevations should only be drawn to show information such as special interior features or technical information not adequately indicated on floor plans or detailed floor plans, or to show interior materials in greater detail than can be included in room materials schedules.

2. General: Identify elevations with consecutive numbers for cross-referencing from floor plans. Also identify elevations with room names (and room numbers if applicable) to facilitate identification on the elevation drawing. Wherever possible, draw typical elevations of standard items such as toilet fixtures and accessories or miscellaneous accessories (bulletin boards, clocks, fire hose cabinets, handrails, items for handicapped access, etc.). Show heavy outline around elevation, do not render surrounding construction in section. Where exterior walls with windows bound an interior elevation, the section profile line is to indicate window head, sill and face of glass.

3. Dimensions: Show vertical dimensions only, unless special clearances or spacing are required which necessitate horizontal dimension. Horizontal dimensions should occur on floor and reflected ceiling plans.

4. Materials: Place notes outside elevations and extend notational arrow. Coordinate with room finish schedule. Use non-proprietary names only.

5. Referencing: Indicate vertical section details. Do not reference door or window schedules. Rely on plans to reference plan details. Indicate toilet accessory types, if not addressed in the plans.

M. Vertical Circulation *(A6.01 ...)*
(Partial plans and sections 1/4" = 1'-0"; Details 1-1/2" = 1'-0")

1. General: Includes large-scale plans, sections and details of stairs, elevators, chutes, escalators, etc. Orient plans same direction as floor plans. Do not duplicate stair and elevator plans which show on core plans (A4.X - Detailed floor plans).

M. Vertical Circulation *(A6.01 ...)*
(Partial plans and sections 1/4" = 1'-0"; Details 1-1/2" = 1'-0") (cont.)

2. Dimensions: Reference to nearest structural grid coordinates; stair treads dimensioned on plans, risers dimensioned on sections. Indicate floor elevations at sections.

3. Miscellaneous: Details should show materials with clear indication of condition at junctures. Make use of previously developed details for repetitive conditions such as stair details and elevator accessories. Details culled from the typical detail library must be reviewed to confirm that they are in fact applicable to the current project configuration and condition. (Related Enlarged Plan and Section Details will be numbered ***A6.11 ...***).

N. Plan and Section Details *(A7 series)* (1-1/2" = 1'-0" or larger where required)

1. Exterior and Interior detailing is organized as subdivisions of the A7 series.

2. **Exterior Plan Details *(A7.01 ...)***
Exterior Section Details (*A7.21 ...)*
   a. General: Any part of the building exposed to the weather is considered an exterior detail. This includes but is not limited to waterproofing details, column and wall treatment, projections, skylights, roof parapets, curbs, parapets, railings, roof details, window washing systems, etc. Detail all site work except planting with the exterior details. This will help to assure coordination of grading, waterproofing, base of wall conditions, etc.

   b. Dimensions and Notes: Do not dimension manufactured items; show only how they fit with adjoining materials. When detailing a special group of details, e.g. exterior cladding of the building, do not repeat typical dimensions and notes at every detail, or typical anchoring method at every detail. Indicate once as typical. When a particular set of notes is applicable to a series of details, box the notes and title the box, i.e., "Typical parapet construction. Do not draw and note information which is in the specifications, this wastes time (and money) and invariably causes conflict. Take the time to read the spec for the materials being detailed and be selective about what you draw.

N. Plan and Section Details *(A7 series)* (1-1/2" = 1'-0" or larger as required) (cont.)

3. **Interior Plan Details *(A7.11 ...)***
   Interior Section Details *(A7.31 ...)*

   a. General: Includes interior details, interior glazing, ceiling details, partition schedule, etc.

   b. Scale: Varies; but should be drawn at smallest scale that will permit the materials and joinery to be clearly shown and dimensioned.

   c. Dimensions: When a detail is drawn as portion of a larger element, the detail must be dimensioned to a structural grid or permanent element. Only critical dimensions should be indicated, strings of dimensions should be tied to a grid line and should not be closed.

   d. Miscellaneous: Required exposed fasteners should be indicated, and identified for size, spacing or number. Materials should be indicated with the appropriate graphic pattern and identified by notes, if not covered by partition type symbol.

4. **Roof Details *(A7.41 ...)*** (1-1/2" = 1'-0" or larger as required)

   a. General: This includes but is not limited to typical roof penetration details, skylights, roof parapets, curbs, parapets, railings, scupper, window washing systems, etc. Eave and parapet details may be collected on these drawings, but consideration should be give to whether they are more easily delineated in context with related wall information.

5. **Millwork Details *(A7.51 ...)*** (1-1/2" = 1'-0" or larger as required)

   a. General: This includes but is not limited to typical cabinetry, fireplace, mantel, trim and moulding details.

N. Plan and Section Details *(A7 series)* (1-1/2" = 1'-0" or larger as required) (cont.)

6. **Final Note**: By relying on the specification, graphic indication of materials, noting of typical conditions, and exterior wall types, **details may be produced utilizing only one or two notes or dimensions.** (Remember that "Typical" means the repetition of information. It does not mean "similar." Do not use the term "similar" without describing what is different.) Pause before yielding to the temptation to fill up the empty space with extraneous and repetitive information. Economical detailing is the essence of efficient construction documentation. Care should be taken to identify and describe those elements which are rightly delineated in the scope of Architectural work. Structural members and Mechanical elements are to be designated generically – specifics will be provided by the respective discipline's documentation. Inclusion of inappropriate information on Architectural drawings can lead to confusion in assigning supplier responsibility for those items.

   Follow the ***JSA Standard Drawing Cartoon***.

O. Wall and Partition Details and Types; Openings *(A8 series)*

1. **Fire rated Assemblies and Details** ***(A8.01 ...)*** (1-1/2" = 1'-0")
   a. General: All utilized U.L. and otherwise underwritten Assemblies and Penetration details will be indicated.
   b. Sheets will be gridded and composed from bottom right to top left.
   c. Use of templated detail library sheets with unused details crossed out or eliminated, is preferred to maintain consistency and completeness of rendered information.

2. **Exterior Wall Type Schedules** ***(A8.11 ...)*** (3" = 1'-0")
   a. **Exterior wall types** are identified with a "W-letter" designation.

   b. The graphic schedule, at 3" = 1'-0", should identify all major wall construction types, noting materials, top and bottom of slab conditions, interior finishes and wall thickness.

   c. The information appearing in the graphic schedule should not be repeated.

O. Wall and Partition Details and Types; Openings *(A8 series)* (cont.)

2. **Exterior Wall Type Schedules** ***(A8.11 ...)***

   d. Wall types should be indicated on wall sections and plan details by the exterior wall type symbol.

   e. Use this wall type symbol on the building plans and sections only where a wall is not covered by any further detailing. Reference to the Schedule Sheet number should be places on all plan and section sheets where the types are keyed.

3. **Interior Partition Type Schedules** ***(A8.11 ...)***

   a. Partitions types are identified with a "P-number" designation.

   b. All partition-type indications should be located on the 1/8" scale floor plans.

   c. Refer to the existing standard JSA partition types for reuse and/or modification.

   d. Partition type details shall include top and bottom termination information and plan information.

   e. Indicate sound and fire rating assembly numbers carefully. Double check UL designations and details for accuracy.

4. **Door and Frame Types and Details** ***(A8.21 ...)***

   a. Door and door frame types are elevated at 1/4"= 1'-0"

   b. Show sill, head and jamb details referenced from the door schedule. These details are for the purpose of delineating the door and frame elements, their dimensional relation to the surrounding construction and pertinent installation (flashing and sealant) information. Reference surrounding partitions and walls by type only if required.

O. Wall and Partition Details and Types; Openings *(A8 series)* (cont.)

5. **Windows / Louvers** (***A8.31 ...***) (Scale as noted below)

   a. General: Coordinate nomenclature with the specifications, i.e. windows, storefront, bronze entrances, etc.

   b. **Window and Louver Schedule:**
      (1) Window and louver symbols should be located on the 1/8" scale elevation drawings.
      (2) The window symbol should be keyed to a 1/4" scale elevation of the window type.
      (3) Unit elevation should always be viewed from the exterior side.
      (4) Unit elevation dimensions should include both rough opening and finish unit dimension.
      (5) Cross reference doors within a glazing schedule to door schedule (retail entrance, balcony door, etc.).
      (6) Referencing: Use window schedule to reference glass types and (generic) window details. The specifications should schedule the glass types. Reference window head, sill and jamb details - do not reference exterior section details.
      (7) Curtain Wall elevations and Details are to be elevated and keyed independently utilizing a "CW- letter" designation. Details may be combined with other window details or segregated onto a separate sheet but in all cases are to be organized by type.

   c. **Window Details** (1 1/2" = 1'-0"): Rely on exterior details to define the full scope of construction surrounding the window or storefront sections. Limit the window details to a description of the section itself and its attachment to the substrate. Note fastening methods to the extent not covered in the specifications. Indicate sealants, calk, reveals, etc. at all interfaces with finish materials. Rely on the specifications to define the window system. Simplify the graphic representation to avoid drawing all the complexity of the sections themselves, since the profiles are usually proprietary and frequently not used.

P. Door Schedule (Specification Section 08000)

1. Use the Door Schedule format found in the JSA Master Specifications. (Certain project types or sizes may require that the Door Schedule be located in the drawing set. In these cases the Project Manager may use the JSA Cadd Standard template for this schedule and locate it on Sheet A8.21). IN either case this schedule should be accounted for in the Cartoon Set.)

2. Every door in a project should have a unique number. Door numbering should be correlated with Room numbering. Every door shall be numbered with the Room number of the room into which it opens, and sequential letters for multiple doors into a room. (For consistency, a single door into a room will still maintain the letter "A" designation after the room number). The door schedule may be set up skipping every tenth number to allow for inserting additional doors. In certain cases, where highly repetitive door types are encountered such as in hotel suites, door numbers should be set up by type. In that case, use alphabetic identification to separate the repeat door types from unique types.

3. The hardware set number should be listed in the door schedule. Hardware set descriptions are to be listed in the specs.

Q. Finish Schedule (Specification Section 09000)

5. Use the Finish Schedule format found in the JSA Master Specifications.

6. The finish schedule will describe floor wall and ceiling finishes, door and frame colors and provide ceiling heights.

V. Production Technique *(PT)*

A. Sheet Design - Sheets and drawing sets shall be composed per the following criteria and using the ***JSA Standard Drawing Cartoon*** set as a standard. Anticipated deviations from these standards will be cleared with the Project Manager and Quality Control administrator.

1. JSA standard sheet sizes are 24" x 36" and 30" x 42". A standard sheet should be used in all project phases. The project's sheet standard will be established during cartooning. Cartooning layout should assume for adequate space for column line identification, multi-tiered dimensioning and notes. Development of a cartoon set by the Project Manager and sign review and approval by the Director of Tech services is required. The cartoon set will remain accessible to team members and office management throughout the project.

2. These sheets are divided into 20 modules on the 24" x 36" sheet and 30 modules on the 30" x 42" sheet, with the standard vertical title block along the right side. Details may be drawn on one or multiple modules. Individual detail modules should be laid out to provide adequate space for dimensions and notes. Reserve at least 1 1/2" at the top and left side of each module for dimension strings. Reserve at least 2" for notes on the right side of each module. Allow about 1" on the bottom for the detail number and title. Detail modules shall be numbered using the systems designated on ***JSA Standard Drawing Cartoon*** set and ***JSA CADD Standard***

3. Progress printings will be identified on the title block database in the space above the JSA job number. Section QA –1 of this Manual identifies the naming standard for these issues. All printings, other than the final set should contain the statement ***Not for Construction*** in bold typeface. The nomenclature for different issue types and purposes is identified in Section ***I. Quality Assurance (QA)*** of this Manual.

4. Before setting up the project title block, verify owner's and consultant' s names and the project name. The ownership entity may vary from the name we commonly associate with the owner. Determine whether the owner desires to utilize their own logo or graphics in the title block, and determine how that information can be obtained and input into the drawing files.
   Consultant names and addresses shall be input in the title block per the prototype sheet design using the specified font. Consultant logotypes and graphics shall appear only on their respective sheets – not on the base sheet.

B. Lettering

1. Lettering fonts, styles, sizes and usage is identified in the ***JSA CADD Manual***. Adherence to these standards is mandatory.

2. Confirm legibility of lettering (As with all other drafted elements), on full size blackline plots. Eliminate obscured or otherwise unclear text.

3. Preferred layout of block of text for notes is with left justification. ***JSA CADD Manual*** and ***JSA Construction Drawing Template*** indicate preferred organization and appearance.

C. Dimensioning

1. Lettering fonts, styles, sizes and usage is identified in the ***JSA CADD Manual***. Adherence to these standards is mandatory.

2. Generally, dimensions on plans and elevations should have 1/8" as the smallest increment except for indication of a single material thickness.

3. Dimension all items in plan from an established grid or reference point.

4. Dimension to face of concrete or masonry work, to centerlines of columns or other grid points, and to critical finished face of partitions. Always use actual - **not nominal** - dimensions.

5. Dimension all exterior masonry with actual dimensions. Masonry opening plan dimensions are to be to the full or half masonry unit dimension where possible and are not to include an extra joint dimension.

6. Generally dimension from structural elements.

7. Do not dimension items such as partitions or doors that are centered or otherwise located on a grid, module, or by typical detail condition. A General Note or typical details should describe typical conditions. Dimension only the exceptions.

C. Dimensioning (cont.)

8. Equal dimensions may be noted as such, rather than dimensioned explicitly (e.g. three equal spaces in a given 12'-0" space, not three 4'-0" dimensions). As always however, dimensioning must convey intent – if (3) 4'-0" segments are required due to equipment or other design concerns, this should be conveyed by using the actual number. Likewise if in a situation where a field variation may be anticipated, the dimensions should indicate which, if any segments must be provided, by using a "HOLD" designation where appropriate.

9. ***JSA Construction Drawing Template*** illustrates the preferred dimensional hierarchy and organization to be used for consistency and clarity.

D. Symbols

1. Reference symbols are designated in the ***JSA Construction Drawing Template*** and ***JSA CADD Manual***, which also clarifies the preferred reference "train".

2. The use of a symbol is preferable to a written explanation when the symbol can do the job adequately.

3. If a symbol is used anywhere in the drawings it must be used consistently throughout.

4. Two different methods of symbolic indication for the same information must never be used.

5. The JSA standard symbol list has been limited to the ones most frequently used. They are set up for a 1/8" database. Coordinate the use of standard symbols with the database scale. ***Standard symbols, which are not used in the project drawings, may be deleted from the listing on the title sheet.*** When additional symbols are required they shall be developed with the following guidelines:

   a. They are clearly and easily discernible.
   b. They are unique.
   c. They can be easily produced.
   d. They are not contrary to established standards.

6. The letters "*I*" and "*O*" shall not be used in symbol or column line designations. Also avoid the use of subscripts, superscripts and hyphenations.

D. Symbols (cont.)

7. Symbols with limited use within the set, such as demolition symbols and reflected ceiling plan symbols should be incorporated consistently into the format of each sheet in the series on which they are used.

8. The symbols list contains two symbols identified as *Detail Reference Mark.* It is intended that the version with the arrow be used to reference a more detailed view at 90 degrees to the drawing where the reference occurs. In other words, a detail for which knowing the direction of the view is important to its clarity.

9. The Revision symbol ("numbered "delta") is used both for revisions prior to bid and for revisions during construction. (Identified with the corresponding ASI number). A full; discussion regarding identifying and tracking revisions is included in the ***Construction Administration Guidelines / Checklist***

E. Materials Indications

1 Materials indications are designated in the ***JSA Construction Drawing Template*** and ***JSA CADD Manual***.

2 Material indications shall be only as necessary for clear definition of scope.

3 The JSA standard materials indications have been devised and found in the ***JSA CADD Manual***. Rather than maintain obsolete and obscure materials indications on the Title Sheet, the standard indications will be culled from the CADD Manual and provided in materials legends and keys on the drawings in which they occur. When indications are required for additional materials, they shall be developed with the following guidelines:
   a. They are drawn to appropriate scale.
   b. They consist primarily of lines and dots only, with shading, poche, or overall tone used sparingly. Heavy symbols in CADD can obscure information.

4. As is discussed under ***Drawing Content***, careful and consistent use of graphic materials indications will eliminate the need for notes containing duplicate information.

F. Materials Types

1. Wherever multiple types of the same material are used on a project, designate

them on the drawings as *"types"* (Brick 1, Brick 2, etc.). Use the specifications to define the various selections and their technical characteristics. This method ensures a common referencing language among team members, and more importantly, allows for changes in materials selections during the progress of the project.

2. Maintain an overall comprehensive schedule of types during the production phases, and distribute to team members and the specifications consultant.

3. Materials commonly designated as multiple types include, but are not limited to:

   a. Flashing
   b. Insulation
   c. Brick
   d. Glass
   e. Stone

4. In addition, to partition types and exterior wall types, etc., other assemblies of products may also be designated as *"Types"* with typical details used to define the system. For example:

   a. Roof system
   b. Paving systems
   c. Waterproofing

G. Abbreviations

Abbreviations have to be interpreted and understood by people of varying backgrounds and interests.

The use of abbreviations should be avoided except for those which are generally understood and accepted and which are of significant value in the production of working drawings. Their use should be limited to the saving of time and space where these savings are of significant value in the efficient production of contract drawings and where there can be no misinterpretation of intent or meaning.

The use of abbreviations cannot be a matter of personal preference due to the size of the office and number of people working on any given project. Therefore, the list of

abbreviations contained in the office master specification, ***Section 01070 Abbreviations.*** will be used exclusively. Abbreviations which may be required for a project because of its specialized nature will be restricted to use on the individual project only, and will be taken from the *"Construction Specifications Institute Standard List of Abbreviations."* Do not use periods after abbreviations.

H. Terminology

A construction drawing not only conveys information by lines, symbols, dimensions and graphics, but in substantial part by lettered notations. These notations must be of consistent and clear nomenclature. It is not intended that they become literary milestones. Terminology must also be consistent with agreements, drawings, specification, and cost estimates. Do not use proprietary terminology. The use of several words for one meaning can only lead to different interpretations by the many parties who use the documents. Be aware of and be consistent with the terminology given in the "Definitions" section of the specifications.

The recommended uses of words shown in the following list have been limited to those which experience indicates are most often misused and sources of confusion. Words which are consistently understood and properly used, are not included.

Capitalized terms denote recommended usage. Lower case terms denote undesirable or misleading variants which should be avoided in drawings and specifications.

JSA Recommended Terminology (See also Masterspec *Section 01070 Abbreviations*.s)

AIR INFILTRATION BARRIER	To be correctly distinguished from VAPOR BARRIER, MOISTURE BARRIER, etc.
ACCESS DOOR	Use only for small doors not included in door schedules. Prefabricated assembly including frame and door.
ACCESS FLOOR	Not "pedestal floor" or "computer floor."
ACCESS PANEL	A section of finish which can be opened. Generally not a prefabricated item.
ACOUSTICAL PANEL ACOUSTICAL TILE	Not "acoustic" or "acoustic board."
ACOUSTICAL SEALANT	Non-hardening caulking or sponge tape used to seal partitions to structural ceiling, walls and floor to reduce sound transmission. Not "sound caulking."
Acoustical underlayment board	Use SOUND DEADENING BOARD.
ADHESIVE	Do not use "glue" unless the particular adhesive is commonly called "glue" (such as for wood). Do not use "cement", "paste", or "mastic."
AGGREGATE BASE	Not "crushed rock", "gravel", "rock subbase."
ALTER/ALTERATION	Not "remodel."
ALTERNATE	Use for pricing only when an item or assembly is to be priced for a choice by the owner. Use only as consistent with General conditions and Division One.
ANCHOR BOLT	a bolt that is embedded in masonry or cast-in-place in concrete. Do not use to describe an expansion bolt or a bolt in an expansion shield.

ANODIZE	May be clear or color. Not 'alumilite", "alodize", "kalcolor", or "duranodic", etc. Avoid use on drawings.
APPLY	Use for paints or coatings only.
See INSTALL PROVIDE	Avoid use (unless A/E contracts with government to provide).
as-built drawings	See RECORD DRAWING.
ASPHALT CONCRETE	Not "bituminous concrete" or "asphalt paving."
asphalt roofing	Use BUILT-UP ROOFING or by type in the specification.
BACKING	A continuous material behind entire area of finish; as opposed to intermittent or edge support.
back-up	Use SUBSTRATE.
bar joists	Use STEEL JOISTS.
BASE FLASHING	Metal, "composition", "synthetic", or "built-up" bonded to roofing membrane where a roof or membrane meets a vertical surface.
BATT INSULATION	Blanket type insulation for installation between studs or joists, either friction fit or stapled. Note on drawings as an insulation type number. "INSULATION TYPE 3." Specifications define types.
bituminous	Do not use unless required by local authorities. Some Roads Commissions Standards use "Bituminous."
blackboard	Use CHALKBOARD.
BLANKET INSULATION	Roll type insulation for installation over suspended ceiling. Either laid loose or secured with stick clips. Use INSULATION TYPE # on drawings.
borrow light	Use GLAZED OPENING.

BUILDING PAPER	Sheathing paper or felt.
BUILT-UP ROOFING	Not "tar and gravel" or "asphalt roofing", etc. May be more appropriate to list by type in the Specification.
bulkhead	Use SOFFIT.
bulletin board	Use TACKBOARD.
butyl membrane	Use WATERPROOFING. Specifications define types.
CAULK	Use only for non-elastomeric fillers and joints subject to little movement, generally indoors. If purpose is acoustical, use ACOUSTICAL SEALANT. See also SEALANT.
CASEWORK	Not "cabinet" or "case."
CASING BEAD	a plaster stop. Do not use for gypsum board trim. See also METAL TRIM.
CEMENT	Use CEMENT PLASTER. Do not use for "glue," ADHESIVE, or concrete.
CEMENT FIBER PANEL	Not "wood fiber", "tectum", etc.
CEMENT PLASTER	Not "stucco." Use to describe all cement-based plasters.
CERAMIC TILE	Do not use "wall tile," "mosaic tile," etc. on drawings. Define types for specifications consultant. See also quarry tile.
CHALKBOARD	Not "blackboard."
chipboard	Use PARTICLE BOARD.
COLD JOINT	Use where the material on one side of the joint is to be set or hard before the other side is installed and no particular bonding is expected.

computer floor	Use ACCESS FLOOR.
concrete block	Use CONCRETE MASONRY UNIT.
CONCRETE MASONRY UNIT	Not "concrete block", "cinder block," etc.
CONSTRUCTION JOINT	use where it is desirable to show exact location of a joint which is necessary to the construction process, but continuity or bonding is required.
CONTROL JOINT	A tooled cut or kerf, or a prefabricated joint to limit cracking. See also EXPANSION JOINT.
corkboard	Use TACKBOARD.
DAMPPROOFING	A coating intended to resist vapor transmission and dampness, but not designed to resist a head of water. See also VAPOR RETARDER, not to be confused with WATERPROOFING.
DELETE	A statement of instruction. Something to be taken out by intention, appropriate in a letter, not in a drawing set. For something to be left out, use OMIT.
DOWNSPOUT	A rainwater conduit made of sheet metal or plastic used for direct discharge of rainwater. Do not use RAIN LEADER unless it is made of pipe or tubing.
DRAWING	Do not use "sheet."
drywall	Use GYPSUM BOARD.
earth	Use SOIL. See also TOPSOIL.
EARTHWORK	A general term encompassing all operations relative to the movement, shaping, compacting, etc. of soil or topsoil.
ELASTOMERIC	A material which is inherently rubbery. Use in connection with sealant, flashing, membrane, etc.

EXPANSION BOLT	Single unit bolt with integral anchoring device, such as Wej-it or Kwik bolt. Do not use ANCHOR BOLT or "expansion shield".
EXPANSION JOINT	a joint designed for movement, both expansive and contractive. Do not use to describe a CONSTRUCTION JOINT or a CONTROL JOINT.
EXPANSION SHIELD	Use for devices that receive a separate screw or bolt and also note type of screw or bolt. Do not use ANCHOR BOLT or "cinch anchor".
felt	In built-up roofing, use PLY. For sheathing, use BUILDING PAPER.
flake board	Use PARTICLE BOARD.
floor sink	a type of SERVICE SINK.
Formica	Use PLASTIC LAMINATE.
free access floor	Use ACCESS FLOOR.
FURNISH	To supply only. "Furnish and Install" and "Provide" are synonymous. See PROVIDE and INSTALL.
FURRED CEILING	A ceiling attached to the structure or substrate by means of furring. See SUSPENDED CEILING.
FURRING	Strips of wood or metal fastened to a wall or other surface to even it, for application of an interior finish.
furring channel	Steel channels, see METAL FURRING.
GAGE	Not "gauge" or "guage".
GLASS FIBER	Not "fiberglass".
GLASS STOP	Not "glazing bead".

GLAZED OPENING	Used at interior partitions. Not "borrow light" or "vision panel'.
glue	See ADHESIVE.
GROOVE	A long, narrow indentation. In wood, use only when parallel to the grain. See also RABBET, QUIRK and REVEAL
GROUT	Any cementitious material used to fill, level or set other materials. Do not use "sulphur", "por-rock", etc. to describe such materials. See also NON-SHRINK GROUT.
GYPSUM BOARD	A panel whose gypsum core is paper faced on each side. Variants include gypsum wallboard, gypsum coreboard, gypsum backing board, water resistant gypsum backing board, and Type X (fire resistant) gypsum wall hoard. Denote on drawings as GWB. Specifications will define types. Do not use "sheet rock."
GYPSUM VENEER PLASTER	Plaster finish applied to gypsum base to provide monolithic trowel or textured surface free of surface defects.
HANDRAIL	Use for a single rail. For protective barricade type rails use RAILING.
HANGER	Any suspended structural member by which other members are attached.
HARDBOARD	use instead of "pressed wood," "masonite", etc. For flake type board, use PARTICLE BOARD.
HARDWOOD	Not specific species. Wood from broad-leaved evergreen or deciduous trees. See WOOD.
hat channel	Use METAL FURRING and draw "hat" or "zee" shape, specifications will define types.
HOISTWAY	use for elevators and dumbwaiters. Not "shaft".

HOISTWAY BEAM	Beams supporting guide rails between multiple hoistways. Not "separator beam".
HOLLOW METAL	use to describe hollow metal doors and panels. Do not use for extruded shapes.
INSTALL	Installation only. For "furnish and install," use PROVIDE.
INSULATING CONCRETE	Not "vermiculite concrete," "foam concrete," etc. Do not use for other LIGHTWEIGHT AGGREGATE CONCRETE, which is not intended to provide insulation.
joint backer	Use BACKER ROD.
JOINT FILLER	Material which fills entire joint. Not "bituminous filler", "fiber filler", etc. May also be used with sealant.
kick space	Use TOE SPACE.
laminated plastic	Use PLASTIC LAMINATE.
LAVATORY	Not "sink."
LIGHTWEIGHT STEEL FRAMING	Cold formed metal framing. Weldable loadbearing type steel studs and joists. For non-loadbearing framing for gypsum board, use METAL FRAMING.
LIGHTWEIGHT CONCRETE	Also commonly referred to as "lightweight structural concrete." Concrete of lightweight aggregates not designed to provide insulation. See INSULATING CONCRETE.
LOAM	Regional term for TOPSOIL. Acceptable for New England based projects. See TOPSOIL.
LOOSE FILL CONCRETE	Material which fills voids in CMU walls. Not "vermiculite", “perlite," etc.
MARKERBOARD	as appropriately differentiated from CHALKBOARD

masonite	Use HARDBOARD.
mastic	Do not use. Use ADHESIVE.
METAL FRAMING	Non-loadbearing framing for gypsum board.
METAL FURRING	Steel channels used to fur out walls and for furring ceilings.
METAL LATH	Not "diamond mesh," "chicken wire," etc.
METALLIC OXIDE WATERPROOFING	Not "iron grout", "ferrous waterproofing", "ironite", etc.
MINERAL FIBER	Not "asbestos".
moisture barrier	use MOISTURE RETARDER.
new	Do not use. Define and note existing conditions. All else is assumed to be new.
NOMINAL PIPE SIZE	Used for pipe to designate approximate material size. Abbreviate NPS. Not "ID" (insider diameter), "OD" (outside diameter).
NON-SHRINK GROUT	A dimensionally stable grout containing an expansive agent for controlled expansion to compensate for normal drying shrinkage.
OMIT	To leave out by intention. See also DELETE.
open-web joists	Use STEEL JOISTS.
OPTION	Use when there is a contractor′ s choice. See ALTERNATE.
PANELING	Sheet or board material for interior use.
PANELS	Sheet material, with some sort of joint or trim for exterior or interior use.

PARTICLE BOARD	Not "chipboard", "Novoply". See also HARDBOARD.
PARTITION	Non-loading vertical panel sub-dividing interior spaces, either rated or non-rated. For loadbearing see WALL.
PATCH	Replacement or repair of material or finish to match existing conditions.
pedestal floor	Use ACCESS FLOOR.
PLASTER	Specifications define type, i.e., gypsum plaster, Keene's Cement, etc. Note on drawings as plaster type number if more than one type is used.
plaster stop	Use CASING BEAD.
PLASTIC LAMINATE	Not "Formica", "laminated plastic".
plastic membrane	Use DAMPPROOFING. Not "visqueen". See also VAPOR RETARDER.
PLYWOOD	If several types of plywood are used within a drawing, coordinate with specifications and identify consistently.
PRECAST CONCRETE	Not "exposed aggregate concrete," "architectural precast."
PROTECTION BOARD	Polystyrene insulation, remolded asphaltic boards, or similar material. Used to protect roof and waterproof membranes from damage.
PROVIDE	Denotes "furnish and install" not "supply", "deliver", "erect".
QUARRY TILE	Use for paver tile. See also CERAMIC TILE.
RABBET	Groove at edge of member only.
RAILING	Use for protective barricade type rails. Not "balustrades,"

	"rails," "handrails," etc. See also HANDRAILS, GUARDRAILS
RAIN LEADER	a rainwater conduit made of pipe or tubing. See also DOWNSPOUT and RAINWATER CONDUCTOR (RWC).
rainwater leader	Use RAIN LEADER if made of pipe or tubing. Use DOWNSPOUT if made of sheetmetal or plastic.
rebate	Commonly used in window manufacturer's literature. Use RABBET.
RECORD DRAWING	Drawings revised to include construction changes. Do not use "as-built drawing."
REFINISH	To put a finish back into its original condition. Do not use "refurbish", "rehabilitate", "remodel", "renew" or "renovate".
RIGID INSULATION	Extruded polystyrene or similar board type insulation. Not "fiberboard", "board insulation", "cellular insulation". Note on drawings as an insulation type number. Specifications define type.
RELOCATE	To move from one location and install in another location.
remodel	Use ALTER or ALTERATION.
replace	Do not use. Can be interpreted as reinstall what was removed. Use REMOVE to described removal and INSTALL to describe placement of materials. See SALVAGE.
RESILIENT BASE	Not "rubber base," "vinyl base," etc.
resilient flooring	Specifications will use as a broad scope title. Denote on drawings as RESILIENT TILE, SHEET FLOORING,

	SEAMLESS FLOORING.
RESILIENT TILE	Vinyl Composition Tile (VCT), not "vinyl tile," "VAT," "linoleum," etc.
ROOF HATCH	Not "scuttle". If specifically only for venting smoke indicate as SMOKE VENT.
SALVAGE	Remove and save. Does not include restoration or reinstallation. Unqualified, SALVAGE means turn over to Owner. Include "...for reinstallation" if appropriate.
SCREED	Temporary or permanent metal or wood strip placed at intervals to gage thickness of applied materials.
SEALANT	Use only for elastomeric materials and at all joints subject to movement or weather penetration outdoors or indoors. If purpose is acoustical use ACOUSTICAL SEALANT.
SEAMLESS FLOORING	Sheet material with joints field welded or sealed, or field installed materials finished to provide a homogenous flooring material.
SECTION	Drawing detail showing cut through an object. Not a rolled shape.
SEMI-RIGID INSULATION	Boards of inorganic fibrous glass insulation. Note on drawings as an insulation type number. Specifications define types.
separator beams	use HOISTWAY BEAMS.
SERVICE SINK	Wall or floor mounted sink. Not "janitor=s sink," "slop sink."
SHEATHING	Not "sheeting," "diaphragm," "plyscore."
SHEET	Thin construction material, not a drawing.

SHEET FLOORING	Resilient flooring installed in lengths, generally wall to wall with joints depending upon manufactured widths of roll material.
SHEET METAL	Use general term on drawings. Specifications should define particulars.
SMOKE VENT	Use for a roof accessory specifically for venting smoke.
SOIL	Not "earth," "dirt," etc. See also TOPSOIL and LOAM..
sound calking	Use ACOUSTICAL SEALANT.
SOUND DEADENING	Concealed, high density wallboard, wood fiber or gypsum, not BOARD suitable for painting or finishing.
SOUND RETARDANT	Not "soundproof."
SPRAYED FIREPROOFING	Use general term since asbestos is outlawed. Not "vermiculite", "perlite," etc.
STAGGER	To offset building elements in a horizontal or vertical plane as stagger studs, stagger joints.
STEEL JOISTS	Not "open web joists," "bar joists."
STONE	Note on drawings as a stone type, i.e., SLATE, GRANITE TYPE 2, MARBLE TYPE 3, etc. Specifications define type.
stripping	Use FURRING.
structural studs	See LIGHTWEIGHT STEEL FRAMING.
STUD	Upright framing member of wood or metal. See LIGHTWEIGHT STEEL FRAMING and METAL FRAMING.

SUBFLOORING	Usually of different grade and thickness than used for wall or roof sheathing. Not "sheathing", "subfloor".
SUSPENDED CEILING	Finished ceiling suspended from a framework below the structural framework.
TACKBOARD	Not "bulletin board," "corkboard."
THRU	Acceptable short version of "through" on drawings only.
TOE BOARD	Raised protective edge at balconies, landings, etc. (OSHA requirement).
TOE SPACE	Recess at base of cabinets. Not "kick space."
TOPSOIL	Use only in Landscape construction. See also LOAM (NE projects) and SOIL.
transite duct	Use NON-METAL DUCT.
TYPICAL	Representative example, characteristic of a kind.
UNDERLAYMENT	A smooth, hard sheet material, placed over rougher substrates to achieve a surface suitable for the application of such finishes as resilient tile. Not "Underlay."
VAPOR RETARDER	Material used to prevent the passage of vapor or moisture into a structure or another material thus preventing condensation within them. Not "sub slab dampproofing," "vis-queen," "plastic film," "waterproof layer," WATERPROOFING.
WAINSCOT	Finish on the lower part of a partition when it differs from that of the upper wall.
WALL	Vertical panel enclosing a building or that serves as an occupancy separation. Generally loadbearing. See PARTITION.
wallboard	Use SOUND DEADENING BOARD. For gypsum

	products see GYPSUM BOARD.
WATERPROOFING	Designed to resist a head of water. Not "membrane," "dampproofing," "waterproof," etc.
WOOD	Use only for solid stock softwoods. See also HARDWOOD.

VI. Coordination of Consultant Documents *(CD)*

A. Introduction

Architectural drawings have traditionally repeated information which is located on Consultant's documents. Although there are cases where information must be duplicated, repetition can open the door for conflicts of information in the Contract Documents, which can give rise to a contractor making a claim. The type of information which is appropriately duplicated should be limited to include structural layout, fire stations, diffuser locations, and other items where discipline interface is required for code review or for practical purposes. By limiting repetition to the barest essential, the likelihood of conflicts appearing within the Contract Documents is greatly reduced.

To the greatest extent possible, architectural drawings should show only architectural information and not repeat information given by the consultants.

By following these guidelines we achieve these benefits:

1. The elimination of unnecessary drafting, which saves production time.

2. Easier coordination and checking of Contract Documents.

3. Avoiding errors or inconsistencies brought about by over-repetition in the drawings. This will head off the possibility of change orders during construction and make the contract administration phase more efficient.

4. Understanding the consultants' scopes of work will avoid duplication of efforts.

B. General Coordination Procedures

1. Review ***JSA Standard Drawing Cartoon*** with consultant.
   a. Provide background information to the consultants in electronic format using standard drawing sheet size, title, and graphic layout.
   b. Consultants should cartoon their drawings in accordance with the standard; arranging plans in the same sequence, use the same scale and orientation for plans, etc.

2. Distribute the ***JSA CADD Standard*** to consultants prior to the commencement of the contract documents phase. All drawings, including consultants' drawings, should conform to these standards. (Consultants to provide electronic and hard copy for review.)
   a. Lettering size and type shall be as specified by this manual and the ***JSA Standard Drawing Cartoon***.
   b. Use the same symbols wherever appropriate, particularly for referral indications and titles.

3. Coordination Guidelines:
   a. The following guidelines are based on a generic building type.
   b. It is assumed that the specification writer or consultant will prepare Divisions 1 through 14 and the mechanical/electrical consultants will prepare Divisions 15 and 16 of the project manual.

Consultant Coordination Guidelines

Civil

- Architectural Drawings

1. Architectural Site plan to show outline of all new and existing structures, roads, paths, appurtenances and any other architect-designed items. Indicate all finish elevations of the before-mentioned items including entrance platforms, top of areaways, etc. See "Landscaping."

2. Omit from architectural site plan all work covered by civil engineer's drawings except as stated above.

- Consultant's Drawings

1. Show outline of all architect designed items. Indicate benchmarks, property lines, extent of all new site work.

2. Indicate extent of cut and fill, rough grading, all hard surfaces, curbs, walls, retaining walls, catch basins, slope of drainage and all required finish grades and elevations.

Landscaping

D Architectural Drawings

1. Ground level plan: Identify site stairs, retaining walls, and site appurtenances when part of egress/access.

2. Hard surface drainage by spot elevation. See "Civil."

D Consultant's Drawings

1. Show outline only of all architect designed items. Show clearly extent of landscaped area, indicate completely and detail all items furnished under landscaping.

   Show sprinkler, irrigation, and drainage, including tie-in to the plumbing. Locate irrigation controller. Coordinate drains with plumbing.

2. Coordinate with other consultants and locate by dimension all items which are critical to landscaping (light standards, water supply for fountains, retaining walls, etc.)

Structural

D Architectural Drawings

1. Grid lines, numbers and grid dimensions. Floor elevations shall be top of finish floor.

2. Outline of foundation in sections and details only where required to describe waterproofing, drainage board or to indicate areas of critical architectural interface.

3. Only outline structural elements where in conjunction with architectural work. **Avoid unnecessary repetition of structural items.**

4. Locate and dimension all architectural openings in structure, slab depressions, raised floor and curbs.

5. Indicate equipment pads.

6. Locate and dimension all work outside of building such as sidewalks, stairs on grade, trenches, etc. See also "Landscaping" section.

7. Detail miscellaneous metal, including metal stairs. (Obtain structural sizes and connections from consultant.)

D Consultant's Drawings

1. Grid lines, numbers and grid dimensions. Floor elevations shall be top of structural floor. For more complex projects provide column location plan.

2. Foundation plan with all dimensions and elevations of bottom of footings. Show layout of subsurface drainage system, including sump pumps.

3. Locate and size all structural elements.

4. Show all openings and critical penetrations in structure graphically, locate if critical and coordinate with other consultants. Indicate depth of floor depressions and integral raised floors and curbs.

5. Provide typical equipment pad detail.

6. Typically detail structural elements of all work outside of buildings. Show outline only of other work where in conjunction with structural elements.

7. Show connections of all miscellaneous metal to structural elements. Submit to Architect and **be responsible for all sizes and connections.**

Structural Cont.

8.	Show below grade membranes (below slab and on walls) in sections.	8.	Show below grade membrane graphically where in conjunction with structure. Note that it is shown diagrammatically.
9.	Fire proofing of structural steel shall be shown on all details where in conjunction with architectural work. (Thickness and rating is established in specification.)	9.	For the purpose of establishing the required applied fireproofing to structural steel and steel decking, identify girders, beams, columns, etc., which require fireproofing.
10.	Show elevator shaft, elevator machine beam support, and divider beams.	10.	Detail size and locate all elevator shaft and machine beam supports, based on input from elevator manufacturer.

Mechanical

D Architectural Drawings

1. **Do not show** any mechanical elements unless contiguous with an architectural item or part of the architectural design.

2. In **finished** spaces show outline of equipment only. Show equipment bases and curbs where not part of the mechanical work. Indicate by note that extent of housekeeping pads is shown on mechanical drawings.

3. Locate by dimension non-typical exposed mechanical items critical to architectural appearance. Show access doors only when location is critical, see discussion under reflected ceiling plans in Section IV Drawing Content.

4. Clearly indicate changes in floor and ceiling levels on reflected ceiling plans, floor plans and sections.

5. Indicate increased wall or partition thickness for mechanical work. Dimension clear openings of shaft. Confirm continuity of shafts and codes for fire ratings.

6. Coordinate appearance of critical registers, grilles, and diffusers. Confirm fire, smoke and ceiling damper application and location.

D Consultant's Drawings

1. Identify all mechanical items, coordinate with other consultants through JSA. Show sizes and locations of penetrations through structure.

2. Locate all mechanical items and detail equipment bases, curbs, catwalks, concrete pits, roof penetrations, **flashings to equipment.** Coordinate all reinforced concrete requirements with structural consultant especially where integral with structure of building.

3. Locate, dimension and size all typical or standard mechanical items. Spec all required access points. Verify equipment connections to structure and floor loading requirements with structural consultant. Coordinate mechanical work with other consultants for clearances.

4. Show location of floor and ceiling level changes which affect mechanical work (for clearances) and refer to architectural drawings for specific conditions. Also locate structural drops, beams, etc.

5. Submit to architect space requirements for all enclosed mechanical work. Locate registers, grilles, diffusers where critical to the design, e.g., lobby ceilings.

6. Show all register, grills, diffusers and dampers.

Plumbing / Fire Protection

D Architectural Drawings

1. **Do not show** any plumbing elements unless contiguous with an architectural item, or part of the architectural design, e.g., toilets, lavatories and floor or roof drains.

2. Show outline of fixtures. Locate as required by HC code and design criteria. Coordinate access door locations to minimize architectural impact. Confirm, coordinate same or opp. hand layouts of fixtures.

3. Indicate sprinkler head locations on reflected ceiling plan where critical to architectural appearance. Confirm egress clearance at standpipes where necessary.

4. Specify and locate fire hose cabinets, fire extinguishers, and pull stations.

D Consultant's Drawings

1. Identify all plumbing items, coordinate with other consultants through JSA. Show sizes and locations of penetrations through structure.

2. Indicate all plumbing items; give dimensions of all typical locations and standard installations. Coordinate with other consultants. Spec all required access points. Verify plumbing work connections to structure and floor loading requirements with structural consultant through the architect.

3. Show location of standpipes and sprinkler system. Coordinate with other consultants for clearances. Where required for architectural appearance, refer specifically to architectural drawings for sprinkler head locations.

4. Locate fire hose cabinets.

5. Show structural elements, drops, beams, etc. to identify and eliminate conflicts.

Electrical

Architectural Drawings	Consultant's Drawings
1. **Do not show** any electrical elements unless contiguous with an architectural item, or part of the architectural design.	1. Identify all electrical items coordinate with other consultants through JSA. Show sizes and locations of penetrations through structure.
2. Locate critical panel and describe locations by dimension. Check partition thickness for possible furring or chasing.	2. Define and locate all electrical panels. If necessary indicate all critical clearances around panels and equipment. Verify location of oversize conduits or ducts with structural consultant if imbedded in structure and with architect if critical for architectural appearance and coordination.
3. Indicate equipment pads. Note that extent is shown on electrical drawings.	3. Locate and detail equipment pads not part of equipment.
4. Reflected ceiling plan shall show all ceiling fixtures, smoke detectors, etc. Locate where critical to architectural appearance.	4. Locate graphically all electrical items, coordinate with other consultants, especially lighting consultants.
5. Show fire stations by type.	1. Show fire station and associated work.

VII. Project File Management / Archiving

A. Introduction

Proper record keeping, record maintenance and project archiving are crucial elements of effective project control. JSA has developed a project filing and document naming system that is designed to enhance records management both in house and in the cyber world. Standardized naming systems allow for easy file access and maintenance by anyone accessing project files. Additionally, since the structure of our Internet based project management system is "web-enabled" with file "hyperlinks", it is especially critical that document naming standards are rigidly followed.

B. Text Based Document Naming and Filing

The attached document naming system applies to all projects that were initialized after May 2007. All project files are set up by IT Department on the file server using this system.

C. Drawing File Naming and Filing

File naming standards for CADD databases have been established by the CADD Manager. Refer to both the hard copy provided to all staff and the document currently available on the JSA Intranet.

D. Archiving of Drawing Files

All milestone (i.e. Issued) sets of drawings should be archived on appropriate medium as determined by IT Manager. It is all too easy to lose a record of Owner or Lender approved documents, or Contractor bid documents, if no electronic media archive is made when the record sets are printed. If you are not sure what to keep, err on the conservative side. Once a project is closed out, extraneous materials can be discarded. At a minimum, you should archive each project at the end of Schematic Design, Design Development, and Construction Documents phases. PDF's of all drawings in these sets are to be created. Any record of the Building Permit Review set or conditions prior to significant Owner initiated scope changes, if different from phase milestones shall also be archived.

E. Project Archiving

Approximately six months following Substantial Completion of a Project, all project files, shop drawings, drawing files, etc. should be archived in storage. Arrange for project archiving with the office Archivist.

Before materials are sent to storage, please check with Marketing to make sure that project cost, building area, and any other marketing information is accurately recorded in the JSA database. Project Manager will confirm necessary input into Cosential.

F. "Online" File and Data Management – See also ***JSA Construction Administration Guidelines / Checklist***

When project web sites are set up for projects, there are additional file management responsibilities. The project manager will designate an individual who will be responsible for posting and updating all project web site related information, such as Meeting Notes, Project Photographs, Shop Drawing Logs, Architect's Supplemental Instructions, etc. It is crucial that the sites are updated frequently and accurately in order to maintain the high credibility of the web site. No material should be posted without the review and concurrence of the Project Manager.

Appendix A: JSA Standard Forms and Templates

Microsoft Word Templates

ASI
DDHealthcare.dot
e-release.dot
Fax Transmittal.dot
Field Report.dot
Letter of Transmittal.dot
LetterLogo.dot
LetterPlain.dot
Meeting Notes.dot
Memo.dot
Project Setup.dot
Shop Drawing Stamp.dot
Telephone Record.dot
JSA Cartoon Set

JSA – Excel Templates

INT FinSched.xlt
Projectsetupbgtdwn2007.xls
Projsetupbgtup2007.xls
Time Sheets.xlt
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CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 11/16/2023

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 have ADDITIONAL INSURED provisions or 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
Brown & Brown of MA
107 Audubon Rd, #2, Ste 305
Wakefield MA 01880

CONTACT NAME: Christopher A. Poole
PHONE (A/C, No, Ext): (781) 245-5400 FAX (A/C, No): (781) 245-5463
E-MAIL ADDRESS:

INSURER(S) AFFORDING COVERAGE		NAIC #
INSURER A :	The Travelers Indemnity Company of Connecticut	25682
INSURER B :	The Phoenix Insurance Company	25623
INSURER C :	Travelers Property Casualty Company of America	25674
INSURER D :	XL Specialty Insurance Company	37885
INSURER E :		
INSURER F :		

INSURED
JSA Inc. Architects & Planners
273 Corporate Drive
Portsmouth NH 03801

COVERAGES **CERTIFICATE NUMBER:** 2023 **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 [ ] CLAIMS-MADE [X] OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: [ ] POLICY [X] PRO-JECT [ ] LOC [ ] OTHER:			6805H97977A	01/01/2023	01/01/2024	EACH OCCURRENCE	$ 1,000,000
							DAMAGE TO RENTED PREMISES (Ea occurrence)	$ 1,000,000
							MED EXP (Any one person)	$ 5,000
							PERSONAL & ADV INJURY	$ 1,000,000
							GENERAL AGGREGATE	$ 2,000,000
							PRODUCTS - COMP/OP AGG	$ 2,000,000
								$
B	AUTOMOBILE LIABILITY [ ] ANY AUTO [ ] OWNED AUTOS ONLY [ ] SCHEDULED AUTOS [X] HIRED AUTOS ONLY [X] NON-OWNED AUTOS ONLY			BA3R256796	01/01/2023	01/01/2024	COMBINED SINGLE LIMIT (Ea accident)	$ 1,000,000
							BODILY INJURY (Per person)	$
							BODILY INJURY (Per accident)	$
							PROPERTY DAMAGE (Per accident)	$
								$
C	[X] UMBRELLA LIAB [X] OCCUR [X] EXCESS LIAB [ ] CLAIMS-MADE [ ] DED [X] RETENTION $ 10,000			CUP4P902868	01/01/2023	01/01/2024	EACH OCCURRENCE	$ 10,000,000
							AGGREGATE	$ 10,000,000
								$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y/N [ ] (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	N/A					PER STATUTE [ ] OTH-ER	
							E.L. EACH ACCIDENT	$
							E.L. DISEASE - EA EMPLOYEE	$
							E.L. DISEASE - POLICY LIMIT	$
D	Arch/Eng/Prof Liab Incl Pollution			DPR5017221	08/15/2023	08/15/2024	Per Claim	5,000,000
							Aggregate	5,000,000

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

CERTIFICATE HOLDER
State of New Hampshire Department of Administrative Services
7 Hazen Drive
Concord NH 03302-0483

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

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CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)
11/21/2023

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.

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PRODUCER

Marsh Affinity
a division of Marsh USA LLC.
PO BOX 14404
Des Moines, IA 50306-9686

CONTACT NAME: Marsh Affinity
PHONE (A/C, No, Ext): 800-743-8130 FAX (A/C, No):
E-MAIL ADDRESS: ADPTotalSource@marsh.com

INSURER(S) AFFORDING COVERAGE		NAIC #
INSURER A:	New Hampshire Insurance Co.	23841
INSURER B:		
INSURER C:		
INSURER D:		
INSURER E:		
INSURER F:		

INSURED

ADP TotalSource MI VI, LLC
5800 Windward Parkway
Alpharetta, GA 30005
Alternate Employer:
JSA Inc.

273 CORPORATE DR. STE 100
Portsmouth, NH 038016863

COVERAGES **CERTIFICATE NUMBER:** **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	
	COMMERCIAL GENERAL LIABILITY						EACH OCCURRENCE	$
	CLAIMS-MADE / OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence)	$
							MED EXP (Any one person)	$
							PERSONAL & ADV INJURY	$
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$
	POLICY / PRO JECT / LOC						PRODUCTS - COMP/OP AGG	$
	OTHER:							$
	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident)	$
	ANY AUTO						BODILY INJURY (Per person)	$
	OWNED AUTOS ONLY / SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	HIRED AUTOS ONLY / NON-OWNED AUTOS ONLY						PROPERTY DAMAGE (Per accident)	$
								$
	UMBRELLA LIAB / OCCUR						EACH OCCURRENCE	$
	EXCESS LIAB / CLAIMS-MADE						AGGREGATE	$
	DED / RETENTION $							$
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y/N ANYPROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	N/A		WC 034275008 NH	07/01/2023	07/01/2024	X PER STATUTE / OTH-ER	
							E.L. EACH ACCIDENT	$ 2,000,000
							E.L. DISEASE - EA EMPLOYEE	$ 2,000,000
							E.L. DISEASE - POLICY LIMIT	$ 2,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
All worksite employees working for JSA Inc. paid under ADP TOTALSOURCE, INC.'s payroll, are covered under the above stated policy. JSA Inc. is an alternate employer under this policy.

CERTIFICATE HOLDER

State of New Hampshire Department of Administrative Services
7 Hazen Drive
Concord, NH 03302-0483

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 Jo Phillips

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State of New Hampshire
Department of State

CERTIFICATE

I, David M. Scanlan, Secretary of State of the State of New Hampshire, do hereby certify that JSA INC. is a New Hampshire Profit Corporation registered to transact business in New Hampshire on July 24, 1980. I further certify that all fees and documents required by the Secretary of State's office have been received and is in good standing as far as this office is concerned.

Business ID: **19188**

Certificate Number: **0006348373**

IN TESTIMONY WHEREOF,
I hereto set my hand and cause to be affixed
the Seal of the State of New Hampshire,
this 21st day of November A.D. 2023.

David M. Scanlan
Secretary of State

CERTIFICATE OF AUTHORITY

Corporate Resolution

I, Mark K. Moeller, **hereby certify** that I am duly elected President of JSA, Inc. I hereby certify the following is a true copy of a JSA, Inc vote taken at a meeting of the shareholders, duly called and held on November 15, 2023 at which a quorum of the shareholders were present and voting.

VOTED: That Wm. North Sturtevant, Principal, is duly authorized to enter into contracts or agreements on behalf of JSA, Inc. with the State of New Hampshire and any of its agencies or departments and further is authorized to execute any documents which may in his/her judgment be desirable or necessary to effect the purpose of this vote.

I hereby certify that said vote has not been amended or repealed and remains in full force and effect as of the date of the contract to which this certificate is attached. I further certify that it is understood that the State of New Hampshire will rely on this certificate as evidence that the person(s) listed above currently occupy the position(s) indicated and that they have full authority to bind the corporation. To the extent that there are any limits on the authority of any listed individual to bind the corporation in contracts with the State of New Hampshire, all such limitations are expressly stated herein.

DATED: November 15, 2023

Mark K. Moeller, AIA

ATTEST.