

S&I QUALITY ASSESSMENT - DEVELOPMENT CHECKLIST

Instructions:

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- The PA has prime responsibility for quality assurance on the project.
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QA Checklist requirements and responsibilities:

- The PA reviews each of the QA checklist items with the assistance of the GC and uses the indicated Verification Criteria to verify that each item has been completed correctly.
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Item Number	Discipline Name	Training Item #	Item	Verification Criteria
1	CIVIL	1	Building is sited properly to ensure positive drainage away from building pad and building entrances.	<p>Verification Criteria Verify by review that the site/civil drawings show contours and elevations for draining water away from building. The grade should slope downward 4% for the first 12' (1/2 inch per foot) away from the building. Grades adjacent to the building should be 6" lower than the interior floor elevation.</p> <p>Verify by review that the site/civil drawings show contours and elevations for draining water away from entrances. The grade should slope downward 1% (minimum) and 2% (maximum) at doors, for width of doors.</p> <p>For handicap accessibility, limit slopes to 5% on sidewalks, 8.3% on ramps, or as required by local codes.</p>
2	CIVIL	2	Site design minimizes slope of entrance driveways.	<p>Verification Criteria Verify by review that the site/civil drawings show contours and elevations that minimize slopes at entrance driveways. At entrance driveways, the slope should not exceed 5%; 8% is acceptable occasionally, with project manager approval.</p>
3	CIVIL	3	Site design provides minimum positive slopes required at landscaped and paved areas for water drainage.	<p>Verification Criteria Verify that site/civil drawings show contours and elevations that provide minimum slopes at landscaped and paved areas to provide adequate water drainage. At landscaped areas, the slope should not exceed 2 horizontal to 1 vertical. At lawn areas, the slope should not exceed 3 horizontal to 1 vertical.</p> <ul style="list-style-type: none"> • The minimum slope of gutters to catch basins should be .5%. The maximum slope should be 8%. • At asphalt paved areas, the minimum slope should be 2%. At concrete paved areas, the minimum slope should be 1%. The maximum slope should be 5%.
4	CIVIL	4	The recommendations of the geotechnical report have been incorporated into design requirements for earthwork and pavement.	<p>Verification Criteria Verify that the letter from the geotechnical engineer has been provided, confirm that the recommendations of the geotechnical report have been incorporated into the contract documents.</p> <ul style="list-style-type: none"> • This is required per Section 6.C.5.m of the Agreement Between Owner and Architect

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5	CIVIL	5	Concrete strength and mix design are matched to local conditions.	<p>Verification Criteria</p> <p>The requirements for concrete are clearly indicated in the contract documents and matched to local conditions:</p> <ul style="list-style-type: none"> • It should be 3,000 psi (Concrete Mix Type A) unless the geotechnical report requires otherwise • For exterior concrete in areas of freeze thaw, the concrete strength in the Schedule of Construction Materials in the structural drawings should be 4,500 psi (Concrete Mix Type D)
6	CIVIL	6	Pavement mix design is matched to local conditions, materials and methods.	<p>Verify that paving mix design has been site adapted.</p> <p>For asphalt:</p> <ol style="list-style-type: none"> 1. Provide the specification used for the project. 2. For a Marshall or Hveem Mix Design, verify the standard viscosity grades in Specification Section 2.1.E.1.a of 32 1216 are: <ol style="list-style-type: none"> a. Cold climates - AC5 b. Moderate climatic conditions - AC10 c. Hot climatic conditions - AC20 3. For a Superpave Mix Design, verify the performance grade of the asphalt has been inserted in Specification Section 2.2.C. of 32 1216. <p>For concrete:</p> <p>Verify that a minimum paving thickness for the project has been selected in Specification Section 3.2.B.1 of 32 1313.</p>
7	CIVIL	7	Site improvements minimize cut and fill requirements.	<p>Verification Criteria</p> <p>Verify by review that the building placement minimizes cut and fill requirements:</p> <ul style="list-style-type: none"> • Future additions are accommodated in the plan • The use of retaining walls is minimized • Good visibility of the building from the road is provided.
8	LANDSCAPE	1	The landscape architect has provided and completed the following tables: Plant Coverage Table, Design Criteria Table, and Landscape Data Tables	<p>Verification Criteria</p> <p>Verify by review of landscape planting plan that the Plant Coverage, Design Criteria and Landscape Data tables have been provided and the information is complete.</p>
9	LANDSCAPE	2	Recommended plant coverage amounts as required by AEC Design Guidelines and local jurisdiction have been followed.	<p>Verification Criteria</p> <p>Verify by review of the landscape planting plan that the design complies with landscape requirements identified in the AEC Design Guidelines Table 4.2 and as modified based on requirements of local jurisdiction.</p>

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10	LANDSCAPE	3	Landscape elements are appropriate for AEC Design Guidelines and as required by local jurisdiction.	<p>Verification Criteria</p> <p>Verify by review of landscape planting plan that the design complies with landscape requirements identified in the AEC Design Guidelines Table 4.2 and as modified based on requirements of the local jurisdiction.</p>
11	LANDSCAPE	4	Lawn areas have been minimized and do not exceed the standard lawn area maximum percentage.	<p>Verification Criteria</p> <p>Verify by review of landscape planting plan that lawn area percentage does not exceed the lawn area percentage found in the AEC Design Guidelines Table 4.2.</p>
12	LANDSCAPE	5	Irrigation system is appropriate for landscape design elements as required by local jurisdiction.	<p>Verification Criteria</p> <p>Verify by review of landscape irrigation plan that the irrigation system matches the irrigation elements identified in the AEC Design Guidelines Table 4.2.</p>
13	LANDSCAPE	6	Meetinghouse Site Management Plan (MSMP) including Topsoil Testing Report was prepared by landscape architect and appropriate FM training completed.	<p>Verification Criteria</p> <p>Review MSMP to verify that:</p> <ol style="list-style-type: none"> 1. Document follows standard format and is completed. 2. FM and subcontractor have signed the Plant Establishment Period and training verification section of the document.
14	ARCHITECTURAL	1	Final site layout adequately accommodates targeted needs (including planned future needs for phased buildings) with minimal acreage developed and any possible excess acreage created for disposition.	<p>Verification Criteria</p> <ol style="list-style-type: none"> 1. Verify by review of site development plan in comparison to following typical minimum site sizes: (Unless directed otherwise by S&I - HQ for limited expansion.) <ul style="list-style-type: none"> Non-phased seminary or institute buildings: <ul style="list-style-type: none"> SEM 01: 0.30 acres min. with 110 ft. frontage SEM 04: 0.62 acres min. with 150 ft. frontage SEM 08: 1.05 acres min. with 200 ft. frontage INS 03: 1.0 acres min. with 200 ft. frontage Phased seminary or institute buildings: <ul style="list-style-type: none"> SEM 02: 0.30 acres min. with 110 ft. frontage SEM 03: 0.30 acres min. with 110 ft. frontage SEM 06: 1.05 acres min. with 200 ft. frontage INS 02: 1.0 acres min. with 200 ft. frontage 2. Review defensible documentation explaining any over-development of site, such as, evidence from local jurisdiction unalterably mandating additional development, where applicable.

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15	ARCHITECTURAL	2	Interior finishes comply with standard color schemes options.	<p>Verification Criteria</p> <p>Verify that the specifications have been edited to reflect the pre-set color scheme selected for the project. No substitutions have been made. This includes: carpet, sisal, wall coverings, tile, operable folding panel partitions colors, toilet partitions, and plastic laminate. See specification Sections 06 4005, 09 3013, 09 6816, 09 7216, 09 7226, 09 7313, 10 2113, and 10 2226.</p>
16	ARCHITECTURAL	3	Exterior architectural design reflects the Church image and cost standards with approved materials.	<p>Verification Criteria</p> <p>1. Verify by review of exterior elevation drawings that approved standard materials were utilized (such as brick, EIFS and siding).</p> <p>2. Where any non-standard materials have been utilized, verify by review of documented cost and durability analysis that substituted materials are defensible in cost and wearability in comparison with approved materials.</p>
17	ARCHITECTURAL	4	Vehicle access to the site provides convenient entry and exiting with efficient on-site traffic flow.	<p>Verification Criteria</p> <p>Verify by review of site development plan that property access provides safe and adequate traffic entry and exiting.</p>
18	ARCHITECTURAL	5	Parking layout accommodates the recommended range of parking spaces based on the capacity of the building.	<p>Verification Criteria</p> <p>Verify by review of site development plan that the number of parking spaces complies with the following ranges: (includes accessible parking).</p> <p>SEM 01: 4-5 SEM 02: 4-7 SEM 03: 7-9 SEM 04: 7-11 SEM 06: 12-14 SEM 08: 16-18 INS 02: Varies INS 03: Varies</p> <p>Sites that exceed these ranges require S&I-PFC Headquarters approval.</p>
19	ARCHITECTURAL	6	Location and number of accessible parking spaces and accessible building entrances comply with accessibility requirements.	<p>Verification Criteria</p> <p>Verify by review of site development plan that at least 60% of building entrances meet accessibility requirements (IBC 1105) with the use of ramps, sloped walks, etc. and that accessible parking spaces are located convenient to these entrances.</p>
20	ARCHITECTURAL	7	Building main entrance oriented facing the primary street or towards school and located within the standard frontage setback range.	<p>Verification Criteria</p> <p>Verify by review of site development plan that building front setback is between 25 – 35 feet to avoid long access roads on site and to minimize site development costs.</p>

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21	ARCHITECTURAL	8	Seminary / Institute identification sign has been located to provide maximum visibility from the street.	<p>Verification Criteria</p> <ol style="list-style-type: none"> 1. Verify by review of site development plan and/or building elevation sheet that sign has been located to provide maximum visibility from the street (preferred location is building mounted). Sign is not to be surrounded with brick soldier courses, framing or other features. 2. Sign is not hidden by landscaping.
22	ARCHITECTURAL	9	Site has been properly fenced without vehicular and/or pedestrian access openings to neighboring properties.	<p>Verification Criteria</p> <p>Verify by review of site development plan that the standard chain link enclosure fence has been provided without gates or openings along interior property lines that do not face street frontage. Review defensible evidence from local jurisdiction requiring any non-standard openings in property enclosure fence or use of any other fence material, where applicable.</p>
23	STRUCTURAL	1	Structural system design is adapted for local snow, wind, and seismic conditions.	<p>Verification Criteria</p> <p>Verify by review of the design criteria in the Design Criteria Table and the Schedule of Construction Materials that the project is site adapted.</p> <p>For example:</p> <ul style="list-style-type: none"> • Verify that the 30 psf snow load has been changed to 20 psf live load in areas where there are no roof snow loads • Verify that the 30 psf snow load has been changed to a greater value in areas where roof snow loads exceed 30 psf • Verify that the phrase "TO BE VERIFIED BY SOILS REPORT" has been removed • Verify in the Schedule of Construction Materials there is only one line of requirements for "EXTERIOR CONCRETE"
24	STRUCTURAL	2	Foundation system and allowable bearing pressure, as recommended by the geotechnical report, are incorporated into the contract documents.	<p>Verification Criteria</p> <p>Verify by review of the Design Criteria Table that the foundation system type and the allowable soil bearing pressure used matches that recommended by the geotechnical report.</p> <p>For example:</p> <ul style="list-style-type: none"> • If the geotechnical report recommends drilled piers, verify the foundation plan indicates drilled piers • If the geotechnical report recommends "geopiers", verify the foundation plan indicates "geopiers" • If the geotechnical report recommends 2000 psf allowable soil bearing pressure, verify this is reflected in the Design Criteria Table

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25	STRUCTURAL	3	Footing and foundation plan or footing details clearly indicates the required top of footing elevations.	<p>Verification Criteria</p> <p>Verify by review that the top of footing elevations are shown on the footing and foundation plan.</p>
26	STRUCTURAL	4	Civil / Structural testing and inspection requirements are established.	<p>Verification Criteria</p> <p>Verify by review of the agreement between the owner and the testing agency that the testing and inspection requirements are provided.</p> <p>For example:</p> <ul style="list-style-type: none"> • Engineered fill (required by code whenever used) • Asphalt paving (not required by code but required by owner per Civil & Structural Testing and Inspection Guidelines) • Concrete (not required by code, but required on some project sizes) • Wood (there should be no tests or inspections for wood unless nails have been spaced at less than 4" on center) • Masonry (there should be no tests or inspections for masonry) • Steel components (there should be no tests or inspections for steel)
27	MECHANICAL	1	Seismic gas valve is included in project, if applicable.	<p>Verification Criteria</p> <p>Verify by review of the Seismic Design Category in the Design Criteria table of structural drawings. Valve is not required if Seismic Design Category is A, B or C. Valve is required if Seismic Design Category is D, E, or F.</p>
28	MECHANICAL	2	Thermal envelope design and location has not been altered.	<p>Verification Criteria</p> <p>Verify that gypsum board is detailed on bottom chord of truss and that all joints are to be taped. Verify that all penetrations through thermal envelope are to be sealed.</p>
29	MECHANICAL	3	Anti-freeze (glycol) protection to be at least 10° F. below winter design conditions.	<p>Verification Criteria</p> <p>Verify that specification, Section 21 1313 has been modified to include only those glycol percent concentrations that will protect the system to at least 10° F. below winter design conditions. Winter design conditions are found on sheet M1.1.</p> <p>For example: the Standard Plan shows a winter design temperature of 0° F. which means the only propylene glycol percent by weight values listed should be 40% and greater.</p>

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30	MECHANICAL	4	HVAC system design is adapted for local design conditions.	Verification Criteria Verify that local design conditions are shown on sheet M1.1 of the mechanical drawings. The Standard Plan shows a winter design temperature of 0° F. and a summer design temperature of 101° F. These temperatures should be edited for the project.
31	MECHANICAL	5	Control equipment distributors list in the specification has been edited for the project.	Verification Criteria Verify that the distributors list in the specification Section 23 0933 has been shortened for the project.
32	ELECTRICAL	1	Electrical service transformer and metering equipment are located to minimize visual impact.	Verification Criteria Review that the installation is at least 40 feet from center line of main entrance (subject to local power company requirements).
33	ELECTRICAL	2	Classroom lighting is per current standard.	Verification Criteria Review classroom lighting design on the electrical lighting plan and verify that lighting is recessed 2' x 4' fixtures with white louvers.
34	ELECTRICAL	3	Parking area lighting meets AEC Design Guidelines and avoids light trespass.	Verification Criteria Review pole heights and type of fixtures (cut-off type).
35	SOUND	1	Satellite dishes have been located to optimize satellite look angle. (Institutes only - when approved by S&I - HQ.)	Verification Criteria Verify by review of landscape planting plan that no part of satellite dish is blocked by fence, wall, landscaping (current or future growth), or other structure.
36	SOUND	2	Owners contracted audio visual contact is included in the specification for coordination purposes.	Verification Criteria Check specification section 11 5223.
37	Spare			