



Design Review (Revision 1 12/19/10)  
GHAZI BOYS HIGH SCHOOL ADMINISTRATION BUILDING (BLOCK THREE)  
drawings dated November 10, 2010  
WO-A-0067

Response Legend  
A - Agree  
D - Disagree  
O - out of scope  
AE - Agree with exception

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Comment #	Reviewer	Reference	Comment	Response Code	Response	Back-Check
<b>ARCHITECTURAL DRAWINGS</b>						
A-1	TMH	G-001-00-1	Cover Sheet Index missing Sheet Title for LS-103, "Second Level Life Safety Plan"			
A-2	TMH	A-101	Remove Detail Cuts 2 & 3 A-803, or indicate "By Others"			
A-3	TMH	A-101	Add Detail Reference 6/A-701			
A-4	TMH	A-101	Add Detail Reference 8/A-701			
A-5	TMH	A-101	Column line A2 missing			
A-6	TMH	A-101	Extend roof overhang at col. line A2 per Detail 3/A-401			
A-7	TMH	A-101	Doors 29 & 36 swing into corridor traffic, suggest reversing the swing or pocketing these doors like other corridor doors.			
A-8	TMH	A-102	See previous comment for Doors #115, & 130			
A-9	TMH	A-102	Concrete poche' missing from walls.			
A-10	TMH	A-103	See previous comment for Doors #214, & 228			
A-11	TMH	A-103	Detail needed for Column B-3 & window jamb connection.			
A-12	TMH	A-103	Physics Lab 220 add SIM. To Elevation Key 9C A-903, due to sink location and column.			
A-13	TMH	A-104	Add walkway access to roof hatch			
A-14	TMH	A-121	Symbols in Legend for Fluorescent Pendant and Fluorescent Surface mount appear to be identical.			
A-15	TMH	A-121	Symbols in Legend for Downlight Pendant and Downlight Surface mount appear to be identical.			
A-16	TMH	A-122	Add note "Open to Above" at Library 111			
A-17	TMH	A-123	Notes at restroom are on top of dimensions, hard to read.			
A-18	TMH	A-201	Add lightning rods and antenna to Elevations. Need attachment detail for antenna.			
A-19	TMH	A-201	Entry door sidelight frames do not match frame elevations.			
A-20	TMH	A-201	Reverse Section Cuts for 2/ A-402 & 1/ A-403.			
A-21	TMH	A-201	Modify Section Cut 1/ A-402 to cut thru louver.			
A-22	TMH	A-202	Change Section Cuts from 1/ A-302 to 1 and 2/ A-401.			
A-23	TMH	A-202	Reverse Section Cut for 1/ A-404			
A-24	TMH	A-301	Building Section 1, Column missing at line 1, and exterior wall missing.			
A-25	TMH	A-301	Building Section 2, Column Line D should be D-1			
A-26	TMH	A-401	Indicate surface material of overhangs, concrete? EIFS?			
A-27	TMH	A-401	Wall Section 2 Coordinate step in foundation wall with Structural Detail 1/S-504, Typical all sheets.			
A-28	TMH	A-401	Wall Section 3 add line to blow up detail for edge of stone.			
A-29	TMH	A-402	Is Direct Applied EIFS rated for horizontal surfaces, such as the concrete overhangs?			
A-30	TMH	A-403	Wall Section 2, Elevations indicate extended horizontal mullions.			
A-31	TMH	A-403	Wall Section 3, reference threshold detail 7/A-502 at Ground Floor door.			
A-32	TMH	A-501	Detail 7 add insect screening to air vent note.			
A-33	TMH	A-501	Suggest Galvanized Metal in place of PVC membrane for gutters, due to availability in local market.			
A-34	TMH	A-502	Detail 10 Roof E.J., Slope top of flashing, and indicate flashing material.			

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A-35	TMH	A-503	Detail 4 Roof Hatch, Size of steel tube framing not indicated here or on Structural drawings			
A-36	TMH	A-601	Room Numbers on blow-up plans would help in referencing. Typical all sheets.			
A-37	TMH	A-601	No shelving indicated for cabinets. Typical all sheets.			
A-38	TMH	A-601	Elevation 3 indicate Eye Wash/Shower. No floor drains are shown. Change hand sink to front view.			
A-39	TMH	A-602	Elevation 3 indicate Eye Wash/Shower. No floor drains are shown.			
A-40	TMH	A-602	Revise Elevation tag 601 to 602. Reverse tags 6 & 7.			
A-41	TMH	A-603	Revise Elevation tag 601 to 603. Reverse tags 6 & 7.			
A-42	TMH	A-603	Elevation 3, indicate Eye Wash/Shower. No floor drains are shown. Delete hand sink on right side.			
A-43	TMH	A-603	Elevation 4, should Projection Screen be mounted above clerestory?			
A-44	TMH	A-604	Indicate Drinking fountains on plan. Revise Elevation 3 to 5			
A-45	TMH	A-604	Indicate Wall Types for Toilet partitions on plans.			
A-46	TMH	A-604	Enlarged Plan 2, show two sinks equally spaced per elevation. Add Elevation 3/A-605 for three sinks.			
A-47	TMH	A-604	Enlarged Plan 3, Add Elevation tag 3/A-605 for two sinks. Delete Elevation tag 11.			
A-48	TMH	A-604	Enlarged Plan 4, add Elevation tag for single sink in B.F. Toilet room.			
A-49	TMH	A-605	Elevations 1 & 2 indicate height of ablation controls.			
A-50	TMH	A-605	Elevations 3 & 5 change T-6 to T-5			
A-51	TMH	A-605	Enlarged Plan 3 Add Elevation tag 3/A-605 for two sinks. Delete Elevation tag 11.			
A-52	TMH	A-606	Enlarge Stair plan 5 to include railings around opening. Dimension, Detail, and Elevate railings.			
A-53	TMH	A-607	Section 4, indicate material of ship ladder access stair.			
A-54	TMH	A-607	Enlarged Plan 1, handrails at Ground and First floor do not follow Detail 7 - handrail extension.			
A-55	TMH	A-607	Detail 12, is Steel Kick Guard mounted on outside of handrail pipe?			
A-56	TMH	A-701	Dimension Detail 1 CMU enclosure.			
A-57	TMH	A-701	Detail 4, need enlarged detail of Expansion Joint between window frames.			
A-58	TMH	A-701	Detail 6, are columns to be finished with plaster? Terrazzo base?			
A-59	TMH	A-701	Detail 10, Grade misspelled.			
A-60	TMH	A-701	Detail 11 Dimension Reveal.			
A-61	TMH	A-903	Detail 1, Section needed on counter, and gate detailed.			
A-62	TMH	A-903	Detail 8, could not locate on plans.			
A-63	TMH	Specifications	047200 Cast Stone Masonry- Consider PCC for sills, as Cast Stone may be unavailable locally.			
A-64	TMH	Specifications	072100 Thermal Insulation- Need to distinguish where the two different types are being used.			
A-65	TMH	Specifications	077413 EIFS-1.1,A.1 Add section for installation on concrete, and direct applied finish section.			

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A-66	TMH	Specifications	075419 - PVC Roofing- Consider ISOGAM or Galvanized metal for gutters as these are readily available.			
A-67	TMH	Specifications	085313 - Vinyl Windows- add section for fly screens.			
A-68	TMH	Specifications	089000-Louvers and Vents-add section for insect screening.			
A-69	TMH	Specifications	096340 - Stone Flooring-show extent of granite flooring on plans.			
A-70	TMH	Specifications	104413 - Fire Extinguishers Recessed Type specified will need to be Fire Rated for installation in Fire Rated walls.			
A-71	BRG	A-401	Wall section 3 shows what appears to be tile on the surface of Porch 1, yet it shows a 75 mm dimension above the tile. Please clarify.			
A-72	BRG	A-402	Wall section 3 shows a downspout. Does the discharge from the downspout exit onto a splashblock?			
A-73	BRG	A-403	Wall section 3 shows a ground floor stair elevation 450 mm below the ground floor. This would equate to elev 1820.31. This is the elevation of the outside edge of the sidewalk that is approximately 9 meters away. Providing a 1% slope away from this door results in an elevation at the entrance of 1820.40 . The 450 mm dimension in this detail should be changed to 360 mm, and the stairs within the building adjusted accordingly.			
A-74	BRG	A-803	This sheet shows exterior details of the play area. Please note that Tetra Tech is designing the exterior porches, stairs, and ramps around this building. We are showing the cast stone curbs screened back on our structural drawings, with a note to refer to architectural dwgs for details. We do not show handrail on our sections. It is anticipated that URS will copy our structural sections to produce architectural sections to show handrail and cast stone curb details. Please respond to this planned approach.			

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<b>STRUCTURAL COMMENTS</b>						
S-1	FRS	Dwg S-001	Live Load point load unit should be kN			
S-2	FRS	Dwg S-001, Struct Design Criteria, Struct Calcs	Seismic load coefficients on S-001 do not match those in design criteria document, but they do match the calculation output in analysis program. Slightly different values of $S_s=1.13$ and $S_1=0.53$ indicate (per USAID) while the used values of $S_s=1.28$ and $S_1=0.51$ are based upon UFC 3-301-01 recommendations. Reviewer takes no exception to values used. Design documents should report consistent values.			
S-3	FRS	Dwg S-001, Struct Design Criteria, Struct Calcs	Site class D is indicated on S-001, while calculations, design criteria and Final Geotechnical report recommends Class E.			
S-4	FRS	Dwg S-101	Porch 2 is indicated as in scope construction work on the URS design. My understanding is this porch will be detailed and constructed under the Tetra Tech site work drawings. This dwg should indicate (NIC).			
S-5	FRS	Dwgs S-101,102,103, 104,105	No suggested construction joint locations are shown. Engineers suggested locations should help contractors planning and show the desired locations. Otherwise the intent not to place joints in unacceptable locations is not presented (e.g. along and adjacent to beams, etc.).			
S-6	FRS	Dwg S-101	Section 8, at "doors" shown between Lines 4 & 5. Should it be moved between Lines 5 & 6 to indicate wall curb below louver?			
S-7	FRS	Dwg S-101	May be clearer to show the T/Slab symbol at the easterly side of the sloped slab play area. Show appropriate slab elevation change symbol between Lines 12 & 13 play area/building slab.			
S-8	FRS	Dwg S-101	Sect 9/S502 at play area may be clearer if "SIM" was added to section mark, there is no CMU wall.			
S-9	FRS	Dwgs S-101,102	Show any floor drains and cleanouts on slab plans.			
S-10	FRS	Dwgs S-101,102,103	Show background line for edge of adjacent mat foundation/link way bldg.			
S-11	FRS	Dwgs S-104,105	Should there be a concrete curb around lower roof slab openings?			
S-12	FRS	Dwg S-105	Concrete pads reference to MEP dwgs but there are no dimensions. Suggest dimensioning assumed size on this drawing, adding note that contractor to confirm sizes based upon approved equipment dimensions.			
S-13	FRS	Dwg S-106	Show correct arrow direction on section 5/S522 mark.			
S-14	FRS	Dwg S-106	Should 2/S522 be 8/S522?			
S-15	FRS	Dwg S-502	Call out depth of granular fill sub base and indicate compacted.			
S-16	FRS	Dwg S-502	If bar splices are intended for foundation tie beams, indicate on 10/S502. It is assumed they would facilitate successive concrete placements and formwork removal.			

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S-17	FRS	Dwg S-502	Detail 3/S502 indicates "Cut every other bar that crosses joint", but depth of cut is less than clearance of the top bars. Suggest detailing slab reinforcement layout plans/details to indicate 50% of the bars be fabricated shorter at the control joints.			
S-18	FRS	Dwg S-503	Is a thickened slab required below detail 5/S502 slab under non-load bearing wall?			
S-19	FRS	Dwg S-503	Indicate roughened construction joints between footing and wall section 8/S503.			
S-20	FRS	Dwg S-503, and other appropriate concrete details.	Provide 100mm wide concrete ledges at porch structure interface.			
S-21	FRS	Dwg S-503	Show any required control joints between wall and slab for detail 1/S503.			
S-22	FRS	Dwg S-511	Show bar lap splices for detail 4/S511.			
S-23	FRS	Dwg S-513	Detail 7/S51 shows 0 dimension - indicate end clearance dimension.			
S-24	FRS	Dwg S-513	Detail 5/S513 shows L178x102 angle connection (presumably welded to the top embedded plate - which would inhibit in plane movement of the CMW wall due too story drift. How does this detail work with 6/S513 12mm compressible filler - allowing in-plane wall movement? Concern is to prevent wall cracking.			
S-25	FRS	Dwg S-514	Show any required transverse reinforcement per ACI-318 Ch 21 and 315-99 Fig 18 along development length of hairpin bar Detail 3/S514.			
S-26	FRS	Dwg S-515	Show joint detail at round columns and suspended slabs?			
S-27	BRG	Dwg S-502	Detail 6 shows a "typical exterior wall footing." No thickness dimension is shown for the foundation wall. Detail 8 refers to a wall schedule for size and reinforcement, but the foundation wall was not listed.			
S-28	BRG	Dwg S-502	The details on this sheet do not seem to reflect details shown in the architectural drawings. For example, the exterior wall sections on A401, 402, 403, and 404 show a 40 mm stone base on the exterior wall below the ground floor level. The breakout for this stone base is not shown on the foundation details on S-502.			
S-29	BRG	Dwg S-502	Another example of the above is that Section 3 on A-401 shows a ledge to support Porch 1 at the front entrance to the building. There is no detail in the structural drawings for this ledge.			
S-30	BRG	Dwg S-502	Details 6 and 8 on this sheet indicate "See Architectural" for the width of the concrete sill. Detail 4 on Dwg A-502 does not indicate the width.			

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<b>MECHANICAL COMMENTS</b>						
M-1	RHM	M series Drawings	Typical comment - mechanical text overlaps background in multiple places and is difficult to see. Move text to area of clear background as possible.			
M-2	RHM	M series Drawings	There is no symbol for finned tube radiation. As shown and as scheduled, it appears that exposed pipe is run at floor/element level from the column corner risers to the enclosure. This will be damaged in a school setting. The preferred installation would be wall to wall (column to column) enclosure, matching sheet metal riser chases, and element as required by the load. Even better would be to eliminate the exposed risers on the upper floors and provide floor penetrations into the enclosure with upper floor piping below, however the concrete perimeter beam / frame construction appears to preclude this. The enclosure length vs. element length should be clarified on the schedule and with a proper symbol on the S/A sheet M-001.			
M-3	RHM	Drawings, DA, Calcs	Natural Ventilation is shown and called for in the narrative. Provide calculations on drawings or in DA showing that all spaces so ventilated are in accordance with IMC section 402, ie., minimum 4% of space floor area free opening to outside, etc..			
M-4	RHM	M-101, M series in general	"Freeze" architectural / structural dimension layer, section tag layer, and if possible, site development layer. Coordinate background layer configuration with electrical drawing E-101 which appears more appropriate for mechanical work.			
M-5	RHM	M-101 quadrant J7 and E2	The finned tube radiation "(TYP)" tags: place next to each other in a more obvious location. Note the "(TYP)" tags could be interpreted as pertaining to FT-1A only not FT-1, FT-2, etc.; clarify this.			
M-6	RHM	M-101, 102, and 103	All FTR runouts are tagged as 20MM (3/4") tube typical. Nominal 15MM (1/2") is sufficient for the scheduled maximum flowrate of 0.032L/S (0.5gpm) for both individual run out and specialty sizes, and appears to be appropriate for this austere design. If the critical runouts are left at 20MM this change will not affect pump design or operating energy at all but will save first cost.			
M-7	RHM	M-101, E3 to E5	Southwest corner of mech room; tag the condensate drain. All condensate drain tags should use the same note.			
M-8	RHM	M101, 102, 501	Refrigerant piping: indicate at least connection sizes in conjunction with the sizing disclaimer in keyed note 2.			
M-9	RHM	M-101, A-100	HP condensing units are shown at grade on concrete pads - enclose in fence cages to protect from vandalism?			
M-10	RHM	Mech details	Provide detail for refrigerant piping wall penetrations.			
M-11	RHM	M101	Keyed note 2 typo: Manufacturer's			

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M-12	RHM	M-101	Toilet Rooms 015, 016, and 017: confirm IMC 2009 allows 33l/s (70cfm) to be intermittent. Volume dampers are shown and OBD are scheduled; both are not needed and the volume dampers are preferred. Confirm fire dampers are not needed at penetrations of corridor walls, or add fire dampers. Fire dampers are shown at 2 of 3 floor penetrations in risers; confirm requirement and add as needed.			
M-13	RHM	M-101	Toilet room 025: transfer duct is shown in kitchen; relocate to plane of wall.			
M-14	RHM	M-101, 102, and 103	Copper hydronic heating lines are shown in straight lengths up to 50m (~165ft) without provision for thermal expansion compensation. Detailed swing joints in all branch lines and/or compensation in the mains is needed to accommodate up to 60mm (2.3") of thermal movement.			
M-15	RHM	M-102	Library; finned tube at column lines C-D and 1-4 has excessive risers shown. Should pipe this with three risers (one in corner serving both lengths of element) and two control valves only.			
M-16	RHM	M-102, M-103	Chemistry and Biology Fume Hood exhaust systems: Note and detail transition to fume hood collar size and connection of exhaust duct to Fume Hood (likely not 300mm round). Section 233113;3.11.B allows either PVC coated duct or welded 304s.s Welding of PVC coated steel duct is not appropriate - include class A seal with gasketed flanges for PVC coated duct. 125Pa (0.5") esp appears low for these two systems as typical hoods need about 100Pa (0.4") at the collar. Confirm static calcs in DA and provide fume hood cut sheets.			
M-17	RHM	M-102, 103, 501, cut sheets, spec	Each of supply fans SF-1, SF-2, and SF-3 are type BSQ exposed in a teaching classroom laboratory. These fans are too noisy for this application at roughly 10 sones. Quieter fans should be selected, limited to roughly 3 to 4 sones.			
M-18	RHM	M-201	Correct typos: Keyed note 1 typo: p <del>u</del> mping. Fuel oil piping note typo: C <del>e</del> ivil (refer to drawing A-100?).			
M-19	RHM	M-201	Show near boiler piping sizes, interior fuel oil pipe sizes, pipe size to expansion tank, etc...			
M-20	RHM	M-201	Why an electric unit heater (vs. hydronic) in the boiler room? (this heating system appears to be austere and has no redundancy elsewhere...)			

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M-21	RHM	M-201, M-503	Fuel oil piping configuration shown appears to over pressurize burner pump. Provide piping detail including (implied by return line) flooded bypass at burner. Confirm that integral burner pump cannot provide fuel oil flow complete from tank, possibly eliminating transfer pump set. This appears possible as tank is above grade and this is a relatively small system to require a transfer pump set. No fire safety shutoff or anti-siphon valves are shown and may be needed if tank level is above boiler room floor. Confirm relative elevations and show safety devices if required. Include fuel oil filter, not just strainer.			
M-22	RHM	M-501, M-502	Coordinate required boiler flow rate and pump capacity - HWP-1 should be at least 4.2/s (67gpm). HWP-2: 4.7/s equal 75gpm not 50 as shown. Consider specifying the B&G series 1531 direct coupled or series 80 in line in lieu of flex coupled base mounted for this small system. Complete pump selections to show a specific model not just pump series - for example B&G series 1531 model 314TB or series 80 model 2x2x9.5 for 75gpm@60ft.			
M-23	RHM	M-503, spec, cut sheets	Coordinate detail 7 which shows a single non skid mounted pump, fuel oil pump cut sheets which have multiple non-applicable configurations shown, and specification which calls for a duplex pump set.			
M-24	RHM	M-503	Detail 11: boiler has 4" connections - 4" unions shown should be flanges.			
M-25	RHM	M-504	Detail 7 - include control sequence for fuel oil pump set if pump is needed.			
M-26	RHM	M-103, A-103	Bio Lab: the chase containing the chem lab fume hood exhaust should be fire rated and should be specifically labeled as such.			
M-27	RHM	M-104, A-104	Fume Hood exhaust system shall be enclosed in fire resistance rated construction to the outlet terminal per IMC 510.6.3. Consider fire rated insulation in lieu of an extended chase. Add note and inclusion in insulation schedule 230713;3.10.A.			
M-28	RHM	M-101, 102, and 103	Add main branch isolation valves at all main hydronic branches serving 3 or more terminal components.			
M-29	RHM	M-101, 102, and 103	It appears the intent is to transfer air from corridor system into toilet rooms to make up for exhaust, yet the corridors in general have no tempered make-up air for this purpose. This will lead to significant building negative pressurization and subsequent drafts. While this may increase the effectiveness of using the operable windows for "natural" ventilation, the designer should confirm that the specified perimeter radiation has capacity to heat an appropriate quantity of induced draft. The DA calculations do not include this.			
M-30	RHM	M-104	EF-7, 9, 10, and 12: Confirm fire damper requirements at drop to occupied spaces.			

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M-31	RHM	M-104	Add note regarding boiler breeching extension and guide wire supports. Add detail for this construction interface with roofing.			
M-32	RHM	Mechanical cut sheets	Provide cut sheets for duct mounted heating coils.			
M-33	RHM	Mechanical cut sheets	Provide cut sheets for registers and grilles.			
M-34	RHM	Mechanical cut sheets	Highlight mechanical cut sheets with specific selections similar to plumbing cut sheets.			
M-35	RHM	Mechanical cut sheets	Eliminate unused cut sheets to keep information conveyed project specific.			
M-37	RHM	spec 230516	Specify type of thermal expansion compensators required and edit out remainder. Preferred system includes flexible hose loops to avoid pressure thrust load calculations for anchors.			
M-38	RHM	spec 230519	Where are venturi flowmeters used? Refer to location schedule in 3.1.R: 1) Define hydronic zone - this is either every FTR control valve which defines the heating zones or there is only one zone (hydronic reset schedule?) 3) There are no "air handling units" - are thermometers required at all duct coils? 4) Is the buffer tank a thermal storage tank - clarify. 5) Are thermometers required at every outside, return, supply, and mixed air duct?			
M-39	RHM	spec 230523	2.2 - three piece ball valves may be excessive for this service. 2.3 - Iron body ball valves may be excessive for this service. 2.5 - High performance butterfly valves are excessive for this service. 2.12 - Chainwheels appear to not be needed.			
M-40	RHM	spec 230529	Edit to remove hangars and supports not needed in this project.			
M-41	RHM	spec 230548	Coordinate seismic restraint loading definitions in 1.4.B with those shown in structural calculations. Confirm that an Ip of 1.5 required, as this raises costs for restraint system substantially.			
M-42	RHM	spec 230593	Paragraph 1.5.A: NEBB certification (per 1.3.B) is equal to these. AABC and/or TABB certified firms may not be available locally. Consider the Afghan equal to these agencies by including a phrase similar to "or the local equivalent".			
M-43	RHM	specs 230713, 230716, and 230719	These three insulation specifications include insulation types and procedures in excess of that required for this project. The specifications should be edited by removing superfluous content.			

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M-44	RHM	spec 231113	Drawing detail calls for duplex strainer; paragraph 2.3.B specifies Y pattern - coordinate. Paragraph 2.10 call for a duplex FOP; drawing calls for a single pump - coordinate. Paragraph 2.11: No fuel maintenance system is shown on drawings - this may be needed and appropriate - show it on drawings if this is expected. 2.13 and 2.14 - similar concern - provide details on drawings to show where and how these are to be used. 3.8.F - who buys the oil? 3.21 - is flared copper not allowed at burner?			
M-45	RHM	spec 232113	2.1.A&B - types L and K? 2.6.E and F are not needed, however the Buffer Tank BT-1 should be specified in their place.			
M-46	RHM	spec 232123	2.1 - this specification is for B&G series 80 not flexibly coupled series 60 scheduled and in cut sheets. 3.3 - alignment needed for series 1510 pump may be difficult to obtain in Kabul and would not be needed if close coupled series 1531 or inline series 80 were specified and scheduled as noted above.			
M-47	RHM	spec 232300	2.2 - many of the listed specialties are applicable only to much larger split systems, not the mini ductless split systems scheduled. Edit as appropriate to project.			
M-48	RHM	spec 233113	2.4.D solvent based sealant - consider deleting due to toxicity of volatile components.			
M-49	RHM	spec 233300	2.4.B & D aluminum dampers are used for aluminum duct typically and may be deleted. 2.6.B - confirm dynamic type are required. 2.9.C and 3.1.H.4 - pressure relief access doors are very costly and are probably not needed in duct this small due to lack of dynamic pressure surge upon damper closure. Verify if this is a true requirement prior to specifying this.			
M-50	RHM	spec 233423	2.2 - Consider adding quieter fans type for use as SFs exposed in labs. 2.2.F - How many of these accessories are needed? (add list to schedule?)			
M-51	RHM	spec 233713	General - delete unused types.			
M-52	RHM	spec 234100	2.1.B - UL class 1 filters have non-flammable filter frames and contribute negligible fuel and smoke when attacked by flame, however the dust they capture may well still be flammable. These are more costly and difficult to purchase compared to class 2 filters which are otherwise identical to class 1 but have typical treated cardboard frames with moderate smoke/flame/spark generation when attacked by flame. Consider allowing class 2 filters.			
M-53	RHM	spec 235100	2.1.E - type 304 s.s has only moderate resistance to corrosion from the products of fuel oil combustion, especially if the fuel has moderate to high sulfur content. Consider specifying 316L or AL 29-4C liner, and allowing aluminized steel exterior breeching / chimney. 2.2.A, B, and C - clarify to be project specific.			



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M-54	RHM	spec 235239	2.4.J - The specified tankless heater is not shown on the drawings connected to the DHW system. Will it be used? 2.5.C.2 - consider the added safety of a second <i>manual</i> reset low water cutoff.			
M-55	RHM	spec 238126	2.2.A.6 - provide for auxiliary condensate control system in accordance with IMC 3.07.2.3			
M-56	RHM	spec 238216	2.2 - delete electric coils - they appear to be covered in unit heaters for only electric heating coil on project.			
M-57	RHM	spec 238239	2.1.I - there are no hot water unit heaters on project. Delete clause if not needed, but consider using HW unit heater in lieu of electric per above comment.			



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Comment #	Reviewer	Reference	Comment	Response Code	Response	Back-Check
<b>PLUMBING COMMENTS</b>						
P-1	DCG	DA	Laboratory faucets: Provide vacuum breakers to protect building water system			
P-2	DCG	Specs	Section 220523: Purge specification to include valves only on this job. Specification (spec) appears to be unedited from the master			
P-3	DCG	Specs	Section 220529 Purge specification to include products only on this job. Spec appears to be unedited from the master			
P-4	DCG	Specs	Section 220719: Purge specification to include products only on this job. For example, Do we have jacketing? Are we using all the different mastics in specification? Do we have stormwater and overflow? Or Sanitary waste piping where heat trace is installed?			
P-5	DCG	Specs	Section 221116: Purge specification to include products only on this job. Select only pipe materials acceptable for this job. Spec appears to be unedited from the master			
P-6	DCG	Specs	Section 221119: 2.4, A. Where is the intermediate atmospheric vent backflow preventer installed? 2.5, A and B: These balance valve types seem extensive for this type of project. Consider deleting these sections. 2.9: Show wall hydrants on plans			
P-7	DCG	Specs	Section 221316: Delete all reference to ABS piping materials. This material should not be utilized for this kind of facility. 3.2, F: Where does it identify the slope of the piping?			
P-8	DCG	Specs	Section 221319: Delete all reference to ABS piping materials. This material should not be utilized for this kind of facility.			
P-9	DCG	Specs	Section 224216.16, 2.4 C and D; Add notation that laboratory faucets to include vacuum breakers to protect the building water supply.			
P-10	DCG	Specs	Section 226600: Delete reference to PE, PVC and PVDF piping materials. These materials should not be used for this type of facility for chemical waste			
P-11	DCG	P-101	Add notation on water service to maintain a minimum of 1500mm separation to the sanitary piping.			
P-12	DCG	P-101	Turn off building section bubbles and dimension strings on base drawing.			
P-13	DCG	P-102	Chem Lab/Clim 124: Note from item P-6 says to "connect to GV VTR in ground floor toilet room". This is against code. Must be connected to vent stack a minimum of 6" above the flood rim of the fixtures.			
P-14	DCG	P-401	Detail 2, Kitch 024, confirm 80 GW riser in bottom right of room is exposed?			
P-15	DCG	P-401	Detail 2, Kitch 024: Vent from Sinks to connect to GV line, not BV line.			

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P-16	DCG	P-402	Detail 2: On hot water return (HWR) line, a balance valve is installed. A check valve should also be installed to control flow. A shutoff valve on the opposite side of the check valve should be installed to service the check valve. This balance valve "assembly" should be located where multiple return lines join together.			
P-17	DCG	P-403	Detail 1 and 3: On hot water return (HWR) line, a balance valve is installed. A check valve should also be installed to control flow. A shutoff valve on the opposite side of the check valve should be installed to service the check valve. This balance valve "assembly" should be located where multiple return lines join together.			
P-18	DCG	P-404	Detail 1: Provide waste and pipe identification to fixture P-8 at bottom right of detail. On hot water return (HWR) line, a balance valve is installed. A check valve should also be installed to control flow. A shutoff valve on the opposite side of the check valve should be installed to service the check valve. This balance valve "assembly" should be located where multiple return lines join together.			
P-19	DCG	P-404	Detail 2: Provide waste and pipe identification to fixture P-8 at top right of detail. On hot water return (HWR) line, a balance valve is installed. A check valve should also be installed to control flow. A shutoff valve on the opposite side of the check valve should be installed to service the check valve. This balance valve "assembly" should be located where multiple return lines join together.			
P-20	DCG	P-404	Detail 2: Amend piping feed to fixture P-5 in top left of detail. Currently is feeding no fixture. Near P-2 on the left, Vents can not connect together below the floor. Must connect a minimum of 6" above the flood rim of the fixtures.			
P-21	DCG	P-404	Show compressed air and vacuum piping and equipment.			
P-22	DCG	P-405	Detail 2: Provide waste and pipe identification to fixture P-8 at top right of detail. On hot water return (HWR) line, a balance valve is installed. A check valve should also be installed to control flow. A shutoff valve on the opposite side of the check valve should be installed to service the check valve. This balance valve "assembly" should be located where multiple return lines join together.			
P-23	DCG	P-405	Near P-2 on the left, Vents can not connect together below the floor. Must connect a minimum of 6" above the flood rim of the fixtures			
P-24	DCG	P-501	Detail 1 and 3: Coordinate pipe types with specifications or delete pipe materials from details.			
P-25	DCG	P-501	Detail 5: Add union and shutoff on line to expansion tank. Add unions on line at connection to water heater. Add tank drain at cold water inlet to water heater. Add thermometer at outlet of mixing valve.			
P-26	DCG	P-501	Detail 7: Delete trap on line at outlet of sampling tank. Provide sampling tank support or place on floor.			



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P-27	DCG	P-601	Plumbing fixture schedule Item FD-3: Is a trap primer required for floor drain in ablution area? Consider deleting trap primer.			
P-28	DCG	P-701	Detail 1, Fixture P-1A: Delete trap under fixture in two locations.			
P-29	DCG	P-702	Detail 1: At Fixture P-3 locations, confirm venting is ample for these 3 fixtures. Consider installing stack at middle fixture.			
P-30	DCG	P-702	Detail 2: At Fixture P-3 locations, confirm venting is ample for these 3 fixtures. Consider installing stack at middle fixture. Geology Lab 123, correct venting from fixture P-6. Vent can not connect to venting at ceiling below. Must connect a minimum of 6" above the flood rim of the fixtures.			
P-31	DCG	P-703	Detail 1: At water heater location, match water heater detail. Near Women 028, on make-up water line, install backflow preventer to protect the buildings water supply.			
P-32	DCG	P-703	Detail 1: Add Water Hammer Arrester for Staff Toilet 226 and 128. Add shutoff valve on hot water line for fixture P-3 in AC Toilet 225			
P-33	DCG	P-703	At all locations of hot water return (HWR) line, a balance valve is installed. A check valve should also be installed to control flow. A shutoff valve on the opposite side of the check valve should be installed to service the check valve. This balance valve "assembly" should be located where multiple return lines join together.			
P-34	DCG	P-704	At all locations of hot water return (HWR) line, a balance valve is installed. A check valve should also be installed to control flow. A shutoff valve on the opposite side of the check valve should be installed to service the check valve. This balance valve "assembly" should be located where multiple return lines join together.			
P-35	DCG	P-704	Detail 1: Add Water Hammer Arrester for Toilet 016, 017 and 025.			
P-36	DCG	P-705	Detail 1, at fixture P-2 and P-5 vent piping can not join together below the floor. Must connect a minimum of 6" above the flood rim of the fixtures. Revise venting.			
P-37	DCG	P-705	Vent from AWT-1; Route vent independent from piping venting system through roof.			
P-38	DCG	P-705	Detail 2; Store 125: At fixtures P-5 and P-10, vent piping must join together a minimum of 6" above the flood rim of the fixtures. Revise venting.			

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<b>ELECTRICAL COMMENTS</b>						
E-1	JAS	General	What is the T/D Room? Add to list of Abbreviations.			
E-2	JAS	E-002	Feeder & Branch Circuit Copper Conductors Schedule - Tags 7 and 8 list 15 mm sq conductors. This is not a standard size and is not listed in the Conversion Table on E-001.			
E-3	JAS	E-002	Feeder & Branch Circuit Copper Conductors Schedule - Tags 25 through 34, text "KCMIL" is not needed.			
E-4	JAS	E-002	General Notes - Notes 16 through 19 - text does not line up with numbering.			
E-5	JAS	E-002	General Note 27- the word "LENGTH" in the second line is misspelled.			
E-6	JAS	E-101	No emergency illumination is provided outside of the required egress exits, as required by IBC and NFPA 101.			
E-7	JAS	E-101	General Note 7 - 2400 mm may be too low for pendant mounted light fixtures. Some door frames exceed 2500 mm. Consider increasing mounting height.			
E-8	JAS	E-101	General Note 9.(h - Closing parenthesis ") is missing.			
E-9	JAS	E-102	General Note 9.(h - Closing parenthesis ") is missing.			
E-10	JAS	E-102	Remove stray ")" near General Notes.			
E-11	JAS	E-103	General Note 9.(h - Closing parenthesis ") is missing.			
E-12	JAS	E-103	Remove stray ")" near General Notes.			
E-13	JAS	E-104	General Note 6.(h - Closing parenthesis ") is missing.			
E-14	JAS	E-104	Remove stray ")" near General Notes.			
E-15	JAS	E-104	Only one panelboard is shown in Electrical Room, but circuits are listed for two panelboards, GPP-1A and GPP-1B. Verify that this is a two section panelboard and label accordingly. Coordinate with One-Line Diagram.			
E-16	JAS	E-104	Add enlarged detail showing layout of the Electrical Room with the service equipment located.			
E-17	JAS	E-105	General Note 6.(h - Closing parenthesis ") is missing.			
E-18	JAS	E-105	Remove stray ")" near General Notes.			
E-19	JAS	E-105	Circuit number text overlaps symbols in several locations.			
E-20	JAS	E-106	General Note 6.(h - Closing parenthesis ") is missing.			
E-21	JAS	E-106	Remove stray ")" near General Notes.			
E-22	JAS	E-107	Remove stray ")" near General Notes.			
E-23	JAS	All TELECOMM Plans	Show cable tray/pathways			
E-24	JAS	All TELECOMM Plans	Verify that cable lengths do not exceed limits.			
E-25	JAS	General	Included a Telecomm Riser Diagram.			
E-26	JAS	E-110	Remove stray line above "GENERAL NOTES".			
E-27	JAS	E-111	Remove stray line near top of sheet.			
E-28	JAS	E-111	Where does this elevation show up on the floor/roof plans? Coordinate with Structural and Architectural.			
E-29	JAS	E-301	General Note 1. - Can a U.L. Master Label be obtained in Afghanistan? Requires an approved inspector to certify.			



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E-30	JAS	E-301	Bond the building steel and concrete rebar to the grounding system.			
E-31	JAS	E-301	Add a "Main Ground Bar" in the Electrical Room.			
E-32	JAS	E-301	Show the Air Terminal on the Comm. Antenna on the Lightning Protection Plan.			
E-33	JAS	E-501	Verify loads for all panelboards			
E-34	JAS	E-501	Panelboard GPP-1B, correct total in right hand Phase C column.			
E-35	JAS	E-501	Which panelboard have TVSS requirements?			
E-36	JAS	E-502	Typical for all lighting fixtures - Verify that they are available with 220 Volt, 50 hertz ballasts.			
E-37	JAS	E-502	Type F1, Description - In second line the work "BAFFEL" is misspelled.			
E-38	JAS	E-502	Type F3 and F3E, type designation and catalog number do not match those shown on the cut sheets. Correct.			
E-39	JAS	E-502	Fixture Type F5 - Is a dimming ballast available for this fixture?			
E-40	JAS	E-502	Fixture Type F5E - Is a dimming ballast available for this fixture?			
E-41	JAS	E-502	Fixture Type F5E - Is an emergency battery pack available for this fixture?			
E-42	JAS	E-701	Add Grounding Details			
E-43	JAS	E-701	How is service lateral connected to the Service Generator? Is there a switchboard or other over current device to tie into?			
E-44	JAS	E-701	Is panelboard GPP-1 a single two section panelboard or two separate panelboards. Show inter-connection between.			
E-45	JAS	E-701	Who provides service lateral to generator? If part of this contract, need to add detail of duct bank, including spare conduit. Concrete encased?			
E-46	JAS	Design Analysis Book One: Narrative	Reviewed - No Comments			
E-47	JAS	Design Analysis Book Two: Calculations	Provide Illumination Level calculations including emergency egress lighting to confirm the minimum code required levels are provided.			
E-48	JAS	Design Analysis Book Two: Calculations	Provide Voltage Drop calculations for major feeders and typical branch circuits to verify that NEC recommendations are met.			
E-49	JAS	Design Analysis Book Two: Calculations	Provide Short Circuit Fault Current calculations to verify adequacy of panelboard and circuit breaker ratings.			

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E-50	JAS	Design Analysis Book Two: Calculations	Electrical Load Calculations - What is the VA/SM factor 10.76? For lighting loads, NEC Table 220.12 lists 33 VA/SM for schools and 39 VA/SM for office buildings. For receptacles 220.14(l) call for 180 VA per receptacle or 220.14(k) allows use of 11 VA/SM, whichever is larger. Explain methodology for calculations.			
E-51	JAS	Design Analysis Book Two: Calculations	In Lighting load calculation, why is 10.76 multiplied by 2? What is the purpose of the 1.25 factor in the Sub-Total?			
E-52	JAS	Design Analysis Book Two: Calculations	In Office Technology calculation, why is 10.76 multiplied by 2?			
E-53	JAS	Design Analysis Book Two: Calculations	What demand/diversity factors are applied to justify a 300 amp service with a 313.7 amp load?			
E-54	JAS	Design Analysis Book Three: Cut sheets	Reviewed - No Comments			
E-55	JAS	Typical all Spec Sections	Provide Metric equivalent wire sizes throughout.			
E-56	JAS	Specs 260519	1.2.B Related Sections: Referenced Sections 260513 and 271500 are not included.			
E-57	JAS	Specs 260526	1.5.A: Referenced Section 017823 is not included.			
E-58	JAS	Specs 260526	2.3.A. Ground rod should be 19mm diameter by 3 m long.			
E-59	JAS	Specs 260526	3.4.D. Referenced Section 260543 is not included.			
E-60	JAS	Specs 260526	3.4.F.1 In 4th line, connector should be "bolt AND lug" type			
E-61	JAS	Specs 260529	3.1.C. Remove selection brackets [ ] in first and second lines.			
E-62	JAS	Specs 260529	3.5.B Section 099123 is not listed in the Table of Contents.			
E-63	JAS	Specs 260533	1.2.B.1 Section 260543 is not included.			
E-64	JAS	Specs 260533	1.2.B.2 Section 270528 is not included.			
E-65	JAS	Specs 260533	2.5.B.8 Use lower case on words "Long" and "Longer" in the first line.			
E-66	JAS	Specs 260573	1.5.B.1 Revise paragraph to suit Afghanistan project conditions relating to professional registration.			
E-67	JAS	Specs 262726	Verify that the devices specified are compatible with the equipment served and the voltage and frequency power available.			
E-68	JAS	Specs 262813	1.4.A Referenced Section 017823 is not included.			
E-69	JAS	Specs 262816	1.7.A Referenced Section 017823 is not included.			
E-70	JAS	Specs 262816	2.3.J.5. Referenced Section 260913 is not included.			
E-71	JAS	Specs 262816	Extra blank page at end of section			
E-72	JAS	Specs 262913	1.7.A Referenced Section 017823 is not included.			



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E-73	JAS	Specs 265100	2.8.C. Self-Luminous Signs are not used in this project. Remove paragraph.			