

**35% Design Review**  
**KABUL UNIVERSITY DINING AND LAUNDRY FACILITIES**  
**drawings dated May 28, 2010**  
**WO-A-0044**

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

Comment #	Reviewer	Reference	Comment	Response Code	Response	Back-Check
<b>STRUCTURAL COMMENTS - Bldg #29 Laundry</b>						
S1	FRS	29-S01	Add typical legend, abbreviations and symbols.			
S2	FRS	29-S01 General Notes 1st Note	US Standard Building Code is referenced? Design should be in accordance with a current international code, IBC-2006.			
S3	FRS	29-S01 General Notes 4th Note	Building grid layout to match structural layout/design calculations and multidiscipline features of the building systems. Delete this note which seems to state an unacceptable latitude in what will be constructed compared to what was designed. If this note is trying to convey that layout is schematic at this time, and will be finalized during the design process, please reword the note to be clear.			
S4	FRS	29-S01 Shop Dwg Review 1st Note	Suggest rewording note to indicate review for compliance with the design drawings and specifications - not design intent of construction documents.			
S5	FRS	29-S01 Shop Dwg Review 3rd Note	Last sentence, indicate drawings submitted without an approved review status from the design-build engineer/architect will be returned and required to be re-submitted.			
S6	FRS	29-S01 Gravity Loading	Show floor live loadings.			
S7	FRS	29-S01 Gravity Loading	Show ground snow load value (psf)			
S8	FRS	29-S01 Seismic Loading (not shown)	Should include a subsection for Seismic Design Loading Criteria. The structural design must consider seismic loading combinations. Based upon suggested values listed in UFC 3-301-01 27January2010; Ss=1.28g, S1=0.51g, Sds=0.64g, Sd1=0.26g. Seismic Design Category D. Site classification. Occupancy category. All of which should be verified by a site-specific geotechnical analysis.			
S9	FRS	29-S01 Wind Loading (not shown)	Show Wind Loading design parameters in new section.			
S10	FRS	29-S01 Concrete Note 2	For economy of design and construction, it is suggested to use a higher strength concrete mix say 4000psi (27.5MPa) in conjunction with 60,000psi (grade 60) reinforcing to minimize the size of the concrete frame superstructure, foundation and associated excavation. Less mass will also reduce the seismic loadings.			

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S11	FRS	29-S01 Concrete Note 4	Slab bar clearances show 20 mm for slab. Suggest making the clearance deep enough to avoid the depth of saw cut, tooled or formed contraction joints. Also, there will likely be slight variation in achievable "flatness" of the slab during finishing and bar placement tolerance that would diminish a very shallow clear cover.			
S12	FRS	29-S01 Concrete (not shown)	Suggest indicating that reinforcing steel shop drawings will be submitted for review and approval.			
S13	FRS	29-S01 Concrete Note 9	Should delete "When applicable". Concrete mix designs and test results are necessary submittals to determine the acceptability of the proposed concreting program, and to conform with ACI recommendations.			
S14	FRS	29-S01 Reinforcing Steel Note 1	See comment S9 above, concerning grade 60 reinforcement. If material is available, Gr 60 is desirable.			
S15	FRS	29-S01 Reinforcing Steel Note 2	Bar splice lap lengths vary according to ACI code, greater for "top" bars. 48 diameters inadequate for all cases. Suggest providing a table for the lap length by bar size for top bars and bottom bars.			
S16	FRS	29-S01 Masonry Note 7	If steel ladder reinforcement/cmu lintel blocks are not readily available, cast-in-place bond beams using deformed reinforcing bars, at regular vertical intervals may be an alternative to consider.			
S17	FRS	29-S01 Masonry Note 8	Indicate maximum grout placement lift height. Indicate block cells fully grouted with reinforcement at wall control joints, above lintels and at the required horizontal interval to splice the wall to concrete foundation stem wall.			
S18	FRS	29-S01 Foundation Note 1	Suggest that geotechnical engineer provides site specific recommendations to verify the allowable foundation bearing pressures, subgrade conditions and seismic design criteria. Site investigation program prior to the foundation work is highly recommended.			
S19	FRS	29-S01 Foundation Note 2	Suggest at least 200 deep crushed stone directly beneath slab-on-grade vapor barrier to act as a capillary break to groundwater - typical for all areas.			
S20	FRS	29-S01 Foundation (not shown)	Suggest a note to restrict heavy construction vehicle traffic on slab on grade during construction unless appropriate measures are provided to distribute the loads.			
S21	FRS	29-S01 Foundation Note 4	Indicate design by rational analysis. It would be more appropriate to state ACI-318 specific reference.			
S22	FRS	29-S01 Foundation Note 5	Please describe PAD certificate letter from geotechnical engineer. If this information is available now, it would be convenient and valuable to include any design parameters in these notes. Also see comment S18 above.			

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S23	FRS	29-S02 slab note	See Comment S19 above.			
S24	FRS	29-S02 drawing	Indicate slab joints.			
S25	FRS	29-S02 drawing	Show floor penetrations for floor drains, cleanouts, pipe and conduit.			
S26	FRS	29-S02 drawing	Indicate slope for top of slab toward floor drains.			
S27	FRS	29-S03 drawing	Indicate top of concrete elevations.			
S28	FRS	29-S04 (not shown)	Show details for floor slab penetrations / embedments such as floor drains.			
S29	FRS	29-S04 Detail 1	Footing depth to be at least the recommended ground frost depth - clarify.			
S30	FRS	29-S04 Detail 1	Show waterproof membrane and capillary break crushed stone layer - typ.			
S31	FRS	29-S04 Detail 2	Non bearing walls should also be anchored at the top and bottom into the load resisting structure for stability.			
S32	FRS					
S33	FRS	29-S04 Detail 4	Recommend 50mm or similar radius for forming tread nosing if concrete will not receive finished material surface.			
S34	FRS	29-S04 (not shown)	At a minimum, slab penetrations need additional reinforcing to control early-age cracking at re-entrant corners. This applies to all other corners as well.			
S35	FRS	29-S04 Detail 6	Splice lengths per ACI requirements, see S15 above.			
S36	FRS	29-S04 Detail 8	Provide confinement reinforcement in beam for 12mm roof anchors per ACI requirements.			
S37	FRS	29-S04 Detail 9	With 200mm wall width, there will not be sufficient space to bend stirrup and maintain side clearance. Consider single ties alternating orientation every other bar.			
S38	FRS	29-S04 Detail 10	Are the roof anchors supplied with the pre-engineered roof? A-325 for structural bolts, revise with specific reference assuming mechanical anchor bolts are intended.			
S39	FRS	29-S04 Detail 12	What is purpose of rubber filler? Is it a membrane over steel roof structure?			
S40	FRS	29-S04 Detail 15	Call out top of railing and handrail height, spacing between posts, clear spacing between balusters, clear to landing.			
S41	FRS	29-S05 Schedules	No calculations were submitted to verify the indicated reinforcement schedules.			

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<b>ARCHITECTURAL DRAWING COMMENTS - DINING FACILITY</b>						
A-1	TH	GENERAL	Add a typical legend, general notes, abbreviations, and symbol key.			
A-2	TH	GENERAL	Add a reflected ceiling plan for coordination purposes. Sheet EO-2 Lighting Floor Plan listed on Index Sheet missing from set.			
A-3	TH	GENERAL	100% review set to include pre-engineered roof drawings, and kitchen equipment drawings for architectural, structural and MEP coordination.			
A-4	TH	A01	Include Code Reference based on 2006 IBC			
A-5	TH	A01	Boiler room requires a 1 hour separation per Table 508.2 and 45 minute door per Table 715.4 All penetrations to Boiler room to be fire rated.			
A-6	TH	A01	Sprinklers are required for A-2 assembly buildings over 100 occ. Sec.903.2.1.2 Has a variance been given on this?			
A-7	TH	A01	Restrooms both appear to be for Men, is this correct?			
A-8	TH	A01	Add building section cut 2 showing extent of clerestory, and indicate clerestory above on plan.			
A-9	TH	A01	Indicate floor drains on plan for coordination			
A-10	TH	A01	Are Walk-In Refrigerator and Freezer recessed into slab or will they require ramps?			
A-11	TH	A01	Dimension canopy overhangs			
A-12	TH	A01	Door numbers should match room numbers for coordination purposes & ease of installation			
A-13	TH	A01	Add elevation tags for all interior elevations.			
A-14	TH	A01	Interior elevations of serving & condiment counter, and any other millwork is needed.			
A-15	TH	A01	Add note for Wall Types see Sheet A09			
A-16	TH	A02	Dimension column lines, canopies, and radii of pre engineered roofs.			
A-17	TH	A02	Show all mechanical/electrical equipment, i.e. louvers exhaust fans, roof vents. Electrical panels are indicated to be outside, show on elevations.			
A-18	TH	A02	Roof material for Boiler Room not indicated.			
A-19	TH	A02	Indicate Datum Elevation for finish floor line			
A-20	TH	A02	How will upper windows on East Elevation be opened?			
A-21	TH	A03	Indicate Radius of metal roofs.			
A-22	TH	A03	Is Top of Beam the spring point elevation for arc of metal roof?			
A-23	TH	A03	Add column lines to sections.			
A-24	TH	A03	Additional building section is needed for clarity			
A-25	TH	A03	Lower roofs structure requires 1 hour rating per Table 601. Will a fire rated ceiling assembly be used?			

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A-26	TH	A03	Add typical wall section reference			
A-27	TH	A03	Indicate ceiling heights			
A-28	TH	A04	Door schedule: Suggest listing every door separately with door location, swing, type, size, and etc. Suggest same for the Door Hardware.			
A-29	TH	A04	Top of window shown at 5.85 also shown as 5.6 on A02			
A-30	TH	A06	(8) Wheelchair spaces required in Dining hall per Table 1108.2.2.1			
A-31	TH	AO7	Indicate mounting height of toilet tank			
A-32	TH	AO7	Indicate size or model number of mirror.			
A-33	TH	AO7	Indicate floor drains on plan for coordination,show slope to drain			
A-33	TH	AO7	Unisex Accessible Toilet Room required per 1109.2.1. Has a variance or waiver been issued?			
A-34	TH	AO8	Indicate how toilet stall partitions are braced:overhead or ceiling.			
A-35	TH	AO9	Soffit Detail 'K' indicate radius and spring point elevation			
A-36	TH	AO9	Soffit Detail 'K' metal soffit to match gutter material would be more durable than painted plywood indicated.			
A-36	TH	AO9	Will need flashing details of all roof penetrations			

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<b>ARCHITECTURAL DRAWING COMMENTS - LAUNDRY FACILITY</b>						
A-1	TH	AO1	Add a typical legend, general notes, abbreviations, and symbol key.			
A-2	TH	AO1	Add North arrow.			
A-3	TH	AO1	100% review set to include pre-engineered roof drawings, and Laundry equipment drawings for architectural, structural and MEP coordination.			
A-4	TH	AO1	How will laundry be delivered to the building? If in carts then ramps may be more practical than steps for building access.			
A-5	TH	AO1	Include Code Reference based on 2006 IBC			
A-6	TH	AO1	Boiler room requires a 1 hour separation per Table 508.2 and 45 minute door per Table 715.4 All penetrations to Boiler room to be fire rated.			
A-7	TH	AO1	Building Type IIB could be used in lieu of IIA indicated, so no fire rating would be required.			
A-8	TH	AO2,3	Dimension canopy overhangs			
A-9	TH	AO2,3	Show gutter downspouts			
A-10	TH	AO2,3	Indicate Datum Elevation for finish floor line			
A-11	TH	AO2,3	Show all mechanical/electrical equipment, i.e. louvers exhaust fans, roof vents. Electrical switches are indicated to be outside, show on elevations.			
A-12	TH	AO2,3	Indicate window glass material on elevations			
A-13	TH	AO2,3	Guard rail pickets not shown			
A-14	TH	AO2,3	Indicate radius of metal roofs.			
A-15	TH	AO4	Door schedule: Suggest listing every door separately with door location, swing, type, size, and etc. Suggest same for the Door Hardware and include hardware schedule.			

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<b>ELECTRICAL COMMENTS - DINING FACILITY BUILDING 28</b>						
E-1	JAS	General	No specifications or design analysis were provided for review			
E-2	JAS	General	No calculations were provided for review other than basic voltage drop included on drawings.			
E-3	JAS	General	No fire alarm system is provided as required by the International Building Code (IBC) for Group A occupancy.			
E-4	JAS	28-E01	In the Legend, what is the difference between F1 and F2, or F3 and F4? Are F2 and F4 intended to be emergency lights?			
E-5	JAS	28-E01	Note 25. Are there motors larger than 1/2 horsepower? If so, then disconnect switches must be rated accordingly.			
E-6	JAS	28-E01	What does the text below Note 29. refer to? Delete if it is not needed.			
E-7	JAS	28-E01	Note 37, second line, the word "spaces" should be "spaced".			
E-8	JAS	28-E02	Lighting drawing not included in the review set.			
E-9	JAS	28-E03	No circuiting shown for ceiling fans.			
E-10	JAS	28-E03	No circuiting shown for any equipment located in the Boiler Room.			
E-11	JAS	28-E04	The use of conductor ampacity based on 90C insulation rating is only permitted if the equipment terminals that the conductors are connected to are also rated at 90C. If the equipment terminals are only rated at 60 C or 75C, that column in NEC Table 310.16 must be used to determine the conductor ampacity rating.			
E-12	JAS	28-E04	Verify that 50mm diameter conduit is adequate for the feeder circuits from the MDP Electrical Panel. 64mm may be required.			
E-13	JAS	28-E04	Verify voltage drop calculation for MDP.			
E-14	JAS	28-E04	In the Electrical Riser, grounding details, add "METALLIC" to the instruction to "ground to cold water pipe". If the cold water pipe is not metallic, it can not be connected to the grounding system.			
E-15	JAS	28-E04	No circuits are shown on panelboard BP.			

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<b>ELECTRICAL COMMENTS - LAUNDRY FACILITY BUILDING 29</b>						
E-1	JAS	General	No specifications or design analysis were provided for review			
E-2	JAS	General	No calculations were provided for review other than basic voltage drop included on drawings.			
E-3	JAS	29-E01	Note 25. Are there motor larger than 1/2 horsepower? If so, then disconnect switches must be rated accordingly.			
E-4	JAS	29-E01	What does the text below Note 29. refer to? Delete if it is not needed.			
E-5	JAS	29-E01	Note 37, second line, the word "spaces" should be "spaced".			
E-6	JAS	29-E02	Provide battery pack in light fixture in Electrical Room A103.			
E-7	JAS		Verify that the battery packs are wired on unswitched legs of the circuits so that they only power the lights when the power to the building is lost.			
E-8	JAS	29-E02	Add symbol for ceiling mounted exhaust fan.			
E-9	JAS	29-E04	Where are the 5 air conditioning units fed from? They are listed in the schedule for panelboard WM and shown circuited from WM on E03, but the riser shows them being fed from the MDP.			
E-10	JAS	29-E04	Consider using a higher trip setting for the circuit breakers feeding Water Heater #1 and #2.			
E-11	JAS	29-E04	Verify the adequacy of the conduit size for circuits MDP-2 and MDP-3			
E-12	JAS	29-E04	Verify voltage drop calculation for MDP.			
E-13	JAS	29-E04	In the Electrical Riser, grounding details, add "METALLIC" to the instruction to "ground to cold water pipe". If the cold water pipe is not metallic, it can not be connected to the grounding system.			

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<b>MECHANICAL COMMENTS - DINING FACILITY BUILDING 28</b>						
M-1	CSR	28-G02	Correct title for drawing M02 to "WATER SYSTEM HEATING FLOOR PLAN"			
M-2	CSR	28-A02	Show boiler room combustion air louver on North and South Elevations.			
M-3	CSR	28-M01	Louvers and gravity hood ventilate attic space only; provide additional occupant ventilation for Dining Area. Use ASHRAE 62 standard to determine ventilation rates.			
M-4	CSR	28-M01	Label combustion air louvers at boiler room. Provide emergency burner shut-off switch at door.			
M-5	CSR	28-M01	Radiator capacity, as scheduled, provides about 27 btu-hr/sf which may be adequate however it appears that the radiator schedule may be incorrect. Verify that heat output in Kcal/hr column is not really the BTU/hr figure. Correct and adjust length of radiator accordingly if this error has been made. (Note, it seems unlikely that a 9.6" long by 11.8" high hot water radiator could provide 4,298 btu/hr output.)			
M-6	CSR	28-M01	In addition to Water Heater System Note 17 on sheet 28-M09, add note on drawing for pipe expansion compensation at least every 24 meters (every 80 feet, or one per wall). Include associated anchors and pipe guides.			
M-7	CSR	28-M02	In Restrooms 1, 2, and 3, show wall switch for exhaust fan operation. Provide door undercut (Restroom 3 only) or door louver for make-up air to toilet room.			
M-8	CSR	28-M02	In Dish Washing room, show wall switch for fan EF-3. Provide door louver for make-up air.			
M-9	CSR	28-M02	In General Storage and Dry Storage, provide wall switch or other control for EF-4 fans. Indicate if fans run continuously if no switch is provided.			
M-10	CSR	28-M02	For Freezer and Refrigerated area, show location (exterior, location if possible) of remote refrigeration units.			
M-11	CSR	28-M02	Identify grease hoods and indicate associated ductwork connection sizes and exhaust/supply fans.			
M-12	CSR	28-M02	Provide occupant ventilation for Chef's Room according to ASHRAE 62 ventilation standards.			
M-13	CSR	28-M02	Provide occupant ventilation for Office according to ASHRAE 62 ventilation standards.			
M-14	CSR	28-M07	Show kitchen grease hood exhaust fan and supply fan on roof plan.			
M-15	CSR	28-M08	Provide detail for attic ventilators at roof penetration.			

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M-16	CSR	28-M08, Kitchen Ventilation Note 2 and Fan Schedule at Kitchen Hood	Supply air should be about 80-90% of exhaust rate to maintain negative pressure in kitchen with respect to other spaces; kitchen hood supply fan schedule indicates supply at close to exhaust rate. Additionally, provide a supply fan unit that tempers the make-up air to the space (heating only). Indicate how air is supplied to kitchen; ducted or to combination supply/exhaust grease hood. Consider using transfer air from Dining Area (see item M-2 above) for make-up supply air.			
M-17	CSR	28-M08, Fan Schedule at Kitchen Hood	For Kitchen Hood Exhaust Fan, verify that 3/4" static pressure is sufficient for hood with dirty filter condition.			
M-18	CSR	28-M08	Provide detail for kitchen exhaust fan and supply fan units on roof. Coordinate with Electric Panel Schedule; exhaust and supply fans do not appear to be scheduled.			
M-19	CSR	28-M08, Required Exhaust Air schedule	Change "Total CFM provided" from 156 to 155 to match Exhaust Fan Schedule			
M-20	CSR	28-M09	In addition to Water Heater System Note 12, provide detail for radiators showing shut-off valves on HWR and HWR piping. Consider adding a balancing valve at each radiator. Indicate air vent and unions at each radiator.			
M-21	CSR	28-M09, Detail 1	Add an air separator in piping before the circulating pumps. Indicate air vent at expansion tank. Consider automatic cold water fill, otherwise indicate how User shall be notified to feed water to boilers. Indicate pipe sizes for near-boiler piping.			
M-22	CSR	28-M09, Detail 1	Provide control sequence for boiler, by-pass pump, and circulators. Coordinate with Electric Panel Schedule; boiler and pumps do not appear to be scheduled.			
M-23	CSR	28-M09	Provide Pump Schedule and pump piping schematic.			
M-24	CSR	28-M09, Burner Schedule	Provide fuel type. If gas, show gas train and if oil, provide pump rate information, pipe sizes, etc.			
M-25	CSR	26-M09	Verify whether Boiler Room needs heating to prevent freezing of water pipes.			
M-26	CSR	N/A	No calculations, specifications, or design analysis were included therefore no review of these were performed.			

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<b>MECHANICAL COMMENTS - LAUNDRY FACILITY BUILDING 29</b>						
M-1	CSR	29-M01	Louvers and hood vent only the attic space; provide additional ventilation for Laundry A101 for dryer exhaust make-up air and occupant ventilation. Use ASHRAE Standard 62 and dryer exhaust requirements to determine ventilation rates.			
M-2	CSR	29-M01	In Restroom A103, show fan switch wall location. Note that exhaust fan, EF, is shown as a ceiling unit on 29-E02 and that power circuit CT-WM-30 is not shown on 29-E04 Panel Schedule.			
M-3	CSR	29-M01	Provide door undercut or door louver to provide make-up air for EF fan in Restroom A103.			
M-4	CSR	29-M01	Provide temperature sensors or other control for operation of AC units in Laundry A101.			
M-5	CSR	29-M01	Detail 3 indicates ceiling mounted split AC units while plan view shows wall mounted units. Clarify which mount.			
M-6	CSR	29-M01	Detail 3 indicates provisions for wall mounting remote condensing units but plan view indicates mounting at grade. Provide concrete pads if mounted at grade or indicate wall mount. Coordinate with architectural elevation on 29-A03 to show outdoor units.			
M-7	CSR	29-M01	Indicate exterior venting for dryer exhaust.			
M-8	CSR	29-M01	Provide combustion air intake and room exhaust for Boiler Room A104 to supply combustion air for fuel-fired burners.			
M-9	CSR	29-M01	Verify whether Boiler Room A104 needs heating to prevent freezing of water pipes.			
M-10	CSR	29-M01	Consider ventilation for temperature control (cooling) in Electric Room A103. Provide intake louver and exhaust fan.			
M-11	CSR	29-M01	Split units are heat pump units; change schedule name to "SPLIT SYSTEM HEAT PUMP UNITS".			
M-12	CSR	29-A05	Provide detail for attic ventilators at roof penetration.			
M-13	CSR	N/A	No calculations, specifications, or design analysis were included therefore no review of these were performed.			

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<b>PLUMBING COMMENTS - LAUNDRY FACILITY BUILDING 29</b>						
P-1	DCG	29-P01	Restroom A103, add vent on water closet line.			
P-2	DCG	29-P01	Laundry A101, add vent on floor drain line outside electric room.			
P-3	DCG	29-P01	Mop sink, fix text leader for "50 UPVC SP at mop sink"			
P-4	DCG	29-P01	Vent piping at clothes washers, confirm location of vent piping within the wall. Detail 2 on S04 shows solid 100mm wall.			
P-5	DCG	29-P01	Vent piping at clothes washers, confirm vent piping for fixtures is a minimum of 150mm above the flood rim level of the fixtures.			
P-6	DCG	29-P01	Drawing Coordinates A4, 80 UPVC UP... show location.			
P-7	DCG	29-P01	For future submissions, identify sanitary piping inverts.			
P-8	DCG	29-P01	Vent piping along outside wall, confirm location with regards to window ledge height.			
P-9	DCG	29-P02	Boiler Room A104, offset water piping from each other floor clarity.			
P-10	DCG	29-P02	Laundry A101, consider interconnecting hot water piping lines with bypass valve to provide backup capabilities.			
P-11	DCG	29-P02	Laundry A101, confirm location of water piping... exposed on wall or within wall. If within wall, confirm piping can fit within wall.			
P-12	DCG	29-P02	Provide hot water return line if run from heaters to furthest clothes washer is over 30,480mm.			
P-13	DCG	29-P03	Show vent piping as identified on drawing 29-P01.			
P-14	DCG	29-P04	Show unions on water heater piping connections.			
P-15	DCG	29-P04	Provide hot water return line if run from heaters to furthest clothes washer is over 30,480mm.			
P-16	DCG	29-P05	Detail 3, confirm vent piping within wall is a minimum of 150mm above the flood rim of the fixture.			
P-17	DCG	29-P05	Detail 6, show detail of interior type floor cleanout.			
P-18	DCG	29-P05	Detail 7, provide provisions for trap seal evaporation (for example, trap primers)			
P-19	DCG	29-P05	General Plumbing Notes 7; for future submissions, include information from Table 704.1 (IPC2006) for contractor reference.			
P-20	DCG	29-P05	For future submissions, provide water heater detail. On detail, identify seismic restraints if required.			
P-21	DCG	N/A	No calculations, specifications, or design analysis were included therefore no review of these were performed.			

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<b>PLUMBING COMMENTS - DINING FACILITY BUILDING 28</b>						
P-1	DCG	28-P01	Boiler Room, add vent on floor drain			
P-2	DCG	28-P01	Water Heater Closet, add vent on floor drain			
P-3	DCG	28-P01	Dining Room, add vents on floor drains			
P-4	DCG	28-P02	Detail 2, Boiler Rm. add reduced pressure zone backflow preventer on makeup line to boiler			
P-5	DCG	28-P02	Detail 2, Restroom 1, confirm location of water heater and Pressure Expansion Tank (PET). Provide sizing criteria for water heater.			
P-6	DCG	28-P02	Detail 2, Dishwashing area, offset piping out of walls for clarity.			
P-7	DCG	28-P02	Detail 2, confirm no dishwasher is included within the room.			
P-8	DCG	28-P02	Detail 2, Water Heater Closet, offset piping from each other for clarity.			
P-9	DCG	28-P02	Detail 2, Water Heater Closet, confirm piping layout at water heater is correct. Difficult to read.			
P-10	DCG	28-P02	Detail 2, Water Heater Closet, show water riser coming from below the floor slab.			
P-11	DCG	28-P02	Detail 2, Water Heater Closet, Serving Area, provide hot water return line if run from heaters to Kitchen Sink (KS) is over 30,480mm.			
P-12	DCG	28-P02	Detail 3, Restroom 3, provide water heater sizing criteria. Confirm location of water heater and PET can fit in location as shown.			
P-13	DCG	28-P02	Detail 3, Restroom 2, provide water heater sizing criteria. Confirm location of water heater and PET can fit in location as shown.			
P-14	DCG	28-P03	Add vents as identified on 28-P01			
P-15	DCG	28-P03	For future submittals, show vent piping as dashed line type for clarity.			
P-16	DCG	28-P03	Provide provisions for trap seal evaporation (for example, trap primers)			
P-17	DCG	28-P04	Show reduced pressure zone backflow preventer on makeup line to boiler			
P-18	DCG	28-P04	Include temperature and pressure (T and P) relief valves on all water heaters			
P-19	DCG	28-P04	Show riser pipe from below floor at water service entrance. Include shutoff valve on riser.			
P-20	DCG	28-P04	Include hot water return piping and circulation pump to Kitchen Sink (KS)			
P-21	DCG	28-P04	Drawing Coordinates B4, at branch lines to shower and lavatory, provide separate tee fittings off of main. Cross fitting should not be used.			

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P-22	DCG	28-P05	Detail 2, future submissions should include unions on all water heater connections.			
P-23	DCG	28-P05	Detail 2, confirm if seismic restraints are required on water heaters.			
P-24	DCG	28-P05	Detail 4, delete the term "optional" regarding the sediment bucket			
P-25	DCG	28-P05	Detail 5, show detail of interior type floor cleanout.			
P-26	DCG	28-P05	Water Heater Schedule, for future submissions, provide required heater recovery capacity as well as temperature rise for capacity.			
P-27	DCG	28-P05	Water Heater Schedule, provide detail for wall hung water heater			
P-28	DCG	28-P05	General Plumbing Notes 7; for future submissions, include information from Table 704.1 (IPC2006) for contractor reference.			
P-29	DCG	28-P05	Detail 8, confirm vent piping within wall is a minimum of 150mm above the flood rim of the fixture.			
P-30	DCG	All drawings	Confirm that location of piping within walls can fit within the walls.			
P-31	DCG	N/A	No calculations, specifications, or design analysis were included therefore no review of these were performed.			

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<b>STRUCTURAL COMMENTS - Bldg #28 Dining Facility</b>						
S1	FRS	28-S01	Add typical legend, abbreviations and symbols.			
S2	FRS	28-S01 General Notes 1st Note	US Standard Building Code is referenced? Design should be in accordance with a current international code, IBC-2006.			
S3	FRS	28-S01 General Notes 4th Note	Building grid layout to match structural layout/design calculations and multidiscipline features of the building systems. Delete this note which seems to state an unacceptable latitude in what will be constructed compared to what was designed. If this note is trying to convey that layout is schematic at this time, and will be finalized during the design process, please reword the note to be clear.			
S4	FRS	28-S01 Shop Dwg Review 1st Note	Suggest rewording note to indicate review for compliance with the design drawings and specifications - not design intent of construction documents.			
S5	FRS	28-S01 Shop Dwg Review 3rd Note	Last sentence, indicate drawings submitted without an approved review status from the design-build engineer/architect will be returned and required to be re-submitted.			
S6	FRS	28-S01 Gravity Loading	Show floor live loadings.			
S7	FRS	28-S01 Gravity Loading	Show ground snow load value (psf)			
S8	FRS	28-S01 Seismic Loading (not shown)	Should include a subsection for Seismic Design Loading Criteria. The structural design must consider seismic loading combinations. Based upon suggested values listed in UFC 3-301-01 27January2010; Ss=1.28g, S1=0.51g, Sds=0.64g, Sd1=0.26g. Seismic Design Category D. Site classification. Occupancy category. All of which should be verified by a site-specific geotechnical analysis.			
S9	FRS	28-S01 Wind Loading (not shown)	Show Wind Loading design parameters in new section.			
S10	FRS	28-S01 Concrete Note 2	For economy of design and construction, it is suggested to use a higher strength concrete mix say 4000psi (27.5MPa) in conjunction with 60,000psi (grade 60) reinforcing to minimize the size of the concrete frame superstructure, foundation and associated excavation. Less mass will also reduce the seismic loadings.			

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S11	FRS	28-S01 Concrete Note 4	Slab bar clearances show 20 mm for slab. Suggest making the clearance deep enough to avoid the depth of saw cut, tooled or formed contraction joints. Also, there will likely be slight variation in achievable "flatness" of the slab during finishing and bar placement tolerance that would diminish a very shallow clear cover.			
S12	FRS	28-S01 Concrete (not shown)	Suggest indicating that reinforcing steel shop drawings will be submitted for review and approval.			
S13	FRS	28-S01 Concrete Note 9	Should delete "When applicable". Concrete mix designs and test results are necessary submittals to determine the acceptability of the proposed concreting program, and to conform with ACI recommendations.			
S14	FRS	28-S01 Reinforcing Steel Note 1	See comment S9 above, concerning grade 60 reinforcement. If material is available, Gr 60 is desirable.			
S15	FRS	28-S01 Reinforcing Steel Note 2	Bar splice lap lengths vary according to ACI code, greater for "top" bars. 48 diameters inadequate for all cases. Suggest providing a table for the lap length by bar size for top bars and bottom bars.			
S16	FRS	28-S01 Masonry Note 7	If steel ladder reinforcement/cmu lintel blocks are not readily available, cast-in-place bond beams using deformed reinforcing bars, at regular vertical intervals may be an alternative to consider.			
S17	FRS	28-S01 Masonry Note 8	Indicate maximum grout placement lift height. Indicate block cells fully grouted with reinforcement at wall control joints, above lintels and at the required horizontal interval to splice the wall to concrete foundation stem wall.			
S18	FRS	28-S01 Foundation Note 1	Suggest that geotechnical engineer provides site specific recommendations to verify the allowable foundation bearing pressures, subgrade conditions and seismic design criteria. Site investigation program prior to the foundation work is highly recommended.			
S19	FRS	28-S01 Foundation Note 2	Suggest at least 200 deep crushed stone directly beneath slab on-grade vapor barrier to act as a capillary break to groundwater - typical for all areas.			
S20	FRS	28-S01 Foundation (not shown)	Suggest a note to restrict heavy construction vehicle traffic on slab on grade during construction unless appropriate measures are provided to distribute the loads.			
S21	FRS	28-S01 Foundation Note 4	Indicate design by rational analysis. It would be more appropriate to state ACI-318 specific reference.			

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S22	FRS	28-S01 Foundation Note 5	Please describe PAD certificate letter from geotechnical engineer. If this information is available now, it would be convenient and valuable to include any design parameters in these notes. Also see comment S18 above.			
S23	FRS	28-S02 slab note	See Comment S19 above.			
S24	FRS	28-S02 drawing	Text was clipped by upper border.			
S25	FRS	28-S02 drawing	Indicate slab joints.			
S26	FRS	28-S02 drawing	Show floor penetrations for floor drains, cleanouts, pipe and conduit.			
S27	FRS	28-S02 drawing	Indicate slope for top of slab toward floor drains.			
S28	FRS	28-S03 drawing	Indicate top of concrete elevations.			
S29	FRS	28-S04 (not shown)	Show details for floor slab penetrations / embedments such as floor drains.			
S30	FRS	28-S04 Detail 1	Show wall dowel hook to footing reinforcement layer - to satisfy ACI development length.			
S31	FRS	28-S04 Detail 1	12mm expansion joint "epoxy" filler at slab should be an elastomeric material and does not need to be full depth - could use a standard depth with backer rod to conserve material.			
S32	FRS	28-S04 Detail 1	Indicate minimum depth instead of deferring to frost line comparison. Frost line depth is depth from surface to bottom of footing.			
S33	FRS	28-S04 Detail 1	Will cmu foundation stem wall be adequate to resist design load combinations including seismic? Can enough reinforcement be incorporated. CMU blocks can degrade below grade in the right conditions. Consider using cast-in-place concrete stem walls.			
S34	FRS	28-S04 Detail 2	Non bearing walls should also be anchored at the top and bottom into the load resisting structure for stability.			
S35	FRS	28-S04 Detail 2	Epoxy filler? See S33 above. This comment is repeated on other details as well.			
S36	FRS	28-S04 Detail 3	Recommend 50mm or similar radius for forming tread nosing if concrete will not receive finished material surface.			
S37	FRS	28-S04 Detail 6	With 200mm wall width, there will not be sufficient space to bend stirrup and maintain side clearance. Consider single ties alternating orientation every other bar.			
S38	FRS	28-S04 Detail 7	Provide confinement reinforcement ion beam for 12mm roof anchors per ACI requirements.			

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S39	FRS	28-S04 Detail 8	Splice lengths per ACI requirements, see S15 above.			
S40	FRS	28-S04 Detail 13	I would expect it will be necessary to level the steel column base plate on the footing. It should be provided with at least 40mm nonshrink grout gap beneath. Stem wall concrete placement would have a very difficult time getting under it for uniform plate bearing.			
S41	FRS	28-S04 Detail 13	Provide required amount of concrete pedestal reinforcement per ACI Appendix D, and appropriate seismic detailing if column base is composite.			
S42	FRS	28-S04 Detail 13	At a minimum, slab penetrations need additional reinforcing to control early-age cracking at re-entrant corners. This applies to all other corners as well.			
S43	FRS	28-S04 Detail 14	What is purpose of rubber filler? Is it a membrane over steel roof structure?			
S44	FRS	28-S04 Detail 15	Are the roof anchors supplied with the pre-engineered roof? A 325 for structural bolts, revise with specific reference assuming mechanical anchor bolts are intended.			
S45	FRS	28-S05 Detail 1	Call out top of railing and handrail height, spacing between posts, clear spacing between balusters, clear to landing.			
S46	FRS	28-S05 Detail 3	Call out concrete thickness below and around side of embedded post and indicate reinforcing.			
S47	FRS	28-S05 Detail 7	See S42 comment on grout base above.			
S48	FRS	28-S06 Schedules	No calculations were submitted to verify the indicated reinforcement schedules.			
S49	FRS	28-S06 Schedules	Suggest showing a typical concrete column to beam connection detail and a typical beam elevation to indicate reinforcing slices and bar cut-off positions.			