STRUCTURAL GENERAL NOTES

GENERAL

G-1. GOVERNING BUILDING CODE: INTERNATIONAL BUILDING CODE 2000

G-2. DESIGN LOADS

SLAB ON GRADE: 12 KPa (250 PSF) LIVE LOAD

ROOF:

MINIMUM LIVE LOADS:

	TRIBUTARY AREA/LOAD		
SQ. FEET/ P.S.F.	0 TO 200/ 20	201 TO 600/ 16	OVER 600/ 12
SQ. METERS/ KPa	0 TO 18.5/ 1	18.6 TO 55.7/ 0.8	OVER 55.7/ 0.6

COLLATERAL LOAD: 0.4 KPa (8 PSF)

WIND:	VELOCITY (V):	4.6 m/s (95 MPH)
	EXPOSURE:	C
SEISMIC:	SHORT PERIOD SPECTRAL RESPONSE (Ss):	1.24
	ONE SECOND SPECTRAL RESPONSE (S_1):	0.56
	SITE CLASS:	C
	SEISMIC USE GROUP:	I
	BASIC STRUCTURAL SYSTEM:	MOMENT RESISTANT
	BASIC SEISMIC RESISTANCE SYSTEM:	INT. MOM. FRAME

G-3. ALLOWABLE BUILDING DESIGN FOOTING BEARING PRESSURE – 96 KPa (2 K.S.F.)

G-4. COORDINATE STRUCTURAL SHEETS WITH ALL OTHER SHEETS FOR PIPE SIZES AND LOCATIONS, BEAM POCKETS, GRATING LEDGES, BLOCK OUTS, ELECTRICAL REQUIREMENTS AND ANCHOR BOLTED ATTACHMENTS.

G-5. CONTRACTOR IS RESPONSIBLE FOR ADEQUACY OF TEMPORARY SHORING INCLUDING MASONRY WALL SHORING TO RESIST LATERAL LOADS DURING CONSTRUCTION.

G-6. ALL SUBTERRANEAN STRUCTURES, UTILITIES, PIPING, ETC. IN THE AREA OF ALL EXCAVATIONS TO BE LOCATED AND MARKED BY CONTRACTOR PRIOR TO EARTH REMOVAL WORK. PIN FLAGS OR PAINT ARE ACCEPTABLE METHODS. CONTRACTOR TO MAINTAIN MARKERS UNTIL ALL EXCAVATION ACTIVITIES HAVE CEASED. COORDINATE WITH OWNER.

G-7. THE CONTRACTOR IS SOLEY RESPONSIBLE FOR ALL SITE SAFETY AND ALL ACCIDENTS WHICH RESULT IN DEATH, PERSONAL INJURY OR DAMAGE TO PROPERTY ARISING OUT OF OR IN CONNECTION WITH PERFORMANCE OF THE WORK, WHETHER ADJACENT TO OR AT THE SITE.

G-8. NO PIPES OR SLEEVES FOR MECHANICAL TRADES SHALL PASS THROUGH STRUCTURAL MEMBERS WITHOUT APPROVAL OF ENGINEER.

G-9. ALL SECTIONS, DETAILS AND NOTES SHOWN ON THE DRAWINGS ARE INTENDED TO BE TYPICAL AND SHALL APPLY TO SIMILAR SITUATIONS ELSEWHERE UNLESS OTHERWISE SHOWN.

G-10. SHOP DRAWINGS PREPARED BY SUPPLIERS AND SUBCONTRACTORS SHALL BE REVIEWED BY THE GENERAL CONTRACTOR PRIOR TO SUBMITTING TO ENGINEER. ENGINEER'S REVIEW SHALL BE FOR SIZES AND GENERAL ARRANGEMENT ONLY. NO WORK SHALL BE STARTED WITHOUT SUCH REVIEW.

G-11. FOOTING EXCAVATIONS SHALL BE INSPECTED AND APPROVED BY ENGINEER PRIOR TO PLACEMENT OF CONCRETE.

FOUNDATION

F-1. ALL EXCAVATIONS SHALL BE CLEAN AND FREE OF DEBRIS, STANDING WATER AND LOOSE SOIL AND BE INSPECTED AND APPROVED BY ENGINEER PRIOR TO PLACEMENT OF CONCRETE.

F-2. IN STRUCTURAL AREAS (WHERE STRUCTURES DERIVE SOME OR ALL SUPPORT FROM FILL-SUPPORTED FOUNDATIONS) AND SLABS-ON-GRADE, FILL SHALL BE COMPACTED TO 98 PERCENT OF STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM D-698).

F-3. ALL FILL MATERIAL SHALL BE APPROVED FOR USE IN ADVANCE OF PLACEMENT BY ENGINEER. NO FILL SHALL BE PLACED OVER MUDDY OR OTHER DELETERIOUS MATERIAL. LIFT THICKNESS SHALL BE MINIMIZED TO ALLOW EFFICIENT COMPACTION. NO FILL MAY BE PLACED OVER A PREVIOUS LIFT THAT HAS NOT BEEN ADEQUATLEY COMPACTED AND HAS BEEN ACCEPTED BY ENGINEER.

CONCRETE

C-1. ALL CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 30 MPa (4000 P.S.I.) WITN AN AIR CONTENT OF 6% ±1%. SULFATE RESISTING CONCRETE (TYPE 5 PORTLAND CEMENT) REQUIRED. MAXIMUM WATER – CEMENT RATIO BY WEIGHT = 0.45.

C-2. ALL REINFORCEMENT BARS SHALL CONFORM TO ASTM-A615, GRADE 60. ALL REINFORCING BAR DESIGNATIONS REFER TO NOMINAL BAR DIAMETERS IN MILLIMETERS (mm).

C-3. ALL WELDED WIRE FABRIC SHALL CONFORM TO ASTM A-185.

C-4. PROTECTIVE COVERING FOR REINFORCEMENT BARS SHALL BE AS FOLLOWS UNLESS OTHERWISE NOTED ON THE PLANS:

FOOTINGS	75mm [3"]
ELEVATED SLABS	20mm [3/4"]
BEAMS, WALLS & COLUMNS	40mm [1 1/2"]
SLABS ON GRADE	75mm [3"]

C-5. ALL REINFORCEMENT BARS SHALL BE FABRICATED IN ACCORDANCE WITH THE CRSI MANUAL OF STANDARD PRACTICE AND SHALL BE CLEAN AND FREE OF GREASE AND SCALING RUST.

C-6. CONTINUOUS TOP AND BOTTOM BARS, WHEN SHOWN IN SECTION ONLY, SHALL BE LAPPED AS FOLLOWS: TOP BARS NEAR MIDSPANS, BOTTOM BARS DIRECTLY OVER SUPPORTS.

C-7. ALL CONCRETE WORK SHALL CONFORM TO: ACI 318, STANDARD BUILDING CODE FOR REINFORCED CONCRETE AND ACI 301, SPECIFICATION FOR STRUCTURAL CONCRETE FOR BUILDINGS.

C-8. A 20mm x 20mm [3/4" x 3/4"] CHAMFER SHALL BE PROVIDED AT THE EDGE OF ALL FINISHED WALLS, BEAMS AND COLUMNS.

C-9. FOR SLABS ON GRADE, PROVIDE 13mm [1/2"] THICK PREMOLDED JOINT FILLER TO ISOLATE THE SLAB FROM CONTACT WITH THE STRUCTURES ALONG ITS PERIMETER AND CAULK WITH SEALANT.

C-10. TWO #16 BARS EACH FACE SHALL BE PROVIDED DIAGONALY AT ALL CORNERS OF OPENINGS IN WALLS OR SLABS. BARS SHALL BE EXTENDED 600mm [24"] MINIMUM BEYOND CORNERS OF THE OPENINGS. ALSO, PLACE 2-#16 BARS (900mm [3'-0"] LONG) DIAGONALLY ACROSS EACH RE-ENTRANT CORNER.

C-11. PROVIDE CONTROL OR CONSTRUCTION JOINTS IN SLAB-ON-GRADE AT 5.000m MAXIMUM SPACES EACH DIRECTION. CONTROL JOINTS TO BE SAW CUT 50mm [2"] DEEP IN SLAB. JOINTS TO BE SEALED

C-12. A LEAN CONCRETE MUD SLAB 75mm [3"] TO 100mm [4"] THICK SHALL BE USED IN THE EXCAVATION IF THE BOTTOM OF THE EXCAVATION TENDS TO BECOME MUDDY AND SOFT DUE TO CONSTRUCTION ACTIVITY. LEAN CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 13,790 KPa.

C-13. CONSTRUCTION JOINTS FOR ELEVATED SLABS SHALL BE LIMITED TO THOSE LOCATIONS NOTED ON THE FRAMING PLANS.

C-14. ALL REINFORCING STEEL SHALL BE BONDED TO THE BUILDING GROUNDING.

C-15. PROVIDE THE FOLLOWING CLASS B LAP SPLICES UNLESS OTHERWISE NOTED:

BAR SIZE	CLASS B LAP SPLICE
#10	400mm [1'-4"]
#12	500mm [1'-8"]
#16	700mm [2'-4"]
#20	900mm [3'-0"]
#22	1.520m [5'-0"]
#25	1.880m [6'-2"]
#28	2.290m [7'-6"]
#32	2.740m [9'-0"]

STRUCTURAL STEEL

S-1. STRUCTURAL STEEL SHALL CONFORM TO ASTM-A36.

S-2. ALL DETAILING, FABRICATION, AND ERECTION OF STRUCTURAL STEEL MEMBERS SHALL BE IN ACCORDANCE WITH THE AISC "MANUAL OF STEEL CONSTRUCTION", NINTH EDITION.

S-3. ALL WELDING SHALL BE DONE IN ACCORDANCE WITH THE LATEST "AWS" SPECIFICATIONS BY CERTIFIED WELDERS. ALL WELDS SHALL BE MADE WITH E70XX ELECTRODES.

S-4. CONNECTIONS NOT DETAILED ON THE PLANS SHALL BE SELECTED IN ACCORDANCE WITH AISC SPECIFICATIONS, TYPE 2 FRAMING CONNECTIONS USING FRICTION-TYPE 20mm [3/4"] DIA. ASTM-A325 BOLTS. FOR A GIVEN SIZE AND GRADE OF BEAMS, CONNECTIONS SHALL BE SELECTED BY THE FABRICATOR TO SUPPORT THE FOLLOWING BEAM REACTIONS (UNLESS REACTION VALUES ARE SHOWN ON DRAWINGS):

R = W/2
W = ALLOWABLE UNIFORM LOAD, KN, FOR BEAM SPAN IN METERS.

PER AISC MANUAL OF STEEL CONSTRUCTION NINTH EDITION PART 2, ALLOWABLE LOADS ON BEAMS TABLES.

S-5. ALL ANCHOR BOLTS SHALL CONFORM TO ASTM-A307 OR ASTM-A325 AS NOTED.

S-6. OPENINGS REQUIRED IN STRUCTURAL STEEL MEMBERS SHALL BE SHOWN ON THE DRAWINGS. FIELD CUTTING OF HOLES IN STRUCTURAL STEEL MEMBERS SHALL NOT BE ALLOWED WITHOUT WRITTEN PERMISSION OF ENGINEER.

S-7. ALL TUBE MEMBERS SHALL BE COLD FORMED WELDED STRUCTURAL STEEL CONFORMING TO ASTM-A500 GRADE B (46 KSI), UNLESS NOTED OTHERWISE.

S-8. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND DIMENSIONS PRIOR TO STRUCTURAL STEEL FABRICATION.

S-9. ALL CONNECTIONS TO PIPE AND TUBE COLUMNS SHALL BE THRU-PLATE TYPE UNLESS OTHERWISE SHOWN.

S-10. THE CONTRACTOR SHALL FURNISH AND INSTALL MISCELLANEOUS STEEL (CURBS, HANGERS, BRACING, ETC.) AS CALLED FOR OR AS NECESSARY PER ARCHITECTURAL AND MECHANICAL/ELECTRICAL DRAWINGS.

S-11. BEAM AND LINTEL BEARING PLATES TO BE FULLY GROUTED WITH 13mm [1/2"] MINIMUM THICKNESS NON-SHRINK GROUT.

S-12. WHENEVER CONSTRUCTION SCHEDULING REQUIRES THE ERECTION OF STRUCTURAL MEMBERS WHICH BY THEMSELVES WOULD BE CONSIDERED LATERALLY UNSTABLE, ADEQUATE TEMPORARY BRACING SHALL BE PROVIDED.

S-13. STRUCTURAL STEEL SHALL RECEIVE ONE COAT OF RUST INHIBITIVE SHOP PAINT. ALL FIELD CONNECTIONS AND DAMAGED PORTIONS OF SHOP PAINT SHALL BE SPOT PAINTED UNLESS ENCASED IN CONCRETE. ALL WELDED CONNECTIONS SHALL BE PAINTED WITH RUST-INHIBITIVE PAINT.

S-14. THE SURFACE OF THE EXISTING STEEL TO BE WELDED SHALL BE CLEANED TO THE BARE METAL PRIOR TO WELDING.

MASONRY

M-1. ALL CONCRETE MASONRY UNITS SHALL HAVE A NET AREA COMPRESSIVE STRENGTH OF 13.1 MPa (1900 P.S.I.).

M-2. ALL GROUT SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 17.24 MPa (2500P.S.I.).

M-3. ALL CELLS WITH VERTICAL REINFORCEMENT SHALL BE GROUTED SOLID.

M-4. ALL LINTEL BEARINGS SHALL GROUTED TO THE FOUNDATION.

M-5. CONCRETE MASONRY UNITS TO BE TWO CELL STRENGTH AS SPECIFIED IN THE SPECIFICATIONS.

M-6. MORTAR TO BE TYPE "S" PER ASTM C 270 AND SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 12.41 MPa (1800 P.S.I.).

M-7. REINFORCEMENT TO BE AS CALLED FOR ON THE DRAWINGS AND SCHEDULES, ALL REINFORCEMENT BARS SHALL CONFORM TO ASTM-A615 GRADE 60.

M-8. MASONRY UNITS TO BE PLACED IN RUNNING BOND, UNLESS OTHERWISE NOTED.

M-9. MASONRY DESIGN BASED ON INSPECTED WORKMANSHIP, F'm = 10.34 MPa (1500 P.S.I.).

AS BUILT

GRAPHIC SCALE:

SEAL:

REV	DESCRIPTIONS	DATE	APPD.

REVISION

INTERNATIONAL BROADCASTING BUREAU
ENGINEERING & TECHNICAL OPERATIONS
WASHINGTON, D.C. 20547

Bader Al Mulla & Bros. Co. W.L.L.
Engineering Group

		DATE
DRAWN	HAK	23/05/04
CHK. BY.	JPB	DATE
ENGR.	JPB	DATE

APPROVALS
PROJ. MANAGER TC

SHORTWAVE EXPANSION PROJECT
STRUCTURAL
GENERAL NOTES
KUWAIT

IQC No. XX-XX-XX
TASK No. X
PROJ. No. 03NC080
CAD DESIGN FILE NAME: FILENAME

DWG. No. BMB-AS-G-01 G01
SCALE: AS SHOWN SHEET 1 OF SHT

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