## "IOR Certification Code/Plans Questions" Part 1 Structural















- Class A 20 Questions
- Class B 12 Questions (Anchorage and Bracing)
- Class C 20 Question (Anchorage and Bracing)







- Class A 28 Questions
- Class B 6 Questions (Anchorage & Bracing)





#### **Structural Plan Questions**

- Let's analyze the questions with the correct responses...
- How to read/interpret the question
- How to arrive to a response (sometimes it is easy, sometimes it is not easy)
- Remember: Plans are not perfect. And this is why RFIs exist during construction





#### Table of contents

ASI#

- Drawing Content (Original set, RFI, ASI, ACD)
- delta symbol RFI # ASI # ACD

RFI#

- Depending on the size and complexity of the project
- the information provided on the fire and life safety drawings should provide a clear description of how the project complies with the various provisions of the CBC. Some of the general information for the project may also appear on the drawing title sheet.

#

ACD#

• Also, much of the specific information will be contained in the body of drawing details and schedules.





#### Table of contents

DESIGNATOR	NAME
	Cover Sheet
G	General
Н	Hazardous Materials
V	Survey / Mapping
В	Geotechnical
С	Civil
L	Landscape
S	Structural
А	Architectural
I	Interiors
Q	Equipment
F	Fire Protection
Р	Plumbing

D	Process
Μ	Mechanical
Е	Electrical
W	Distributed Energy
Т	Telecommunications
R	Resource
Х	Other Disciplines
Z	Contractor / Shop Drawings
0	Operations





## Sheet Types

DESIGNATOR	NAME
0	General: Symbol legend, abbreviations, general notes
1	Plans
2	Elevations
3	Sections
4	Large Scale Drawings: plans, elevations, sections (NOT details)
5	Details
6	Schedules and Diagrams
7	User Defined
8	User Defined
9	3D drawings: isometric, perspective, photos























#### What to remember

- Notes
- Key Words
- Typical Details
- General Notes
- Look into all the disciplines











- A. 8 3/8" dia. Red Head w/3-inch embedment
- B. 4 1/2" dia. Red head w/4-inch embedment
- C. 4 5/8" dia. Red Head w/6-inch embedment
- D. 6 3/4" dia. Red Head w/4-inch embedment

EQUIPMENT	EQUIPMENT DESCRIPTION	EOUIP. LOCAT. DRAWING	OPA*	DRAWING*	SHEET
CH-1	AIR-COOLED SCREW CHILLER	M4.01		WF-19122-12	SR.M2
CH-2	AIR-COOLED SCREW CHILLER	M4.01		WF-19122-12	SR.M2
CHWP-I	CHILLED WATER PUMP	M4.01	0PA-0196	WF-19122-13	SR.M2
CHWP-2	CHILLED WATER PUMP	M4.01	0PA-0196	WF-19122-13	SR.M2
HWP-I	HOT WATER PUMP	M4.01	0PA-0196	WF-19122-14	SR.M2
HWP-2	HOT WATER PUMP	M4.01	0PA-0196	WF-19122-14	SR.M2
B-1	FLEXIBLE TUBE STEAM BOILER	M4.0I		WF-19122-15	SR,M3
B-2	FLEXIBLE TUBE STEAM BOILER	M4.01		WF-19122-15	SR.M3
BF-1	BOILER FEEDWATER UNIT	M4.01		WF-19122-16	SR.M3
CP-I	CONDENSATE PUMP UNIT	M4.01		F-265136-1	SR.M5
CP-2	CONDENSATE PUMP UNIT	M4.01		F-265136-1	SR.M5
UH-I	HOT WATER UNIT HEATER	M4.01	0PA-0349	F-26561-1	SR.M3
CAC-I	CONTROL AIR COMPRESSOR	M4.01	0PA-0196	WF-19122-17	SR.M3
CAD-I	CONTROL AIR DRYER	M4.01	0PA-0196	WF-19122-17	SR.M3
FOT-I	ABOVE-GROUND F.O. TANK	M4.01		F-274535	SR.M4
57-1	NOT WATER EXPANSION TANK	NO 01 N4 01		E-OCEL4L-L	CD 114

Look at the

Chart...

Equipment Seismic

















How many bolts are required to attach the beam at the second floor along gridline M to the column at gridline 23?

2<sup>nd</sup> floor framing plan, look to grid line M and 23.





OSHPD Office of Statewide Health Planging and Development How many bolts are required to attach the beam at the second floor along gridline M to the column at gridline 23?



C. 7

D. 8

The schedule is in Beam/column connection sheet, detail 7/S5.8

And remember the beam size from framing plan (W21)



BEAM	SHEAR	BOLTS			
SIZE	THICKNESS	NO.	DIA.	WELD "A"	REMARKS
W8	3/8"	2	3/4"	5/16"	
W10	3/8"	2	3/4"	5/16"	
W10x26	3/8"	2	1"	5/16"	
W12,W14	3/8"	3	3/4"	5/16"	
W16	3/8"	4	3/4"	5/16"	영화 같은 것이 있는 것이 같이 같이 같이 같이 같이 않는 것이 없다. 집에 있는 것이 없는 것이 없
W18	3/8"	5	3/4"	3/8"	en gen Militzen gen
W21	1/2"	6	ative 1" ates	3/8"	
W24,W27	1/2"	1	1**	3/8"	
W30	1/2"	8	1"	3/8"	
W33x	1/2"	9	1"	3/8"	
W36x	1/2"	10	17 17	3/8"	















Base plate size and thickness for column at the intersection of grid lines P and 27 is \_\_\_\_\_.

A. 18" x 18" x 1"

- B. 18" x 18" x 1¼"
- C. 20" x 20" x 1"
- D. 20" x 20" x 1½"







SRUE CATE: 61-80-2008

S5.1





#### The kitchen equipment is anchored to what type of concrete?

First, look the Food Service Equipment Schedule, and see references for seismic detail.

You will see references from SRA6-10.

-	JOIL		Innue
TEM	DESCRIPTION	SEISMIC DETALS (DETAL #/SHEET#) OPA APPROVAL	REMARKS
		1	
1	TRASH RECEPTACLE		DI OWNER
2	HAND SINK	2. Experience of the second s second second sec	BT PLONEING CONTRACTO
3	SOLED DISHTABLE	F-278155/SRA8. F-278157/SRA8	W/ PRE-RINSE
4	DISPOSER W/ CONTROL	-	-
5	RACK SHELF	F-278182/SRA10	
6	DISH MACHINE	F-278155/SRA8, F-278158/SRA8	
7	CONDENSATE HOOD	F-277280/SRA5, F-277282/SRA6, R-0349	
8	RACK SHELF	F-278185/SRA10	<ul> <li>Externation of the second secon</li></ul>
9	SPARE NUMBER	· · · · · · · · · · · · · · · · · · ·	<ul> <li>+ 1997 (1998)</li> </ul>
10	SPARE NUMBER	. 17 · · · · · · · · · · · · · · · · · ·	e 🖅 de company a 2010
11	BOOSTER HEATER	F-278155/SRA8, 278159/SRA8	·
12	CLEAN DISHTABLE	F=278155/SRA8, F=278160/SRA8	<ul> <li>-&gt;-&gt;-&gt;-&gt;-&gt;</li> </ul>
13	MOBILE CUP/GLASS RACK DOLLY		
14	S/S CORNER GUARD	· · · · · · · · · · · · · · · · · · ·	한 물건이 있는 것을 잘 하셨다.
15	SMART WALL ASSEMBLY	F-277780/SRA8	
16	3-COMPARTMENT SINK	F-278164/SRA9, F-278166/SRA9, F-278167/SRA9	· 국가장이 수 강지 않는 것은
17	SMART WALL ASSEMBLY	F-277780/SRA8	
18	FLOOR TROUGH W/ GRATE	신 - 그는 아이가 아이는 것 같아요.	[ 4] 32 3 4 31 3.34)
19	SPARE NUMBER		- 프로그램은 전문
20	SPARE NUMBER		-124986-250-6
21	FIRE SUPPRESSION SYSTEM	F-277292/SRA7	
22	COFFEE BREWER	-	BY VENDOR
24	LOTA THE BREAK		BY VENDOR
2.5	ICED TEX BREMEN		
24	TOASTER	-	-
25	BEVERAGE COUNTER	F-278155/SRA8, F-278181/SRA8	
26	SMART WALL ASSEMBLY	F-277780/SRA8	
27	MOBILE 3-WELL HOT FOOD TABLE		-
28	MOBILE TRAY TRANSPORT CART		
29	SPARE NUMBER	· 24 프로그램은 이상은 24 전쟁에 가장을 받았다.	
30	SPARE NUMBER		=
31	MOBILE HOT BOX / PROOFER	이 특히 상태가 한 것 같아요. 전체 전 것 같아요.	· - ^ · · · · · · · · · · · · · · · · ·
32 /	S/S WALL FLASHING		그 그는 것은 것 같은 것 같아.
33	EXHAUST VENTILATOR	F-277284/SRA6, F-277285/SRA6, F-277285/SRA6, F-277287/SRA6 R-0349	. '특별한 홍말 20 <sup>0</sup> 가 20 <sup>0</sup>
34	STEAMER	F-277299/SRA7	<ul> <li>Event (1) (1) (1) (1) (1)</li> </ul>
35	COMBINATION RANGE/GRIDDLE	F-277300/SRA7	· 문어 같은 것은 것이다.
36	FRYER/FILTER UNIT	F-277295/SRA7	<ul> <li>- Alt Statistics (1997)</li> </ul>
37	REACH-IN FREEZER	F-277305/SRA7	
38	REACH-IN REFRIGERATOR	F-277306/SRA7	· 프라이 제공하는 것 같아?
39	SPARE NUMBER		
40	SPARE NUMBER		
41	REACH-IN EDEE7ED	E-277306 (SPA7	4 20 20 20 20 20 20
4.2	CHART WALLACCENDLY	E-977790 / CPAR	
43	OPDOS DIPNITIOS	-	BY DWNER
40	STORAGE SUELVAID	5- 977701 (PD10	-
44	STUTIALE SHELVING	r-2///03/SRA8	
45	UUNNAGE SHELF		
46	TABLE MOUNTED CAN OPENER		-
47	TRASH NECEPTACLE		DI UNNER
48	SMART WALL ASSEMBLY	F-277780/SRA8	
49	SPARE NUMBER		
50	SPARE NUMBER	na =del en de la complete de la complete	
51	PREPARATION TABLE W/ SINKS	F-278174/SRA9, F-178176/SRA9	· [ 문화 : 22:51 : 12:53 : 16:5
52	DISPOSER W/ CONTROL		
53	FOOD PROCESSOR	21 – Charles State Contractor (Charles Street	(. – slavsty (
54	MOBILE INCREDIENT BINS		이 문제 문제 문제하는 것
55	SUCER	종이 (= 14월 이상 등) 이 가슴이 가슴다. 말이 가슴 영향	이 특히 있는데, 사망하지?
56	ICE MAKER W/ FILTER	F-277301/SRA7	<ul> <li>-6.2019/2019/2019</li> </ul>
57	ICE BIN	F-277301/SRA7	) 生物 だいられのとう
58	NOP SINK	영상 = 전에 대한 것이 같은 것이 같은 것이 같이 많은	BY PLUMBING CONTRACTO
59	WALL SHELF	F-278179/SBA9	
60	MOP BACK		BY PLUMBING CONTRACTO
61	MOBILE POT /PAN BACK		-
	HORE DIDD		BY PLIMBING CONTRACTO
62			1
62		E 030170 0010 E 070170 0010	

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OFFETSAL/SCHEINE DEUTSCHEINE DEUTSCH	2 HAND	SNK		10000	BY PLINENG CONTRACTOR
NO PLINENC INTERNATION AND INVESTIGATION OF	3 500.0	DISIDIES C	F-37855/9848, F-37857/9848	1.	W/ PRE-RMSE
A DE CECONDE NE RECEDENTE SER	4 399	este w/ contract	<ul> <li>Operation</li> </ul>	1903.0.2	
CINER LICATOR OF CRINECHINE SICHI AND	S RACK	self	F-2781 82/99430	1000	
AMMORBARE LOCATIONS ON FACULARS	5 05H	NACESE	F-27855/59X8, F-27858/59X8 f-277278/59X8, F-277276/59X8,	1.000	-
DITS SI AS ANT TO INTERDER WIN THE	8 840K	9617	F-277280/9048, F-277282/9948	1-04	-
UNDER DIE DIE GEREICHTE LEGENERE DIE IERRO	1 518	C NAME			-
22 SUBITIVES HEALING AND	10 57.48	E NUMBER	<ul> <li>CONSTRUCT</li> </ul>	1.202	- (************************************
KERPINGEL FIR AN DESPENDED	11 8005	TER HEATER	1-278151/5746, 278158/5746	2.2.26	<ul> <li></li> </ul>
AT INTERED FOR THE RELIAGE	12 Q.6N	SUBILITIES .	F=279555/9948, F=279580/9948	1.0.20	-
OR RELEASED CORTS INCURRED BY	13 WORL	E CEP/ELASS RACK DOLLY	-		
OR OF UTUTY CONECTION PLANS ARE	14 5/51	COURTE DIVID	-	1.	-
OFS MUTPLY BY MAKER &	15 246	S HALL ASIZMELY	7-277788/5848 7-278184/58983, 7-278186/58943,		-
RASS ARE MADE IN A REAL ACTION.	17 0440	T BULL ASSEMBLY	7-370 KT/599		-
	18 0.000	T TO YOU W/ 10/11	-		2
F	10 57.48	C NAMER		1000	•
2013-2017-2017-1	20 SFAR	C NAMOR	-	1.000	-
	21 7.95	SUPPRESSON SYSTEM	F-577292/SAU	1998	
	22 COFF	ET BRICKER	-		BY YORON
	23 XED	TEA BREMER	-2012/02/02/02/02	0.00	BY YEADIN
이야 하는 것을 알고 있었 <mark>다</mark>	24 TEAS	TR	-	1000	- 1947 - 1921
	25 800	NATE COUNTER	F-278155/5RH8, F-278181/SRA8	1000	-
	26 308	T INUL ASSEMBLY	1-277788,/9548		
· · · · · · · · · · · · · · · · · · ·	27 wole.	E 3-NELL HET FOOD THREE	-		-
2. 이상 2. 이 관계 등 4 H	10 10.00	L INV DOUGPOOL CAO			-
	10 1040	C HINNER			-
	2 W081	E HOT BOX / PRODUCT	- 100 Control of the	7.000	-
	22 3,/5 1	INLL FLASING	-	100000	-
	33 D0.4	UST VENTLATOR	7-37728A/98AA, F-27728E/9806, F-277286/98AA, F-27728T/9896	R-6049	- 1000000000000000000000000000000000000
	34 572.4	61	1-277299/5943	Gales St. S.	-10.25.20.042
	25 0049	INVER KNOT/ORDULE	F=277200,/9843	Sections.	
	36 1713	R/FLITE UNIT	F-177916/GRAD	1999 - 1993 1997 - 1997	-
	37 NUAD	H-IN FREEZER	r-277305/500	1.1.2	-
	38 16/10	H-N NEPROBAJOR	1-277306/58.07	100000	-
	20 59.48	C MARCR	-		-
	40 5738	L SANDA	6	-	-
17	12 9442	T MAIL CORNER?	E-27738/380		-
ter en la companya de la companya d	43 0770	I RUNNUR	-	1.00	BY DWNER
안 없는 것 않는 것 같아.	44 5708	AZ 951395	P-277783/5848	1.000	-0.20
	45 DUNIS	NOE SHEF	- 20	1.1.1.1.5	
	45 TAIL	E MOUNTED CAN OPENER		1.1.1	- 4. K. George
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	43 2448	IT WALL ASSEMBLY	F-277780/\$2948	1.11.11.1	
	49 5743	E HANNER	- 2		-
	50 9948	E NAMOER	-	1	-
말했지 않는 것 같은 물감 두	52 PRDP	VEXTON THOLE W/ SINKS	F-27017N/SRAB, F-170175/SRAB	-	1
32 S. S. S. S. S. S. S. S	52 0870	SER N/ CONTROL		-	-
- 1. S.	54 9799	E MISSINGLY BAD	-		-
승규가 가지 않는 것이 –	55 3405	2	-	10000	-
ne george de la F	56 KCE 6	ANDR W/ FLIDA	F-27720/5887	1.0000	-
이 같은 것은 것 같아.	57 122 2	301	F-277201/2847	1995	-
1963-1973 (Alberta) (Alb	58 907	sw	-	1.5	BY PLIMBING CONTRACTOR
	58 WNL	96J	8-228129/3838	1.1.1.1.1.1.1	
	50 MOP	RACK	-	1.11.11	BY PLIMBING CONTRACTOR
	41 MORE	LE POT/PIEN RACK			-
	62 HOSE	900	-		BY PLIMBNE CONTRACTOR
	43 [ PRCP	TABLE	r-278170/9840, f-278172/9840		-
		a second s			







The kitchen equipment is anchored to what type of concrete?

Let's look at them from SRA6-10 and see the one anchored.

The equipment anchored are on SRA7-9



SRA9





SRA8



Inspection Services Unit

OSHPD Office of Statewide Health Planning and Development







Hot water recirculation pumps HWRP-1 and HWRP-2 are:

First of all, look into the Plumbing sheet for the pump seismic restraint chart

	EQUIPMEN	T SEISMIC RESTRAINT (THIS SHEET ONLY)	CHART		
EQUIPMENT DESIGNATION	EQUIPMENT DESCRIPTION	EQUIP. LOCAT. DRAWING	OPA#	DRAWING*	SHEET*
WH-1	WATER HEATER	P3.01		WF-19122-18	SR.PI
WH-2	WATER HEATER	P3.01		WF-19122-18	SR.PI
HWRP-1	HOT WATER RECIR PUMP	P3.01	0PA-0349	WF-19122-28	SR,PI
HWRP-2	HOT WATER RECIR PUMP	P3.01	0PA-0349	WF-19122-28	SR.PI
BP-1	BOOSTER PUMP	P3.0I		WF-19122-19	SR.PI
WSF-1	WATER SOFTNER	P3.01		WF-19122-20	SR.PI
MVP-I	MEDICAL VACUUM PUMP	P2.02		F-265170-1	SR.PI
AIR	AIR MANIFOLD	P2.02		F-265170-1	SR.PI
NITROUS	NITROUS MANIFOLD	P2.02	김사랑 관람	F-265170-1	SR.PI
NITROGEN	NITROGEN MANIFOLD	P2.02		F-265170-1	SR.PI
OXYGEN	OXYGEN MANIFOLD	P2.02	- 2013년 - 18 19 19 19 19 19 19 19 19 19 19 19 19 19 19 19 1	F-265170-1	SR.PI
	신성 그는 것이 모든 성격을 받은 것을 가격하였다.				





Hot water recirculation pumps HWRP-1 and HWRP-2 are:

- A. Mounted on housekeeping slabs
- B. Mounted on pedestals
- C. Suspended from the deck
- D. Wall mounted









### Homework

#### Homework #1

What reinforcing steel is required for the footing
at the intersection of grid lines O and 23?

- A. 4 #4 Bottom
- B. 6 #6 Bottom
- C. 10 #6 Bottom
- D. 9 #6 Top & Bottom
- E. 13 #7 Top & Bottom

Homework #2

The typical header for a 10-foot clear opening in the exterior wall would be:

- A. 2- 6"x18ga. studs with 3- 6"x14ga. Tracks
- B. 1- 6"x18ga. stud with 2- 6"x18ga. Tracks
- C. 3- 6"x14ga. studs with 3- 6"x 14ga. Tracks
- D. 2- 6"x18ga. studs with 2- 6"x18ga. tracks





### See you at Part 2

# Send your Homework Responses to: <u>OSHPD.fddisu@oshpd.ca.gov</u>









