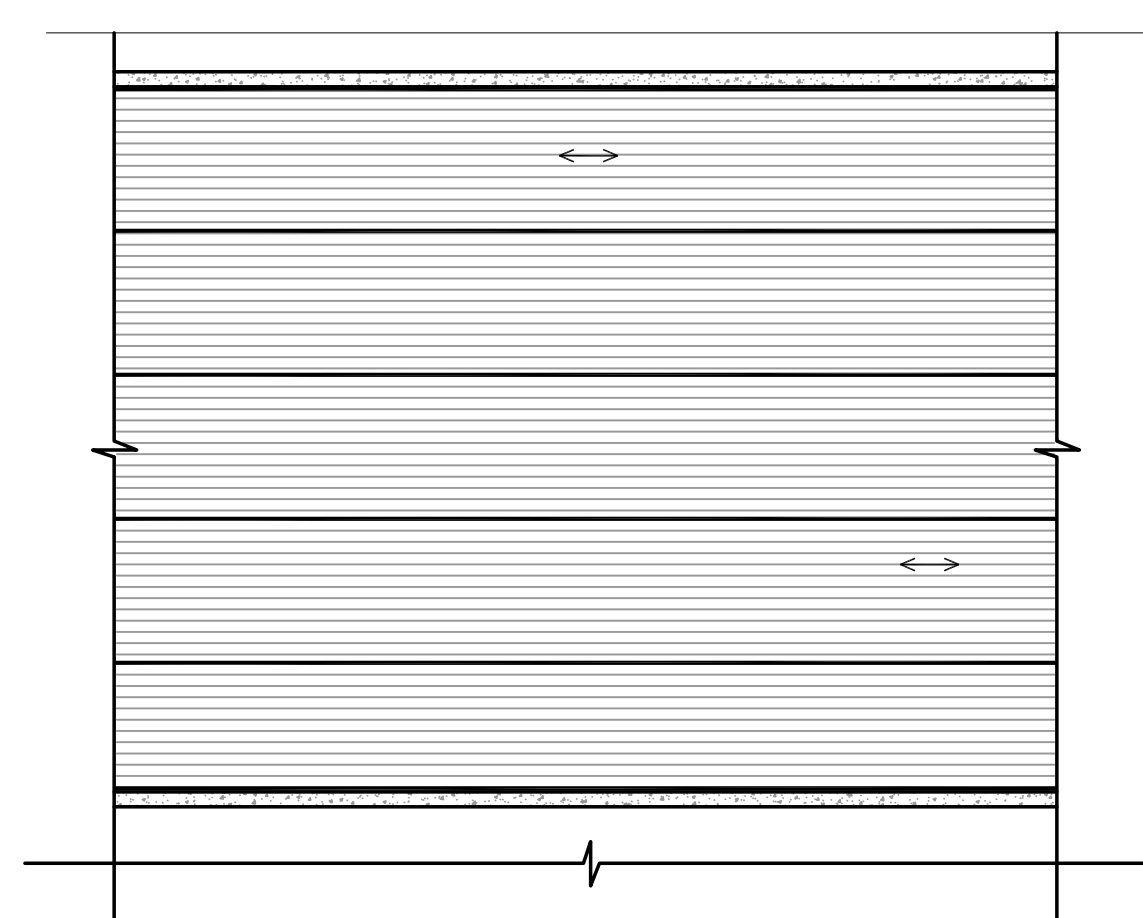


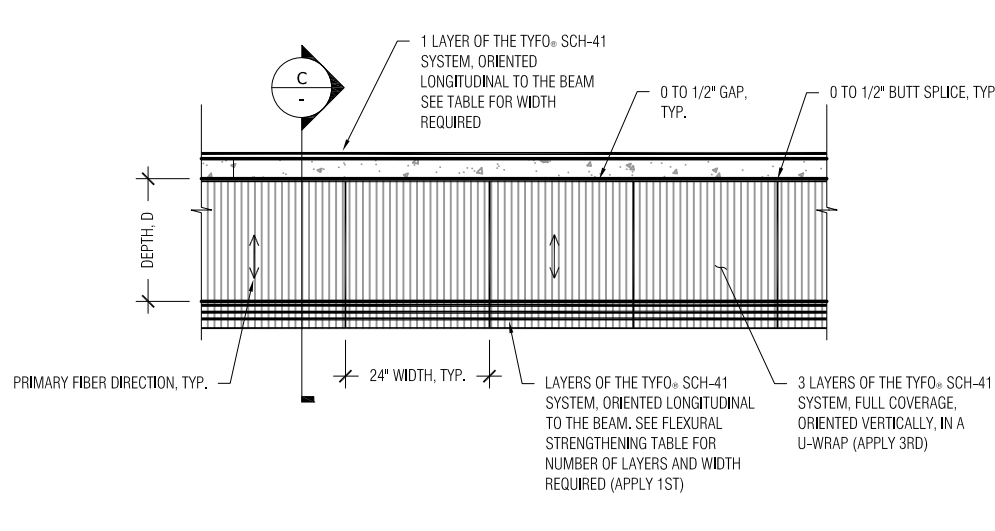
Typical Perforated Shear Wall Strengthening

N.T.S.



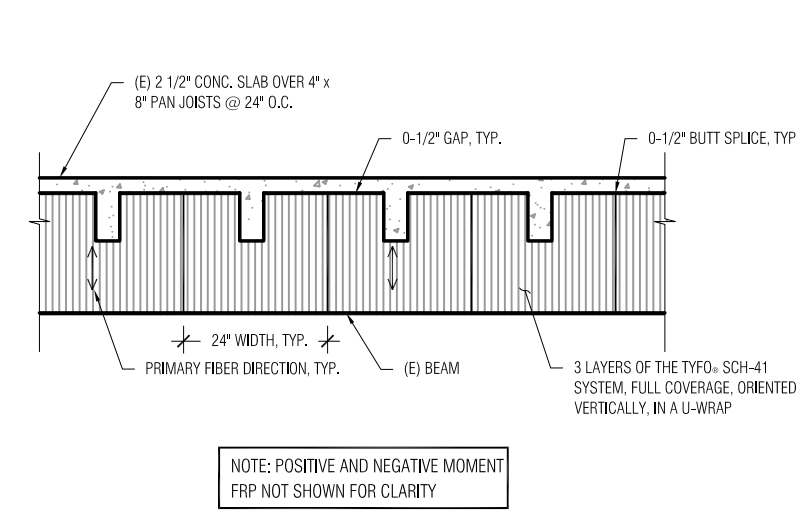
Typical Shear Wall Strengthening Without Openings

N.T.S.



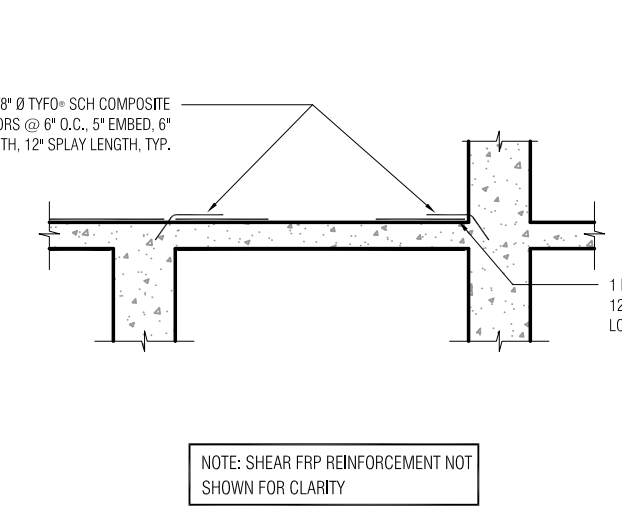
Typical Beam Elevation

N.T.S.



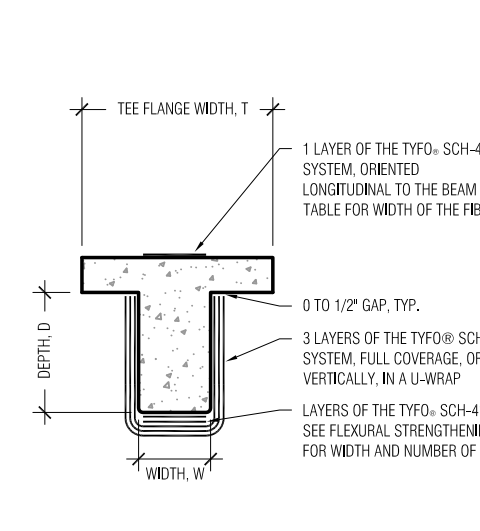
Typical Beam Elevation @ Intersecting Pan Joists

N.T.S.



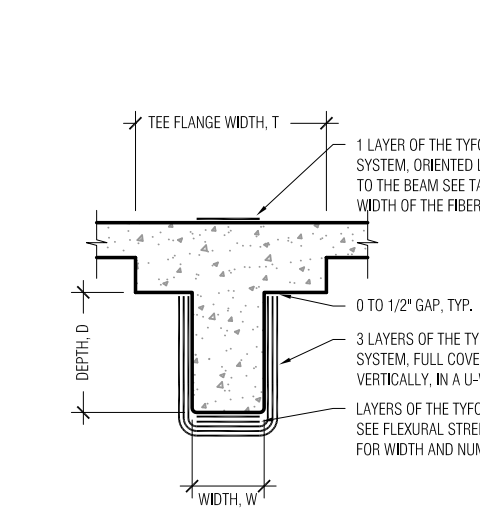
Typical Beam Elevation @ Locations Where Developmental Length Is Not Available

N.T.S.



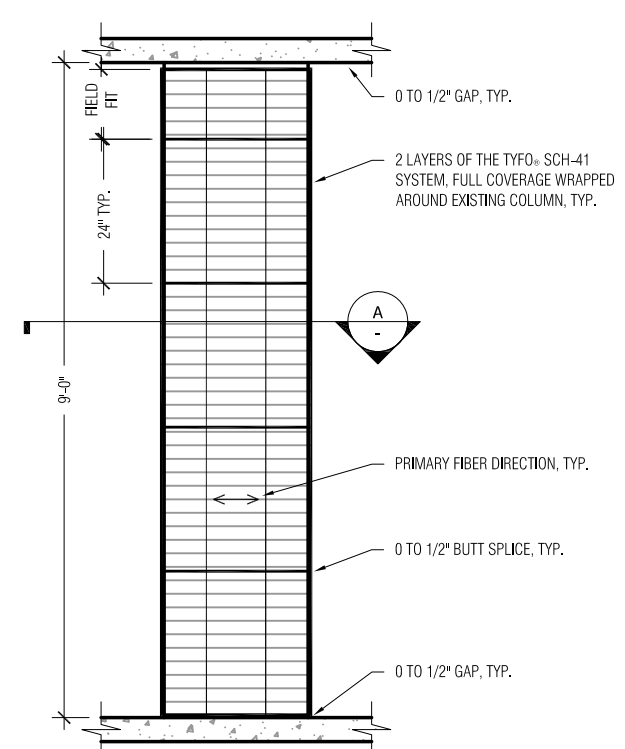
Section C

N.T.S.



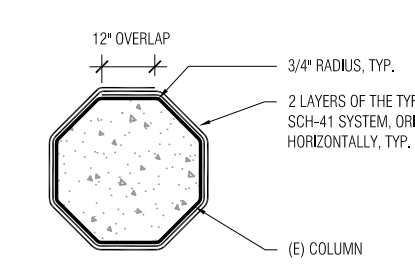
Section D

N.T.S.



Typical Column Elevation

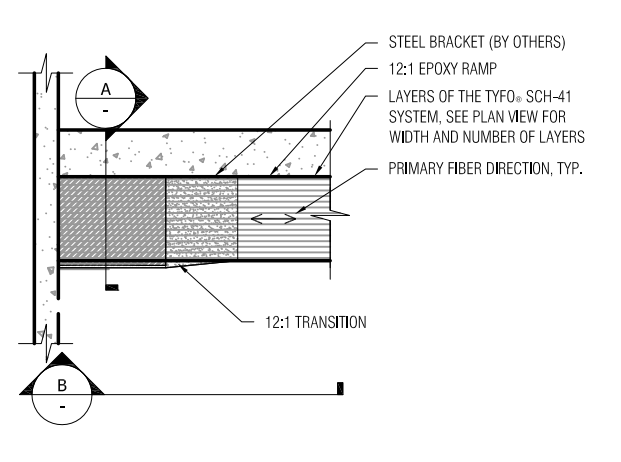
N.T.S.



Section A

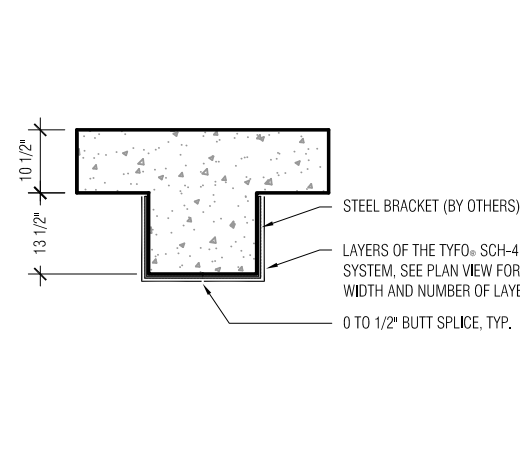
N.T.S.

NOTE: SEE TABLE FOR DIMENSIONS AND TYFO SCH-41 SYSTEM DESIGN



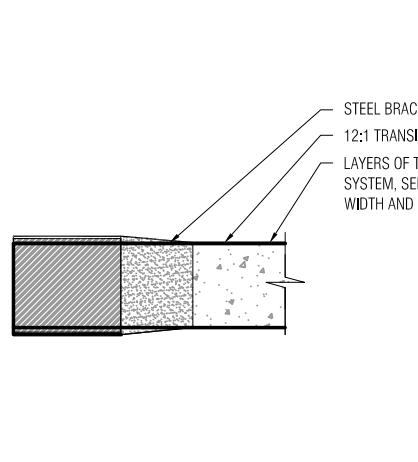
Detail 1

N.T.S.



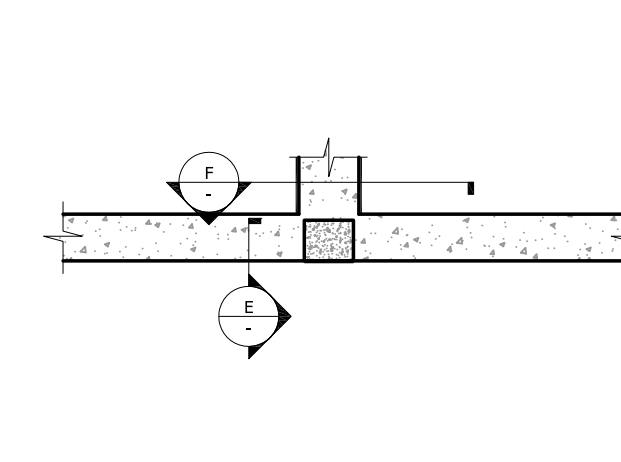
Section A

N.T.S.



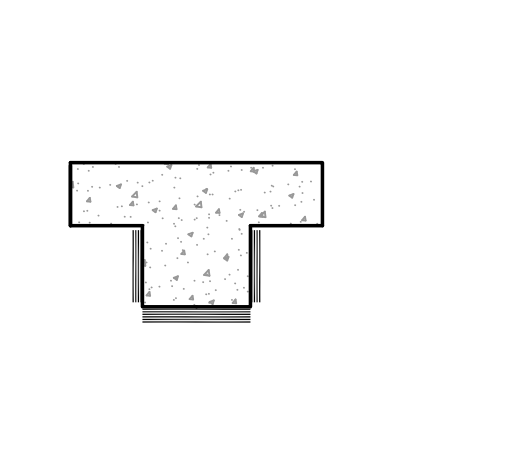
Section B

N.T.S.



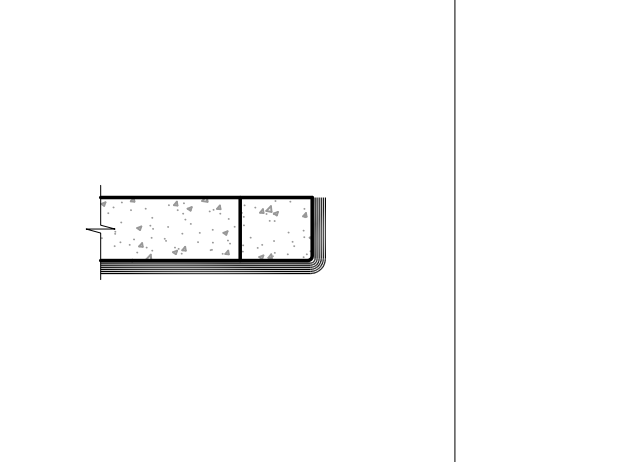
Plan View

N.T.S.



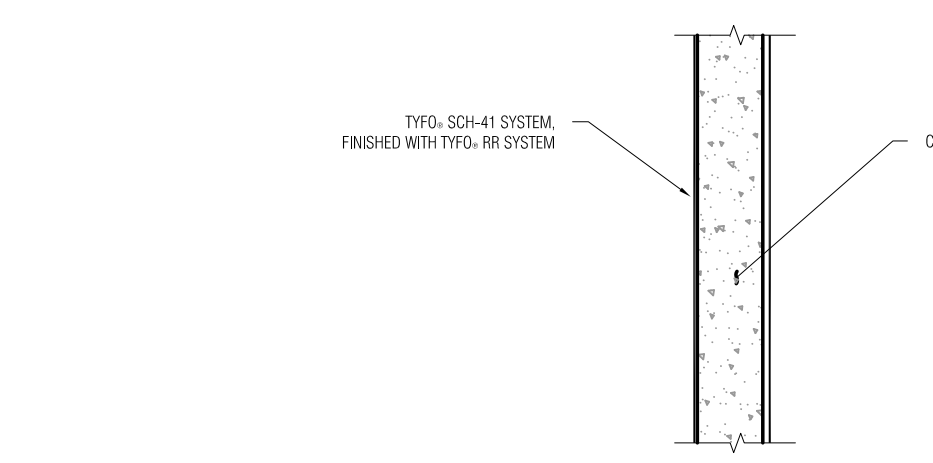
Section E

N.T.S.



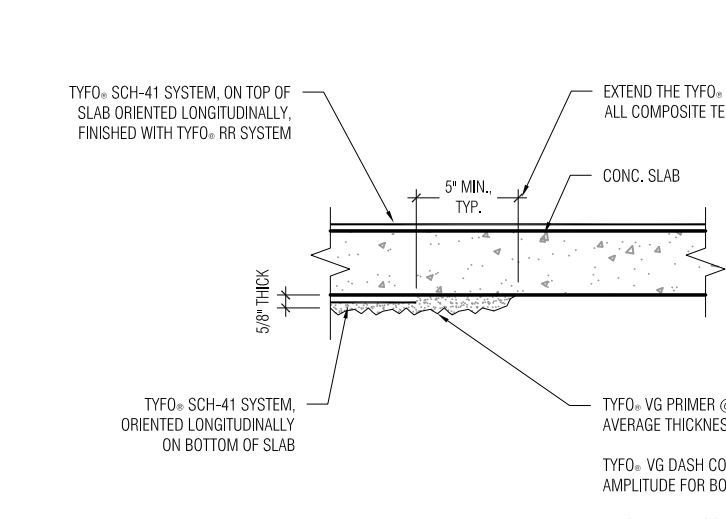
Section F

N.T.S.



Typical Wall Section with the Tyfo CFP System

N.T.S.



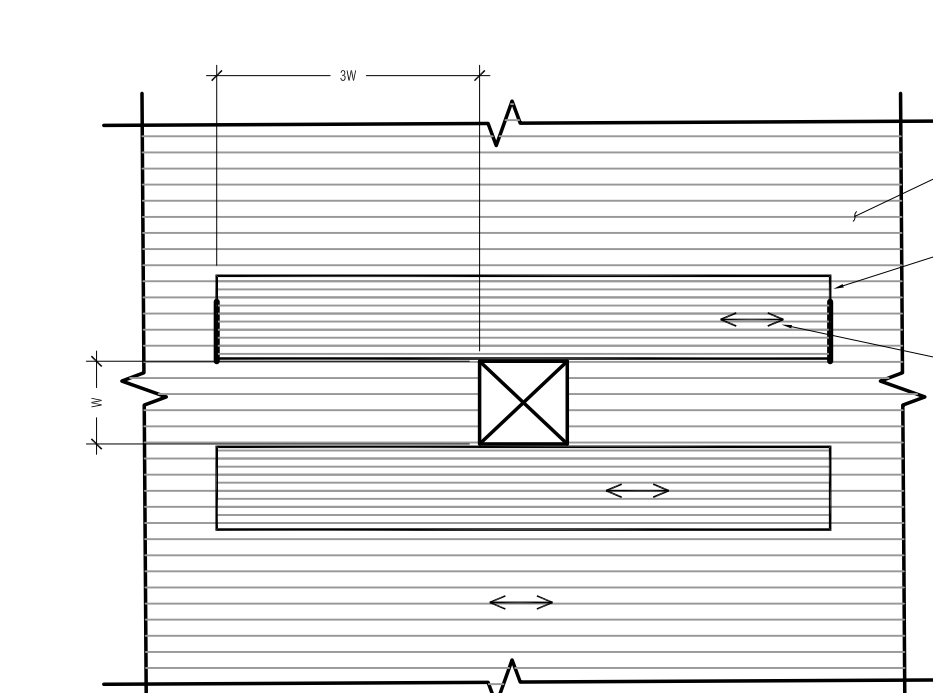
Tyfo CFP System @ Fiber Termination

N.T.S.

BEAM FRP APPLICATION TABLE			
Beam	Longitudinal Bottom Reinforcing	FRP Application of the Tyfo SCH-41 System	
EB-254	4 #5	2 layers, 18" wide, longitudinally along the bottom of the beam	
EB-2501	4 #5	2 layers, 18" wide, longitudinally along the bottom of the beam	
EB-2511	4 #5	2 layers, 18" wide, longitudinally along the bottom of the beam	
EB-2522	4 #5	2 layers, 18" wide, longitudinally along the bottom of the beam	
EB-885	4 #5	2 layers, 18" wide, longitudinally along the bottom of the beam	
EB-886A	4 #5	2 layers, 18" wide, longitudinally along the bottom of the beam	
EB-887B	4 #5	2 layers, 18" wide, longitudinally along the bottom of the beam	
EB-888A	4 #5	2 layers, 18" wide, longitudinally along the bottom of the beam	
Beam	Longitudinal Top Reinforcing	FRP Application of the Tyfo SCH-41 System	
EB-254	2 #5	2 layers, 12" wide, longitudinally along the top of the beam	
EB-2501	2 #5	2 layers, 12" wide, longitudinally along the top of the beam	
EB-2511	2 #5	2 layers, 12" wide, longitudinally along the top of the beam	
EB-2522	2 #5	2 layers, 12" wide, longitudinally along the top of the beam	
EB-885	2 #5	2 layers, 12" wide, longitudinally along the top of the beam	
EB-886A	2 #5	2 layers, 12" wide, longitudinally along the top of the beam	
EB-887B	2 #5	2 layers, 12" wide, longitudinally along the top of the beam	
EB-888A	2 #5	2 layers, 12" wide, longitudinally along the top of the beam	
Beam	Shear Reinforcing	FRP Application of the Tyfo SCH-41 System	
EB-254	#4 @ 8" P.C.	2 layers, full coverage, U-wraps	
EB-2501	#4 @ 8" P.C.	2 layers, full coverage, U-wraps	
EB-2511	#4 @ 8" P.C.	2 layers, full coverage, U-wraps	
EB-2522	#4 @ 8" P.C.	2 layers, full coverage, U-wraps	
EB-885	#4 @ 8" P.C.	2 layers, full coverage, U-wraps	
EB-886A	#4 @ 8" P.C.	2 layers, full coverage, U-wraps	
EB-887B	#4 @ 8" P.C.	2 layers, full coverage, U-wraps	
EB-888A	#4 @ 8" P.C.	2 layers, full coverage, U-wraps	

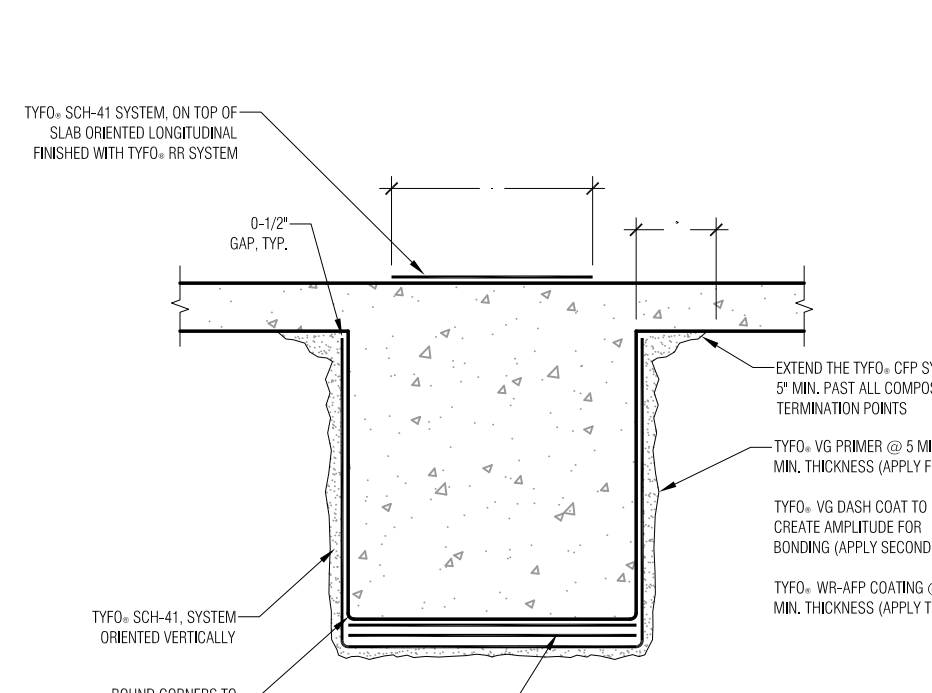
COLUMN FRP APPLICATION TABLE			
FRP Type	Equivalent Steel Shear Strengthening	FRP Shear Application of Tyfo SCH-41 System	
FRP-C15	#4 closed hoops @ 4" o.c.	2 layers, full coverage, horizontally	
FRP-C16	#4 closed hoops @ 4" o.c.	2 layers, full coverage, horizontally	
FRP-C17	#4 closed hoops @ 4" o.c.	2 layers, full coverage, horizontally	
FRP-C18	#4 closed hoops @ 4" o.c.	2 layers, full coverage, horizontally	
FRP-C19	#4 closed hoops @ 4" o.c.	2 layers, full coverage, horizontally	
FRP-C20	#4 closed hoops @ 4" o.c.	2 layers, full coverage, horizontally	
FRP-C21	#4 closed hoops @ 4" o.c.	2 layers, full coverage, horizontally	
FRP-C22	#4 closed hoops @ 4" o.c.	2 layers, full coverage, horizontally	
FRP-C23	#4 closed hoops @ 4" o.c.	2 layers, full coverage, horizontally	
FRP-C24	#4 closed hoops @ 4" o.c.	2 layers, full coverage, horizontally	
FRP-C25	#4 closed hoops @ 4" o.c.	2 layers, full coverage, horizontally	
FRP-C26	#4 closed hoops @ 4" o.c.	2 layers, full coverage, horizontally	
FRP-C27	#4 closed hoops @ 4" o.c.	2 layers, full coverage, horizontally	
FRP-C28	#4 closed hoops @ 4" o.c.	2 layers, full coverage, horizontally	
FRP-C29	#4 closed hoops @ 4" o.c.	2 layers, full coverage, horizontally	
FRP-C30	#4 closed hoops @ 4" o.c.	2 layers, full coverage, horizontally	
FRP-C31	#4 closed hoops @ 4" o.c.	2 layers, full coverage, horizontally	
FRP-C32	#4 closed hoops @ 4" o.c.	2 layers, full coverage, horizontally	
FRP-C33	#4 closed hoops @ 4" o.c.	2 layers, full coverage, horizontally	
FRP-C34	#4 closed hoops @ 4" o.c.	2 layers, full coverage, horizontally	
FRP-C35	#4 closed hoops @ 4" o.c.	2 layers, full coverage, horizontally	
FRP-C36	#4 closed hoops @ 4" o.c.	2 layers, full coverage, horizontally	
FRP-C37	#4 closed hoops @ 4" o.c.	2 layers, full coverage, horizontally	
FRP-C38	#4 closed hoops @ 4" o.c.	2 layers, full coverage, horizontally	
FRP-C39	#4 closed hoops @ 4" o.c.	2 layers, full coverage, horizontally	
FRP-C40	#4 closed hoops @ 4" o.c.	2 layers, full coverage, horizontally	
FRP-C41	#4 closed hoops @ 4" o.c.	2 layers, full coverage, horizontally	
FRP-C42	#4 closed hoops @ 4" o.c.	2 layers, full coverage, horizontally	
FRP-C43	#4 closed hoops @ 4" o.c.	2 layers, full coverage, horizontally	
FRP-C44	#4 closed hoops @ 4" o.c.	2 layers, full coverage, horizontally	
FRP-C45	#4 closed hoops @ 4" o.c.	2 layers, full coverage, horizontally	
FRP-C46	#4 closed hoops @ 4" o.c.	2 layers, full coverage, horizontally	
FRP-C47	#4 closed hoops @ 4" o.c.	2 layers, full coverage, horizontally	
FRP-C48	#4 closed hoops @ 4" o.c.	2 layers, full coverage, horizontally	
FRP-C49	#4 closed hoops @ 4" o.c.	2 layers, full coverage, horizontally	
FRP-C50	#4 closed hoops @ 4" o.c.	2 layers, full coverage, horizontally	
FRP-C51	#4 closed hoops @ 4" o.c.	2 layers, full coverage, horizontally	
FRP-C52	#4 closed hoops @ 4" o.c.	2 layers, full coverage, horizontally	
FRP-C53	#4 closed hoops @ 4" o.c.	2 layers, full coverage, horizontally	
FRP-C54	#4 closed hoops @ 4" o.c.	2 layers, full coverage, horizontally	
FRP-C55	#4 closed hoops @ 4" o.c.	2 layers, full coverage, horizontally	
FRP-C56	#4 closed hoops @ 4" o.c.	2 layers, full coverage, horizontally	

WALL FRP APPLICATION TABLE			
Level	Type	Shear Demand (kip/in.)	FRP Shear Application with Tyfo SCH-41 System
Second Floor	FRP-01	1.55	3 layers, full coverage, horizontally
	FRP-02	1.55	3 layers, full coverage, horizontally
	FRP-03	1.55	3 layers, full coverage, horizontally
	FRP-04	1.55	3 layers, full coverage, horizontally
	FRP-05	1.55	3 layers, full coverage, horizontally
	FRP-06	1.55	3 layers, full coverage, horizontally
Third Floor	FRP-07	1.55	3 layers, full coverage, horizontally
	FRP-08	1.55	3 layers, full coverage, horizontally
	FRP-09	1.55	3 layers, full coverage, horizontally
	FRP-10	1.55	3 layers, full coverage, horizontally
	FRP-11	1.55	3 layers, full coverage, horizontally
	FRP-12	1.55	3 layers, full coverage, horizontally
Fourth Floor	FRP-13	1.55	3 layers, full coverage, horizontally
	FRP-14	1.55	3 layers, full coverage, horizontally
	FRP-15	1.55	3 layers, full coverage, horizontally
	FRP-16	1.55	3 layers, full coverage, horizontally
	FRP-17	1.55	3 layers, full coverage, horizontally
	FRP-18	1.55	3 layers, full coverage, horizontally
Fifth Floor	FRP-19	1.55	3 layers, full coverage, horizontally
	FRP-20	1.55	3 layers, full coverage, horizontally
	FRP-21	1.55	3 layers, full coverage, horizontally
	FRP-22	1.55	3 layers, full coverage, horizontally
	FRP-23	1.55	3 layers, full coverage, horizontally
	FRP-24	1.55	3 layers, full coverage, horizontally
Sixth Floor	FRP-25	1.55	3 layers, full coverage, horizontally
	FRP-26	1.55	3 layers, full coverage, horizontally
	FRP-27	1.55	3 layers, full coverage, horizontally
	FRP-28	1.55	3 layers, full coverage, horizontally
	FRP-29	1.55	3 layers, full coverage, horizontally
	FRP-30	1.55	3 layers, full coverage, horizontally



Penetration Strengthening

N.T.S.



Typical Beam Section with the Tyfo CFP System

N.T.S.

Typical Details: Fire Rated Assembly

N.T.S.

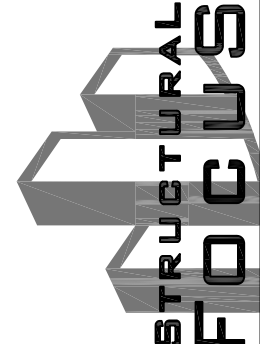
REVISION	DATE	DESCRIPTION
01	05/07/2015	Initial Design
02	06/04/2015	Revised Design
03	06/04/2015	Revised Design
04	06/04/2015	Revised Design
05	06/04/2015	Revised Design



howard laks architects
1545 Wilshire Boulevard
Santa Monica, CA 90401
voice : 310-393-4465
fax : 310-393-2230

CONSULTANTS

JOSE A. BERNARDI, ARCHITECT
1545 Wilshire Boulevard
Santa Monica, CA 90401
voice : 310-393-4465
fax : 310-393-2230



710 WILSHIRE BOULEVARD
MIXED-USE HOTEL PROJECT
SANTA MONICA - CALIFORNIA, 90401

FRP DETAILS

710 WILSHIRE BOULEVARD
MIXED-USE HOTEL PROJECT
SANTA MONICA - CALIFORNIA, 90401

710 WILSHIRE BOULEVARD
MIXED-USE HOTEL PROJECT
SANTA MONICA - CALIFORNIA, 90401

DATE: JUNE 25, 2013
PROJECT NUMBER: 10129