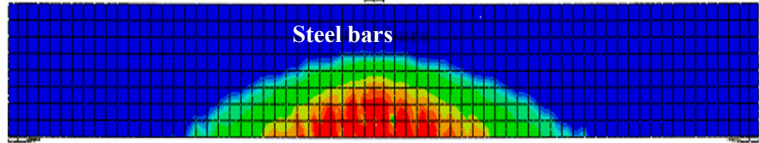
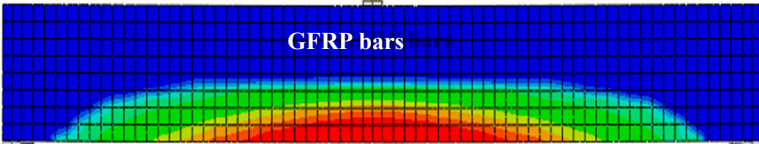
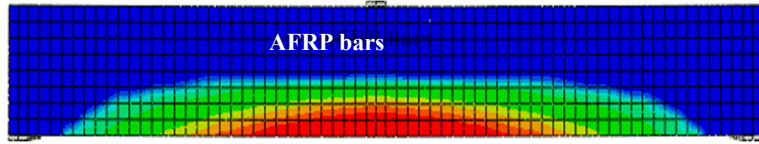
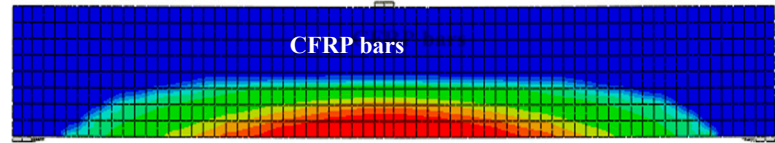
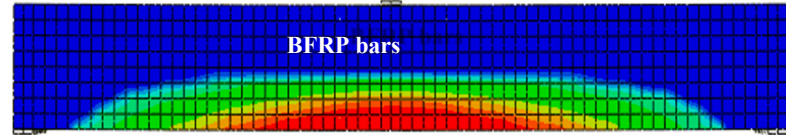
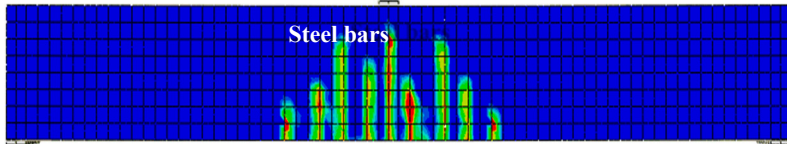
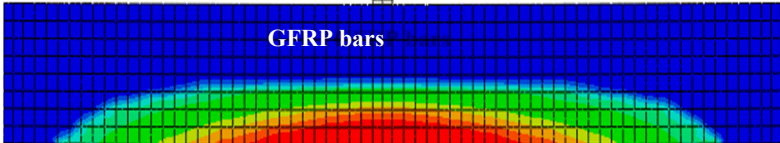
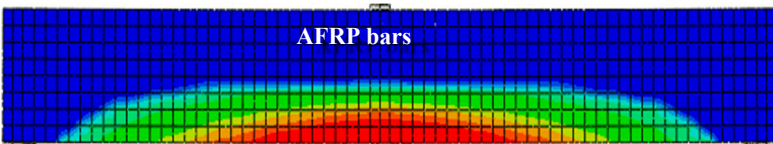
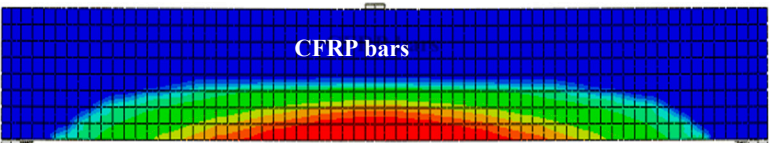
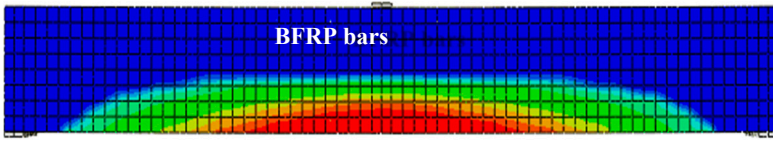


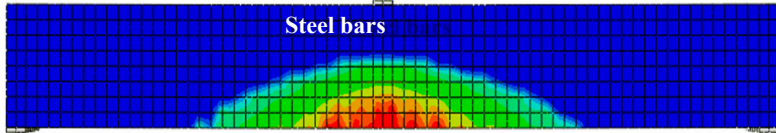
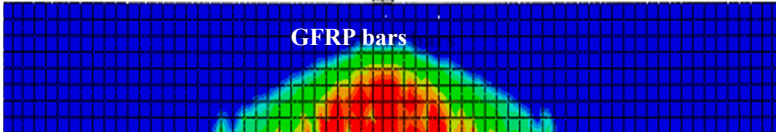
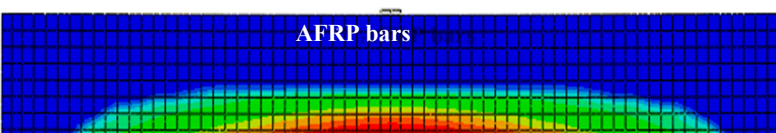
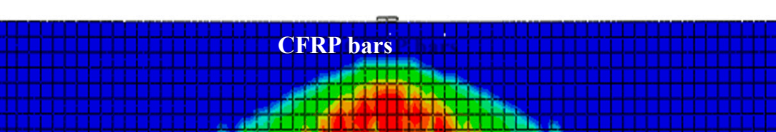
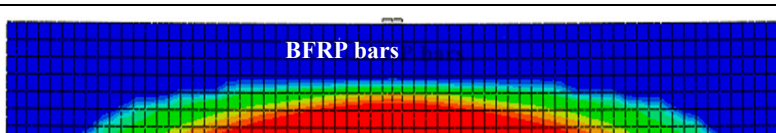
**Table S1.** Ultimate load, fracture energy and crack pattern for simple beams with ratio 0.15% reinforcement ratio.

Beam no.	Ultimate load (kN)	$W_o$ (N.m)	$G_f$ (N/m)	Crack Pattern
Steel6-6	38	1524.25	40646.7	 <p>Steel bars</p>
GFRP6-6	39	1513.25	40353.3	 <p>GFRP bars</p>
AFRP6-6	50	2087.5	55666.7	 <p>AFRP bars</p>
CFRP6-6	70	2650.75	70686.7	 <p>CFRP bars</p>
BFRP6-6	32	1372.75	36606.7	 <p>BFRP bars</p>

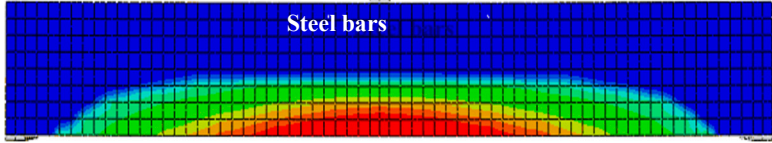
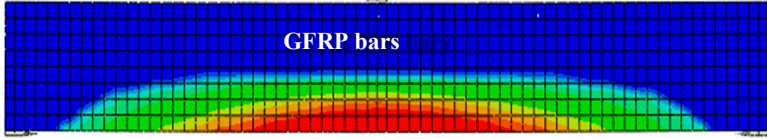
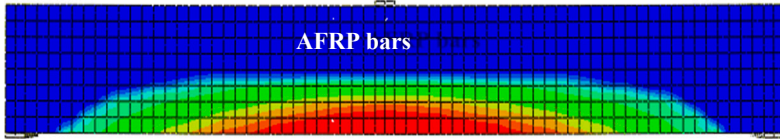
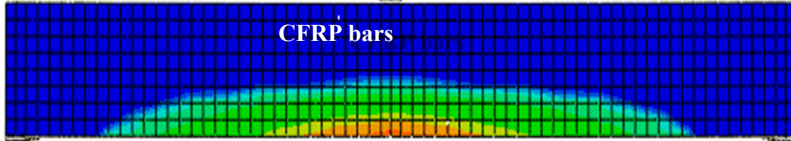
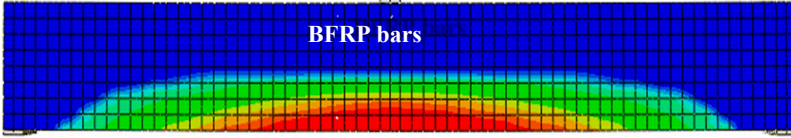
**Table S2.** Ultimate load, fracture energy and crack pattern for simple beams with 0.27% reinforcement ratio.

Beam no.	Ultimate load (KN)	$W_o$ (N.m)	$Gf$ (N/m)	Crack Pattern
Steel 8-8	65	3043	81150	
GFRP8-8	43	1714.75	45799.3	
AFRP8-8	60	2473	65946.7	
CFRP8-8	90	3267.75	87140	
BFRP8-8	37	1736	46293.3	

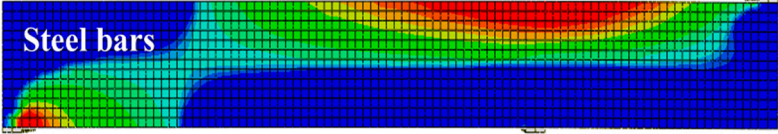
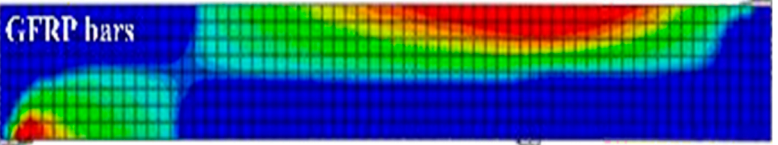
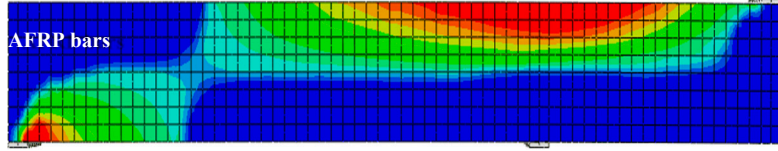
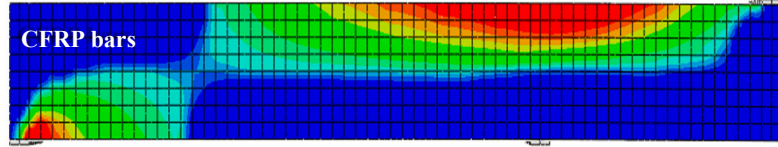
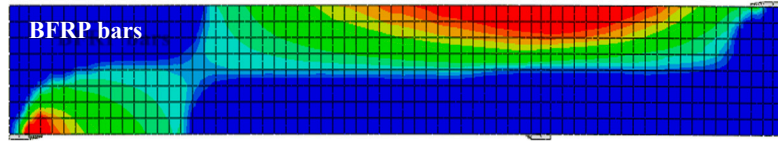
**Table S3.** Ultimate load, fracture energy and crack pattern for simple beams with 0.42% reinforcement ratio.

Beam no.	Ultimate load (kN)	$W_o$ (N.m)	$G_f$ (N/m)	Crack Pattern
Steel10-10	85	4168	111115	 <p>Steel bars</p>
GFRP10-10	50	2049	54658	 <p>GFRP bars</p>
AFRP10-10	80	3000	80000	 <p>AFRP bars</p>
CFRP10-10	110	3500	9333.3	 <p>CFRP bars</p>
BFRP10-10	43	1853.25	49420	 <p>BFRP bars</p>

**Table S4.** Ultimate load, fracture energy and crack pattern for simple beams with 0.60% reinforcement ratio.

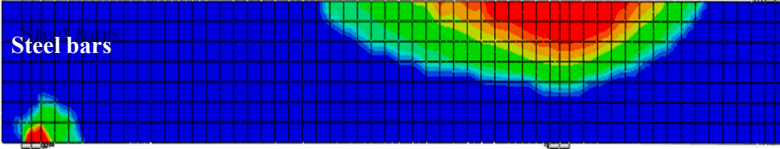
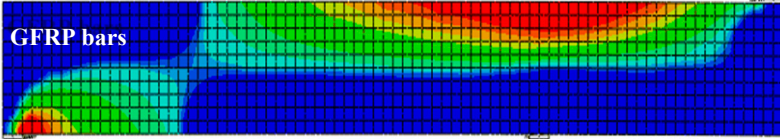
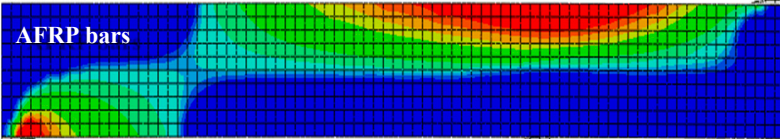
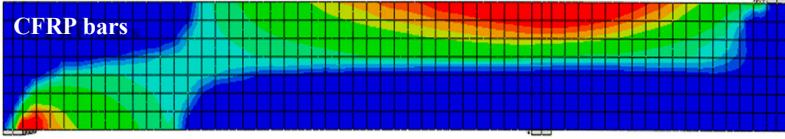
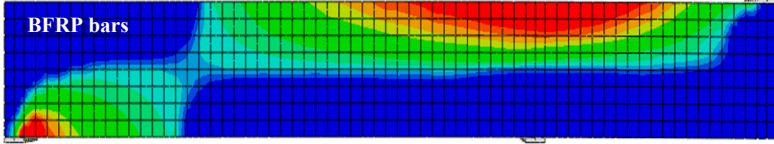
Beam no.	Ultimate load (kN)	$W_o$ (N.m)	$G_f$ (N/m)	Crack Pattern
Steel12-12	120	5147.25	137260	 <p>Steel bars</p>
GFRP12-12	55	2184.25	58246.7	 <p>GFRP bars</p>
AFRP12-12	85	3920	104533	 <p>AFRP bars</p>
CFRP12-12	100	3776.75	100713.3	 <p>CFRP bars</p>
BFRP12-12	50	2107.5	56200	 <p>BFRP bars</p>

**Table S5.** Ultimate load, fracture energy and crack pattern for overhanging beam with 0.15% reinforcement ratio.

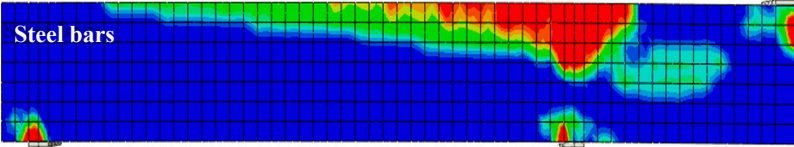
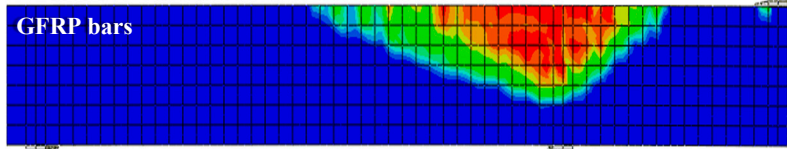
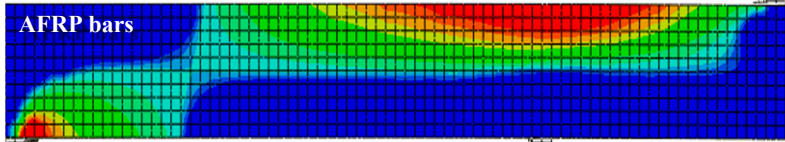
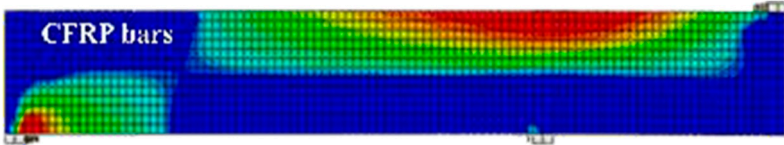
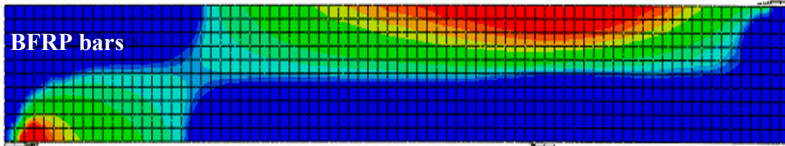
Beam no.	Ultimate load(kN)	$W_o$ (N.m)	$G_f$ (N/m)	Crack Pattern
Steel6-6	15	550	14666	 <p>Steel bars</p>
GFRP6-6	20	586.5	15640	 <p>GFRP bars</p>
AFRP6-6	29	1186	31626.7	 <p>AFRP bars</p>
CFRP6-6	46	1467.5	39133.3	 <p>CFRP bars</p>
BFRP6-6	23	1234.3	32914.7	 <p>BFRP bars</p>



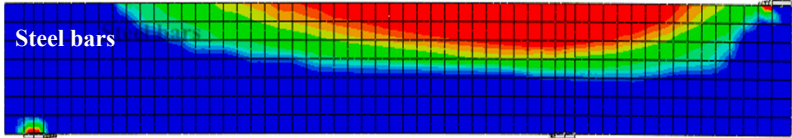
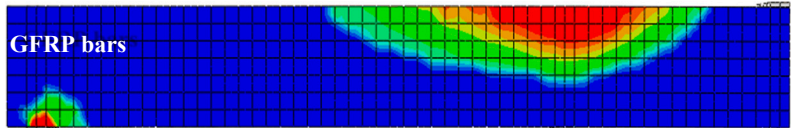
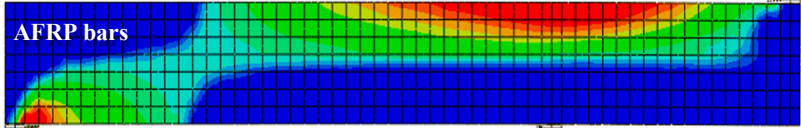
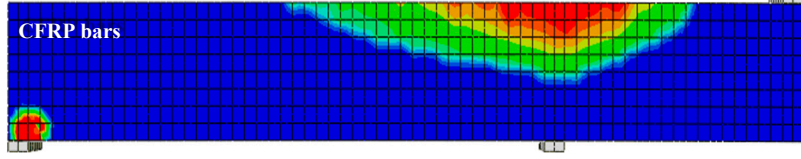
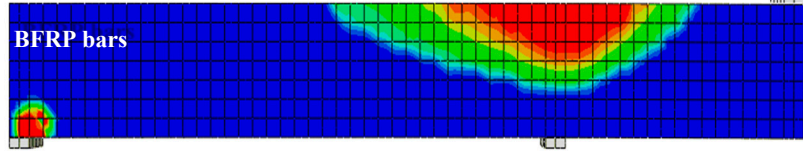
**Table S6.** Ultimate load, fracture energy and crack pattern for overhanging beam with 0.27% reinforcement ratio.

Beam no.	Ultimate load (kN)	$W_o$ (N.m)	$G_f$ (N/m)	Crack Pattern
Steel8-8	22	586.5	15640	 <p>Steel bars</p>
GFRP8-8	30	1234.25	32913.3	 <p>GFRP bars</p>
AFRP8-8	36	1467.5	39133.3	 <p>AFRP bars</p>
CFRP8-8	56	2105.75	56153.3	 <p>CFRP bars</p>
BFRP8-8	30	1261.25	33633.3	 <p>BFRP bars</p>

**Table S7.** Ultimate load, fracture energy and crack pattern for overhanging beam with 0.42% reinforcement ratio.

Beam no.	Ultimate load (kN)	$W_o$ (N.m)	$Gf$ (N/m)	Crack Pattern
Steel10-10	45	1759	46906.7	 <p>Steel bars</p>
GFRP10-10	38	1600	42666	 <p>GFRP bars</p>
AFRP10-10	40	1688	45013.3	 <p>AFRP bars</p>
CFRP10-10	60	2708	72213.3	 <p>CFRP bars</p>
BFRP10-10	35	1888.2	50353	 <p>BFRP bars</p>

**Table S8.** Ultimate load, fracture energy and crack pattern for overhanging beam with 0.60% reinforcement ratio.

Beam no.	Ultimate load (kN)	$W_o$ (N.m)	$G_f$ (N/m)	Crack Pattern
Steel12-12	80	3347	89253.3	 <p>Steel bars</p>
GFRP12-12	45	1883	50550	 <p>GFRP bars</p>
AFRP12-12	58	1900	60933.3	 <p>AFRP bars</p>
CFRP12-12	75	2915.25	77740	 <p>CFRP bars</p>
BFRP12-12	45	1952.25	52060	 <p>BFRP bars</p>