

## APPENDIX H

**The optimal weight for SDOF Extended-Bouc-Wen-Barber-Noori  
hysteretic system ( $\alpha = 0.3$ ) with unknown damping**

Table H The optimal weight for SDOF Extended-Bouc-Wen-Barber-Noori hysteretic system ( $\alpha = 0.3$ ) with unknown damping

$u_{ih}$	1	2	3	4	5	6
1	0.1547593768	1.1164271911	0.6362534071	-0.0666528850	0.3593650161	0.5592847112
2	-0.5703593686	-0.1172334739	-0.8580847740	-0.8760324091	0.8806208690	0.5055307087
3	0.1854480809	-0.1720273620	-0.9848045102	-0.1733811184	0.5169223217	0.6986893750
4	0.0824692054	0.4656678790	0.2232877261	-0.5842554916	-0.5129617996	0.1295803371
5	-0.4579083310	-0.0382930977	-0.2838558073	0.6090038691	0.3901155065	0.4087281115
6	0.3194453737	0.1220892831	0.5184453816	-0.2285937122	-0.7045899417	0.4802583511
7	0.4958929079	-0.4389827903	0.3698505319	0.2141902270	0.0818386588	0.0839638036
8	-0.1773009267	0.2899673920	0.5044460127	0.2572525077	-0.2528416406	-0.0286821582
9	0.2108690559	-0.7672124798	0.5490072913	-0.5524347424	-0.0743638134	-0.1376967686
10	-0.5653946499	0.4902152565	0.4491463141	-0.9970865532	-0.1849894167	-0.2392608938
11	-0.1801130712	0.8876606835	0.6573220962	0.0230205185	0.6248474795	0.0837863159
12	0.0054098406	-0.6653859766	-0.9380559807	-0.8454566116	-0.8021524496	0.3194794780
13	-0.2147219642	0.4401421217	-0.0059921147	0.2977314771	0.2691730187	0.2192955437

$u_{ih}$	7	8	9
1	0.4950348568	0.5153022057	0.9464198349
2	-0.1293931587	-0.4461588545	0.1905446030
3	0.5784415654	-0.5747292521	0.0656703142
4	0.1954656413	-0.3248726545	-0.3139504981
5	0.6449154763	-0.1176740408	-0.3954335666
6	-0.6368662783	-0.2122920517	0.0166268203
7	0.1445426392	-0.0432198998	-0.5874524324
8	0.0156245848	-0.8343168889	-0.2025611070
9	-0.6073350284	-0.3777025902	0.6832527381
10	-0.2381006730	-1.0875123183	0.4923044236
11	0.5335257623	-1.2518373909	-0.4412430254
12	-0.1877567178	0.1588835771	0.1782703576
13	0.3633830764	-0.1847617823	-0.5987972864

Table H (Continued)

$v_{hj}$	1	2	3	4	5	6
1	-0.592774142	0.371499879	0.718401755	-0.024500579	0.818993744	0.347764822
2	-0.115836153	0.187182812	-0.296301592	0.755378858	0.500205549	1.057372959
3	0.380660011	-0.44624649	-0.504173934	-0.424429183	-0.872766865	-0.649619401
4	0.163357091	0.956472729	-0.361245771	-0.765076969	0.05066443	-0.721316173
5	0.311828036	-0.063095535	0.449876653	0.186205809	-0.377779928	0.509349616
6	-0.641332995	0.743173571	-0.463680183	-0.492428753	-0.499773384	-0.158158701
7	-0.333331326	0.503824092	-0.668009703	-0.068965866	-0.601450342	-0.64587283
8	-0.225249088	-0.322304362	0.020091357	-0.213719014	0.161443926	0.187587944
9	-0.517756352	-0.741974234	-0.038451624	0.31108532	-0.146847475	0.731071568
10	-0.616856607	-0.189463333	0.210255381	0.247100331	0.062075177	0.306812227
11	0.462351456	-0.174305557	-0.351911097	-0.179544424	-0.222976218	0.973522052
12	-0.033053105	-0.845182679	-0.473426593	-1.532394174	-0.332389264	0.076799275
13	-0.268901321	0.226561751	-0.223469681	0.080249608	0.208513506	0.910999661

$v_{hj}$	7	8	9	10	11	12
1	-0.12517439	-0.132195489	-0.031463598	1.186179179	-0.338271945	-0.223796112
2	-0.582488695	0.609485462	0.736124997	0.253118174	0.294546411	-0.675689779
3	-0.214749919	-0.327903125	-0.187131792	-0.164971701	-1.399631362	0.437613212
4	0.923649001	-1.151762659	0.98593837	0.746302664	0.951112148	-0.205109712
5	-0.690956914	-0.60168575	-0.621221355	-0.110158979	-0.142139721	-0.3162716
6	0.274294641	0.549489429	-0.01946663	-0.655772818	0.057824411	0.022351755
7	-0.374723989	-0.02619809	-0.457918837	0.090042595	0.456517928	-0.122787377
8	0.34091503	0.133189796	0.476194914	0.136643082	0.112824606	0.340542018
9	-0.453794106	0.518889165	0.004462503	-0.063448242	0.095799542	-0.085895393
10	0.026660023	-1.003047982	0.155217935	0.565895848	-0.714185223	-0.966085071
11	-1.07940195	-0.311685271	0.172316819	0.81129979	-1.023921364	-0.646886955
12	-0.314427097	-0.340290608	-0.327496019	-0.424955532	-0.73764248	-0.295927598
13	0.26610967	-0.488408539	0.482624174	0.078513161	0.181124567	-0.611648549

Table H (Continued)

$v_{hj}$	13	14
1	-0.12741844	0.241001535
2	-0.502773651	0.638853303
3	-0.761267042	-0.210682822
4	-0.322540063	0.008201477
5	-0.310637828	-0.014792994
6	-0.002895151	-0.229665905
7	-0.222739719	1.158750474
8	0.713116898	-0.16365033
9	0.010711585	-0.741473142
10	-0.759019054	0.877322785
11	-0.122044916	0.190670319
12	-0.332050827	-0.575780093
13	0.197800644	0.296018527

$w_j$	
1	-0.09725701
2	-0.10179872
3	0.026213412
4	0.868557353
5	-1.42089002
6	1.204330609
7	0.538664967
8	0.755551291
9	-0.98372306
10	-0.19740941
11	0.886535287
12	0.736646338
13	1.815083964
14	-0.06517658