

```
1 <?xml version="1.0" encoding="UTF-8" ?>
2 <case>
3   <casedef>
4     <constantsdef>
5       <gravity x="0" y="0" z="-9.81" comment="Gravitational acceleration" units_comment="m/s^2" />
6       <rhop0 value="1000" comment="Reference density of the fluid" units_comment="kg/m^3" />
7       <hswl value="0" auto="true" comment="Maximum still water level to calculate speedofsound using coefsound"
8         units_comment="metres (m)" />
9       <gamma value="7" comment="Polytropic constant for water used in the state equation" />
10      <speedsystem value="0" auto="true" comment="Maximum system speed (by default the dam-break propagation is used)" />
11      <coefsound value="20" comment="Coefficient to multiply speedsystem" />
12      <speedsound value="0" auto="true" comment="Speed of sound to use in the simulation (by default
13        speedofsound=coefsound*speedsystem)" />
14      <coefh value="1.0" comment="Coefficient to calculate the smoothing length (h=coefh*sqrt(3*dp^2) in 3D)" />
15      <cflnumber value="0.2" comment="Coefficient to multiply dt" />
16    </constantsdef>
17    <mkconfig boundcount="240" fluidcount="9"/>
18    <geometry>
19      <definition dp="0.0085" units_comment="metres (m)">
20        <pointmin x="-0.05" y="-0.05" z="-0.05" />
21        <pointmax x="2" y="1.75" z="1" />
22      </definition>
23      <commands>
24        <mainlist>
25          <setshapemode>dp | bound</setshapemode>
26          <setdrawmode mode="full" />
27          <setmkfluid mk="0" />
28          <drawbox>
29            <boxfill>solid</boxfill>
30            <point x="0" y="0" z="0" />
31            <size x="0.4" y="1.7" z="0.3" />
32          </drawbox>
33          <setmkbound mk="0" />
34          <drawbox>
35            <boxfill>bottom | left | right | front | back</boxfill>
36            <point x="0" y="0" z="0" />
37            <size x="1.6" y="1.7" z="0.4" />
38          </drawbox>
39          <shapeout file="Box"/>
40          <setmkvoid />
41          <drawbox>
42            <boxfill>solid</boxfill>
43            <point x="0.9" y="0.24" z="0" />
44            <size x="0.12" y="0.12" z="0.45" />
45          </drawbox>
46          <drawbox>
47            <boxfill>solid</boxfill>
48            <point x="0.9" y="0.60" z="0" />
49            <size x="0.12" y="0.12" z="0.45" />
50          </drawbox>
```

```

49 <drawbox>
50   <boxfill>solid</boxfill>
51   <point x="0.9" y="0.96" z="0" />
52   <size x="0.12" y="0.12" z="0.45" />
53 </drawbox>
54 <drawbox>
55   <boxfill>solid</boxfill>
56   <point x="0.9" y="1.32" z="0" />
57   <size x="0.12" y="0.12" z="0.45" />
58 </drawbox>
59 <setmkbound mk="1" />
60
61 <drawbox>
62   <boxfill>top | left | right | front | back</boxfill>
63   <point x="0.9" y="0.24" z="0" />
64   <size x="0.12" y="0.12" z="0.45" />
65 </drawbox>
66 <drawbox>
67   <boxfill>top | left | right | front | back</boxfill>
68   <point x="0.9" y="0.60" z="0" />
69   <size x="0.12" y="0.12" z="0.45" />
70 </drawbox>
71 <drawbox>
72   <boxfill>top | left | right | front | back</boxfill>
73   <point x="0.9" y="0.96" z="0" />
74   <size x="0.12" y="0.12" z="0.45" />
75 </drawbox>
76 <drawbox>
77   <boxfill>top | left | right | front | back</boxfill>
78   <point x="0.9" y="1.32" z="0" />
79   <size x="0.12" y="0.12" z="0.45" />
80 </drawbox>
81 <shapeout file="Building"/>
82
83 <setmkbound mk="10" />
84 <drawbox>
85   <boxfill>left</boxfill>
86   <point x="0.9" y="0.24" z="0" />
87   <size x="0.12" y="0.12" z="0.45" />
88 </drawbox>
89 <setmkbound mk="12" />
90 <drawbox>
91   <boxfill>left</boxfill>
92   <point x="0.9" y="0.60" z="0" />
93   <size x="0.12" y="0.12" z="0.45" />
94 </drawbox>
95 <setmkbound mk="14" />
96 <drawbox>
97   <boxfill>left</boxfill>
98   <point x="0.9" y="0.96" z="0" />

```

```

99         <size x="0.12" y="0.12" z="0.45" />
100     </drawbox>
101     <setmkbound mk="16" />
102     <drawbox>
103         <boxfill>left</boxfill>
104         <point x="0.9" y="1.32" z="0" />
105         <size x="0.12" y="0.12" z="0.45" />
106     </drawbox>
107 </mainlist>
108 </commands>
109 </geometry>
110 </casedef>
111 <execution>
112
113 <parameters>
114     <parameter key="SavePosDouble" value="0" comment="Saves particle position using double precision (default=0)" />
115     <parameter key="StepAlgorithm" value="1" comment="Step Algorithm 1:Verlet, 2:Symplectic (default=1)" />
116     <parameter key="VerletSteps" value="40" comment="Verlet only: Number of steps to apply Euler timestepping (default=40)" />
117     <parameter key="Kernel" value="1" comment="Interaction Kernel 1:Cubic Spline, 2:Wendland (default=2)" />
118     <parameter key="ViscoTreatment" value="1" comment="Viscosity formulation 1:Artificial, 2:Laminar+SPS (default=1)" />
119     <parameter key="Visco" value="0.1" comment="Viscosity value" /> % Note alpha can depend on the resolution. A
120     value of 0.01 is recommended for near irrotational flows.
121     <parameter key="ViscoBoundFactor" value="1" comment="Multiply viscosity value with boundary (default=1)" />
122     <parameter key="DensityDT" value="2" comment="Density Diffusion Term 0:None, 1:Molteni, 2:Fourtakas,
123     3:Fourtakas (full) (default=0)" />
124     <parameter key="DensityDTvalue" value="0.1" comment="DDT value (default=0.1)" />
125     <parameter key="Shifting" value="0" comment="Shifting mode 0:None, 1:Ignore bound, 2:Ignore fixed, 3:Full (default=0)" />
126     <parameter key="ShiftCoef" value="-2" comment="Coefficient for shifting computation (default=-2)" />
127     <parameter key="ShiftTFS" value="0" comment="Threshold to detect free surface. Typically 1.5 for 2D and 2.75 for 3D (default=0)" />
128     <parameter key="RigidAlgorithm" value="1" comment="Rigid Algorithm 0:collision-free, 1:SPH, 2:DEM, 3:Chrono (default=1)" />
129     <parameter key="FtPause" value="0.0" comment="Time to freeze the floatings at simulation start (warmup) (default=0)" units_comment="seconds" />
130     <parameter key="CoefDtMin" value="0.05" comment="Coefficient to calculate minimum time step dtmin=coefdtmin*h/speedsound (default=0.05)" />
131     <parameter key="DtIni" value="0" comment="Initial time step. Use 0 to default use (default=h/speedsound)" units_comment="seconds" />
132     <parameter key="DtMin" value="0" comment="Minimum time step. Use 0 to default use (default=coefdtmin*h/speedsound)" units_comment="seconds" />
133     <parameter key="DtFixed" value="0" comment="Fixed Dt value. Use 0 to disable (default=disabled)" units_comment="seconds" />
134     <parameter key="DtFixedFile" value="NONE" comment="Dt values are loaded from file. Use NONE to disable (default=disabled)" units_comment="milliseconds (ms)" />
135     <parameter key="DtAllParticles" value="0" comment="Velocity of particles used to calculate DT. 1:All, 0:Only fluid/floating (default=0)" />

```

```
134 <parameter key="TimeMax" value="0.5" comment="Time of simulation" units_comment="seconds" />
135 <parameter key="TimeOut" value="0.01" comment="Time out data" units_comment="seconds" />
136 <parameter key="PartsOutMax" value="1" comment="%/100 of fluid particles allowed to be excluded from domain
    (default=1)" units_comment="decimal" />
137 <parameter key="RhopOutMin" value="700" comment="Minimum rhop valid (default=700)" units_comment="kg/m^3" />
138 <parameter key="RhopOutMax" value="1300" comment="Maximum rhop valid (default=1300)" units_comment="kg/m^3" />
139 <simulationdomain comment="Defines domain of simulation (default=Uses minimum and maximum position of the
    generated particles)">
140     <posmin x="default" y="default" z="default" comment="e.g.: x=0.5, y=default-1, z=default-10%" />
141     <posmax x="default" y="default" z="default + 50%" />
142 </simulationdomain>
143 </parameters>
144 </execution>
145 </case>
146
```