

Case study

Glass office configurator



Biff Bang Pow!

Based in Oxfordshire, UK, with a fully remote team, Biff Bang Pow started life in 1997 as a graphic design agency creating artwork for record companies and recording artists.

Since that time, BBP has progressed into developing complex software solutions, integrations and elegant brochure websites for a wide and diverse range of industries such as Recruitment, Health & Life Sciences, Travel & Tourism, Professional Services and The Built Environment.



Glass offices and how to sell them



Glass offices and how to sell them



Glass offices and how to sell them



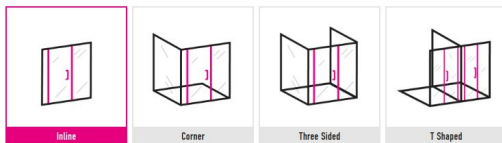
Glass offices and how to sell them



Glass offices and how to sell them

1 Type of Partition

Choose your layout or contact us if you wish to discuss a different option



Multiple partitions required? We can give you one quote for them all, just fill them in one at a time

[GUIDE TO PARTITIONS](#)

2

Dimensions

Enter your partitions height, width and if applicable, depth

Width mm

300

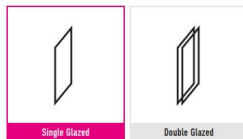
Height mm

1000

3 Glass




We offer both single and double glazed systems depending on the acoustic performance you require

[GUIDE TO ACOUSTICS](#)



Your configuration

Here's your free quotation which includes site measure, delivery and installation

Type of Partition	Dimensions	Glass	Door	Manifestation	Cost (Estimate)
 Corner	 Width: 3000m Height: 2400m Depth: 4500m	 Double Glazed	 Double Glazed Framed Door (D Handle)	 Squares	<p>Contact for prices</p> <p>Quantity</p> <p>1</p>

[Add Another Partition +](#)

Total Estimate

Exclusive of VAT.

Contact for prices

Press submit to book your FREE no obligation survey

[SUBMIT](#)

Tackling a new challenge

- Desire to show the client what they are getting
- Real-time pricing information
- Allowing the client to build up a complete enquiry and retrieve it later
- Each variable has dependencies
- A lot of variables!

Understanding the complexity

- The space must be scalable
- Multiple layout options
- Different ranges
- Different frameworks
- Choice of glass style
- Different doors, per style
- Acoustic performance
- Every door style has different hardware
- All the hardware in all the colours

Understanding the complexity

Door Style

- Frameless Glass Door no Door Frame
- Concealed Frameless S (SG) Door
- Micro Framed Door in Door Frame
- SG frame Door F
- 44mm thick timber door in Aluminium Frame
- Concealed Single Glaz Door

Upto 32 dB(Rw)	32-38 dB(Rw)	38 - 48 dB(Rw)
25dB Normal Speech can be overheard up to	32dB Loud Speech can be heard but not distinguished in normal circumstances up to	38dB Loud speech can be heard faintly but not distinguished up to
32dB Loud Speech can be heard clearly	38dB Loud Speech can be heard but not distinguished	45dB Loud speech can be heard faintly but not distinguished
Single Glazed	Single Glazed	Double Glazed
33dB	33dB	38dB
45dB	50dB	
1000mm	1000mm	1000mm
Strap both sides of glass @ £23.90/m x 6 Lm = £129.95 / 3m2 = £43.31/m2 m2 price x Height = Screen LM	Strap both sides of glass @ £23.90/m x 6 Lm = £129.95 / 3m2 = £43.31/m2 m2 price x Height = Screen LM	Strap both sides of glass @ £23.90/m x 7 Lm = £167.30 / 3m2 = £55.77/m2 m2 price x Height = Screen LM
1000mm	1000mm	1000mm
Strap both sides with cavity block @ £51.30/m x 6 Lm horizontal = £256.50 / 3m2 = £85.50/m2 m2 price x Height = Screen LM	Strap both sides with cavity block @ £51.30/m x 6 Lm horizontal = £256.50 / 3m2 = £85.50/m2 m2 price x Height = Screen LM	Strap both sides with cavity block @ £51.30/m x 7 Lm horizontal = £359.10 / 3m2 = £119.70/m2 m2 price x Height = Screen LM



Making a plan

CHOOSE LAYOUT

DIAGRAM/IMAGE

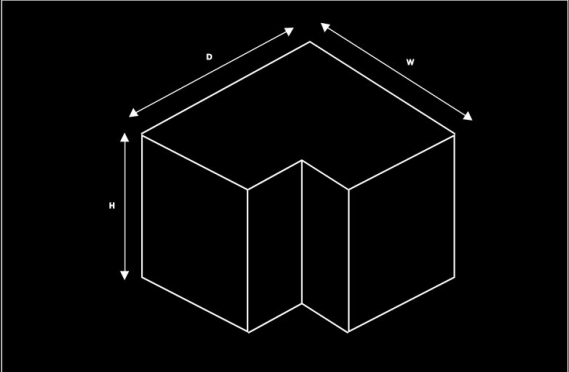
DIAGRAM/IMAGE

2 OFFICE ENCLOSED

3 OFFICE ENCLOSED

YOUR REFERENCE OFFICE 1

£00.00
FINANCE FROM £0.00 PER MONTH



YOUR REFERENCE OFFICE 1

LAYOUT +

DIMENSIONS -

Depth (mm) [input] +

Width (mm) [input] +

Depth (mm) [input] +

i Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur.

STYLE +

RANGE +

FRAMEWORK COLOUR +

DOOR STYLE +

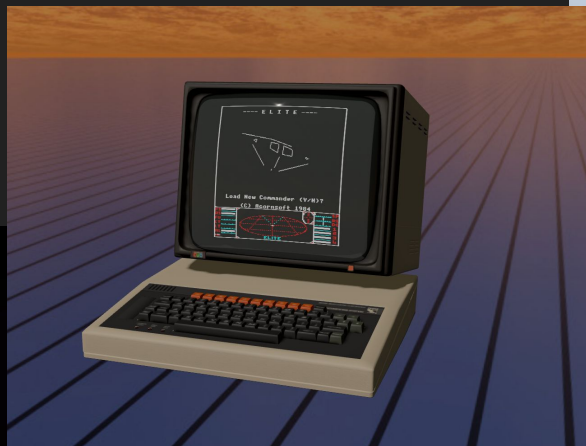
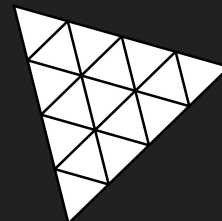
£00.00
FINANCE FROM £0.00 PER MONTH

UNDO REDO ADD TO ENQUIRY

Rendering considerations

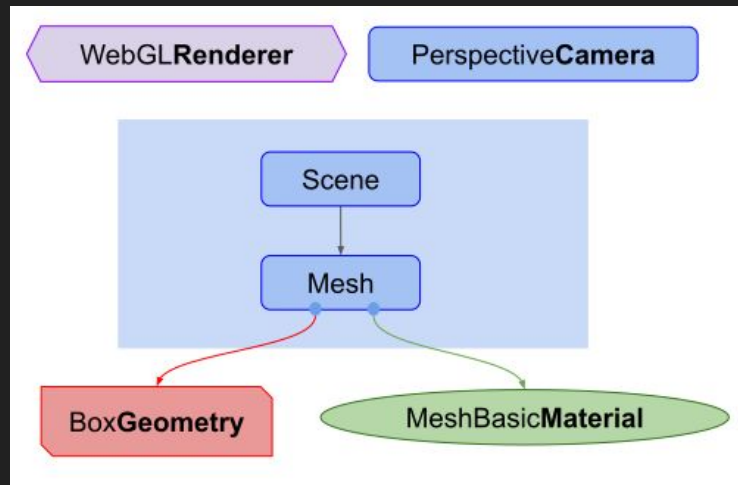
- Fast enough to provide real-time updates
- Versatile enough to provide flexibility
- Lightweight enough to run in a browser

ThreeJS



Prototyping

- Scene
- Camera
- Lights
- Geometry
(Fundamental shapes in ThreeJS)
- Materials
(The surface of objects, with controllable attributes)
- Textures
(Adding more realism and depth)
- Meshes
(Combining the primitives to render things)
- Objects
(Bringing 3d models into the scene)



Prototyping

1. Create a geometry object (eg. BoxGeometry)
2. Create a material object (eg. MeshStandardMaterial)
3. Create a mesh object, and apply the geometry and material
4. Add the mesh to the scene

The end result

The image shows a screenshot of a web-based office layout configurator. The main window displays a 3D rendering of a glass-walled office cubicle. Inside the cubicle, there is a desk with a computer monitor and a chair. A sign on the wall inside the cubicle reads "BIFF BANG POW". The interface is dark-themed with teal accents.

BIFF BANG POW

Layout

- Inline (no door)
- Inline office
- Corner office**
- Two office enclosed
- Two office corner
- Two office three sided
- Three office enclosed
- Three office corner
- Three office three sided

Dimensions

- Height (mm): 2650
- Width (mm): 3000
- Depth (mm): 3000

Undo Redo Save

Finance from £59.36 per month

£2,553.17 Ex. VAT

Your reference

Add to enquiry →

Project-specific challenges

Rendering glass behind glass (no ray tracing)

Flying camera / dynamic positioning

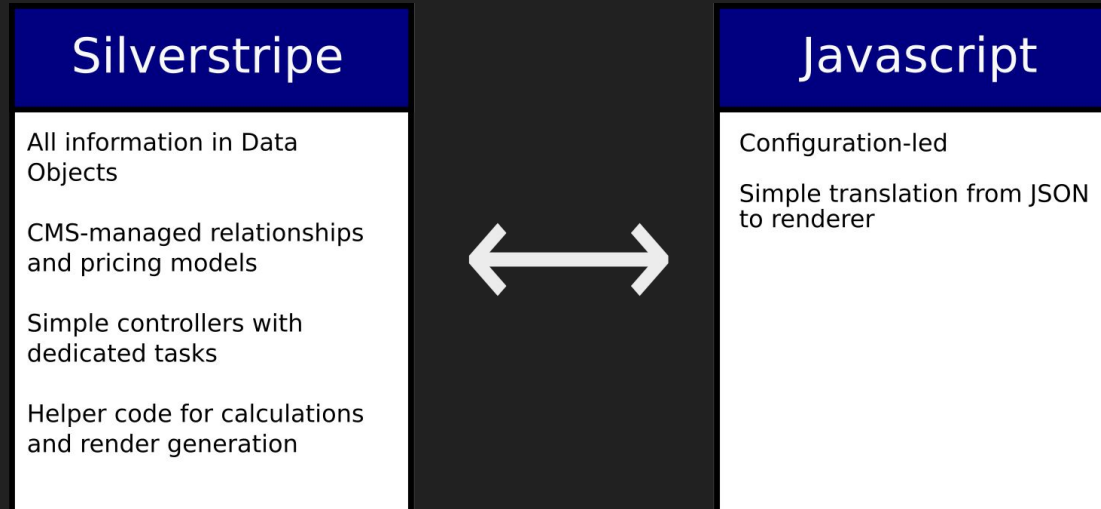
Huge variety of configurations and options

Scaling the space without affecting the build



Top-level architecture

- Lightweight client
- As little hard-coding as possible
- Complex work done in the back-end



API

JSON-based messaging

Simple, extensible configuration
syntax

Rendering functions broken down
to smallest viable components

```
{
  "data": {
    "camera": { },
    "scene": {
      "floor": { },
      "lights": [ ],
      "walls": [ ],
      "ceiling": { }
    },
    "office": {
      "globals": {
        "glass": [ ],
        "frameworkcolour": "#0e0e10",
        "ironmongerycolour": "bronze",
        "ambientlight": { }
      },
      "glass": [ ],
      "doors": [ ],
      "objects": [ ],
      "manifestations": { },
      "topRails": [ ],
      "bottomRails": [ ],
      "abutments": [ ],
      "verticalRails": [ ]
    }
  },
  "version": 1726587384
}
```

API

Describe everything separately

Avoid close-coupling of the configurator logic and the renderer

```
{
  "data": {
    "camera": {
      "position": {
        "x": 0,
        "y": 2,
        "z": 6
      },
      "centre": {
        "x": 10.5,
        "z": -12,
        "y": 1
      },
      "limits": {
        "minpolarangle": 0.6283185307179586,
        "maxpolarangle": 1.5707963267948966,
        "minazimuthangle": 5.183627878423159,
        "maxazimuthangle": 0
      },
      "updatecamera": true,
      "zoom": {
        "enabled": true,
        "minzoom": 5,
        "maxzoom": 17,
        "initialzoom": 12
      }
    },
    "scene": {
      "office": {
    "version": 1726587384
```

API

Describe everything separately

Avoid close-coupling of the configurator logic and the renderer

```
{
  "data": {
    "camera": {
      "scene": {
        "floor": {
          "size": {
            "width": 27,
            "height": 0.001,
            "depth": 27
          },
          "position": {
            "x": 0,
            "y": 0,
            "z": 0
          },
          "style": "clean"
        },
        "lights": [
          {
            "walls": [
              {
                "size": {
                  "width": 27,
                  "height": 8,
                  "depth": 0.1
                },
                "position": {
                  "x": 0,
                  "y": 4,
                  "z": -13.55
                },
                "style": "clean"
              }
            ]
          }
        ]
      }
    }
  }
}
```

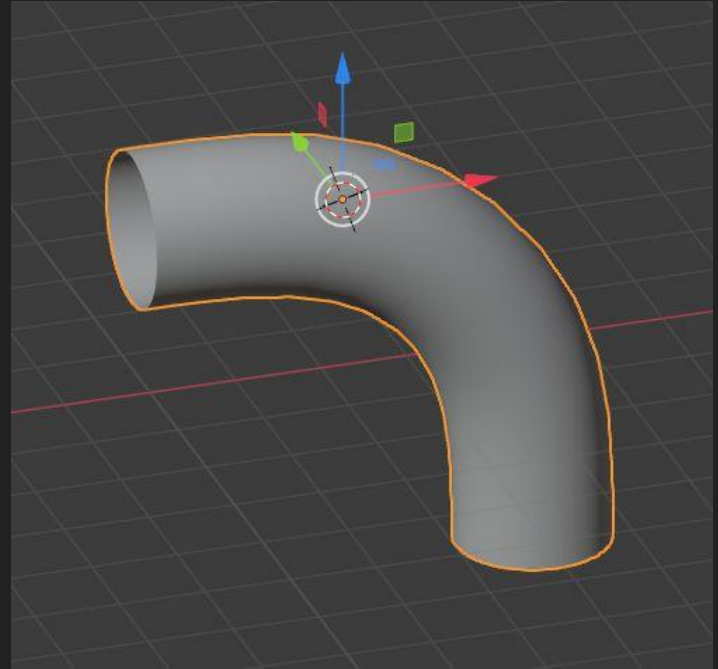
Doors



```
glass : [ 0 ],
"doors": [ [
  {
    "leaf": {
      "type": "frameless",
      "position": {
        "x": 9,
        "y": 1.3249849999999999,
        "z": -10.5
      },
      "size": {
        "width": 1,
        "height": 2.6499699999999997,
        "depth": 0.04
      }
    },
    "handle": {
      "type": "LeverHandleGlass",
      "position": {
        "x": 9.5,
        "y": 1,
        "z": -10.5
      }
    },
    "hardware": [ [
      {
        "type": "LeverHandleGlassStrikerBox",
        "position": {
          "x": 9.5,
          "y": 1,
          "z": -10.5
        }
      }
    ],
    {
      "type": "BottomPivot",
      "position": {
        "x": 8.5,
        "y": 0,
        "z": -10.5
      }
    }
  ]
],
{
```

Doors

```
"handle":{  
  "type":"LeverHandleGlass",  
  "position":{  
    "x":9.5,  
    "y":1,  
    "z":-10.5  
  }  
},  
"hardware":[  
  {  
    "type":"LeverHandleGlassStrikerBox",  
    "position":{  
      "x":9.5,  
      "y":1,  
      "z":-10.5  
    }  
  }  
],
```



Optimisation and testing

Problems with earlier IOS devices

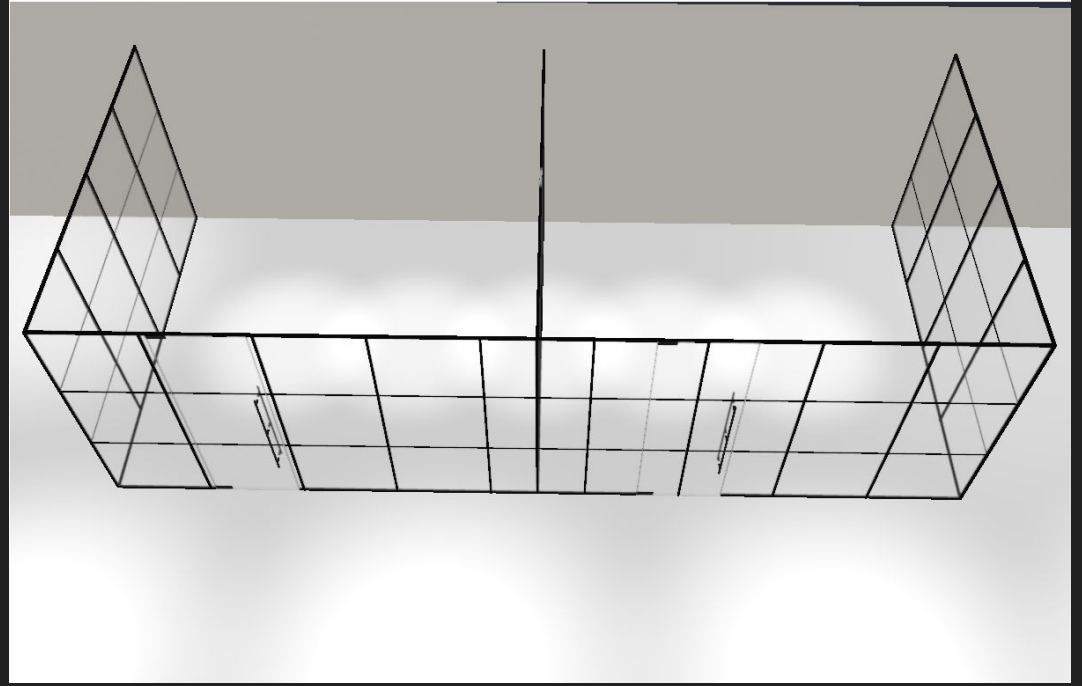
Balancing rendering speed with image quality

Only render when something changes

```
{
  "data": {
    "camera": {
    },
    "scene": {
      "floor": {
      },
      "lights": [
      ],
      "walls": [
      ],
      "ceiling": {
      }
    },
    "office": {
      "globals": {
        "glass": [
        ],
        "frameworkcolour": "#0e0e10",
        "ironmongerycolour": "bronze",
        "ambientlight": {
        }
      },
      "glass": [
      ],
      "doors": [
      ],
      "objects": [
      ],
      "manifestations": {
      },
      "topRails": [
      ],
      "bottomRails": [
      ],
      "abutments": [
      ],
      "verticalRails": [
      ]
    }
  },
  "version": 1726587384
}
```


Optimisation and testing

Performance issues with
over-complex lighting



Optimisation and testing

Screen-grabbing for enquiry system

**BIFF™
BANG
POW**

Your project

Reference: Small corner ✎ 🗑️ **£2,743.82**

- Layout: Corner office
- Dimensions: 3000 (w) x 3000 (d) x 2650 (h)
- Glass style: SOLAR Frameless Glass - 2no. rows 50mm Frosted Dots
- Essence range, Acoustic performance: 33dB
- Framework: Black
- Door style: All Glass Door (Frameless)
- Handles: 1000mm D Pull Handle, Satin Black
- Installation: Normal Working Hours (7.30am - 4.30pm)

Reference: Sales offices ✎ 🗑️ **£18,534.60**

- Layout: Two office three sided
- Dimensions: 7500 (w) x 3000 (d) x 2700 (h)
- Glass style: SOLAR Frameless Glass - 1no. Reeded Band 800mm high
- Premium range, Acoustic performance: 45dB
- Framework: Anthracite Grey
- Door style: Framed Single Glazed Door in Aluminium Doorframe
- Handles: Lever Handle Framed Glass Door including Lock, Satin Black
- Installation: Normal Working Hours (7.30am - 4.30pm)

Subtotal: **£21,278.41 Ex. VAT**

[Save for later](#) → [Add another](#) → [Continue](#) →

An industry-leading solution

Let's have a look...

Thank you!

ThreeJS: <https://threejs.org>

Silverstripe CMS: <https://silverstripe.org>

Biff Bang Pow Ltd: <https://biffbangpow.com>

