* 1. General Information

|  |  |  |  |
| --- | --- | --- | --- |
| **Design Code** | **Unit System** |  |  |
| IS456:2000 | N, mm | 25.00MPa | 415MPa |

* 1. Design Forces
     1. Column 1
        + Service Load

|  |  |
| --- | --- |
|  | 10.000kN |

* + - * Factored Load

|  |  |
| --- | --- |
|  | 100.00kN |

* + 1. Column 2
       - Service Load

|  |  |
| --- | --- |
|  | 20.00kN |

* + - * Factored Load

|  |  |
| --- | --- |
|  | 150kN |

* + 1. Surcharge Load & Self Weight

|  |  |  |  |
| --- | --- | --- | --- |
| **Self Weight** | **Surface Load** | **Weight Density** | **Soil Height** |
| Considered | 1.000kN/m² | 18.00kN/m³ | 0.500m |

* 1. Foundation

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Depth** | **Cover** |  |  |  |
| 300mm | 100mm | 4.548m | 1.000m | 200KPa |

* 1. Column (mm)

|  |  |  |  |
| --- | --- | --- | --- |
| **No** | **Shape** | **Section** |  |
| 1 | Rectangle | 305x305mm | 1.000m |
| 2 | Rectangle | 305x305mm | 3.048m |



* 1. Rebar

|  |  |  |  |
| --- | --- | --- | --- |
| **Position** | **Top/Bottom** | **Direction X** | **Direction Y** |
| Cantilever(L) | Bottom | P8@457 | - |
| Column (1) | Bottom | P8@457 | P8@457 |
| Span (1-2) | Top | P8@457 | - |
| Column (2) | Bottom | P8@457 | P8@457 |
| Cantilever(R) | Bottom | P8@457 | - |
|  |  |  |  |

* 1. Check Capacity

One-way shear

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Column** | **Pos.** | **(mm)** | **(kN)** | **(kN)** | **Ratio** |
| 1 | Max | 1,918 | 580 | 87.37 | 0.201 |

Two-way shear

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Column** | **Pos.** | **(mm)** | **(kN)** | **(kN)** | **Ratio** |
| 1 | Interior | 1,918 | 580 | 87.37 | 0.201 |
| 2 | Interior | 1,918 | 580 | 137 | 0.316 |

Moment capacity (Direction X)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Position** | **Top/Bottom** |  |  | **Ratio** | **Mark** |
| Cantilever(L) | Bottom | 7.089 | 73.66 | 0.0962 | O.K |
| Column (1) | Bottom | 7.089 | 73.66 | 0.0962 | O.K |
| Span (1-2) | Top | -58.05 | 73.66 | 0.788 | O.K |
| Column (2) | Bottom | 5.628 | 73.66 | 0.0764 | O.K |
| Cantilever(R) | Bottom | 5.628 | 73.66 | 0.0764 | O.K |

Moment capacity (Direction Y)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Position** | **Top/Bottom** |  |  | **Ratio** | **Mark** |
| Column (1) | Bottom | 6.041 | 63.11 | 0.205 | O.K |
| Column (2) | Bottom | 9.062 | 63.11 | 0.308 | O.K |

Maximum Capacity

|  |  |  |  |
| --- | --- | --- | --- |
| **Check Items** | **Calculated** | **Criteria** | **Ratio** |
| **Soil Capacity (KPa)** | 29.96 | 200 | OK(0.150) |
| **(KPa)** | 95.20 | - | - |
| **(KPa)** | 14.74 | - | - |
| **One Way Shear-X (kN)** | 77.12 | 125 | OK(0.615) |
| **Two Way Shear (kN)** | 137 | 580 | OK(0.316) |
| **Moment-X Direction(kN·m)** | -58.05 | 73.66 | OK(0.788) |
| **Moment-Y Direction(kN·m)** | 9.062 | 63.11 | OK(0.308) |