* MEMBER NAME : S01
  1. General Information
     1. Design Code : ACI318M-14
     2. Unit System : N, mm
  2. Material
     1. : 24.00MPa
     2. : 400MPa
  3. Design Load
     1. Dead Load : 3.000kN/m²
     2. Live Load : 3.000kN/m²
  4. Section Size
     1. Span : 4.000m
     2. Thickness : 199mm
     3. Cover : 20.00mm



* 1. Slab Type & Support
     1. Slab Type : 1-Way Slab
     2. Support Type : Case-1
  2. Check Load
     1. Calculate factored load
        + LCB01 = 4.200kN/m² ( 1.4D )
        + LCB02 = 8.400kN/m² ( 1.2D+1.6L )
        + 8.400kN/m²
  3. Check Thickness of Slab
     1. Calculate minimum thickness required
        + 200mm
  4. Check Capacity of Slab
     1. Calculate Moment & Shear

|  |  |  |  |
| --- | --- | --- | --- |
| **Check Items** | **TOP** | **MIDDLE** | **BOTTOM** |
| Bar-1 | #3@500 | - | #3@500 |
| Bar-2 | #3@500 | #3@300 | #3@500 |
| Bar-3 | #3@500 | #3@400 | #3@500 |
| Moment Coefficient | 0.0417 | 0.125 | 0.0417 |
| Shear Coefficient | 0.500 | 0.000 | 0.500 |
|  | 5.600 | 16.80 | 5.600 |
|  | 16.80 | 0.000 | 16.80 |
|  | 17.52 | 25.36 | 17.52 |
|  | 109 | 109 | 109 |
|  | OK(0.320) | OK(0.662) | OK(0.320) |
|  | OK(0.154) | OK(0.000) | OK(0.154) |
|  | 315 | 315 | 315 |
|  | OK(0.794) | OK(0.556) | OK(0.794) |

* 1. Check Deflection of One-Way Slab
     1. Criteria for deflection
        + For short-term deflection : Span/180
        + For long-term deflection : Span/480
     2. Time-dependent factor
        + Duration for sustained load : 18 Months
        + Time-dependent factor for sustained load ( ξ ) = 1.600
        + 1.600
     3. Calculate crack moment of section
     4. Calculate positive moment
     5. Calculate inertia of moment for positive section
     6. Calculate effective inertia of moment
     7. Calculate deflection

Instantaneous deflection = 0.661mm ( Span/6,048 < Span/180 → O.K )

Long-term deflection = 2.249mm ( Span/1,779 < Span/480 → O.K )