**DAFTAR ISI**

Halaman Judul

Lembar Pengesaan

Surat Keputusan Dosen Pembimbing

Lembar Asistensi

Bukti Selesai Tugas Akhir

Kata Pengantar ..............................................................................................................i Abstrak ........................................................................................................................ii Daftar Isi .....................................................................................................................iii Daftar Gambar ............................................................................................................vi Daftar Tabel ..............................................................................................................viii Daftar Lampiran .........................................................................................................ix BAB I PENDAHULUAN

1.1 Latar Belakang .....................................................................................1

1.2 Maksud dan Tujuan ..............................................................................2

1.3 Pembatasan Masalah ............................................................................2

1.4 Metode Penelitian ................................................................................2

1.5 Sistematika Penulisan ..........................................................................3

BAB II DASAR TEORI

2.1 Pengertian Beton ..................................................................................4

2.2 Material Penyusun Beton .....................................................................4

2.3 Sifat Beton ...........................................................................................5

2.4 Kelebihan Beton ...................................................................................6

2.5 Kekuatan Beton ....................................................................................6

2.6 Tinjauan Umum ...................................................................................7

2.7 Pembebanan pada Struktur ..................................................................8

2.8 Elemen-emelen Struktur ....................................................................12

2.8.1 Struktur Kolom ......................................................................12

2.8.2 Struktur Balok ........................................................................14

2.8.3 Pelat Lantai ............................................................................18

2.8.3.1 Penulangan Pelat Satu Arah ....................................21

2.8.3.2 Penulangan Pelat Dua Arah ....................................22

2.8.3.3 Pelat dengan Satu Tumpuan ....................................22

2.8.3.4 Pelat dengan Dua Tumpuan Sejajar .......................23

2.8.3.5 Pelat dengan Empat Tumpuan Sejajar ....................24

2.8.3.6 rasio tulangan maksimal dan minimal ....................26

2.8.3.7 faktor momen pikul maksimal ……... ....................27

2.9 Pembebanan .......................................................................................29

2.10 Momen Inersia ...................................................................................30

2.11 Metode Cross .....................................................................................32

2.11.1 Momen Primer ....................................................................33

2.11.2 Angka Kekakuan Dan Induksi ............................................33

2.11.3 Faktor Distribusi Momen ....................................................34

2.11.4 Momen Ujung Jepit .............................................................35

2.11.5 Perataan Momen .................................................................36

2.11.6 Reaksi Perletakan ................................................................37

2.11.7 Gaya-gaya Dalam ................................................................39

BAB III PEMBAHASAN

3.1 Nama Bangunan .................................................................................42

3.2 Konsep Desain ...................................................................................42

3.3 Data-data Perencanaan .......................................................................42

3.3.1 Perencanaan Struktur Atas .....................................................42

3.3.2 Prelimenary Design ................................................................43

3.3.2.1 Prelimenary Design Kolom ....................................43

3.3.2.2 Prelimenary Design Balok .....................................43

3.3.2.3 Prelimenary Design Pelat Lantai ...........................44

3.3.3 Data Teknis Perencanaan .......................................................45

3.4 Perhitungan Portal dengan Metode CROSS ......................................46

3.4.1 Perhitungan Portal Pot 1-1 .....................................................46

3.4.1.1 Pembebanan pada Balok ........................................46

3.4.1.2 Analisa Beban.........................................................48

3.4.1.3 Menghitung Beban Terpusat (p) ............................48

3.4.1.4 Momen Lebam/Inersia (i) ......................................48

3.4.1.5 Angka Kekuatan Batang (k) ...................................49

3.4.1.6 Koefisien Distribusi (µ) .........................................49

3.4.1.7 Menghitung Momen Jepitan........ ..........................50

3.4.1.8 Distribusi Momen Cross .......................................51

3.4.1.9 Penggambaran Free Body .....................................51

3.4.1.10 Menghitung Reaksi Perletakan .............................52

3.4.1.11 Menghitung Gaya-gaya Dalam ............................55

3.5 Perencanaan Balok Dan Kolom.........................................................60

3.5.1 Perhitungan Tulangan ................................................60

3.5.2 Perhitungan Tulangan Geser ......................................65

3.6 Perencanaan Pelat Lantai ...................................................................69

BAB IV PENUTUP

4.1 Kesimpulan ........................................................................................75

4.2 Saran ..................................................................................................75