

## DAFTAR ISI

<b>KATA PENGANTAR</b> .....	Error! Bookmark not defined.
<b>DAFTAR ISI</b> .....	<b>i</b>
<b>DAFTAR GAMBAR</b> .....	<b>iv</b>
<b>DAFTAR TABEL</b> .....	<b>vi</b>
<b>BAB I</b> .....	Error! Bookmark not defined.
<b>PENDAHULUAN</b> .....	Error! Bookmark not defined.
1. 1 Latar Belakang.....	<b>Error! Bookmark not defined.</b>
1. 2 Tujuan Penelitian .....	<b>Error! Bookmark not defined.</b>
1. 3 Batasan Penelitian.....	<b>Error! Bookmark not defined.</b>
1. 4 Sistematika Penulisan .....	<b>Error! Bookmark not defined.</b>
<b>BAB II</b> .....	Error! Bookmark not defined.
<b>TINJAUAN PUSTAKA</b> .....	Error! Bookmark not defined.
2.1 Tinjauan Umum.....	<b>Error! Bookmark not defined.</b>
2.2 Jenis –Jenis Semen .....	<b>Error! Bookmark not defined.</b>
2.3 Sifat – Sifat Semen .....	<b>Error! Bookmark not defined.</b>
2.3.1 <i>Sifat Fisika</i> .....	<b>Error! Bookmark not defined.</b>
2.3.2 <i>Sifat Kimia</i> .....	<b>Error! Bookmark not defined.</b>
2.4 Semen PCC (Portland Composite Cement) .....	<b>Error! Bookmark not defined.</b>
	<b>not defined.</b>
2.5 Kekuatan Tekan Beton .....	<b>Error! Bookmark not defined.</b>
<b>BAB III</b> .....	Error! Bookmark not defined.
<b>METODOLOGI</b> .....	Error! Bookmark not defined.
3.1. Umum .....	<b>Error! Bookmark not defined.</b>
3.2. Tahapan Penelitian .....	<b>Error! Bookmark not defined.</b>

3.2.1. <i>Persiapan Literatur</i> .....	<b>Error! Bookmark not defined.</b>
3.2.2. <i>Pengujian Material</i> .....	<b>Error! Bookmark not defined.</b>
3.2.3. <i>Benda Uji</i> .....	<b>Error! Bookmark not defined.</b>
3.2.4. <i>Pengujian</i> .....	<b>Error! Bookmark not defined.</b>
3.2.5. <i>Hasil dan Pembahasan</i> .....	<b>Error! Bookmark not defined.</b>
3.2.6. <i>Kesimpulan dan Saran</i> .....	<b>Error! Bookmark not defined.</b>
<b>BAB IV</b> .....	<b>Error! Bookmark not defined.</b>
<b>PROSEDUR DAN HASIL KERJA</b> .....	<b>Error! Bookmark not defined.</b>
4.1. <i>Pengujian Material Beton</i> .....	<b>Error! Bookmark not defined.</b>
4.1.1. <i>Agregat</i> .....	<b>Error! Bookmark not defined.</b>
4.1.2. <i>Semen</i> .....	<b>Error! Bookmark not defined.</b>
4.1.3. <i>Air</i> .....	<b>Error! Bookmark not defined.</b>
4.2. <i>Perencanaan Campuran Beton</i> ....	<b>Error! Bookmark not defined.</b>
4.2.1. <i>Tujuan Percobaan</i> .....	<b>Error! Bookmark not defined.</b>
4.2.2. <i>Komposisi Beton</i> .....	<b>Error! Bookmark not defined.</b>
4.3. <i>Pelaksanaan Campuran Beton</i> ....	<b>Error! Bookmark not defined.</b>
4.4. <i>Percobaan Slump beton</i> .....	<b>Error! Bookmark not defined.</b>
4.4.1. <i>Tujuan Percobaan</i> .....	<b>Error! Bookmark not defined.</b>
4.4.2. <i>Peralatan</i> .....	<b>Error! Bookmark not defined.</b>
4.4.3. <i>Prosedur Kerja</i> .....	<b>Error! Bookmark not defined.</b>
4.4.4. <i>Hasil Percobaan</i> .....	<b>Error! Bookmark not defined.</b>
4.5. <i>Pembuatan dan Persiapan Benda Uji</i> .....	<b>Error! Bookmark not defined.</b>
	<b>defined.</b>
4.5.1. <i>Tujuan Percobaan</i> .....	<b>Error! Bookmark not defined.</b>
4.5.2. <i>Peralatan</i> .....	<b>Error! Bookmark not defined.</b>
4.5.3. <i>Prosedur Kerja</i> .....	<b>Error! Bookmark not defined.</b>

- 4.6. Perawatan Beton (curing) ..... **Error! Bookmark not defined.**
- 4.7. Proses Capping ..... **Error! Bookmark not defined.**
  - 4.7.1. *Tujuan Percobaan* ..... **Error! Bookmark not defined.**
  - 4.7.2. *Peralatan dan Bahan* ..... **Error! Bookmark not defined.**
  - 4.7.3. *Prosedur Kerja* ..... **Error! Bookmark not defined.**
- 4.8. Pemeriksaan Kekuatan Tekan Beton ..... **Error! Bookmark not defined.**
  - 4.8.1. *Tujuan Percobaan* ..... **Error! Bookmark not defined.**
  - 4.8.2. *Peralatan* ..... **Error! Bookmark not defined.**
  - 4.8.3. *Prosedur Kerja* ..... **Error! Bookmark not defined.**
  - 4.8.4. *Perhitungan* ..... **Error! Bookmark not defined.**
- BAB V** ..... **Error! Bookmark not defined.**
- ANALISIS DAN PEMBAHASAN** ..... **Error! Bookmark not defined.**
  - 5.1. Analisis dan Pembuatan Sampel. **Error! Bookmark not defined.**
  - 5.2. Analisis Pengujian Kuat Tekan .. **Error! Bookmark not defined.**
    - 5.2.1. *Hasil pengujian beton rencana  $f_c' 25$*  ..... **Error! Bookmark not defined.**
    - 5.2.2. *Hasil pengujian beton rencana  $f_c' 30$*  ..... **Error! Bookmark not defined.**
    - 5.2.3. *Hasil pengujian beton rencana  $f_c' 35$*  ..... **Error! Bookmark not defined.**
    - 5.2.4. *Hasil pengujian beton rencana  $f_c' 40$*  ..... **Error! Bookmark not defined.**
    - 5.2.5. *Hasil pengujian beton rencana  $f_c' 50$*  ..... **Error! Bookmark not defined.**
  - 5.3. Analisis Persamaan Kuat Tekan Beton PCC dan OPC ..... **Error! Bookmark not defined.**

5.3.1. *Persamaan Empiris Kuat Tekan Beton Terhadap Umur ....* **Error!**  
**Bookmark not defined.**

5.3.2. *Perbandingan Persamaan Empiris, ACI, dan CEB – FIP..* **Error!**  
**Bookmark not defined.**

**BAB VI.....** Error! Bookmark not defined.

**PENUTUP .....** Error! Bookmark not defined.

6.1. Kesimpulan..... **Error! Bookmark not defined.**

6.2. Saran..... **Error! Bookmark not defined.**

**DAFTAR KEPUSTAKAAN .....** Error! Bookmark not defined.

**LAMPIRAN .....** Error! Bookmark not defined.

## **DAFTAR GAMBAR**

**Gambar 3.1 Diagram Alir Penelitian .....** Error! Bookmark not defined.

**Gambar 4.1 Bahan dan Peralatan Pengujian Berat Volume Agregat .** Error! Bookmark not defined.

**Gambar 4.2 Pengujian Berat Volume Agregat dengan Cara Berat Isi Lepas.....** Error! Bookmark not defined.

**Gambar 4.3 Pengujian Berat Volume Agregat dengan Cara Penusukan.....** Error! Bookmark not defined.

**Gambar 4.4 *sieve shaker* .....** Error! Bookmark not defined.

**Gambar 4.5 Pemeriksaan Zat Organik pada Agregat Halus .....** Error! Bookmark not defined.

**Gambar 4.6 Agregat Kasar Dalam Kondisi Kering Permukaan (SSD)** Error! Bookmark not defined.

**Gambar 4.7 Agregat Kasar Dalam Kondisi Jenuh.....** Error! Bookmark not defined.

**Gambar 4.8 Agregat Halus Dalam Jenuh .....** Error! Bookmark not defined.

**Gambar 4.9 Agregat Halus Dalam Kondisi Kering Permukaan (SSD)** Error! Bookmark not defined.

**Gambar 4.10 Agregat Halus Dalam Kondisi Kering.....** Error! Bookmark not defined.

**Gambar 4.11 *Ordinary Portland Cement (OPC) / Semen Tipe I* .....** Error! Bookmark not defined.

<b>Gambar 4.12 Portland Composite Cement (PPC) .....</b>	Error! Bookmark not defined.
<b>Gambar 4.13 Cetakan untuk menguji <i>slump</i> beton.....</b>	Error! Bookmark not defined.
<b>Gambar 4.14 Alat – alat pengukur <i>slump</i> beton.....</b>	Error! Bookmark not defined.
<b>Gambar 4.15 Pengukuran <i>slump</i> beton .....</b>	Error! Bookmark not defined.
<b>Gambar 4.16 Cetakan silinder (Bekisting) benda uji .....</b>	Error! Bookmark not defined.
<b>Gambar 4.17 Proses pencetakan benda uji .....</b>	Error! Bookmark not defined.
<b>Gambar 4.18 Benda uji yang telah dicetak .....</b>	Error! Bookmark not defined.
<b>Gambar 4.19 Proses <i>curing</i> beton dengan cara perendaman .....</b>	Error! Bookmark not defined.
<b>Gambar 4.20 <i>Capping set</i>.....</b>	Error! Bookmark not defined.
<b>Gambar 4.21 Alat pemanas belerang .....</b>	Error! Bookmark not defined.
<b>Gambar 4.22 Benda uji yang telah diberi <i>Capping</i>.....</b>	Error! Bookmark not defined.
<b>Gambar 4.23 <i>Compressive Strenght Test Machine</i> .....</b>	Error! Bookmark not defined.
<b>Gambar 5.1 Grafik Kuat Tekan Beton OPC dan PCC fc' 25.....</b>	Error! Bookmark not defined.
<b>Gambar 5.2 Grafik Kuat Tekan Beton OPC dan PCC fc' 30.....</b>	Error! Bookmark not defined.
<b>Gambar 5.3 Grafik Kuat Tekan Beton OPC dan PCC fc' 35.....</b>	Error! Bookmark not defined.
<b>Gambar 5.4 Grafik Kuat Tekan Beton OPC dan PCC fc' 40.....</b>	Error! Bookmark not defined.
<b>Gambar 5.5 Grafik Kuat Tekan Beton OPC dan PCC fc' 50.....</b>	Error! Bookmark not defined.
<b>Gambar 5.6 Persentase Rata – Rata Perbedaan Kuat Tekan Beton OPC dan PCC .....</b>	Error! Bookmark not defined.
<b>Gambar 5.8 Perbandingan Persamaan Empiris dan Data Eksperimental (Beton OPC fc' 25) .....</b>	Error! Bookmark not defined.
<b>Gambar 5.9 Perbandingan Persamaan Empiris dan Data Eksperimental (Beton OPC fc' 30) .....</b>	Error! Bookmark not defined.
<b>Gambar 5.10 Perbandingan Persamaan Empiris dan Data Eksperimental (Beton OPC fc' 35).....</b>	Error! Bookmark not defined.
<b>Gambar 5.11 Perbandingan Persamaan Empiris dan Data Eksperimental (Beton OPC fc' 40).....</b>	Error! Bookmark not defined.

**Gambar 5.12 Perbandingan Persamaan Empiris dan Data Eksperimental (Beton OPC fc' 50)**..... Error! Bookmark not defined.

**Gambar 5.13 Perbandingan Persamaan Empiris dan Data Eksperimental (Beton PCC fc' 25)**..... Error! Bookmark not defined.

**Gambar 5.14 Perbandingan Persamaan Empiris dan Data Eksperimental (Beton PCC fc' 30)**..... Error! Bookmark not defined.

**Gambar 5.15 Perbandingan Persamaan Empiris dan Data Eksperimental (Beton PCC fc' 35)**..... Error! Bookmark not defined.

**Gambar 5.16 Perbandingan Persamaan Empiris dan Data Eksperimental (Beton PCC fc' 40)**..... Error! Bookmark not defined.

**Gambar 5.17 Perbandingan Persamaan Empiris dan Data Eksperimental (Beton PCC fc' 50)**..... Error! Bookmark not defined.

**Gambar 5.18 Perbandingan Persamaan Empiris, ACI, dan CEB – FIP (Beton fc' 25)**..... Error! Bookmark not defined.

**Gambar 5.19 Perbandingan Persamaan Empiris, ACI, dan CEB – FIP (Beton fc' 30)**..... Error! Bookmark not defined.

**Gambar 5.20 Perbandingan Persamaan Empiris, ACI, dan CEB – FIP (Beton fc' 35)**..... Error! Bookmark not defined.

**Gambar 5.21 Perbandingan Persamaan Empiris, ACI, dan CEB – FIP (Beton fc' 40)**..... Error! Bookmark not defined.

**Gambar 5.22 Perbandingan Persamaan Empiris, ACI, dan CEB – FIP (Beton fc' 50)**..... Error! Bookmark not defined.

## DAFTAR TABEL

**Tabel 2.1 Jenis-jenis Semen dan Komposisi Kimianya ....** Error! Bookmark not defined.

**Tabel 4.1 Hasil Pemeriksaan Berat Volume Agregat Kasar 5-10 mm** Error! Bookmark not defined.

**Tabel 4.2 Hasil Pemeriksaan Berat Volume Agregat Kasar 10-20 mm .....** Error! Bookmark not defined.

**Tabel 4.3 Hasil Pemeriksaan Berat Volume Agregat halus .....** Error! Bookmark not defined.

**Tabel 4.4 Ukuran saringan untuk analisa saringan Agregat Kasar....** Error! Bookmark not defined.

**Tabel 4.5 Ukuran saringan untuk analisa saringan Agregat halus** Error! Bookmark not defined.

**Tabel 4.6 Berat Sampel Berdasarkan Ukuran Agregat ...** Error! Bookmark not defined.

**Tabel 4.7 Berat Sampel Minimum.....** Error! Bookmark not defined.

**Tabel 4.8 Hasil Analisa Saringan Agregat Kasar 10/20 ...** Error! Bookmark not defined.

**Tabel 4.9 Hasil Analisa Saringan Agregat Kasar 5/10 .....** Error! Bookmark not defined.

**Tabel 4.10 Hasil Analisa Saringan Agregat Halus.....** Error! Bookmark not defined.

**Tabel 4.8 Hasil Perhitungan Kadar Lumpur Agregat 5/10 .....** Error! Bookmark not defined.

**Tabel 4.9 Hasil Perhitungan Kadar Lumpur Agregat 10/20 .....** Error! Bookmark not defined.

**Tabel 4.10 Hasil Perhitungan Kadar Lumpur Agregat Halus .....** Error! Bookmark not defined.

**Tabel 4.11 Hasil Perhitungan Absorpsi Agregat 10/20 ....** Error! Bookmark not defined.

**Tabel 4.12 Hasil Perhitungan Absorpsi Agregat 5/10 .....** Error! Bookmark not defined.

**Tabel 4.13 Hasil Perhitungan Absorpsi Agregat Halus ...** Error! Bookmark not defined.

**Tabel 4.14 Hasil Pengujian Semen Portland Komposit Produksi PT Semen Padang ...**  
Error! Bookmark not defined.

**Tabel 4.15 Hasil Pengujian Semen Jenis I Produksi PT Semen Padang.....** Error!  
Bookmark not defined.

**Tabel 4.16 Nilai Slump Beton PCC.....** Error! Bookmark not defined.

**Tabel 4.17 Nilai Slump Beton OPC .....** Error! Bookmark not defined.

**Tabel 5.1 Nilai Kuat Tekan Beton OPC dan PCC  $f_c'$  25 .** Error! Bookmark not defined.

**Tabel 5.2 Nilai Kuat Tekan Beton OPC dan PCC  $f_c'$  30 .** Error! Bookmark not defined.

**Tabel 5.3 Nilai Kuat Tekan Beton OPC dan PCC  $f_c'$  35 .** Error! Bookmark not defined.

**Tabel 5.4 Nilai Kuat Tekan Beton OPC dan PCC  $f_c'$  40 .** Error! Bookmark not defined.

**Tabel 5.5 Nilai Kuat Tekan Beton OPC dan PCC  $f_c'$  50 .** Error! Bookmark not defined.

**Tabel 5.6 Perbandingan Pencapaian Kuat Tekan Beton OPC dan PCC.....** Error!  
Bookmark not defined.





