

# DAFTAR ISI

LEMBAR PENGESAHAN.....	Error! Bookmark not defined.
CATATAN DOSEN PEMBIMBING .....	Error! Bookmark not defined.
PERNYATAAN KEASLIAN KARYA .....	Error! Bookmark not defined.
KATA PENGANTAR DAN UCAPAN TERIMAKASIH .....	Error! Bookmark not defined.
ABSTRAK.....	Error! Bookmark not defined.
DAFTAR ISI .....	1
DAFTAR GAMBAR .....	4
DAFTAR TABEL .....	8
<b>BAB 1 PENDAHULUAN.....</b>	<b>Error! Bookmark not defined.</b>
1.1. Latar Belakang.....	<i>Error! Bookmark not defined.</i>
1.1.1. Kepadatan penduduk Duri .....	<b>Error! Bookmark not defined.</b>
1.1.2. Perkembangan Kota Duri Dalam Sektor Olahraga .....	<b>Error! Bookmark not defined.</b>
1.1.3. Kondisi Sarana Dan Prasarana Olahraga Kota Duri .....	<b>Error! Bookmark not defined.</b>
1.1.4. Strategi Hemat Energi Pengkondisian Ruang AC.....	<b>Error! Bookmark not defined.</b>
1.2. Rumusan Masalah .....	<i>Error! Bookmark not defined.</i>
1.2.1. Masalah Umum .....	<b>Error! Bookmark not defined.</b>
1.2.2. Masalah Umum .....	<b>Error! Bookmark not defined.</b>
1.3. Tujuan .....	<i>Error! Bookmark not defined.</i>
1.4. Sasaran .....	<i>Error! Bookmark not defined.</i>
1.5. Metode Pemecahan Persoalan Perancangan .....	<i>Error! Bookmark not defined.</i>
1.5.1. Metode Pengumpulan Data Dan Analisis.....	<b>Error! Bookmark not defined.</b>
1.5.2. Metode Penelusuran Masalah .....	<b>Error! Bookmark not defined.</b>
1.5.3. Metode Design .....	<b>Error! Bookmark not defined.</b>
1.5.4. Metode Pengujian Design .....	<b>Error! Bookmark not defined.</b>
1.6. Prediksi Pemecahan Persoalan Perancangan .....	<i>Error! Bookmark not defined.</i>
1.7. Kerangka Berfikir .....	<i>Error! Bookmark not defined.</i>
<b>BAB 2 PENELUSURAN MASALAH .....</b>	<b>Error! Bookmark not defined.</b>
2.1. Narasi Konteks Lokasi, Site, dan Arsitektur.....	<i>Error! Bookmark not defined.</i>
2.1.1. Narasi Konteks Lokasi, Site, Dan arsitektur .....	<b>Error! Bookmark not defined.</b>
2.1.2. Lokasi Site.....	<b>Error! Bookmark not defined.</b>
2.2. Peta Kondisi Fisik .....	<i>Error! Bookmark not defined.</i>
2.2.1. Kondisi Iklim .....	<b>Error! Bookmark not defined.</b>
2.2.2. Kondisi Eksisting .....	<b>Error! Bookmark not defined.</b>

2.3.	<i>Data Lokasi Dan Peraturan Kondisi Bangunan Terkait</i> .....	<i>Error! Bookmark not defined.</i>
2.3.1.	Data Lokasi .....	<i>Error! Bookmark not defined.</i>
2.3.2.	Peraturan Bangunan Terkait .....	<i>Error! Bookmark not defined.</i>
2.4.	<i>Data Ukuran Lahan Bnagunan</i> .....	<i>Error! Bookmark not defined.</i>
2.4.1.	Pemilihan Kriteria Lokasi .....	<i>Error! Bookmark not defined.</i>
2.4.2.	Data Ukuran Site .....	<i>Error! Bookmark not defined.</i>
2.5.	<i>Data Klien Dan Pengguna</i> .....	<i>Error! Bookmark not defined.</i>
2.5.1.	Pelaku Kegiatan .....	<i>Error! Bookmark not defined.</i>
2.6.	<i>Kajian Tema Perancangan</i> .....	<i>Error! Bookmark not defined.</i>
2.6.1.	Kajian Teori Arsitektur Terkait.....	<i>Error! Bookmark not defined.</i>
2.6.2.	Kajian Bangunan Berkelanjutan .....	<i>Error! Bookmark not defined.</i>
2.6.3.	Kajian Pendingin Pasif .....	<i>Error! Bookmark not defined.</i>
2.6.4.	Prinsip Aliran Angin .....	<i>Error! Bookmark not defined.</i>
2.6.5.	Teknik Penerapan Passive Cooling .....	<i>Error! Bookmark not defined.</i>
2.6.6.	Kesimpulan Pasivve Cooling .....	<i>Error! Bookmark not defined.</i>
2.6.7.	Kajian Karya-Karya Arsitektural Yang Relevan Dengan Tema	<i>Error! Bookmark not defined.</i>
2.6.8.	Kajian Tipologi Dan Perancangan Bangunan Sejenis.....	<i>Error! Bookmark not defined.</i>
2.6.9.	Standarisasi Sport Center .....	<i>Error! Bookmark not defined.</i>
2.6.10.	Preseden Sport Center .....	<i>Error! Bookmark not defined.</i>
<b>BAB 3</b>	<b>PEMECAHAN PERSOALAN DAN PENGUJIAN</b> .....	<i>Error! Bookmark not defined.</i>
3.1.	<i>Konsep</i> .....	<i>Error! Bookmark not defined.</i>
3.2.	<i>Rancangan Skematik tapak</i> .....	<i>Error! Bookmark not defined.</i>
3.2.1.	Respon Vegetasi .....	<i>Error! Bookmark not defined.</i>
3.2.2.	Kolam Air .....	<i>Error! Bookmark not defined.</i>
3.2.3.	Elevasi Bangunan.....	<i>Error! Bookmark not defined.</i>
3.2.4.	Penerapan Eco-cooler .....	<i>Error! Bookmark not defined.</i>
3.3.	<i>Orientasi Bangunan</i> .....	<i>Error! Bookmark not defined.</i>
3.3.1.	Orientasi Bangunan .....	<i>Error! Bookmark not defined.</i>
3.3.2.	Cuaca .....	<i>Error! Bookmark not defined.</i>
3.3.3.	Material .....	<i>Error! Bookmark not defined.</i>
3.3.4.	Struktur .....	<i>Error! Bookmark not defined.</i>
3.4.	<i>Zoning Dan Akses</i> .....	<i>Error! Bookmark not defined.</i>
3.4.1.	Zoning Masa Dan Akses.....	<i>Error! Bookmark not defined.</i>
3.4.2.	Zoning Ruang Dan Akses .....	<i>Error! Bookmark not defined.</i>
3.5.	<i>Rancangan Skematik interior Bangunan</i> .....	<i>Error! Bookmark not defined.</i>

3.5.1.	Radiant Cooling .....	<b>Error! Bookmark not defined.</b>
3.6.	<i>Rancangan Skematik sistem Akses Keselamatan Bangunan .....</i>	<b><i>Error! Bookmark not defined.</i></b>
3.7.	<i>Perhitungan Window To Wall Area Ratio .....</i>	<b><i>Error! Bookmark not defined.</i></b>
3.8.	<i>Pengujian Design .....</i>	<b><i>Error! Bookmark not defined.</i></b>
3.8.1.	Autodesk Flow Design .....	<b>Error! Bookmark not defined.</b>
3.8.2.	Simulasi software Ecotect .....	<b>Error! Bookmark not defined.</b>
<b>BAB 4</b>	<b>HASIL RANCANGAN .....</b>	<b>Error! Bookmark not defined.</b>
4.1.	<i>Deskripsi Hasil Rancangan .....</i>	<b><i>Error! Bookmark not defined.</i></b>
4.2.	<i>Rancangan Kawasan Tapak .....</i>	<b><i>Error! Bookmark not defined.</i></b>
4.2.1.	Siteplan .....	<b>Error! Bookmark not defined.</b>
4.3.	<i>Rancangan Bangunan .....</i>	<b><i>Error! Bookmark not defined.</i></b>
4.3.1.	Denah .....	<b>Error! Bookmark not defined.</b>
4.3.2.	Tampak Bangunan .....	<b>Error! Bookmark not defined.</b>
4.3.3.	Rancangan khusus .....	<b>Error! Bookmark not defined.</b>
4.3.4.	Rancangan Selubung Bangunan .....	<b>Error! Bookmark not defined.</b>
4.3.5.	Rancangan Interior Bangunan .....	<b>Error! Bookmark not defined.</b>
4.3.6.	Detail Arsitektural .....	<b>Error! Bookmark not defined.</b>
4.3.7.	Sistem Stuktur .....	<b>Error! Bookmark not defined.</b>
4.3.8.	Sistem Utilitas .....	<b>Error! Bookmark not defined.</b>
4.3.9.	Akses Difabel .....	<b>Error! Bookmark not defined.</b>
4.3.10.	Keselamatan Bangunan .....	<b>Error! Bookmark not defined.</b>
<b>BAB 5</b>	<b>EVALUASI HASIL RANCANGAN .....</b>	<b>Error! Bookmark not defined.</b>
5.1.	<i>Denah .....</i>	<b><i>Error! Bookmark not defined.</i></b>
	.....	<b><i>Error! Bookmark not defined.</i></b>
5.2.	<i>Potongan .....</i>	<b><i>Error! Bookmark not defined.</i></b>
<b>BAB 6</b>	<b>DAFTAR PUSTAKA .....</b>	<b>Error! Bookmark not defined.</b>

## DAFTAR GAMBAR

Gambar 1.1 kepadatan penduduk menurut kecamatan dikabupaten bengkalis.....	<b>Error!</b>
<b>Bookmark not defined.</b>	
Gambar 1.2 Galaxy Duri mengikuti liga top score. ....	<b>Error! Bookmark not defined.</b>
Gambar 1.3Aktivitas olahraga duri. ....	<b>Error! Bookmark not defined.</b>
Gambar 1.4Metoda Penelusuran permasalahan .....	<b>Error! Bookmark not defined.</b>
Gambar 1.5 Metoda Perumusan Konsep.....	<b>Error! Bookmark not defined.</b>
Gambar 1.6 kerangka berfikir .....	<b>Error! Bookmark not defined.</b>
Gambar 2.1 Peta Narasi Kab.Bengkalis .....	<b>Error! Bookmark not defined.</b>
Gambar 2.2 peta kota duri (Ibukota kecamatan mandau).	<b>Error! Bookmark not defined.</b>
Gambar 2.3 lokasi site terpilih .....	<b>Error! Bookmark not defined.</b>
Gambar 2.4 aktivitas lokal .....	<b>Error! Bookmark not defined.</b>
Gambar 2.5 Data temperature .....	<b>Error! Bookmark not defined.</b>
Gambar 2.6 Data Kecepatan Angin .....	<b>Error! Bookmark not defined.</b>
Gambar 2.7 : Data Curah Hujan .....	<b>Error! Bookmark not defined.</b>
Gambar 2.8 : Windrose Kota Duri.....	<b>Error! Bookmark not defined.</b>
Gambar 2.9 : eksisting kota duri .....	<b>Error! Bookmark not defined.</b>
Gambar 2.10 : Akses Site.....	<b>Error! Bookmark not defined.</b>
Gambar 2.11 : peta infrastruktur .....	<b>Error! Bookmark not defined.</b>
Gambar 2.12 : kawasan lindung nasional .....	<b>Error! Bookmark not defined.</b>
Gambar 2.13 : Rencana Tata Ruang Wilayah.....	<b>Error! Bookmark not defined.</b>
Gambar 2.14 : Rencana Pola Ruang .....	<b>Error! Bookmark not defined.</b>
Gambar 2.15 : lokasi site.....	<b>Error! Bookmark not defined.</b>
Gambar 2.16 : lokasi site.....	<b>Error! Bookmark not defined.</b>
Gambar 2.17Ventilasi silang .....	<b>Error! Bookmark not defined.</b>
Gambar 2.18 Eco-cooler .....	<b>Error! Bookmark not defined.</b>
Gambar 2.19 Skema radiant cooling melalui potongan dari ruang kantor .....	<b>Error!</b>
<b>Bookmark not defined.</b>	
Gambar 2.20 : (a) Radiant Cooling melalui struktur atap, (b) Radiant Cooling mela .....	<b>Error! Bookmark not defined.</b>
Gambar 2.21 : (a) Cara kerja indirect radiant cooling pada malam hari, (b) cara kerja .....	<b>Error! Bookmark not defined.</b>
Gambar 2.22 Insulasi .....	<b>Error! Bookmark not defined.</b>

Gambar 2.23 : Tipe dasar pergerakan udara ..... **Error! Bookmark not defined.**

Gambar 2.24 : Perbedaan pergerakan udara terhadap orientasi massa bangunan.....**Error!**

**Bookmark not defined.**

Gambar 2.25 : Pergerakan udara yang terjadi di atap karena perbedaan tekanannya**Error!**

**Bookmark not defined.**

Gambar 2.26 : (a) Ilustrasi efek venturi, (b) skema penerapan efek venturi pada pengh

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

Gambar 2.27 : Ilustrasi stack effect..... **Error! Bookmark not defined.**

Gambar 2.28 : Letak aksis netral sebagai perantara antara ruang dengan tekanan posit

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

Gambar 2.29 External Shading Diagram ..... **Error! Bookmark not defined.**

Gambar 2.30 Thermal Mass Diagram ..... **Error! Bookmark not defined.**

Gambar 2.31 Low Window to Wall Area Ratio Diagram **Error! Bookmark not defined.**

Gambar 2.32 Passive Ventilation Diagram ..... **Error! Bookmark not defined.**

Gambar 2.33 Cross Ventilation Diagram..... **Error! Bookmark not defined.**

Gambar 2.34 Stacked Window Diagram ..... **Error! Bookmark not defined.**

Gambar 2.35 Passive Evaporative Cooling Diagram..... **Error! Bookmark not defined.**

Gambar 2.36 Orientation Diagram..... **Error! Bookmark not defined.**

Gambar 2.37 Double Façade and Buffer Space Diagram . **Error! Bookmark not defined.**

Gambar 2.38 Central Atri and Lobies Diagram ..... **Error! Bookmark not defined.**

Gambar 2.39 . Eksterior Nk'Mip ..... **Error! Bookmark not defined.**

Gambar 2.40. Tampak kawasan Nk'Mip..... **Error! Bookmark not defined.**

Gambar 2.41 . Siteplan..... **Error! Bookmark not defined.**

Gambar 2.42 . Situasi ..... **Error! Bookmark not defined.**

Gambar 2.43 . detail insulasi pada dinding, ..... **Error! Bookmark not defined.**

Gambar 2.44 Nassa Sustainability Base..... **Error! Bookmark not defined.**

Gambar 2.45 Nassa Sustainability Base..... **Error! Bookmark not defined.**

Gambar 2.46 Nasa sustainability base ..... **Error! Bookmark not defined.**

Gambar 2.47 Eksterior Mana Ranakpur..... **Error! Bookmark not defined.**

Gambar 2.48 . Siteplan Hotel Ranakpur ..... **Error! Bookmark not defined.**

Gambar 2.49 Landscape hotel..... **Error! Bookmark not defined.**

Gambar 2.50 . Penghawaan dengan earth cooling ..... **Error! Bookmark not defined.**

Gambar 2.51 . Material kaca yang diberikan pada selubung atap**Error! Bookmark not defined.**

Gambar 2.52 : Tanda jalur evakuasi ..... **Error! Bookmark not defined.**  
Gambar 2.53 : Eksit pelepasan..... **Error! Bookmark not defined.**  
Gambar 2.54 Tanda akses pemadam kebakaran ..... **Error! Bookmark not defined.**  
Gambar 2.55 : Jalur evakuasi luar bangunan ..... **Error! Bookmark not defined.**  
Gambar 2.56 : Luas tempat duduk dalam satu baris ..... **Error! Bookmark not defined.**  
Gambar 2.57 : Panjang baris setiap koridor dan pintu darurat**Error! Bookmark not defined.**

Gambar 2.58 Ukuran lapangan olahraga..... **Error! Bookmark not defined.**  
Gambar 2.59 Abilities sport center ..... **Error! Bookmark not defined.**  
Gambar 2.60 Sport Hall ..... **Error! Bookmark not defined.**  
Gambar 2.61 Sport hall ..... **Error! Bookmark not defined.**  
Gambar 2.62 Janine Jambu Sports Centre ..... **Error! Bookmark not defined.**  
Gambar 2.63 Potongan..... **Error! Bookmark not defined.**  
Gambar 2.64 Denah Lantai 1 dan, Denah Lantai 2..... **Error! Bookmark not defined.**  
Gambar 3.1 konsep..... **Error! Bookmark not defined.**  
Gambar 3.2 Respon vegetasi..... **Error! Bookmark not defined.**  
Gambar 3.3 Kolam Air..... **Error! Bookmark not defined.**  
Gambar 3.4 Elevasi Bangunan ..... **Error! Bookmark not defined.**  
Gambar 3.5 Eco-Cooler ..... **Error! Bookmark not defined.**  
Gambar 3.6 Potongan..... **Error! Bookmark not defined.**  
Gambar 3.7Tampak Atas ..... **Error! Bookmark not defined.**  
Gambar 3.8 Orientasi Bangunan ..... **Error! Bookmark not defined.**  
Gambar 3.9 Skema Orientasi bangunan..... **Error! Bookmark not defined.**  
Gambar 3.10 Bentuk bangunan..... **Error! Bookmark not defined.**  
Gambar 3.11 Material ..... **Error! Bookmark not defined.**  
Gambar 3.12 Bentuk struktur ..... **Error! Bookmark not defined.**  
Gambar 3.13 Zoning Masa..... **Error! Bookmark not defined.**  
Gambar 3.14 Akses Kendaraan..... **Error! Bookmark not defined.**  
Gambar 3.15 Zoning Ruang ..... **Error! Bookmark not defined.**  
Gambar 3.16 Akses Atlet dan ofisial ..... **Error! Bookmark not defined.**  
Gambar 3.17 Akses Penonton Dan Difable ..... **Error! Bookmark not defined.**  
Gambar 3.18 Sumber air radiant cooling ..... **Error! Bookmark not defined.**  
Gambar 3.19 Skema radiant cooling ..... **Error! Bookmark not defined.**  
Gambar 3.20 Jalur akses darurat (warna kuning)..... **Error! Bookmark not defined.**

Gambar 3.21 Jalur evakuasi pada sport center .....	<b>Error! Bookmark not defined.</b>
Gambar 3.22 Angin masuk kedalam bangunan .....	<b>Error! Bookmark not defined.</b>
Gambar 3.23 Angin keluar bangunan .....	<b>Error! Bookmark not defined.</b>
Gambar 3.24 Pengujian kenyamanan thermal .....	<b>Error! Bookmark not defined.</b>
Gambar 3.25 Pengujian kenyamanan thermal .....	<b>Error! Bookmark not defined.</b>
Gambar 3.26 Pengujian pencahayaan .....	<b>Error! Bookmark not defined.</b>
Gambar 3.27 Triple glass window .....	<b>Error! Bookmark not defined.</b>
Gambar 4.1 Siteplan.....	<b>Error! Bookmark not defined.</b>
Gambar 4.2 Denah Groundfloor .....	<b>Error! Bookmark not defined.</b>
Gambar 4.3 Denah Lantai 1 .....	<b>Error! Bookmark not defined.</b>
Gambar 4.4 Tampak Utara.....	<b>Error! Bookmark not defined.</b>
Gambar 4.5 Tampak Selatan .....	<b>Error! Bookmark not defined.</b>
Gambar 4.6 Tampak Timur.....	<b>Error! Bookmark not defined.</b>
Gambar 4.7 Tampak Barat .....	<b>Error! Bookmark not defined.</b>
Gambar 4.8 penerapan radiant cooling .....	<b>Error! Bookmark not defined.</b>
Gambar 4.9 skema radiant cooling.....	<b>Error! Bookmark not defined.</b>
Gambar 4.10Penerapan Eco-Cooler.....	<b>Error! Bookmark not defined.</b>
Gambar 4.11 Skema Eco-Cooler.....	<b>Error! Bookmark not defined.</b>
Gambar 4.12 Bentuk Desain eco-cooler .....	<b>Error! Bookmark not defined.</b>
Gambar 4.13 Bukaan Pada Atap .....	<b>Error! Bookmark not defined.</b>
Gambar 4.14 Selubung Sport Hall 2 .....	<b>Error! Bookmark not defined.</b>
Gambar 4.15 Interior sport hall 2.....	<b>Error! Bookmark not defined.</b>
Gambar 4.16 Sport hall utama .....	<b>Error! Bookmark not defined.</b>
Gambar 4.17 Detail Eco-Cooler.....	<b>Error! Bookmark not defined.</b>
Gambar 4.18 Pemasangan pipa radiant cooling.....	<b>Error! Bookmark not defined.</b>
Gambar 4.19 Detail lapisan pipi dalam lantai dan dinding	<b>Error! Bookmark not defined.</b>
Gambar 4.20 Perspektif struktur .....	<b>Error! Bookmark not defined.</b>
Gambar 4.21 Perspektif struktur .....	<b>Error! Bookmark not defined.</b>
Gambar 4.22 Sistem utilitas .....	<b>Error! Bookmark not defined.</b>
Gambar 4.23 Akses difabel .....	<b>Error! Bookmark not defined.</b>
Gambar 4.24 Parkir difabel .....	<b>Error! Bookmark not defined.</b>
Gambar 4.25 Keselamatan bangunan.....	<b>Error! Bookmark not defined.</b>

## DAFTAR TABEL

Tabel 2 : Peraturan Bangunan.....	<b>Error! Bookmark not defined.</b>
Tabel 3 Indikator kenyamanan thermal .....	<b>Error! Bookmark not defined.</b>
Tabel 4 : Komparasi Preseden Arsitektural yang Relevan dengan Tema .....	<b>Error! Bookmark not defined.</b>
Tabel 5 Ukuran Minimal Matra Ruang.....	<b>Error! Bookmark not defined.</b>
Tabel 6 : Kebutuhan jumlah penonton berdasarkan jumlah penduduk.....	<b>Error! Bookmark not defined.</b>
Tabel 7 : perhitungan WWR.....	<b>Error! Bookmark not defined.</b>
Tabel 8 : Property Size .....	<b>Error! Bookmark not defined.</b>
Tabel 9 : Property Size .....	<b>Error! Bookmark not defined.</b>