LAMPIRAN

1. **COS Ø**

- φ: phase angle between voltage
- □ Incandescent lighting: cos φ = 1
- □ Led lighting: cos φ > 0.9
- □ Fluorescent with electronic ballas
- □ Motor power:
- At start-up: cos φ = 0.35
- In normal service: cos φ = 0.8

2. **KAPASITAS TRANSFORMATOR**

Apparent power	In (A)	
kVA	237 V	410 V
100	244	141
160	390	225
250	609	352
315	767	444
400	974	563
500	1218	704
630	1535	887
800	1949	1127
1000	2436	1408
1250	3045	1760
1600	3898	2253
2000	4872	2816
2500	6090	3520
3150	7673	4436

Fig. A15: Standard apparent powers for MV/LV transformers and related nominal output currents

3. **KAPASITAS GENERATOR**

Determining the number of back-up generator units is in line with the same criteria as determining the number of transformers, as well as taking account of economic and availability considerations (redundancy, start-up reliability, maintenance facility).

Determining the generator apparent power, depends on:

- installation power demand of loads to be supplied,
- transient constraints that can occur by motors inrush current for example.

4. TEGANGAN JATUH

3.1 Maximum voltage drop limit

Maximum allowable voltage-drop vary from one country to another. Typical values for LV installations are given below in **Figure G25**.

Type of installations	Lighting circuits	Other uses (heating and power)
A low-voltage service connection from a LV public power distribution network	3 %	5 %
Consumers MV/LV substation supplied from a public distribution MV system	6 %	8 %

Fig. G25: Maximum voltage-drop between the service-connection point and the point of utilization (IEC60364-5-52 table G.52.1)

These voltage-drop limits refer to normal steady-state operating conditions and do not apply at times of motor starting, simultaneous switching (by chance) of several loads, etc. as mentioned in Chapter A Sub-clause 4.3 (diversity and utilization factors, etc.). When voltage drops exceed the values shown in **Figure G25**, larger cables (wires) must be used to correct the condition.

The value of 8 %, while permitted, can lead to problems for motor loads; for example:

- In general, satisfactory motor performance requires a voltage within ±5 % of its rated nominal value in steady-state operation,
- Starting current of a motor can be 5 to 7 times its full-load value (or even higher). If an 8 % voltage drop occurs at full-load current, then a drop of 40 % or more will occur during start-up. In such conditions the motor will either:
  - Stall (i.e. remain stationary due to insufficient torque to overcome the load torque) with consequent over-heating and eventual trip-out
  - Or accelerate very slowly, so that the heavy current loading (with possibly undesirable low-voltage effects on other equipment) will continue beyond the normal start-up period
- Finally an 8 % voltage drop represents a continuous power loss, which, for continuous loads will be a significant waste of (metered) energy. For these reasons it is recommended that the maximum value of 8 % in steady operating conditions should not be reached on circuits which are sensitive to under-voltage problems (see **Fig. G26**).

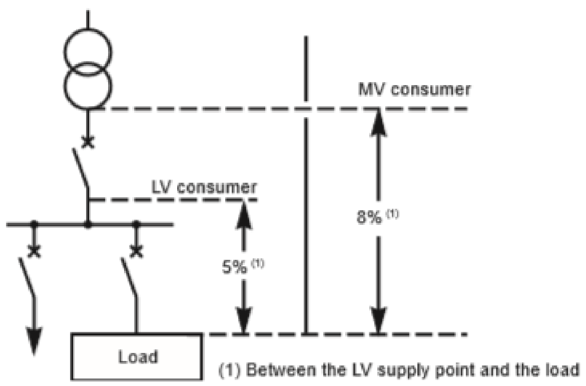


Fig. G26: Maximum voltage drop

5. ARUS HUBUNG SINGKAT

4.1 Short-circuit current at the secondary terminals of a MV/LV distribution transformer

The case of one transformer

- In a simplified approach, the impedance of the MV system is assumed to be negligibly small, so that: $Isc = \frac{In \times 100}{Usc}$ where $In = \frac{S \times 10^3}{U_{20}\sqrt{3}}$ and:

S = kVA rating of the transformer
U_{20} = phase-to-phase secondary volts on open circuit
In = nominal current in amps
Isc = short-circuit fault current in amps
Usc = short-circuit impedance voltage of the transformer in %.

Typical values of Usc for distribution transformers are given in **Figure G31**.

Transformer rating (kVA)	Usc in %	
	Oil-immersed	Cast-resin dry type
50 to 750	4	6
800 to 3200	6	6

Fig. G31: Typical values of Usc for different kVA ratings of transformers with MV windings ≤ 20 kV

6. KAPASITOR BANK

For 2-part tariffs based partly on a declared value of kVA, Figure L17 allows determination of the kvar of compensation required to reduce the value of kVA declared, and to avoid exceeding it

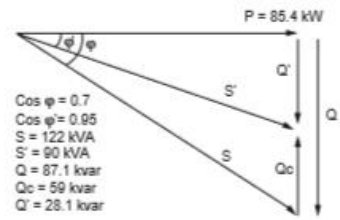


Fig. L16 : Reduction of declared maximum kVA by power-factor improvement

(1) In the billing period, during the hours for which reactive energy is charged for the case considered above:
$Qc = \frac{15,996 \text{ kvarh}}{220 \text{ h}} = 73 \text{ kvar}$

5.4 Method based on reduction of declared maximum apparent power (kVA)

For consumers whose tariffs are based on a fixed charge per kVA declared, plus a charge per kWh consumed, it is evident that a reduction in declared kVA would be beneficial. The diagram of **Figure L16** shows that as the power factor improves, the kVA value diminishes for a given value of kW (P). The improvement of the power factor is aimed at (apart from other advantages previously mentioned) reducing the declared level and never exceeding it, thereby avoiding the payment of an excessive price per kVA during the periods of excess, and/or tripping of the the main circuit-breaker. Figure L15 (previous page) indicates the value of kvar of compensation per kW of load, required to improve from one value of power factor to another.

Example:

A supermarket has a declared load of 122 kVA at a power factor of 0.7 lagging, i.e. an active-power load of 85.4 kW. The particular contract for this consumer was based on stepped values of declared kVA (in steps of 6 kVA up to 108 kVA, and 12 kVA steps above that value, this is a common feature in many types of two-part tariff). In the case being considered, the consumer was billed on the basis of 132 kVA. Referring to Figure L15, it can be seen that a 60 kvar bank of capacitors will improve the power factor of the load from 0.7 to 0.95 (0.691 x 85.4 = 59 kvar in the figure). The declared value of kVA will then be $\frac{85.4}{0.95} = 90$ kVA , i.e. an improvement of 30%.

7. CIRCUIT BREAKER

510.5.8.3 Syarat bagi sarana pemutus

510.5.8.3.1 Sarana pemutus harus dapat memutuskan hubungan antara motor serta kendali dan semua konduktor suplai yang tak dibumikan, dan harus didesain sedemikian sehingga tidak ada kutub yang dapat dioperasikan tersendiri.

510.5.8.3.2 Sarana pemutus harus dapat menunjukkan dengan jelas apakah sarana tersebut pada kedudukan terbuka atau tertutup.

510.5.8.3.3 Sarana pemutus harus mempunyai kemampuan arus sekurang -kurangnya 115 % dari arus beban penuh motor.

510.5.8.3.4 Sarana pemutus yang melayani beberapa motor atau melayani motor dan beban lainnya, harus mempunyai kemampuan arus sekurang -kurangnya 115% dari jumlah arus beban pada keadaan beban penuh.

8. KABEL TENAGA (FEEDER)

510.5.4.2 Penggunaan

510.5.4.2.1 Dalam lingkungan dengan gas, uap, atau debu yang mudah terbakar atau mudah meledak, setiap motor magun, harus diproteksi terhadap beban lebih.

510.5.4.2.2 Setiap motor trifase atau motor berdaya pengenal satu daya kuda atau lebih, yang magun dan dijalankan tanpa pengawasan, harus diproteksi terhadap beban lebih.

510.5.4.3 Gawai proteksi beban lebih motor terdiri atas GPAL dan GPHP.

Arus pengenal GPAL motor sekurang-kurangnya 110% - 115% arus pengenal motor.

Arus pengenal GPHP harus dikoordinasikan dengan KHA kabel.

KHA kabel (I_z) sesuai 510.5.3.1 adalah 125 % arus pengenal beban penuh motor (I_B). Menurut persamaan pada Ayat 433.1 maka arus pengenal GPHP harus ≤ I_z,biasanya nilainya di antara I_B dan I_z.

9. UPS/CDPK

8.27.6.5 Pengujian berkala

8.27.6.5.1 Untuk mempertahankan tingkat keamanan yang tinggi dari seluruh instalasi haruslah dilakukan pengujian berkala terhadap instalasi yang digunakan.

8.27.6.5.2 Hasil pengujian harus dicatat dalam buku uji sesuai dengan 8.27.6.1.

8.27.6.5.3 Pengujian berkala dilaksanakan sebagai berikut:

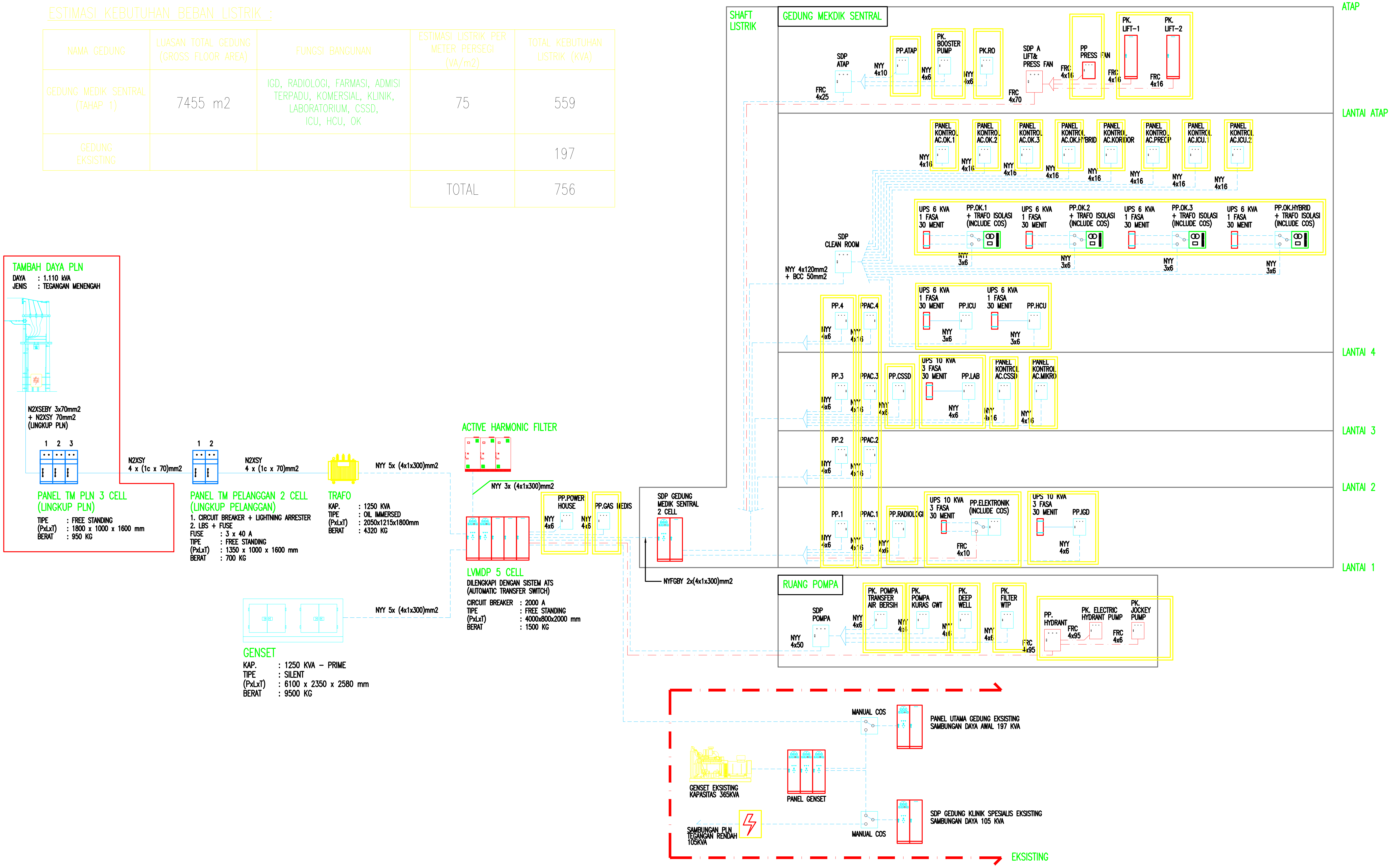
a) Pengujian sesuai dengan 8.27.6 harus dilakukan oleh orang juru sekurang-kurangnya setahun sekali.

b) Pengujian monitor insulasi dan sakelar proteksi arus sisa harus dilakukan oleh petugas yang ditunjuk dengan menekan tombol uji sekurang-kurangnya setengah tahun sekali.

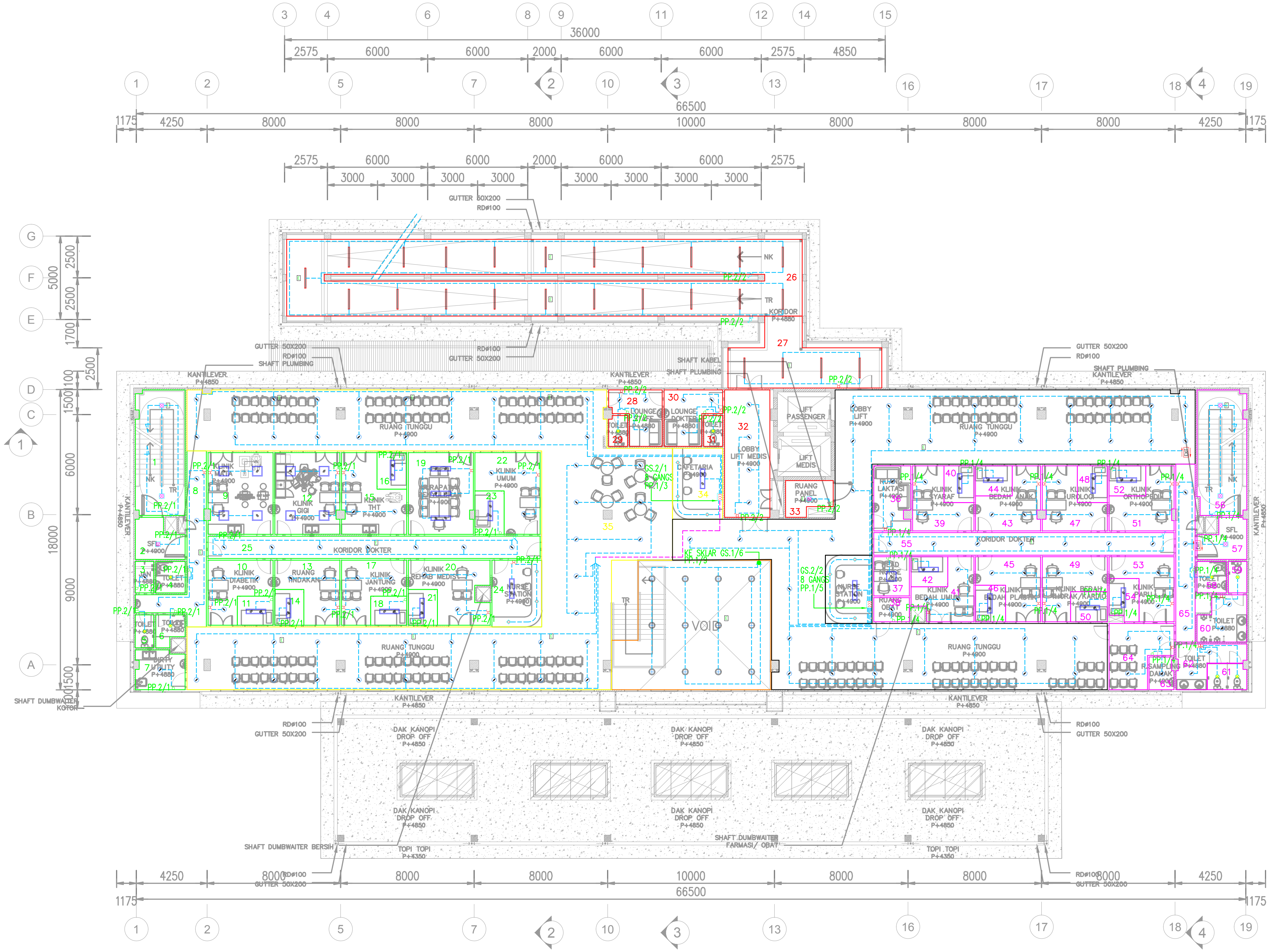
c) Uji coba CDPK harus dilakukan dengan pembebanan sekurang-kurangnya 50 % daya nominal : selama 15 menit untuk catu daya statis dan konverter berputar dan 60 menit

ESTIMASI KEBUTUHAN BEBAN LISTRIK :

NAMA GEDUNG	LUASAN TOTAL GEDUNG (GROSS FLOOR AREA)	FUNGSI BANGUNAN	ESTIMASI LISTRIK PER METER PERSEGI (VA/m2)	TOTAL KEBUTUHAN LISTRIK (KVA)
GEDUNG MEDIK SENTRAL (TAHAP 1)	7455 m2	IGD, RADIOLOGI, FARMASI, ADMISI TERPADU, KOMERSIAL, KLINIK, LABORATORIUM, CSSD, ICU, HCU, OK	75	559
GEDUNG EKSISTING				197
			TOTAL	756



KORIDOR
P-0250
IRNA
LAV
36000
66500
KORIDOR
P-1050
SHAFT PLUMBING
SHAFT KABEL
REKAM MEDIK PASIF
REKAM MEDIK AKTIF
R. STAFF REKAM MEDIS
X-RAY FLUROSCOPY
LIFT PASSENGER
LOBBY (LIFT)
LOBBY LIFT MEDIS
MAIN LOBBY
TERAS
DROP OFF IGD
DROP OFF MAIN LOBBY
SHAFT DUMBWAITER BERSIH
SHAFT DUMBWAITER FARMASI/ OBAT
AKSES AMBULANCE
AKSES KENDARAAN PRIBADI
AKSES PEDESTRIAN
SIRKULASI KENDARAAN
P-1150
PARKIR MOBIL INTERNAL
PARKIR MOTOR
Kapasitas 131 motor
PARKIR MOBIL
Kapasitas 83 mobil



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2000
4850
66500
1175
4250
8000
10000
3000
GUTTER 50X200
RD#100
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SHAFT KABEL
KANTILEVER
P+4850
KORIDOR
NK
TR
LOUNGE STAF
LOUNGE DOKTER
TOILET
LIFT PASSENGER
LOBBY LIFT
P+4900
LOBBY LIFT MEDIS
LIFT MEDIS
RUANG PANEL
CAFETARIA
RUANG TUNGGU
KLINIK UMUM
KLINIK GIGI
KLINIK THT
TERAPAN
KORIDOR DOKTER
KLINIK DIABETIK
RUANG TINDAKAN
KLINIK JANTUNG
KLINIK REHAB MEDIS
NURSE STATION
SFL
JAN
DAPUR UTILITY
SHAFT DUMBWAITER KOTOR
VOID
KE SKLAR GS.1/6
KLINIK SYARAF
KLINIK BEDAH ANAK
KLINIK UROLOGI
KLINIK ORTHOPEDI
KLINIK BEDAH UMUM
KLINIK BEDAH PLASTIK
KLINIK BEDAH THORAK/KARDIO
KLINIK PARU
RUANG OBAT
R.SAMPLING DAHAK
DAK KANOPI DROP OFF
TOPI TOPI
P+4350
SHAFT DUMBWAITER BERSIH
SHAFT DUMBWAITER FARMASI/ OBAT
18000
9000
6000
5000
2500
1700
1500
1100
G
F
E
D
C
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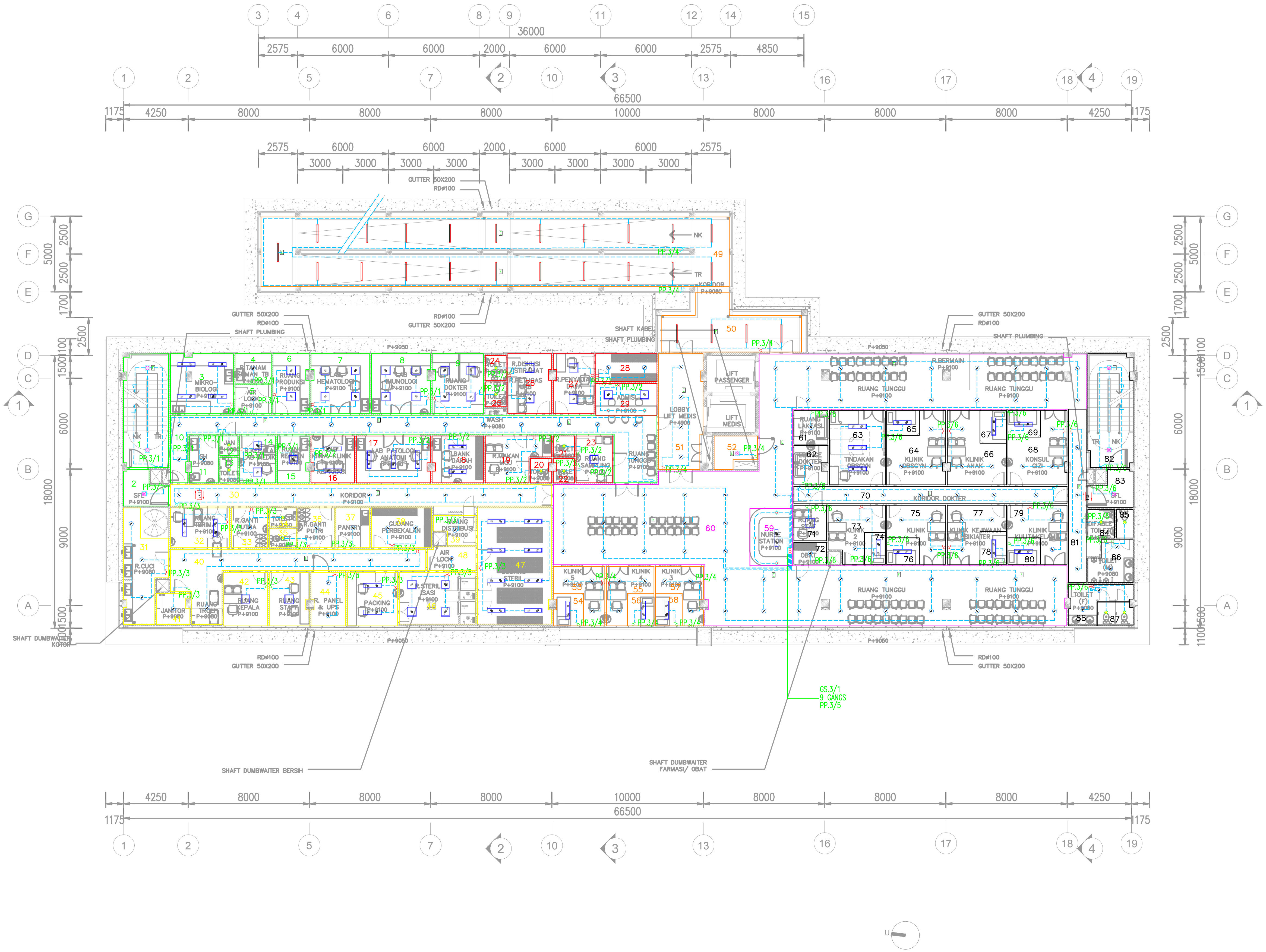

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6000
2000
4850
66500
1175
4250
8000
10000
3000
GUTTER 50X200
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SHAFT KABEL
KORIDOR
P+9080
P+9050
NK
TR
LIFT PASSENGER
LIFT MEDIS
LOBBY LIFT MEDIS
R.BERMAIN
RUANG TUNGGU
P+9100
KORIDOR DOKTER
RUANG TINDAKAN
KLINIK OBSGYN
KLINIK ANAK
KONSUL GIZI
KLINIK KESEHATAN JIWA
KLINIK KULIT KELAMIN
NURSE STATION
KLINIK 1
KLINIK 2
KLINIK 3
KLINIK 4
KLINIK 5
MIKRO-BIOLOGI
RUANG PRODUKSI
HEMATOLOGI
IMUNOLOGI
RUANG DOKTER
R.DISKUSI
R.PENYIMPANAN DATA
ADMIS
LAB PATOLOGI ANATOMI
BANK DARAH
RUANG SAMPLING
SFL
R.CUCI
JANITOR
RUANG GANTI PUTRA
R.GANTI PUTRI
PANTRY
GUDANG PERBEKALAN
RUANG DISTRIBUSI
AIR LOCK
R.STERILISASI
PACKING
R. PANEL & UPS
RUANG STAFF
RUANG KEPALA
STERIL
TOILET
SHAFT DUMBWAITER KOTOR
SHAFT DUMBWAITER BERSIH
SHAFT DUMBWAITER FARMASI/ OBAT
GS.3/1
9 GANGS
PP.3/5
PP.3/1
PP.3/2
PP.3/3
PP.3/4
PP.3/6
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B
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G
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1700
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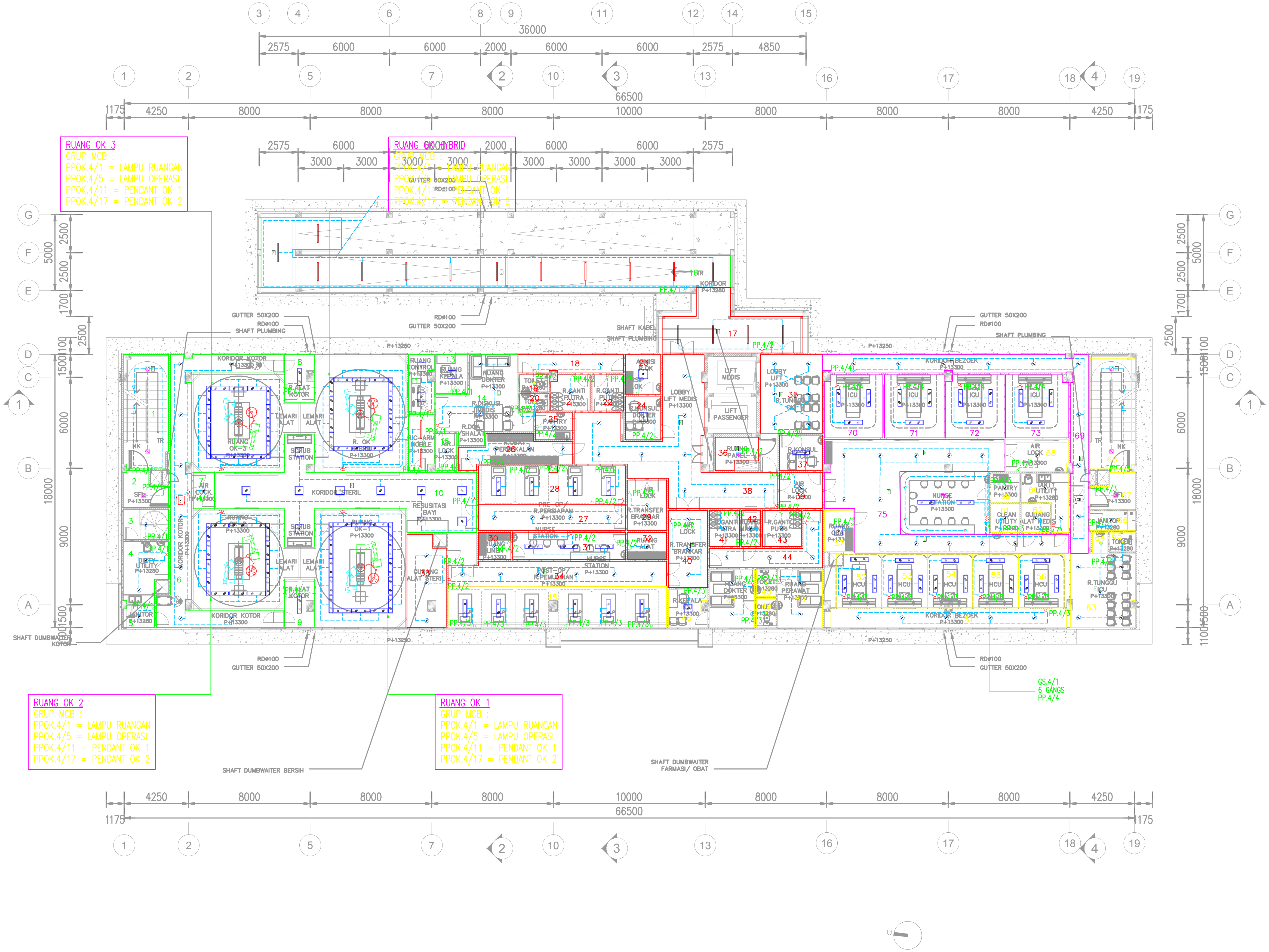
18000
9000
1100



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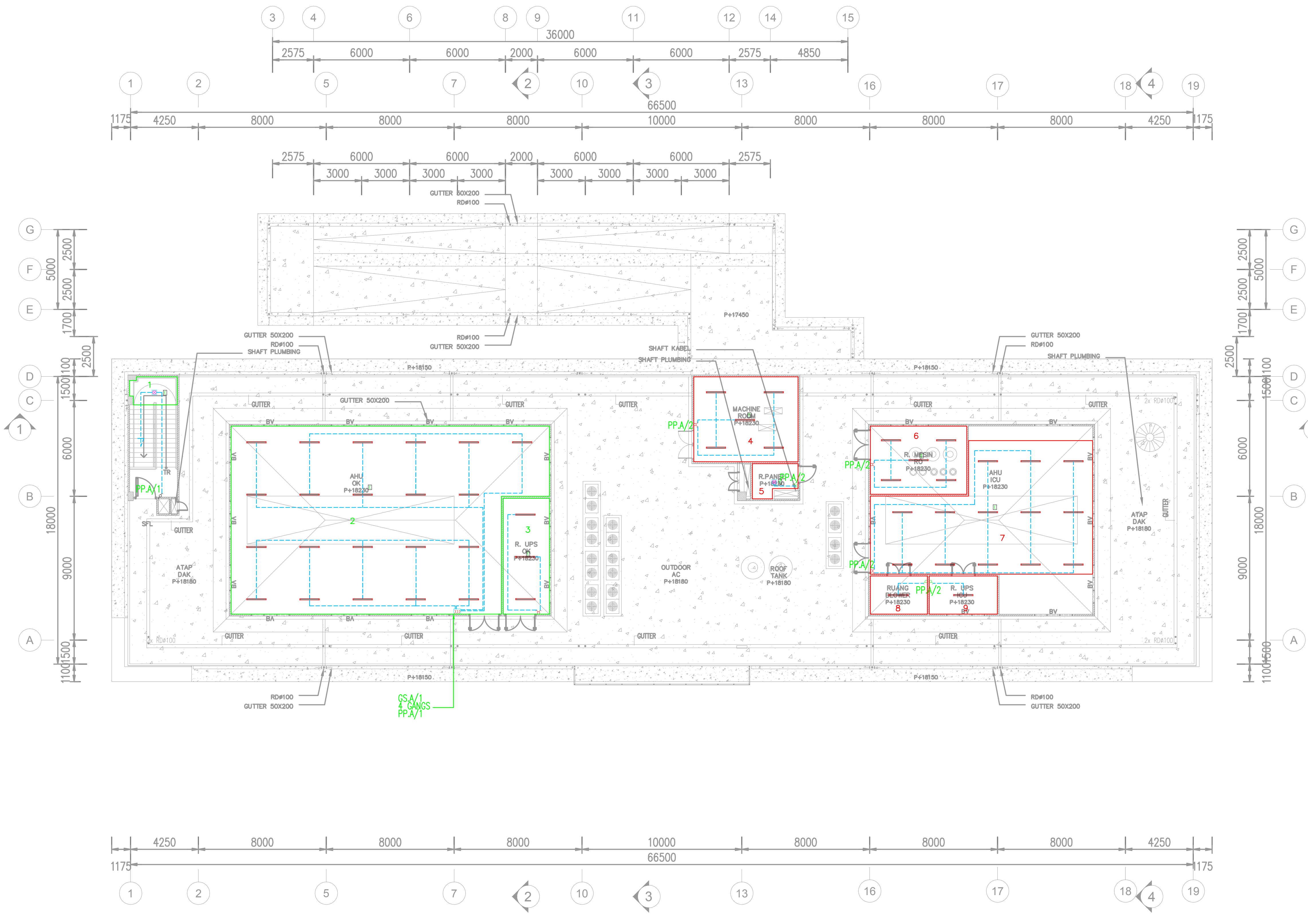
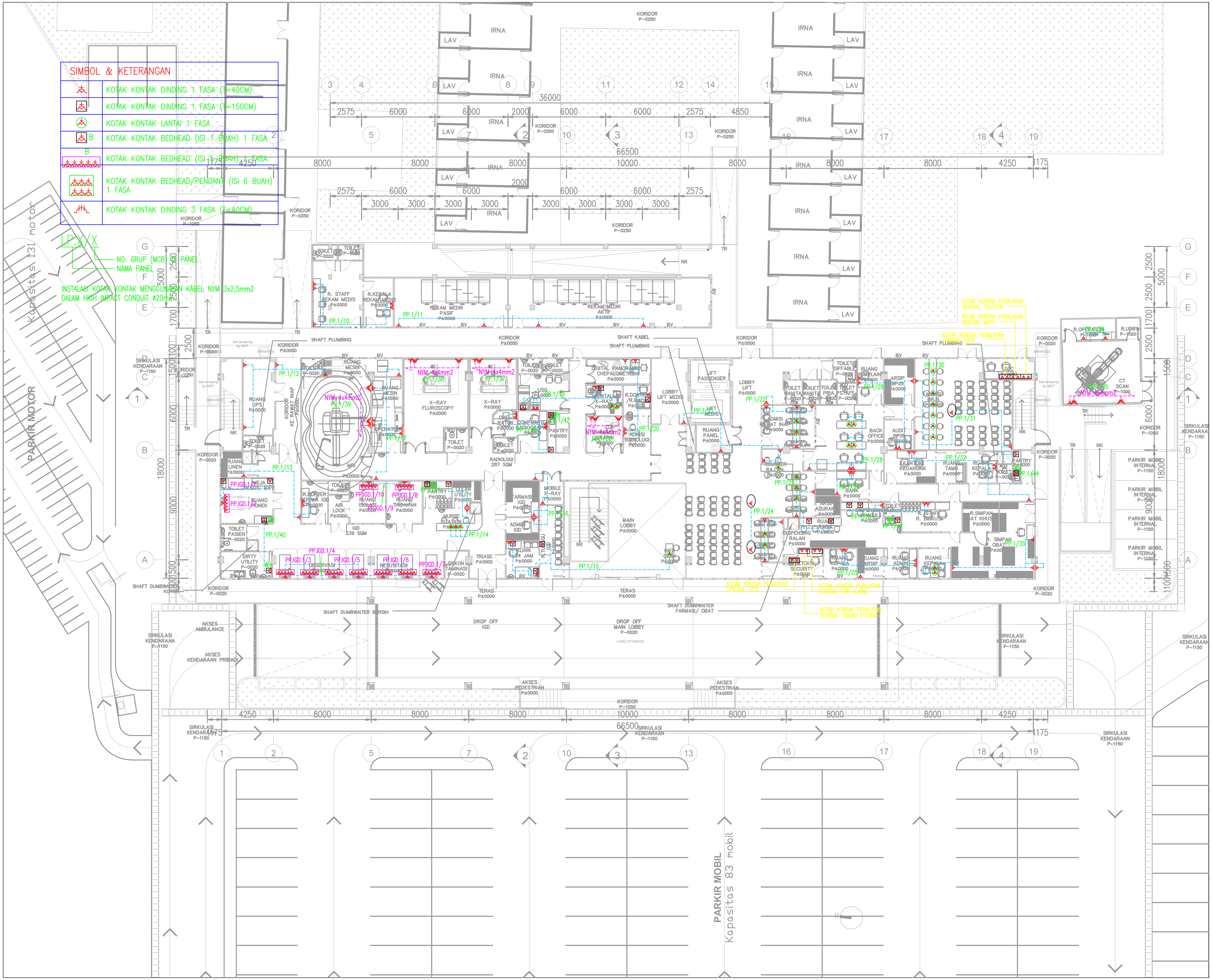
PPOK.4/5 = LAMPU OPERASI
PPOK.4/11 = PENDANT OK 1
PPOK.4/17 = PENDANT OK 2
RUANG OK HYBRID
RUANG OK 2
GRUP MCB :
PPOK.4/1 = LAMPU RUANGAN
PPOK.4/5 = LAMPU OPERASI
PPOK.4/11 = PENDANT OK 1
PPOK.4/17 = PENDANT OK 2
RUANG OK 1
GRUP MCB :
PPOK.4/1 = LAMPU RUANGAN
PPOK.4/5 = LAMPU OPERASI
PPOK.4/11 = PENDANT OK 1
PPOK.4/17 = PENDANT OK 2
36000
66500
GUTTER 50X200
RD#100
SHAFT PLUMBING
SHAFT KABEL
SHAFT DUMBWAITER KOTOR
SHAFT DUMBWAITER BERSIH
SHAFT DUMBWAITER FARMASI/ OBAT
KORIDOR KOTOR
KORIDOR STERIL
KORIDOR BEZOEK
LOBBY LIFT MEDIS
LIFT MEDIS
LIFT PASSENGER
NURSE STATION
GS.4/1
6 GANGS
PP.4/4



MACHINE ROOM
R.PANEL
AHU OK
R. UPS OK
OUTDOOR AC
ROOF TANK
R. MESIN RO
AHU ICU
RUANG BLOWER
R. UPS ICU
ATAP DAK
SHAFT KABEL
SHAFT PLUMBING
GUTTER 50X200
RD#100
66500
36000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KOTAK KONTAK DINDING 1 FASA (T=150CM)
KOTAK KONTAK LANTAI 1 FASA
KOTAK KONTAK BEDHEAD (ISI 1 BUAH) 1 FASA
KOTAK KONTAK BEDHEAD (ISI 5 BUAH) 1 FASA
KOTAK KONTAK BEDHEAD/PENDANT (ISI 6 BUAH) 1 FASA
KOTAK KONTAK DINDING 3 FASA (T=40CM)
LP.X/X
NO. GRUP (MCB) DI PANEL
NAMA PANEL
INSTALASI KOTAK KONTAK MENGGUNAKAN KABEL NYM 3x2,5mm2 DALAM HIGH IMPACT CONDUIT ø20mm
PARKIR MOTOR
Kapasitas 131 motor
PARKIR MOBIL
Kapasitas 83 mobil
IRNA
LAV
KORIDOR
REKAM MEDIK PASIF
REKAM MEDIK AKTIF
SHAFT PLUMBING
SHAFT KABEL
X-RAY FLUROSCOPY
X-RAY
RADIOLOGI 287 SQM
IGD 239 SQM
MAIN LOBBY
LOBBY LIFT MEDIS
LIFT PASSENGER
RUANG PANEL
TRIASE
OBSERVASI
RESUSITASI
DEKONTAMINASI
NURSE STATION
FARMASI IGD
MOBILE X-RAY
KLINIK 24 JAM
PANTRY
CT SCAN
R.OPERATOR
R.UPS
BACK OFFICE
RUANG KEPALA
RUANG ARSIP
DISPENSING RALAN
R. SIMPAN OBAT
SHAFT DUMBWAITER BERSIH
SHAFT DUMBWAITER FARMASI/ OBAT
DROP OFF IGD
DROP OFF MAIN LOBBY
AKSES AMBULANCE
AKSES KENDARAAN PRIBADI
AKSES PEDESTRIAN
SIRKULASI KENDARAAN
PARKIR MOBIL INTERNAL
TERAS
KOTAK KONTAK PERALATAN SENTRAL TELEPON
KOTAK KONTAK PERALATAN SENTRAL MATV
KOTAK KONTAK PERALATAN SENTRAL DATA
KOTAK KONTAK PERALATAN SENTRAL CCTV
KOTAK KONTAK PERALATAN SENTRAL FIRE ALARM
KOTAK KONTAK PERALATAN SENTRAL SOUND SYSTEM
NYM 4x4mm2
66500
36000

SIMBOL & KETERANGAN	
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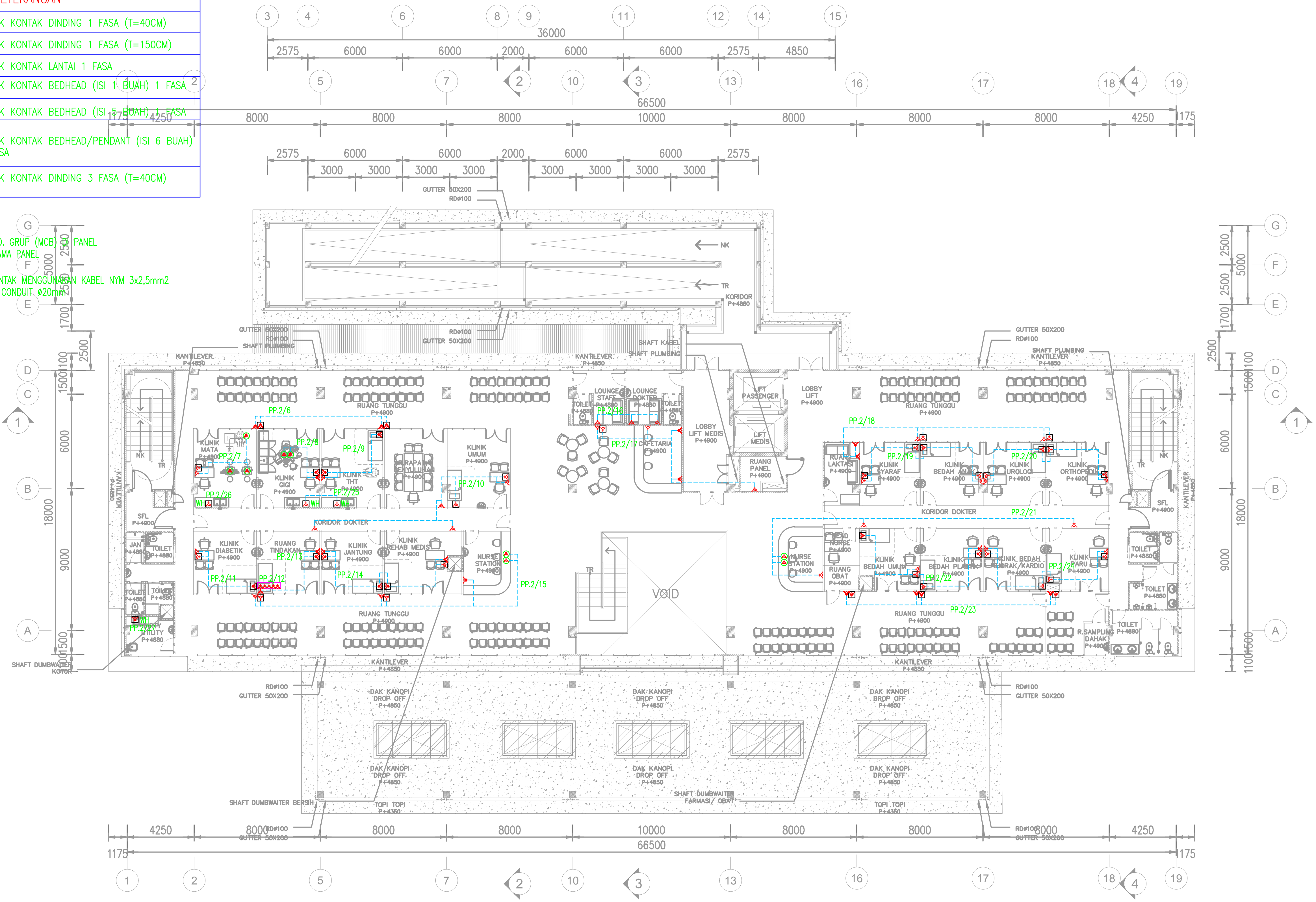
	KOTAK KONTAK DINDING 1 FASA (T=150CM)
	KOTAK KONTAK LANTAI 1 FASA
B	KOTAK KONTAK BEDHEAD (ISI 1 BUAH) 1 FASA
B	KOTAK KONTAK BEDHEAD (ISI 5 BUAH) 1 FASA
	KOTAK KONTAK BEDHEAD/PENDANT (ISI 6 BUAH) 1 FASA
	KOTAK KONTAK DINDING 3 FASA (T=40CM)

LP.X/X

NO. GRUP (MCB) DI PANEL

NAMA PANEL

INSTALASI KOTAK KONTAK MENGGUNAKAN KABEL NYM 3x2,5mm2 DALAM HIGH IMPACT CONDUIT ø20mm



SIMBOL & KETERANGAN

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	KOTAK KONTAK LANTAI 1 FASA
B	KOTAK KONTAK BEDHEAD (ISI 1 BUAH) 1 FASA
B	KOTAK KONTAK BEDHEAD (ISI 5 BUAH) 1 FASA
	KOTAK KONTAK BEDHEAD/PENDANT (ISI 6 BUAH) 1 FASA
	KOTAK KONTAK DINDING 3 FASA (T=40CM)

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NAMA PANEL

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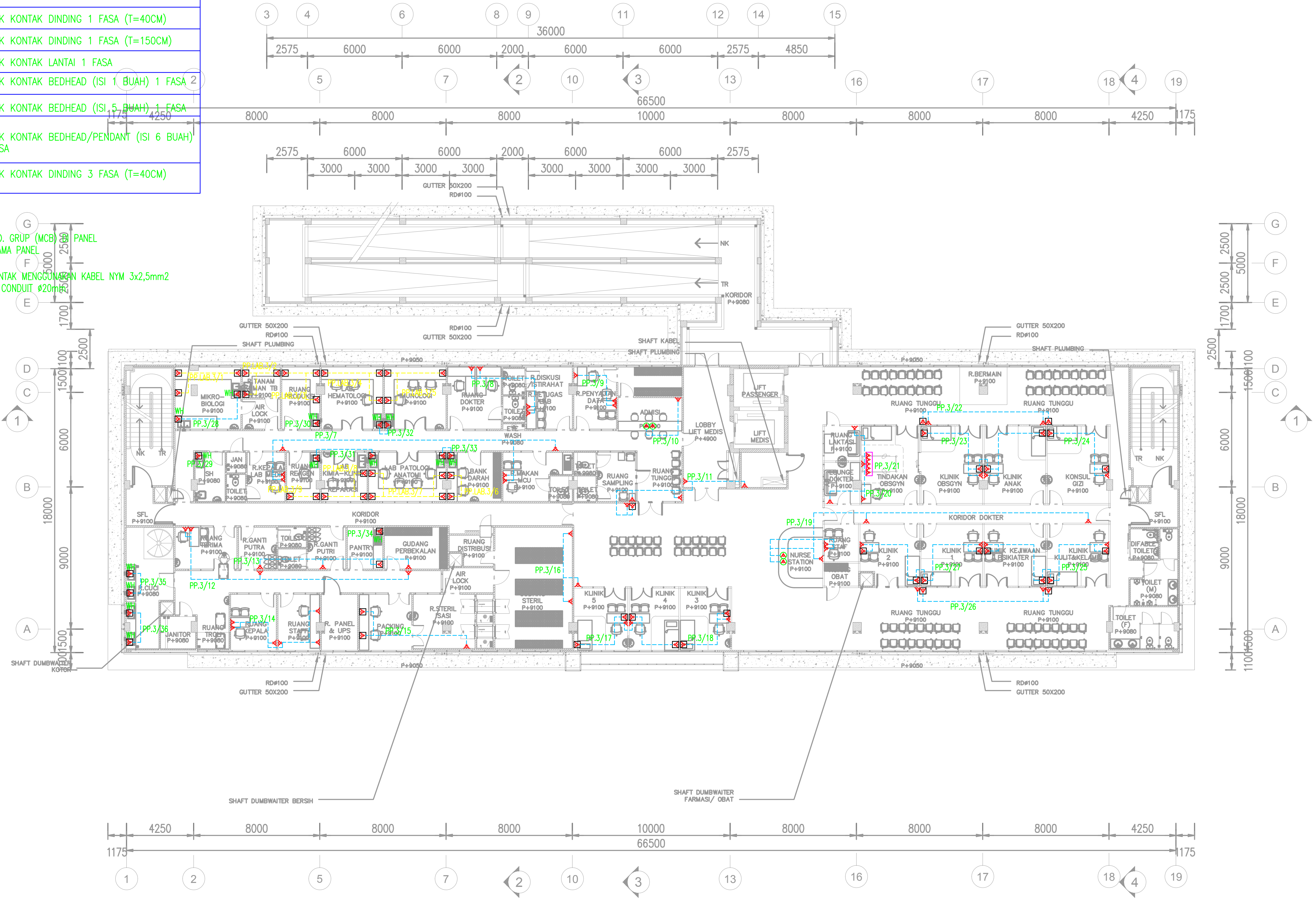

SIMBOL & KETERANGAN

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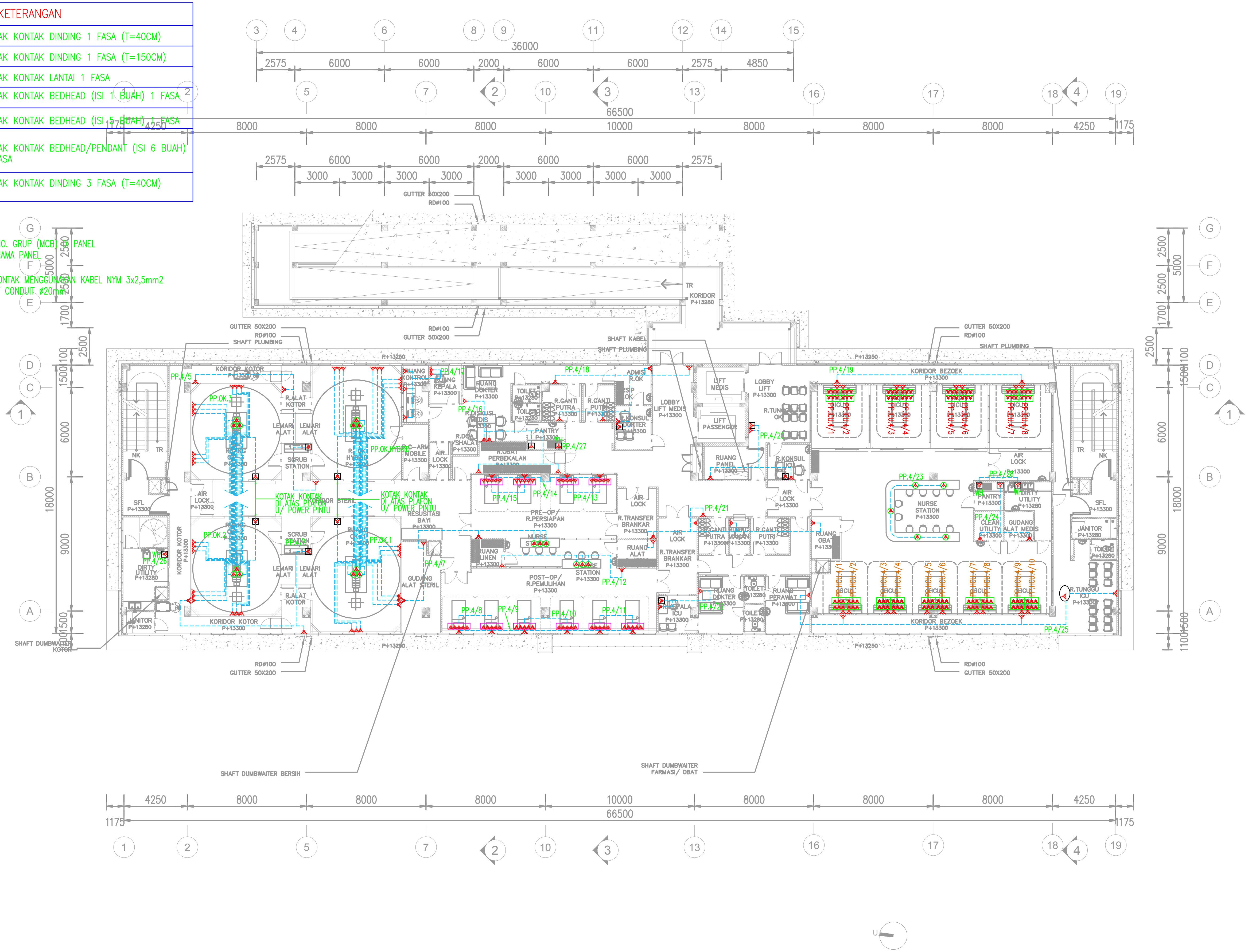
	KOTAK KONTAK DINDING 1 FASA (T=150CM)
	KOTAK KONTAK LANTAI 1 FASA
B	KOTAK KONTAK BEDHEAD (ISI 1 BUAH) 1 FASA
B	KOTAK KONTAK BEDHEAD (ISI 5 BUAH) 1 FASA
	KOTAK KONTAK BEDHEAD/PENDANT (ISI 6 BUAH) 1 FASA
	KOTAK KONTAK DINDING 3 FASA (T=40CM)

LP.X/X

NO. GRUP (MCB) DI PANEL

NAMA PANEL

INSTALASI KOTAK KONTAK MENGGUNAKAN KABEL NYM 3x2,5mm2 DALAM HIGH IMPACT CONDUIT ø20mm



SIMBOL & KETERANGAN

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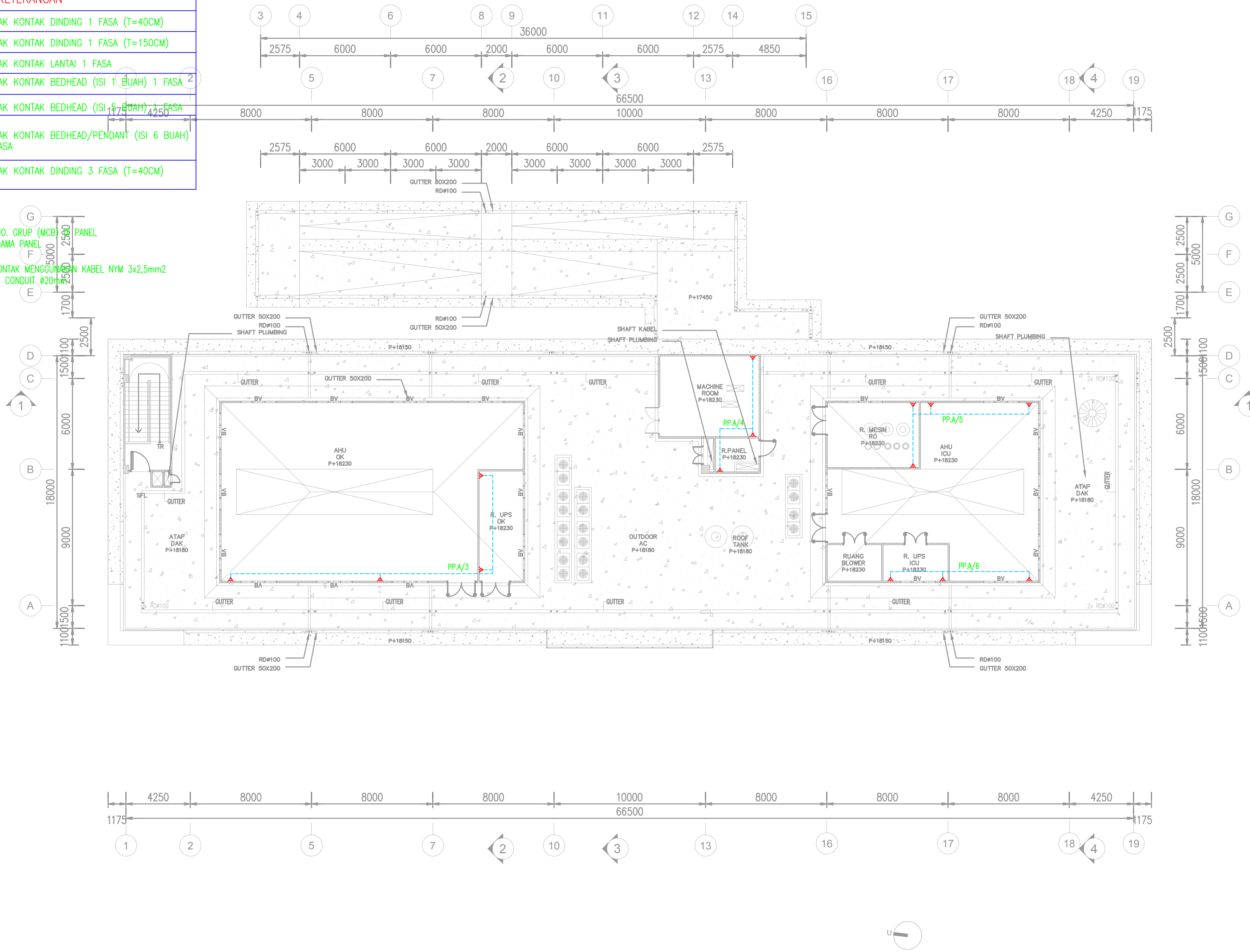
	KOTAK KONTAK DINDING 1 FASA (T=150CM)
	KOTAK KONTAK LANTAI 1 FASA
B	KOTAK KONTAK BEDHEAD (ISI 1 BUAH) 1 FASA
B	KOTAK KONTAK BEDHEAD (ISI 5 BUAH) 1 FASA
	KOTAK KONTAK BEDHEAD/PENDANT (ISI 6 BUAH) 1 FASA
	KOTAK KONTAK DINDING 3 FASA (T=40CM)

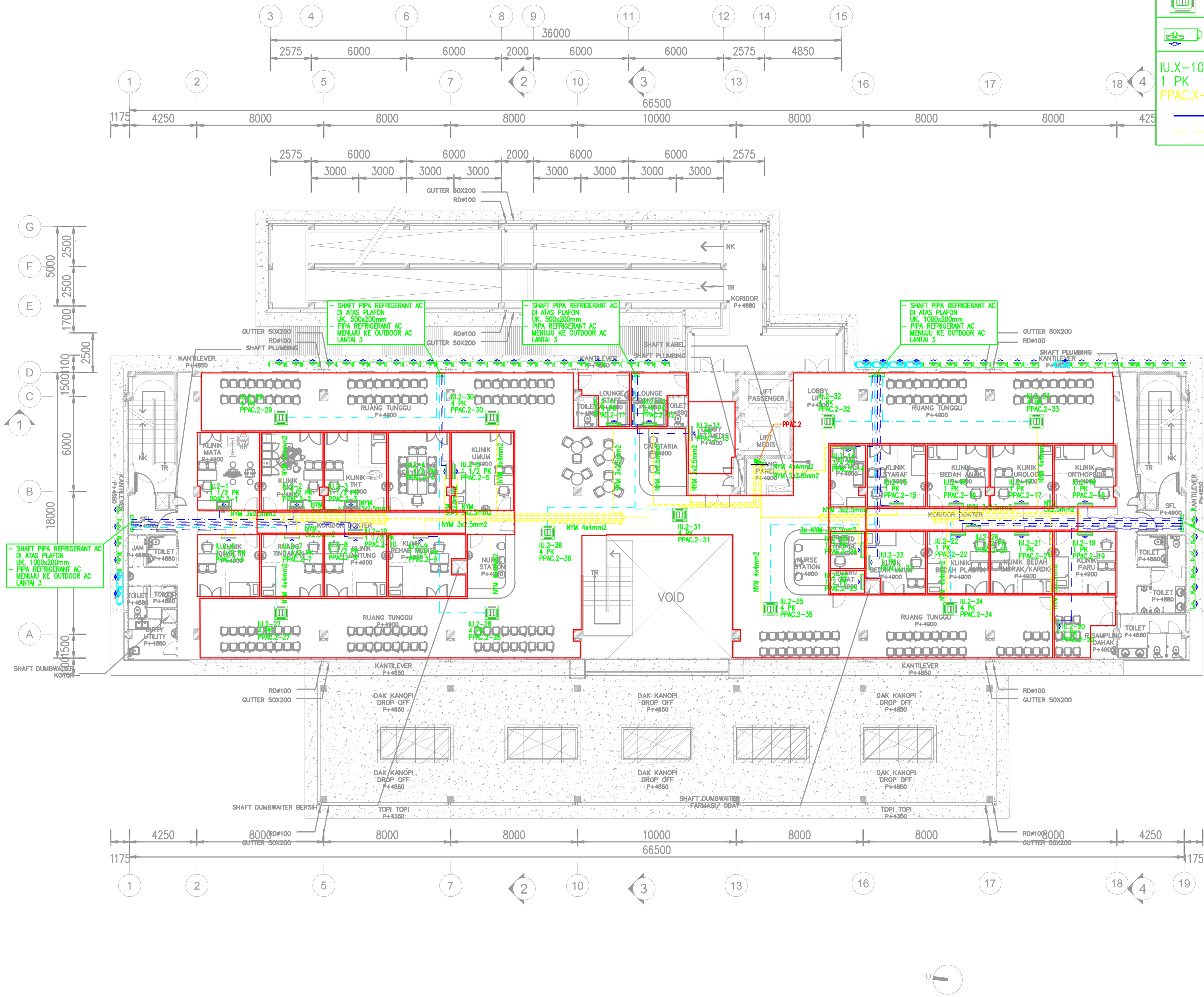
LP.X/X
NO. GRUP (MCB) di PANEL
NAMA PANEL

INSTALASI KOTAK KONTAK MENGGUNAKAN KABEL NYM 3x2,5mm2 DALAM HIGH IMPACT CONDUIT ø20mm

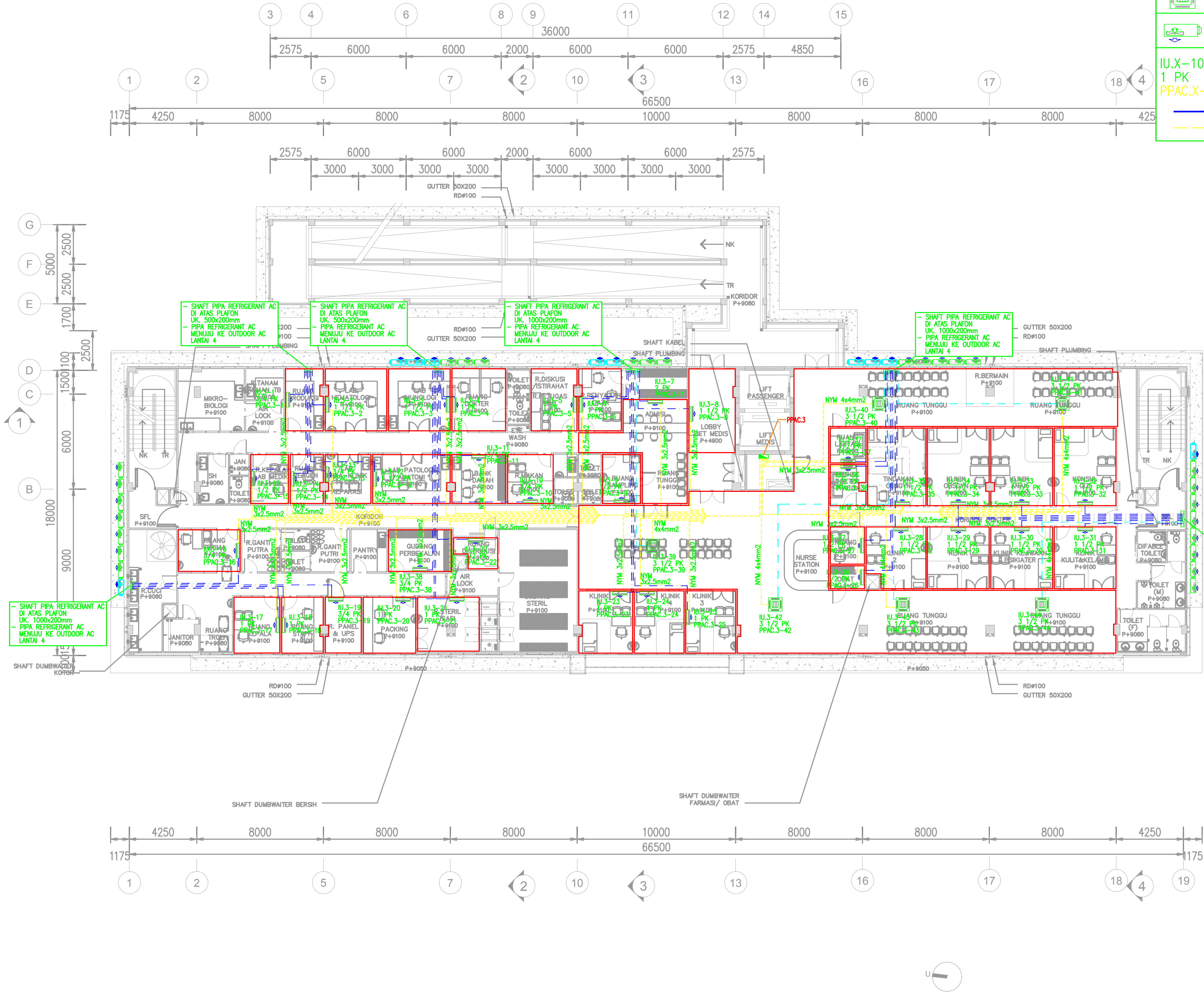



SIMBOL & KETERANGAN
IU : INDOOR UNIT/FAN COIL UNIT
TYPE : SPLIT WALL MOUNTED
IU : INDOOR UNIT/FAN COIL UNIT
TYPE : CEILING CASSETTE
OU : COMPRESSOR UNIT/OUTDOOR UNIT
IU.X-10
1 PK
PPAC.X-10
NO. AC
KAPASITAS PENDINGINAN AC
URUTAN NOMOR PANEL AC
PIPA REFRIGERANT AC
KABEL POWER AC
SHAFT PIPA REFRIGERANT AC
DI ATAS PLAFON
UK. 500x200mm
PIPA REFRIGERANT AC
MENUJU KE OUTDOOR AC
LANTAI 2
SHAFT PIPA REFRIGERANT AC
DI ATAS PLAFON
UK. 1000x200mm
PIPA REFRIGERANT AC
MENUJU KE OUTDOOR AC
LANTAI 2
IRNA
LAV
KORIDOR
P-0250
36000
66500
PARKIR MOTOR
Kapasitas 131 motor
PARKIR MOBIL
Kapasitas 83 mobil
SIRKULASI KENDARAAN
P-1150
AKSES AMBULANCE
AKSES KENDARAAN PRIBADI
DROP OFF IGD
DROP OFF MAIN LOBBY
P-0020
AKSES PEDESTRIAN
P±0000
TERAS
P±0000
SHAFT DUMBWAITER BERSIH
SHAFT DUMBWAITER FARMASI/ OBAT
MAIN LOBBY
P±0000
LOBBY LIFT
LIFT PASSENGER
SHAFT KABEL
SHAFT PLUMBING
REKAM MEDIK
X-RAY
RADIOLOGI
MOBILE X-RAY
CT SCAN
P-1000
R.UPS
R. OPERATOR
FLUROSCOPY
RUANG UPS
RUANG LINEN
OBSERVASI
RESUSITASI
TRIASE
DIRTY UTILITY
DEKON TAMINASI
NURSE STATION
CLEAN UTILITY
PANTRY
TOILET
ADMISI
ARSIP BPJS
FARMASI
KASIR
BANK
COUNTER
DISPENSING RALAN
PARKIR MOBIL INTERNAL
P-1150
NYM 3x2.5mm2
NYM 4x4mm2

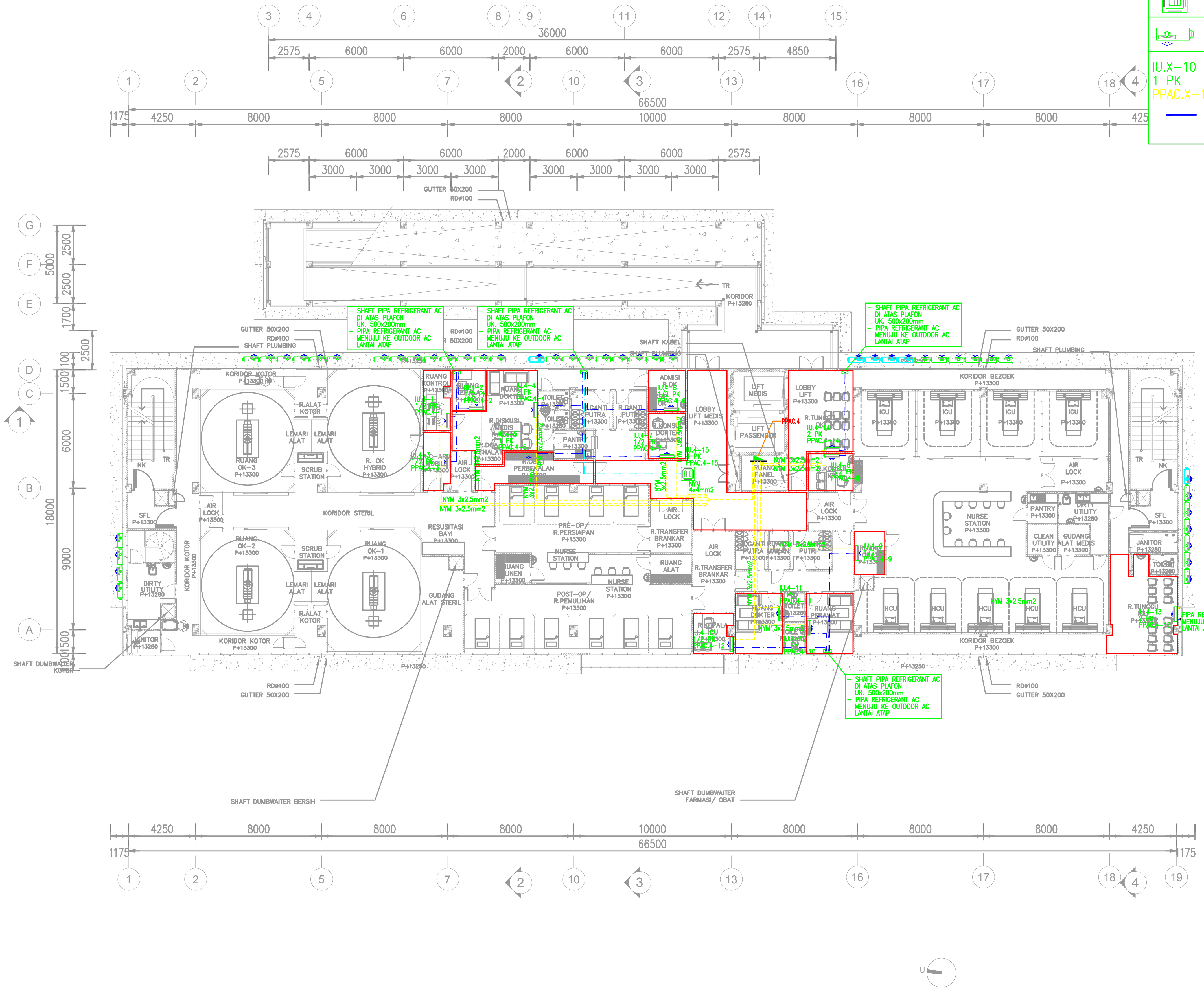
SIMBOL & KETERANGAN	
(symbol)	IU : INDOOR UNIT/FAN COIL UNIT TYPE : SPLIT WALL MOUNTED
(symbol)	IU : INDOOR UNIT/FAN COIL UNIT TYPE : CEILING CASSETTE
(symbol)	OU : COMPRESSOR UNIT/OUTDOOR UNIT
IU.X-10	NO. AC
1 PK	KAPASITAS PENDINGINAN AC
PPAC.X-10	URUTAN NOMOR PANEL AC
(blue line)	PIPA REFRIGERANT AC
(yellow dashed line)	KABEL POWER AC

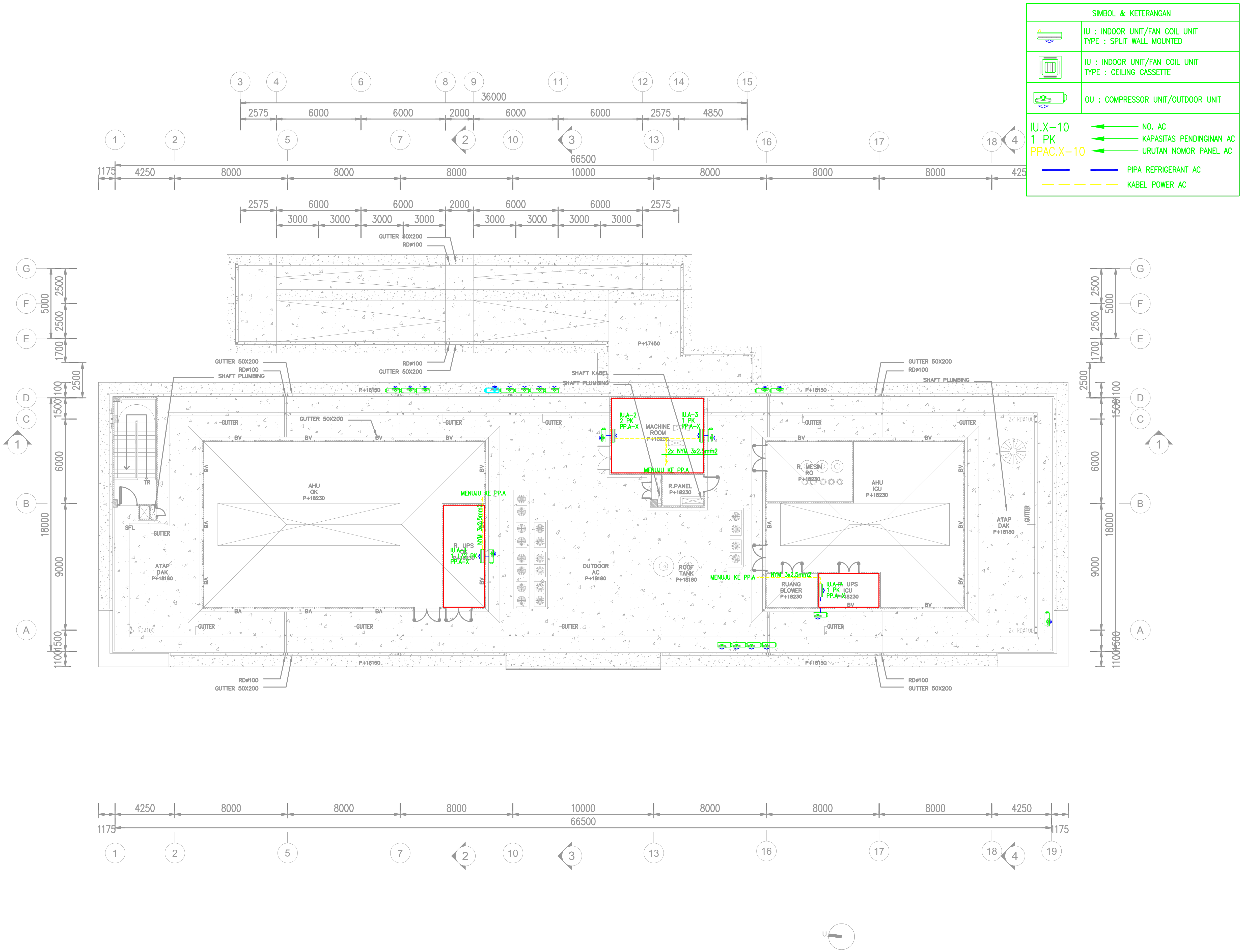


SIMBOL & KETERANGAN	
	IU : INDOOR UNIT/FAN COIL UNIT TYPE : SPLIT WALL MOUNTED
	IU : INDOOR UNIT/FAN COIL UNIT TYPE : CEILING CASSETTE
	OU : COMPRESSOR UNIT/OUTDOOR UNIT
IU.X-10 1 PK PPAC.X-10	NO. AC KAPASITAS PENDINGINAN AC URUTAN NOMOR PANEL AC
	PIPA REFRIGERANT AC
	KABEL POWER AC



SIMBOL & KETERANGAN	
	IU : INDOOR UNIT/FAN COIL UNIT TYPE : SPLIT WALL MOUNTED
	IU : INDOOR UNIT/FAN COIL UNIT TYPE : CEILING CASSETTE
	OU : COMPRESSOR UNIT/OUTDOOR UNIT
IU.X-10	NO. AC
1 PK	KAPASITAS PENDINGINAN AC
PPAC.X-10	URUTAN NOMOR PANEL AC
	PIPA REFRIGERANT AC
	KABEL POWER AC




SIMBOL & KETERANGAN
IU : INDOOR UNIT/FAN COIL UNIT
TYPE : SPLIT WALL MOUNTED
IU : INDOOR UNIT/FAN COIL UNIT
TYPE : CEILING CASSETTE
OU : COMPRESSOR UNIT/OUTDOOR UNIT
IU.X-10
1 PK
PPAC.X-10
NO. AC
KAPASITAS PENDINGINAN AC
URUTAN NOMOR PANEL AC
PIPA REFRIGERANT AC
KABEL POWER AC
36000
66500
GUTTER 50X200
RD#100
SHAFT PLUMBING
SHAFT KABEL
P+17450
P+18150
AHU
OK
P+18230
R. UPS
MENUJU KE PP.A
MACHINE
ROOM
P+18230
R.PANEL
P+18230
2x NYM 3x2.5mm2
MENUJU KE PP.A
OUTDOOR
AC
P+18180
ROOF
TANK
P+18180
R. MESIN
RO
P+18230
AHU
ICU
P+18230
RUANG
BLOWER
P+18230
UPS
ICU
NYM 3x2.5mm2
ATAP
DAK
P+18180
GUTTER
BV
TR
SFL