



**Lands Administration Office
Lands Department**

Practice Note

Issue No. 3/2018

**Building Plan Submissions
Use of Computer for Mathematical Calculation of Areas**

The purpose of this Practice Note is to advise on the electronic format and the pre-requisites for checking of area calculations electronically if Authorized Person (AP) adopts the use of computer for calculating of floor areas of buildings in preparation of general building plans which will be referred to the Lands Department (LandsD) by the Buildings Department (BD) under the Centralized Processing System.

2. This Practice Note is issued in relation to paragraph 16 and Appendix F of the Practice Note for Authorized Persons, Registered Structural Engineers and Registered Geotechnical Engineers (PNAP) ADM-19 issued by BD on the subject 'Use of Computer for Mathematical Calculations'. The said PNAP gives advice on the electronic format and the pre-requisites for plan checking of area calculations in Computer-Aided Design (CAD) drawing files electronically.

3. For the avoidance of doubt, the issuance of this Practice Note does not affect the current practice of LandsD that any approval or disapproval of general building plans under lease will be given in respect of the hard copies of the general building plans only. Hence, submission of hard copies of the general building plans is still required.

Requirement on Electronic Format and Pre-requisites

4. To facilitate checking of the area calculations under lease, AP should follow the guidelines at Annex 1 when preparing the CAD drawing files stored in non-rewritable DVD-ROM diskette(s) (DVD-ROM). In addition to this requirement, AP should follow the guidelines at Annex 3 to prepare a full set of floor plans in hard copy which is identical to the floor layout plans in the general building plans and duly coloured to show the extent of site coverage (SC), transfer plate and gross floor area (GFA) accountable and non-accountable areas under lease (Coloured Building Plans) to facilitate compliance checking of area calculations under lease. AP should submit the Coloured Building Plans together with the general building plans to LandsD through BD under the Centralized Processing System. The extent of the SC, transfer

plate, GFA accountable and non-accountable areas as shown on the Coloured Building Plans should be in line with the GFA/SC calculations and GFA/SC diagrams in the GBP submissions. Otherwise, the GBP submission may be rejected without further checking due to the incorrect information.

5. If the submission in the DVD-ROM is found not conforming to the minimum requirements as set out in paragraphs 3.1 to 3.4 of Annex 1, the AP will be informed by LandsD to replace the DVD-ROM and for the purpose of fulfillment of our performance pledge, the time specified in our performance pledge is deemed to have been “frozen” at this point. If a replacement DVD-ROM is received within 7 calendar days from the date of notification, the time of our pledge period will count again immediately upon receipt of the replacement DVD-ROM. If a replacement DVD-ROM is received after 7 calendar days, the pledge time will be re-set afresh as a new start on the date of receipt of the replacement DVD-ROM. In the event no replacement DVD-ROM is received before the expiry of the pledge time, the general building plans submission will be rejected without further scrutiny on the ground of insufficient information. Information shown in both the soft and hard copies of the plans submitted for approval must be identical to each other. Otherwise, plans may be rejected without further checking on grounds of incorrect information.

Review

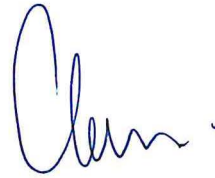
6. The above practice will be reviewed in 6 months’ time from date of implementation. Depending on the result of the review, LandsD will decide on whether further revamping of the practice is required and/or such other actions (including but not limited to the acceptance of Building Information Modeling on GFA calculation) as may be considered appropriate. The guidelines at Annexes 1 and 3 will also be reviewed taking into the experience gained. Suggestions from the industry and the professional bodies to facilitate and/or to improve the electronic vetting procedures are always welcome.

Application and Effective Date

7. This Practice Note will apply to all new general building plans submissions (including subsequent amendments or major revisions and re-submissions) for development and redevelopment projects received by LandsD through the Centralized Processing System on or after 1st February 2019. For the general building plans submissions received by LandsD through the Centralized Processing System before the said date, they would continue to be processed in the usual manner.

8. For other amendment, addition and alteration plans, annotations and dimensions of the areas concerned are required to be indicated on the hard copies of the general building plans for checking purpose. Submission of a new DVD-ROM nor Coloured Building Plans is NOT necessary. Such DVD-ROM, if submitted, will not be considered when processing the amendment, addition and alteration plans for approval under the lease conditions.

9. Lands Administration Office Practice Note Issue No. 8/2006 is hereby superseded.

A handwritten signature in blue ink, appearing to read 'Chan', with a small dot at the end.

(Thomas CHAN)
Director of Lands
26 November 2018

Annex 1 : Guidelines on Use of Computer for Mathematical Calculation of Areas
Annex 2 : List of Layer Names for LandsD's Area Calculation under Lease
Annex 3 : Guidelines on Preparation and Submission of Coloured Building Plans

**Guidelines on Use of Computer for
Mathematical Calculation of Areas**

1. For area calculations computed electronically, soft copies of the building plans containing the area diagram layer(s) are required to facilitate verification of the calculations. LandsD generally makes reference to the Notes on Submission Drawing Standards in Electronic Format at Appendix F of PNAP ADM-19. However, to facilitate checking of the area calculations under lease, AP should further observe the minimum requirements stipulated in these Guidelines.
2. When the minimum requirements set out in the following paragraphs are complied with and clearly shown in the submitted CAD drawing files, diagrammatic breakdowns and details on calculation of the gross floor area, site coverage and green features area, etc. would not be required to be included in the plan submission. For the avoidance of doubt, annotation and dimension of the areas concerned are required to be indicated on individual floor plans for checking purpose.
3. For approval purpose, hard copies of the general building plans showing floor layouts, area diagrams and calculations without breakdowns are required. **Information shown in both the soft and hard copies of the plans submitted for approval must be identical to each other. Otherwise, plans may be rejected without further checking on grounds of incorrect information.** It is advisable to ensure the minimum requirements are met before making plan submissions.

3.1 Format and Software Version

- (a) The electronic copy of the plan submission with the calculations should be prepared in an accepted format capable of being verified by **AutoCAD or other software accepted by the Director of Lands.**
- (b) The electronic copy of the plan submission should be stored in **non-rewritable DVD-ROM diskette(s).** Except otherwise agreed by the Director of Lands all other electronic submission medias are not acceptable.

- (c) CAD drawings using **AutoCAD version R14 or later or other software versions announced by the Director of Lands** are acceptable.
- (d) CAD files should be saved in “.dwg” format only. All other compressed or zipped file formats are not acceptable.
- (e) Title blocks completed with drawing number showing revision legends, site/project title, drawing title etc. should be inserted in every drawing for identification purpose.

3.2 Referencing System

- (a) Each CAD file should contain one hard copy drawing only, default zoom to full drawing extent.
- (b) All information for approval should be contained in the same drawing file. The need to cross-reference or hyper-link with another CAD file to enable verification of the area calculations in the DVD-ROM is not acceptable except in the following situation:
 - where the layering number and the system are limited due to software constraint, limited referencing system might be used provided that all information and model files which compose the final drawings are clearly visible and intact when files are open in the computer. A clear and systematic path trial in hard copy format highlighting the list of file(s) for area checking purpose should be provided to facilitate the verification exercise. All drawing files and model files area to put into the same folder to ensure coherent path recognition. Cross-referencing and hyper-linking within folder should be kept to the minimum.
- (c) Naming and numbering of drawing files in the hard copy should be identical to those in the submitted electronic version.
- (d) A completed hard and soft copy of the drawing index listing all file names, drawing numbers with brief description on location and contents of the submitted drawings should be provided. Drawing under different version must carry a revision letter (e.g. A to Z) for identification purpose. For large and complicated project involving numerous drawing versions/amendments, a revision legend should also be provided as well.

- (e) AP should list out the name(s) of the drawing file(s) in the DVD-ROM that contains the information for area checking under lease conditions in his covering letter attached to the general building plan submission. Further, AP should certify in his covering letter that the computations and deductions of gross floor area and site coverage under lease are derived directly from CAD applications without manual input. If such required information is not clearly provided in the covering letter, the plans will be rejected without further checking.

3.3 Layering Organization – Layer Name Convention

- (a) CAD drawing files including floor plans, tables and calculations, etc. should contain all information identical to their hard copy. Each file should accommodate different elements such as floor layout plans, usable floor area, gross floor area and dimension etc. into the relevant layers.
- (b) To facilitate checking of the area calculations, general building plans should contain gross floor area and other areas diagram layer(s) for verification and calculations. To adopt the rules under CAD Standard for Works Project (CSWP) of the Development Bureau (Works Branch), AP should name the relevant layers according to the list of layer names for LandsD's area calculation as specified in Annex 2. CAD file drawings not following the layer name convention will be rejected without further checking.
- (c) Layering organization of the file(s) in hard copy format should be submitted. As the list in Annex 2 is by no means exhaustive, if more layering description is required in the submitted general building plans, AP could lengthen the layer name convention at Annex 2 but a legendary description concerning the additional layer(s) should be provided. In any event, all layering organizations must be clearly shown in his covering letter, otherwise, the plans will be rejected without further checking.
- (d) CAD file for the floor plan should contain all elements and information that have to be shown on the drawings to facilitate approval, including inter alias, the area and the dimension layers. Elements such as lighting, electric appliances and the like where approval from the Director of Lands is not required under lease should not be shown in the submitted drawings.

3.4 Presentation Style

- (a) **Drawing Scale** – Drawing objects for checking and area calculation including area diagrams and dimensions should be drawn in true size (i.e. 1 drawing unit = 1 mm or metre) with precision rounded up to the nearest mm unit and in “model” space. The drawing objects **not** drawn in true size, in “model” space nor in metric unit will be rejected without further checking. The default scale adopted for area checking electronically in LandsD’s customized software is in milli-metre.
 - (b) **Polyline** – All line drawings intended for area calculations in area layer(s) should be in closed polyline diagram by using the “Close” option in creating the closing segment of the line drawings. Each closed polyline diagram should correspond to one area diagram and vice versa. CAD file drawings containing any open polyline diagram, self intersecting area diagram or duplicated area diagram will be rejected and the plans will be rejected without further checking.
 - (c) **Dimension** – All dimensions should be true dimensions generated automatically by the software and laid in the specified layer i.e. Dimension Layer. Text figures or figures manually inserted, amended or constructed (collectively referred as “typed-in dimension(s)”) for calculation purpose in the CAD file are not acceptable. CAD file drawings containing any typed-in dimension(s) will be rejected and the plans will be rejected without further checking.
 - (d) **Decimal Places of Areas:** All areas should be presented in m² units and with precision rounded up to 3 decimal places, otherwise the plans will be rejected without further checking.
4. Text style is not compulsory. Conventional text fonts are suggested. Common type such as “Romans” font is recommended for use in the text.

List of Layer Names for LandsD's Area Calculation under Lease

Note

1. The list of layer names below is generated based on the rules under CAD Standards for Works Projects (CSWP) of the Development Bureau (Works Branch). AP should refer to the concerned CSWP Practice Note for further details about the rules laid down.
2. The prefix “ADA” means the Agent Responsible Codes (ARC) registered in ARC tables kept by Architectural Services Department (please see www.devb.gov.hk/cswp). Each AP/agent has his/her own ARC codes e.g. ADA = Architectural Services Department – Architectural. The customized program of LandsD ignores the ARC by default when checking the area calculation electronically.
3. The list of layer names may not be exhaustive. If a new deduction layer in addition to the descriptions listed below is required, the AP may lengthen the layer name convention to cater for other deductions not specified in the list 4. New layer names may be added to the list when appropriate.

Non-Domestic SC calculations

<u>Layer Name</u>	<u>Description</u>
ADA08610	Area for SC calculations
ADA08615	Area to be deducted from SC calculations
ADA0861A	Green features under Joint Practice Note Nos. 1 & 2
ADA0861B	Curtain walling system
ADA0861C	Refuse chambers, E&M provisions, plant rooms for A/C or heating system, lift shaft area allowed under PNAP APP-89, etc.
ADA0861D	Private car parking spaces, loading and unloading spaces
ADA0861E-Z	Miscellaneous Deduction (reserve layers to cater for future needs. I and O not to be used)

Domestic SC calculations

<u>Layer Name</u>	<u>Description</u>
ADA08620	Area for SC calculations
ADA08625	Area to be deducted from SC calculations
ADA0862A	Green features under Joint Practice Note Nos. 1 & 2
ADA0862B	Curtain walling system
ADA0862C	Caretaker's/watchmen's office
ADA0862D	Caretaker's/watchmen's quarters
ADA0862E	Recreational facilities
ADA0862F	Owners' corporation / owners' committee office
ADA0862G	Refuse chambers, E&M provisions, plant rooms for A/C or heating system, lift shaft area allowed under PNAP APP-89, etc.
ADA0862H	Private car parking spaces, loading and unloading spaces
ADA0862J-Z	Miscellaneous Deduction (reserve layers to cater for future needs. I and O not to be used)

Non-Domestic GFA calculations

<u>Layer Name</u>	<u>Description</u>
ADA08640	Area for GFA calculations
ADA08645	Area to be deducted from GFA calculations
ADA0864A	Green features under Joint Practice Note Nos. 1 & 2
ADA0864B	Curtain walling system
ADA0864C	Refuse chambers, E&M provisions, plant rooms for A/C or heating system, lift shaft area allowed under PNAP APP-89, etc.
ADA0864D	Private car parking spaces, loading and unloading spaces
ADA0864E	Covered walkways
ADA0864F	Mail Rooms / Nest Letter Boxes (only for commercial and industrial building)
ADA0864G	Residential Care Homes for the Elderly
ADA0864H	Government Accommodation
ADA0864J	Public transport terminus
ADA0864K	Hotel back of house facilities
ADA0864L-Z	Miscellaneous Deduction (reserve layers to cater for future needs. I and O not to be used)

Domestic GFA calculations

<u>Layer Name</u>	<u>Description</u>
ADA08650	Area for GFA calculations.
ADA08655	Area to be deducted from GFA calculations.
ADA0865A	Green features under Joint Practice Note Nos. 1 & 2
ADA0865B	Curtain walling system
ADA0865C	Bay windows
ADA0865D	Caretaker's/watchmen's office
ADA0865E	Caretaker's/watchmen's quarters
ADA0865F	Recreational facilities under LAO PN 4/2000(B)
ADA0865G	Owners' corporation / owners' committee office
ADA0865H	Refuse chambers, E&M provisions, plant rooms for A/C or heating system, lift shaft area allowed under PNAP APP-89, etc.
ADA0865J	Private car parking spaces, loading and unloading spaces
ADA0865K	Covered walkways
ADA0865L	Logistic service room (only for residential building)
ADA0865M	Residential Care Homes for the Elderly
ADA0865P	Area to be deducted from Recreational facilities
ADA0865N-Z	Miscellaneous Deduction (reserve layers to cater for future needs. I and O not to be used)

NOFA calculations

<u>Layer Name</u>	<u>Description</u>
ADA08670	Area for NOFA calculations.
ADA08675	Area to be deducted from NOFA calculations.
ADA0867A-Z	Miscellaneous Deduction (reserve layers to cater for future needs. I and O not to be used)

UFA calculations

<u>Layer Name</u>	<u>Description</u>
ADA08690	Area for UFA calculations
ADA08695	Area to be deducted from UFA calculations
ADA0869A	Active Recreational Facilities under LAO PN 4/2000 (obsolete)
ADA0869B	Passive Recreational Facilities under LAO PN 4/2000 (obsolete)

ADA0869C	Area for greenery calculations
ADA0869D	Area to be deducted from greenery calculations
ADA0869E	Area for water feature, green paver and other 50% accountable green areas calculations
ADA0869F	Area to be deducted from water feature, green paver and other 50% accountable green areas calculations
ADA0869G	Area for green roof calculations
ADA0869H	Area to be deducted from green roof calculations
ADA0869J-Z	Miscellaneous Deduction (reserve layers to cater for future needs. I and O not to be used)

Open Space calculations

<u>Layer Name</u>	<u>Description</u>
ADA08600	Area for Open Space calculations
ADA08605	Area to be deducted from Open Space calculations
ADA0860A-Z	Miscellaneous Deduction (reserve layers to cater for future needs. I and O not to be used)

Dimension

<u>Layer Name</u>	<u>Description</u>
ADA086_8	Dimension layer

Guidelines on Preparation and Submission of Coloured Building Plans

1. To facilitate compliance checking of area calculations under lease, AP should submit a full set of floor plans duly coloured to show the extent of site coverage (SC), transfer plate, gross floor area (GFA) accountable and non-accountable areas under lease (Coloured Building Plans). Sample Coloured Building Plans are attached at Appendix 1 for illustration purpose. One hard copy of Coloured Building Plans should be submitted to LandsD through BD under the Centralized Processing System together with the general building plan (GBP) submission. Requirements as set out in the following paragraphs should be observed. Plans may be rejected on grounds of insufficient information if these requirements are not complied with.

Colour Code

2. All categories of GFA such as office, retail/commercial, hotel and residential GFA under lease should be coloured in accordance with the standard colour code at Appendix 2. In other circumstances, e.g. sites restricted for industrial purposes, sites with provision of government accommodations as required under the lease, AP may propose additional colours that are required to indicate GFA categories other than those appeared in the standard colour code and AP should clearly mark in his correspondence with LandsD the use of additional colours and the corresponding categories of GFA. AP may suitably adjust the level of colour transparency such that the colouring on the plans will not visually block the details of the floor plans.

Format

3. Only hard copy of the Coloured Building Plans will be accepted. The Coloured Building Plans should be printed in the same scale and size as the corresponding floor plans in the GBP submission and should contain all information including dimensions and annotations identical to the corresponding floor plans.

4. The extent of the SC, transfer plate, GFA accountable and non-accountable areas as shown on the Coloured Building Plans should be in line with the GFA/SC calculations and GFA/SC diagrams in the GBP submissions. Otherwise, the GBP submission may be rejected without further checking due to the incorrect information.

Appendix 1: Sample Drawings of Coloured Building Plans

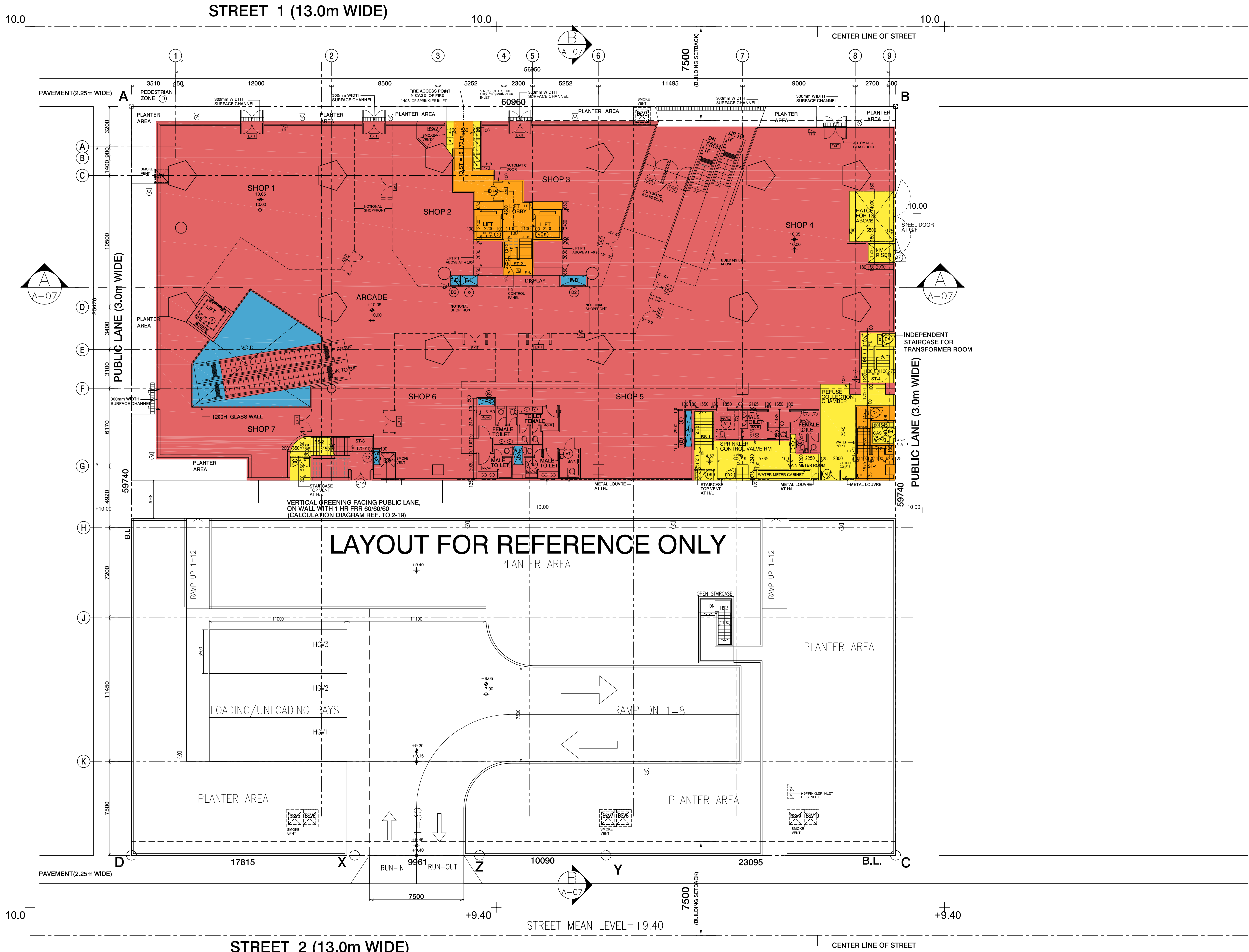
Appendix 2: Standard Colour Code

B.D. REFERENCE		屋宇署檔案	
F.S.D. REFERENCE		消防處檔案	
W.W.O. REFERENCE		水務署檔案	
CAD FILE NAME		檔案編號	
NOTES		注釋	
</			

LEGEND	
	RESIDENTIAL AREA
	CARETAKER'S OFFICE
	CARETAKER'S QUARTERS
	OWNERS' CORPORATION/ OWNERS' COMMITTEE OFFICE
	RECREATIONAL FACILITIES/ CLUBHOUSE
	RETAIL/COMMERCIAL AREA
	OFFICE AREA
	HOTEL AREA
	GFA NON-ACCOUNTABLE AREA (DEDUCTED AREA WITHIN GFA ACCOUNTABLE AREA)
	GFA NON-ACCOUNTABLE AREA (OUTSIDE GFA ACCOUNTABLE AREA)
	EXTENT OF TRANSFER PLATE
	EXTENT OF SITE COVERAGE

FOR OFFICIAL USE

PROJECT		項目名稱
DRAWING TITLE		標題
SCALE		比例
DATE		日期
DRAWN BY 製作人		CHECKED BY 檢查
JOB NO. 工程項目		DRAWING NO. 圖號
		A-03



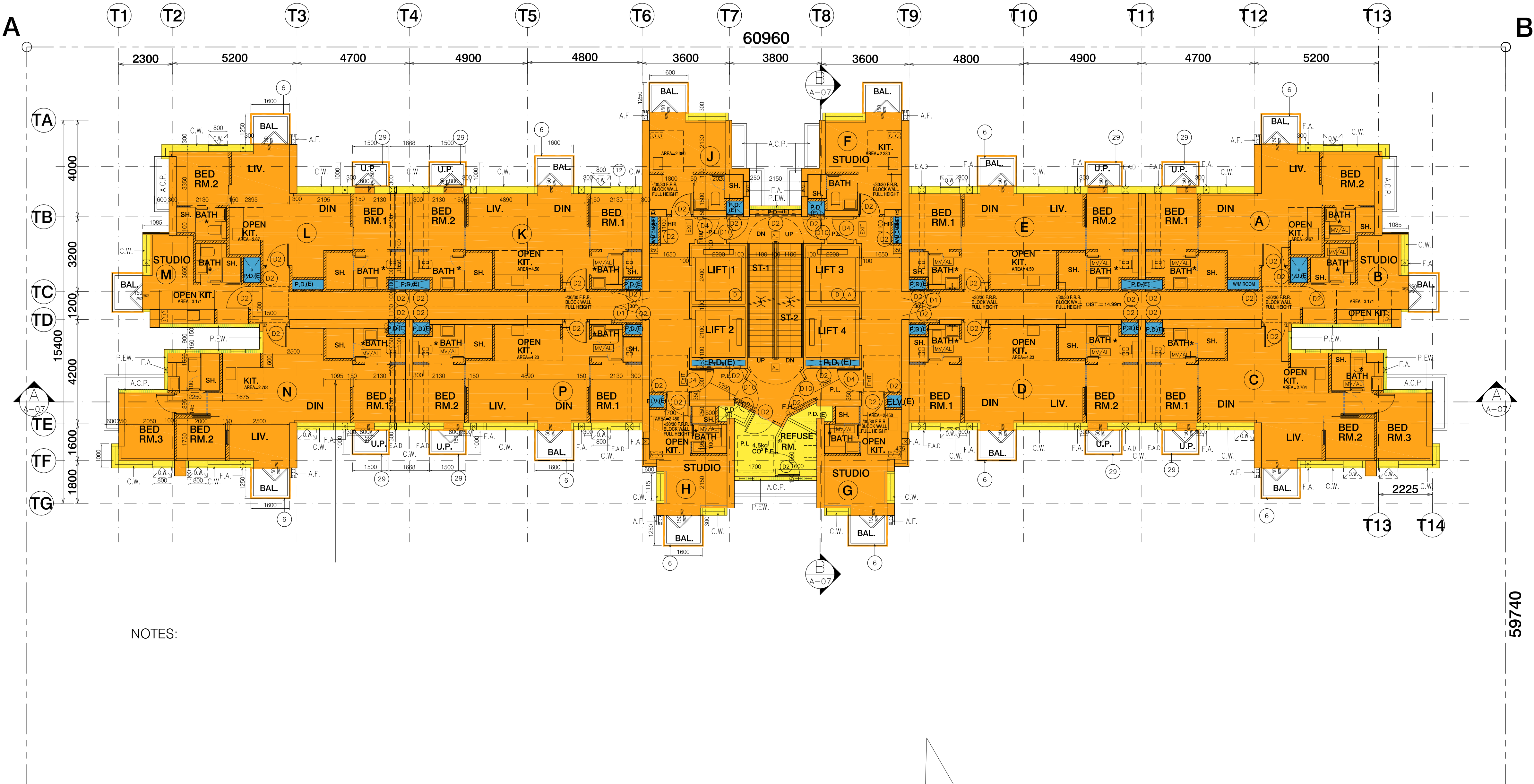
GROUND FLOOR PLAN

- IMPOSED LOAD – DRIVEWAY / LOADING BAYS = 7.5 kpa
– SHOPPING ARCADE = 4.0 kpa
– PLANT ROOMS = 7.5 kpa

XXXXXXXXXXXXXXXXXXXXXXXXXXXX
Authorized Person (Architect)

B.D. REFERENCE		屋宇署檔案	
F.S.D. REFERENCE		消防處檔案	
W.W.O. REFERENCE		水務署檔案	
CAD FILE NAME		檔案編號	
NOTES		注釋	

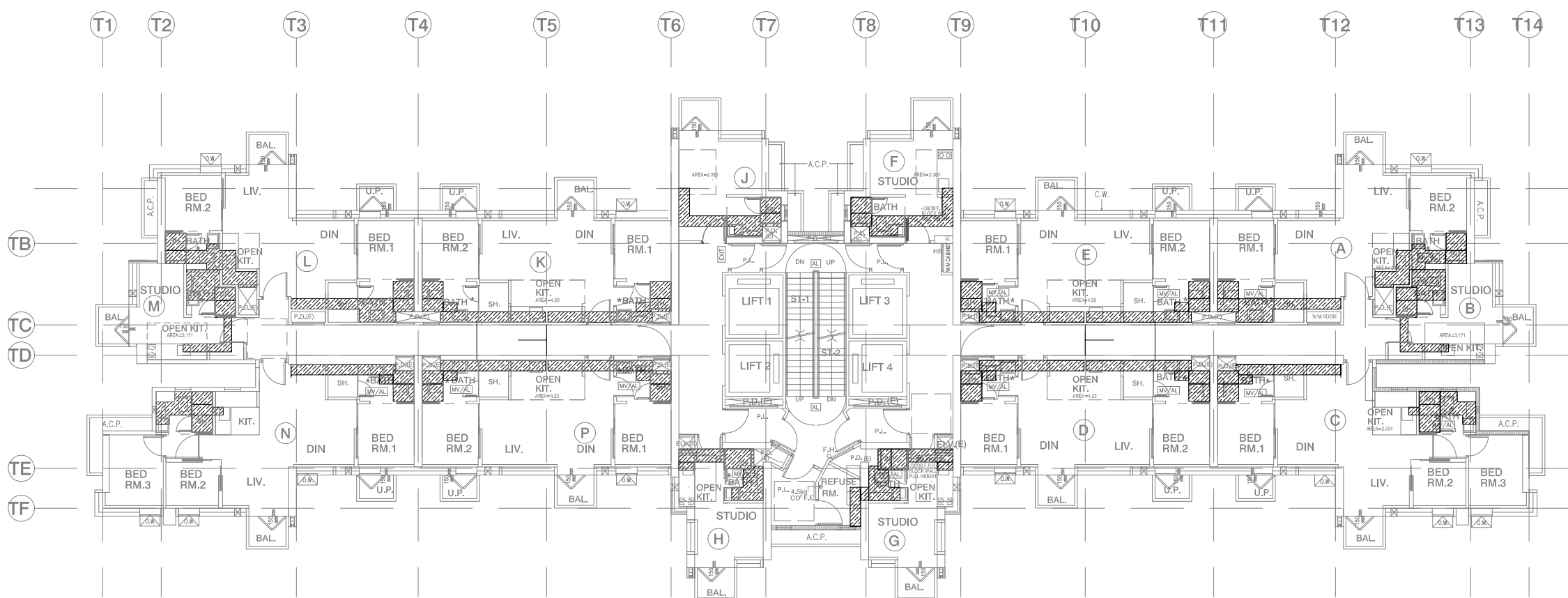
LEGEND	
	RESIDENTIAL AREA
	BALCONY/UTILITY PLATFORM
	CARETAKER'S OFFICE
	CARETAKER'S QUARTERS
	OWNERS' CORPORATION/ OWNERS' COMMITTEE OFFICE
	RECREATIONAL FACILITIES/ CLUBHOUSE
	RETAIL/COMMERCIAL AREA
	OFFICE AREA
	HOTEL AREA
	GFA NON-ACCOUNTABLE AREA (DEDUCTED AREA WITHIN GFA ACCOUNTABLE AREA)
	GFA NON-ACCOUNTABLE AREA (OUTSIDE GFA ACCOUNTABLE AREA)
	EXTENT OF TRANSFER PLATE
	EXTENT OF SITE COVERAGE
C.W. CURTAIN WALL	
A.C.P. A/C PLATFORM	
P.E.W. NON-STRUCTURAL PREFABRICATED EXTERNAL WALL	
A.F. ARCHITECTURAL FEATURE	
F.A. FLUE APERTURE	
E.A.D. EXHAUST AIR DUCT	
O.W. OPENABLE WINDOW	



TYPICAL FLOOR PLAN 5/F TO 25/F 'LAYOUT FOR REFERENCE ONLY'

- IMPOSED LOAD - DOMESTIC = 2 kPa
- STAIRCASE = 3 kPa

WINDOW AREA CALCULATION SHEDULE FOR 4/F TO 25/F							
FLOOR NO.	UNIT NO.	USE	PRESCRIBED WINDOW AREA REQUIRED			PRESCRIBED WINDOW AREA PROVIDED	
			U.F.A. (s.m.)	GLASS AREA (1/10 OF U.F.A.) (s.m.)	OPENABLE AREA (1/16 OF U.F.A.) (s.m.)	GLASS AREA (s.m.)	OPENABLE AREA (s.m.)
4/F TO 25/F (EACH FL.)	A & L	LIV. & DIN.	13.500	1.350	0.844	1.380	0.875
		BED RM.1					
	B & M	BED RM.2					
		STUDIO					
	C & N	LIV. & DIN.					
		BED RM.1					
		BED RM.2					
	D & P	BED RM.3					
		LIV. & DIN.					
		BED RM.1					
	E & K	BED RM.2					
		LIV. & DIN.					
	F & J	BED RM.1					
		BED RM.2					
	G & H	STUDIO					



SUNKEN SLAB LAYOUT FOR TYPICAL FLOOR PLAN 5/F TO 25/F

- LEGEND-
- SUNKEN SLAB

XXXXXXXXXXXXXXXXXXXXXXXXXXXX
Authorized Person (Architect)

FOR OFFICIAL USE

PROJECT		項目名稱	
DRAWING TITLE		標題	
5-25TH FLOOR PLAN			
SCALE	比例	DATE	日期
1:100			
DRAWN BY 製作人	CHECKED BY	檢查	
JOB NO. 工程項目	DRAWING NO.	圖號	
		A-06	

Standard Colour Code for Coloured Building Plans

List of standard colour code:

Area Category	Colour on Coloured Building Plans	
	Colour	True colour (RGB)
Line of transfer plate		Red thick dash line 227, 100, 102
Line of site coverage		Blue thick dash line 73, 167, 209
Building line above		Black thick dash line 0, 0, 0
Residential area		Orange 255, 164 ,25
Residential area - balcony / utility platform		Edged with orange 255, 164, 25
Residential area - caretaker's / watchmen's office		Light brown hatched black 208, 177, 149
Residential area - caretaker's / watchmen's quarters		Light brown 208, 177, 149
Residential area - owners' corporation / owners' committee office		Light brown cross hatched black 208, 177, 149
Residential area - recreational facilities		Pink 255, 167, 255

List of standard colour code (cont'd):

Area Category	Colour on Coloured Building Plans	
	Colour	True colour (RGB)
Office area		Red hatched black 227, 100, 102
Retail / commercial area		Red 227, 100, 102
Hotel area		Light blue 144, 214, 236
GFA non-accountable area (deducted area within GFA accountable area)		Blue 73, 167, 209
GFA non-accountable area (outside GFA accountable area)		Yellow 255, 237, 61