COVER NOTE ISSUED BY
THE INFO-COMMUNICATIONS DEVELOPMENT AUTHORITY OF SINGAPORE

CODE OF PRACTICE FOR INFO-COMMUNICATION FACILITIES IN BUILDINGS 2013 ("COPIF 2013")

17 April 2013

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CODE OF PRACTICE FOR INFO-COMMUNICATION FACILITIES IN BUILDINGS 2013

17 April 2013

In exercise of the powers conferred by Section 19 (1)(a) and Section 28 of the Telecommunications Act (Chapter 323) (the "**Act**"), the Info-communications Development Authority of Singapore ("**IDA**") hereby issues the Code of Practice for Info-communication Facilities in Buildings 2013 ("**COPIF 2013**") and the Guidelines for Info-communication Facilities in Buildings ("**Guidelines**") respectively. This document provides IDA's response to the comments received to the proposed revised Code of Practice for Info-communication Facilities in Buildings ("**Proposed Revised COPIF**") issued in June 2012.

PART I: INTRODUCTION

1. On 4 November 2011, IDA invited views and comments on a set of proposed changes to the Code of Practice for Info-communication Facilities in Buildings 2008 ("**COPIF 2008**"). The proposed changes were for the purpose of ensuring that info-communication facilities provided within buildings continue to keep pace with developments in telecommunication infrastructure technology and support the evolving info-communication needs of users.

2. At the close of the public consultation on 16 December 2011 (the "**First Public Consultation**"), IDA received comments from 10 respondents including CityNet Infrastructure Management Pte Ltd, CSD Sealing System, Jones Lang LaSalle Singapore, Mr Low Chee Kiong, M1 Limited, OpenNet Pte Ltd, Park Hotel Group, Singapore Telecommunications Ltd, SingTel Mobile Singapore Pte Ltd and StarHub Ltd.

3. Having given careful consideration to the views and comments contained in each of the submissions, IDA issued the Proposed Revised COPIF, for a second round of public consultation (the "**Second Public Consultation**") on 22 June 2012.

4. At the close of the Second Public Consultation on 3 August 2012, IDA received comments from six parties, namely CityNet Infrastructure Management Pte Ltd, M1 Limited, OpenNet Pte Ltd, Singapore Telecommunications Limited and SingTel Mobile Singapore Pte Ltd jointly, Squiremech Pte Ltd and StarHub Ltd.

5. IDA would like to thank all the respondents for their comments.

6. Taking into account IDA's overall policy objectives and purpose of the COPIF, as well as the views received in the Second Public Consultation, IDA has completed its review of the Proposed Revised COPIF and Guidelines.

7. This cover note sets out the following:

   (a) A summary of the views and comments received during the Second Public Consultation;

   (b) IDA's assessment of the views and comments raised by the respondents on the Proposed Revised COPIF; and

   (c) IDA's final decision and issuance of COPIF 2013 and the Guidelines.

PART II: SUMMARY OF COMMENTS RECEIVED IN SECOND PUBLIC CONSULTATION AND IDA'S ASSESSMENT

8. This section provides a summary of the comments and views received on the Proposed Revised COPIF, as well as IDA's assessment of them.

9. IDA notes that a number of the comments raised in the Second Public Consultation were similar to those raised in the First Public Consultation, save for further clarifications. In these cases, IDA reviewed the comments again carefully and where assessed to be reasonable and justified, IDA has reflected its reassessment in COPIF 2013.

SECTION 1 Provision of Space and Facilities to Facilities-Based Operators who are Licensed to Provide Public Mobile Telecommunication Services

<u>Provisioning of Mobile Deployment Space</u>

10. In the two rounds of public consultation IDA conducted in November 2011 and June 2012, IDA had proposed for changes to be made to the COPIF to allow mobile telecom operators ("**MTOs**") to deploy installation, plant and systems in relevant spaces and facilities of developments for the provision of better cellular mobile coverage within these developments. The proposal was made in recognition that mobile telephony usage is on the rise and mobile services are seen as complementary or even a viable substitute for fixed-line telephony services by some end users. With pervasive usage of mobile telephony and broadband services brought about by smartphones and other mobile broadband-enabled devices, and increasing dependency on mobile services for business and personal communications, IDA believes that end users will expect and require better mobile coverage, especially within building compounds. IDA has enhanced its quality of service standards imposed on MTOs, for both in-building and outdoor mobile coverage. IDA therefore is of the view that it would be an appropriate time now to ensure that the COPIF reflects the evolving needs of end users.

11. Therefore, IDA had proposed to revise the COPIF to require building owners/developers to provide a minimum set of mobile deployment space ("**MDS**") at their own cost. IDA had also proposed that the MDS requirements would be applicable to both new and existing developments, and that a reasonable degree of flexibility would be accorded to building owners/developers in their determination of where the MDS may be located (e.g. the MDS may be on roof-tops or in car parks). For the avoidance of doubt, any other facilities associated with the MDS would be provided by the MTOs.

12. A majority of the respondents had no objection to the inclusion of the MDS requirements in COPIF. However, in the Second Public Consultation, some respondents were of the view that basic facilities such as power supply, lighting and ventilation at the MDS should be provided by building developers/owners. Some respondents also commented that the developers/owners should provide additional facilities such as cable trays, in-building cabling, and cable risers.

13. IDA has reviewed the comments and remains mindful of the cost burden that may be imposed on building developers/owners as a result of the MDS requirements. While the MDS requirements are intended to facilitate the MTOs' deployment of telecom systems for mobile coverage within each development[1], such requirements should not however absolve the MTOs from all deployment costs by transferring these costs to developers/owners. In this regard, IDA maintains that an appropriate balance would be for the building developers/owners to provide the necessary MDS at their own cost, and for the MTOs to bear all costs associated with the installation of mobile equipment within the developments, including the in-building cabling.

14. As for power supply, IDA views that while developers/owners should not be made to provide the necessary electrical cabling and facilities in the MDS, especially as the locations of the MDS may only be determined upon requests being made by the MTOs, building owners/developers should provide a 32 Amp 3-phase tap power supply for each MTO, to facilitate the expeditious deployment of mobile equipment for mobile coverage within their developments. For the avoidance of doubt, developer/owners need not bear the utility charges for the operation of any installation, plant or system deployed by the MTOs.

15. Separately, should the MDS be located in enclosed rooms, IDA views that it would be reasonable for the developers/owners to provide lighting and ventilation such as louvres and exhaust fans, similar to the requirements in place today for main distribution frame rooms.

[1] The term "development" means a single project (whether completed or not) consisting of 1 or more buildings, and includes all parcels of land comprised within the same project.

Size of MDS

16. In the Proposed Revised COPIF, IDA had explained that other than mobile base stations, associated ancillary equipment such as power distribution boards, combiners and back-up power supply would also need to be located in the same MDS. In this regard, IDA was of the view that it would be necessary to increase the sizes of MDS for residential and non-residential developments as follows:

Table 1: Size of MDS in Residential Developments Comprising One or More Multi-storey Residential Buildings

Total number of residential units in the Development	**Required MDS (m^2)**	**Minimum height clearance (m)**
80 – 200	18	3
201 – 600	36	
> 600	54	

Table 2: Size of MDS in Non-residential Developments

Total Mobile Coverage Area ('000 m^2)	**Required MDS (m^2)**	**Minimum height clearance (m)**
2 - <6	18	3
6 - <20	36	
20 – 100	54	
> 100	72	

17. Respondents to the Second Public Consultation generally commented that the MDS size requirements in the Proposed Revised COPIF, while representing an increase from the numbers stated in the First Public Consultation, would still be insufficient to meet the MTOs' needs for simultaneous 2G, 3G and 4G/LTE coverage within developments. The respondents proposed instead that each MTO should be provided with at least $8m^2$ of space, along with an additional $2m^2$ for housing the common antenna system. One respondent also suggested that the MDS requirement be extended to other types of developments, i.e., landed dwelling houses and non-residential buildings with a total usable floor area of less than $2,000m^2$.

18. IDA has carefully considered the various representations and maintains that the proposed MDS size requirements in the Proposed Revised COPIF are reasonable and sufficient in facilitating the provision of mobile coverage within developments, and also strike an appropriate balance between the cost imposed on building developers/owners and incentivising MTOs to make efficient use of the MDS. However, IDA recognises that the option to provide disaggregated MDS would reduce the efficiency of the allocated space, especially for the tier of residential and non-residential developments which are required to provide the smallest MDS of 18m^2. This will be elaborated further in the subsection on *Disaggregation of MDS below*.

19. With regard to the comment that the MDS requirement be extended to landed residential and smaller non-residential developments, IDA notes that not only would such developments likely face greater space constraints in the first place, the provision of mobile coverage to/within such developments could be more effectively and efficiently achieved by other deployment means, instead of installing equipment within the developments themselves. Therefore, IDA remains of the view that the MDS requirement should not be extended to landed residential and smaller non-residential developments.

20. For the avoidance of doubt, while IDA will proceed to incorporate the MDS size requirements as shown in paragraph 16 above in COPIF 2013, IDA will clarify that these requirements represent the sizes of MDS which building owners/developers are required to provide at no charge, to facilitate the provision of mobile coverage within their developments. Therefore, should the MTOs have space requirements which are over and beyond these stipulated sizes, the MTOs and the building owners/developers may negotiate for these on a commercial basis.

<u>Disaggregation of MDS</u>

21. A number of respondents requested that the MDS provided by building owners/developers should be a single contiguous space, rather than being possibly disaggregated into smaller lots (with each lot being no smaller than 4m X 1.5m). The respondents explained that a single contiguous space would facilitate more efficient usage of space, as the MTOs would be able to deploy shared common equipment and infrastructure. Conversely, divided lots of MDS would mean that MTOs have to deploy duplicate sets of equipment, as well as supporting infrastructure such as cable trays and cables to link up the disaggregated lots.

22. Having considered the comments, IDA views that it would be unreasonable to expect building developers/owners to offer a single contiguous space for MDS in every instance, especially for existing buildings where it may be more challenging to identify suitable contiguous space. Having said that, IDA agrees with the comments that where the MDS allocation is disaggregated, it may be necessary to provide more space given that there would be unavoidable inefficiency associated with each disaggregated MDS location. This is especially so for the developments in the lowest tier, where the size of the required MDS is $18m^2$.

23. Thus, IDA is of the view that for developments where the size of the required MDS is $18m^2$, and the owner/developer wishes to offer the MDS on a disaggregated basis, each disaggregated MDS location must be no smaller than $8m^2$, with a minimum width of 2m. Therefore, for developments where the owners/developers opt to provide MDS on a disaggregated basis, the required sizes of MDS will be as follows:

Table 3: Size of MDS in Residential Developments Comprising One or More Multi-storey Residential Buildings, with Disaggregated MDS

Total number of residential units in the Development	**Required MDS (m^2)**	**Minimum height clearance (m)**
80 – 200	24*	3
201 – 600	36*	
> 600	54*	

* Size of each disaggregated MDS shall be at least $8m^2$. The sharing arrangement amongst MTOs for Disaggregated MDS shall be in accordance with the allocation principles as specified in Chapter 16 of COPIF 2013.

Table 4: Size of MDS in Non-residential Developments, with Disaggregated MDS

Total Mobile Coverage Area ('000 m^2)	**Required MDS (m^2)**	**Minimum height clearance (m)**
2 - <6	24*	3
6 - <20	36*	
20 – 100	54*	
> 100	72*	

* Size of each disaggregated MDS shall be at least $8m^2$. The sharing arrangement amongst MTOs for Disaggregated MDS shall be in accordance with the allocation principles as specified in Chapter 16 of COPIF 2013.

Location of MDS

24. While the Proposed Revised COPIF stipulated that building owners/developers would decide on the location of the MDS, a number of respondents asked for the siting of the MDS to be agreed upon by the developers/owners and the MTOs. These respondents pointed out that an MDS location unilaterally selected by the building developer/owner might not be suitable for optimal mobile signal distribution, or could pose risks to mobile equipment such as damage from moisture or pests.

25. In consideration that building owners/developers are already required to provide MDS at their own cost, particularly for existing developments where more effort may need to be expended by building owners/developers to identify and adapt suitable locations which meet the space requirements, IDA maintains its view that developers/owners should have the flexibility to determine the location of the MDS within their developments. Nonetheless, IDA also agrees with the comments that inappropriate MDS locations would not only necessitate higher deployment costs due to sub-optimal mobile signal distribution, but could also possibly result in damage to the MTOs' mobile equipment.

26. Therefore, without compromising the overriding consideration for flexibility to be accorded to building developers/owners in determining the locations of the MDS, IDA considers that the concerns raised by the respondents above may be practically addressed in the COPIF via the stipulation of conditions that building developers/owners would need to observe when determining the suitability of locations for the MDS. In addition, IDA will also include in the COPIF Guidelines specific requirements for the provision of cellular mobile services within each development, e.g. characteristics of locations which can facilitate optimal signal propagation.

Requirement for Second MDS in Tall Buildings

27. A number of respondents requested that buildings with more than 20 storeys should be provisioned with a second MDS on the 20th floor. This was in consideration that the typical operating range of in-building cabling for mobile signal propagation would be affected by significant signal losses for cable runs of more than 20 storeys. Other than facing difficulties in providing adequate mobile coverage to the higher floors of tall buildings due to aesthetic reasons and/or perceived health hazards, the respondents also pointed to a lack of buildings of comparative height in the vicinity of such buildings from which alternative coverage may be provided.

28. IDA notes that there has been public feedback on poor or no mobile signals on the higher floors of taller buildings. Coupled with the increasing prevalence of such buildings in Singapore, IDA agrees with the respondents that a second MDS should be provided at an appropriate level to ensure effective mobile coverage to the higher floors. For the avoidance of doubt, the space for the second MDS will come from within the proposed MDS size requirements and not be over and above them.

29. In this regard, IDA will specify in COPIF 2013 that for developments which comprise buildings of 30 or more storeys, the building owners/developers will be required to offer the MDS in 2 or more separate spaces, provided that the total offered space meets the relevant MDS size requirement and that each separate space is at least 8m^2 with a width of at least 2m.

Required MDS size for developments with MRT/Road Tunnels

30. In the Proposed Revised COPIF, IDA included MDS requirements for developments with MRT and road tunnels. IDA had agreed that there was merit in doing so, as MRT and road commuters would also expect to enjoy mobile coverage access while they were commuting / travelling inside the said tunnels. In the Second Public Consultation, some respondents sought clarification on the provision of MDS in MRT stations and road tunnel ventilation buildings. While one respondent commented that the size of the MDS in developments with MRT/Road Tunnels should be increased, another submitted that the owners/developers of such developments should provide space and power in the tunnels to enable the placement of amplifiers, as well as adequate air-conditioning and lighting within the MDS.

31. With regard to the size of the MDS, IDA maintains that 40 m^2 would be sufficient to meet the needs of the MTOs, especially considering that the proposed size is largely similar to the rooms currently utilised by MTOs for the provision of mobile coverage in MRT/road tunnels. Should additional space beyond the 40 m^2 be required, the MTOs may negotiate with the owners/developers for such space on a commercial basis. As for the provision of space and power in the tunnels, similar to the assessment in paragraph 14 above, IDA views that it would be reasonable for the MTOs to bear the cost associated with the installation of mobile equipment, including the cost of power cables, in the tunnels. Likewise, where the MDS in such developments is enclosed, the owners/developers should provide appropriate ventilation and lighting, such as louvres and exhaust fans, but not necessarily air-conditioning.

SECTION 2 Provision of Cables for Telecommunication (Non-Coaxial Cable) System in Residential Properties

32. In the First Public Consultation, IDA noted that info-communication services nowadays may be provided to end users over a variety of platforms and technologies, including the Next Generation Nationwide Broadband Network ("**Next Gen NBN**"). Thus, IDA viewed that COPIF 2008's requirements for twisted copper 4-pair cables (Cat 3 or better) to a residential unit would no longer be necessary and should be replaced with optical fibre cables instead. Doing so would provide end users with greater convenience in enjoying Next Gen NBN services, by eliminating the hassle of fibre installation and reducing service provisioning times. In addition, IDA also assessed that it would be more practical and forward looking for cabling requirements within residential premises to be revised to support a wider range of services, particularly broadband services, rather than plain telephony services.

33. Therefore, in the Second Public Consultation, IDA proposed the following requirements to be stipulated in the COPIF:

    a. a minimum of one 2-core optical fibre cable to be terminated into a fibre interface point located in the gate pillar or telecommunication riser at one end and terminated into a fibre termination point installed within the residential unit at the other end[2]; and

    b. a fibre termination point in the residential unit and an RJ45 patch panel to be located in the utility room or closet.

34. IDA notes that the responses to the Second Public Consultation were generally supportive of the proposed requirements, save for the following points which the respondents would like IDA to consider:

    a. The developers or owners should be required to provide a fibre distribution box situated in the gate pillar/telecommunication riser on each floor of high rise residential buildings instead of providing a fibre interface point; and

    b. The fibre termination point and RJ45 patch panel in each residential unit should be located together in either the utility room or closet.

[2] The requirement for twisted copper 4-pair cables (Cat 3 or better) to a residential unit was proposed to be removed as a result.

35. Regarding the first point, IDA views that a fibre distribution box located in the gate pillar/telecommunication riser would have inherent access limitations, and would not facilitate ease of access by telecommunication licensees ("**Licensees**") that deploy their own fibre cabling in the telecom risers. IDA therefore maintains that a more practical and effective solution would be to require pre-installed optical fibre cables to be terminated in fibre interface points located in the gate pillars or telecommunication risers on each floor of high rise residential buildings.

36. On the second point, IDA agrees that the fibre termination point and RJ45 patch panel within each residential unit should be co-located in either the utility room or closet, to allow seamless connectivity between the telecommunication systems deployed by the different Licensees and the structured cabling system that distributes the services to the various rooms in the residential unit. COPIF 2013 will stipulate this requirement clearly.

SECTION 3 Location of Main Distribution Frame Room and Telecommunication Equipment Room

37. One respondent commented that all main distribution frame rooms, telecommunication equipment rooms and telecommunication risers should have concrete flooring. This would be to ensure that the flooring in the said facilities is able to support the Licensees' mounting of equipment in them.

38. IDA has considered the comments, and agrees that there is merit in specifying in COPIF 2013 that concrete flooring shall be provided in the main distribution frame rooms, telecommunication equipment rooms and telecommunication risers. Not only would concrete flooring facilitate the mounting of equipment by Licensees, it would also enhance the safety of workers working in the said facilities.

39. Separately, a respondent proposed that in a residential development where 2 or more buildings are constructed next to each other, a common telecommunication equipment room may be provided in the development, instead of a telecommunication equipment room in each building.

40. IDA has considered the proposal, and assesses that where buildings within a residential development are in close proximity to each other, the building owner/developer may provide a common telecommunication equipment room instead of a standalone telecommunication equipment room in each building. For the avoidance of doubt, the size of the common telecommunication equipment room will be based on the aggregate number of residential units in the buildings to be served by the common telecommunication equipment room.

SECTION 4 Other Proposed Changes

Use of space and facilities to serve beyond the boundaries of a development

41. IDA will reiterate that the space and facilities provided by a developer or building owner under the COPIF ("**COPIF Space and Facilities**") must be primarily intended for Licensees to deploy installation, plant and systems to serve the telecommunication needs of the development itself. Having said that, there may be circumstances where it would be reasonable for a Licensee that is providing telecommunication services to a development, to use that development's space and facilities to provide telecommunication services to other developments; and these circumstances have been clearly contemplated in Section 21 of the Act[3]. Thus, IDA had proposed, in the Proposed Revised COPIF, the process and broad principles which IDA will apply in reviewing requests for its intervention under Section 21 of the Act.

42. Several respondents commented that the circumstances, for which COPIF Space and Facilities may be used to serve beyond the boundaries of a development, should be further clarified in the COPIF. The respondents explained that such clarification would be necessary, as there may be circumstances where the use of the space and facilities of another development may be reasonable and optimal due to reasons such as network efficiency or practical considerations of network deployment. The clarification would thus minimise the number of disputes that may arise subsequently between Licensees and building owners/developers.

43. There were also respondents who commented that the processes and broad principles specified in the Proposed Revised COPIF, on the use of the COPIF Space and Facilities to serve beyond the boundaries of a development, should only be applied on a prospective basis from the effective date of the Revised COPIF ("**Effective Date**"). In other words, any Licensee who had used the COPIF Space and Facilities within a development, to serve beyond the boundaries of that development prior to the Effective Date, should not be required to comply with the said processes and broad principles.

44. Lastly, some respondents also commented that Licensees, who have already used the COPIF Space and Facilities to serve beyond the boundaries of a development, should not be required to notify the owner/developer of that development.

[3] Section 21 of the Act provides for instances where a Licensee may notify a developer/owner of its intent to use the development's space and facilities to serve other developments. Should the developer/owner object, the parties may escalate the matter to IDA under the same section of the Act, and IDA will then assess the reasonableness of the Licensee's request and the developer's/ owner's objection.

45. First, IDA recognises that there may be circumstances where it would be reasonable for a Licensee that is providing telecommunication services to a development, to use that development's space and facilities to provide telecommunication services to other developments. However, IDA also notes that when assessing the reasonableness of such use of space and facilities, the situation underlying each case may be unique. In this regard, IDA would need to assess the merits of each case carefully, including reviewing information provided by both the Licensee and the building owner/developer. Taking into consideration the above, IDA views that it will not be feasible to exhaustively clarify all the circumstances upfront, under which the COPIF Space and Facilities of a development may be used to serve beyond the boundaries of that development.

46. Having said that, IDA maintains that there should be clear recognition that priority in the use[4] of the COPIF Space and Facilities within a development, must be accorded to the immediate and foreseeable needs of the development before such space and facilities may be used to serve external properties; and that building owners/developers should in principle be no worse off and not be unduly burdened with any cost associated with the use of the COPIF Space and Facilities to serve external properties. Thus, COPIF 2013 will specify clear guiding principles relating to a Licensee's use of COPIF Space and Facilities to serve external properties, such as:

    a. Bearing the cost of removal of installation, plant or systems, or the cost of any additional space and facilities, should the installation, plant or systems deployed by the Licensee impede or causes obstruction to any future deployment of installation, plant or systems by other Licensees to serve the needs of the development;

    b. Compliance with any reasonable measures that the developer or owner may impose to safeguard the safety and security of the development, in connection with the Licensee's use of COPIF Space and Facilities to serve external properties;

    c. Bearing all risks in relation to the Licensee's installation, plant or systems that are deployed to serve the external properties;

    d. Reimbursing the developer/owner who may incur any reasonable costs in granting access to the Licensee, to carry out any activities relating to the installation, plant or systems that are deployed to serve the external properties; and

[4] For the avoidance of doubt, building developers/owners may not impose rental charges for the use of COPIF Space and Facilities by Licensees.

e. Bearing the costs of alteration, removal, relocation or diversion works, in the event that the installation, plant or systems deployed by the Licensee to serve external properties would require to be altered, removed, relocated or diverted (for example, where the development is being redeveloped).

47. With regard to the comments on the implementation of the processes and broad principles on a prospective basis from the Effective Date, for the use of the COPIF Space and Facilities within a development to serve beyond the boundaries of the development, IDA would like to reiterate that the purpose of setting out the processes and broad principles in the COPIF is to provide further clarity on the considerations which IDA will take into account when such issues are raised for IDA's resolution. In other words, the processes and broad principles are not to be interpreted as additional obligations imposed on Licensees or building owners/developers upon the issue of the Revised COPIF. Accordingly, the said processes and broad principles would be equally applicable to developments whose COPIF Space and Facilities have been used to serve beyond their developments' boundaries prior to the Effective Date.

48. With respect to whether Licensees, who have already made use of the COPIF Space and Facilities in a development to serve beyond the boundaries of that development, would need to notify the building owner/developer, Licensees are already required, pursuant to Section 21 of the Act, to provide clear notification prior to such use of COPIF Space and Facilities to serve beyond the relevant development's boundaries.

<u>Access to the relevant space and facilities</u>

49. In the Second Public Consultation, the following was stipulated in the Proposed Revised COPIF:

a. Building developers/owners shall locate the relevant facilities at a height of not more than 4m;

b. In cases where the facilities are located at a height above 4m, the building developers/owners shall provide the appropriate means for Licensees to access the facilities, in accordance with any prevailing workplace safety and health laws and regulations, at no cost to the Licensees; and

c. The developer/owner shall not impose any charge or rent on Licensees (e.g. administrative charges, security escort charges, reinstatement costs) or impose any additional requirements (e.g. requiring any insurance policy or additional insurance coverage to be taken) in connection with the grant of access to and use of the space and facilities, save for any charges reasonably incurred for security or safety measures which are required by any relevant authority or under any relevant laws and regulations.

50. A number of respondents commented that COPIF Space and Facilities should be located at a height of not more than 3.3m, instead of 4m. Another respondent also commented that there may be a potential loophole for the developer or owner to impose unreasonable charges on Licensees, as it was not stated clearly in the Proposed Revised COPIF what quantum of charges would be considered as being reasonably incurred for security and safety measures for passing on to Licensees.

51. With regard to the comments that COPIF facilities should not be located at a height of more than 3.3m, IDA views that owners/developers should be accorded a reasonable degree of flexibility in the location of COPIF Space and Facilities, given that the architectural and structural designs of developments vary greatly. Having said that, IDA recognises that Licensees are likely to incur additional deployment and access costs should the COPIF Space and Facilities be located above a height that is reasonably accessible by step-ladders. IDA is of the view that facilities placed more than 4m above the floor level would necessitate the deployment of mechanised equipment like cherry pickers. Thus, IDA maintains that an appropriate balance would be that owners/developers should be required to provide the necessary access means to facilitate Licensees' deployment, at no cost to the Licensees, only where the COPIF Space and Facilities are located above a height of 4m.

52. With respect to the charges that would be considered as being reasonably incurred for security and safety measures and to be passed on to Licensees, IDA is of the view that the Licensees and building owners/developers should negotiate the charges payable in good faith. Thereafter if both parties are unable to agree on the charges, such matters may be raised for IDA's resolution on a case-by-case basis. IDA believes that it would be likely for the circumstances underlying the disagreements to be different for each case.

<u>Submission of building plans to the Telecommunication Facility Co-ordination Committee (TFCC) – Expected TOP Date</u>

53. One respondent commented that there had been cases where building owners/developers had not provided accurate dates of when they would expect to obtain their temporary occupation permits ("TOPs"). As a result, Licensees had insufficient time to deploy their installation, plant and systems to provide telecommunication services to such developments.

54. In view that sufficient lead-time is necessary to facilitate the timely deployment of installation, plant and systems by Licensees, IDA agrees that there is merit in clearly setting out in the COPIF the timeframe by which owners/developers must ensure that the required space and facilities are completed and handed over to the Telecommunication Facility Co-ordination Committee for use. In this regard, COPIF 2013 will stipulate that owners/developers should ensure that the relevant space and facilities (e.g. main distribution frame room, underground and lead-in pipes) are ready for use by Licensees at least 6 months[5] before the TOP Date.

Purchase of building plans, floor plans and/or blueprints

55. A respondent commented that building plans, floor plans and/or blueprints, required by Licensees to access COPIF space and facilities, should be provided by owners/developers to Licensees, instead of Licensees having to purchase them.

56. IDA understands that today, Licensees generally provide their own drawings or sketches, indicating the proposed routing or locations of their installation, plant and systems to be deployed within the relevant development, and submit them to the owners/developers for assessment and approval. Nevertheless, where owners/developers require Licensees to submit their proposals for access and use of relevant space and facilities in the development based on official building plans, floor plans and/or blueprints, IDA views that it is would be reasonable for owners/developers to provide such documents at no cost to Licensees.

57. In this regard, IDA believes that there is merit in setting out in COPIF 2013 that owners/developers must provide at least 1 set of the relevant building plans, floor plans and/or blueprints (hardcopy or softcopy) to Licensees, where they only accept the submission of building plans, floor plans and/or blueprints from the Licensees.

Replacement of 15A switch socket outlets with 20A isolators in the main distribution frame room and telecommunication equipment room

58. A respondent proposed that for a residential development with less than 30 units, a minimum of one 20A isolator switch for each electrical distribution panel should be provided to prevent unnecessary power trips, which could affect the AC supply to a Licensee's DC power chargers, and in turn result in service interruptions.

[5] For a development consisting of 1 or more landed dwelling-houses abutting an existing road, the developer/owner would be required to ensure that the relevant facilities are ready for use by Licensees at least 3 months before the TOP Date.

59. IDA has reviewed the proposal and agrees that there is merit in requiring the minimum provision of one 20A isolator switch for each electrical distribution panel in the main distribution room and telecommunication equipment room to prevent/minimise power trip incidents. Having said that, the inclusion of the isolator switch requirement would make the current requirement for a minimum of 3 single-15A switch sockets unnecessary. Thus, IDA has amended the requirements accordingly in COPIF 2013.

Lead-in pipes under-crossing or over-crossing roadside drain

60. One respondent proposed that the lead-in pipes provided by the building owners/developers should under-cross the roadside drain where the depth of the drain is less than 2m; or over-cross the drain where the depth of the drain is more than 2m, subject to the approval of PUB. The respondent also proposed that owners/developers should provide the necessary undertakings to PUB, instead of Licensees.

61. IDA has carefully considered the respondent's comments and is of the view that whether lead-in pipes should over-cross or under-cross roadside drains, would depend on various circumstances rather than just the depth of drains. Taking into consideration other government agencies' stringent requirements on utilities/services over-crossing roadside drains, IDA maintains that lead-in pipes should under-cross the roadside drains wherever feasible. In the event that under-crossing of roadside drains is not possible, building developers/owners may consult IDA on the construction of the relevant lead-in pipes and comply with such requirements as may be imposed by IDA.

Responsibility for Backdated Utility Charges

62. The Proposed Revised COPIF stipulated that developers/owners of existing developments may require Licensees to bear utility charges on a prospective basis, by providing at least a month's notice to Licensees, one respondent requested that developers/owners should not seek the recovery of utility charges incurred prior to the effective date of COPIF 2013. IDA has considered the matter, and is of the view that developers/owners who had chosen to bear the said utility charges in the past but would like to stop doing so going forward, and have served the relevant notice under COPIF 2013, should similarly recover the said charges on a prospective basis.

Acceptance of Other Key Changes

63. In the Second Public Consultation, IDA also proposed the following key changes/positions to be reflected in COPIF:

    a. Priority for access to Main Distribution Frame ("**MDF**") room / Telecom Equipment Room ("**TER**") will remain for Public Telecommunication Licensees first, followed by other Facilities-Based Licensees;

b. Requirement for building developers/owners to obtain Fibre Readiness Certification on their installation of optical fibre cables from gate pillars/telecommunication riser to residential units;

c. MDF and TER may be located on the 1st or 2nd storey of buildings, with basement location permissible only upon satisfaction of stipulated conditions;

d. Removal of option for developers/owners of new developments to install metal trunking;

e. Underground pipes leading to enclosed MDF, TER and telecommunication risers would need to be sealed to prevent foreign gaseous matter (which may be toxic or flammable) from entering the said facilities; and

f. Retaining the existing requirement for building developers/owners to obtain Cable Readiness Certification for co-axial cable systems installed by them.

64. As there were no comments or objections from respondents to these proposals in the Second Public Consultation, IDA will proceed to affirm the said changes in COPIF 2013.

PART III: CONCLUSION AND ISSUANCE OF COPIF 2013 AND GUIDELINES

65. IDA hereby issues COPIF 2013 and the Guidelines, both of which shall take effect on 1 May 2013 ("Effective Date"). COPIF 2013 and the Guidelines will apply in their entirety to new developments which have obtained URA's provisional or written permissions on or after the Effective Date.

66. For existing developments, the requirements as specified in Chapters 1, 2, 16 and 17 of COPIF 2013, and the Guidelines (related to these chapters) in their entirety, will be applicable upon the Effective Date of COPIF 2013. These include the provision of MDS and the use of COPIF Space and Facilities to serve areas beyond the boundaries of a development.

67. For the avoidance of doubt, where there are existing leasing arrangements between building developers/owners and MTOs for the provision of cellular mobile coverage within the developments, such developments need not comply with the MDS provisions in COPIF 2013 until the underlying leasing agreements have expired.

68. IDA will continue to monitor market and industry trends, to ensure that info-communication facilities provided within buildings continue to keep pace with the developments in telecommunication infrastructure technology and to support the evolving info-communication needs of users.