CONSULTATION PAPER ISSUED BY THE INFO-COMMUNICATIONS DEVELOPMENT AUTHORITY OF SINGAPORE

SECOND PUBLIC CONSULTATION ON THE REVIEW OF THE CODE OF PRACTICE FOR INFO-COMMUNICATION FACILITIES IN BUILDINGS ("COPIF")

22 June 2012

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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 ("**COPIF**"). The proposed changes were for the purpose of ensuring 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.

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

3 IDA has given careful consideration to the views and comments submitted in each of the responses. IDA notes that while the views and comments received pertain largely to the issues identified in IDA's consultation paper, some additional issues were also raised for IDA's consideration. Having assessed the responses together with IDA's overall policy objectives and purpose for the COPIF, IDA would like to now invite comments and views on the draft of the revised COPIF ("**Proposed Revised COPIF**").

4 The next section summarises IDA's position on the key proposed changes to COPIF 2008 raised in the first public consultation, including IDA's assessment of the views and comments received in that public consultation. In addition, IDA has also proposed further modifications to improve clarity regarding the responsibilities and obligations of developers/owners of developments and telecommunication licensees for info-communication facilities provided pursuant to the COPIF.

PART II: IDA'S POSITION ON KEY ISSUES IN PROPOSED REVISED COPIF

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

Provisioning of Additional Space for MTOs[1]

5 In the first public consultation, it was proposed that developers/owners of developments be required to ensure that space, over and above that currently specified in COPIF 2008, be set aside to cater for the deployment of installation and plant required by MTOs to provide mobile coverage, i.e., Mobile Deployment Space **("MDS")[2].**

6 IDA notes that while respondents had no objections to setting aside MDS in developments, some raised concerns related to the scope and implementation of the MDS requirements. For example, one respondent requested that the MDS requirement be applicable only to new developments and not existing buildings, as the latter may face difficulties in creating additional spaces. IDA has carefully considered that request, and concluded that differentiating between existing and new developments would not serve the public interest, given the pervasiveness of mobile usage and the increasing demand by end users for better mobile coverage within developments in general. Moreover, IDA has proposed for a reasonable degree of flexibility to be accorded to developers/owners of developments in their determination of where the MDS may be located, e.g. the MDS may be on roof-tops or in basement car parks.

7 In this regard, IDA will proceed to include the MDS requirements in the Proposed Revised COPIF, and the requirements would be applicable to both existing and new developments, subject to some revisions to the proposed MDS requirements which had been set out earlier in the first public consultation. These revisions are discussed in greater detail below.

Size of MDS

8 IDA had proposed for the size of the MDS to be dependent on various factors such as the type of use of the underlying development and the number of units or usable floor space within the development. The minimum size of the MDS to be provided ranged from $12m^2$ to $36m^2$

[1] "MTOs" refers to facilities-based operators providing public mobile telecommunication services.

[2] In the public consultation, this space was termed Potential Mobile Deployment Space ("**PMDS**"). For clarity, this has been re-named Mobile Deployment Space.

and 48m^2 for residential and non-residential developments respectively.

9 A number of respondents raised concerns that the proposed size of the MDS would be insufficient to meet the requirements of the MTOs for the deployment of mobile equipment. Instead, an MDS of 12 to 14m^2 should be set aside for **each** MTO. Conversely, other respondents felt that the proposed MDS size would be more than sufficient to meet the needs of the MTOs. Another respondent also felt that the size of MDS should not only be based on the type of use of the underlying Development, but should take into account the short-term and long-term forecasts of usage and business activities.

10 IDA is mindful that the MDS requirements may impose costs to developers/owners of developments, notwithstanding that such requirements are necessary to ensure that the MTOs would be able to provide better mobile coverage within these developments. In this regard, IDA will not require the size of an MDS to be more than what would be reasonable and appropriate for the provision of mobile telecommunication services within the relevant development.

11 Having carefully reviewed the representations, IDA is of the view that the earlier proposed sizes are not likely to be sufficient. In addition to the mobile base stations, IDA notes that associated ancillary equipment such as power distribution boards, combiners and back-up power supply would also need to be located in the same MDS. Therefore, after weighing the considerations, IDA views that it would be necessary to increase the proposed sizes of the MDS, as summarised in Tables 1 and 2 below. The increased sizes would serve to balance the necessary space requirements of the MTOs against the likely burden that may be placed on developers/owners of developments to create additional space.

Total number of residential units in the Development	**Earlier Proposed Minimum MDS (m^2)**	**Revised Minimum MDS (m^2)**	**Minimum height clearance (m)**
80 – 200	12	18	3.0
201 – 600	24	36	
> 600	36	54	

Table 1: Size of MDS in Residential Developments Comprising One or More Multi-storey Residential Buildings[3]

[3] Developments consisting solely of two or more strata landed dwelling-houses are not required to provide MDS. However, Developments consisting of both strata landed housing and multi-storey residential buildings are required to provide MDS as per Table 1.

Total Mobile Coverage Area ('000 m^2)	**Earlier Proposed Minimum MDS ($m^{2)}$**	**Revised Minimum MDS (m^2)**	**Minimum height clearance (m)**
2 - <6	12	18	3.0
6 - <20	24	36	
20 – 100	36	54	
> 100	54	72	

Table 2: Size of MDS in Non-residential Developments

12 With regard to the suggestion that the sizes of MDS should be based on short-term and long-term forecasts of mobile services usage and business activities, IDA agrees that such bases could possibly ensure a better fit of space requirements. However, this could also lead to confusion, and result in multiple permutations on the possible sizes of MDS. In so doing, the exercise to derive the permutations would become complex and subjective, thereby likely outweighing the benefits of trying to achieve a better fit outcome. Therefore, IDA believes that the proposed parameters, based on type of developments and the number of units or mobile coverage area, represent an appropriate balance. Furthermore, MTOs are reminded to efficiently utilise the MDS provided by developers/owners of developments. Where possible, MTOs should take advantage of advances in technology and deploy equipment with a smaller footprint. To be clear, should MTOs require space over and above the MDS provided, MTOs should enter into commercial arrangements with developers/owners of developments for the procurement of additional space.

<u>Criterion for size of MDS in Non-residential Developments</u>

13 IDA had earlier proposed that the criterion for determining the size of the MDS in non-residential developments be based on usable floor area. Usable floor area, as defined in COPIF 2008, refers to any floor space within a development which is to be served by any telecommunication system. While this criterion may be appropriate for fixed telecommunication services, which essentially would be provided within the building premises, the same cannot be said for mobile telecommunication services, where end users would expect coverage throughout the developments. In this respect, IDA is of the opinion that "mobile coverage area", defined as any area within a development which is to be served by any public mobile telecommunication system, would serve as a more appropriate criterion, given the larger and more pervasive areas mobile telecommunication services are expected to be accessed compared to fixed telecommunication services.

Responsibilities in relation to the provision of MDS and associated costs

14 Respondents have sought clarifications on the responsibilities and costs related to the provision of the MDS. Furthermore, conflicting views have been presented on the party responsible for bearing costs related to the provisioning of the MDS. For instance, a number of respondents have asked that developers/owners of developments bear all costs associated with the provisioning of the MDS, while others have submitted that the MTOs should be the parties responsible for associated costs. IDA will set out the shared responsibilities of the various parties on the provisioning of MDS in this section and explain the underlying principles involved.

15 First, IDA recognises that the provision of MDS would impose costs on developers/owners of developments. In this respect, IDA has taken steps to streamline, where possible, the responsibilities and obligations placed on developers/owners of developments in the provisioning of MDS, while at the same time ensuring that MDS would facilitate the MTOs deployment of mobile equipment.

16 Developers/owners of developments need only to allocate MDS upon request by an MTO, whilst retaining the flexibility to determine the appropriate location of the requested MDS within the Developments, subject to meeting the minimum requirements as outlined in the Proposed Revised COPIF. Nevertheless, developers/owners of developments shall be responsible for any costs associated with the provisioning of the MDS. Each development would have its own specific requirements in relation to the MDS provided, such as the need to apply for a change of use of space or to install trellis and protective screens for aesthetics or to meet regulations; the costs of such requirements should be borne by developers/owners of developments.

17 On the MTOs' part, upon the provision of MDS by developers/owners of developments, MTOs would be responsible for the utility charges and maintenance of the MDS. Furthermore, once the MDS requirements under the COPIF have been fully met by a building developer/owner, that building developer/owner need not have to face additional administrative hassle over the allocation of MDS and may refer new requesting MTOs to those who have obtained MDS earlier. This will be elaborated upon in the sub-section "*Cap on MDS for individual MTOs*".

18 IDA wishes to reiterate that the requirement to allocate MDS should not prejudice or in any way affect existing contractual obligations between owners of developments and MTOs over the usage of space. Where the MDS to be set aside by developers/owners of developments relates to space currently leased by MTOs under commercial contracts, the

existing contractual agreements should be allowed to run to their natural expiration, unless the developers/owners and MTOs are able to reach an alternative arrangement.

Priority of Access

19 IDA had earlier proposed that the developers/owners of developments may choose to construct or expand MDF rooms and TERs to meet the MDS requirements. Should the developers/owners of developments choose to do so, the priority of access to the relevant space and facilities shall be in the order of PTLs first, followed by other FBOs providing fixed telecommunication services to the Development, and then the MTOs. IDA has received polarised responses, with one respondent indicating that MTOs should be accorded the same priority as PTLs, whereas others commented that the order of priority should be PTLs, followed by other FBOs (including the MTOs).

20 Having considered the comments, IDA views that there may be an even greater concern should the MDS be part of the expanded MDF rooms/TERs. Chiefly, it will be difficult to police whether PTLs, other FBOs or the MTOs are encroaching on each other's space within the expanded MDF rooms/TER, leading to possible disputes and coordination difficulties. In this regard, IDA will stipulate in the Revised Proposed COPIF that MDS may only be located within the MDF rooms/TERS provided that there is clear demarcation of the space designated as MDS. The priority of access for MDF rooms/TERs will remain unchanged, i.e. PTLs followed by other FBOs providing fixed telecommunication services. There will not be a need for priority of access in the MDS since all MTOs will be treated equally.

Cap on floor space in MDF rooms, TERs and MDS

21 The responses to this question were again varied, with one respondent suggesting that there should be a cap, and another disagreeing on the basis that FBOs may have varying requirements. Another respondent went further to suggest that a minimum of 30 percent of relevant space and facilities required under COPIF be reserved for NGNBN deployment.

22 First and foremost, as discussed in the sub-section above, the MDS may not be sited within the MDF rooms or TERs. In other words, space in MDF rooms or TERs will only be occupied by PTLs and other FBOs providing fixed telecommunication services, while the MDS will be used solely by MTOs. In this regard, IDA has reviewed the proposal of a cap applicable for MDF rooms/TERs to be separate from that applicable to the MDS.

23 For MDF rooms/TERs, IDA notes that the current industry practice is on a "first come first served basis", though each telecommunication

licensee is required to make efficient use of space within the MDF rooms/TERs, including rearrangement of its plant or installation if necessary to accommodate another licensee's requirement for space. IDA agrees that each licensee's requirements for space may vary depending on the services to be provided to users within the development, and it may not be efficient to place a cap on each licensee. Likewise, it will also be inefficient to set aside and reserve space within the MDF room/TER for a particular licensee, or a group of similarly situated licensees, given the number of facilities-based licensees that could provide fixed telecommunication services to a development today. In this regard, IDA remains of the view that the current practice of licensees working with one other, to accommodate their space requirements within the MDF room/TER, is optimal.

24 For the MDS however, IDA views that there is merit in imposing such a cap on space occupied by an MTO. First, although the MDS may be accessed only by the MTOs, the space set aside by developers/owners of developments is smaller compared to MDF rooms/TERs. Second, given the competitive mobile services market today, where each development is certain to have users subscribing to services provided by any of the MTOs, IDA views it to be fair that the MDS shall be **shared equally** by all MTOs.

25 Nevertheless, IDA also understands the technical characteristics of cellular mobile telecommunication services provisioning are such that an MTO does not require immediate access to a development to provide services until such a time that it deems necessary due to increased traffic requirements. In this respect, IDA would accord a reasonable degree of flexibility on the cap stipulated in the Revised Proposed COPIF. Briefly, the first MTO to request an MDS from a building developer/owner may request more than its share, subject to the maximum MDS requirement stipulated for that development. Upon the subsequent entry of another MTO, the first MTO will have to share the MDS equally with the second MTO, and so on. Nevertheless, IDA will urge the MTOs to deploy their equipment within the stipulated cap, in view that the costs of subsequent removal/relocation arising from entry by other MTOs may be significant. Further details on the MDS sharing arrangement are specified in the Proposed Revised COPIF.

<u>Provision of MDS for mobile coverage in MRT and Road Tunnels</u>

26 On IDA's earlier proposal that MDS be required only for developments, two respondents had commented that the requirement should similarly be extended to MRT stations and MRT/road tunnels, given that MRT and road commuters would expect mobile coverage similar to that for end users within developments.

27 IDA has duly considered the issue and is of the view that there is merit in extending the principle of designating MDS for coverage within

developments, to apply equally to MRT and road tunnels. Today, MRT and road commuters expect to enjoy mobile coverage access while they are commuting / travelling inside the said tunnels. For example, there was significant public feedback on the lack of 3G coverage in the North-South and East-West MRT lines, until the 3G coverage for the said MRT lines was implemented in June 2011. In this regard, there is no reasonable justification why MRT and road tunnels should be differentiated from other buildings and developments, when ultimately public interest will be best served when users would be able to enjoy pervasive and seamless mobile coverage, be it within developments or while commuting on the MRT and roads.

28 Thus, IDA agrees that developers/owners of MRT and road tunnels should comply with the COPIF requirements, specifically those stipulated for non-residential buildings. In any case, IDA notes that the said developers and owners currently already comply with COPIF requirements, such as the provision of MDF rooms and underground pipes, for the associated MRT stations and facility buildings. Nevertheless, given that the MDS requirements for MRT and road tunnels would be different from those for other non-residential buildings, i.e., mobile coverage areas may not be a reasonable criterion for MDS requirements, IDA has proposed a separate chapter in the Proposed Revised COPIF. The chapter would apply specifically to developments which have one or more MRT/road tunnels, and would specify requirements of the MDS such as the minimum space and facilities to be provided.

Early Engagement Guidelines for Developers and Owners of Developments

29 Through interactions with developers/owners of developments, IDA understands that certain developers and owners may wish to engage the MTOs early, in order to allow occupants of their buildings to enjoy comprehensive mobile coverage upon such buildings obtaining the Temporary Occupation Permit (TOP). As part of the review process, IDA has updated Chapter 4 of the Guidelines to the COPIF to provide a process for these developers/ owners of developments to engage the MTOs. By engaging the MTOs early, developers/owners of developments would be able to avoid hassle later on, be it administrative or physical retrofitting works. In addition, early engagement would allow the MTOs to plan and work out solutions to ensure that there will be appropriate mobile coverage within the developments.

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

30 In the earlier public consultation, IDA proposed the following requirements to be stipulated in the COPIF:

a. a minimum of one (1) 2-core optical fibre cable from the gate pillar or telecommunication riser, terminating at a fibre termination point within each residential unit;

b. a fibre distribution box ("**FDB**") with two (2) compartments (1 compartment for telecommunication licensees and the other for developer to terminate their respective optical fibre cables), within the telecommunication riser on each residential floor of high rise residential buildings; and

c. two (2) unshielded twisted pair cables (Category 6 or better) to the living room and one (1) to each of the bedrooms, with the cables terminating in an RJ45 patch panel at one end and in RJ11/45 combination outlets in the living room and each of the bedrooms at the other end.

31 IDA notes that the responses received were generally supportive of the proposed requirements, save for the following which the respondents would like IDA to consider:

a. The proposed FDB should only be provided, accessed and maintained by OpenNet Pte Ltd ("**OpenNet**"), together with the cross-wire connection across the two compartments of the FDB;

b. Developers/owners of developments should be required to obtain a certification, to certify that the optical fibre cables installed by developers/owners of developments comply with relevant technical specifications;

c. Instead of requiring RJ11/RJ45 combination outlets, RJ45 outlets would suffice since such outlets would be able to accept both RJ11 and RJ 45 plugs; and

d. The number of unshielded twisted pair cable (Category 6 or better) to the living room and each bedroom should be increased from 1 to 2.

32 First, with regard to the suggestion that only OpenNet be allowed to provide, access and maintain the FDB, IDA is concerned that such a measure, if implemented, would unreasonably restrict other optical fibre operators who wish to connect to optical fibre cables pre-installed by

developers/owners of developments. Having said that, IDA also recognises that the earlier proposed FDB may have inherent access limitations, due to its design of having 2 separate compartments, i.e., one for access by fibre operators and the other for access by developers/owners of developments.

33 Therefore, while IDA notes that no respondent had objected to the proposed FDB requirement, IDA views that a more effective solution would be to simply require pre-installed optical fibre cables to be terminated in fibre interface points located in the gate pillar/telecommunication risers. These interface points would be similar to the fibre termination points installed within the residential units. IDA believes that the revised requirement would not only facilitate ease of access to pre-installed optical fibre cables by fibre operators, but would also ease the administrative burden on developers/owners of developments, given that they would now only need to procure and install fibre interface/termination points, as against fibre termination points and FDBs separately.

34 Second, on the comment that developers/owners of developments should obtain a certification on their installation of optical fibre cables, IDA views that there is merit in including such a requirement, as the certification would allow for early detection and rectification of issues relating to the optical fibre cable system installed by the developers/owners of developments. In turn, this would help to ensure that end users would be able to obtain services over the fibre cable system with minimal disruptions upon moving in to their premises. In this regard, IDA will set out in the Proposed Revised COPIF that developers/owners of developments should obtain the Fibre Readiness Certification by OpenNet Pte Ltd prior to the development obtaining its TOP.

35 Third, while IDA is aware that an RJ45 outlet may be able to accept either an RJ11 or RJ45 plug, IDA had earlier proposed RJ11/45 combination outlets instead as IDA viewed that such outlets would be easier for end users to use. On further consideration that the requirements for space and facilities stipulated under the COPIF are intended to be the minimum necessary for the provision of services within a development, IDA agrees that RJ45 outlets could suffice for the intended purposes. Nonetheless, developers/owners of developments may consider the installation of RJ11/45 combination outlets, to facilitate the ease of connection of RJ11 or RJ45 cables by end users.

36 On the response to increase the number of unshielded twisted pair cables (Category 6 or better) from 1 to 2, IDA would like to reiterate that the COPIF requirements are intended to specify the minimum level of relevant space and facilities to be provided by developers/owners of developments. This is to maintain a balance between ensuring that

end users' requirements for services within developments would be met, while at the same time recognising that any additional COPIF requirements would impose costs on developers/owners of developments. To this end, IDA views that the proposed requirement of 2 unshielded twisted pair cables (Category 6 or better) to the living room and 1 unshielded twisted pair cable to each bedroom would represent an appropriate balance. This is also in consideration that there are alternative in-unit connectivity solutions available such as the coaxial cable system and Wi-Fi. Nevertheless, similar to paragraph 35 above, developers/owners of developments may install unshielded twisted pair cables (Category 6 or above) in addition to the number stipulated in the COPIF.

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

37 IDA had earlier proposed that the MDF rooms and TERs for new buildings be located on the first storey (street-level) of buildings, notwithstanding that these buildings may have basement levels.

38 From the responses received, IDA notes that it was generally agreed by the respondents that the MDF rooms and TERs should be placed on the first storey of buildings. However, in the event where it is not possible to locate the MDF rooms and TERs on the first storey, the respondents had suggested the following alternatives:

a. Locating the MDF rooms and TERs on second or higher storeys of the buildings; or

b. Locating the MDF rooms and TERs on the uppermost basement level of the buildings, where such buildings have multiple basement levels.

The respondents added that where alternative locations are selected, building owners should also undertake to be liable for any telecommunication equipment being damaged as a result of subsequent flooding.

39 IDA has considered and agrees that the alternatives suggested by the respondents are reasonable and would serve to meet the licensees' requirements on MDF rooms and TERs, in the event that it is not possible to locate these rooms on the first storey of buildings. Nevertheless, IDA also views there is merit in providing further clarity on the considerations associated with the alternatives, to avoid subsequent disputes between licensees and building developers/owners. First, IDA notes a respondent's concerns that higher cabling costs would be entailed should MDF rooms or TERs be located on the second or higher storeys. In this regard, weighing the above concerns against flexibility for developers/owners of developments in determining the location of MDF rooms and TERs, IDA will allow MDF rooms and TERs to be located on the second storey of buildings, but not any higher.

40 Second, IDA would like to reiterate its concerns on the risk of damage to telecommunication equipment due to flooding, should MDF rooms or TERs be located at the basement levels of buildings, notwithstanding that such buildings may have multi-level basements. However, in consideration that some respondents have indicated such a risk could be mitigated by: i) locating MDF rooms and TERs only in the uppermost basement level, and ii) an undertaking by developers/owners of developments to be liable for damage caused as a result of flooding in MDF rooms and TERs which are located in the

basement levels, IDA is agreeable to accord the flexibility; subject to developers/owners of developments also providing an undertaking to inform users of possible telecommunication service disruptions due to flooding in the MDF rooms and TERs, and to bear the costs of any replacement of telecommunication equipment or relocation of MDF rooms or TERs.

SECTION 4 – Usage of Cable Trays/Metal Trunking in Buildings

41 IDA had earlier proposed the removal of the current designation of separate cable trays/metal trunkings for coaxial and non-coaxial cable systems respectively. In addition, IDA also proposed that the specifications of the cable trays/metal trunkings for the two mentioned systems be aligned, i.e., to that specified for non-coaxial systems.

42 In relation to the proposal to remove the designation of separate cable trays/metal trunkings for coaxial cable systems and non-coaxial cable systems, most respondents objected to the proposal. The reasons cited for the objections stemmed largely from concerns about potential interference issues should cables of different systems share the same cable trays/metal trunkings. Furthermore, 2 respondents highlighted that optical fibre cables are less sturdy than coaxial cables, and may be damaged should the 2 types of cables be installed in the same cable trays/metal trunkings. As for the proposal to align the specifications of the cable trays/metal trunkings for coaxial and non-coaxial cable systems, IDA notes that the respondents are supportive of it.

43 In consideration that the concerns raised above are valid and reasonable, IDA will maintain the existing designation of cable trays for coaxial and non-coaxial cable systems. However, IDA will revise the specifications for the cable trays of coaxial cable systems in the COPIF, to be aligned with those currently in place for non-coaxial cable systems.

44 Separately, while no respondent had raised any concern regarding the use of metal trunkings, IDA views that metal trunkings are less efficient than cable trays for the deployment of cable systems because of their enclosed nature which place a limit on the number of cable systems which may be pulled over and on top of each other. Furthermore, licensees would likely require more time and effort to use the metal trunkings, given the need to remove/reinstall the covers to the trunkings for each use. In this regard, IDA will remove the option in the Revised Proposed COPIF for developers/owners of developments of new developments to install metal trunkings.

SECTION 5 – Sealing of underground pipes entering the Main Distribution Frame Rooms, Telecommunication Equipment Rooms and Telecommunication Risers

45 IDA had earlier proposed that for new developments, all underground pipes should be sealed by the building developers/owners prior to the handing over of such underground pipes to telecommunication licensees. Thereafter, telecommunication licensees would be responsible for the subsequent sealing of the pipes upon their usage of them. IDA also proposed that for existing developments, the sealing of such underground pipes should be carried out by telecommunication licensees where such pipes have already been handed over to licensees.

46 In the responses, most respondents agreed that underground pipes should be sealed, be it by developers/owners of developments or telecommunication licensees. However, one respondent expressed concerns that such sealing of underground pipes in new and existing developments would be an unreasonably onerous exercise for both developers/owners of developments as well as telecommunication licensees. The same respondent suggested that a more effective approach would be to raise safety awareness on workers accessing MDF rooms, TERs and telecommunication risers.

47 While IDA maintains that the safety of workers accessing MDF rooms, TERs and telecommunication risers is paramount, IDA is also mindful that the burden of costs imposed on developers/owners of developments and telecommunication licensees to seal all underground pipes in new and existing developments may be significant. Moreover, IDA assesses that foreign gases would likely only be built up in MDF rooms, TERs and telecommunication risers which are enclosed and not ventilated by louvres or exhaust fans ("**Enclosed Facilities**").

48 In this regard, weighing the considerations, IDA views that an effective measure would be that only those developments with underground pipes leading to Enclosed Facilities have to ensure that the pipes are sealed. As for whether the responsibility for sealing of underground pipes should be placed on developers/owners of developments or telecommunication licensees, IDA views that it would be reasonable for the responsibility to be shared on the following bases:

a. For new developments with Enclosed Facilities, the developers/owners shall seal all underground pipes prior to handing over the pipes to the telecommunication licensees. Thereafter, the telecommunication licensees shall be responsible for re-sealing the underground pipes which they have used; and

b. For existing developments with Enclosed Facilities, the developers/owners shall seal all underground pipes which have not been handed over to the telecommunication licensees within 2 years from the effective date of the revised COPIF ("**Effective Date**"). Where the underground pipes have been handed over to the telecommunication licensees, regardless of whether they are used or unused, the telecommunication licensees shall be responsible to seal these pipes within 2 years from the Effective Date.

49 As for the materials to be used for the sealing of underground pipes to Enclosed Facilities, IDA notes that some respondents had commented on the properties that the sealant should possess to ensure that gases would not leak from the pipes. After considering the responses, IDA will require the underground pipes to be sealed with a material that is durable, can be easily removed, and will not cause damage to the pipes and any telecommunication cable that may be used in the pipes. In addition, the sealant to be used shall also prevent foreign gaseous matter (which may be toxic or flammable) from entering the Enclosed Facilities.

50 Further to the above responses, IDA also notes that some respondents suggested that the sealing system for underground pipes should be based on the multi cable transit ("**MCT**") system. As there are alternate sealing systems available, IDA views it would be more reasonable to leave it to the developer or owner of developments and the telecommunication licensees to make their own arrangements on the sealing system they wish to install, as long as the chosen system satisfies the requirements stipulated in the COPIF.

SECTION 6 – Removal of Requirement for Cable Readiness Certification by StarHub Cable Vision Ltd

51 IDA had proposed the removal of the requirement for developers/owners of developments which consist of new multi-unit residential buildings to obtain the Cable Readiness Certification ("**CRC**") from StarHub Cable Vision Ltd ("**SCV**") upon the completion of the building construction.

52 One respondent had expressed concern with IDA's proposal to remove the CRC requirement. The respondent commented that the CRC allows for early detection and rectification of issues relating to the Broadband Coaxial Cable System ("**BCS**"), to help ensure that end users would be able to subscribe to services provided over the BCS upon moving into a new development. The respondent added that there had been substantial number of cases where the CRC inspections showed that the BCS initially installed by developers/owners of developments could not be used to deliver cable services.

53 Having considered the comments, IDA agrees to maintain the existing requirement, given that the works to rectify any BCS-related issues upon handing over to end users would likely result in higher costs and inconvenience, outweighing the potential savings from skipping a CRC certification. In this regard, IDA will maintain the CRC requirement in the Revised Proposed COPIF, save that the CRC should be obtained prior to a development obtaining TOP (as against the certificate of statutory completion), to minimise disruptions to end users.

SECTION 7 – Provision of electrical distribution panels and accessories in the relevant space and facilities

54 IDA had earlier proposed that the developer/owner of any existing development should provide, install and test, at its expense, any electrical distribution panels or accessories necessary for the determination of utility charges, should the developer/owner require any telecommunication licensee to bear the cost of electricity consumed by the licensee's installation or plant in the relevant space and facilities.

55 The responses to IDA's proposal were mixed. IDA notes that the provision, installation and testing of electrical distribution panels and accessories may be significant if imposed on either developers/owners of developments or telecommunication licensees. Therefore, having carefully considered the comments, and weighing the interests of developers/owners of developments and telecommunication licensees, IDA views that a more cost effective approach would be for the developers/owners of developments and telecommunication licensees to first reach an agreement on the utility charges to be borne by the telecommunication licensees for the installation, plant or system used to provide telecommunication services to the developments. Failing this, the utility charges to be borne by the telecommunication licensees shall be based on the estimated power consumption of the licensees' installation, plant or system. However, in the case where the parties are unable to reach an agreement, the licensee may at its own cost, install the necessary electrical installation (including cables, a separate utility meter and any other accessory) to enable the utility charges to be computed on an "as incurred" basis and to be paid directly to the utility provider.

SECTION 8 – Other Proposed Changes

56 Further to the key proposed changes discussed in the above sections, IDA is also proposing the following amendments in the Proposed Revised COPIF.

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

57 Several respondents commented that the space and facilities provided under the COPIF for a development should be permitted for use to serve other buildings and developments in the vicinity of the development, particularly when circumstances necessitated such arrangements. The respondents provided several scenarios which they considered reasonable, for instance, developments that either had insufficient or no space and facilities of their own available for use by licensees, or developments where the existing space and facilities were fully taken up. In such scenarios, licensees would not be able to deliver services to certain segments of end-users or resolve service faults promptly.

58 There were also other respondents who commented that with the evolving nature of technology, it would not be reasonable to confine certain services within the boundaries of a development. This would be evident in the case of mobile coverage where equipment deployed to serve a development would likely provide overlapping coverage to areas beyond the development. A respondent also shared that most in-building mobile coverage today is provided using outdoor base stations, which would be more cost-effective and less disruptive than in-building infrastructure.

59 First, IDA will clarify that the space and facilities provided by a developer or owner of a development under the COPIF must be primarily intended for licensees to deploy installation, plant and systems to serve the telecommunication needs of the development. Accordingly, insofar as the use of space and facilities within a development is concerned, priority should be accorded to the telecommunication needs of the development at all times.

60 Nevertheless, IDA also 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. These circumstances have been clearly contemplated in Section 21 of the Telecoms Act, where it provides for instances where a licensee may notify a developer or owner of its intent to use the development's space and facilities to serve other developments. Should the developer or owner object, the

parties may escalate the matter to IDA under the same section of the Telecommunications Act, and IDA will then assess the reasonableness of the licensee's request and the developer's or owner's objection

61 For better clarity, IDA believes that there is merit in clearly setting out in the COPIF the process and broad principles which IDA will apply in reviewing requests for its intervention under Section 21 of the Telecommunications Act. This is so that licensees and developers/owners would be aware of IDA's views and considerations when assessing cases relating to the use of the space and facilities of a development, to provide telecommunication services to other developments. The process and broad principles are set out in greater detail in the Proposed Revised COPIF.

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

62 Under paragraph 2.1 of Chapter 2 of COPIF 2008, the developer/owner of a development shall not impose charges for a telecommunication licensee's access to the relevant space and facilities provided within a development. However, IDA notes that there has been an increasing number of instances where developers/owners of developments conceal the relevant facilities, such as cable trays, within false ceilings without the provision of openings for telecommunication licensees to access the said facilities. As a result, telecommunication licensees, when required to access such facilities, often face issues such as creating and reinstating false ceilings and access panels. There had also been cases raised to IDA, of disputes between telecommunication licensees and developers/owners of developments, on the parties' responsibilities (including costs) for access to the space and facilities which had been located beyond a certain height.

63 Therefore, IDA views that there is merit in specifying in greater detail in the COPIF, the scope of responsibilities of developers/owners of developments in relation to the provision of access to telecommunication licensees to the relevant space and facilities. In particular, IDA proposes that developers/owners of developments shall:

a. Provide appropriate access panels or openings (i.e., measuring at least 600mm x 600mm for workman access) at regular intervals of 6m, as well as at locations where there is a change in the direction of the relevant facilities; and

b. Locate the relevant facilities at a height of not more than 4m.

64 In cases where the facilities are located at a height above 4m, the developers/owners of developments 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 telecommunication licensees.

Minimum width of door to telecommunication riser space

65 COPIF 2008 only specifies the minimum requirements on the type and the height of the door to each telecommunication riser. IDA views that there is merit in stipulating the minimum width of the door as well, given that the width of the door would affect telecommunication licensees' access to the relevant telecommunication riser. In this regard, IDA proposes that the widths of doors to telecommunication risers shall be stipulated as follows:

Minimum dimensions of telecommunication riser	**Minimum width of door to the telecommunication riser**
600 mm (width) x 450 mm (depth)	500 mm
800 mm (width) x 600 mm (depth)	600 mm
1100mm (width) x 800mm (depth)	900mm
1600mm (width) x 800mm (depth)	Double leaf door of total minimum width of 1400mm

Removal of reference to the number of telephone lines for Developments with non-residential buildings

66 In COPIF 2008, the relevant space and facilities to be provided by a developer or owner of a non-residential development is dependent on the amount of useable floor area and the number of telephone lines within that development. For instance, Chapter 8 of COPIF 2008 would be applicable to a non-residential development of up to 200,000 m^2 of usable floor area or more than 50 telephone lines, while Chapter 9 of COPIF 2008 would be applicable to a non-residential development of up to 2,000 m^2 of usable floor area and 50 telephone lines.

67 With advancements in telecommunication technologies, where telecommunication services may be provided over various systems (e.g. coaxial cable system, optical fibre system), the number of telephone lines may no longer be a key driver of the extent of space and facilities that telecommunication licensees would require to provide services to a development. As such, IDA proposes to remove the criterion of telephone lines from Chapters 8 and 9 of COPIF 2008 in the Proposed Revised COPIF.

Optical fibre cable specification

68 As discussed in paragraph 30 above, the developer/owner of a residential development may be required to provide optical fibre cables from the fibre interface point in the gate pillar/telecommunication riser to the fibre termination point within every unit in the development. To ensure that the optical fibre cables installed by developers/owners meet the necessary specifications required by telecommunication licensees for the provision of services over these cables, IDA has

proposed a new chapter (i.e., Chapter 14) in the Proposed Revised COPIF for this purpose. This is similar to Chapter 13 of COPIF 2008, which details the specifications for broadband coaxial cable systems.

Responsibility for sealing of inter-floor openings

69 Currently, COPIF 2008 states that the developer/owner of any building in a new development would have to seal any inter-floor openings in the telecommunication riser(s) with fire-resistant material, prior to handing over the relevant space and facilities to telecommunication licensees. COPIF 2008 however, does not indicate that for subsequent removal or resealing of the inter-floor openings, whether the costs associated with such activities should be borne by the developers/owners of a development or by telecommunication licensees. IDA views that it would be reasonable for such costs to be borne by licensees, given that they would be in a much better position to determine when inter-floor openings should be removed or resealed during and upon cable installation in the telecommunication riser(s). Therefore, for clarity and to address any potential disputes between developers/owners of a development and telecommunication licensees, IDA proposes to specify in the Proposed Revised COPIF that any telecommunication licensee, who requires the removal of any fire-resistant seal to inter-floor openings, shall be required to bear any costs associated with the removal and reinstatement of such fire-resistant seal.

PART III: PROCEDURE AND TIMEFRAME FOR SUBMITTING COMMENTS

70 IDA would like to seek views and comments on the Proposed Revised Code.

71 All submissions should be clearly and concisely written, and should provide a reasoned explanation for any proposed revisions. Where feasible, submissions should identify the specific provision of the Proposed Revised Code which the comments relate to. Where comments include suggesting revisions to the text of the Proposed Revised Code, the respondent should clearly indicate the specific changes in language being proposed.

72 IDA strongly discourages parties from repeating representations that have been made in the earlier public consultation, which IDA has already taken into consideration in the Proposed Revised Code. Comments should thus focus on the specific changes proposed in this round of the consultation.

73 All submissions should reach IDA by 12:00 p.m., 20 July 2012. Comments must be submitted in soft copy (preferably in Microsoft Word or PDF format) with the email header "Second Public Consultation on the Review of COPIF", to this email: IDA_Consultation@ida.gov.sg. All comments should be addressed to our Ms Aileen Chia, Deputy Director-General (Telecoms & Post).

74 IDA reserves the right to make public all or parts of any written submission and to disclose the identity of the source. Respondents to the consultation may request confidential treatment for any part of the submission that the commenting party believes to be proprietary, confidential or commercially sensitive. Any such information should be clearly marked and placed in a separate annex. If IDA grants confidential treatment, it will consider (but will not publicly disclose) the information. If IDA rejects the request for confidential treatment, it will return the information to the respondent and will not consider this information as part of its review. As far as possible, respondents should limit any request for confidential treatment of information submitted. IDA will not consider any submission that requests confidential treatment of all, or a substantial part, of the submission.