

JIS

JAPANESE INDUSTRIAL STANDARD

**Modular co-ordination of
equipment unit for dwellings**

JIS A 0018—1992

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JAPANESE INDUSTRIAL STANDARD

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Modular co-ordination of equipment unit for dwellings A 0018-1992

1. Scope

This Japanese Industrial Standard specifies the modular co-ordination⁽²⁾, (hereafter referred to as MC) and its application relating to the equipment units⁽¹⁾ and the components thereof to be installed mainly in dwellings.

Notes (1) This Standard specifies the fundamental items of MC relating to equipment units for dwellings, and its subjects herein are the sanitary units and kitchen units.

(2) The MC of equipment units and components thereof means that to apply modules to the components of appliances of equipment, pipings, etc. constituting equipment units and the dimensions between the components, for adjusting the dimensional relations with the building, and for clarifying the assembling and interchangeability of those components such as the building and appliances, piping units and appliances, and the building and equipment units.

Remarks: The applicable standards to this Standard are the following:

JIS A 0001-Building Module

JIS A 0004-Principle of Modular Co-Ordination in Buildings

JIS A 0012-Modular Co-Ordination - Sizes of Sanitary Unit
for Dwellings

JIS A 0017-Kitchen Equipment - Coordination Sizes

2. Constitution of MC

The MC of equipment units shall be constituted being based on the following elements:

- (1) Establishment of modules and preferred sizes
- (2) Application of modules to component sizes and reference planes of components
- (3) Method of determining manufacturing sizes of components
- (4) Methods of determining and co-ordinating the positions of pipings and appliances in the assembling reference system

3. Establishment of modules and preferred sizes

The establishment of modules and preferred sizes shall be in accordance with the following:

- (1) The module mentioned herein shall mean a unified dimensional system established for co-ordinating the sizes of the components of the equipment units, and shall be the numerical values in accordance with JIS A 0001, as appropriate.
- (2) Among the component sizes, a module to be used in common with each other shall be selected as preferred sizes, and the numerical values thereof shall generally be as given in the following (Unit: mm).

100, 150, 200, 300, 400, 450, 500, 600, 800, 900, 1000, 1200, 1500,
1600, 1800, 2000, 2400, 2700, 3600, 4500, 4800, 5400, 7200, 9600

4. Application of module to component sizes and reference planes of component

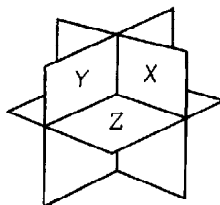
The application of the module to the component sizes and the reference plane of component shall be in accordance with the following:

- (1) In the components of an equipment unit, reference planes of components⁽³⁾ shall be established, considering the connections with the building.

Note (3) The reference planes of components mean the planes for reference which have been established for the indication of the component sizes and the designation of positions of the components in the case of assembling, and for the designation of the dimensions (including co-ordination planes) of respective parts of components.

- (2) The reference planes of components shall generally be established in the three directions of X, Y and Z (See Fig. 1).

Fig. 1



- (3) The establishing method of the reference planes of components varies with the type of component, however, it shall be unified for the components of the same kind of assembling method.
- (4) The methods of establishing the reference planes of components shall be in accordance with the examples of Fig. 2 and Fig. 3.
- (5) In the case where the connection with the other component is anticipated, a reference plane of component which designates a region shall be established on its boundary. In the case where connections on both sides of the plane are anticipated in a certain direction, a module of the numerical value specified in JIS A 0001 shall be applied to the distance between these, and it shall be referred to as the modular nominal dimension.

- (6) Even in the case where no connection with the other component is anticipated in a certain direction, one reference plane of component shall be established at an appropriate position for designating the position.

Fig. 2. In the case of multiple components

Fig. 2-1 Example of bathroom unit

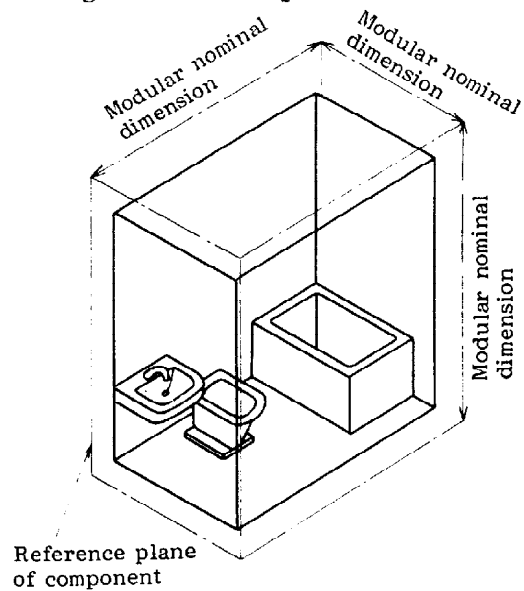


Fig. 2-2 Example of kitchen unit

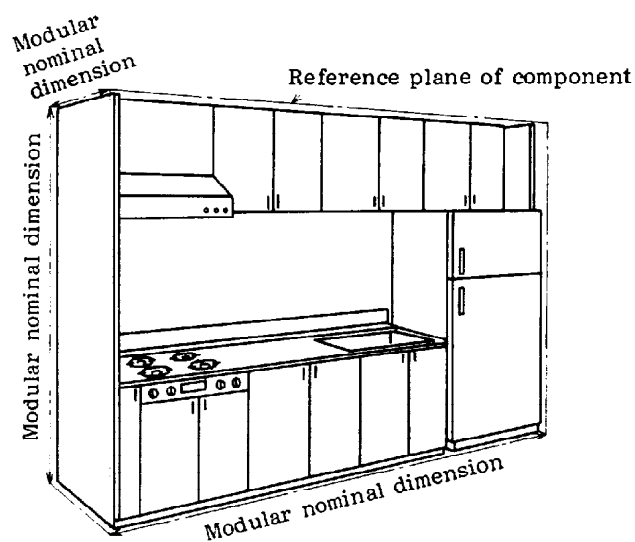


Fig. 3. In the case of single component

○ — ○ Reference plane of component

a_1, a_2, b : distance from center of water discharge opening to reference plane of component

a_3 : distance from center of water discharge opening to auxiliary reference plane

Fig. 3-1 Example of bathtub

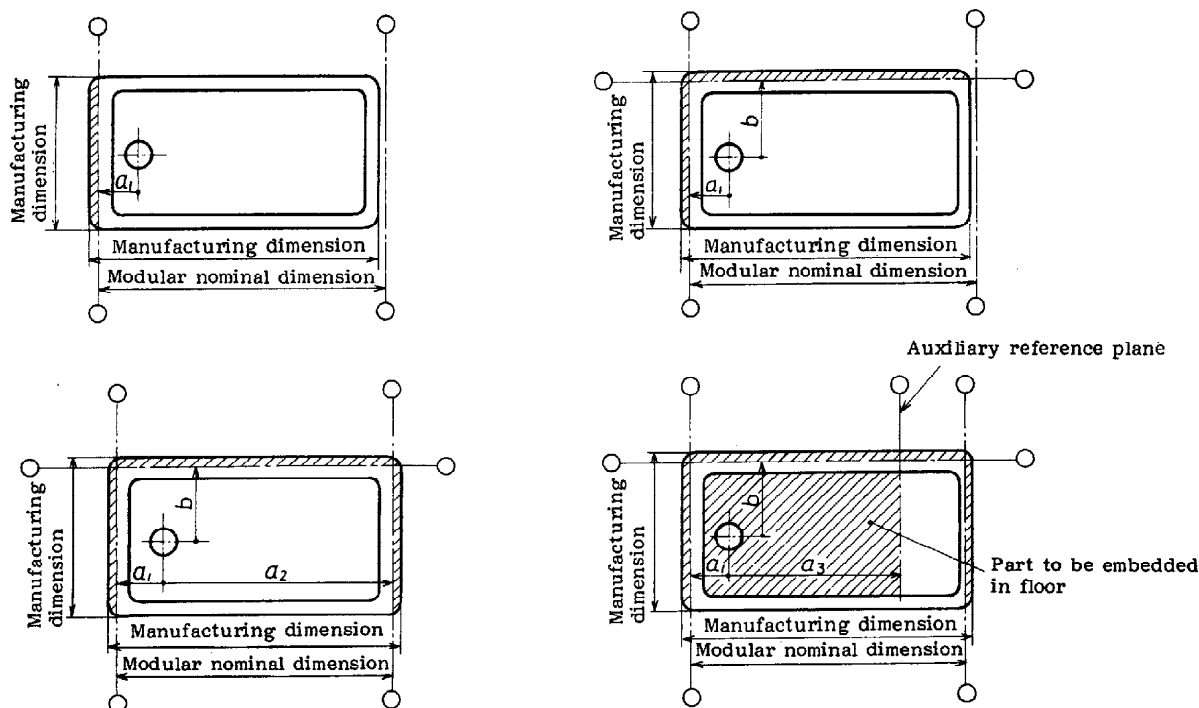


Fig. 3-2 Example of toilet stool

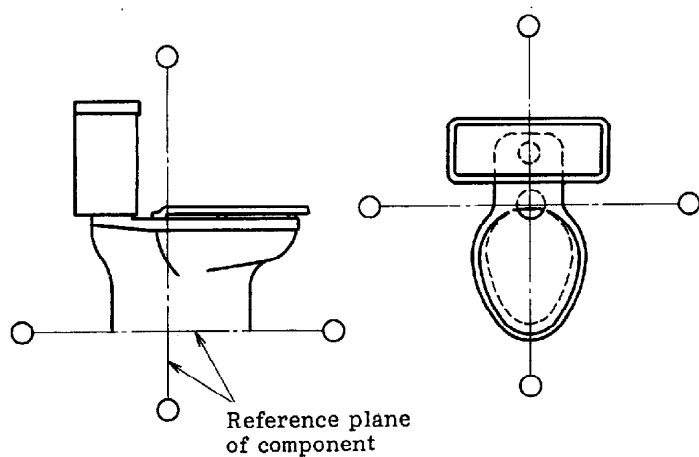


Fig. 3-3 Example of wash stand

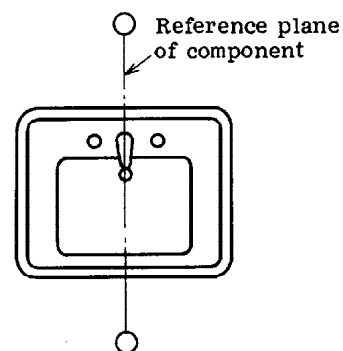
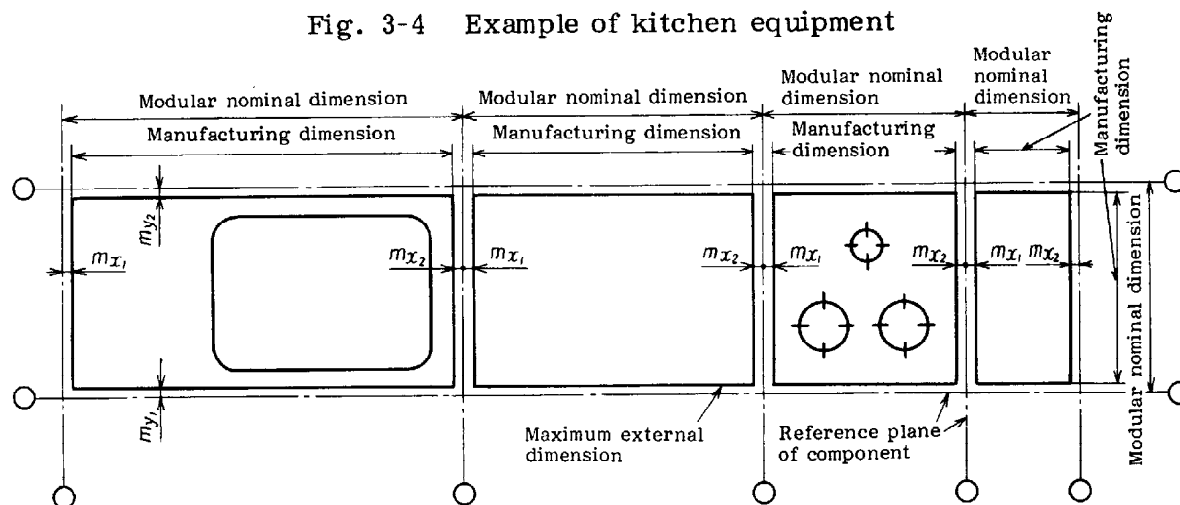


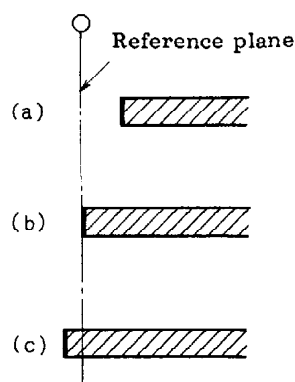
Fig. 3-4 Example of kitchen equipment



m_{x1} , m_{x2} , m_{y1} , m_{y2} : distance between the reference plane and the maximum external plane

- (7) The methods to establish a co-ordination plane from a reference plane of component shall consist of the following three kinds (See Fig. 4).
- (a) Where the reference plane of component is located at outside the co-ordination plane
 - (b) Where the reference plane of component is allowed to coincide with the co-ordination plane
 - (c) Where the reference plane of component is located at inside the co-ordination plane

Fig. 4



Bold lines shall indicate co-ordination planes.

- (8) In the case where reference planes are to be established on the components of equipment appliances and the like, obtain the reference planes of component from the centers of joints having important elements of piping and assembling with components, indicate dimensions thereof, and obtain the regions thereof.

In addition, the indication of the position of each part of the component shall generally be determined by the reference plane of component.

- (9) As regards the piping units and other piping parts, determine in accordance with the indications of the dimensions from the assembling reference planes of the building. The reference planes of pipings shall be established on that is unmovable as the main pipe or on the core of a piping can be taken as the reference. For the other branch pipes, the positions thereof shall be determined by the cores of the pipes in accordance with the indication of the dimensions from these reference planes. However, the piping and joint part having water gradient shall be exempted from application.

5. Method of determining manufacturing dimensions of components

The method of determining the manufacturing dimensions of the components shall be in accordance with the following:

- (1) The manufacturing dimensions⁽⁴⁾ of component shall be determined on the basis of the modular nominal dimensions applied to the distance between the reference planes of components.

Note (4) The manufacturing dimensions shall mean the co-ordinating dimensions to be used as the basis in manufacturing the components, considering the margin in the case of a single component, and the gaps, positional tolerances and manufacturing tolerances in the case of multiple components.

- (2) The manufacturing dimensions of a component shall be determined considering the maximum permissible dimension and the minimum permissible dimension of the component.
- (3) The relation between the manufacturing dimension and the modular nominal dimension of a component shall be in accordance with JIS A 0004.

6. Relation between the establishment of assembling reference system and the assembling reference planes given to equipment appliances

The relation between the assembling reference system and the assembling reference planes given to appliances to be established shall be in accordance with the following:

- (1) The assembling of components shall be performed by establishing the assembling reference system⁽⁵⁾.

Note (5) The assembling reference system shall mean the reference lattice to be used for indicating the positions of the components.

- (2) The assembling reference system shall be indicated by the assembling reference planes of three directions of X, Y and Z intersecting at right angles each other. Z shall be the horizontal plane, and the horizontal and vertical projections of the assembling reference plane shall be indicated as the assembling reference line and assembling reference point (See Fig. 5).

Fig. 5. Assembling reference systems

Fig. 5-1 Assembling reference system of plan

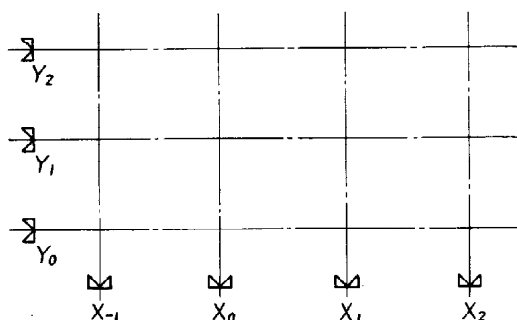


Fig. 5-2 Assembling reference system of elevation

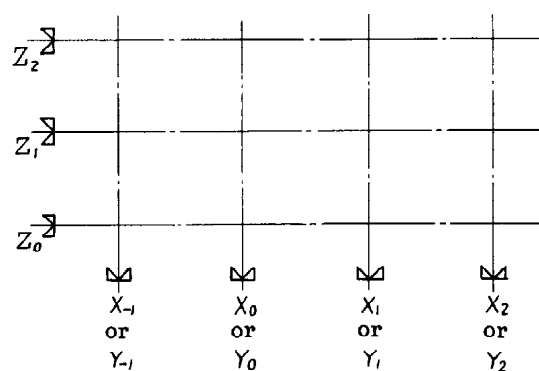


Fig. 5-3 Example of indication of sub reference plane from assembling reference system (X-direction)

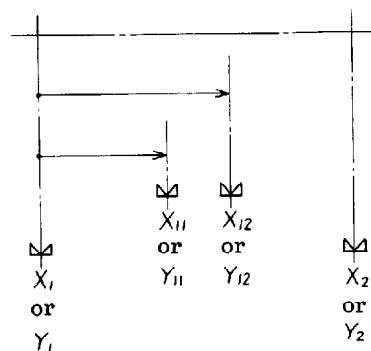


Fig. 5-4 Example of indication of sub reference plane from assembling reference system (Z-direction)

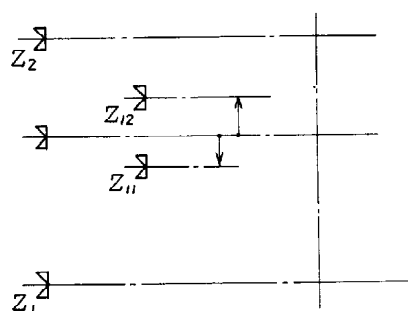
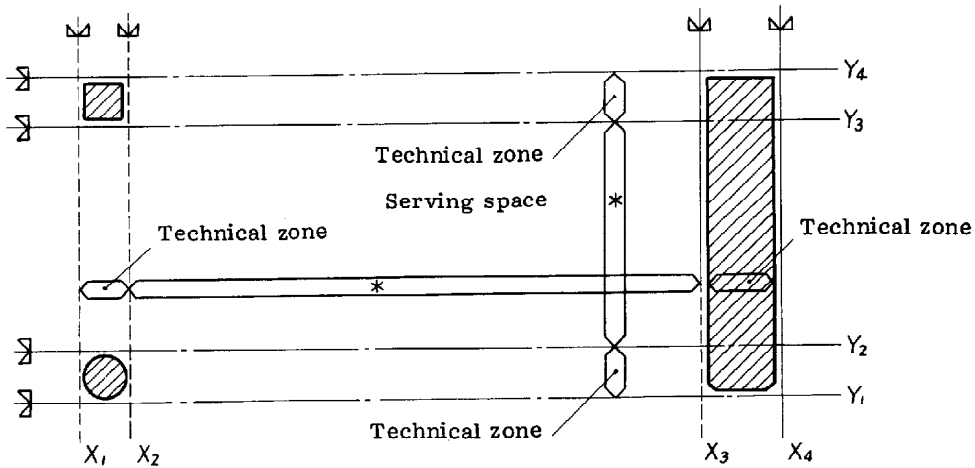


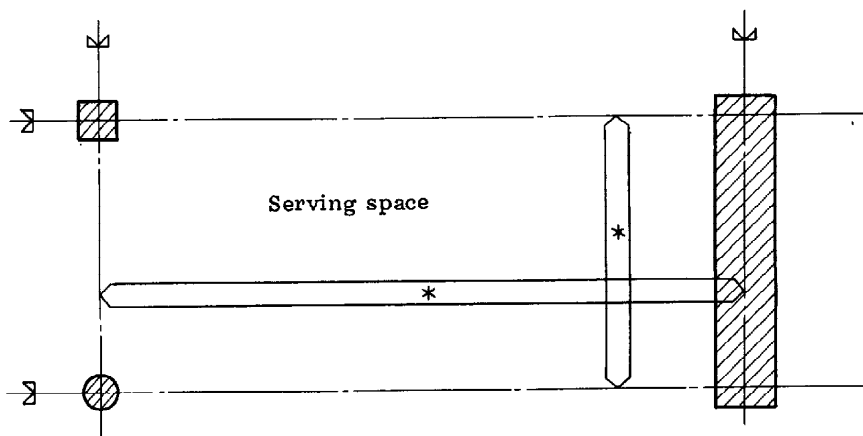
Fig. 5-5 Example of serving space and non-serving space
(Technical zone) (XY-directions)

Example of coped joint



* Dimensions to which a module is applied

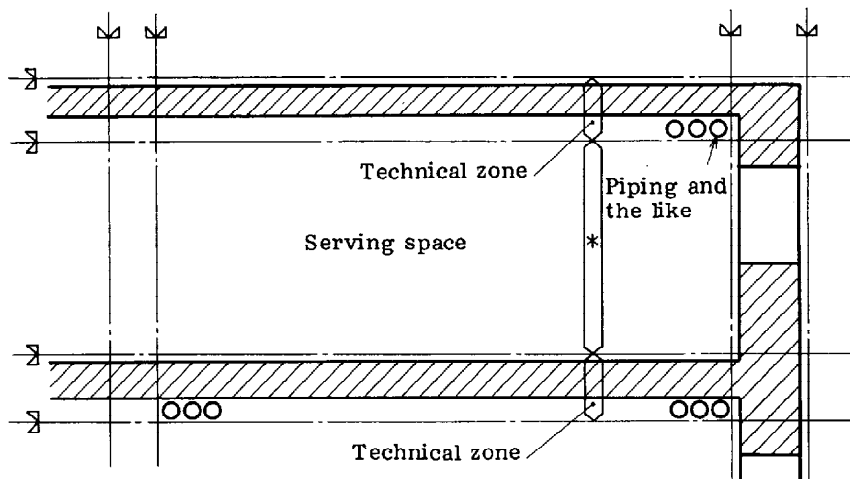
Fig. 5-6 Example of serving space in the case of center reference joint



* Dimensions to which a module is applied

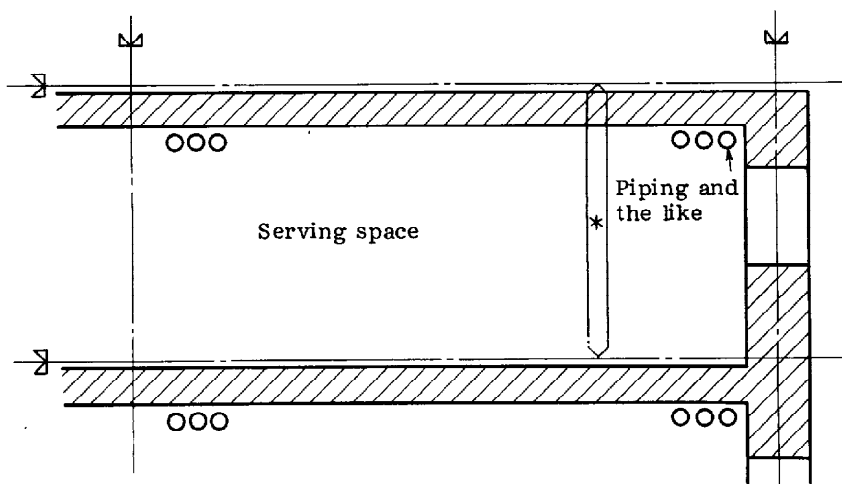
Fig. 5-7 Example of serving space and non-serving space
(Technical zone) (Z-direction)

Example indicated by room height in the case of coped joint



* Dimension to which a module is applied

Fig. 5-8 Example indicated by storey height in the case of coped joint



* Dimension to which a module is applied

- (3) The serving space shall mean the space intended for service excluding the technical zones⁽⁶⁾. Generally the module specified in JIS A 0001 shall apply to the distance between the assembling reference planes which indicates the serving space.

Note ⁽⁶⁾ The technical zone shall mean the zone to be defined for establishing the serving space, and the modules specified in JIS A 0001 may not be applied generally to the distances between the assembling reference planes to be established for floors, roofs, walls, pillars, equipments, etc.

- (4) In assembling the equipment appliances, assembling reference planes shall also be defined in the Z-direction, considering the three connections of the equipment appliances and pipings with the building. The position of this reference plane shall be established at an arbitrary position between the floor surface (above finished surface) and the ceiling surface (below finished surface). By the establishment of this assembling reference plane, the heights of appliances, heights of pipings and the like can be designated of positions in compliance with the building (See Informative reference Figs. 1 to 4).

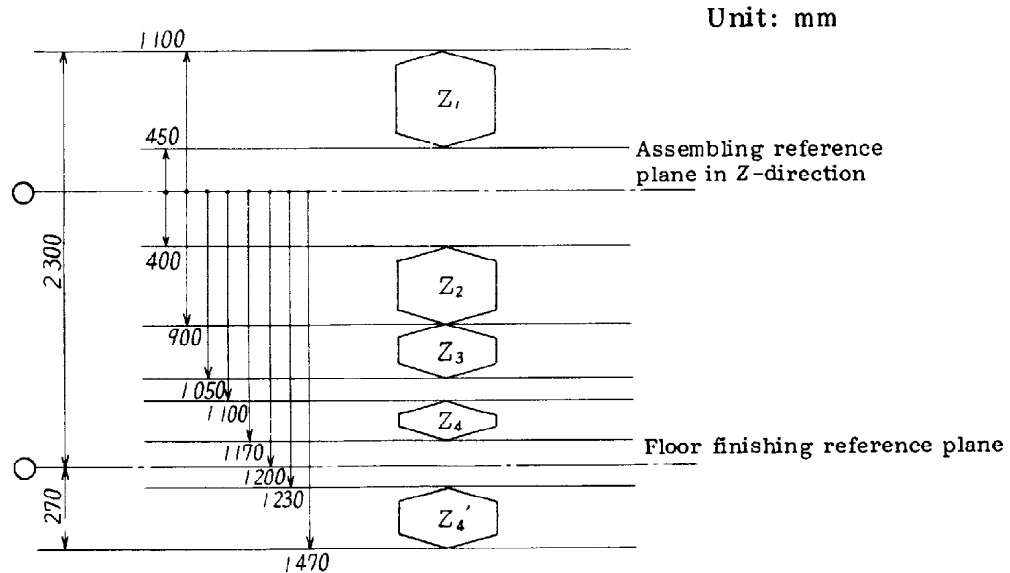
Furthermore, the assembling reference plane of Z-direction, in the ordinary assembling, should preferably be established 1200 mm above the floor finishing reference plane.

7. Modular nominal dimensions of equipment units

The modular nominal dimensions of the equipment units shall be in accordance with the following:

- (1) The modular nominal dimensions of the equipment units shall be in accordance with the standards which have been established on each kind of equipment unit as given in the following respective items:
- (2) The modular nominal dimensions of the sanitary unit shall be in accordance with JIS A 0012.
- (3) The modular nominal dimensions of the system kitchen shall be in accordance with JIS A 0017.

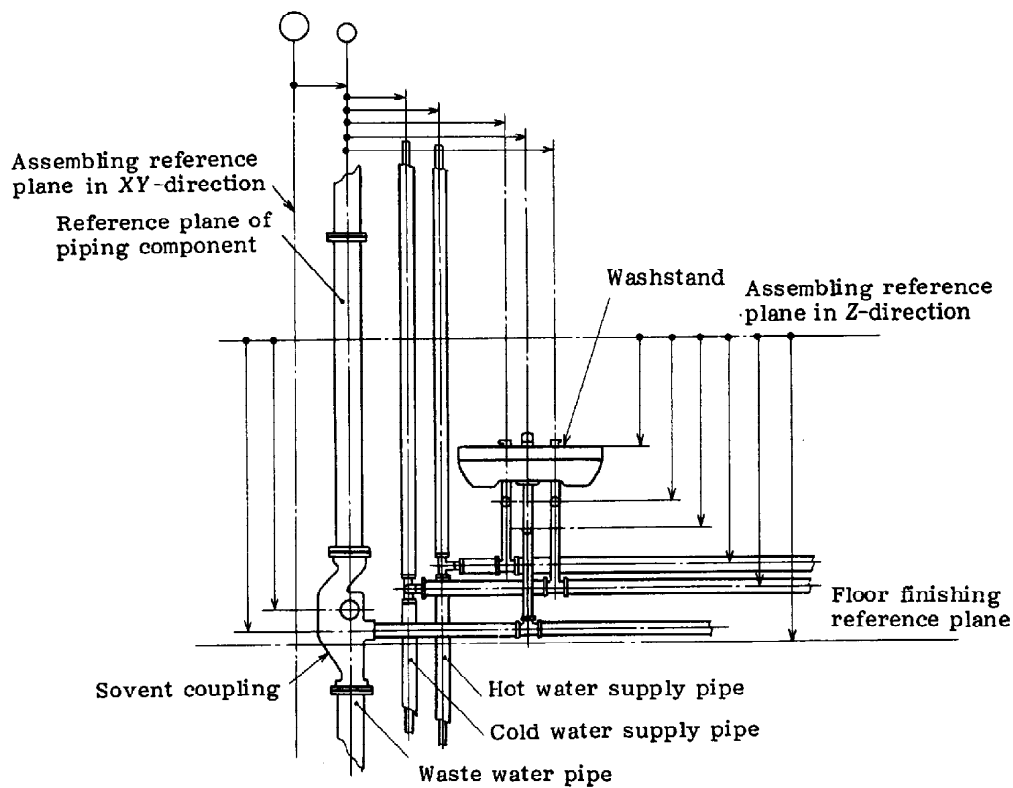
Informative reference Fig. 1. Example of dimensional indication of assembling reference system in Z-direction and respective components and water supply and discharge equipment



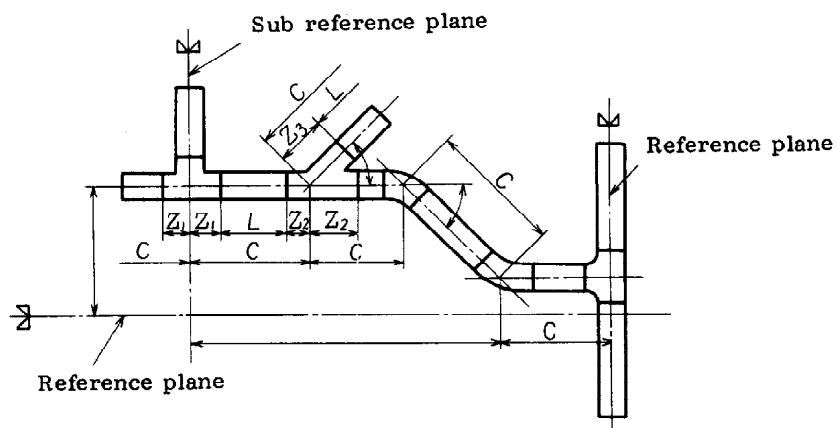
- Z_1 : exhaust, chimney and electricity of toilet, bathroom and the like
- Z_2 : hot water supply, cold water supply and gas
- Z_3 : sewage
- Z_4 : upper miscellaneous waste water discharge
- Z_4' : lower miscellaneous waste water discharge

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Informative reference Fig. 2. Example of dimensional indication of assembling reference system in X-direction and Z-direction

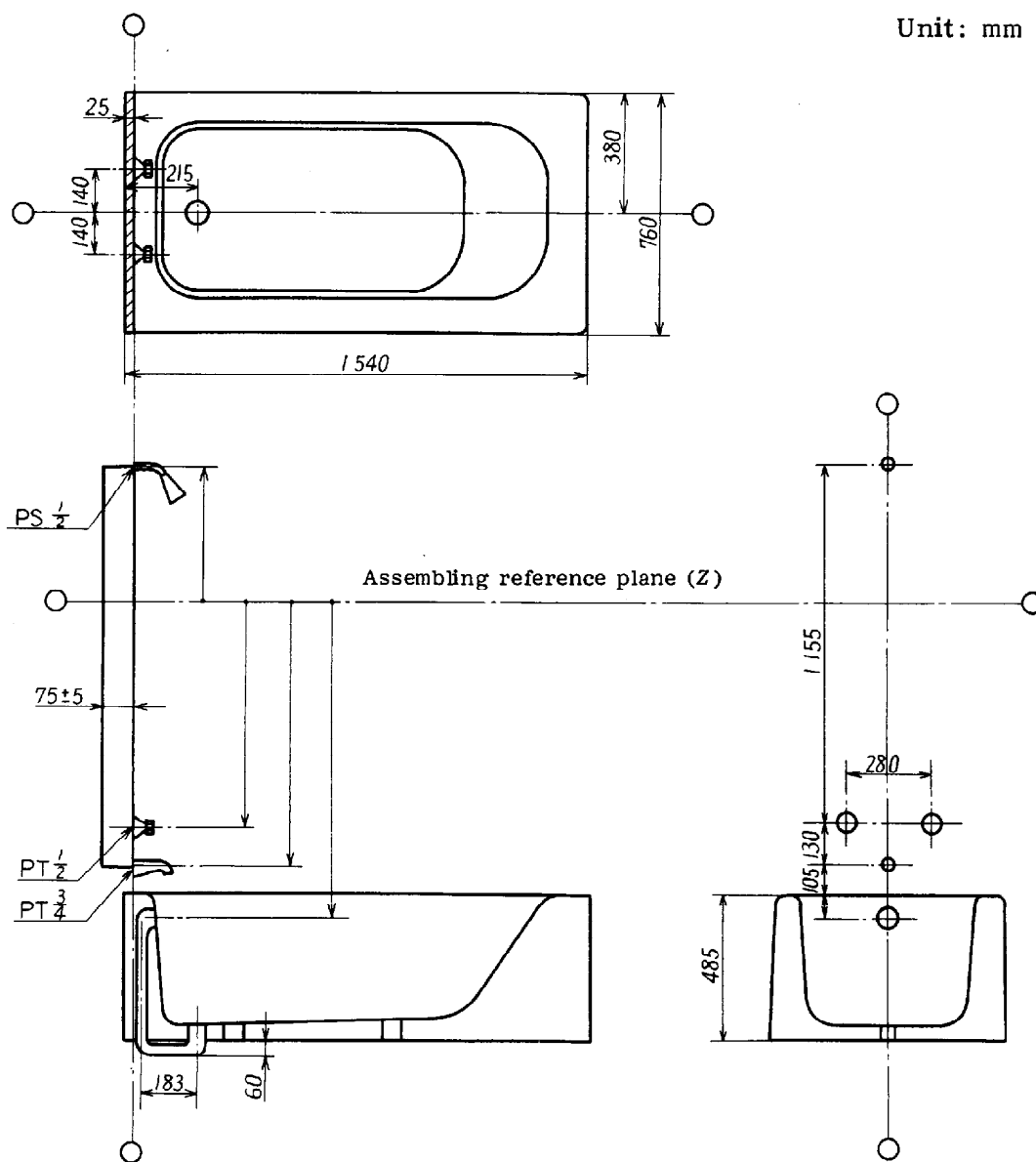


Informative reference Fig. 3. Relation between the reference plane and the sub reference plane in piping



Informative reference Fig. 4. Example of dimensional indication of assembling reference system of single component in Z-direction

Unit: mm



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