



# Status update of e-submission common guideline project on bSI RR



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# Draft of Common Scale <Proposal>

It's classified by 2 viewpoints about the situation of each country.

## Level of Development (LOD) for Building Regulatory Checking <main classification>

indicates;

- What is expected legally by using of BIM/IFC ?
- How much is the degree of automatic code checking?

## Categories of Level of Development <sub classification>

Indicates;

- What is the target on the LOD?

# Draft of Common Scale <Proposal>

Level of Development	Conformation body expects...	Work object	IFC expression of legal issue
1 <Manual checking w/o IFC>	<ul style="list-style-type: none"> <li>a. Compatibility among application forms and drawing.</li> <li>b. to recognize complicated shape easily by 3D view</li> </ul>	<ul style="list-style-type: none"> <li>a. 2D drawing issued from BIM model</li> <li>b. 3D view of BIM model</li> </ul>	(n/a)
2 <Manual checking w/ IFC>	to find lack of expression legally needed on application docs.	2D drawing and Model Data	Indication of legal objects
3<Hybrid> 3+<ACC>	to check building codes semi/full automatically. <ul style="list-style-type: none"> <li>a. Number of targets</li> <li>b. Numerical value of targets</li> <li>c. Spatial / Geometrical relation of targets</li> <li>d. Simulation / Analysis</li> </ul>	<Hybrid> 2D drawing and Model Data  <ACC> Model Data	Value of legal objects <ul style="list-style-type: none"> <li>a. Object Type</li> <li>b. Numerical Value</li> <li>c. Code checking Rule</li> <li>d. Exporting to external program</li> </ul>

# Draft of Common Scale <Proposal>

## Usage of LOD for Building Regulatory Checking (Just a Sample)

BRI's "Step1+" → LOD 1 category b.

BRI's "Step2+" → LOD 2

BCA.sg /corenet → LOD 3 category a., b. ??

MOLIT.kr u-SEUMTER → LOD 3+ category a., b., c. ??

↑ *Sorry, I don't know correctly...*

## Regulatory Room Resolutions

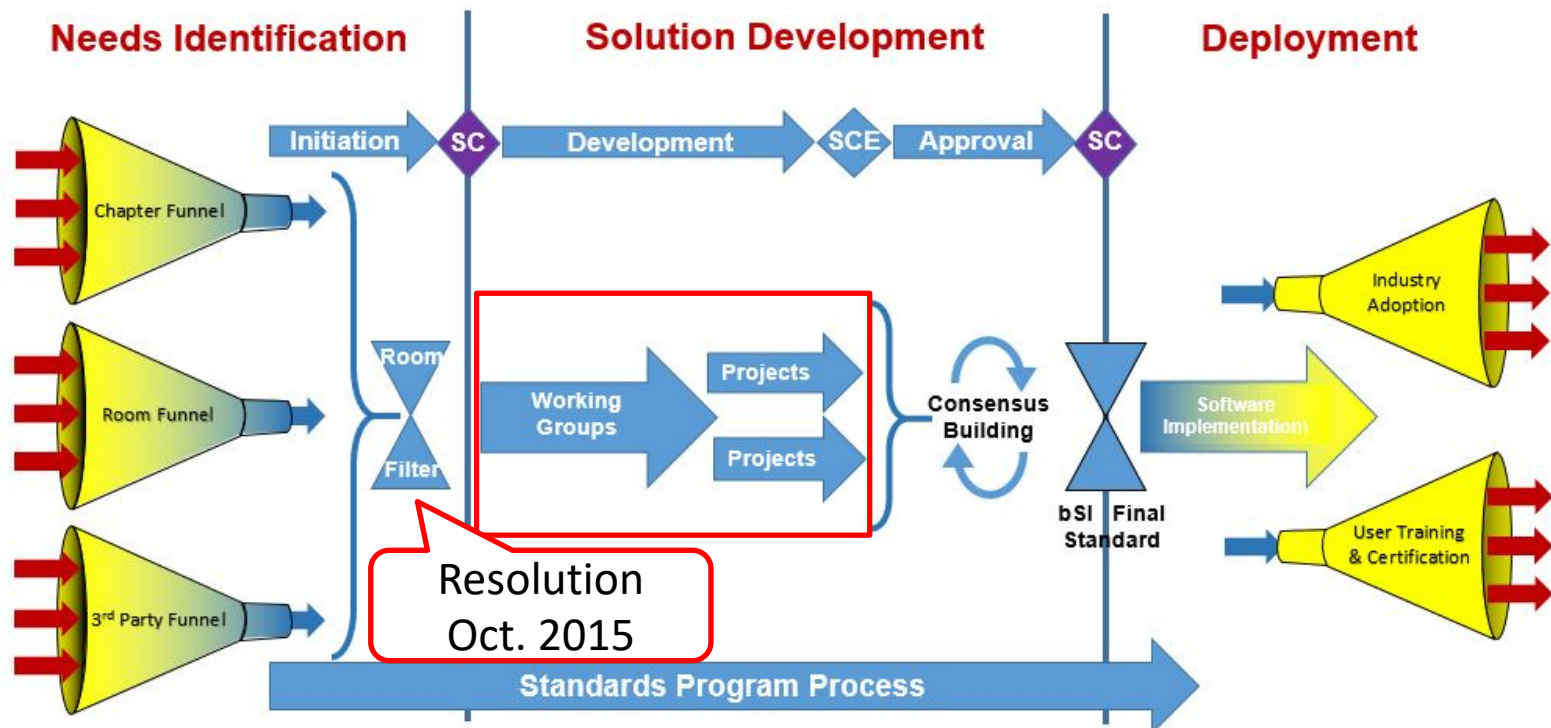
- ✓ Ask RegCom to draft MOU letter for expediting BIM based e-Submission Process
- ✓ Ask RegCom to establish an interest group for e-submission common guidelines leading by Masaki Muto
- ✓ Ask RegCom to set up a project to seek a common representation(including logics and methods) of computable regulations
- ✓ Ask RegCom to draft MOU letter for using IFC(ISO16739) as an archiving standard by each countries
- ✓ Continue to co-chair by Inhan Kim and Øivind Rooth
- ✓ Thanks to buildingSMART Singapore and BCA for their hospitality

Regulatory Room



# Progress Status

- engaged in creating WG on RR
  - preparing questionnaire for conducting survey of building cord check procedure in each country which carries out e-submission with or without BIM as beginning.



# Viewpoint on survey of building cord check procedure

<from an institutional point of view>

- Maker of building code (national/local gov.)
- Target of cord check (urban planning, architectural, structural, MEP, ...)
- Category of confirmation body (national/local gov., registered authorities, ...)

<from information delivery's point of view>

- Required view (site, architectural, structural, MEP, ...)
- Acceptable file format for each view (IFC, BIM/CAD native, xml, pdf, cvs, txt, ...)
- Treatment of e-document on code checking (ACC, screen viewing, printing out ...)
- Method of archiving e-documents (convert raw files to archive format (e.g. PDA/A) , attach Long term e-signature on raw files, fix views to microfilm or paper, ...)

## BRI's R&D Status update



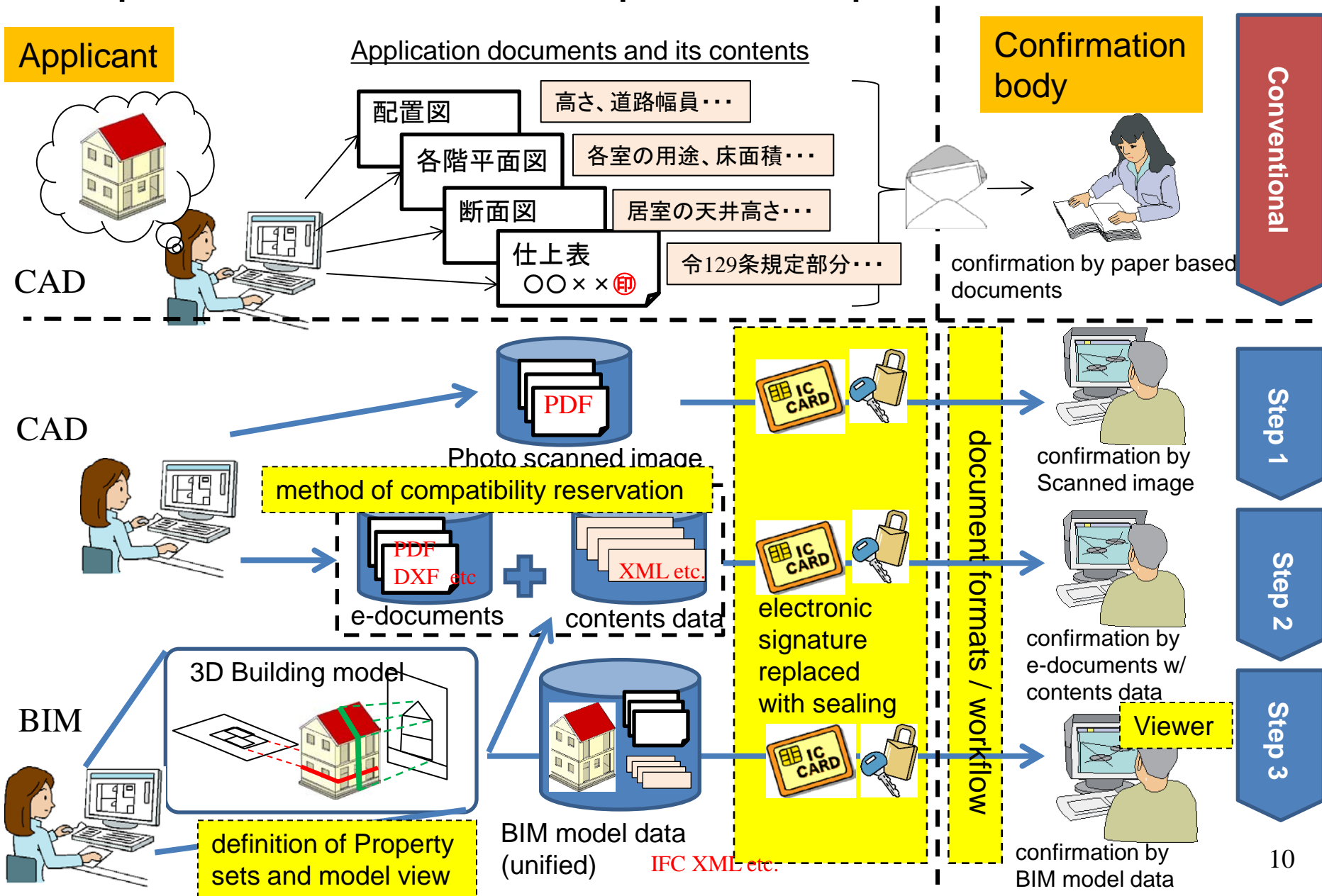
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# Status updates on BIM code checking

- Finalize R&D on BIM Based e-submission system on building confirmation and inspection to fulfill these requirements
  - The results is presented widely for related organizations.
  - State of the Art Report will be published.
- This issue is shown at ICIS DA 2015 Brno.
- Start studying on Building Code Checking IFC inspection scenario, IDM, MVD and BCF
  - bS Japan's Architectural & Cross Domain Group is making IFC MVD Concept for IFC checking on floor area and building height applicable for BRI-Step 3-, 3.

# Perspective of BRI development step

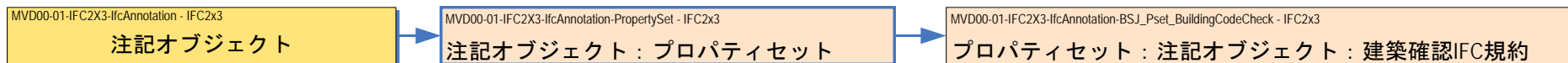


# Detail of development steps and R&D status

Step		Level of development	Additional Contents from conventional application	Compatibility	In-service	R&D status
0	CAD BIM	Conventional application		-	○	
0+	CAD BIM	Added Some data contents with Step0 paper docs.	CVS/XML form data of application's by data media	-	○ (1993~)	
1	CAD BIM	Just photo scanned or e-published application forms and drawings	(same as conventional application)	-	○ (2015.1~)	
1+	BIM	e-published application forms and drawings with BIM certification	Footprint of BIM certification for each view of e-documents	○	-	fixed concepts
2	CAD BIM	Added Some data contents with Step1 docs.	CVS/XML form data of application's	-	○ (2015.1~)	
2+	BIM	Added essential IFC model data with Step1 docs.	IFC Model data incl. form data	○○	-	fixed concepts
3-	BIM	Available partial auto code checking	IFC Model data compatible with partial ACC	○○	-	develop IFC MVD Concept
3	BIM	Available full auto code checking	IFC Model data compatible with full ACC	○○○	-	

# Outline of IFC MVD Concept for code checking

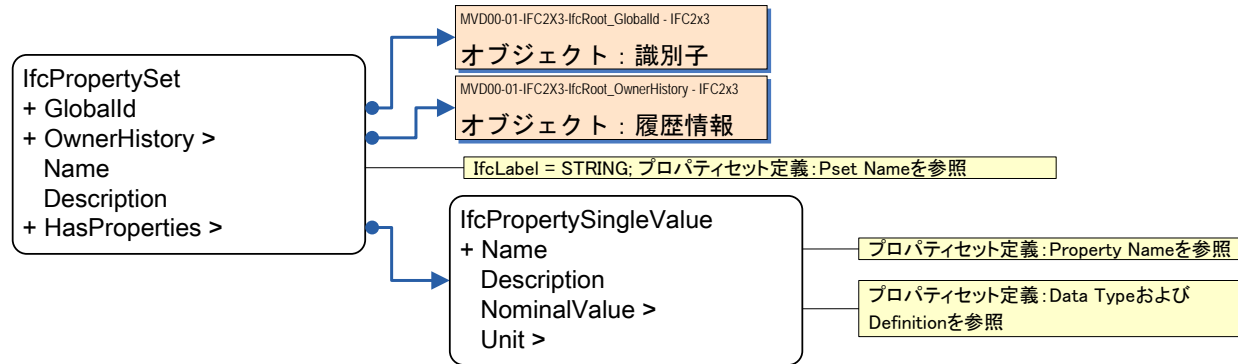
- Information necessary to confirmation of building is expressed by annotation object with IfcAnnotation.
- local property sets of IfcAnnotation are defined as follows;
  - BSJ\_Pset\_BCC\_SiteCondition
  - BSJ\_Pset\_BCC\_SiteBoundary
  - BSJ\_Pset\_BCC\_UseDistrict
  - BSJ\_Pset\_BCC\_FloorArea
  - BSJ\_Pset\_BCC\_BuildingArea
  - BSJ\_Pset\_BCC\_GroundLevel
- MVD diagram is shown as follows;



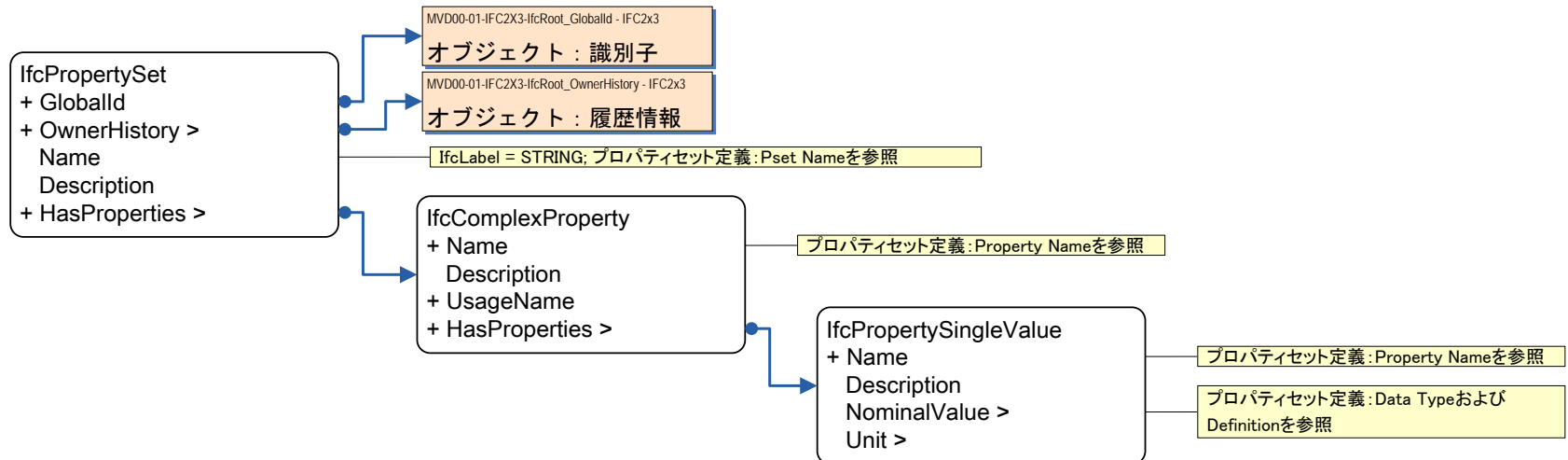
# Outline of IFC MVD Concept for code checking

- Objects diagram is shown as follows;

## a) IfcPropertySet with IfcPropertySingleValue

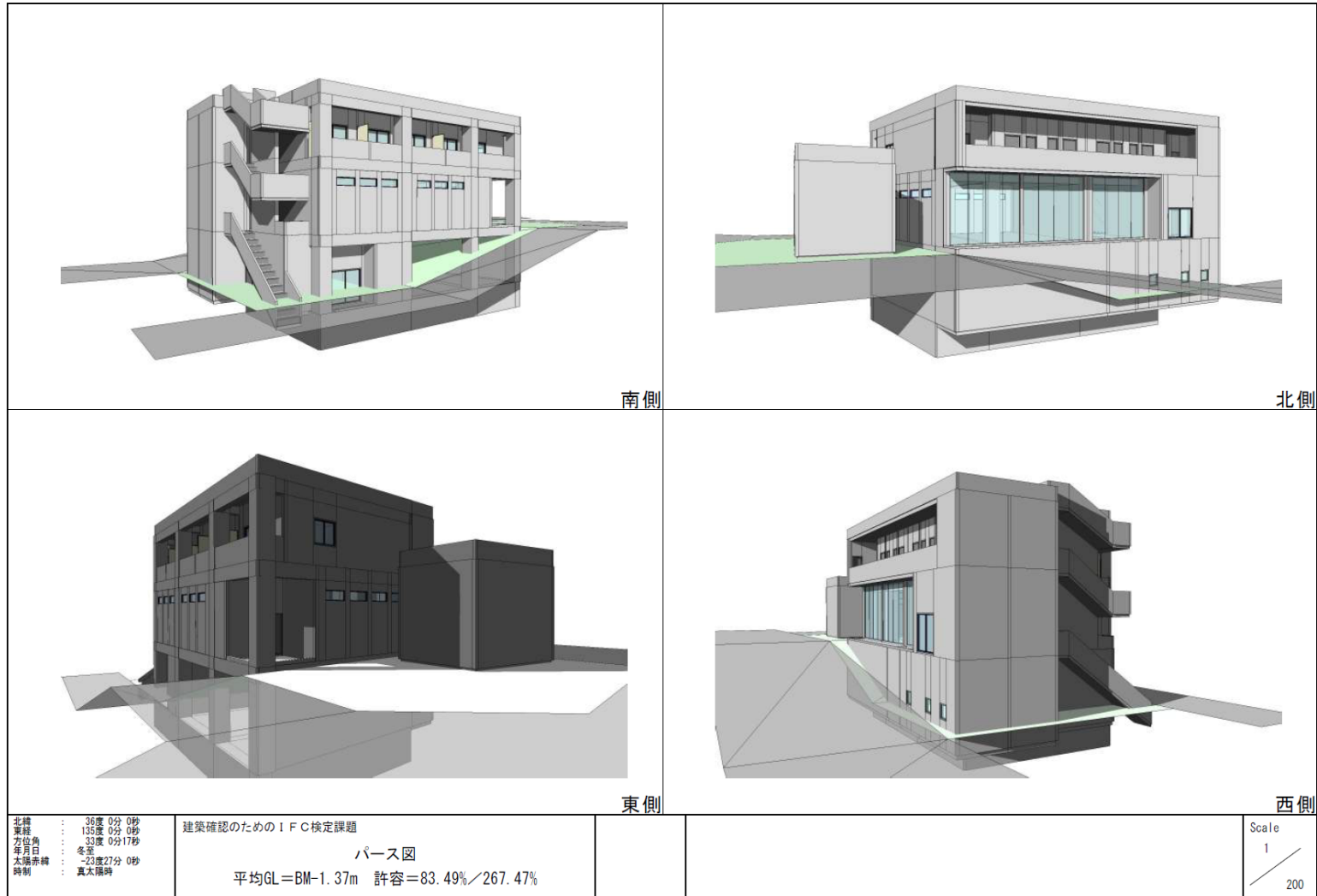


## b) IfcPropertySet with IfcPropertyComplexProperty



# Outline of IFC MVD Concept for code checking

- This concept will be set on local IFC inspection program early.



Thank you for your attention!

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