



Southern African Association for Institutional Research  
Foundations of HEMIS 2019

## Space reporting: Key concepts and issues

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## Acknowledgements

- Valpac documentation
- Applicable SAPSE documentation
- DHET presentations on related aspects
- Presentations by Herman Visser on related aspects



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## Purpose

**The purpose of this session is to explain the foundations and principles of the South African Higher Education Management Information System (HEMIS) as it relates to space reporting**



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## Key concepts

- Why is this important?
- What is the link with students and staff?
- Space usage
- Space norms
- Use of space norms
- Staff timesheets
- Class timetable



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## Background

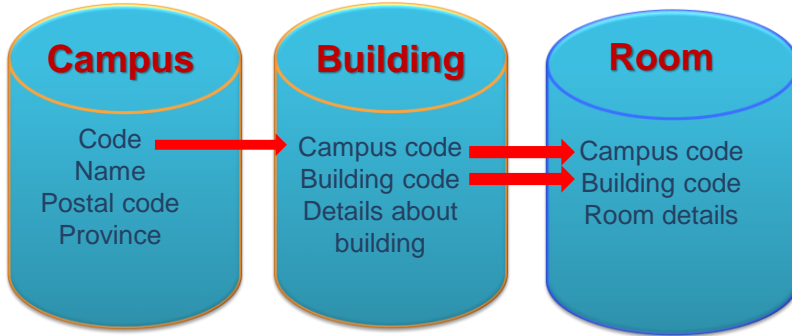
- When HEMIS was introduced in 1999, the SAPSE space reporting was abolished
- Became apparent that a HEMIS module for building and space reporting should be introduced
- A few institutions continued with their building and space systems but the majority scrapped these → great difficulties for some institutions

## Why space reporting?

- No data on Higher Education space holdings and space use available since 1996
- A building space module introduced in HEMIS from 2008
- Why important? DHET use HEMIS space data for planning assessment with enrolment plans to evaluate the physical capacity of institutions relative to their planned and actual student enrolments

# Structured reporting

## Three Valpac files



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# CAMPUS FILE

### CAMPUS FILE

File name: xxxxCAMP.s (replace "xxxx" with the institution code, and "s" by the submission number)  
 Sort order: Any order  
 Unique key: Element 201 concatenated with Element 204

Element number	Element name	Field name	Width	Start column	End column	Data type
201	Campus code	CAMP CODE	3	1	3	Text
202	Campus name	CAMPNAME	50	4	53	Text
203	Campus postcode	CAMPSTC	4	54	57	Text
204	Campus province code	CAMP PROV	2	58	59	Text
221	Latitude degrees	LAT DEG	3	60	62	Text
222	Latitude minutes	LAT MIN	2	63	64	Text
223	Latitude seconds	LAT SEC	6	65	70	Text
224	Longitude degrees	LON DEG	2	71	72	Text
225	Longitude minutes	LON MIN	2	73	74	Text
226	Longitude seconds	LON SEC	6	75	80	Text
	Comments	COMMENTS	30	81	110	Text



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# Campus Challenges

No Big Challenges

What we did at UFS

1. Create campus file in operational database maintained by Unit for space and planning: We keep date and time created and roll over by year

YEARCD	UV_CAMPCODE	UV_CAMPNAME	UV_CAMPSTC	UV_CAMPPROV	CAMPUS	UV_LAT_DEGR	UV_LAT_MIN	UV_LAT_SEC	UV_LON_DEGR	UV_LON_MIN	UV_LON_SEC	UV_INCL_HEMIS_FLG	COMMENTSHORT	COMMENTS
2017	01	MAIN CAMPUS	9330	04	MADN	-29	6	38.94	26	11	32.9	Y		
2017	02	QWA QWA C...	1234	04	QWA	-28	29	9.37	28	49	24.67	Y		
2017	03	SUIDKAMPUS	9301	04	SOUTH	-29	10	58.32	26	12	53.33	Y	(ou Vista)	
2017	81	HOOF KAMPU...	9330	04	MADN	-35	0	0	18	0	0	Y	UV Etendom / N...	UFS Building
2017	82	HOOF KAMPU...	9330	04		-29	6	38.94	26	11	32.9	N	Terreine 1, 2 e...	
2017	83	HOOFKAMPU...	9330	04		-29	6	38.94	26	11	32.9	N	Slegs Sportgro...	
2017	84	HOOFKAMPU...		04	MADN	-29	6	38.94	26	11	12.31	N	Emergency Po...	UFS: Emerg...



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# BUILDING FILE

## BUILDING FILE

File name: xxxxBLDG.s (replace "xxxx" with the institution code, and "s" by the submission number)  
 Sort order: Any order  
 Unique key: Element 201 concatenated with Element 205

Element number	Element name	Field name	Width	Start column	End column	Data type
201	Campus code	CAMP CODE	3	1	3	Text
205	Building code	BLDG CODE	5	4	8	Text
206	Building name	BLDG NAME	50	9	58	Text
207	Ownership code	OWN CODE	2	59	60	Text
208	Year of construction	YEAR CONS	4	61	64	Numeric
209	Building condition	BUILD CON	1	65	65	Numeric
210	Inventory value	INVENT VL	10	66	75	Numeric
211	Total assignable square metres	TOTAL ASM	6	76	81	Numeric
212	Total gross square metres	TOTAL GSM	6	82	87	Numeric
213	Standard cost unit	STDC STUN	10	88	97	Numeric
	Comments	COMMENTS	30	98	127	Text



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## Building challenges

YEARCD	UV_CAMP	UV_BLDG	UV_BLOK	UV_BLDGNAME	UV_OWNCODE	UV_YEARCONS	UV_BUILDCON1	UV_INVENTVL	UV_ESTREPECT	UV_TOTALASM	UV_TOTALGSM	UV_STDCSTUN	COMMENTS_25
2017	01	119	0	TSVELOPEL...	01	1973	3	575993	61219263.18	2629.229	5079.488	5053	Tsvelopele / K.
2017	01	120	0	MADELIEF-K...	01	1971	3	542542	64772619.54	3090.027	5547.349	3165	
2017	81	50.7	7	BOYDEN-OU...	01	1927	1	99	0	369.914	454.157	424	BOYDEN
2017	01	32F	F	WERKWINKE...	01	1947	3	99	8665967.68	856.18	1237.208	768	
2017	01	32G	G	FASILITETE...	01	1985	2	33297	1184854.32	249.239	334.369	102	(Gebou oorged.

UV_INCL_HEMIS_FLG	SCC_ROW_ADD_OPRID	SCC_ROW_ADD_DTTM	SCC_ROW_UPD_OPRID	SCC_ROW_UPD_DTTM	UV_LAT_DIRECTION	UV_LAT_DEGR	UV_LAT_MIN	UV_LAT_SEC	UV_LON_DIRECTION	UV_LON_DEGR	UV_LON_MIN	UV_LON_SEC
Y	KROHNHJ	2012/09/05 12:00:0...	KROHNHJ	2016/08/04 12:00:0...		0	0	0				
Y	HEUNISG	2012/09/03 12:00:0...	KROHNHJ	2016/08/04 12:00:0...		0	0	0				
Y	HEUNISG	2012/08/31 12:00:0...	HEUNISG	2014/05/12 12:00:0...		0	0	0				
Y	HEUNISG	2012/08/03 12:00:0...	KROHNHJ	2016/08/02 12:00:0...		0	0	0				
Y	HEUNISG	2012/09/03 12:00:0...	KROHNHJ	2016/08/02 12:00:0...		0	0	0				



## Building challenges

- UFS Inventory value
- Estimate replacement cost
- Assignable square meters
- Gross square meters
- We have added building gps data for mapping in future



# ROOM FILE

## ROOM FILE FROM 2008

File name: xxxxROOM.s (replace "xxxx" with the institution code, and "s" by the submission number)  
 Sort order: Any order  
 Unique key: Element 201 concatenated with Element 205 concatenated with Elements 214 and 215

Element number	Element name	Field name	Width	Start column	End column	Data type
201	Campus code	CAMP CODE	3	1	3	Text
205	Building code	BLDG CODE	5	4	8	Text
214	Room number	ROOM NMBR	10	9	18	Text
215	Room proration key	ROOM PKEY	4	19	22	Numeric
216	Space use category	SPACE CAT	4	23	26	Text
217	Square metres	SQ METRES	10	27	36	Numeric
218	Number of stations	STATIONS	10	37	46	Numeric
219	PCS code	SPACE PCS	3	47	49	Text
220	CESM code	SPACE CSM	6	50	55	Text
	Comments	COMMENTS	30	56	85	Text



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# Room Challenges

Room proration key – we have broken it down into 3 separate fields  
 Cesm

Space use category :

YEARCD	UV_CAMP CODE	UV_BLDG CODE	UV_ROOM NMBR	UV_BLDG SUB CODE	UV_FLOOR	UV_SPACE CAT	UV_SPACE PCS	UV_SPACE CSM	UV_H_ROOM KEY1	UV_H_ROOM KEY2	UV_H_ROOM KEY3	UV_SQ METRES
2017	01	101	1	101	G	2120	ZZZ	ZZZZZZ	1	0	11	283.809
2017	01	101	10	101	G	2110	ZZZ	ZZZZZZ	1101	0	11	3.326
2017	01	101	11	101	G	2110	ZZZ	ZZZZZZ	1101	0	11	3.326
2017	01	101	12	101	G	2110	ZZZ	ZZZZZZ	1101	0	11	30.533
2017	01	101	13	101	G	1315	060	ZZZZZZ	1101	0	11	82.85
2017	01	101	13C	101	G	1315	060	ZZZZZZ	1101	0	11	8.473

UV_STATIONS	DEPTID	YESNO	COMMENTS_256	UV_IMPRO_LOC_NO	UV_IMPRO_CTRL_SLA	UV_SPACE ACTUAL USE	UV_YESNO	UV_YESNO_VENUE	UV_SUB_DEPT_DESCR	UV
0	483			0		POR1	N	Y		N
0	NTR	Y		0		TO11	N	N		N
0	NTR	Y		0		TO11	N	N		N
0	NTR	Y		0		TO11	N	N		N
0	486	Y		0		KOM1	N	N		N
0	486	Y	Breekware	0		STR1	N	N		N



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# UFS HEMIS room program table for internal use only

We have include this to help us with space reporting

YEARCD	UV_CAMPCODE	UV_BLDGCODE	UV_ROOMNMBR	UV_SPACECAT	UV_SQMETRES	UV_PROG010	UV_PROG020	UV_PROG030	UV_PROG040	UV_PROG050	UV_PROG06
2017	01	62	142B	1115	70.016	100	0	0	0	0	
2017	01	62	144	1110	180.673	100	0	0	0	0	
2017	01	62	145	1110	105.226	100	0	0	0	0	
2017	01	62	147	1110	71.01	100	0	0	0	0	
2017	01	62	148	1650	85.81	0	0	0	100	0	
2017	01	10B	2.18	1310	13.025	57	25	10	8	0	
2017	01	10B	SSS	2120	78.242	0	0	0	0	0	

UV_PROG060	UV_PROG070	UV_PROG090	UV_PROG100	UV_PROG110	UV_PROGZZZ	DEPTID
0	0	0	0	0	0	173
0	0	0	0	0	0	915
0	0	0	0	0	0	915
0	0	0	0	0	0	173
0	0	0	0	0	0	173
0	0	0	0	0	0	100
0	0	0	0	0	0	100 NTR



## Other Challenges for Institutions who did not keep old reporting requirements in tact

Staff timesheets :

Timetable data:

Wrongly allocated labs:

Other third party or fourth party software Big Promises -- No delivery





## Definition of Building space

- Building

A building is a roofed structure for permanent or temporary shelter of persons, plants, materials or equipment.

## Building condition

- Based on estimated renovation costs required as % of replacement cost.

Code	Category	Restoration cost as % of replacement cost
1	Minimal renovation	0 – 5%
2	Limited renovation	6 – 15%
3	Moderate renovation	16 – 30%
4	Significant renovation	31 – 45%
5	Major renovation	46 – 60%
6	Replace/demolition	
7	Vacating building	

# Building areas

- **Gross area:** Floor area of structure within outside faces of the exterior walls
- **Assignable area:** Areas assigned to or available for assignment, measure inside faces of boundaries of designated areas
- **Non-assignable area:** Not available for assignment but necessary for general operation
- **Structural area:** Areas that cannot be occupied or put to use because of structural features. Gross area – (Assignable + Non-assignable)



## Gross Area of a building

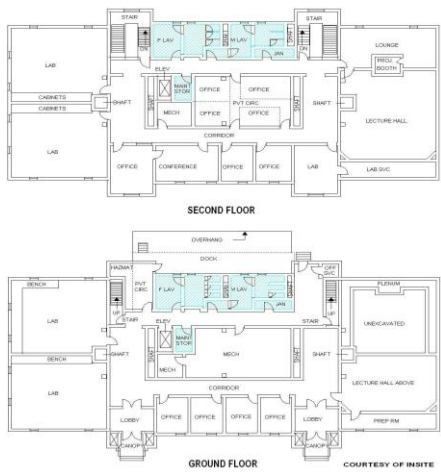


# Assignable Area of a building



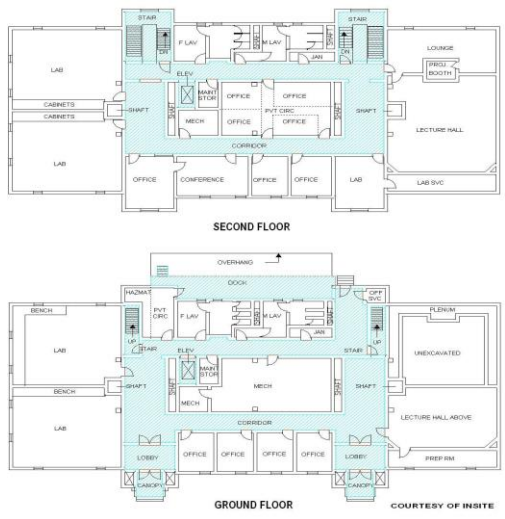
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# Building Service Area of a building



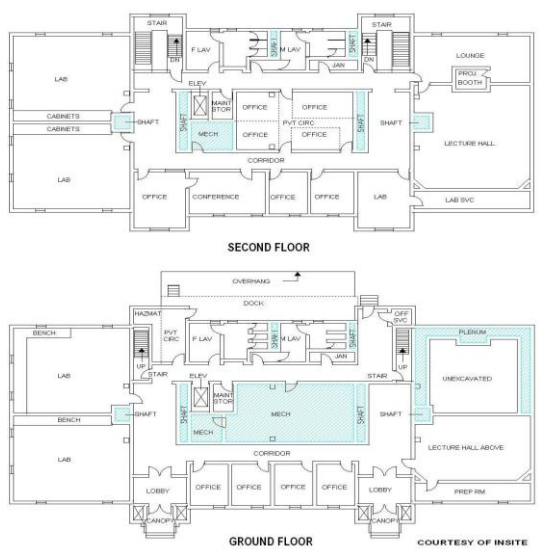
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# Circulation area of a building



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# Mechanical area of a building



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## Structural area of a building



## Space classifications

- **Basic principle:**

**Actual use** of assignable area at the time of the inventory. Do not use space intent, original design, type, name, organisational unit assignment or contained equipment as basis for classification unless compatible with actual use.

## Space use categories

- 1100 Classroom facilities
- 1200 Laboratory facilities
- 1300 Office facilities
- 1400 Study facilities
- 1500 Special use facilities
- 1600 General use facilities
- 1700 Support facilities
- 1800 Health care facilities
- 1900 Residential facilities
- 1000 Unclassified facilities

**Further classified, i.e. 1310 Office**

## Space Norms

- Original space and cost norms for Higher education in SA in 1982 with norms for different organisational types
- Late 1980s review of norms and approved by Ministers of Education & Finance Nov 1996
- Introduction of HEMIS space module and ending of binary divide between universities and technikons – in process of approval
- (long time )

# Examples of the use of Space Norms

See separate document with examples of how to apply and use the space norms.



## What can we use this info:

Buildings  
YEAR(2016)

Global Filter

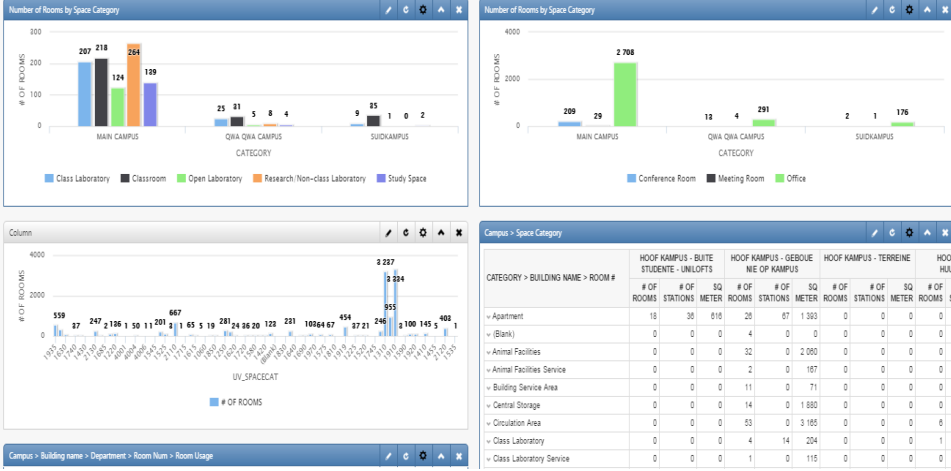
2014  
2015  
2016

Test Campus building

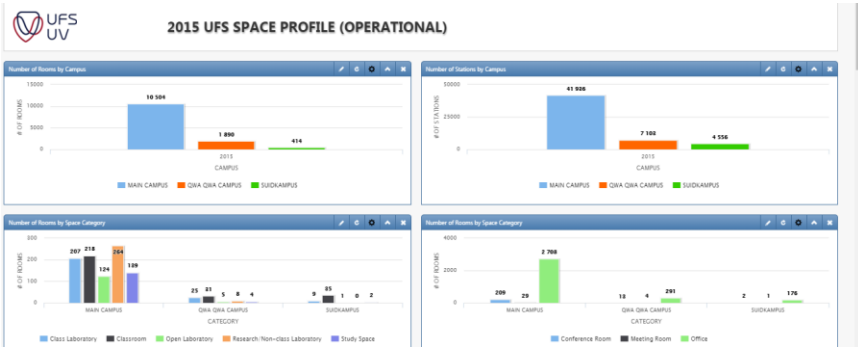
UV_CAMPNAME - UV_BLDNAME	MAIN				OVR				SOUTH						
	#BUILDINGS	UV_ESTREPT	UV_STDCSTUN	UV_TOTALASB	UV_TOTALGSM	#BUILDINGS	UV_ESTREPT	UV_STDCSTUN	UV_TOTALASB	UV_TOTALGSM	#BUILDINGS	UV_ESTREPT	UV_STDCSTUN	UV_TOTALASB	UV_TOTALGSM
- MAIN CAMPUS	234	3 330 994 807	243 914	239 005	409 689	0	0	0	0	0	0	0	0	0	0
ABRAHAM FISCHER SENIOR BLDG	1	964 993	113	113	131	0	0	0	0	0	0	0	0	0	0
ABRAHAM FISCHER REESTSAAL B - WOODPLUS	1	5 059 795	482	495	591	0	0	0	0	0	0	0	0	0	0
ABRAHAM FISCHER HOCBLOK	1	17 884 425	1 734	1 693	2 925	0	0	0	0	0	0	0	0	0	0
AD HOC KANTOERE	1	1 500 000	177	106	172	0	0	0	0	0	0	0	0	0	0
AKASIA HOCBLOK	1	30 084 419	5 669	5 595	6 963	0	0	0	0	0	0	0	0	0	0
ALBERT WEISSELBLOEDTORIUM	1	9 059 816	446	527	599	0	0	0	0	0	0	0	0	0	0
ARISTOTELUSREBOU	1	24 941 442	3 495	2 895	3 325	0	0	0	0	0	0	0	0	0	0
ARISTOTELUS HOCBLOK A	1	11 061 024	0	1 114	1 301	0	0	0	0	0	0	0	0	0	0
ARISTOTELUS HOCBLOK B	1	14 276 687	0	799	1 637	0	0	0	0	0	0	0	0	0	0
ARISTOTELUS HOCBLOK C	1	0	0	549	559	0	0	0	0	0	0	0	0	0	0
ASTRO-HOEWELSELDE ABUSIEBLOK A	1	1 500 000	0	46	60	0	0	0	0	0	0	0	0	0	0
ASTRO-HOEWELSELDE ABUSIEBLOK B	1	1 500 000	0	46	60	0	0	0	0	0	0	0	0	0	0
ASTRO-KULBLOK	1	1 500 000	0	261	493	0	0	0	0	0	0	0	0	0	0



# Examples for users on campus



# More examples (nice to have)





## The beginning

... of a better understanding of HEMIS  
space reporting.

Space is not just add on for reporting it  
is and critical importance for  
management information and planning  
for any institution

The role of this will be more important  
in future.

Thank you

Questions



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## Notes



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