DOCUMENT TITLE : NSN PRODUCTION EXPANSION - HVAC CONCEPT DESIGN COMMENTS & RESPONSES
PROJECT NAME : NOKIA SIEMENS NETWORKS, Production Area Expansion, Oragadam
PROJECT NUMBER : 024-11206

	2-Dec-10
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COMMENT'S ISSUED BY : Mr.Peter Bistrom
RESPONSE BY : Guna, ADES

COMMENT #	COMMENT DATE	COMMENT DESCRIPTION	REFERENCE	COMMENT BY	RESPONSE DESCRIPTION	RESPONSE BY	RESPONSE DATE
1	30-Nov-10	There are not all Nokia guidelines, referred to. For ex. all airflows and noise levels must be according to NSN Guidelines Appendix Indoor air climate target values.	Number.2 (001, Design Report)	Peter Bistrom	.We have followed NSN Guidelines while preparing HVAC DBR, but the values are not shown. Now we will duplicated the NSN Guidelines Appendix Indoor air climate target values in our DBR and will revise	Guna	2-Dec-10
2	30-Nov-10	All space/rooms should be Air-conditioned, except Waste room (only ventilation). The humid outdoor air can´t be let inside, to the Production area.	Number.2 (001, Design Report)	Peter Bistrom	We have received the space data sheet only after preparation of Concept design. Hence we have made assumption on space air-conditioning & ventilation requirements. We will revise the the DBR now considering all the space as air-conditioned spaces except "Waste room" which is ventilated.	Guna	2-Dec-10
3	30-Nov-10	We would want to use, for outside design condition, for summer weather: +40℃ temperature and 45% RH (as in our Concept design).	Number.2 (001, Design Report)	Peter Bistrom	As per our local ISHRAE Standard data, the outside design conditions for summer is : DBT +39.4 Deg C, WBT 27.8 Deg C & RH 41%. Hence we have considered the same in our design. Please clarify which standard specifies to consider DBT +40 Deg C & RH 45%. Please note that we will consider the outside design conditions as per ISHRAE Standard only	Guna	2-Dec-10
4	30-Nov-10	Fresh air amount: NSN guideline must also be mentioned.	Number.2 (001, Design Report)	Peter Bistrom	Fresh air amount calculation is based on NSN guideline only. We will mention the NSN guideline in the DBR.	Guna	2-Dec-10
5	30-Nov-10	The cooling capacity for different spaces/rooms: The calculation must be shown during design, not only the result for the spaces, as now.	Number.2 (001, Design Report)	Peter Bistrom	The Detailed Cooling load calculation shall be provided along with Detail design Documents	Guna	2-Dec-10
6	30-Nov-10	Smoke exhaust: Must be checked again. Our estimation is that only one present smoke exhaust system (384SEF07) isn´t enough. This depend on the Architect layouts and present smoke exhaust departments.	Number.2 (001, Design Report)	Peter Bistrom	We will check with Architect for smoke compartments and the revise the DBR accordingly	Guna	2-Dec-10
7	30-Nov-10	As mentioned before: all rooms except Waste room must be Air-conditioned (see our Concept design). This means either the air will come straight from PAU or from AHU. From AHU would be better because the air from PAU is very cold. One solution would be that all “supply” air for ancillary rooms, except Test lab and Training room, would be transferred air from Production area	Number.2 (001, Design Report)	Peter Bistrom	If the "supply air" for ancillary rooms are transferred from Production Area, it may not be possible to maintain the room temperature. That's why we have considered Fan Coil units for few areas. As per design, it is acceptable to supply the air from PAU since it is only 13 Deg C. We will proceed with our concept.	Guna	2-Dec-10
8	30-Nov-10	We think that 2 psc. of new chillers are needed thinking of the spare-/standby-unit.	Number.2 (001, Design Report)	Peter Bistrom	It is noted. We will add two chillers (One 324 TR & one 184 TR). As you said, the additional capacity will be considered as stand-by unit	Guna	2-Dec-10
9	30-Nov-10	For the final Design, as part of the HVAC-design package, there must be a Specification (demands) for the Contractor, as well as demands of equipments etc. which must be met before approvals.	Number.2 (001, Design Report)	Peter Bistrom	Please elaborate the specific demands those need to be added to the Tender documents	Guna	2-Dec-10
10	30-Nov-10	The Production-area must be totally ready before “moving in”, this means that also all equipments are fully working for the Production area.	Number.2 (001, Design Report)	Peter Bistrom	OK Noted. We will inform the Project Managers to sequence the work accordingly	Guna	2-Dec-10
11	30-Nov-10	In the Specification there must also be solutions and demands for Contractor during the construction phase (the phasing of the installations). These measures have to be checked and approved by NSN Production manager.	Number.2 (001, Design Report)	Peter Bistrom	Project Manager shall specify the requirements of phasing the construction activity	Guna	2-Dec-10

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12	30-Nov-10	There is no description and documentation about electrical systems relating HVAC installations. (frequency drivers, feeders, etc.). Only mentioned electrical power for fans	Number.2 (001, Design Report)	Peter Bistrom	These details shall be provided during detailed design stage	Guna	2-Dec-10
13	30-Nov-10	Our idea was to install new pipes from the cooling pump centre, through the new incoming material warehouse.	Number.4 (M-01, Chilled water schema)	Peter Bistrom	OK Noted. We will provide separate piping for new AHUs/PAU	Guna	2-Dec-10
14	30-Nov-10	If you connect the new equipments (PAU/AHU) to present pipes in present Ventilation room, the chilled water schema need anyway to be revised, as follows: o There are only one chilled water pipe-pair (for AHU:s) from present Ventilation room, now both AHU:s have been connected to present main pipes. o The capacity for the AHU:s are too low (43TR), should be raised to 56TR, as the present AHU:s for the Production. o The capacity for the PAU is too low (50TR), should be raised to 72TR. Then the capacity is in line with present PAU:s for the Production. o The new secondary pumps (are the numbers right?) for the new chiller 402CHU04 (184TR) are connected to wrong pipe-system (only one system). They should also be connected to same pipe-system as P03.1/03.2, now there are no additional capacity in the pipe-system even though two new AHU:s are added! o The possible Water tank/Reservoir isn´t showed at all (the reservation where the tank would be installed).	Number.4 (M-01, Chilled water schema)	Peter Bistrom	Since we are considering new pipes, this point may please be ignored. We will indicate the possible location of Water tank/Reservoir in the concept drawings	Guna	2-Dec-10
15	30-Nov-10	The cooling capacities (for PAU/AHU:s) should be revised as above.	Number.5 (M-02, Ventilation schema)	Peter Bistrom	The cooling capacities of new AHUs/PAU shall be based on our detailed cooling load calculations	Guna	2-Dec-10
16	30-Nov-10	The ducts for the new PAU should be bigger, now the air speed over 7,5 m/s. The fresh air duct should be ~1600x1200 (some reserve also, if there is a problem with the humidity in the production area). The extract duct to Hub, ~1000x800. The ducts have to be condensate-tight insulated.	Number.5 (M-02, Ventilation schema)	Peter Bistrom	The fresh air duct will be changed to maintain an air velocity of maximum 5 m/s. The extract air duct size will remains as designed.	Guna	2-Dec-10
17	30-Nov-10	Smoke exhaust systems 381SEF01-02 are serving present Production area, New Production area also have/need smoke exhaust systems. Also present AS-Hub have a smoke exhaust system (383SEF)	Number.5 (M-02, Ventilation schema)	Peter Bistrom	OK Noted	Guna	2-Dec-10
18	30-Nov-10	Why is the new smoke exhaust for the Incoming material informed in CMH, when all other ventilation amounts are in cfm? Why is the new smoke exhaust (384SEF-10) ~double amount compared to present (382SEF)? Which one is the right one.	Number.5 (M-02, Ventilation schema)	Peter Bistrom	It is standard practice to use the "Metric Unit" completely or "IP" Units completely. However the old drawings have duct dimensions in "Metric" unit and air quantity in "IP" unit. But we have used only metric units. That's why the air quantities are given in "CMH". The floor area of new Incoming material area is 1126 m². As per NSN Guideline, the smoke extract fan capacity shall be 5-10 m³/s/1000 m². Hence the capacity of new extract fan is 1126/1000 x 10 x 3600 = 40536 CMH. Hence we have considered 44000 CMH fan.	Guna	2-Dec-10
19	30-Nov-10	All supply/exhaust air to Production area have top be measured, therefore there must be flow measuring dampers in those ducts (as in present installations). This means ducts from new 313PAU/EAU and new ducts from 302PAU/EAU.	Number.5 (M-02, Ventilation schema)	Peter Bistrom	Based on the comment, there are six new flow measuring dampers shall be added. The location shall be noted on the revised concept drawing	Guna	2-Dec-10
20	30-Nov-10	The total air amounts for 302PAU/EAU have to be revised (now old ones are seen). Also air-amount for the AHU:s (not all are s)een	Number.5 (M-02, Ventilation schema)	Peter Bistrom	The total air amounts for 302PAU/EAU has been revised. Also air-amount for the AHUs are shown.	Guna	2-Dec-10

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21	30-Nov-10	The idea for 301 and 302 PAU/EAU ducting should be following (maybe it has been already, I don´t know): the connection ducts to AHU.s are connected to the mixing box before the AHU, not in the duct (for. ex. ducts for 325AHU).	Number.5 (M-02, Ventilation schema)	Peter Bistrom	This will be verified at site during our visit on 8, 9 & 10th Dec-10.	Guna	2-Dec-10
22	30-Nov-10	Schema for new rooms on level +0.00 are still missing, except Production, these have to be added at next step.	Number.5 (M-02, Ventilation schema)	Peter Bistrom	Yes, the new rooms ventilation scheme shall be added in the detailed design document	Guna	2-Dec-10
23	30-Nov-10	The Ventilation (from 312PAU, HuB-ventilation) for Waste rooms is missing.	Number.5 (M-02, Ventilation schema)	Peter Bistrom	It is updated on detailed design drawing	Guna	2-Dec-10
24	30-Nov-10	The Air Lock room is missing.	Number.5 (M-02, Ventilation schema)	Peter Bistrom	It is updated on detailed design drawing	Guna	2-Dec-10
25	30-Nov-10	Layout approved, as discussed in meeting in Chennai and by telephone.	Number.6 (M-03, Chiller plant room)	Peter Bistrom	NOTED	Guna	2-Dec-10
26	30-Nov-10	New pumps will be installed in the reserve-places in the pump room.	Number.7 (M-04, Chiller pump room)	Peter Bistrom	NOTED	Guna	2-Dec-10
27	30-Nov-10	Please check that the pumps are connected to right chilled water system, as in the schema.	Number.7 (M-04, Chiller pump room)	Peter Bistrom	This will be verified at site during our visit on 8, 9 & 10th Dec-10.	Guna	2-Dec-10
28	30-Nov-10	I would prefer that the new pumps would be of a other model. Now the chilled water pumps are sk. norm-pumps (the motor on the side), I would prefer vertical centrifugal pumps (the motor is on top of the pump).	Number.7 (M-04, Chiller pump room)	Peter Bistrom	Similarity may not be these if we use Vertical-inline-pumps for new expansion. We use only Horizontal pumps	Guna	2-Dec-10
29	30-Nov-10	It would be good to show the reserved place for the Water tank/Reservoir.	Number.7 (M-04, Chiller pump room)	Peter Bistrom	It will be updated on detailed design drawings	Guna	2-Dec-10
30	30-Nov-10	Best location (technically) would be inside, in the new Warehouse (because there the air is treated, not as hot and moisture as outside in the pump room).	Number.7 (M-04, Chiller pump room)	Peter Bistrom	The capacity of the tank will be around 30 m^3. We will see the feasibility of locating the tank inside the New Incoming material area. If it is not feasible, we will located the storage tank at Chiller yard.	Guna	2-Dec-10

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31	30-Nov-10	The demolition for the present AC Hub-area, with smaller rooms, should be added / taken into consideration.	Number.8 (M-05, HVAC demolition plan)	Peter Bistrom	NOTED	Guna	2-Dec-10
32	30-Nov-10	The chilled water pipes for present Vacuum equipment (in AC Hub) also have to be added.	Number.8 (M-05, HVAC demolition plan)	Peter Bistrom	NOTED	Guna	2-Dec-10
33	30-Nov-10	Please check how many supply louvers have been demolished in each system. Now, at least, in incoming material they are wrong.	Number.9 (M-06, Ventilation design, Present Production area)	Peter Bistrom	We will check and will revise the drawing appropriately	Guna	2-Dec-10
34	30-Nov-10	As far as I know the new smaller rooms, underneath the new Ventilation room, shouldn´t be raised with 300mm. If not, remove note!	Number.9 (M-06, Ventilation design, Present Production area)	Peter Bistrom	We will check with Architect and will revise based on his inputs	Guna	2-Dec-10
35	30-Nov-10	Waste room should be connected to big Hub ventilation (decided in Chennai 11.11.2010, only ventilation).	Number.10 (M-07, Ventilation design, New Production area)	Peter Bistrom	We will connect the new Waste room to 312PAU	Guna	2-Dec-10
36	30-Nov-10	Changes to production area beneath present Ventilation room hasn´t been showed.	Number.10 (M-07, Ventilation design, New Production area)	Peter Bistrom	Will be updated during detail design stage	Guna	2-Dec-10
37	30-Nov-10	The numbers of supply louvers must be chosen according to the air-amount (according to air amount / pressure drop and the air pattern when knowing at what height it will be installed). Now there are too many in new Incoming material and Production.	Number.10 (M-07, Ventilation design, New Production area)	Peter Bistrom	Will be updated during detail design stage	Guna	2-Dec-10
38	30-Nov-10	The exhaust ducting for present AHU-machines which will serve also the new Production area have to be changed too. This means 324-325 AHU:s.	Number.10 (M-07, Ventilation design, New Production area)	Peter Bistrom	Yes, the exhaust ducting of AHU 324 & 325 will be changed too during detailed design stage	Guna	2-Dec-10
39	30-Nov-10	Mixing boxes (both supply and exhaust) for the AHU:s have to be done, no connection straight to duct.	Number.11 (M-08, Ventilation design, New Mechanical room)	Peter Bistrom	NOTED	Guna	2-Dec-10
40	30-Nov-10	Boxes should be as wide as the machinery.	Number.11 (M-08, Ventilation design, New Mechanical room)	Peter Bistrom	NOTED. This will be specified in AHU techinical Specification	Guna	2-Dec-10

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41	30-Nov-10	Exhaust grilles could also be bigger (or 2 on top of each other). Now the speed is ~	Number.11 (M-08, Ventilation design, New Mechanical room)	Peter Bistrom	NOTED	Guna	2-Dec-10
42	30-Nov-10	Duct-sizes should be a little bigger (to reduce the pressure-drop), see also comment about Ventilation schema (M-02).	Number.11 (M-08, Ventilation design, New Mechanical room)	Peter Bistrom	NOTED	Guna	2-Dec-10
43	30-Nov-10	The ducts for the rooms beneath the new Ventilation rooms, as well as the ventilation room, are missing.	Number.11 (M-08, Ventilation design, New Mechanical room)	Peter Bistrom	Will be updated during detail design stage	Guna	2-Dec-10
44	30-Nov-10	There must be adjustment dampers installed, otherwise it isn´t possible to adjust the air-flows.	Number.11 (M-08, Ventilation design, New Mechanical room)	Peter Bistrom	Yes, each outlet & inlet terminal will have volume control dampers	Guna	2-Dec-10
45	30-Nov-10	The ducts must be equipped with fire-dampers in the ventilation room wall.	Number.11 (M-08, Ventilation design, New Mechanical room)	Peter Bistrom	NOTED. This will be updated in detailed design drawings	Guna	2-Dec-10
46	30-Nov-10	The fresh air duct (through the new Warehouse) has to be both condensate tight- and fire-insulated.	Number.11 (M-08, Ventilation design, New Mechanical room)	Peter Bistrom	NOTED.	Guna	2-Dec-10
47	30-Nov-10	Should the new stairs have some ventilation?	Number.11 (M-08, Ventilation design, New Mechanical room)	Peter Bistrom	Ventilation not required. The people movement will make air movement in the staircase	Guna	2-Dec-10
48	30-Nov-10	New cooling pipes for Vacuum room should be showed.	Number.11 (M-08, Ventilation design, New Mechanical room)	Peter Bistrom	Will be updated during detail design stage	Guna	2-Dec-10