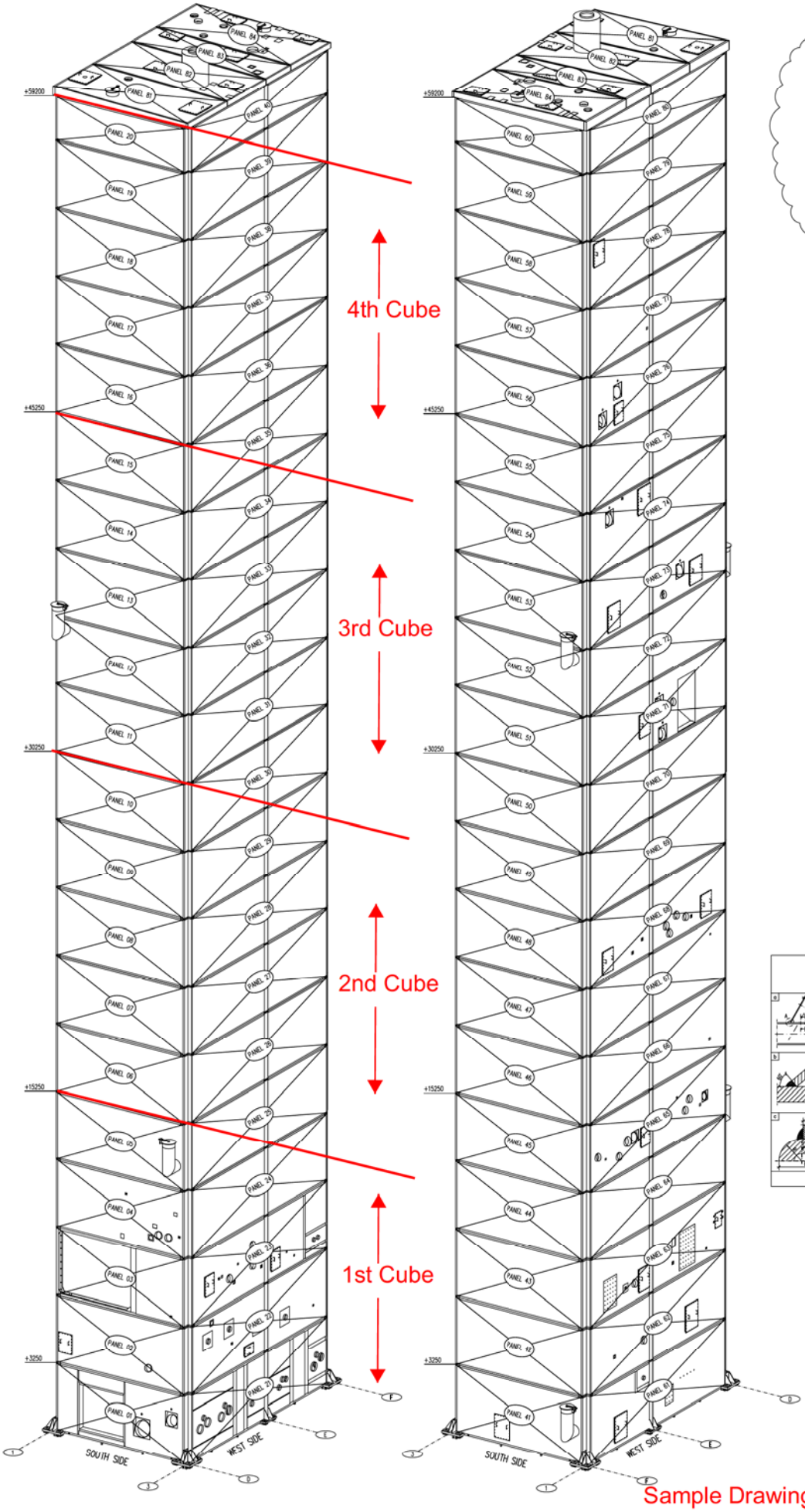
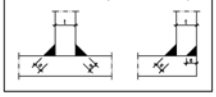


property class 10.9, DIN 18800

1	2	3	4	5
dimension	standard preload force F_v at kN	torque method		method of angular momentum
		Applied tightening torque M_A to achieve the standard preload force F_v in Nm		adjusted preload force F_{vA} to achieve standard preload force F_v at kN ⊙
		condition of surface		
		hot dip galvanized and lubricated ¶	low fabricated and slightly oiled	
M12	50	100	120	60
M16	100	250	300	110
M20	160	450	600	175
M22	190	650	900	210
M24	220	800	1100	240
M27	290	1250	1650	320
M30	350	1650	2200	390
M36	510	2800	3800	560

¶ nuts handled with Molykotmastic are equivalent lubricants
⊙ without reference to lubrication of thread and bearing surface of nuts and screws

All shown dimensions of welding seams are the throat thickness ("a" dimension)



- BILL OF MATERIAL
  STEELSTRUCTURE: &AA 3286 NLP 1001
- SURFACE TREATMENT ACC. &AA 0100 NPA 1159

WELDING INSTRUCTION FOR STEEL STRUCTURES
acc. to DIN 18800 part 7 / DIN 18801
DIN 18808 (for hollow sections)

MATERIAL:

S235JR acc. EN 10025
S235JRH acc. EN 10210 – hollow sections
test report 2.2 EN10204

S355J2 acc. EN 10025
S355J2H acc. EN 10210 – hollow sections
inspection certificate 3.1 acc. EN10204

X5CrNi 18-10 (1.4301) acc. EN 10088
X6CrNiTi 18-10 (1.4541) acc. EN 10088
inspection certificate 3.1 acc. EN 10204

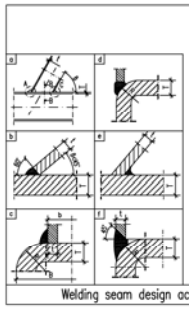
WELDERS:
All welders must have a welders qualification
accoraing to EN 287

WELDING WORK:
for works, which perform welding for steel structures, a certificate of qualification is required
This qualification is fulfilled, if acc. EN ISO 3834 the major test or the EN ISO 14731 minor test was performed
Qualification of welding procedures acc. EN ISO 15614-2

SEAM THICKNESS:
thickness of fillet welds is shown generally in the drawings.
thickness: a = 0,7 times the smallest thickness of the parts to be welded.
a min = 4mm

SEAM EXAMINATION:
All welding seams must be checked visually by an authorised welding engineer. Visually inspection should base on EN ISO 5817 evaluation group C, except otherwise noted at the basic engineering.

WELDING:
Welding procedures and welding consumables acc. manufacturer.
Welding procedures and welding consumables shall meet composition and strength of the base material.



For a connection acc. to picture a has to be considered

- at range A:
the welding seam shall be build as HV-seam
for connections-angels smaller 45° (see picture b)
for angles greater or equal to 45° build as fillet seam
- at range B:
for b/B <= 0,8: The welding connections can be build as fillet welds, see picture c
for b/B > 0,8: The seam has to be prepared if small edge radiuses don't assure a perfect complete welding, see picture f
- at range C:
The welding seams at acute angles have to be build as fillet welds, see picture e
- at great edge radiuses welding acc. to picture d required.

Welding seam design acc. to DIN 18808

Scale: 1:10	Size: A0	Date: 12.10.2010	Originator: Hundseder	IG Zahn Project No.: 1250
SHOP DRAWING				
Construction-Unit: STEELSTRUCTURE 3D-OVERVIEW PANEL				

Linde AG
Linde Engineering Division

RECTI-BOX

LINDE DOC. NO.
&AA 3286 NZV 1001.001

PROJ. 3286	AREA 22	ITEM NO.

Sample Drawing for Inquiry