

1. Periodic Building Unit – 2. Connection mode – 3. Projections of the unit cell content  
4. Channels and/or cages – 5. Supplementary information

## 1. Periodic Building Unit:

LOV, RSN and VSV can be built using units of 9 T atoms: two 4-rings connected through a single T atom (or a 4-ring and a 4-1 unit) or a spiro 5-ring connected to four single T atoms. The first description of the building unit will be used in these building schemes. The Periodic Building Unit (PerBU) is composed of T9-units (one bold in Figure 1) related by pure translations along  $a$  and  $b$  and equals the layer depicted in Figure 1.

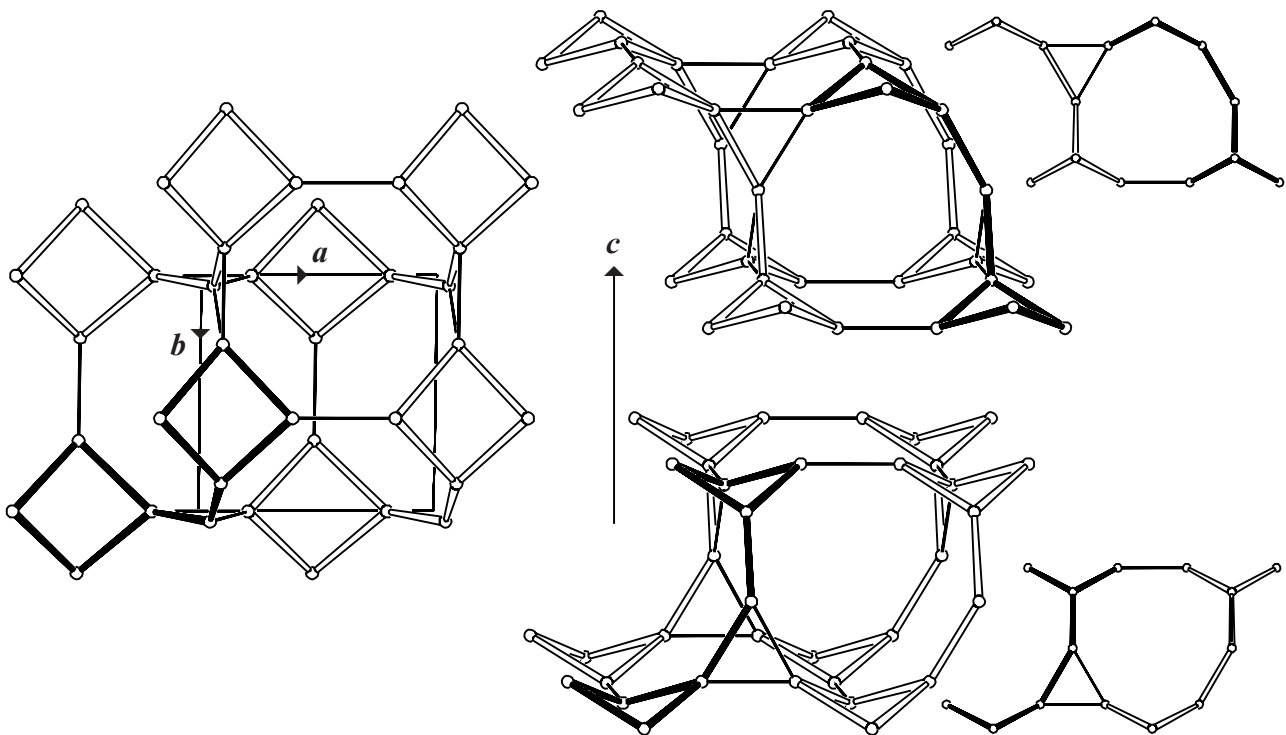


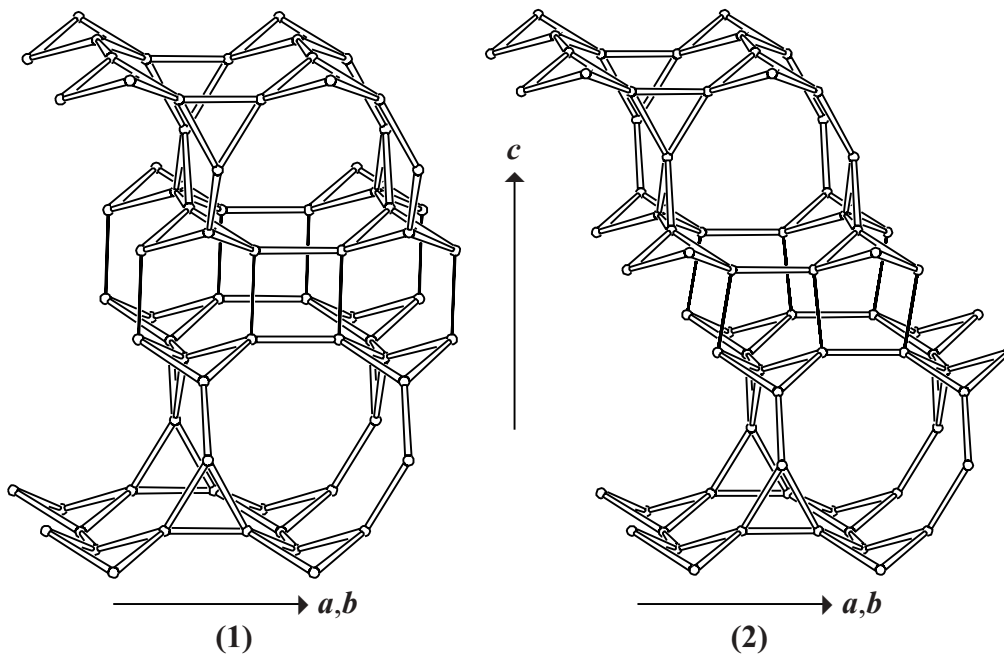
Figure 1. PerBU viewed down  $c$  (left), along  $b$  (top right) and down  $a$  (bottom right). The PerBUs, depicted at the right, are identical and related by a rotation of  $90^\circ$  about  $c$  or by a mirror operation perpendicular to  $c$ . The inset at the right gives the parallel projection of the PerBU.

## 2. Connection mode:

Neighboring PerBUs, related by a rotation of  $90^\circ$  about  $c$ , can be connected along  $c$  in two ways:

- (1): the lateral shift of the top layer along  $a$ , or  $b$  is zero; the connectivity code is  $(0, 0)$ .
- (2): the lateral shift of the top layer is  $1/2a$  or  $1/2b$ ; the connectivity code is  $(1/2, 0)$  or  $(0, 1/2)$ .

The connection modes are shown in Figure 2 on next page.



3. Projections of the unit cell content: See Figure 3.

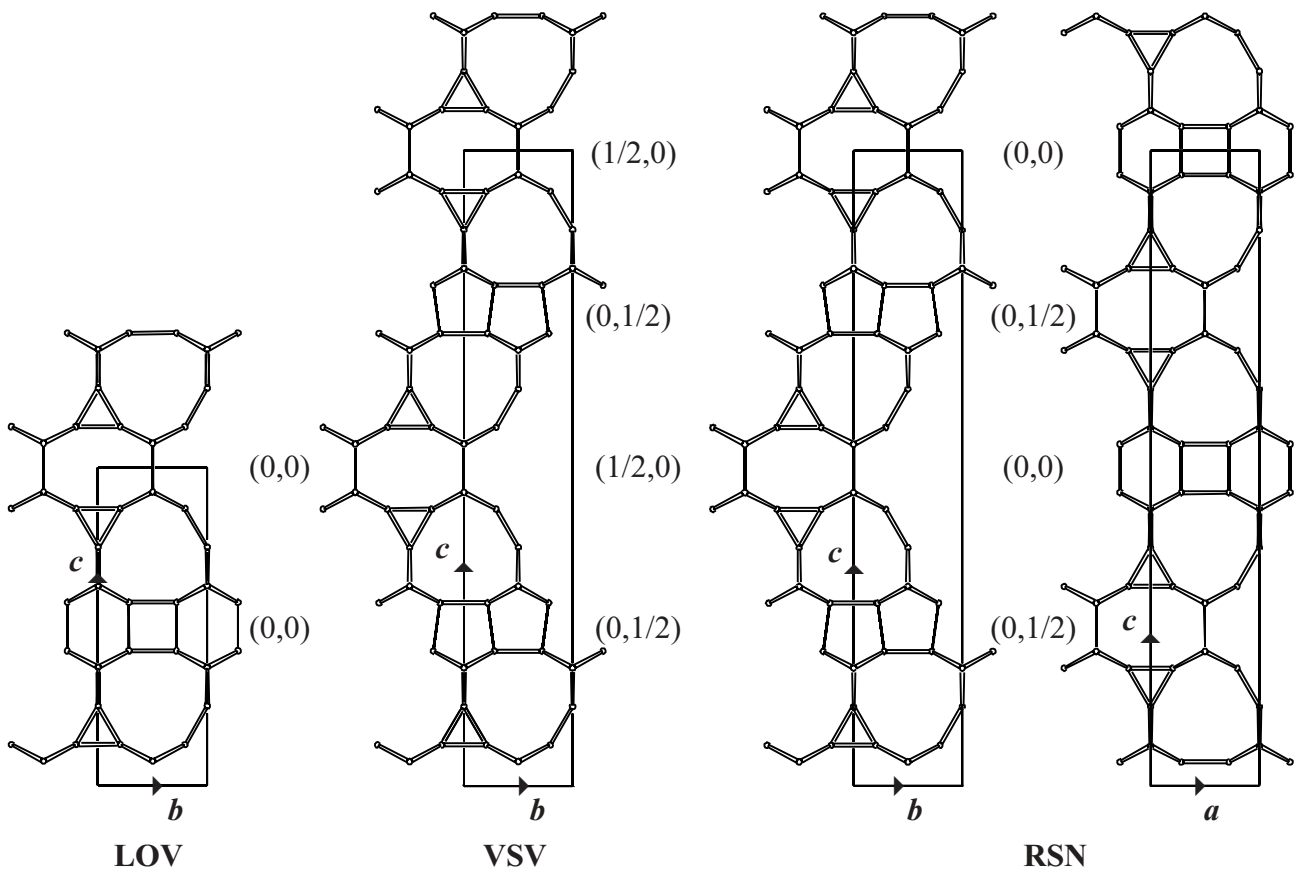


Fig. 3. Unit cell content in **LOV**, **VSV** and **RSN**. The *ac* projections in **LOV** and **VSV** are similar to their *bc* projections. For **RSN** both projections are shown. The lateral shifts between neighboring (mirror related) PerBUs along *c* are given in the drawings in fractions of (*a*, *b*).

#### 4. Channels and/or cages:

The intersecting cavities of 9-ring channels in the framework types are depicted in Figure 4 together with cavities (part of 8-ring channels) that connect the intersections. The **pore descriptors** are added. The intersection and cavity 2 are topologically equivalent to the intersection in **NAB** and the 8-ring channel in **MON**, respectively. The fusion of cavities is illustrated in Figure 5.

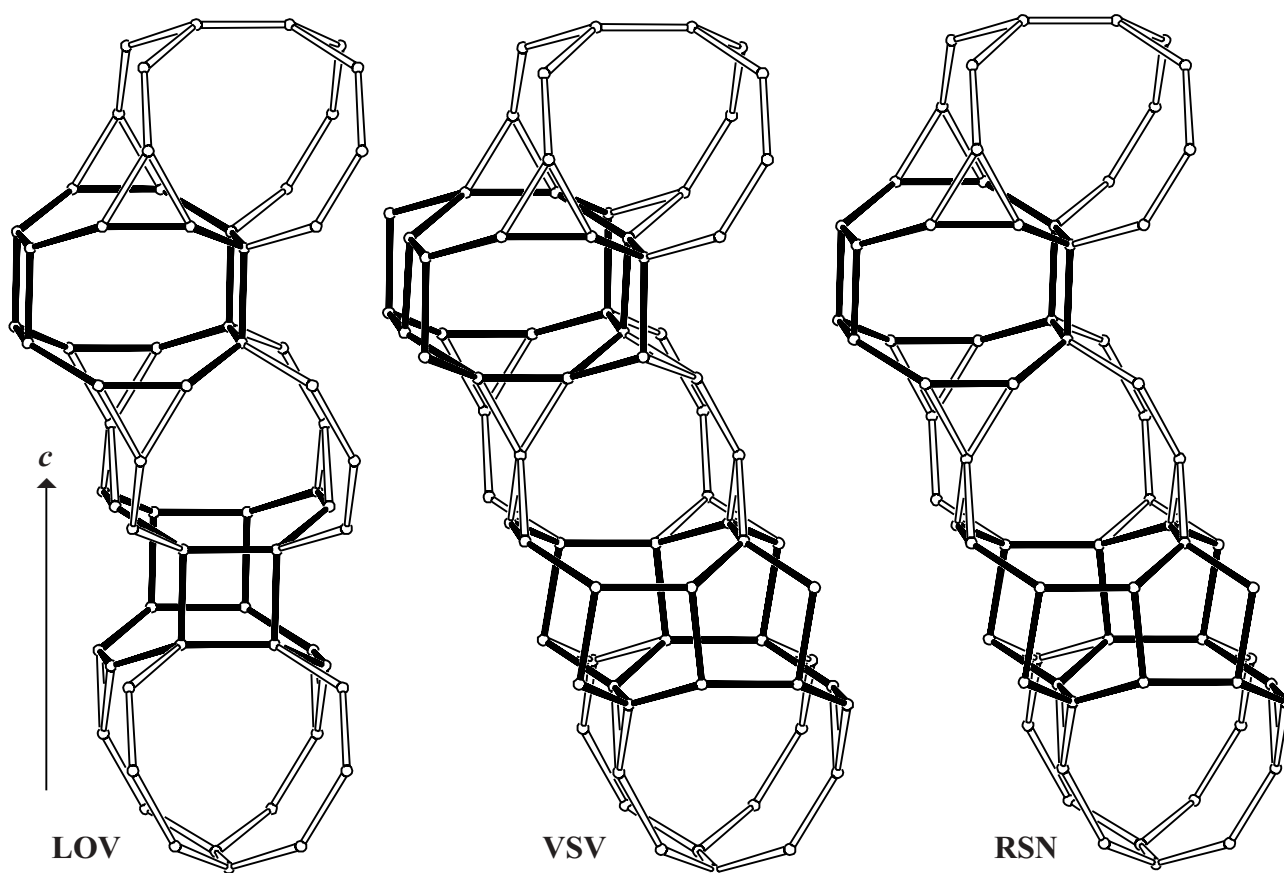
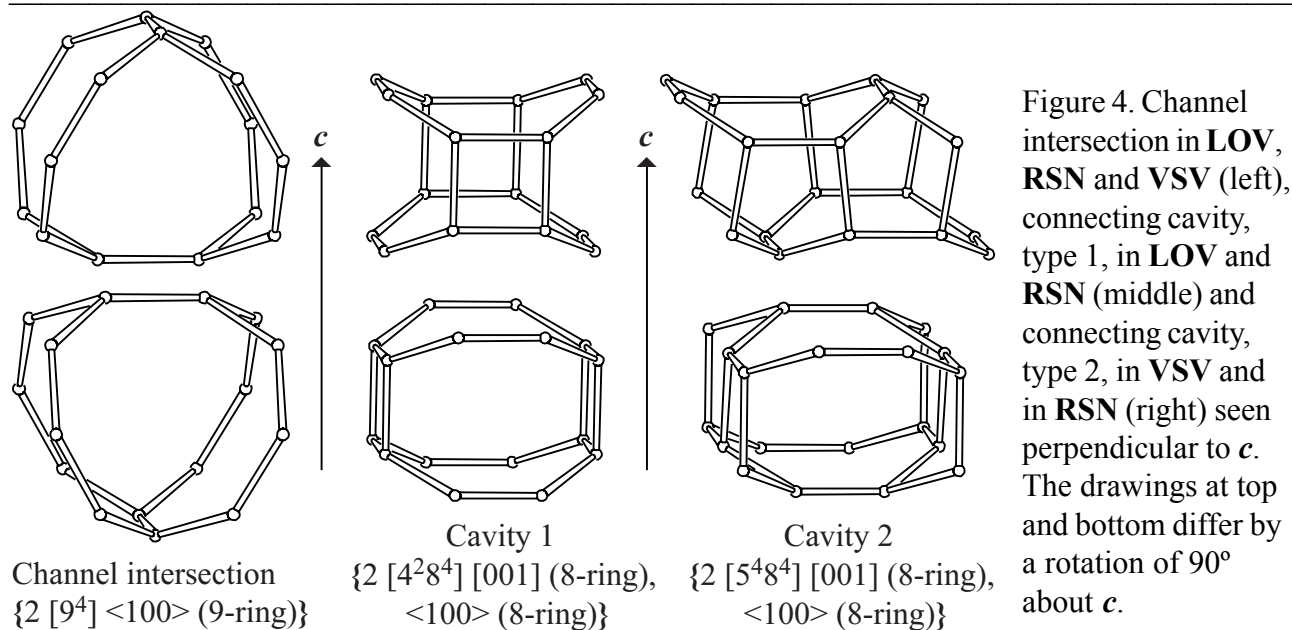


Figure 5. Connection of channel intersections through connecting cavities (in bold) viewed perpendicular to  $c$ .

## 5. Supplementary information:

### *Other framework types containing (modified) single 3- and/or 4-rings*

Single 3- and/or 4-rings can be connected in several other ways. In several cases additional T atoms are needed to build the framework.

In the [INTRO](#)-pages links are given to a detailed description of a sub-set of framework types that contain (modified) single 3- and/or 4-rings (choose: **Single 3- and/or 4-rings**). There is also a link to a summary of the Periodic Building Units used in the building schemes of these framework types (choose: **Appendix; Figure 4**).

